

A BRAKE ON PROGRESS

AT a time when the London County Council is engaged on the promotion of vast rehousing schemes, and the Minister of Transport has appointed dictators for roads and traffic, it seems more than a little unfortunate that the regulations under which London's buildings may be erected should remain as chaotic as London's plan. Obscure legal phraseology is presumably inevitable, though this may be elucidated by any of the numerous textbooks which exist to explain to architects and engineers the meaning of the regulations under which they have to work. The real defect of the London Building Act is that it is, to begin with, blatantly out of date, and the processes by which it can be amended are so tedious that additions and revisions are consistently representative of yesterday's practice.

The existing Act of 1930 merely consolidates a series of statutes beginning with the Building Act of 1894 and contains innumerable bye-laws, regulations and orders. Since 1930, the only revision of any importance has been the new steelwork code of 1932 and a code for reinforced concrete practice, suggested at the beginning of last year, but not yet in force. The L.C.C. itself set up an Advisory Commitee to deal with revisions to the Building Act some years ago, and this has done excellent work, though hampered by the slowness of the procedure by which changes in the Act can be made.

The news that this sorry state of affairs may shortly be remedied is therefore a welcome surprise. Mr. Ewart Culpin, speaking at the annual dinner of the London Master Builders' Association, said that it might be possible, instead of proceeding under the rigid Act, for the London County Council itself to formulate bye-laws keeping in touch with modern developments. We understand that this scheme has, in principle, been accepted, and has been further endorsed by the Advisory Committee.

So far so good. But is this improvement anything more than a palliative? At present the Building Act makes buildings more expensive than they need be: for any new construction, or for any variation in accepted practice, waivers may be obtained, but the process is a lengthy one and high land costs make it imperative that a building shall be begun without any delay. The architect or engineer, therefore, generally does what he has always done before, and conforms to the strict letter of the Act. Nor can he be blamed for so doing; for simple arithmetic will nearly always show that the time spent on obtaining waivers will cost more than the money saved on structure.

We do not for one moment advocate a wholesale reduction in structural requirements. The purpose of the Act is to ensure the safety and health of the general public: fire regulations may be tiresome and complicate the planning problem—floor loads may be higher in this country than abroad, but this need not hamper developments in structure or materials.

It seems to us that the L.C.C. and the Building Industry might well consider the usual Air Ministry procedure. No aeroplane may be flown unless it has been granted a certificate of airworthiness, and this certificate is only obtainable after technical officials have checked the designer's calculations and found that the structural members are capable of withstanding the loads to be imposed upon them. Each case is judged on its merits, and new alloy steels are stressed according to their test figures. The volume of work dealt with is, in comparison with the building industry, minute, but other countries, notably Germany, have systems based on much the same lines. Building regulations exist, schedules of floor loadings are as rigid as under the London Building Act, but the designer is allowed to support his loads in the most economical way he can devise, always providing that his calculations can satisfy the technical officials, or *Baupolizei*.

Lest the London County Council should throw up its hands before an impossible task, we must point out that a section of the necessary machinery is already available, and has been in existence for some years. The Building Research Station at Watford is an independent body whose test figures are above suspicion, and any new material should be submitted to it for report as an essential preliminary. The interpretation of test results and their application to current building problems would involve a large staff of competent structural engineers, but the L.C.C is, itself, becoming an increasingly large building owner, and we cannot believe that such an investment would show anything but a handsome profit over a reasonable period.

That the County Council should be conscious of the inadequacy of its Building Act is a good sign; bye-laws, however, can never be a complete solution to the problem and should be regarded merely as a temporary improvement, to be tolerated until such time as improved materials and methods can be judged fairly on their own merits.



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NOTES & TOPICS

ROYAL WARRANT HOLDERS

TWO or three weeks ago I referred to the Jubilee gift of the Royal Warrant Holders to H.M. the King. In doing so I said that I was unable to think of any "general contractor" who might be entrusted with the main contract.

*

Since then I have been inundated with reproofs and, at this beginning of the Jubilee Year, I am glad to admit myself to have been in the wrong, and to say that there are at least four firms which "fill the bill." I am glad; because the difficulty which I foresaw is now removed, and tendering for the work ought to have an additionally spicy flavour.

*

I hope, however, that my technical inaccuracy will not blind the Royal Warrant Holders' Association to the sterner and far more important message which I tried to put across. What I most earnestly ask is that this House shall be a landmark in the thought and outlook of this age; let it mark the high-water level of sane contemporary thought; let it be of such a nature as to teach a lesson to the intelligent public; let it reflect our national outlook to foreign peoples in such a way as to command respect.

*

I hold no Royal Warrant; but if I did I should regard this chance not as an opportunity to display my time-honoured abilities but as one which made possible the development of all my new, bright ideas; because, be assured, what appears in this Jubilee House will be a fashion in which the rest of the world will see mirrored the brains and outlook of this country.

*

This particularly interesting adventure in building can be made a monument to our time. I hope that it will so be made. At all events let there be an able and sensitive co-ordination of all the Warrant Holders; they *must* work as a team; what about an architect of ability and sensibility as trainer?

HARVEY W. CORBETT

I am no regular listener myself, and I can appreciate the attitude of those who, like myself, have no radio. But on Sunday night an accident made it impossible to avoid hearing Harvey Wiley Corbett speak from New York on the subject of skyscrapers and housing.

*

For a moment, I confess, I wilted; at the end of the first minute I was intrigued; and after that it was plain sailing. Thirty-odd minutes of sound sense founded on impartial thought and sound experience.

*

There is no possible hope of trying to do so much as outline what Mr. Corbett said; but *The Listener*, I hope, will publish the talk in full—in fact the B.B.C. would serve no mean purpose by producing the talk in pamphlet form with photographs and diagrams. And if nobody *bought* it (which is most unlikely) the Corporation might dispose of the whole issue to the Ministries of Health, Labour and Transport—the residuary legatee being the L.C.C. in trust for all other local government bodies throughout the country.

HOWARD SPRING AND THE D.I.A.

The literary critic of the *Evening Standard* has written a novel called *Shabby Tiger*, and as several well-read architects told me that it contained an attack upon the Manchester branch of the D.I.A., I have read it as a matter of duty. I like the sound of Mr. Howard Spring, because he must madden so many of the semi-intellectual literary critics, but I find him tedious as a novelist.

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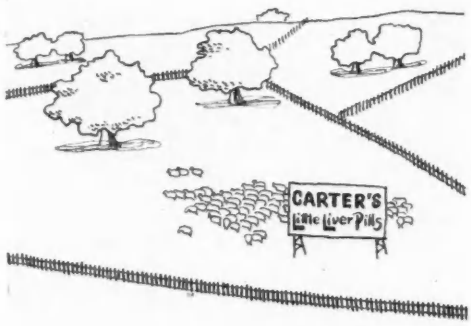
His attack, if it can be called an attack, upon the D.I.A. is a little study in misunderstanding. One of his characters reflects thus: "Design In Industry. Fitness for Purpose. All that sort of thing. Manchester was mad about it at the moment. Fitness for Purpose. Though why the devil God put spots on a Dalmatian. . . . Nothing could be more useless."

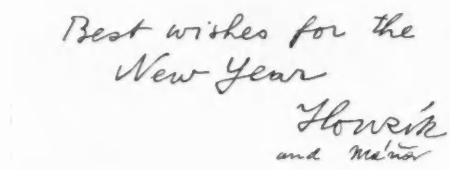
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He refers to one of the characters as "the darling of the Fitness for Purpose and Design In Industry gang. He was the boy for putting Art into the designs for shirtings to be worn in Bacup and Burnley." Now, dear Mr. Spring,



At the Royal Academy: preparing the silversmith's department at the Exhibition of British Art in Industry, which is to be opened tomorrow by the Prince of Wales.





A Christmas card from Karel Honzik, of Prague.

will you go to the Exhibition at Burlington House at the end of this week and see what Mr. John de la Valette can teach you ?

WHITEWASH THE SINS AWAY

On Boxing Day I walked along the Thames towing path from Walton to Kingston. It took, including lunch, nearly three hours. I listened most of the way to a masterly attack upon blackshirt forms of dictatorship followed by an urgent advocacy for red-shirt forms of dictatorship. The riverside architecture of bungalows and villas provided a sort of pictorial commentary upon the results of individualist freedom.

*

I remained unconvinced, but I refrained from irritating the exceedingly able designer who delivered the sermon by saying what I felt at the end of the walk, for nearly seven miles of the speculative builder had brought me to the frame of mind which would have prompted me to back any dictator who would abolish ugliness.

*

If I was dictator (forgive my presumption, Sir Oswald, and you, too, Sir Stafford) I would order the compulsory colour washing, all over, of every building erected since 1830. I would subsidise the paint industry, issue loans to local councils for municipal distempering schemes, and clean up the whole country. I don't claim this as an original idea ; I think the late Professor Lethaby suggested it some years before the war.

*

There's a lot to be said for colour-washed brickwork. That pleasant little housing scheme at Sheen Common, which is known as Robert Atkinson's Garden City, began like that ; but the colour washing was confined to four of the houses.

*

But isn't this the only way to cure our suburbs and countryside of the Toodor beam disease ? The C.P.R.E. might well support it, and the Royal Society of Arts, in collaboration with the Royal Academy, might guide the nation's choice of colours. I hope that Mr. Guy Dawber and Mr. John de la Valette will take this modest hint in the proper constructive spirit.

" MINING CAMP STANDARD " OF HOUSING

In a recent letter to the press Mr. Hope Bagenal has been deploring the lack of consideration which we grant to the matter of building for the exclusion of noise. " No one," he writes, " today is safe against his neighbour's vacuum cleaner, refrigerator, knife cleaner, ventilating fan, air compressor, etc., etc." (He might have added gramophones and wireless sets.)

*

His conviction is that there are a great many people in all classes who are prepared to sacrifice many gadgets for the sake of a little peace and quiet at home, and I certainly agree with him. " Mining camp standard " well expresses the sound proofing of most present-day building.

*

I myself do not pretend to have the type of mind which can understand the details of acoustics, and I am very well content to leave such matters in Mr. Bagenal's hands. His is a mixed sort of brain such as one rarely finds. Not only is it so inherently scientific as to enable him to become one of the leading experts on acoustics and no mean geologist, but in addition he is very musical, writes charming prose and has a peculiar kind of wit which can most nearly be compared with that of the Restoration dramatists. Incidentally, some of his sonnets which have been published privately are perfectly delightful.

RURAL ENGLAND

One of the most striking Christmas cards I received is reproduced on this page. It was from Karel Honzik, the distinguished Czechoslovakian architect. He visited England for a few weeks in the autumn and travelled about a good deal ; and recorded on his card his impression of the English countryside.

*

I don't think it needs much comment.

ASTRAGAL

OUR NEW YEAR ISSUE

The New Year Special Issue of THE ARCHITECTS' JOURNAL *will be published on Thursday next, January 10. It will contain, in addition to photographs and plans of several new buildings, illustrated articles entitled " The Royal Academy Industrial Art Exhibition, 1935," by Peter Thorpe ; and " Buildings of 1934," by Professor C. H. Reilly ; a section forecasting architectural change during the next hundred years, by Serge Chermayeff and J. M. Richards ; an article, " Slum Reconstruction," by Philip H. Massey ; and the first of a series of articles on " Heating and Ventilating and Air Conditioning," by Dr. Oscar Faber. Also various other special features, including two colour plates.*

NEWS

POINTS FROM THIS ISSUE

The real defect of the London Building Act is that it is blatantly out of date, and the processes by which it can be amended are so tedious that additions and revisions are consistently representative of yesterday's practice. 3

A series of broadcast talks entitled "The Artist and his Public," will begin on January 7 7

Domestic architecture may soon be regarded as the least attractive field for designers 17

"An attempt to meet the problem of large scale rehousing ..... *by providing multi-storeyed buildings with external platforms or sun-decks easily accessible at every floor"* .. 24

RESULT OF THE CUCKFIELD CASE

The award of the arbitrator appointed by the Ministry of Health in the above case was made at the end of last week, in favour of the architects, the Minister allowing the architects' appeal against the Cuckfield Urban District Council's refusal to sanction the plans of some houses.

The architects in this case, it will be remembered, were Messrs. Tecton, and the houses, proposed for a site near Haywards Heath, were rejected by the local council on grounds of unsuitability to the neighbourhood.

THE HONOURS LIST

Mr. C. H. Bressey who, a fortnight ago, was appointed to prepare, in collaboration with Sir Edwin Lutyens, R.A., a London highway development plan, has received a knighthood in the honours conferred by the King on the occasion of the New Year. Mr. W. Reid Dick, R.A., President of the Royal Society of British Sculptors, has been made a K.C.V.O.

RIVERSIDE AMENITIES

The Council for the Preservation of Rural England is to approach the Minister of Agriculture concerning the danger to riverside amenities involved in catchment board schemes in various parts of the country.

It is opposing proposals of the Wye Catchment Board and is also to make representations about the clearance scheme of the Teme and Severn Catchment Board, as it affects the Teme, and about a scheme of the Derwent and Ouse Catchment Board, which it is feared may alter the character of the Derwent.

The C.P.R.E. will suggest to the Minister that he should follow the precedent of the Minister of Transport, the Postmaster-General and the Central Electricity Board in issuing to their engineers special instructions for the safeguarding of amenities. The Council is willing to help in drawing up such instructions on behalf of catchment boards.

THE ARCHITECTS' DIARY

Thursday, January 3

R.I.B.A. *At 66 Portland Place, W.1. "Exhibition of International Architecture, 1924-1934." Last day.*

ARCHITECTURAL ASSOCIATION. *At the Building Centre, 158 New Bond Street, W.1. Exhibition, "1935, Ideas in Architecture," by the Architectural Association School. To be opened by Gerald Heard at 3 p.m.*

Friday, January 4

R.I.B.A. *At 66 Portland Place, W.1. Christmas Holiday lecture for Boys and Girls. "The Face of England—the Future." By the Hon. H. A. Pakington.* 3.30 *p.m.*

Monday, January 7

CHARTERED SURVEYORS' INSTITUTION. *At 12 Great George Street, S.W.1. "Procedure in Arbitration." By F. J. Wrottesley, K.C.* 6.30 *p.m.*

Tuesday, January 8

ROYAL SANITARY INSTITUTE. *At 90 Buckingham Palace Road, S.W.1. "The Improvement of Drainage and Water Pipes by the use of Lead Alloys." Discussion to be opened by Kenneth Gray.* 5.15 *p.m.*

ARCHITECTS AND SURVEYORS' APPROVED SOCIETY. *At the R.I.B.A., 66 Portland Place, W.1. General Meeting of Insured Members.* 6.30 *p.m.*

ARCHITECTURAL ASSOCIATION. *At 36 Bedford Square, W.C.1. "Plastics—The Fourth Material of Construction." By W. Owen-Griffiths, A.M.I.Mech.E., A.I.R.I.* 8 *p.m. Exhibition of Members' Photographs. Open until January 19.*

NEW BUILDINGS FOR ACADEMY OF SCIENCES OF THE U.S.S.R.

Five groups of Soviet architects have submitted designs in the limited competition for new premises to house the Academy of Sciences of the U.S.S.R. in Moscow. The result is expected to be announced within the next few days.

The new accommodation for the Academy is to cover an area of 1,250 acres, situated between the Neskuchni Sad and the Lenin Hills. Half of the area will be devoted to a central botanical garden, which, it is claimed, will be one of the largest in the world. A green zone will connect this city of science to the Central Park of Culture and Rest. The Academy proper will consist of 35 to 40 buildings.

The residential section of the Academy will accommodate 6,000 persons in flats. The total cost of the scheme is estimated at 350 million roubles.

MIDDLE-CLASS FLATS IN BALHAM

Flats intended for middle-class people of moderate income are shortly to be begun in Balham. Early Victorian mansions on a 14-acre site near the railway station in Balham High Road will be demolished, and in their place the Central London Property Trust will erect a block of 500 flats.

The building will be nine or ten storeys high, around a garden square, and it will have children's playgrounds, tennis courts, and a garage for 100 cars.

PROPOSED BUILDING SCHEMES FOR SALFORD

Schemes involving an estimated expenditure of £1,711,697 were discussed by the Salford City Council at its meeting on January 2, when it received a report of the Finance Committee on the capital estimates for the financial year 1935-36.

The proposed schemes include a new school, new police headquarters, new library, extensions to a hospital, museum and college and additional accommodation at the Town Hall.

FLATS FOR KENSINGTON

Negotiations are now in progress for the building of a large block of flats on a 1½ acre site fronting Hyde Park and Knightsbridge, near its junction with Sloane Street. The scheme involves the demolition of a score of old and historic houses in Knightsbridge and others in Park Row.

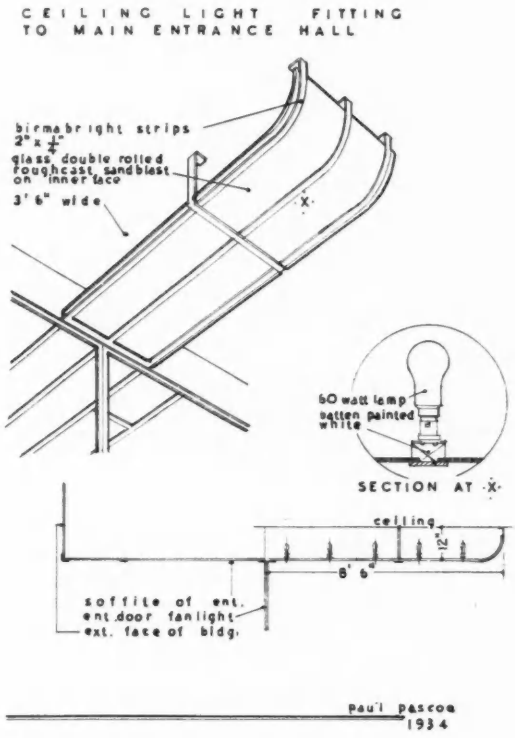
ENCLOSURE FOR GIBBONS

Mr. Lubetkin, of Messrs. Tecton, has been appointed by the Zoological Society to design a large enclosure for the gibbons. It will be built on the site now occupied by the wolf and jackal runs between the lion house and the outer barrier of Regent's Park. Gibbons are excellent acrobats and the new enclosure will be a kind of large gymnasium for their benefit.

SCOTLAND BEHIND IN NEW MATERIALS

Speaking at the annual dinner of the Edinburgh and District Master Builders' Association, Mr. T. S. Tait, F.R.I.B.A., said he would like to have a "dig" at Scottish builders. At the present moment, he stated, they were buying most of their stone, wood, doors, etc., from England. The best products came from England. Tiles as well as slates and practically all partition blocks came from the south. These commodities were the principal items used in the erection of buildings, and he thought it a pity that they should allow that money to be spent outwith Scotland.

On the other hand, they had thousands of



From Universal House, Southwark Bridge, E.C. Designer: Joseph Emberton.

efficient engineers thrown idle. Why not put them on to the production of standard steel frames, standard skirtings, and standard windows instead of buying them from England?

"Scotland undoubtedly has the finest workmen in the country if not in the world," declared Mr. Tait, "but is behind in the production of new and up-to-date materials. There are hundreds of new materials now being manufactured for building purposes, and I think that most of them are from the south. This should not be the case."

MANCHESTER ARCHITECTS AT DINNER

The annual dinner of the Manchester Society of Architects was held at the Masonic Temple, Manchester, on December 21. Mr. J. R. Adamson, F.R.I.B.A., (President) occupied the chair.

Proposing the toast of the R.I.B.A., the Chairman said they all rejoiced in the fact that the Institute had completed the first hundred years of its history, and like some great galleon had now set out full sail under the happiest auguries into the second century of its career. It had begun this new phase of its career most happily. The year now closing had seen the completion of the Institute's fine new headquarters which were inaugurated by the King. The Prince of Wales had graced its centenary celebrations, and they were glad to know that the honour of knighthood had been bestowed upon its Secretary. These facts, he thought, could be regarded as a fine tribute to the work of the Institute during its history of a hundred years. It had done a great deal to set a standard of architectural efficiency and high professional conduct, and not the least of its good works had been the service it had rendered in connection with the Architects' Registration Act. In the new chapter of its history which had just opened, it would have much to do. It would have many problems to deal with in connection with housing, town planning, the better development of the countryside and the better use of new materials. There was also the problem of guiding the public taste so that there might grow up an increasing recognition of the importance in building of the play of mind and artistic impulse.

Sir Giles Gilbert Scott, R.A., PP.R.I.B.A., responding to the toast, said that during his term of office he had tried to do two things. One of these was to increase the public interest in architecture and the other was to cultivate a spirit of friendliness and co-operation between the Royal Institute in London and its allied societies throughout the Empire. In the spirit of co-operation, he was sure, lay the strength of their organization. Looking to the future, he thought the prospects for architecture and the architect's profession were good. Not many years ago it was rare to find the press taking any serious notice of architecture. Things were different in that respect today. They were really forcing architecture to the front and making the public realize that there was something more in architecture than the mere æsthetic interest of a rather exotic body of people who were known as architects. They had got to a point at which the public was sitting up and taking notice. The public was realizing that there were other values in life besides material values. The public was beginning to realize that in building it was not sufficient merely to provide a roof that would keep the rain out, to ensure that the drainage was good and the hot water supply satisfactory, and so on, but that something was lacking if the whole character and atmosphere of a building were not taken into consideration. This was a great gain. It was gradually dawning upon the public mind, and upon the mind of public bodies, that there was something important that the architect had got to do besides regarding the building he planned from a merely material point of view. It was an achievement to have got the public to realize that we did not live by bread alone and that æsthetic values were important. That being so, he believed that a great future lay before the architect's profession and he was quite sure that the Institute and its allied societies would continue to do all in their power to bring home to the public the importance of these other aims of architecture.

Mr. W. A. Johnson, A.R.I.B.A. (junior Vice-president of the Manchester Society of Architects) proposed the toast of the City of Manchester. Manchester, he said, had many things of which to be proud. It had fine achievements to its credit and its courage in adversity had been high and was unabated. But, like other cities which grew rapidly during the industrial revolution, it was "cluttered up" with the debris of an era that was past. All cities needed a plan, and a plan implied order and coherence. It was part of the function of the architect to plan. Indeed, it had been said that the architect planned and built for eternity, and he supposed that it was only in eternity that the architect got his reward. Nevertheless, the architect did plan with a sense of the realities of today and tomorrow.

One of the most significant developments of the past decade, he continued, had been the rise of swift road transport. This led to ribbon development with all its defects and dangers. These dangers were serious. It had been said that, in these days of swift road transport and inadequate planning to cope with it, the only safe way to cross the road was to be born on the other side.

The Lord Mayor (Ald. S. Woollam) responded.

Mr. Alan E. L. Chorlton, M.P., acknowledging the toast of the Guests (proposed by Mr. G. B. Howcroft) said that the rehousing that would be required in Manchester afforded a tremendous opportunity to the architects of the city to show something in the way of building that had never been shown before. Slum clearance ought to permit of something in the way of mass production that had not been previously attempted. He wondered if the corporation had ever thought of committing the job to engineers, because it seemed to him to be a job for engineers. Steel construction and other modern devices provided an opportunity of making rehousing provision on lines not hitherto attempted, and he could see no reason why Manchester should not take the lead in this matter, as she had done in so many other matters in the past.

ON THE AIR

A series of broadcast talks entitled "The Artist and his Public," will begin on

January 7 and continue throughout January, February and March. The speaker for the first six talks is Mr. Eric Newton, of the *Manchester Guardian*, and his subjects are given below :—

January 7. Starting from Scratch.
" 14. The Artist's Vision.
" 21. The Place of the Subject.
" 28. The Question of " Beauty."
February 4. Style, Choice of Medium and Craftsmanship.
" 11. The Artist's Problems.

On February 18 Mr. Newton will discuss with the man in the street some of the points which have arisen, and the following five talks will be between him and various artists and critics, whose names are as follows : Sir Reginald Blomfield, Mr. R. H. Wilenski, Mr. Edward Wadsworth, Sir Charles Holmes and Mr. D. S. MacColl. These discussions will be specially designed to bring out different points of view about the architecture, the painting and the sculpture of today.

A pamphlet by Mr. Newton, *An Approach to Art*, is now available, It contains 32 pages of pictures and detailed suggestions about what to see and read. At every stage the talks will be closely related to the pamphlet, which will therefore be essential to the listener. It is obtainable from the Publications Department, Broadcasting House, London, W.1, or from any local B.B.C. office, price 7d., 9d. post free.

Another series of talks is to be broadcast on Monday mornings at 10.45, when Professor Allen Ferguson, of the East London College, will describe some of the scientific processes that have so revolutionized the contents of every home today, as compared with the home of early Victorian days.

From Midland Regional Geoffrey Boumphrey is continuing his series, " Ripe for Development," which deals with town and country planning. The previous talks have been a survey of actual present-day conditions, the subsequent ones will consider the future. They will be given at about fortnightly intervals from the end of January.

Announcement

Mr. F. Quentery Farmer, F.R.I.B.A., M.I.STRUCT.E., and Mr. Frankland Dark, F.I.A.A., of Townsend House, Greycoat Place, Westminster, are now practising in partnership as Farmer and Dark at 87 Buckingham Palace Road, S.W.1 (Telephone No. Victoria 8244), where they will be glad to receive trade catalogues.

COMPETITION NEWS

ARCHITECT WINS FURNITURE DESIGN COMPETITION

The result of the competition for modern furniture suitable for a home supported by an annual income of £800 to £1,500, which was organized by B. Cohen and Sons, Ltd., of 1-19 Curtain Road, London, E.C.2, is as follows : The first premium of £50 was awarded to Mr. Patrick Gwynne, architect of 14 Palmer Street, Westminster, S.W.1, the two further premiums of £10 being awarded to Mr. John Harrison, Shottle, Somerville Road, Sutton Coldfield, and Mr. Michael Percival Driver, 7 Wycombe Gardens, N.W.11.

The assessors were Messrs. E. Maxwell Fry, A.R.I.B.A., John Gloag, H. de C. Hastings, Editor of the *Architectural Review*, and J. M. Cohen.

In their report upon the designs submitted, the assessors stated that although the conditions were within reasonable economic limitations and were calculated to stimulate inventiveness, the majority of competitors did not appreciate what was demanded of them. They were required to design furnishing for a living room about 30 ft. by 15 ft., with a dining alcove to accommodate six people at one end of it. Instead of studying the problem objectively and constructively, starting from organization of living in such a combination room, and studying the furnishing as a research problem in modern materials, the process was nearly always reversed, and hackneyed forms were gingered up by spurious " novel " touches.

As a result, there was little true originality and too much copyism. Few designs reached levels that had not already been attained, and surpassed elsewhere. The winning design had both originality and constructive thought to commend it.

CIVIC CENTRE, DARLINGTON

Mr. H. V. Lanchester, F.R.I.B.A., M.T.P.I., has been appointed assessor in the limited competition for a proposed civic centre, Darlington. The following architects have been invited to submit schemes : Adshead and Ramsey, FF.R.I.B.A. ; H. V. Ashley and Winton Newman, FF.R.I.B.A. ; C. Cowles-Voysey, F.R.I.B.A. ; W. Dougill, A.R.I.B.A. ; Ivor Jones and Percy E. Thomas, F.R.I.B.A. ; E. Berry Webber, A.R.I.B.A.

Premiums of £100, £75 and £50 are to be offered for the designs placed first, second and third, respectively.

NEW HIGH SCHOOL, GLASGOW

Members of the R.I.B.A. will be asked not to submit competitive designs for the building of a new High School for Girls at Cleveden Road, Glasgow, if designs by the municipal architects are considered.

Intimation to this effect was made at a recent meeting of a Sub-Committee of Glasgow Corporation Education Committee, appointed to make arrangements for the building of the new school (states the *Scotsman*).

The secretary of the R.I.B.A., in a letter, explained that the Institute had a regulation against the employees of the promoters of any scheme being allowed to compete with outside architects. The Institute could not see its way to waive that regulation, and if the Corporatiin insisted in their attitude, there would be nothing for them to do but to issue a notice to their members warning them not to take part in the competition.

It was decided by the Sub-Committee to recommend the Corporation to carry through the work involved in the new school by municipal architects.

Bailie Symington, the Convener, stated that the cost of the new school would be about £140,000. He claimed that the work would be more expeditiously done if carried through by their municipal architects, and that there would be a saving to the ratepapers of £10,000.

Competitions Open

January 19.—Designs for five-storey blocks of working-men's flats suitable for construction in reinforced concrete for the Cement Marketing Company. Assessors : Joseph Emberton, F.R.I.B.A., Burnard Geen, M.INST.C.E., and L. H. Keay, O.B.E., F.R.I.B.A. Premiums : £300, £200 and £100 for designs placed first, second and third, respectively. Copies of the conditions will be forwarded on application to the Publicity Department, the Cement Marketing Co., Portland House, Tothill Street, S.W.1. Latest date for submission of designs : January 19.

March 1.—New municipal offices, public library and fire station for the Wembley U.D.C. (Open to architects of British nationality and resident in the British Isles.) Assessor : Stanley Hamp, F.R.I.B.A. Premiums : £300, £250, £150, and £100, for designs placed first, second, third and fourth, respectively. Conditions, etc., are obtainable from the Clerk to the Council, Council Offices, Wembley. (Deposit £1 1s.) Designs must be submitted by March 1.

March 27.—Cemetery chapel and auxiliary buildings at Coney Hill for the Gloucester Corporation. (Open to architects practising on their own account within the area covered by the Wessex Society of Architects.) Assessor : Edward Maufe, F.R.I.B.A. Premiums : 125 and 100 guineas, for the designs placed first and second, respectively. Applications for the conditions of the competition and site plan should be made to Mr. C. J. Scudmore, City Surveyor, 21, Eastgate Street, Gloucester, not later than Monday, December 31. Designs must be submitted to the City Surveyor on or before March 27.

April 30.—The Croydon Corporation invite the submission of designs for laying out an area in Central Croydon which is to provide an extension of the Civic Centre of the Borough and to improve central means of communication. Assessor : Dr. Thomas Adams, F.R.I.B.A., F.S.I., M.T.I. Premiums : £500 for the design placed first ; £350 to be divided (in proportions to be determined by the Assessor) for not more than three designs placed next in order of merit. A copy of the conditions is obtainable on application to the Town Clerk, Town Hall, Croydon. (Deposit £1 1s.) Designs are to be submitted not later than April 30.

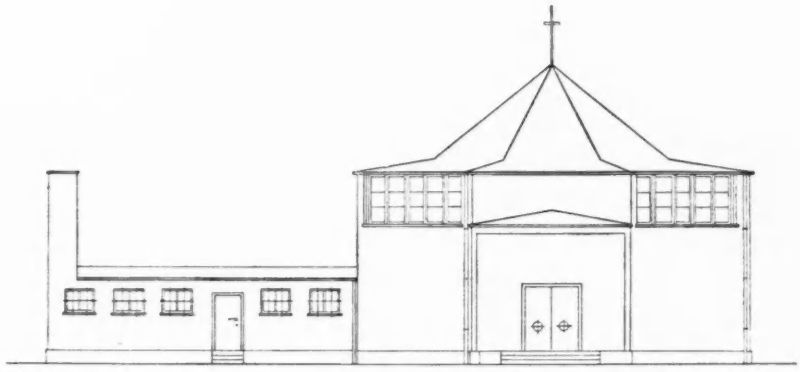
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THIS ARSHETECTURE

The old council houses, built by the Tories, are monotonous streets. On Labour's new estate there are no fewer than 40 different kinds of architecture ! Nearly built now, the estate I saw will soon be a garden city.—*Hannen Swaffer in the " Daily Herald."*

CHAPEL AT FRANKFORT-ON-MAIN





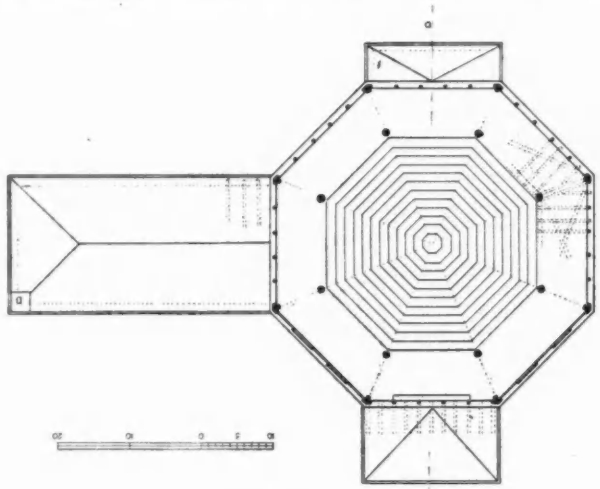
This small Roman-Catholic chapel, which is dedicated to St. Boniface and seats 116 adults and 45 children, has been built on a still isolated plot in a large new "Siedlung" of working-class tenements. Except for the reinforced concrete foundations and the stuccoed exterior walls, which are formed of pumice blocks 10 in. thick, the building is entirely of wood. In shape the chapel is a regular octagon, with one side extended for 38 ft. to provide a sacristy. The altar is recessed in a niche on the side facing the entrance.

On this page is a photograph of the exterior showing the main entrance, and the elevation from the same aspect. Plans, sections and photographs of the interior are given overleaf.

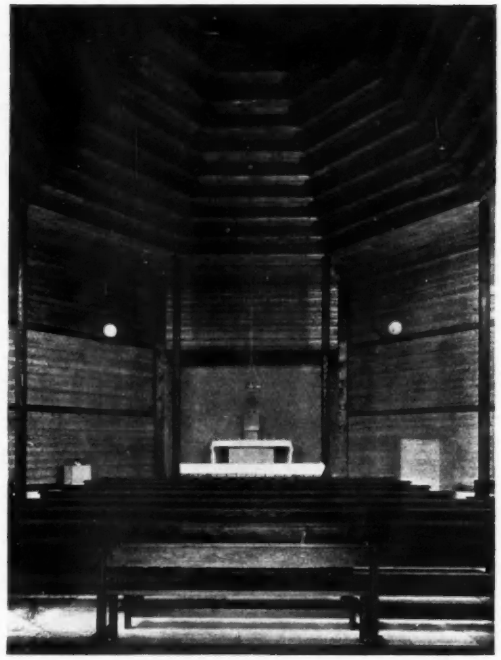
DESIGNED BY

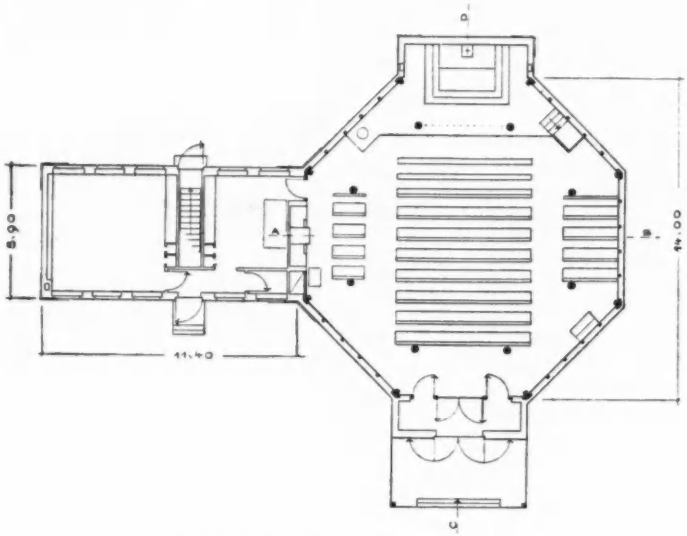
MARTIN WEBER

TIMBER-FRAMED CHAPEL



ROOF PLAN





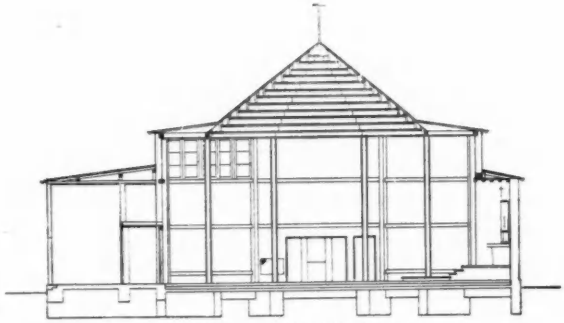
GROUND FLOOR PLAN

Left: ground and roof plans. Above: the interior looking towards the altar. Below: a cross section. On the facing page is a longitudinal section through the auditorium portion of the chapel, and a detail view of the altar recess.

The timber framework, which is impregnated with a carbolic preservative, wherever it comes in direct contact with the concrete or masonry, was completed in ten working days. The total cost of the chapel amounted to just under 35,000 Marks.

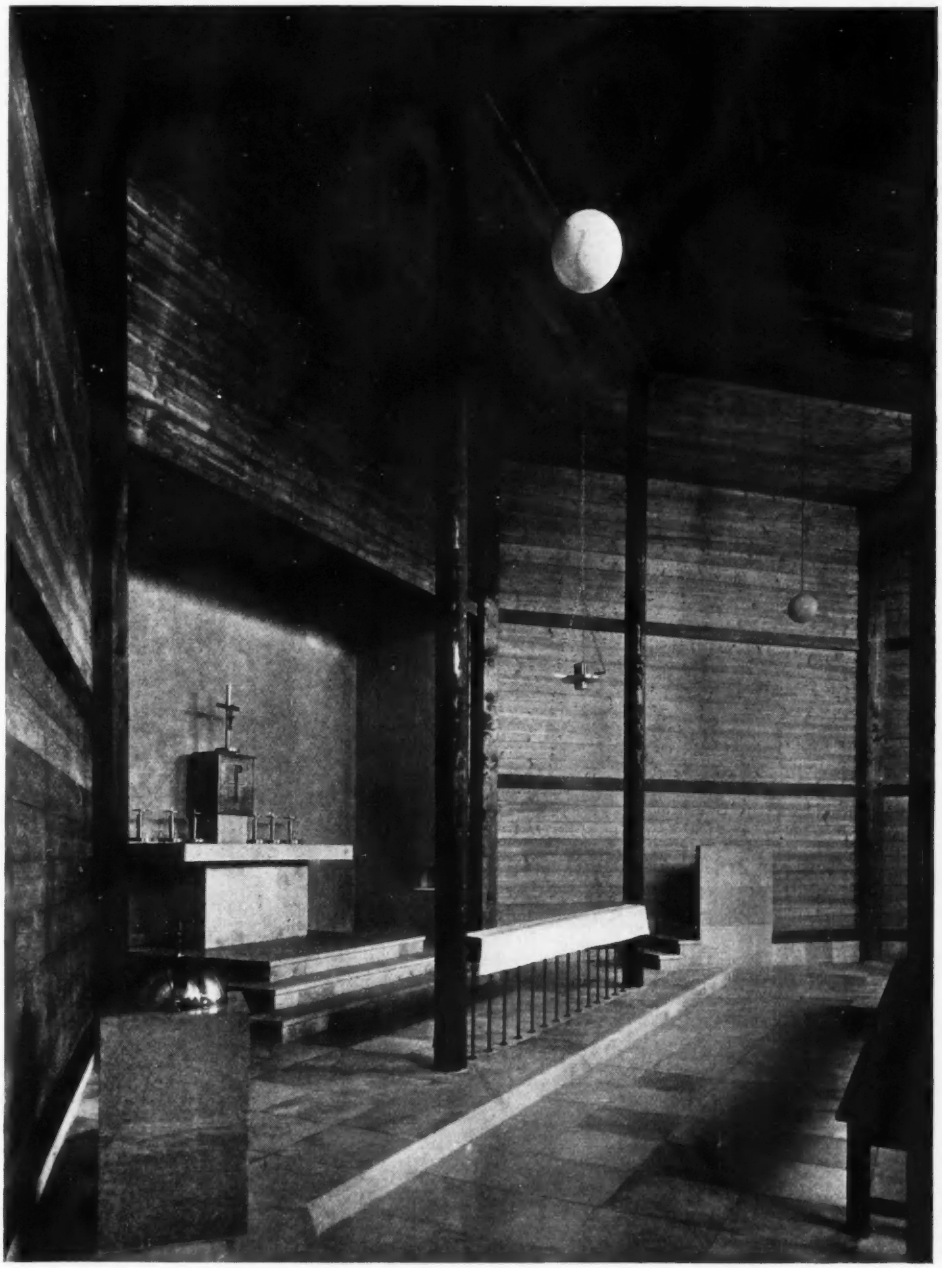
DESIGNED BY

MARTIN WEBER



CROSS SECTION

AT FRANKFORT-ON-MAIN





LONGITUDINAL SECTION

The interior is 46 ft. in breadth, with walls 23 ft. in height; the stepped pyramidal roof, which rises another 13 ft. with a clear span of 31 ft., being supported on eight round timber columns. Each of these columns is formed of four boards accurately planed to a circular section. Internally, the boarded walls and roof have been left perfectly plain. Externally the roof is conical, with flattened eaves round the area between the supporting columns and the side walls. In order to avoid encumbering the interior with visible trusses a rigid timber stay in the form of a St. Andrew's cross was built into the eaves, and firmly anchored to the side walls. By this means, wind-pressure is transmitted to the supporting-columns in the corners through a system of vertical and horizontal struts. The roof is insulated with building board and covered with thin sheet copper.

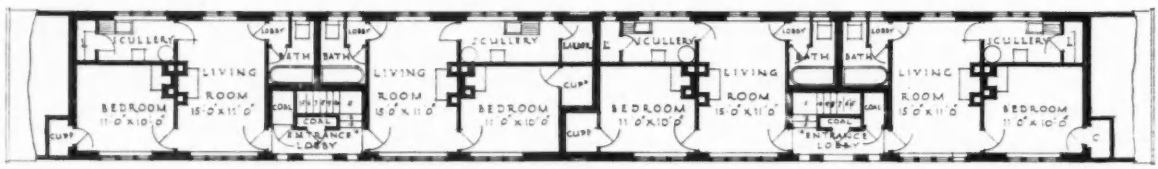
HOUSING SCHEME, WELWYN GARDEN



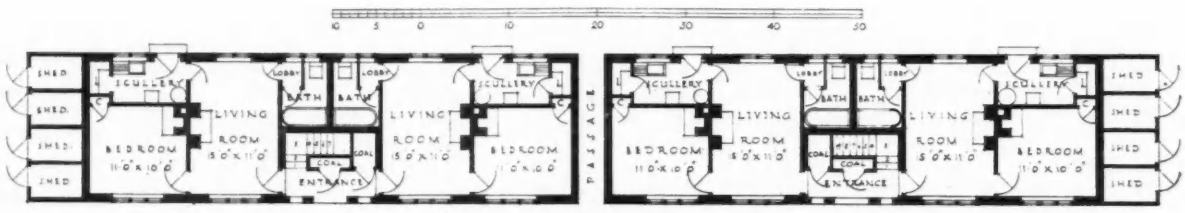


This is the seventh housing scheme carried out by the Welwyn Garden City Urban District Council. It consists of 57 non-parlour-type houses and eight two-room flats for aged couples. There are two separate sites—Holwell Road, containing 25 houses; and Knella Road, 32 houses and the block of flats. As the aspects of the two sites varied from north to south, three types of houses were introduced to suit the varying positions. The average cost per house, including fencing, paths and front hedges, was £326, and per flat £207.

The eight flats are illustrated on this page and are a new venture for Welwyn. They are arranged in one block in the centre of the Knella Road site. The first-floor flats are approached by a concrete staircase, open to the external air, with coal stores arranged in the wall. By sloping the roof down at each end of the block it was possible to provide a shed or store to each flat. The floors have been made soundproof as far as possible by resting the joists and floorboards on thick felt pads and packing between the joists with slag wool.



FIRST FLOOR PLAN

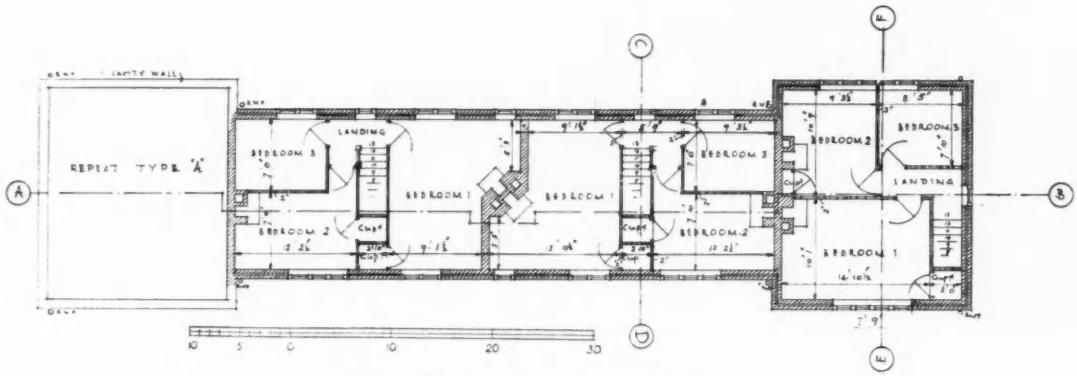


GROUND FLOOR PLAN

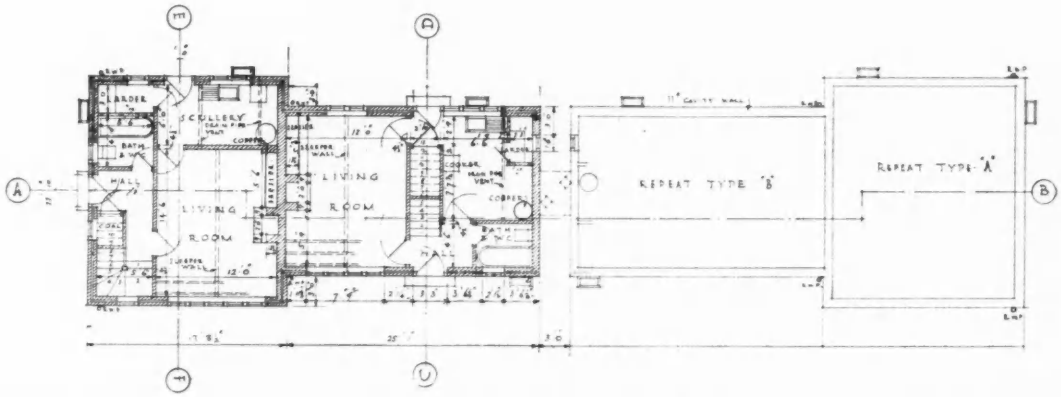
CITY: BY GEOFFREY BARNSLEY



A block of four houses in Knella Road, and plans of types A and B, built in fours. All the houses on the two sites are faced with local sand-faced multi-coloured bricks. The front doors and hoods are painted green, the windows and door frames light cream. The paths are concrete and the front gates are of oak, hung on concrete posts.

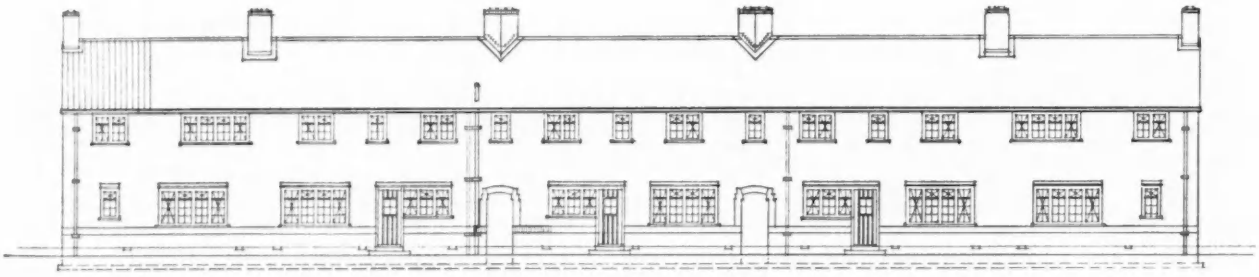


FIRST FLOOR PLAN



GROUND FLOOR PLAN

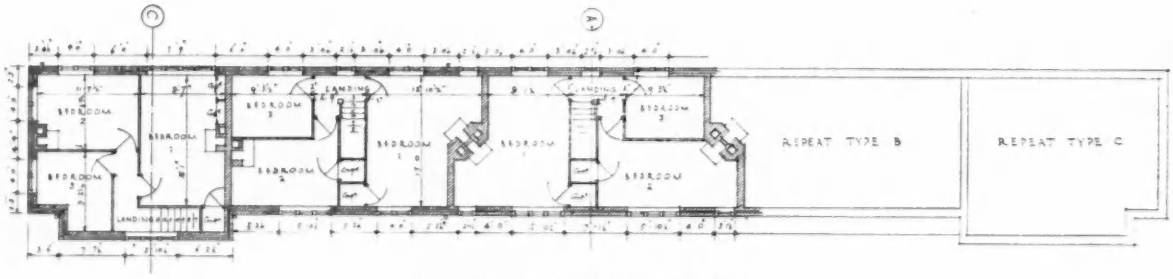
HOUSING SCHEME, WELWYN GARDEN



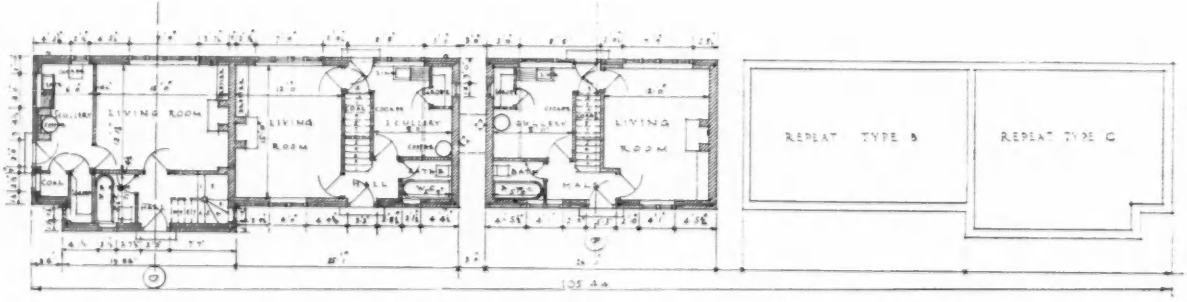
REAR ELEVATION







FIRST FLOOR PLAN



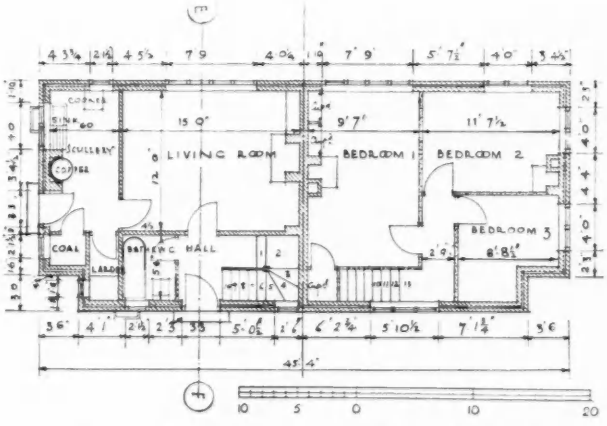
GROUND FLOOR PLAN

Plans and rear elevation of types B and C, built in fives, and photographs of houses in Holwell Road and Knella Road.

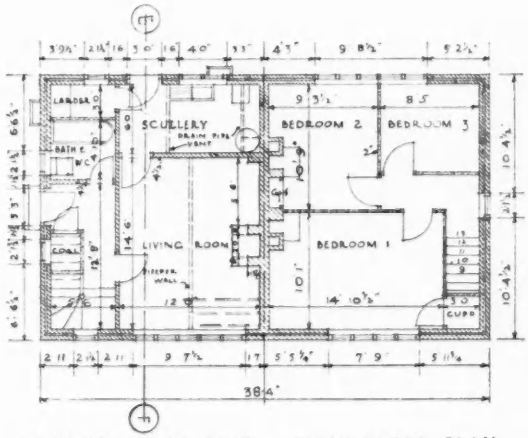
CITY: BY GEOFFREY BARNSLEY



Types A and C, built in pairs. All the houses and flats are wired for electric lighting and power, and have a power point in the kitchen for an electric cooker, and one in the living room for heaters or wireless. Hot water systems have been omitted principally as a saving in maintenance cost, but also as a capital saving. Hot water is supplied to the baths by a simple ejector from the copper.



GROUND FLOOR PLAN FIRST FLOOR PLAN
TYPE C



GROUND FLOOR PLAN FIRST FLOOR PLAN
TYPE A

DESIGN IN AMERICA

[*BY JOHN GLOAG*]

VII. FRANK LLOYD WRIGHT

NOT only does a great man live at Taliesin, Spring Green, Wisconsin, but there, in the heart of the Middle West, a great plan is being worked out; no less than a plan for full, intelligent and fruitful living in this machine age. It is probably the finest research station in social design that exists; and it is linked with every branch of design that affects life, for Frank Lloyd Wright is not concerned with theories and discussions; he is concerned with experiments that will simplify the problem of relating architecture and industry to life.

He was very kind and patient with my Niagara of questions, and he gave up a whole day and an evening to satisfying them. It was not only the charm of his voice, his kindness and his humour, which has a most agreeable seasoning of malice now and then, that made me regret the shortness of the time I could spend with him; it was the fact that every word he spoke made me realize I was in the presence of wisdom. He called the present phase of America's civilization "Money Melodrama," and was not convinced that any of the Federal housing projects were sound, because they were based on old-fashioned ideas of accommodation and not inspired by plans for living comfortably and happily in the machine age.

"They're going to build these cages, these barracks," he said, "and they will find that the birds have flown. I don't believe in regimentation."

I mentioned the slogan of schoolboy functionalism. "You don't think the 'house is a machine for living in'?" I said.

"Architecture begins where that concept ends," he said, and added that such crude ideas were for the tyro. The designers who believed in them "substituted a negative for an affirmative." Of his own approach to architecture he said: "My buildings are in human scale—the people in them are like flowers: they improve the buildings, and the buildings improve them."

I mentioned the Imperial at Tokio, and he smiled.

"I built an oriental symphony," he said. "I was romantic when I ought to have been as hard as a keg of nails. I played down to those people."

I put in a protest at this point, and he admitted that the constructional design was creative. As the Imperial was the only building that survived the great Japanese earthquake, and had been expressly designed to resist earthquakes, his admission was rather more than justified. He insisted that America would not learn that she was in the machine age.

"I've been advocating the closing of museums for years, so we might learn something," he said. He has a reputation for saying what he thinks with a directness that annihilates humbugs and "safety first" men, and I couldn't help wondering how academic old ladies of both sexes, who dote on museums crammed with sure-enough antiques, accepted his recommendations. But his out-spoken reproof of the shams and futilities of the unacknowledged machine age is not always barbed.

For example, he was invited, with his apprentices from the Taliesin Fellowship, to take part in a discussion on art at Madison University. They were the guests of Sigma Lambda professional art sorority (that being a sort of "cultural" sisterhood), and the title of the discussion was: "What is Right and what is Wrong in Art?" The luncheon was described in the local press as the scene of "a symposium on Art." Four professors spoke, as professors will and do. Then Frank Lloyd Wright rose and said that he no longer believed in the art that was handled and discussed. Having made that statement, he produced a little book, and read, in that caressing voice of his, Hans Anderson's fairy story called *The Nightingale*. Everyone present had anticipated some winged invective; and he gave them instead a literary jewel—a piece of living, organic art that hours of discussion could not have touched.

The Taliesin Fellowship is not an "art colony." Nor is it a "handcraft colony." It does not represent an escapist movement. It is concerned with engineering; with the use of all materials; with machinery. The apprentices study film technique in their own extremely efficient film theatre, and hire and operate films themselves. New structural methods are being explored and modelled. Actual building is being done by the apprentices to enlarge the residential quarters; and there are no hired employees in the place. Everybody shares in the work of running it; and the result is a small scale working drawing of what democracy might be like, if only its leaders were inspired. But those fortunate young men and women who are working at Taliesin are acquiring a point of view about design, and a sense of profound social responsibility that will inevitably make some of them active in the reconstruction that awaits industry over here, active, too, in the revising of values that have hitherto dominated American life, to its detriment.

Frank Lloyd Wright is creating designers of a new type, and this healthy, flourishing experiment fills me with hope that from America some great social plan may emerge; for it is impossible to think that this gifted leader, who has always been so far ahead of his time, is an isolated phenomenon. He is bringing the machine age to life; but perforce he is making his experiments piecemeal, for this colossal adventure in education and research is unendowed.

"Somebody," he said, "once asked me what I'd like to have most."

"Financial backing for the Fellowship?" I ventured.

"Much simpler," he said: "all the material I want to work with."

VIII. PATRONAGE FOR DESIGN

"THERE is nothing so powerful in the world today as the hatred the architect has for his client," said Alexander Woollcott, as we discussed at breakfast some of the American peculiarities of the great profession. We talked in his large, comfortable apartment which overlooked the East River, just by Welfare Island; and he told me how the things he possessed had to have generations of use behind them before they interested him at all. I understand that view, because Mr. Woollcott, as anyone who has read his last book, *While Rome Burns*, will concede, is probably the greatest living gossip writer, a sort of robust Horace Walpole, whose interest thrives on the stories men and women always unconsciously tell about themselves—and all the world comes into that apartment of his and laughs for him. He has defended this point of view about design while his friend Frank Lloyd Wright has demolished it; and their argument on this matter is permanently inconclusive. The architect has his principles: he knows what is right. The client has his prejudices: he knows what he likes. Hence the implacable hatred of the expert for his patron that Mr. Woollcott so aptly isolated as a world force.

Patronage for design is often educated in America; but it has been educated in a "traditional" way. The "charm" of the Colonial house and home and interior has been exploited with all the allure of fine colour printing in magazines and advertisements from Canada to Mexico for so long, that the taste of cultivated people who care for their surroundings has an inflexibility that

keeps their imaginations unrefreshed by experiment. The "styling" of industrial design so often means the application of conventional good taste; but this taste is "good" in the sense that it tolerates no uncomely thing, and that it selects from the past American and European things that are pleasant and good to look at and use. It would reject out of hand the shoddy, unskilful imitation; for example, the sort of hash the English furniture trade used to serve up (and still does) for the unsophisticated consumption of the hire purchaser, would never make a popular hit in New York. There is a tradition of solid simplicity in furniture, that has been revived and extended by magazine propaganda; but when this taste touches the characteristic products of the machine age, it becomes ridiculous.

That masterpiece of luxury and efficient transportation, "The Twentieth Century, Limited," which took me from Chicago back to New York, is a beautiful steel train; but the ceiling of the observation car has imitation beams pressed out of the metal, and is decorated in the Semitic-Renaissance manner; the chairs, with their gilded finials, are also in the Ghetto-Baroque style, to go with the ceiling and the painted flower swags on the frieze presumably. The club car has imitation walnut graining, with painted satinwood and coloured lines of inlay. And really, it is Mr. Woollcott and the innumerable men and women with good taste who are responsible; for they demand and get associations, human and traditional; and although they live in modern buildings, they each make in those tall, airy and spacious places, little caves full of antique plunder; loot from the seventeenth and eighteenth centuries, cunningly arranged, elegant, comfortable or heartily old world, according to taste. And that is what Frank Lloyd Wright, and every other architect who wants to develop modern design, has been up against.

But the architect may change this by getting into industry, for industrial patronage, which is uneducated except in advertising technique, will more readily accept the designer who wishes to give something to his own century. Over here Norman Bel Geddes has established a respect for the place of the designer in industry which is buttressed by increased sales following his solution of a variety of problems of industrial design. For instance, he created for the Standard Gas Equipment Corporation, a standardized stove unit that was enormously successful, and swept away the older types with their untidy agglomeration of gadgets, and their tops and sides of imitation marble. Designers are being employed, and are getting large, adequate fees for bringing civilized coherence to the form of such things as vacuum cleaners, water heaters, refrigerators, radio sets, scales, cameras, alarm clocks, kitchen and bathroom units, and washing machines. Industry is becoming a patron of great promise; and even the retail buyer, always an obtuse creature, but a little more enlightened here than in England, is realizing that he needn't be as frightened of the public as he used to be; for the public is prepared, in the matter of industrial design, to buy something better than industry has hitherto provided. That is proved whenever a designer gets to work on some established product, and rearranges its form intelligently.

Domestic architecture may soon be regarded as the least attractive field for designers; it may become a mere morass of charming comfort into which ideas sink and only return to the surface in theatrical costume. There is plenty for the decorator to dabble in, but nothing for the creative designer until patronage is educated by the new character of industrial design. And industrial design is changing rapidly; so rapidly that soon the lovers of the old Colonial home may begin to think that great hulking tables from the seventeenth century, and wood condemned to perpetuate the shapes that were so felicitous and suitable for eighteenth-century rooms, clothes and manners, are as out of place in a tower of steel and glass as the bronze sconces, enamelled candles, and glass bulbs imitating flames, that illuminate the observation car of "The Twentieth Century, Limited."

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ONE PIPE

SYSTEM OF DRAINAGE

Following are some extracts from a paper on "The One-pipe System of Drainage," read by Mr. W. H. Scanlan, F.S.I., at a recent meeting of the Sheffield, South Yorkshire and District Society of Architects and Surveyors.

Efficient planning of any sanitary work is a *sine qua non*, but in the single-pipe system it is of even greater importance, otherwise one of its advantages, the saving of costs, may be defeated and further trouble may ensue. The necessity for care in planning is one of the arguments used against it by critics. I can only say in reply to this that it is a reflection of the careless manner in which many approach the sanitary work in a building.

Grouping the fittings is advisable, but this applies no matter which system is adopted. Long branches leading to the main pipes should be avoided. In the arrangement of the fittings consideration should be given to the height of the outlets from the traps, for it follows that, if the fittings with outgoes near or at the floor level are placed at the lower end of the branch, long drops are avoided and pressure likely to induce syphonic action is decreased. The branch from the lowest floor should not be taken into the main stack but direct to the manhole as compression at this point is likely to cause syphonage.

The necessity for efficient ventilation of drainage systems has been recognized for many years. Originally puff pipes were used or, in the case of waste pipes, they were discharged over a hopper head into the stack. These fulfilled the purpose of preventing syphonic action, but were a source of danger in that they ventilated the pipes, often under windows, with unpleasan effect.

Main anti-syphon pipes were then introduced, and these are utilized in the One-pipe system The lay-out and size of these are, however, of primary importance. The function of the vent pipes in preventing regurgitation is dependent on equalising, so far as is possible, the air pressure in the pipes resulting from a discharge of the fittings. The water seal in a trap is easily broken by a small vacuum.

It must be recognized that the possibility of coincident discharges are greater in the single-pipe system; consequently compression and back pressure is increased, especially in the lower part of the stack, and syphonage is also more likely to result.

The point at which the vent pipe is connected to the fitting is important. In the One-pipe system the connection of the vent to the waste pipe must be made at a point above the hydraulic gradient to protect it against back-flow and possible obstruction and, further, it must be returned into the main vent stack.

Traps must be reliable, self-cleansing and with seals of sufficient depth to guard against evaporation and assist the ventilating pipes by resisting compression. "P," or what is known as "Anti-D" traps are the most suitable. A short branch can be taken from these into the branch waste which is continued upwards as the vent. Access caps should be fitted for cleansing.

The materials generally used for soil and waste pipes are coated cast iron or lead, and have been found satisfactory. Lead is easily worked and resists corrosion, but has the disadvantage of excessive expansion and contraction, and is for this reason unsuited to the One-pipe system where the hot water from baths, etc., would be discharged into it, except for branches and traps where it permits of slight movement in the fitting without causing a fracture.

Of these two materials, coated cast iron is to be preferred: it possesses similar qualities to lead, although its life may not be so long, especially above the top branch. The joints are easily made, both to junctions and lead branches.

Copper is becoming increasingly popular, but plumbers generally are not yet skilled in the welding of this material. Compression joints are favoured by some, but properly welded joints are the most satisfactory for drainage work.

Galvanized wrought iron has the advantage of a screwed joint, but it has been found in practice that the life of this material, when used for ventilating or waste pipes, has only been about twenty years; corrosion occurs where the pipes have been cut.

The sizes of the various pipes will, of course, depend upon the number of fittings, but in this connection it should be appreciated that the average sizes used today are sufficient for most buildings where the One-pipe system is used. Investigation has proved that too large a section results in corrosion or disintegration occurring in the pipe and, further, it is not cleansed by discharges. It will be remembered that a few years ago the minimum size of the soil pipe was reduced from 3½ in. to 3 in.

Fear has been expressed in some quarters that the main stack, even of cast iron or copper, will become defective by reason of the excessive expansion and contraction due to the discharge of hot and cold water into it, but one has to appreciate that with a well-designed system the water will pass away so rapidly that its effect must be small. The effect is more likely to be

manifest in the branches, and it is for this reason I consider lead preferable for these.

There are, however, some sanitary engineers who consider expansion joints desirable, and are fitting them as a safeguard.

The method of making the joints between branches and fittings, etc., is set out in the bye-laws. The most important is that to the w.c., and I have experienced many instances of this breaking, consequent upon movement in the fitting or building. A more elastic joint is required here to overcome this possible defect arising often in a position where it is not apparent.

The success of any material depends largely upon the craftsmen, and it is for this reason that care is necessary in engaging workmen who are efficient and well trained.

SLUM CLEARANCE

The Minister of Health, Sir Hilton Young, has issued the following circular :—

"During the past year the housing authorities of the country have been actively occupied with the early stages of the concerted plan to clear away the slums and replace them by good dwellings. The work involved has been arduous, but the whole housing administration of the country both local authorities and central government, have been supported in it by the knowledge that they were fulfilling the clear will of the nation. The national conscience requires that an end shall now be made of this great and inveterate evil.

"1933 saw the establishment of programmes for the work, providing for the clearance of some 284,000 slum dwellings, their replacement by some 298,000 new dwellings, and the consequent rehousing of some 1,307,000 people.

"1934 has seen the transition from programmes to performance. The result of the year's work, and that a year of first beginnings only, is the rehousing under proper conditions of nearly 100,000 people who were formerly housed in unfit dwellings.*

"1935 should see the actual completion of large instalments of the programme, and, in the case of authorities where the programme is small, may well see its completion. The rate of progress steadily improved throughout 1934. A maintenance of the efforts that have brought about this good result should bring the rate in 1935 near to its maximum.

"A new measure will shortly be introduced that will enable local authorities to deal with the housing problem in its other chief aspect, that of overcrowding. It should be emphasized that the new duties and powers designed by this measure are complementary to those related to slum clearance. They will interfere in no respect with the work of slum clearance, and there is no reason to delay that work pending the passage of the new measure. There is rather the more reason for accelerating work on the slums, so that the attention of the authorities may be the earlier freed to deal with overcrowding.

"The conspicuous achievements for the social welfare of the nation that stand to the credit of our system of local government in the past justify confidence that it will prove an efficient instrument to effect also those further improvements in housing standards which are an outstanding national need."

* Figures for the last month are estimated.

LETTERS FROM READERS

R.I.B.A. Defects and Remedies

SIR,—I was pleased to see the letter from the secretary of A.A.S.T.A. in your issue for December 13.

As an architect's assistant and an Associate of the R.I.B.A., I have been very disappointed with the attitude of the latter body towards its salaried members.

I agree, however, with Mr. Reeves that the R.I.B.A. cannot effectively look after the interests of those of its members who are employees, as it is an organization for the benefit of and controlled by architectural employers.

I hope the A.A.S.T.A. will be successful in its attempt to improve the condition of architects' assistants.

ASSISTANT
London

A Cross in a Strange Place

SIR,—An interesting discovery has recently been made in Saffron Walden, an Essex town famed for its old-time buildings. Whilst workmen were excavating the foundations of the sixteenth century house known as *The Close* they came upon the shaft of a cross supporting the groundshell. Its carving is well preserved on one side, and dates back to before A.D. 900.

A fragment of a cross head with identical working to that on the shaft can be seen in the base of the east exterior wall of the south porch of this fine parish church. The history of this Saxon cross is not known, but it is interesting that two portions of it are doing duty in the manner described.

I send you a photograph of the carved shaft, which may be of interest to your readers.

F. W. COBB
Elsenham Vicarage, Essex



A carved shaft of a cross supporting the groundshell, uncovered by workmen engaged on excavating the foundations of a sixteenth-century house at Saffron Walden. See letter on this page.

A Doll's House

SIR,—In your issue for December 13, you published a photograph and an extremely kind notice of a doll's house which you describe as follows : "It is designed by Mr. Ralph Wright and the interior decoration and furnishing are by Miss Bertha Wright ; it has been made by hand by Heal's . . ." May I, while thanking you for your appreciation, be allowed to point out that this house was not only designed, but also built, furnished, and decorated by my wife and myself in our workshop at the Old House, Marden, Kent.

RALPH WRIGHT
Marden, Kent

●

Federation of Voluntary Housing Societies

As a result of the Conference of Public Utility Societies held at the Building Trades Exhibition at Olympia last October a Federation of Voluntary Housing Societies is now being formed. A meeting to consider a draft constitution is to be held in London during the second week in January, and provincial meetings with the same object will be held in Nottingham, Manchester and Newcastle. Sir Reginald Rowe has presided over the Drafting Committee responsible for drawing up the constitution of the Federation, which will have as one of its principal objects the representation of the views and needs of the Societies in Government quarters.

Finchley Borough Council

Mr. Hugh C. Bankart has been appointed chief architectural assistant to the Finchley Borough Council.

WORKING DETAILS : 183

CONCRETE STAIRCASE AND DUST CHUTE • CHAPMAN HOUSE, STEPNEY • JOSEPH EMBERTON

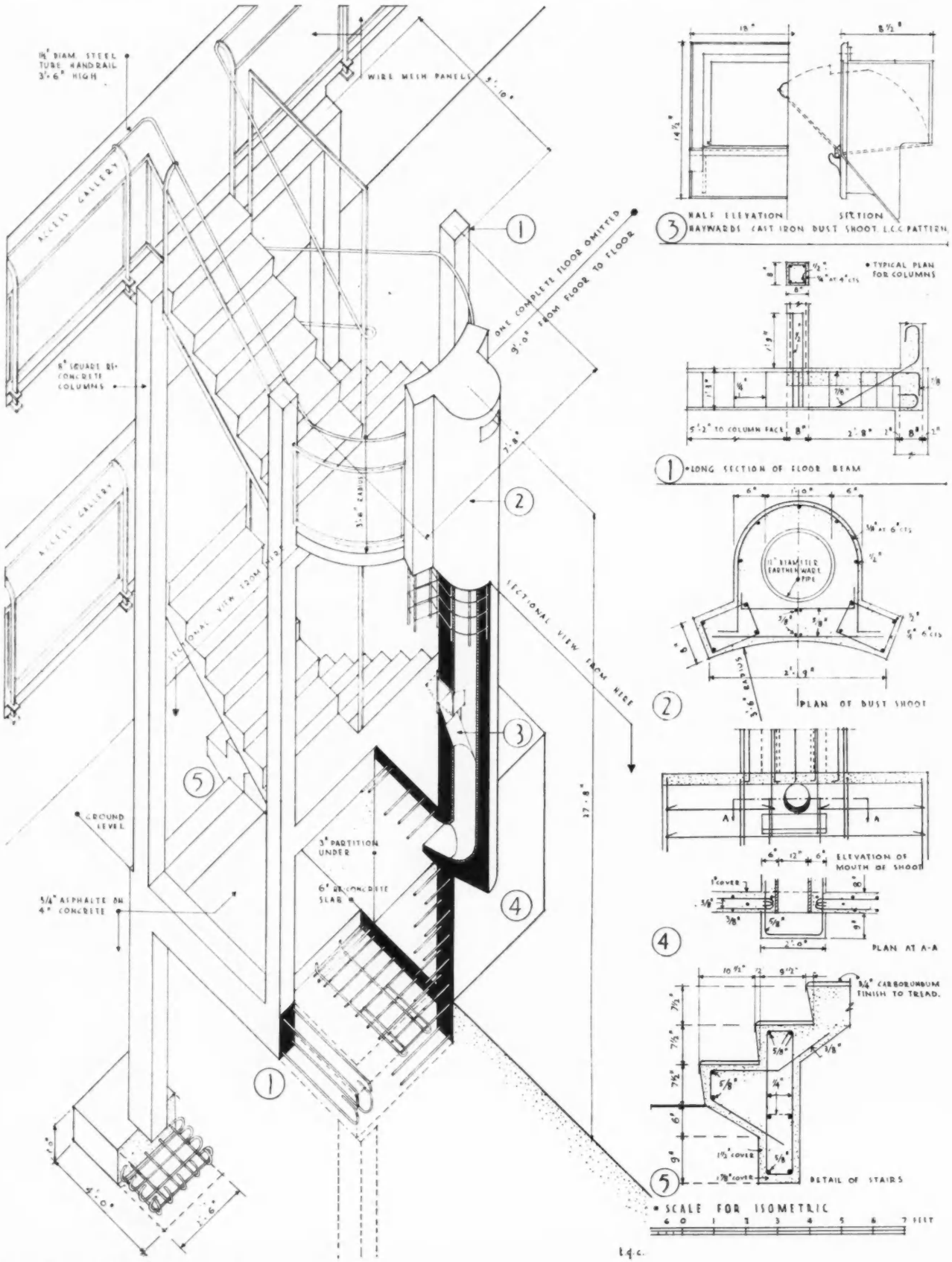


This staircase serves a total of nineteen flats on four floors, with a communal dust chute discharging into bins at ground level, cast iron hoppers being provided at each half-landing. The drawings overleaf give details of the chute and hoppers, and a constructional isometric of the staircase.

FILING REFERENCE :

WORKING DETAILS : 184

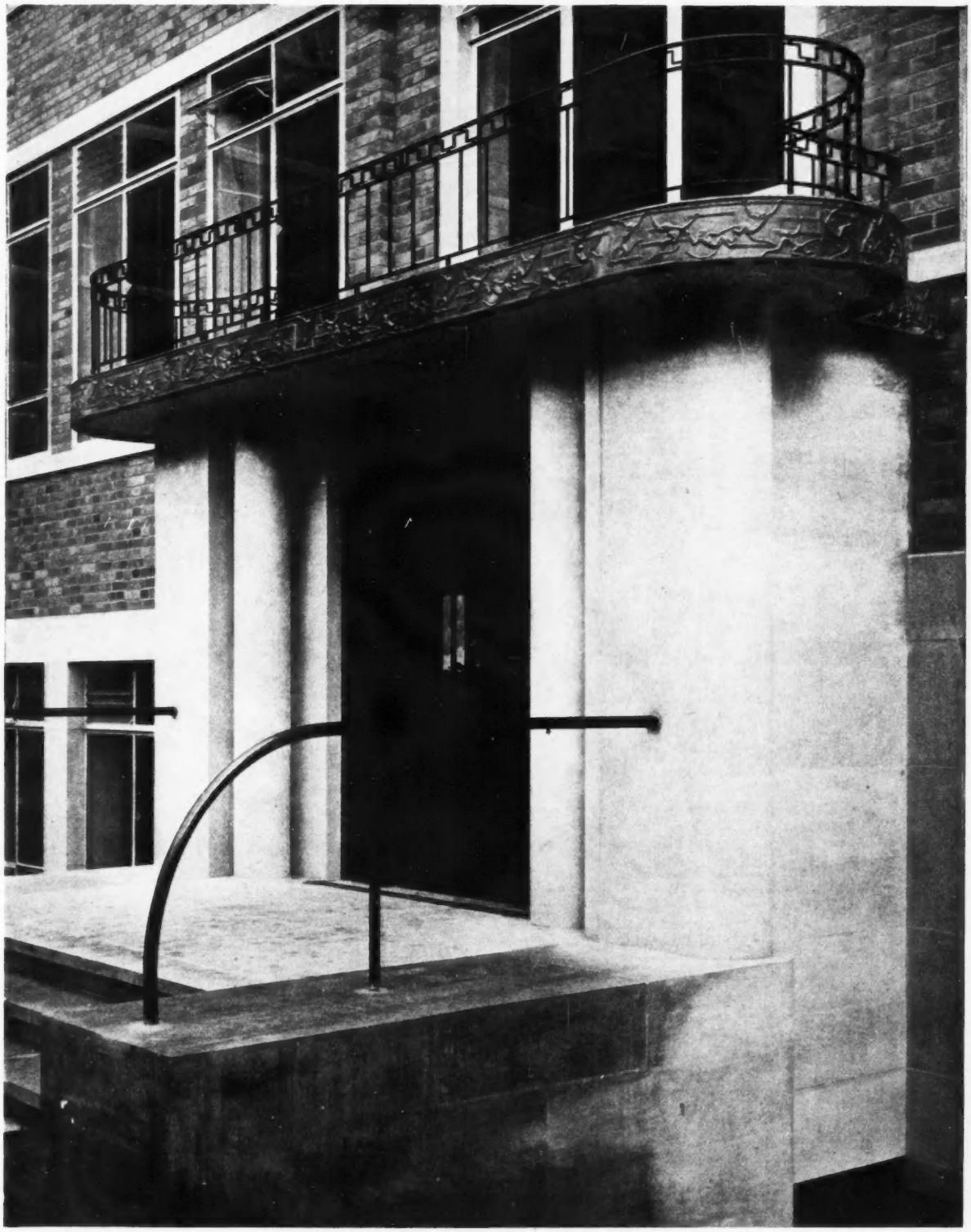
CONCRETE STAIRCASE AND DUST CHUTE • CHAPMAN HOUSE, STEPNEY • JOSEPH EMBERTON



Isometric and details of the staircase and dust chute illustrated overleaf.

WORKING DETAILS : 185

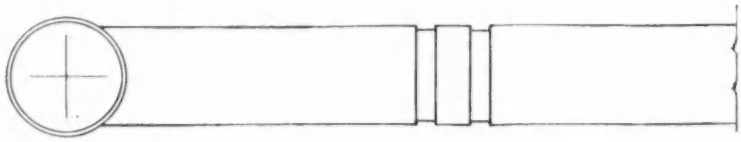
ENTRANCE DOORWAY • ZOOLOGICAL LABORATORIES, CAMBRIDGE • STANLEY HALL AND EASTON AND ROBERTSON



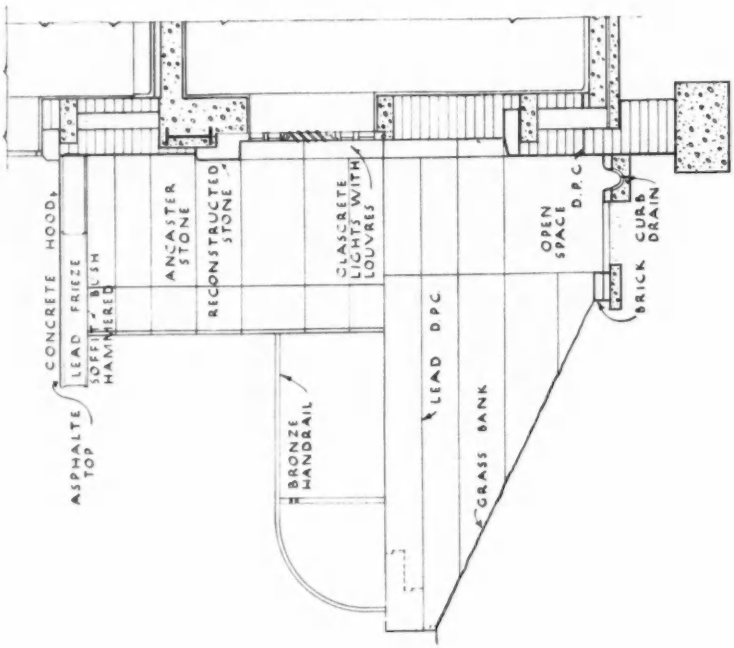
This entrance doorway is in Ancaster stone, with York stone steps and paving. The hood is in reinforced concrete, bush-hammered on the soffit, with a layer of asphalt on the top. The lead frieze is the work of Arnrid Johnston. Drawings overleaf show a plan and two elevations of the doorway and a detail of the bronze handrail.

WORKING DETAILS : 186
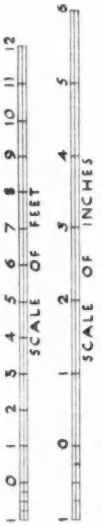
ENTRANCE DOORWAY ● ZOOLOGICAL LABORATORIES, CAMBRIDGE ● STANLEY HALL AND EASTON AND ROBERTSON

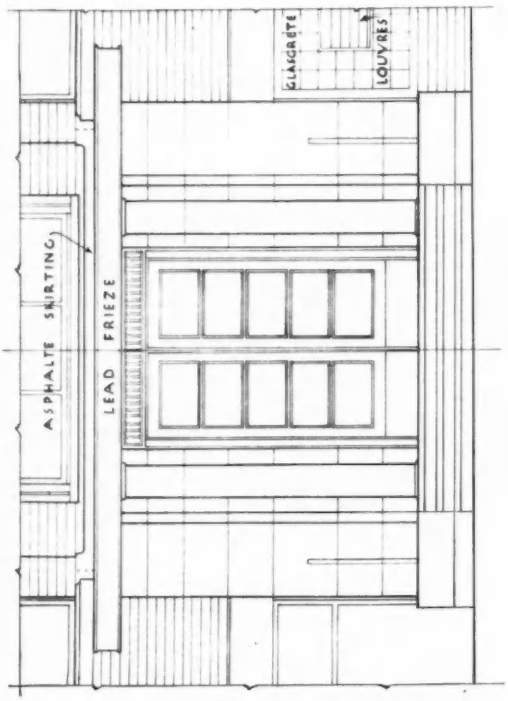


DETAIL OF HANDRAIL

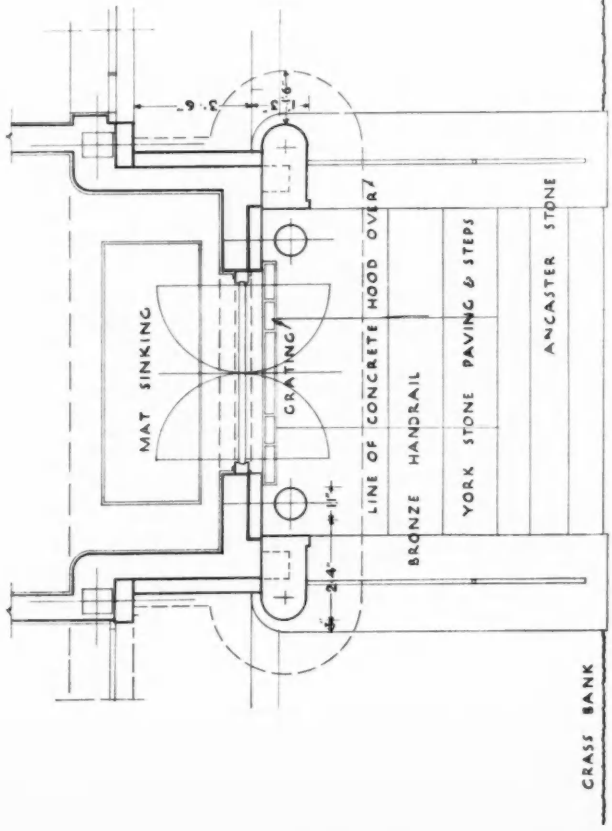


SIDE ELEVATION





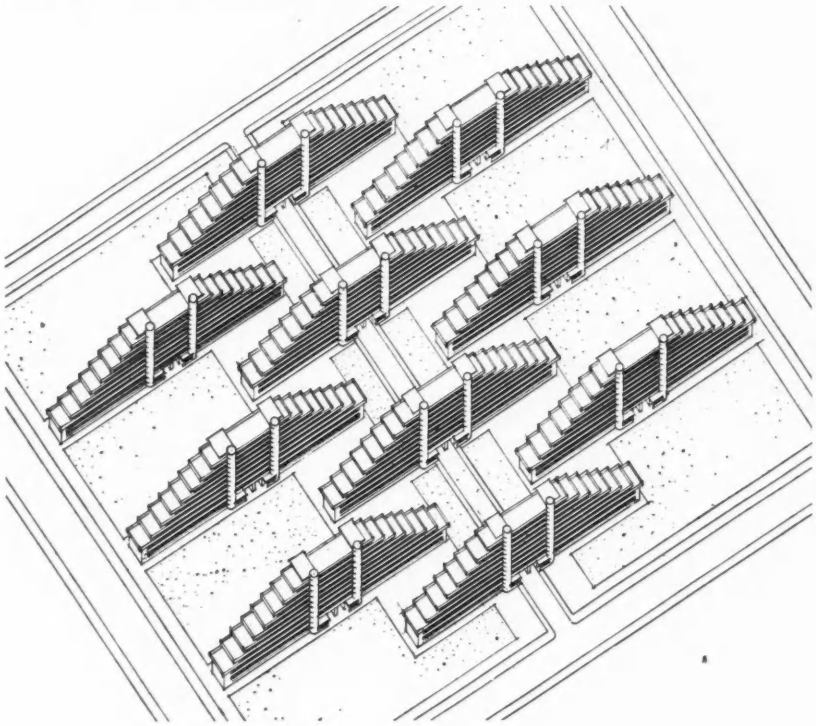
FRONT ELEVATION



Detail drawings of the entrance doorway illustrated overleaf.

HOUSING SUPPLEMENT : 7

The need for balconies and proper play areas, recently stressed by the R.I.B.A. in a letter to the Minister of Health, and by the insistent demands of Infant Welfare authorities, has stimulated several designers to attempt a proper solution of the problems involved. Somewhat reminiscent of Mr. H. V. Lanchester's recent suggestion, but evolved quite independently, Mr. Edward Armstrong and Mr. Oscar A. Bayne have produced this scheme for stepped blocks with a large sun deck at each floor level, and they consider that a density of 100 flats per acre would be possible without any real loss in amenities.



SUN DECKS FOR TENEMENTS

A SCHEME BY

E. W. ARMSTRONG AND OSCAR A. BAYNE

IT has long been realized that the physical pecularities of slum property are due as much to the unrelated development of numerous, often small, localized areas, frequently adjacent, and together forming great stretches of planless confusion, as they are to the wearing out of overcrowded and insanitary dwellings built for a different age and other conditions.

Sporadic and piecemeal development of these individual areas, even with satisfactory buildings, will tend to perpetuate many of the existing evils, such as awkwardly placed and inconveniently shaped sites, narrow streets and too many streets, dead ends, culs-de-sac and restricted play areas.

Despite the very real difficulties in the way, it is obvious that any solution adequately fitted to meet the case and to conform to future needs must be based first of all on the comprehensive replanning of the largest areas that can be made available and in a manner allowing the highest proportion of open space, fewer and wider roads and the fullest availability of sunshine and fresh air. At the same time consideration should be given to the density of a population for the most part firmly tied by employment, usage or necessity to the locality in which it has established itself.

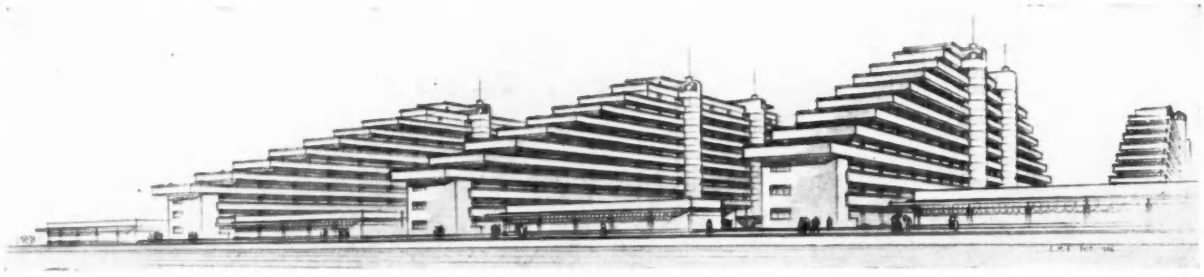
Any such redevelopment, where applied to urban areas of high population density, must again rehouse large numbers. It has been found that a form of development using four or five storey blocks at the minimum spacing usually acceptable to local authorities, will provide some 60 flats per acre of an average size of three habitable rooms per flat, or, on the none too generous basis of $1\frac{2}{3}$ persons per room, a total of some 300 persons per acre, without serious overcrowding.

Were buildings of twice that height feasible, the amenities of open space would be correspondingly increased.

At the same time it should be noted that a maximum density of 60 flats per acre is quite inadequate in cases where the existing population is in excess not of 300 persons, but of 400, and there are some very bad cases where the density is known to reach on 500 per acre.

The four or five storey block is usual for the simple reason that four or five storeys is about as much as a tenant can be expected to climb, and such buildings give a development of the greatest number of flats per acre without recourse to lifts. At the same time, were lifts an economical proposition in such cases, they would undoubtedly be used with gratitude by the majority of tenants on the higher floors. On a given area of building, the greater the number of floors, the less formidable in proportion does the provision of a lift installation become, while, with the large building units possible on extensive development areas, not only should the lift be a reasonably economic adjunct—as it is certainly a necessary one—but attendants' wages (forming a major part of outgoings) become a correspondingly lesser item and tend to merge with other management charges.

A serious drawback in all multi-storeyed schemes so far put forward is the fact that, while it is being increasingly recognized that each flat requires some form of balcony large enough to take an infant's pram or cot in the open air, no recreational areas are available for small children or adults except at ground level, and con-



sequently at too great a distance from the individual flat, where safety is problematical and supervision impossible.

The drawings here illustrated are put forward as an attempt to meet the problem of large scale rehousing in general, and this deficiency in particular, by providing multi-storeyed buildings with external platforms or sun-decks easily accessible at every floor, or (see Scheme B) at every other floor, and of an area suitable for small children at play or adults at leisure.

These sun-decks are provided by stepping back the ends of the buildings in such a manner that each deck is open to the sky and made safe for children by the provision of permanent metal mesh screens rising to an adequate height above normal parapet level. Connecting these decks are short flights of stairs like the decks of a ship, allowing easy and safe alternative means of escape in case of fire.

The drawings indicate three variations of the same principle. The "access" elevations show the necessary balconies and stair and lift towers, while the "aspect" side is provided with small individual balconies leading out from the principal room of each flat in the manner common in continental housing schemes, and now being used in some of the later developments in this country.

The principal rooms of each flat give on to the "aspect" side of the building which may face any point of the compass from west to south and from south to south-east, thus conforming to any disposition of the site.

The stepped ends, in addition to providing sunny play areas adjacent to flats, allow a higher percentage of such areas to those floors which are correspondingly farther removed from ground level facilities. Further, and of considerable importance, the resultant general form of the buildings is such that the shadows cast by them are of reduced area and on account of the staggered lay-out tend to fall clear of other buildings. On a site which allows the aspect side of the blocks to face south, the shadow area throughout the day would be the minimum, as the general form of the building approximately echoes the sun's arc, the shadow from the broadest face occurring when the sun is at its greatest altitude.

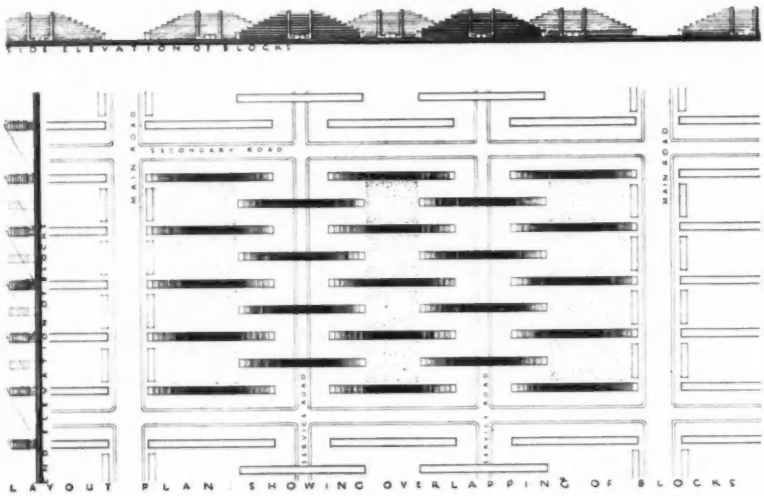
At first sight such stepping of blocks would appear to lose much of the extra accommodation gained by building to the greater heights shown, but, as will be seen from the lay-out given, the system of overlapping the blocks on plan enables this loss of accommodation to be made up. As the portion of adjacent blocks which overlap each other are only some five floors in height—at the apex of overlap—these adjacent blocks, although in the main ten storeys high, can be spaced as closely as are five storey buildings in a normal lay-out.

As the principal open areas for the public occur between the widely spaced ten storey blocks, it will be seen that such areas are much more ample than is possible in any development using five storey buildings spaced to give the same angle of light, or, in other words, the same ratio of spacing to height.

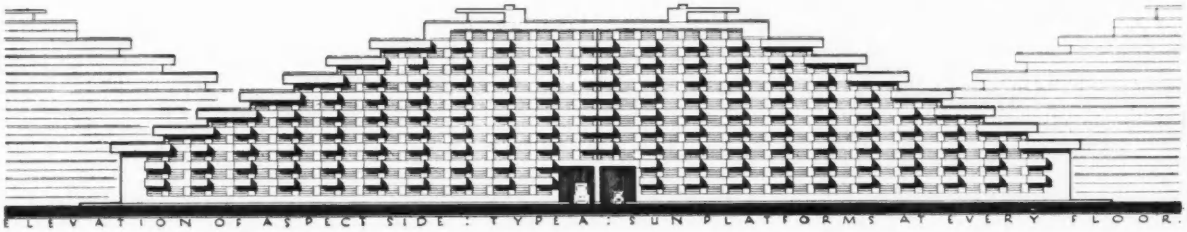
The density of flats per acre with this system of development can rise as high as 100 or more, while maintaining an acceptable provision of open land and other amenities. In the particular lay-out illustrated, having a density of 90 flats per acre, the area covered by buildings is only 16.1 per cent. of the whole. This is a better result than is usually obtained in the case of five storey development at only 60 flats to the acre, where space built over is generally about 20 to 25 per cent.

There is space between buildings on the lay-out shown for such games facilities as cricket squares—22 yards by 22 yards, small football field—65 yards by 40 yards, skittle or post ball, tennis courts, paddling pools, etc. Further, the number of roads necessary with a plan arrangement of this type is very small, and such principal roads as are required can take the form of wide tree-lined avenues without disturbing continuity of lay-out. Secondary roads passing under alternate rows of buildings would provide convenient service access, while inspection subways carrying sewers and electrical, gas and water mains would run parallel to such service roads under the overlapping ends of the buildings, giving direct connection to all.

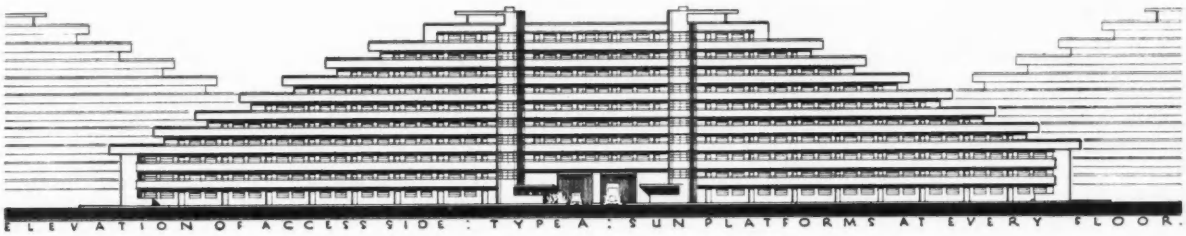
Buildings of the compact form shown, in which all parts are within definite radius of a central boiler chamber at basement level, should lend themselves admirably to the installation of a centrally-operated hot water service and radiator heating system to each block, thus avoiding expensive, space-wasting and smoke producing stacks



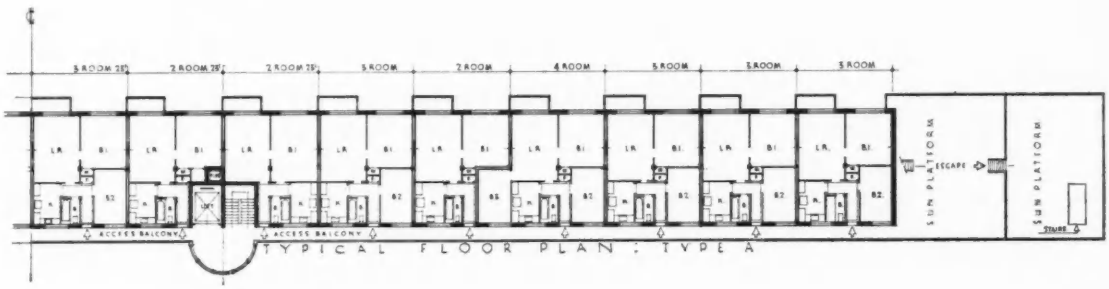
LAYOUT PLAN SHOWING OVERLAPPING OF BLOCKS



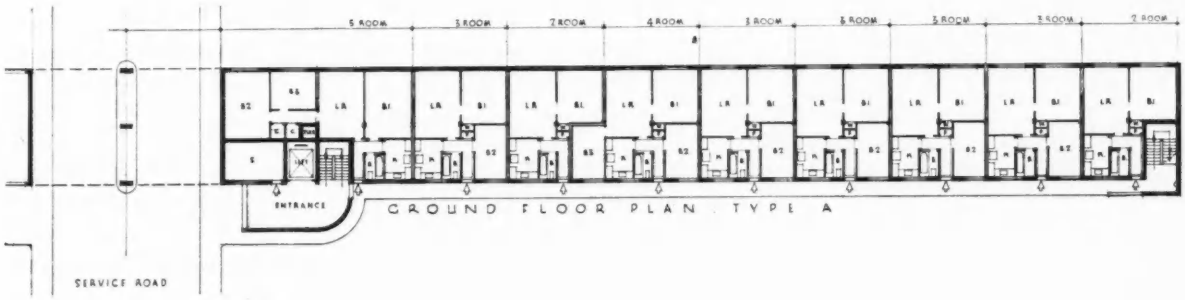
ELEVATION OF ASPECT SIDE : TYPE A : SUN PLATFORMS AT EVERY FLOOR.



ELEVATION OF ACCESS SIDE : TYPE A : SUN PLATFORMS AT EVERY FLOOR.



TYPICAL FLOOR PLAN : TYPE A



GROUND FLOOR PLAN TYPE A

of flues, and the problem of fuel delivery and storage. There has, up to the present, been an extreme disinclination to experiment with installations of this kind in rehousing schemes owing to first cost, apportionment of running expenses, and the difficulty of checking extravagance in the use of hot water, but reasonable proposals for solving this side of the problem have already been put forward in several quarters, and a new block is in existence in Kensington where central hot water is provided free to tenants at an estimated running cost of about 1s. 6d. per week per flat.

Complete standardization of framework, plumbing and construction generally reduces cost and increases speed of erection while allowing great flexibility of flat types, which, with some such form of individual planning as is illustrated, can vary between flats of from one to five habitable rooms.

Steel or reinforced concrete framework is applicable, though steel would give the advantage of lighter sections, shop fabrication and interchangeability of standardized members. The adoption of welded joints would probably offer certain advantages of flexibility and lightness. Light walls of reinforced brickwork with an impervious backing to receive plaster also offers an as yet almost unexplored field in the construction of wall panels within a structural steel or reinforced concrete framework.

SCHEDULE OF DENSITY AND PERCENTAGE OF BUILT-ON AREA

Figures for Type A Blocks.

Based on the lay-out plan illustrated, having a distance of 70 ft. between adjacent blocks, i.e., a distance of 168 ft. between blocks in the same row.

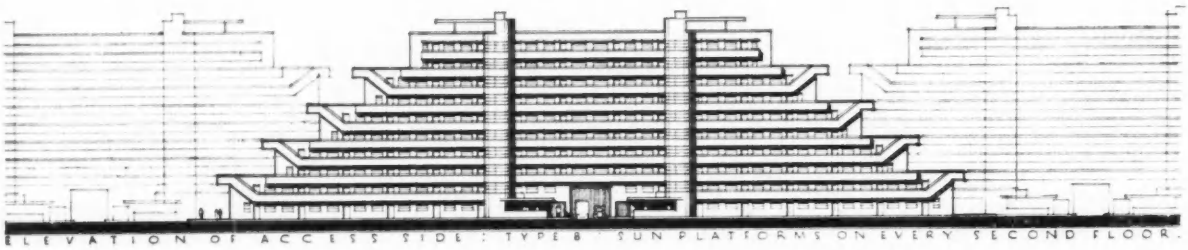
(*a*) Density of flats per acre ..... = 90

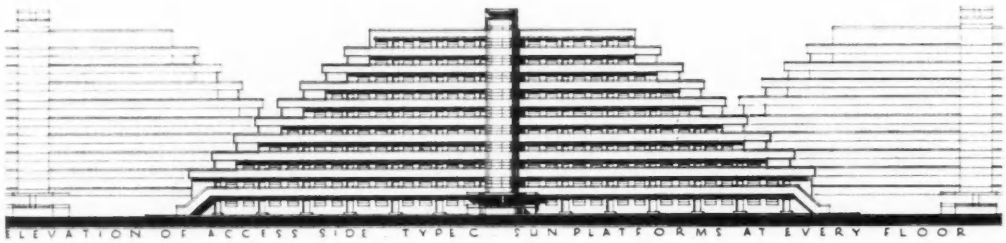
(*b*) Proportion of ground area covered by buildings, measured to centre of surrounding roads ..... = 16·1%

If distance between adjacent blocks is reduced to 60 ft. :—

(*a*) ..... = 101·3

(*b*) ..... = 18%





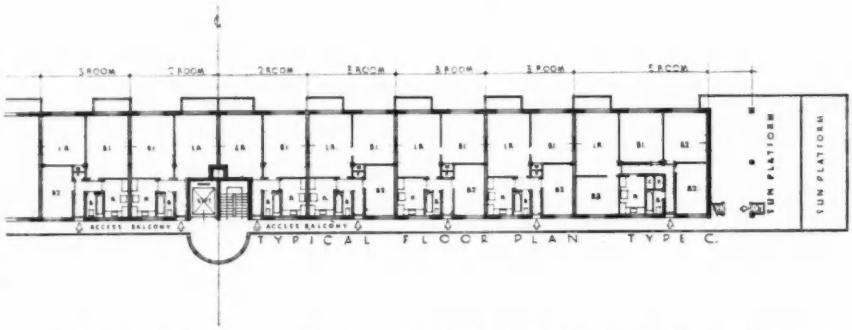
Figures for Type B Blocks.

Based on similar lay-out arrangement, having a distance of 70 ft. between adjacent blocks, i.e., a distance of 168 ft. between blocks in the same row.

(*a*) Density of flats per acre ..... = 91·1
(*b*) Proportion of ground area covered by buildings..... = 16%

If distance between adjacent blocks is reduced to 60 ft. :—

(*a*) ..... = 101·7
(*b*) ..... = 17·7%



SOCIETIES AND INSTITUTIONS

LONDON MASTER BUILDERS' ASSOCIATION

The annual dinner of the above Association was held on December 13, in the Connaught Rooms, Great Queen Street, W.C. Mr. F. W. Stratton, F.I.O.B. (the President) occupied the chair.

Mr. Ewart G. Culpin, F.R.I.B.A. (Vice-Chairman, London County Council), proposing the toast of the "London Master Builders' Association," said there had been a lot of complaints both from architects and from the building trades, as to the rigidness and the longwindedness between the time a plan was first deposited at County Hall and the time the word "go" was given. He had to confess he had a great deal of sympathy with those complaints, and he was glad to be able to state that within a very short time there would be in existence an easier method of obtaining results than was at present possible under the London Building Act. It had, however, to be remembered that the first duty of the L.C.C. was to ensure safety; the L.C.C. had to be sure that all the buildings which were going to be erected in London were going to be safe. No local authority worthy of the name, conscious of its responsibility, was going to shirk its responsibilities in any manner which meant there was going to be any relaxation of the standard of safety. When that had been achieved the next thing that was desired was flexibility. As architects and builders they were well aware how many snags there were under the Building Acts. They knew when the plans had been deposited things had gone on swimmingly for a time, but at the end there came some unknown quantity which they had not been able to appreciate. The London Building Act was an old structure. The London Master Builders' Association had been associated with a Committee which had been set up by the L.C.C. to deal with the revision of the London Building Act. No one denied that the revision of that Act was long overdue—and there was a desire to get something which was more in consonance with modern practice and which recognized modern methods which had not been possible under the existing Act. That Advisory Committee had been meeting for some years and was coming to the end of its labours. During the period it had been operating it had at least been able to produce three reports which had been adopted by the Council and which were at the moment operating in every section of the building industry. The Committee dealt first of all with the question of steel building construction and that had had a marked effect, he believed, upon the question of the erection of steel-framed buildings. Then they had dealt with the concreting of buildings and materials, and had recently issued a report on reinforced concrete buildings.

With Mr. Maurice Webb, he had, for many years, urged upon the building public of London and upon the L.C.C. the question of the rigidity of the Building Act for London, and the fact that it required years before they could get a revision of it. He said he remembered at a dinner at which he spoke some months ago he then expressed the hope that it might be possible, instead of proceeding under the rigid Act, to make provision for bye-laws, which would be regulated by the County Council. This would enable the Council to keep in touch with modern progress in the new developments to be tried out instead of having to go to Parliament every year for a revision of the Act. He was glad to say in principle that had been accepted. He believed that the Advisory Committee on the London Building Act had presented a report endorsing that, and he had hopes that within a very short time they would know that the L.C.C. had decided to go for a Building Act which could be revised in accordance with modern practice, instead of performing those long, wearisome, tedious journeys year by year to Parliament for some long expected legislation. In the future, he believed, instead of that practice, they would have that which obtained in the ordinary municipalities of the country by the Council itself making bye-laws which would enable everyone to pursue their functions with greater rapidity.

Other speakers included the Chairman (Mr. F. W. Stratton) and Sir William Prestcott.

L I T E R A T U R E

DESIGNING CHURCHES

How To Build a Church. By Benedict Williamson. London: Alexander Ouseley, Ltd. Price, 10s. 6d. net.

THIS book is, in effect, a restatement of the *Instructions on Church Building* of Saint Charles Bottomeo, interpreted and modified where necessary to serve as a guide to church building today. The great Bishop of Milan wrote his treatise primarily to emphasize the need of respect for tradition and order at a time when, as it seemed to him, worship and architecture were paying too little heed to either. There are some, perhaps, who feel much the same about recent developments in the same sphere and who will, therefore, welcome this reminder of one of the most weighty and detailed contributions to ecclesiology. Certainly its appearance is timely, for the last English version, that by Mr. E. J. Wigley, appeared as far back as 1857, and though this book is not a translation it quotes so freely from the original that it gives the substance of it with full notes on the lines of a commentary.

Saint Charles devoted attention as much to minute particulars as to fundamental principles, and his teachings are as notable for their practical good sense as for the authority attaching to them from their authorship. Changes in liturgical use and custom have caused some of his recommendations to become obsolete, but the majority still hold good in a general sense. Since the book only concerns Roman Catholic churches, its title may be misleading—as well as a trifle ingenuous; but it can be said that much of the detailed information given will be of assistance in connection with their ecclesiastical buildings. It is, in fact, in its clear and simple explanations of such technicalities of church design as the arrangement of the sanctuary, the equipment of sacristies, the dimensions of fonts, altar-rails and so on, that the chief usefulness of this book lies. The diagrams and perspective sketches are clear and the advice given concise, lucid and for the most part sound.

The weakness of the book lies in the illustrations of what it hopefully refers to as "the new style" in architecture. As drawings these are not up to the standard that a book on architecture should maintain, being weak both in technique and perspective. But still less is the architecture they depict prepossessing. The exteriors, it is true, are consistently better than the interiors and mostly appear to have a bold, powerful quality that shows at any rate real architectural feeling. The interiors are heavy and coarse to a degree and the only claim they seem to possess to be new is in their detail. Constructionally there is nothing new about them at all, as they merely reproduce forms that have been carried out many times before. And now this detail, to which the author devotes a well-intentioned and in some respects creditable chapter, is of so slight and meagre a kind that its fitness to assuage the asperity of the architecture is more than doubtful.

Such architecture is no model for imitation. If it is really new, it is like new wine; the old is better.

S. E. D. B.

CONGRESS REPORT

Final Report of the International Association for Bridge and Structural Engineering. Zurich: The General Secretariat of the Association.

THE final report of the first Congress of the International Association for Bridge and Structural Engineering consists chiefly of the contributions to the discussions on the various papers presented to Congress in Paris in 1932 and already published in the preliminary report.

These papers were grouped under various headings, the most important from the building construction point of view being: the design of reinforced concrete slabs, the design of members subject to compression and bending, welding, "stiffness of sky-scrapers," composite steel and concrete structures and bearing capacity of foundations.

The discussion on any paper consists in most cases of papers from other authorities on the same subject frequently containing the results of further research work. Short "conclusions" by the various committees on each subject are printed at the end. These conclusions are mostly in very general terms and in all cases stress the need for further co-ordinated research in all countries.

Dealing with welding the Congress concludes that "it is agreed that, when the welded joints in steel structures and in plate girders for bridges are properly executed, there need be no hesitation in adopting them, even if they are subjected to dynamic stressing."

They also state that while "various methods for testing finished welded joints were discussed. . . .the Congress is of the opinion that it is necessary to test the welders and also constantly to supervise the welded joints while they are being executed. Determining the quality of the joints made by each individual welder has an educative effect. Management and supervision of the welding work should be entrusted to a responsible expert engineer."

R. Maillart contributes an extremely interesting paper on flat slab construction illustrated with photographs showing various possible forms of column and column head. Another interesting section is that dealing with composite construction, i.e., rolled steel sections cased in concrete, with the added strength of this casing allowed for in the calculations, and not ignored as in our own steel frame buildings. This system has attained considerably greater popularity abroad than in Great Britain, presumably largely because our principal regulations have prohibited its use.

The contributions are mostly in French or German (with a few only in English) and in each case a French translation is provided, while in some cases there is an English summary, which is not always well done.

W. E. J. B.

Publications Received

An Electrical Adventure. By PEGGY SCOTT. London: Ivor Nicholson and Watson, Ltd. Price 2s. 6d.

Hot Water and Steam Supply by Electricity. By FRANK C. SMITH. London: E. and F. N. Spon, Ltd. Price 7s. 6d.

Regency Furniture, 1795-1820. By M. JOURDAIN. London: Country Life, Ltd. Price £1 1s.

Art and Industry. By HERBERT READ. London: Faber and Faber. Price 12s. 6d.

Sheet Copper Work for Building. 1934-5. Copper Development Association.

Architects' Accounts. By OSWALD M. BROWN. London: Gee and Co., Ltd. Price 7s. 6d.

The Teaching of Art in Schools. By EVELYN GIBBS. London: Williams and Norgate, Ltd. Price 12s. 6d.

Fresh Fields for Investment. By RALPH CURTIS and F. B. WINHAM. London: Jordan and Sons, Ltd. Price 5s.

The Wren Society.—Vol. XI. Wren Society. Oxford University Press. (Issued only to subscribers.)

Twentieth Century Houses. By RAYMOND MCGRATH. London: Faber and Faber. Price 21s.

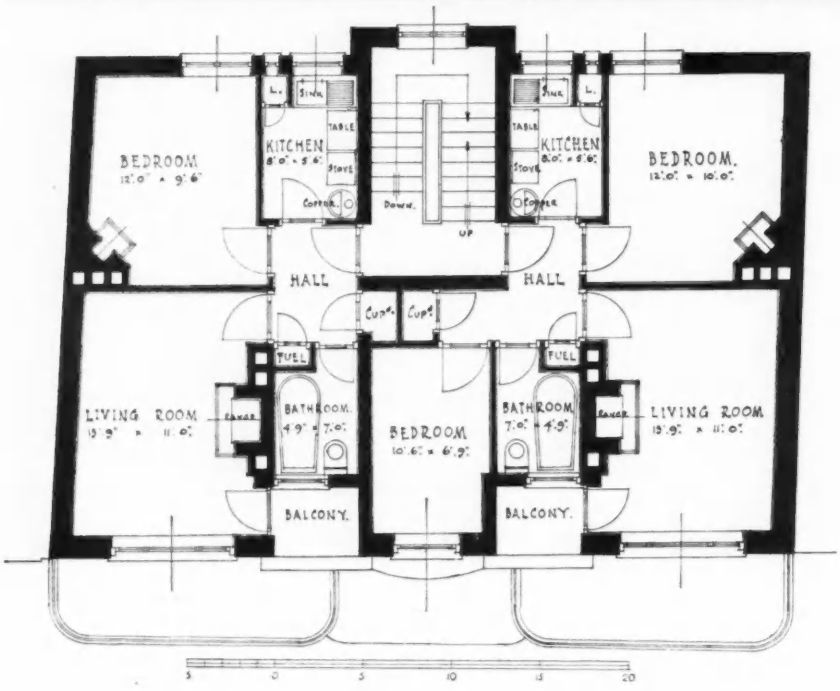
Mediæval Town Planning—a lecture. By T. F. TOUT. Manchester University Press. Price 2s.

Church Architecture of Protestantism. By A. L. DRUMMOND. Edinburgh: T. and T. Clark. Price 15s.

Ryedale. Ryedale Branch of the C.P.R.E. Price 4s.

PAUL'S HOUSE: BLOCK OF FLATS

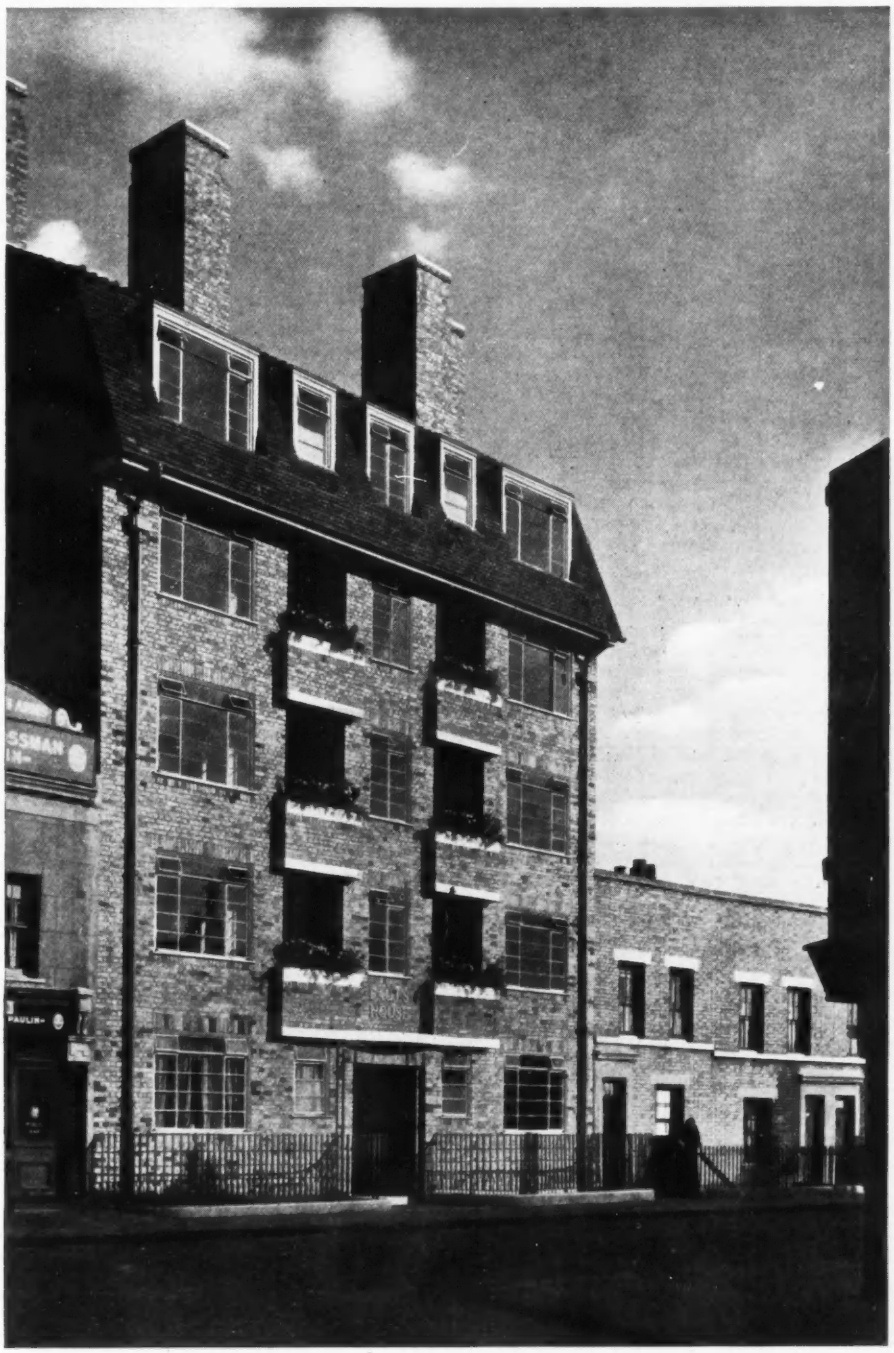




TYPICAL FLOOR PLAN

Above, a detail photograph of the main entrance and, left, a typical floor plan.

IN ST. DUNSTAN'S ROAD, BOW

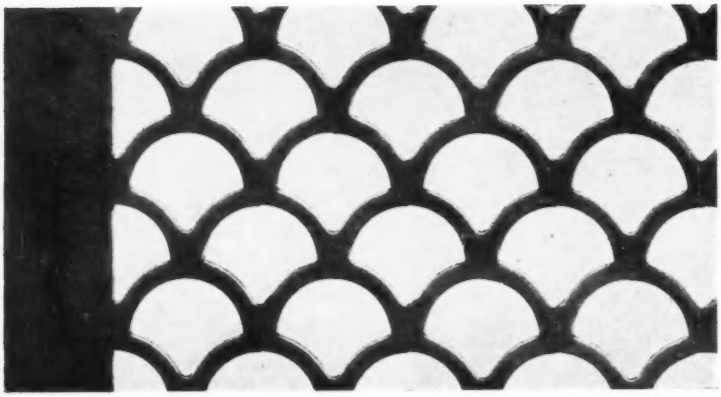


DESIGNED BY MITCHELL AND BRIDGWATER

This building, the second to be erected for the Stepney Housing Trust, is a "decanting" block for the Waley Street clearance area. Above is a general view of the building.

The external facing is old London stock bricks. The wood frames to the metal casements are painted light blue and the casements cream. The flatter slope of the mansard is covered with stained pantiles and the steeper part with roofing tiles stained to match them. The concrete cantilevers carrying the balcony fronts and flower-boxes are rendered in cement and sand and painted with stone paint; the chimney caps are artificial Portland stone. The rain-water pipes and heads on the front are painted pale grey, also the rain-water gutter.

The flats are all-electric, and internally the walls are painted buff, with skirtings and architraves dark grey and dark blue. The floors are covered with battleship linoleum.



TRADE NOTES

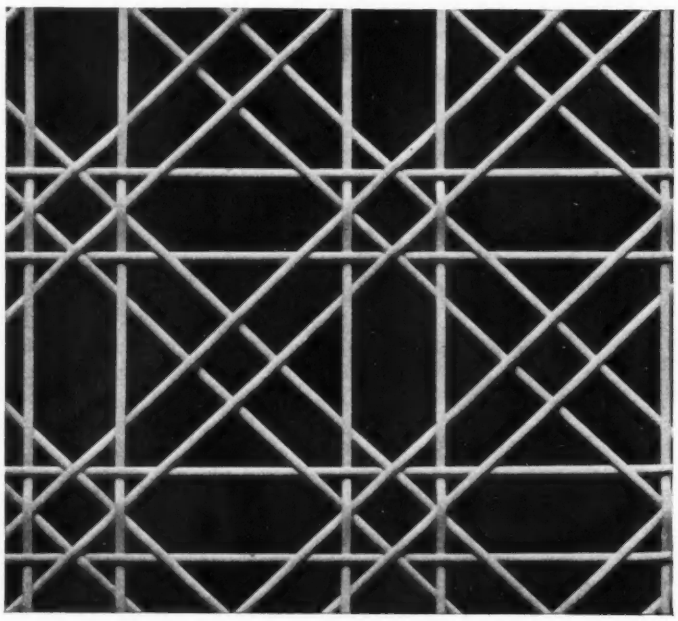
[BY F. R. S. YORKE, A.R.I.B.A.]

Metal Grilles

MESSRS. G. A. Harvey specialize in the production of perforated, embossed and interlaced metal work, and their catalogues illustrate hundreds of the thousands of standard patterns that are stocked. There are nearly four hundred types of round hole perforation patterns alone, ranging from those with 718 holes to the square inch, to those with holes 2 or 3 in. in diameter. Their uses include screening coal, coke, gravel and ore, and separating food products and fine chemicals. They can be formed into radiator and electric heater covers, pipe guards, grilles, ventilator panels, etc.

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The interlaced or woven wire grilles are made by a patent Metalace process. Formerly all weaving, whether of wool, cotton, silk or wire, was limited to the use of strands running at right angles to one another. By the new process, additional metal strands may run diagonally, so that wire may be woven into a greater range of patterns. The finished material is used for grilles of all sorts. Metals used for perforated, embossed and interlaced work include steel, brass, copper, bronze, duralumin, etc.



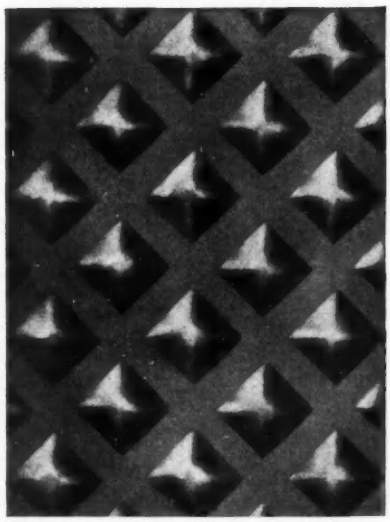
Interlaced metalwork. From G. A. Harvey and Company's new catalogue. Perforated metal sheet is shown at top of page.

Cementone Products

So many products are marketed by Joseph Freeman and Sons under the name Cementone, that a comprehensive booklet clearing the confusion that must exist in some architects' minds, as to what the various Cementones are, and what they do, has been wanted for some time. It is at last available, and it serves its purpose admirably. The Cementones—Nos. 1 to 10—are separately described, and approximate costs per yard super and typical specification clauses are appended.

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The products include colours for incorporation with cement, concrete, plaster, etc., waterproofing powder for cement, colourless, transparent waterproofing liquids for application over external walls of various materials, concrete floor binder, waterproo decorative finishes, flat and gloss finishes that can be applied over green concrete, etc., concrete hardener and liquid surface tinter for concrete floors, asbestos cement, and cement surfaces generally.



Embossed metal sheet for treads, etc., from G. A. Harvey and Company's catalogue reviewed on this page.

Manufacturers' Item

On Wednesday, November 21, about 30 members of the Architectural Society, University College, visited the Fitzroy Works of Frederick Braby & Co., Ltd. After Mr. F. C. Braby had given a short survey of the various processes of manufacture which would be seen, the students were conducted over the works in three parties.

The processes which particularly interested the students were the copper-welding, manufacture and galvanizing of steel gutters and pipes, pressed steel door frames and copper fittings for internal plumbing.

LAW REPORTS

BUILDING CONTRACT APPEAL

T. L. Johnson v. *Birmingham Corporation.—Court of Appeal. Before Lords Justices Greer, Maugham and Roche.*

IN this case the Birmingham Corporation appealed from a decision of Mr. C. M. Pitman, K.C., one of the Official Referees of the High Court, on a preliminary point of law.

The action was brought by Mr. T. L. Johnson, a building contractor, of Great Brook Street, Birmingham, against the Birmingham Corporation to recover damages for alleged breach of contract in connection with the reconstruction of the Kent Street Baths, Birmingham. He alleged that he was so hindered by certain acts of the Corporation and its delay in furnishing plans and instructions that the contract became uneconomical. He complained that the Corporation in July, 1931, wrongfully entered upon the site and repudiated the contract, and in consequence of this he claimed £3,076 balance owing on work he had executed, £5,400 for loss of profit on uncompleted work and damages for conversion of plant and materials.

The preliminary point of law which the Official Referee decided was whether the Corporation had acted legally in taking the work out of the hands of Mr. Johnson.

It appeared that under the general conditions of the Corporation it was provided that in the event of the works not being carried out with such despatch as to ensure their completion within the stipulated time the architect could give three days' notice to the contractor, after which the Corporation would have the power to take the work out of his hands. On April 28, 1931, a three-day notice was given by the architect that the work was greatly behind and that the Corporation would accordingly enter into possession. On May 5, however, the Town Clerk wrote that the Baths Committee had agreed to wait two months before deciding to take possession, and it was not until July 14 that possession was taken.

The contention on behalf of Mr. Johnson was that the letter of May 5 was a waiver of the right to act on the notice of April 28 and that the Corporation could not act upon it two months later. It was argued that in the circumstances the notice of April 28 could not remain in force all the time during which Mr. Johnson had brought more materials on the site, and that a second notice should have been given before action.

On behalf of the Corporation it was argued that the letter of May 5 was not a waiver and that the right to take possession was not confined to any specified time.

The Official Referee, however, held that the Corporation had not exercised its right within a reasonable time and had allowed Mr. Johnson to continue to spend money on the work and bring more materials on the site, on the faith of the confirmation of the contract. He held that the Corporation had waived the forfeiture and therefore were not entitled to take the work out of Mr. Johnson's hands, but granted a stay of the action pending the present appeal on the preliminary point of law.

Mr. A. T. Miller, K.C., for appellants, the Corporation, contended that the letter of May 5 did not constitute a waiver, but was only a notification that action was being deferred for two months. As the work was continuing the builder was not detrimentally affected by the lapse of two months, but as the rate of progress of the work did not improve during the two months the builder was liable to have the work taken out of his hands. The Corporation did not hold out to the builder any hope that the contract would be continued, despite his default, and as he did not avail himself of the opportunity to speed up the work it was not right to say that the Corporation did not act within a reasonable time.

Without calling upon Mr. Croom-Johnson, K.C., for Mr. Johnson, the respondent, the Court dismissed the appeal with costs.

Lord Justice Greer, in giving judgment, said that for two months after the notice was served on Mr. Johnson both parties went on with the contract, and in July, without further reference to the architect, the Corporation took the work out of Mr. Johnson's hands. They were not entitled to do that, because in July it was too late to act on the architect's decision in May. During the two intervening months both parties had treated the contract as a subsisting and effective one. In his opinion the appeal failed.

Lords Justices Maugham and Roche concurred.

CONTRACT: HOUSE OF LORDS JUDGMENT

G. N. Haden and Sons, Ltd. v. *Higgs and Hill, Ltd.—House of Lords. Before the Lord Chancellor and Lords Blanesburgh, Tomlin, Russell of Killowen and Macmillan.*

THIS was an appeal by G. N. Haden and Sons, Ltd., from a judgment of the Court of Appeal in favour of Higgs and Hill, Ltd. In the Court below, Mr. Justice Swift, in the King's Bench Division, found in favour of Haden and Sons, Ltd.

The Lord Chancellor, in giving judgment, said: "This is an appeal from a judgment, of the Court of Appeal, whereby a judgment of Mr. Justice Swift in favour of Haden and Sons for the sum of £6,994 was set aside and judgment was entered in favour of Higgs and Hill, Ltd. Haden and Sons carry on business of heating and ventilating engineers and the present action arises out of the relations between them as sub-contractors and Higgs and Hill, as building contractors, in connection with premises to be erected in the West End of London for Gamages (West End), Ltd.

"The principal facts are as follows: By a contract, dated October 4, 1928, Higgs and Hill contracted with Gamages to erect for them a large building near the Marble Arch. As to some of the work Higgs and Hill on November 1, 1929, entered into a sub-contract with Haden and Sons. Haden and Sons were paid sums by Higgs and Hill as the work proceeded, and about February 13, 1931, they finished their work and claimed payment of certain sums which they alleged to be outstanding, and for which they now sue. These sums, amounting together to £6,994 9s. 4d., consisted of (1) a sum of £1,624 19s. 4d. said to be the unpaid balance of the sub-contract price; (2) a sum of £4,690 claimed in respect of work alleged to have been done under a separate contract; and (3) four items, making up £679 10s. in all, said to be due in respect of alterations or extras.

"Higgs and Hill in answer maintained that all these sums of which Haden and Sons claimed payment were in respect of work done under the sub-contract or on the same terms as the sub-contract and they relied on a clause in the sub-contract as absolving them from liability to make any further payment to Haden and Sons.

"It will be observed that the price to be paid to Haden and Sons is to be the price named or to be ascertained in the manner provided in the fifth schedule. The fifth schedule, however, contains no obligation to pay, but sets out the price or mode of ascertaining the price, and the mode and dates of payment. The charging clause is clause 8. It was argued by Haden and Sons that this clause as to the rate and instalments of payments with the relative proviso referred only to the period of time during which the work was proceeding, and had no reference to payments to be made after the work had been completed. This contention cannot be correct. If it were, as Lord Justice Romer points out, 'no express provision whatsoever has been made by the contract for the payment either of the first instalment of the retention money, or any other payment on account after the completion of the work.' I agree with Lord Justice Romer in regarding the words, 'as the work proceeds' as doing no more than making it clear 'that the payment of instalments will go on during the progress of the work . . . and not as putting a limit to the period over which such instalments are to be paid.' The words of the proviso thus apply to every payment to be made by Higgs and Hill to Haden and Sons under the sub-contract.

"On this construction clause 8 expressly provides that Haden and Sons shall at no time be entitled to be paid a greater sum than that which has at the time been paid to Higgs and Hill under the principal contract in respect of the sub-contract work. It is admitted that Higgs and Hill have paid to Haden and Sons every penny which they themselves have received from Gamages in respect of the sub-contract work and that in consequence of the insolvency of Gamages Higgs and Hill will receive no further payment under the principal contract. On those facts I am of opinion that the proviso affords to Higgs and Hill a complete defence to the action so far as founded on the sub-contract. In these circumstances it is not necessary to express an opinion on the final sentence of clause 8, which says, 'The final balance shall only be payable as to when the contractors receive their final payment, under the principal contract.' It was strongly pressed upon as that it would lead to the absurdity that if Higgs and Hill had not received a sum, say, of £5 due to them from Gamages, they would not have been liable to pay over to Haden and Sons any final balance, however large it might be. In answer to that it only remains to be said that if such an interpretation is the true one, those responsible for the standard form might well conceive some alteration in the phrased copy to be desirable.

"I am, therefore, of opinion that in respect of the first sum the appellants fail.

"I now turn to the sum of £4,690. Haden

and Sons contend that the matters comprised in this sum were items quite outside the sub-contract and that clause 8 had, therefore, nothing to do with them. They claimed to be entitled to the amount as for work and labour done. It appears that in the minutes of December, 1929, it was decided at a conference between representatives of all the interested parties that the provision in the principal contract that the ventilation and duct work between the basement and top floor of the proposed premises should be executed in concrete, should be abrogated ; and that this ventilation and duct work should be carried out by Haden and Sons in metal on behalf of Higgs and Hill. The sum of £4,690 is in respect of this work so carried out in metal.

"The question is—was this a separate contract in the sense of being a contract whose terms were different from those of the original sub-contract? It was admitted at the Bar of Your Lordships' House that the question whether it was a separate contract or not is one of fact, Haden and Sons maintaining that it was a separate contract, and Higgs and Hill that the work was done under terms similar to those of the original sub-contract. On this question of fact there are undoubtedly considerations pointing either way. A perusal of the correspondence would lead to the conclusion that the work in question was begun before any definite agreement in respect of it had been reached. It is clear that the parties did intend at one time to have a separate contract drawn up with regard to it.

"Haden and Sons point out that in their books they kept these items separate, and that they reported from time to time to a Mr. Richardson, who was the representative of Higgs and Hill, and not to the representative of the building owner. This practice, however, was explained by Mr. E. N. Joseph, the architect for the building owner, who stated that his purpose in asking that this work should be invoiced separately was for the information of his clients.

"On the other hand there are many indications that the parties intended all the work to be work under one contract and so treated it. Haden and Sons on April 9, 1930, writing to Higgs and Hill say : 'You will note that we are entitled to receive a further sum of £5,600 on account of our contract' ; and on the same date they write to Messrs. Nicholson : 'We are in receipt of your esteemed letter of the 9th instant and note that you have certified for a further £5,600 on account of our contract.' There is a similar letter from Haden and Sons of May 6. Those figures and the relative accounts which passed between the parties show that items, under the original sub-contract and under the alleged separate contract, were mixed together without division or distinction and that payments were made indiscriminately as if they were under one and the same contract.

"Looking then at the course of business and at the accounts passing between the parties I have arrived at the same conclusion as the Court of Appeal, namely, that the parties did not in fact treat what I may call the new work as done under a separate contract, but regarded it as work done under terms similar to those of the sub-contract. This being so, Higgs and Hill are protected by virtue of clause 8 which has already been dealt with.

"With regard to the third sum of £679 10s., this is made up of four separate items, namely : £183 15s., £215 5s., £221 and £59 10. Haden and Sons took three points with regard to these.

(i) That they were extras to the alleged new contract and not to the sub-contract.

(ii) That special considerations applied to each item.

(iii) That each of them in itself was a separate contract, i.e., not an extra.

"It is unnecessary to discuss each of these items separately. I agree with Lord Justice Greer, who said : 'The second item, in respect of which £183 15s. was claimed, was expressly made subject to the terms of the sub-contract, and admittedly that item is one to which clause 8 of that sub-contract applies. The other items were additions or variations to the duct work agreed to be done for £4,690 and they were included in the accounts from time to time in the same way as the £4,690. Clause 8 of the sub-contract applies to them also.'

"On this view of the law and the facts, a subsidiary question of appropriation which was mooted does not arise. In my opinion this appeal fails and should be dismissed, with costs."

Lords Tomlin, Russell of Killowen, and Macmillan concurred and the appeal of Haden and Sons was dismissed with costs.

Lord Blanesburgh dissented and said he was in full accord with the judgment of Mr. Justice Swift.

ARCHITECT'S ACTION FOR FEES

Mendham v. *Harvey.—Official Referee's Court. Before Mr. S. R. C. Bosanquet, K.C.*

This was an action by Mr. John Bernard Mendham, A.R.I.B.A., of Cartaret Street, S.W., to recover from Mr. Henry Joseph Harvey, of King's Road, St. Leonards-on-Sea, £1,453, balance of a total charge of £2,663 for professional services rendered by Mr. Mendham in connection with the building of the Regal Cinema at St. Leonards, of which the defendant, Mr. Harvey, was the builder and original owner.

The claim of Mr. Mendham included his fee for services other than those in connection with the cinema.

The defendant's case was that Mr. Mendham was engaged at an inclusive fee of £2,000, but was guilty of negligence in carrying out his duties. Defendant admitted that he owed Mr. Mendham the sum of £85, but claimed to be entitled to set off a sufficient sum to satisfy the claim.

Mr. Mendham in reply denied negligence and pleaded that if the defendant had suffered any damage it was due to his own negligence.

The Official Referee, after a long hearing, in a reserved judgment, awarded to Mr. Mendham £1,010. He also gave judgment for Mr. Mendham on the counter-claim, expressing the opinion that Mr. Harvey's obligations of negligence had not been substantiated.

Judgment was accordingly entered for Mr. Mendham on his claim for £1,010 with costs, and of one year's interest on the sum of £1,000, which the defendant, Mr. Harvey, had brought into Court on December 1, 1932, and also for Mr. Mendham on the counter-claim with costs.

THE BUILDINGS ILLUSTRATED

Sub-Contractors' List

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue :—

Housing Scheme, Welwyn Garden City (pages 12-15). General contractors, Simms, Sons and Cooke. Sub-contractors : Pratts, Ltd., roofing contractors ; Herts Gravel and Brick Works, facing bricks ; Carron Co., Ltd., baths and coppers ; Welwyn Garden City Electricity Supply Co., electrical installation ; Nettlefold and Sons, Ltd., ironmongery ; Newman Hender & Co., Ltd., hot water apparatus ; Penfolds fencing and gates ; Bignell, hedges ; Merchant Trading Company, doors ; Interoven Co. cooking stoves.

St. Paul's House, Stepney (pages 28-29). General contractors, Harry Neal Ltd. Sub-contractors : Greenham Excavation Co., demolition and second hand stock bricks : Moreland, Hayne & Co., steelwork ; Trussed Concrete Steel Co., Ltd., Reinforced Concrete Engineers, reinforced concrete ; Kleine Floor Co., hollow tile floors, and linoleum ; Robert Adlard & Co., Ltd., tiling ; Crittall Manufacturing Co., metal windows ; John Bolding and Sons, sanitary fittings ; Metropolitan Borough of Stepney Electricity Supply Undertaking, electrical work ; Keystone Paint and Varnish Co., paint, etc. ; Wing and Webb, Ltd., door furniture ; Empire Stone Co., Ltd., patent stone chimney caps ; Henry Hope and Sons, Ltd., rain water heads ; Bratt Colbran & Co., mantel registers ; F. A. Norris & Co., iron gate ; Charles Bluff, iron railings ; Birmingham Guild, Ltd., enamel lettering ; Smith and Wellstood, stoves ; John Lewis, dressers.

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INTERIOR DECORATION

In the course of a paper on "Interior Decoration," read at a recent meeting of the Royal Society of Arts, Mr. Derek Patmore said :—

"At the moment we are struggling to create a new decorative style. But we need guidance. And that is where the coming exhibition at Burlington House should show us in what direction lies a successful interpretation of modern interior decoration. It should point the way to a modern style that really is a mirror of the age in which we live.

"I contend that modern decoration should be as elegant and beautiful as the great styles of the past. It need not be full of clever stunts and novel ideas, such as ruined the last show of Industrial Art at Dorland Hall. Champions of the modern movement in architecture and decoration are very fond of quoting Le Corbusier's statement that 'the house should be a machine to live in.' They have attempted to force these very extreme ideas down the throats of the British public and then are annoyed because the public have indigestion.

"Admittedly, the general public have not as much taste as they should have, but I often think that they have more taste than they are credited with by the decorators and manufacturers. Personally, I have no desire to live in a machine, and I rather sympathize with the British public on this matter."

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS).

WHITECHAPEL. *School.* The managers of the St. Peter's non-provided school are to enlarge the school premises by the provision of 200 additional places.

WOOLWICH. *Additions to Polytechnic.* The L.C.C. Education Committee reports that in July last it approved a scheme by the governors of the Woolwich Polytechnic for extensions to the premises by the erection of a new building on an adjoining site and decided to make a grant of £20,000 towards the cost of the work, estimated at £24,850. The Committee has now considered the preliminary plans which include the proposed erection of a restaurant, with kitchen and store accommodation, in the basement of the new building, and recommends that such plans be approved.

SOUTHERN COUNTIES

BRIGHTON. *Houses.* The Corporation Mental Hospital Visiting Committee recommends a scheme for the erection of 24 houses on a site adjoining Asylum Road, at an estimated cost of £11,282, for the accommodation of the hospital staff.

BRIGHTON. *Houses.* At the Corporation General Purposes Committee a minute of the Sunday Opening of Cinemas Committee was submitted, stating that it was of opinion that the Committee could rely on receiving grants towards the augmentation of the rents of houses let to aged poor people at less than economic rent, from the proceeds of the Sunday opening of cinemas and that therefore the Committee would be justified in arranging for the erection of 62 houses. The borough engineer submitted a revised lay-out plan of the Manor Farm Estate and reported that provision had been made thereon for the erection of an additional 36 houses for aged people, in addition to the 32 houses already approved. The Committee approved the revised plans.

BRIGHTON. *Flats.* Mr. Julius Turner proposes to develop land at Black Rock, by the erection of a block of flats and other works.

BRIGHTON. *Park Lay-out, etc.* The Corporation General Purposes Committee has approved in principle a preliminary draft lay-out by the Borough Engineer in connection with the proposed park at Withdean, on land recently acquired from Messrs. Braybons, Ltd. The scheme includes provision for a swimming pool, two bowling greens, six tennis courts, a sports pavilion, bandstand, a lido, and two cafés, with an ornamental lake, pleasure grounds, etc.

BRIGHTON. *Houses and Flats.* Plans passed by the Corporation: Flats, Havelock Road, for Mr. C. Bevan; two shops, Bedford Street, for Rev. J. Newton; two houses, Reigate Road, for Mr. J. E. Thompson; two flats, Preston Drove, for Mr. A. Groizard; flats, Montpelier Road, for Mr. E. Davis; flats, Sussex Square, for Miss J. Bunting; two houses, Varndean Gardens, Withdean, for Mr. H. Nixon; two houses, Beechwood Avenue, Patcham, for Mr. R. D. Comber; four bungalows, Longhill Road, Ovingdean, for Mr. D. Pierson; 50 building plots, The Parkway, for Varndean Estates, Ltd.; eight houses and 29 bungalows, Mackie Avenue, etc., Ladies Mile Estate, Patcham, for Ladies Mile Estate, Ltd.; two houses, Old Farm Road, Withdean, for Mr. E. G. Cornish; 16 houses, Wilmington Way, Patcham, for The Nevill Land and Development Co., Ltd.; 23 bungalows, Eskbank Avenue and Braeside Avenue, Ladies Mile Estate, Patcham, for Ladies Mile Estate, Ltd.; lay-out for 13 houses, Warren Road, etc., Wick Estate, Rottingdean, for Mr. F. J. Mathias; two houses, Warren Road, Rottingdean, for Mr. J. Matthews; two houses, Falmer Road, Rottingdean, for Mr. J. Jones; shop and four flats, Old Stein, for Brighton Corporation; two houses, Hollingbury Rise, for Mr. O. G. H. Watts; Plans submitted: Grand stand, chauffeurs' rest house, pavilion, and club house, Sussex county lawn tennis ground, Marshall Field, Withdean, Patcham, for Brighton Corporation; four houses, Chichester Drive, Rottingdean, for Mr. W. F. Hopkins; three building plots, Carden Avenue, Patcham, for Sussex Estate Agency; banking premises, shop, etc., Patcham Street, Patcham, for Mr. L. W. Waterman; five houses, Valley Close, etc., Patcham, for Mr. T. R. Braydon; 12 houses, Falmer-Rottingdean Road, Woodingdean, for Mr. G. H. Pannett.

HASTINGS. *Houses and Flats.* Plans passed by the Corporation: Two houses, Filsham Road, St. Leonards, for Mr. J. W. Cobb; two houses, Park Estate, for Mr. A. Radcliffe; four houses, Cavendish Avenue, St. Leonards, for Mr. A. Radcliffe; oil and spirit depot, Bulverhythe Road, St. Leonards, for Mr. J. Jenkins, on behalf of Anglo-American Oil Co., Ltd.; three houses, Berlin and Ashburnham Roads, for Mr. J. C. Woolridge; two houses, Harold Road, for Messrs. H. Ward, Son and Wray; house and shop, Bexhill Road, for Mr. J. S. D. Hicks; 10 houses, Bexhill Road, St. Leonards, for Mr. F. Gordon Watford, on behalf of Mr. G. Fryer. Plans submitted: Residential flats, St. George's Road, for Mr. J. Hunt, on behalf of Mr. F. Burden.

SOUTH-WESTERN COUNTIES

BRISTOL. *Housing, etc.* The Corporation Housing Committee recommends the purchase of an area of approximately 485 acres for known and estimated housing and rehousing requirements, shopping centres, sites for public buildings, open spaces, etc.

BRISTOL. *Houses.* The Corporation Housing Committee recommends the tender £12,647 of Mr. F. C. Hollister for the erection of 44 houses, fitted with electric lighting, at Berry Lane, Horfield, and the tender of £11,393 of Messrs. John Knew (Bristol), Ltd., for the erection of 38 "all-electric" houses at Berry Lane, Horfield.

BRISTOL. *Clinic.* The joint Health and Education Committees of the Corporation recommend a scheme for the erection of a central clinic at Passage Street and Marybush Lane at an estimated cost of £40,600. Plans for the buildings have been prepared by Mr. C. F. W. Dening.

BRISTOL. *Schools.* The Education Committee has under consideration a scheme for the reorganization of the schools in the city upon Hadow lines, involving the erection of about 10 elementary departments, supplying 3,600 additional places, at a total estimated cost of £174,845, exclusive of the cost of land as sites for buildings, extensions, etc.

BRISTOL. *Instruction Centres.* The Education Committee recommends a scheme for the provision of junior instruction centres at an estimated cost of £10,748 for the necessary structural alterations and additions involved, and £12,620 for initial furniture and equipment.

MIDLAND COUNTIES

SUTTON COLDFIELD. *Foundry, Shops, Houses, etc.* Plans passed by the Corporation: Brassfoundry, Coleshill Road, for Messrs. Southerton and Son; three shops, High Street, for Mr. J. W. Wood; two houses, Oakwood Road, for Messrs. Pitt and Styles; six shops and flats, The Parade, for Jasey Developments, Ltd.; six houses, Reddicap Hill, for Messrs. E. Horton & Co.; 20 houses, Rough Road, for Mr. Geo. E. Clarke; 40 houses, off Clarence Road, for Mr. F. A. Coleman.

WOLVERHAMPTON. *Houses, Shops, etc.* Plans passed by the Corporation: 36 houses, Argyle Road and Chetwynd Road, for Mr. L. T. Taylor; 41 houses and two shops, Warstones Crescent, Penn, for Messrs. A. M. Griffiths and Sons; four shops, Warstones Road, for Messrs. Flavell and Webberley; shop, Trysull Road, for Mrs. L. E. Mundy; two houses, Lodge Road, Oxley, for Mr. H. Grindley; two houses, Finchfield Lane, for Mr. H. Hewitt; three houses, off Broad Lane, Uplands estate, for Messrs. T. Wellings and Son; bacon factory, Horseley Fields, for Mr. W. F. Hollingsworth; works extensions, Newhampton Road West, for Messrs. Wellings & Co., Ltd.; two houses, Argyle Road, for Mr. E. Eggington; four shops, Warstones Road, for Mr. H. Webberley; three houses, Milton Road, for Mr. R. Carpenter; assembly halls, North Street and Corporation Street, for Wolverhampton Corporation; shop, Stafford Road, for Mr. H. Wood; two houses, Wimborne Road, for Mr. S. V. Mercer; 182 houses, Bushbury Lane and Showell Road, for Messrs. Manley and Regulus.

NORTHERN COUNTIES

BLACKPOOL. Plans passed by the Corporation: Two houses, Cambray and Hodgson Roads, for Messrs. G. Hodgson and Sons; eight houses, Bethel Avenue, for Mr. R. H. Cunliffe; four houses, St. Martin's Road, for Mr. C. Birtwistle; four houses and shops, Red Bank Road, for Mr. C. E. Boden; two houses, Stony Hill, Avenue, for Mr. G. Woodhead; four houses, Maurice Grove, for Mr. E. Davies; six houses, Harrowside, for Mr. T. Foster; two houses, Wetherby Avenue, for Mr. A. Turner; two houses, Stony Hill Avenue, for Mr. G. Woodhead; four houses, Toronto Avenue, for Mr. J. M. Lomax; two houses, Madison Avenue, for Mrs. Sheldon; two bungalows, Sackville Street, for Messrs. E. Elliott & Co.; two houses, Carlton Avenue, for Messrs. Gartside Bros.; two houses and shops, Caunce Street, for Mr. F. Potts; four houses, Cornwall Avenue, for Messrs. T. Bannister and Son; two houses, Rawcliffe Street, for Messrs. Matthews and Buttery; four houses, Southbourne Road, for Mr. H. Boardman; six houses, Harrington Avenue, for Mr. A. Turner; four houses, Stoneyhill Avenue, etc., for Mr. T. Foster; three houses, Ascot Road, for Mr. C. A. Riddle; two houses, Norbreck Road, for Mr. A. A. Holt; six houses, Norcliffe Road, etc., for Mr. J. Ridyard; 20 houses, Waller Avenue, for Mr. J. Ridyard; 13 houses, Hayfield Avenue, Bishopham Road, etc., for Messrs. R. Fielding and Sons; five houses, Dauntessy Avenue, for Messrs. J. Cryer and Sons; tram shelter and conveniences, Queen's Drive, Norbreck, for Corporation Cleansing Committee; 53 houses, North Drive, etc., for Messrs. R. and H. Fletcher, Ltd. Plans submitted: 14 houses, Bethel and Salop Avenues, for Messrs. Andrews and Crook; 20 houses, Collingwood Avenue and Caunce Street, for Mr. M. Diamond; four houses, Southbourne Road, for Mr. H. Boardman; two houses, Ascot Road, for Mr. C. Smith; five houses, Common Edge Road, for Dr. R. Thursz; two houses, Warbreck Hill Road, for Mr. A. Ashworth; six houses, Burgess Avenue, for Mr. T. Harrison: factory, Devonshire Road, for Messrs. Wood, Harris & Co.; 12 houses, Bethel and Salop Avenues, for Messrs. Andrews and Crook; 54 houses, Newhouse Road, for Mr. H. Radcliffe.

BLACKPOOL. *Town Hall.* The Corporation General Purposes Committee has appointed a sub-committee to consider and report upon the selection of a suitable site for the erection of a new town hall. A report has been received upon the matter from Professor S. D. Adshead, and as a result the sub-committee is to confer with representatives of the S.M. and S.L.Rly. Co. with regard to the Central Station site, and to investigate and report with reference to the Pembroke Estate and other sites.

BLACKPOOL. *Garage.* The Corporation Highways Committee reports having appointed a sub-committee to consider proposals for the construction of an underground garage beneath the Promenade, between Cocker Street and Adelaide Place. As a result of proposals put forward by the sub-committee the Highways Committee now recommends that the scheme for the construction of the garage be proceeded with, that the Borough Engineer be instructed to prepare plans, and that Parliamentary powers be sought for the works.

CARLISLE. *Houses.* Plans passed by the Corporation: Two houses, Currock Road, for Messrs. Benwell and Slack; house and shop, Shady Grove Road, for Border Engineering Contractors, Ltd.; 28 houses, Upperby, for Mr. S. W. B. Jack, on behalf of Mr. E. C. Coleman. The Corporation is to erect 24 dwellings for aged persons at Chapel Street, Willow Holme.

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A_1	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_2	Aylesbury ..	S. Counties	1 2½	11
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
A	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A_2	Boston	Mid. Counties	1 4	1 0
A	Bournemouth ..	S. Counties	1 4	1 0
B_2	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M	1 5½	1 1½
B_1	Bridgwater ..	S.W. Counties	1 3	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A	Brighton ..	S. Counties	1 4	1 0
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
A	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
B	Chatham ..	S. Counties	1 3½	11½
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A	Colchester ..	E. Counties	1 4	1 0
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_2	Dorches ..	S.W. Counties	1 2½	11
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley ..	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham ..	N E. Coast	1 5½	1 1½
A_2	EASTBOURNE	S. Counties	1 4	1 0
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter ..	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S. W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W. Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B	Isle of Wight ..	S. Counties	1 2	10½
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
B	Kendal ..	N.W. Counties	1 3½	11½
B	Keswick ..	N.W. Counties	1 3½	11½
A_2	Kettering ..	Mid. Counties	1 4½	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12–15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A	Luton	E. Counties	1 4	1 0
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
B	Maidstone ..	S. Counties	1 3½	11½
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N.E. Coast	1 5½	1 1½
A_2	Middlewich ..	N.W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham ..	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_2	Oxford	S. Counties	1 4½	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_2	Peterborough	E. Counties	1 4½	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_2	Southend-on-Sea	E. Counties	1 4½	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4	1 0
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
B	Tunbridge Wells	S. Counties	1 3½	11½
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD	Yorkshire	1 5½	1 1½
A	Walsall	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_2	Wellingborough	Mid. Counties	1 4½	1 0½
A	West Bromwich	Mid Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby	Yorkshire	1 4½	1 0½
A	Widnes	N.W. Counties	1 5½	1 1½
A	Wigan	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B_1	YARMOUTH ..	E. Counties	1 3	11½
B_1	Yeovil	S.W. Counties	1 3	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality, and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

	s.	d.
Bricklayer . . . . . per hour	1	7
Carpenter . . . . . ,,	1	7
Joiner . . . . . ,,	1	7
Machinist . . . . . ,,	1	8
Mason (Banker)	1	7
,, (Fixer)	1	8
Plumber . . . . . ,,	1	7
Painter . . . . . ,,	1	6
Paperhanger . . . . . ,,	1	6
Glazier . . . . . ,,	1	7
Slater . . . . . ,,	1	7
Scaffolder . . . . . ,,	1	3
Timberman	1	3
Navvy . . . . . ,,	1	2½
General Labourer . . . . . ,,	1	2½
Lorryman . . . . . ,,	1	5
Crane Driver . . . . . ,,	1	6
Watchman . . . . . per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

	£	s.	d.
Grey Stone Lime . . . . . per ton	2	2	0
Blue Lias Lime . . . . . ,,	1	16	6
Hydrated Lime . . . . . ,,	3	0	9
Portland Cement, in 4-ton lots (d/d site, including Paper Bags) . ,,	1	18	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags) . ,,	2	4	0
White Portland Cement, in 1-ton lots ,,	8	15	0
Thames Ballast . . . . . per Y.C.		6	3
¾" Crushed Ballast . . . . . ,,		6	9
Building Sand . . . . . ,,		7	3
Washed Sand . . . . . ,,		8	3
2" Broken Brick . . . . . ,,		8	0
¾" ,, ,, ... ,,		10	3
Pan Breeze . . . . . ,,		6	6
Coke Breeze . . . . . ,,		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

	4" s.	4" d.	6" s.	6" d.
Straight Pipes . . per F.R.	0	9	1	1
Bends . . . each	1	9	2	6
Taper Bends . . ,,	3	6	5	3
Rest Bends . . ,,	4	3	6	3
Single junctions . . ,,	3	6	5	3
Double . . ,,	4	9	6	6
Straight channels . . per F.R.	1	6	2	6
¼" Channel bends . . each	2	9	4	0
Channel junctions . ,,	4	6	6	6
Channel tapers . . ,,	2	9	4	0
Yard gullies . . ,,	6	9	8	9
Interceptors . . ,,	16	0	19	6
IRON DRAINS:				
Iron drain pipe . . per F.R.	1	6	2	6
Bends . . . each	5	0	10	6
Inspection bends . ,,	9	0	15	0
Single junctions . ,,	8	9	18	0
Double junctions . ,,	13	6	30	0
Lead wool . . . lb.		6		—
Gaskin . . . ,,		5		—

BRICKLAYER

	£	s.	d.
Flettons . . . . . Per M.	2	18	0
Grooved do. . . . . ,,	3	0	0
Phorpres bricks . . . . . ,,	2	17	3
,, Cellular bricks . . ,,	2	17	3
Stocks, 1st quality . . . ,,	4	11	0
,, 2nd ,, . . . ,,	4	2	6
Blue Bricks, Pressed . . . ,,	8	17	6
,, Wirecuts . . ,,	7	17	6
,, Bridles . . ,,	7	0	0
,, Bullnose . . ,,	9	0	0
Red Sand-faced Facings . . ,,	6	18	6
Red Rubbers for Arches . . ,,	12	0	0
Multicoloured Facings . . ,,	7	10	0
Luton Facings . . . . ,,	7	10	0
Phorpres White Facings . . ,,	3	17	3
,, Rustic Facings . . ,,	3	12	3
Midhurst White Facings . . ,,	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:			
Stretchers . . . . . ,,	21	0	0
Headers . . . . . ,,	20	10	0
Bullnose . . . . . ,,	27	10	0
Double Stretchers . . . ,,	29	10	0
Double Headers . . . ,,	26	10	0
Glazed Second Quality, *Less* . ,,	1	0	0
,, Buffs and Creams, *Add* . ,,	2	0	0
,, Other Colours . . ,,	5	10	0
2" Breeze Partition Blocks . per Y.S.		1	7
2½" ,, ,, ,, . . . ,,		1	10
3" ,, ,, ,, . . . ,,		2	1
4" ,, ,, . . . ,,		2	6

MASON

The following d/d F.O.R. at Nine Elms:

	s.	d.
Portland stone, Whitbed . . F.C.	4	4½
,, ,, Basebed . . ,,	4	7½
Bath stone . . . . . ,,	2	10
York stone . . . . . ,,	6	6
,, ,, Sawn templates . .	7	6
,, ,, Paving, 2" . . . F.S.	1	8
,, ,, ,, 3" . . . ,,	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

	£	s.	d.
24"×12" Duchesses . . . per M.	28	17	6
22"×12" Marchionesses . . ,,	24	10	0
20"×10" Countesses . . ,,	19	5	0
18"×10" Viscountesses . . ,,	15	10	0
18"× 9" Ladies . . . ,,	13	17	6
Westmorland green (random sizes) . per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:			
20"×10" medium grey per 1,000 (actual)	21	11	6
,, ,, green ,, ,,	24	7	4
Best machine roofing tiles . ,,	4	10	0
Best hand-made do. . . ,,	5	0	0
Hips and valleys . . . each			9½
,, hand-made . . . ,,			10
Nails, compo . . . . lb.		1	4
,, copper . . . . ,,		1	6

CARPENTER AND JOINER

	s.	d.
Good carcassing timber . . F.C.	2	2
Birch . . . . . as 1" F.S.		9
Deal, Joiner's . . . ,, ,,		5
,, ,, 2nds . . ,, ,,		4
Mahogany, Honduras . . ,, ,,	1	3
,, African . . ,, ,,	1	1
,, Cuban. . . ,, ,,	2	6
Oak, plain American . . ,, ,,	1	0
,, Figured ,, . . ,, ,,	1	3
,, Plain Japanese . . ,, ,,	1	2
,, Figured ,, . . ,, ,,	1	5
,, Austrian wainscot . ,, ,,	1	6
,, English . . . ,, ,,	1	11
Pine, Yellow . . . ,, ,,	1	0
,, Oregon . . . ,, ,,		4
,, British Columbian . ,, ,,		4
Teak, Moulmein . . ,, ,,	1	3
,, Burma . . ,, ,,	1	2
Walnut, American . . ,, ,,	2	3
,, French . . ,, ,,	2	3
Whitewood, American . ,, ,,	1	1
Deal floorings, ¾" . . Sq.	18	6
,, 1" . . ,,	1	6
,, 1¼" . . ,,	1	2
,, 1½" . . ,,	1	5
,, 1¾" . . ,,	1	10
Deal matchings ¾" . . ,,		14
,, 1" . . ,,		15
,, 1¼" . . ,,	1	4
Rough boarding ¾" . . ,,		16
,, 1" . . ,,		18
,, 1¼" . . ,,	1	6

Plywood, per ft. sup.

—Thickness	¼" d.	⅜" d.	½" d.	¾" d.	1" d.
Qualities .	AA.A.B.	AA.A.B.	AA.A.B.	AA.A.B.	AA.A.B.
Birch. .	4 3 2	5 4 3	7½ 6 4½	8½ 7 6	
Alder. .	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6	
Gaboon Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –	
Figured Oak 1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –	
Plain Oak . 1 side	6½ 6 –	7½ 7 –	9½ – –	1/- – –	
Oregon P.ne	5 4 –	5½ 5 –	6 – –	– – –	

	d.
Scotch glue . . . . . lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	¼" d.	⅜" d.	½" d.	¾" d.	1" d.	1¼" d.	2" d.
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10		
Pieces, 12"-23½" long each	10	1/1	1/11	2/8	4/9		
,, 3"-11½" long ,,	7	9	1/3	1/8	3/-		
Long screws, 12"-23½" long ,,	11	1/3	2/2	2/10	5/3		
,, ,, 3"M-½" long ,,	8	10	1/5	1/11	3/6		
Bends . . . ,,	8	11	1/7½	2/7½	5/2		
Springs not socketed . ,,	5	7	1/1½	1/11½	3/11		
Socket unions . . ,,	2/-	3/-	5/6	6/9	10/-		
Elbows, square . . ,,	10	1/1	1/6	2/2	4/3		
Tees . . . ,,	1/-	1/3	1/10	2/6	5/1		
Crosses . . . ,,	2/2	2/9	4/1	5/6	10/6		
Plain Sockets and nipples ,,	3	4	6	8	1/3		
Diminished sockets . ,,	4	6	9	1/-	2/-		
Flanges . . . ,,	9	1/-	1/4	1/9	2/9		
Caps . . . . ,,	3½	5	8	1/-	2/-		
Backnuts . . . ,,	2	3	5	6	1/1		
Iron main cocks . ,,	1/6	2/3	4/2	5/4	11/6		
,, ,, with brass plugs ,,	—	4/-	7/6	10/-	21/-		

Discounts:

TUBES.

	Per cent.		Per cent.
Gas . . .	65	Galvanized gas .	52½
Water . . .	61½	,, water	47½
Steam . . .	57½	,, steam	42½

FITTINGS.

Gas . . .	57½	Galvanized gas	47½
Water . . .	52½	,, water	42½
Steam . . .	47½	steam	37½

SMITH AND FOUNDER—*continued*

	s.	d.
Rolled steel joists cut to length . . cwt.	10	9
Mild steel reinforcing rods, ¾" . . ,,	8	6
,, ,, ⅞" . . ,,	8	3
,, ,, 1" . . ,,	8	0
,, ,, 1¼" . . ,,	7	6
,, ,, 1½" . . ,,	7	6
,, ,, 1¾" . . ,,	7	6
,, ,, 2" . . ,,	7	6
,, ,, 2½" . . ,,	7	6

Cast-iron rain-water pipes of ordinary thickness metal .	3" s.	3" d.	4" s.	4" d.
	F.R.	8		10
Shoes . . . . each	2	0	3	0
Anti-splash shoes . . ,,	4	6	8	0
Boots . . . . ,,	3	0	4	0
Bends . . . . ,,	2	7	3	9
,, with access door . . ,,	—		6	3
Heads . . . . ,,	4	0	5	0
Swan-necks up to 9" offsets . ,,	3	9	6	0
Plinth bends, 4½" to 6" . ,,	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal .	F.R.	5		6
Stop ends . . . . each		6		6
Angles . . . . ,,	1	7	1	11
Obtuse angles . . . ,,	2	0	2	6
Outlets . . . . ,,	1	9	2	3

PLUMBER

	£	s.	d.
Lead, milled sheets . . . cwt.	18	6	
,, drawn pipes . . . ,,	17	0	
,, soil pipe . . . ,,	18	6	
,, scrap . . . ,,	10	6	
Solder, plumbers' . . . lb.		9½	
,, fine do. . . . ,,	1	0	
Copper, sheet . . . ,,		8½	
,, tubes . . . ,,		11	

L.C.C. soil and waste pipes:	3" s.	3" d.	4" s.	4" d.	6" s.	6" d.
Plain cast .	F.R.	1 0	1 2		2 6	
Coated . .	,,	1 1	1 3		2 8	
Galvanized . .	,,	2 0	2 6		4 6	
Holderbats . .	each	3 10	4 0		4 9	
Bends . . .	,,	3 9	5 3		10 3	
Shoes . . .	,,	2 10	4 4		9 6	
Heads . . .	,,	4 8	8 5		12 9	

PLASTERER

	£	s.	d.
Lime, chalk . . . . per ton	2	5	0
Plaster, coarse . . . ,,	2	10	0
,, fine . . . ,,	4	15	0
Hydrated lime . . . ,,	3	0	9
Sirapite . . . . ,,	3	6	0
Keene's cement . . . ,,	5	0	0
Gothite Plaster . . . ,,	3	6	0
Pioneer Plaster . . . ,,	3	3	0
Thistle Plaster . . . ,,	3	0	0
Sand, washed . . . Y.C.		11	6
Hair . . . . lb.			6
Laths, sawn . . . bundle		2	4
,, rent . . . ,,		3	9
Lath nails . . . lb.			3½

GLAZIER

	s.	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft. s. F.S.				2½
,, ,, 26 oz. ,, ,, ,, ,,				3
Flemish, Arctic, Figured (white)* ,,				7
Blazoned glasses . . . ,,			2	6
Reeded; Cross Reeded ,,				11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite				6½
Crown sheet glass (n/e 12 in. x 10 in.) ,,			2	0
Flashed opals (white and coloured) ,,	1	0 and	2	0
¼" rough cast; rolled plate . . ,,				3½
¼" wired cast; wired rolled . . ,,				9½
¼" Georgian wired cast. . . ,,				11
¼" Polished plate, n/e 1 ft. . . ,,	† 10 to		‡1	1
,, ,, 2 . . ,,	†1 2	,,	‡1	4
,, ,, 4 . . ,,	†2 3	,,	‡2	6
,, ,, 8 . . ,,	†2 9	,,	‡3	2
,, ,, 20 . . ,,	†3 7	,,	‡4	2
,, ,, 45 . . ,,	†3 11	,,	‡4	7
,, ,, 100 . . ,,	†5 0	,,	‡5	7
Vita glass, sheet, n/e 1 ft. . . ,,			1	0
,, ,, ,, 2 ft. . . ,,			1	3
,, ,, ,, over 2 ft. . . ,,			1	9
,, ,, plate, n/e 1 ft. . . ,,			1	6
,, ,, ,, 2 ft. . . ,,			3	0
,, ,, ,, 5 ft. . . ,,			4	0
,, ,, ,, 7 ft. . . ,,			5	0
,, ,, ,, 15 . . ,,			6	0
,, ,, ,, over 15 . . ,,			7	6
"Calorex" sheet 21 oz., and 32 oz. ,,	2	6 and	3	6
,, rough cast ¼" and ½" ,,			8½ ,, 1	0
Putty, linseed oil . . . lb.				3

* *Colours*, 1d. *F.S. extra.*
†*Ordinary glazing quality.* ‡*Selected glazing quality.*

PAINTER

	£	s	d.
White lead in 1 cwt. casks . . cwt.	2	6	0
Linseed oil . . . . gall.		2	2½
Boiled oil . . . . ,,		2	4½
Turpentine . . . . ,,		4	1½
Patent knotting . . . ,,		14	0
Distemper, washable . . cwt.	2	6	0
,, ordinary . . ,,	2	0	0
Whitening . . . . ,,		4	0
Size, double . . . firkin		3	0
Copal varnish . . . gall.		13	0
Flat varnish . . . ,,		14	0
Outside varnish . . . ,,		16	0
White enamel . . . ,,	1	15	0
Ready mixed paint . . ,,		13	6
Brunswick black . . ,,		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR		£ s. d.
Digging over surface n/e 12" deep and cart away	Y.S.	2 9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.	8 6
" to form basement n/e 5' 0" deep and cart away	"	9 0
" " 10' 0" deep and cart away	"	9 6
" " 15' 0" deep and cart away	"	10 0
If in stiff clay	add "	6
If in underpinning	"	4 0
Planking and strutting to sides of excavation	F.S.	1 0
" " to pier holes	"	5
" " to trenches	"	5
" " extra, only if left in	"	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	"	1 6 0
" " (4-2-1)	"	1 12 6
" " underpinning	"	1 16 0
Finishing surface of concrete, spade face	Y.S.	7

DRAINLAYER		4" s. d.	6" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER		£ s. d.
Brickwork, Flettons n lime mortar	Per Rod	27 10 0
" " in cement	"	28 15 0
" Stocks in cement	"	35 0 0
" Blues in cement	"	52 0 0
Extra only for circular on plan	"	2 0 0
" backing to masonry	"	1 10 0
" raising on old walls	"	2 0 0
" underpinning	"	5 10 0
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	"	8
" " " red brick facings and pointing	"	11
" " " blue brick facing and pointing	"	1 4
" " " glazed brick facings and pointing	"	3 6
Tuck pointing	"	7½
Weather pointing in cement	"	3
Slate dampcourse	"	10
Vertical dampcourse	"	1 1

ASPHALTER		s. d.
½" Horizontal dampcourse	Y.S.	4 6
½" Vertical dampcourse	"	6 9
½" paving or flat	"	4 0
1" paving or flat	"	5 6
1"×6" skirting	F.R.	1 6
Angle fillet	"	2
Rounded angle	"	2
Cesspools	Each	5 0

MASON		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	"	13 6
Artificial stone and do.	"	13 0
York stone templates, fixed complete	"	10 6
" thresholds	"	13 6
" sills	"	1 0 6

SLATER AND TILER		£ s. d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20"×10"	Sqr.	3 10 0
Do., 18"×9"	"	3 7 0
Do., 24"×12"	"	3 17 0
Westmorland slating, laid with diminished courses	"	6 0 0
Tiling, best hand-made sand-faced, laid to a 4" gauge, nailed every fourth course	"	3 0 0
Do., all as last, but of machine-made tiles	"	2 16 0
20"×10" medium Old Delabole slating, laid to a 3" lap (grey)	"	4 6 0
" " " " " " (green)	"	4 15 0

CARPENTER AND JOINER		£ s. d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2 5 0
Shuttering to sides and soffits of beams	F.S.	8
" to stanchions	"	8
" to staircases	"	1 8
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	"	4 6
" " roofs	"	6 6
" " trusses	"	7 6
" " partitions	"	8 6
½" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" " " " "	"	1 17 6
1½" " " " "	"	2 3 0
1"×2" fir battening for Countess slating	"	9 6
Do. for 4" gauge tiling	"	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
" " " 2 "	"	2 9
" " " 3 "	"	3 3
Stout herringbone strutting to 9" joists	F.R.	10½
1" deal gutter boards and bearers	F.S.	1 2
1½" " " " "	"	1 6
2" deal wrought rounded roll	F.R.	8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼" do.	"	2 10 0
1½" do.	"	2 17 0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1½" do.	"	1 9

CARPENTER AND JOINER—*continued*		s. d.
1½" deal moulded sashes of average size	F.S.	1 9½
2" " " "	"	1 11½
1½" deal cased frames double hung, of 6" × 3" oak sills. 1½" pulley stiles, 1½" heads, 1" inside and outside linings, ⅝" parting beads, and with brass faced axle pulleys, etc., fixed complete	"	3 7
2" " " "	"	3 10
Extra only for moulded horns	Each	6
1½" deal four-panel square, both sides, door	F.S.	2 0
2" " " " "	"	2 8
1½" " but moulded both sides	"	2 4
2" " " " "	"	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" " "	"	1 4
1¼" deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1½" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
1½" deal moulded wall strings	"	2 1
1⅝" " outer strings	"	2 4
Ends of treads and risers housed to string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1½" × 1½" " " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

SMITH AND FOUNDER		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	15 6
Riveted plate or compound girders, and hoisting and fixing in position	"	19 6
Do. stanchions with riveted caps and bases and do.	"	19 0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	"	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER		£ s. d.
Milled lead and labour in flats	cwt.	1 12 0
Do. in flashings	"	1 15 6
Do. in covering to turrets	"	2 3 0
Do. in soakers	"	1 7 6
Labour to welted edge	F.R.	3½
Open copper nailing	"	3
Close "	"	3

		½" s. d.	¾" s. d.	1" s. d.	1½" s. d.	2" s. d.	4" s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks	"	—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	3 9	5 0	8 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—

4" cast-iron ½-rd. gutter and fixing	F.R.	1 0
Extra, only stop ends	Each	1 0
Do. angles	"	1 6
Do. outlets	"	2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1 2
Extra, only for shoes	Each	1 3
Do. for plain heads	"	5 6

PLASTERER AND TILING		s. d.
Expanded metal lathing, small mesh	Y.S	2 0
Do. in n/w to beams, stanchions, etc.	"	2 9
Lathing with sawn laths to ceilings	"	1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1 5
Do. vertical	"	1 7
Rough render on walls	"	1 2½
Render, float and set in lime and hair	"	1 9
Render and set in Sirapite	"	1 11
Render, backing in cement and sand, and set in Keene's cement	"	2 9
Extra, only if on lathing	"	4
Keene's cement, angle and arris	F.R.	6
Arris	"	1½
Rounded angle, small	"	3
Plain cornices in plaster, including dubbing out, per 1" girth	"	1½
1" granolithic pavings	Y.S.	3 6
1½" "	"	4 6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17 6
9" × 3" " " "	"	1 2 6
Extra, only for small quadrant angle	F.R.	8

GLAZIER		s. d.
21 oz. sheet glass and glazing with putty	F.S.	7½
26 oz. do and do.	"	8½
Flemish, Arctic Figured (white) and glazing with putty	"	1 1
Cathedral glass and do.	"	1 2
Glazing only, British polished plate	"	7
Extra, only if in beads	"	2
Washleather	F.R.	4

PAINTER		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	"	9
Do. with washable distemper	"	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3 3
Do. on woodwork	"	3 6
Do. on steelwork	"	3 0
Do. and brush grain and twice varnish	"	5 6
Stain and twice varnish woodwork	"	1 11
Stain and wax-polish woodwork	"	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper from	"	2 9

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION.

The FLOOR BORDER and the SOLRAY panel systems of central heating :
The heating panel is of steel throughout and consists of a series of especially drawn tubes of D section spaced at a standard spacing of 6" c. to c between two plates, the flat face plate and the shaped Diffuser plate or Carrier. These two plates are spot welded together thus holding the tubes firmly but permitting expansion. In the case of Floor Border panels the face plate takes the form of a grid to serve as a key to the flooring material.

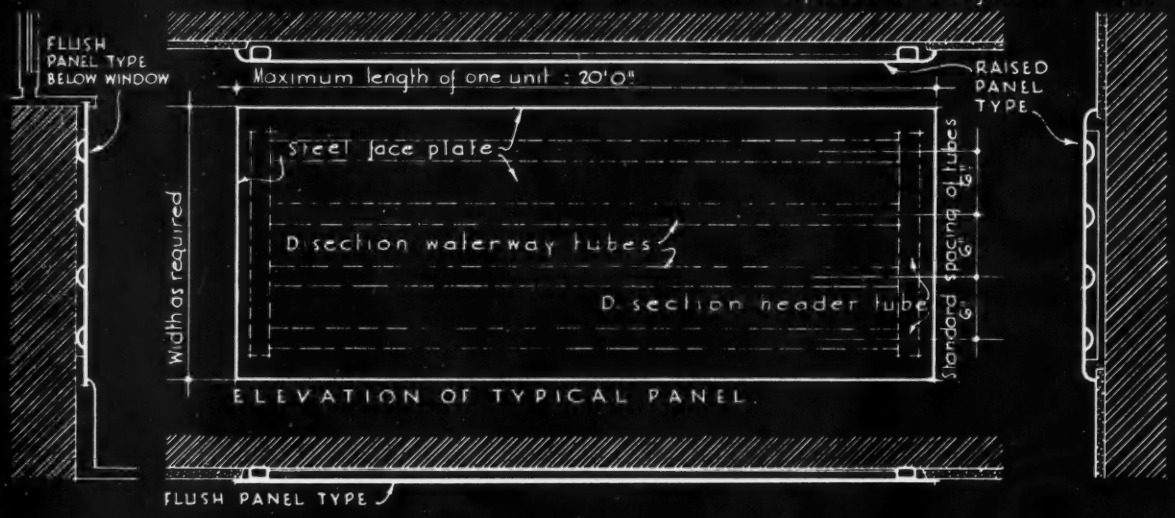
F.S. SECTION OF STANDARD WATERWAY TUBE.



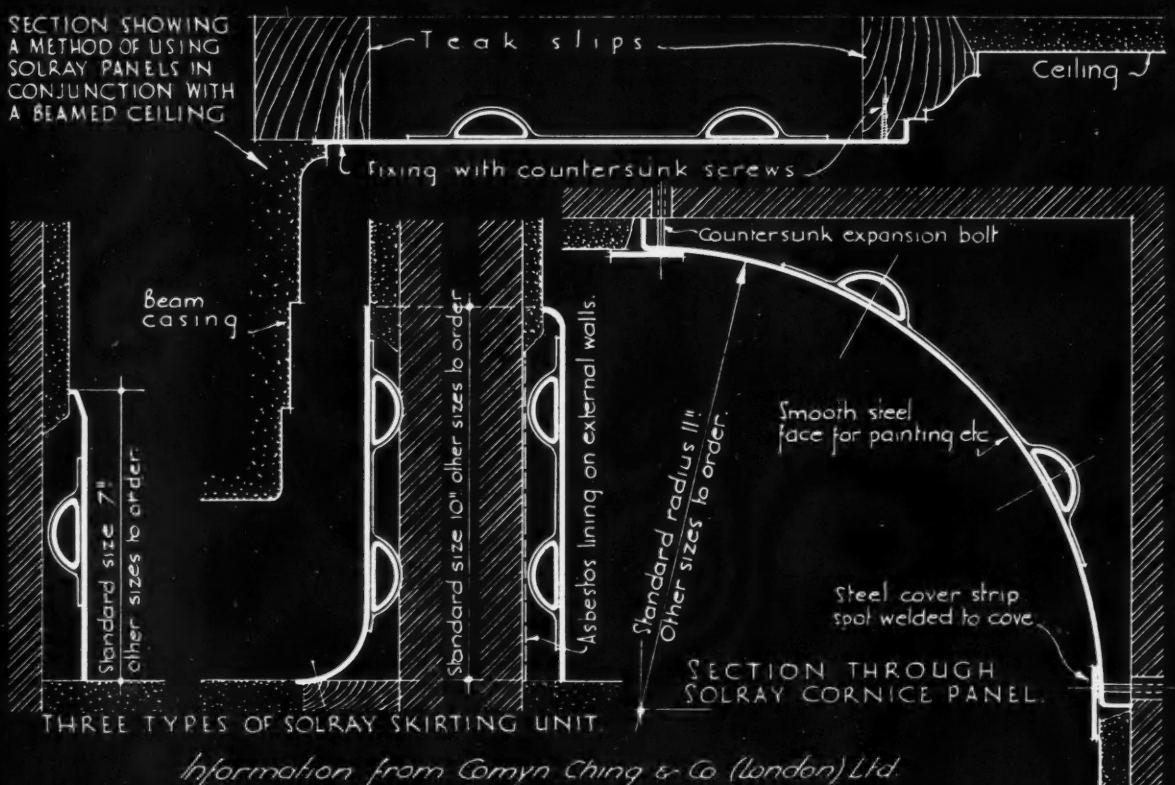
Steel face plate held in close contact with tubes. Fixed to wall or ceiling with expansion bolts.

Control valves may be fixed direct to panels or to adjacent walls etc.

TYPICAL SOLRAY PANEL DETAILS :



SECTION SHOWING A METHOD OF USING SOLRAY PANELS IN CONJUNCTION WITH A BEAMED CEILING



Information from Comyn Ching & Co (London) Ltd.

INFORMATION SHEET : SOLRAY STEAM OR HOT-WATER HEATING PANELS
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

Supplement to THE ARCHITECTS' JOURNAL for January 3, 1935

THE 'ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 177 •

PANEL HEATING

Type of Product : Floor Border and Solray Systems

Description :

The Solray heating panel consists of a series of waterway tubes closely held between two plates, a straight face plate and a shaped diffuser plate or carrier. The two plates are spot welded together at intervals, thus holding the waterway tubes in close contact with both plates and ensuring the maximum conductivity of heat between them. The waterway tubes run parallel for the length of the panel, at a standard spacing of 6 in., and are connected at the ends by cross header-tubes, which in turn connect with the flow and return pipes of the heating system. The panel thus has a perfectly flat outer surface, which may be used as a raised panel or be set flush with the plaster of the wall or ceiling as shown on this Sheet.

Heating Capacity.—The design of the radiator is such that the panel radiates a maximum percentage of the heat output. Figures and graphs of the heating capacity may be obtained from the manufacturers.

Fixing.—The panels are fixed by means of countersunk expansion bolts or ragged bolts spaced at intervals along the outer edges of the panel.

Connections.—All connections to pipe runs are made with standard unions and or welded joints.

Valves.—Standard control valves may be used ; in addition, various special control valves of a recessed and semi-recessed type are made especially for use with these panels.

Border Floor Panels.—Not shown on this Sheet, are designed on the same principle, but are arranged with an open grid which replaces the face plate of the Solray panel. This grid serves as a base and a key for the flooring material with which it is covered.

Skirting Panels, Cornice Panels, etc.—The principle of the Solray panel lends itself to special purpose work. This Sheet shows three standard types of heating element made for special situations, i.e., a coved cornice panel, and two types of skirting panel. Variations of these and other special types can be made to order.

Name of Manufacturers : Comyn Ching & Co. (London), Ltd.

Address : 22-24 Little Saint Andrew Street, W.C.2

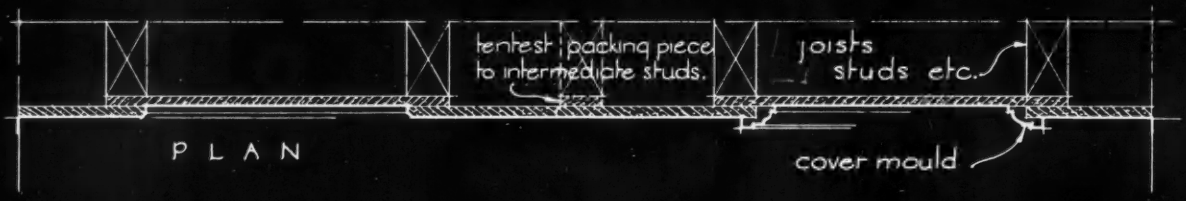
Telephone : Temple Bar 9123

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PANELLING :

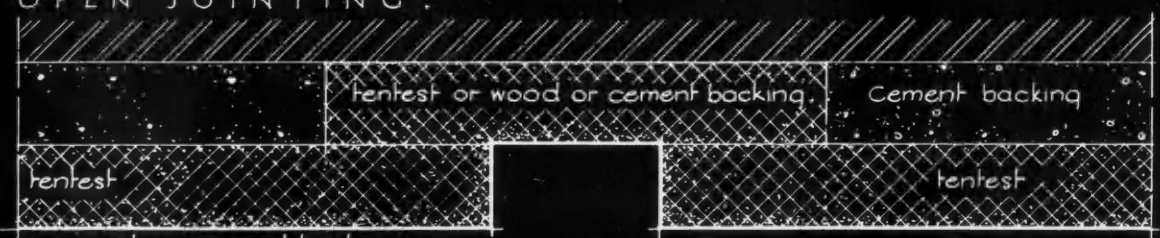


ELEVATION



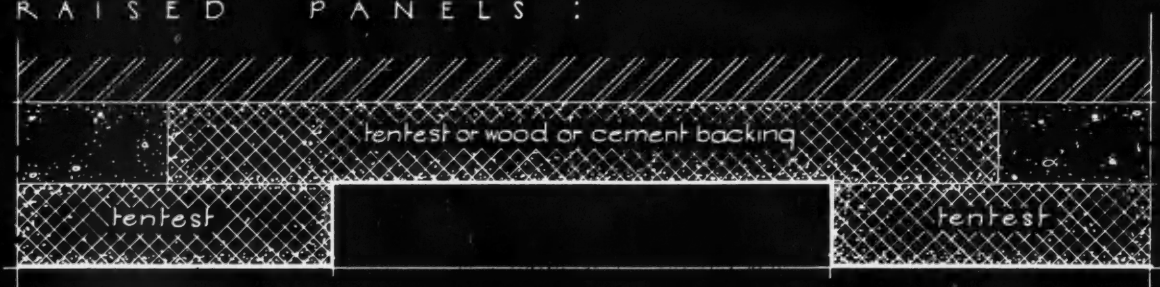
PLAN

OPEN JOINTING :

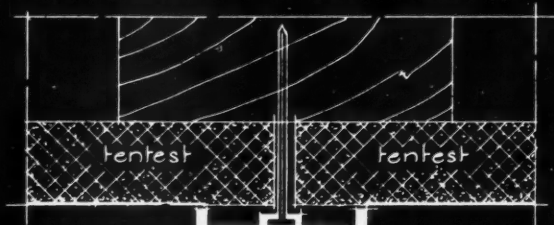


Shown set on cement backing may also be fixed on wood battens in the usual way.

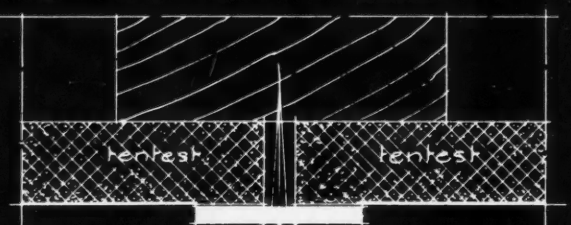
RAISED PANELS :



TWO TYPES OF METAL COVER STRIPS. Mitred, scribed or butted at intersections.



Aluminium strip with nail cramped into back.



Aluminium cover strip screwed from the face.

Information from the Tentest Fibre Board Co. Ltd.

INFORMATION SHEET : METHODS OF JOINTING TENTEST FIBRE BOARD

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 178 •

WALLBOARDS

(TREATMENT OF JOINTS)

Name of Product : TenTesT Fibre Board

Description :

This is the second of a series of Information Sheets showing various methods of treating the joints in wallboards, a problem which has, for many years, offered considerable difficulties.

Opinions as to the best method of joint treatment are many, and the following are a few suggestions :—

1. Panels.—The illustration shows a suggestion, where at very little cost a simple treatment of TenTesT panels can be made. Variations of this treatment will suggest themselves to the architect.
2. Open Joints.—The joint can be effectively accentuated by this method, the joint itself being painted the same or contrasting colour to the wall.
3. Raised Panels.—By still further accentuating the joint a raised panel effect is obtained and by colour treatment admirable effects are secured.
4. Metal Cover Strips.—Of aluminium in various colours or Staybrite, give excellent results.

Name of Manufacturers : TenTesT Fibre Board Co., Ltd.

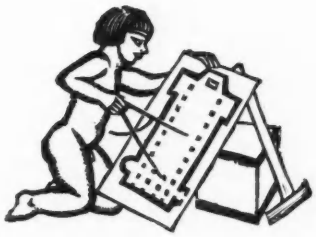
Address : Astor House, Aldwych, London, W.C.2

Telephone : Holborn 8018



CEILING FOR AN AVIATOR

This painted ceiling decoration was designed and executed by Nicolas de Molas for P. L. Weiller, the French aviator, in his house at Versailles. It represents the launching of the first balloon. The illustration of it is reproduced from MODERN FURNISHING AND DECORATION, *by Derek Patmore.* [*See* BOOKS OF THE YEAR *in this issue.*]



1934
1935

WE take the opportunity presented by the New Year Issue to summarize some of our principal activities during the past year. We instituted the new feature, Housing Supplements; and enlarged both the scope of our Library of Planned Information and of our Information Supplements. We also investigated many architectural and social problems, some of which still disturb the equanimity of the profession.

A case in point is the Panel system. Excellent in intention as this system unquestionably is, and necessary as are the reforms it aims to bring about, there is the danger of putting a committee which is dominated by an architect in any position where it may have to pass opinions on another architect's designs and may have power to label a fellow architect's work as undesirable. This danger is not a conjectural one. Instances have already occurred of the architect member of the Panel publicly pronouncing disapproval of his fellow architect's work. If the Panel system is to continue, one principle must be firmly established: the architectural profession must obtain absolute solidarity. Public repudiation of one member by another can only lead to complete disintegration of the whole professional structure. A letter was subsequently received from the President of the R.I.B.A. and Sir Percy Hurd, chairman of the Central Panels Committee, laying it down as a definite principle that the duty of the Panels is to advise on buildings that are "illiterate and injurious" and that they should not make decisions on questions of taste. If the Panels can get to work in the spirit indicated, then we believe we shall witness the beginning of a new and better England. It is now for this country to choose whether the control of her buildings shall be in the hands of qualified designers or whether we shall hand them over to the tender mercies of the borough surveyor and the speculative builder.

Then there is the question of substitution by builders of one product for a cheaper one of indifferent quality: a practice far more prevalent than it has been in the past. For some years it has been the practice of progressive firms to spend considerable sums of money on research and to have a rigid system of inspection during manufacture. If the substitution of cheap materials continues it will be worth no manufacturer's while to produce a branded material. The exhaustive tests and reliability trials to which branded materials are now put without cost to the architect, but to his eternal advantage, will be discontinued. The familiar "or other approved make" clause is not suitable for modern conditions, and particularly when dealing with an unknown builder, it should be clearly stated before the contract is signed that the specification is to be adhered to rigidly and that the substitution of one material for another will not be approved. This subject is referred to again this week in our correspondence page.

Slum. It is impossible to isolate the problems of the slums from the problems of house shortage and overcrowding. Overcrowding is the chief cause of slum, and until overcrowding is tackled as such, the primary factor in the making of the slum will not have been eradicated. On pages 99-101 Mr. Philip Massey, who has conducted our slum survey during the past eighteen months, records the housing position in our most important provincial towns up to December 31 last. This contribution should be of vital interest and value when studying Sir Hilton Young's Housing Bill which is to be read for the second time in the House of Commons at the end of this month.

And then there is the chaotic state of unplanning in the building industry. Today we are told that a boom in the building industry is imminent—has already indeed begun. Let us not make the mistake of our predecessors in letting the future look after itself. What is needed is a forecast of building activity in the immediate future; an intelligent anticipation of the demand for buildings and therefore of building material, equipment and labour that will enable it to regulate its production and make its plans for the future.

Of the new features to be incorporated in the JOURNAL during the present year, we prefer to say little at the moment. We would, however, draw the reader's attention to the new Technical Section. It contains the first of a series of articles on the important subject of heating, ventilating and air conditioning by Dr. Oscar Faber, O.B.E., and J. R. Kell.



The Architects' Journal
Westminster, S.W.1
Telephones: Victoria
9212-7
Telegrams:
Buildable
Parl
London

NOTES & TOPICS

INDUSTRY IN FANCY DRESS

THERE is a part of Fifth Avenue, New York, which is called " Millionaire's Row," because it is a desirable locality and because it contains some of the most profuse examples of *de luxe* building.

*

I was reminded of it when I walked down that aisle between the specimen rooms in Gallery 3 at the Burlington House Exhibition of British Art in Industry.

*

I am not disparaging Mr. Oliver Hill's abilities as a designer, for their respectability is too eminent to be lightly questioned, but I can't help asking what contribution he has made to industrial design by his marble-seated dining-room? The *de luxe* library by Mr. Robert Lutyens, with its pendant glass table and its wall of mirror is not calculated to inspire any manufacturer of mass-produced-goods to better, or indeed to any, efforts.

*

The whole point of the exhibition has been missed in most of the rooms, with the honourable exception of the ceramics, the glass section and the plastics. The rest is fine art misapplied to industry. I don't agree with one critic who said that it would take ten years to undo the damage and confusion of issues caused by this collaboration between the R.S.A. and the R.A., but I think it will leave more people than ever wondering what the terms " Industrial Art " and " Industrial Design " really mean.

*

I think Mr. John de la Valette, who has been subjected to a fire of criticism by people who were more interested in the internal politics of industrial art than in the success of the exhibition, deserves a lot of credit for nearly bringing off something that mattered.

STANDARDIZED EQUIPMENT UNITS

The idea of mass-produced kitchen, bathroom and lavatory units that could be common to all small houses was set out lucidly last week in a letter addressed to *The Times* by Messrs. Maurice E. Webb, Robert Atkinson and G. Grey Wornum. Factory-made in skeleton, and complete with piping and fittings, such units could be dispatched to any site in England by road or rail.

*

In the U.S.A., as one of the articles in the series on " Design in America " recently disclosed, the motor industry is contemplating getting into the pre-fabricated house business, as the house made up of standard units has not yet secured adequate distribution in the States owing to the tardiness of the building industry.

*

The idea advocated is surely too good for our building industry to ignore. Soon, when our roads are filled with one long, locked mass of cars from Lands End to John o' Groats, the motor industry will be looking around for new outlets ; but maybe some move to explore this promising scheme will have been made before that.

MORE HELP FOR THE MINISTER OF TRANSPORT

The idea of having an electric crematorium at Harrogate, presumably to speed up cremation, may be adopted by many municipalities now that the Belibeacons (as the *Daily Express* calls them) are maintaining the boom in burials.

*

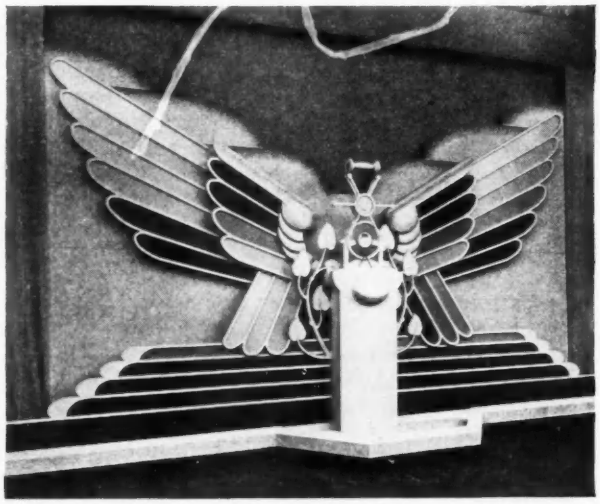
On Tuesday Mr. Hore-Belisha discussed his troubles (or his triumphs as he will probably call them until he's run over himself) with that famous and entertaining screen star, Eddie Cantor. I wonder if Eddie Cantor was tempted to sing his song : " Look what you've done ! " at any time during the meeting ?

SEX AND SOUND

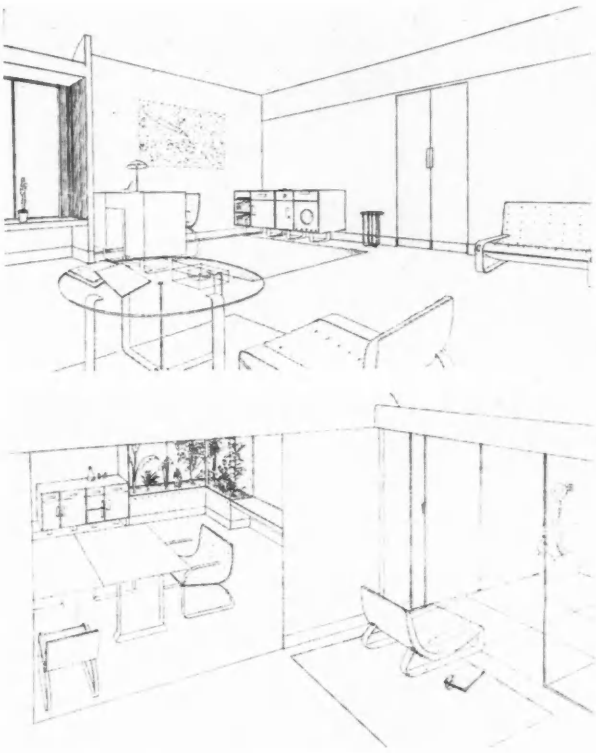
As I remarked a week ago Alfred Bossom and Hope Bagenal have been bickering in *The Observer* as to whether one ought to build quickly or well.

*

The early stages were " good fun " and read as though both protagonists really " knew their stuff." Then came



At the R.A. Exhibition of British Art in Industry : A photograph taken in Gallery VIII (dress materials) of a decorative feature on the east wall intended to show certain ranges of colours according to the British Colour Council's standard charts. Designer : Laurence Irving.



The winning design, by Patrick Gwynne, in the competition for modern furniture suitable for a home supported by an annual income of £800 to £1,500. *See page 44.*

the point when inaccuracy (as it always will) crept in. Mr. Bossom referred to his opponent as "she."

*

The same letter suggested, oh! so gently, that Hope Bagenal (on reaching maturity) might do well to study the science of acoustics.

*

Shamefacedly, as if I had myself been responsible for this quaint piece of ingenuity, I spoke of it to Bagenal. Those who know him well personally (as distinct from the leading acoustic expert of the architectural world) will be able to visualize his sly expression when he said: "Mr. Bossom has mistaken not only my sex but my age!"

*

Mr. Alfred Bossom is, of course, the owner of Epstein's "Genesis," and is Member of Parliament for Maidstone.

FRANK LLOYD WRIGHT'S MAGAZINE

I have just received the first number of *Taliesin*, the magazine issued by the Taliesin Fellowship at Spring Green, Wisconsin, U.S.A. In language which impatient people might describe as "high-flown," it sets forth some of the ideals of the last and most ambitious work of Frank Lloyd Wright, which is the training of designers to make the machine age fit for humanity.

*

There is a lot of sense and profound thinking packed into this little magazine. I gather we are to hear something of the Taliesin Fellowship, and of the early work of its founder, when John Gloag delivers his lecture on Frank Lloyd Wright to the Design and Industries Association on the 24th of this month. He is rather urgently enthusiastic about the pioneer of modernism in America; almost sentimental.

*

But I have always heard that Frank Lloyd Wright is the most captivating of mortals, and he seems to possess the gift of remaining young. At the age of sixty-six he still rides, works hard most days, drives a car at speeds generally affected by young bloods with Bentleys, and never appears to be tired.

ST. JOHN ERVINE ON SCOTCH ARCHITECTURE

In Miss Dorothy Sayers' latest collection of stories of "Detection, Mystery and Horror," I have come across a tale by St. John Ervine called *The Brown Sandwich*. In it one of the characters refers to "those ugly turreted houses in which the Scots delight."

*

He then advises a friend "to write a sociological study of the Scots from the point of view of architecture. Adding: "There isn't any worth mentioning in Scotland. Even Aberdeen, the granite city, is architecturally hideous. If the houses were not built of granite, they would be appalling."

*

Mr. Ervine's observations are not unfounded. The pride of the north, Princes Street, which is one of the finest street sites in the country, is an architectural disaster of the first magnitude; and the unfortunate Sir Walter has to sit under his Gothic canopy looking at it. What a much better outlook Prince Albert has from the Memorial.

STANDARDS OF PRACTICE

I see that in the published list of accessions to the R.I.B.A. library, the following is entered under the heading of *Professional Practice*: "Bible, The Holy. Holy Bible. Genesis to Malachi." I looked in vain under the heading of *Theory* for "Hymns, Ancient and Modern."

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

"It is absolutely necessary that architects should come together and think out the first plans for an organized living system for England" 42

Which is the best building of 1934? 69

An essay in Basic written by a student of the Constructional Faculty of the E.U.S.R. in the Intermediary Examination, Spring 2035, for constructionists in the West Europe zone, British Isles section 79

The thermal efficiency of a man is lower than that of the worst engine in common use 97

PLAN FOR NATIONAL HOUSING SURVEY

Next week the Council for Research on Housing Construction will issue its second report, which concerns housing standards and statistics. It will advance proposals for a national housing survey upon a uniform nation-wide plan.

A.A. SCHOOL EXHIBITION: 1935—IDEAS IN ARCHITECTURE

An exhibition in connection with the A.A. School, entitled "1935—Ideas in Architecture by the Architectural Association School," which is being held at the Building Centre, Old Bond Street, was opened on January 3, by Mr. Gerald Heard. Mr. Heard said: "A show such as this is of great interest to the layman because it is frankly concerned with the future. Architecture, of course, has always been concerned with the future, because it has always had to build for time; but the conception of the future is one in which the present will be mainly represented and there will be really very little change. There was undoubtedly about architecture in the past the conception that you were building for all time; you were building monumentally. There can be no doubt that that conception has changed very much. The architect has to show today a very exacting thing, a new kind of flexibility. . . .

"In the kindred art of poetry, it is always said that most of us can be taught to write a decent sonnet, but where we shall expose the fact that we are not poets is when we are asked to write half a dozen lines of blank verse. That is the real task. The sonnet holds you in a framework but blank verse leaves you free to show what creative ideas you may have. In the past there is no doubt that the material—brick, stone and beams—give you certain proportions, and within those proportions you were supported and upheld; but nowadays those are taken away.

"We are developing a new viewpoint towards life. We are developing the plane's-eye view. All you architects, of course, think of necessity in terms of volume and design; you think in depth and you think in plan; but most of us have never thought in anything but terms of façade. The modern street, however, has made it impossible for us to see the modern façade; if we had the temerity to attempt to do so, the traffic would kill us immediately! Moreover, the cañon through which we walk is too narrow to enable us to see it. A new possibility, however, is growing up; as the aeroplane is increasingly used we do get a conception of plan which we ordinary laymen have never had before. You can no longer, therefore, simply give us a façade and tell us that as technicians you alone are concerned with volume and plan. We also are able to look over the edge, to look around the stage scenery, to look behind the front and see the mass and volume.

"You are familiar with the struggle at the end of the Elizabethan period and the beginning of the Jacobean to keep the towns within bounds, to prevent them suffering from that wretched form of rupture whereby they spread out in ungainly fashion. You remember the endless regulations in the time of Elizabeth and James to prevent the fungoid growth round London and to try to keep the smaller organisms outside, such as the little village of Paddington, with its independent administration. That effort failed; there was not sufficient force behind it, and I doubt if there were sufficient resources to do it. Today we can replan England, but to do that you have to think not merely in terms of buildings and not merely in terms of towns; you have to think in terms of the whole countryside, to be a landscape gardener on an enormous scale. It is absolutely necessary that architects should come together and think out the first plans for an organized living system for England, for that is what has to be worked out."

THE ARCHITECTS' DIARY

Thursday, January 10

ARCHITECTURAL ASSOCIATION. *At the Building Centre, 158 New Bond Street, W.1. Exhibition by the A.A. School, "1935 Ideas in Architecture." Open until January 19.*

ROYAL ACADEMY. *At Burlington House, Piccadilly, W.1. Exhibition of British Art in Industry. Open until March 9.*

INSTITUTION OF ELECTRICAL ENGINEERS. *At Savoy Place, Victoria Embankment, W.C.2. "Electrical Developments in the U.S.S.R." By A. Monkhouse.* 6 p.m.

INSTITUTION OF STRUCTURAL ENGINEERS. *At 10 Upper Belgrave Street, S.W.1. "The Earthquake Resistance of Structures." By C. W. Hamann.* 6.30 p.m.

Monday, January 14

R.I.B.A. *At 66 Portland Place, W.1. Announcement of Council's Award of Prizes and Studentships 1935. Criticism by Edward Maufe on works submitted for Prizes and Studentships.* 8 p.m.

Wednesday, January 16

ROYAL SOCIETY OF ARTS. *At John Street, Adelphi, W.C.2. "Colour and Colour Nomenclature." By R. F. Wilson.* 8 p.m. *L.C.C. Central School of Arts and Crafts. At Southampton Row, W.C.1. "History of Architecture XIII. German Renaissance, 1525–1900." By Sir Banister Fletcher, M.Arch., F.S.A., PP.R.I.B.A.* 6 p.m.

NEW FLATS IN ST. PANCRAS

Today, Mr. Lewis Silkin is officially to open two blocks of twenty-five flats in St. Pancras. These flats, designed by Mr. I. B. M. Hamilton, from part of the Litcham Street Scheme of the North St. Pancras Group of the St. Pancras House Improvement Society. The rents, inclusive of rates, are: 9s. per week for two-roomed flats; 13s. 6d. per week for three-roomed flats.

Following the opening ceremony, which is to take place at 3 p.m., a short film entitled "The Terror that Walks by Night—or the Bed Bug and How to Combat Him," will be shown in Lyndhurst Hall, Warden Road.

£10,000 CINEMA FOR WEST BROMWICH

A cinema is to be erected at Carter's Green, West Bromwich, from the designs of Mr. Harry W. Weedon, A.R.I.B.A. The building is estimated to cost £40,000.

ON THE AIR

Mr. L. H. Keay, F.R.I.B.A., the Liverpool Director of Housing, broadcast a talk from the North Regional station of the B.B.C. last week and said that failures in the past had been due largely to building flats in limited numbers on small sites only fit for cottages.

The new Housing Bill, if passed into law, would give powers for the entire redevelopment of the old and unsatisfactory residential areas of our large towns. We might not be able to build a new Jerusalem to replace every congested and overcrowded district, but we could at least tackle the problem with a boldness and vision impossible when we were content to deal with only one phase of housing at a time. Great opportunities brought increased responsibilities. If we were to avoid handing on to successive generations similar problems to those confronting us today, we must plan and build in advance of rather than on equality with present-day standards.

Now was the opportunity to town-plan not in theory, but in practice, and in the process to decide which areas were to be set aside for residential and which for commercial purposes, and how many families were to be accommodated near the business centre in dwellings equal, as far as possible, in standard and amenity to those on the outskirts. Where it was necessary to rehouse in the central areas at a density of more than twenty to the acre, there was no alternative to flats of from three to five storeys in height.

The first of a series of broadcast talks on "The Artist and His Public" was given by Mr. Eric Newton in the National Programme on January 7.

ILLUMINATING ENGINEERING SOCIETY

The Council of the Illuminating Engineering Society has decided to admit students of either sex between the ages of 16 and 25 as "affiliated students" of the Society for a specially reduced subscription of 10s. 6d. a

year. Affiliated students will have the right to attend meetings, take part in visits, and receive the Society's monthly journal, *The Illuminating Engineer.*

Forms of application for membership are obtainable from the Honorary Secretary, Mr. J. S. Dow, 32 Victoria Street, London, S.W.1.

R. I. B. A.

COUNCIL MEETING

Following are some notes from a recent meeting of the Council of the R.I.B.A. :—

The Secretary : It was decided to open a fund to which all members of the Institute and Allied Societies should be invited to subscribe for a portrait of the Secretary, to be hung on the walls of the Institute, and, should the amount subscribed be sufficient, a replica to be presented to Lady MacAlister. It was decided that contributions to the fund be limited to a maximum of 5s. each.

Ribbon Development : It was decided to submit the following resolution to the Prime Minister in conjunction with the Town Planning Institute and the Council for the Preservation of Rural England :— "The R.I.B.A., the Town Planning Institute and the Council for the Preservation of Rural England welcome with great satisfaction the reference to ribbon development in the King's Speech. They beg His Majesty's Government not to postpone or delay the introduction of legislation to deal with this urgent matter which has been the cause of so many accidents on the roads and so much irreparable damage to the country."

All Hallows Church, Lombard Street : Mr. H. S. Goodhart-Rendel and Mr. Maurice E. Webb (Vice-Presidents) were appointed to represent the R.I.B.A. on the Conference convened by the Society for the Protection of Ancient Buildings to consider the future of All Hallows Church, Lombard Street. It was made clear that the R.I.B.A. representatives would hold a watching brief only, and that the Institute would not be committed to any particular policy in the matter.

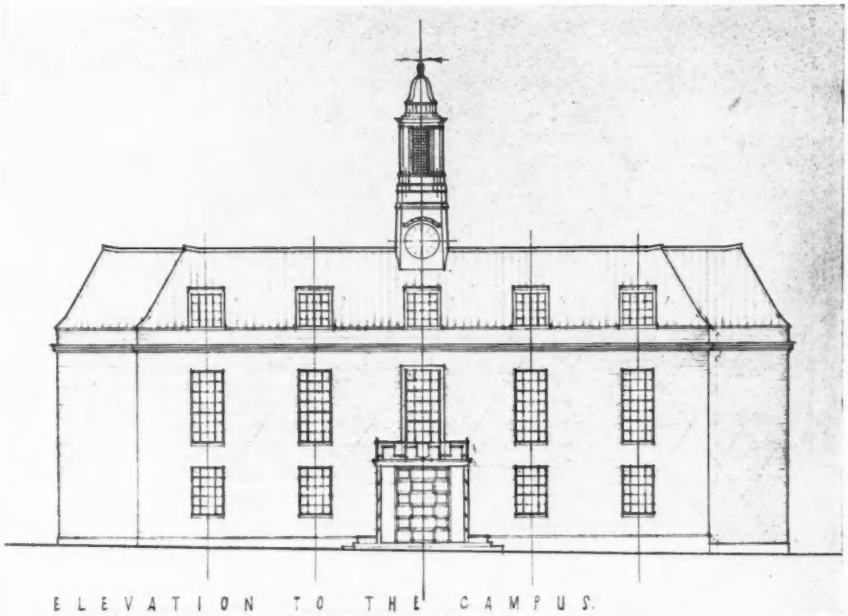
The National Aerodrome Building Programme : It was decided to bring to the notice of the Aerodromes Advisory Council the importance of taking steps to ensure that architectural advice and assistance are sought by the Government in connection with the large-scale programme of aerodrome building, upon which it is understood that the Government are about to embark.

R.I.B.A. PRIZES FOR PUBLIC AND SECONDARY SCHOOLS

The Board of Architectural Education announce that the following awards have been made :—

(A) PRIZES FOR ESSAYS : £2 2s. to Geoffrey Robson, of the Grammar School, Dudley, Worcestershire, for his essay on Romsey Abbey ; £1 1s. to Miss Norah Freeman, of the Grammar School, Scunthorpe, for her essay on Thornton Abbey, Lincolnshire ; £1 1s. to Miss Monica Hastings, of Newcastle-on-Tyne Church High School, for her essay on Ovington Church and Rectory ; £1 1s. to B. W. Watkin, of The College, Bishops Stortford, for his essay on Eltham Palace.

(B) PRIZES FOR SKETCHES : £1 1s. to Alec Daykin, of the Brunts School, Mansfield, for his drawings of Steetly Chapel ; £1 1s. to J. C. R. Dow, of Brighton, Hove and Sussex Grammar School, for his drawings of Old Shoreham Church, Sussex ; £1 1s. to Geoffrey Robson, of the Grammar School, Dudley, Worcestershire, for his drawings of Gainsborough Old Hall ; £1 1s. to R. C. Stones, of the Manchester Grammar School, for his drawings of Chetham's Hospital ; £1 1s. to B. R. Williams, of the Grammar School, Bristol, for his drawings of Redland Green Chapel, Bristol.



Winning design in the competition for Council Offices, Welwyn Garden City. By C. H. Elsom and H. Stone. *See Competition News on page 44.*

THE R.I.B.A. INTERMEDIATE EXAMINATION

The R.I.B.A. Intermediate Examination qualifying for election as Student R.I.B.A. was held in London, Edinburgh, Hull, Manchester, Newcastle-upon-Tyne and Plymouth, from November 9 to 15, 1934.

Of the 191 candidates examined 69 passed and 122 were relegated. The successful candidates are as follows :—

A. Applegarth ; J. H. Baker ; A. L. F. Barley ; W. E. Barnes ; W. H. Barrett ; T. R. Bateman ; H. D. Bidwell ; K. J. Bird ; A. R. Bramley ; R. S. Brocklesby ; S. E. Burden ; W. J. Cassidy ; R. E. W. Cooper ; R. H. Crompton ; H. A. J. Darlow ; N. T. Davies ; J. Davison ; R. W. Deans ; J. H. Deas ; W. A. Dorey ; J. W. Drake ; G. R. Findlater ; A. W. Flack ; E. W. Fountain ; A. J. Gasson ; E. R. Goodall ; S. T. Griffiths ; C. P. Griggs ; (Miss) M. R. Groves ; E. B. Harris ; C. J. A. Hengist ; G. H. R. Heritage ; R. Horne ; R. A. Horsman ; L. B. Hunt ; G. W. Jepson ; J. W. Keeling ; D. S. Kilner ; E. Kinghorn ; G. W. Lyon ; J. W. McArtney ; D. G. Martin ; G. B. Meilandt ; C. B. K. Milnes ; C. N. Nettleton ; I. Paul ; C. Pritchard ; T. C. Ralph ; A. G. Reeves ; L. I. Richardson ; S. G. W. Ross ; J. T. Sawday ; G. W. Shuard ; S. Simmons ; E. S. Skingsley ; L. Smyth ; C. Solomon ; K. A. Spare ; A. L. Spencer ; J. M. Surman ; M. E. Taylor ; P. Temple ; I. H. Thomas ; F. C. Vernon ; D. V. C. Walker ; J. F. Ward ; R. L. Winsor ; R. H. Wiseman ; and S. Wright.

THE R.I.B.A. HENRY L. FLORENCE BURSARY

The last date for the submission of applications for the Bursary has been extended to February 1, 1935.

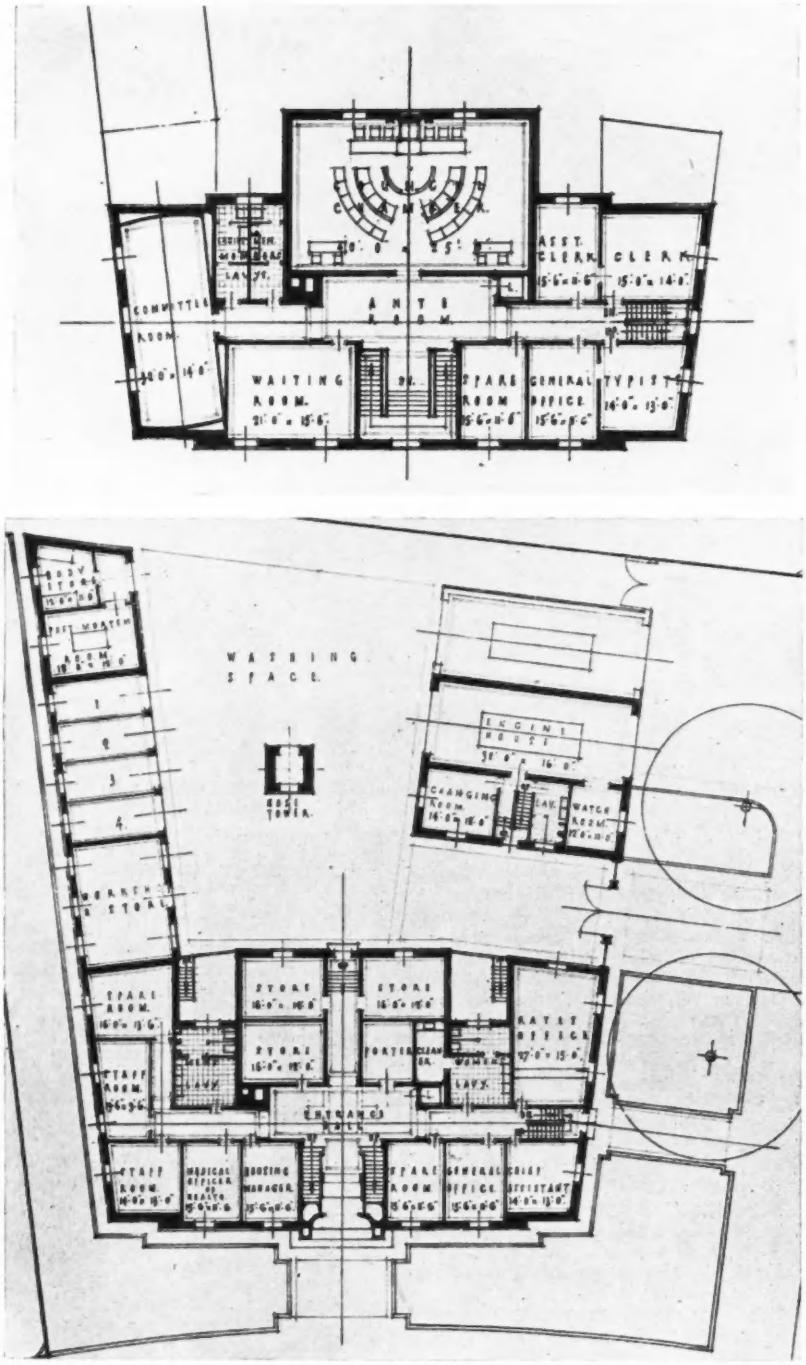
Candidates must be members of the R.I.B.A. The Bursary is offered in alternate years, and is of the value of £350. The general object is the study of the Greek and Hellenistic architecture of the Mediterranean basin with a view to making available for architects, from an architectural standpoint, the results of the more recent archæological researches.

The holder of the Bursary is required to spend a period of not less than six months in travel and research.

Application must be made in writing, accompanied by testimonials, and a brief outline of the candidate's intention regarding his proposed studies must be included. Candidates should state their qualifications, age, architectural training, works executed and publications, if any. Applications should be sent so as to reach the Secretary R.I.B.A., 66, Portland Place, London, W.1, on or before February 1, 1935.

CONFERENCE AT THE R.I.B.A.

On Saturday, January 19, at 2.30 p.m., a Conference will be held at the R.I.B.A. at which Mr. G. D. Gordon Hake, R.W.A., F.R.I.B.A, Headmaster of the R.W.A. School of Architecture, Bristol, will read a paper on the subject of "The Value of Simplicity to the Teacher and to the Student."



Ground and second floor plans of the winning design, by C. H. Elsom and H. Stone, in the competition for Council Offices, Welwyn Garden City. See note on this page.

COMPETITION NEWS

PUBLIC OFFICES, WELWYN

Mr. C. H. James, F.R.I.B.A., the assessor in the competition for public offices, Welwyn Garden City, has made his award as follows :

Design Placed First (£75) : Messrs. C. H. Elsom and H. Stone, of 100 Plashet Road, Upton Park, E.13.

Design Placed Second (£35) : Mr. B. Haward, A.R.I.B.A., of 5 Torrington Square, W.C.1.

Design Placed Third (£25) : Messrs. R. F. Fairhurst and T. T. Hewitson, AA.R.I.B.A., of 79 Albert Bridge Road, Battersea Park, S.W.1.

The designs submitted by the following competitors were commended by the assessor : Messrs. D. F. Martin Smith and John Grey ; J. P. Stott and Harry Taylor ; J. R. Leathart ; G. Hutton ; J. A. Dartnall and W. M. Fisk ; J. Melvin, P. A. W. Cornish, N. C. Westwood and E. Ward ; A. and G. Roberts ; P. G. Freeman ; B. S. Hume and R. C. Erith ; D. R. Harper and K. J. Campbell ; Nicol and Nicol and Thomas ; J. F. Howes and F. L. Jackman ; Vine and Vine ; F. E. Woolley ; W. A. Gutteridge ; D. E. Harrington ; and A. Bailey.

FURNITURE COMPETITION

As announced in our last issue, the assessors in the competition for modern furniture suitable for a home supported by an annual income of £800 to £1,500, which was organized by B. Cohen and Sons, have made the following awards :

First Premium (£50) : Mr. Patrick Gwynne, architect, of 14 Palmer Street, Westminster, S.W.1.

Two further premiums of £10 : Mr. John Harrison, Shottle, Somerville Road, Sutton Coldfield ; and Mr. Michael Percival Driver, 7 Wycombe Gardens, N.W.11.

The assessors were Messrs. E. Maxwell Fry, A.R.I.B.A., John Gloag, H. de C. Hastings, Editor of the *Architectural Review*, and J. M. Cohen.

The winning design is illustrated on page 41 of this issue.

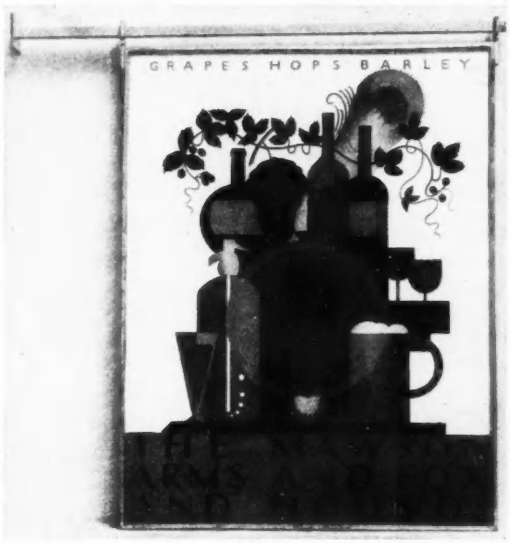
Competitions Open

January 19.—Designs for five-storey blocks of working-men's flats suitable for construction in reinforced concrete for the Cement Marketing Company. Assessors : Joseph Emberton, F.R.I.B.A., Burnard Geen, M.INST.C.E., and L. H. Keay, O.B.E., F.R.I.B.A. Premiums : £300, £200 and £100 for designs placed first, second and third, respectively. Copies of the conditions will be forwarded on application to the Publicity Department, the Cement Marketing Co., Portland House, Tothill Street, S.W.1. Latest date for submission of designs : January 19.

March 1.—New municipal offices, public library and fire station for the Wembley U.D.C. (Open to architects of British nationality and resident in the British Isles.) Assessor : Stanley Hamp, F.R.I.B.A. Premiums : £300, £250, £150, and £100, for designs placed first, second, third and fourth, respectively. Conditions, etc., are obtainable from the Clerk to the Council, Council Offices, Wembley. (Deposit £1 1s.) Designs must be submitted by March 1.

March 27.—Cemetery chapel and auxiliary buildings at Coney Hill for the Gloucester Corporation. (Open to architects practising on their own account within the area covered by the Wessex Society of Architects.) Assessor : Edward Maufe, F.R.I.B.A. Premiums : 125 and 100 guineas, for the designs placed first and second, respectively. Designs must be submitted to the City Surveyor on or before March 27.

April 30.—The Croydon Corporation invite the submission of designs for laying out an area in Central Croydon which is to provide an extension of the Civic Centre of the Borough and to improve central means of communication. Assessor : Dr. Thomas Adams, F.R.I.B.A., F.S.I., M.T.I. Premiums : £500 for the design placed first ; £350 to be divided (in proportions to be determined by the Assessor) for not more than three designs placed next in order of merit. A copy of the conditions is obtainable on application to the Town Clerk, Town Hall, Croydon. (Deposit £1 1s.) Designs are to be submitted not later than April 30.



Gallery II : Painted plate glass sign by Cosmo Clark.

R.A. EXHIBITION OF BRITISH

ART IN INDUSTRY

BY JOSEPH PETER THORP

Following is an illustrated review of the Royal Academy Exhibition of British Art in Industry, which was opened by H.R.H. the Prince of Wales at Burlington House, Piccadilly, on Friday last. The Exhibition will remain open until March 9.

"HONOUR to whom honour is due," "Palmam qui meruit ferat," and so forth. . . . It is pleasant to be able to say at the outset and without prejudice to later comment that from what was visible on press day the exhibition as a piece of showmanship was excellent. It was difficult to judge of the orderliness of the lay-out, as exhibits were largely not in place, labels not attached, and many gaps apparent. But the general *décor* of the setting is seemly if not adventurous, and perhaps it was as well that adventure, in which neither R.A.'s nor R.S.A.'s believe, was not attempted. There is much too much sham Modernismus about without the traditionalists adding their insincere quota.

Certain rooms are outstanding. The Plastics room designed by G. Grey Wornum is admirable with its large diaper wall decoration—actual articles of Phenolic or Urea Formaldehyde plastics making the repeating or varied motifs of the design—a room effective, explanatory and unpretentious.

The two restfully reticent rooms for ewellery and silversmiths' work designed by John Grey are excellently adapted for their business of display of their gleaming and particularly well-chosen contents, to which we propose to return ; and there is a delightful leather work annexe. Goodhart-Rendel has contrived an intriguing quasi-traditional setting for the ceramics.

The Rowley Gallery's setting designed by Charles Holden for the books and commercial printing is excellent, serviceable, unpretentious, a good foil for its admirable contents. No craft it would seem has quite caught up with printing.

I am, however, on the whole inclined to think that Maxwell Fry's room for the glass exhibits, with its admirable, austere frieze of enlarged camera studies, diagrammatic commentary and general workmanlike air is most in accord with the spirit or alleged spirit of the exhibition. And there are, in the Glass room as in the Plastics and Ceramic rooms, articles which are within the means, say, of the average medical man, lawyer, engineer, or, even, journalist.

As a whole, however, the exhibition is conspicuously dedicated to the business of making the world pleasant for the affluent. Quite appropriately the General Committee had on its illustrious (but slightly irrelevant) roll one Duke, one Duchess, one Marchioness, two Marquises, three Earls, five Viscounts, seven Barons, twenty Knights, to say nothing of an Archbishop, a Prime Minister, and an ex-Prime Minister.

Appropriately there is the very intelligent and comely ducal library, with breakfast table of one glass disc over one oak disc supported by three metal rods (embarrassing possibly the ducal elbows) in a cosy corner—all very magnificent. There is the luncheon loggia for hardy millionaires with stone and terrazzo seats and carved white marble wall ; all guests being assumed to have the same girth, as the stone seats are fixed and all placed at an equal distance from the table. There is the curly maple wood bed for expensive and reluctant occupant, with incorporated hard seat for comrade ; or possibly table for morning tea ; or possibly—— but no matter.

A crack Court jeweller shows how magnificently expensive and how damnably dull a conventional jewel can and should be in contrast with the joyous inventiveness of Miss Catherine Cockerell's work.

A memorandum distributed to pressmen contained this quotation from the speech of H.R.H. the Prince of Wales at the Guildhall on November 22 : "You must give consideration to another greater and far more important ideal, designing and working for the majority instead of for the needs of the minority." If ever there was a minority minded exhibition this is one. It would have been reasonable perhaps in 1912. It is an affront to the intelligence of serious people to offer this as a solution of today's problems in the art of better living. It really shows that the Academy and the Royal Society of Arts, like another admirable group of Conservatives, have learned nothing.

It is more than possible that a personal pre-occupation with the pace and radical character of the changes in social structure makes the writer unjust. He must do what he can to make amends. There are, of course, things, not many but some, which come within the scope of what seems desirable in an exhibition of this kind at this date. Too often, however, the prices are not attached to the items in the catalogue, and the lack of index to the catalogue (a defect which will in due course be remedied) makes detailed reference difficult. There is some excellent moulded glass at really low prices ; and the Ceramics room has among other moderate priced exhibits some plates and a sauce-boat of

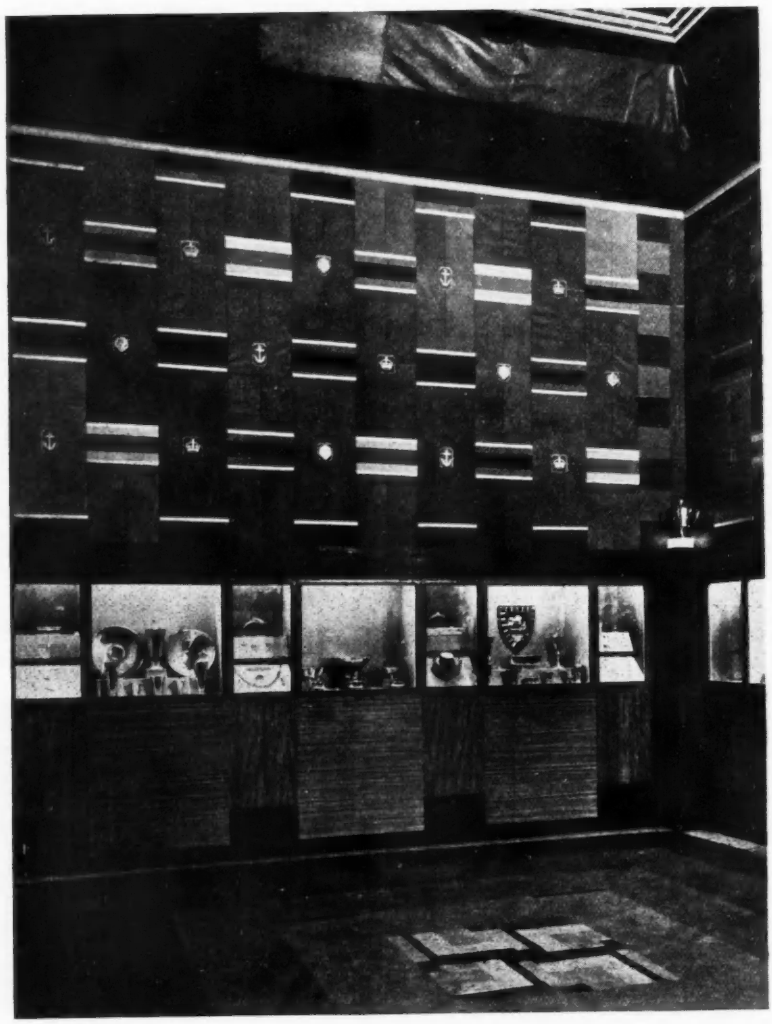
excellent technical quality made by Johnson's of Hanley for Woolworths; there is some pleasant simple ware designed by Susie Cooper decorated with crayon lines under the glaze; and much else that is good and cheap.

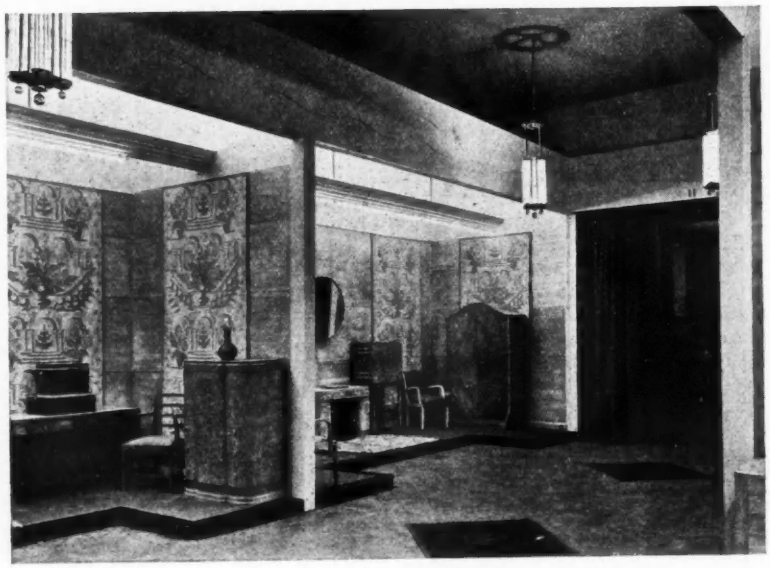
I must not forget the simple folding table designed by R. A. Duncan. There are, of course, books within the means of the average person, but it was queer and sad to see in the jobbing samples a copy of verses decorated by C. Lovat-Fraser who (alas !) has been dead these dozen years. Mr. McKnight Kauffer, by the way, was ruled out of the exhibition as an American, though when he exhibits abroad he is included in the roll of British artists. Marion Dorn, equally American, is now partner in a British firm, and a printed linen of hers seemed to me one of the best and simplest things in the exhibition.

The Plastics room, admirable in its decoration as I have said, is disappointing in the detail of its exhibits unless, as indeed is possible, there are many more articles to be included than were scattered about the room waiting to be arranged. There was no attempt to show the wide scope and adaptability of these materials. I could see no containers or desk furniture, now so often excellently designed. The supremely interesting exhibit of Imperial Chemical Industries is a substance, colourless and more translucent than any but the best glass, made of synthetic resins.

The Goldsmiths' Company has done consistent and persistent good work in the matter of enlightened patronage of the designer and craftsman, lest craftsmanship should altogether die out—a fear always apt to haunt the lover of finely made things, but, I suggest, an exaggerated fear. The exhibits of the silversmiths working under the company's direct inspiration and patronage are, on the whole, admirable: and to meet the criticism implicit in the whole of this survey, experiments in pewter have shown the fine possibilities of the use of that "base" but by no means unattractive metal. Under the wing of the silverwork shelters oddly enough leather baggery (improved out of all knowledge in the last half-dozen years) and clocks. The " movements " of the clocks have been

R.A. EXHIBITION OF

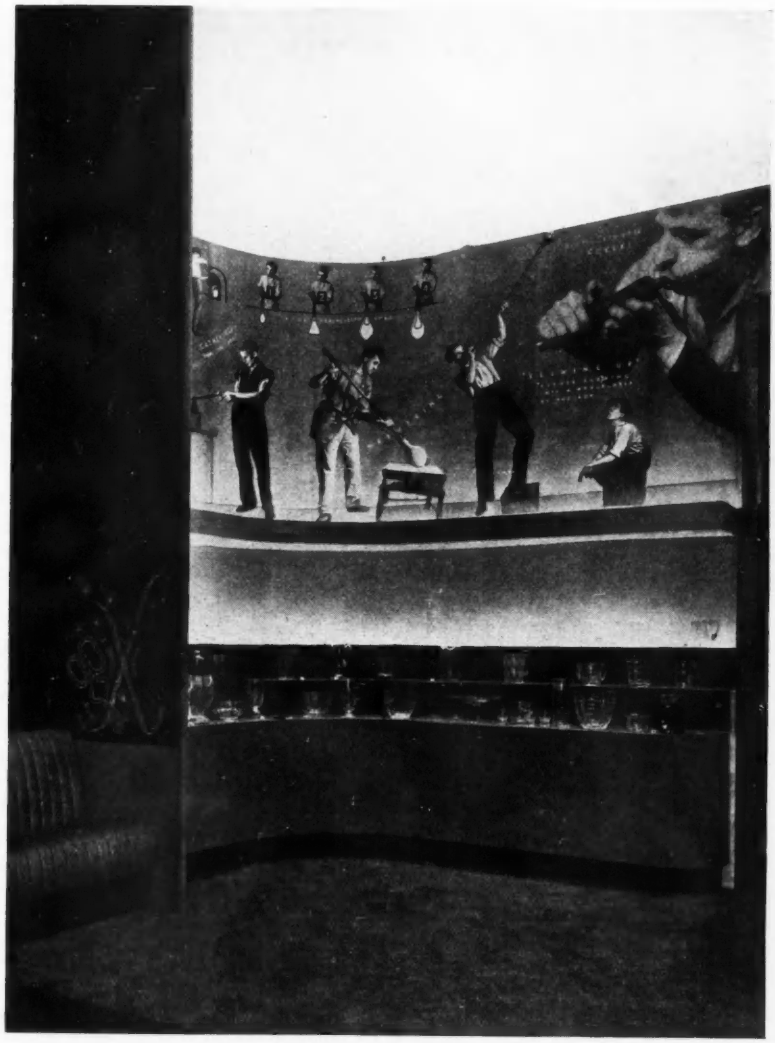


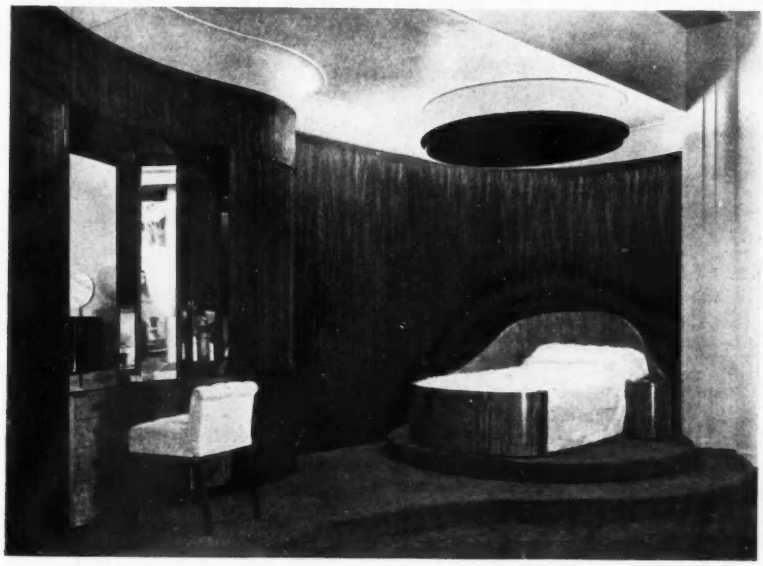


Above: Gallery F: South Room. Gold, silver, jewellery, etc. Designer of room: John Grey.

Right: Gallery XI: "Examples of the work of the leading furniture manufacturers on industrial lines, although a few examples of special individual craftsmanship have been included," it is described in the catalogue. The general scheme and decoration of the gallery were designed by Sir Ambrose Heal.

ART IN INDUSTRY





developed to a high point of efficiency behind the tariff barrier. The designs of the faces and cases seem to me to be quite beneath contempt.

There are many designers of intelligence and inventiveness: old friends like Harold Stabler, Truda and John Adams, A. Rutherston, the late Paul Cooper, Percy Metcalfe, George Friend, Eric Gill, E. Spencer, Mrs. Newman, D. M. Bembaron, Ltd. (though how a limited company can design a handbag I do not quite understand); and there are established artists now brought into this affair of liaison between art and industry, such as Paul Nash (who has long been designing fabrics), Dod Proctor, Dame Laura Knight, E. Ravilious, Chas. Holden, who has a remarkably fine ceremonial cup and cover to his credit; and no one in the silversmith's room should miss the *Mace* by H. G. Murphy. But there is one portent—Keith Murray: his glassware, his pottery, his silverware—he has recently been appointed controlling designer for Mappin and Webb—is alike interesting, sensitively felt and appropriate to the material. It disposes of the theory that a man must grow up with the material for which he designs: it does not dispose of the theory that he should study that material in the workshop where it is handled, and let the workshop practice and the inherent qualities of the material dictate design rather than allow the drawing board to take the lead in the matter.

Limitations such as that nothing should be shown that has been exhibited before—an idiotic limitation it would seem to anybody conversant with the facts—have told hardly on this show. Misdirection of aim, a "Great Exhibition of 1851" mentality imagining a world of affluent bourgeois and magnificent aristocrats and a trade to the ends of the earth carried in British bottoms and claiming tribute from all peoples—these seem the salient defects of this affair.

But perhaps we are on a false scent. Perhaps this exhibition, like the carefully nourished enthusiasms of the Royal Marriage, is designed to display to the world an England which has not shifted a jot or tittle from the firm base of her solid narrowly diffused prosperity, that here is wealth and luxury still, and side by side with it order and peace, stupidity and goodwill. It is *just* possible, of course.

Above: Gallery II: Glassware. Designer of the gallery: E. Maxwell Fry, A.R.I.B.A.

Left: Gallery IV: Specimen Rooms: the gallery, designed and arranged by Edward Maufe. The photograph shows a bedroom by H. C. Bradshaw, with furniture by Betty Joel.

R.A. EXHIBITION OF ART IN INDUSTRY





Gallery V: Specimen Rooms. The design and arrangement of this gallery are by Oliver Hill, F.R.I.B.A. The photograph was taken looking from Gallery V into Gallery IV. On the right is seen the kitchen designed by Mrs. Darcy Braddell.



Above. Gallery VII: Specimen Rooms. This gallery has been designed with a view to showing some of the uses to which plastic materials are being put at the present time. The walls are lined with panels of laminated resinous materials upon which have been fixed groups of objects made of similar substances. Designer: G. Grey Wornum, F.R.I.B.A.

Right. Gallery X: Book Production. The general arrangements and equipment of this gallery have been designed and carried out by The Rowley Gallery Ltd.

AT BURLINGTON HOUSE (UNTIL MARCH 9)

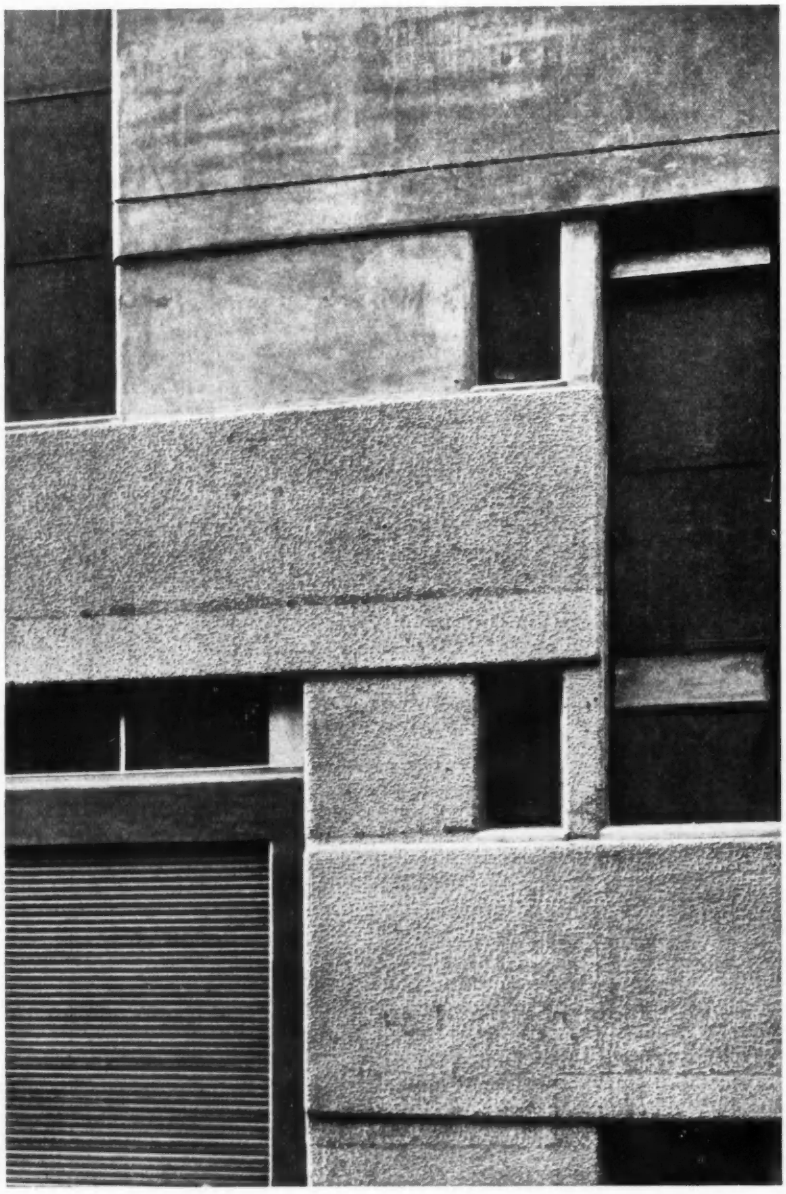
WAREHOUSE IN BLACKFRIARS, S.E.



This warehouse building is of reinforced concrete throughout, and in it flat slab construction is employed for the first time in the L.C.C. area. In the external walls the only solids are those made necessary by purely structural considerations, the remainder of the elevations being entirely of glass. The lower panes are of transparent glass, the upper panes diffusing, and all cleaning is done from a travelling cradle suspended from a runway at roof level. All external concrete has been rubbed down to give as smooth a finish as possible, but at the base of the building, up to a height just beyond hand reach, the surface has been bush-hammered so that it is impossible to write upon it. The photograph shows the Bennett Street elevation.

DESIGNED BY SIR E. OWEN WILLIAMS, K.B.E.

WAREHOUSE IN BLACKFRIARS, S.E.

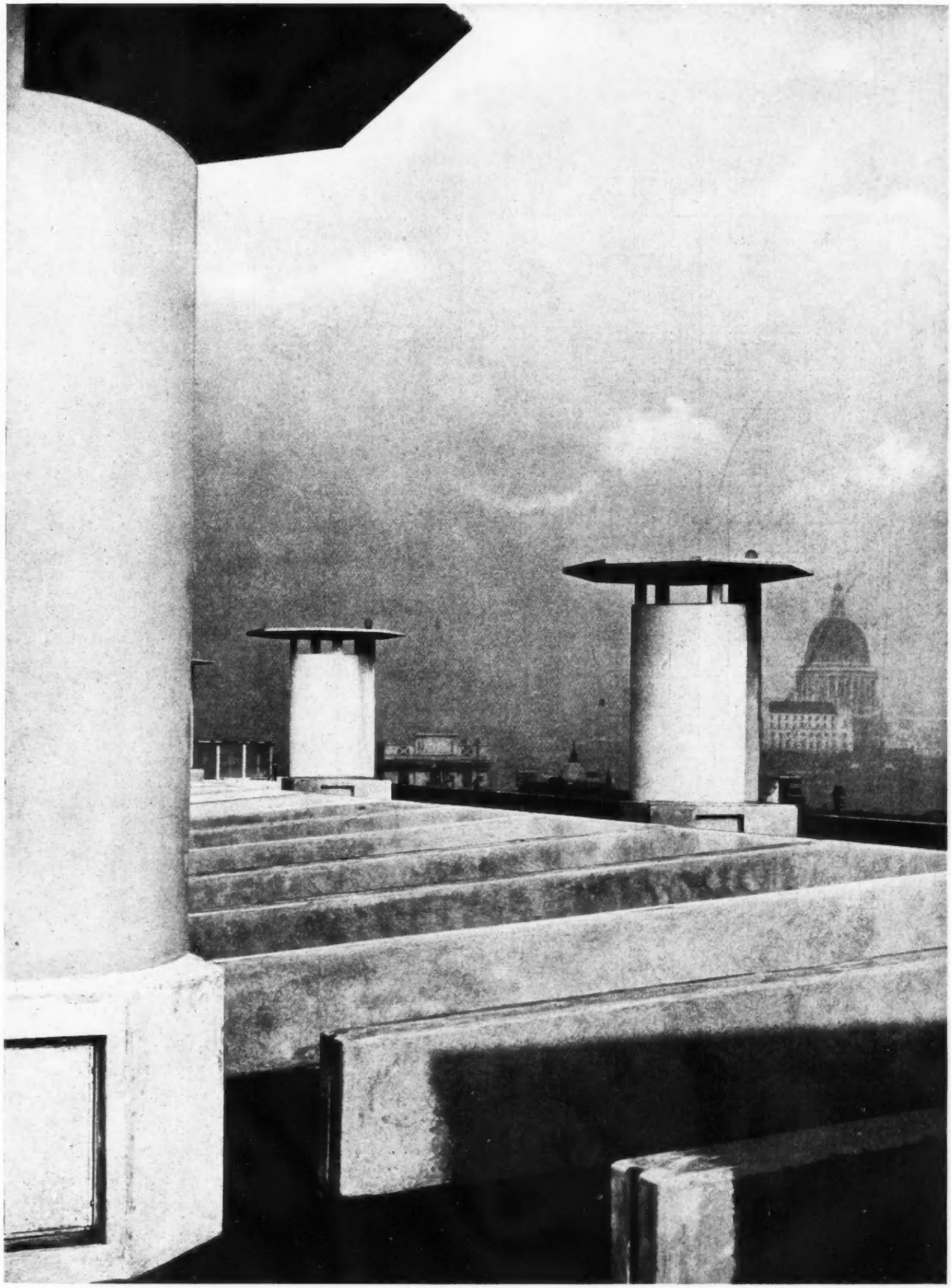




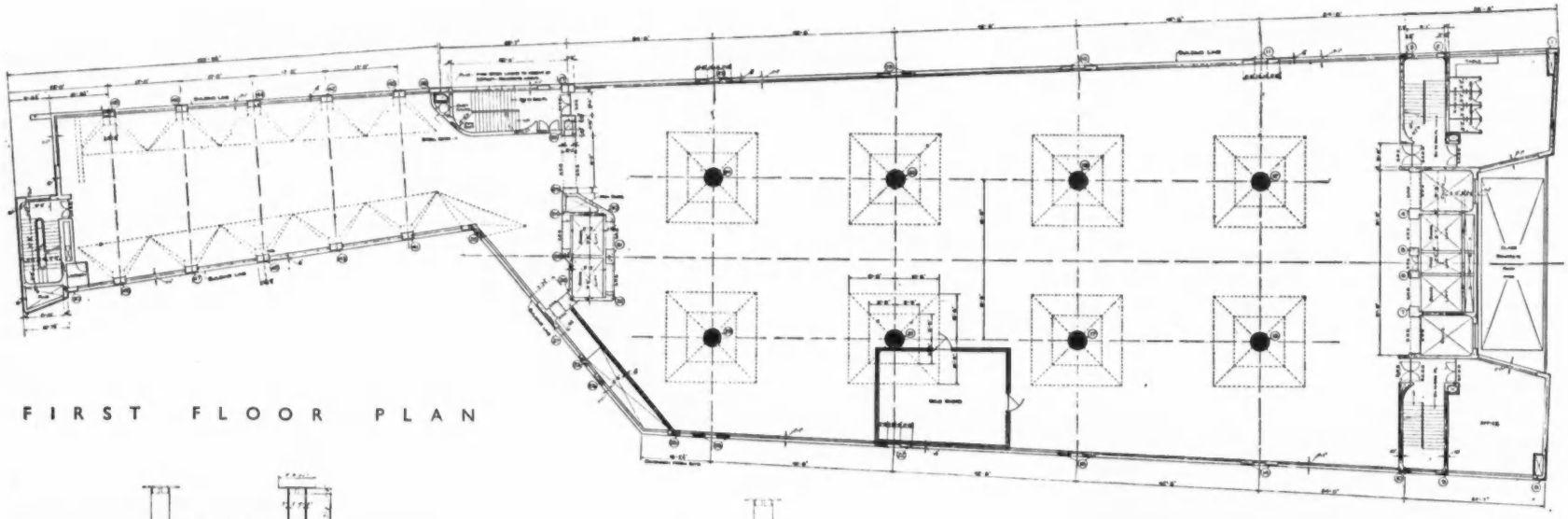


The photographs on this page are : above, a detail of one of the entrances, showing the bush-hammered finish ; right, two views of the elevation, from Paris Garden. On the facing page is a view taken on the roof showing the ventilators and beams supporting the roof-light, which is made up of circular glass slabs set in concrete. St. Paul's Cathedral and Faraday House can be seen on the extreme right of the photograph.

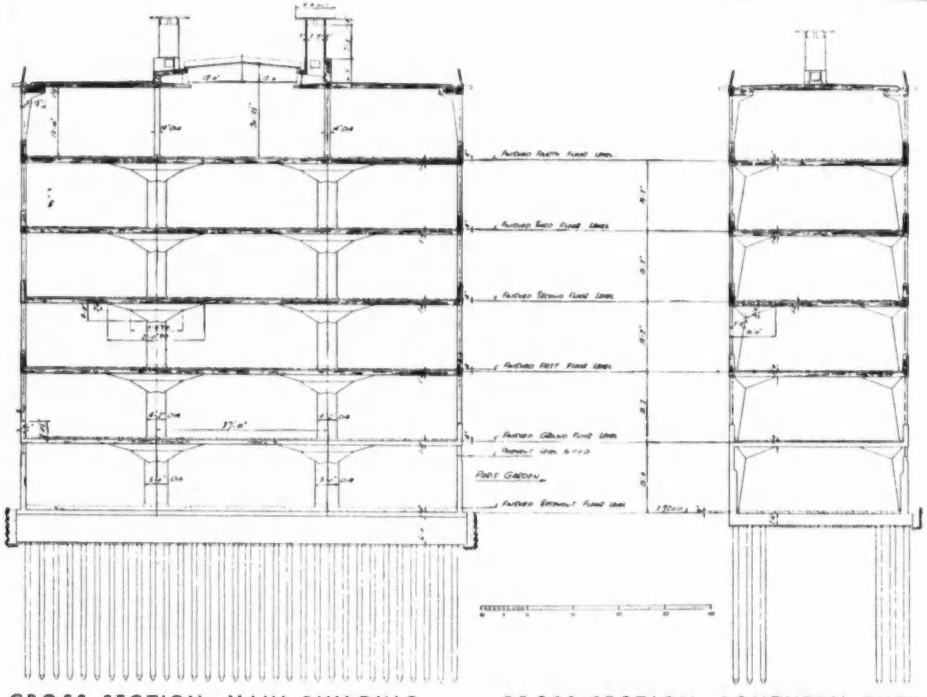
BY SIR E. OWEN WILLIAMS, K.B.E.



WAREHOUSE IN BLACKFRIARS, S.E.

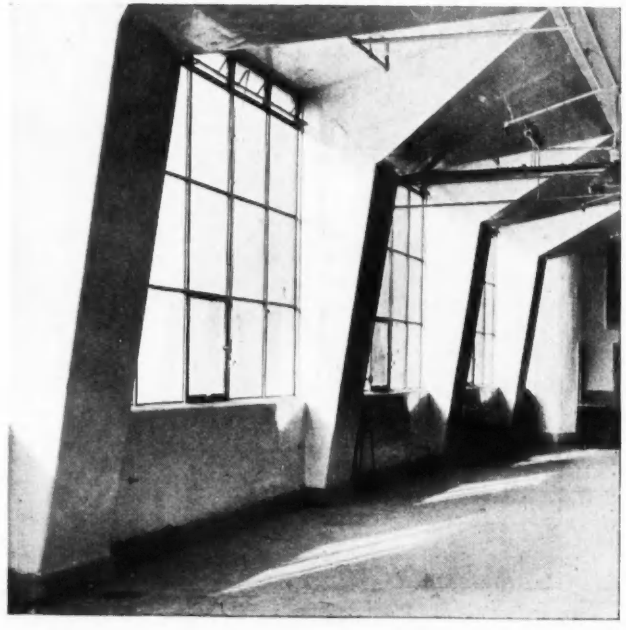


FIRST FLOOR PLAN

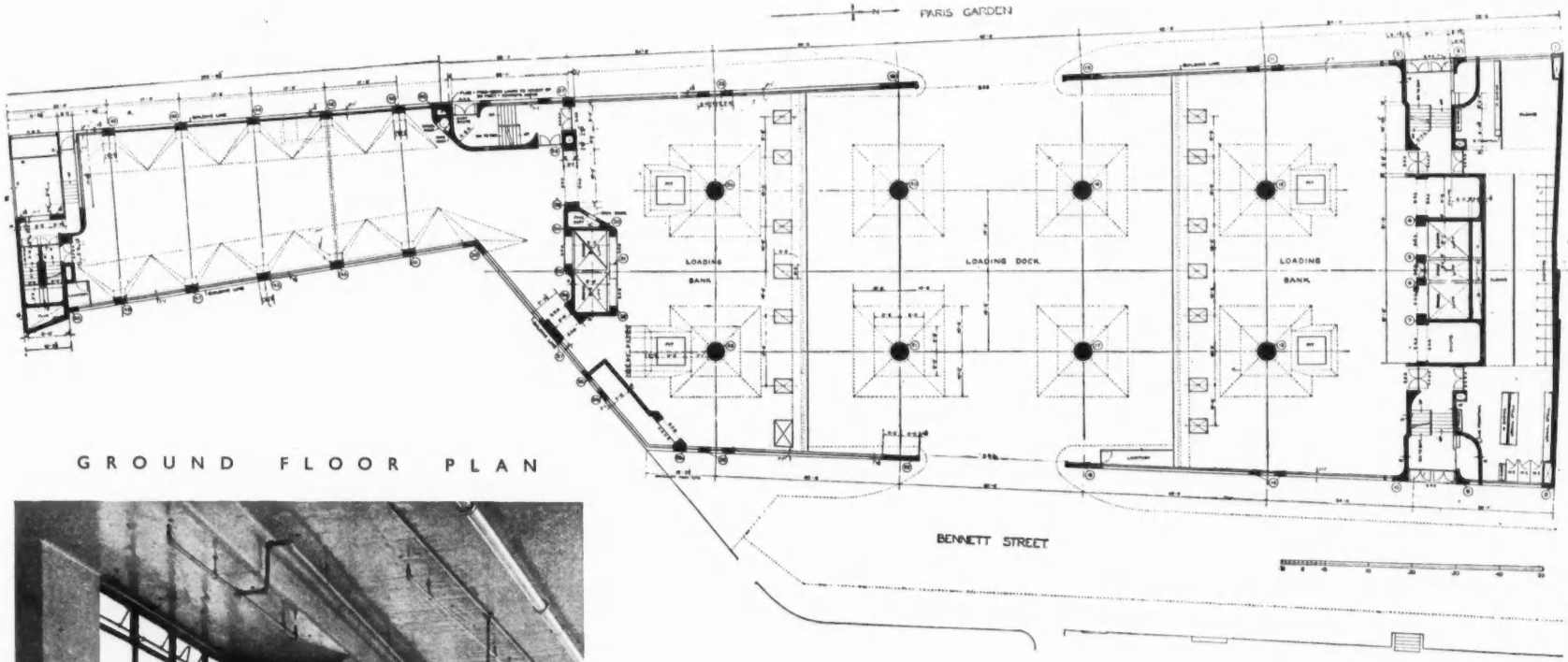


CROSS SECTION, MAIN BUILDING

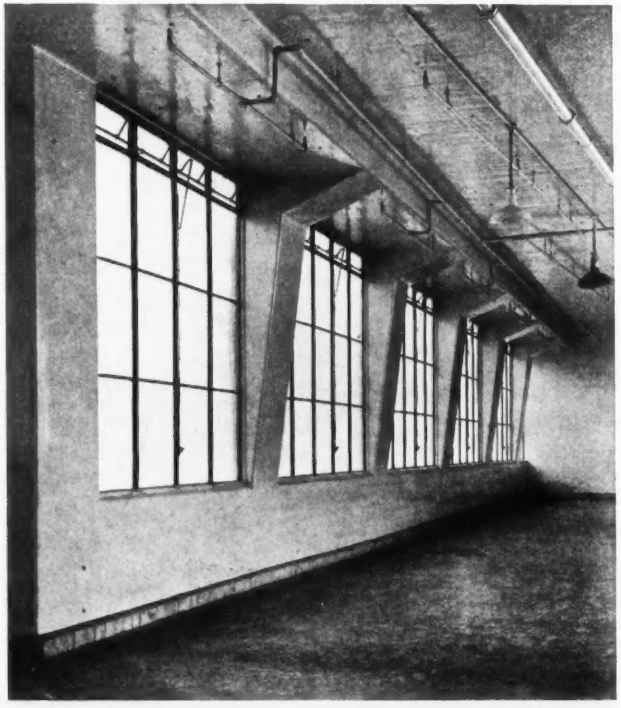
CROSS SECTION, SOUTHERN EXTENSION







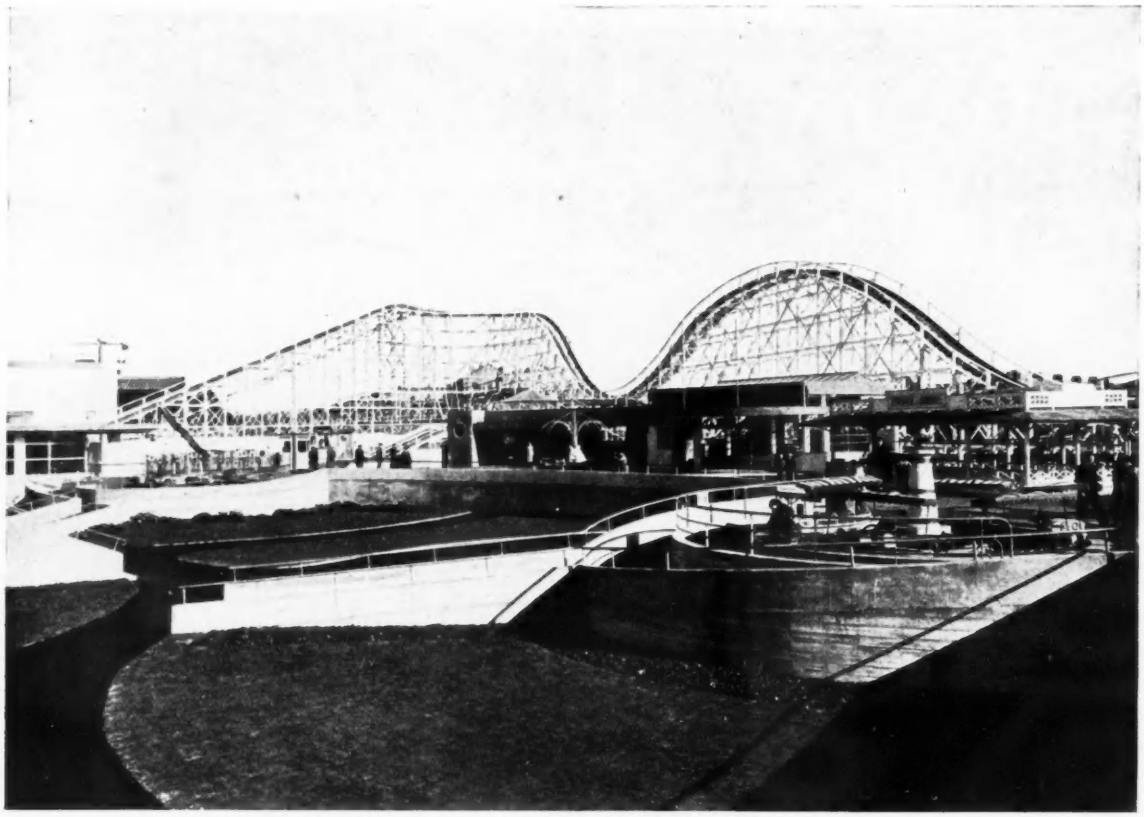
GROUND FLOOR PLAN



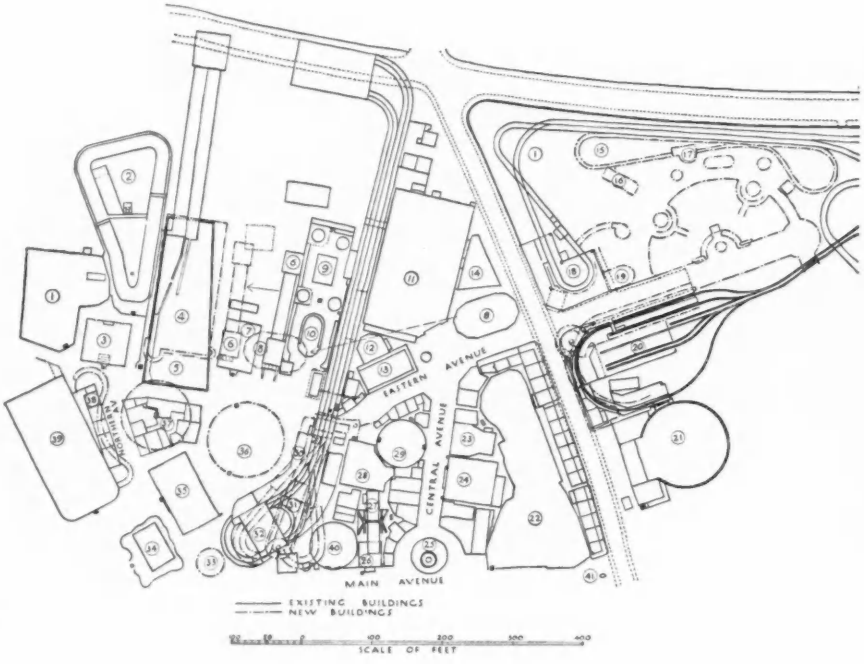
This building is on an awkward site, roughly 350 ft. long, about 80 ft. wide over a length of 250 ft., the width of the remainder being about 40 ft.; the total site area is about 25,000 sq. ft., and the "annexe" is on the narrow part of the site. The ground floor is 4 ft. above pavement level, to give a suitable loading dock height and, incidentally, to provide light and ventilation to the basement; full advantage has been taken of the allowable 80 ft. height limit, and this gives floor heights of approximately 15 ft. The whole building is planned in units of 2 ft. 10 in. for windows, and any internal partitioning. The whole of the building is carried on concrete piles about 40 ft. long, to which the main column loads are transmitted by foundation beams 13 ft. 6 in. wide by 6 ft. 6 in. deep. The concrete mix used was $2\frac{1}{2} : 1\frac{1}{2} : 1$, cube tests at four months never showing a figure of less than 6,500 lb. per sq. in. All concrete was placed by means of a central pump and pipe-line, this system being used here for the first time in this country. Subdivided to meet the L.C.C. fire regulations, each floor of the main building is a cell, and the whole of the annexe is one cell in itself. On the ground floor is the loading and unloading dock, occupying the full width of the building and about 85 ft. of its length. Goods are unloaded on one side and can be taken to the upper floors by lifts and elevators at one end of the building, and sent down at the other end by further lifts and chutes. All loading and unloading takes place under cover. The highly-impervious and fat-resisting floors are tiled throughout with Adamantine clinkers 6 in. by $1\frac{3}{4}$ in. by 2 in. thick, closely set. Staircases, landings and lavatories are finished with a mortar consisting of crushed Adamantine clinkers, cement polished. All internal skirtings and covings are in the same material as the floor finish. The whole of the walls and ceilings have been painted with white synthetic paint direct on the concrete; metalwork is grey. Staircases and lavatories are painted in the same way as the main warehouse except that the walls are parchment yellow. Heating is by high-pressure steam and a number of unit heaters.

DESIGNED BY SIR E. OWEN WILLIAMS, K.B.E.

BLACKPOOL PLEASURE BEACH:



A corner of the children's new sunken garden with the Big Dipper in the background.



KEY TO LAY-OUT PLAN

1 : Children's Playground
2 : Speed Boats
3 : Cuddle-up
4 : Fun House
5 : Water Chute
6 : Jack and Jill
7 : House of Nonsense
8 : Whip
9 : Mary's Garden
10 : Brownie Coaster
11 : Skating Rink
12 : Ice Cream Factory
13 : Trellis
14 : Public Lavatories
15 : Kiddies Coaster
16 : " Reel
17 : Station
18 : Roller Coaster
19 : Creche
20 : Pleasure Beach Express
21 : Monitor (Indian Theatre)
22 : River Caves
23 : Military Range
24 : Ghost Train
25 : Fountain
26 : 1,001 Tumbles
27 : Rainbow Wheel
28 : Grotto Railway
29 : Joy Wheel
30 : Automatic Parlour
31 : Grand National
32 : Scenic Railway
33 : Ice Cream Kiosk
34 : Noah's Ark
35 : Auto Skooter
36 : Flying Machine
37 : Buc
38 : Stalls
39 : Reel
40 : Exhibition
41 : Enquiries Bureau

DESIGNED BY JOSEPH EMBERTON





The photographs show: above, an exterior view of the Fun House, a huge building which contains a considerable number of amusement devices. It is finished in white cement stucco; right, the aeroplane at night.

BLACKPOOL PLEASURE BEACH:





The photographs show: above, the pay box to the Jack and Jill Slide; right, the remodelling of an old device, the Whip.

On the facing page is a view of the interior of the Fun House, showing a large slide which has an atmost vertical drop of about 30 feet. The control tower is in the foreground.

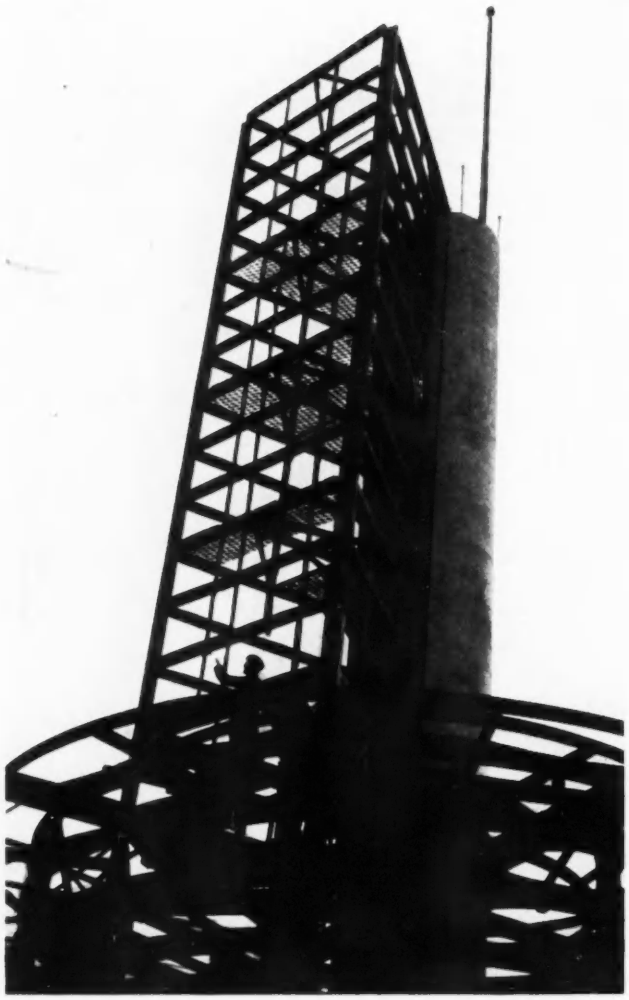
DESIGNED BY JOSEPH EMBERTON

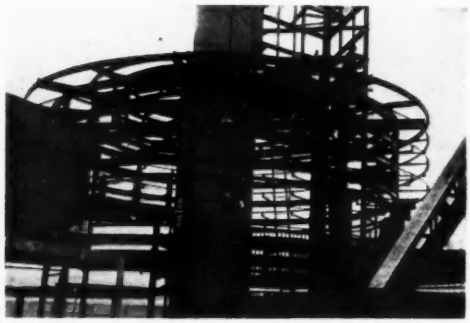


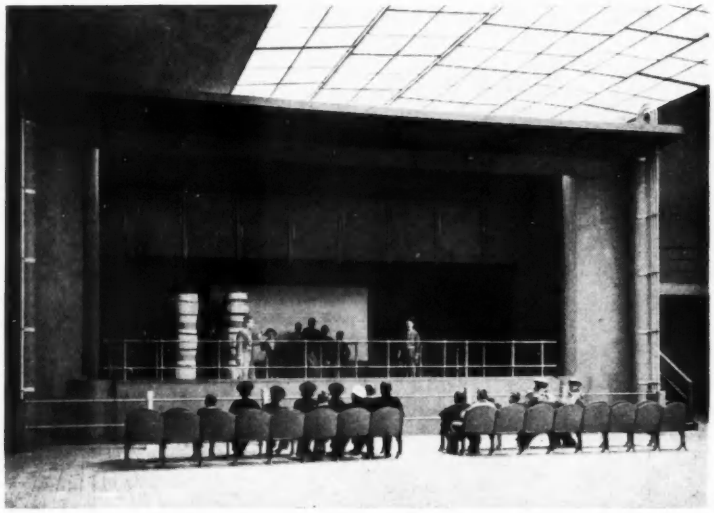
F

BLACKPOOL PLEASURE BEACH

DESIGNED BY JOSEPH EMBERTON

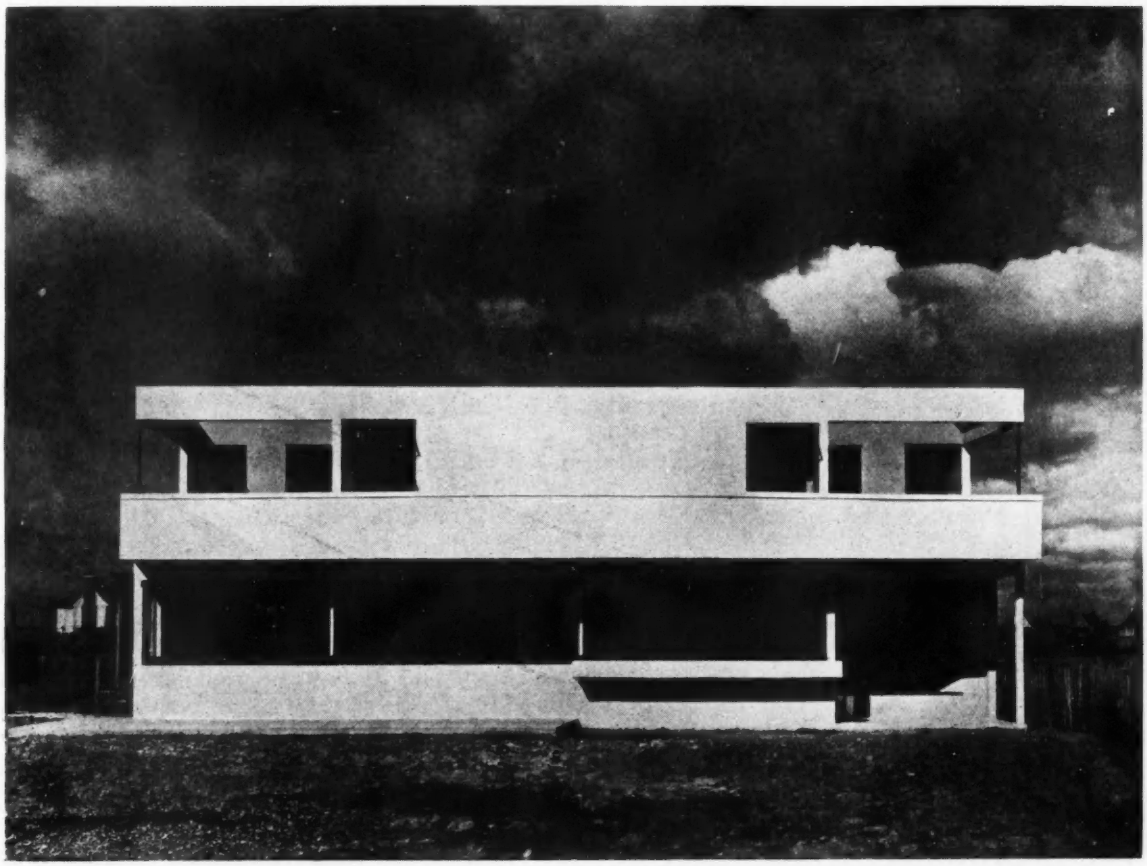






Above, the steel frame to the entrance hall and tower of the new miniature railway station, replacing the old one, which was recently burnt down. The lower circular portion, which will form trays for concealed lighting, is to be covered with expanded metal and plastered with a scraped cement face. The upper portion will carry the name of the station and will be glazed on three sides and illuminated from within. Right, the Stage in the Fun House.

HOUSE AT BOGNOR REGIS

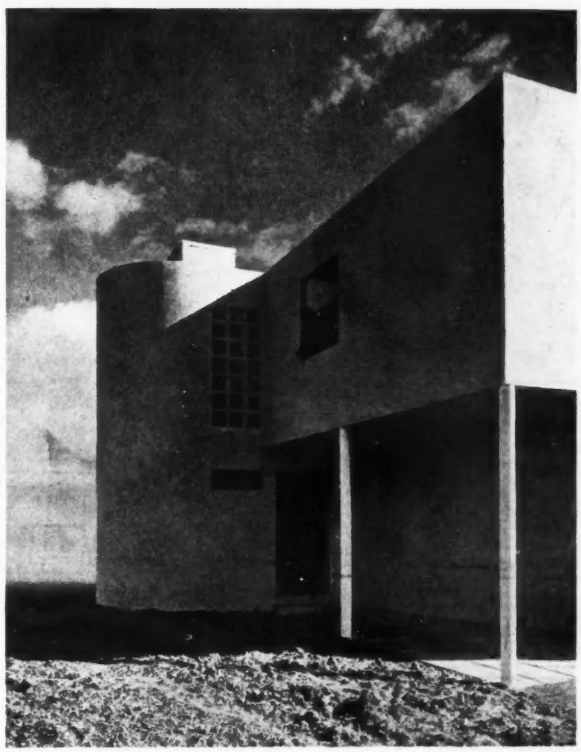


This holiday seaside house is built on the Aldwick Bay Estate, and occupies a position right on the foreshore, with a garden reaching down to the beach and sheltered from the east winds by a magnificent tamarisk hedge. It is planned to give the maximum sea view from all rooms. The large living room, with dining room separated by built-in table and curtains, has a continuous window 40 ft. long, with sliding sections, and contains the only open fireplace in the house, the rest of which is all-electric, including hot water storage. Upstairs, the bedrooms have sleeping terraces and a curved balcony which keeps the heat of the summer midday sun out of the living room, but allows it to enter before 12 and after 2 o'clock.

The construction is of reinforced concrete with 4 in. walls, lined with 2 in. cork slab for insulation, finished with plaster. The exterior is cream, with window frames in battleship grey. Floors and roof are hollow tile (lined cork insulation), and the sliding windows are metal.

This is the first reinforced concrete house to be erected in the Bognor area, and we are informed that, in contrast to the recent cases of obstruction by local authorities, the R.D.C. were extremely easy to deal with during the whole of the job, and were, in fact, pleased to have a house of this type in their area.

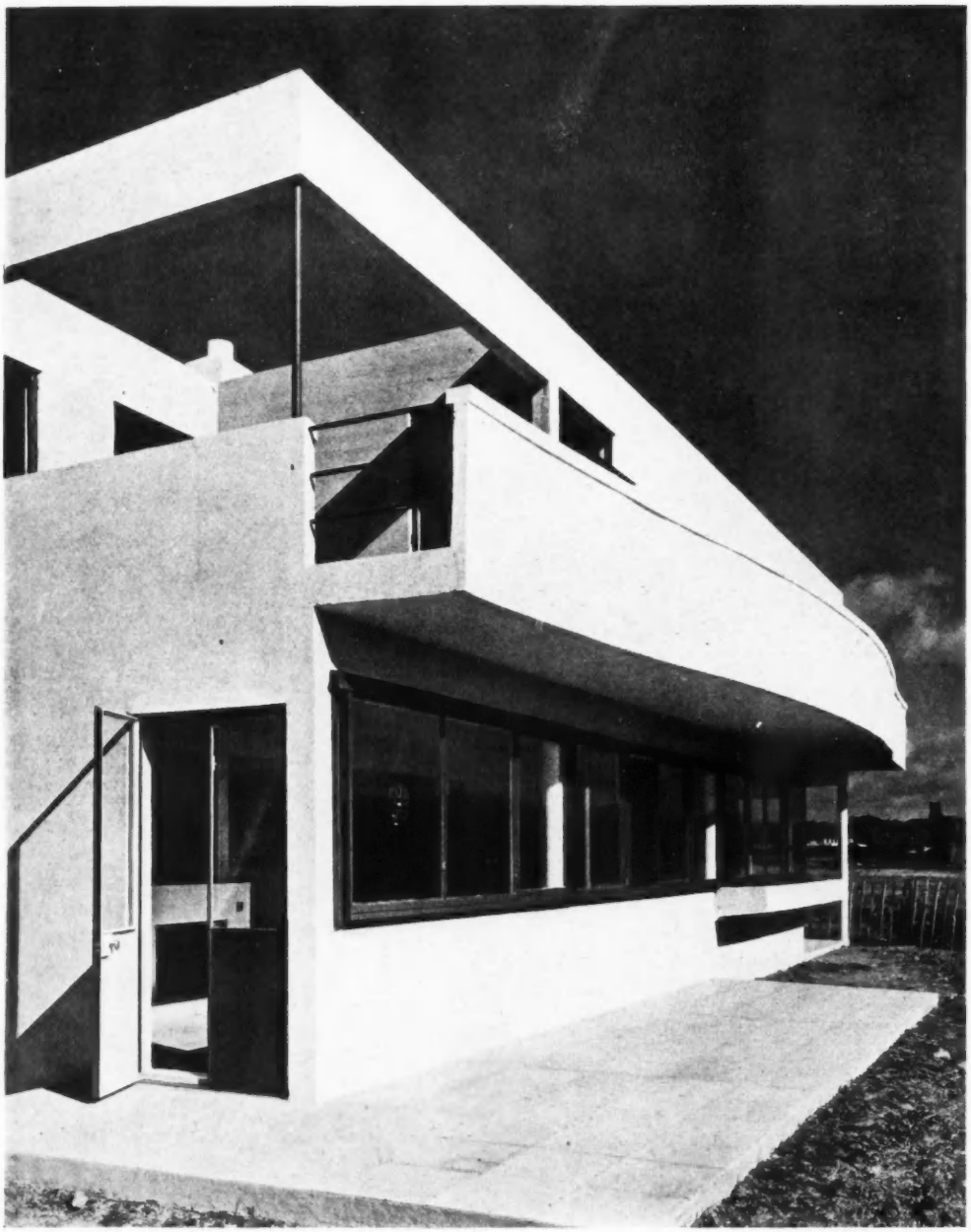
The photographs show: Above, the south elevation; right, a detail of the main entrance.



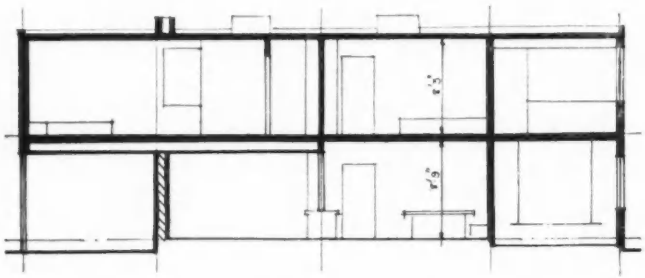
DESIGNED BY

CHITTY AND TECTON

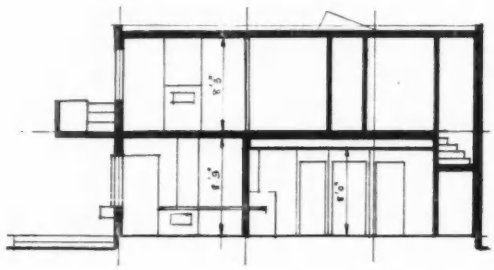
HOUSE AT BOGNOR REGIS:



The south elevation, showing the curved balcony, which is designed to protect the living room from the summer sun between midday and 2 p.m.

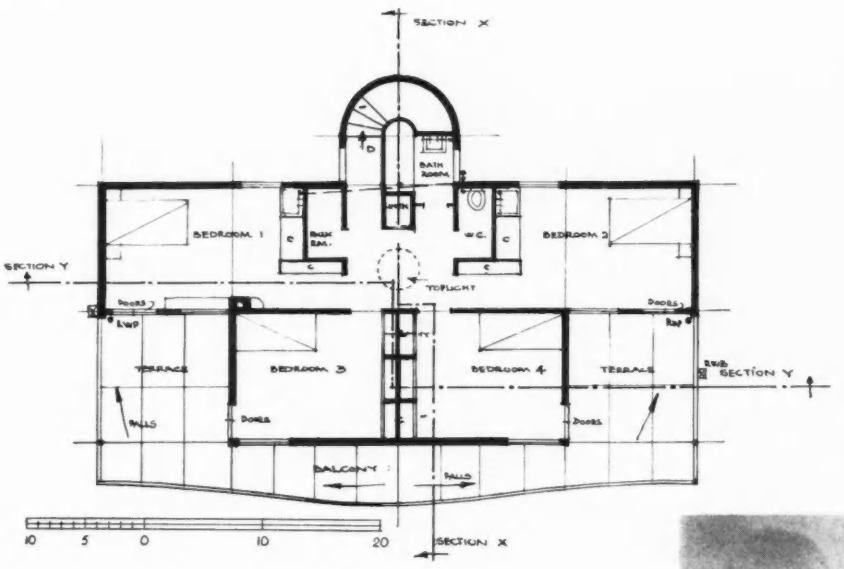


LONGITUDINAL SECTION Y—Y

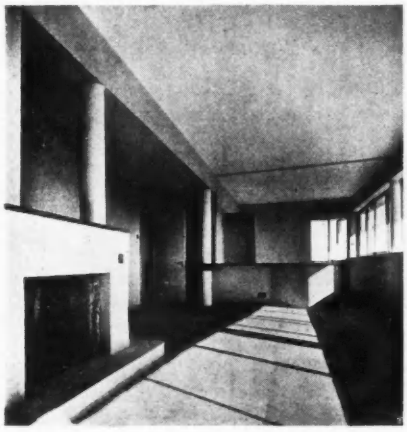


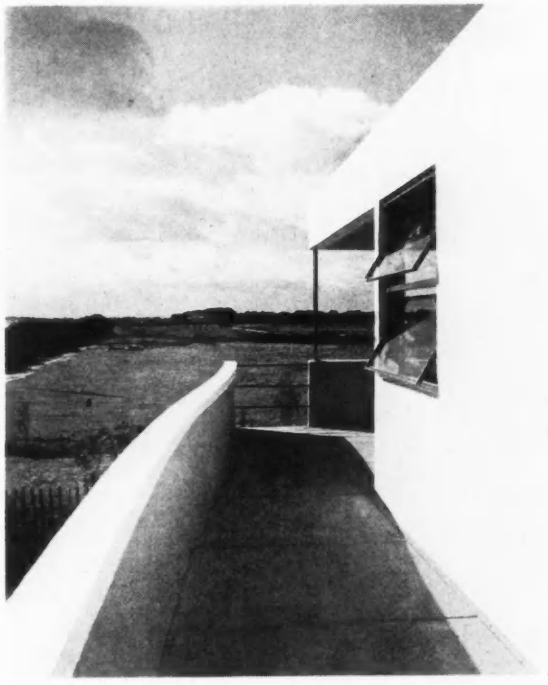
CROSS SECTION X—X

BY CHITTY AND TECTON

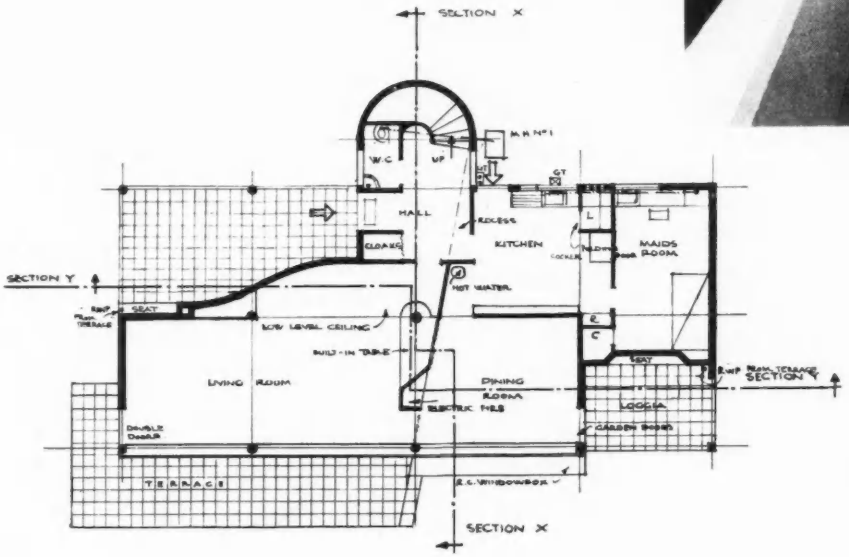


FIRST FLOOR PLAN





The photographs show : left : a view in the living room ; above : the first floor balcony.



GROUND FLOOR PLAN

ENDSLEIGH COURT, UPPER



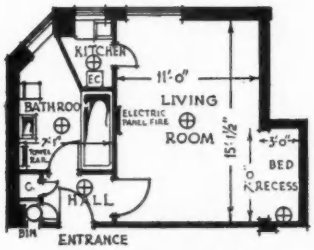
This block of flats is steel-framed, and is faced with 2 in. multi-coloured hand-made bricks and reconstructed Portland stone dressings. The illustrations on this page show a general view of the exterior and a detail of the main entrance.

On the page facing are reproduced plans of eight typical flats and a detail of the main entrance to the lounge. The schedule of rents is as follows: Type A: first to seventh floor (£102), eighth floor (£92); Type B: ground to seventh floor (£102), eighth floor (£92). Type C: fourth to seventh floor (£112), eighth floor (£102); Type D: first to seventh floor (£177), eighth floor (£162); Type E: fourth to seventh floor (£152), eighth floor (£137); Type F: ground to seventh floor (£102), eighth floor (£92); Type G: ground floor (£142), first to third floor (£157); Type H: ground to seventh floor (£117), eighth floor (£107).

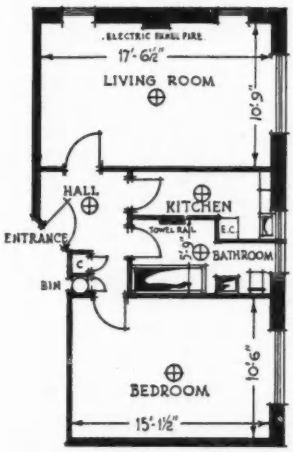
DESIGNED BY RICHARDSON AND GILL



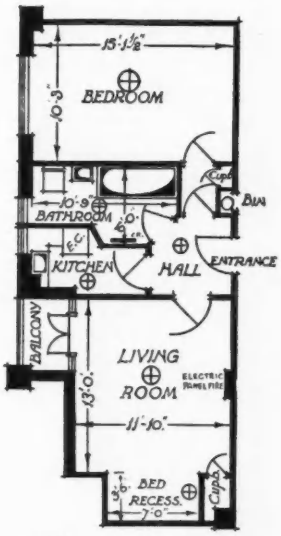
W O B U R N P L A C E , W . C .



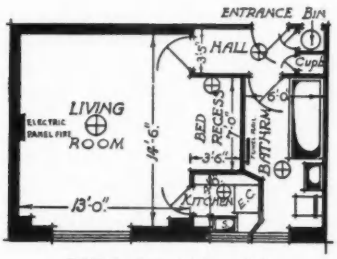
TYPE A : £92—102



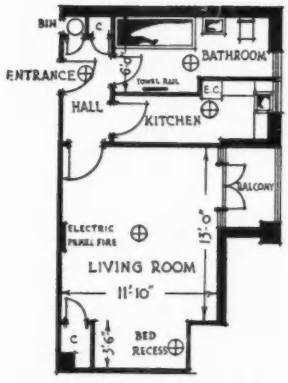
TYPE E : £137—152



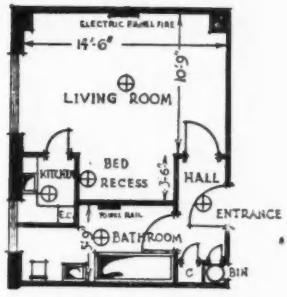
TYPE G : £142—157



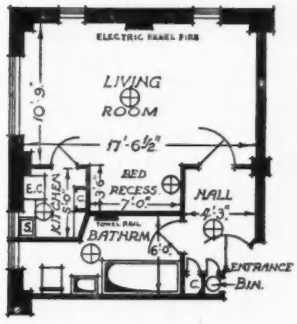
TYPE B : £92—102



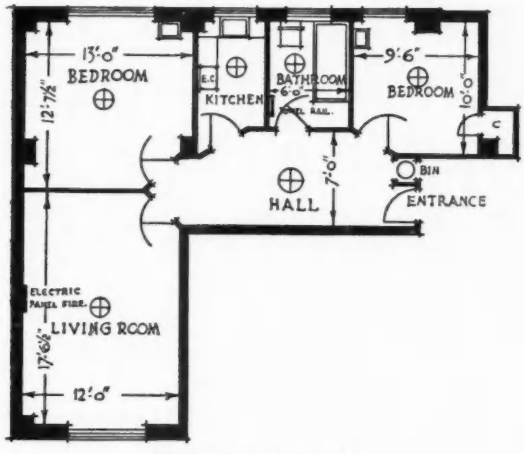
TYPE C : £102—112



TYPE F : £92—102



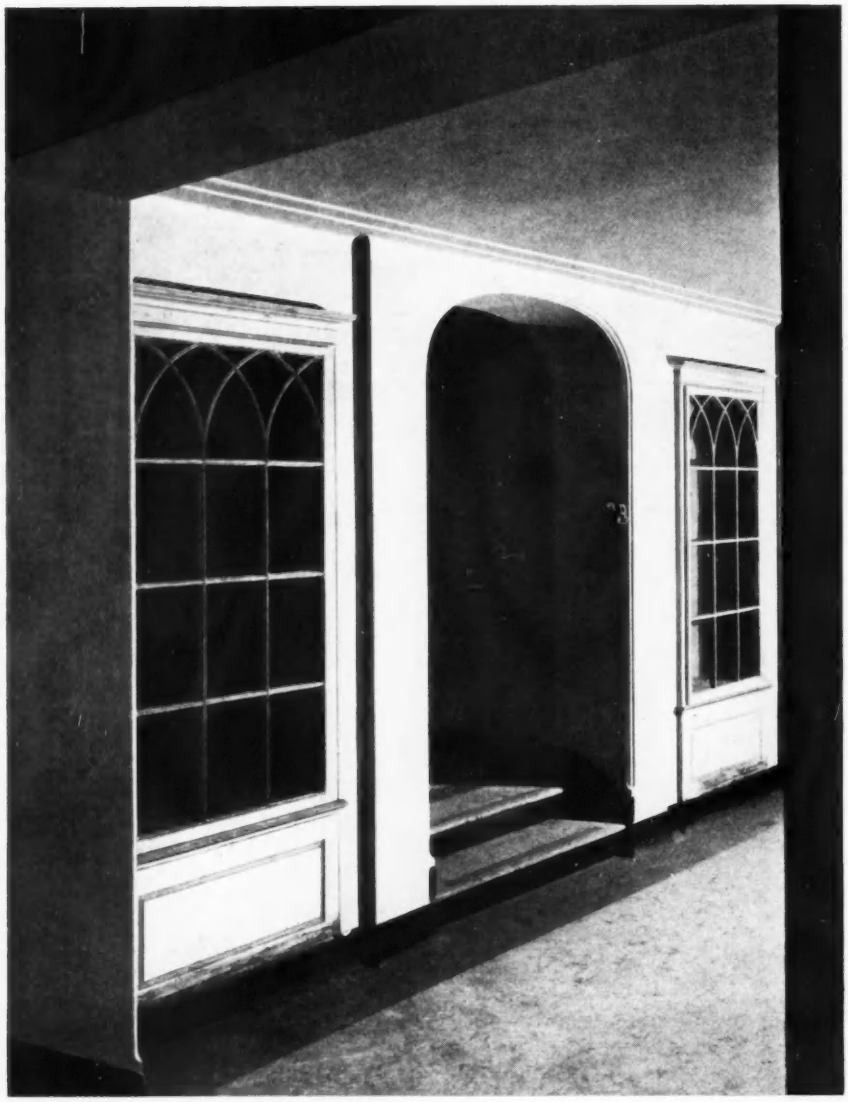
TYPE H : £107—117



TYPE D : £162—177



ENDSLEIGH COURT, UPPER WOBURN PLACE, W.C.



DESIGNED BY RICHARDSON AND GILL



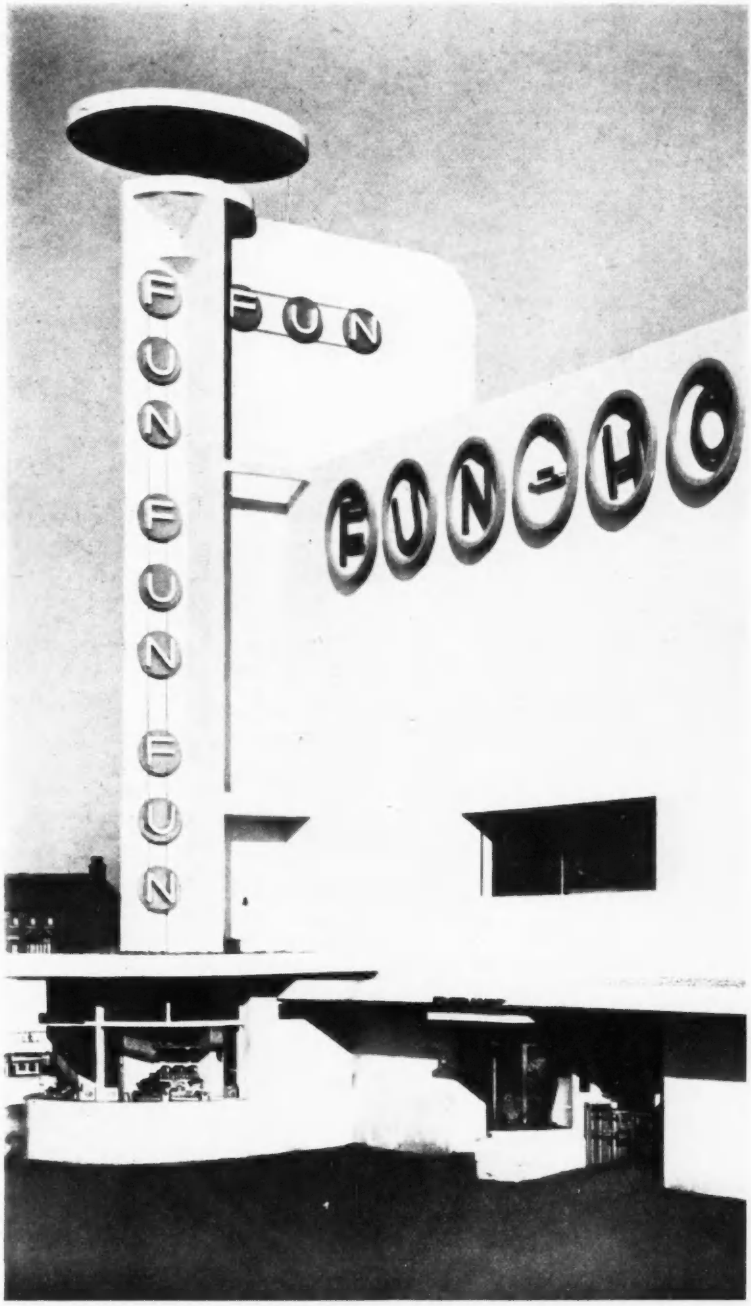


These flats are fully equipped, and the rentals are intended to cover the maximum annual amount to be paid by the tenant, with the exception of electricity, which is supplied by the St. Pancras Borough Council at a charge of ½d. per unit for lighting, cooking and heating. A staff of cleaners is available, if required, and there is also a garage in the sub-basement, reached by a ramp. Services include central heating, hot water and automatic lifts, and the kitchens are provided with electric cookers and kettles.

The illustrations show : Above, one of the entrances from the main lounge to the flats and, below (left), the board room for the owners of the building, and (right) the manager's office.

WORKING DETAILS : 187

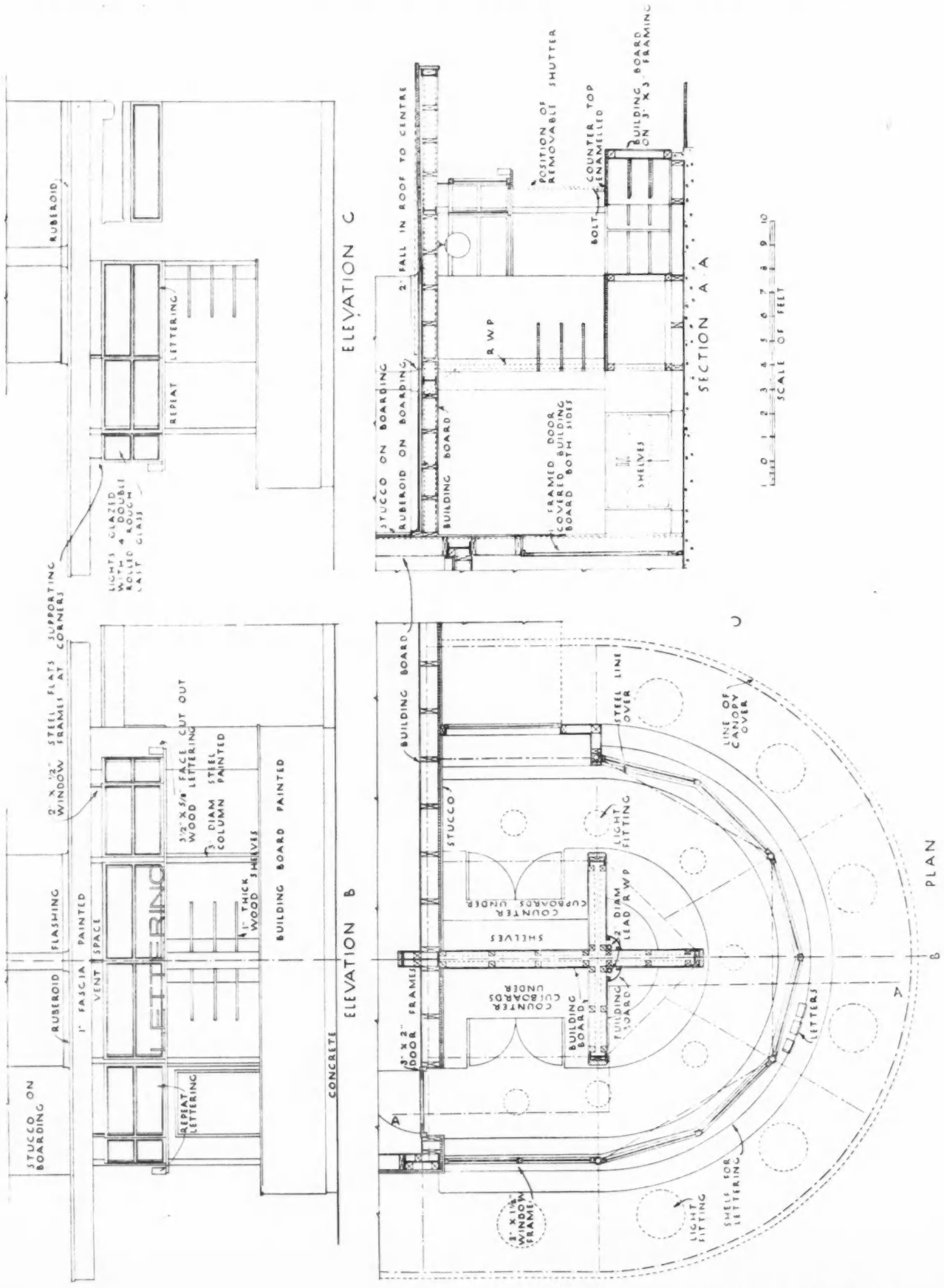
REFRESHMENT KIOSK • BLACKPOOL PLEASURE BEACH • JOSEPH EMBERTON



This small refreshment kiosk is built up of painted wallboard on a light steel and wood frame, with steel windows and mullions. The top surface of the semi-circular canopy falls towards the centre of the cruciform display tower, where there are two rainwater pipes, each with an angle branch as shown in the section overleaf.

WORKING DETAILS : 188

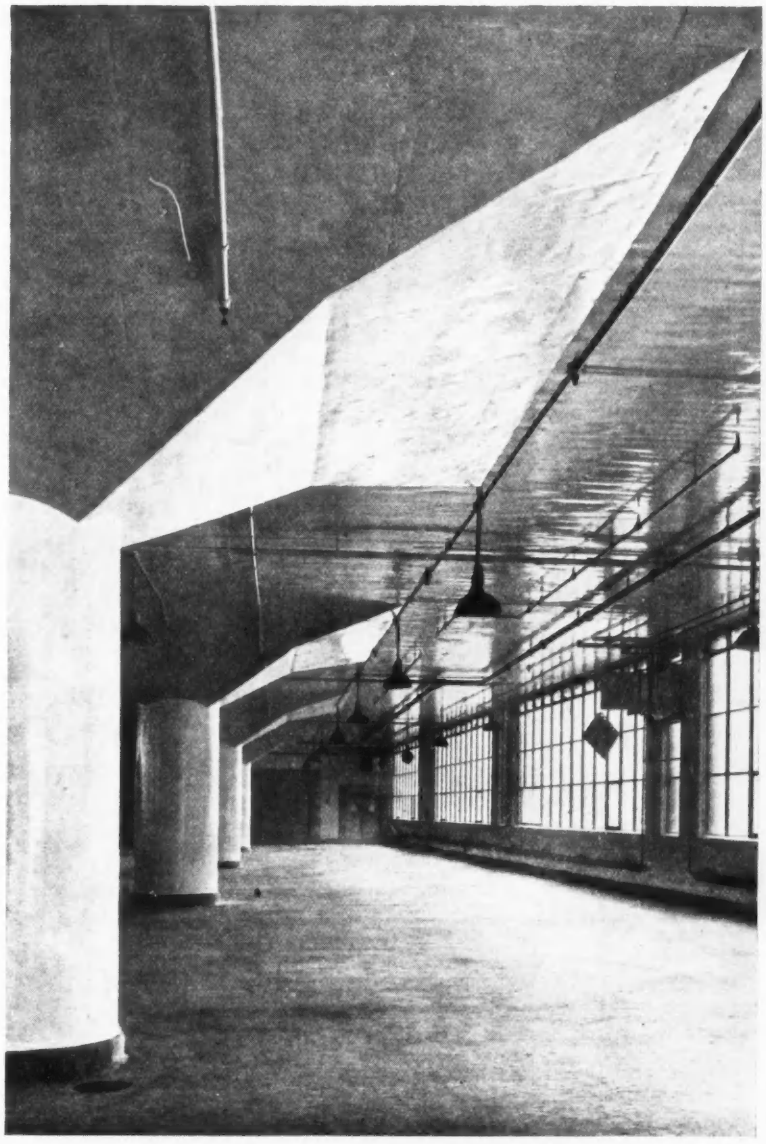
REFRESHMENT KIOSK • BLACKPOOL PLEASURE BEACH • JOSEPH EMBERTON



Elevations, plan and section of the refreshment kiosk illustrated overleaf.

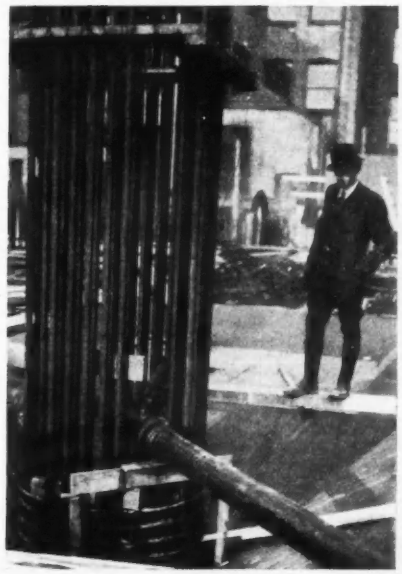
WORKING DETAILS : 189

COLUMN REINFORCEMENT • WAREHOUSE IN BLACKFRIARS, S.E. • SIR E. OWEN WILLIAMS, K.B.E.



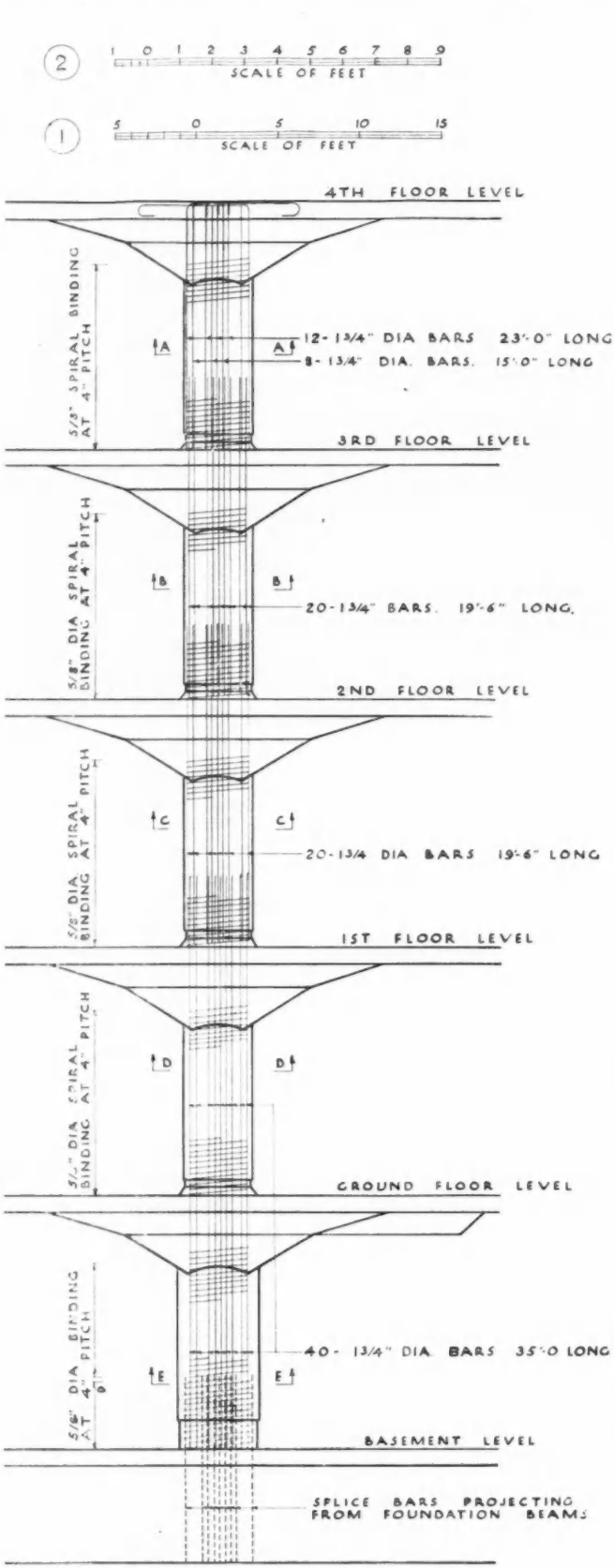
The above illustration shows flat slab construction employed for the first time in the L.C.C. area, on a large warehouse in Blackfriars.

The columns are spaced at 42 ft. 6 in. centre to centre in one direction, 37 ft. in the other, and carry a maximum load of 1,780 tons; their diameter is, in the basement, 5 ft., on upper floors, 4 ft. 2 in. Floors throughout are 12 in. thick. The concrete mix employed was $2\frac{1}{2} : 1\frac{1}{2} : 1$, and cube tests at 4 months showed a minimum figure of 6,500 lb. per sq. in.; all concrete was placed by pump. The illustration on the right shows the main reinforcement, with its spiral binding and a drain pipe in position before concreting.

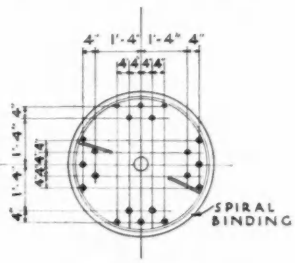


WORKING DETAILS : 190

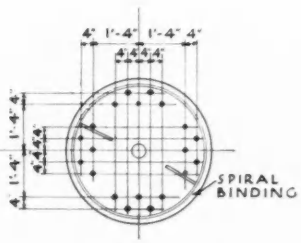
COLUMN REINFORCEMENT • WAREHOUSE IN BLACKFRIARS, S.E. • SIR E. OWEN WILLIAMS, K.B.E.



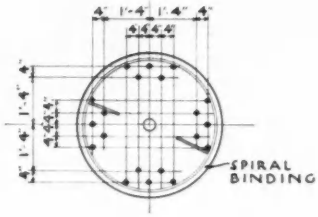
ELEVATION (1)



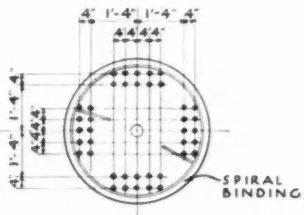
SECTION A-A



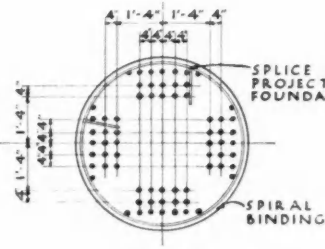
SECTION B-B



SECTION C-C



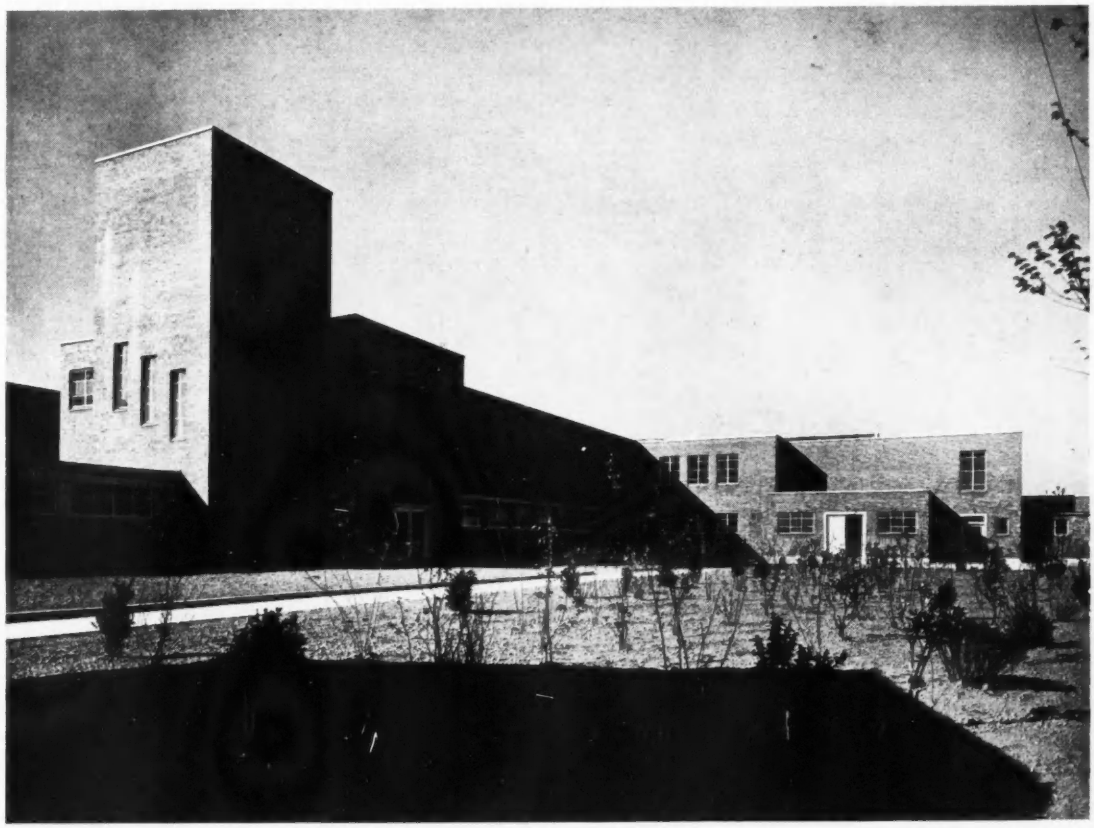
SECTION D-D



SECTION E-E

(2)

Reinforcement diagrams of the columns illustrated overleaf.



Hatfield Main Pithead Baths. By C. G. Kemp and J. H. Forshaw. "... which is the best building of the year? There is ... that splendid range of pithead baths, of which the architectural world has suddenly become aware, though they cannot all have been put up this year. If a range of buildings is admissible they would certainly win. ... Here are fine mass compositions which might serve half a dozen happy purposes. They might even be road houses or town halls by Dudok."

THE YEAR'S WORK

[*BY PROFESSOR C. H. REILLY*]

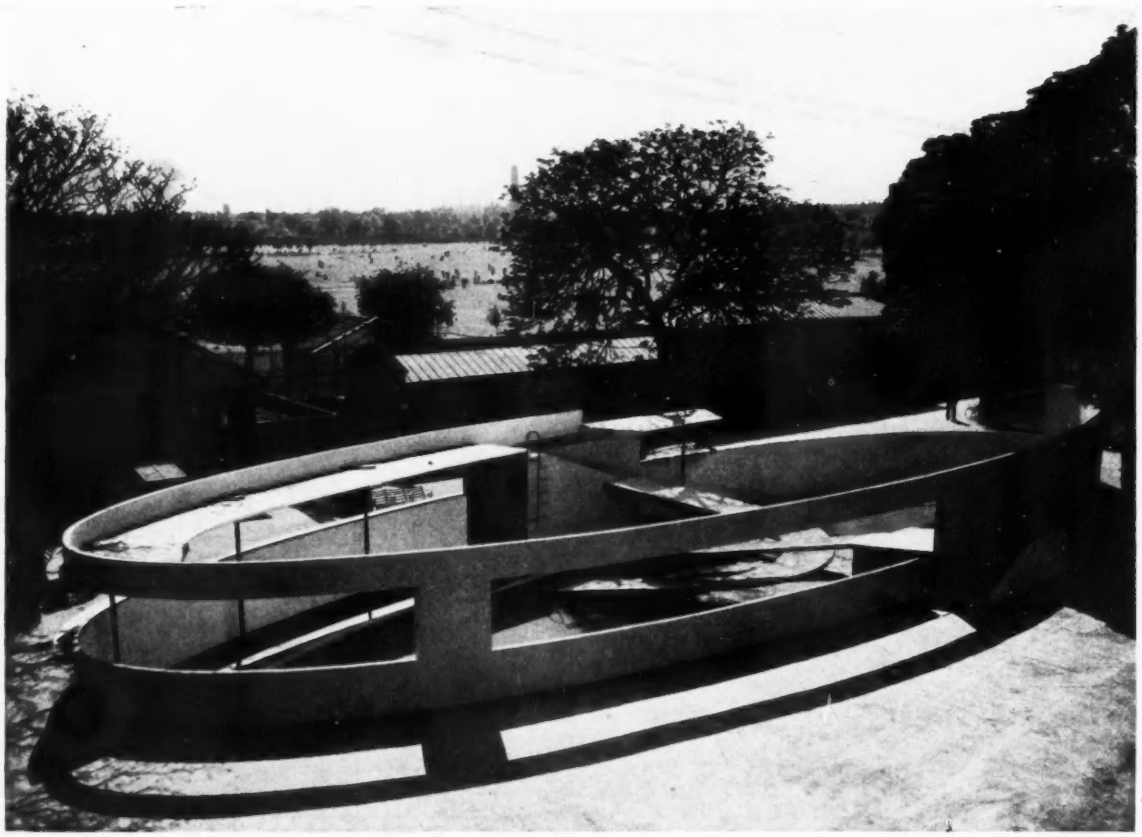
IT is very interesting to speculate upon which is the best building of the year. One can mean so many things by "best" but never mind. Is it the Penguin House in the Zoo or the home for architects in Portland Place? Both have distinct, and serious, claims. There is, very emphatically, with its great tower housing spare copies of old magazines, Sir Giles Scott's big library building at Cambridge; and that splendid range of Pithead Baths, of which the architectural world has suddenly become aware, though they cannot all have been put up this year. If a range of buildings is admissible they would certainly win. Their claim, too, would be strongly supported by me not, surprisingly enough, for the fact that their chief architect, Mr. Forshaw, is an old Liverpool student but because, like the Chief Architect of the Office of Works and unlike the Chief Architect of the L.C.C. and most municipal bodies, he associates with each building the name of the assistant architect who has designed it with him. Then there is that lovely little restaurant in the Cheddar Gorge, by Messrs. Russell Page and Jellicoe, very like—perhaps too like—one I have seen abroad somewhere. The interior of Herbert Rowse's Mersey Tunnel and of any of the ventilating towers would have great claim if interiors even of tunnels could be considered as entities. There is the Tait-Dudok Curzon cinema complete of its kind in one mode of expression and the Liverpool Orphanage (by a group of old Liverpool students —I am beginning to enjoy my old age so much) perfect again in another, that nudist kind of Georgian so popular at the moment. Then there are more Underground stations and they are always in the running.

THREE CLASSES OF BUILDING

There is thus nothing to do but to fall back on the system of last year and divide the work into classes, say the modern, the semi-modern, and the semi-semi-modern, or perhaps better—the left, the centre, and the right centre. The left is bound to be that of youth, whether of the body as well as of the spirit is not important. It is the party which aspires to make a new world and that everyone will admit requires that particular brand of bravery and enterprise of which youth alone holds the key.

THE LEFT GROUP

The Penguin House, by Lubetkin, Drake and Tecton, from the photographs—I confess I have not seen it any more than the large majority of these buildings—appears a complete and unique conception. It has unity and elegance and lightness all in a very high degree. It uses our beloved concrete in a way which opens up new vistas for us all. Who would have thought a few years back that those broad, curved sloping ways, graceful



Penguin Pool, Zoological Gardens, London. By Lubetkin, Drake and Tecton. "... a complete and unique conception. It has unity and elegance and lightness all in a very high degree. It uses our beloved concrete in a way which opens up new vistas for us all. Who would have thought a few years back that those broad, curved sloping ways, graceful and light as the spring of a watch and associated in the mind at once with the wing of a bird, could be made in it?"

and light as the spring of a watch and associated in the mind at once with the wing of a bird, could be made in it? One can see Mr. Gloag's new world of light and air and glass and silver, which is to come about when our noses are more sensitive, already approaching. I hope I live long enough to have a small town house, I suppose with one ramp for my wife and another for myself as circumscribed, and complete for my needs and with no possible addition or alteration—indeed the perfect unity. No doubt I shall have to simplify my habits before I am worthy to live in such a thing of beauty, but that would be very good for me as for most of us.

Next to the Penguin House I put the Pithead Baths. Like the Underground stations they are a multiple achievement in which each building reinforces the rest. Apparently twenty-one have been built and with the most varied plans. One would have said *a priori* that pithead baths would be the most dismal things in the world. Baths and washhouses! One remembers dreary books on the subject and buildings of red brick and terra-cotta which merely to think of makes one cross. Here instead are fine mass compositions which might serve half a dozen happy purposes. They might even be road houses or town halls by Dudok. Here are great horizontal planes of unbroken brickwork contrasted with great vertical ones of window. There is nearly always a fine square tower for water storage and long, low ranges of window which suggest happy clubrooms. The Betteshanger Baths in Kent and the Hatfield Main Baths in Yorkshire, both by Mr. C. G. Kemp, are perhaps the best, though Mr. Frizzells's ones at Durham and Mr. Dempster's at Lanark run them close. Mr. Forshaw has clearly brought into existence another School of Architecture and that of the first water where the students actually build their projects. As the late head of his old school let me be the first to salute this powerful rising one whose influence for good, and especially in Government circles, is bound to be great.

The Cheddar Gorge restaurant sits under its cliff very happily like some student's scheme in an ideal setting come to life. It is very delightful to find in so many places these days school projects arriving and looking very much as they did in the criticism room. How well I remember the older architects coming round the studios and saying "it's all very well but one cannot build things like that." Now we just do. The shapes of this little building, low and white, with an occasional boldly curved projecting mass, are a fine, yet sympathetic foil to the cliff above. Anything with a pitched roof would have looked absurd in this position, so what would the old fellows have done, have done? The building, too, looks very sunny and inviting and there is no doubt these modern, white buildings, with the simplification of a cardboard model, make excellent recreational ones far more ready to welcome into the picture a moving crowd of gaily dressed figures than any brick Georgian building, however simplified. There are plenty of concrete roadhouses with snowy terraces and swimming pools to prove this.

Another group of good things is, as always today, the new Underground stations, but they are so well known that one need not linger over them. The station which appears to come into the year's work is the Osterley



Osterley Underground Station. By S. A. Heaps. (Adams, Holden and Pearson, consulting architects.) This station "is not perhaps quite as successful as is usually the case. The solidity of the square brick tower over long stretches of cardboard roof—one cannot help seeing these modern buildings as models—forms, to my thinking, too sudden a contrast even for today."



The Cave Man, Cheddar Gorge. By Russell Page and G. A. Jellicoe. "The shapes of this little building, low and white, with an occasional boldly curved projecting mass, are a fine, yet sympathetic foil to the cliff above. Anything with a pitched roof would have looked absurd in this position."



Liverpool Orphanage. By Barnish, Silcock and Thearle. This building has been erected in " that nudist kind of Georgian so popular at the moment."



Car Service Station, Staines. By Cameron Kirby. " The . . . car service stations by Mr. Cameron Kirby for Messrs. Stewart and Ardern throughout the London district are not only good individually but maintain their relationship one to another and that without strain whatever the site."



Joldwynds, Holmbury St. Mary, Surrey. By Oliver Hill. " Clearly the house of the year, though I believe the strictest sect of new-worlders does not admit his jolly curved rooms and terraces, clearly designed more for a leisured and rather lazy life than for hard thinking, to be sufficiently puritanical."

one and is not perhaps quite as successful as is usually the case. The solidity of the square brick tower over long stretches of cardboard roof—one cannot help seeing these modern buildings as models—forms, to my thinking, too sudden a contrast even for today, as does the tall, thin glass pylon which shoots up from the top of the tower to the tower itself.

There is another group of modern buildings well worth consideration and that is the car service stations by Mr. Cameron Kirby for Messrs. Stewart and Ardern throughout the London district. They are not only good individually but maintain their relationship one to another and that without strain whatever the site. It is indeed very hopeful for our new era that, as this group shows, the communal spirit can be developed so quickly. With the disappearance of the old classical order, real or implied, one was a little frightened, indeed one still is, as to what was going in future to bind together the buildings of our towns. Would it be continuous window or the solid balcony? Mr. Cameron Kirby's white masses, some rectangular, some with rounded corners, unbroken with windows till one comes to the great concentrated voids, would be, I feel, good neighbourly buildings in a modern town with plenty of plain space for the eye to rest on. The fact that one has never before thought of a filling station as a possible neighbour even in the new world of tomorrow only makes his achievement the greater.

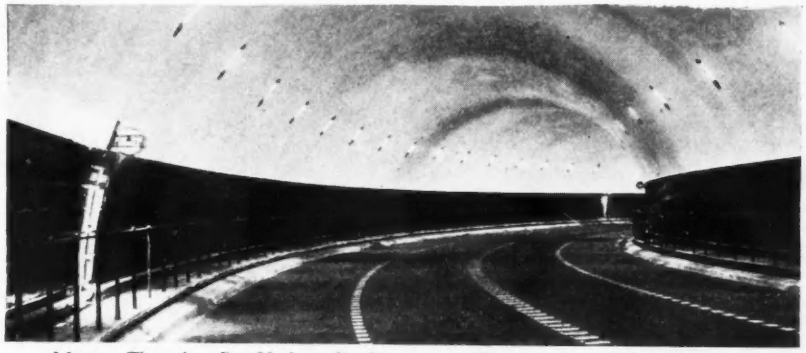
Joldwynds, by Oliver Hill, is, I should say, clearly the house of the year, though I believe the strictest sect of new-worlders does not admit his jolly curved rooms and terraces, clearly designed more for a leisured and rather lazy life than for hard thinking, to be sufficiently puritanical. Thank goodness there is nothing puritanical about Oliver Hill! No one enjoys his life more or does more to help other people to enjoy theirs. I see no escape from the cliché, which has been hanging over me for some time, that it takes all sorts to make a world. There must still, in the most ascetic of universes, be a few baroque folk with whom one would hope to spend an occasional week-end. For such an occasion I confess I should prefer Joldwynds to the strictest Corbusier-Connell rectangularity, though I might return to the latter, and to the pained yet kind reminders of the editor of this JOURNAL about overdue articles, with my tail between my legs on Monday evening and remain content—till the next time.

Among the blocks of flats by the left wing people the Mount Royal ones in Oxford Street and the Lawn Road ones at Hampstead are the obvious choice. In both, like the Mersey Tunnel, it is the inside which really

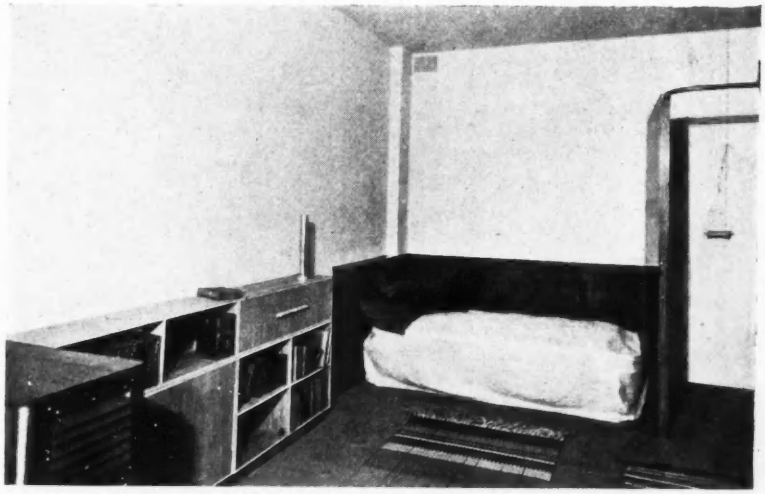
counts. I have seen several of the Lawn Road interiors and I can say that as machines for living in the modern way they come up to the high standard Wells Coates himself set at the original Dorland House exhibition. I dare say the Mount Royal ones do too, but I have not seen them. Externally this latter block, perhaps because of its great size, seems to me a little dull, though I tremble in my shoes at saying so. I also think that the centre feature, the comparatively thin glass strip representing a stair, is too small to relieve the mass. It might have been better to have left it out and let the building rely on the power of its mass effect which might have been enhanced by stronger horizontal lines immediately above the shops to echo those which are so effective at the top of the building. The hive must be something more than an ant heap.

The interior of the Mersey Tunnel, which received its final section as well as its finish from Herbert Rowse, the architect, and not from the engineers, who at one stage of the work were quite prepared to cut off the top and give the tunnel a flat ceiling to provide ventilation space, is one of those bright, clean, lean things, where the architect today beats the engineer on his own ground. By insisting on maintaining the curved ceiling and by lining the tunnel with a dado of black glass broken every fifty yards with vermilion fire stations, by polishing the white plaster above the dado and by arranging the lights in long lines which emphasize the fine curves with which the tunnel sweeps away under the river, and by treating the cast-iron pavement in a similar way, Rowse has made this interior a very expressive piece of modern design. By building up in concrete the great fan chambers and trunks of his ventilating towers in the curves which make for the easiest possible flow of air, he has produced in these interiors effective examples of modern expression of another kind. If he had only refrained from dressing up the entrances to the tunnel with architectural toys, such as the two little triumphal arches at its Liverpool entrance for pedestrians when pedestrians are not allowed down the tunnel at all, and if he had left the fine masses and silhouettes of his various towers to tell their tale by themselves without the surface decoration he has felt it necessary to add, he would have accomplished the greatest triumph of all for modern design, for this has been its greatest opportunity.

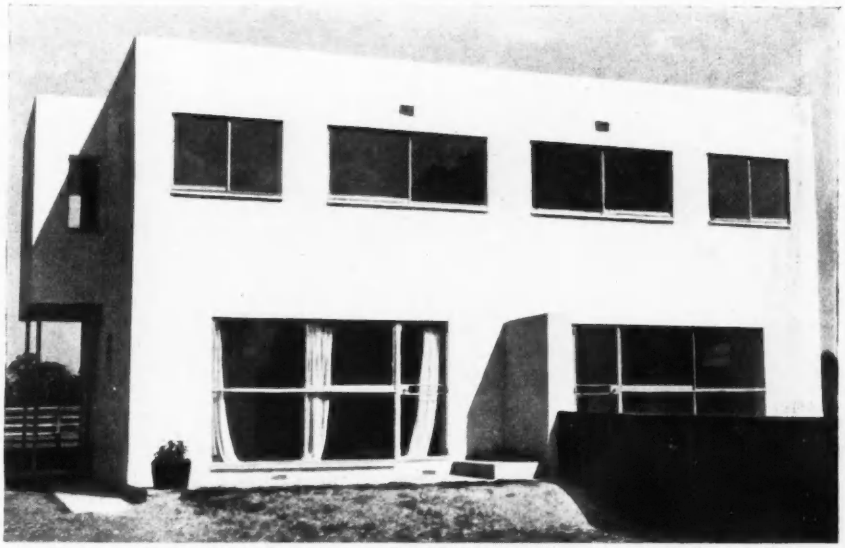
To turn from modern design on the largest scale to modern design on the smallest, the Gidea Park Exhibition produced a number of valuable designs for small houses of which that of the pair by Messrs. Holford, Stephenson and Yorke seemed to me not only the best of their class but the best in the exhibition. It was a pity they were



Mersey Tunnel. By Herbert J. Rowse. "The interior of the Mersey Tunnel . . . . is one of those bright, clean, lean things, where the architect today beats the engineer on his own ground. By insisting on maintaining the curved ceiling and by lining the tunnel with a dado of black glass broken every fifty yards with vermilion fire stations. . . Rowse has made this interior a very expressive piece of modern design."



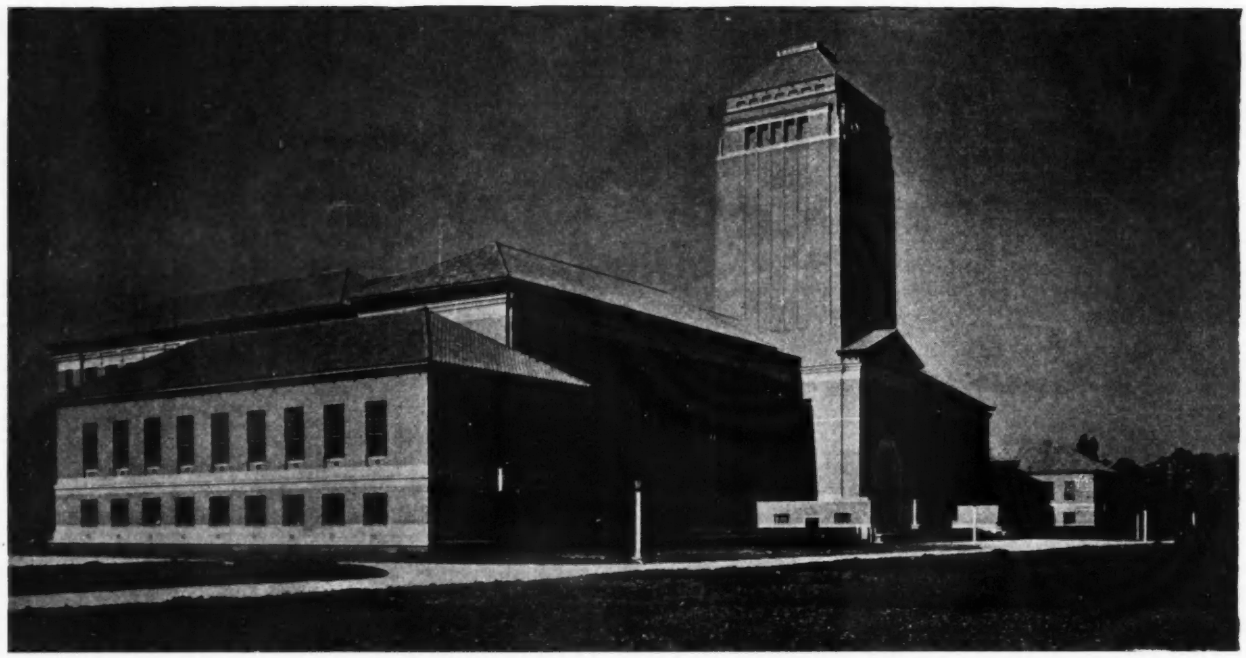
Lawn Road Flats. By Wells Coates. "I have seen several of the Lawn Road interiors and I can say that as machines for living in the modern way they come up to the high standard Wells Coates himself set at the 1933 Dorland House exhibition."



House at Gidea Park Exhibition. By Holford, Stephenson and Yorke. "The Exhibition produced a number of valuable designs for small houses of which that of the pair by Holford, Stephenson and Yorke seemed the best in the Exhibition."



Mount Royal Flats. By Sir John Burnet, Tait and Lorne. "Externally this block, perhaps because of its great size, seems to me a little dull. . . . I also think that the centre feature, the comparatively thin glass strip representing a stair, is too small to relieve the mass. It might have been better to have left it out and let the building rely on the power of its mass effect. . . ."



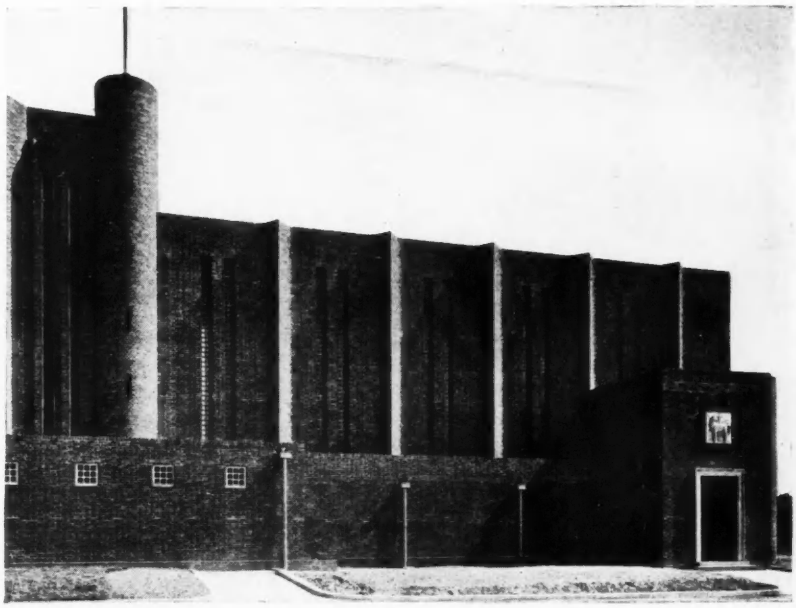
University Library, Cambridge. By Sir Giles Gilbert Scott, R.A. "This building, fine as it would be by itself in a great plain, is too much the bullying big brother to the older buildings of the place. It would have been less so, in my opinion, if no brotherly relationship had been attempted."

not finished when the judges went round.

THE CENTRE GROUP

We now come to the left-centre group of buildings. In this the Cambridge Library clearly stands out as the most important. When one forgets Cambridge and its traditional buildings and their traditional size, which is a thing one can best do standing in one of the two interior courts of the library and feel the great blocks of the book stacks, with their strong vertical lines rising on all sides, one cannot help being impressed. One has the same feeling among the cliffs of Fifth Avenue or 42nd Street, but here is order and balance as well as size. That the old classical motives have been stretched like pieces of elastic to help this order is American, too, but not the latest American. There it has been realized that after a certain size the elastic becomes too thin. I think the limit has been reached at Cambridge. The building, fine as it would be by itself in a great plain, is too much the bullying big brother to the older buildings of the place. It would have been less so, in my opinion, if no brotherly relationship had been attempted. Charles Marriott suggests that standing as it does on the edge of the university group it is a transitional building and that behind it still bigger and more frankly modern buildings will grow up. I hope that this will happen, but I cannot help remembering, when all such explanations are given, that our population is to be stationary by 1940 and after that to decline and that all the time the modern universities are growing at the expense, in some degree, of the two older ones. Admitting that this building is deliberately a left-centre one and to that extent a compromise, I found, as one always does in Sir Giles's work, a number of satisfying imaginative things, especially in the interior, such as the great piers and arches of the entrance hall and the proportions, lighting and decoration of the great reading room, to mention only a couple.

Next in this group must come the building which won the London medal for the year, Messrs. Welch, Cachemaille-Day and Lander's church at Eltham. An Anglican or Roman church must carry on the tradition of the worship to be held within it. It can never, therefore, be something quite new, either in form or spirit. It is to the credit of this church that while maintaining the spirit of Anglican worship, and indeed enhancing it above most modern churches, the letter that killeth has been entirely avoided. In Edward Maufe's new church at Hanwell, which was not before the selection committee because Maufe sat on the committee himself, while the tradition of the Anglican mediæval church is more closely adhered to there is, in my opinion, more positive beauty. This must close the left-centre section, although there are buildings like the Troy Court block of flats, with its glass and silver courtyard, by Mr. Michael Rosenauer, and several blocks by that great planner of flats, Mr. T. P. Bennett, which ought to be included. As it is I have only left a few words for the last section, the right centre, which must include what many will, with reason, think the building of the year—the new R.I.B.A. headquarters.



St. Saviour's Church, Eltham. By Welch, Cachemaille-Day and Lander. "An Anglican or Roman church must carry on the tradition of the worship to be held within it. . . . It is to the credit of this church that while maintaining the spirit of Anglican worship, and indeed enhancing it above most modern churches, the letter that killeth has been entirely avoided."

THE RIGHT GROUP

Fortunately there is no need to say much about Mr. Grey Wornum's building. We have all been enjoying it, which is better than talking about it. That some of the younger people do not find it austere enough and some of the older ones miss their favourite motives without which, to them, a building is not a building, is likely enough. All are agreed that as regards cubic space filling it is a magnificent achievement, and most will agree that the exterior is dignified and suitable both to the time, the place and the subject. The puritans, and we have so many nowadays especially among the very young —no one need worry about the morals or earnestness of the rising generation, which must be very distressing to the Sunday papers—feel the decoration of the interior a little wicked, because I suppose it is a little personal and unresolved and a little too plentiful. It is very fine and hopeful that they should. As an old man, however, I enjoy the brightness and even glitter of the building. The R.I.B.A. has not always seemed to me a bright or happy place. I can remember when it seemed to lay a very heavy hand on youth and on education. Yes, on education in any real sense. I feel the building is already bringing the institution new life and energy, of which the present international exhibition is a good instance. I feel this is due in a very great measure to the happy spirit Wornum has infused into his work.

The other important erection in this division is the great Swansea group of buildings by Messrs. Percy Thomas and Ivor Jones. I have left no room for this except to say how much the exterior seems to have improved since the competition drawings. The solid, simple rectangular blocks of fine white ashlar with their regular fenestration look well in themselves and compose very happily. This being so the tall thin tower does not seem to me necessary. Such a tall tower was necessary in the days of curly gables and other fripperies. It was necessary at Cardiff with its various centres of enrichment to add solemnity. This is not the case here. I wish the fine simplicity of the exterior, which gives it so reposeful a feeling, could have been extended to the interior, but I suppose the wearers of civic sables are not yet ready, spiritually, for so simple a background. Few indeed of us are.



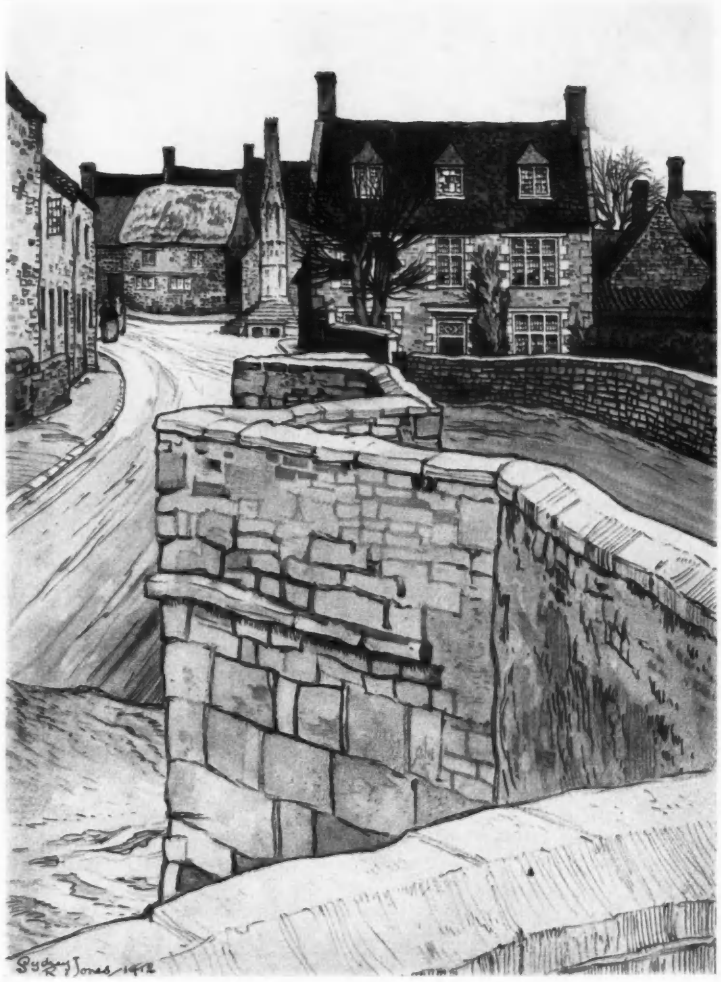
The Guildhall, Swansea. By Percy E. Thomas. (Ivor Jones and Percy Thomas.) "The tall thin tower does not seem to me necessary. Such a tall tower was necessary in the days of curly gables and other fripperies. It was necessary at Cardiff with its various centres of enrichment to add solemnity. This is not the case here."



St. Thomas' Church, Hanwell. By Edward Maufe. "In this church . . . while the tradition of the Anglican mediæval church is more closely adhered to (than in the church at Eltham) there is, in my opinion, more positive beauty"



R.I.B.A. Building. Portland Place, W. By G. Grey Wornum. ". . . It is a magnificent achievement, and most will agree that the exterior is dignified and suitable both to the time, the place and the subject."



GEDDINGTON

A village in the stone-belt of Northamptonshire, Geddington is notable for its possession of one of the three remaining Eleanor crosses; also for its narrow mediæval bridge. The latter is the subject of this water-colour, by Sydney R. Jones, which is reproduced from ENGLISH VILLAGES AND HAMLETS, *by Humphrey Pakington.* [*See* BOOKS OF THE YEAR *in this issue.*]

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A HUNDRED YEARS AHEAD

FORECASTING THE COMING CENTURY

[*BY SERGE CHERMAYEFF AND J. M. RICHARDS*]

In our issue last autumn, commemorating the centenary celebrations of the R.I.B.A., appeared an historical section summarizing the architectural development of the past hundred years. The following pages constitute an attempt to continue the summary for another hundred years from the point where that one left off; that is, to forecast the changes in architecture under changing social and technical conditions in the hundred years on which we are now entering. This anticipation of the future should, of course, be read in the spirit in which it is intended. The Editor does not hold himself responsible for any of the events that are foreshadowed here; nor are the prophecies necessarily an expression of what this JOURNAL *hopes will come about. The Editor will be interested to receive readers' suggestions and opinions on this hundred years' forecast.*

BUILDING BETWEEN 1935 AND 2035

BEING AN INTRODUCTORY ESSAY IN BASIC AND A CHRONOLOGICAL TABLE OF EVENTS OF THE LAST HUNDRED YEARS, WRITTEN BY A STUDENT OF THE CONSTRUCTIONAL FACULTY OF THE E.U.S.R. IN THE INTERMEDIARY EXAMINATION, SPRING 2035, FOR CONSTRUCTIONISTS IN THE WEST EUROPE ZONE, BRITISH ISLES SECTION.*

IT would be impossible to make an under-statement of the debt which we of today have to those who were working on new lines in the early 1900's and in the years after the great expansion of industry—the "Post-Industrial" years. It would be as well to put on record straight away our special debt to such overmen as Einstein, H. G. Wells, Bernard Shaw, Olaf Stapleton, Walt Disney, and more narrowly from the building-designer's point of view to the early builders in steel, concrete and glass, like Paxton, Perret, Berens, Gropius, Mendelsohn, Fortey, Meatbaum and Hurch; and to a great number of others whose names will come readily to the mind of all who have a knowledge of our art.

We have a much greater degree of material organization than they had in those days. There is order in the design and structure of this island, and the value of this will readily be seen. Some of us have an idea that under this seeming order there is something of the same condition of being without higher purpose or direction which was the disease of the 1900's. The completely new discoveries of science in the last ten years, still only half-knowledge, but slowly getting to the stage where they will be of some use to man outside the four walls of the science room, give us the suggestion that there is a parallel between the early 1900's and the early 2000's. The latest discoveries of our men of science may again go further than our power to make reasoned use of their knowledge. We still have a fear of new power, and a number of persons today are not facing the facts of our present existence or living in a way which would make them see things simply. A great number of our older men, though they have done so much work of value in the past, have given every sign of being put completely at a loss by the latest discoveries and have only half seen the developments which they make possible. These men have been crushed by those very things which are so full of hope for the younger men.

* For details of Basic English, an international language of 850 words, see *Basic English* (Kegan Paul). The use of Basic by Raymond McGrath in his book, *Twentieth Century Houses*, is the first attempt by a building expert to get into line with the new tendencies in language.

THE GROWTH OF A HUNDRED YEARS

It will be clearest for the purpose of this short account to put under a small number of general headings the chief stages in the growth of the science of building in the past hundred years—a slow process in which, by degrees, we have put off the chains of false ideas. If we have still not got completely free, as some of our later developments make clear, the chains are at least looser than they were in the parallel of that first stage, 100 years back, which was named "Modern." Science was being put to such a great number of new uses, and so much new knowledge was being tested in the years when the first work was done in steel and concrete, that the buildings of this time are less clear in design than those produced in earlier times when the process of change was slower. With the development of industry after 1800 men were no longer so certain of their values as they had been between 1000 and 1500. From this troubled condition of things there came very little clear thought and clear form. A little of the Gothic feeling may be seen in the records and the small number of examples of building in the early 'thirties which are still in existence. Designed by men with a new outlook and given form in new materials, they had at least a certain quality of true structure common with the earlier Gothic buildings which makes possible some sort of comparison with the buildings we see round us today.

Looking out of the windows of my father's office on the Great Oxford Way, my mind does not readily take in the fact that, where now I see the ordered design of grass, road, and tall buildings outlined strongly against the clear blue of early night in November, there was at one time a mass of badly-designed houses, put up without relation to one another—a long line of advertisement boards such as were to be

seen all over the country in those early Post-Industrial days. From my sun-room I see today to the west the bright rays of the Amcen ("Amusement Centre") in competition with the sunlight on the all-metal, high-walled Rezone ("Residential Zone") to the south-west. The thought of the black waste of smoke and dirty stone houses which I would have seen before me in 1935 gives me a feeling of physical disgust. To the east the lights of the Concen ("Contract Centre") are going out and the last gyros are slowly moving to the south-west. A little farther to the north the bright lights of Central London Transodrome (Transatlantic and European Services Aerodrome) make a line of electron across the blue of Hampstead Hill. Here, if the history books are right, these beautiful gardens were at one time covered with a diseased growth of little red "villas" put up by "Modern" builders with an eye to quick profits.

BUILDING IN THE NINETEEN-THIRTIES

From the facts given in the records of these years, it is clear that the mass mind was not ready for the first fruits of science. The Moderns were most of them without any power of thought, and unable to put down on paper such thoughts as they had. The small band of men and women who were conscious and took an interest in the general well-being had no power and their hopes were crushed by the self-interested and foolish outlook of the masses. Reasoned observation was for a long time no more than a sport of the mind. The money interests of the old order of industry got support by working on men's feelings through newspapers, and less straightforwardly through money distribution, and had a control over opinion and the form of things. The controlled society theory was still in an early stage in the U.S.S.R., and in England became a point of political division, the great hope of one small group and the chief fear of another, while far the greater number had no views on the question at all.

Very little building which may be said to be truly of that time was done in England, and the degree to which those who were interested in producing new art forms were without an outlet may be judged from the surprising mass of writing in which completely opposite points of view are put forward. Having no chance of building in harmony with their new theory, the young Architects, as building designers were then named, went in for argument, public talking, and writing, and frequently put an end to their unhappy existences. Unable to make buildings and other things, they made and unmade groups and circles, had fights among themselves, and made their feeble forces even feebler. Only here and there was an impulse given to the important changes which were then starting, and only a small number of the great men of this time had any chance of building. Their works and writings are in the school books to this day. The fact that they are so small a band makes the poor quality of the mass even clearer.

How very mixed the views of these Architects were may be judged from the names of the two chief groups of this time. First, the "Traditionalist" group. Under this head come the most noted experts on the representative school of art, and the servants of the money interests, happy in the knowledge of their safe position. There is amusement for us in the fact that one of the most important Traditionalists, rewarded by a "Peerage" under the old order, was chiefly noted for his very good private stories, while an even older brother Traditionalist was equally noted for his very bad public stories.

The second group was named "Modernist." It was this body of opinion which in the end gave the name to this part of the 1900's. The Modernists were for the most part servants of the public taste, persons in art circles out of touch with normal society and dependent on the uncertain support of the well-off, or business men looking for quick profits. But in this group, in addition, were the small number of persons who took a serious interest in sociology and building-science—men faced with the need to do something quickly, who saw living conditions as they were.

It is outside the range of this short account to give any space to the very great number of divisions there were in these two chief groups. This division of opinion and forces was no doubt caused in a great measure by the views of the newspaper writers who did no building themselves, but more frequently by the private desires and warring opinions of the experts. In its reaction against the old art form the new school was responsible for over-simple statements of opinion which were very open to attack, as, for example, those of the "Functionalists." On the other side, Traditionalist fears and the fact that men were unable to make adjustments to changing conditions gave them a desire to get away from facts, and so they saw the simplest processes and the forms produced by these processes as politically important or rooted in some deep purpose of psychology or religion. This tendency was very readily used by the money interests to keep the untrained masses quiet. Different business groups throughout these and later times, moved by the desire for profit, gave voice to the new views from time to time by using material from the writings and public statements of these men, and taking over their war-cries and their system whenever any important work was to be done. Offering great rewards, they were helped by men from the very group they had been fighting most violently, and seemed in the public eye to be their supporters whenever a great new building or a new steamer had been designed and would in the near future be in need of apparatus.

O Modernism, what crimes were done in your name!

THE FIRST YEARS OF "PLANNING"

These years of narrow, unfertile thought and dead forms came to an end through the force of events. The second Socialist Government came into power in 1936. Profiting by the experience of Russia and other European countries in those early years after the war, it straightaway made use of the ideas of serious experts and was responsible for *the first system of organization and necessary building named "Planning."* Faced with the crying need for those fruits of early discoveries which made it possible for men to be healthier, happier, and to have a higher level of comfort, but which had been used till now only for the well-off, the new government got to work to give these fruits to everyone and a new society was produced. It was this early idea of a crying need which made men see clearly that building and the material needs of man on the one hand, and his need for art and the things of the mind on the other, were two quite separate questions.

Building had become in a very short time a highly complex undertaking. Before this we had got on well enough by testing in the process of building. New forms of old materials and additions to simple apparatus had been tested out on the house, as one might say. But the new discoveries in science, medical views, and general ideas of comfort made the position so complex that the experience of private makers and builders was of little use. Where before a building was for the most part a structure of a fixed design and form, it now became part of a new process of living in which adjustments had to be made for new ideas and apparatus far more complex than the outside structure and very much greater in price.

The discovery of this important change came very slowly. Experts in the old outside design saw that if they were to take into account the new engineering needs, so that important parts of the building which were not seen might be housed, a middle way was necessary. What was overlooked by these men was the fact that though the purpose and machines of the structure were completely new, the general form was frequently copied unconsciously from a much more simple structure. In their desire to have an outlet for their private art theories, they did not see that the purpose of a building was one thing, and the outside form they gave to it another.

CONTROLLED BUILDING

Control from a head office, as the only way of getting the necessary organization and cutting out waste, was looked on as a blow to independent Art. A great number of Architects did everything in their power to keep this control from coming about, and others would have nothing to do with the new development, giving way to their private love of the past. The industries which had to do with any of the old materials and processes had a very unequal trade curve, doing very well one year and very badly another, for reasons which were for the most part unnecessary, and which they themselves might have got over by organization and a far-seeing view of the future. It was not till it was seen how important the great-scale building undertaking was that the system dependent on a chance connection between the producing and distributing sides was ended.

The National Research Station started by the Socialists was in a different position from the earlier body, because by it the science work of the different trades was united in one great organization. In this way it was possible to put an end to the

waste caused by two persons working separately on the same invention, and greater attention was given to the small number of inventions which were seen to be important. By making certain things in fixed sizes inside one industry, and by wise organization, so that every separate industry was working to the needs of others, Architects had new material to make use of in harmony with the unchanging Laws of Good Building.

Far from taking all interest from the art of building by limiting the Architect to certain fixed designs, the effect of the simpler forms was to give a new sort of order equal to the greatest examples of earlier times. Street building and the greater-scale design gave chances of organization and mass effect which even the best of the buildings designed without relation to one another had been unable to get. Now that engineers and experts of all sorts were working with the Architects, building was produced which was designed with equal care from the complete mass down to the last detail of inside apparatus. Comfort, light and air, and controlled heat became general when the new system of distribution made them cheap. It was with these new conditions that Architects made a start at working out a new Art Form.

The step from controlled building to a New Art was a short one. By a development of the sense of the beautiful which is in us all, men came to take a pleasure not only in certain buildings specially dear to us but in all buildings, and with this came the desire for the same high quality in the art of painting, stonework, and design generally. In this way, in producing the necessaries of existence we got back again to the art of living.

THE STAGE OF PRE-FABRICATION

We are conscious that it was not till halfway through the "pre-fabrication" stage that there were any fruits from the first system of organization. Housing, healthy conditions, power, and transport then became common to all. It was possible for those who had had all power of feeling forced out of their minds and bodies by the unequal fight for existence and the impossibly low level of living to have an eye for art and an interest in ideas. Though very different effects were pictured by supporters of the old order, thought became independent from about 1950. So strong was the new feeling that it was not crushed even by the destruction and general waste of the second European war and the fight which overcame the Fascist government.

By the early 'fifties the general level of taste was very high and everyone took an interest in art and structure. Something had to be done without loss of time in the direction of housing working-families, cutting down the number of persons out of work (that surprising effect of the first European War), and getting a higher level of living. These early Socialists in England, profiting by the Russian example, went in for government control and organization. For the first time in the history of building, industry was turning out building material on a system which made full use of mass-producing conditions and processes. Private builders and material makers, forced out of their rings of controlled prices and the competition which was the cause of waste and of the making of unnecessary things, made the discovery after the first shock that a new sort of producing-organization was possible which put an end to the waste and serious losses of the old system of competition. It became general for all important parts to be made in fixed designs and sizes, and greater use was made of this. Building became cheaper and quicker. Building-parts made in the works and put together as they were to make houses, gave the name to "Unit" Building. The planning and organization between the different industries made it possible for this government to put all working-families in completely new houses in five years. By 1948 all "slum" buildings (a word used in the late 1800's and early 1900's for houses so poor, whose conditions were so disgusting, that they gave little more than a roof) had gone completely out of existence.

The Socialists were not given a chance to go on with their work of building up the nation for very long. The reaction against Socialism, supported by the last representatives of the old order, took the form of Fascist governments in Europe. At first England got great profit from this European development, because in the early days of Fascism a great number of noted men in science and building-design came to England and did much for the later development of building in this country.

BUILDING PRODUCED BY FEAR

In a short time, however, the Fascists became so well armed, and violent "Nationalism" was so strong in Europe that England had serious fears of attack. The League of Nations was no longer respected, and as the effect of these fears the "Punch and Judy" play-acting of the early English Fascists quickly became a complete reaction against Socialism. The first Fascist government, in the short time in which the country was still at peace, was responsible for those strange structures under the earth which we are still able to see on the east edge of the island and in most of the greater towns. These structures may be looked on as the first *building rooted in fear*.

This was of greater use to the inventions side of the building industry than simply the cover it gave against air attack. The Special Inventions Branch in what was named "Protective Planning" was now working chiefly on systems of cutting into the earth and on making the new structures water-tight, and it was not long before general use was made of their discoveries. The knowledge got from making doorways and openings gas-tight was used for the better designing of all details of doors and windows. Their system of airing these great gas-tight spaces had important effects in two or three years on what had been till then the normal form of air-conditioning and heat control of buildings, and was responsible for the invention of the air-making plant, which is now used in our greater-sized structures and does its work so well. One of the effects of these inventions was to make the special air-conditioning plants cheap enough to be used in great hospitals and works, and business and private buildings in towns given over to industry. The addition to the price caused by putting in this plant has been made up for in a great measure by the cheaper window structures, now that it is no longer necessary to let in dirty or unconditioned air from outside.

Equally important changes were made in the plates of special, readily bent glass-like material used for the windows. Till this time the plates had been limited in size. Every one now had to make use of this new safe-glass material in all important buildings in the interests of the public. So much of this was used that it quickly became possible to get new machines into operation which made plates of great size. The design of these new safe and "conditioned" buildings was completely changed. The new round observation stage in Turkestan, which is on the 1,000 ft. level in the new I.A.U. Building for air control, was 200 ft. long when stretched out straight, and, without any other support, keeps the roof, complete with Teleradio apparatus, in position.

Under the Fascist government the high, upright building of the first English "Tower" school was used for military purposes. The argument was rightly put forward that these high buildings were safer from air attack than other structures because they would made a very small mark for airmen and any bombs dropped would go off in the top floor without doing serious damage. The development of these two very different forms of building was responsible for the "War of the Styles." The amount of art discussion and writing produced by supporters of the two opposite forms was no doubt the cause of a certain bitter amusement to rulers who had their thoughts on everyday needs. This war of the upright against earthworks experts was a sport which did not go on for long.

THE EVENTS OF THE 'SEVENTIES

England was forced by events to take part in the European fighting. Europe became a field of war for the second time. The first two or three air attacks saw the destruction of the greater part of London in common with most of the chief European towns. Those who had been kept from death were overcome with fear at the discovery of man's new power, and they were shocked to see their friends poisoned cruelly with gas and disease bombs. They saw that they had no chance against this new form of attack. The masses went against their rulers.

A full account of these attacks made on the governments of Europe has been given in the history books. It is not necessary to give any further details here of the long fight, in which first one side seemed to get the upper hand and then the other, in this second war of the ruled against their rulers. In 1985 a European Union of Socialist Republics was formed by the men and women of a broken Europe. The work of "Planning" again on a great scale was taken up by the masses, and great driving-power was put into the undertaking. The second stage of "Reconstruction" came about in England at the same time as in the other

European republics. It was not long before the ideas of distribution, and the grouping and form of society, were completely changed by air developments and the invention of airships for great-scale transport.

There came at this point the " New Stage of Air Transport " in which we are now living, whose early years saw such great changes in all our ideas of " Planning " and structure. New metals and great industries for working them came into being throughout the Union. There was no longer any fear of distance, or high buildings. By the general exchange of power and material, based on detailed " Planning," the European Union was able to put through in quite a short time undertakings which would have been impossible to small, water-tight organizations. The new distribution of the persons of Europe into smaller units of society, housed in great buildings, and the need for new air-transport store-houses were responsible for the development of these structures in which we are now living and working, structures on a scale which would have seemed impossibly great a hundred years back.

The early " Skyscrapers," specially in America, though much greater than anything which had been put up in Europe up to 1940, were limited by certain conditions. Such a number of these buildings were massed into a small space that if they had been higher it would have been impossible for the persons living in them to make journeys to and from them every day in narrow, badly-designed streets, and railways, without causing trouble at all points. There was no air-conditioning or control of air-weight in the buildings themselves and the persons living on the top floors would have been unable to make the necessary adjustment if they went higher.

THE NEW STAGE OF AIR TRANSPORT

With the forming of smaller units of society—the outcome of cheap and general air-transport—and the turning of great stretches of land into grass-spaces, landing-places and roads, in well-designed " Zones " round our high buildings, most of the troubles were over. We had the greater part of the engineering knowledge necessary for putting up these structures as far back as the early 1930's, and the air-conditioning discoveries of later years made living in high buildings possible, first with the help of apparatus and then by adjustments in our bodies to the new conditions.

With the " New Stage of Air Transport " came a new sense of scale, structure and form. This is completely different in theory and effect from all earlier schools of building, but the older men are still not clear in their minds that these forms are new or have little relation to the past. It is interesting, however, in this connection, to see that a great number of the theories on which the art of present day building is based had been worked out by a small number of the first Moderns.

It was in the 'eighties, when the International Aviation Union was formed, that the first airship stations were put up—complete " towns " with living-places and offices for 10,000 persons, and store-houses and works for keeping in order 10 airships and 800 gyros. It was in these years that the Union first saw the new value in air transport and made the air-arm responsible for the safe keeping of the new order of society. Great stretches of land in a condition of half-development, or covered with old buildings, and other stretches which had not been used for any purpose, were made clear or kept for the use of persons living and working in the towns. After the chief part of the " Planned " building had been done, and a three-hour week made possible throughout the Union, the new forms of transport were used to the full for purposes of education and pleasure.

It is now possible for the best buildings of past times to be seen at first hand, and we are going on with the great undertaking for putting these buildings into good condition which was started after the Preservation of Ancient Buildings Law came into force a great number of years back. It is to this wise law that we are in debt for some of the best examples of buildings of all times from those of early Egypt and Assyria to the Moderns safely came through the destruction caused by air attacks in the second Great War.

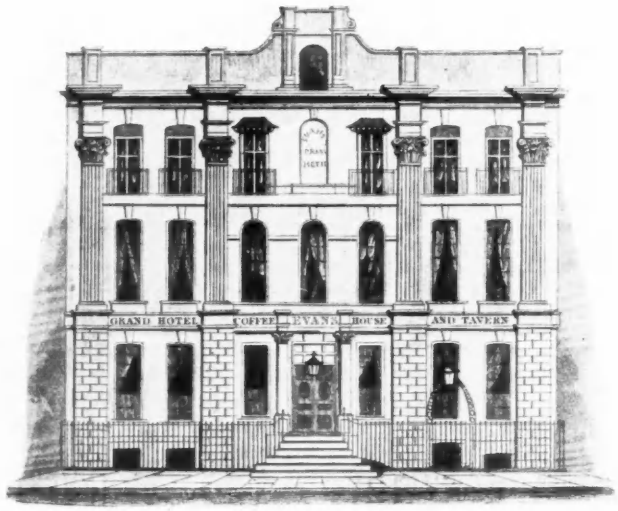
THE " LAW OF OBSOLESCENCE "

It is this tendency to ready destruction and even the need of it, in view of the " Law of Obsolescence," which has made our science invention stations take up the question of the effect of time on materials. It is becoming quite clear that the quality of being untouched by time is one which is not desired in most buildings. The use of chemicals of the stronger sort for the destruction of old buildings which are no longer of use is a cause of waste and frequently not very safe, and the best discoveries of the last four or five years seem to be the different chemically produced materials, of little weight, which are readily formed into building-parts and which may be quickly produced, put up, taken down and transported.

The " Monolithic " building seems to be bad for most purposes. As with some of the stone buildings of the 1500's and the concrete structures of the early 1900's, it is over solid and not at all pleasing to our highly trained sense of space and delicate design, specially in connection with all great public buildings. We will no doubt be in agreement that the forms of some of these earlier times make a pleasing change when we are living simply in our small private houses in the country spaces, and the very fact that they are completely strange gives a certain special attraction to the " Tarzan weeks " of the " Back-to-the-Natural " Society.

Plastocrete and synthosteel make it quite simple for these copies to be made, but they are so impossible to take away, as ordered by the Reservation Zone Nature-Rest Acts, that most owners have had to give them up, being unable to make the necessary payment for their destruction. If the Government does not take steps about it, the effect of this will be to make our Reservation Zones museums of unused houses of other times. Even now we are hearing stories of such summer-houses being covered with plant growths, and events like the discovery at Whipsnade last year of a family of wood-pigs in a house of " Cotswold " design may become common.

It is hoped that this foolish interest in the building forms of the past will go as quickly as it came. The old living conditions were so different from those we have today and the old houses have so little comfort that they seem as strange to me and my friends as our high buildings would have done to my father's father's father, whose office in 1935 was somewhere 500 metres under the level on which I am working. On second thoughts, however, in view of the noise and dirty conditions he had to put up with, I am almost certain that if he was living now he would have been pleased to come with me to our physical-training room for a quick swim and would have got great pleasure from the oxygen bath before going back through the sky in the direction of the rays of the west, a happier and healthier man.



TAIL-PIECE : R.I.B.A. HEADQUARTERS : 1835

CHRONOLOGICAL TABLE: 1935–2035

INFLUENCES ON A CENTURY'S ARCHITECTURE

1935 R.A. Exhibition of Art in Industry : second *art nouveau* movement.
Brussels Exhibition.
Sir Hilton Young's Housing Bill.
Publication of *John Nash*, by J. N. Summerson.
New Belisha traffic rules : crossing only in parties of four ; one-way crossing by blue kerbs.
Roadside Building (Restriction) Bill, giving local authorities power to prevent ribbon development : ribbon development continues.
The King's House, Cobham : modern-traditional style.
Frinton housing scheme.

THE FIRST RECONSTRUCTION PERIOD

1936 Birth of Samuel Meatbaum.
General Election : second Socialist Government ; appointment of Commissioners for Power, Transport, Planning and Housing.
Declaration of Irish Independence.
London University, by Charles Holden ; main portion completed.
First one-way arterial road.
Planning Commissioners' New Town Planning measures ; " design clause," control of design (following Ruislip, Cuckfield and subsequent cases) placed jointly with Advisory Panels of Architects and Planning Commissioners.
The Jolt-Robinson process.

1937 Completion of new Waterloo Bridge, by Sir Giles Gilbert Scott.
Water (Supply) Act passed : national water-supply Grid.
The Great Floods : eleven counties inundated for several months.
Nationalization of Land and Banking.
Work begun on first of the Housing Commissioners' working-class housing schemes.
" All Plastics " Exhibition in London, organized by Imperial Chemical Industries : use of plastic pre-fabricated units.
Abolition of one level main-road crossings : bridge crossings introduced.
Ramsay MacDonald, Viceroy of India.

1938 " Pink Thatch," Winchester, by Oliver Messell.
Extension of the Electricity Grid.
Report of the Thames Development Commission.
National (official) propaganda for popularization of flats.
First publication of *Proof*.
Appointment of advisory committee of architects on National Planning Commission.
Austro-Italian quarrel : mobilization on frontiers.
Stereoscopic photography.
Unemployment relief works : extensive conduit burying throughout the country and abolition of pylons in rural districts.
Advertising prohibited in rural areas.

1939 Competition for new Charing Cross Bridge and riverside development plan.
Amendments to London Building Act : Act made applicable to whole country.
Central Research Station built at Weston-super-Mare, with control of Building Act amendments : its building, by H.M.O.W.
Abolition of Capital Punishment.
Birth of Reginald Hurch.
Austro-Italian quarrel settled by Scandinavian Arbitration Court.
R.I.B.A. Exhibition of South American Civic Architecture.
Railway electrification scheme completed.
Publication of Willesden's *Basic Art*.
Jones experiments with light-metal alloys.

1940 Establishment of Housing Tribunals.
Road safety measures : main road bridges for children made compulsory.
Fascist dictatorship in France : André Lurçat settles in England.
Open Competition for Charing Cross Bridge stopped pending new Planning Commission Report : competition subsequently re-commenced.
The Gas Grid.

1941 First Royal television broadcast.
Horse traffic made illegal in urban areas.
s.s. *Queen Mary* re-equipped and re-furnished.
Building illegal within one mile of arterial roads and aerodromes.
Henry Ford's tour of England.
Nationalization of hospitals.
Appointment of Commission for State Hospital Plan.
Dominion status for India.

1942 Adoption of the Metric System.
General Election : third Socialist Government.
Nationalization of Industry : central control of building material.
First Air Defence Tower finished at Paris Exhibition.
Central Post Office, Helsingfors, completed.
Initiation of transatlantic air service.
Charing Cross Bridge Competition result : execution of winning scheme put in hand, first step involving demolition of new Waterloo Bridge.
National Parks (Preservation) Bill.

1943 Great Atlantic air disaster : transatlantic air service suspended.
Power Commission's Report : centralized generation of power begun.
Housing Bill : L.C.C. exercises compulsory powers and acquires White City and other sites for slum decanting.
Architects (Compulsory Registration) Act : architecture becomes a " closed " profession on similar lines to medicine and law.
Royal Academy holds first Surrealist Exhibition.
Zoning Commission appointed by National Planning Commissioners.
Disestablishment of the Church of England.

1944 A.A. Excursion to Mexico : beginning of first Toltec revival.

A CHRONOLOGICAL TABLE OF

1944 (cont.)
National Building Regulations revised: Compulsory Annual Revision Act.
Introduction of Balbo (sliding) shuttering.
Completion of first of National Urban Birth Control Clinics, by H.M.O.W.

1945
Construction of floating platforms begun for revival of transatlantic air service: Sir Owen Williams appointed engineer.
Assassination of Adolf Hitler: tension in central Europe: industrial boom in northern European countries.
National aerial transport system initiated: construction of aerodromes.
State Control of Burial Act.
First long-distance heating station built in conjunction with new power station to serve N.W. London.
Cantilever Court, Hammersmith, completed.

1946
European chaos: second cultural immigration into England.
Compulsory inclusion of "craft" in secondary schools' curriculum.
Amalgamation of R.A., R.S.A. and D.I.A. to form new Art organization, the R.S.N.I.A.
First of the National Housing Estates completed at the White City.
Completion of the fourth Soviet five-year Plan.
Passing of Density Laws.
Appointment of National Committee to report on pre-fabrication and standardization of building.
Completion of first State Crematorium and Cemetery at Hindhead (The Devil's Punchbowl).

1947
Fascist Central European *bloc*: further cultural immigration.
Quinquennial Census shows first year of decline in English population.
Plans published for New B.B.C., which include State Auditoria for opera and symphonic concerts, light musical productions and ballets, and drama.
Professor Toyo Matakuro in London: lecture on Japanese sectional fabrication, arranged by MARS.

1948
Great International Architectural Congress held in the Zoological Gardens, Regent's Park.
New B.C.C. building completed: old B.B.C. building (owing to fort-like interior) acquired by British Union of Fascists.
Furnishing first represented on Housing, Prefabrication and Standard Committees.
Homer T. Franklin President of United States of America: 14th "New Deal": National Recovery Act.
Completion of first English sky-scraper: 24 storeys in height.

THE PRE-FABRICATION PERIOD

1949
Establishment of first factories for pre-fabricated, standardized units.
Appointment of specialists for research into high building problems: American engineers.
New plan for centralization of industry.
Experiments in stratosphere air travel.
Street advertisements limited to central urban zones: street signal colours illegal for illuminated signs.
Second Exhibition of Industrial Art at Burlington House.

1950
First English translation of *Art As Industry*: Hsc Sung Cho.
Presentation of National Planning Report.

1951
Central European War.
First Atlantic platform for heavier-than-air machines: new transatlantic air service.
Pan-Asiatic Union.
Duchess of Kent launched: panel of architects appointed for "shipline" interiors.

1952
France and Germany involved in European War: war general throughout Europe.
D.I.A. secedes from R.S.N.I.A. (under old title of Design and Industries Association) as a protest against interior of the *Duchess of Kent*, demanding restitution of applied ornament: D.I.A. motto, "Fitness for purpose," altered to "Honi soit qui mal y pense."
First National Transport factory opened: standard cars, lorries and motor cycles.
Abolition of steel riveting by National Building Commission: the welding code.

1954
Housing accommodation catches up with requirements, aided by population decline.
Economic rustless steel production.
Formation of Psycho-phantasmagorical Group in Art: Exhibition at the Burlington Galleries.
Rival Art Group formed: the Neo-Somnambulists.
L.P.T.B. takes over goods distribution in central London zone.
Architect appointed chairman of Planning and Housing Commissioners.

1955
Mono-rail tracks for short-distance transport services.
Bernard Shaw's new play, *Enough Ado About Everything*: propaganda against Utopian housing.
Hire purchase becomes illegal.

1956
European Peace Treaty: brought about by exhaustion of economic resources.
Perfection of light-metal alloys: making possible (among other advances) stratosphere air travel.
Zoning extended to all large towns.
Private cars prohibited in central London zone.
Parking station programme in outer zone begun.

1957
Electric power and heat available for all urban services: fuel-burning prohibited in urban areas.
The great period of urban reconstruction: demolition of obsolete building to provide open spaces under the Zoning Act: the beginning of tower town architecture: new central boulevards begun.
Charing Cross scheme suspended for reconsideration.
First auto-gyro garage.
Birth of Otto Arkwright.
Flat roofs made compulsory for play and landing grounds on all buildings of over 200,000 cubic meters.

ARCHITECTURAL INFLUENCES: 1935-2035

1958 Design for new channel bridge.
Completion of first tower village in rural England (Corb-on-the-Ouse).
Foundation of International Faculty of Structural Art.
First tubo-aerial station in central London zone, connecting aerodrome with city centre.

1959 National Factory of Standard Autogyros built at Tunbridge Wells.
Advisory Panel of Architects appointed to all industries.

1960 Completion of seventh Soviet 5-year Plan.
First use in England of high-explosive for slum demolition.
Urban national distribution system extended throughout England.
Economic manufacture of new light-metal alloy.
Indirect main road and street lighting made compulsory: headlights illegal in urban zones and on main roads.
Fascist dictatorships in Europe.
International standardization of weights and measures.
Five-day week introduced.

1961 Birth of Oswald Benito Benetfink.
The "ergs" controversy.

1962 Discovery of universal "reflectant" (surface insulation), produced from celery.
Legalization of celery-board by National Building Standards Commission: intensive celery cultivation: revival of British agriculture.
Channel Bridge completed, to coincide with Brunel centenary celebrations.
Schools in urban districts compelled by Act to be at over twenty-storey level.
Mass production in U.S.S.R. of "Bassaltoid": (manipulated basalt, stronger than steel block).
Demolition of London University, under National zoning requirements.

1963 First Exhibition in new Permanent Building of Design in Haymarket.
Demolition of Olympia to make way for housing and mono-rail track.
First phantasmic salon at Burlington House.

1964 Round-the-world air race won by Petch and Olf.

THE DEFENSIVE PERIOD

1965 General election: Fascist majority: first Fascist Government in England.
Period of "fear" architecture: first reconstruction of disused coal mines.
Appointment of National Board for Protective Planning.
First C.R.L. (resin) glazed house.

1966 Defensive architectural design becomes involved in "second battle of the styles"; vertical building versus horizontal-subterranean.
Religious revival: intensive building of churches.
Back to nature movement: "Tarzan Trip" holidays in National Parks.
Picturesque Manchester: Henekey's paper at the R.I.B.A.

1967 First English Air Defence Tower: triumph for vertical strategic building.
Invention of armour board (synthetic sheeting).
Rocket post introduced.

1968 Concrete casing to metal frame no longer compulsory under National Building Regulations.

1969 New Cathedral for the *Christ Democrats* started in Liverpool.
Anti-fog spray experiments.
C.R.L. (unbreakable) resin glazing becomes compulsory.

1971 A.A. visit to Greenland: beginning of post-pliocene revival.
First subterranean aerodrome.
"Plasto-crete" released for general use: shuttering becomes obsolete.

1972 Research in air-conditioning: opening of first of series of urban-district gas-proof chambers.
Abolition of independent Art Schools.
Art education taken over by the Ministry of Propaganda.
Adolf Halbmuller's lecture on *Early Twentieth Century Tramways.*

1973 Invention of "down explosives": defeat for vertical strategic building.
"Inso-crete" (insulation concrete) released for general building.

1974 Underground arms factories established.
Institution of a Nobel Prize for Architecture.
Railway termini moved outside central urban zone.
Exodus of British Socialist and Jewish professionals to Germany.
Burlington House Exhibitions taken over by Ministry of Propaganda.
Japan acquires Korea and Manchuckuo by agreement.

1975 International University and Library opened in Jewish State of the U.S.S.R.
Marina Waghorn, first woman president of the R.I.B.A.

1976 Completion of new Central London Elevated Aerodrome at King's Cross.
Seat of English Government moved to Cheltenham.
First Japanese-Continental Bridge.
Death of Joseph Bursting.

1977 First Greek-Orthodox service in the former Palace of the Soviets, now Russian National Cathedral.
Completion of Charing Cross Bridge scheme.
Experiments with the Knot-Hoffman synthetic radium process.

1978 England, allied with European Fascist States, declares war on Far East: second (Lutyens) Liverpool cathedral mistaken, in its unfinished state, for fort and utterly demolished.
R.I.B.A. absorbed by MARS as Royalist wing.
Japanese demolish New Delhi from the air.

1979 Publication of A.A. monograph on *The Later Toltec Renaissance.*
Charing Cross Bridge demolished in air attack.

CHRONOLOGICAL TABLE : 1935 - 2035

1981 First year of European Revolution : active warfare confined to Japan-Australia.

1982 Revolution spreads to England : Bloomsbury and Chipping Camden sacked. The "six weeks' terror."

1983 Last year of the Revolution : cessation of far east hostilities : first Socialist Republican Government in England.
Competition for new Charing Cross Bridge.

THE SECOND RECONSTRUCTION PERIOD

1985 Formation of European Union of Socialist Republics.
Daily Express Building acquired by the British Nation.
Three-day week introduced.

1986 Second reconstruction and planning programme.
Revival of vertical architecture.
Erection of new Union pre-fabrication building-unit factories.

1987 Evolution of unit architecture : abolition of monolithic structure.
Ηαντα Ρει adopted as national slogan.

1988 The word "decoration" omitted from current vocabulary : the word "modern" now denotes the style current in 1930's (cf. "Gothic").
New London University city erected in Buckinghamshire.
Death of Meatbaum.

1990 First Library of Cinematic and Sound Reference opened at Haifa.
Early Lutyens House bought for the Nation.

1992 Beginning of the Dirigible Period.
Adoption of "League of Nations" thirteen month calendar.
Appointment of European Commission of Aerozoning : lane and level control for aircraft.
Marina Waghorn Memorial Competition.

1993 World Geological Conference in the Central European Museum (formerly League of Nations Building), Geneva, leading to neo-dinosaurian revival in Uraguayan sculpture.
The James Wiley Morpeth experiments : death of Mrs. Morpeth.

THE TRANSPORT PERIOD

1995 Formation of International Aviation Union.
Reconditioning of subterranean forts for cold-storage purposes.
First X-ray refrigeration plants.
Central cooling power station for London "Amcen." and "Concen."

1996 Second Channel Bridge begun for heavy freight.

1997 Lighter-than-air (dirigible) machine perfected : Atlantic and Pacific platforms constructed for both kinds of craft.
Establishment of International Faculty of Structural Art, comprising all constructional activities and design : designers and constructional calculators known as "constructionalists."
Aerial Transport (control board) : sectionalized under *Social service* and *Private gyro.*
Mackintosh centenary celebrations at Glasgow.

2000 Japan builds world's highest structure.

2001 Work begun on first Dirigible Station.
Plans announced for International Aviation Co.'s chain of stations across Asia and the Antarctic.

THE NEW SCALE PERIOD

2003 Establishment of Chair of Stratospheric Study in the International Faculty for Structural Art.

2004 Great Exhibition of Structural Art : principal exhibition centres : Power : Magnitogorsk.—Industry : Leipzig.—Synthetics : Berlin.—Transmission and Transport : London.
Experiments in weather-conditioning carried out for the duration of the London exhibit.

2006 Second Korean Bridge completed.
Death of Henry ("Ramp") Thompson.

2007 Reconstruction of Panama Canal undertaken to allow passage of first-grade freight vessels (over 150,000 tons).
Scientific and Industrial exhibition at new Shanghai City.

2009 Compulsory study of period styles in secondary schools.
Return of romanticism in painting and sculpture.

2010 Basic English adopted as universal language.

2013 First steel-block building.
Revision of Building (Obsolescence) Act passed for European urban zones.
Periodic Evacuation (Nature Rest Period) Act passed for public parks and reservations.

2015 Organized educational travel : dirigible university.
State scholarship for historic research in Art.

2016 First stratosphere observation tower built in Turkestan for long distance infra-red observation.

2021 First demonstration of natural disintegrants in the Cambridge laboratory : National Laboratory Buildings partially demolished ; University Library destroyed.

2026 Dirigible Cities completed in the Sahara, Gran Chaco, Thibet and The Marquesas.
First transportable standard building units to be moved by air.

SECOND POST-SCIENTIFIC PERIOD

2030 Publication of *The Permanence Fallacy.*

2031 Competition for Geoffrey Scott Memorial Library.

2034 Classical revival begins in private building : research into "architecture" of 1930's. New Group formed to foster "back to respectability" movement in Nature Reservations.
New Charing Cross Bridge in neo-modern style.

ROSSMORE COURT, PARK ROAD, N.W.



Occupying an island site, one minute's walk from Regent's Park, this block of flats has been planned in horse-shoe shape so that all rooms, including kitchens and bathrooms, have an exterior aspect.

There are one hundred and thirty-one flats, provided with every possible modern convenience, a garage and service station, and a portion of the basement may be occupied as a restaurant.

Four types of flats are provided as follows: thirty-two comprise a bed sitting room; sixty, a living room and one bedroom; twenty-two, a living room and two bedrooms; and seventeen a living room and three bedrooms. Each type of flat has its own kitchen and bathroom, etc. Additional bedrooms for the use of tenants are available on the eighth floor. A manager's and a caretaker's flat are provided.

The building is faced with grey-blue bricks, with artificial stone dressings and metal windows, hung in wood frames. Over the petrol pumps is a reinforced concrete slab roof, with metal hood.

The photographs show: above, a view from Rossmore Road and, right, a view from Park Road, looking towards the entrance to the service station and garage.



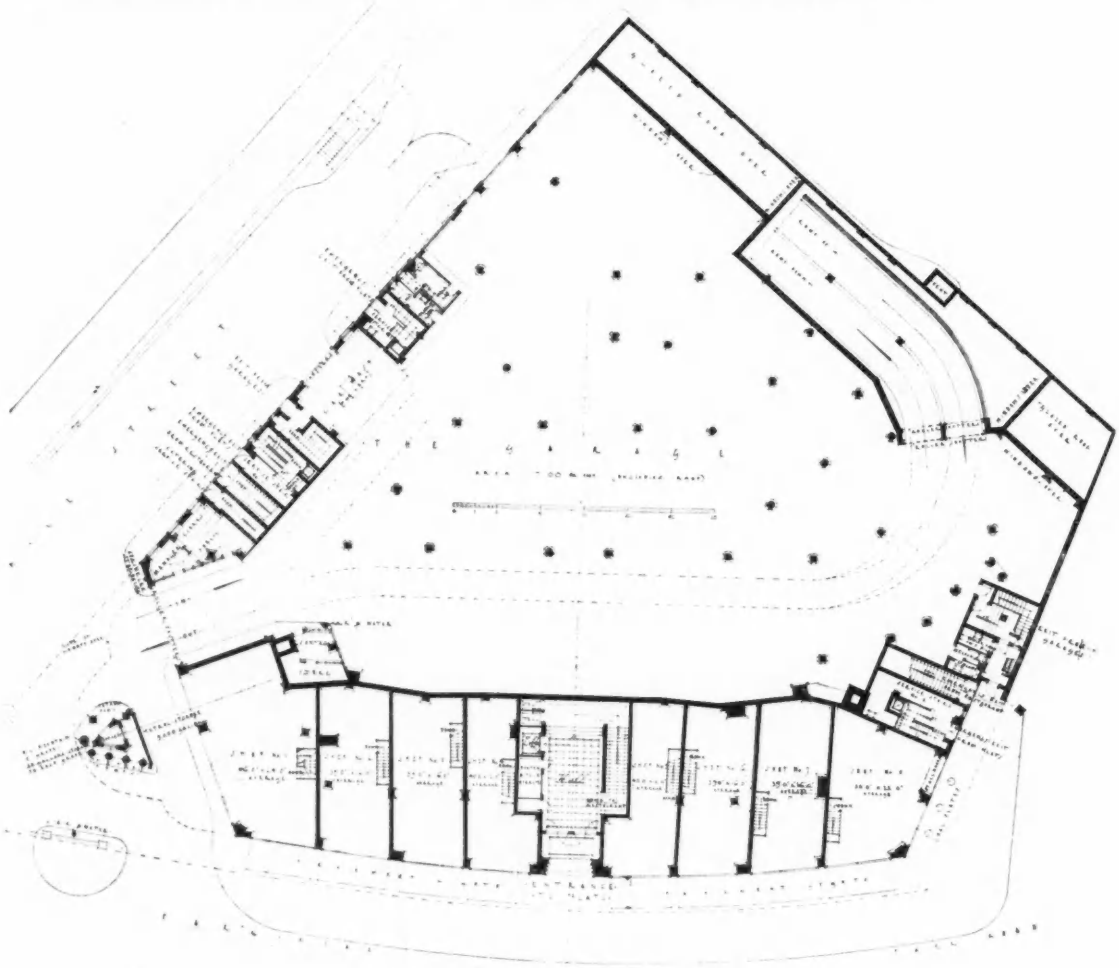
DESIGNED BY

T. P. BENNETT AND SON

ROSSMORE COURT, PARK ROAD, N.W.

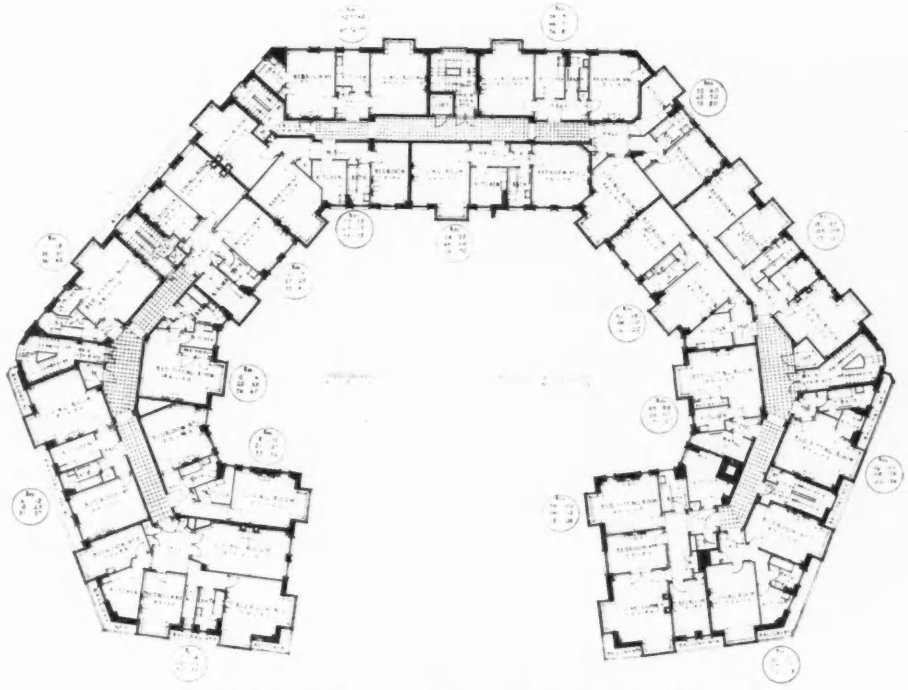


A view in the internal gardens, showing the covered ways leading to the main entrances to the flats; and plan of ground floor, showing the petrol station and garage and the ramps leading to and from the garage in the basement. On facing page are plans of the first and the second to seventh floors.

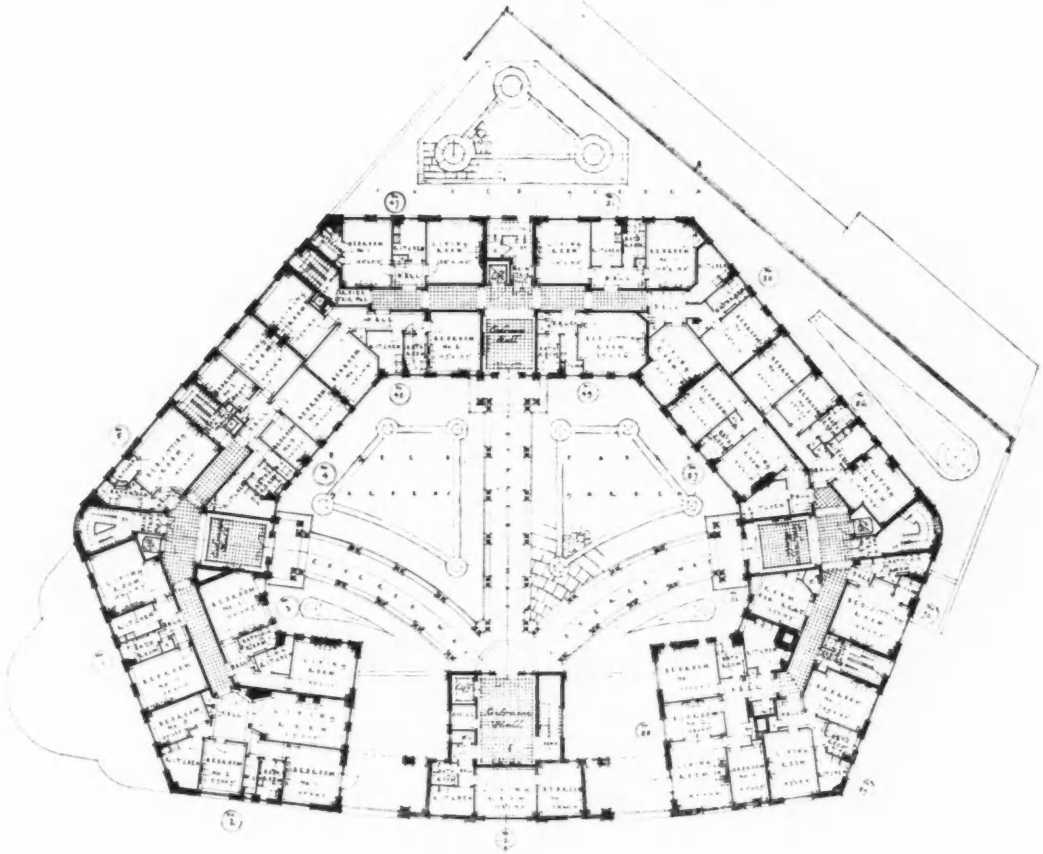


GROUND FLOOR PLAN

BY T. P. BENNETT AND SON



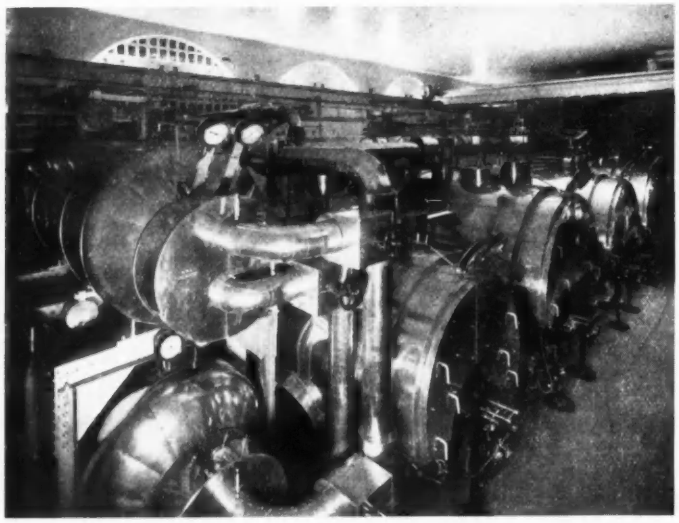
SECOND TO SEVENTH FLOOR PLANS



FIRST FLOOR PLAN

TECHNICAL SECTION: I

This JOURNAL *will, in future, contain each week a technical section, which will provide information on current practice in structure, equipment, finishings and allied problems. For the next few months, Dr. Oscar Faber, O.B.E., and Mr. J. R. Kell will review current practice in heating, air-conditioning and mechanical and electrical equipment. As the introduction shows, the treatise is to be an exhaustive one, providing not only a clearer idea of the problems involved, but also fully worked out analyses of costs and upkeep for typical buildings equipped in alternative ways.*



HEATING, AIR CONDITIONING *AND* MECHANICAL EQUIPMENT

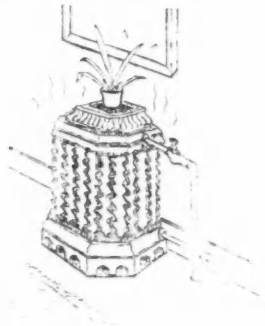
BY

OSCAR FABER, O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E., AND J. R. KELL, M.I.H.V.E.

INTRODUCTION

WITH the increasing standard of comfort demanded at the present day, it is not surprising that new methods of heating, ventilating and air conditioning, and new mechanical and electrical services have been developed to meet the needs of our houses and public buildings.

It is not many years ago since the only method of heating was the open fire, within the "charmed circle" of which our grandparents were content to sit whilst the outer regions of their rooms preserved a frigid emptiness. Central heating, when it was introduced, was looked on as foreign and unhealthy—a view that still lingers in the minds of many English people. And no wonder, for "You must remember," as Beverley Nichols has said in his recent book, *A Thatched Roof*, "that their recollection of central heating is mainly based on a night they spent in a hotel at Worthing for Ada's wedding in November, 1902. They occupied the royal suite, which contained the hotel's only radiator. This radiator, of Persian design, was the sort of thing over which savages would have built a temple. It hissed and gurgled and spat—at noon it boiled—at night it froze solid, and



"The sort of thing over which savages would have built a temple"

housemaids approached it on tiptoe, with nervous giggles."

Nowadays, a variation of a few degrees in warmth between one room and another may be severely criticized as a defect in the heating system, whilst at the same time any apparatus must be kept unobtrusive or even invisible. We have become more sensitive to fine shades of difference in comfort, and more critical of the appearance of apparatus designed to give us that comfort.

In years gone by draughts were no doubt considered inseparable from large rooms, and screens and high-backed chairs were necessary as a shield: people then camped out at night in fourpost beds. At the present time, due to the lighter clothing worn, particularly by the so-called weaker sex, perceptible air movement in our rooms, restaurants, or theatres is frowned upon, despite the fact that we demand ventilation, which necessitates air movement.

In the matter of lighting, a similar change has come with improved methods. A much greater intensity of illumination is now demanded than was necessary in the past, yet at the same time it is often stipulated that the source of such lighting shall not be apparent.

The problem of providing heating, ventilating and electrical services in buildings of all sorts and kinds has, in consequence, become much more of an exact and exacting science than heretofore, and the successful application of this science demands more and more the close collaboration of the architect and the engineer for the mechanical and electrical services.

Every building has basically the same problems but differences of purpose, the amount of money available, or a variety of other causes may lead to a number of different solutions, with the result that two buildings are rarely found to be exactly alike in the provisions made for their various services.

The choice of a heating system will be found to divide itself into a number of main questions, somewhat as follows:—

Is the system to be local or central?
If central, how centralized? Is the building to be a self-contained unit or can it be grouped with others?
Can the circulation be by gravity or is a pump necessary?
Is the heating apparatus to be concealed or exposed? What value is placed on cleanliness and permanence?
What fuel shall be used?
Can electricity or gas, with their saving of labour, be contemplated as regards cost?
If a solid fuel—how shall it be fired?
If it is a large building can a combined electric generating and heating system be justified?
What temperature is required?
Has insulation of the building been considered properly so as to reduce the heating charges?
What space is required for boiler plant, pipe trenches, etc.?
Should the system be automatically controlled, and if so, to what extent?

Under the heading of Ventilation questions arise as follows:—

What portions of the building, if any, require to be ventilated mechanically?
Are the surroundings so noisy that open windows are objectionable?
Will a simple extract system be sufficient?
If not, can the cost of an inlet system be contemplated?
If an inlet system is required, what is the number of occupants to be catered for in each room?
What will the running charges be?
How dirty is the outer air and what filtering precautions must be made?
Is humidifying necessary in winter?
Will dehumidifying and cooling by refrigeration in summer be necessary, and if so, can it be afforded?
Is automatic control necessary?
Is complete elimination of noise important?

What space will the plant take up, and how much room is required for ducts?
If the building under consideration is a factory, what special temperature or humidity conditions are necessary for its processes?

Questions relating to cold and hot water services may be as follows :—
Is the public water supply to be taken or can a private supply from a well be justified?
What are the properties of the water and what must the pipes and fittings be made of?
What quantity of water will be consumed and what size tanks are required?
If a group of buildings are being considered, is a water tower or reservoir necessary?
For hot water supply will gas or electric local heaters be more advantageous than a central boiler system with solid or liquid fuel?
If a central system, what size hot water storage is required?
May the circulation be by gravity or must it be pumped?
How can the system be arranged unobtrusively?

Similarly for the electrical and other services in a building, questions arise as to necessity, cost, permanence, and appearance, upon the answers to which may depend the success or otherwise of the whole enterprise.

Thus no matter how much care has been lavished by the architect on the design and decoration of a building, those who have to occupy it will deem it a failure if their rooms are cold and draughty. Similarly the owner will be displeased if he is faced with immense bills for running charges due to a wrong choice having been made as to type of system or fuel.

It is with this in mind that the present treatise sets out to describe the various methods which are now available, from which a choice has to be made to suit particular circumstances, and to explain the principles underlying the design of such systems.

For architects and others interested in building, who feel that these engineering problems are outside their scope, it is intended that the presentation shall be such that they may gain a clearer perception of the relative importance of the problems which have to be faced. There are many excellent works dealing with these problems. But many are so highly technical that they do not answer the questions which the architect or building owner asks.

Many deal only with a very limited aspect of the matter. Many of the best books are American, and based on American practice, which rightly differs from English, as our climate and requirements are quite different.

GENERAL CONSIDERATIONS

The function of heating and air-conditioning in buildings may be described in general as the problem of providing conditions of comfort for the occupants. It also embraces the problems of producing special conditions of temperature and humidity as required for industrial processes, including the conditions required for the storage and manufacture of materials. As an example, the storage of books and documents, tobacco, wine, furniture and hundreds of other commodities, demands that temperature and humidity be kept within certain well recognized limits. The manufacture of certain commodities, such as cotton, wool, silk, etc., also frequently require definite humidities and temperatures to obtain the best results, sometimes very humid, sometimes very dry, depending on each particular case. All these problems are properly included in the problems of heating and air-conditioning.

In modern cities, with their noise, smoke and dust and other forms of air-borne dirt, the efficient filtration and cleaning of the air is also an essential part of the problem. In very noisy situations, the provision of sufficient air at the right temperature and humidity, and with enough movement to give a feeling of freshness, but not enough to cause a feeling of draught, and yet to maintain these conditions without the need for opening windows and admitting noise and dirt, is a problem which comes properly within the province of the heating and ventilating engineer.

Before these problems can be conveniently discussed it is convenient to define some of the terms which are commonly used, with special reference to the particular meaning and use which the heating engineer normally applies to them, and it will perhaps be convenient to consider these next.

TABLE II.

COMPARISON AND CONVERSION OF THERMOMETRIC SCALES.

°F	0	1	2	3	4	5	6	7	8	9
270	132.22	27.78	3.33	3.89	4.45	5.00	5.56	6.11	6.67	7.23
260	126.67	7.23	7.78	8.34	8.89	9.45	130.0	0.55	1.11	1.67
250	121.11	1.67	2.23	2.78	3.34	3.90	4.45	5.00	5.56	6.12
240	115.56	6.11	6.67	7.23	7.78	8.34	8.89	9.45	120.0	0.56
230	110.0	0.56	1.11	1.67	2.23	2.78	3.34	3.90	4.45	5.00
220	104.45	5.00	5.56	6.11	6.67	7.23	7.78	8.34	8.90	9.45
212 — 210	98.89	9.45	100.0	0.56	1.11	1.67	2.23	2.78	3.34	3.90
200	93.34	3.90	4.45	5.00	5.56	6.11	6.67	7.23	7.78	8.34
190	87.78	8.34	8.90	9.45	90.00	0.56	1.11	1.67	2.23	2.78
180	82.23	2.78	3.34	3.90	4.45	5.00	5.56	6.11	6.67	7.23
170	76.67	7.23	7.78	8.34	8.90	9.45	80.0	0.56	1.11	1.67
160	71.11	1.67	2.23	2.78	3.34	3.90	4.45	5.00	5.56	6.11
150	65.56	6.11	6.67	7.23	7.78	8.34	8.90	9.45	70.00	0.56
140	60.0	0.56	1.11	1.67	2.23	2.78	3.34	3.90	4.45	5.00
130	54.45	5.00	5.56	6.11	6.67	7.23	7.78	8.34	8.90	9.45
120	48.90	9.45	50.00	0.56	1.11	1.67	2.23	2.78	3.34	3.90
110	43.34	3.90	4.45	5.00	5.56	6.11	6.67	7.23	7.78	8.34
100	37.78	8.34	8.90	9.45	40.00	0.56	1.11	1.67	2.23	2.78
90	32.23	2.78	3.34	3.90	4.45	5.00	5.56	6.11	6.67	7.23
80	26.67	7.23	7.78	8.34	8.90	9.45	30.00	0.56	1.11	1.67
70	21.11	1.67	2.23	2.78	3.34	3.90	4.45	5.00	5.56	6.11
60	15.56	6.11	6.67	7.23	7.78	8.34	8.90	9.45	20.00	0.56
50	10.00	0.56	1.11	1.67	2.23	2.78	3.34	3.90	4.45	5.00
40	4.45	5.00	5.56	6.11	6.67	7.23	7.78	8.34	8.90	9.45
32 — 30	-1.11	-0.56	0	0.56	1.11	1.67	2.23	2.78	3.34	3.90
20	-6.67	-6.11	-5.56	-5.00	-4.45	-3.90	-3.34	-2.78	-2.23	-1.67
10	-12.23	-11.67	-11.11	-10.56	-10.0	-9.45	-8.90	-8.34	-7.78	-7.23
0	-17.78	-17.23	-16.67	-16.11	-15.56	-15.00	-14.45	-13.90	-13.34	-12.78
°F	0	1	2	3	4	5	6	7	8	9

°C. 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10 -20

°R. 100 90 80 70 60 50 40 30 20 10 0 -10

FAHRENHEIT — CENTIGRADE — REAUMUR

TABLE GIVES °C FOR EACH 1°F.

READING IN °R = 0·8 × TABLE RDG.

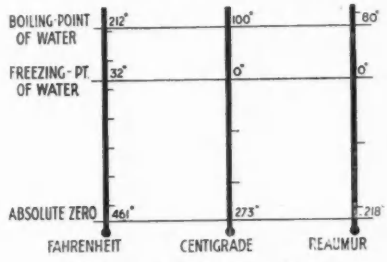


Table 1 : Temperature Scales

DEFINITIONS

Temperature

Various arbitrary scales of temperature have been devised and are in common use. (See Tables I and II.) Figure I illustrates various forms of thermometer in common use.

The reading of an ordinary mercury thermometer is said to give the temperature of a gas, liquid or solid in which it is immersed, but in reality what it gives is something considerably more complicated when applied to air in buildings. It gives a temperature at which the heat received from the surrounding objects exactly equals the heat given off to other surrounding objects until a perfect balance is obtained, and this heat transference may be partly by conduction, partly by convection and partly by radiation (defined later).

If a mercury thermometer is dipped in a hot liquid, conduction and convection account for practically the whole effect, but when a thermometer is used for giving the temperature of a gas such as air, this is by no means true, and the effect of radiation may be quite important. Thus the shade temperature in the summertime may be 80° F., while the sun temperature is 100° F. This does not mean that the temperature of the air is any different in the two cases, but in the former case the thermometer is not exposed to the radiation of the sun, and in the latter case it is, though the temperature of the air in both cases may be identical.

This is of more than theoretical interest, for some forms of heating depend largely on radiation, and it then becomes rather important to have a clear idea of what one is measuring when one talks about the temperature of the air. Is the effect of radiation to be included or excluded in measuring the temperature of the air? Suppose, for example, one is considering

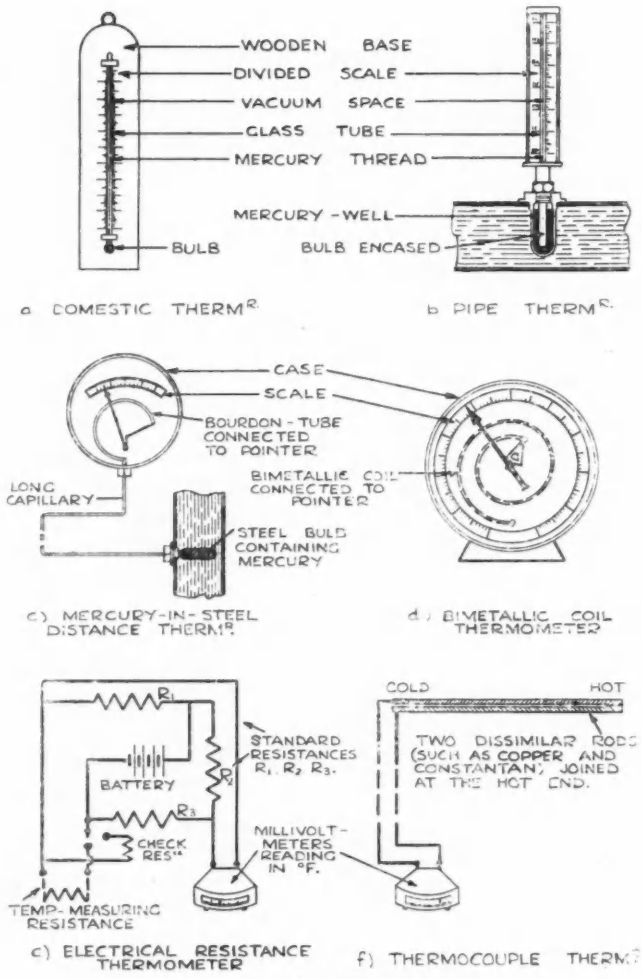


Figure 1 : Types of Thermometer

panel heating, taking the form of radiant heat from a warm ceiling. Is the temperature to be measured in such a way that the thermometer is screened from the source of radiant heat (in other words, the shade temperature), or is it to be measured by a thermometer which is exposed to the radiant heat (equivalent to the sun temperature) ?

It is a matter of considerable interest, and very much simplifies our problem, that an ordinary mercury thermometer gives the same reading in a room which has been allowed to reach stable conditions as regards temperature, whether it is screened from the source of radiant heat or not, provided that the source of radiant heat is one of relatively low temperature, such as is obtained with ordinary panel heating obtained by the circulation of warm water in pipes or large flat surfaces. This is because the radiation of low temperatures is practically impervious to glass.

This, however, is not at all true where high-temperature radiation, such as that received from the sun and from white-hot gas fires or electric radiators is concerned. This is really the explanation of the curious phenomenon of the ordinary glass greenhouse, which, as everyone knows, gets extremely hot inside when the sun is pouring down on it, and retains its heat long after the sun has ceased to shine upon it.

A particle of air outside the greenhouse in the sun receives exactly the same amount of radiation from the sun as a particle of air inside the greenhouse. Why, therefore, does the particle outside remain, say, at 70° when the particle inside may be at 100°. In both cases the temperature of any body subject to the radiation goes up until the total quantity of heat received from the sun and all other surrounding objects is balanced by the heat lost to the other surrounding objects, and at first there appears to be no reason whatever why the temperature reached in the two cases should be in any way different. The explanation of this is to be found in the peculiar

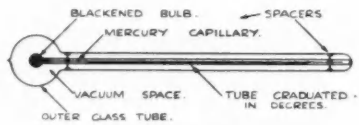


Figure 2 : Solar Thermometer

property of glass in being pervious to high temperature radiation and impervious to low temperature radiation (a phenomenon sometimes referred to as *diathermancy*). The effect of this is that the heat from the sun, being a high temperature radiation, passes through the glass and warms the objects therein contained, which are unable to radiate this heat back through the glass since, being at a low temperature, their radiations are almost impervious to it.

From this it will be seen that the exact meaning of temperature requires a good deal of consideration when problems of heating or air-conditioning are under discussion.

For many years a thermometer known as a *solar thermometer* was employed when it was desired to obtain a reading which included the effect of radiation (see Fig. 2). This thermometer consisted of a glass bulb containing a vacuum, in the middle of which was an ordinary thermometer bulb with a blackened surface. The idea was that the thermometer bulb would not be affected by the air temperature, from which it was insulated by the intervening vacuum, but would receive only radiation, and so would measure the radiant heat only. This gave quite satisfactory readings when applied to the measurement of sun temperatures.

In the early days of panel heating the authors attempted to use such a thermometer to measure the radiant heat from the panels inside buildings, and they found that they got practically identical results with this thermometer as compared with the readings given by an ordinary mercury thermometer. The explanation is again to be found in the fact that though the glass envelope to the vacuum permits high temperature radiation, it is almost impervious to low temperature radiation. What actually happens, therefore, is that the outer bulb takes up exactly the same temperature as the bulb of an ordinary mercury thermometer, i.e., the temperature of the air, and this temperature is gradually transferred into the central bulb, which is screened from the low temperature radiation just as much as the mercury in an ordinary thermometer is screened from it. In other words, it gave exactly the same reading as an ordinary mercury thermometer, but behaved much more sluggishly, and was therefore much more inconvenient to use.

Dr. H. M. Vernon, in his book *The Principles of Heating and Ventilation*, describes a copper globe thermometer of his invention consisting of a 6 in. hollow ball of copper blackened on the outside, with an ordinary thermometer sticking into the middle of it. This, he claims, does receive radiation from low temperature sources and gives readings higher than the air temperature recorded by an ordinary mercury thermometer when in the presence of high or low temperature radiating surfaces, and he shows that with this instrument he obtained temperatures 12·8° F. above those recorded on an ordinary thermometer when 5·8 ft. from a gas fire, which difference came down to 4·6° at a distance of 9·1 ft. when the angle subtended by the fire was much less.

In the case of ceiling panels the corresponding effect was, only 1·6° at a distance of 9 ft. from the panel, and 1·2° 15 ft. away. It should, however, be noted that in a room of, say, 10 ft. clear height, the occupant's head may be as little as 5 ft. from the ceiling panel, and in that case the additional effect of radiation may be much more than 2°.

In a later chapter on the general principles of heating, mention will be made of the *eupatheoscope*, which gives a measure of heat lost by an individual sitting in a room, taking into account the effects of radiation and air temperature. This measures something intimately connected with the comfort of an occupant, and is not a measurer of temperature alone.

Humidity

The humidity of the air may be defined as the quantity of water vapour which it contains, and the *absolute humidity* may be expressed in terms of grains of moisture per cubic foot.

The quantity of water vapour, which can exist in a given volume, depends on the temperature, being far greater at high than at low temperatures.

Table III shows how the number of grains which a cubic foot of air will contain when saturated, varies with the temperature.

If air at a high temperature is more or less saturated with moisture and the temperature is then lowered, it reaches a point where it is unable, at the lower temperature, to contain the same number of grains per cubic foot as before, and the excess moisture is then given up in the form of rain or condensation. The ratio of the quantity of moisture actually contained in the air at a given temperature, to the quantity which would saturate it at that temperature (see Table III) is known as the *relative humidity*. A relative humidity of, for example, 50 per cent. therefore tells us nothing whatever as to the number of grains of moisture per cubic foot, but tells us only that the air at

that particular temperature contains half as much humidity as would have saturated it.

The relative humidity is, however, the condition of air upon which depends, more than anything else, the rate at which evaporation from a moist surface will occur. Thus at 100 per cent. relative humidity no evaporation whatever will occur, while at 50 per cent. relative humidity the evaporation will be rapid. The human body provides such a moist surface, and the evaporation which takes place from it with low relative humidities produces various physiological effects on the body, such as a parchiness in the throat, a cooling effect on the face and hands, especially in the presence of air movement. Too low a relative humidity produces discomfort for these reasons.

Too high a relative humidity produces other signs of discomfort, such as lassitude, which are caused primarily by the inability of the skin to rid itself of moisture and heat.

The normal evaporation from the skin is accompanied by a cooling effect on the body owing to the great heat required to convert water into water vapour (equivalent to approximately 966 B.T.U.'s per lb.) (see also *latent heat*), and it is on this that the cooling effect of a current of air principally depends. With excessive humidity, when this evaporation does not occur, the cooling effect clearly disappears also and discomfort arises at high temperatures.

This explains what travellers in tropical climates have experienced for many years, that a high air temperature with a low relative humidity may be borne with comparative comfort, whilst a considerably lower air temperature in very humid conditions, such as are generally experienced near the coast in tropical countries, may feel very much hotter and lead to great discomfort.

In cold climates the opposite is, however, the case. Air at low temperatures has a greater

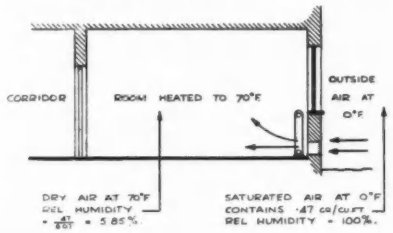


Figure 3 : Showing dryness of air in winter due to heating

feeling of coldness at high relative humidities than at low. It is a matter of common experience that visitors from Canada, who are accustomed to temperatures much lower than those common in England, often experience greater discomfort in our winters than they do in their own, though they generally attribute it more to our inadequate heating installations as compared with those to which they are accustomed, instead of to the higher humidity which is the true cause.

It therefore appears that high relative humidity causes discomfort both at high and low temperatures, in the former case by producing a sensation of extreme heat, and in the latter case of extreme cold. The temperature at which no change in sensation occurs with change of humidity is stated to be 46° F. for still air and 51° to 59° F. for air moving at speeds of 100 to 500 ft. per minute respectively.

Those who are accustomed to spending the winter in Swiss winter sports hotels will have had experience of the effect produced in the evenings, when the temperature outside is about 32° below freezing and the temperature inside about 70° F. Any air entering the rooms comes in perhaps saturated with moisture (see Fig. 3), but saturated at so low a temperature that its absolute humidity is extremely low, and when its temperature is then raised from 0° to + 70° its relative humidity becomes exceedingly low also [5 to 6 per cent. R.H.]. This produces conditions which can fortunately be partially relieved by the consumption of liquid refreshment.

Humidification and De-humidifying

From what has been said it will be clear that in very hot summer weather the hot air from outside coming into a cool building will have its relative humidity raised, and will therefore produce oppressive conditions. Sometimes the relative humidity may be raised to 100 per cent., and condensation will occur.

Comfortable conditions may therefore be produced by some device whereby the temperature and relative humidity may be reduced, and this is known as de-humidifying. Most de-humidifying processes depend on allowing the air to come in contact with very cold surfaces where the excess moisture is deposited, and then slightly warming it again to a comfortable temperature before distribution.

In cold winter weather the opposite occurs. Cold air from the outside comes into a warm room, and is warmed by the heating system to a higher temperature accompanied by a drop in the relative humidity. Parchiness and other similar effects are noticed, and the authors in their practice have come across complaints of throat affections and such much more occult matters as the disappearance of permanent waves in the hair, which seemed to be a matter of great concern to some of the staff of a large and important institution. In such cases there is need for humidification, i.e., for adding to the moisture content of the air. This is generally effected by passing the air through a washer in which it is intimately mixed with water in the form of a very fine spray or mist.

In rough figures, it may be said that to most people a comfortable humidity is between 60 and 70 per cent. combined with a temperature of somewhere between 62° and 66° F.

TABLE III.

GIVING HUMIDITY "G" OF SATURATED AIR, IN GRAINS OF WATER-VAPOUR PER CU.FT. OF AIR AT VARIOUS TEMPERATURES.

°F	"G"	°F	"G"	°F	"G"
30	1·94	60	5·80	90	14·96
32	2·12	61	6·00	91	15·41
33	2·21	62	6·21	92	15·87
34	2·29	63	6·42	93	16·34
35	2·38	64	6·63	94	16·82
36	2·47	65	6·86	95	17·32
37	2·57	66	7·08	96	17·82
38	2·66	67	7·32	97	18·35
39	2·76	68	7·56	98	18·88
40	2·87	69	7·81	99	19·42
41	2·98	70	8·07	100	19·98
42	3·09	71	8·33	101	20·56
43	3·20	72	8·60	102	21·15
44	3·32	73	8·88	103	21·75
45	3·44	74	9·17	104	22·36
46	3·57	75	9·46	105	22·99
47	3·70	76	9·76	106	23·64
48	3·83	77	10·07	107	24·30
49	3·97	78	10·39	108	24·98
50	4·11	79	10·72	109	25·67
51	4·26	80	11·06	110	26·38
52	4·41	81	11·40	111	27·11
53	4·57	82	11·76	112	27·85
54	4·73	83	12·12	113	28·61
55	4·90	84	12·50	114	29·39
56	5·07	85	12·89	115	30·18
57	5·24	86	13·28	116	31·00
58	5·42	87	13·68	118	32·68
59	5·61	88	14·10	120	34·44
VALUES FOR STANDARD ATMOSPH PRESSURE.		89	14·53	BASED ON GODDENOUGH'S TABLE.	

Conduction, Convection and Radiation

It will be important, in the discussions that follow, to understand clearly the difference between the three main methods of transferring heat from one body to another.

Conduction may be described as a heat transfer from one particle to another by contact. If, for example, a hot lump of copper is placed in contact with a cold lump of copper, as in Fig. 4, heat is said to be conducted from the hot to the cold, until the two will finish at an intermediate temperature which may be calculated by equating the total weight times the final temperature with the weight of the hot body times its temperature added to the weight of the cooler body times its temperature. If the two bodies are of different material, then the weight of each has to be multiplied by its specific heat before this calculation can be made.

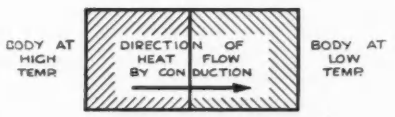


Figure 4 : Conduction

Conductivity is the property of the bodies of being able to conduct heat readily, and the unit of conductivity is the number of British Thermal Units transmitted per degree difference per unit thickness and per unit area.

Table IV gives conductivities of various metals, building materials and insulators, and it will be seen that metals have a high conductivity, while materials like brick have a low conductivity. Certain bodies have such a low conductivity that they are known as *insulators*,

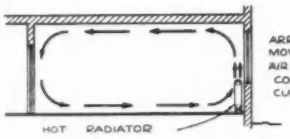


Figure 5 : Convection

and are used for covering warm surfaces to prevent heat losses from them. For convenience Table IV also gives the specific gravity, specific heat and coefficient of expansion of these substances. These terms will be referred to later.

Good conductors of heat are generally good conductors of electricity, though there is no rigid proportion between the two ; but copper, silver, gold and platinum are the best conductors both of heat and of electricity.

Porous materials are bad conductors when

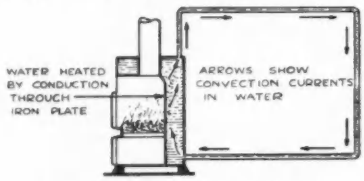


Figure 6 : Convection in Water

dry and good conductors when wet, a fact which is sometimes lost sight of when attempting to warm a newly constructed building, where the heat losses may be far higher in the early months than they will be when it has properly dried out.

Convection is a transfer of heat which involves the movement of hot particles of a fluid medium from a hot body to a cold. A common illustration may be found in the ordinary radiator (so-called) (see Fig. 5). This warms the air immediately in contact with it, which expands, and so becomes lighter than the rest of the air in the room. It consequently rises, forming an upward current from the radiator, and travels to the colder portions of the room, to which it gives up its heat and eventually returns to the radiator for the process to be repeated.

Another example is the heating of water in a boiler, as shown in Fig. 6. The water in contact with the hot plates over the fire becomes heated, expands, and produces an upward circulation, exactly as in the case of the air, eventually returning to the hot plates for the process to be repeated. Convection, therefore, implies a medium capable of movement from the hot body to the cool body to be heated, and cannot occur in vacuum when no such medium exists.

Radiation is a phenomenon with which we are most familiar in its application to the problem of light. For our present purposes it is probably accurate enough to look on radiation as a transference of energy which takes place in rays in such a way that the intensity varies inversely with the square of the distance, and is independent of any substantial medium such as air, i.e., it occurs just as readily across a vacuum as across a room filled with air, and does not depend on warming the medium through which it travels.

The so-called "radiator" transfers its heat partly by convection and partly by radiation, the proportion depending mainly on the shape of the radiator. Those surfaces which give on one another radiate very little to the rest of the room and depend principally on convection. Also, if anything is done to obstruct the free flow of air over the radiator its proportion of convection is reduced. Flat surfaces on the wall, however, such as Rayrads, may have a relatively high proportion of radiation to convection.

In very rough figures, the proportion of radiation to the total heat emission in ordinary radiators may be about 20 per cent., in a wall Rayrad about 50 per cent., and in a heating panel of the ordinary warm-water type on a ceiling about 90 per cent. This shows that the term "radiator" is a misnomer, since approximately 80 per cent. of its heat is transmitted by convection.

Fig. 7 shows the relatively concentrated radiant beam emitted from an electric bowl fire and the diffused radiation from a warmed ceiling panel.

The amount of radiation emitted from a surface depends on its texture and colour. Dead black is the best radiator and polished metal the worst. This effect will be dealt with more fully in a later instalment.

Surfaces which are good radiators of heat are found to be the best absorbers also, thus a black-felted roof is often found to be covered with hoar frost on a cold night, due to its good radiation into space, whereas other surrounding objects may be apparently unaffected. Similarly, a black suit of clothes on a warm day is found to absorb much more heat from the sun than one of white material such as is worn in tropical countries. Similarly, asphalt on a flat roof does not become nearly so hot in summer if painted white.

Time Lag of Buildings

Messrs. Grierson and Betts, in a paper read last month before the Institution of Electrical Engineers, referred to an article published by one of the present authors in August, 1932, in which the total weight of fifteen London buildings is given, from which they conclude, "The heat required to raise the temperature of the structure through 1° F. is some 4·34 times the heat required per hour to maintain the temperature of the structure when the outdoor temperature is at freezing point."

For the following reasons, the figure of 4·34 is probably too high :—

(*a*) That very large portions of the building, such as the whole of the foundations, retaining walls, etc., do not change their temperature when the building is warmed.

(*b*) That a large proportion of the outer walls are unaffected by the rise of internal temperature, and therefore these should be considered as acting only partially.

Nevertheless, even assuming that the amount of heat necessary to maintain the temperature of the structure is equal to one times the amount required to raise it through 1° F., it follows that, with a heating plant of twice the capacity required to balance heat losses

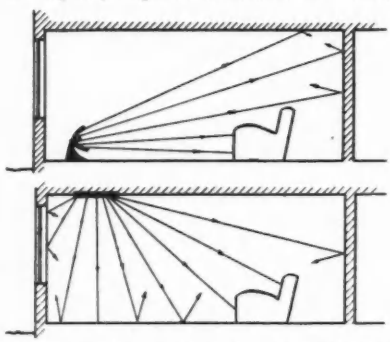


Figure 7 above : Radiation from Electric Bowl-Fire ; below : Radiation from Heated Ceiling Panel

due to external radiation and air changes, the time taken to raise the temperature of the building through 10° would be about 10 hours. This time, however, varies according to circumstances, and depends on—

(*a*) The specific heat and conductivity of the internal surfaces of the building, in other words, the heat storage in the fabric of the building.

(*b*) The capacity of the heating plant, and whether this has a large margin above that required merely to maintain the temperature.

(*c*) The form of heating, whether by panel heating (warm pipes embedded in walls, floors or ceilings), electric radiators, gas fires, hot water radiators, and so on.

Buildings so constructed as to take a long time to heat up or cool down are said to have a high time lag, the time lag varying directly with the heat storage of the fabric and inversely with the output of the heating installation.

A building exposed to severe wintry weather may, for example, have its heating apparatus full on so as to maintain a temperature and balance all the external heat losses. A sudden change in weather conditions may occur, such as one side of the building suddenly being exposed to strong sun radiation or to a sudden rise of external temperature. With some forms of heating it may take some hours before the heating elements can be reduced in temperature sufficiently to prevent a rise of temperature occurring in the building. The total volume of hot water in a radiator system, for instance (which includes all the water in the boilers, mains, radiators, etc.) takes time to cool down. With panel systems the floors, walls or ceilings themselves contain a large quantity of heat which is only dissipated slowly. Electric radiators or gas fires can, however, be turned off immediately, either by hand or by thermostatic control.

Thus the heating system itself also has a time lag dependent on the total heat stored in it. We may perhaps put the various systems in common use in the following order as regards time lag :—

Time Lag of Heating Systems

High time lag—Panel heating with embedded pipes.

Moderate time lag—Hot water radiators and metal panels, water or electrically heated.

Low time lag—Gas fires, electric radiators and steam or vacuum steam systems.

If the heat stored in the fabric of a building is large enough it may actually be an advantage. For example, some cathedrals of extremely massive construction and with very little window openings and air change may have so great a heat storage that the temperature remains practically constant from year to year, the building gradually receiving heat in summer time and dissipating it in winter, so that the whole structure forms an enormous heat accumulator. This is said to be the case in St. Mark's, Venice.

Conditions of this kind must, however, be considered quite exceptional and outside the range of ordinary buildings, where the large windows required for good light and the considerable air changes required for good air ventilation make it necessary for the internal conditions to be readily adaptable to external conditions.

The use of insulation inside the walls of a building reduces the heat storage and the heat losses and therefore enables a heating apparatus of given power to catch up rapidly with any change in conditions. This means that the *building* has a short time lag. In such a case it is essential that the *heating system* also shall have a short time lag, otherwise it will not respond quickly enough.

Specific Heat and the B.T.U. and Calorie defined

The *specific heat* of a substance is the quantity of heat required to raise unit weight of that substance through unit difference of temperature, the specific heat of water being 1·0. See Table IV.

The *British Thermal Unit* (B.T.U.) is the quantity of heat required to raise 1 lb. of water through 1° F. In the metric system the unit of heat is the *calorie* and is equivalent to the raising of 1 gramme of water through 1° C., the *large* calorie being 1 kilogram through 1° C.

Expansion

It will be found that Table IV gives a column

for the *Coefficient of linear expansion* of various materials. This coefficient is defined as the proportional increase in length produced by a temperature rise of 1° F.

Specific Heat and Expansion of Gases

The ideal gas conforms to Boyle's and Charles Laws which state that the volume varies inversely with the pressure when the temperature is constant, and the volume varies directly with the absolute temperature when the pressure is constant. In other words $\frac{PV}{T}$ is a constant where P is the pressure, V is the volume and T is the absolute temperature.

Now the number of degrees Fahrenheit between freezing point and absolute zero is 493 (see Table I). It therefore follows that if a certain volume of gas is contained in an envelope and its temperature is raised through 1° from 32° to 33° F. without altering the pressure, the increase in volume will be $\frac{1}{493}$ of its original volume. This gives a coefficient of expansion of $\frac{1}{493}$, which is approximately 2030×10^{-6}. This coefficient of expansion is known as the *coefficient of cubic expansion* because it represents the increase in volume, and the actual increase in length in a substance which expands in three directions at right angles will be one-third of this, giving a *coefficient of linear expansion* of 677×10^{-6} for air.

If, however, a volume of air at boiling point is raised through 1°, then its absolute temperature being $212 + 461 = 673°$ F., its coefficient of linear expansion is $\frac{1}{3} \times \frac{1}{673} = 495 \times 10^{-6}$. Most gases conform very closely to the properties of the ideal gas when at a temperature remote from their temperature of liquefaction. Ordinary air conforms very closely indeed, but CO_2, which can be liquefied at only moderate pressures and temperature reductions does not conform quite so well.

Gases have two specific heats according as to whether the pressure or the volume are kept constant while the temperature is raised. If the pressure is kept constant then the increase in temperature is accompanied by an increase in volume, and the specific heat at freezing point is ·238. If, on the other hand, the volume is kept constant, then the increase in temperature is accompanied by an increase of pressure, and the specific heat is ·168 at freezing point.

Mechanical Equivalent of Heat

Joule was the first to show, in the year 1840, that heat and mechanical energy are convertible either way. He made experiments in which a measurable quantity of work was performed inside a closed and lagged calorimeter, and by observing the temperature rise of a known weight of material of known specific heat, he was able to discover exactly how much heat corresponded with how much mechanical energy.

The results of these experiments and many which have been conducted since are to show that one B.T.U. is equivalent to 778 ft. lbs., i.e., if the energy released by 1 lb. falling through 778 ft. against a resistance is collected and converted into heat, it will raise the temperature of 1 lb. of water by 1° F. Or, conversely, if the whole of the heat which is released by 1 lb. of water in dropping in temperature through 1° F. can be converted into mechanical energy in an engine of 100 per cent. efficiency, it will raise a weight of 1 lb. through 778 ft., or 778 lb. through 1 ft.

Horse Power

Power is the rate of expending energy and may be expressed in ft. lbs. per minute.

A horse power was supposed to be the average power of the horse in dragging loads and was defined as being the rate of expending energy corresponding to 33,000 ft. lbs. per minute, or 550 ft. lbs. per second. Actually this measure is quite an arbitrary one and does not correspond well with what a horse can do. This, however, is past history, and the horse power in these matters has this clearly defined meaning. It will therefore be seen that a horse power may be expressed in terms of heat and is equivalent to 42·4 British Thermal Units per minute, or 2,544 B.T.U.'s per hour.

It can be shown that an ordinary human being, by maintaining an internal temperature of approximately 98·4° F., emits approximately 400 B.T.U.'s of heat per hour when at rest. This heat goes out partly as radiation and convection, and partly as warm air containing water vapour from the lungs. It will be seen from this that a human being is developing nearly ⅛ h.p. merely by being alive. This is equivalent to the no-load loss of an engine, i.e., the amount of heat expended when the engine is producing nothing.

When a man is doing physical work at the rate of 66,150 ft. lbs. per hour, which is ap-

TABLE IV. PROPERTIES OF MATERIALS.

MATERIAL.	SPEC. GRAVITY (WATER = 1·00)	SPEC. HEAT (WATER = 1·00)	COEFF. OF LINEAR EXPANSION PER 1°F. $10^{-6} \times$...	CONDUCTIVITY: B.T.U.s / 1°F / SQ.FT. / HR / 1" THICK.
COPPER (SHEET)	8·80	·093	9·50	2300·
ALUMINIUM (CAST)	2·55	·210	12·30	1000·
ZINC	7·25	·095	17·00	950·
BRASS (CAST)	8·10	·095	10·50	630·
CAST IRON	7·20	·125	6·17	485·
WROUGHT IRON	7·70	·110	6·60	485·
MILD STEEL	7·85	·117	6·35	320·
LEAD	11·40	·031	15·80	230·
MERCURY	13·60	·033	33·3	45·
GRANITE	2·64	·215	4·4	20·
MARBLE	2·70	·215	6·1	18·5
LIMESTONE	2·50	·217	3·5	15·5
SLATE	2·75	·180	10·8	10·0
CONCRETE (NORMAL 1-2-4)	2·20	·200	5·5	8·0
GLASS (SHEET)	2·60	·195	4·7	5·5
BUILDING BRICK	1·90	·190	1·2	5·0
FIREBRICK	2·40	·200	2·7	4·4
ASPHALTE	1·35	—	—	4·5
LIME PLASTER	0·82	·200	—	3·3
ASBESTOS CEMENT	2·00	·200	5·5	2·7
OAK	0·75	·570	MEAN 2·2	1·4
PITCH-PINE	0·70	530		1·2
FIR	0·50	·460		1·0
SAWDUST	—	—	—	0·9
MOLER BRICK	0·72	·190	0·8	0·6
ASBESTOS BOARD	0·33	·195	—	·48
CELLULAR CONCRETE	0·40	·200	0·8	·45
MAGNESIA 85%	0·31	·230	—	·44
FIBREBOARD	0·30	—	—	·35
CORK BOARD	0·16	·430	—	·32
HAIRFELT	0·16	—	—	·30
CLASS-SILK	0·19	·195	—	·26
ALUMM. FOIL. 3/8" SPACES	* —	—	—	·30
WATER 39°F	1·000	1·004	0·0	4·0
WATER 60°F	0·999	0·9995	36·	
WATER 212°F	0·955	1·005	138·	
AIR [AT NORMAL PRESSURE] 32°F.	0013	CONST PRESS ·238	677	0·156
AIR [AT NORMAL PRESSURE] 212°F.	·00095	CONST VOL ·168	496·	

THE ABOVE FIGURES ARE AVERAGE VALUES AT TEMPS. OF NORMAL USE, AND ARE FROM VARIOUS SOURCES.

TABLE V: VARIOUS PHYSICAL CONSTANTS AND EQUIVALENTS

1 pound (avoirdupois)	= 16 oz.	= 256 drachms	= 7,000 grains
		= 1·21 lb. troy	= ·4536 kg.
1 ton (")	= 2,240 lbs.	= 1·12 tons (U.S.)	= 1,016 kg.
1 kilogramme	= 1,000 gram.	= 15,430 grains	= 2·205 lbs.
1 cubic foot	= 6·236 galls.	= 62·36 lbs. water at 62°	
1 gallon (Imperial)	= 4 quarts	= 8 pints	= 4·55 litres
	= 277 cub. in.	= 10 lbs. water at 62° F.	
1 pint (")	= 20 fl. oz.	= 0·57 litres	= 34·7 cub. in.
1 gallon (U.S.)	= 231 cub. in.	= 0·84 Imperial galls.	
1 litre	= 61 cub. in.	= 0·22 Imperial galls.	
1 B.T.U.	= 1 lb. water raised through 1° F.		
	= 778 ft.-lbs.	= ·252 cals.	
1 calorie (large)	= 1 kg. water raised through 1° C.		
	= 3·97 B.T.U.		
1 B.T.U. per sq. ft.	= 2·71 calories per sq. metre		
1 horse power	= 0·746 kw.	= 33,000 ft./lbs./min.	
	= 2,544 B.T.U./hour		
1 watt	= 1 joule per sec.	= 10^7 ergs. per sec.	
1 kilowatt-hour	= 1 unit = 1,000 watts for 1 hour		
	= 3,415 B.T.U.	= 2,654,000 ft./lbs.	
1 lb. per sq. inch	= 703· kg./sq. metre	= 2·04" mercury	
	= 27·8" water at 62°	= 1,887 ft. air at 62°	
1 ft. water at 62°	= 0·432 lbs./sq. in.	= 0·88" mercury	
	= 816 ft. air at 62°		
Latent heat of water at atm. pr.: Evapn.	= 966 B.T.U./lb.		
Fusion	= 143 " "		

proximately one-thirtieth of a horse power, it has been shown that the amount of heat expended by him goes up to approximately 1,300 B.T.U.'s per hour. Now one-thirtieth of a horse power is equivalent to approximately 85 B.T.U.'s per hour, and it is therefore equivalent to saying that to get 85 B.T.U.'s per hour of useful work out of a man he has to expend 1,300 B.T.U.'s in wasted heat, so that his efficiency is $\frac{85 \times 100}{1,385}$ which is approximately 6 per cent.* A man can exert still more energy for short periods, and will then emit correspondingly greater quantities of heat.

Electrical Energy

Units of electricity and B.T.U.'s are mutually convertible, both being forms of energy, with 3,415 B.T.U.'s equivalent to one unit of electricity. Thus, if one unit of electricity is entirely expended through a resistance in warming water it will warm 3,415 lbs. of water through 1° F., and so on *pro rata*.

Latent Heat

Simple experiments can be devised to measure the quantity of heat supplied to a piece of apparatus in which any particular liquid is gradually warmed and subsequently vaporized, and if experiments of this nature are made on water it is found that to raise the temperature from 32° F. to 212° F. 180 B.T.U.'s are required.

If the supply of heat be continued it is found that the temperature does not increase (assuming the vessel is open to atmosphere), but the water is gradually converted into steam at the same temperature. The experiment will show quite clearly that the amount of heat absorbed to effect this conversion is extremely large in comparison with the heat required to warm the water and in fact it requires 966 B.T.U.'s to convert 1 lb. of water at boiling point into 1 lb. of steam at the same temperature. This figure is variously given as from 966 to 971.

It will be seen that this is approximately 5·37 times as great as the heat required to warm the water from freezing point to boiling, and this gives some idea of the importance of this phenomenon. This large quantity of heat required to convert a unit weight of any substance from the liquid to the vapour state is known as the *latent heat*.

The converse proposition is equally true; when a pound of steam at 212° condenses so as to produce 1 lb. of water at the same temperature 966 B.T.U.'s are liberated. Of all the known substances, water has the greatest latent heat.

The boiling point of water is a function of the pressure; at high pressures this boiling point is greatly raised and, conversely, reduced at pressures below atmospheric. It is often convenient to add the heat required to raise the water from freezing point to the temperature at which it is vaporized to the latent heat of vaporization, and this quantity is known as the *total heat of steam* at that temperature. Thus the total heat of steam at 212 is 966 plus 180= 1,146 B.T.U.'s. Tables of total heat of steam are given for the various pressures in numerous standard textbooks, generally under the heading "Properties of Saturated Steam," and enable many calculations to be performed more easily. It will be found from these that the latent heat becomes less as the pressure increases, whilst at the same time the total heat increases due to the higher temperature and higher specific heat of the vapour.

There is also a latent heat of solidification when water is converted into ice or vice versa. This is generally known as the *latent heat of fusion* as compared with latent heat of evaporation and for water has the figure of 143 B.T.U.'s. Here again it will be noticed that it takes quite a large quantity of heat to melt 1 lb. of ice *without altering its temperature*.

In all problems of humidification and dehumidifying where water is either evaporated or condensed, the latent heat is the principal factor concerned.

Table V is a résumé of various useful physical constants.

(*To be continued*)

* This is lower than that of the worst engine in common use, and should conduce to humility.



A preliminary sketch by Sir John Soane for the Tivoli Corner of the Bank of England, dated 1804. It is preserved in the Soane Museum and reproduced in "The Evolution of the Design of the Tivoli Corner of the Bank of England issued by the Trustees of Sir John Soane's Museum as a protest against any alteration of the design and as a record."

ARCHITECTURAL BOOKS OF THE YEAR

[*BY J. M. RICHARDS, A.R.I.B.A.*]

A LIST of the year's principle architectural books always forms a useful summary of the points on the architectural field on which interest has been chiefly concentrated. A year ago, for example, the records showed a spate of books on slum and housing problems coinciding with the beginning of the Minister of Health's slum-clearance campaign, an interest in town-planning obviously induced by the previous year's Town and Country Planning Act, and a huge number of books, of all degrees of scholarship, on British painting, published in anticipation of the Burlington House exhibition in the early part of 1934.

The past year's list, examined on the same principles, reveals one outstanding subject—Industrial Design, interest in which has been steadily accumulating throughout the year; it also reveals one general characteristic, exemplified in its clearest form by the subject of Industrial Design but by no means confined to it—visible, in fact, through the whole list. This encouraging characteristic is that the past year's books are aimed, as never before, to interest the general public as well as the architectural profession; more, they are aimed (in their understanding of popular needs and limitations if not in their price) to influence the mass of public opinion instead of merely to flatter already informed opinion. This renewed and healthy contact between architecture and the public (or, rather, between design and the public; for no contact of this sort can even be initiated until the public appreciates architecture as a form of technical design instead of as the practice of some esoteric ritual) shows every sign of becoming a permanent awakening of interest. It was encouraged, it is true, in this particular year by such events as the R.I.B.A. centenary celebrations and the sustained publicity given to housing prob-

lems, but the layman *is*, it seems, becoming aware of an architecture that vitally affects himself and his contemporaries; an architecture that does not merely, as formerly, cherish the leavings of his ancestors.

In the field of Industrial Design he is beginning to realize that the law of supply and demand under which he has suffered so long and so meekly does not compel him to accept the manufacturer's supply; rather it compels the manufacturer to listen to his (provided it is reasonable and articulate) demand.

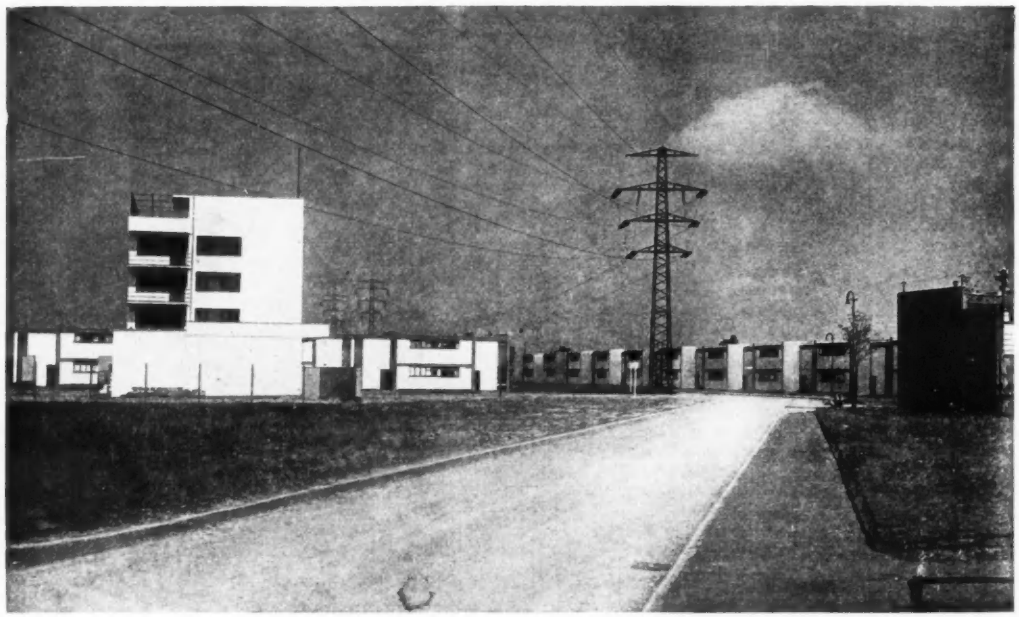
Good design is not—cannot, by definition, be—impractical, nor is it expensive (though both public and the majority of manufacturers have habitually considered it so); and this has been demonstrated to them, by argument and example, in several of the past year's books. Of these by far the most authoritative, both in the completeness with which the historical background has been studied and the thoroughness with which the aptest illustrations have been sought, is Herbert Read's *Art and Industry*. It brings to this subject for the first time a real critical scholarship: if a professorial chair of industrial design ever comes to be established Mr. Read will be the man to fill it. There is one criticism that could be made of his book: that its rather eccentric format seems to belong to the category of merely fashionably "modern" design instead of to the category of rationally good design. In fact, as an example itself of industrial design, the book does not seem altogether to practise what the author preaches. Other books on the same subject are *Design in Modern Life*, a record of a number of first-class broadcast talks, edited by John Gloag; perhaps the best of them from the point of view of immediately apprehensible public propaganda but far too expensive for that purpose, the same writer's own book, *Industrial Art Explained*—a sound popular exposition; and one less admirable, *Industrial Art and the Future*, by Geoffrey Holme, in which artiness rather than art appears to be the author's aspiration. Another having symptoms of the latter defect is the 1934 *Studio Year Book of Decorative Art*, which contains as many examples as ever of sound modern design but destroys the encouraging effect they might have by its whimsically heretical introduction, by Mr. John de la Valette, under the title "Back To Decoration." Closely allied with the foregoing books in kind may be added *Modern Furnishing and Decoration*, by Derek Patmore, in whose title the word "modern" might have been replaced by "fashionable," *Colour in Everyday Rooms*, by Basil Ionides, containing





Top: an inn of the Regency period, with a stucco façade (about 1810); the Royal Clarence, Bridgewater, Somerset. From "The Old Inns of England," by Professor A. E. Richardson.

Bottom: an illustration of the application of the American set-back laws, providing justice in light for all owners, 100 Wall St., New York City, by Ely Jacques Kahn. From "Building to the Skies," by Alfred C. Bossom.



The modern scene: housing at Dessau; architect, Walter Gropius. From "The Modern House," by F. R. S. Yorke.

naïvely helpful advice for the amateur, and the last volume of that admirable achievement, *A History of Everyday Things in England* by Marjorie and C. H. B. Quennell. This final volume, Part IV, 1851-1934, must have been by far the most difficult part from the point of view of preserving a suitable balance among a continually more complicated range of subjects. The book represents real pioneer educational work in invitingly inducing an intelligent lay interest in the appearance of things.

In the same way that the study of Design in Industry is linked with the improvement of it, interest in the countryside is largely directed towards its preservation. This subject is approached in one of two ways: either directly, presenting schemes and suggestions for rural preservation, or indirectly, by simple description and advocation of rural advantages in which the need for their preservation is implied merely by emphasis on their value. The latter class, to which the books for popular sale generally belong, constitutes in most senses a literature of escape; but it is ultimately little the less constructive for that—one of the best ways of inducing a sense of responsibility for irreplaceable national possessions is by establishing a fondness for them sufficiently intense to overcome the apathy that is often all that stands in the way of their defence. In the first category, that of active rural preservation—including the preservation of rural life as well as rural scenery—are the *Cambridgeshire Regional Survey* and the *Somerset Regional Survey* and *Ryedale*, published by the Ryedale branch of the C.P.R.E., all good examples of their kind; also, included under the heading "preservation," but urban instead of rural in subject, and published too late for any action but regret, is *The Evolution of the Design of the Tivoli Corner of the Bank of England issued by the Trustees of Sir John Soane's Museum as a protest against any alteration of the design and as a record*, a most interesting, though saddening, pamphlet. In the category of "escape"—escape from a complicated and changeful existence into the restful atmosphere of permanence that antique and rural England provides—typical examples are the several volumes in Messrs. Batsford's English Heritage Series. Among these are *The Cathedrals of England*, by Harry Batsford and Charles Fry, *The Heart of Scotland*, by George Blake, *The Old Inns of England*, by Professor A. E. Richardson, and *English Villages and Hamlets*, by Humphrey Pakington. They are all magnificently illustrated and show a high standard of taste in selection and adequate knowledge of their subject—in the case of Professor Richardson's book, far more than adequate knowledge and stimulating literary presentation. They all suffer from unfortunate arty wrappers—only a detail, perhaps, but one that is apt to give a misleading impression of the sensibility and seriousness of their contents. To these we must add, in the same category, *Famous London Churches*, by C. B. Mortlock (with illustrations by Donald Maxwell), a new edition of *Oxford Renowned*, by L. Rice-Oxley and (with more specialized originality) *The Monastic Remains of Norfolk and Suffolk*, by Claude F. W. Messent. Most in this category so far are susceptible to the criticism that their interests are pictorial rather than realistic, that they are content to be guide-books to the appearances of things rather than analyses of the growth of things—but then a literature of escape must avoid all mention of growth. In the same category but without this limitation (though it is the only one that calls itself a guide) is the *Shell Guide to Cornwall*, compiled by John Betjeman, which contains all the practical information a guide-book should, as well as an immense quantity of the kind of recondite intelligence that makes a neighbourhood vital and exciting to the curious visitor. Allied in classification to the former books, but of an altogether different degree of scholarship, permanence and authority, are new volumes in three important series. These series are so well known that their admirable qualities do not need to be enumerated here; it is sufficient to say that they fully live up to the standards that have already been set. The volumes are: *The Royal Commission on Historical Monuments: Herefordshire, Vol. III, North-West; The L.C.C. Survey of London: Vol. XV, The Parish of All Hallows, Barking;* and Vol. VIII of the publications of *The Wren Society*.

There is one more category in which the layman shows signs of awakening interest where interest had hitherto been confined to the architect: that is in the contemporary house—contemporary being intended not only in the chronological sense, but as really trying to provide an answer to contemporary problems of living. In this class, two important books have been published. F. R. S. Yorke, in *The Modern House*, presented the best anthology that had been seen of rationally conceived domestic work from many countries. He offers his examples always as answers to a number of conditions, not as appeals to domestic prejudice. The houses are thoroughly illustrated and the information conveniently tabulated. The introduction is a sensible enunciation of the pragmatic approach to design, even admitting the inevitable abdication of the individual house from its traditional position as the only desirable unit of accommodation. The other excellent book on the same subject is *Twentieth Century Houses*, by Raymond McGrath. This is an extremely thorough and knowledgeable work; slightly different in aims from the other, more evolutionary in its emphasis. It is also important as representing the first ambitious use of Basic English in architectural writing. Architecture presented to the layman in an appealing as well as enlightened way is

represented by *Architecture Here and Now*, by Clough Williams Ellis and J. N. Summerson; also, to a more academic lay public, Professor H. S. Goodhart-Rendel's *Fine Art*—his Slade Lectures reprinted—which contains interesting æsthetic analysis, though it has a certain thinness from which all reprinted lectures are apt to suffer. *Building to the Skies*, by A. C. Bossom, is a well illustrated account of the development of skyscraper design in the United States of America.

Of books more particularly for the architect, many remain: *The Design of Residential Areas*, by one of our greatest authorities on town-planning, Thomas Adams, is an important contribution to town-planning literature. *English Romanesque Architecture After the Conquest*, by A. W. Clapham, is a first-class analytical and historical work, as is *Eighteenth Century Architecture in South Africa*, by G. E. Pearse. With these must be classed *Byzantine Architecture and Decoration*, by J. Arnott Hamilton. A scholarly study of not easily available material, beautifully produced, is *Regency Furniture*, by M. Jourdain.

In the technical field, the following should be mentioned: *Modern Acoustics*, by A. H. Davis, though dealing with a subject of architectural importance, a scientific work really beyond the scope of the ordinary architect; *Examples of Steel Design Under the New Code of Practice*, by Dr. Oscar Faber, an admirable textbook whose title explains itself, and *Modern Practical Building*, by H. B. Newbold, a monumental work for the student of building practice.

If not strictly architectural there are three books whose matter is of great importance to the architect: *Housing and Slum Clearance in London*, by Hugh Quigley and Ismay Goldie, containing a particularly good account of present depressing conditions; *The Becontree Social Survey*, by Terence Young, a skilful analysis of the world's largest municipal housing estate, and two further volumes of that invaluable work, which again needs no special recommendation from me, the London School of Economics' *New Survey of London Life and Labour*.

Remaining are a number of books that fall into no special category: *Modernismus*, by Sir Reginald Blomfield, a skilful though unavailing piece of dialectic that might be summed up as King Canute deliberately putting the telescope to his blind eye; *Cecil Rhodes*, by Sir Herbert Baker, autobiographical reminiscences of an exceptional personality; *Ancient Architecture*, a talented and entertaining architectural history, written in verse and appropriately illustrated by the late Chester H. Jones; *Architecture in English Fiction*, by W. H. Smith, an extremely thorough historical study that comes from an American university, on a minutely particular but intensely interesting architectural subject (the title is rather misleading): the mutual influence of the Gothic revival and English romantic literature of the same period. Finally, there is the slightly pedestrian but thoroughly informative record of the career of the Institute (a suitable book with which to conclude this summary, since the centenary celebrations that occasioned the book's publication provided at the same time the most typical and the most notable events of the architectural year): *The Growth and Work of the R.I.B.A.*, edited by J. A. Gotch.

THE PROGRESS OF THE SLUM CLEARANCE CAMPAIGN

[*By PHILIP H. MASSEY*]
B.Sc.(Econ.), F.R.Econ.S.

THE intention of this article is to show the progress which has been made so far in connection with the slum clearance campaign. Local authorities in England and Wales which are housing authorities were instructed by the Minister of Health in Circular 1331 to prepare programmes of action to be taken under the Housing Act, 1930, to secure the demolition of all slum houses. In response to the circular, programmes were received by March 9, 1934, providing for the demolition of 266,851 houses and for the building of 285,189 houses in replacement. The number of persons to be rehoused was estimated at 1,240,182. (See Cmd. 4535 of 1934 and THE ARCHITECTS' JOURNAL for March 22, 1934, pages 418-19). It is a little doubtful when the work in connection with the "campaign" was intended to date from—there are reasons for suggesting October 1, 1933, or January 1, 1934, or April 1, 1934, as the date.

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The statistics contained in Tables III–VI of the recent Ministry of Health Statement "showing for the period up to September 30, 1934, the number of houses provided with State Assistance, the number of houses provided without State Assistance, the progress made in carrying out slum clearance programmes, and certain other particulars relevant to the housing activities of Local Authorities" unfortunately relate only to the half-year ending September 30, 1934, and the whole period from the passing of the Act to that date. There are available, however, a few figures of an official nature covering the whole year October 1, 1933, to September 30, 1934, and a special enquiry has been made for figures covering this period, and also the period up to December 31, 1934, from the officials of twelve cities.

The following figures have been compiled from the Statement. It has been thought desirable to show the figures in the form "Up to March 31, 1934," and "Half-year ending September 30, 1934," instead of in the exact form of the Statement.

RESOLUTIONS DECLARING AREAS TO BE CLEARANCE AREAS OR IMPROVEMENT AREAS

	Up to Mar. 31, 1934	Half-year ending Sept. 30, 1934
Number of clearance areas and improvement areas declared (local authority resolutions)	2,472	1,448
Number of houses to be demolished as a result of above	49,612	23,434
Number of persons to be displaced as a result of above	228,095	97,714

CLEARANCE ORDERS AND COMPULSORY PURCHASE ORDERS SUBMITTED TO THE MINISTER OF HEALTH

	Up to Mar. 31, 1934	Half-year ending Sept. 30, 1934
Number of Orders submitted to the Minister ..	1,405	1,452
Number of houses to be molished specified in schedules to the Orders submitted	31,094	26,935

CLEARANCE ORDERS AND COMPULSORY PURCHASE ORDERS CONFIRMED BY THE MINISTER OF HEALTH

	Up to Mar. 31, 1934	Half-year ending Sept. 30, 1934
Number of Orders confirmed by the Minister ..	899	802
Number of houses to be demolished specified in schedules to the Orders confirmed	23,066	11,383
Number of persons to be displaced as a result of above*	108,177	52,908

* In addition, up to September 30, 1934, terms had been arranged by local authorities for purchase by agreement of 2,213 houses in 104 clearance areas—number of persons affected, 11,545.

It is noteworthy that the average number of houses contained in the schedules to the Orders confirmed during the half-year ending September 30 is approximately half the average number contained in schedules to Orders confirmed in the period to March 31.

REHOUSING PROPOSALS APPROVED BY THE MINISTER OF HEALTH

	Up to Mar. 31, 1934	Half-year ending Sept. 30, 1934
Number of houses in proposals approved ..	32,691	22,303

The statistics in the four tables above relate, of course, merely to work

intended to be done. The following tables show work *done.*

	Up to Mar. 31, 1934	Half-year ending Sept. 30, 1934
Clearance Areas		
Houses demolished ..	8,704	4,398
Persons displaced	43,613	20,537
Improvement Areas		
Houses demolished ..	228	28
Persons displaced by demolition of houses or to abate overcrowding ..	1,430	449
Individual Unfit Houses		
Houses demolished as a result of formal procedure or informal notices	13,260	4,548
Parts of buildings closed ..	1,832	464
Houses in respect of which undertakings not to use for human habitation were given	3,540	740
Persons displaced from houses demolished as a result of formal procedure or in part closed	46,066	14,491

(The figures for houses in improvement areas made fit and for individual houses made fit as a result of formal procedure or informal notices are omitted here.)

Summary of above

	Up to Mar. 31, 1934	Half-year ending Sept. 30, 1934
Houses demolished, closed or not to be used for human habitation (including buildings of which parts have been closed)	27,564	10,178
Persons displaced as a result of formal procedure under the 1930 Act	91,109	35,477

REHOUSING ACCOMMODATION COMPLETED

	Up to Mar. 31, 1934	Half-year ending Sept. 30, 1934
Number of houses (for rehousing persons displaced under the 1930 Act) completed ..	17,569	9,357
Number of persons accommodated ..	83,689	44,552

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The following figures were given by Lord Hailsham in a speech made in the House of Lords on November 20, 1934 :—

Houses demolished, year ending September, 1934	15,749
Houses built and finished in replacement, year ending September, 1934 ..	15,058
Houses under construction at end of September	19,311

Sir Hilton Young, in the House of Commons two days later, stated that at the end of September houses were being cleared at the rate of over 50,000 a year.

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Some weeks ago I addressed a letter of enquiry to the twelve cities in England and Wales which were dealt with in the Slum Survey appearing in this JOURNAL, June 22 to October 26, 1933. Replies are available from eight of the cities. The information received, which was not in all cases precisely along the lines of my letter of enquiry, is included below, together with the populations of the respective cities in 1931, the numbers then living at over 3 and over 1½ per room, and the slum clearance programmes of the cities as shown in Cmd. 4535.

BIRMINGHAM

Population at 1931 Census 1,002,603
Number of persons living (in 1931) :—
Over 3 per room 11,455
Over 1½ per room 180,746

SLUM CLEARANCE PLAN

4,500 houses to be demolished.
19,350 persons to be rehoused.

SLUM CLEARANCE WORK CARRIED OUT OCTOBER 1, 1933, TO SEPTEMBER 30, 1934

Houses demolished	427
Persons involved	1,870
Houses provided	494
Persons accommodated	2,252

Of the 427 houses demolished during this period,
120 were in Clearance Areas,
65 were in an Improvement Area,
242 were Individual Representations.

The following statistics, showing the *whole* of the work carried out by the City Council under the 1930 Act to the end of September, 1934, are also available.

SLUM CLEARANCE WORK CARRIED OUT FROM THE PASSING OF THE 1930 ACT TO SEPTEMBER 30, 1934

1. As to Areas :—

(a) Compulsory Purchase Orders.	Areas Confirmed ..	5
	Habitations ..	394
	Persons	1,682
	Areas awaiting enquiry	6
	Habitations ..	203
	Persons	926
(b) Clearance Orders.	Areas Confirmed ..	13
	Habitations ..	366
	Persons	1,525
	Areas awaiting enquiry	24
	Habitations ..	738
	Persons	3,062
(c) Improvement Area.	Area Confirmed ..	1
	Habitations ..	149
	Persons	698

2. As to Individual Unfit Houses :—

Habitations represented	1,315
Persons involved	about 5,825

LIVERPOOL

Population at 1931 Census 855,688
Number of persons living (in 1931) :—
Over 3 per room 20,515
Over 1½ per room 215,965

SLUM CLEARANCE PLAN

11,937 houses to be demolished.
59,685 persons to be rehoused.

SLUM CLEARANCE WORK CARRIED OUT OCTOBER 1, 1933, TO DECEMBER 31, 1934

Houses demolished	126
Persons involved	580
Houses provided	218
Persons accommodated	1,400

In addition to the above, following is a summary of new dwellings completed or under Contract at December 31, 1934 :—
Central Sites 14 houses and 1,295 flats
Outskirts 775 houses
Total, 2,084

SHEFFIELD

Population at 1931 Census 511,757
Number of persons living (in 1931) :—
Over 3 per room 7,679
Over 1½ per room 106,314

SLUM CLEARANCE PLAN

9,000 houses to be demolished.
40,500 persons to be rehoused.

SLUM CLEARANCE WORK CARRIED OUT OCTOBER 1, 1933, TO SEPTEMBER 30, 1934

Houses demolished	888
Persons involved	3,954
Houses provided	955
Persons accommodated	3,954

BRISTOL

Population at 1931 Census 397,012
Number of persons living (in 1931) :—
Over 3 per room 3,681
Over 1½ per room 58,955

SLUM CLEARANCE PLAN

2,900 houses to be demolished.
15,212 persons to be rehoused.

SLUM CLEARANCE WORK CARRIED OUT OCTOBER 1, 1933, TO SEPTEMBER 30, 1934

Houses demolished	418
Persons involved	2,081
Houses provided	360
Persons accommodated	1,800

OCTOBER 1, 1933, TO DECEMBER 31, 1934

Houses demolished	518
Persons involved	2,381
Houses provided	423
Persons accommodated	2,115

PROGRESS WITH REHOUSING TO OCTOBER 31, 1934

Number of houses within confirmed and operative Clearance Areas ..	558
Number of houses subject to Demolition Orders	486
	1,044

116 of these houses were empty when orders became operative. The remaining 928 houses were occupied by 1,165 families, of which 735 have been rehoused by the Corporation, and 289 found alternative accommodation for themselves. 141 families were still in occupation at the above date. 212 other overcrowded families with low incomes had been accommodated (200 in houses provided under the 1930 Act and 12 in flats with one bedroom each).

Of the 1,044 houses within confirmed and operative Clearance Areas or subject to Demolition Orders, 689 had been demolished at October 31, 1934, and instructions for demolition had been issued respecting a further 93.

Summarizing :

782 houses (including a number empty when orders were made) had been demolished.
735 houses and flats had been provided.

LEEDS

Population at 1931 Census 482,809
Number of persons living (in 1931) :—
Over 3 per room 7,498
Over 1½ per room 97,507

SLUM CLEARANCE PLAN

30,000 houses to be demolished.
111,000 persons to be rehoused.

SLUM CLEARANCE WORK CARRIED OUT OCTOBER 1, 1933, TO DECEMBER 22, 1934

Houses demolished	545
Persons involved	1,946
Houses provided	729
Persons accommodated	3,603

HULL

Population at 1931 Census	313,544
Number of persons living (in 1931) : —	
Over 3 per room	4,992
Over 1½ per room	65,151

SLUM CLEARANCE PLAN

3,216 houses to be demolished.
13,346 persons to be rehoused.

SLUM CLEARANCE WORK CARRIED OUT OCTOBER 1, 1933, TO DECEMBER 31, 1934

Houses demolished	518
Persons involved	2,246
Houses provided	436
Persons accommodated	1,878

HOUSING WORK UNDER THE 1930 ACT FROM THE PASSING OF THAT ACT TO DECEMBER 1934

Houses demolished	1,336
Persons involved	5,408
Houses provided	1,301
Persons accommodated	5,785

NEWCASTLE

Population at 1931 Census	283,156
Number of persons living (in 1931) : —	
Over 3 per room	25,876
Over 1½ per room	110,423

SLUM CLEARANCE PLAN

2,253 houses to be demolished.
21,363 persons to be rehoused.

SLUM CLEARANCE WORK CARRIED OUT OCTOBER 1, 1933, TO SEPTEMBER 30, 1934

Houses demolished	131
Persons involved	1,103
Houses provided	252
Persons accommodated	1,143

OCTOBER 1, 1933 TO DECEMBER 31, 1934

Houses demolished	312
Persons involved	2,736
Houses provided	610
Persons accommodated	2,754

CARDIFF

Population at 1931 Census	223,589
Number of persons living (in 1931) : —	
Over 3 per room	1,737
Over 1½ per room	36,785

SLUM CLEARANCE PLAN

203 houses to be demolished.
818 persons to be rehoused.

SLUM CLEARANCE WORK CARRIED OUT OCTOBER 1, 1933, TO SEPTEMBER 30 DECEMBER 31, 1934

Houses demolished	Nil
Persons involved	Nil
Houses provided	Nil
Persons accommodated	Nil

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The purpose of this article has been to present the available facts in connection with the progress of the slum clearance campaign. Nothing is being said as to adequacy of the programme, but an endeavour will now be made to estimate the likelihood of that programme being carried out.

In England and Wales as a whole, over 15,000 houses were completed in replacement of houses demolished during the year ended September 30, 1934 ; more than 9,000 of these houses, accommodating nearly 45,000 people, were completed in the latter half of the year. An average rate of about 57,000 houses a year, over the whole five years, was needed if the programme was to be completed. If the year ending September 30, 1934, is to be regarded as the first year of the five, then the average rate for the remaining four years must be increased to 67,500 in order to make good the deficiency of the first year. And unless this speed is achieved in the second year, the necessary speed in the remaining years will have to be still higher.

If the half-year ending September 30, 1934, is to be regarded as the first half-year of the scheme, the difficulties are not so great ; the average speed over the remaining four and a half years would then have to be only a little over 60,000.

Returning to the cities, if October 1, 1933, is to be regarded as the commencing date for work under the special impetus of the "campaign"—

Birmingham and Sheffield had each carried out about one-tenth of their respective programmes by the end of the first year.

Bristol, Hull and Newcastle have each carried out about one-seventh in fifteen months.

Neither Liverpool nor Leeds have completed as much as 4 per cent. of their respective programmes in fifteen months.

(Cardiff has not yet embarked on her small programme.)

If we take a year to read six months, and fifteen months to read nine, which may, perhaps, be regarded as a more correct view, the first five of the above cities appear likely, without much acceleration, to complete their programmes in five years.

REVIEW OF THE YEAR

[*BY ASTRAGAL*]

MORE has been written and talked about modern architecture in 1934 than in previous years. Hearing and understanding the views of the older generation, which has opportunities for building, and hearing and sympathizing with the views of the younger generation, whose opportunities are less abundant but more ably used, I realize that two distinct forms of civilization are fighting for mastery in this country. Architecture, as always, is illustrating the social and economic and cultural forces of the time, and the flat roof *versus* gables (or even battlements) controversy, which disfigures the otherwise intelligent deliberations of responsible authorities, is symbolic of profound changes which are struggling for expression in the things which are seen. This struggle is not confined to architecture ; it is breaking through in every section of design ; and it has the authentic potency of life, not the bubble structure of fashion.

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The spate of books about architecture and design is now comparable in volume to that earlier torrent which affected the taste of the pre-war and post-war public, and which overwhelmed contemporary ideas in old world lore. By articles, by broadcast talks, by exhibitions, the public is being hustled into at least a superficial interest in the modern movement ; and the wider aspects of design have been dragged into prominence, not only by publicists, authors and prominent architects, but by the popular press ; and more people have become aware of the absence of plan, which is a very healthy state for the public mind, and one that may lead, through dissatisfaction, to constructive remedies. 1934, being the first year of the Registration Act, has been the first year in which the architect can officially claim his place as the director of design in all its branches. He is still a long way from his eighteenth-century predominance, but the considerable increase in the number of competitions, not only for building, but for industrial problems of design, indicates a growing disposition to regard the architect as a valid authority.

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Perhaps I am just indulging in wish-fulfilment by writing those last sentences ; but the inclination of the immensely varied patronage of today is so often favourable to the architect. Some of the competitions have brought out very forcibly the conflict of culture that is complicating the pattern of society, and of these perhaps the Bexhill competition is the most outstanding, and the most provocative. It was won by that brilliant partnership, Chermayeff and Mendelsohn, and it demonstrated that England could possess, if authorities had the courage, a seaside resort comparable in civilized amenities with anything the Continent could show. Bexhill may be the funeral of the Marine-Parade composition of asphalt, cast-iron bandstands and public lavatories in stucco and half-timber which is characteristic

of nine-tenths of England's watering places.

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The possibility of accelerating slum-clearance and housing in London was increased, according to some of my optimistic friends, by the return of a Socialist London County Council, after a concentrated press campaign had raged to warn Londoners of the horrors that would follow a Socialist victory. Nothing in particular seems to have followed the dust of the battle, except one very little cloud of dust raised by the pick of the Leader, Mr. Herbert Morrison, seeking to prove to the world that he was a dyed-in-the-wool realist by striking the first blow in the demolition of Waterloo Bridge. His rejection of Sir Owen Williams' scheme for rebuilding the bridge proved him to be less realistic than his dramatic publicity suggested, for had he adopted it he might have had some extra thousands in hand to devote to slum clearance.

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Slum clearance and the rehousing of slum-dwellers still hangs fire, although the public is anxious that this disgrace to our civilization should be ended. The representatives of the people, in Parliament assembled, have not yet been able to legislate effectively for the solution of this problem, although money is being poured out on vast blocks of expensive (and ultimately un-lettable) flats and office buildings, notwithstanding the glut of such accommodation. But banks and insurance companies, frantically seeking investment for their surpluses, favour the financing of such enterprises; so that 1934 has found us with an increasing amount of unoccupied accommodation side by side with inhuman and disgusting overcrowding in buildings unfit for habitation. This, I suppose, must be credited to the English genius for compromise.

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Never before in the history of housing have technical ability and knowledge of planning been at a higher level, and the tentative experiments that have been made in new forms of residential accommodation (such as the Lawn Road flats in Hampstead by Wells Coates) are only preliminary hints of the clean, airy, healthy life that financial vision could empower the architectural profession to devise for thousands of English families. The Ideal Home Exhibition in the spring, and the Building Exhibition in the autumn, both illustrated the vast advances in equipment for compact, labour-saving existence that have been made. Incidentally, the design and layout of the Ideal Home Exhibition has improved yearly for some time and it reached a higher standard than ever this year. The Building Exhibition, unfortunately, still favours the highly competitive individualism that makes what might be a demonstration of progress in building technique and materials merely a distracting confusion. More firms now employ architects to design their stands; but I heard more suggestions this year about the desirability of group exhibits for simplifying the formidable task of inspecting such a rich array of exhibits.

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It has been a year of engineering feats. First, the completion of the Mersey Tunnel, then the opening of the Empire Swimming Pool at Wembley, and then the launching of the *Queen Mary*. I don't know whether one can count the Belisha beacons under the heading of engineering feats or whether they are just indications of our political inability to diagnose our social diseases; but to administer them to London is like giving liver pills to a man with a pair of badly fractured legs and hoping for the best. The Minister of Transport has displayed activity, but activity without plan is more distressing than inertia.

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But plan is coming piecemeal to the world, as the Exhibition of International Architecture at the new R.I.B.A. building suggested. Other countries are getting it in stronger doses than England; but the blue print for a new culture and a new society was displayed in the spacious and urbane rooms of Mr. Grey Wornum's building. The opening of that building by the King and Queen and the interest of the Royal patrons of the R.I.B.A. in this vast national matter of design has done much to strengthen the authority of the architectural profession; and to H.R.H. The Prince of Wales the young generation of architects may owe much if they come to be recognised by industry as the technicians of design.

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The Ruislip and Chipperfield cases indicate the nature of the obstacles the young generation has to overcome in architectural design. Industry, unhampered by any semi-educated allegiance to traditional forms, may encourage more liberty and experiment than are yet permitted in building. Meanwhile there is a lot of talk about the modern movement and very little of it to be seen standing up in three dimensions in England.

Architecture has sustained two severe losses by the deaths of Beresford Pite and Raymond Hood. Both belonged to an old and revolutionary generation, both had the disturbing power of being able to say, in the face of polite academic certitudes: "Why not try something new?" Beresford Pite influenced the thinking of innumerable young men and made it more robust. Raymond Hood influenced the architectural technique of a continent. Enterprise and organisation lost a friend in Sir Robert McAlpine. But one death has occurred in 1934 which enables me to write an obituary notice with pleasure: it is the death of the belief that the modern movement is only a passing stunt.

THE BUILDINGS ILLUSTRATED

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue:—

Warehouse in Blackfriars (pages 49-53). General contractors, Melville Dundas and Whitson, Ltd. Sub-contractors: Paint and Cellulose Spraying Co., Ltd., painting; F. Braby & Co., Ltd., steel sashes; Pilkington Bros., Ltd., glass; F. and E. Eastman, floor tiling; Stuart's Granolithic Co., Ltd., granolithic; General Asphalte Co., Ltd., asphalte; John Booth and Sons (Bolton), Ltd., steel fire doors and roller shutters; Geo. W. King, Ltd., window cleaning gear; George Jennings (Lambeth), Ltd., sanitary works; Plastering, Ltd., plastering; Waygood-Otis, Ltd., collapsible gates; Chimneys, Ltd., chimney linings; Stourbridge Glazed Brick and Fireclay Co., Ltd., brine tanks.

House at Bognor Regis (pages 59-61). General contractors: Pell and Clayton. Sub-contractors: Frederick Braby & Co., Ltd., windows and doors; J. A. King & Co., Ltd., glasscrete panels; Thomas Potterton (Heating Engineers), Ltd., electric hot-water system.

Endsleigh Court, Upper Woburn Place, W.C. (pages 62-64). General contractors, Richard Costain, Ltd. Sub-contractors: Banister, Walton & Co., steel; Diespeker & Co., floors; Crittall Manufacturing Co., windows; Norris Warming Co., heating; E. Marshall & Co., sanitary fittings; Waygood-Otis, Ltd., lifts; Somerville & Co., stonework; Caston & Co., lift enclosures; F. A. Norris & Co., iron staircases; Pringle Art Metal Co., iron gates; Inlaid Ruboleum Co., Ruboleum floors; Ramsden's, terrazzo; Haywards, Ltd., lantern lights and lay lights; Chas. Walker & Co., marble work; Peerless Kitchen Cabinet Co., kitchen cabinets; Watson and Marsh, electric light.

Rossmore Court, Park Road, N.W.1 (pages 87-89). General contractors, Sir Robert McAlpine and Sons, Ltd. (London). Sub-contractors: Teesside Bridge and Engineering Works, Ltd., steelwork; Tondu Brickworks & Co., Ltd., bricks; Girlings Ferro-Concrete Co., Ltd., artificial stonework and gas flues; Dixon Powner and Sons, and F. A. Norris & Co., Ltd., ironwork; Hammond Bros. and Champness, lifts; Richard Crittall & Co., heating, hot water and ventilation; Matthew Hall, Ltd., plumbing and drainage; Diespeker & Co., Ltd., floors, terrazzo and precast stairs; Mather and Platt, Ltd., roller shutters and sprinklers; W. J. Maddison, Ltd., joinery and kitchen fittings; J. Whitehead and Sons, Ltd., marble work; Shanks & Co., sanitary fittings; Crittall Manufacturing Co., metal windows; Electrical Installations, Ltd., electric light and power; Electrolux, Ltd., refrigerators; J. W. Gray and Sons, Ltd., lightning conductors; Carter and Aynsley, door furniture; Sliding Doors Manufacturing Co., sliding doors; D. Burkle, panelling; H. and F. Badcock, fibrous plaster; Bratt Colbran, Ltd., fireplaces; Morgan Brown, Ltd., refuse bins; St. Dunstan's, mats; Smiths English Clocks, electric clock; Orb Tile and Flooring Co., composition flooring; Cellulin Flooring Co., bathroom flooring; Maple, Ltd., show flats; A. Bagnall and Sons, painting; Tangye, Ltd., air compressor and car hoist; S. F. Bowser & Co., petrol pumps; Ragusa Asphalte Co., asphalte.

LETTERS FROM READERS

F. R. JELLEY, A.R.I.B.A.

ELIZABETH DENBY

Manufacturers and their Products

SIR,—In a letter under the above title from Mr. H. W. N. Soley, printed in the JOURNAL a short while ago, appeared the following sentence: "... I wrote to sixty architects, chosen at random in various parts of the country, and enclosed with each a prepaid post-card. Not one replied. ..." I am a provincial fellow. I have no signature tune and my accent dates from the pre-B.B.C. era, but I am not, I trust, illiterate, uncouth or even discourteous. It has occurred to me that I ought, without further delay, to make public acknowledgment of all the catalogues, samples, diaries, writing pads, technical literature, almanacs, invitations, exhortations, appeals and warnings I have received by post during the past twenty-five years or so from innumerable firms connected in one way or another with the building trade. Therefore, to all engaged in the circulation of good tidings concerning technical services and materials at my disposal, greeting!

In particular, a word of thanks is overdue to those who, in the year 1917, sent an envelope to me containing a piece of blotting paper inscribed with an impassioned appeal to specify a new type of bath. It was safely delivered at a hole in the ground near Bully Grenay in the Loos Sector. I have a vague idea that this luxurious bath possessed some such pet name as "The Cleopatra," presumably in order that it might be distinguished from baths of a commoner sort which, as everybody knows, only have numbers. Unfortunately, I cannot now recollect either the name of the bath or of its manufacturers. Acknowledgment must likewise be made to those stubborn friends who persist in dispatching to me, at an address I left ten years ago, magnificent illustrated catalogues of lavatory basins, sinks and pedestal pans. By courtesy of His Majesty's Postmaster-General and the present occupant of that house, they eventually arrive. Salute, also, to the directorate of that stalwart firm who forward to me, year after year, what is known as a vest pocket diary, beautifully bound in morocco and containing, it is said, valuable technical information of which I am unable to make use as I do not possess a microscope.

At an old-fashioned hostelry where, some years ago, I took my frugal midday meals, I once encountered a man who hit me a blow in the stomach with his elbow, glared and asserted loudly that he could sell anybody anything. I am one of the mildest and most inoffensive of men but, at that moment, I became pugnacious and enquired whether he had any second-hand battleships for sale. He ignored my remark and declared, quite seriously, that if I cared to put him in touch with any of my friends who could be persuaded to buy a water-logged coal-mine and business resulted, he might be prepared to "split the commish" with me. I do not know whether there is any organization for placing vendors of water-logged coal-mines in touch with prospective purchasers, but I am certain that the existing facilities for placing manufacturers of building materials in touch with prospective purchasers are in a hopeless, wasteful and ridiculous muddle. For example, I am not free to specify "Dinkum Dope," the famous damp-resisting compound, merely because the Dinkum Corporation send me an almanac, enriched with a representation of a beautiful female, apparently sun-bathing, on a magnificent stone balustrade outside an ancient baronial mansion. It would be most irregular on my part to introduce, on that account, into any specification, a reference to "Dinkum Dope." Even under the heading of "Preliminaries and Sundries" there must be no sex-appeal stuff in any document prepared in accordance with stipulations contained in the R.I.B.A. Form of Contract, 1930. Again, I cannot believe that the publication of an illustration of the back elevation of a building I have designed, taken without the knowledge or consent of the owner or myself by a photographer instructed to register soil vent pipes as a dominant and aggressive feature, is likely to encourage other architects or their clients to insist on the installation of soil vent pipes of similar quality and manufacture. And I doubt if the firm who recently sent to me a selection of samples, packed in a magnificent portfolio, realized that in the absence of any other communication I really do not know whether their material is intended to be used for acoustical purposes, damp-courses or shirts.

There is a queer tradition in the building trade that the office of an architect is a kind of Tom Tiddler's Ground where any sort of miscellaneous rubbish may be shot; that the architect sits in continuous open session, like some mediæval thane, ready and willing to listen to the tale of any modern troubadour who may care to drop in and take shelter from the rain; that a salesman, having once penetrated to the drawing office of an architect, is privileged to broadcast to all the other salesmen in the building trade, personal introductions from himself to every member of the staff of that office; and that affectionate letters addressed to an architect by people whose acquaintance with him is so remote that they do not even know how to spell his name correctly, are "good business." Manufacturers of building materials do not yet appear to have realized that when they send their salesmen to persuade an architect to specify some particular article, they are, in effect, asking him to experiment at the expense of his client, and if the architect has no previous experience of that article and uses it without the express concurrence and consent of his client, he takes sole responsibility for its efficiency. After all, the fact that some marvellous new building material may have been used with remarkable results in the Balaeric Islands, or Valparaiso or Hammerfest, is not particularly helpful to an architect whose practice is limited to the vicinity of Wolverhampton. Again, it is highly improbable that any professional practitioner in this country would dare to testify to his clients that he had been inspired to specify any particular material by contemplating comic calendars, blotting paper slogans or realistic illustrations depicting lovely women weeping bitterly because architects had omitted to insist on "Boko" for the bathroom floor.

In these turbulent times, when quietude and reserve are assailed on every hand by the massed bands of commerce, it becomes increasingly difficult for ordinary people to maintain a reasonable standard of values. From all quarters come the resounding cries of the market and it would almost seem that perfection in anything and everything is now easily obtainable at a very small outlay. Tailors announce suits of a perfect fit. Vendors of patent medicines proclaim perfect cures for every affliction. There is a perfect food and perfect footwear and house-agents speak with rapture of perfectly appointed residences, flatlets and kitchsculls. It is possible, of course, that Utopia has arrived without anybody noticing the phenomenon.

It is even credible that, at this very moment, the advance agents of enterprising advertisement specialists, in search of new worlds to conquer, may be negotiating sites for hoardings with a view to improvement of the existing amenities of the Elysian Fields. It is curious, therefore, that in an age when the perfect remedy for blushing can be purchased at a cost of threepence, post free, there should still exist a considerable body of Englishmen (among whom I am proud to count myself) who are conscious of their own fallibility and endeavour to maintain a semblance of sanity in the midst of this orgy of perfection by remaining slightly sceptical. It is true that their voices are rarely heard in the land, for they do not presume to compete with the raucous screams from the market places. Yet, when the ordinary Englishman is accosted in a manner to which he is not accustomed, by somebody with whom he is not acquainted, speaking in a language he does not understand, he is still inclined to revert to the lingua franca of 1914 and reply "No compree," or in words to that effect.

If Mr. H. W. N. Soley is really endeavouring to discover a satisfactory method by which manufacturers can bring their wares to the notice of architects, I challenge him to explain why more than forty per cent. of the building trade circulars sent to my firm are wrongly addressed and whether there is any subtle significance in sending two separate communications with identical contents to the same architect at the same address by the same post. This challenge is not entirely disinterested, for I have recently devised a new type of door knob. I am assured by my old friend Bertie the Bodger (who has dealt with the odd repairs to my house for the past ten years, and can foretell the weather from the smell of wood shavings) that this super door knob will sell itself. Mr. H. W. N. Soley ought to be able to convince me, quite easily and conclusively, that it will never do so.

F. R. JELLEY

Sun Decks for Tenements

SIR,—I have studied with interest the plans for sun deck tenements put forward by Messrs. Armstrong and Bayne in your Housing Supplement published in your issue for January 3.

While in warm agreement with the general principles of the scheme, there are two points which the architects will perhaps consider before their blocks are built. One is the provision of really ample storage and hobby-workshop accommodation. The other is the more important question of size of dwellings provided. The *real* need in the country is for three-bedroomed homes—a bedroom for the parents, one for the boys, one for the girls. Until the normal family consists of one child only this will continue to be the need, unless the unsatisfactory practice of putting beds in the living-room is to be perpetuated. Concentration on providing this (admittedly much more difficult to plan) type of dwelling will be helping to set a standard of accommodation and create a public opinion of great value.

But a really serious matter, which is increasingly commonly advanced and which I note with concern, is the proposed density of development. Thus a minimum density of 90 and a maximum of 101.3 flats per acre is advocated, "only" 16·1 per cent. and 18 per cent. respectively of the ground area being covered with buildings, "measured to the centre of surrounding roads." That percentage of unbuilt-on area is so specious, so beguiling! It forgets the number of inhabitants debouching from the 18 per cent. on to the 82 per cent. (including road area). It ignores the main argument in favour of development in flats instead of close urban cottages—viz., that considerably greater open spaces can be reserved for communal games and other activities—such as allotments. It throws away the advantages of modern construction, gained for the community, and doesn't even recognize what it has done. There *must* be a maximum number of persons who can be housed on a given space—whether vertically or horizontally—and THE ARCHITECTS' JOURNAL would be doing a great service to the future if it would set its face resolutely against this insidious danger of redevelopment of areas, now slums, to a standard which can hardly be defended even on grounds of expediency.

ELIZABETH DENBY
London

THE WEEK'S BUILDING NEWS

SOUTHERN COUNTIES

WORTHING. *Houses, Flats, etc.* Plans passed by the Corporation: Four houses, Hailsham Road, for Mr. M. R. Fletcher; three houses, Broomfield Avenue, for Mr. E. J. Love; two flats, High Street, Tarring, for Mr. A. E. Purnell; two shops and flats, Dominion Road, for Mr. A. T. W. Goldsmith; four houses, Broadview Gardens, for Mr. J. B. Hope; four houses, Broomfield Avenue, for Mr. E. J. Love; six houses, Broadview Gardens, for Mr. B. P. Dwyer; six houses, Priory Close, for Mr. E. J. Love; 20 flats, Rose Walk, for Mr. H. M. Potter, on behalf of Mr. E. B. Hayward; 32 houses, Adversane Road, for Mr. E. W. Owen, on behalf of Messrs. G. Baker and Son; three houses, Southview Gardens, etc., for Mr. M. R. Fletcher; four houses, six shops and two flats, Findon Road, for Mr. M. R. Fletcher, on behalf of Mr. H. W. Adams; eight houses, South Street, Tarring, for Messrs. Thompson and Walker, on behalf of Messrs. Braybons, Ltd.; two houses, West Parade, for Mr. E. H. Barton; 12 flats, St. Michael's Road, for Messrs. Wood, Kendrick and Edwin F. Reynolds, on behalf of Mr. M. F. North; two flats, St. Andrew's Road, and house, Littlehampton Road, for Mr. H. M. Potter; shop and three flats, Goring Road, for Mr. M. R. Fletcher, on behalf of Jeffery Houses, Ltd.; five houses, Cissbury Avenue, Robson Road and Shaftesbury Avenue, for Mr. M. R. Fletcher; four houses, West Parade, for Messrs. Wood, Kendrick and Edwin F. Reynolds, on behalf of Mr. M. F. North; two houses, Livesay Crescent, for Mr. E. J. Love, on behalf of Worthing Estates Building Co., Ltd.; two houses, Sompting Road, for Mr. W. W. Howard; two houses, Broomfield Avenue, for Mr. A. T. W. Goldsmith, on behalf of B.B.C. Houses, Ltd.; eight houses, Beechwood Avenue, for Mr. W. H. Hamper, on behalf of Mr. A. F. Cockram; 14 houses, Brook Close and Southfarm Road, for Mr. H. M. Potter. Plans submitted: 12 flats, West Parade, for Messrs. Wood, Kendrick and F. E. Reynolds, on behalf of Mr. M. F. North; four flats, Wallace Avenue, for Mr. M. R. Fletcher; two houses, Leigh Road, for Mr. L. A. Clark; 21 garages, Broadwater Way, for Messrs. A. Clare, Ltd.; squash courts, club and two flats, adjoining George V Avenue, for Messrs. W. S. Grice and Denis Poulton, on behalf of Mr. R. Bell Syer; 78 flats, Brighton Road and Brougham Road, for Mr. A. T. W. Goldsmith, on behalf of Mr. C. H. Jeffery.

SOUTH-WESTERN COUNTIES

PLYMOUTH. *Houses.* Plans passed by the Corporation: Four shops and houses, Tavistock Road, Peverell, for Mr. R. Pearce; alteration of proposed road into building site, Thornhill Way, for Thornhill Building Estate; 11 houses, Desborough Road, for Mr. I. Cohen; two houses and two bungalows, Orchard Road, for Mr. F. Westcott; bungalow, Bernice Terrace, for Mr. T. Edwards; two bungalows, Edgcumbe Park estate, for Mr. E. Davey; two bungalows, Vine estate, for Mr. R. Tolkein; two houses, Compton Park Villas Road, for Mr. J. Squire: 14 houses, Peverell Terrace, Trelawney estate, for Messrs. Hill and Lang; two houses, Thornhill Way, for Messrs. Oldrey and Yeo; house, Moon Street Cove, Devonport, for Messrs. D. Fredman and I. Cohen; two bungalows, St. Budeaux, for Mr. G. H. Bradford: new street and 15 building plots, Desborough Road, for Mr. I. Cohen; two houses, Orchard Road, for Mr. F. Westcott; two bungalows, Edgcumbe Park estate, for Mr. A. Manning; 11 houses, Royal Navy Avenue, for Messrs. Waycott Bros; two shops and house, Trelawney Road, for Messrs. Hill and Lang; three bungalows, Cranmere Road, Compton, for Messrs. J. Davey and Son. Plans submitted: 26 building sites, Mainstone Avenue, for Mr. I. Cohen.

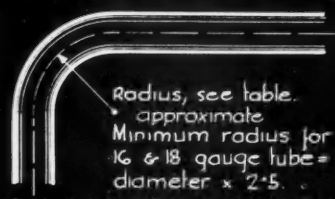
NORTHERN COUNTIES

DEWSBURY. *Station Premises.* The Corporation is to purchase lands and buildings formerly comprising the Lancashire and Yorkshire Railway station premises, together with the station yard, from the L.M. and S.Rly. Co., at the price of £27,500.

RIPON. *Slum Clearance.* In connection with the slum clearance programme, the Corporation has instructed the City Engineer to prepare a census of suitable building sites within the city and areas immediately adjacent thereto.

Owing to pressure on our space we are compelled to hold over the "Rates of Wages" and "Current Prices" tables.

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ELECTRICALLY WELDED STEEL TUBE.

Tubes may be bent to any radius (above the minimum) as required. The table given below sets out the standard bends for which we have stock rolls and these should be used when utmost economy is necessary.

TABLE OF STANDARD BENDING RADII FOR TUBES OF VARIOUS SIZES.

RADII OF STANDARD BENDS	OUTSIDE DIAMETERS OF TUBE IN INCHES.																			RADII OF STANDARD BENDS
	3/8.	1/2.	5/8.	3/4.	7/8.	1.	1 1/16.	1 1/8.	1 3/16.	1 1/4.	1 5/16.	1 3/8.	1 1/2.	1 9/16.	1 5/8.	1 3/4.	1 7/8.	1 15/16.	2.	
	11/16.	3/4.	1.	1.	1 1/4.	1 1/2.	4 3/4.	1 1/2.	4 3/4.	1 3/8.	2.	2.	1 3/4.	4 5/8.	2 3/4.	2 3/4.	3 1/2.	2 1/2.	3.	
	.	7/8.	1 3/8.	1 1/2.	1 1/2.	1 3/4.	.	1 3/4.	.	1 3/4.	5 1/2.	2 3/4.	2.	.	3 1/2.	3 1/4.	4.	.	4	
	.	1.	2.	2.	1 5/8.	2.	.	2.	.	2.	.	2 7/8.	2 1/4.	.	4 1/4.	3 5/8.	4 1/2.	.	4 9/16.	
	.	1 1/4.	2 1/2.	2 1/4.	1 3/4.	2 1/4.	.	2 1/8.	.	2 1/4.	.	4.	2 3/4.	:	4 1/2.	3 3/4.	5.	.	5.	
	.	1 1/2.	3.	2 1/2.	2.	2 1/2.	.	2 3/4.	.	2 1/2.	.	5.	3.	.	5 1/2.	4.	5 1/2.	:	6.	
	.	1 3/4.	.	2 7/8.	2 1/4.	2 3/4.	.	3.	.	2 5/8.	.	5 3/8.	3 1/4.	.	6.	4 1/4.	6 1/2.	.	6 1/4.	
	.	2 1/4.	.	3.	2 1/2.	3.	.	3 1/4.	.	2 3/4.	.	6 1/2.	3 1/2.	.	6 1/2.	4 1/2.	6 5/8.	.	7 1/2.	
	.	2 3/4.	.	3 1/2.	2 3/4.	3 1/4.	.	3 5/8.	.	3.	.	7.	3 7/8.	.	7.	5.	8.	.	8.	
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	.	.	.	.	3 3/4.	4 3/4.	.	6 1/8.	.	5.	.	12.	5 3/8.	.	.	7 1/4.	.	.	.	
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Information from Tube Products Ltd.

INFORMATION SHEET : STEEL TUBING : 2 : BENDING OF TUBE.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1

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INFORMATION SHEET

• 179 •

STEEL TUBING

Product : Electrically Welded Steel Tubing

Bending of Tube.

It is important to note that steel tube can be bent readily and accurately to any required radius above the minimum.

Tubes may be bent in many different ways, e.g., empty, loaded, with floating mandrel, or with a coil spring. Each method has its own limitations. The biggest possible radius should always be used to produce the best results, for it should be realised that bending means stretching the outside and compressing the inside metal.

Other Shapes.

There is no difficulty in producing the more complicated U bends, S bends and the like, whether the bends are in one or more planes, provided no turn is more acute than the minimum permitted for the tube used. Bends of any variety can be produced from detail drawings.

Previous Sheets in this series.

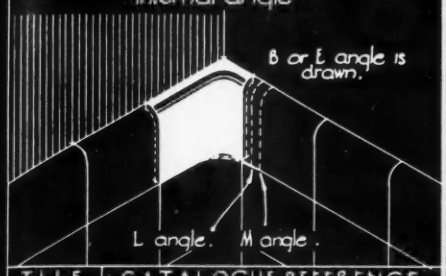
General data and further information on standard and special sections, etc., will be found in Information Sheets Nos. 156, 165 and 171, presented with "The Architects' Journal" for October 25, November 22, and December 13, 1934.

Name of Manufacturers : Tube Products, Ltd.
Address : Oldbury, Birmingham
Telephone : Broadwell 1651-6
London Office : 66 Victoria Street
Telephone : Victoria 5359

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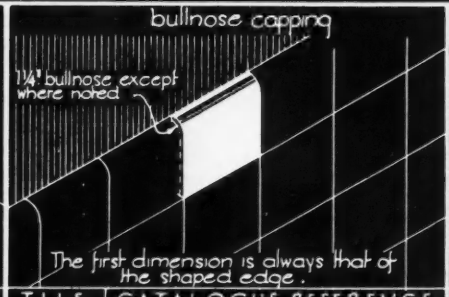
SANITARY CAPPINGS:

internal angle



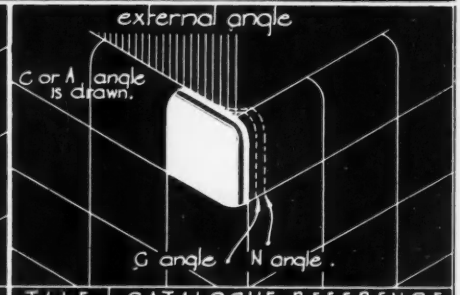
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6' x 3'	3159 E, 3159 L, 3159 M.
6' x 2'	3668 E, 3668 L, 3668 M.
4' x 4¼'	3955 E, 3955 L.
4' x 4'	4059 B.

bullnose capping



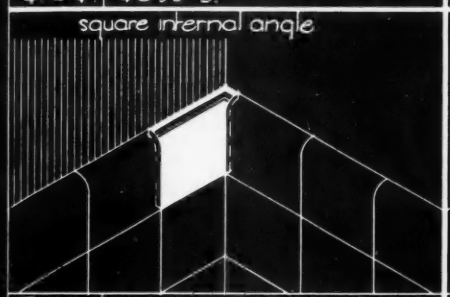
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6' x 4'	3935.
6' x 3'	3159.
6' x 2'	3668.
4' x 4¼'	3955.
4' x 4'	4059. (1" bullnose).

external angle



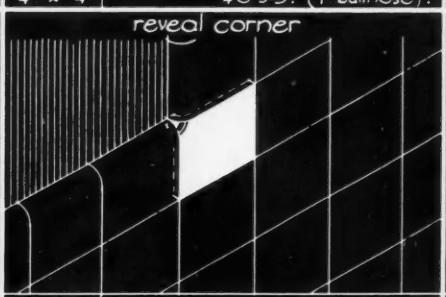
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6' x 3'	3159 C, 3159 G, 3159 N.
6' x 2'	3668 C, 3668 G, 3668 N.
4' x 4¼'	3955 C, 3955 G.
4' x 4'	4059 A.

square internal angle



TILE SIZE	CATALOGUE REFERENCE NUMBER
6' x 4'	3935 Z.
6' x 3'	3159 Z.
6' x 2'	3668 Z.
4' x 4¼'	3955 Z.
4' x 4'	4059 Z. (1" angle).

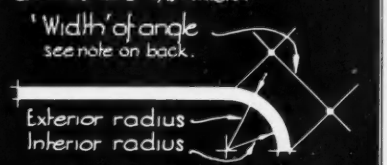
reveal corner



TILE SIZE	CATALOGUE REFERENCE NUMBER
4' x 4'	3935 V.
3' x 3'	3159 V.
2' x 2'	3668 V.
4' x 4¼'	3955 V.
4' x 4'	4059 V. (1" angle).

KEY TABLE OF ANGLE SIZES:

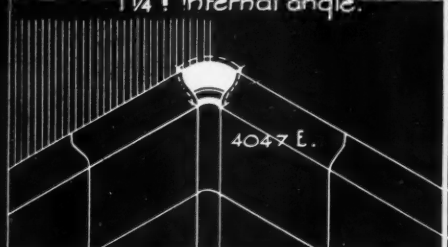
all tiles are ⅜" thick.



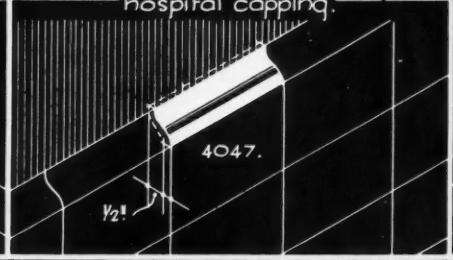
Z = square internal angle.
V = reveal corner.
R = rounded-edge external angle.

ANGLE LETTER		WIDTH	RADIUS inches	
internal	external	inches	interior	exterior
B	A	1	⅜	¾
E	C	1¼	½	⅞
L	G	2	1	1⅜
M	N	3	1¾	2⅛

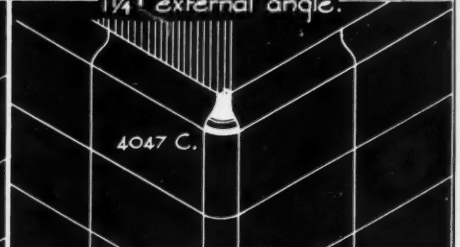
6' x 2' SETBACK HOSPITAL CAPPING 1¼" internal angle.



hospital capping.

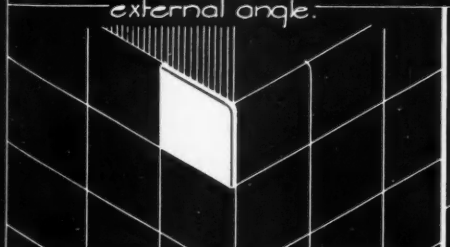


1¼" external angle.



ROUNDED-EDGE SANITARY CAPPINGS

external angle.



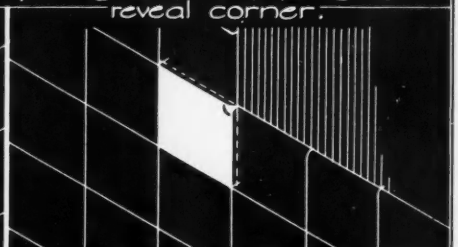
TILE SIZE	CATALOGUE REFERENCE NUMBER
6' x 6'	3604 R.
6' x 3'	3560 R.
6' x 2'	3937 R.
4' x 4'	4013 R.

rounded-edge capping.



TILE SIZE	CATALOGUE REFERENCE NUMBER
6' x 6'	3604.
6' x 3'	3560.
6' x 2'	3937.
4' x 4'	4013.

reveal corner.



TILE SIZE	CATALOGUE REFERENCE NUMBER
6' x 6'	3604 V.
3' x 3'	3560 V.
2' x 2'	3937 V.
4' x 4'	4013 V.

Information from Richards Tiles Ltd.

INFORMATION SHEET: GLAZED WALL TILE FITTINGS 1 · SANITARY CAPPINGS

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 180 •

WALL TILES

Type of Product : Glazed Wall Tile Fittings

(See also Information Sheets 92, 93, 99, 125, 127, 144 on other Tile Products of the same manufacturers.)

The manufacturers' plain—or flat—tiles, with which the fittings here illustrated are designed to work, are made in the following shapes and sizes :—

Squares ... 6″×6″, 4″×4″, 3″×3″, 2″×2″
Oblongs ... 6″×3″, 6″×2″, 6″×1½″, 6″×1″, 6″×½″, 4″×2″, 4″×1″, 4″×½″
Hexagons ... (measured from side to side) 4″, 3″ and 2″, with the necessary halves.

Standard Thickness.—For all sizes of plain tiles and fittings, ⅜″. Plain tiles and Rounded Edge Tiles in white glaze only, and in sizes 6″×6″ and 6″×3″ only, made also ¼″ thick.

Finish.—All tiles and fittings can be supplied in white glaze and (except those ¼″ thick, as noted), in colours, both plain and mottled, of bright and eggshell finish.

Stocks.—Plain tiles and fittings are stocked by the manufacturers in white glaze finish and in biscuit form (i.e., unglazed) ready for glazing in colour as ordered.

Special Fittings for special purposes are made to order as required.

B = 1″ Internal Angle. E = 1½″ Internal Angle. L = 2″ Internal Angle. M = 3″ Internal Angle.
A = 1″ External ,, C = 1¼″ External ,, G = 2″ External ,, N = 3″ External ,,



1″ Angle Beads or B. & A. Angles. | 1½″ Angle Beads or E. & C. Angles. | 2″ Angle Beads or L. & G. Angles. | 3″ Angle Beads or M. & N. Angles.

Cappings

Cappings are used principally to form the top course in wall tiling work ; certain types are also used as decorative strips, others as architrave mouldings for doorways, windows, etc.

There are three main classes of capping—sanitary, moulded and embossed. This Sheet deals only with the first of these.

Sanitary Cappings are so called as being free from the corrugations and other irregularities of surface which characterise the moulded and embossed cappings. Thanks to the present-day appreciation of cleanliness and of simplicity of design they are in far more general use than the other classes of capping.

Among sanitary cappings the most popular is that known as the *Bullnose Capping.*

Rounded Edge Cappings are sometimes used in preference to bullnose cappings on the score of cheapness. Though neat they are not equal in appearance to the bolder bullnose type.

A special type of bullnose capping is known as the "*set-back*" or *hospital capping.* It is particularly useful for hospital dados where the upper part of the wall is not tiled. It has a 1″ band of glazed surface above the capping proper, which prevents the marking of the upper wall by the duster used in wiping the projecting ledge.

These three types of sanitary capping together with the standard range of external, internal and other angles appropriate to each are illustrated in this Sheet.

Measurement of Tile Angles

The accepted angular measurement of a tile angle is not that of its radius (though the word radius is often used in this connection) but that of its *greatest width, measured in a straight line.* This applies equally to internal and external angles, the only difference between these being, of course, that the former are glazed on the inner and the latter on the outer surface. The diagrams given below, illustrating angles of different sizes, will make the matter clear.

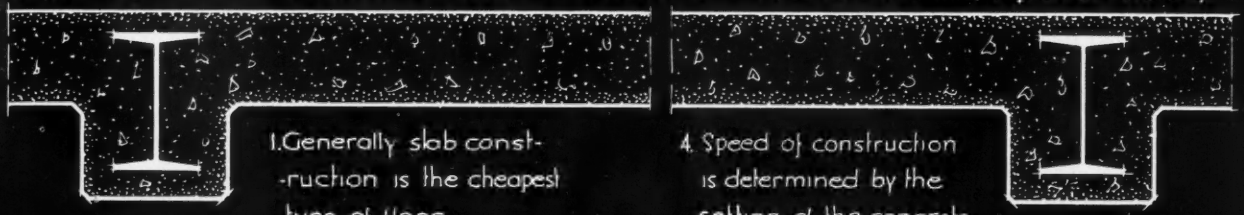
In the case of Combination Angles and Angles to Cappings, Skirtings and Coves, the size and type of the angular part are indicated by the addition, after the reference number of the fitting itself, of a letter. The following are the letters used, with the meaning of each :

Although the manufacturers supply angles in all these sizes, their standard angle is the 1½″, that having proved the most satisfactory for all ordinary purposes.

Name of Manufacturers : Messrs. Richards Tiles, Ltd.
Address : Tunstall, Stoke-on-Trent
Telephone : Hanley 7215-8
London Office : 25 Victoria Street
Telephone : Victoria 9128
Glasgow Office : 53 Bothwell Street, Glasgow, C.2
Telephone : Central 1768

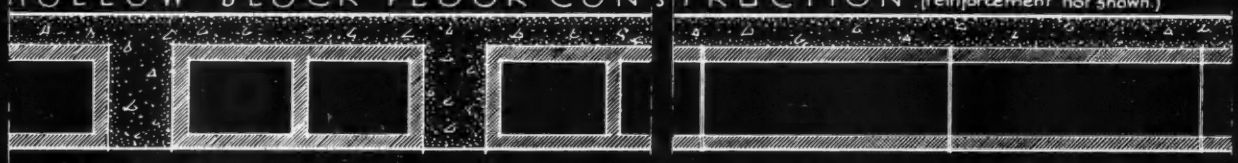
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CONCRETE SLAB FLOOR CONSTRUCTION (reinforcement not shown)



1. Generally slab construction is the cheapest type of floor.
2. To obtain a flat ceiling unbroken by beams, a false ceiling must be provided.
3. False ceilings give good pipe space, but require considerable depth & therefore greater floor-height.
4. Speed of construction is determined by the setting of the concrete.
5. Slab construction has low sound insulation qualities & in most cases requires applied insulation.
6. Slab Construction gives low Thermal insulation, roofs require applied protection.

HOLLOW BLOCK FLOOR CONSTRUCTION (reinforcement not shown.)



1. Hollow block construction allows large flat ceiling panels between beams
2. Relatively light over large spans.
3. Requires temporary shuttering.
4. Speed of construction is determined by the setting of the concrete.
5. Hollow blocks give good sound insulation, & require additional insulation only in special cases.
6. Hollow blocks give good Thermal insulation, roofs frequently require only protection from the sun.

SELF-CENTERING FLOOR CONSTRUCTION



1. Allows unobstructed flat ceilings between beams
2. Relatively light over large & small spans
3. Requires no shuttering of any kind.
4. Speed of construction not limited.
5. The floor can be fully loaded, 24 hours after the concrete filling has been poured.
6. Floor can be used before concreting
7. Hollow units give good sound insulation, requiring additional insulation only in special cases.
8. Hollow units give good Thermal insulation, roofs require only protection from the sun.

Information from Frazzi Limited.

INFORMATION SHEET : VARIOUS TYPES OF FIREPROOF FLOOR CONSTRUCTION

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 181 •

FLOOR CONSTRUCTION

Type of Product : Slab, Hollow Tile and Self-centering Floors

General :

The notes given on this Sheet set out the main points for and against three different types of floor construction.

The selection of the most suitable floor for any particular job calls for full consideration of all the factors involved, including spacing of columns or bearing walls, spans, type of general construction, load capacity required, sound insulation required, type of floor finish, speed of erection and cost. The company is prepared to investigate the special conditions relative to any particular job, and to recommend the most suitable floor for the purpose.

The Self-centering Floor :

The Self-centering (Frazzi) floor shown consists of hollow terra-cotta slabs and joist covers, and is manufactured in a variety of types. It is very light, this quality increasing in the larger spans where a thicker floor is necessary. The joist covers rest on the joist, and eliminate all thrust on them and on the walls, and largely facilitate the fixing and securing of a level ceiling.

The clay used in manufacture is of fireclay type, and is, in consequence, highly fire-resistant. The soffit is specially scored to receive direct plastering. The standard length of the slabs for the filler joists is 3 ft. from centre to centre, and shorter ones are made for filling in the bays. The slabs are easily cut where they occur at the wall bays.

The floor may be chased in both directions for electric light conduits without detriment to its strength. It is pointed out that concrete beams between the slabs actually form a floor in themselves, in addition to the load-bearing capacity of the terra-cotta slabs.

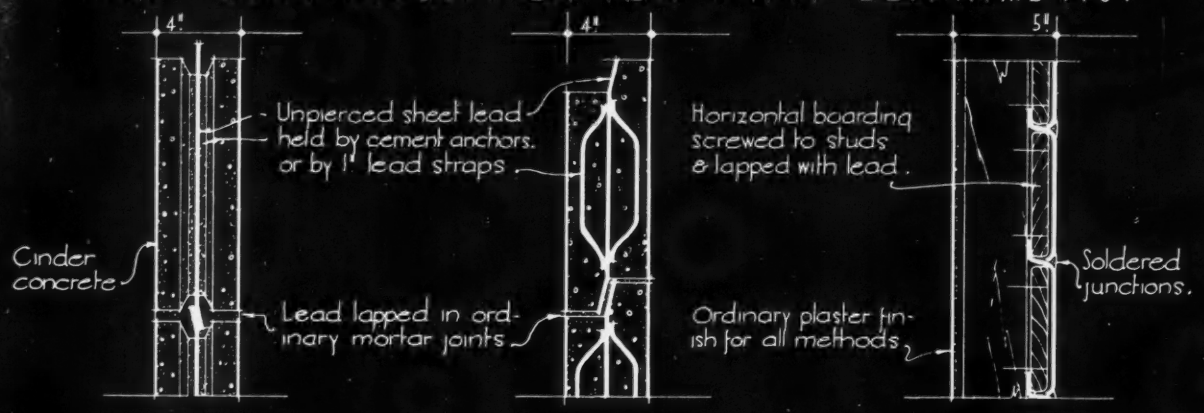
Manufacturers : Frazzi, Ltd.

Address : Lennox House, Norfolk Street, W.C.2

Telephone : Temple Bar 5371-5372

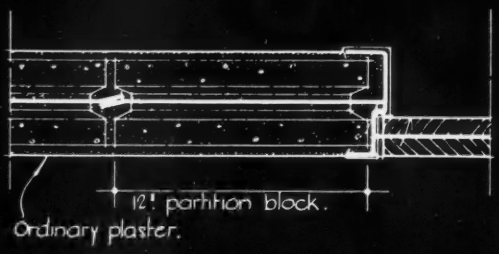
THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

SHEET LEAD INSULATION FOR X-RAY DEPARTMENTS.

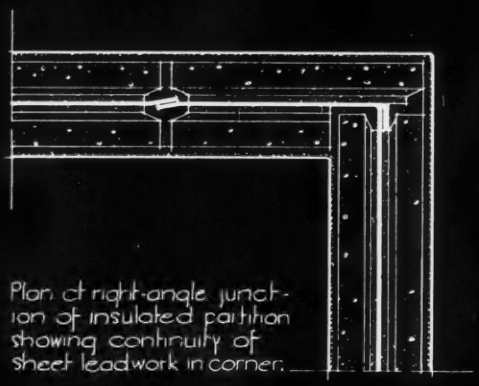


Alternative methods of insulating 12" x 12" x 4" cinder-concrete partition blocks with unpunctured sheet lead of specified thickness and lap. Ordinary lime or cement plaster finish to walls.

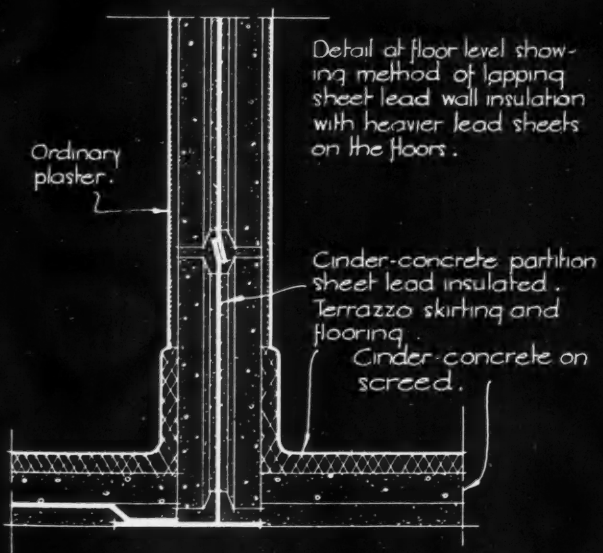
Continuous unpierced sheet lead insulation for a wood stud partition. Paint finish.



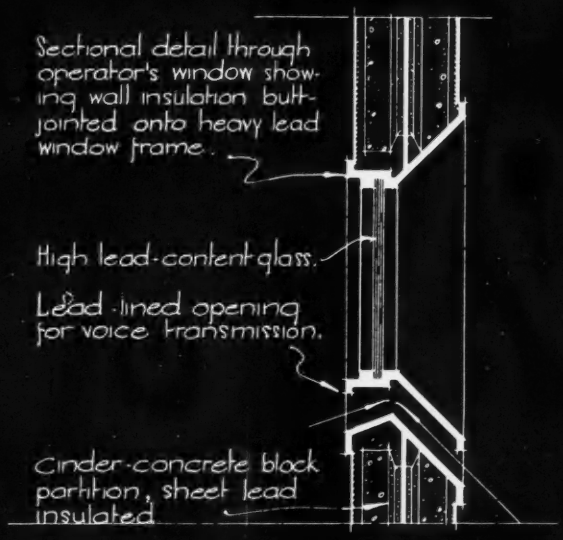
Plan of insulated cinder-concrete partition showing method of insulating metal doorframe by lead lining, & sheet lead insulation to a wood-faced door.



Plan at right-angle junction of insulated partition showing continuity of sheet leadwork in corner.



Detail at floor level showing method of lapping sheet lead wall insulation with heavier lead sheets on the floors.



Sectional detail through operator's window showing wall insulation butt-jointed onto heavy lead window frame.

Information from the Lead Sheet & Pipe Development Council.

No. 6.

INFORMATION SHEET: THE USES OF LEAD IN BUILDING CONSTRUCTION

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1.

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INFORMATION SHEET

• 182 •

LEAD IN BUILDING CONSTRUCTION

Type Illustrated : Insulation for X-ray Departments

Description :

This is the sixth of the series of Sheets dealing with the uses of lead in building construction, and illustrates various methods and details of sheet lead insulation for Deep-Therapy and X-ray rooms.

That rays may prove dangerous to the human organism was established in the first days of experimental tests with Röntgen and radium rays. Through negligence or ignorance, many research workers and doctors sustained injuries and even lost their lives. Protection is, therefore, very important, and regulations are in force in all countries.

Constructors of apparatus strive to render their equipment easy and safe to manipulate by covering the tubes with a thick lead protection. The ray (which the operator directs at will, and against which he is protected) reaches the desired point on the patient's body, but, having passed through the patient, it then passes through the floor, ceilings, partitions, and generally all materials which it encounters. The ray becomes gradually weaker, but in the case of radio therapy, with strong penetrating rays, the path through ordinary building material must be very long to diminish effectually the influence of the ray.

Protection must be provided against the effect of this ray, and, in addition, against those secondary radiations which are diffused in all directions from the body of the patient.

Protective Materials :

Lead is the standard by which all protective materials are measured, the degree of insulation provided being referred to by its lead equivalent.

Material.	Thickness.	Thickness of Lead equivalent in mm. under a tension of 200,000 volts.
Steel ..	11.5 mm.	1
	25 mm.	2
	39 mm.	3
	53 mm.	4
Granite Concrete	85 mm.	1
	170 mm.	2
	260 mm.	3
Yellow Brick	170 mm.	1
	450 mm.	2

The determination of the thickness of lead required for any given case is a very technical matter, governed by the voltage used, the wavelength, the distance of the machine from the walls of the room, and the type of equipment in use. This being so, it is impossible to give any accurate guide to the insulation generally required. Although, for the lower voltages and insulated machines, it is frequently possible to use one of the lesser insulation materials, such as special plaster, for all high voltages and special cases lead is invariably used.

It should be noted that the methods of fixing the lead shown on this Sheet are a selection only, various other methods having been used in different hospitals.

Previous Information Sheets of this series, Nos. 148, 149, 157, 161 and 167, dealt with the application of lead to parapet gutters and flat roofs and the jointing and supporting of lead piping.

Source of Information : The Lead Sheet and Pipe Development Council

Address : Golden Cross House, Charing Cross, W.C.2

Telephone : Whitehall 7264

THIS DOOR IS CLOSED

SYMBOLIC PERSPECTIVE AT DR. BARNARDO'S



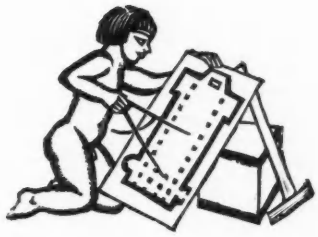
THE new "ever-open" door for Dr. Barnardo's Home at Stepney Causeway has been designed with an ingenious use of false perspective to give an appearance of being invitingly open even when (as in the photograph) closed; the apparently receding lines being actually on the same plane. Is the man in the foreground going to walk right into it or not?



CHICAGO'S NEWEST SKYSCRAPER

The construction of the Field Building, Chicago, the fourth largest office building in the world, completed a few months ago, involved the demolition of the celebrated Home Insurance Building which was, when built in 1885, the pioneer American skyscraper.

The Field Building, for which the architects were Graham, Anderson, Probst and White, provides a rentable floor area of one million square feet and has a height of 535 feet in 43 storeys. The base is faced with polished black granite and the superstructure with Indiana limestone, the window spandrels being of cast aluminium. This photograph is reproduced from a recent issue of the "Architectural Record."



OVERCROWDING AND A NATIONAL HOUSING SURVEY

THE advent of a new Housing Bill designed to do away with overcrowding—like Circular 1331, designed to secure the abolition of the slums—has set us thinking, in common with others concerned with the building industry, in terms of a survey and a plan. In the earlier case we were disappointed. Surveys, of a sort, were conducted by the local authorities. A Plan, in terms of "houses to be demolished" and "persons to be rehoused," was issued by the Ministry of Health. The ignorance of almost all parties concerned in the matter about the true extent of Slum, and the true needs of Slum, was a little disquieting. We were informed by the responsible Minister, at first, that the demolition of 12,000 houses a year for five years was his aim. At a later date, however, he eagerly endorsed more ambitious estimates, and in our leading article in the JOURNAL for March 22, 1934, we ventured to offer him our congratulations "both for his achievement in forcing local authorities to produce slum clearance plans providing for the demolition of more than four times as many houses in the next five years as he himself contemplated at the beginning of the crusade, and for a belated appreciation of the fact that the clearance of the slums is not the whole of the housing problem." The fact that the slum clearance programme embodied in Circular 4535 amounted, at most, to one-half of what should have been, we regarded as unfortunate, but in face of such an extremely inauspicious lead in the first place, it was better than we had expected.

The outstanding defect of the whole slum clearance "campaign" was its lack of a survey and a plan. If the slum clearance programmes had amounted to twice, or four times, their actual figure, the importance of this defect would not have been lessened in the least.

And now we have a new Bill in prospect, and the all-important question we ask is—"Will the Bill provide for a proper Survey and a proper Plan, in advance of action?"

The appearance of the Second Report of the Council for Research on Housing Construction, entitled *Housing Standards and Statistics*, is the immediate cause of these observations. The Report is limited in scope to a review of existing housing information, to a discussion of housing standards in detail, and to proposals for a national housing survey. It points out that "the determination of housing policy is seriously hindered, and the accurate estimation of national and local housing needs is made impossible, by the lack of adequate statistical information on housing conditions. More serious still is the lack of clearly defined and nationally accepted minimum standards for housing, without which mere statistics are not of much practical use." To remedy this lack of information, it is regarded as essential that a national housing survey, based on national standards, should be organized.

The material collected in the Population Census, and its value as a housing survey, is considered in the second chapter of the Report. It is to be emphasized that the Census is not criticized as such. But it is not an adequate record of the occupation of buildings or of overcrowding and its scope could not be extended to cover questions of housing equipment or unfitness. Intercensal population estimates and Ministry of Health figures for new houses erected similarly do not satisfy requirements.

The powers conferred by Parliament on local authorities are summarized in the third chapter. If these powers had been exercised according to up-to-date and uniform standards, records would exist, which, though inadequate in point of detail, would have been a sufficient famework. But the framework itself is defective, and "the uninstructed public are apt to take resulting information at its face value, and it is the duty of nobody in particular to disabuse them."

Exact knowledge is needed for the proper working of the new Bill, so the Council sets out, in its final chapter, the means whereby such a survey should be carried out, and kept continuously in action, the material which it should yield, and the use that should be made of it in working up returns to the Minister of Health. Whether the standards of occupation, and of equipment and fitness, are to be accepted as they stand, or somewhat modified, is a matter on which the Minister of Health should decide, but there is no doubt that the Council, in working out details of the requisite blank forms, returns and schedules, has performed a most valuable service.

What we ask is that this work should be regarded, not as an "interesting piece of research," but as a demand for official action along the lines indicated. If the rehousing of the nation is to be attempted, it is surely necessary to know, *now*, where we stand, and, *as time goes on*, how the position is being changed. Existing material makes it impossible, in any effective way, to know either of these things.



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NOTES & TOPICS

MORE ABOUT BURLINGTON HOUSE

MY remarks last week about "Millionaire's Row" and the R.A. Exhibition have not been read as carefully as I could wish by a number of people, who have since rebelled against what they call my "lack of information and sympathy."

*

Let me now be more explicit. I do *not* consider that the holding of such an exhibition is anything but praiseworthy. I have already named the people who are, in my view, the chief offenders against the presumed (if not implied) doctrine of the promoters—I am sorry to be unable to find a more appropriate word. I have already largely absolved from blame those exhibits which, so far as was possible, strictly followed that doctrine.

*

I still maintain that, as a whole, the exhibition leaves very much to be desired; that it may prove to be most misleading, if not actually sterilizing, to industrial and commercial thought. The fact that I personally (along with my critics) am aware that many of the "ensembliers" have had to do their best with a wrong conception, the fact that I know their real abilities and willingly take some of their shame upon my shoulders, are facts, which, to my lasting sorrow, do not in the least degree improve the exhibition as it stands today, nor lessen its possible ill-effects.

*

I do agree, however (and tried to indicate that) that it is the promoters who are to blame, not the exhibitors. There is a fine example of the lack of understanding on the part of the organizers; a rule was made that nothing might be shown which had been previously shown in an exhibition or a shop! Too late, and under something like compulsion the rule was "allowed to be intelligently interpreted." But the damage was done.

*

When, therefore, the charge of over-expensiveness is levelled at industrial exhibits—as distinct from "Millionaire's Row" exhibits—it should be borne in mind that the prices are quite likely fictitious or "panic" prices. The manufacturer has been able to get no clue to quantity of sale, through previous exhibitions or trading experience; very likely he has no special confidence that the *cachet* of Burlington House will "put it over" to the retail buyer in large quantities. He must, therefore, put on a price which will cover his overhead expenses for a small quantity only.

*

And so, I say, when you look at the prices of standard, or shortly-to-be-standard, articles, good reader, be very gentle in your comments; the manufacturer is doubtless weeping with you.

STIMULATING MANUFACTURERS

In this connection I feel bound to mention the silver, leather and jewellery—possibly because it *may* be an exception to what I have just said. On the other hand, it cannot be called "Millionaire's Row" as I mean the term, because so much of it does seriously represent standard production, or at any rate a new kind of thought in design which will influence the future design and presentation of silver and precious stones.

*

The resuscitation of pewter, for example, is a healthy sign; Keith Murray's appointment as designer-in-chief to Mappin and Webb is another; the realization that metal to be beautiful need not—dare I say *should* not?—be burnished is a third.

*

To John Grey (who was called in as architect, originally, and "beat up" the industry to an extent which is to be seen in his two rooms) goes any one of his sports trophies full of credit. The things shown are not all of high standard; but quite a few are, and what finer tribute could be paid than that? Or am I a cynic about "contemporary jewellery"?

JOHN GREY

It must have surprised some of the "elders" of the trade to find that their architect was turning out to be a busybody. Some of them, I have no doubt, feel that, with his guidance, they have passed, not too willingly, through the Valley of the Shadow. There is, at any rate, an unexpected Life about their exhibits.

*

What is entertaining to me is to visualize the process of thought in the minds of the Committee. Mr. Grey looks nothing if not casual, and little if not vague; he can truly be said, in fact, to have looked disarming to a body of men whose idea of "design" in silver or gold meant nothing short of chalices and ceremonial plate.

*

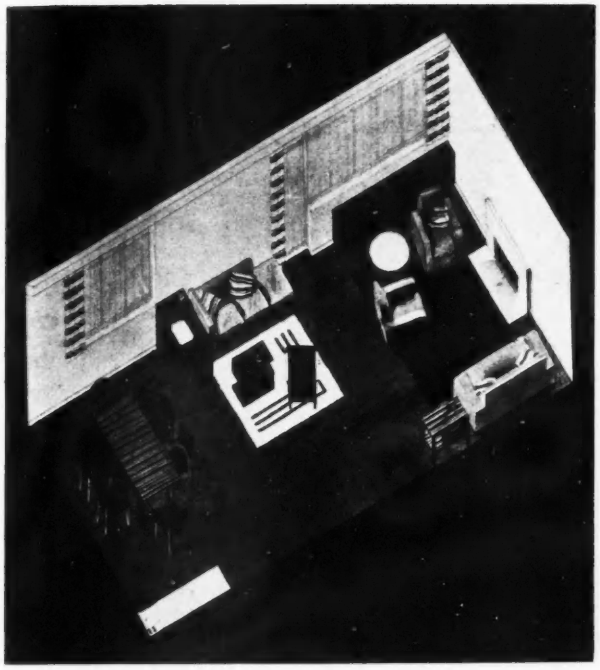
I don't know how the early meetings went off. But I was at Burlington House on the eve of the opening. Mr. Grey was at once wide awake and very frank. It made excellent eavesdropping.

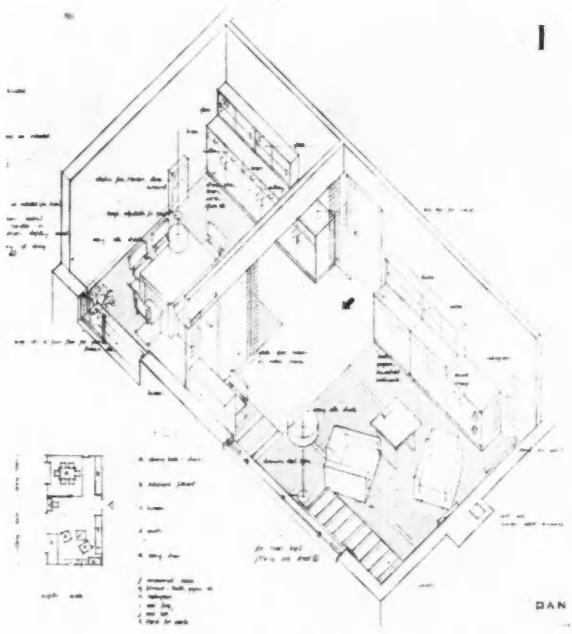
JUBILEE FOUNTAINS?

Various architects have expressed their just apprehensions of the manner in which municipalities may celebrate the Silver Jubilee of His Majesty; but with the passing of the horse the day of the water-trough-cum-fountain, which satisfied the joint Victorian passions of loyalty and utility, has passed too.

*

Will a series of monoliths and obelisks, suitably inscribed,





The designs awarded premiums of £10 each in the competition for modern furniture suitable for a home supported by an annual income of £800 to £1,500. Above: design submitted by Michael P. Driver; below, design submitted by John Harrison. The winning scheme was illustrated in our last issue.

and employing such monumental materials as saloon-bar marble, spring up all over England, or are our sufferings from war memorials too recent to permit such a growth? There may be an equestrian statue or two, followed by the usual arguments between the people who let on that they understand art and the others who can only understand picture postcards; but will England have made a gesture worthy of the occasion if cities and boroughs stop at mere decoration?

*

What about a series of Jubilee schemes for rehousing slum dwellers; schemes conceived in a boldly experimental way, not crabbed and mean with considerations of the ·007 of a penny that they may put on the rates; but worthy of the innate generosity that runs like a thread of light through the English character? What about some Jubilee towers, proudly upraised in a spacious garden, housing twenty to fifty families?

ENGLISH DEBASED OR DEBUNKED?

Some people are irritated by Raymond McGrath's book on *Twentieth Century Houses*, because it is written in basic English. The only thing that irritates me about that altogether excellent book is the reproduction of the photographic illustrations.

*

I have an idea that basic English in the hands of, say, a commercial letter writer would seem foul, clipped stuff; but handled by Mr. McGrath, it is flexible and fluid and alive. But then Mr. McGrath is rather more than an architect; he is an English scholar of some eminence and a poet too.

*

In a way I wish he hadn't used basic English, because so many people seem to think that it is the chief point of interest about the book. Actually *Twentieth Century Houses* is a literary and technical landmark. It is one of two volumes—the other being *The Modern House*, by F. R. S. Yorke—that should be put into the hands of every student of architecture and into the hands of every man, woman and child (oh, yes—some clients are mere children) who is about to build a house.

LECTURES ON ART AND INDUSTRY

I have been looking at a syllabus of Cambridge University local lectures on Art and Industry. A course of six is given by Anthony Bertram, and they are ably planned.

*

The questions on some of the lectures are pregnant with the desire to foster critical perception. For example: "Why is the owner of a good modern car often content to live in a bogus Tudor villa?" And another, which I should like to answer at length myself and with becoming virulence: "Estimate the good and bad results of the teachings of William Morris."

*

Mr. Bertram has done a lot of far-reaching educational work for industrial design. One can only regret that he relinquished his editorship of *Design for To-day*, which under his direction acquired authority and distinction. He is a novelist, an art critic, and an exceedingly witty commentator on the peculiar and rococo idiocies of what an American friend of mine describes as "art life."

A CENTURY OF PROGRESS

I have heard a good many comments about the entertaining forecast of the next hundred years by Messrs. Richards and Chermayeff in the New Year issue. But the one I liked best was by an irritable gentleman of the old school who said: "They forgot one thing. The canonization of le Corbusier about the year 2000 when nothing he or his imitators built could stand up any longer."

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

"*If the rehousing of the nation is to be attempted, it is surely necessary to know,* NOW, *where we stand, and,* AS TIME GOES ON, *how the position is being changed*" 107

Westminster's part in the London County Council's town planning scheme for London 111

The Royal Gold Medallist for 1935 .. 112

"*It will not be until our designers and manufacturers get together and improve the design of the lower-priced and mass-produced goods that the public will appreciate their efforts.*" 120

THE ARCHITECTS' JOURNAL

Thursday, January 17

R.I.B.A. *At 66 Portland Place, W.1. Exhibition of Drawings submitted for Prizes and Studentships. Open until February 2.*

Friday, January 18

LONDON SOCIETY. *At the Royal Society of Arts, John Street, Adelphi, W.C.2.* "*The Story of Tower Hill.*" *By Charles Spon.* 5 p.m.

ROYAL ACADEMY. *Burlington House, Piccadilly, W.1. Exhibition of British Art in Industry. Open until March.*

Saturday, January 19

ARCHITECTURAL ASSOCIATION. *At the Building Centre, 158 New Bond Street, W.1. Exhibition of* "1935 *Ideas in Architecture,*" *by the A.A. School. Last day. At 36 Bedford Square, W.C.1. Exhibition of Photographs by Members. Last day.*

LONDON SOCIETY. *Visit to the new R.I.B.A. Headquarters, 66 Portland Place, W.1.* 3 p.m.

Tuesday, January 22

LONDON SOCIETY. *In the State Dining Room, Lancaster House, St. James's, S.W.1.* "*Damming the Thames.*" *By J. H. O. Bungé, M.I.Mech.E.* 5 p.m.

Wednesday, January 23

L.C.C. CENTRAL SCHOOL OF ARTS AND CRAFTS. *Southampton Row, W.C.1.* "*History of Architecture, XIV. Belgian and Dutch Renaissance* (1525-1900)." *By Sir Banister Fletcher, M.Arch., F.S.A., P.P. R.I.B.A.* 6 p.m.

CHARING CROSS BRIDGE INQUIRY

A committee has been formed to investigate, as a matter of urgency, whether and where a new bridge should be built at Charing Cross, and whether or not the railway terminus should be moved to the south side of the Thames. A report is to be issued as soon as possible.

The official announcement from the Ministry of Transport states: "Mr. Hore-Belisha, Minister of Transport, recently informed the L.C.C. of his intention to ask the London and Home Counties Traffic Advisory Committee to review the case for safeguarding the possibility of constructing a road bridge in the neighbourhood of Charing Cross in so far as such a case rests upon consideration of traffic conditions, with a view to terminating the uncertainty which at present prevails regarding the development of areas covered by obsolete and unprofitable buildings in the locality. The L.C.C. agreed to this course, and a sub-committee has now been appointed."

Its members are: Sir Henry Jackson, M.P. (chairman); Mr. Harold E. Clay, chairman of the London Labour Party, representing organized labour; Mr. F. Bertram Galer, chief whip of the Municipal Reform Party, L.C.C.; Mr. Charles Latham, chairman of the L.C.C. Finance Committee; Mr. A. Matheson, assistant secretary, Ministry of Transport, representing the Ministry; Sir John Pakeman, representing the City of London; Alderman Ben Smith, of Bermondsey, representing the Metropolitan Borough Councils; and Mr. H. Alker Tripp, Assistant Commissioner at Scotland Yard, in charge of the Traffic Department.

Evidence will be taken from all the interests concerned, which it will be seen have been excluded from membership of the committee. Its recommendations will not be binding on the L.C.C., but that body is expected to accept them.

HOTEL FOR SINGLE WORKERS

A scheme to provide unmarried workers of both sexes with the amenities of a modern "luxury" hotel at a moderate cost is expected to be started in Manchester soon. A six-storey building, containing over 700 bedrooms, is to be built a few minutes' journey from the centre of the city. It will be called Devonshire House, and will have a dining-room to seat a thousand, a lounge, a ball-room theatre, a large billiards room and a swimming bath.

The scheme proposes to cater for moderately salaried men and women who at present live in rooms or apartments. The former will pay 35s. and the latter 30s. for accommodation, including two meals a day for five days a week and three meals a day over the week-end. Shops will be provided by the main entrance, and at the top of the building there will be sick wards supervized by a qualified matron.

BUILDING CENTRE: A SERIES OF LECTURES

The Building Centre announce that a series of six technical lectures have been arranged for the following dates:—

January 24: "Some Constructional and Decorative Timbers," by E. H. B. Boulton, M.C., M.A. (Chairman, E. Guy Dawber, A.R.A., F.R.I.B.A.)

January 31: "Metallic Rust-Proof Finishes for Architectural Ironwork," by I. G. Slater, M.Sc., PH.D. (Chairman, Francis Lorne, F.R.I.B.A.)

February 7: "Divining for Water, Oil and Coal," by P. Gatward. (Chairman, Maurice E. Webb. D.S.O., F.R.I.B.A.).

February 14: "Consideration of the Home Office 'Manual of Safety Requirements in Theatres and Other Places of Public Entertainment,'" by Lt. Col. Guy Simons, D.S.O. (Chairman, R. E. Stradling, Director Building Research Station.)

February 21: "The Application of Coal and Coal Burning Appliances to Modern Buildings," by H. L. Pirie, Chief Engineer Coal Utilisation Council. (Chairman, Oscar Faber, O.B.E., D.SC., M.INST.C.E., Consulting Engineer.)

February 28: "Properties of Bricks in Relation to Processes of Manufacture," by A. Zaiman. (Chairman, J. R. Leathart, F.R.I.B.A.)

The lectures will be held in the Building Centre at 158 New Bond Street, W.1, and will commence at 8 p.m. After each lecture an open discussion has been arranged in which architects and technicians will take part.

BUILDING PLANS APPROVED

In a bulletin issued last week by the Building Industries National Council, it is pointed out that "the estimated cost of buildings for which plans were approved in 146 provincial towns during October, at £8,801,900, showed an increase of £1,311,100, or 17.5 per cent. over September, and of £1,821,100, or 26·1 per cent. over 1933. It is the highest figure recorded for October since 1924. The preliminary total for November, in respect of only 144 towns, at £8,679,700, shows an increase of 19.6 per cent. as compared with the same towns a year ago, and is higher than any figure recorded in November for 146 towns since 1924.

"The increase in October over September was due chiefly to an increase of £1,171,200, or 22.5 per cent., in dwelling houses. Increases were also recorded in other buildings and churches, schools, etc., but industrial and commercial buildings (factories, workshops, shops, offices, etc.) showed a decline.

"Although the total for 144 towns in November is £122,200 below the October figure for 146 towns, the figure for dwelling houses shows an increase of £379,000. As compared with the same 144 towns in November, 1933, dwelling houses show an increase of £1,183,800, or 21·2 per cent.; churches, schools, etc., of £278,700, or 115.9 per cent., and other buildings, etc., of £120,800, or 19·3 per cent. Factories and workshops show a decline of £162,600, or 32 per cent."

HAMMERSMITH TOWN HALL PROTEST

Hammersmith residents are petitioning against the Borough Council's proposal to build a new Town Hall on Brook Green, the only public open space in a large area. The London Society is organizing opposition to the scheme, which has been made possible by an exchange with the London County Council of another site on the green's south side for which plans had been drawn up.

Residents were unaware of the change until last week, although the minutes of

the Hammersmith Council at its meeting in December stated that a letter had been received stating that the appropriate committees of the L.C.C. were prepared to recommend the exchange. The Hammersmith Council have instructed their architect to prepare plans for the new site.

BUILDING OPERATIONS IN LONDON

Radical alterations in the London scene are foreshadowed by various West End building schemes. On the site of numbers 15 to 18 Portman Square is to rise a ten-storey block of flats designed by Mr. W. E. Masters, F.R.I.B.A. This building will provide over 100 flats and will be ready for occupation in the autumn.

As a result of road improvements at the junction of Oxford Street and Marylebone Lane, the old Marylebone Court House and Watch House, long occupied by Bumpus's book shop, are to come down, and in their place it is proposed to erect an eight-storey block, likewise of over 100 flats, to the designs of Messrs. Gunton and Gunton.

A third block of flats is to replace the two mansions 50 and 51 South Audley Street, Mayfair, which are now being demolished. There will be seven floors of flats above shops, and the accommodation is to be so arranged that tenants can have either a large flat or a small one by sub-division of larger suites. If necessary, small flats can later revert to the larger form.

A.A.S.T.A. CRUISES

The Association of Architects, Surveyors and Technical Assistants has entered into arrangements with the P. & O. Steam Navigation Company for members of the Association and friends to join two of the company's cruises during 1935, instead of organizing independent tours on the Continent. Both cruises are by the s.s. *Strathnaver*.

The first cruise starts on July 19 from Avonmouth, and visits Bergen, Stockholm, Zoppot (for Danzig), Copenhagen and Hamburg, and returns to Southampton on August 2.

The second leaves Southampton on August 31 and visits Palma in Mallorca, Naples (for Pompeii), Venice, Fiume, Split (Spalato), Milna, Dubrovnik (Ragusa), Corfu, Messina, Cadiz, Vigo and Arosa Bay, and returns to London on September 23.

Full particulars of the tours are obtainable from the Secretary, A.A.S.T.A., 26, Buckingham Gate, S.W.1.

TOWN PLANNING FOR WESTMINSTER

The Westminster City Council Improvements Committee have recommended that Professor S. D. Adshead, F.R.I.B.A., Mr. W. R. Davidge, F.R.I.B.A., and Mr. F. Longstreth Thompson, A.M.INST.C.E., be retained to report, at a fee of £3,000, on Westminster's part in the London County Council's town planning scheme for the whole of London. Particular reference will be made to the city's duties under the Town and Country Planning Act, 1932.

The L.C.C. have asked for suggestions, and the committee state that they consider it the duty of Westminster City Council, in view of the great value of property and the importance of the interests affected, to give most thorough attention to all matters likely to be included in a town planning scheme affecting Westminster.

"It is essential," the committee add, "that the City Council should obtain information and advice in advance of the submission by the County Council of its draft proposals."



A drawing of the new office building which is to be erected at the corner of Great George Street, facing Parliament Square, by Westminster House Real Property Company. Work has been begun on the clearing of the site, and it is expected that the new building will be completed by the middle of 1936. The elevations have been designed by Sir Giles Gilbert Scott, R.A., P.R.I.B.A., and the architects of the building are Messrs. A. V. Montagu and E. F. Tomlins.

NEW BUILDING IN WESTMINSTER

Plans have been approved for the erection of a new office building at the corner of Gt. George Street and Parliament Square, Westminster. The elevations have been designed by Sir Giles Gilbert Scott, R.A., P.R.I.B.A., and the architects for the building are Messrs. A. V. Montagu and E. Frazer Tomlins, A. and F.R.I.B.A. The consulting engineers are J. F. Crowley and Partners. Work on the demolition of the existing buildings is now in progress. The site of the structure has been the subject of much controversy.

Dr. Crowley, who took the initiative in the development of the site for the erection of the new building, in a statement to *The Times* said that, having regard to the attention that had been drawn to the project, he was sure the public would now realize that the existing buildings were unworthy of the position, and that the site was capable of treatment which would definitely improve the amenities of Parliament Square. "An examination of the elevations," he added, "will show that the requirement I laid down in a letter to *The Times*—namely, that the building would be designed to fit in with the buildings in the immediate neighbourhood—has been adhered to in the new design. In arriving at a solution of the very serious problem which the treatment of such an important site presented the advice of the Royal Fine Art Commission was invaluable, and I would like to pay a tribute to that given by successive presidents of the Royal Institute of British Architects, particularly Sir Giles Gilbert Scott, to the sympathetic attitude of many members of Parliament, who were anxious for the removal of what they considered an eyesore facing Parliament Square, and to helpful consideration given by leading members of the London County Council. Without also the practical help of the representatives of the Ecclesiastical Commissioners and the assistance of H.M. Office of Works in the solution of important problems, it is doubtful whether the project would have been carried through successfully."

ANNOUNCEMENT

Sir John Brown and A. E. Henson, of Northampton, have opened an office at 1, Old Burlington Street, W.1.

THIS ARSHETECTURE

An unique style of cinema architecture is to be used in connection with a new super-cinema to be erected on a plot of ground which has been purchased with a frontage to Shenley Road, Boreham Wood. The whole scheme will be carried out in Tudor style both inside and outside, and attendants will also be attired in costumes of the period.

The approach to the main entrance will be in the form of an Old English garden, and the front elevation will have the appearance of a large Tudor house.

The foyer will be carried out in the style of the same period with huge brick fire places.

From the "Herts Advertiser"

R. I. B. A.

THE ROYAL GOLD MEDALLIST

It was announced on Monday last that the Council of the R.I.B.A. propose to submit the name of Mr. W. M. Dudok, of Holland, as a fit recipient of the Royal Gold Medal for 1935.

PRIZES AND STUDENTSHIPS

At a general meeting of the Institute, held on Monday last, the results of the competitions for the annual prizes and studentships were announced as follows :—

The Tite Prize : A Certificate and £50 for the Study of Italian Architecture. Subject : "A Private Open Air Swimming Bath." Harold Maurice Wright, Probationer R.I.B.A. (Birmingham School of Architecture). Certificates of Honourable Mention were awarded to Peter Leslie Joseph, Probationer R.I.B.A. (Birmingham School of Architecture) and John Coleman Charter, Student R.I.B.A. (School of Architecture, The Architectural Association, London).

The Victory Scholarship and £150 for the Advancement of Professional Education. Subject: "A Boarding School for Girls." F. A. C. Maunder, DIP.ARCH., Durham, A.R.I.B.A. (Armstrong College School of Architecture (University of Durham), Newcastle-upon-Tyne). Certificates of Honourable Mention were awarded to Herbert John Whitfield Lewis, A.R.I.B.A. (Welsh School of Architecture, The Technical College, Cardiff), and William Edward Cousins, Student R.I.B.A. (Liverpool School of Architecture).

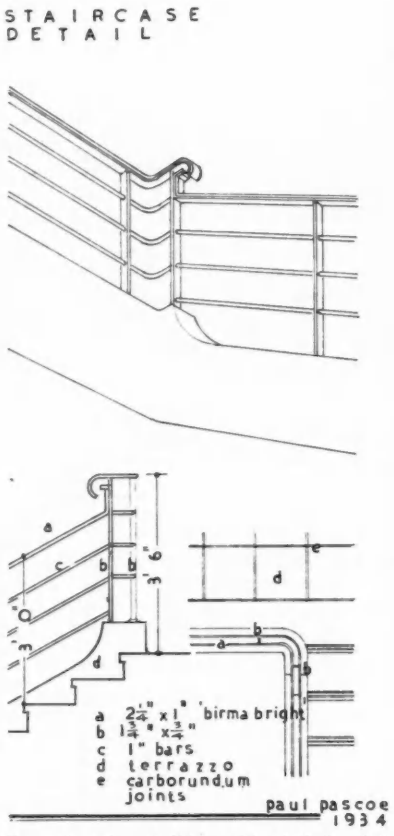
The Pugin Studentship : A Silver Medal and £75 for the Study of Mediæval Architecture of Great Britain and Ireland. Frederic Robert Stevenson, Probationer R.I.B.A. (The School of Architecture, Edinburgh College of Art). Certificate of Honourable Mention (and £25) was awarded to Harry Gibberd, Student R.I.B.A. (Birmingham School of Architecture).

The Owen Jones Studentship : A Certificate and £100 for the Study of Ornament and Colour Decoration. Subject : "An Exhibition Hall in the New Premises of the R.I.B.A." Not awarded.

The Godwin and Wimperis Bursary : £200 for the Study of Works of Modern Architecture Abroad. Wesley Dougill, M.A., B.ARCH., Liverpool, A.M.T.P.I., A.R.I.B.A. (Liverpool School of Architecture).

The Royal Institute Silver Medal and £50 for an Essay. Awarded to Daniel Roth, Student R.I.B.A. (School of Architecture, The Polytechnic, Regent Street, London, W.1), for an Essay entitled "Norman Survivals in London." Certificates of Honourable Mention were awarded to Arnold Paul Pascoe, A.R.I.B.A., for an essay entitled "The Study of the Early Buildings in the Canterbury Settlement of New Zealand," and Anthony John Steel, A.R.I.B.A. (Armstrong College School of Architecture (University of Durham), Newcastle-upon-Tyne), for an essay entitled "The Life and Work of John Dobson of Newcastle-upon-Tyne."

The Alfred Bossom Travelling Studentship : A Gold Medal and £250 for the Study of Commercial Architecture in America. Subject : "A Garage." Allan Johnson, DIP.ARCH., Leeds, A.R.I.B.A. (Leeds School of Architecture).



From the Nurses' Home, Hospital for Sick Children, Guilford Street, W.C. Designers : Stanley Hall and Easton and Robertson.

The Grissell Gold Medal and £50 for the Encouragement of the Study of Construction. Subject : "A Furniture Factory and Showroom." Arthur Chester Smith, A.R.I.B.A. (Royal Academy School of Architecture).

The Hunt Bursary : £50 for the Encouragement of the Study of Housing and Town Planning. Keith Frederick Giraud, A.M.T.P.I., A.R.I.B.A. (School of Architecture, Sydney Technical College ; School of Architecture, Sydney University and Bartlett School of Architecture, University of London).

The Arthur Cates Prize : £50. (In the current year the Prize was offered for the promotion of Architecture in relation to Town Planning.) Colin St. Clair Bycroft Oakes, A.R.I.B.A. (School of Architecture, Northern Polytechnic, London, and Royal Academy School of Architecture).

The Henry Saxon Snell Prize : £100. (Offered jointly by the R.I.B.A. and the Architectural Association for the study of the improved Design and Construction of Hospitals, Convalescent Homes and Asylums for the Aged and Infirm Poor.) Reginald Edmonds, A.R.I.B.A. (Birmingham School of Architecture).

The Athens Bursary : £100 for Study at the British School at Athens. Hope Bagenal, D.C.M., A.R.I.B.A. (School of Architecture, Architectural Association, London).

The Ashpitel Prize, 1934. This is a Prize of books, value £10, awarded to the candidate who, taking the Final Examination to qualify as an Associate, shall most highly distinguish himself among the candidates in the Final Examinations of the year. Ralph George Covell, Student R.I.B.A.

The Rome Scholarship in Architecture : £250 per annum for two or three years' study and research at the British School at Rome. Offered by the R.I.B.A. and awarded by the Faculty of Architecture of the British School at Rome, has been awarded to Fred A. C. Maunder, DIP.ARCH., Durham, A.R.I.B.A. (Armstrong College School of Architecture (University of Durham), Newcastle-upon-Tyne).

The R.I.B.A. Silver Medal and £5 in Books for Students of Schools of Architecture recognized for Exemption from the Final Examination. Alan Reiach, A.R.I.B.A. (School of Architecture, Edinburgh College of Art).

The R.I.B.A. Bronze Medal and £5 in Books for Students of Schools of Architecture recognized for Exemption from the Intermediate Examination. Brian Bunch, Probationer R.I.B.A. (Birmingham School of Architecture).

The Archibald Dawnay Scholarships : Two Scholarships of the value of £50 each for the Advanced Study of Construction. One Scholarship awarded to Alexander Murray Graham, Student R.I.B.A. (School of Architecture, Edinburgh College of Art), and another Scholarship awarded to Henry Edward Alfred Scard, Student R.I.B.A. (Welsh School of Architecture, The Technical College, Cardiff).

The R.I.B.A. Anderson and Webb Scholarship at the School of Architecture, Cambridge University : £75 per annum. M. A. J. Farey.

The R.I.B.A. Henry Jarvis Studentship at the School of Architecture, The Architectural Association, London : £50. Cyril Owen Tremeer, Student R.I.B.A.

The R.I.B.A. Howard Colls Travelling Studentship at the Architectural Association : £15 15s. John Wheeler, Probationer R.I.B.A.

The R.I.B.A. Donaldson Medal at the Bartlett School of Architecture, University of London. David William Aberdeen, Probationer R.I.B.A.

The R.I.B.A. Prize for Art Schools and Technical Institutions with Facilities for the Instruction of Intending Architects (£5 in Books). Henry Alfred White, Probationer R.I.B.A. (L.C.C. School of Building, Brixton). A Certificate of Honourable Mention was awarded to Miss Muriel Alden, Student R.I.B.A. (City of Oxford School of Arts and Crafts).

A criticism of the work submitted was given by Mr. Edward Maufe, F.R.I.B.A.

The competition drawings are now exhibition in the Henry Florence Hall, R.I.B.A., 66 Portland Place, London, W.1 (10 a.m. and 8 p.m., Saturdays 10 a.m. and 5 p.m., Sundays excluded).

COMPETITION NEWS

COMPETITION BANNED

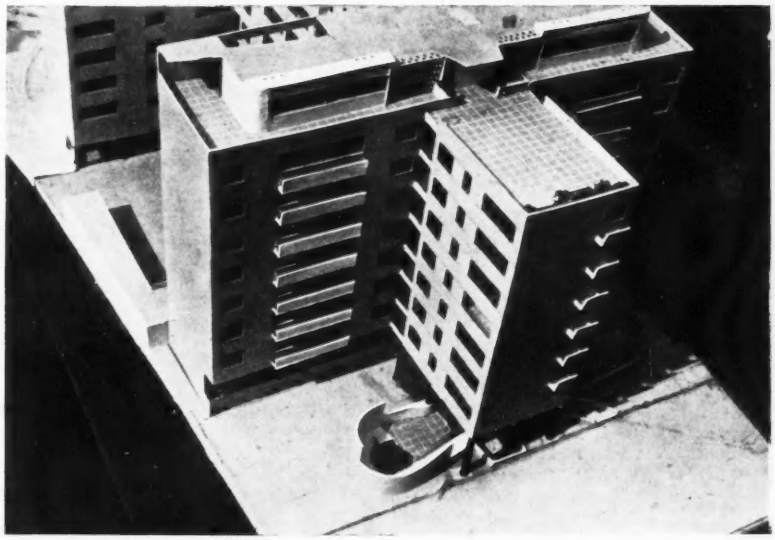
The following statement has been issued by the R.I.B.A. :

The Competitions Committee desire to call the attention of members to the fact that the conditions of the competition for the development of the King Street Housing Site, Kirkcaldy, are not in accordance with the regulations of the R.I.B.A. The Competitions Committee are in negotiation with the promoters in the hope of securing an amendment. In the meantime members should not take part in the competition.

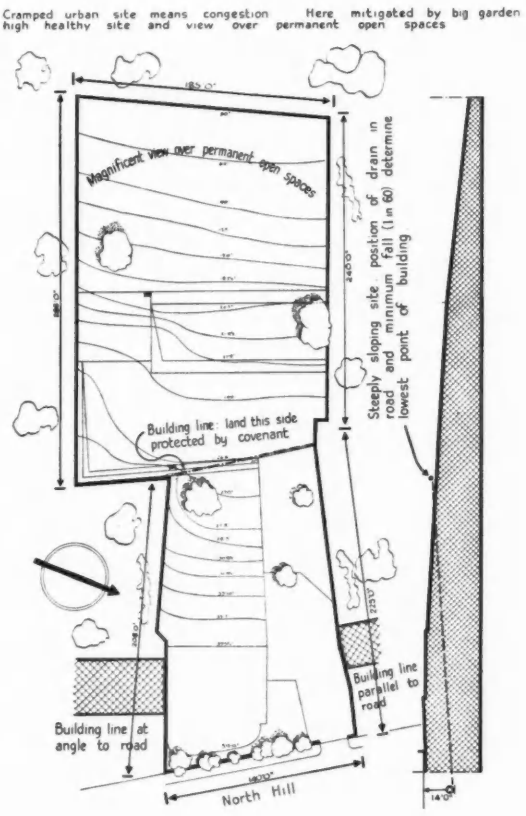
(*For Competitions Open see issue for Jan. 10, p. 44.*)

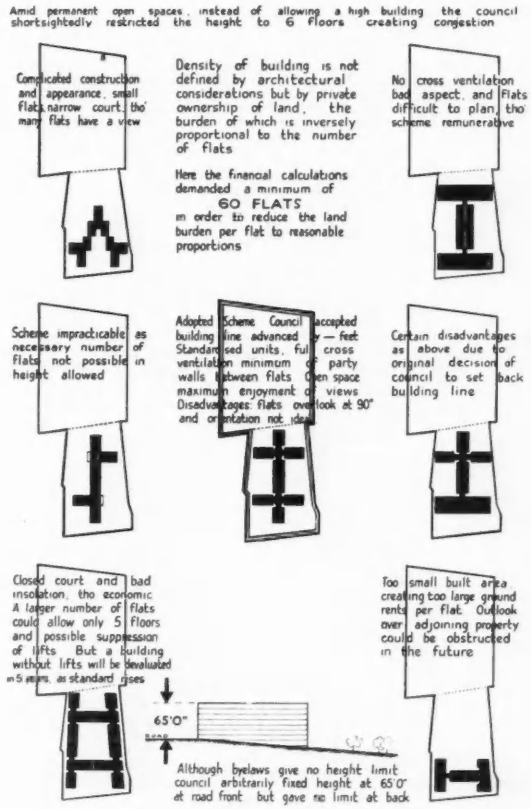
ANALYSIS OF A BUILDING

THE programme of education in architectural schools includes periodic visits to buildings newly completed or under construction. Arrangements were recently made for students of the Architectural Association School to pay a visit to the block of reinforced concrete flats at Northfield, Highgate, now in course of erection, designed by Messrs. Tecton. The architects felt that a tour of a building could not have the full educational value it might have unless the students were already provided with some knowledge of its design and construction: particularly of the processes through which its design had passed before reaching its final form—unless they were enabled, that is to say, to look at the building in terms of the problems the architects had to solve instead of as an ad hoc *architectural exhibit. Messrs. Tecton, therefore prepared a series of explanatory diagrams in which the functions of the building and the evolution of its design were analysed, both generally and in detail, for exhibition preparatory to the visit; giving the students an opportunity to prepare questions to be answered by the architects on the site, and enabling them to examine the building with somewhat more than casual intelligence. These diagrams (of which the originals are 29 ins. by 19 ins. in size) are reproduced on this and the following pages. The students' visit to the Highgate flats took place on Tuesday, the explanatory diagrams having been on exhibition at the A.A. School during several days previously.*



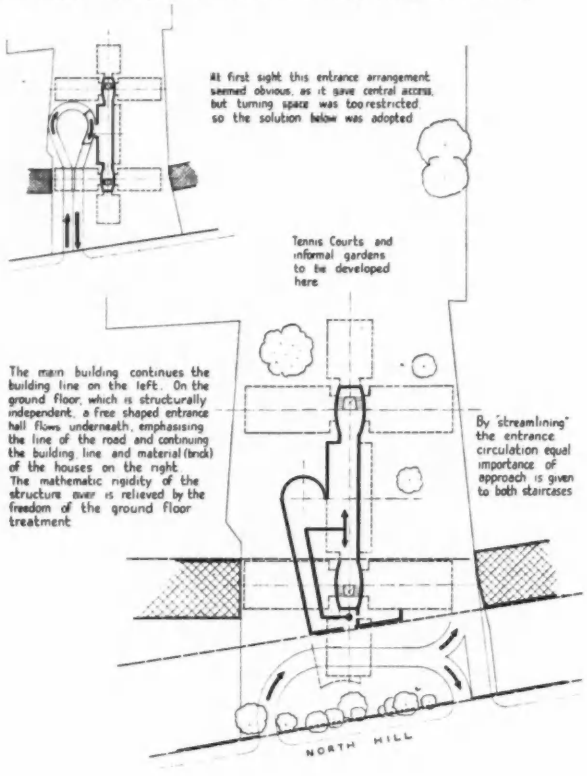
FLATS AT NORTHFIELD, HIGHGATE: DESIGNED BY LUBETKIN AND TECTON



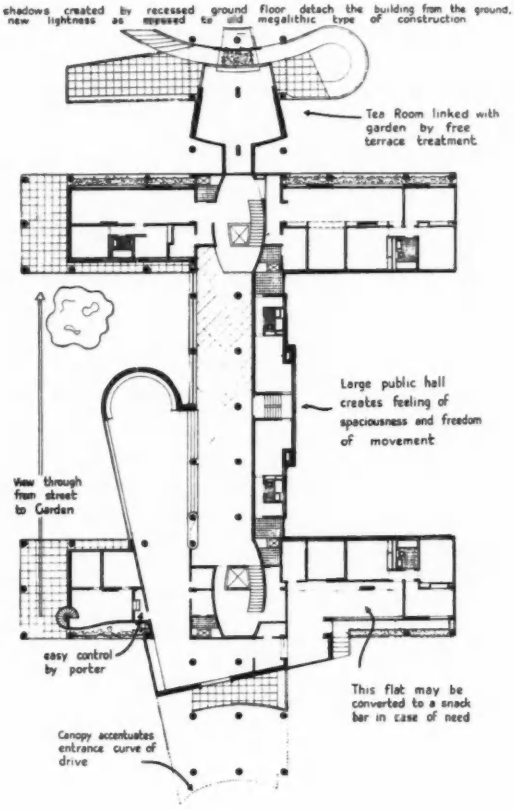


ANALYSIS OF A BUILDING : FLATS AT

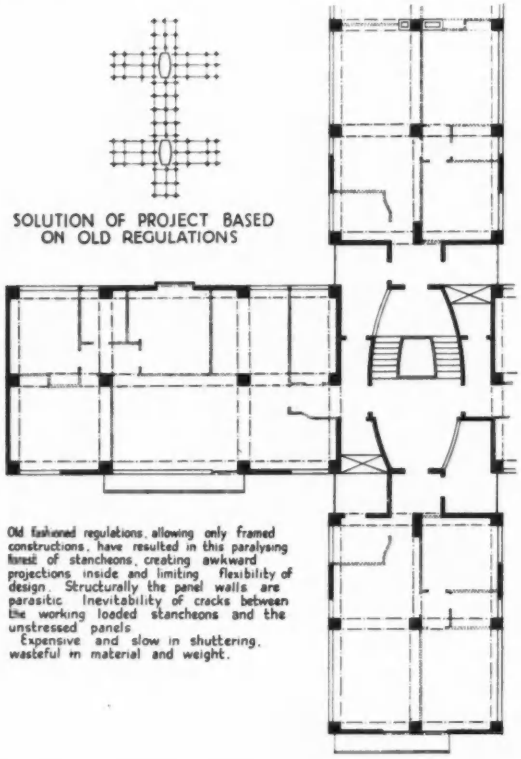
The independence of the ground floor constructionally gives possibility of designing a free ground floor without damaging the rigid logic of the flats and allows for uniting building with surroundings



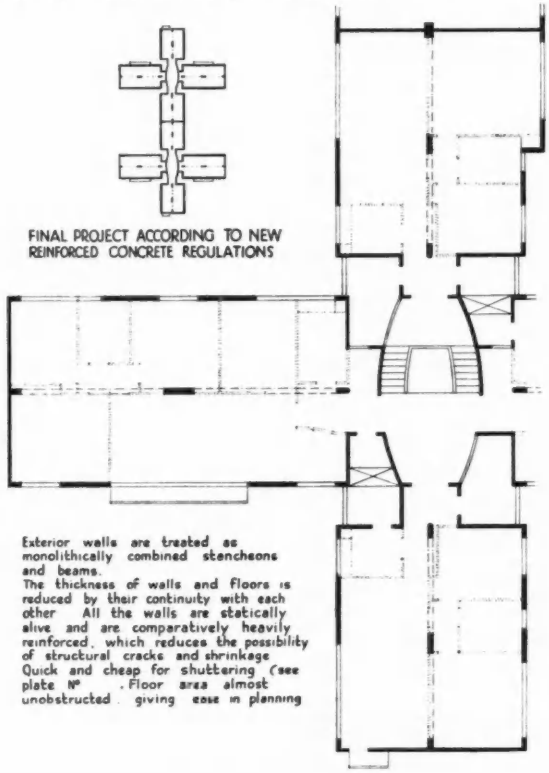
shadows created by recessed ground floor detach the building from the ground, new lightness as opposed to old megalithic type of construction



Framed buildings in concrete are slavish imitations of steel technique, the wonderful properties of monolithic methods of construction properly used give new freedom of planning. Not every framed building is modern!

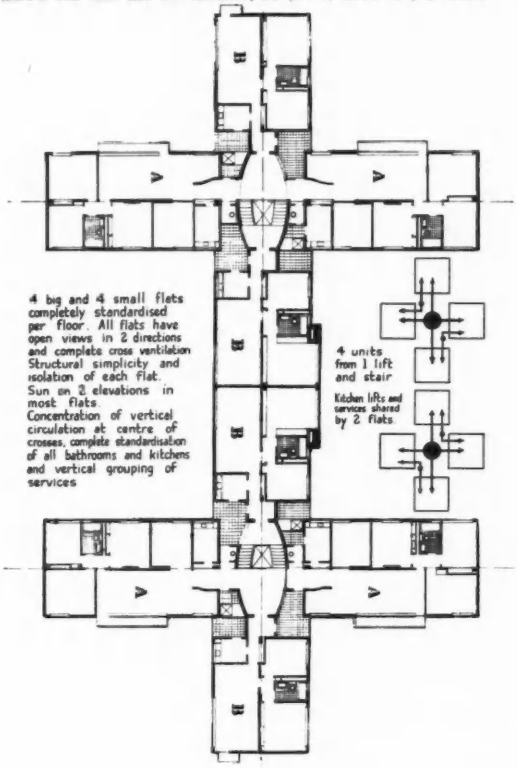


This system, here used in England for the first time, whose advantages are obvious was only accepted through the liberality of the local surveyor

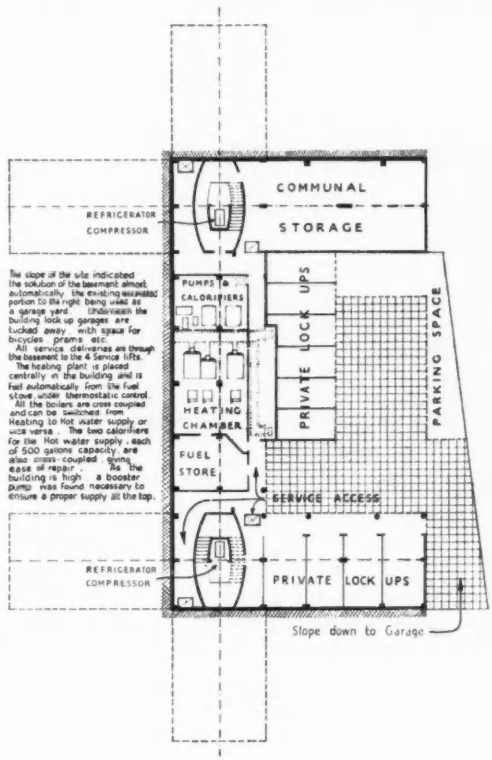


HIGHGATE: BY LUBETKIN AND TECTON

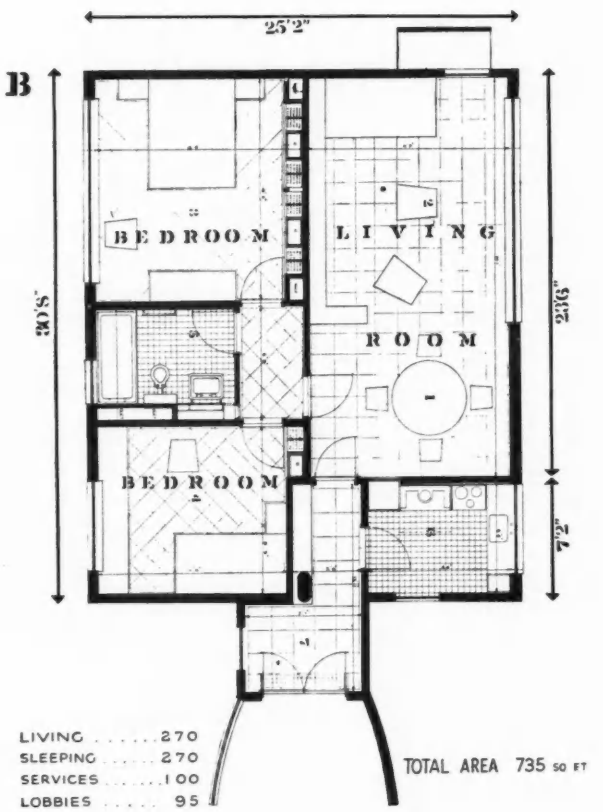
Schematic integrity of conception leads to cheapness and efficiency in planning and creates a clear and organic balance to which human scale and individuality are given by careful study of details



Basement centralises the deliveries and services, and provides facilities for garbage collecting, so that the whole ground floor is kept for free circulation to the flats

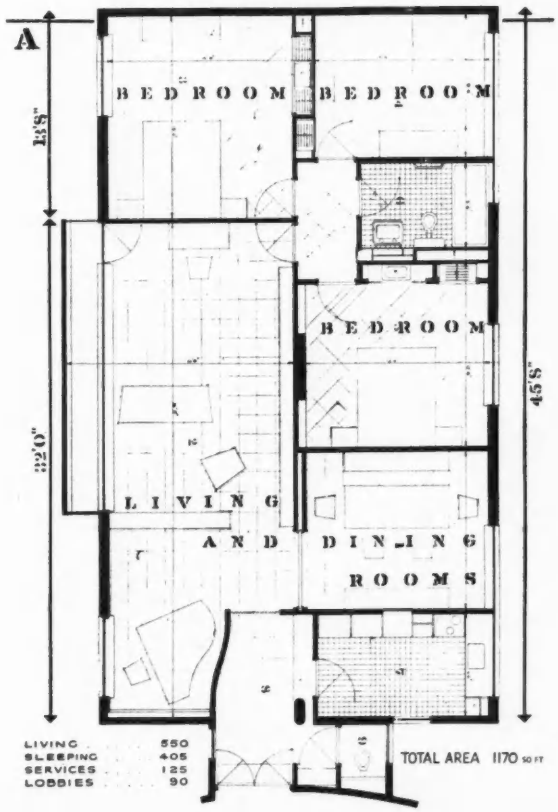


The slope of the site indicated the solution of the basement almost automatically, the existing excavated portion to the right being used as a garage yard. Underneath the building lock up garages are tucked away, with space for bicycles, prams etc.
All service deliveries are through the basement to the 4 service lifts.
The heating plant is placed centrally in the building and is fuel automatically from the fuel stove under thermostatic control. All the boilers are cross coupled and can be switched from Heating to Hot water supply or vice versa. The two calorifiers for the Hot water supply, each of 500 gallons capacity, are also cross-coupled, giving ease of repair. As the building is high a booster pump was found necessary to ensure a proper supply all the top.



LIVING	270
SLEEPING	270
SERVICES	100
LOBBIES	95

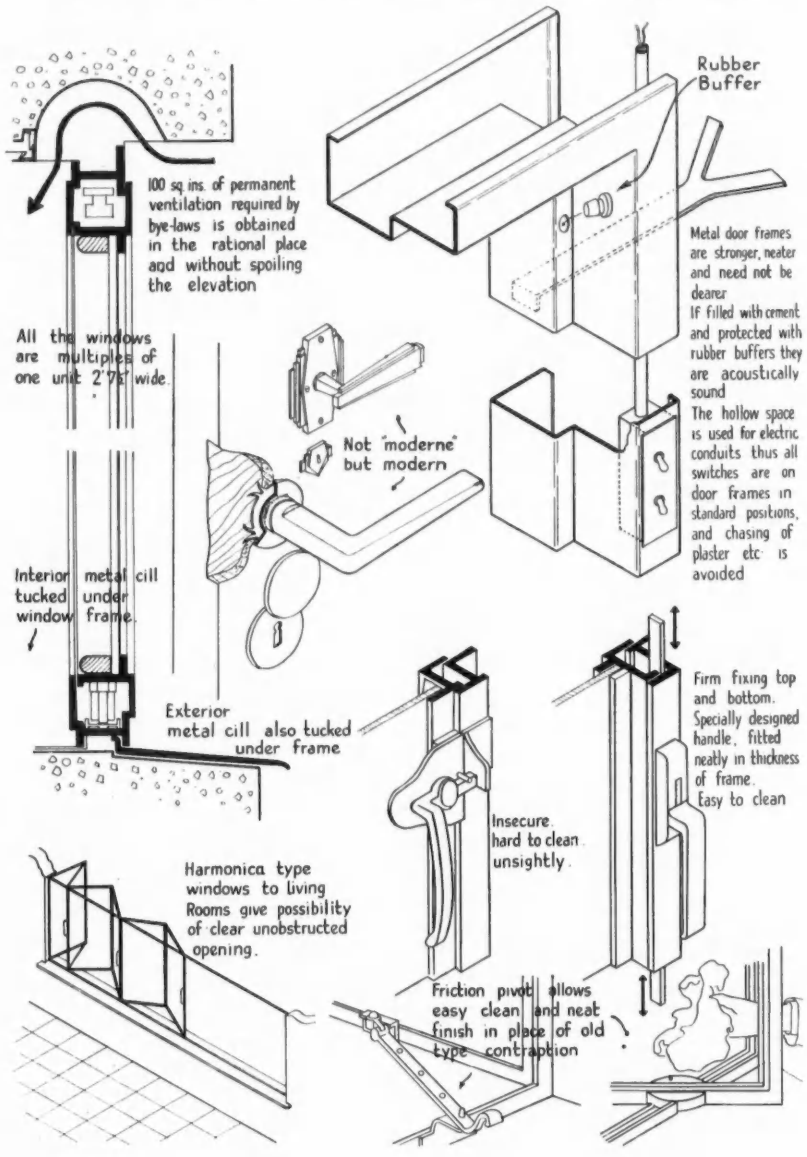
TOTAL AREA 735 SQ FT



LIVING	550
SLEEPING	405
SERVICES	125
LOBBIES	90

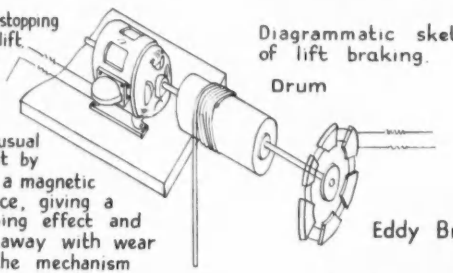
TOTAL AREA 1170 SQ FT

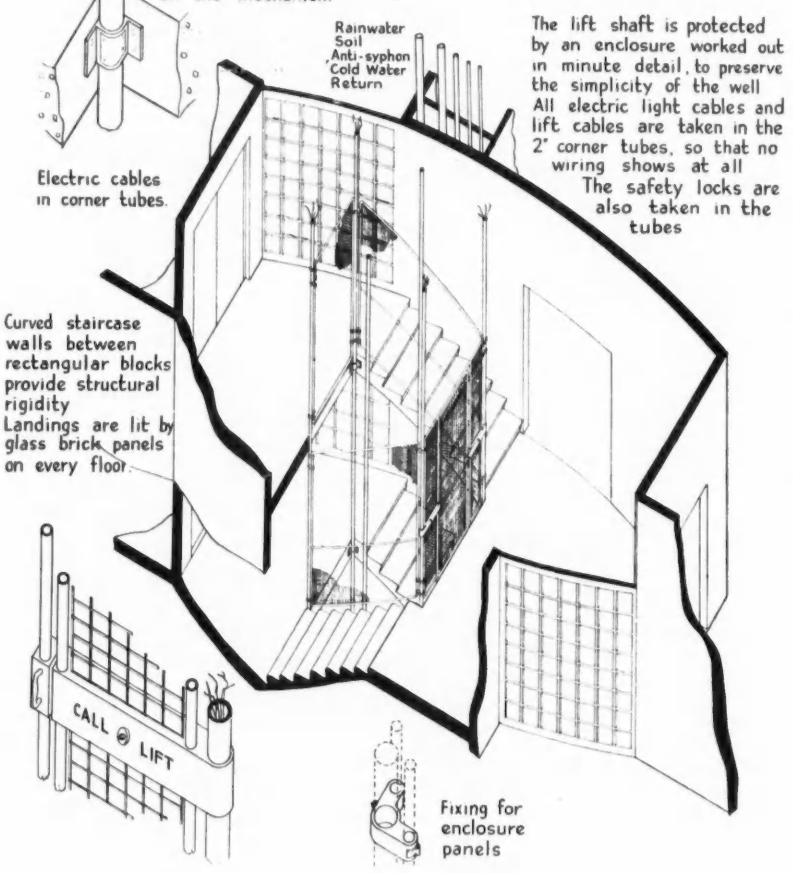
All details, however generally accepted, may be improved by elementary investigation



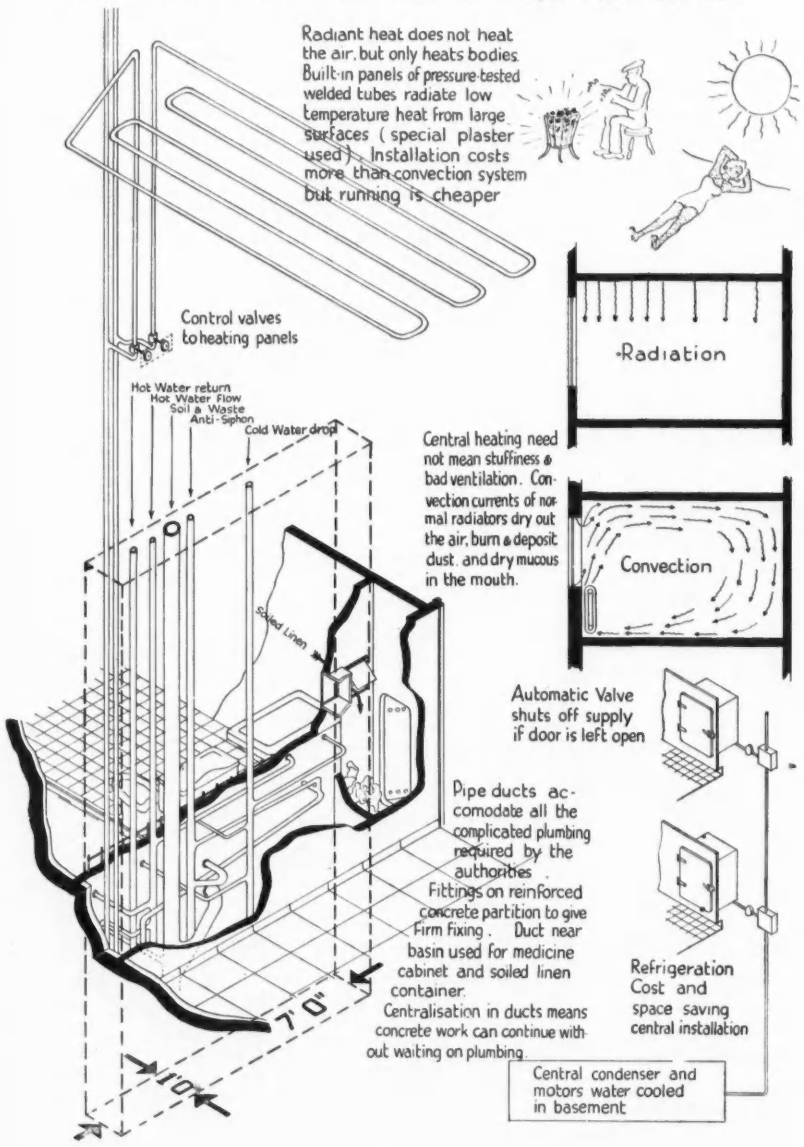
Hundreds of problems were encountered in the design of the lifts and enclosures of which no solutions have till now been attempted.

In order to provide easy stopping and departure of the lift the motors are fitted with Eddy electro-magnetic brakes, which stop the rotation not by the usual frictional methods, but by creating a magnetic resistance, giving a cushioning effect and doing away with wear on the mechanism

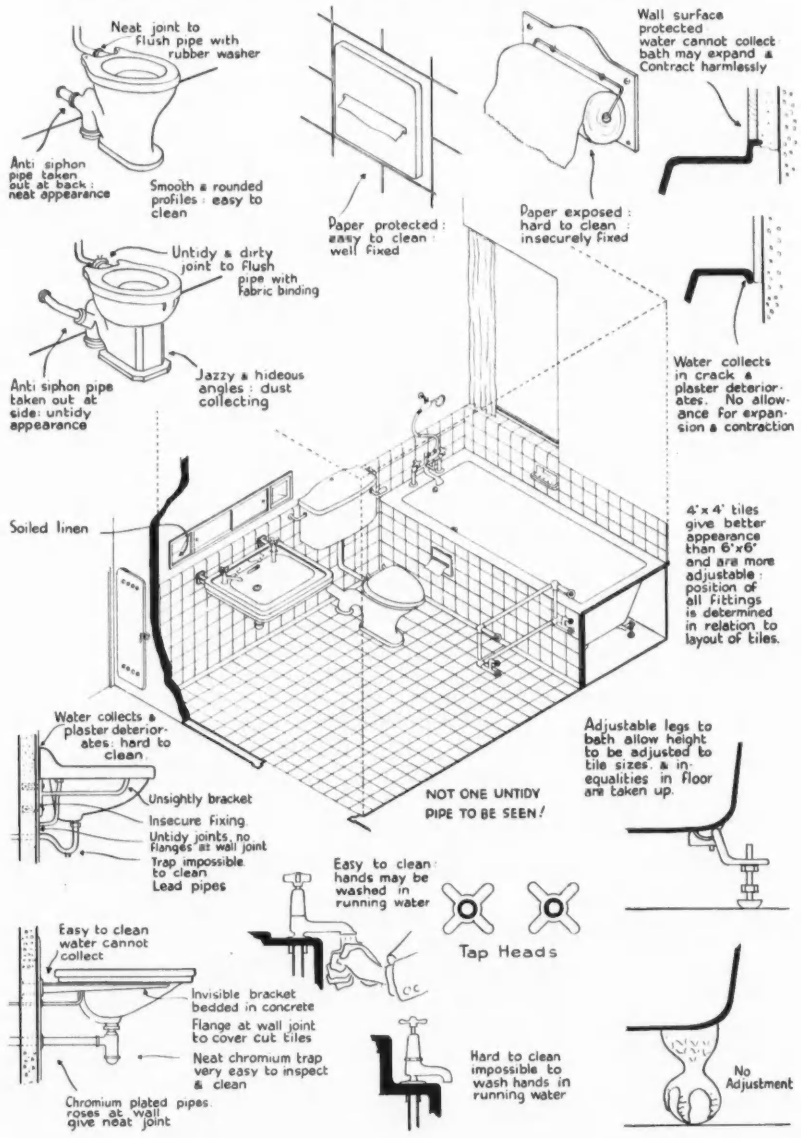




Plumbing and services grouped together to increase speed of erection ease of control and economy. No pipes show in the Flats



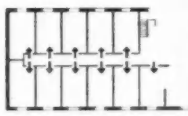
Most of the Fittings were specially made for the job, not for snobbish reasons, but through helplessness of manufacturers who ignore simple solutions for standard products.



DESIGNED BY LUBETKIN AND TECTON

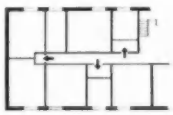
ANALYSIS OF A BUILDING: FLATS AT

After a century of opportunism we return to the sound architectural tradition. The Living Hall reasserts itself as the centre of the house as always before



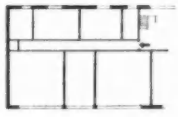
This typical scotch tenement plan of about 1840 shows the first type of collective urban dwelling expressing the profiteering tendency of early capitalism. Rows of cells communicating with a dark unlit corridor (Sing-Sing). Honest architectural expression of this depressing conception results in a barrack like elevation



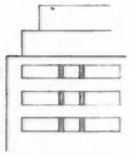


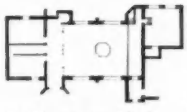
Typical units of pre-war flats (still unfortunately built) directly developed from the above plan. Here the corridor represents wasted space. The elevation is designed without proper relation to the plan and presents an arbitrary interpretation of the interior contents.



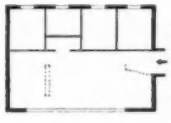


Even today most 'labour-saving' flats continue in this bad tradition. Here the waste space is accentuated by a dark corridor. Designed on a "hide & seek" principle (individual privacy: visitors under suspicion). The elevation, ostensibly horizontal and 'modern', does not express what is behind

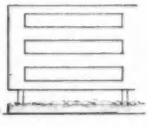




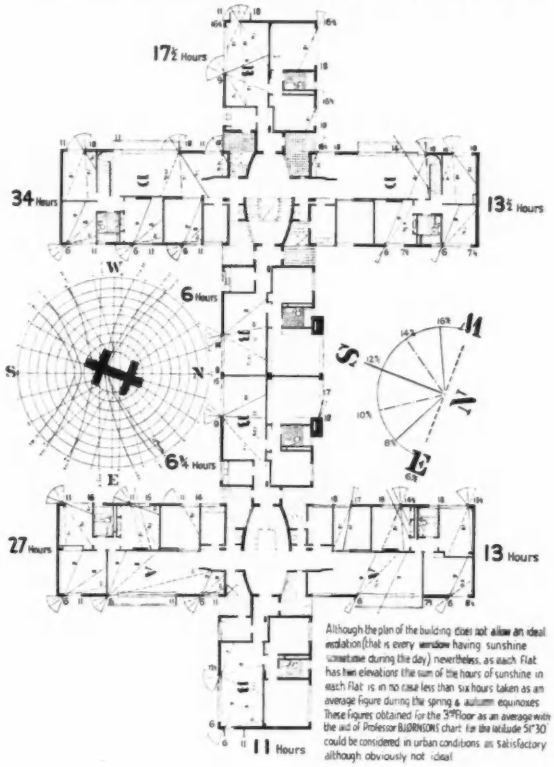
14th century English residence shows the traditional planning of the house round the central hall



The flat is expressed by its Living Hall, from which access is given to units with various functions. "Classification" of living space rather than division of space. The elevation frankly expresses the big hall. The flat is more spacious as the area is better utilized

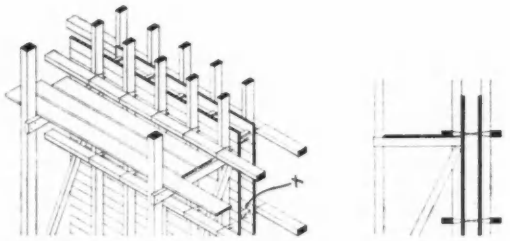


In cramped town sites, limited by the financial considerations, the orientation often suffers, some flats having a great deal of sun, others having a smaller amount



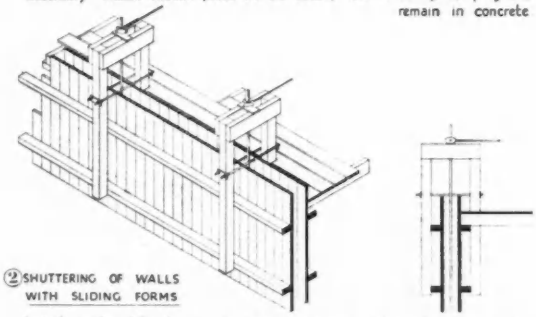
Although the plan of the building does not allow an ideal exposition (that is every window having sunshine sometime during the day) nevertheless, as each Flat has two elevations the sum of the hours of sunshine in each Flat is in no case less than six hours taken as an average figure during the spring & autumn equinoxes. These figures obtained for the 3rd Floor as an average with the aid of Professor BURNHOM'S chart for the latitude 51°30 could be considered in urban conditions as satisfactory although obviously not ideal

No existing methods of shuttering overcome both difficulties of surface treatment (visible joints between lifts) and continuity of floor slab



(1) NORMAL SYSTEM OF SHUTTERING

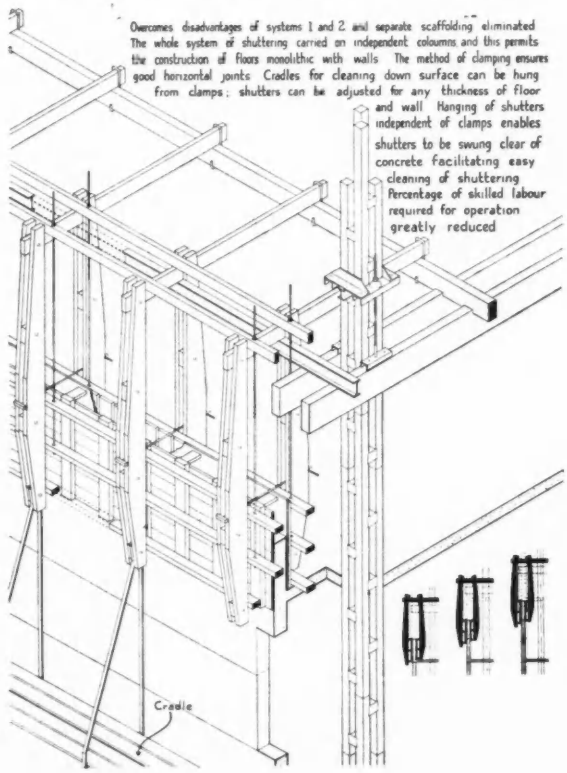
Disadvantages – Relative high Labour Cost; dependency upon skilled workmen; horizontal joints difficult to conceal, stains on surface from binding wire left in walls; scaffolding necessary. Wooden distance pieces (X) are usually left in during tamping and remain in concrete



(2) SHUTTERING OF WALLS WITH SLIDING FORMS

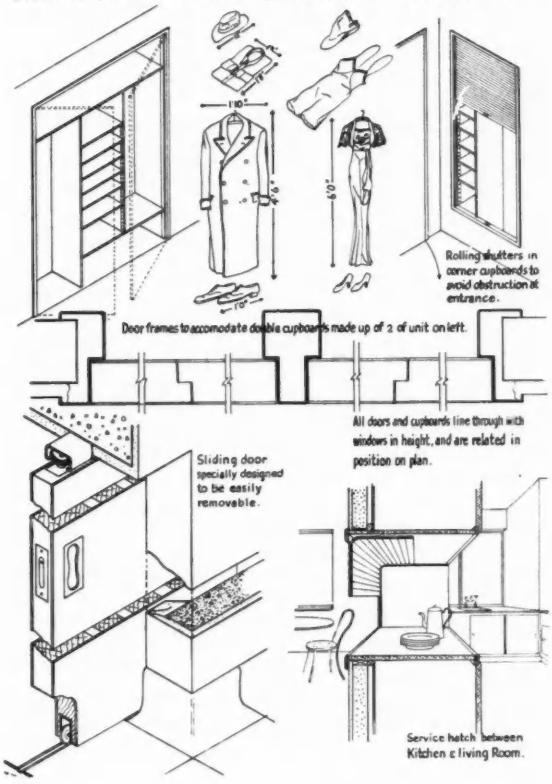
Disadvantages – Lifting of forms & pouring of concrete is a continuous operation and must go on day and night until completion. The construction of intermediate floors, therefore, becomes only possible by leaving a chase in wall thus – [illegible] This does not permit the floors to be constructed monolithic with the walls. Therefore, the system must be ruled out in cases of intermediate floors being designed monolithic with walls

In this system of shuttering (patent applied for) difficulties of surface treatment (no visible joints) and continuity of floor slabs are overcome and time and money are saved

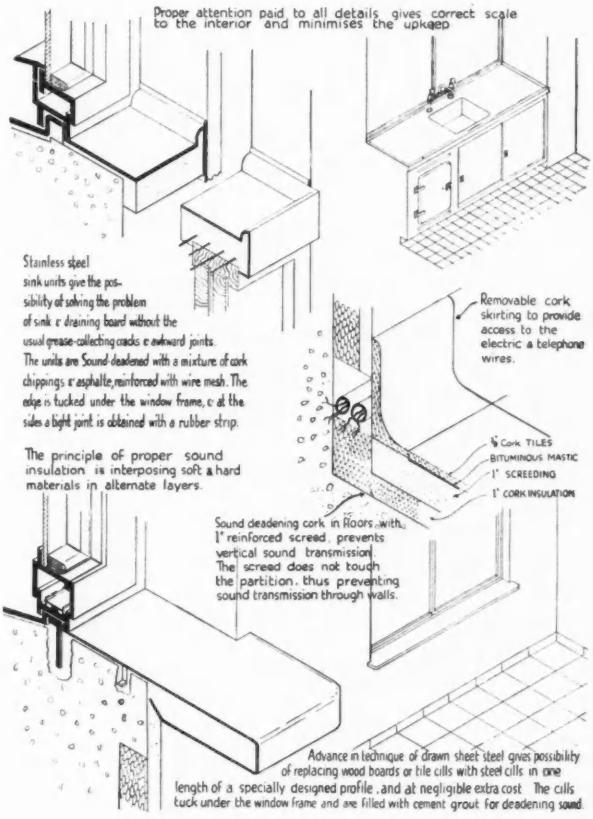


HIGHGATE: BY LUBETKIN AND TECTON

Any detail left to the contractors will certainly be done wrong. Better to spend a month drawing than spoil the building for ever.

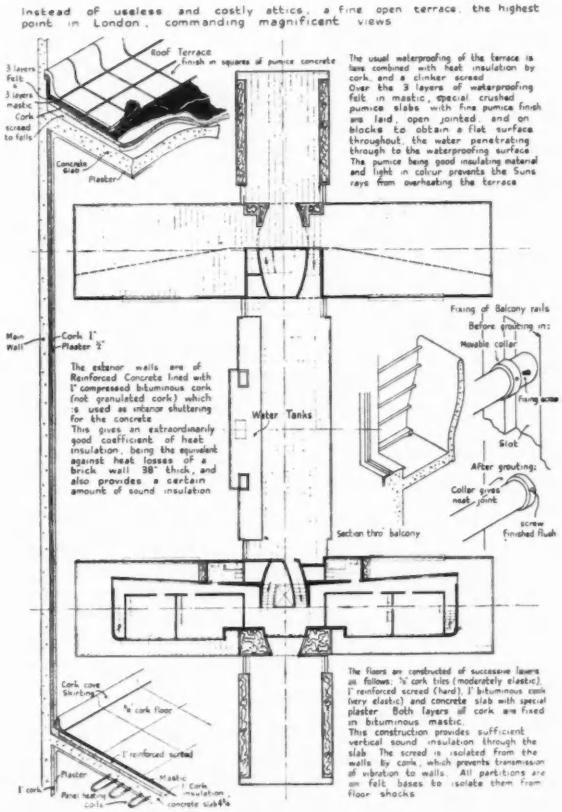


Proper attention paid to all details gives correct scale to the interior and minimises the upkeep



Advance in technique of drawn sheet steel gives possibility of replacing wood boards or tile cills with steel cills in one length of a specially designed profile, and at negligible extra cost. The cills tuck under the window frame and are filled with cement grout. For deadening sound

Instead of useless and costly attics, a fine open terrace, the highest point in London, commanding magnificent views

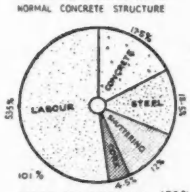


RATIONAL METHODS OF SHUTTERING AND REINFORCED CONCRETE DESIGN REDUCE COST OF CARCASE AND ALLOW A LARGER AMOUNT OF TOTAL COST TO BE SPENT ON MODERN EQUIPMENT

HOW THE TOTAL COST OF BUILDING IS DISTRIBUTED

EXCAVATIONS	1·3%
REINFORCED CONCRETE	31·0%
BRICKS	1·8%
DRAINS	0·9%
ASPHALTE AND ROOFING	1·1%
PARTITIONS	1·5%
WINDOWS AND FIXING	6·1%
INTERNAL PLUMBING (WATER, SOIL, RAINWATER)	5·8%
HEATING AND HOT WATER (INCL. MECH. STOKERS)	7·2%
SANITARY FITTINGS	3·2%
ELECTRICITY	5·0%
LIFTS (2 PASSENGER & 1 SERVICE)	4·8%
LIFT ENCLOSURES	2·0%
REFRIGERATION	2·4%
IRONMONGERY (RAILINGS ETC.)	1·0%
DOOR FRAMES AND CILLS	0·9%
SOUND INSULATION TO FLOORS	1·7%
PLASTER	4·0%
WALL TILES	0·6%
TERRAZZO	1·1%
CORK FLOORING AND SKIRTING	4·4%
LINO AND FLOOR TILES	0·5%
DOORS	2·2%
GLASS BRICKS	0·9%
CUPBOARDS	1·6%
GLASS	0·7%
KITCHEN FITTINGS	1·7%
PAINTING AND DECORATION	2·8%
EXTERNAL FINISH	1·8%

HOW THE COST IS DISTRIBUTED IN NORMAL CONCRETE STRUCTURE



ADDITION FOR SCAFFOLDING 106%

THE CARCASE

GREAT ECONOMY IN LABOUR AND SHUTTERING COSTS. THIN STRUCTURAL WALLS WITHOUT PROJECTIONS MAKE CLIMBING SHUTTERING POSSIBLE. SHUTTERING CAN BE USED MANY TIMES. SKILLED LABOUR IS REDUCED TO A MINIMUM

HOW THE COST IS DISTRIBUTED IN RATIONAL CONCRETE STRUCTURE



DEDUCT 2% FOR REUSE OF SHUTTERING 98%

LETTERS FROM READERS

UNDER £350 A YEAR

E. W. TRAILL

J. R. K.

A. K. CHESTERTON (for the British Union of Fascists)

The R.A. Exhibition of Art in Industry

SIR,—To all but the well-to-do the Exhibition of British Art in Industry, now taking place at the Academy, must be a profound disappointment. Surely the people responsible for the Exhibition have forgotten in their quest for Art in Industry that there are people whose incomes are not above £350 a year.

For the past decade there has been acknowledged improvement in the artistic quality and design of costly products; this has not been doubted. But what about furniture, fabrics and other ancillary products for use in the home obtainable at the multiple or ordinary shops? Is not the man-in-the-street, who purchases at such stores, entitled to be "designed for" just as much as the dweller in Mayfair?

Architects and people of good taste sneer at Exhibitions, such as the Ideal Home at Olympia, but it must not be forgotten that the goods displayed there do meet the purchasing power of the masses. If the Royal Society of Arts had set out to improve the standard of design at the *Daily Mail* Exhibition and worked in conjunction with the organizers and exhibitors, what a far better thing it would have been for Art in Industry. If this was not possible, however, it would have been quite easy to have introduced variety at the Academy—by which I mean variety of goods according to price. In Gallery 3 I found six cubicles all representing a separate room in the home (but not the home of an ordinary person). Would it not have been far more useful to have exhibited six types of dining-room, designed according to income. The Swedes realized that all people cannot afford the same type of thing, and in the Stockholm Exhibition designed rooms and houses on the above principle.

In the fabric section I found no material of such a price as to allow purchase by a person whose income only permits them to live in an L.C.C. or other type of estate house. If this type of wage-earner had been catered for, we should have seen a wallpaper section (we cannot all afford "rub down, size and paint three oils" surface) and a painted wood furniture section (neither can we all afford walnut or Empire timber veneers to our furniture). It is common knowledge that the more highly decorated furniture is with scrolls, volutes, bead and reel mouldings, the less costly it becomes. Let anyone attempt to purchase a simple, well-proportioned suite and he will be amazed at the increase in price over highly elaborated suites.

It will not be until our designers and manufacturers get together and improve the design of the lower-priced and mass-produced goods that the public will appreciate their efforts. Surely the Royal Commission on Art in Industry had in mind the masses as well as the *élite*?

UNDER £350 A YEAR
London

Ceiling Condensation

SIR,—In your issue for December 27 your reviewer, "J. R. K.," in writing of Dr. Vernon's Book, *The Principles of Heating and Ventilation*, criticizes Dr. Vernon's reference to the panel system as being suitable for producing cooling in summer: "since with this method there is a danger of condensation forming on the ceilings if the plant is left in operation at periods of high humidity—periods, that is, when its cooling effect is perhaps most required."

"J. R. K." is apparently unaware that, to prevent condensation, it is only necessary to maintain the surface temperature of the ceiling at 1 degree above the wet bulb temperature, i.e., above dew-point. This procedure was dealt with by Mr. J. L. Musgrave in a paper read recently at the British Association of Refrigeration.

E. W. TRAILL
London

J. R. K. replies:—

Your correspondent appears to confuse wet bulb temperature with dew-point. If a ceiling is maintained 1° above wet bulb it will probably be several degrees above dew-point, except when a saturated condition of the air exists, in which case wet bulb, dew-point and dry bulb temperature will all be the same.

Actually, of course, it is the dew-point which matters, since, if the ceiling or any other surface is cooled below this temperature, condensation will result.

That the danger to which I referred is a real one, is surely incontrovertible, though whether the skill and foresight of an operating engineer is able to avert it is another matter.

Consider a ceiling maintained at 60° (the figure given in Mr. Musgrave's paper) with the outside temperature 85° or 90°, on a thundery day, such as is common in our summer months. The wet bulb in the morning might be perhaps 58° or 59°. As the day wears on and the thunder storm approaches, the relative humidity might rise rapidly, and, since the ceiling slabs have a long time lag, they would remain at 60° whilst the wet bulb, and eventually the dew-point passed the 60° mark. Condensation would then immediately begin to form as a sweating on the surface, soaking into the plaster and causing rusting of the pipes.

Similar condensation would also tend to occur in the electric conduits buried in the slab and would probably damage the wiring.

To state that the engineer in charge should shut off the plant immediately the wet bulb temperature gets above his surface temperatures is an admission that the danger exists. Such a course would, in any event, be asking much of such an individual, since owing to the time lag of the building he would have to anticipate the arrival of these conditions by some hours.

Apart from this, the idea is ingenious, and the review simply stated that it was an omission on Dr. Vernon's part not to mention that this danger exists, and should be recognized by intending users.

A Hundred Years Ahead

SIR,—If the mental orgasm appearing in your issue for January 10, under the heading "A Hundred Years Ahead," is typical of prophecy in general, then it is small wonder that prophets proverbially lack honour in their own country. It happens, however, that the intention of the authors of this nonsense were not concerned so much with prophecy as with propaganda of the more poisonous kind, identifying a great movement of practical idealism and constructive purpose with the foulness of war.

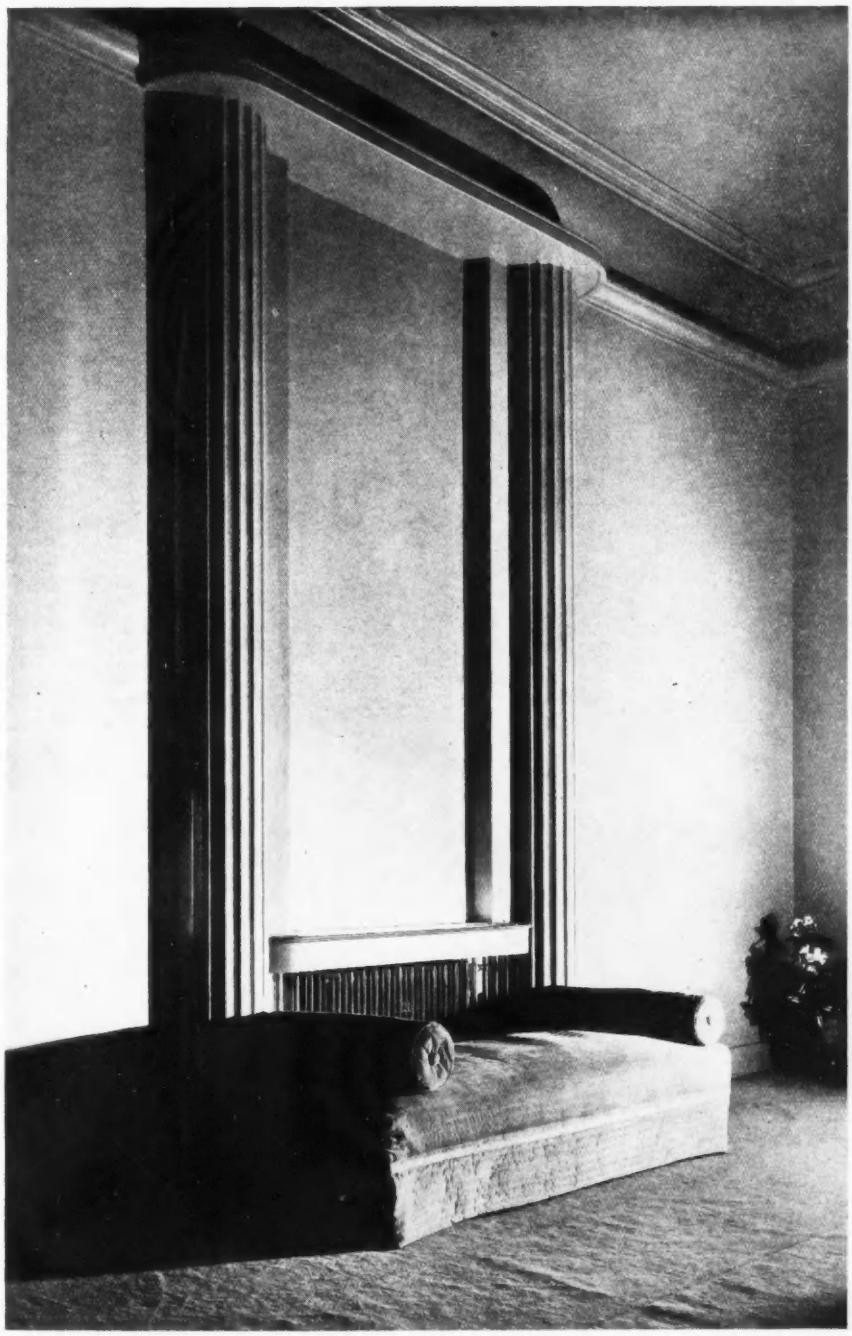
The aim of all Fascist governments is peace. War utterly destroys the new civilization which they build. Fascist policy, moreover, leads to the withdrawal of nations from the scramble for international markets, which today is one of the most fruitful causes of war, and by its relentless control of all vested interests which find war profitable, it gives to the world a larger prospect of peace than is possible in an atmosphere of social-democratic drift and economic brigandage.

You ask your readers to accept the article in the spirit in which it is intended: we claim to have done so, and can only express our surprise that a journal of such high reputation as your own should have lent itself to propaganda based upon such sleek intellectual dishonesty.

A. K. CHESTERTON
(For the British Union of Fascists)
King's Road, Chelsea

WORKING DETAILS : 191

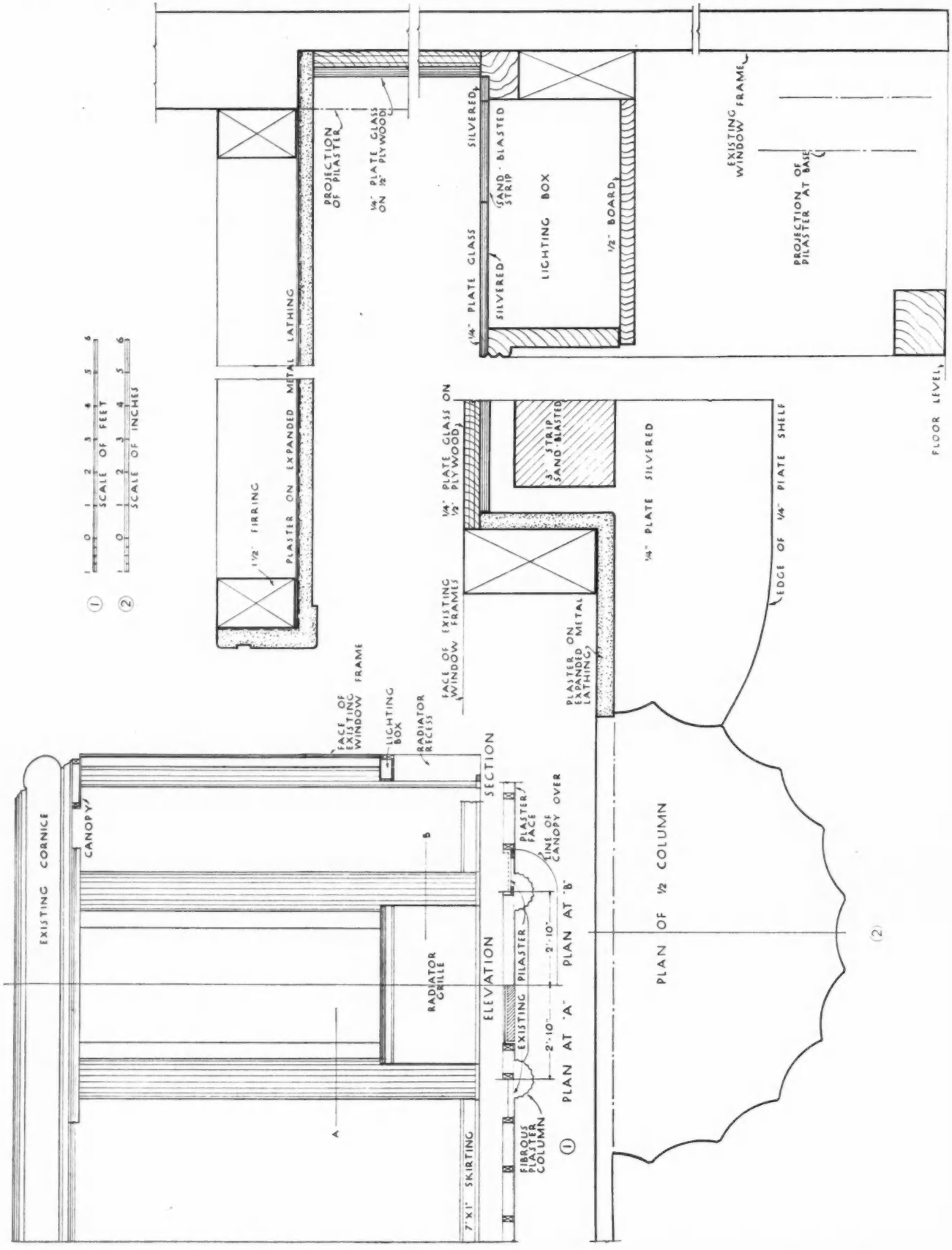
WALL TREATMENT • DRESS SHOWROOM IN BRUTON STREET • GERALD LACOSTE



The wall treatment illustrated above was carried out during the conversion of an existing building into a showroom for the display of dresses. The colour scheme is of silvery grey-green, both for paintwork, upholstery and carpets: vertical lighting is provided from a box below the glass shelf at the back of the settee. Plan, elevation and sections are illustrated overleaf.

WORKING DETAILS : 192

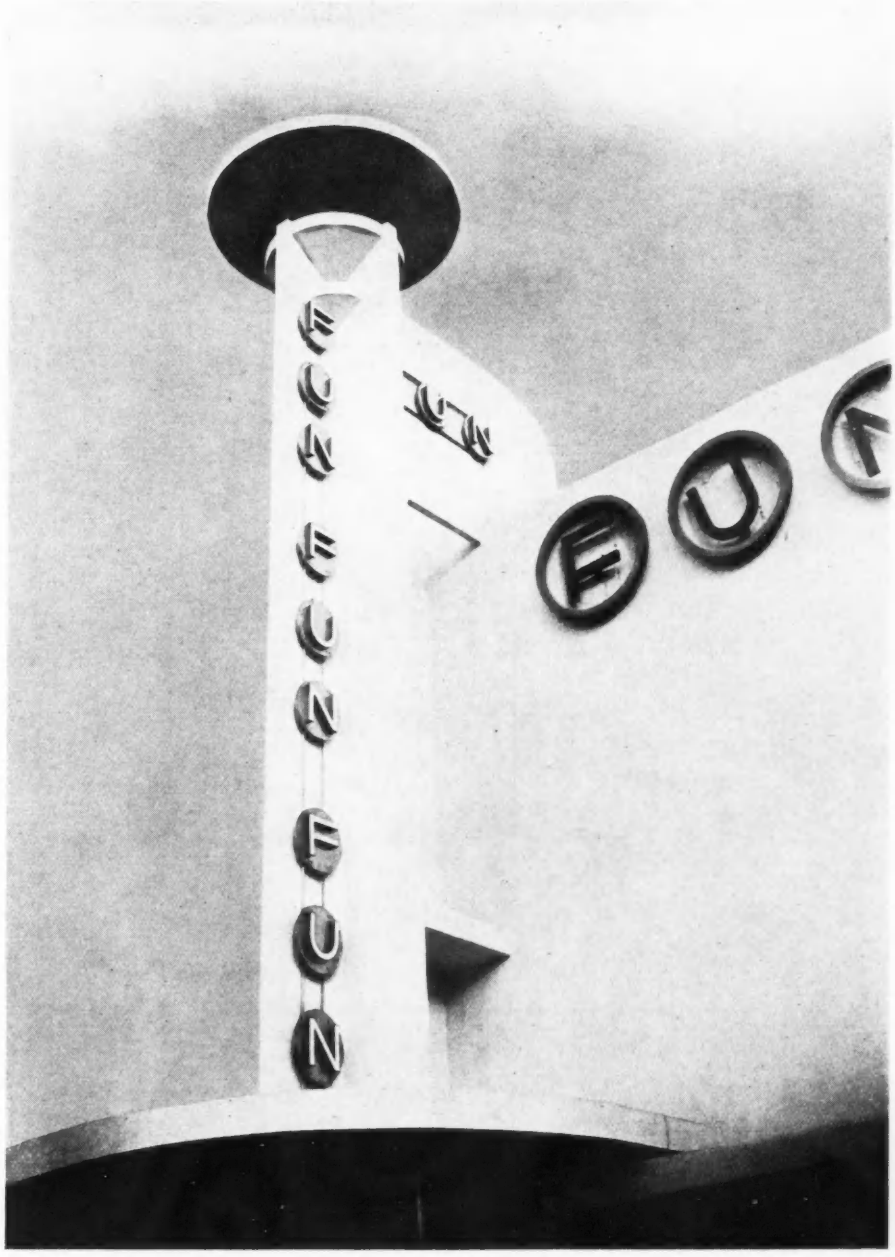
WALL TREATMENT • DRESS SHOWROOM IN BRUTON STREET • GERALD LACOSTE



Elevation, plan and sections of the wall treatment illustrated overleaf.

WORKING DETAILS : 193

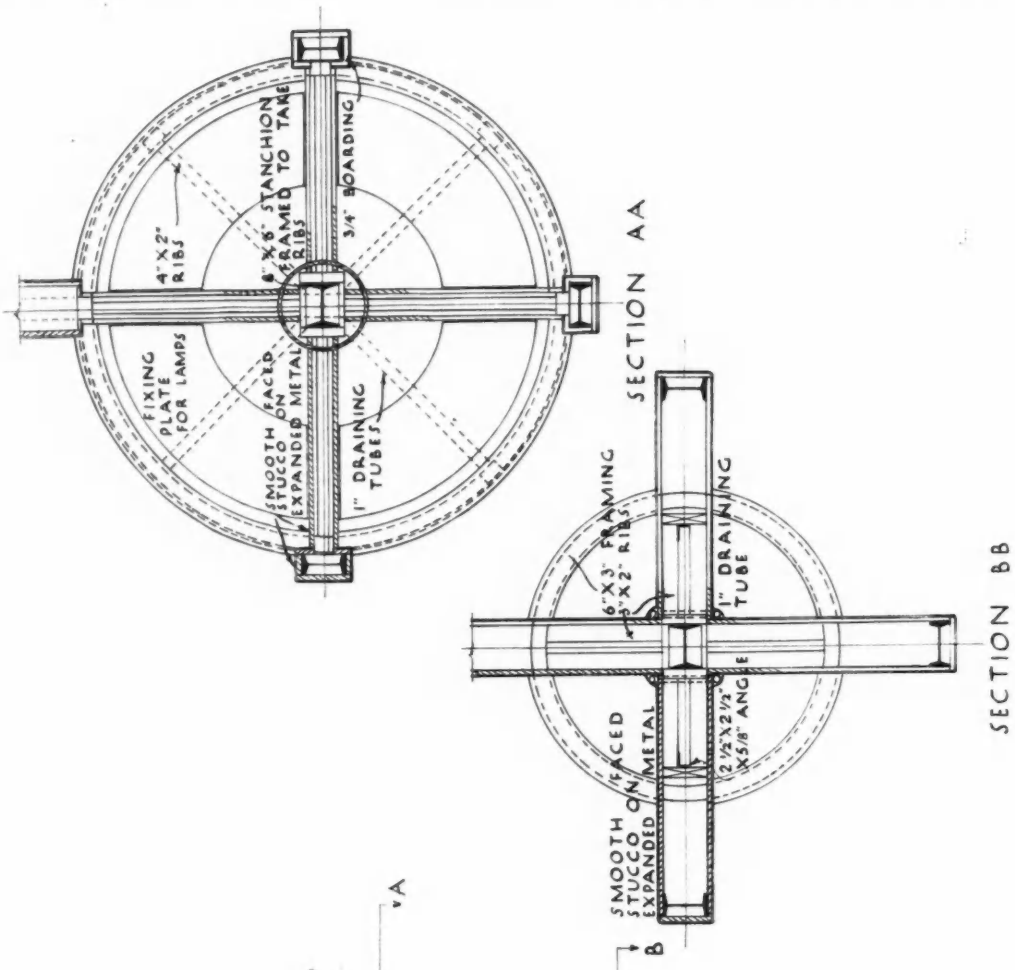
ILLUMINATED TOWER • BLACKPOOL PLEASURE BEACH • JOSEPH EMBERTON

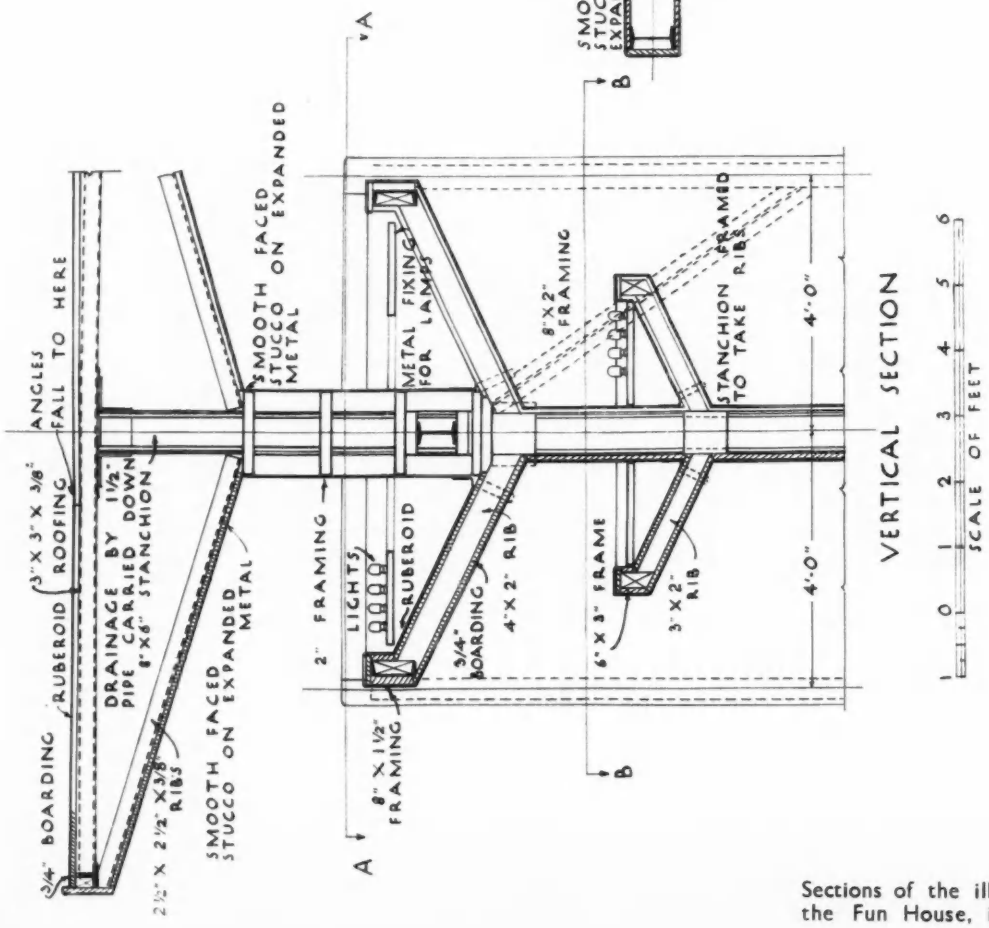


This illuminated tower of the Fun House is built up of light steel sections and finished in white painted smooth stucco and metal lathing on a layer of ¾ in. boarding. The two lighting troughs are equipped with a four colour lighting system and are drained by pipes carried down the central stanchion.

WORKING DETAILS : 194

ILLUMINATED TOWER • BLACKPOOL PLEASURE BEACH • JOSEPH EMBERTON





Sections of the illuminated tower of the Fun House, illustrated overleaf.

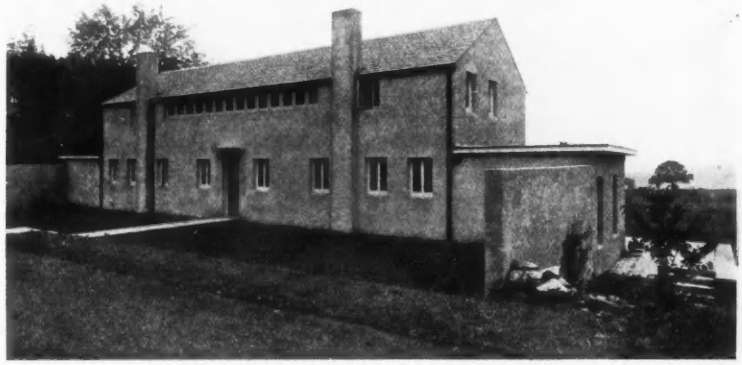
HOUSE AT BIELDFORD, ABERDEENSHIRE

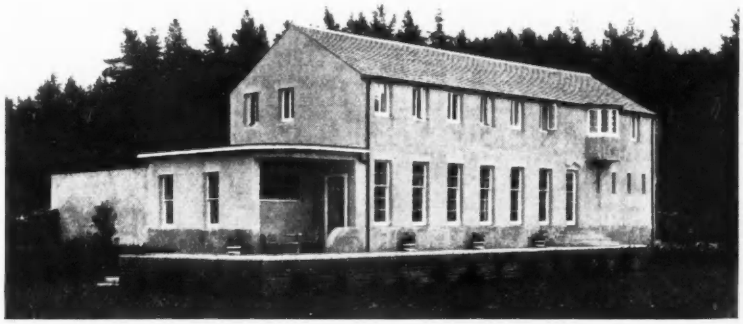
DESIGNED BY

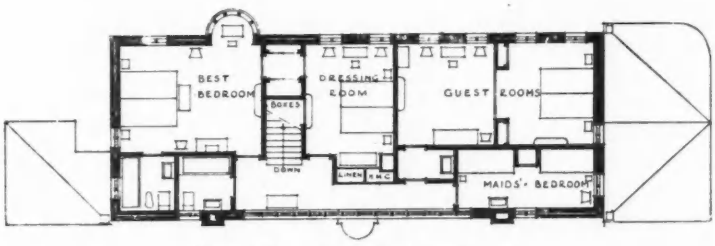
A. MARSHALL

MACKENZIE

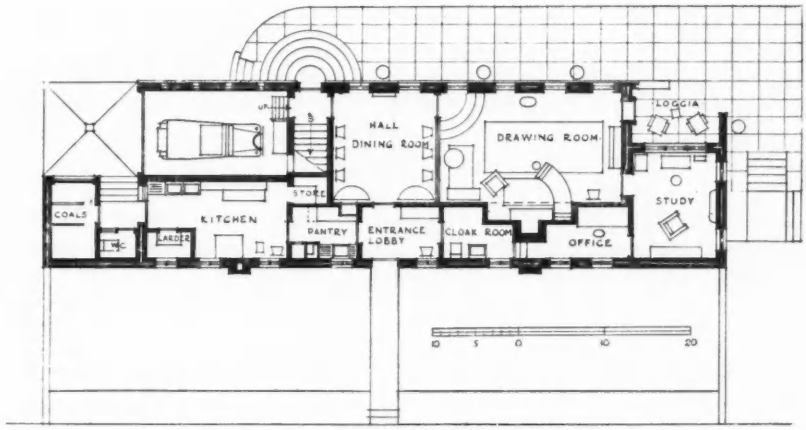
AND GEORGE







FIRST FLOOR PLAN



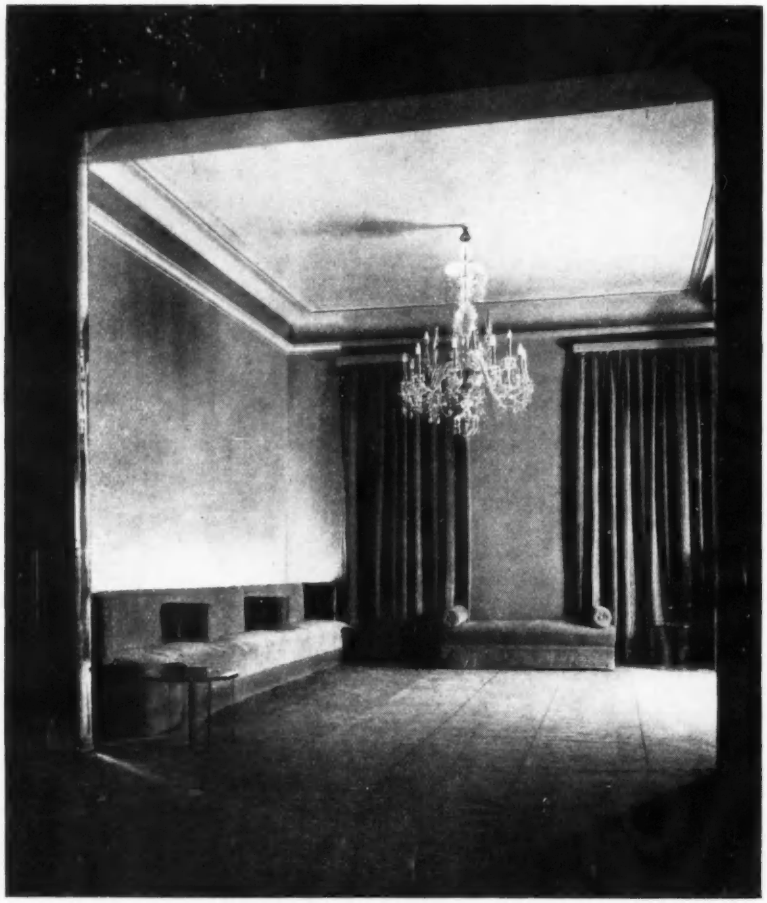
GROUND FLOOR PLAN

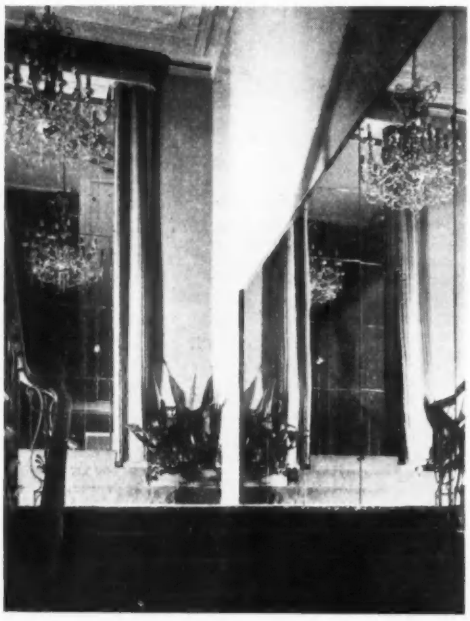
This house has been designed for his own occupation by Mr. David Stokes, one of the partners in the firm of A. Marshall Mackenzie and George. It is constructed of 11 in. brickwork, harled with granite chippings and white cement. The roof is of grey-green slates.

The interior is finished in plaster, painted, with floors in deal (except in the drawing room, which has a composition floor). The drawing room has an open fire, and all the other rooms electric fires.

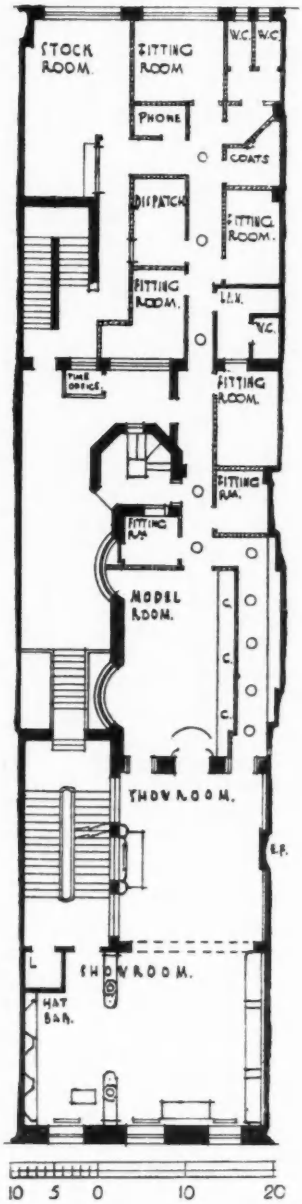
The two photographs of the exterior show: top, the road (or north-east) front and, bottom, the garden (or south-west) front.

DRESS SHOWROOM IN BRUTON STREET, W.





The photographs show: above, the main showroom: left, the staircase, the right-hand wall of which has been covered with mirror to give the effect of a double stair.

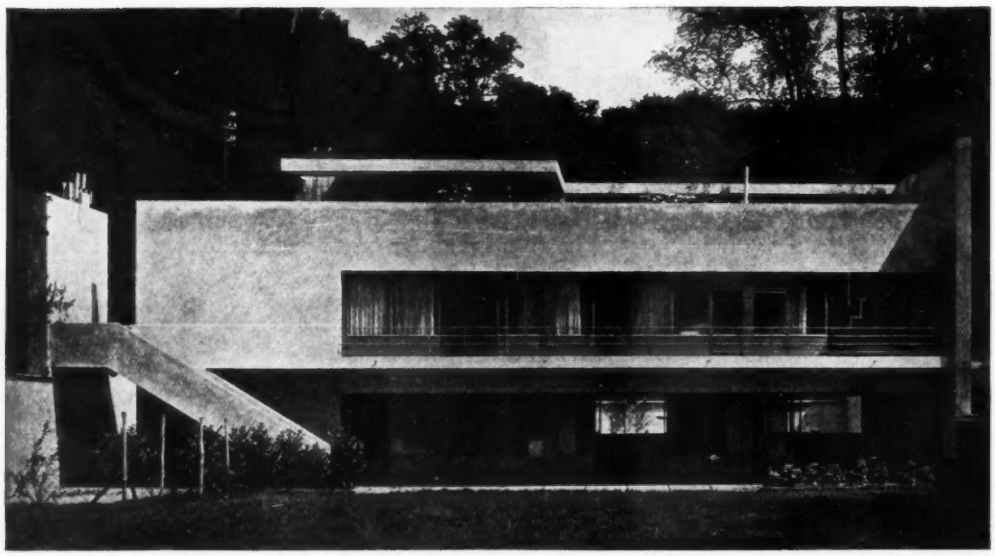


PLAN

DESIGNED BY GERALD LACOSTE



The main first floor room in this building is divided into two sections, the showroom proper and the millinery room. In the latter is a "Hat Bar" lined with mirrors and lit through ground sheet-glass panels. The dividing line between the millinery room and the main showroom is indicated by a pair of mirrored columns faced with 5-facet glass and running from floor to ceiling. The fireplace wall, illustrated above, is panelled in mirror with V-cut joints and lines, and the fireplace surround is of polished glass tiles 1½ ins. thick. The entrance for the mannequins is placed centrally at the end of the showrooms and, like the other openings in the room, is framed in 5-facet mirror: special lighting has been arranged here to display the dresses. Carpets, curtains, furniture and paintwork is all the same colour, a silvery grey-green, which was chosen for its good qualities as a background for the showing of dresses. Lighting is mainly by chandeliers, with boxes behind the settees and architraves.



"His buildings are quietly designed and make no attempt to be full-dress events in the history of his art." House Hefferlin, Ville d'Avray, Seine-et-Oise (1931-1932), by André Lurçat. From "Twentieth Century Houses," by Raymond McGrath.

LITERATURE

DESIGNS FOR LIVING

[*BY F. R. S. YORKE*]

Twentieth Century Houses. By Raymond McGrath. London: Faber and Faber. Price 21s. net.

MR. McGRATH'S arguments for the sort of house that is simple and natural to the conditions of the twentieth century are clearly and confidently expressed, and, backed by an historical survey covering the last hundred years, are convincing. He writes as one well informed, appreciating the significance of every detail, and visualizing clearly the sequence of events from 1800; the development of design and the change of feeling in the arts; the influence of changing conditions; the distribution of wealth and the rise of the machine; the influence of artists: Ruskin, Morris, Philip Webb, Lethaby, Voysey, Mackintosh, Walton; and of writings by Ibsen, Butler, Zola, and Shaw, that gave an impulse to clear thinking, and provoked impatience towards the half measures that leave things no better than they were.

The propaganda value of the book is considerable. There are many laymen to whom the modern house appears attractive, but attractive possibly in a rather freakish way, as a new fashion that may be dead in a year or two, so that they do not consider such houses seriously as homes for themselves, and, in spite of sympathetic tendencies, they continue to build the heavy, rigid houses, that make drudgery of housework, and in which freedom of movement is well-nigh impossible.

One of Mr. McGrath's principal aims is to overcome these prejudices. He explains why the twentieth-century house has an appearance that is different from the appearance of houses of former times; he traces the development of building—and land planning, structure, furniture and ornament, side by side with parallel developments in



Pictorial indication: the key to the plans reproduced in "Twentieth Century Houses"

society generally from 1800; and he shows the effect of these developments on house architecture from 1900 to the present time. He makes it quite clear that modern architecture is something more than a fashion of the moment, that it has not appeared suddenly from a preconceived idea of what buildings ought to look like, but that it is conditioned by requirements natural to people living fully in the present age, by the complex apparatus that is now regarded as essential to such a manner of living, by mass-production and the products of the machine; that it is dependent upon the architects' interest in materials produced by scientific processes, and the structural systems such materials allow. Arguments and statements are illustrated by plans and photographs of modern houses from all parts of the world. The method by which the photographs are reproduced is one that does not show the houses to their best advantage. The plans—beautifully drawn—are in most cases too small.

The author concludes his case with a chapter: Planning and Building, dealing with plan, site, materials and structure, apparatus, furniture, colour, ornament and costs. Then we are left to look at all the pictures, and next, for fear we may not yet be convinced, or in order to fill any loopholes in the earlier argument, he invites a greyhead architect to wrangle, point by point, the case for sticking to the good old styles. No stone is left unturned; the case for tradition is graciously expressed, but the old faithful gets the worst of it and almost desperately he says at last:

"You twentieth-century architects are only a small group; the great public is still on the side of the old men like myself, and nothing you are able to do will have much effect on the great mass of men in the street."

To which Mr. McGrath replies:

"You have my respect but my way is not yours. Love of the great things of the past is not enough. Forward is the only way for a man to go. In building as in thought, writing, music, science, there is only one road which will take us anywhere and that is the road between today and tomorrow and the great discoveries of the future. Though we may do things which seem strange to those whose eyes are turned back on fictions of the past we are at least making possible the coming of a form of building which will be more in harmony with the hopes of great architects of other days than a nation-wide museum would ever be. The future is in the hollow of our hands. In the wide windows of the twentieth-century house are framed the white towns of tomorrow and the clear-cut buildings of men as awake as ever the Greeks were to the fullest pleasures of living. What other road is there to take but into these surprising distances?"



"About 1900 the effects of a more reasoned outlook were to be seen in the work of one or two English architects." Houses in Cheyne Walk, Chelsea, by C. R. Ashbee. From "Twentieth Century Houses," by Raymond McGrath.

And in any case, the number of "twentieth-century" architects is increasing: and already the great public begins to move to the younger side.

Shorter Notices

A Guide to Draughtsmanship. By W. H Smith. London: E. and F. N. Spon, Ltd. 2nd Edition. Price 4s. 6d. net.

TO the comparatively few people who are unable to obtain any personal tuition in the rudiments of their craft this manual may offer a few useful hints, but it contains little information that has not been absorbed by the average draughtsman in his first days at school or in an office.

However, here it is in a second edition. Besides general instructions there are chapters on instruments, materials, tracing, colouring, and lettering and symbols. There are four plates showing various types of lettering, most of it only indifferently good, and some of the disastrously arty styles should have been omitted altogether. Although the author recommends certain makes of papers, paints, etc., he does not mention that sheets of excellent lettering can be obtained from some of the museums or that there are books devoted entirely to the subject. "The chapter on colouring has been amplified and some notes on the care of brushes added," but there is no chapter explaining how to set up a perspective, or making clear the difference between isometric and axonometric, which would have been infinitely more valuable.

B. S. H.

Public Health Law. By Sydney G. Turner and John Hodson. London: St. Bride's Press. Price 18s. net.

THOUGH concerned with a specialized branch of English law, a complete knowledge of which must be outside the province of most architects, this exhaustive and authoritative work of reference, now in its third edition, will be found occasionally indispensable. Such objects of local administration as sewers, highways, markets and cemeteries are thoroughly dealt with, and town-planning and housing are touched upon, though not, of course, so completely as in the many books specifically on these subjects.

LAW REPORTS

LIABILITY FOR A DEFECTIVE STEP

Allen v. *Waters & Co.—Court of Appeal.—Before the Master of the Rolls, Lord Justice Romer and Mr. Justice Goddard.*

IN this case the defendants, Messrs. Waters & Co., the landlords of premises in Limerson Street, Chelsea, appealed from a decision of the Brompton County Court judge in favour of the defendants, Mr. and Mrs. Thomas J. Allen, who were described as weekly tenants of the house.

Mr. MacIntyre, who appeared for the appellants, the landlords, said in the County Court Mr. and Mrs. Allen sued for damages for injuries Mrs. Allen sustained through a step giving way while she was descending a stone flight leading to the area. Her case was that she was joint tenant with her husband, who also claimed special damages, including the cost of the hospital treatment. Mr. and Mrs. Allen alleged that his clients, in breach of their implied statutory duty to keep the premises in repair, allowed the step in question to become defective and unsafe, although they said notice of the defect had been given. Judge Hargreaves, the County Court judge, held that Mrs. Allen was not a joint tenant with her husband, but he gave judgment for the husband for £24 odd, special damages, including £16 odd for hospital treatment.

Counsel said his contention was that the County Court judge was wrong in his judgment, as no notice had ever been given that the step was defective. In any case, he submitted that the hospital charges could not be recovered from his clients.

The Court held that the appeal failed, and they dismissed it with costs.

The Master of the Rolls said he thought the judgment of the County Court judge was right. In his opinion, the hospital charges were recoverable and enforceable by the London County Council, into whose hospital Mrs. Allen went.

Lord Justice Romer agreed, and Mr. Justice Goddard concurred in the main with the findings of Judge Hargreaves.

DISPUTE OVER HAMPSTEAD BUILDING SCHEME

Pearce v. *Maryon-Wilson.—Chancery Division. Before Mr. Justice Luxmoore.*

IN this case Mr. S. H. Pearce, of Platt Lane, Hampstead, sought an injunction against Sir Spencer Pocklington Maryon Maryon-Wilson, of St. James Court, London, to restrain him from permitting any purchaser or lessee from him or his predecessors-in-title of any plots of land in Aberdare Gardens and adjoining roads at Hampstead, to be used otherwise than for separate private dwelling houses.

Mr. Gavin Simonds, K.C., and Mr. Robert Fortune appeared for the plaintiff, and Mr. Vaisey, K.C., and Mr. Danckswarts for defendant.

The defence was a denial that any building scheme applied to the property or that defendant was liable to carry out any of the terms or conditions of the building agreements on which the plaintiff relied.

Mr. Simonds said that the defendant was the successor-in-title of his father, the late Sir Spencer Maryon Maryon-Wilson, who developed the Britannia Park Estate at Hampstead, and who entered into a building agreement in 1892 with a Mr. James Tomblin, which was afterwards taken over by Mr. Pearce, the plaintiff. Mr. Pearce later erected 67 dwelling-houses on the estate. The plaintiff's case was that it was an implied condition of the agreement that the defendant would not authorize, cause or permit any purchaser or lessee, deriving title from him or his predecessors-in-title to any of the plots in question to use the premises erected thereon otherwise than as private dwelling houses. It was alleged that the defendant had committed a breach of that condition, and so had depreciated the value of the plaintiff's property. The question raised was whether the lessee could release that condition in respect of part of the land comprised in the building scheme.

His lordship, without calling upon counsel for the defendant, in giving judgment, pointed out that the covenant in question prohibited the lessee from using the premises otherwise than as private dwelling houses was limited by the words "without the consent in writing of the said lessees having been first obtained." Other words gave the lessor power to release the restriction. The fact that there was a building scheme in existence required that those words should be present, otherwise the lessor would not have power to authorize any departure from the scheme. He was entitled to give or withhold that consent to the various modes of user of the property. There was, said his lordship, no cause of action against the defendant, and therefore the action would be dismissed with costs.

ANCIENT LIGHT DISPUTE

Piccadilly Picture Theatre (Manchester), Ltd., v. *C. and A. Modes—Chancery Division. Before Mr. Justice Bennett.*

THIS was an action by the Piccadilly Picture Theatre (Manchester), Ltd., against C. and A. Modes, Ltd., to recover damages for alleged obstruction of the plaintiffs' ancient lights.

The plaintiffs complained that the defendants, who had erected a building 57 feet high in Manchester, had recently increased the height by adding another storey 10 ft. 6 in. high with a mansard roof and which obstructed the plaintiffs' lights.

The defence was a denial that the plaintiffs suffered any damage by the additional storey and defendants further alleged that the plaintiffs, by reconstructing what was formerly a hotel and in converting it into a cinema, had themselves reduced the amount of light coming to their premises.

Mr. Topham, K.C., and Mr. R. A. Forrester appeared for the plaintiffs, and Sir Herbert Cunliffe, K.C., and Mr. T. Cunliffe, for the defendants.

His lordship, after hearing a large volume of evidence, in giving judgment, said that the plaintiffs claimed damages against the defendants on the ground that they had illegally obstructed the access of light to their ancient windows and he had to determine whether the plaintiffs had proved that. The windows which the plaintiffs contended had been obstructed were in the well of their building, overlooking Back Piccadilly, and the defendants' building faced them. When the plaintiffs acquired their building in 1920 it was an hotel and it then consisted of a ground floor and four floors above that. Plaintiffs required it to convert it into a cinema and internally it was entirely replanned, the number of floors above the ground floor being increased to six. In addition to making a complete change in the inside of the building, a great change was made in the disposal of the windows. The drawings produced in the case proved that having no use for a number of what were windows in the old hotel, the plaintiffs bricked them in. The obstruction of which the plaintiffs complained was made in 1933 and consisted of the addition to the top of the defendants' building and a mansard roof. At the time the hotel was converted into the cinema the plaintiffs made some new openings in the wall, but with regard to the light coming through these new openings there were no prescriptive rights. Before the plaintiffs could succeed it was necessary for them to establish that the building of which they complained had obstructed the access to their building and a substantial amount of light and had left their building so little light that a reasonable man would complain that the obstruction had rendered the plaintiffs' building uncomfortable for the purposes of occupancy or business. In deciding whether the plaintiffs had proved that fact in such a case as the present, where there had been a complete alteration in the internal planning of the plaintiffs' building and a substantial alteration in the lighting, it was not easy to see what factors ought to be taken into consideration. He inclined to the opinion, though he did not decide the question, that the reconstruction effected by the plaintiffs in 1920, both internally and externally, so far as the wall in question was concerned, brought about such a change in the nature of their building as to disentitle them to say that the windows were ancient lights or that the defendants had obstructed them. He came to no decision on the question, however, because he decided the case against the plaintiffs on other grounds. The question arose as to whether if the conditions had remained as they were in 1920, what the defendants did in 1933 enabled the plaintiffs to say that the defendants had illegally obstructed their lights. In his judgment certain drawings produced in the case did not establish that the addition to the defendants' building, would have been an obstruction enabling the plaintiffs to say that the old hotel was rendered uncomfortable for the purpose of occupancy or business. He was not satisfied, having regard to what the plaintiffs did in 1920, that they had any ancient lights. But even if he was so satisfied on a case where the plaintiffs failed to prove any actionable interference with their ancient lights, he would decline to make a declaration that the windows were ancient lights. The plaintiffs had entirely failed to prove that they had suffered one penny piece of damage as the result of what the defendants had done and he therefore dismissed the action with costs.

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We regret that, owing to a technical mishap, the illustration of Messrs. White's advertisement of Whiteway lighting on page 1 of last week's issue was blurred, and gave a totally inaccurate representation of the excellent lighting as shown in the original photograph.

The advertisement will be repeated in our issue for January 24.

TECHNICAL SECTION: 2

This JOURNAL *will, in future, contain each week a technical section, which will provide information on current practice in structure, equipment, finishings and allied problems. For the next few months, Dr. Oscar Faber, O.B.E., and Mr. J. R. Kell will continue their review of current practice in heating, air-conditioning and mechanical and electrical equipment, the first instalment of which appeared last week.*

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY

OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND

J. R. KELL, M.I.H.V.E.

GENERAL PROBLEMS IN CONNECTION WITH HEATING

(1) *Choice of Fuel*

THIS is generally governed by considerations of economics, cleanliness, convenience and labour.

Table VI, which gives the relative cost of a therm (100,000 B.T.U.'s) with different fuels, gives the basic key to the question of economics.

TABLE VI

Cost per therm of various fuels at 100 per cent. efficiency.

	pence
Electricity at 1d. per unit	29·2
„ „ ½d. „ „	14·6
„ „ ¼d. „ „	7·3
Gas at 9d. per therm	9·0
Gas at 6d. per therm	6·0
Fuel oil at 80s. per ton, including tax (18,000 B.T.U.'s per lb.) ..	2·4
Coal or coke at 40s. per ton (12,000 B.T.U.'s per lb.)	1·8
Coal or coke at 26s. 8d. per ton ..	1·2
„ „ „ „ 20s. „ „ ..	0·9

These are exact figures not open to any argument, as they depend only on the scientific conversion figures between electrical and heat energy. They do not, however, without further adjustment, give the relative value of the various fuels represented, because they do not introduce the following factors :

(*a*) Interest and depreciation on plant.
(*b*) Heat losses in generation and transmission.
(*c*) Convenience.
(*d*) Cleanliness.
(*e*) Facility of control.

It is not intended to go into these questions here, as they will be dealt with later, but it will be seen that even if coal or coke installations are taken at 50 per cent. efficiency, which has the effect of doubling the figures in the table, and electricity taken at 100 per cent. efficiency, coal or coke is still very much more economical than electricity, even at ¼d. per unit. It is unfortunately true that electricity can only be supplied at anything like ¼d. per unit for thermal storage off-peak heating, and in such cases it certainly cannot be taken at 100 per cent. efficiency as it is subject to the same losses on mains, radiation, etc., as an ordinary radiator system.

(2) *Calculation of the B.T.U.'s required to maintain a given temperature in a building*

The heat required to maintain the temperature in a building may be divided up as follows :—

(*a*) Radiation losses.
(*b*) Heat required to allow for air change.
(*c*) Losses in mains.
(*d*) Losses in boiler or other heating unit.
(*e*) A margin to overcome the time lag of the building. These will be dealt with *seriatim.*

(3) *Radiation losses*

The heat lost by radiation from any room may be calculated by adding together the area of the various forms of construction (wall, window, roof, floor, etc.) multiplying each by its transmission coefficient and by the temperature difference between the inside and the outside.

Table VII gives a list of some of the more important transmission coefficients of materials in common use. The temperature difference is generally taken as from 30° outside to the internal temperatures as given in Table VIII, depending on the use and purpose of the various rooms, but this is, of course, subject to modification for a variety of reasons.

Fig. 9 (p.134) shows a piece of a sheet such as is frequently used for the purposes of making these calculations, filled up for one room, the significance and purpose of which will be appreciated without further explanation.

It is perhaps just as well that we should have a fairly accurate picture in our minds as to the nature of these

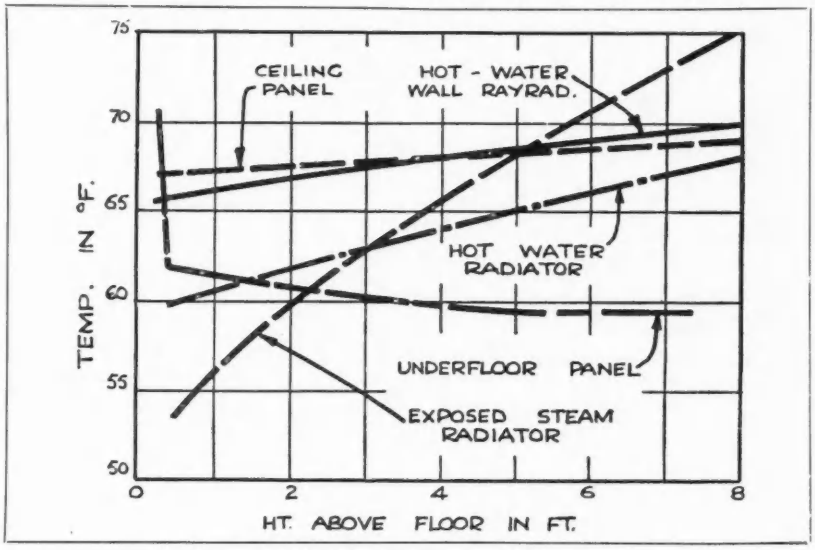


Figure 11. Vertical temperature-gradient in a room.

heat losses. Though they are commonly referred to as radiation it is doubtful whether this is the most convenient or accurate conception, and they are principally dependent on the thickness and conductivity of the wall and other surfaces, and should strictly be referred to as conduction losses.

Actually it is a little more complicated than this, as Fig. 10 shows. This figure gives diagrammatically the curve

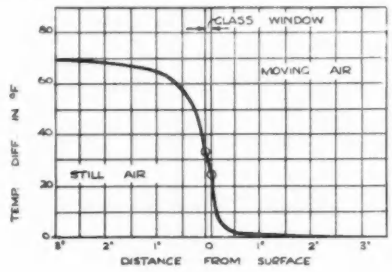


Figure 10

of temperature change between the outside and the inside of a room separated by a pane of glass. It will be seen that the temperature gradient across the thickness of the glass is considerably less than the total difference of temperature between the outside and the inside, because there is a considerable break between the outside of the glass and the outside air and the inside of the glass and the inside air.

It is these differences of temperature which really control the radiation, but in addition there is a film of air in contact with the inside and outside faces which impedes heat losses. In strong winds this film is more rapidly changed and so the heat transmission is increased. Similarly in rainy weather heat is transmitted to a constantly replenished supply of cold water on the outside surface, and this also increases the transmission.

It is usual to allow for both these effects by adding a percentage for *exposure*. By exposure is generally meant

(*a*) North or east aspect.

(*b*) Any surface above the general level of surrounding buildings where shelter from strong winds is less likely to be provided.

It is not uncommon to allow 10 per cent. for (*a*) and 15 per cent. for (*b*), and they may, of course, occur together in the same room.

A strong wind increases the number of air changes, but this will be dealt with later.

Allowance has also to be made for the height of the room, owing to the fact that the temperature which the occupants experience relates to the bottom 6 ft., whereas owing to the tendency of warm air to rise, the bottom 6 ft. will be at a temperature considerably lower than the average temperature of the room to a degree which increases with its height.

The usual allowance which is made

TABLE VII

TRANSMISSION COEFFICIENTS

WALLS

Type of Wall	*Thickness of Brickwork*								
	4½″	9″	13½″	18″	22½″	27″	30″	36″	45″
Solid brick, unplastered	·53	·35	·28	·23	·20	·17	·16	·14	·12
,, ,, plastered inside	·44	·33	·25	·22	·19	·17	·16	·13	·12
,, ,, lined with ⅜″ wood	·41	·31	·22	—	—	—	—	—	—
,, ,, ,, ,, ¾″ ,,	·25	·21	·18	—	—	—	—	—	—
,, ,, butting to earth	—	·11	·07	·06	·05	·04	—	·03	—
(Corrected for earth at 50° F.)									
Solid brick, lined 1½″ cork and plaster	·14	·13	·12	·11	·10	—	—	—	—
,, ,, ,, 2″ ,, ,,	·12	·11	·10	·09	·08	—	—	—	—
,, ,, 4″ stone facing, plastered	·42	·28	·24	·20	·16	—	—	—	—
,, ,, 8″ ,, ,, ,, ,,	·33	·22	·21	·18	·15	—	—	—	—
Brick with 2″ air space (unvented)	—	·29	·22	·20	·18	·16	—	—	—
,, ,, plastered	—	·25	·22	·19	·17	·15	—	—	—
,, Solid, lined 4″ hollow tile and plaster	·30	·26	·22	·20	·18	—	—	—	—

	Thickness of Concrete				
	6″	8″	10″	12″	16″
4½″ Solid Brick, Concrete facing unlined	·41	·37	·35	·32	·28
,, ,, ,, ,, ,, with ½″ plaster	·38	·35	·32	·30	·27

	Thickness of Stone						
	8″	12″	18″	24″	30″	36″	48″
Limestone, plain	·62	·52	·45	·38	·33	·29	·24
,, fir lath and plaster	—	·42	·34	·30	·26	—	—
Sandstone, granite or marble, plain	·60	·46	·36	·33	·26	·24	·17
,, ,, ,, fir lath, plaster	·50	·40	·33	·28	·25	—	—

	Thickness of Stone		
	8″	12″	24″
Portland stone	·50	·43	·31
Bath Stone	·53	·45	·32

	Thickness of Concrete										
	2″	3″	4″	6″	8″	10″	12″	16″	18″	22″	26″
Concrete	·86	·77	·66	·58	·51	·46	·41	·34	·31	·28	·24
,, cavity block	—	—	—	·45	·38	·33	·29	—	—	—	—
,, cavity block, ½″ plaster	—	—	—	·41	·35	·31	·27	—	—	—	—
,, faced with 4″ stone	—	—	—	·48	·43	·40	·36	·32	—	—	—
As above, with ½″ plaster	—	—	—	·44	·40	·37	·34	·30	—	—	—
Breeze concrete, 4½″ thick											·55
Concrete, 2″ cavity, unventilated, 10″											·35
,, ,, ventilated, 10″											·40
2½″ breeze concrete blocks, encasing 2″ gravel concrete											·38
Outer 4″ gravel concrete, 2″ air space, 4″ breeze concrete											·29
,, 3″ ,, ,, bitumen sheeting, 3″ breeze concrete											·46
,, 4″ ,, ,, 2½″ cavity, 3″ breeze concrete											·41

	Thickness of Tile					
	2″	4″	6″	8″	12″	16″
Hollow tile, rendered outside	—	·44	·32	·29	·20	·15
,, ,, with 4″ stone facing	—	—	·29	·26	·19	·15
,, ,, ,, ,, ,, and ½″ plaster	—	—	·27	·25	·18	·14
,, ,, rendered outside, plastered inside	—	·40	·30	·27	·19	·15
,, ,, ½″ plaster both sides	·41	·33	·28	—	—	—

	Thickness			
	3″	4½″	6″	9″
Diatomaceous Bricks (Moler)	·27	·21	·17	·12
4″ stud partition, lath and plaster 1 side			·54	
,, ,, ,, ,, ,, ,, 2 sides			·34	

	Thickness						
	1¼″	1⅝″	2″	2½″	3″	3½″	4″
Plasterboards	·76	·70	·66	·61	·51	·49	·47

	Thickness of Wood						
	½″	¾″	1″	1½″	2″	2½″	3″
Plain wood	·52	·44	·41	·32	·25	·23	·20
7/16″ feather-edge boards, and lath and plaster or ¾″ wood							·44

TABLE VII *(continued)*

Type of Wall	Thickness 4″	6″
Wood studding and breeze concrete filling	·60	·50
⅛″ steel sheets, unlined		1·30
,, ,, ,, air space and fibre board (6″ total)		·29
Corrugated iron on wood studding		1·50
,, ,, lined 1″ T. and G. boards		·48
,, asbestos cement sheets		1·40
,, ,, ,, wood-lined		·44
Flat ,, ,, ,,		1·00
2 sheets flat asbestos with air space		·60
R.P.M. corrugated sheeting—0·11″		·80
,, ,, ,, lined 0·38″ plasterboard		·44

DOORS, FLOORS, ROOFS AND CEILINGS

DOORS

Single doors	·50 to ·25
Glazed doors	·75 to ·5

FLOORS

	Thickness of Concrete 4″	5″	6″	8″	10″	12″
Surface concrete on ground (earth at 50° F.)	·18	·17	·16	·15	—	—
,, ,, ,, ,, with 1″ terrazzo (earth at 50° F.)	·17	·16	·16	·14	—	—
,, ,, with joists and 1″ floor boards (earth at 50° F.)	·13	·13	·12	·11	—	—
,, ,, screed and wood blocks (earth at 50° F.)	—	—	·10	—	—	·09
R. C. floor, 1¼″ wood blocks, plastered below	·22	·20	·19	·18	·17	·16
,, ,, floor boards on battens (earth at 50° F.)	—	—	—	·11	·10	—
¾″ boards on joists, unplastered						·50
Joists, 1½″ boards, lath and plaster ceiling—						
Cold air below						·08
,, ,, above						·18
Hollow tile floor, battens and boards						·13
Soil, dry (at 50° F.)						·23

ROOFS

Type of Roof	Thickness of Concrete 3″	4″	5″	6″	8″	10″
Reinforced concrete (including screed), asphalt, plastered	·60	·57	·53	·50	·45	·42
As above, with 2″ Moler insulation	·22	·21	·21	·20	·19	·18
,, ,, with suspended ceiling	·29	·28	·27	·26	—	—
Tiles or slates, unlined, no ceiling						1·00
,, on boards, no ceiling						·57
,, ,, ,, lath and plaster ceiling, no attic boards						·20
As above, but with attic boards						·14
Tiles with lath and plaster beneath rafters						·30

	Thickness of wood 1″	1½″	2″
Flat wood roof with suspended ceiling	·26	·23	·21
1″ flooring on joists no ceiling under			·44
,, ,, ,, ,, with ,, ,,			·23
6″ hollow tile roof, 2″ concrete cover, asphalt			·38
8″ ,, ,, ,, ,, ,, ,,			·35
Lath and plaster ceiling only			·45

	Thickness of wood 1″	1½″	2″
Gravel tar paper on boards	·49	·39	·35
Lead or zinc on 1″ boards, lath and plaster ceiling			·26
Joist boarded floor, pugging, ,, ,, ,, ,,			·11
Plain sheet iron, unlined			1·30
Corrgated iron, ,,			1·50
,, ,, on boards			·60
Flat asbestos cement sheet			1·00
Corrugated ,, ,,			1·40
,, ,, ,, wood-lined			·44
Asbestos slates			1·00
R.P.M. corrugated sheeting, ·11″			·80
,, ,, ,, ·11″, lined ⅜″ plasterboard			·44

GLASS

Single window	1·00
Double ,,	·50
Single skylight	1·20
Skylight and laylight	·55
Pavement lights	·85

for this factor is given in Table IX.

Fig. 11 gives some temperature measurements taken in a normal storey height, and illustrates the vertical temperature gradients which may be expected with various types of heating, such as radiators under the windows or panel heating in the ceiling. The gradient varies also with the position of the larger cooling surfaces.

Fig. 12 shows these temperature gradients in the case of a north light

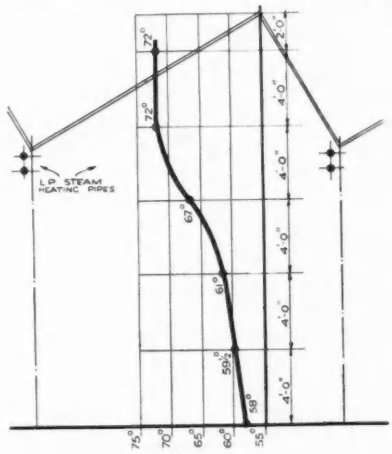


Figure 12

factory which was heated by low pressure steam pipes suspended under the roof.

The heat transmission for a combination of materials superimposed, including the surface coefficients, can be calculated from the formula :—

$$U = \frac{1}{\frac{1}{K_1} + \frac{1}{K_2} + \frac{X_1}{C_1} + \frac{X_2}{C_2}} \text{ etc.}$$

where U = heat transmission in B.T.U.s per sq. ft. per degree difference of internal and external temperatures,

K_1 = inside surface coefficient, B.T.U.s per sq. ft.,

K_2 = outside surface coefficient, B.T.U.s per sq. ft.,

X_1, X_2, etc. = thickness of the various materials in inches,

C_1, C_2, etc. = conductivity of the various materials per sq. foot per degree difference per inch thickness.

Values of C for a variety of building materials are given in the Table IV ; values of K_1 may be taken as 1·0 for plaster finish, 1·3 for concrete and wood, 1·4 for brickwork finish, and 1·5 for glass. Values of K_2 vary with wind and surface material, but an average figure is 3·0*.

Values of heat transmission coefficients are given in Table VII, and have been arrived at by taking an average of values given by a number of authorities who have conducted tests, none of which are generally in exact agreement on any one material. Whilst not the result of any original research, it can be

* See also Harding and Willard, "Mechanical Equipment of Buildings," Vol. I, 2nd Edition, page 181, also Greenland, Proc. I.H.V.E., 1933, page 507.

Figure 9
Typical Heat Loss Calculation

said that these figures have been found to be safe in practice.

It will be noted that the coefficients given for transmission through concrete walls and roofs are higher than the usual figures for this material. This is because the authors are of the opinion that the heat losses through this material are higher than is generally assumed, owing to the denser and harder concrete which is used nowadays as compared with that on which the tests were made. Several buildings have had the heat losses in top storeys underestimated in consequence.

The coefficients for transmission through floors have been adjusted to permit of direct use in calculation of heat losses where the sum of the loss for one degree difference is multiplied by 35°, i.e., from 30° to 65°, as in the example Fig. 9. It is generally assumed that the earth under a building is at a temperature of 50° F. in winter in England. Thus in making a heat loss calculation for a room with a floor placed on the earth, this portion should, strictly, be taken out separately, and multiplied by (65—50)=15°. In order to save time, however, the same result is achieved by reducing the coefficient in the ratio $\frac{15}{35}$ so that the result may be included in the total sum which is all multiplied by 35°. This ratio will not, of course, hold good for other temperature differences such as 30° or 25°, but unless complete accuracy is required the same coefficient may be used, as it will be found that the floor loss generally represents only a small proportion of the total, except in large single storey buildings.

Inner walls, that is, walls dividing a heated room from an unheated one, may be dealt with in a similar fashion. In addition it must be remembered that such walls are not subject to wind, so that coefficients of $\frac{1}{3}$ or $\frac{1}{4}$ of the normal values for exterior walls are found to be quite adequate.

For the purpose of designing a heating system meticulous accuracy in the calculation of heat losses is a waste of time and is, in fact, unattainable as the quality and composition of building materials vary over so wide a range. Further, there is the air change question, to which reference will be made later, and which covers so large a proportion of the total heat requirements.

It must also be remembered that outside temperatures below 30° frequently occur during spells of very cold weather, sometimes for several days and nights on end.

The crucial test of a heating system comes at such periods, and equipment which is well on top of its job and has an adequate margin all round will be found to repay amply the slight extra cost at the start, besides having the advantage of a reduced time lag.

Thus, though the heat loss calculations will form the basis of the design of

TABLE VIII

RECOMMENDED INTERNAL TEMPS. AND NATURAL AIR CHANGES

Type of Building	Internal Temperature °F.	Air change per hour
Residences and Flats—Living Rooms	65	2
,, ,, ,, Bedrooms	55	1½
,, ,, ,, Entrance Halls	60	3
,, ,, ,, Staircases and Corridors	60	2
Offices, Banks, etc.	65	2
Drawing Offices	65	2
Factories, Heavy Work	55	1 to 1½
,, Light ,,	60	1 to 1½
Churches—Up to 50,000 cu. ft.	55 or 60	1½
,, 50,000 to 100,000 ,,	,,	1
,, over 100,000 ,,	,,	½
Schools—Classrooms	62	4
,, Assembly Halls	60	As Churches
,, Staff Rooms	65	2
Hospitals—Wards and Sickrooms	65	2 to 3
,, Operating Rooms	80	4
,, Corridors	60	2
,, Staff	65	2
Storerooms and Warehouses	50	1
Showrooms and Shops	60	1 to 1½
Lavatories	55	1 to 1½
Gymnasiums	55	1 to 1½
Swimming Baths	60	As Churches
Public Halls	60	,, ,,

TABLE IX

HEIGHT AND EXPOSURE FACTORS

HEIGHT

For height of 12 to 15 ft. add 10% to total B.T.U. required
,, ,, ,, 16 ,, 24 ,, ,, 15% ,, ,, ,, ,,
,, ,, ,, 25 ,, 30 ,, ,, 20% ,, ,, ,, ,,
,, ,, ,, 31 ,, 36 ,, ,, 25% ,, ,, ,, ,,
,, ,, ,, over 36 ft. ,, 33% ,, ,, ,, ,,

EXPOSURE

For N. and N.E. exposure add 10%.
,, unusually exposed buildings add 15%.

EXPOSURE TO WIND

(Subject to location and exposure)

For 7th floor and over add 25% to total B.T.U. required
,, 6th ,, ,, 20% ,, ,, ,, ,,
,, 5th ,, ,, 15% ,, ,, ,, ,,
,, 4th ,, ,, 10% ,, ,, ,, ,,

Tables VIII and IX. See page 131.

the whole heating system, no matter what form it takes, it is necessary to allow an adequate margin. This particularly applies to an electrical system, where the output is strictly limited by the apparatus installed. In a hot water system, the temperature in radiators can often be raised above the normal by a little forcing in critical weather.

SOCIETIES AND INSTITUTIONS

THE REINFORCED-CONCRETE CODE

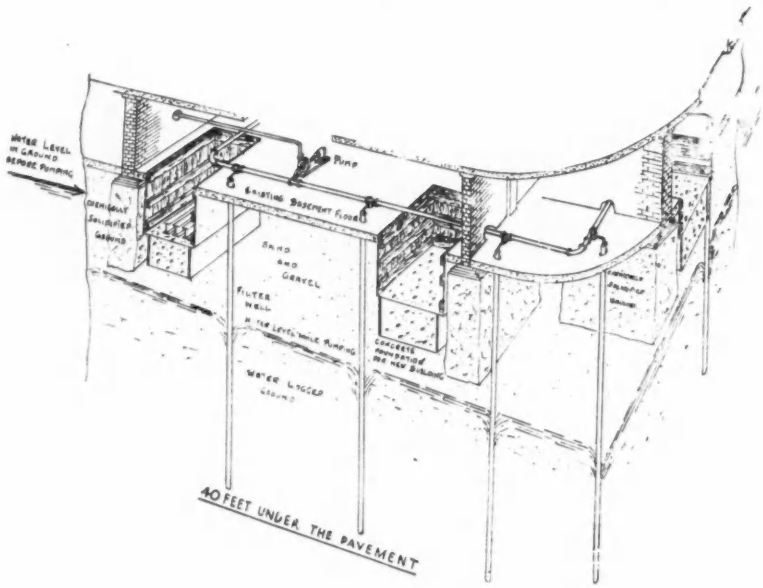
At a recent meeting of the Western Counties Branch of the Institution of Structural Engineers, held at Bristol, a paper was read by Mr. Gower Pimm, M.INST.C.E., M.I.STRUCT.E., on "The Report of the Reinforced-Concrete Structures Committee of the Building Research Board and the Recommendations appended to the Report for a Code of Practice for the Use of Reinforced-Concrete in Buildings."

The lecturer said that it was not his intention to deal at great length with the technical provisions of the Report, and important though it was that any code intended for general use should be sound in its technical provisions, it was even more important to see that it took its proper place in the general body of building legislation, and it was to this administrative aspect that he wished to invite special attention. Even from that point of view the technical provisions were of importance, especially those which introduced new principles, such as the greater interdependence of design and execution. Of this the outstanding example in the Code was the clause making the permissible concrete stresses dependent not only upon the proportions of the concrete and the quality of the materials, but upon the whole question of control. This same principle was in evidence in many other parts of the Code, and might be briefly stated as the principle that certain assumptions were permitted in making the design, provided that certain other requirements were observed in the selection and testing of the materials, and in the technique of execution.

In the words of the Report, "we were led to hope that our Code of Practice would be of service to Local Authorities in the administration of their Bye-laws, and that reference would be made to it in the Model Bye-laws issued from the Ministry of Health."

The suggestion that the Code should be incorporated by reference in the provincial Bye-laws was of great moment, and opened up questions of the first importance in connection with the administration of the Building Bye-laws in the provinces. The object of incorporating the Code in the Bye-laws was, of course, to make provision, long overdue, for the proper control of structural work in buildings in areas where no Building Act was in force, and where such structural work was at present only regulated by the very general and unsatisfactory requirement of the Model Bye-laws that it should be of "due stability." The effect of adopting the Code in those districts would be, in theory, the same as in London, namely, the Building Authority would be "guided by" the Code to a greater or lesser extent, and could, presumably, enforce the letter of the Code, waive any of its provisions, or go beyond them, according to the actual wording of the Bye-law as adopted by the individual authority. In London and the larger cities and towns, whether structural work was governed by Regulations or by a Code incorporated in the Bye-laws, the number of large buildings erected was sufficient to warrant the employment of a whole-time official or officials who were trained structural engineers and whose principal or sole duty was to check and approve the designs of proposed buildings and inspect the work during construction. The very occasional nature of this special duty did not allow a small Local Authority to demand the necessary qualifications in their engineer or building surveyor, even if the other calls upon his time permitted him to discharge this duty. The only possible solution appeared to be to relieve the responsible official of the special duty of approving structural designs.

In the case of Bye-laws made under the Public Health Acts the responsible official in structural matters was the Surveyor of the Council, but there was nothing in the Acts to suggest that he should be the official usually known as the "surveyor" or the "engineer and surveyor," indeed the Public Health Act, 1875, defined the "surveyor" for the purposes of the Act as "any person appointed by an urban or rural authority to perform any of the duties of surveyor under the Act." With this latitude allowed by the Act to appoint "surveyors" for any of the purposes of the Act, there would appear to be no difficulty in arranging for the efficient administration of structural regulations without overloading an already fully occupied department, and without overlapping, since the approval of structural designs was a clearly defined duty which, under the Act, might be discharged by any person appointed to perform that duty, and, therefore, by any qualified person appointed, permanently or temporarily, for that purpose only. This left it open to the authority to retain and employ any suitable person as and when his services might be required. Whether such person should be the permanent surveyor of some adjoining larger authority, an independent consultant, or an official appointed jointly by two or more authorities having occasional need of his services, was a question which might be determined by the circumstances of each case.



TRADE NOTES

[*BY F. R. S. YORKE, A.R.I.B.A.*]

Protection against Air Attack

THE protection of buildings from bomb, air, and gas attack is a subject that occupies an increasing amount of space in the German technical press. There are three references to literature concerning such protection in the Building Science Abstracts, Vol. VII, No. 11, including a review of the first textbook* to deal exclusively with the problem of minimizing the damage to buildings resulting from bombardment from the air.

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The work surveys the already large but scattered literature on the subject and presents the available information in a form intended to serve as a basis for future investigations. A bibliography of 315 references is included. It is shown that ancient towns were planned with definite regard to problems of defence, that the advent of the firearm rendered such planning largely redundant but that the risk of attack from the air has made it necessary to consider this hazard in the future planning of buildings and towns. The weapons of aerial warfare, high explosive, incendiary and gas bombs and their effects are described. The various suggestions already put forward for increasing the resistance of buildings to destruction by explosives and fire are critically examined.

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Attempts at making structures absolutely bombproof are rejected and it is emphasized that the real nature of the problem is to construct in such a manner that the cost of repairs is reduced to a minimum without adding more than 1 or 2 per cent. to the first cost of the building. The solution is seen in a suitably designed framed structure with panel fittings of such a nature that they provide protection from shell fragments and debris striking the building from without, but offer relatively little resistance to an explosion occurring within the building.

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The protection of existing buildings presents greater difficulties. Suggestions already made for dealing with structures of various types and materials are critically examined. More open planning than is at present customary is desirable. The protection of the occupants is treated as a separate problem and considerable space is devoted to the design, construction and equipment of bomb and gas-proof shelters.

* *The Protection of Buildings against aerial attack (Bautechnischer Luftschutz).* H. SCHOSZERBERGER: Berlin, 1934 (Bauwelt-Verlag), 8¼ in. by 5¾ in., pp. 240, fig. 129, RM. 7.80.

Foundations

Bentalls Store, Kingston-on-Thames, is being rebuilt, but in order that the existing building should not be interfered with until the last possible moment, the foundations for the new building were prepared without disturbing the old structure.

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Operations were performed from the basements with only 7 or 8 feet of headroom, whilst business proceeded as usual on ground and upper floors.

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To make the procedure possible it was decided to adopt the Joosten process for chemical consolidation of the ground.

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The old footings were laid on 15 feet of Thames ballast, a gravel and sand formation containing 12 feet of water overlying the clay beneath. In order to prevent any movement, the gravel under the footings was solidified into a form of "artificial sandstone," so ensuring that the old walls would remain undisturbed whilst pits for new foundations were being formed.

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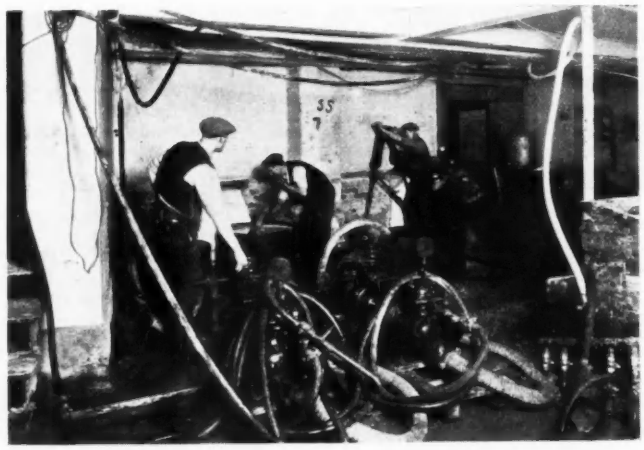
Pipes were driven into the ground, and two chemicals, in solution, forced through them, one after the other, reacting together on meeting to bind the loose ground into a solid mass.

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Similar work has been done on London Tube Railways in forming arches of solid ground to enable escalator tunnels to be driven in safety.

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A second problem was presented by the presence of water, because the new foundations are six feet below normal water level in the gravel. Special precautions were observed to prevent disturbance of the ground, and a system of pumping from a number of 12 in. diameter bore holes sunk to a distance of 30 ft. below basement floor



Bentalls extension, Kingston-on-Thames: underpinning existing building by chemical consolidation. The photograph shows the first plant in operation (driving).

level, was installed. Each of these wells—fifteen were distributed over the basement area—was fitted with a filter of fine wire mesh, surrounded by selected filtering gravel.

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The bore holes were connected to an 8 in. ring main pipe, so that water could be sucked simultaneously from all parts by means of a centrifugal vacuum pump. The filters prevent weakening of the ground by extraction of sand.

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Pumping from a number of points simultaneously enables a large area to be drained, whilst pumping no more water than was usual for a much smaller area with older methods. I am told this is the first time the system of "shallow well pumping" has been used in this country, though it is similar in principle to the "deep well pumping" used in dock construction at Southampton and Grimsby.

Manufacturers' Items

About 300 members of the London staff of the Trussed Concrete Steel Company, Ltd., attended a dinner and dance in the restaurant at Thames House, Millbank, S.W., on January 1. In the course of a short speech, Mr. Douglas H. Green (Managing Director), referred to the greatly increased volume of business done by the company during the past year, the loyalty and efficiency of the staff, and ended on a note of optimism as to the future prosperity of the reinforced concrete industry.

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Rossmore Court, a new blocks of flats in Park Road, N.W., contains no fewer than 130 Electrolux refrigerators. These refrigerators are of the motorless type and operate in permanent silence. The building, designed by T. P. Bennett and Son, was illustrated in our last issue. Other blocks of flats recently equipped with similar refrigerators are: Swan Court, Finchley Road; flats in Slough, Cambridge and Brook Street, W.

Showrooms in Bruton Street, W.

Following is a list of the firms responsible for the alterations and decorations at No. 26, Bruton Street, W.1 (pages 126-127): Walter Lawrence and Son, Ltd., structural alterations; Trollope and Sons, decorations; Pugh Bros., Ltd., decorative glasswork; Art Marbles, Stone and Mosaic Co., Ltd., marble; Bective Electrical Co., Ltd., electric lighting; J. R. Pearson (Birmingham), Ltd., and The Birmingham Guild, Ltd., metalwork; Troughton and Young, Ltd., light fittings; Woodfall and Emery, chandeliers; Berry's Electric, Ltd., and L. G. Hawkins and Co., Ltd., electric fires; D. S. Mann, curtains and fittings; Thomas Tapling and Co., carpets; Reliance Telephone Co., Ltd., telephones; Nobel Chemical Finishes, Ltd., and Mander Bros., Ltd., paint.

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The firm responsible for the special shuttering (patent applied for) illustrated on page 118, which is being used on the reinforced concrete flats at Northfield, Highgate, is J. L. Kier & Co., Ltd.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS).

ENFIELD. *Houses, etc.* Plans passed by Enfield U.D.C.: Extensions, smelting works, Stockingswater Lane, for Messrs. Topping and Leggatt; 12 houses, Lime Tree Walk, for Mr. E. J. Barnes; 34 houses, Parsonage Lane, for Messrs. W. Goodchild & Co.; 2 houses, King Edward's Road, for Mr. F. Huggett; three houses, Alexandra Road, for Mr. C. J. Brasier; 18 houses, Onslow Gardens, for Mr. G. W. Newman; 97 houses, Hertford Road and Bullsmoor Lane, for Mr. C. E. Owen Ward; two houses, Bincote Road, for Messrs. G. H. Chappell and Sons. Plans submitted: 28 houses, Alma Road, Ponders End, for Messrs. Melhuish and Henson; 201 houses, Broadlands Estate, Enfield Highway, for Messrs. Hilbery Chaplin, Ltd.; 40 houses, Falcon Field Estate, Ponders End, for Mr. L. Raymond; 20 houses, Riley Road, for Mr. H. E. Tufton; factory, Millmarsh Lane, for Messrs. Wallis, Gilbert and Partners.

ESHER. *Village Hall.* Mr. G. Blair Imrie, 2 Mitre Court Chambers, E.C.4, is acting as hon. architect in connection with the proposed erection of a village hall, off the Portsmouth Road. The plans have been prepared so that the building may be erected in sections if so desired.

LALEHAM. *Licensed Premises.* Plans have been submitted to the Staines U.D.C. by Ashby's Staines Brewery, Ltd., for licensed premises proposed to be erected at Staines Road. The plans have been approved subject to the consent of the Justices.

STAINES. *Cinema.* The Council have approved an application from Messrs. Frank Matcham & Co., Architects, 62 Oxford Street, W.1, to the proposed erection of a cinema in Church Road, Ashford. Plans have not yet been submitted.

STAINES. *Flats.* Plans submitted by Mr. W. Myring, Fairview Manor Lane, Sunbury-on-Thames, for the erection of 24 flats at Penton Avenue, have been approved.

SOUTHERN COUNTIES

HASTINGS. *Reconstruction of Parade.* The Corporation Works Committee recommends a scheme by the Borough Engineer for the reconstruction of the Parade at a total estimated cost of £108,900. This scheme, which is in part a revision of a previously proposed scheme, provides for the construction of a lower promenade from South Colonnade to the present covered promenade, an underground car park, cafés, pavilions, chalets, six squash racquets courts, conveniences, an additional car park, and other works.

PORTSMOUTH. *Houses, Flats and Shops.* Plans passed by the Corporation: Shop and flat, Lake Road, for Messrs. David Greig; 15 garages, Magdala Road, Cosham, for Mr. W. J. Colverson; four houses, London Avenue, for Mr. E. W. Payne; shop and flats, Castle Road, for Mr. J. Fry; shop and flat, London Road, for Messrs. Young and White; shop, Town Station Yard, for Messrs. Garcia Bros.; six houses, Hawthorn Crescent and Chatsworth Avenue, for Messrs. G. and W. Mitchell; two houses, East Street, for Mr. E. Hicks; two houses, Cherry Garden Lane, for Mr. C. V. Thorpe; three houses, Carmarthen Avenue, for Mr. J. C. Nicholls. Plans submitted: Shops and flats, High Street, Cosham, for Mrs. B. P. Crocker.

PORTSMOUTH. *Extensions to Guildhall.* The Corporation recommends a scheme for extensions at the Guildhall at an estimated cost of £40,000.

WORTHING. *Flats and Garages.* The Corporation has approved amended proposals by Messrs. Wood, Kendrick and E. F. Reynolds for the erection of four blocks of four flats and eight garages at Hurst Avenue.

WORTHING. *Hospital Extensions.* The Corporation recommends the appointment of Mr. M. R. Fletcher to act as architect in conjunction with the Borough Engineer in connection with the Swandean isolation hospital extensions.

SOUTH-WESTERN COUNTIES

PLYMOUTH. *School.* The Education Committee has adopted suggestions by the Board of Education with regard to the proposed new Devonport girls' secondary school and has instructed the architect to submit revised plans to the Board for approval. The revised estimated cost of the buildings is £42,000, as against the original estimate of £55,000.

EASTERN COUNTIES

CHELMSFORD. *Houses.* The Rural Council are to invite tenders for the erection of 17 houses in the parish of Writtle. Sanction for borrowing powers is to be sought.

CHIPPING ONGAR. *Schools.* Messrs. J. T. Bailey and Son, Chelmsford, have secured the contract for the erection of new senior schools at Chipping Ongar, for the Essex E.C., at £21,080, from designs prepared by Mr. J. Stuart, F.R.I.B.A., County Architect, Chelmsford.

ESSEX. *Schools.* The County Education Committee report that the Board of Education has approved in principle the proposal to erect a technical college in South-West Essex. The County Architect is Mr. J. Stuart, F.R.I.B.A., County Hall, Chelmsford.

UPMINSTER. *Schools.* New Senior Schools are to be erected at Upminster for the Essex E.C. from designs prepared by the County Architect, Mr. J. Stuart, F.R.I.B.A., Chelmsford. It is proposed to place the contract with Mr. Charles Deaves, Bures, at £23,619.

NORTHERN COUNTIES

MANCHESTER. *Houses.* The Manchester Corporation recommends the erection by direct labour of 202 houses on the Brownley Green Estate and 40 cottage flats in Heald Place, Rusholme. The Corporation also recommends the erection by direct labour of 406 houses on the Clayton Mount housing estate.

MANCHESTER. *Flats.* The Manchester Corporation is seeking sanction to borrow £813,525 for the erection of 1,589 residential flats, etc., on the Collyhurst and West Gorton clearance areas.

ROTHERHAM. *Rehousing.* The Corporation Housing Committee recommends the purchase of approximately 142 acres on the westerly side of Carr Hill, in the urban district of Greasbro', for rehousing purposes.

SCARBOROUGH. *Maternity Block.* The Scarborough Corporation Health Committee will probably proceed at an early date with the erection of a maternity block at the new hospital adjoining Scalby Road.

SOUTH SHIELDS. *Cinema.* The South Shields Watch Committee has approved plans submitted by Mr. R. H. Morton, F.R.I.B.A., for the erection of a cinema in Dean Road.

SOUTH SHIELDS. *School.* The South Shields Education Committee has instructed the architect to prepare specifications for the outstanding portions of the scheme for the new high school for boys. Sanction has been obtained to borrow £44,336 in respect of the main buildings. The Board of Education has also approved the plans for the reconstruction and extension of Stanhope Street senior schools, at an estimated cost of £22,927.

STRETFORD. *Library and Conveniences.* The Corporation is to consider further a scheme for the provision of a branch library and conveniences for the Firswood area.

SUNDERLAND, ETC. *Sanatorium.* The Joint Committee of the Sunderland, Middlesbrough, Gateshead, Darlington, West Hartlepool and South Shields Corporations recommends the preparation of a scheme for the extension of the

(*Continued on page xxiv*)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
C	Airdrie	Scotland	*1 5½	1 1½
A	Aldeburgh ..	E. Counties	1 1½	10½
B	Altrincham ..	N.W. Counties	1 5½	1 1½
A	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_2	Aylesbury ..	S. Counties	1 2½	11
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A_2	Boston	Mid. Counties	1 4	1 0
A	Bournemouth ..	S. Counties	1 4	1 0
B_2	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M	1 5½	1 1½
B_1	Bridgwater ..	S.W. Counties	1 3	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A	Brighton ..	S. Counties	1 4	1 0
B	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
B	Chatham ..	S. Counties	1 3½	11½
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A	Colchester ..	E. Counties	1 4	1 0
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_2	Dorches ..	S.W. Counties	1 2½	11
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley ..	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham ..	N E. Coast	1 5½	1 1½
A_2	FASTBOURNE	S. Counties	1 4	1 0
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter ..	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S. W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W. Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B	Isle of Wight ..	S. Counties	1 2	10½
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
B	Kendal ..	N.W. Counties	1 3½	11½
B	Keswick ..	N.W. Counties	1 3½	11½
A_2	Kettering ..	Mid. Counties	1 4½	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12–15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A	Luton	E. Counties	1 4	1 0
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
B	Maidstone ..	S. Counties	1 3½	11½
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N.E. Coast	1 5½	1 1½
A_2	Middlewich ..	N.W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_2	Oxford	S. Counties	1 4½	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_2	Peterborough	E. Counties	1 4½	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_2	Southend-on-Sea	E. Counties	1 4½	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4	1 0
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
B	Tunbridge Wells	S. Counties	1 3½	11½
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_2	Wellingborough	Mid. Counties	1 4½	1 0½
A	West Bromwich	Mid Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby	Yorkshire	1 4½	1 0½
A	Widnes	N.W. Counties	1 5½	1 1½
A	Wigan	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B_1	YARMOUTH ..	E. Counties	1 3	11½
B_1	Yeovil ..	S.W. Counties	1 3	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality, and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger	"	1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
General Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
¾" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single junctions	"	3	6	5	3
Double "	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¾" Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	7	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead wool	lb		6		—
Gaskin	"		3		—

BRICKLAYER

		£	s.	d.
Flettons	Per M.	2	18	0
Grooved do.	"	3	0	0
Phorpres bricks	"	2	17	3
" Cellular bricks	"	2	17	3
Stocks, 1st quality	"	4	11	0
" 2nd "	"	4	2	6
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Brindles	"	7	0	0
" Bullnose	"	9	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	0
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midhurst White Facings	"	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	29	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

		s.	d.
The following d/d F.O.R. at Nine Elms:			
Portland stone, Whitbed	F.C.	4	4½
" " Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" " Sawn templates	"	7	6
" " Paving, 2"	F.S.	1	8
" " " 3"	"	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	"	24	10	0
20" × 10" Countesses	"	19	5	0
18" × 10" Viscountesses	"	15	10	0
18" × 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey per 1,000 (actual)		21	11	6
" " green "	"	24	7	4
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each			9½
" hand-made	"			10
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" " 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak plain American	" "	1	0
" Figured "	" "	1	3
" Plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1
Deal floorings, ⅞"	Sq.	18	6
" 1"	"	1 1	6
" 1¼"	"	1 2	0
" 1½"	"	1 5	0
" 1¾"	"	1 10	0
Deal matchings ⅞"	"	14	0
" 2"	"	15	6
" 1"	"	1 4	0
Rough boarding ⅞"	"	16	0
" 1"	"	18	0
" 1¼"	"	1 6	0

Plywood, per ft. sup.

—Thickness	¼"	⅜"	½"	¾"
Qualities	AA. A. B.	AA. A. B.	AA. A. B.	AA. A. B.
	d. d. d.	d. d. d.	d. d. d.	d. d. d.
Birch	4 3 2	5 4 3	7½ 6 4½	8½ 7 6
Alder	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6
Gaboon Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –
Figured Oak 1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –
Plain Oak 1 side	6½ 6 –	7½ 7 –	9½ – –	1/- – –
Oregon Pine	5 4 –	5½ 5 –	6 – –	– – –

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	¼"	⅜"	1"	1¼"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23½" long each	10	1/1	1/11	2/8	4/9
" 3"-11½" long "	7	9	1/3	1/8	3/-
Long screws, 12"-23½" long "	11	1/3	2/2	2/10	5/3
" " 3"M-½" long "	8	10	1/5	1/11	3/6
Bends "	8	11	1/7½	2/7½	5/2
Springs not socketed "	5	7	1/1½	1/11½	3/11
Socket unions "	2/-	3/-	5/6	6/9	10/-
Elbows, square "	10	1/1	1/6	2/2	4/3
Tees "	1/-	1/3	1/10	2/6	5/1
Crosses "	2/2	2/9	4/1	5/6	10/6
Plain Sockets and nipples "	3	4	6	8	1/3
Diminished sockets "	4	6	9	1/-	2/-
Flanges "	9	1/-	1/4	1/9	2/9
Caps "	3½	5	8	1/-	2/-
Backnuts "	2	3	5	6	1/1
Iron main cocks "	1/6	2/3	4/2	5/4	11/6
" " with brass plugs "	—	4/-	7/6	10/-	21/-

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½
FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued*

		s.	d.
Rolled steel joists cut to length	cwt.	10	9
Mild steel reinforcing rods, ⅜"	"	8	6
" " ½"	"	8	3
" " ⅝"	"	8	0
" " ¾"	"	7	6
" " ⅞"	"	7	6
" " 1"	"	7	6
" " 1¼"	"	7	6
" " 1½"	"	7	6

Cast-iron rain-water pipes of ordinary thickness metal	3" s.	3" d.	4" s.	4" d.
	F.R.	8		10
Shoes	each	2	0	3 0
Anti-splash shoes	"	4	6	8 0
Boots	"	3	0	4 0
Bends	"	2	7	3 9
" with access door	"	—		6 3
Heads	"	4	0	5 0
Swan-necks up to 9" offsets	"	3	9	6 0
Plinth bends, 4½" to 6"	"	3	9	5 3
Half-round rain-water gutters of ordinary thickness metal	F.R.	5		6
Stop ends	each	6		6
Angles	"	1	7	1 11
Obtuse angles	"	2	0	2 6
Outlets	"	1	9	2 3

PLUMBER

		£	s.	d.
Lead, milled sheets	cwt.	18	6	
" drawn pipes	"	17	0	
" soil pipe	"	18	6	
" scrap	"	10	6	
Solder, plumbers'	lb.			9½
" fine do.	"		1	0
Copper, sheet	"			8½
" tubes	"			11

L.C.C. soil and waste pipes:	3"	4"	6"
Plain cast	F.R. 1 0	1 2	2 6
Coated	" 1 1	1 3	2 8
Galvanized	" 2 0	2 6	4 6
Holderbats	each 3 10	4 0	8 9
Bends	" 3 9	5 3	10 3
Shoes	" 2 10	4 4	9 6
Heads	" 4 8	8 5	12 9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	5	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle Plaster	"	3	6	0
Sand, washed	Y.C.	11	6	
Hair	lb.			6
Laths, sawn	bundle	2	4	
" rent	"	3	9	
Lath nails	lb.			3½

GLAZIER

		s.	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.				s. F.S.	2½
" " 26 oz. " " "	"				3
Flemish Arctic, Figured (white)*	"				7
Blazoned glasses	"			2	6
Reeded; Cross Reeded	"				11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite					6½
Crown sheet glass (n/e 12 in. × 10 in.)	"			2	0
Flashed opals (white and coloured)	"	1	0	and 2	0
⅛" rough cast; rolled plate	"				5½
⅛" wired cast; wired rolled	"				9½
¼" Georgian wired cast	"				11
¼" Polished plate, n/e 1 ft.	"	† 10 to ‡ 1			1
" " 2	"	†1 2	" ‡1		4
" " 4	"	†2 3	" ‡2		6
" " 8	"	†2 9	" ‡3		2
" " 20	"	†3 7	" ‡4		2
" " 45	"	†3 11	" ‡4		7
" " 100	"	†5 0	" ‡5		7
Vita glass, sheet, n/e 1 ft.	"				1 0
" " " 2 ft.	"				1 3
" " " over 2 ft.	"				1 9
" " plate, n/e 1 ft.	"				1 6
" " " 2 ft.	"				3 0
" " " 5 ft.	"				4 0
" " " 7	"				5 0
" " " 15	"				6 0
" " " over 15	"				7 6
"Calorex" sheet 21 oz., and 32 oz.	"	2	6	and 3	6
" rough cast ⅛" and ¼"	"			8½ " 1	0
Putty, linseed oil	lb.				3

* *Colours*, 1d. *F.S. extra.*
†*Ordinary glazing quality.* ‡*Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	6	0
Linseed oil	gall.	2	2½	
Boiled oil	"	2	4½	
Turpentine	"	4	1½	
Patent knotting	"	14	0	
Distemper, washable	cwt.	2	6	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	firkin		3	0
Copal varnish	gall.	13	0	
Flat varnish	"	14	0	
Outside varnish	"	16	0	
White enamel	"	1	15	0
Ready mixed paint	"	13	6	
Brunswick black	"	7	6	

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR

		£ s. d.
Digging over surface n/e 12" deep and cart away	Y.S.	2 9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.	8 6
" to form basement n/e 5' 0" deep and cart away	"	9 0
" " 10' 0" deep and cart away	"	9 6
" " 15' 0" deep and cart away	"	10 0
If in stiff clay	add "	6
If in underpinning	"	4 0
Planking and strutting to sides of excavation	F.S.	1 0
" " to pier holes	"	5
" " to trenches	"	3
" " extra, only if left in	"	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	"	1 6 0
" " (4-2-1)	"	1 12 6
" " underpinning	"	1 16 0
Finishing surface of concrete, spade face	Y.S.	7

DRAINLAYER

		4" s. d.	6" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER

		£ s. d.
Brickwork, Flettons in lime mortar	Per Rod	27 10 0
" " in cement	"	28 15 0
" Stocks in cement	"	35 0 0
" Blues in cement	"	52 0 0
Extra only for circular on plan	"	2 0 0
" backing to masonry	"	1 10 0
" raising on old walls	"	2 0 0
" underpinning	"	5 10 0
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	"	8
" " " red brick facings and pointing	"	11
" " " blue brick facing and pointing	"	1 4
" " " glazed brick facings and pointing	"	3 6
Tuck pointing	"	7½
Weather pointing in cement	"	3
Slate dampcourse	"	10
Vertical dampcourse	"	1 1

ASPHALTER

		s. d.
½" Horizontal dampcourse	Y.S.	4 6
½" Vertical dampcourse	"	6 9
½" paving or flat	"	4 0
1" paving or flat	"	5 6
1" × 6" skirting	F.R.	1 0
Angle fillet	"	2
Rounded angle	"	2
Cesspools	Each	5 0

MASON

		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	"	13 6
Artificial stone and do.	"	13 0
York stone templates, fixed complete	"	10 6
" thresholds	"	13 6
" sills	"	1 0 6

SLATER AND TILER

		£ s. d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3 10 0
Do., 18" × 9"	"	3 7 0
Do., 24" × 12"	"	3 17 0
Westmorland slating, laid with diminished courses	"	6 0 0
Tiling, best hand-made sand-faced, laid to a 4" gauge, nailed every fourth course	"	3 0 0
Do., all as last, but of machine-made tiles	"	2 16 0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	4 6 0
" " " " " " (green)	"	4 15 0

CARPENTER AND JOINER

		£ s. d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2 5 0
Shuttering to sides and soffits of beams	F.S.	8
" to stanchions	"	8
" to staircases	"	8
Fir and fixing in wall plates, lintols, etc.	F.C.	1 8
Fir framed in floors	"	3 9
" " roofs	"	4 6
" " trusses	"	6 6
" " partitions	"	7 6
1" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" " " " "	"	1 17 6
1½" " " " "	"	2 3 0
¾" × 2" fir battening for Countess slating	"	9 6
Do. for 4" gauge tiling	"	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
" " " 2 "	"	2 9
" " " 3 "	"	3 3
Stout herringbone strutting to 9" joists	F.R.	10½
1" deal gutter boards and bearers	F.S.	1 2
1½" " " "	"	1 6
2" deal wrought rounded roll	F.R.	8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼" do.	"	2 10 0
1½" do.	"	2 17 0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1¼" do.	"	1 9

CARPENTER AND JOINER—*continued*

		s. d.
1½" deal moulded sashes of average size	F.S.	1 9½
2" " " "	"	1 11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1¼" pulley stiles, 1¼" heads, 1" inside and outside linings, ¾" parting beads, and with brass faced axle pulleys, etc., fixed complete	"	3 7
2" " " "	"	3 10
Extra only for moulded horns	Each	6
1½" deal four-panel square, both sides, door	F.S.	2 0
2" " " "	"	2 8
1½" " but moulded both sides	"	2 4
2" " " "	"	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" " " "	"	1 4
1½" deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1¼" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
1¼" deal moulded wall strings	"	2 1
1½" " outer strings	"	2 4
Ends of treads and risers housed to string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1½" × 1½" " " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

SMITH AND FOUNDER

		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	15 6
Riveted plate or compound girders, and hoisting and fixing in position	"	19 6
Do. stanchions with riveted caps and bases and do.	"	19 0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	"	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER

		£ s. d.
Milled lead and labour in flats	cwt.	1 12 0
Do. in flashings	"	1 15 6
Do. in covering to turrets	"	2 3 0
Do. in soakers	"	1 7 6
Labour to welted edge	F.R.	3½
Open copper nailing	"	3
Close "	"	4

		½" s. d.	¾" s. d.	1" s. d.	1¼" s. d.	2" s. d.	4" s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks		—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	3 9	5 0	8 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—

		s. d.
4" cast-iron ½-rd. gutter and fixing	F.R.	1 0
Extra, only stop ends	Each	1 0
Do. angles	"	1 6
Do. outlets	"	2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1 2
Extra, only for shoes	Each	1 3
Do. for plain heads	"	5 6

PLASTERER AND TILING

		s. d.
Expanded metal lathing, small mesh	Y.S	2 0
Do. in n/w to beams, stanchions, etc.	"	2 9
Lathing with sawn laths to ceilings	"	1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1 5
Do. vertical	"	1 7
Rough render on walls	"	1 2½
Render, float and set in lime and hair	"	1 9
Render and set in Sirapite	"	1 11
Render, backing in cement and sand, and set in Keene's cement	"	2 9
Extra, only if on lathing	"	4
Keene's cement, angle and arris	F.R.	6
Arris	"	1½
Rounded angle, small	"	3
Plain cornices in plaster, including dubbing out, per 1" girth	"	1½
1" granolithic pavings	Y.S.	3 6
1½" " "	"	4 6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17 6
9" × 3" " " " "	"	1 2 6
Extra, only for small quadrant angle	F.R.	8

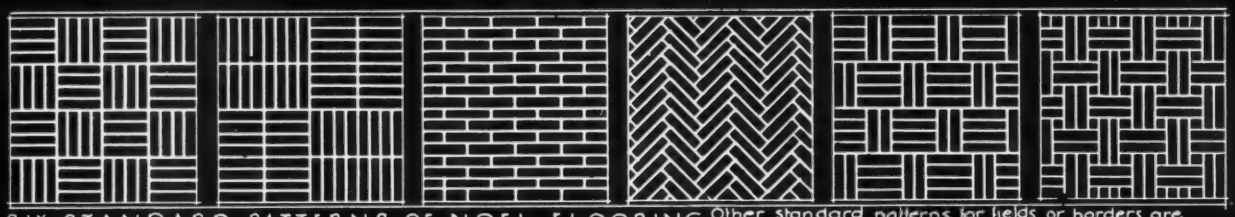
GLAZIER

		s. d.
21 oz. sheet glass and glazing with putty	F.S.	7½
26 oz. do and do.	"	8½
Flemish, Arctic Figured (white) and glazing with putty	"	1 1
Cathedral glass and do.	"	1 2
Glazing only, British polished plate	"	7
Extra, only if in beads	"	2
Washleather	F.R.	4

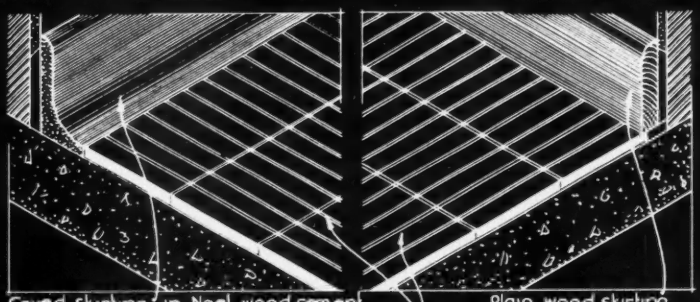
PAINTER

		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	"	9
Do. with washable distemper	"	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3 3
Do. on woodwork	"	3 6
Do. on steelwork	"	3 0
Do. and brush grain and twice varnish	"	3 6
Stain and twice varnish woodwork	"	1 11
Stain and wax-polish woodwork	"	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper	from	2 9

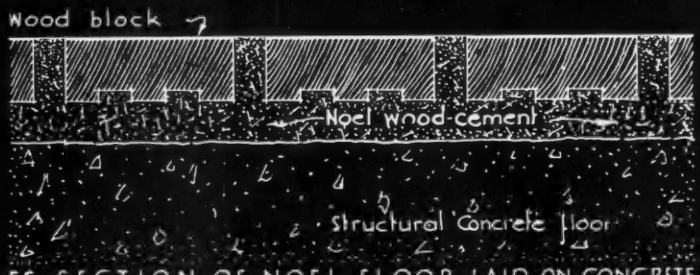
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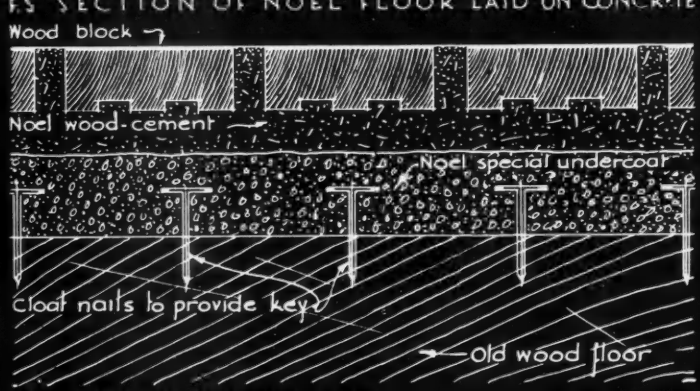
SIX STANDARD PATTERNS OF NOEL FLOORING Other standard patterns for fields or borders are available. Special patterns are laid to order.



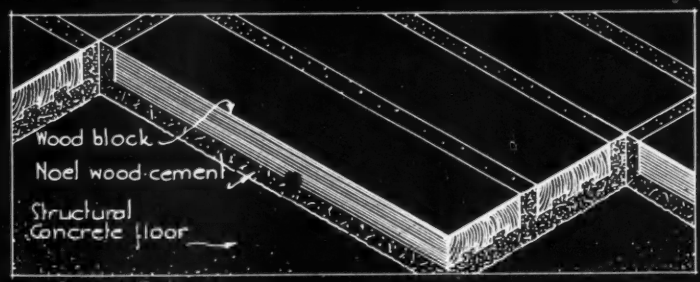
DETAILS OF SKIRTING ARRANGEMENTS



F.S. SECTION OF NOEL FLOOR LAID ON CONCRETE



F.S. SECTION OF NOEL FLOOR LAID ON AN OLD BOARDED FLOOR.



ISOMETRIC

STANDARD SIZES:
The standard size of the Noel Hardwood block is 4 3/5" x 1" x 3/8" Blocks 3 2/5", 2 1/5" & 1" long are also used in some patterns.
For special purposes blocks up to 7" x 1 1/2" may be used, but in certain timbers only.

TIMBER VARIETIES:
The following timbers are used for Noel flooring:

English Oak.	Austrian Oak.
American Oak.	Tasmanian Oak.
Burma Teak.	Queensland Maple.
Jarrah.	Queensland Walnut.
Andaman Padauk.	Burma Padauk.
Indian Koko.	Indian Haldu.
White Beech.	Red Beech.

for borders,

Ebony.	Blackwood.
Rosewood.	Walnut.
Teak.	Haldu.
Jarrah.	

NOEL WOOD-CEMENT:
Noel wood-cement is an oxy-chloride cement designed to provide

1. Maximum adhesion to concrete, wood & other substances.
2. Wearing qualities equal to those of the woods with which it is used.
3. Sufficient Elasticity to enable it to take up any expansion or contraction in the wood-blocks.

Colours: Wood-cement may be used in Light, Medium or Dark shades of: Yellow, Buff, Sepia, Red, Ivory, Green, Blue, Black.

Information from Noel Floors Ltd.

INFORMATION SHEET: DETAILS OF WOOD-BLOCK FLOORING.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1.

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 183 •

WOOD-BLOCK FLOORING

Type Illustrated : Noel Floors

Laying :

Except in certain provincial areas where specially trained local agents have been appointed, Noel Floors are laid and finished only by the manufacturers.

Sub-floors and Foundations :

Noel Floors may be laid on any substantial sub-floor. On structural concrete, cement screeds, existing tile, flag stones, brick, mosaic, terrazzo or composition floors, provided they are reasonably level, the finished thickness of the Noel Floor and its bedding is ½ in.

On asphalt, existing board, parquet or wood block and other old floors which require levelling, an undercoat of not less than ½ in. will have to be laid under the Noel Floor bedding, making at least 1 in. overall.

Where flooring is required on concrete steps, risers, etc., hardwood fillets for fixing nosings should be provided in the concrete 1 in. from the front edges.

Electric junction boxes, inspection boxes, manholes, etc., in the sub-floor, where movable traps in Noel Flooring are required, should be set down not less than 1 in. from the finished floor level.

Setting Time :

Noel Floors under normal conditions are set and may be walked on in *summer* 8-12 hours after laying, *winter* 12-24 hours.

Finishing :

Noel Floors are surfaced with floor surfacing machines—electrically driven. If the current is not available (1.5 h.p. minimum) it is necessary to use petrol motors for this purpose. All the usual wood floor finishes and polishes may be used for Noel Flooring. The manufacturers are pleased to quote for maintenance of floors.

Test :

A test of the adhesive properties of the Noel Wood Cement has been made by the French Government Laboratories of Mechanical, Physical, Chemical and Machine Testing under the Ministry of Public Education and Fine Arts. Test pieces composed of wood joined to strong Portland cement concrete by Noel Wood cement were subjected to a test of fracture by tension carried out on a multiple-lever machine. Seven pieces were tested after being subjected to humidity for 15 days after the joints were made. The average resistance to fracture was 163.5 lb. per square inch, and in every test piece the fracture occurred in the half-block of Portland cement concrete about ⅛ in. from the cement joint, the remaining fragment adhering firmly.

Certain Empire timbers which are sometimes considered to be unsuitable when used in strip or block form, are quite satisfactory when laid by the Noel Hardwood Mosaic method.

Prices :

Vary according to the size and conditions of job and timber employed. In Oak and Teak from 10s. per square yard, finished complete, no extras for cutting and waste, borders, etc.

Designs :

In addition to the large range of standard patterns, architects' special designs may be carried out at reasonable cost.

Name of Manufacturers : Noel Floors, Ltd.

Address : 70, Leather Lane, E.C.1

Telephone : Holborn 1131

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NON SLIP TERRAZZO, Pre cast or in situ.

The following types of 'Alundum' aggregate are made for use with all types of terrazzo, granolithic, and sand-and cement floors.
'Alundum' aggregate consists of 'Alundum' abrasive (aluminum-oxide) mixed with special bonding clays & colouring agents, vitrified, crushed, & sized.

(a) Standard aggregate.

Sizes : terrazzo size. . 3/32' — 1/4'
O size . . . . . 1/64' — 3/32'

Colours : Green, Buff, Cream, Brown. Grey-white, red & Black.

(b) Commercial (C.F.) aggregate

Sizes : Coarse . . . . . 1/4' — 1/2'
Fine . . . . . 1/32' — 1/4'

for proportions of aggregate required for different types of floor, see back of this sheet

RUBBER BONDED SAFETY TREADS

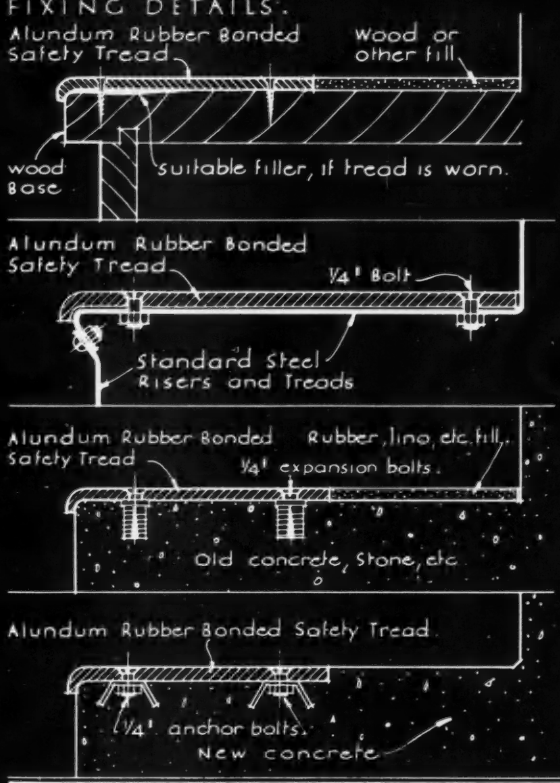
are composed of Alundum aggregate moulded into a reinforced rubber base. The rubber is so vulcanized as to be hard & tough, yet resilient. The aggregate is carried round the curved nosing of the tread.

STANDARD SIZES :

width : 3 3/8' } lengths Colour black.
6 1/8" & 12" } up to 6'. 6'.

Special sizes and shapes are made to order

FIXING DETAILS.



ALUNDUM STAIR AND FLOOR TILES

ROUND NOSED STAIR TILE:

Sizes : 6' x 4' 1/2', or 3/4' thick.
6' x 6' 1/2', or 3/4 thick.
9' x 4' 3/4' thick.
9' x 6' 3/4' thick.

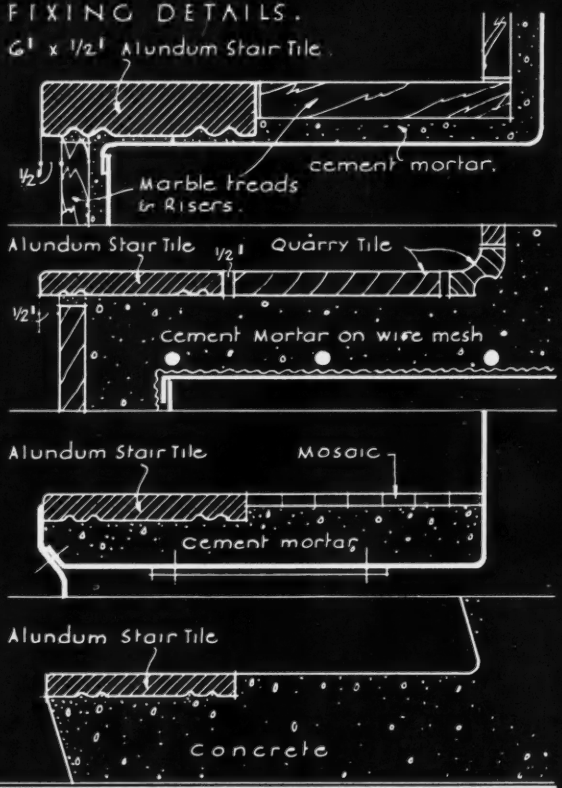
Other sizes are made to order :

STRAIGHT EDGED FLOOR TILE :

Size 6' x 6', 1/2' & 3/4' thick Other sizes to order

For notes on laying, see back of this sheet

FIXING DETAILS.



CERAMIC MOSAIC TILE

Colours : Brown, Grey white, Blue grey, White-granite, Red, Black, Green, tan & Buff.

Sizes : 3/4' & 1 1/16' squares, 1/4' thick.
Alundum ceramic mosaic tile may be mounted on paper, & set in the same way as other mosaics.

FOR AGGREGATES IN :

Magnesite floors.
Asphalt floors.
Asphalt Emulsion floors.
Hot asphalt floors.

See back of this sheet . . . . .

Information from The Adamite Company Limited.

INFORMATION SHEET : NON SLIP PRODUCTS FOR FLOORS, STAIRS & RAMPS.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 184 •

FLOORING AND STAIRS

Product : Alundum Non-slip Floor Products

General :

The two kinds of artificial abrasive in general use to-day—Silicon Carbide (SiC) and Aluminum Oxide (Al_2O_3), are products of the electric furnace.

Silicon Carbide is hard and brittle—quite easily fractured. These hard and brittle characteristics are desirable for the grinding of some metals, but the latter is not suitable for floor products.

Aluminum Oxide is very hard and extremely tough, characteristics essential in floor products designed to resist severe foot traffic.

Non-Slip (Wet or Dry) :

All Alundum tiles and ceramic mosaic tiles contain tough Alundum abrasive.

Durability :

Because of the hardness and toughness of Alundum abrasive and the method of bonding, the tile will stand up indefinitely under most severe traffic conditions.

Quiet :

The grains of abrasive are held together by the bond of vitrified clay in such manner as to give a non-resonant structure that prevents reverberation.

Round-Nosed (Stair) Tile and Straight-Edged (Floor) Tile

Method of Laying :

1. Soak tile in clean water at least ten minutes. Drain a few minutes before setting.
2. Avoid using any colouring matter in grout.
3. Fill all joints flush, allow to set until hardened sufficiently to permit removal of cement from surface of tile without destroying the grout.
4. Rub the tile in a rotary motion with a clean cloth and repeat until no cement appears on the face of the tile.
5. Wash if necessary with a solution of muriatic acid and clean water (6 oz. of acid to 12 quarts of water) applied with fibre brush. Allow acid to remain on floor a few seconds only, thoroughly wash off and rinse with water.
6. Protect the installation against dirt, stain or injury until completion of the building.

Standard Aggregates

Standard aggregates can be used either in terrazzo laid in situ or in pre-cast terrazzo slabs or hydraulically pressed tile.

The correct quantity of standard aggregate to be used depends upon the use to which the floor is to be put :—

"A" For heavy traffic, such as floors or landings in railway stations—one part of Alundum aggregate to two parts of crushed marble by weight.

"B" For normal traffic on stairs or landings subjected to continual use—one part of Alundum aggregate to three parts of crushed marble by weight.

"C" For light traffic such as floors in museums, churches, etc., one part of Alundum aggregate to four parts of crushed marble by weight.

Alundum non-slip terrazzo should have a maximum thickness of $\frac{5}{8}$ in. before polishing, which will give a thickness of the finished surface varying from $\frac{3}{8}$ to $\frac{1}{2}$ in.

Commercial (C.F.) Aggregate

The commercial (C.F.) aggregate is a "run of kiln" product and is not produced in different colours. It is harder than the standard aggregate in order to meet the requirements of heavy industrial floors.

It can be employed in granolithic or sand-and-cement floors by two methods :

"A" The mix system—9 lb. of commercial coarse aggregate per yard super, 1 in. in thickness, mixed with the granite chips before the mixture is hydrated.

"B" The sprinkle system—not less than $2\frac{1}{2}$ lb. of commercial fine aggregate sprinkled on the surface of the floor and lightly trowelled in.

Method of Laying Standard or Commercial (C.F.) Aggregate Floors :

1. Soak Alundum aggregate in clean water.
2. Mix thoroughly with granite chips or sand. (Alundum aggregate is lighter than granite.)
3. Never add Alundum aggregate to wet mortar—the particles of aggregate will stick and form a blotchy surface.
4. For the sprinkle system, allow the cement screed to stand for a few hours until it will bear the weight of workmen standing on boards before applying the Alundum aggregate.

Magnesite Floors :

Mix not less than $2\frac{1}{2}$ lb. of "O" size Alundum standard aggregate per square yard direct into wearing finish prior to its application and apply to a depth of $\frac{1}{4}$ in. Where brass dividers are used in the floor rub the surface to a level finish sufficiently to expose the dividers.

Asphalt Floors :

The incorporation of Alundum aggregate renders the floors non-slip and reduces indentation to a minimum.

For Asphalt Emulsion Floors :

Sprinkle not less than $2\frac{1}{2}$ lb. of fine Alundum (C.F.) aggregate per square yard on the surface and float into mix.

For Hot Asphalt Floors :

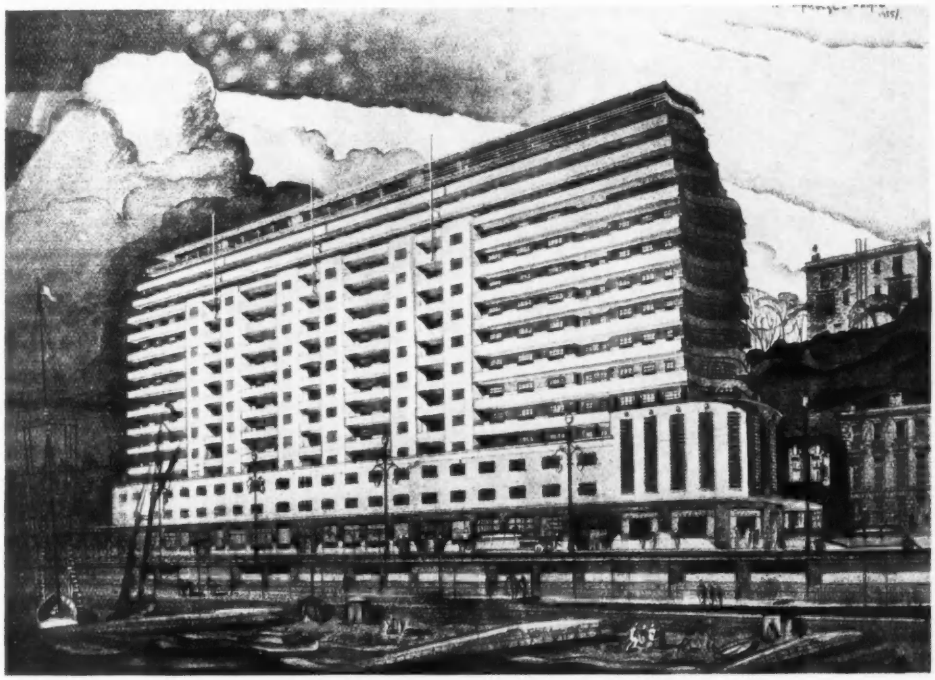
Use Alundum (C.F.) aggregate, employing either the mix or the sprinkle system.

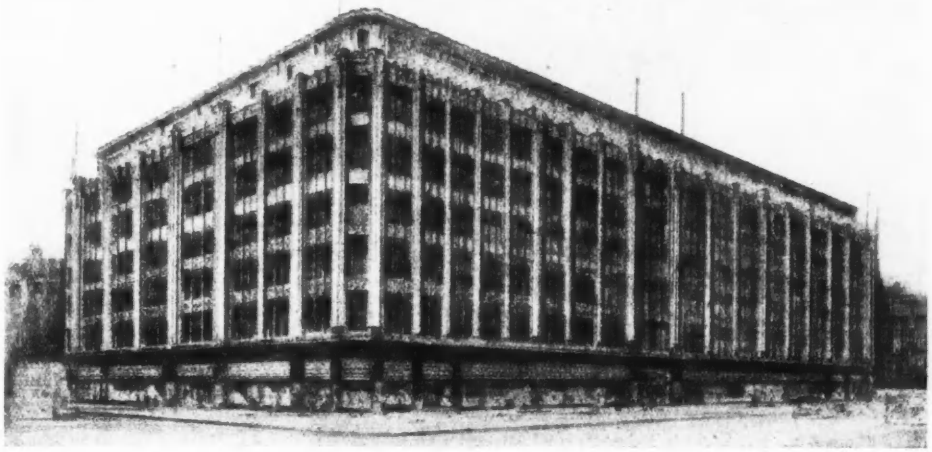
For coloured asphalts use Alundum terrazzo aggregates.

Manufactured in England for : The Adamite Company, Ltd.
Telephone : Temple Bar 6233-4-5
Address : Manfield House, Strand, W.C.2

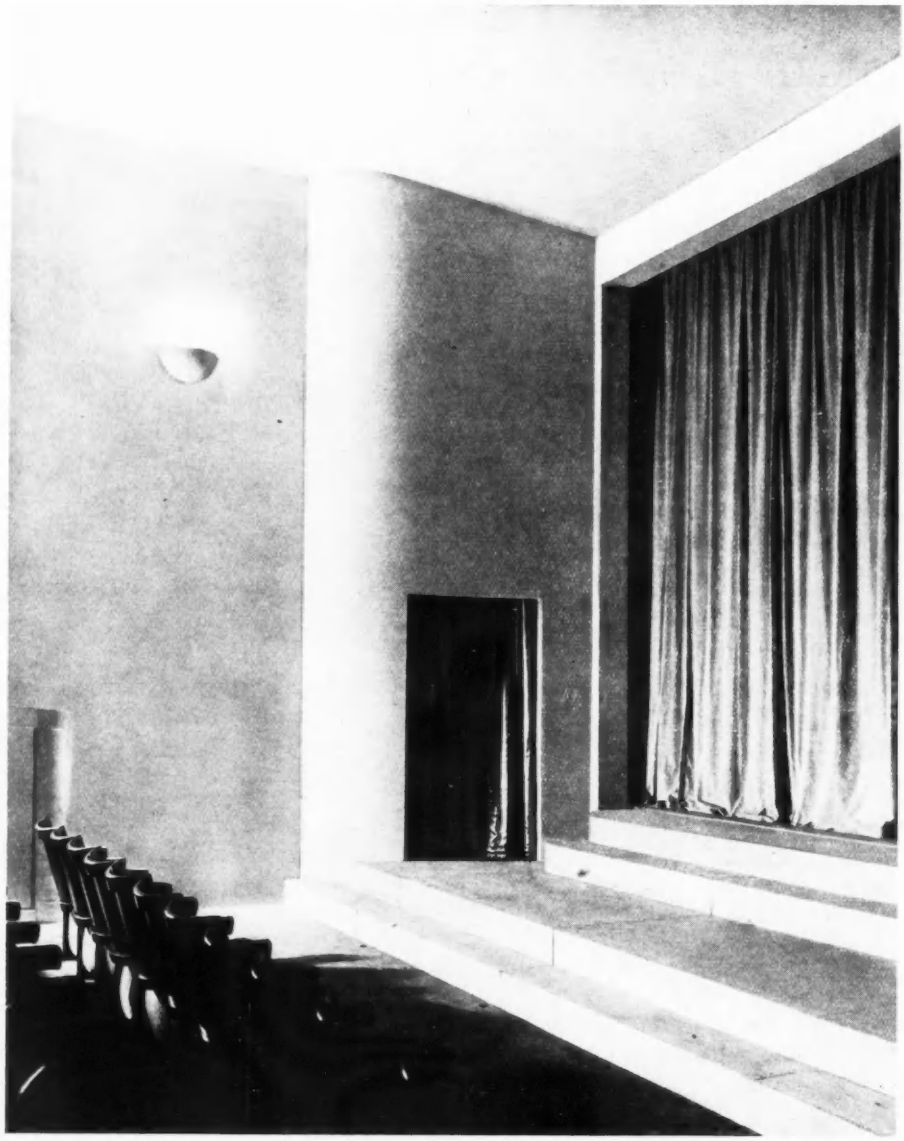
HIGH BUILDINGS IN PROSPECT

HASTINGS FLATS AND A LONDON STORE

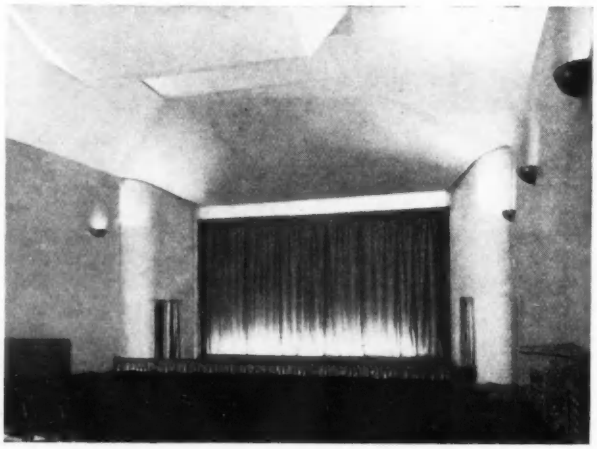




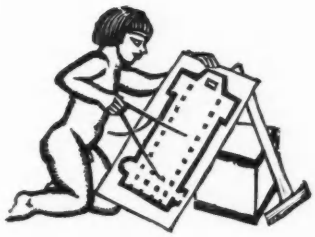
PLANS have been approved for a sixteen-storey block of flats to be erected on the Hastings sea-front, at Undercliff. The building will be 148 ft. high and will contain over 200 flats, with shops at ground floor level. A high building is also announced for London; the store belonging to Messrs. D. H. Evans, in Oxford Street, is to be re-built 100 ft. high. Above are perspective sketches of the two buildings. Top: the Hastings skyscraper; architects, Kenneth Dalgliesh and Roger K. Pullen. Bottom: the store in Oxford Street; architect, Louis Blanc.



A. D. C. THEATRE, CAMBRIDGE



In this theatre, opened by Miss Ellaline Terriss on Thursday last, January 17, the safety curtain is lowered below, instead of raised above, the stage; and the orchestra pit, when not in use, is covered with removable steps to form an apron stage and give increased acting area. The new theatre, designed by Harold Tomlinson, in association with W. P. Dyson, stands on the site of the old one, in Park Street, which was burnt down in 1933. Further illustrations will be published next week.



THE NEW HOUSING BILL

THE new Housing Bill for England and Wales, issued on Thursday last, represents the fulfilment of Sir Hilton Young's promise of ten months ago, and the considered action of the Government in respect of the Moyne Report proposals which were available six months earlier.

We have never urged haste in matters upon which considerable detailed work, in advance of action, was necessary. We do not criticize the Government for taking a long time to produce this Bill ; the formulation of a comprehensive measure, covering not only the institution of an overcrowding standard, the provision of means for the abolition of overcrowding, and the establishment of the machinery for reconditioning suitable buildings, but also considerable amendments of existing housing law, including "slum clearance law," justifies such an expenditure of time.

Whatever criticisms may be brought to bear upon this Bill, in Parliament or elsewhere, it must be acknowledged that it represents a very great advance on existing legislation.

The "Overcrowding, Re-development and Reconditioning" part of the Bill is by far the most important. The occupational maxima laid down do not approach the ideal, but there is much to be said for the establishment of a standard to which authorities can work with some hope of seeing their job completed. If the principle of providing subsidized housing almost solely through local authorities is to be maintained (as it is under the Bill) a more strict overcrowding standard would probably make some authorities derisive, and might easily result in less, rather than more, energy on their part.

We do not, therefore, attach very great importance to the level of the accommodation standards laid down. (These are explained in a note on page 147.) It is apparent that when the nation has been housed, or rehoused, in such a manner that nobody "breaks" these standards, very considerable progress will have been made.

What troubles us most is the method laid down in the Bill for carrying out the survey; it is to be conducted by the local authorities. There is no indication that the Minister will require every house to be inspected, the authorities have to "cause an inspection thereof to be made with a view to ascertaining what dwelling-houses therein are overcrowded, and to prepare and submit to the Minister a report showing the result of the inspection and the number of new houses required in order to abate overcrowding in their district, and, unless they are satisfied that the required number of new houses will be otherwise provided, to prepare and submit to the Minister proposals for the provision thereof." The Minister is given power to fix a date for the completion of this task, and he is empowered, concurrently with the local authorities themselves, to cause further inspections to be made.

There is considerable variation between the size, wealth and sense of social responsibility of local authorities. It should not be forgotten that only a small proportion (probably about one-eighth) of the local authorities in England and Wales managed to convey their slum clearance plans to the Minister by September 30, 1933, though the time available for their preparation was almost six months. The task imposed under the new Bill is far greater.

Last week we put the question: "Will the Bill provide for a proper Survey and a proper Plan, in advance of action?" We commented on the proposals put in the Second Report of the Council for Research on Housing Construction, and stated our agreement with their principles. The Bill, as it stands, does not provide for a proper Survey, in our view, and consequently it cannot provide for a proper Plan. The case for a National Survey, in which every house is included, in the first instance, seems to us unassailable ; local surveys, carried out according to the wording of the Bill, seem likely to produce difficulties and deficiencies similar to those which were discovered in the collection of the slum clearance plans in 1933.

In order to provide the accommodation necessary to abolish overcrowding as defined by the Bill, local authorities are to be given considerable powers of compulsory acquisition of central sites. This part of the Bill, the intention of which is to make possible the rehousing of overcrowded persons *on the site*, by re-planning large central districts for the erection of working-class flats, shows vision. It would seem important that some means should be taken to prevent the inflation of site values against a local authority, for the amount of subsidy is to be proportionate to the site cost.

The consolidation of housing subsidies should make it increasingly possible for the resources available from public funds to be devoted to the persons who really need assistance.

The abolition of the "reduction factor," the provision for full compensation for owners of property included in a clearance area for reasons other than unfitness, and the concession to landlords who have done their best to keep property in proper condition, also seem reasonable in principle, and the important thing will be to make sure that these are not misused in practice.



The Architects' Journal
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London

NOTES & TOPICS

A CURIOUS JUXTAPOSITION

I WONDER how many readers of this JOURNAL noticed an ironical (and no doubt accidental) sequence of paragraphs in the News pages of last week's issue.

*

They were headed—and in this order—" Town Planning for Westminster " and " New Building in Westminster."

*

The former announced the retention of Professor Adshead, W. R. Davidge, and Longstreth Thompson to report on Westminster's part in the L.C.C. town planning scheme for all London, in view, amongst other things, " of the great value of property and the importance of the interests affected."

*

The latter paragraph announced that plans have been approved for a new office building at the corner of Great George Street and Parliament Square—certainly one of the most important sites, architecturally, in Europe.

*

A perspective drawing, too, was shown, but it did not give much idea of the effect of the new building (six storeys to main cornice and two in roof, plus tower at north end) on existing buildings of little account such as Saint Margaret's Church, the Abbey and the Houses of Parliament. All it did show was that the quite pleasant Middlesex Guildhall (even now rather self-effacing) is to be completely dwarfed.

*

The promoters of the scheme have " improvement " definitely in mind ; but even their precaution of employing Sir Giles Gilbert Scott to design the elevations does not convince me that any vast bulk of building at that point will be an " improvement."

*

In view of the appointment of the three town planning consultants could not the matter yet be referred to them ? As a nation we have a strong architectural regard for what we call " Westminster," meaning those very few acres round the tower of Saint Margaret's. I think public feeling would run high over its spoliation. In any case, that site might almost be called a national position, so intimately does it affect the approaches (already, alas ! none too fine) to the seats of national worship and national government.

*

It should be remembered that the Royal Fine Art Commission is there to answer questions which are put to it on matters of design ; it cannot well initiate criticism. Asked for its opinion on a design, it gives it, but can rarely venture into the realm of town planning unless it has been asked to do so.

*

And as for the " eyesore " which a few members of Parliament seem anxious to replace, I always feel that (like the heroine of a not too recent " hot number ") " it ain't good looking but it's got good sense." It is, at least, not too bad to leave till a town planning policy has been agreed.

TITILLATING THE PUBLIC CONSCIENCE

Professor Reilly is not only a good journalist ; he is a first-rate publicist, and we have all to be thankful that we have such an one to devote so great a part of his abilities to trumpeting the causes of architecture and of decent taste.

*

He put the Liverpool School so prominently on the map that it is little likely ever to be pushed off it. For that matter London never heard so much of Liverpool City itself as while the Professor lived, worked and wrote in it !

*

Not much over a year ago the Professor reproved the City of Bath for failing to fulfil its architectural obligations ; he made the aldermanic bosoms heave with indignation, and when they loudly complained, he told them all not to be stupid and fired off yet another round.

*

Just recently he has been tilting at Brighton, another home of the Georgian and Regency architectural tradition. Speaking at the Brighton Arts Club, Professor Reilly castigated the town for allowing red brick to appear on its sea front. He said, very rightly, that " the glorious cream . . . is exactly the right colour between the chalk downs and the grey sea," and that all the front must be kept that colour.

*

I fervently hope that the town authorities will take proper notice of this admonition. The terraces of stucco are amongst the finest anywhere within easy reach of London ; much of the Regency work is unspoilt. Brighton and Hove are not so well endowed with more recent buildings of high merit that they can afford to be profligate with what remains to them of their early days of prosperity.

LIVERPOOL COMPLAINS

The *Liverpool Post and Mercury* has been expressing surprise that the city has not yet applied for all or part of the recent R.I.B.A. Exhibition of International Architecture ; Manchester is to have it in June.

*

I respect rivalry, even if it be *only* rivalry, between the two great Lancashire cities. There is, in this resent-



C. Beresford Marshall, whose design for the King's House is illustrated on pages 148-149.

ment, the dawn of an age which many of us may live to see—when architectural matters and problems will be eagerly sought after and intelligently studied.

*

The exhibition in question is now ready to go on tour. Several requests have been received, I hear, for certain sections of it, and places as near and as far as Blackheath and Edinburgh are to have the loan of it. It all seems very healthy.

A WORD TO BATH MANUFACTURERS

The international exhibition called "The Bath Today and Yesterday," to be held in Zürich this April, promises to be one of the most interesting one-subject shows ever held. It is being jointly organized by the International Congresses of Modern Architecture and the Swiss *Werkbund*, with the active support of the City of Zürich.

*

The exhibits will take the form of large photographs, detail drawings, coloured diagrams, old prints, and actual fittings—ranging from complete slipper baths to cakes of bath-soap and "water-wear." They will be arranged in three groups: Public Baths (nine sections), Domestic Baths (six) and Medicinal Baths (one). Each section will be subdivided into a historic retrospect and a display of the most modern examples in every country.

*

The historic sub-sections have been extremely well worked out. But I notice one of them—and that really the key to all—which is bound to be incomplete and inconclusive without the whole-hearted co-operation of our oldest established manufacturers. Section B6 is labelled "Nineteenth Century. Development of the Bathroom in England, *circa* 1840, in Conjunction with the Industrial Production of Sanitary Fittings."

*

This exhibition is certain to have a far-reaching effect in the way of standardization—a whole section is devoted to standardized baths for minimum dwellings—and orders are sure to result from the best exhibits. What makes it all the more important is that it is afterwards to be sent on an extensive tour throughout Europe. The Zürich Exhibition therefore offers British manufacturers of sanitary ware, etc., a unique opportunity for showing the world they are still well ahead of their Continental rivals.

*

The organizers are inviting collaboration for every section from firms, societies and public bodies in all countries. The Secretary of MARS (55 Gordon Square, W.C.1) has all particulars. I hope the British manufacturers will respond.

THE JUBILEE HOUSE

Mr. Beresford Marshall's winning design was selected by the King from amongst three which Sir Giles Gilbert Scott submitted to him. It happens, too, to be the one which Sir Giles himself favoured.

*

The house, as was to be foretold, has no strident qualities, but maintains a dignity appropriate to the occasion. If it is not specially expressive of 1935, it is at least not reactionary in character.

*

From the pictures I have seen of the Jubilee pottery and medals which are to be offered to an expectant public, I cannot help wishing that as much care had been taken in the selection of their design as was taken with the house.

*

A DOUBLE EVENT

This is a great week. I notice that on Thursday evening, while John Gloag is talking to the D.I.A. about architecture and Frank Lloyd Wright, the Architecture Club gets together at the A.A. to talk about "Design in Industry," with special reference to the Royal Academy Exhibition.

*

It is a pity these two meetings clash. I should much like to attend them both.

ASTRAGAL



The winners of the Rome Scholarships photographed at the Imperial Institute, South Kensington, where an exhibition of the work submitted in the 1935 competition is now being held. Left, Geoffrey H. Deeley (sculpture); centre, M. MacPherson Tod (engraving); right, George W. Hooper (painting).

NEWS

POINTS FROM THIS ISSUE

"One of the most important sites, architecturally, in Europe" 144

The Ministry of Health has dismissed the appeal of a firm of builders against the decision of the York Corporation, disapproving a plan for the erection of houses with flat roofs 146

Perspective and plans of the King's House. 148

"Mr. Pointon Taylor, the opponent of standardization, is wearing standardized and mass-produced collar and shoes, notwithstanding which his appearance is distinguished." 150

HAMMERSMITH TOWN HALL DISPUTE

A deputation from the "Save Brook Green" Committee formed by Hammersmith residents to oppose the scheme to build a new Town Hall on part of the green, attended at yesterday's (Wednesday's) meeting of the Borough Council to state the case for keeping this open space unspoilt. Meanwhile, the attitude of the Council has been stated in a letter from the Town Clerk to the general secretary of the National Playing Fields Association.

In this it is urged that the scheme will in fact improve the amenities of the green by giving the tennis courts a better situation on land to be added to the green on its south side, and by allowing persons to rest on the green further from the roadway. The Council also consider the scheme excellent from a town planning point of view.

FLAT ROOFS

The Ministry of Health has dismissed the appeal of Messrs. Pearson and Blackwell (Doncaster), Ltd., against the decision of the York Corporation, disapproving a plan for the erection of houses with flat roofs at Dringhouses.

At the inquiry held at York last month the Town Clerk (Mr. R. Anderson) pointed out that the plans were for blocks of working class houses which had been submitted to an advisory committee, set up under the town planning scheme, and this committee had rejected the plans.

"My personal view," he said, "is that there is not a greater monstrosity than a flat-roofed cottage. I have seen examples in the North of England, and a more appalling looking erection it is difficult to imagine. Here we have land abutting on the main railway line and one can imagine visitors to this ancient city, renowned for its architectural beauty, looking out from the train as they near York and seeing these erections, which are nothing more than monstrosities. If town planning is to have any effect at all, this is a case in which we are more than justified in not approving. To allow these houses in such a position in the city of York is unthinkable.

THE ARCHITECTS' DIARY

Thursday, January 24

R.I.B.A. *At 66 Portland Place, W.1. Exhibition of Drawings submitted for Prizes and Studentships. Open until February 2.*

ROYAL ACADEMY. *At Burlington House, Piccadilly, W.1. Exhibition of British Art in Industry. Open until further notice.*

INSTITUTION OF STRUCTURAL ENGINEERS. *At 10 Upper Belgrave Street, S.W.1. "Soundproofing construction in buildings." By T. P. Bennett.* 6.30 *p.m.*

BUILDING CENTRE, 158 *New Bond Street, W.1. "Some Constructional and Decorative Timbers." By E. H. B. Boulton, M.A.* 8 *p.m.*

Friday, January 25

INSTITUTION OF STRUCTURAL ENGINEERS (MIDLAND COUNTIES BRANCH). *At the James Watt Memorial Institute, Great Charles Street, Birmingham. "The deterioration of reinforced concrete." By A. Ashworth.* 6.30 *p.m.*

Saturday, January 26

ST. PAUL'S ECCLESIOLOGICAL SOCIETY. *Visit to Charlton Parish Church and Charlton House.* 2.30 *p.m.*

Monday, January 28

R.I.B.A. *At 66 Portland Place, W.1. Presentation of Prizes by the President. Address to students by A. H. Moberly, M.A. (Cantab.), F.R.I.B.A.* 8.30 *p.m.*

LONDON SOCIETY. *Visit to the National Institute for the Blind, 224 Great Portland Street, W.1.* 2.15 *p.m.*

Tuesday, January 29

ARCHITECTURAL ASSOCIATION. *At 36 Bedford Square, W.C.1. "The recent trends in Metal Finishes for Architectural Purposes." By Dr. S. Wernick, Ph.D., M.Sc.* 8 *p.m. Exhibition illustrating the recent trends in Metal Finishes for Architectural Purposes. Open until February 9.*

Wednesday, January 30

ROYAL SOCIETY OF ARTS. *At John Street, Adelphi, W.C.2. "English Design in Glass." By James H. Hogan.* 8 *p.m.*

L.C.C. CENTRAL SCHOOL OF ARTS AND CRAFTS. *At Southampton Row, W.C.1. History of Architecture, XV. Spanish Renaissance (1525–1900). By Sir Banister Fletcher, M.Arch., F.S.A., P.P.R.I.B.A.* 6 *p.m.*

TOWN PLANNING THE CITY

The Common Council of the City of London will consider next month a recommendation of the Improvements Committee that the City be town planned under the Act of 1932. The Committee believe that a plan, which would provide *inter alia* for new and widened streets, would protect the interests of the City Corporation and the public better than the existing powers do.

The Common Council will be asked to prepare a scheme for the whole of the City. It will require the approval of the Minister of Health.

NEW LIBRARY FOR LIVERPOOL UNIVERSITY

Plans for the new library for the University of Liverpool, made possible by the gift of £100,000 from Mr. Harold L. Cohen, will be in the hands of the University authorities before the end of February, and it is proposed to start work on clearing the site about Easter.

The architect is Mr. Harold A. Dod, of Messrs. Willink and Dod, and his plans were drawn after a visit to principal university and other libraries in Germany, Switzerland and France, in company with the University Librarian (Associate Professor W. Garmon Jones), the Professor of Architecture (Professor Lionel B. Budden), and the Assistant Registrar (Mr. S. Dumbell). The site, which is at present occupied by the building formerly occupied by the School of Architecture, measures 200 ft. in length by 150 ft. in depth. The front entrance is to be in Ashton Street and the side of the building will stand well back from Brownlow Hill, to which thoroughfare it is hoped in time to expose it by the demolition of old houses at present occupied by the University Press and other university bodies.

HOUSING AND TOWN PLANNING

The next International Housing and Town Planning Congress will be held in London at the end of July, under the presidency of Sir Hilton Young.

The London sessions of the congress will be held at the new R.I.B.A. building, and members of the congress will visit Liverpool, Leeds, Bolton, Birmingham, and Manchester.

HOUSING

Sir Hilton Young, the Minister of Health, received a deputation last week from the Trades Union Congress General Council. The deputation was introduced by Mr. W. Kean.

Mr. C. G. Blanchard (National Association of Operative Plasterers) submitted to the Minister a resolution in the following terms :—

"This Congress desires to call attention to the expense which the purchasers of new houses on private building estates are having to incur, as a result of shoddy work put into the houses, and in the interests of a large number of people of the working class who are purchasing these houses, to move that legislation should be effected by which the purchasers should be protected by requiring building owners to furnish the purchasers with a written specification of these houses, which would enable the purchasers to make a claim upon the building owners in the event of non-fulfilment of the specification and guarantee."

He said in support of the resolution that whilst the purchase of a new house seemed attractive at the outset, it sometimes became a heavy liability after a period owing to bad work and shoddy materials.

Mr. George Hicks, M.P. (Amalgamated Union of Building Trades Operatives) submitted to the Minister a resolution which, while appreciating the efforts now being made by the Government and local authorities to deal with the housing problem, called for a stronger and bolder policy and for the setting up of machinery to co-ordinate all the factors in the building industry essential to the provision of houses and to stimulate local authorities.

Mr. Hicks said that the housing efforts of this country had not been surpassed by any other country in the world, and the slum clearance work of the Minister and local authorities was fully appreciated. But further efforts were required if the housing problem was to be solved.

The Minister of Health, in replying to the deputation, said that he welcomed their assurances that they would support a bold

housing policy. In the Housing Bill which had now been published, the Government proposed a direct attack upon the evil of overcrowding similar to the direct attack that was already being made upon the slums. He appreciated the importance of ensuring that houses built for sale were soundly built of good materials, but he did not think that legislation was needed for this purpose, or that there was a case for requiring such a guarantee as the deputation had suggested. Municipal authorities had already powers under their bye-laws to enforce satisfactory standards.

BUILDING MATERIALS

The Yorkshire Education Association for the Building Industry have arranged to hold a conference on "Science and the New Building Materials" in the Technical College, Bradford, on Saturday, February 2, at 2.30 p.m. The conference will be opened by Dr. R. E. Stradling, Director of the Building Research Station, and Councillor Arthur Smith.

In connection with the conference an exhibition of books, apparatus and new building materials will be held in the college during the week commencing Monday, January 28.

ROME SCHOLARSHIPS

An exhibition of works submitted in the competition for the Rome Scholarships of 1935 in mural painting, sculpture and engraving is now being held at the Imperial Gallery of Art, Imperial Institute, South Kensington, S.W. The exhibition will remain open until February 9, between the hours of 10 a.m. to 5 p.m. (Sundays excepted).

FIRE!

Means of Escape from Fire is the title of a Report issued last week by the Building Industries National Council. The Report deals for the first time in detail with the designing of buildings from the point of view of the provision of adequate means of escape in case of fire.

ARCHITECT HELPS THEATRICAL CHARITY

A Northern architect, Mr. George E. Tonge, F.R.I.B.A., of Southport, has spent over two years voluntarily in making a large model theatre which is to be exhibited in London next month and afterwards in various towns in aid of the Royal Theatrical Fund. The model is made of mahogany, measures 12 ft. by 12 ft. and is 5 ft. 6 in. in height. It has cost £3,000, but if the labour put into it had had to be paid for it would have cost nearly seven times as much. A large number of firms have co-operated with Mr. Tonge in giving their services free. The theatre contains over 70 rooms and has 1,600 tip-up chairs.

WEST YORKSHIRE SOCIETY OF ARCHITECTS

A lecture on "Art in Industry" was given by Mr. H. B. Creswell, F.R.I.B.A., at a meeting of the above society, held at Leeds on January 17 under the chairmanship of Mr. G. H. Foggitt, F.R.I.B.A.

The lecturer said that the ideals of industry were the destruction of the ideals of art, and

THE NEW OVERCROWDING STANDARD

By PHILIP H. MASSEY, B.Sc.(Econ.), F.R.Econ.S.

THE following table shows the maximum number of persons per house under the new Bill, subject to sex separation after ten years of age, and subject to the floor-area regulation below. *Children under ten years count as halves.* No account is to be taken of a child under one year old and no regard is to be taken of rooms having floor-area less than 50 square feet.

One room	2 persons
Two rooms	3 persons
Three rooms	5 persons
Four rooms	7½ persons
Five rooms	10 persons

and an additional 2 persons in respect of each room in excess of five.

If the floor-area of any of the rooms is less than 110 sq. ft. the above will in many cases be reduced, for "the permitted number of persons" in relation to any dwelling-house is to mean either the number specified above or the aggregate obtained by reckoning according to the following table, whichever is the less.

Where the floor-area of a room is :—

110 sq. ft. or more	2
90 sq. ft. or more, but less than 110 sq. ft. ..	1½
70 sq. ft. or more, but less than 90 sq. ft. ..	1
50 sq. ft. or more, but less than 70 sq. ft. ..	½
Under 50 sq. ft.	Nil

A dwelling-house is also to be deemed overcrowded if any two persons ten years old or more of opposite sexes, not being persons living together as husband and wife, must sleep in the same room. (N.B. "Room" does not include any room of a type not normally used in the locality either as a living-room or as a bedroom.)

Statements have already appeared saying that this is roughly the over two per room standard one-and-a-half persons per room on the average, etc. It would seem desirable to clear this up. Following examples may be useful.

1. Family of five (man, wife, girl of fourteen, boys twelve and seven) living in kitchen 120 sq. ft., bedroom 150 sq. ft., bedroom 100 sq. ft., with or without scullery, bathroom, etc.

This family would not be overcrowded on the so-called Registrar-General's Standard because the kitchen (though not the scullery) would count as a room. It would therefore be five people in three rooms, on the Census definitions.

On the "1½" standard it *would* be overcrowded.

On the "Housing Bill" standards the family would count as being of 4½ persons, and therefore three rooms would be deemed sufficient on the first test. Applying the floor-space test the three rooms provide accommodation for 2, 2 and 1½ respectively. It can be seen that even if there were another child under ten in the family the family would not be deemed overcrowded. Of course, either the boys, or the girl(s), or the parents, would have to sleep in the kitchen.

2. Family of nine (man, wife, boys fourteen, eleven, six, girls thirteen, nine, three, baby under one year) living in a house consisting of a parlour 140 sq. ft., two bedrooms, 130 sq. ft. and 95 sq. ft., kitchen 95 sq. ft.

This family would be overcrowded on the so-called Registrar-General's Standard, and very overcrowded on the "1½" standard, which would only permit of six persons, regardless of ages, occupying such a house.

On the "Housing Bill" standards the family would count as being of seven persons, and therefore four rooms would be deemed sufficient on the first test. Applying the floor space test the rooms provide accommodation for 2, 2, 1½ and 1½ respectively, so the total accommodation would be deemed just sufficient on this basis too.

3. Family of four (man, wife and two children of opposite sexes over ten years old) in two rooms, say, bedroom and kitchen.

On the so-called "Registrar-General's Standard" not overcrowded however small the rooms are. On the "1½" standard, overcrowded, however large the rooms are. On the "Housing Bill" standard, overcrowded, however large the rooms are.

It is important that the details of which families would, and would not, be deemed overcrowded, under the Bill, be compared closely with the families that would, and would not, be deemed overcrowded under other standards, such as the Merseyside, Manchester, and National Bedrooms Standards, etc. Only by such means can the value of the criteria proposed in the Bill be judged.

THE KING'S HOUSE: THE SELECTED



The design chosen by The King for the Silver Jubilee Presentation House, which His Majesty has accepted from the Royal Warrant Holders. Sir Giles Gilbert Scott, R.A., P.R.I.B.A., nominated a number of architects to submit designs in competition. He selected three designs which were taken to Sandringham last week for inspection by the King and Queen. The house will be built at Burhill, Surrey, on a site presented by Lord Iveagh. See note on this page.

the growth of industry was the measure of decay of craftsmanship. There was no work of any sort done by a machine which could not be done better by hand. He declared that the "Art in Industry" movement was but a commercial stunt designed to baulk public esteem in the work of the individual craftsman.

FIRST HOUSE UNDER £12,000,000 SCHEME

The Lord Mayor of Leeds, Alderman W. Hemingway, recently affixed a memorial tablet to the first house completed on the Gipton estate under the Corporation's £12,000,000 housing scheme. By next summer it is expected that 12,000 people from the slums will have been rehoused on this estate alone. It covers over 280 acres and the plans include provision for a large shopping centre and reservations for schools, churches and open spaces.

THE KING'S HOUSE

Mr. C. Beresford Marshall, of Messrs. Marshall and Tweedy, FF.R.I.B.A., has been appointed architect for the Silver Jubilee Presentation House, which His Majesty the King has accepted from the Royal Warrant Holders. Mr. Marshall's design is illustrated on this page.

Following are some extracts from a statement issued by the Royal Warrant Holders' Association :—

"Immediately upon the King's approval of the submission of the Royal Warrant Holders' Association that they might be permitted to commemorate His Majesty's Silver Jubilee by building and equipping for the accommodation of such person as His Majesty may be pleased to nominate, a small house, representative in every detail of the best that British architecture, building and furnishing can produce in the 25th year of His Majesty's reign, Sir Gilbert Scott, P.R.I.B.A., was invited to nominate a number of architects to submit designs for the House in competition.

"From the designs entered, Sir Giles selected three, which were taken to Sandringham last week for inspection by the King and Queen.

"It is understood that His Majesty deliberately avoided reading Sir Giles' report and recommendation until after he had made his selection, and it is a happy circumstance and a striking tribute to His Majesty's knowledge of modern housing requirements that the design he finally selected and that recommended by Sir Giles were one and the same.

"Dignity of proportion and simple structural unity characterize Mr. Marshall's design, and the house will be reminiscent of all that is best in English domestic architecture. In its general character, as well as its equipment, the house will reflect the balanced outlook of English thought, unswayed by passing enthusiasms. It will stand as a monument to the good taste and practical common-sense of our generation—material evidence of the sane judgment of England and the English.

"With the advantages of the efficient resources of the Royal Warrant Holders' Association, organization of the building of the house has already been set in motion. The successful architect has been in conference with the builders—Messrs. J. Mowlem and Co., Ltd.—and as soon as is practicable a commencement will be made with the erection of the house on the site at Burhill, Surrey, presented by Lord Iveagh."

R. I. B. A.

EXHIBITION OF BOOKS AND DRAWINGS

An Exhibition of rare and historic books and drawings from the Library is to be held at the R.I.B.A., 66 Portland Place, W.1, from February 11 to March 6. The Exhibition will be open to the public daily from 10 a.m. to 8 p.m. (Saturdays, 10 a.m. to 5 p.m.) Admission free.

The Exhibition will be opened by Sir Frederick Kenyon, C.B.E., K.C.B., D.LITT., F.B.A., at 3 p.m. on February 11.

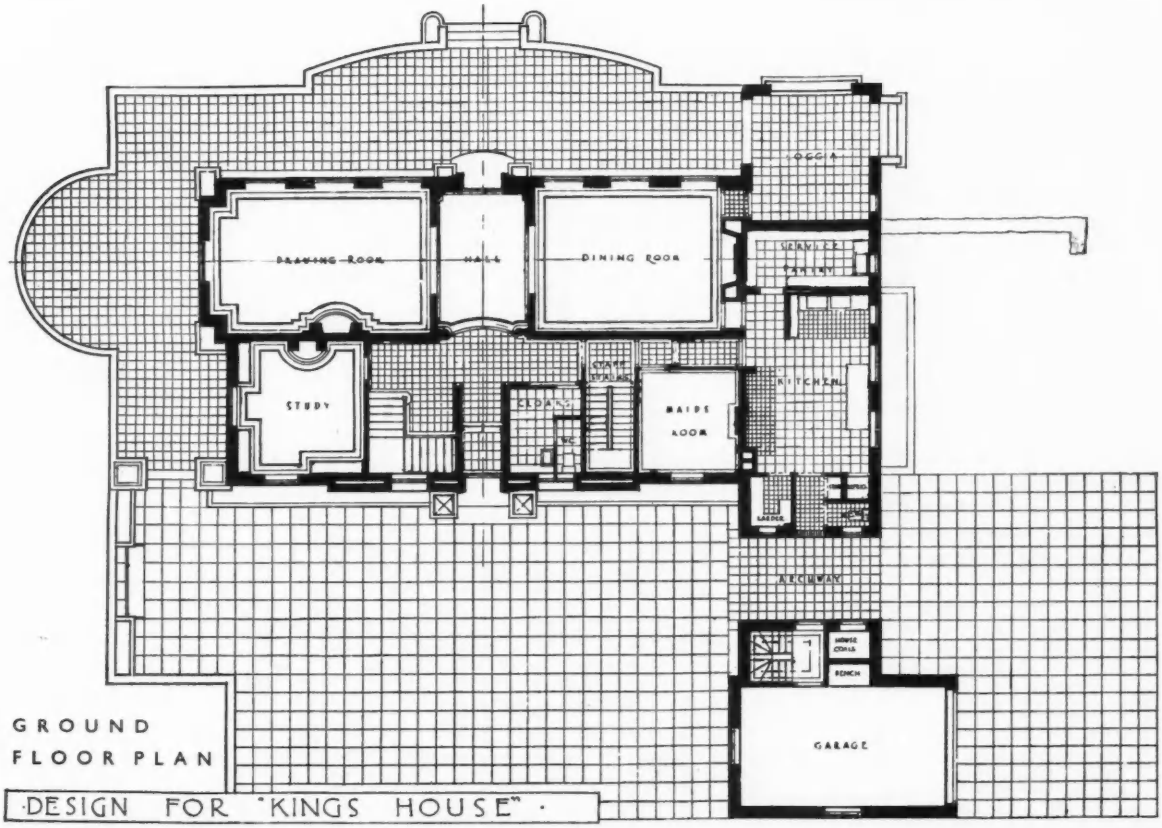
ARE STANDARDIZED UNITS OF DESIGN NECESSARY?

On January 26 the first of a series of special meetings for the younger members of the R.I.B.A. was held in the new headquarters at 66 Portland Place, W.1. The

DESIGN: BY C. BERESFORD MARSHALL



FIRST FLOOR PLAN



GROUND FLOOR PLAN

DESIGN FOR "KINGS HOUSE"

speakers at the more formal Institute functions are ususally drawn from the ranks of the older members. The Council felt that the younger members should be encouraged to discuss in public matters of professional concern, partly that the opinions of a section of the profession, which is usually inarticulate, should become known, and partly in order to increase interest in the work of the Institute as a corporate body.

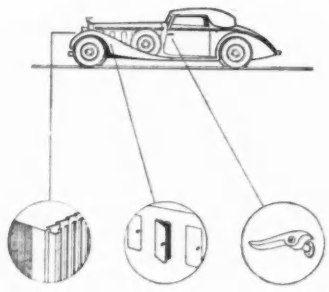
In order that the discussion should be as free and informal as possible it was decided that representatives of the general and technical press should be excluded, any proposals of outstanding interest being subsequently issued in the form of written announcements.

At the first meeting the subject, "Are Standardized Units of Design Necessary?" was discussed, Mr. E. A. A. Rowse, A.R.I.B.A., opening the discussion in favour and Mr. S. Pointon Taylor, F.R.I.B.A., being against. Mr. G. Grey Wornum, F.R.I.B.A., was in the chair. This matter had been referred to by H.R.H. the Prince of Wales in his speech at the recent R.I.B.A. Centenary Banquet.

The meeting was held at 5.30 p.m. in a room arranged with chairs in informal groups and tea was served. There was a good attendance and the meeting was generally voted to be a successful inauguration of the series.

Most speakers considered standardization and its corollary, mass production, from the point of view of reducing cost in housing work; some argued that its full adoption would lead to a reduction sufficient to permit the abolition of subsidies. It was, however, generally agreed that no full measure of standardization was possible until the existing uncorrelated building bye-laws had been codified on a national basis. Some members feared that the creation of agreed standard house and flat plans would both deprive the architect of work and result in an appalling uniformity of life. On the contrary, it was held that the combination of these units into buildings and groups of buildings, together with site-planning and the creation of amenities, would always provide work for the architect and at the same time prevent much duplication of labour. The supporters of standardization claimed that different arrangements of massing would prevent dullness in street design and, anyway, that architecture should be considered as a background to life. At present the tendency was for it to be much too insistent. One member said that, after all, the ancient Greeks had only three standardized designs for their buildings and were nevertheless universally held to be the finest architects the world had known. The speculative builder's house plan had become standardized all over England, so that there was really nothing new in the principle, the only requirement being a restandardization to a higher standard. Another member had the hardihood to point out that Mr. Pointon Taylor, the opponent of standardization, was wearing standardised and mass-produced collar and shoes, notwithstanding which his appearance was distinguished.

It was, however, on the question of cost reduction—the ultimate justification for standardisation—that the discussion tended to become nebulous. One side held that universal designs based on a scientific analysis of requirements would enable manufacturers to lay down plants to turn out parts at enormously reduced costs, the motor-car industry being cited as a parallel. The other side argued that past attempts at factory production (e.g., steel houses) had not resulted in cost reduction.



Delage D8(15). Designers of Coachwork: Fernandez and Darrin.

The general feeling ultimately appeared to be that only a close and detailed investigation could establish the extent to which the employment of standardized units of design would reduce building cost.

Three more of these informal meetings are to be held in the current session, which ends in July next. The subjects for discussion are not yet settled, but they will be of a provocative nature.

ELECTION OF MEMBERS

At a recent meeting of the Council of the R.I.B.A. the following members were elected:—

As HON. ASSOCIATES (3): S. M. Casson; C. Hussey; and E. W. Tristram.

As FELLOWS (9): E. G. Bax; C. K. Bhedwar; E. A. Chilton; H. R. Crabb; B. Greig; W. D. Hartley; J. H. Pashen; W. S. Trent; and A. G. Hewlitt.

As ASSOCIATES (29): (Miss) J. M. Balstone; R. L. Banks; G. P. Bird; J. Campbell; A. Carden; F. M. Dewing; D. M. Duggan; H. B. Duke-Wooley; A. Duncan; R. H. Finch; L. H. Fleming; W. J Geddes; T. D. Goddard; W. F. Heath; F. N. James; (Miss) M. B. Johnston; F. Marston; R. E. Moira; R. F. Ohlsson; C. R. Peake; B. Peters; R. F. Reekie; J. C. Richardson; A. K. Taylor; C M. Taylor; W. I. Thomson; A. W. Varcoe; A. Watson; and C. W. Williams.

As LICENTIATE (1): T. F. Sayer.

TITE PRIZE AND SOANE MEDALLION

The attention of intending competitors is called to the fact that the preliminary competitions for the Tite Prize and the Soane Medallion will be held in London and at centres in the provinces on Thursday, March 7, and Friday, March 8, 1935, respectively.

Forms of application for admission to the Preliminary Competitions may be obtained at the R.I.B.A., 66, Portland Place, London, W.1. The closing date for the submission of forms of application is Friday, February 8, 1935.

COMPETITION NEWS

WORKING CLASS FLATS

One hundred and twenty designs have been submitted in the Cement Marketing Company's competition, which closed on Saturday last, January 19. The competition is for designs for five-storey blocks of working-men's flats suitable for construction in reinforced concrete. Three premiums of £300, £200 and £100 are offered, and the assessors are Messrs. Joseph Emberton, F.R.I.B.A., Burnard Geen, M.INST.C.E., and L. H. Keay, O.B.E., F.R.I.B.A.

RESIDENCE FOR A PRIME MINISTER

A competition is being held for the design of a residence for the Prime Minister of the Union of South Africa. The house is to be built in Bryntirion, and will cost £25,000. Premiums of £150, £100 and £70 are being offered for the designs placed first, second and third respectively. The date for submission of designs is March 11.

Competitions Open

March 1.—New municipal offices, public library and fire station for the Wembley U.D.C. (Open to architects of British nationality and resident in the British Isles.) Assessor: Stanley Hamp, F.R.I.B.A. Premiums: £300, £250, £150, and £100, for designs placed first, second, third and fourth, respectively. Conditions, etc., are obtainable from the Clerk to the Council, Council Offices, Wembley. (Deposit £1 1s.) Designs must be submitted by March 1.

March 27.—Cemetery chapel and auxiliary buildings at Coney Hill for the Gloucester Corporation. (Open to architects practising on their own account within the area covered by the Wessex Society of Architects.) Assessor: Edward Maufe, F.R.I.B.A. Premiums: 125 and 100 guineas, for the designs placed first and second, respectively. Designs must be submitted to the City Surveyor on or before March 27.

April 30.—The Croydon Corporation invite the submission of designs for laying out an area in Central Croydon which is to provide an extension of the Civic Centre of the Borough and to improve central means of communication. Assessor: Dr. Thomas Adams, F.R.I.B.A., F.S.I., M.T.I. Premiums: £500 for the design placed first; £350 to be divided (in proportions to be determined by the Assessor) for not more than three designs placed next in order of merit. A copy of the conditions is obtainable on application to the Town Clerk, Town Hall, Croydon. (Deposit £1 1s.) Designs are to be submitted not later than April 30.

THIS ARSHETECTURE

HOUSE BUILT BY ONE MAN

The first house to be built in the Wiltshire village of Farleigh Wick since 1908 has just been completed. It is the work of one man, a gift to his bride, and was blessed by the local clergyman.

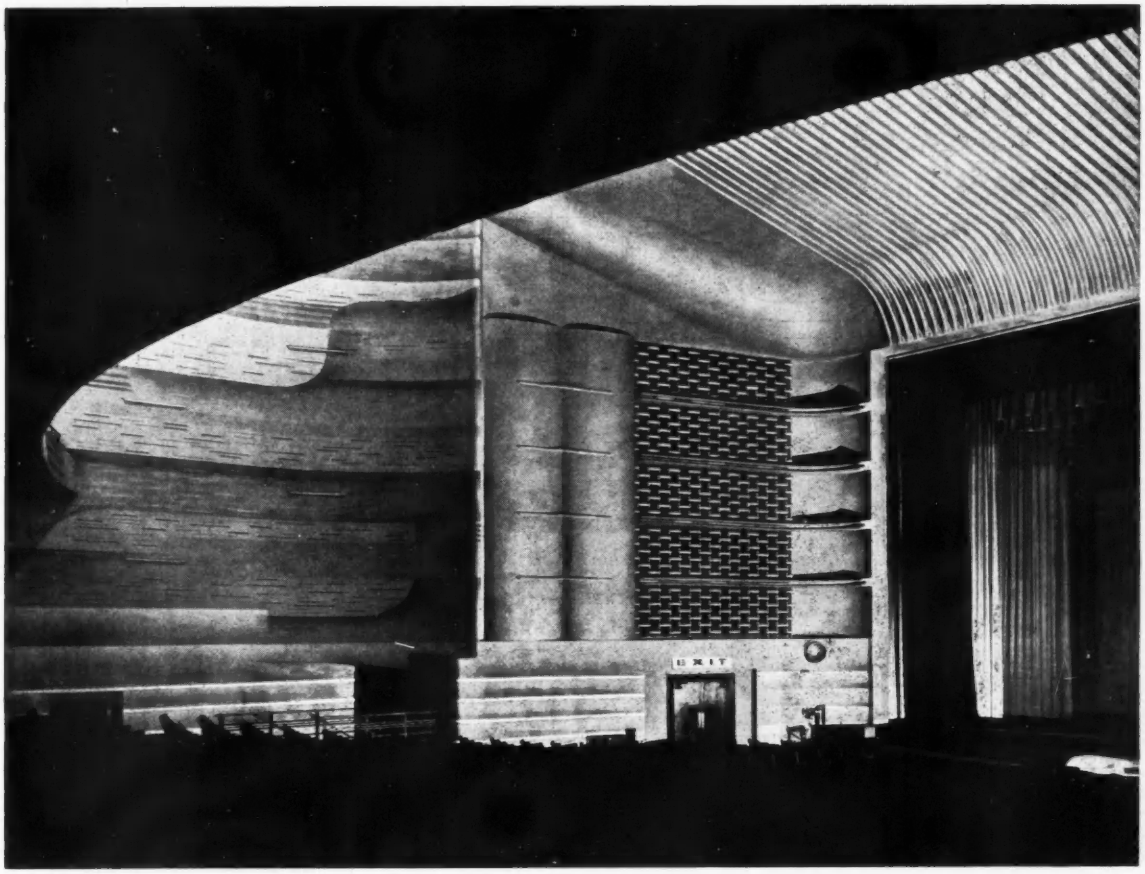
Eleven years ago Mr. R. V. Lodder, an employee on the estate of Capt. E. G. Pinckney, chairman of the Bench, started to court his wife-to-be, and to plan his house.

Last year he began building. In fifteen months he has built a house with nine rooms, with 18 in. walls. He used cement and sand instead of mortar to hold the walls.

"Now the parson has finished my work," said Mr. Lodder to a *Sunday Referee* representative yesterday, "by blessing the self-made house my wife and I have planned for years."

From the *Sunday Referee*.

THE PLAZA CINEMA, SUTTON



This cinema has a total seating capacity of 2,386: 1,637 in the stalls and 749 in the balcony (see plan and section overleaf.) Structurally the building is steel framed from the back of the stage to the junction of the proscenium splays and the auditorium walls. The balcony construction is a little unusual for theatres of this capacity, the lower balcony foyer, kitchen and staff rooms being suspended from 85 ft. span girders about 8 ft. deep. At mezzanine level, over the main foyer, is a café with a seating capacity of 200 and extra floor space for dancing. The auditorium colour scheme is pale rose, with horizontal chromium strips along the side walls and at the back of the balcony: on either side of the proscenium opening are the organ grilles.

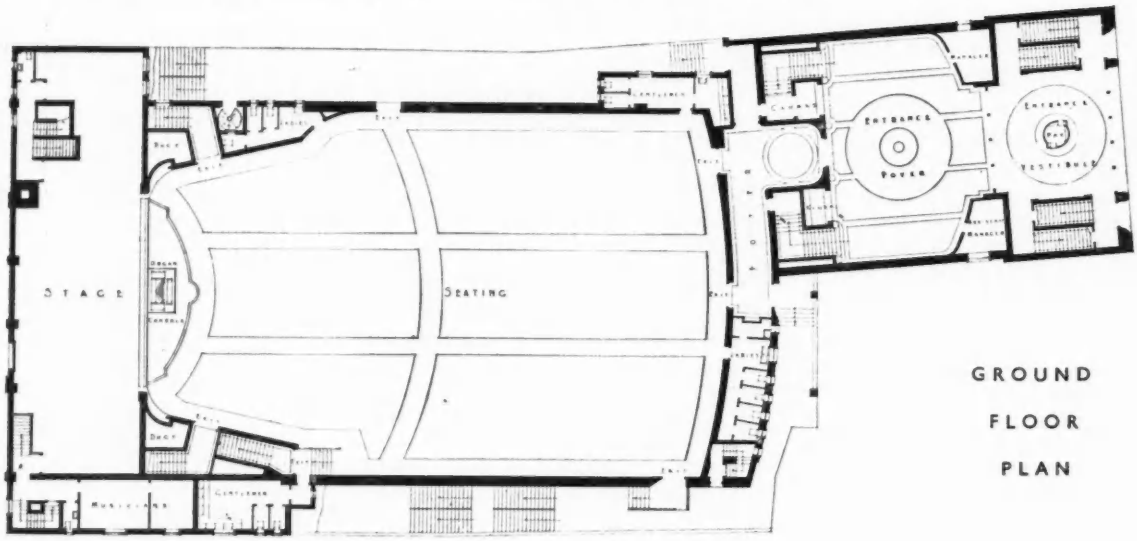
The photographs show: above, a view of the auditorium; right, the main front, facing Carshalton Road. Up to the canopy level the building is faced with artificial stone and, above, with multi-coloured bricks.



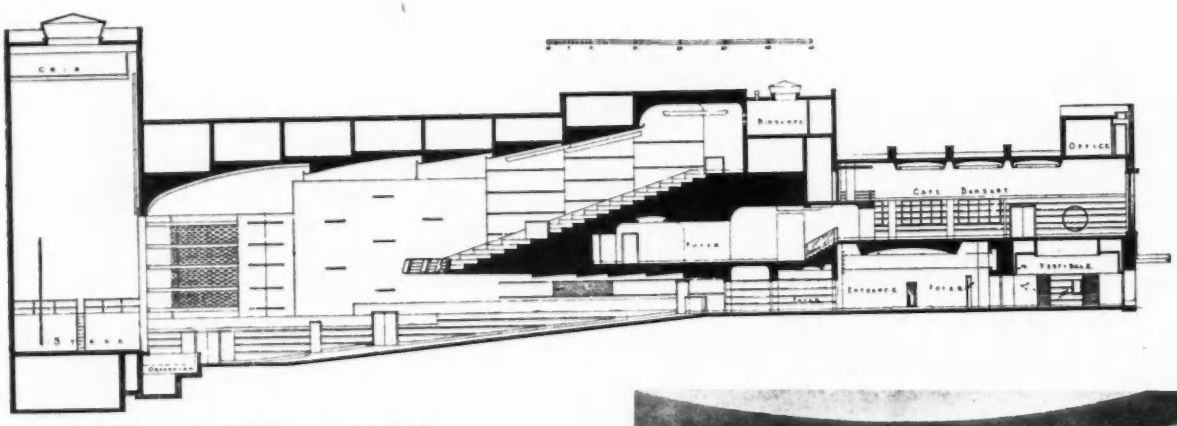
DESIGNED BY

ROBERT CROMIE

THE PLAZA CINEMA, SUTTON:

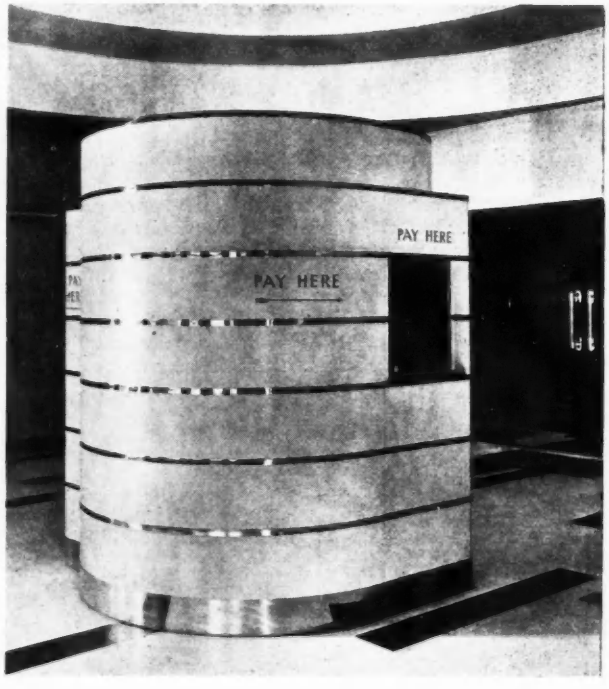


GROUND FLOOR PLAN



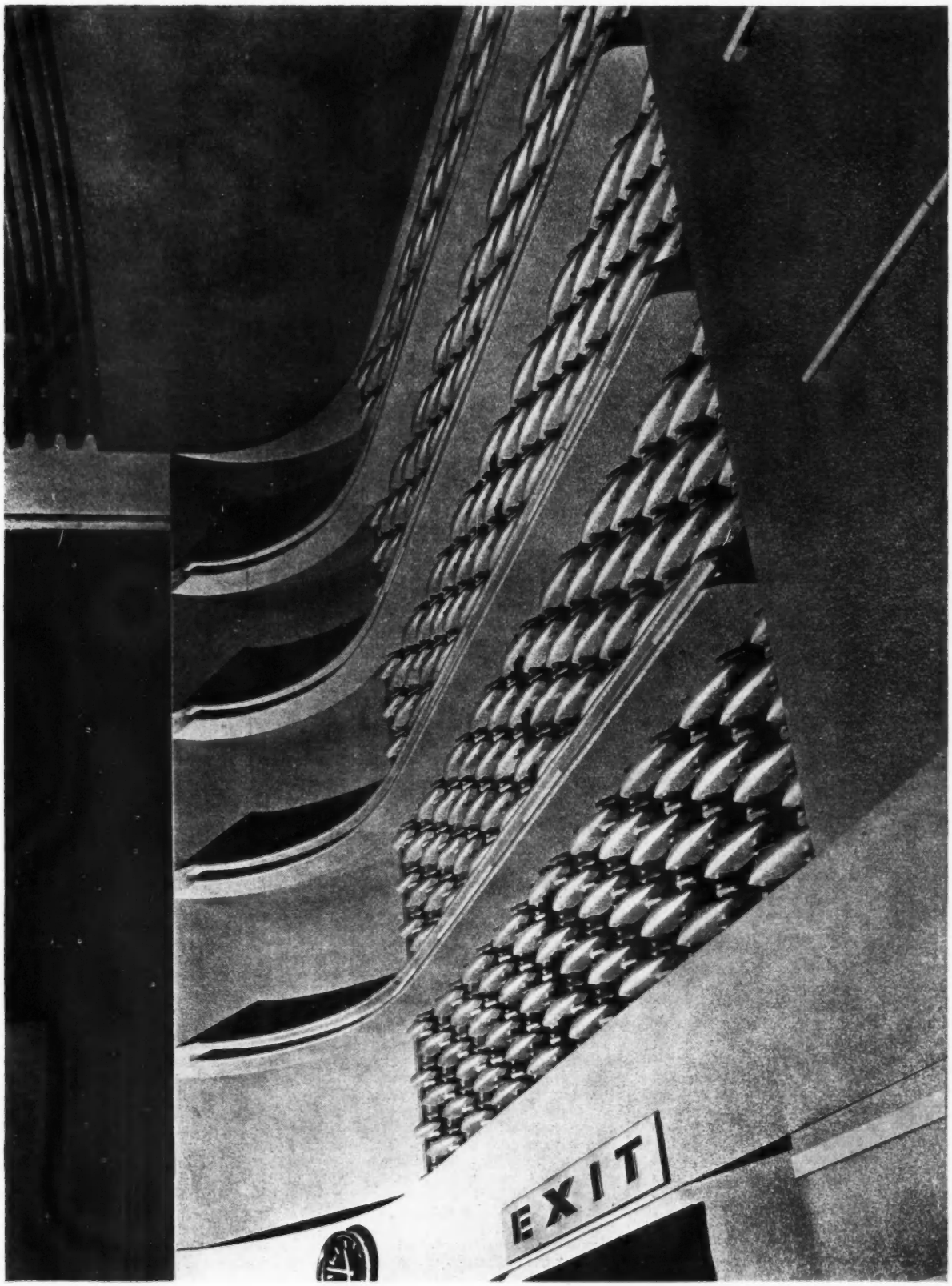
LONGITUDINAL SECTION





The photographs on this page show: above, the café and orchestra gallery; right, the pay box. On the facing page is a detail of one of the organ grilles.

DESIGNED BY ROBERT CROMIE





Perspective sketch of the houses designed by Messrs. Tecton; rejected by the local authority, but now to be built.

THE CUCKFIELD CASE

THE FULL HISTORY

We recently reported the arbitrator's award in the Cuckfield case as having been made in favour of the architects. The case was one, it will be remembered, in which the Cuckfield Urban District Council refused to sanction the plans of some houses, designed by Messrs. Tecton for the neighbourhood of Hayward's Heath, on grounds of appearance. Appeal was made to the Minister of Health for arbitration and, the appeal having been allowed, the houses are now being proceeded with. Because it is a simple and typical instance of its kind, and because the issues involved are of the greatest importance to architects, it is felt to be worth while reporting in full the history and origins of the case.

THIS case constitutes a very clear-cut example of the way in which local authorities are able, under the present administration of the Town and Country Planning Act, to obstruct the progress of architectural design; of how they are apt to misinterpret their duties under the Act and use it to gratify their own members' æsthetic prejudices.

The issues, in outline, were very simple, particularly as in this case the local architects' Advisory Panel, unlike that in the celebrated Ruislip case, recommended acceptance of the design: a local authority, that has been given specific powers to stop unsightly building within its area not only fails to check the ubiquitous activities of the man chiefly responsible for unsightly building—the speculative builder who does not consider an architect necessary—but seizes on the all too rare example of an improved and intelligently considered standard to condemn it; an appeal is made to the Ministry of Health, and the local Council, unable to justify their refusal to sanction the plans, find their decision overruled. It is the fact that the case is typical of what is becoming a more and more common occurrence all over the country that gives it its importance.

The difficulties began in the usual way. The architects, Messrs. Tecton, had been asked to design some small houses on an undeveloped estate on the outskirts of Haywards Heath. A group of eight of these houses, designed in pairs, were to be built first, with a possibility of later development to make a whole colony of small houses planned under the same direction. The other domestic architecture in the neighbourhood was inevitably of the usual suburban type but, as the site for the new development was completely screened by trees from any existing building, there was no question of failure to design in accordance with an existing architectural character. The architects took considerable pains to evolve a design that was neither foreign in type to the setting for which it was intended nor foreign in form to the function it had to fulfil; that should be, in fact, a modern house in the sense that its design was conditioned by the requirements of modern living; no more modern and no less than the flat-roofed Regency houses that were its prototype. It was based on the Regency model not from any desire to imitate an historical style, but because the Regency builders were in course of evolving a rational solution of the small house problem when they were overwhelmed by the wave of self-conscious eclecticism that complicated architectural thought a hundred years ago. That being so an attempt to approach house-building in the same rational way inevitably resulted in picking up that English tradition at the point where it left off.

It will be seen, therefore, that the design of these houses was not the result of individual whim, but of far greater consideration and respect for æsthetic civilities than the ordinary suburban architectless house ever has applied to it. The local authority, however, the Cuckfield Urban District Council, offended presumably by the unfamiliarity of its reasonableness, decided that the design did not reach the standard attained by the speculative builders' mock-Tudor they were in the habit of passing, and the architects received notice that their design had been rejected. The reasons were given only in vague terms: "that the elevations and general character of design are unsuitable for this District." The local Advisory Panel in whose area the Cuckfield district is included is that of the South-Eastern Society of Architects. The Cuckfield Council appealed to the Panel, in accordance with the procedure of Panel operation, for an opinion on Messrs. Tecton's designs, a letter from the Clerk to the Council asking the Panel's views "regarding them [the houses] from the point of view of the Council's Town Planning Scheme, as my Council feel that the erection of buildings depicted in the plans would be most unsightly." This communication was dated September 22, 1934. On October 1 the Panel returned the Council their report in the following terms:—

"The Panel recommend that as these houses are to be erected in a secluded, undeveloped area, they should be approved subject to a certain modification of their alignment and that the texture, details and colouring of the brick work should be submitted for approval by the Council. The Panel's advice in these respects is, as always, at the disposal of the Council." Members of the Panel got into personal touch with the architects, inspected the site and discussed the matter with the local surveyor, and the architects agreed to make such detail modifications as the Panel had suggested in their Report. On October 23 the Cuckfield Urban Council held a meeting at which the Panel's report was discussed, and the Council decided to persist in their refusal to sanction the plans.

Under the Town and Country Planning Act there is appeal against a local authority's decision in cases of this sort to the Minister of Health, and Messrs. Tecton and their clients, seeing the uncompromising attitude of the Council, decided to avail themselves of their rights of appeal. Mr. R. Goulburn Lovell, A.R.I.B.A., the president of the South-Eastern Society of Architects, feeling that an appeal to the Minister should be

avoided, offered his Panel's further help to the Council in the hope that adjustment of the differences might still be possible, but the Council apparently did not desire further negotiations. The appeal to the Minister went forward and the Panel only learnt of it by seeing a reference to it in the press; indeed, they were not even given official notice of the Ministerial inquiry, so that they might be present to give evidence, the president only hearing of it on application the day before—treatment which roused Mr. Lovell to a protest at the inquiry.

Preliminary negotiations being at an end the case entered on its second stage: the Ministerial inquiry. The Minister of Health appointed an Inspector from his Department, Mr. S. L. G. Beaufoy, A.R.I.B.A., to hold the inquiry, which took place at Haywards Heath Council Offices on December 4.

Mr. A. M. Chitty, A.R.I.B.A., of Messrs. Tecton, conducted the case for the appellants and Mr. Francis Brumell (the Clerk to the Council) appeared on behalf of the Council. Mr. Chitty opened the case for the appellants by giving a brief account of the way the design clause in the Town and Country Planning Act was working—or, rather, of the way it was failing to work for the purpose for which it was drawn up.

"When the Town and Country Planning Bill," he said in his speech, "was under discussion, one of the sections in it from which most good was hoped was that providing for an 'amenity clause.' This section, now part of the Act, enables local authorities to include in their town-planning schemes a clause providing for the preservation of local amenities by control of the 'design and external appearance of buildings.' The province of building at which this provision was most particularly aimed was, of course, that of the speculative builder. The speculative builder, especially in the newly-developed suburbs and dormitory areas, where most of his work is done, has been guilty of irreparable disfigurement of the countryside, destruction of existing amenities and, owing to the ease with which he can shed responsibility for his houses once they are sold, planning for immediate profit without regard for subsequent collective benefit.

"The power that the Act gave to local authorities was a great step forward in the fight for preservation of the country from selfish exploitation for commercial ends, and was placed quite rightly in the hands of those responsible for administering other local services; but, unfortunately, this opportunity notwithstanding, the existence of the Act has resulted in no noticeable improvement in the standard of speculative—or of private—housing. Every intended building has to be sanctioned by the local authority before work may be begun, but the authorities continue to pass, apparently without hesitation, the illiterate building it is their duty, as guardians of the amenities, to prevent. Acres of irreplaceable countryside are destroyed, and the slums of the future take the place of what might be the civilized communities of the present.

"In a number of localities, however, the authorities have made use of their powers of veto, and the use they have made of them is perhaps the most disturbing symptom of the present unsatisfactory nature of architectural control. The authorities, while accepting the pseudo-antique villas of the speculative builder, presumably regarding them as the normal and desirable standard of domestic design, seize on attempts to reintroduce sanity and sensibility into architecture to condemn them as strange, eccentric and intolerable.

"It seems to be becoming more and more the practice for local authorities to set themselves up as dictators of architectural taste, invariably in opposition to progressive design, incidentally encouraging the speculative builder to persist in his architectless period villas as being the kind most quickly approved by the authorities. The stability of conditions in this country, compared with those in other European countries, provides a possibility that this country may become in the near future the centre of real architectural progress. This progress is endangered by such petty official obstructiveness as is now being manifest; and progressive tendencies can only be given the encouragement that is their due by strong measures to ensure that this state of affairs is not allowed to continue."

Mr. Chitty then called on Mr. Tatton Brown, an assistant of the firm of Messrs. Tecton, to give evidence, who explained the architects' standpoint with regard to these particular houses. "We, as architects," he said, "are in complete agreement with the spirit and intention of the Town and Country Planning Act, and we are thoroughly in sympathy with the determination of the Council to regulate the development of the district over which they have supervision. We are convinced, however, that in this particular case the energies of the Council have been misdirected. The designs in question are not the typical plans for speculative houses, but have been prepared by qualified men—members of the Royal Institute of British Architects. The designs were only begun after a thorough study of the traditional English house. The smaller country house is a very characteristic product of English architecture and it has a clearly defined development up to the beginning of the nineteenth century. After the year 1830, or thereabouts, this development suddenly stops; the tradition comes to an end and all sorts of revivals and imitations of earlier styles set in. Those revivals have continued right up to the present day, resulting in the mock-Tudor, half-timbered sham with which the country is being desecrated. We, however, are determined not to resort to these ready-made solutions. We are determined to go back to the beginning of the nineteenth century and take up the thread of tradition at the very point at which it was broken off.'' Mr. Tatton Brown then passed up for the Inspector to examine a copy of the ARCHITECTS' JOURNAL for November 22, in which the rejection of the houses under consideration was reported and a perspective reproduced, the similarity of the design to the Regency type being commented on. He read out the accompanying text in which this similarity was analysed. Mr. Tatton Brown explained that, as the article pointed out, modern materials had only been used to give a fuller and more complete expression to the original conception of the traditional builders. "Reinforced concrete slabs," he said. "have been used for the roof and floors because they have been proved, as the result of a large number of tests, to be the most satisfactory permanent solution of the problem. We have taken the opportunity of continuing the floor slab out beyond the face of the house to form a cantilever balcony, and the whole of the central *motif* has been designed to form a monolithic frame carrying the wall above." He then exhibited a number of drawings to the Inspector and the members of the Council present, being various preliminary designs for the houses, as evidence of the thoroughness with which the most suitable solution to the problems the design of these houses raised had been sought. "Two months ago," he concluded, "we had a visit from the president of the South-Eastern Society of Architects (Mr. Lovell). He suggested certain modifications of the alignment of the buildings and the texture of the brickwork, which we were very glad to agree to. In spite of that, we received a notice from the Council that our designs had been rejected. We are, therefore, driven to the conclusion that so far from seeking to interpret either the letter or the spirit of the Town and Country Planning Act, the Council are not really interested in the merits of our designs. They are pursuing a purely negative and obstructive policy. We, therefore, beg to appeal against this decision."

Having thus stated their case, Messrs. Tecton next called a number of witnesses in support of it. The first was Mr Basil Ward, A.R.I.B.A., of Messrs. Connell, Ward and Lucas, who stated that he had designed houses with similar characteristics to the ones under consideration over a period of six or seven years and that he had found flat roofs most economical and satisfactory and æsthetically unobjectionable. He also said that he had built such houses for speculative ventures and that several erected at Saltdean were sold before they were finished and, of a number at Ruislip, the first pair were sold before reaching first floor level. Mr. Ward produced photographs of some of his houses for inspection. The next witness was the owner of the land in the area of the site, Mr. Stedman, who stated that he had sold the portion constituting the site for the purpose of the development, and that he saw no reason why houses of the modern type in question should not prove a great success in the district.

Miss E. C. Adams, also a local resident and an owner of property adjoining, was then called, and said that she had been aware of the proposals from the outset and had no



A view of the site.

objection whatever to the form of architecture suggested; that she would do all she could to prevent the "illiterate" building which was being perpetrated on the main roads leading to Haywards Heath from taking place in Birch Drive (the new road).

Mr. Goulburn Lovell then addressed the Inspector. He emphasized his regret that the matter had not been settled without recourse to an appeal to Whitehall. He remarked on the value of a flat roof in a dull climate because it did not cast a shadow like a pitched roof, and reminded the Inspector and the Council that the Panel's report had been favourable to the designs because they were for a secluded site. "Where building of this character was to be erected," he said, "in the centre of a built-up area, our Panel would probably object to it because it might be considered an offence to the amenity in that particular area." He referred to the amount of pains he and his Society had taken in this case and their continued anxiety to co-operate with the local authority. "Gentlemen of the local Council," he added, "you want to realize that architecture does not stand still. As science gives us fresh materials to use it is the duty of the architect, young or old, to carry on and give their clients the advantages which the use of new materials can give them. If you would only let this matter through on the lines we suggested, I am sure the time will come when you will be glad to think that you established in Haywards Heath a new note which will grow. You cannot stop it from growing."

Mr Chitty indicated that the case for the appellants had concluded and Mr. Brumell, the Clerk, stated the case for the Council. He began by announcing (rather incomprehensibly, seeing the recommendation it contained) that the Council relied entirely on the Panel's report, which he read to the Inspector. He added that the Council felt that although the site was at present very beautifully secluded and was an undeveloped area, it was not a large tract of land. The width was not great, and before these houses or any others could be built, the trees which at present cover the site would have to be removed to a very great extent. The trees were not very tall and, when taken away, those houses—those horrors—would be visible not only to those living near, but (he would go as far as to say) to the dwellers on the west side of the railway line. The witnesses for the appellants were, he said, not very old, and he would suggest that their experiences as architects were not so great as that of Mr. Lovell. Although, as Mr Lovell said, progress in architecture was obvious, as in everything else, his Council felt that houses of a design such as the appellants proposed, would be such a jump from the present style of houses in the immediate neighbourhood of the site (Mr Brumell appeared to be quite uncritical of these) that it could not possibly be a following up from one style to another. It was a definite cutting off from all styles of houses in the neighbourhood. He believed that when the Inspector had viewed the site, having regard to the recommendation of the Panel of Architects, he would agree that the Council were certainly within their rights in refusing to grant permission for such development as was proposed.

Mr. Brumell then surprised those present by saying that he did not intend to call any witnesses, repeating that he relied on the Council's knowledge of the district and on the Panel's report. The Inspector naturally commented that the appellants must have some chance of cross-examination, and asked who had decided that the plans should be refused. Mr Brumell said that the recommendation came from the Town Planning Committee of the Council.

The Inspector: "Have you the Chairman of the Council or members of the Committee here?"

Mr Brumell: "I have not. I have to apologize for the unavoidable absence of the Chairman. I think I am entitled to present the Council's case in this way. The Committee in the first place relied upon their knowledge of the district and upon the recommendation of the Panel of Architects."

The Inspector: "From what I have heard from Mr Lovell, I don't think you are relying on the Panel of Architects."

It was at this point that Mr Lovell made the protest already referred to, that no member of the Panel had been informed of the Inquiry and given an opportunity of answering questions, and expressed the feeling that the voluntary assistance of the Panel was not being appreciated.

Mr. H. E. Adams, another local resident, then asked a question about the preservation of trees, and was assured by Mr. Chitty, for the appellants, that care was being taken to preserve them to the utmost.

The Inspector, after remarking that if the Council did not care to call any witnesses he could only draw his own conclusions, declared the Inquiry closed. He visited the site before returning to London to present his report to the Minister.

The award of the Minister has now been issued. Not surprisingly, seeing the very weak case the Council were able to present at the Inquiry, it was in favour of the appellants. The Minister allowed Messrs. Tecton's appeal in the following letter addressed from the Ministry of Health to the Clerk to the Council:—

Section 10 of the Town and Country Planning Act, 1932. Appeal against refusal to permit erection of eight dwelling houses on account of design.

SIR,—I am directed by the Minister of Health to state that he has considered the report of his Inspector, Mr. S. L. G. Beaufoy, A.R.I.B.A., upon the appeal made by Messrs. Tecton in respect of development at Birch Drive Wood Ride Estate.

The Minister understands that the Advisory Panel of Architects recommended that as the houses were to be erected in a secluded, undeveloped area, they should be approved subject to certain modifications of the alignment and that the texture, details and colouring of the brickwork should be submitted for approval by the Council. The Council refused permission for the development on the grounds that the elevations and general character of design were unsuitable for the district. The developers are understood to be willing to make the modifications suggested by the Advisory Panel and to preserve as many of the existing trees as possible and in the circumstances the Minister considers that the recommendation of the Advisory Panel cannot be regarded as unreasonable.

The Minister has accordingly decided to allow the appeal and an instrument (which has been issued in duplicate) giving formal effect to his decision is enclosed.—I am, Sir,

Your obedient servant,

H. H. TURNER.

The Cuckfield case, therefore, reached a satisfactory conclusion. The Ministry of Health is an enlightened body and it can be trusted to administer the Act in a rational spirit, but it is only on appeal that direct administration from the Ministry comes into operation. In the ordinary way, it is in the hands of far less enlightened local authority. That an appeal based on such solid ground as this one is fairly certain of success does not mitigate the unsatisfactory nature of the present position. Not only does the business of appealing result in annoyance and delay, but there must be many cases in which the client, rather than suffer this delay or the stigma that might attach to the fact of having had his proposals labelled as being destructive of the amenities, submits to the demands of the local authority. We have then, in effect, an æsthetic dictatorship in the hands of the æsthetically uneducated.

The potential good effect of the panel system, moreover, is almost entirely nullified if its decisions can be thus arbitrarily overruled.

Cases such as the one just described are becoming more and more common in all parts of the country. Misuse of the Town and Country Planning Act is a real menace to the re-establishment of a civilized way of building.

If local authorities will only apply their powers energetically to the task for which they were given them, they can ensure real improvement in the areas for which they are responsible. But they must act soon, as the amenities are fast disappearing. Surely the constructive kind of control is far more worthy of their position than the petty obstructiveness in which many of them prefer to indulge.

This obstructiveness, also, can only be discouraging to those all too rare enlightened individuals, who realize the value of an architect's skilled advice in suburban (as in all) development only to find that the employment of one automatically results in annoying and costly controversy.



Typical local domestic architecture: a view taken in the neighbourhood of the site, though separated from it by wooded land.

Birmingham £114,000 Site Offer

The Prudential Assurance Company has offered the Birmingham City Council £114,000 for the main portion of the old Blue Coat School site opposite the Cathedral Church. A provisional offer to lease the site for a hotel came to nothing because the original owners, the Ecclesiastical Commissioners, declined to waive a clause against the sale of intoxicants.



"Functional considerations have determined various features of this design. But these functional elements have been embodied in a design which, like that of the eighteenth-century coffee-pot, satisfies the eye as well as the intelligence." Aluminium tea-kettle (in the museum of Modern Art, New York), designed by Lurelle V. A. Guild. Made by the Aluminium Cooking Utensil Co., U.S.A. From "Art and Industry," by Herbert Read.

LITERATURE

DESIGN AND THE MACHINE

[*BY E. MAXWELL FRY*]

Art and Industry. By Herbert Read. London: Faber and Faber. Price 12s. 6d. net
Industrial Design and the Future. By Geoffrey Holme. London: The Studio. Price 15s. net.

THE associations stirred within the mind of the average Englishman by the words ART and INDUSTRY, are of natures opposed one to the other. Brought together, as they have been increasingly of late, they may yet stand for nothing of greater spiritual weight than remains to either apart. Not until the union of the two is felt to be part of a re-creation of human values, and necessary to a new way of living, can the movement which it represents turn, perhaps suddenly, into a channel of positive creation, deep and full enough to irrigate the vast, receptive plains of toiling humanity.

Constantly the attempt to seize what we feel to be of the essential spirit of the time is baffled by the weight of inherited association. Undue emphasis upon false values in art or industry —dilettantism, commercialism—have driven individual efforts and combinations of effort away from the truth. Yet all this time the thing itself has been growing within, and here, I believe, in Mr. Herbert Read's book, is the first finite development of the idea in English, a sufficiently established structure of principle to be a means of measuring our own progress; even more than that, of propounding a new set of values of the widest application.

His book opens, as indeed it must, by an enquiry into art and machine production since the problem of reconciling the two came into being with the Industrial Revolution. Through the now crusted disguises under which our forefathers attempted to hide from the realities of the system that brought them their bread, this enquiry pursues its way, searching for an answer to the question. "Can the machine produce a work of art?" Not, can the machine reproduce any kind of work of art, but simply, a work of art? And if so, what is the nature of a machine-produced work of art?

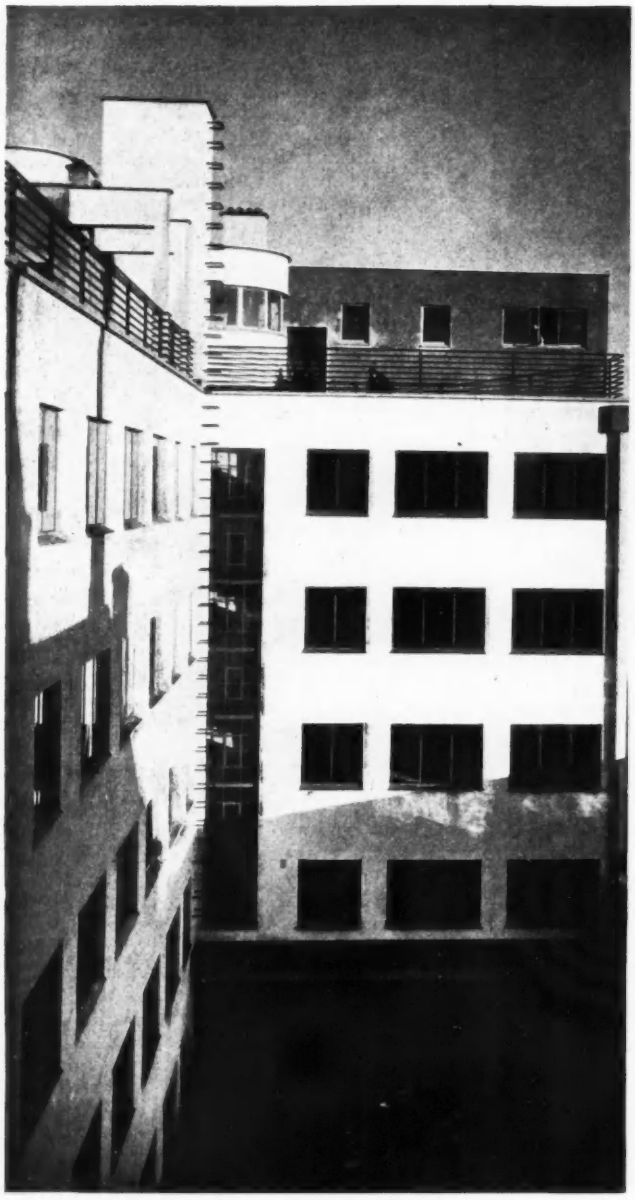
In conducting this enquiry Mr. Read comes to distinguish clearly between the humanistic arts, which are concerned with the ends of life, and "the abstract, non-figurative arts which find perfect embodiment in the *means of life*, and have no concern beyond making objects whose plastic form appeals to the æsthetic sensibility." "We must recognize," he says, "the abstract nature of the essential element in art and, as a consequence, we must recognize that design is a function of the abstract artist. . . .who must be given a place in all industries. . . . and his decision on all questions of design must be final." Quotation fails to reproduce the clarity of this approach to the centre of the problem that besets us. Reading it I have felt for the first time that I have understood its terms in a way that made possible a decision in matters over which I had previously exercised my mind in vain. That is how I feel the book will appear to many like me, and why it will become a rallying ground for an urgent movement in a more clearly defined direction.

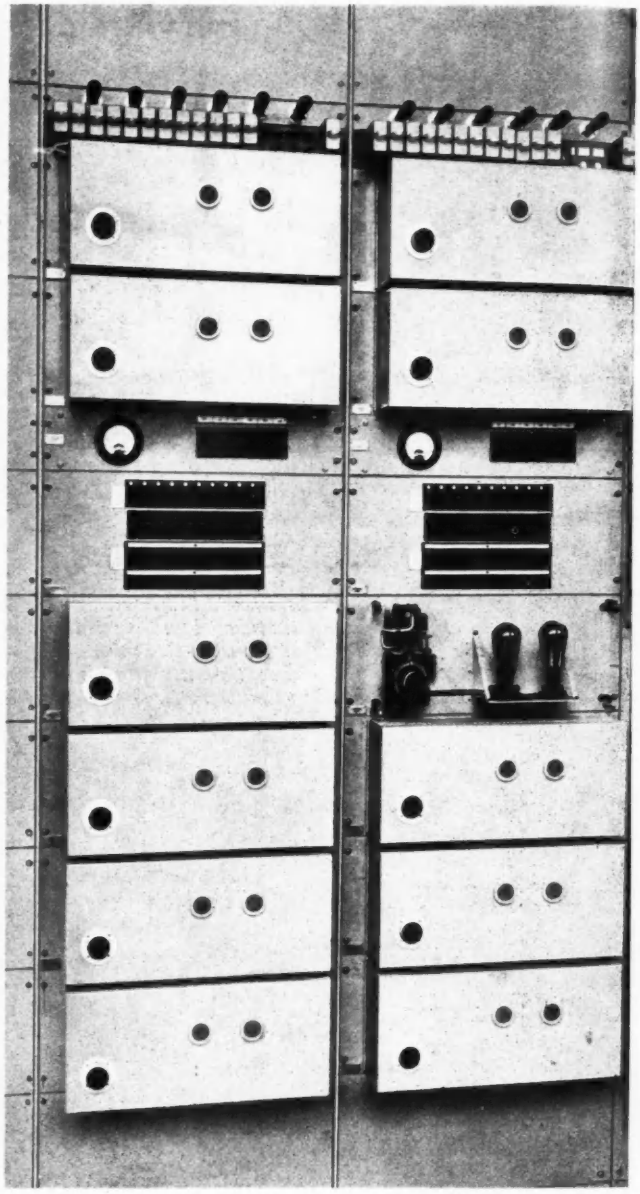
Parts II and III, which follow the enquiry into the problem and its solution, carry into detail the study of form, colour and ornament in the inorganic and organic materials of industrial production, treating of each as to the nature of its material, its working and its function; as part of an objective and impersonal examination of the forms and decoration appropriate to design in various media.

In Part IV, Mr. Read recounts the dreary story of art education in the industrial age to come to the conclusion that all professional art schools might well be closed, if they cannot be turned, like the Bauhaus, into a factory; "a school with the complete productive capacities of the factory, an industrial system in miniature." The Gorell Report and the D.I.A. memorandum on art school education, which appear as appendices, end the book on a note of hope.

It is difficult to do justice to Mr. Geoffrey Holme's book in the same review, since it cannot pretend to do more than ask the average man what he thinks about this question of art in connection with industry. In recording the results of a questionnaire sent broadcast to prominent industrialists, architects and designers, but mainly to industrials, the average answer is bound to result, and the essence of the matter to be lost in a great number of words. Fortunately the questionnaire was sent to Frank Lloyd Wright, an original and constructive mind, and if readers will first carefully separate his answers from the rest they will not lack a satisfactory answer, nor yet a means of judging of the value of what is left.

I will quote one from the whole. Question: How do you define good





" These two illustrations are confronted to show how nearly, once the element of scale is abolished, the engineer's and architect's designs approach each other in æsthetic effect. Entirely different problems are being solved ; but the same absolute sense of order and harmony presides over each functional fulfilment." Left : offices and printing works of the "Turun Sanomat" newspaper, Abo, Finland ; architect, Alvar Aalto. Right : "C" Amplifier Bays (with cover removed from one of the amplifiers), Broadcasting House, London. From "Art and Industry," by Herbert Read.

design, and have you found good design to be at variance with popular taste ?

Frank Lloyd Wright : Popular taste is fashion only for a day. It has nothing to do with "good design." Good design is for always. Good design is organic design.

Many of the illustrations of industrial products that follow are interesting and well chosen, others unfortunately are less apt, and the commentary that accompanies each, wavers alarmingly between popular taste, fashion and good design, so that it would be difficult to adduce from them any principle of judgment of greater value than the average answer to the questionnaire.

But again I say that Mr. Holme's book does not set out to do more than arouse interest, and stimulate the public and the business man to take thought about design. He, no less than all of us, will be indebted to Mr. Herbert Read for more than can be estimated at this present moment.

Shorter Notices

Westminster Abbey, by A. L. N. Russell. London : Chatto and Windus. Price, 6s. net.

THERE must be quite a number of laymen who will take an intelligent interest in even the most celebrated building if they are given the opportunity of acquiring information about it that will satisfy an intelligent curiosity ; but constructive knowledge about buildings is omitted from the average guide-book and presented in forbiddingly complicated (as

well as expensive) form in the serious work of reference. This little book on Westminster Abbey admirably avoids either of these extremes, providing real information in a thorough, readable and inexpensive way. The book's own sub-title gives the best indication of the ground it covers : " The story of the Church and the Monastery with some Account of the Life of the Monks, a Guide to the Buildings and Monuments, and an Explanation of their Architectural Styles." It is well arranged, the Abbey's early growth and mediæval function being explained before detailed objective description ; and the Abbey's excellence as an exemplar of the whole development of mediæval architecture taken full advantage of. Mr. Russell deals interestingly with the treatment of the buildings since the Dissolution and is not too unfair on the eighteenth and nineteenth century restorers (though he is perhaps a little hard on Wyatt —the eighteenth century is one that never gets much sympathy from those whose enthusiasm is for the Gothic) ; he condemns their ruthlessness without questioning their genuine love of the building. The book concludes with a well-selected if brief bibliography, a feature all too often omitted from a book of this popular character. Mr. Russell (who is, incidentally, architect to Westminster School) can feel that in his unambitious handbook he has done as much for the interested visitor as the architectural writers whose famous names are already associated with the Abbey (Westlake, Dean Stanley, Lethaby) have done for the scholar and the archæologist.

J. M. R.

The Heart of Scotland. By George Blake. London : Batsford. Price 7s. 6d. net.

THIS book is the logical sequel to the original *Face of Scotland* issued by the same publishers twelve months ago. The first volume, good though it was, consisted mainly of scenic " high-spots " of a type appealing to the casual tourist who gallops madly from one hotel to the next. Mr. Blake's book emphasizes the fact, still hardly realized, that Scotland and the Scots have an existence that is quite independent of the summer visitor. The face of Scotland, as Mr. John Buchan rather naïvely remarks, is not the heart of Scotland; but, if properly discerned, it is a clue to it. The traveller sees but the superficial lip-service of the tourist industry ; the author's fiercest wrath is reserved for the innumerable " Highland Games " (a relic of early Balmoral influences) with their high-fed professional athletes who spend a happy summer pot-hunting each week-end. Mr. Blake interprets the ordinary inhabitants of Scotland, the people who live and earn their bread and butter there, and he seems, to the ignorant Sassenach, to be as familiar with the calvinistic puritanism of the Western Highlands as he is with the whisky-drinking miners of Scotland's " Black Country." He has a reasonable explanation for the most contradictory facts, from Lord Leverhulme's lamentable failure to rationalize the fishing industry of the Hebrides to the 50,000 crowds at Glasgow football grounds. One no longer wonders why most of Scotland's only too visible exports are generally to be found at the top of the tree.

P. S.

LETTERS FROM READERS

A. CROFT
C. H. STONEY
KEITH AITKEN, A.R.I.B.A.
MAJOR H. L. NATHAN, M.P.
HAROLD FALKNER, F.R.I.B.A.

A Hundred Years Ahead

SIR,—Mr. Chesterton, of the British Union of Fascists, is surely in error in stating that " the aim of all Fascist Governments is peace."

We all remember Signor Mussolini's famous dictum that " War is to man what childbirth is to woman," and no doubt some of your readers have read the Duce's statement, in *The Political and Social Doctrine of Fascism* to the effect that " Fascism believes neither in the possibility nor the utility of perpetual peace. . . . War alone brings up to its highest tension all human energy and puts the stamp of nobility upon the peoples who have the courage to meet it." Italian school children, Mr. Chesterton must surely know, are receiving compulsory military exercises and training.

On the other hand, Herr Hitler is not silent on this topic, either. In his book, *My Struggle*, he writes, " In eternal warfare mankind has grown great—in eternal peace mankind would be ruined. . . For Germany the only possibility of carrying out a sound territorial policy lay in the winning of new land in Europe itself." The extent of German re-armament is notorious and has publicly dominated international politics for the past three months.

Can Mr. Chesterton then be really serious in emphatically declaring that the aim of all Fascist Governments is peace.

A. CROFT
London

SIR,—In challenging Mr. Chesterton's remarks under the above heading, it is first necessary to mention the " Rosenberg Plan." This, the work of Nazi Germany's chief official on foreign politics, is explicitly set out in Rosenberg's *The Future Path of a German Foreign Policy*, and provides, among other things, for the seizure by Germany of the South-western portion of the Soviet Union and adjoining territory.

Mr. Chesterton cannot plead ignorance of this, and there is a touch of charming humour in his letter when he lays it down definitely that " the aim of all Fascist Governments is peace." The humour becomes irresistible when it is brought to one's notice that his " Leader," Sir Oswald, writing in the *Sunday Dispatch* for January 13 last, recognizes and approves the " Rosenberg Plan " (article—" Why I want friendship with Germany "). " Germany," writes Sir Oswald, " will require access to raw materials and territory for her expanding and vital population . . . and the great forces of life cannot forever be confined in small spaces without an explosion in which someone gets hurt. . . The future of Germany must lie not on her Western but on her Eastern Frontiers *in an Empire to which the future sets no limit.*" (My italics).

It will thus be seen that the "practical idealism" to which Mr. Chesterton refers seems to require a little co-ordinating if it is not to appear to the public more as a practical joke—or a conscious and evil deception.

C. H. STONEY
London

SIR,—My chief complaint about the hundred years' forecast published in your New Year issue was that someone would be certain to take it seriously. It was perhaps not so surprising that the B.U.F. should take up the gauntlet so invitingly thrown down ; for, whether its intention were satirical or serious, this diary of the future exposed, perhaps unconsciously, the character and aims of those who, at the moment, are endeavouring to lead us towards a new world.

The tragedy of the Jew appears to be his unfailing ability to arouse antagonism wherever he goes. It is his own fault, if it be a fault, to act in accordance with one's nature ; but it is nevertheless unfortunate, for he wounds both himself and the nation which, in the end, has to throw him out.

Up to a point his logical brain and cosmopolitan outlook act as a wholesome deterrent to the sillier fantasies of nationalism and sentimental patriotism. It is when he steps from criticism to control that his dangerous aspect becomes apparent. He lacks the " quality of mercy " which can abandon logic for a humanistic compromise or can sacrifice strict justice to Christian charity.

The example of Germany in the last ten years must surely teach us that when the Jew permeates every section of public life there comes a time when the nation must, in self defence, rise against its conquerors. Then follows the dreary sequence of persecution and expulsion with its thousands of wrecked

lives and the nation poorer by the loss of some of its best brains.

If we in England are to avoid this depressing prospect we must be on our guard against too readily drinking in Jewish-Communist doctrine, even when it is disguised in the most seductive of concrete and glass clothes. In the long run it is antagonistic to all who believe in the value of the air we breathe and the soil from which we spring.

You, Sir, are, I know, aware of the power of press propaganda. This dream of an impossible future may certainly afford half an hour's amusing reading; but one must not forget that it is only necessary to say a thing loud enough and often enough for it to be believed. As an important and responsible organ of architectural opinion, your paper should take care for the possible consequences of the views it makes public.

KEITH AITKEN
Cardiff

Town Planning in Greater London

SIR,—May I be permitted to express my views regarding the Minister of Transport's decision to put in hand a comprehensive survey, involving the preparation of a plan, of the highway developments required in the London Traffic Area.

All road users are only too painfully aware of the dangers and delays that are constantly arising through the inadequacy of Greater London's road system. But is it not an indisputable fact that roads constitute only one feature of town planning? What of such vitally important questions as the allocation of areas for different uses and the reservation of the much-needed open spaces? It is an elementary axiom that the use to which neighbouring lands are put largely governs the volume of traffic that will utilize a given highway.

The whole question of roads is definitely interlocked with planning and housing, and no adequate solution of London's urgent problems will be found unless there is not only active co-operation among those dealing with highway schemes, town planning schemes and housing schemes, but also proper co-ordination of their various proposals. Is anyone satisfied with the present situation in regard to the planning of London, and will not the Government's new Bill to relieve overcrowding raise a further crop of problems?

For some time past I have urged the necessity of making an exhaustive survey of the Greater London Region so that an efficient master town-plan may be prepared for this densely-populated territory. All large matters of regional importance should undoubtedly be dealt with on the basis of a central plan for the whole unit, and not in the present piecemeal fashion.

If, as seems the case, there is no likelihood that these baffling problems will be tackled in earnest by the innumerable local authorities, is it not high time that a Royal Commission should be appointed to enquire into and report both upon Greater London's housing and planning problems and also upon the whole question of the future government of this vast region?

H. L. NATHAN
House of Commons

Beauty in Architecture

SIR,—In your issue for December 13 a letter appeared, which, on first reading, I took to be a very fine example of irony; but on getting through with it, perceived to be meant seriously. That this opinion of one young man should be given very much attention, is not of importance, but on thinking over the products of various schools in recent years, it would seem that this is the prevailing inclination of the rising generation.

A glance through the same number of the so-called "Architects" Journal confirms this, for it is packed from cover to cover with engineering works, with one or two glass gadgets and a home-made table railway. What is the trouble with these young people, for I understand they are of both sexes?

Apparently it is the worship of the machine, the influence of certain trade papers, the herd instinct, the desire to take a short cut to success, and a certain extraordinary weakness for acceptance of the superiority of continentals in all the arts; in other words, another inferiority complex. Now as to this same machine, I myself suffered from it; for four of the war years I was in the closest contact with aeroplanes of Allied and Enemy design. I remember standing in awe and admiration before an S.E.5 after a too long acquaintance with R.E.8's, only to find later that the latest Sopwith made the S.E.5 an ugly derelict. I remember a certain propeller, A.B.609. We thought it the ugliest thing we had ever seen; but after the test figures came in, we relented; after two or three trials, we thought it quite graceful, and after a climbing test and its rise to universal popularity, the most beautiful thing we had ever seen. So with cars: look at a second-hand shop with four- or five-year-old models. What a sight! Could anyone really have admired these clumsy old relics? Yet their owners thought them so lovely that they were almost afraid to bark their varnish when they first came out.

So it is with all machines, and will be with these mechanical contrivances, now called "modern architecture." In a few years they will be duds and, worse still, jokes. Today our "bright young things" are pulling down Norman-Shaws and Phillip-Webbs to replace them with things which may have a quicker death with explosives, for even the material will be useless until broken up.

Beauty has very little to do with utility, and nothing with economy. If these were the tests, the speculating builders' semi-detached houses, especially from the back yard, would be the high water mark of taste. For years engineers have been perfecting that W.W.P. cistern: modellers, clay mixers, moulders and stove hands have been designing that earthenware receptacle so ingeniously connected with the above flushing contrivance. The wire-cut bricks the walls are built of have all the marvellous qualities (see any trade paper) that a £2,000,000 company can push; the very slates are the last word in thinness and shine, to throw off water.

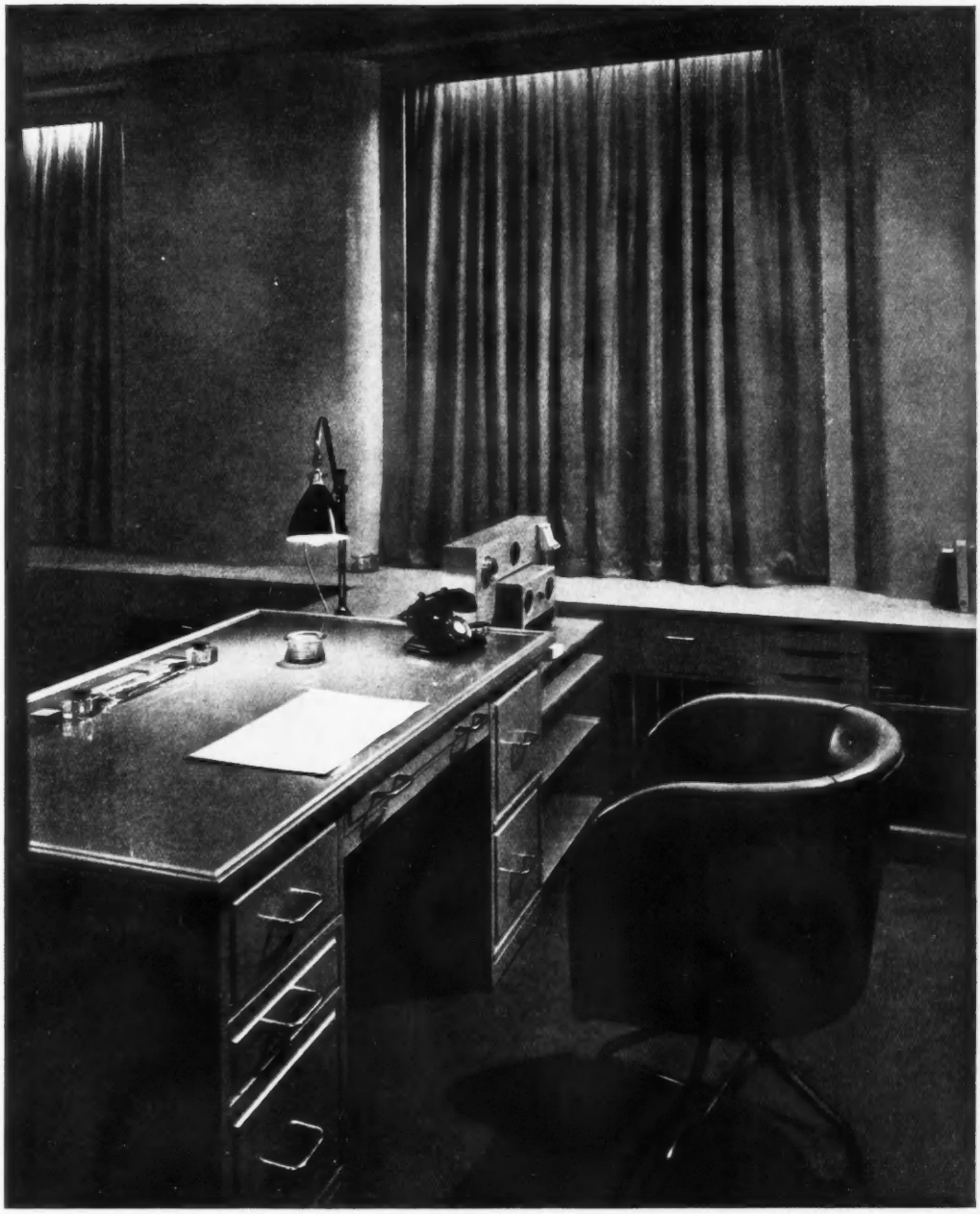
What, then, is beauty in architecture? In the first place it must have a seemliness in relation to its surroundings: examples of breaches of this rule are more easily perceived (Broadcasting House, the new R.I.B.A. building) than compliances, which are naturally inconspicuous. Its proportion must be pleasing; this, in the past, has been partly custom, partly tradition and partly genius. Its material must be at least well chosen—if a high standard of beauty is aimed at, very well chosen indeed. Examples of non-compliance with this rule are the National Radiator and *Daily Express* buildings.

It must be permanent, as nearly as possible, eternal; there is no such thing as temporary architecture; that would be not a building, but a contraption. Lastly, it *may* have individuality. This is the most dangerous ingredient of them all, the rock on which the Victorians wrecked, and it must be kept in strict subordination to rule one. It had better have some considerable adaptability to its purpose, or it is likely enough to lack the opportunity of long existence; it may have craftsmanship—in fact it cannot do without it; it may have ornament, but recent attempts in Portland Place do not encourage much hope in this direction; in any case John Bull doesn't like it. If the designer is a genius it may have a little functionalism; but genius is scarce. Dance's Newgate was the last example of this, and it so irritated the authorities, that they pulled it down and built the present Old Bailey to teach the lawyers and criminals a lesson.

HAROLD FALKNER
Farnham, Surrey

WORKING DETAILS : 195

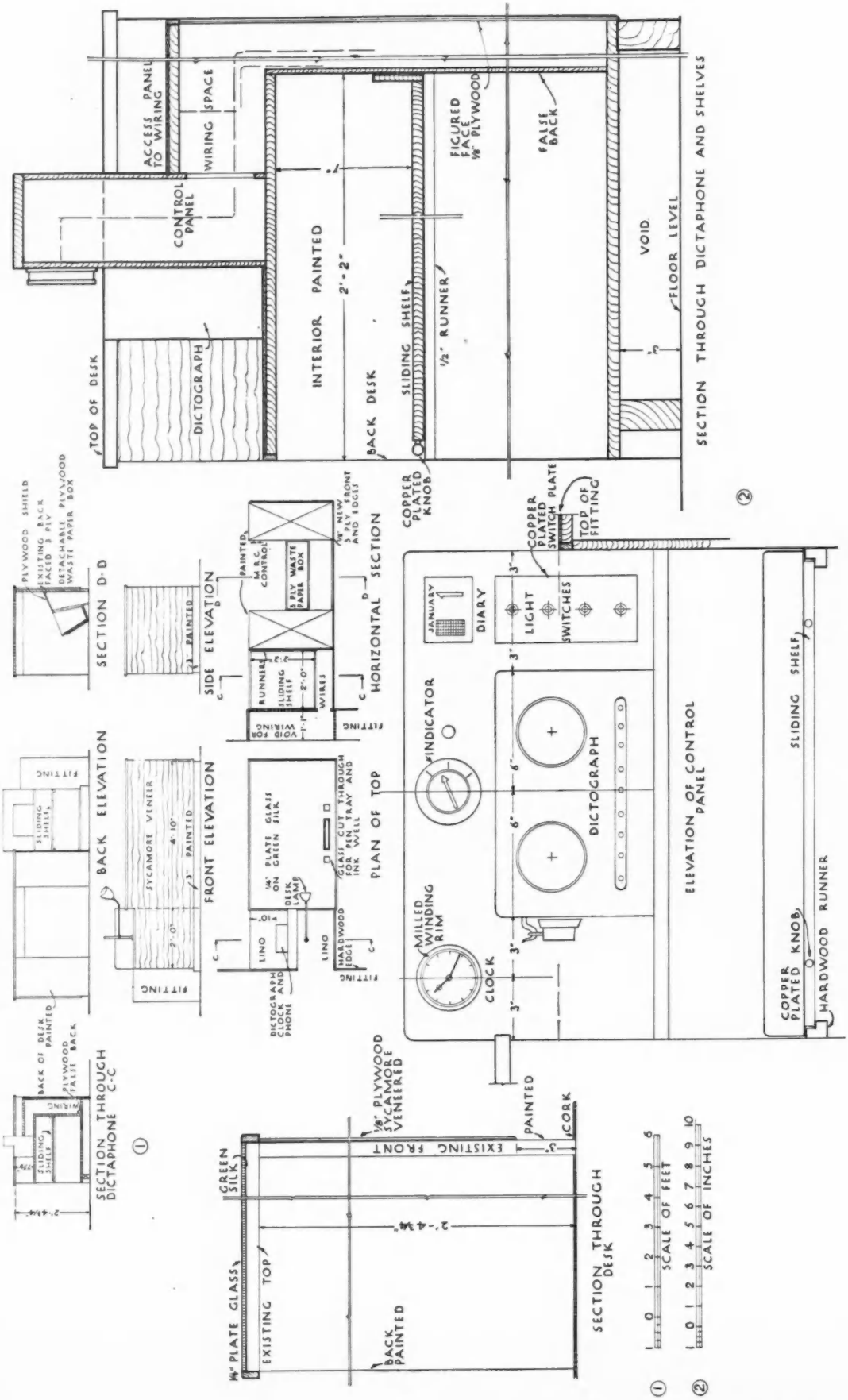
DESK • OFFICE IN ANGEL AND PORTMAN COURT, E.C. • FREDERICK GIBBERD



The above illustration shows the new version of an old desk from which the roll-top and carved brackets have been removed. The top has been covered in green silk, over which is a plate glass sheet, cut through to allow for a pen tray and ink wells. At the right of the desk is a control panel containing a loud speaking telephone, clock, and an "in, out, or engaged" indicator. The drawings overleaf show plans, elevations and sections.

WORKING DETAILS : 196

DESK • OFFICE IN ANGEL AND PORTMAN COURT, E.C. • FREDERICK GIBBERD



Plans, elevations and sections of the desk illustrated overleaf.

WORKING DETAILS : 197

HAT BAR • DRESS SHOWROOM IN BRUTON STREET, W. • GERALD LACOSTE

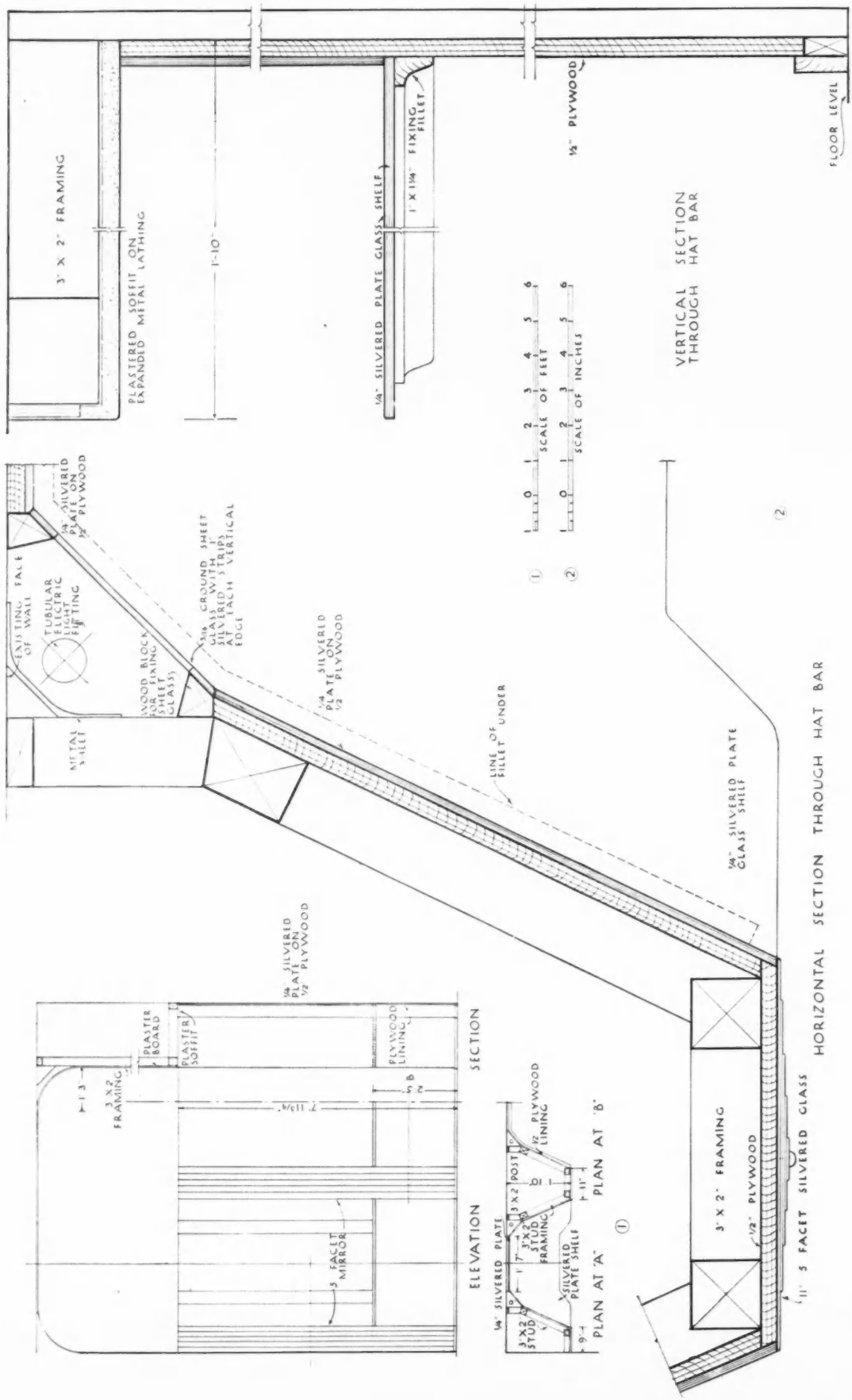


This fitting is designed for the display and the trying-on of hats. Each compartment is lined with mirror and lit by a ground glass panel at each corner. The drawings overleaf show a general elevation, and sections through the mirror framing.

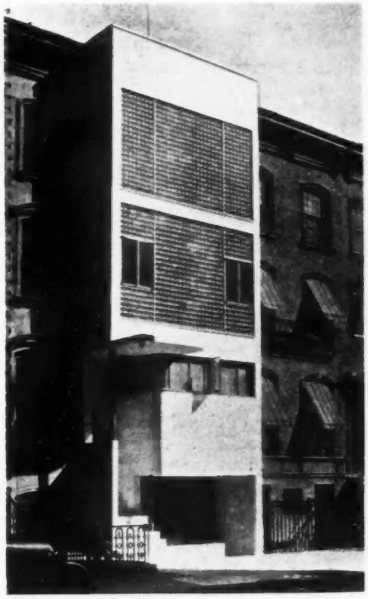
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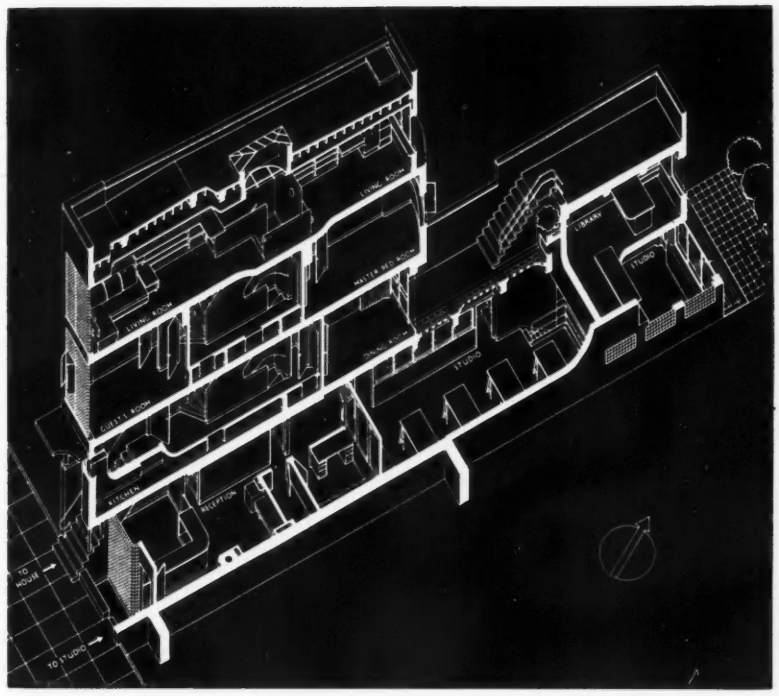
WORKING DETAILS : 198

HAT BAR • DRESS SHOWROOM IN BRUTON STREET, W. • GERALD LACOSTE



Elevation and sections of the hat bar illustrated overleaf.





William Lescaze's New York house and office, a remodelling of an old "Brownstone" building.
[*From "Architectural Forum."*]

PERIODICALS

DECEMBER ANTHOLOGY

AMERICA

American Architect
(Monthly, $1)

December. The Modern Industrial Art Exhibition at the New York Metropolitan Museum: furniture adapted for mass production by various designers, in marked contrast to the last, 1929, exhibition. "Old Mexico," a series of full-page photographs, including the church at Santa Rosa. Querétaro. Further remodelling schemes.

Architectural Forum
(Monthly, $1)

December. William Lescaze's own house and office in New York, an old Brownstone terrace house completely rebuilt and provided with an "all-glass" elevation: air conditioning in most rooms. The financial arrangements of Knickerbocker Village, a "white collar" housing scheme in Lower Manhattan. Some very interesting figures on the costs of construction and operation of housing blocks from 2 to 12 stories, prepared by the New York Housing Study Guild.

Architectural Record
(Monthly, 50 cents.)

December. A section of current domestic work, all traditional: Wembley swimming pool, and a useful check list, with numerous essential dimensions, for the remodelling of stores.

Pencil Points
(Monthly, 35 cents.)

December. Further records of early American architecture in New England, and a continuation of the comparative details series—oriel windows. A suggestion, by Mr. R. Dobberman, that the garage should be the main axial entrance to the private house.

ARGENTINA

Nuestra Arquitectura
(Monthly, $2)

No. 10. A private house in Belgrano by Joselevich and Doriellet: two blocks of flats.

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BELGIUM

La Cité
(Monthly, 5 f.)

November. Three houses by Charles Colassin: extensions to the Museum at Nancy by André Lurcat, an unorthodox and original plan which should give excellent lighting.

L'Emulation
(Monthly, 10 f.)

No. 8. Competition for a new Broadcasting building at Brussels, the conditions and the winning design by M. J. Diongre reviewed.

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FINLAND

Arkitekten
(Monthly, 15 fmk)

No. 10. A new municipal hospital at Helsingfors by Jussi Paatela.

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FRANCE

L'Architecte
(Monthly, 12 f.)

No. 10. A reinforced concrete school in Paris by Roger Expert; municipal flats at Maisons Alfort by Dubreuil and Hummel; the new experimental wind-tunnel at Chalais-Meudon, and some new flats in the Avenue de Versailles by Jean Ginsberg and François Heep.

L'Architecture
(Monthly, 6 f.)

December. A new railway station at Mulhouse by Schulé, Doll and Gélis, an elaborate but apparently efficient plan with unworthy elevations: an interesting article analysing the two winter sport "tower hotels" built at Sestrières by V. Bonade-Bottino, the chief of the Fiat company's building department.

La Technique des Travaux
(Monthly, 10 f.)

December. A girls' school in Paris by François Le Cœur; fireproof construction for ships' cabins by Masera and Ubaldi of Milan; and a large government pensions office in Prague, by Havlicek and Honzik.

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GERMANY

Baugilde
(Fortnightly, 1 m. 50)

No. 23. Open-air baths at Wiesbaden (illustrated in last month's *Moderne Bauformen*) and at Gross-Schönau.

Baukunst und Städtebau
(Monthly, 1 m. 90)

December. Several country houses and week-end cottages: competition results, and some good joinery details.

Der Baumeister
(Monthly, 3 m.)

December. The "Rialto" baths at Basle by Bercher and Tamm, a large job with swimming bath, medicinal showers, and restaurant; good working details. Competition results and one-family detached houses.

Bauwelt
(Weekly, 90 pf.)

December 20. Buildings in the Saar, some old traditional work and some new small houses, the latter mostly the work of the brothers Weszkalnys.

December 27. Results of a competition for a ski-hut in the Swabian alps: good plans.

Deutsche Bauzeitung
(Weekly, 3 m. 40 per month)

No. 50. Faience and tiles as external finishes: numerous examples of Continental work, but no drawings.

No. 51. Buildings at night, floodlighting, neon tubes and early examples of "fairy lights."

No. 52. Water-heaters and stores.

Innen Dekoration
(Monthly, 2 m. 50)

December. Contemporary interior work, all with rather a familiar look. Three coal-burning stoves redesigned in the modern manner by Otto Roth.

Moderne Bauformen
(Monthly, 3 m.)

December. Suburban housing near Stuttgart; simple furniture produced by a group of cabinet makers, and interiors by Paul László.

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HOLLAND
de 8 en opbouw
(Fortnightly, 30 cents.)

No. 25. Railway stations, signal boxes, etc., by S. van Ravesteijn.

No. 26. Various schemes, including a proposed cinema, by J. Duiker. "The 8" group has now amalgamated with the "group '32."

Bouwkundig Weekblad Architectura
(Weekly, 15 florins per annum)

December 1. A furniture shop at The Hague, by B. van der Leck, the ground floor a normal showroom the two upper floors planned as a private house, but used for furniture display.

December 22. Housing at Stuttgart, and a 50-page supplement on the life and work of Dr. H. P. Berlage.

December 29. The Dutch pavilion at the Brussels Exhibition, by D. Roosenburg.

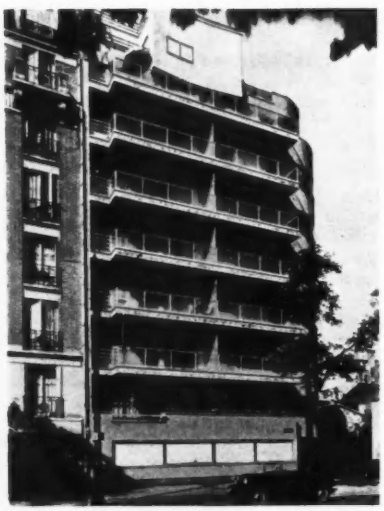
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ITALY
Architettura
(Monthly 15 lire)

November. Schemes submitted in competition for a new passenger landing stage and customs offices at Naples; a villa at Capri, by R. Fagnoni.

Rassegna di Architettura
(Monthly, 12 lire)

December. Twenty-eight schemes submitted in the Palazzo del Littorio competition; the solutions show extreme variations both in plan and elevation.



A block of flats in Paris, by Jean Ginsberg and François Heep. [*From "L'Architecte"*]

SWEDEN
Boet
(Monthly, 1.50 kronor)

December. Glassware, knives, spoons and forks.

Byggmästaren
(Weekly, 10 kr. per annum)

December 5. The Swedish Aluminium Co.'s works at Mâusbo.

December 12. Cinemas, problems of acoustics and projection, a recent small cinema in Stockholm by Wolter Gahn.

SWITZERLAND
Schweizerische Bauzeitung
(Weekly, 1 f.)

December 1. The Ober store in Zürich, by Otto Dürr.

December 8. Armin Meil's art gallery at Lucerne.

December 29. Two reinforced concrete bridges.

Das Werk
(Monthly, 3 f.)

December. Textiles and window displays.

IN THAT CONTINGENCY

The following abstracts of inquiries represents a number of those recently submitted to the Building Research Station. The information given in the replies quoted is based on available knowledge. It has to be borne in mind that further scientific investigations may in the course of time indicate directions in which the replies might be supplemented or modified. Moreover, the replies relate to the specific subject of each inquiry, and are not necessarily suitable for application to all similar problems. [Crown Copyright Reserved.]

Efficiency of Brick Wall

¶ *THE engineer to an urban district council asked for information as "the efficiency of walls constructed in to rat-trap" bond. The outer leaf of the wall is carried out in Flemish bond, all headers running through to the rear, the bricks are set on edge and are about 2⅝ in. thick, thus providing a cavity 3½ in.–4 in. wide. In the case under consideration the brickwork was to be jointed in cement mortar and the outside rendered.*

Party-walls, chimney stacks and all walls beneath damp-proof course were to be carried out in solid 9 in. brickwork.

The following is a summary of present views on the points which seem of greatest importance in considering the suitability of a form of wall construction.

The requirements of a brick wall which appear to bear on the question are as follows:—

1. Strength.
2. Exclusion of rain and wind.
3. Thermal insulation properties.

1: The strength of the ordinary 11 in. cavity wall or of the 9 in. solid brick wall is ample for normal small house building and there is no reason to doubt that a wall with bricks set on edge with headers running through would also be sufficiently strong for the purpose.

2: Cases of penetration of rain through a 9 in. solid brick wall are not uncommon, but we have not encountered any case of penetration through a properly constructed cavity wall. The construction referred to, therefore, falls in an intermediate class for, whilst a discontinuous cavity is formed, the headers still provide a passage for moisture through the wall. It is our experience that in the case of a solid brick wall with through headers, penetration of moisture occurs preferentially through cracks in the mortar or between the mortar and brick, and that cement mortars are more susceptible to this mode of penetration than "compo" or hydraulic lime mortars. However, in the present case there occurs no through joint, and resistance to penetration of moisture depends entirely on the rate of absorption and rate of permeation of water through the header brick. We should consider therefore that from the point of view of resistance to penetration of moisture, the wall would be intermediate in value between a solid 9 in. wall and a properly constructed 11 in. cavity wall, built of the same bricks.

3: The ordinary solid 9 in. brick wall, although hardly ideal, is in this country usually thought adequate when dry as regards heat insulation. When wet its value as a thermal insulator is reduced roughly by a half. The 11 in. cavity wall is an improvement on the dry 9 in. solid brick, and it seems probable therefore that the proposed form of construction should be satisfactory in this respect.

Lifting of Tiles in Church Floor

¶ *ARCHITECTS reported trouble with the tiled floor of a church built in 1869, which proved satisfactory until about 10 years ago, when the tiles commenced to loosen and rise. About two years ago there was a leak in the heating system which ran for some time and the tiles at present most affected are near the position of the leak. The construction of the floor is shown in figure 1. Samples of the various layers were submitted for examination.*

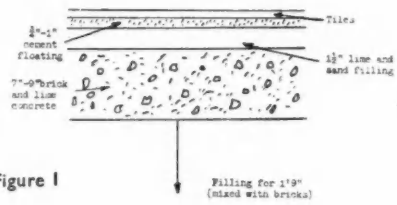


Figure 1

Consideration of the facts reported and examination of samples strongly suggested that the trouble was due to the behaviour of the hydraulic lime used in the filling in the floor. It is well known that eminently hydraulic limes, such as were used in this case, often exhibit unsoundness to a marked degree and this unsoundness may show itself many years after the lime has been used. Such unsoundness has been aggravated in this instance by the leakage of water, and the consequent "delayed expansion" has brought about the failure of the floor.

It is difficult to say exactly what work is required in effecting a repair. There is a definite possibility that the delayed expansion may continue both in the brick concrete and lime-sand filling, since both may contain further unsound particles.

As the lime concrete is of a very open character there may be sufficient freedom to accommodate a slight further expansion. It certainly appears, however, from the description and sketch that the lime and sand filling is primarily responsible for the trouble. This should, therefore, be removed and replaced with a cement and sand screed.

Some of the points which should be taken into consideration in laying tiles, in order that good adhesion may be secured, are given in an earlier Note from the Information Bureau of the Building Research Station (No. XXVI).

TECHNICAL SECTION: 3

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY

OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND

J. R. KELL, M.I.H.V.E.

THE VALUE OF BUILDING INSULATION

A GLANCE at the transmission coefficients in Table VII will indicate at once those materials which will give the warmest building, or the one requiring least heat for the maintenance of the temperature.

Thus an 11 in. cavity brick wall, plastered, having a coefficient of ·25, will transmit only 57 per cent. of the heat of a 6 in. plastered concrete wall (coefficient ·44). Or a tiled and boarded roof, with plastered ceiling below, having a coefficient of ·20, will transmit only 40 per cent. of 6 in. of concrete plastered (·50).

The old cottage construction of brick and thatch produced very warm buildings. Brick walls two or three feet thick (built when bricks and labour were cheap) plastered both sides and lime washed, and thatch built up in layers, over many generations, made them economical to keep warm in winter and at the same time cool in summer. This type of construction is not practicable for our modern buildings with thin walls of more conducting materials, which are in fact tending to depart from all considerations of inherent warmth as far as possible, except where scientifically corrected.

A typical modern building has a flat roof, and walls of concrete with long horizontal lines of window. Yet uninsulated concrete and glass are two of the worst materials that could be chosen from a heat loss point of view, especially as in order to save expense and weight the concrete is generally made as thin as possible.

This tendency simply means that heating costs will go up unmercifully if no steps are taken to prevent it.

So far as the glass is concerned there is no means of reducing this loss except by cutting down its area or providing double windows. Expense generally bars the latter course, though there is often much to recommend it, as the loss is thereby reduced by half. The walls and roof can, however, be treated with an insulating material, the list of which includes cork, moler brick, cellular concrete, hollow tiles, fibre board, glass silk, aluminium foil, asbestos and magnesia, and even a layer of shingle or soil on the roof.

Such materials are becoming available in increasing profusion, which is evidence of the fact that more attention is being paid to this question, though as yet their use is by no means as common as it should be.

When considering insulation the inevitable question is—how far to go with it; what shall the material be, how thick, and what will it cost? Table X has been drawn up to show the relative conductivities of a variety of materials and their costs. For convenience 2 in. thickness of cork, which can be used in practically any position, has been taken as a standard for comparison.

It is therefore proposed to take two typical buildings and see how the heating costs are affected if all walls and roofs are completely treated:

The cost of the 2 in. thickness of cork

CASE 1 (*a*) *Private House, with 6 in. Concrete Walls.*
(2 floors of 1,200 sq. ft. each at 10 ft. storey height.)

Cube	24,000 cu. ft.
Window area	500 sq. ft.
Wall (6 in. concrete plastered) area (nett)	2,300 sq. ft.
Roof (4 in. concrete plastered and asphalted), area	1,200 sq. ft.
Floor (board and joist over concrete) area	1,200 sq. ft.
Air change	1½ changes per hour
Temperature	65 deg. inside, 30 deg. outside
Hours of heating per annum	5,000 (i.e., total winter hours)
Proportion of full load used	50 per cent. of above

Heat Loss per Hour.

	Uninsulated. Per deg. diff.	Insulated Walls and Roof, 2 in. Cork. Per deg. diff.
Air change, 24,000 × ·029	680	680
Windows, 500 × 1·0	500	500
Wall, 2,300 × ·52	1,200	× ·12 300
Roof, 1,200 × ·57	685	× ·12 144
Floor, 1,200 × ·13	156	156
	3,221 B.T.U.'s per hour	1,780 B.T.U.'s per hour
For 35 deg. rise	3,221 × 35 deg. = 113,000 B.T.U.'s per hour	1,780 × 35 deg. = 62,300 B.T.U.'s per hour
Per annum	113,000 × 5,000 × 50/100 = 282,500,000 B.T.U.'s = 2,825 therms per annum	62,300 × 5,000 × 50/100 = 155,500,000 B.T.U.'s = 1,555 therms per annum
Coal or coke at 40s. per ton. 1·8d. per therm and 60 per cent. efficiency = 3d. per therm	£35 6s. per annum	£19 9s. per annum
		Saving £15 17s.
Electricity at ½d. per unit = 14·6d. per therm; allowing saving due to thermostatic control 25 per cent.	£128 16s.	£71
		Saving £57 16s.

insulation in this case will be approximately :

3,500 sq. ft. at 7d.	£102
The saving in cost of the heating system, whether coal or electric fuel, might be ..	£80
Net extra cost of insulation	£22

It will be seen that with coal or coke fuel the extra cost of insulation is paid for out of savings in about 1½ years, and this is surely adequate justification for its adoption. With electricity the savings are even more marked as these will pay for the cost of the insulation in less than six months.

CASE 1 (*b*)

If the walls were of brick and the roof of tiles and boarding with plaster ceiling, a similar calculation shows that with the same building and cost of fuel the savings will be :

	Per annum.
With coal or coke	£3 16s.
With electricity	£13 18s.

The net extra cost of insulation would be about £64, so that it may be said there is no case for its adoption with the cheap fuel, but with electricity it would pay for itself in five years, and could therefore be considered as justified.

If in the case of the concrete construction in Case 1(*a*) 1 in. thick cork were used instead of 2 in., the net extra cost of insulation will be found to be £5, and the annual saving will be reduced to approximately £12 with coal or coke, and £43 with electricity, which is a better return on the initial outlay than with 2 in. thickness.

There must obviously be a thickness at which optimum savings as compared with initial outlay is reached, and this will be different for every material and every case.

CASE 2 (*a*), see calculation below.

The cost of 2 in. thickness of cork insulation in this case will be approximately

28,000 sq. ft. at 7d.	£820
The saving in cost of the heating system, whether coal or electric fuel would be about..	£520
Nett extra cost of insulation..	£300

Thus with solid fuel roughly four years of savings are required to balance this cost, and with electricity, one year.

CASE 2 (*a*) *Office Building*

(5 floors at 10,000 sq. ft. each × 10 ft. storey height)

Cube	500,000 cu. ft.
Window area	7,000 sq. ft.
Wall (6 in. concrete plastered) nett area	18,000 sq. ft.
Roof (6 in. concrete plastered and asphalted)	10,000 sq. ft.
Floor (wood block on concrete) ..	10,000 sq. ft.
Air change	2 changes per hour
Temperature	65 deg. inside, 30 deg. outside
Hours of heating per annum	5,000 (i.e., total winter hours)
Proportion of full load use	40 per cent.

Heat Loss per Hour

	Uninsulated. Per deg. diff.	Insulated walls and roof, 2 in. cork. Per deg. diff.
Air change, 500,000 × ·038	19,000	19,000
Windows, 7,000 × 1·0	7,000	7,000
Wall, 18,000 × ·52 ..	9,400	× ·12 2,200
Roof, 10,000 × ·5 ..	5,000	× ·12 1,200
Floor, 10,000 × ·1 ..	1,000	1,000
	41,400	30,400
For 35 deg. rise ..	35	35
	1,450,000 B.T.U.'s per hour	1,065,000 B.T.U.'s per hour
	$1{,}450 \text{ million} \times 5{,}000 \times \frac{40}{100}$	$1{,}065 \text{ million} \times 5{,}000 \times \frac{40}{100}$
	=2,900 million B.T.U.'s =29,000 therms	=2,130 million B.T.U.'s =21,300 therms
Coal or coke at 30s. 1·35d. per therm at 60 per cent. efficiency, mains losses 10 per cent. =50 per cent. =2·7d. per therm	£326	£240
	Saving £86 per annum.	
Electricity at ½d. per unit=14·6d. per therm; allowing saving due to thermostatic control 25 per cent. ..	£1,320	£970
	Saving £350	

CASE 2 (*b*)

If the same building has 13½ in. brick walls and concrete roof, the savings are £52 per annum, with coal, and £230 with electricity on a net extra outlay of £515 for insulation.

Taking cork 1 in. thick with the all-concrete construction in Case 2(*a*) the savings are £65 per annum with coal and £260 with electricity on a nett extra outlay of £135 for insulation.

Table XI summarizes the above conclusions. The effect on savings and first cost by substituting other materials for cork can easily be estimated by using the factors given in Table X.

Various methods of using these materials are illustrated in Figs 13 and 14.

Other Considerations in Insulation of Buildings

Much can often be done in the construction of a building to minimize heat loss without making use of materials specially prepared for insulation.

Thus ordinary timber is an effective insulation, and used as a flooring to a roof space, in addition to the normal boarding on rafters, will reduce the roof transmission from ·2 to ·14, a reduction of 33 per cent.

Similarly ¾ in. timber panelling on a 13½ in. wall will reduce a transmission of ·28 to ·18, a saving of 36 per cent.

In brick or other solid walls the introduction of an air-gap 2 in. wide will bring the coefficient for a 9 in. plastered wall of ·33 down to ·25, a reduction of 24 per cent. This effect is due not so much to the insulating effect of the air, which is enclosed in too large a space to be inert, as to the introduction of two further surfaces in the interior of the wall, each of which adds to the heat transmission resistance.

Another important effect of insulation on the inner surface of a wall or ceiling is the reduction which it effects in the time necessary for heating up. It has been shown by test* that a room lined with timber panelling and heated by a gas fire requires one hour for a temperature rise from 47·5 deg. to 62 deg., as compared with over two hours untreated. A similar effect is brought about by any insulator used as a lining, due to the fact that all this class of materials have a relatively low specific gravity and specific heat in addition to their insulating properties. A further advantage of insulation is in the summer. A 6 in. uninsulated concrete roof, subject to a sun temperature of 100 deg. F, will, after a few hours, arrive at a temperature of about 80 deg. to 85 deg. If 2 in. cork or moler brick is introduced on top of the roof under the asphalt it can be shown that this temperature is lowered by about 10 deg., or very little above the inside air temperature. This means that insulation of the ceiling will prevent its acting as an effective panel heating

* Dufton. Tests carried out at Building Research Station, Watford. See *Phil. Mag.*, 1931, p. 1233.

system, which is what it is really doing and which, to say the least, is not generally welcomed in summer.

A simple, cheap and effective roof insulator is washed shingle three or four inches deep, placed loose on the top surface. Apart from the interception of the direct rays of the sun in summer it should be borne in mind that stones tend to remain moist on the underside even in the hottest weather. This effect causes the roof temperature to approach the wet bulb temperature so that some natural cooling is the result. In winter it operates as a protection from frost and undoubtedly reduces heat losses, but by how much it is difficult to say, since no research on the subject appears to have been carried out.

It is not suggested that the methods of insulation described above cover the whole range of available materials, though the principal ones have been referred to. Certain materials, such as compressed peat, sawdust, straw, grain husks, though effective insulators, tend to encourage vermin, and slag wool suffers from the disadvantage of being an unpleasant and unhealthy material to handle.

(b) Heat required to allow for air change.

In addition to the heat required to balance the radiation losses it is obvious that the air in every ordinary room or enclosed space is subject to a gradual replenishment, partly by infiltration through porous walls, by leakage past windows, which are never completely airtight, plus the necessary opening, either permanently or intermittently, of doors and other necessary means of access both for people and goods, supplemented, of course, by a certain amount of window being opened when the concentration of people in the rooms is at all appreciable.

The first of these, namely, the *infiltration through the walls*, obviously depends enormously on the construction.

Mr. Otto Hehner made a most interesting experiment by sealing himself up in a room, covering all the windows and door edges with varnished paper so as to prevent any infiltration, and then lighting in the room a lamp burning paraffin or some similar material which consumes oxygen and produces carbonic acid. Obviously if there were no infiltration the percentage of carbonic acid would gradually increase and the percentage of oxygen decrease until all the oxygen had been converted into carbonic oxide.

Hehner actually found that these conditions were never even approximated to under the conditions of his test, and it was quite easy to calculate how much air must be filtering through the walls to replenish the oxygen which was consumed by the lamp and by himself after a stable condition had been reached. He never reached a stage when the percentage of carbonic acid or the lack of oxygen was sufficiently serious to incommode him in the slightest degree, proving conclusively that the infiltration through a normal wall construction is quite considerable and a normal function of the wall members.

Expressed in cubic feet per square foot per hour it appears that a 9 in. brick wall may allow infiltration as follows:—

Infiltration through 9 in. brick wall in cu. ft. per hour per sq. ft.

Wind	5 miles	per hour ..	1·75 cu. ft.
,,	10 ,,	,, ..	4·2 ,,
,,	15 ,,	,, ..	7·85 ,,
,,	20 ,,	,, ..	12·2 ,,
,,	25 ,,	,, ..	18·6 ,,
,,	30 ,,	,, ..	22·9 ,,

If the wall is plastered the figures approximate to one-hundredth of the above, and for a 13 in. wall the differences are not important.

It will be seen that in high winds the infiltration is enormous. If the inside surface is painted or varnished the infiltration is negligible.

There is no point in stressing the accuracy of these figures, as obviously they depend tremendously on the porosity of the brick, the nature of the mortar and other similar matters.

For windows, a method of estimation which has been used considerably in America, is to take the length of crack between window and window frame multiplied by an assumed thickness of crack of $\frac{1}{16}$ in. and various factors depending on the type of window.

Expressing the results in cubic feet per lineal foot of crack per hour the average

TABLE X: COMPARISON OF BUILDING INSULATING MATERIALS

Material	Thickness	Cost per sq. ft. fixed (approx.)	Coefficient of Conductivity/sq. ft./deg. diff., for thickness stated	Relative Insulation Value for Given Outlay taking 2 in. cork = 100	Position of Use
	In.	d.			
Cork	2	7	·16	100	C.R. TR
,, ...	1	4½	·32	78	W, FB
Moler Brick (Solid)	3	6⅔	·20	84	CR
,, ,, ,,	2	5	·30	75	W
Cellular Concrete (40lb./cu. ft.)	3	8½	·15	88	CR
,, ,,	2	6	·225	83	W
Hollow Clay Tiles	3	8	·90	15	CR
,, ,, ,,	2	6⅓	1·14	16	W
Fibre Board ..	½	4	·7	43	CR, TR,
,, ,, ..	1	6¼	·35	51	W, FB
Glas Silk, with Asbestos Paper Covering ..	¾	9	·35	36	TR
,, ,, ,,	½	6	·53	35	FB
Aluminium Foil on Asbestos Paper, ½ in. Gap and Wall Board ..	—	8	·30	47	TR, FB
Magnesia Filling (Dry)	1½	9	·33	37	TR
,, ,, ,,	1	6	·44	43	
Timber, T. & G., Wrot. Fir ..	1	4½	1·0	27	TR, W, FB

Position of Use: CR = On Concrete Roof. TR = On Ceiling under Tiled Roof. W = On Wall Surface. FB = In Timber Frame Building.

TABLE XI: SAVINGS DUE TO BUILDING INSULATION

Type of Construction and Insulation	Cost of Insulation after deducting saving on heating system	Saving of Fuel per annum			
		With coal or coke	Years for repayment	With electricity at ½d. per unit	Years for repayment
Case 1. Private House, 24,000 cu. ft.					
Walls, 6 in. Concrete		at 40s. ton			
Roof, 4 in. Concrete	£22	£16	1·38	£58	·38
Both with 2 in. Cork					
Ditto, with 1 in. Cork	£5	£12	·42	£43	·12
Walls, 9 in. Brick ..					
Roof, Tiles and Boards	£64	£3 16s.	16·9*	£13 18s.	4·6
Both with 2 in. Cork					
Case 2. Office Building, 500,000 cu. ft.					
Walls, 6 in. Concrete		at 30s. ton			
Roof, 6 in. Concrete	£300	£86	3·35	£350	·86
Both with 2 in. Cork					
Ditto with 1 in. Cork	£135	£65	2·1	£260	·52
Walls, 13½ in. Brick ..					
Roof, 6 in. Concrete	£515	£52	10·0*	£230	2·2
Both with 2 in. Cork					

*This case does not justify complete insulation; insulation of roof only would be justified.

figures may be said to be roughly as follows :—

Leakage of air in cu. ft. per hour per lineal foot of $\frac{1}{16}$*" crack of window opening.*

5	miles per hour	20 cu. ft.
10	" "	45 "
15	" "	70 "
20	" "	96 "
25	" "	125 "
30	" "	154 "

The figures for very well-fitting windows will obviously be less than this and loosely fitting windows correspondingly greater, but there seems little object in pursuing this matter in very great detail, because until windows are standardized no such table would be sufficiently applicable in any particular case to enable definite figures to be stated without making tests in each individual case. With timber windows, clearly the fitting depends greatly on how well the wood is seasoned and how much it shrinks and warps.

The figures do, however, illustrate the point that the amount of heat required to keep a building up to a definite temperature depends very considerably on the exposure and the wind strength.

In applying this method of estimation it is usual only to measure the foot run of crack on the windows facing in one direction, as a high wind will be definitely directional, and will only blow on one side, and the air which enters here has to find its way out from the corresponding cracks on the other wall face.

Buildings provided with ventilators and/or fireplaces obviously increase the air interchange even when there is no fire in the grate, because the air has a ready egress up the chimney flue or out of the ventilator. It is, of course, one of the virtues of the open grate that a large and fairly definite quantity of air is discharged from the room every hour, obviously finding its way in from other sources, even though the effect is generally to produce objectionable draughts.

It must be generally admitted that while the heat losses due to radiation can be estimated with considerable accuracy, the losses due to air change, often nearly as important an item, and in some cases even more so, can in most cases only be estimated very roughly. Nevertheless, by using certain constants applied to different types of building built in various ways, figures are obtained which are, at any rate, reasonably consistent among themselves and enable us to say that, as a certain building gave satisfactory results, it may reasonably be assumed that another building calculated on similar lines will also be satisfactory, and this consistency enables us to correlate our experience and make use of it in the future.

Table VIII gives, expressed as air changes per hour, a general expression, based on experience, of the minimum of air changes which ought to be allowed in the design of the heating system. It should be noted here that the first six items are based on rooms having two exposures. In the case of a room having only a single exposure these figures may be reduced by 33⅓ per cent., while with rooms having three or four aspects exposed, they may with advantage be increased by 33⅓ per cent. This hardly applies to the remainder of the figures, which, in nearly all cases, refer to buildings which already have three or four exposures.

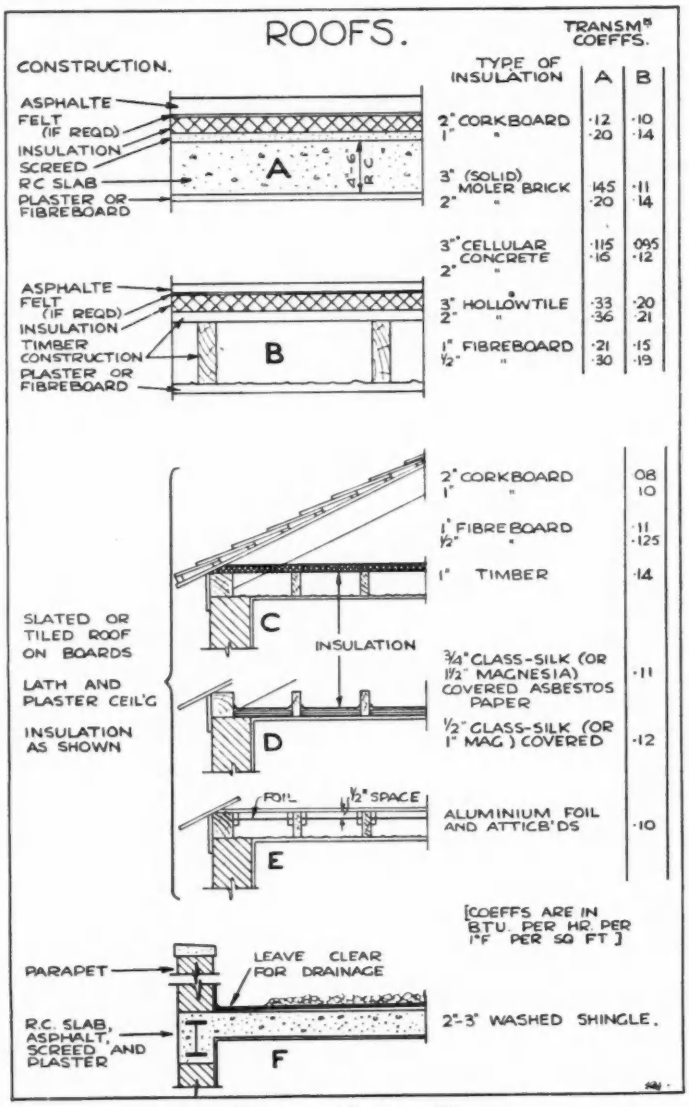


Figure 13. *See page 168.*

In the example which has already been given of the estimation of the heat losses for a single storey ward of a hospital, it will be noticed that the heat required to balance the infiltration came to 545 B.T.U.'s for air change as compared with a total of 1,790 B.T.U.'s, i.e., roughly one-third of the total or one-half of the radiation, the figures in both cases being per 1 deg. F. difference of temperature.

It has occasionally happened that heating contractors, perhaps not those of the very highest standing, in designing a heating job in keen competition, have been disposed to minimize the number of air changes and provide a scheme which may be quite inadequate except under very favourable conditions. It is a point of considerable difficulty, and the heating engineer should certainly be entirely free from any financial bias of this kind when estimating what the proper allowance ought to be.

It should also be pointed out that the Institution of Heating and Ventilating Engineers quite properly specifies that, when tests are being made, all doors and windows are to be kept closed. It is, however, obvious that in practice the doors, at any rate, have to be opened from time to time, and in the case of some factories where the products are raw materials which have to be despatched and received, this opening may be almost continuous and represent a very large air change.

It is clearly one of the responsibilities of the heating engineer to estimate the effect of what may be reasonably anticipated, and to make a suitable allowance as a margin over and above the ordinary calculations.

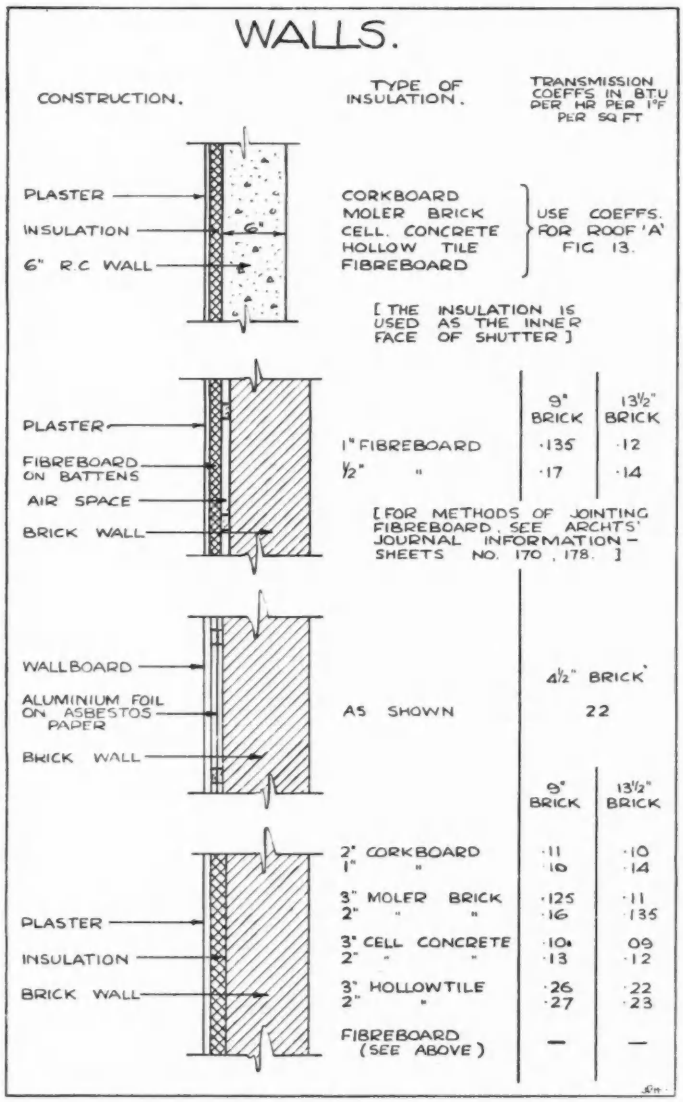


Fig. 14. *See page 168.*

LAW REPORT

ALLEGED BREACH OF COVENANT TO REPAIR.

Wood and Another v. *Cooper.—King's Bench Division. Before Mr. Justice Talbot.*

THIS was an action to recover possession of certain property at Hanging Hill Lane, Hutton, Essex, from the defendant, Mr. Thomas Cooper, on the ground of breach of covenant to repair.

The plaintiffs, Mr. H. E. Wood, of Hutton Manor, Brentwood, and Mr. A. T. F. Gear, of Hutton, Essex, claimed to be entitled to the reversion of the lease of the property, and their case was that the defendant, being in the position of the original lessee, was bound to the full extent of the covenants in the full repairing lease.

Defendant's reply was that he was not liable to do the repairs demanded, as they were due to the effect of time upon the foundations of the house, which were inadequate with regard to the soil upon which it was erected.

The house was built in 1913, according to the requirements of the original lessee and the lease contained a covenant that he would at his own cost repair, uphold, support and amend the property as occasion or need should require. There was a right of re-entry in the case of default.

A dilapidation notice was served on defendant, and he carried out certain things, but declined to do others, which involved considerable underpinning, which would cost £165.

Mr. Englebach, for the plaintiffs, contended that in law the defendant had a duty to keep the house in the state in which it was at the date of the demise. He argued that the house was not defectively built, that the soil was not abnormal for the district, and further that the foundations were quite adequate.

Mr. Charles Doughty, for the defendant, submitted that underpinning was not a repair to the fabric of the house, but an addition which made the house a different one, and was not a replacement of anything that had existed. If the house was inherently wrong from the beginning, the repairs to it were not a matter for which the tenant was liable.

His Lordship, in giving judgment, said it had not been proved that the foundations would not support the house adequately. It had been urged on behalf of the defendant that the persons who had built the house should have discovered the vein of sand in the clay and laid the foundations below it, but his Lordship was not satisfied that the defendant had established any of those points. To his mind it was clear that the words of the lease, "that the lessee should repair, renew, uphold, and support," *prima facie* covered the case for the plaintiffs, and the work which would have to be done to cure the defects and any recurrence of them. Defendant had urged that underpinning was not a "repair, supporting or amending," but to his Lordship's mind that argument was not consistent with common sense. He entered judgment for the plaintiffs for possession, with £165 and for mesne profits, with costs.

THE BUILDINGS ILLUSTRATED

Sub-Contractors' List

Following are the names of the general contractors and some of the sub-contractors for Cinema at Sutton, illustrated on pages 151-153 of this issue :—

General contractors, W. F. Blay, Ltd. Sub-contractors : Archibald D. Dawnay and Sons, Ltd., steelwork ; London Radiator Heating Co., Ltd., heating and ventilating ; Alpha Manufacturing and Electrical Co., Ltd., electrical work ; Prior Burners, Ltd., Prior stoker ; Walter Cassey, Ltd., ironmongery ; Ragusa Asphalte Paving Co., Ltd., asphalte ; Plaster Decoration Co., Ltd., fibrous plaster ; Mollo and Egan, decorations ; Pixtons, Ltd., seating and carpets ; F. H. Carpenter, draperies ; Gimson & Co., Ltd., counterweights ; Swanser and Son, canopy and handrailing, etc. ; Thomas Cook, tile and mosaic floor ; Girlings Ferro-Concrete, Ltd., precast stone, steppings and balcony steppings ; James & Co., metal windows ; Dixon and Sons, Ltd., fire protection ; Knight & Co., organ lift and fire curtain ; Edward Marshall, sanitary fittings ; Allerton & Co., cash desk ; Aldington, lightning conductor ; F. A. Norris & Co., Ltd., iron stairs ; John Compton, organ ; Universal Metal Furring and Lathing Co., Ltd., light steel fixing ; Western Electric, sound installation ; Central Joinery, flush doors ; F. H. Pride, Ltd., lighting fittings ; Helliwell & Co., Ltd., Haystack lantern and lantern lights ; Sturtevant Engineering Co., Ltd., vacuum cleaning equipment.

Manufacturers' Items

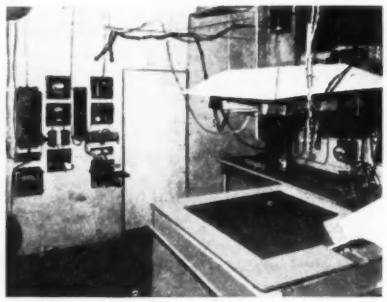
It has been pointed out to us that in our notes on the Blackpool Pleasure Beach, published in our issue for Jan. 10, we stated that the Fun House is finished in white cement stucco, and that this phrase might possibly give rise to some misconception. The fact is that the Fun House, like "Jack and Jill" and "The Whip," also illustrated in the same issue, is finished with two coats of Joseph Freeman, Sons & Co., Ltd.'s Exelaero Wall Flat, white.

*

In connection with the Blackpool Pleasure Beach, Messrs. John Booth and Sons (Bolton), Ltd., carried out the whole of the structural steelwork, glazing, laylights, handrailing, etc. for the Fun House, Miniature Railway and other buildings, and have now in hand the new "Grand National," now in course of construction.

Obituary

We regret to record the death, in his seventy-fourth year, of Mr. W. Crosier Hayne, a governing director of Moreland Hayne & Co., Ltd., constructional engineers, of 80 Goswell Road, E.C.1.



TRADE NOTES

[BY F. R. S. YORKE, A.R.I.B.A.]

Asphalte on Flat Roofs

IN my notes in the JOURNAL for December 20 I referred to a tile designed to protect roofs covered with asphalte from possible structural damage caused by solar radiation.

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The problem of expansion and contraction of roof decking, with consequent possible distortion of the external and internal walls through heat transmission, has for some time occupied the attention of the Building Research Station, and references to the subject have appeared in their annual reports in recent years, and also in their Questions and Answers published from time to time in the technical press.

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I am now informed that a special programme of research is in progress on this question, in co-operation with the Natural Asphalte Council, and although the stage has not yet been reached when final recommendations can be issued, a good deal of light has already been brought to bear on the problem and interesting facts disclosed.

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It is now clearly understood that one of the causes of structural damage in buildings due to heat transmission can be attributed to modern developments in roof design, which embody members of stronger and lighter construction than was usual in the past. The result is that the lower heat capacity of roofs through their reduced mass, in conjunction with their greater rigidity, increases their liability to excessive thermal movement during exceptionally hot weather.

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Before modern types of reinforced concrete or hollow tile blocks came into use on the present extensive scale there was considerable resistance to thermal movement by reason of the mass of the roof structure, and consequently material distortion of the sub-structure was practically unknown. That this was so is evidenced by the fact that asphalte has been the principal waterproofing medium for roofs for some 50 years, and so far as can be traced the first record of any serious structural movement appears to be as recent as 1924.

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Data now available indicates that a concrete roof decking does not become appreciably hotter when covered with asphalte than it would be if it remained uncovered, and that the asphalte actually delays the passage of heat to the concrete during the early stages of a sunshine period.

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The asphalte covering does not therefore appear the primary cause of such thermal movements.

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The most effective solution to this problem, particularly from the economic point of view, appears to be the perfection of some means of treating the asphalte, so that heat can be prevented from passing through it into the concrete or other roof structure.

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A superimposed slabbing is an alternative, but it should be remembered that the roof will be required to support its additional load.

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It is commonly stated that asphalte is black, and that on that account absorbs the sun's heat. This, however, is only a half truth. Genuine asphalte rock mastic roofs weather grey or whitish-grey. In fact, no naturally impregnated rock ordinarily used in the manufacture of asphalte remains permanently black, or even very dark in colour. Neither is genuine natural rock asphalte of good quality adversely affected by solar radiation. There is evidence that inferior grades, or those improperly manufactured, are prone to harden and crack in course of time.

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At the Building Research Station a number of asphalte samples of varying manufacture have been exposed for some time in order that comparison may be made, and by placing the hand on their surfaces on a sunny day the differences in temperature between some of the samples is stated to be apparent.

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Because the problem of roof insulation is becoming of increasing interest to architects it is encouraging to note that a section of the asphalte industry is fully conscious of its importance, and that a great deal of work, which will no doubt contribute towards a satisfactory solution, has already been done.

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As the Building Research Station has pointed out, it is improbable that one method alone will overcome all the difficulties involved, and where the modern types of lighter and more rigid forms of roof construction are employed consideration should be given not only to an exterior surface treatment, but also to provision of expansion joints, insulating material, and even to the desirability of effecting conditions for free movement between the roof system and internal partitions.

Wallpapers

There appears no reason why, when manufacturers of plywood, wallboard and wall covering materials generally are greatly concerned with the elimination of visible joints, there should be so strong a tendency for wallpaper which presents no jointing problems to be cut into tiny pieces and joined together again to produce imitation panelling, yet according to the authors of an excellent textbook* dealing with every problem of paper hanging, from the selection of tools and the preparation of paste to the setting out of an ellipse by means of a trammel, these are the days of "built-up and panelled effects," and a section of the book is devoted to diagrams showing how such effects can be produced.

•

The book contains all the information that can be required for specifying wallpaper and the preparation of surfaces to receive it. It would be a good thing if similar informative books could be produced for other trades, and a better thing if such books omitted references to design.

* *Paper Hanging*. By W. H. Cantrill and W. G. Sutherland. (The Sutherland Publishing Co.)



Paper hanging: the craftsman on the steps, with the folded paper over his left arm, and the "lip" grasped by the right hand. He has faced round to facilitate the task of the photographer, but in actual work he would, of course, be facing the wall at this stage. (From "Paper Hanging," see note on this page.)

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS).

EALING. *Houses.* Messrs. B. Smith and Son (Builders), Ltd., Greystoke Park. Estate Office. Western Avenue, W.5, are to erect 102 houses at Woodhouse Avenue, Barmouth Avenue, Rhyl Road, Colwyn Avenue and Oldfield Lane.

EALING. *Flats.* Mr. F. Lincoln Berry, architect, 74A, Holland Road, Harlesden, N.W.10, has prepared plans for Messrs. Jermey and Son, Ltd., for the erection of 10 blocks (comprising 40 flats) at Birkbeck Avenue. Messrs. Grice and Poulton, architects, 50 Baker Street, W.1, have prepared plans for the erection of three blocks containing 36 flats at Mount Avenue.

EALING. *Garage and Shops.* Mr. W. Louis Carr, architect, 10 Roy Road, Northwood, Middlesex, acting for Messrs. Hugh Dale & Co., have prepared lay-out plans for a garage, filling station and 6 shops at Church Road; garage, filling station and 26 shops at Ealing Road, Northolt; and two garages and filling stations at Church Road and Ealing Road, Northolt.

EALING. *Shops and Flats.* Mr. H. Kenchington, F.R.I.B.A., 7 Staple Inn, Holborn, W.C.1, has prepared lay-out plans for Mr. D. Kershaw for 12 shops with flats over, proposed to be erected at Medway Parade, Western Avenue.

ESHER. *Houses.* The U.D.C. have received sanction to borrow £10,645 for the erection of 30 houses in the district. The contract for the work has been placed with Mr. A. W. Sheppard, Queen's Road, Hersham.

HARROW. *Cinema.* Building operations will commence shortly upon the erection of a cinema to seat 2,000 persons, upon a site with a frontage of 250 feet to Station Road. The scheme also provides for a large ballroom to accommodate 500. With the necessary lounges, cafés, etc., together with a car park for 500 cars. The architect is Mr. F. C. Mitchell; and the contractors are Messrs. T. F. Nash, Ltd., South Harrow.

LEWISHAM. *Houses.* Plans passed by the B.C.: 59 houses, Hall Park Estate, for Messrs. A. J. Glock, Ltd.: 40 houses, Marvels Lane, for Messrs. High Thoburn, Ltd.; flats, site of 32 Belmont Hill, for Mr. P. R. Allison; flats, St. Mildred's Road, Lee, for Mr. B. G. Utting; flats, Dartmouth Road, Forest Hill, for Mr. H. R. Ward; maisonettes, Southend Lane, for Mr. T. Spencer Bright; flats, corner of Westdown Road and Ravensbourne Park, for Messrs. Howes and Belcham; land development between Bellingham Road and Whitefoot Lane for Messrs. Wates (Streatham), Ltd.

NORTHFIELDS. *Shops and Flats.* Ten shops and 12 flats are to be erected at Northfield Avenue and Windmill Road, for Mr. E. G. Mearles, to plans prepared by Mr. H. Henden Winder, architect, 10 Kingley Street, Regent Street, W.1.

NORTHOLT. *Race-course Improvements.* It is proposed to carry out extensive improvements at Northolt Park Racecourse. In addition to the erection of a public stand over the Tote building, additions are to be made to the jockey sand, bookmakers' club and ladies' room: alterations to ground and restaurant floors of grand stand and new staircase to directors' stand. The engineers and contractors are Messrs, Holland and Hannen and Cubitts, Ltd., 1 Queen Anne's Gate, S.W.1.

PERIVALE. *Factories.* Messrs. Mills and Kaula, 22 Southampton Street, W.C.1, have prepared plans for Messrs. Alderman Silk Co., Ltd., for the proposed erection of a factory at Wadsworth Road. Plans have been submitted to the Ealing T.C. by Messrs. Percy Bilton (Properties), Ltd., 113 Park Street, W.1, on behalf of Messrs. British Glaswrit, Ltd., for the proposed erection of a factory at Wadsworth Road. The plans have been approved.

PUTNEY. *Garage.* Messrs. J. Jarvis and Son, Wormwood Street, E.C.2, have secured the contract for the rebuilding of the Chelverton Road Bus Garage, for the London Passenger Transport Board.

SOUTHERN COUNTIES

BEDFORD. *Houses.* Plans passed by the Corporation: Estate lay-out, Cardington Road, for Messrs. Robinson and Hall, on behalf of Messrs. Saunderson and Brightman; shop, Tavistock Place, for Messrs. E. H. C. Inskip and Son; shop front, Granada Buildings, St. Peter's Street, for Messrs. E. Pollard & Co., Ltd., on behalf of Messrs. Clement Clarke, Ltd.; 10 houses, Manor Road, for Messrs. E. H. C. Inskip and Son, for Mr. A. Bennett; 10 houses, London Road, for Mr. J. B. Saunderson. Plans submitted: Two houses, Putnoe Lane, for Messrs. H. C. Janes, Ltd.; eight garages, Elstow Road, for Messrs. Motor Rail, Ltd.; 14 houses, Honey Hill Gardens, for Messrs. E. H. C. Inskip and Son, on behalf of Mr. R. Jeakings; 302 houses, London Road, for Messrs. H. C. Janes, Ltd.

BOURNEMOUTH. *Landing Stage.* The Corporation is to consider further proposals for the construction of a landing stage at Boscombe pier at an estimated cost of £17,000.

SOUTH-WESTERN COUNTIES

PENRYN. *Rehousing.* The T.C. have requested Mr. C. R. Corfield, A.R.I.B.A., Strand Chambers, Falmouth, to report upon the suitability of four meadows, College, for housing purposes. In view of slum clearance, the site is looked upon as suffiicent to provide for all those likely to be displaced.

SWINDON. *School.* The Education Committee has purchased a site in Crockdale Road for the erection of a secondary school.

SWINDON. *Offices.* The Minister of Health has intimated his approval in principle to the proposals of the Corporation regarding the erection of new municipal offices on the Princes Street recreation ground site.

TORQUAY. *Houses, Shops, Cinema, etc.* Plans passed by the Corporation: 12 houses, Barton Hill Road, for Messrs. H. Lloyd and Son; additions, Torbay hospital, Newton Road, for Board of Governors; two houses, Ash Hill Road, for Mr. J. T. Sture; two houses, Newton Road, for Messrs. H. Lloyd and Son; lay-out for four houses, Kingskerswell Road, for Mr. T. A. Baldwin; two houses, Trumlands Road, for Mr. J. F. Maule; four houses, Banbury estate, Shiphay, for Mr. H. Pierce; two houses, Reeves Road and Burridge Road, for Chelston Building Co. Plans submitted: Shop, Myrtle Grove, for Mr. P. A. B. Toupe; two houses, Barnfield Road, for Gower Construction Co., Ltd.; Cockington Village extension (new shopping area, etc.), for Cockington Trust, Ltd.; cinema, St. Marychurch Road, for Messrs. H. Lloyd and Son.

NORTHERN COUNTIES

ROTHERHAM. *Houses and Shops.* Plans passed by the Corporation: Two houses, Brook Hill, Thorpe, for Mr. P. Wilkinson; 12 houses, Wortley Road, for Messrs. McGeoch and Sons. Plans submitted: Three houses and shops, Fitzwilliam Road, for Miss B. Siddall.

STRETFORD. *Houses.* Plans passed by the Corporation: 33 houses, Basford Road, etc., for Messrs. Smith and Allcock; flats, Seymour Grove, for Residential Flats, Ltd.; two houses, Brooks Road, for Messrs. Smith and Allcock; 54 houses, Barkway Road, for Messrs. Freeman, Evans & Co.

TYNEMOUTH. *Reservoir.* The Corporation is in negotiation for the purchase of about nine acres of land as a site for the construction of the proposed Chirton Grange service reservoir.

TYNEMOUTH. *Houses.* The Corporation has approved lay-out plans by the Borough Engineer for the erection of 424 houses on the Ridges estate.

TYNEMOUTH. *Houses, Shops and Flats.* Plans passed by the Corporation: House and shop, Highbury Place, North Shields, for Mr. B. R. Irvin; flats, Grosvenor Place, N. Shields, for Mr. H. P. Woodall; house and shop, Coast Road, for Messrs. F. R. N. Haswell and Son; four houses and two shops, Burnside Road, Cullercoats, and amended lay-out, St. George's estate, Cullercoats, for Mr. J. R. Wallace; three bungalows, Wansbeck Avenue, for Mr. H. P. Woodall; church hall, Wallsend Road, for Mr. R. Burke; cottage homes, Mariner's Lane, for Mr. C. H. E. Bridgin, on behalf of N.E.R. Cottage Homes.

WAKEFIELD. *Baths.* The Corporation has had under consideration the question of the provision of new baths, and had now instructed the Architect to prepare plans and estimate for the erection of baths on the Sun Lane site.

WAKEFIELD. *Hospital Additions.* The Corporation has approved plans by the City Engineer for additional works at the new maternity hospital, including the provision of a porter's lodge, post-mortem room, mortuary, garages, etc., at a total estimated cost of £1,400.

WARRINGTON. *Abattoir.* The Corporation is considering a site at Latchford for the erection of a public abattoir.

WAKEFIELD. *Houses and Shops.* Plans passed by the Corporation: Two houses, Oxford Road, for Mr. W. H. Ogden; shop, Kirkgate, for Messrs. Drake and Warters; four houses, Castle Road, etc., for Mr. J. Percy Firth; two

(*Continued on page xxxiv*)



The oak panelled boardroom of the National Deposit Friendly Society's Building, Hull, showing the Hedralite built-up panel light fitting, which is 2 ft. square, with four 12 in. panels.

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
C	Airdrie	Scotland	*1 5½	1 1½
A	Aldeburgh ..	E. Counties	1 1½	10½
B	Altrincham ..	N.W. Counties	1 5½	1 1½
A	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_2	Aylesbury ..	S. Counties	1 2½	11
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
B	Barnsley ..	Yorkshire	1 5½	1 1½
A	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A_2	Boston	Mid. Counties	1 4	1 0
A	Bournemouth ..	S. Counties	1 4	1 0
B_2	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M	1 5½	1 1½
B_1	Bridgwater ..	S.W. Counties	1 3	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A	Brighton ..	S. Counties	1 4	1 0
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley	N.W. Counties	1 5½	1 1½
A	Bursiem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
B	Chatham ..	S. Counties	1 3½	11½
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_2	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A	Colchester ..	E. Counties	1 4	1 0
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_2	Dorches ..	S.W. Counties	1 2½	11
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham ..	N E. Coast	1 5½	1 1½
A_2	FASTBOURNE	S. Counties	1 4	1 0
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorgan-shire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter ..	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S. W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W. Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B	Isle of Wight ..	S. Counties	1 2	10½
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
B	Kendal	N.W. Counties	1 3½	11½
B	Keswick ..	N.W. Counties	1 3½	11½
A_2	Kettering ..	Mid. Counties	1 4½	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12–15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A	Luton	E. Counties	1 4	1 0
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLES-FIELD	N.W. Counties	1 5	1 0½
B	Maidstone ..	S. Counties	1 3½	11½
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A_1	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N.E. Coast	1 5½	1 1½
A_2	Middlewich ..	N.W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_2	Oxford	S. Counties	1 4½	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_2	Peterborough	E. Counties	1 4½	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_2	Southend-on-Sea	E. Counties	1 4½	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4	1 0
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
B	Tunbridge Wells	S. Counties	1 3½	11½
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD	Yorkshire	1 5½	1 1½
A	Walsall	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_2	Wellingborough	Mid. Counties	1 4½	1 0½
A	West Bromwich	Mid Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby	Yorkshire	1 4½	1 0½
A	Widnes	N.W. Counties	1 5½	1 1½
A	Wigan	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B_1	YARMOUTH ..	E. Counties	1 3	11½
B_1	Yeovil	S.W. Counties	1 3	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality, and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Thoug every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

	s.	d.
Bricklayer . . . . . per hour	1	7
Carpenter . . . . . ,,	1	7
Joiner . . . . . ,,	1	7
Machinist . . . . . ,,	1	8
Mason (Banker) . . . . . ,,	1	7
,, (Fixer) . . . . . ,,	1	8
Plumber . . . . . ,,	1	7
Painter . . . . . ,,	1	6
Paperhanger . . . . . ,,	1	6
Glazier . . . . . ,,	1	7
Slater . . . . . ,,	1	7
Scaffolder . . . . . ,,	1	3
Timberman . . . . . ,,	1	3
Navvy . . . . . ,,	1	2½
General Labourer . . . . . ,,	1	2½
Lorryman . . . . . ,,	1	5
Crane Driver . . . . . ,,	1	6
Watchman . . . . . per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

	£	s.	d.
Grey Stone Lime . . . . . per ton	2	2	0
Blue Lias Lime . . . . . ,,	1	16	6
Hydrated Lime . . . . . ,,	3	0	9
Portland Cement, in 4-ton lots (d/d site, including Paper Bags) . . ,,	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags) . ,,	2	6	0
White Portland Cement, in 1-ton lots ,,	8	15	0
Thames Ballast . . . . per Y.C.		6	3
¾" Crushed Ballast . . . . ,,		6	9
Building Sand . . . . ,,		7	3
Washed Sand . . . . ,,		8	3
2" Broken Brick . . . . ,,		8	0
¾" ,, ,, ... ,,		10	3
Pan Breeze . . . . ,,		6	6
Coke Breeze . . . . ,,		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

	4" s.	4" d.	6" s.	6" d.
Straight Pipes . . per F.R.	0	9	1	1
Bends . . . each	1	9	2	6
Taper Bends . . ,,	3	6	5	3
Rest Bends . . ,,	4	3	6	3
Single junctions . . ,,	3	6	5	3
Double . . ,,	4	9	6	6
Straight channels . . per F.R.	1	6	2	6
¼" Channel bends . . each	2	8	4	0
Channel junctions . ,,	4	6	6	6
Channel tapers . . ,,	2	9	4	0
Yard gullies . . ,,	6	9	8	9
Interceptors . . ,,	16	0	19	6
IRON DRAINS:				
Iron drain pipe . . per F.R.	1	6	2	6
Bends . . . each	5	0	10	6
Inspection bends . . ,,	9	0	15	0
Single junctions . . ,,	8	9	18	0
Double junctions . . ,,	13	6	30	0
Lead wool . . . lb.		6		—
Gaskin . . . ,,		5		—

BRICKLAYER

	£	s.	d.
Flettons . . . . . Per M.	2	18	0
Grooved do. . . . . ,,	3	0	0
Phorpres bricks . . . . ,,	2	17	3
,, Cellular bricks . . ,,	2	17	3
Stocks, 1st quality . . . ,,	4	11	0
,, 2nd ,, . . . ,,	4	2	6
Blue Bricks, Pressed . . ,,	8	17	6
,, Wirecuts . . ,,	7	17	6
,, Brindles . . ,,	7	0	0
,, Bullnose . . ,,	9	0	0
Red Sand-faced Facings . ,,	6	18	6
Red Rubbers for Arches . ,,	12	0	0
Multicoloured Facings . . ,,	7	10	0
Luton Facings . . . ,,	7	10	0
Phorpres White Facings . ,,	3	17	3
,, Rustic Facings . ,,	3	12	3
Midhurst White Facings . ,,	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:			
Stretchers . . . . . ,,	21	0	0
Headers . . . . . ,,	20	10	0
Bullnose . . . . . ,,	27	10	0
Double Stretchers . . . ,,	29	10	0
Double Headers . . . ,,	26	10	0
Glazed Second Quality, *Less* . ,,	1	0	0
,, Buffs and Creams, *Add* . ,,	2	0	0
,, Other Colours . . ,,	5	10	0
2" Breeze Partition Blocks . per Y.S.		1	7
2½" ,, ,, ,, . .		1	10
3" ,, ,, ,, . .		2	1
4" ,, ,, ,, . .		2	6

MASON

	s.	d.
The following d/d F.O.R. at Nine Elms:		
Portland stone, Whitbed . . F.C.	4	4½
,, ,, Basebed . . ,,	4	7½
Bath stone . . . . . ,,	2	10
York stone . . . . . ,,	6	6
,, ,, Sawn templates . . ,,	7	6
,, ,, Paving, 2" . . . F.S.	1	8
,, ,, ,, 3" . . . ,,	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

	£	s.	d.
24" × 12" Duchesses . . per M.	28	17	6
22" × 12" Marchionesses . ,,	24	10	0
20" × 10" Countesses . . ,,	19	5	0
18" × 10" Viscountesses . ,,	15	10	0
18" × 9" Ladies . . . ,,	13	17	6
Westmorland green (random sizes) . per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:			
20" × 10" medium grey per 1,000 (actual)	21	11	6
,, ,, green ,, ,,	24	7	4
Best machine roofing tiles . ,,	4	10	0
Best hand-made do. . . ,,	5	0	0
Hips and valleys . . . each			9½
,, hand-made . . . ,,			10
Nails, compo . . . . lb.		1	4
,, copper . . . . ,,		1	6

CARPENTER AND JOINER

	s.	d.
Good carcassing timber . . F.C.	2	2
Birch . . . . . as 1" F.S.		9
Deal, Joiner's . . . . ,, ,,		5
,, 2nds . . . . ,, ,,		4
Mahogany, Honduras . . ,, ,,	1	3
,, African . . . ,, ,,	1	1
,, Guban . . . ,, ,,	2	6
Oak, plain American . . ,, ,,	1	0
,, Figured ,, . . ,, ,,	1	3
,, Plain Japanese . . ,, ,,	1	2
,, Figured ,, . . ,, ,,	1	5
,, Austrian wainscot . ,, ,,	1	6
,, English . . . ,, ,,	1	11
Pine, Yellow . . . ,, ,,	1	0
,, Oregon . . . ,, ,,		4
,, British Columbian . ,, ,,		4
Teak, Moulmein . . ,, ,,	1	3
,, Burma . . . ,, ,,	1	2
Walnut, American . . ,, ,,	2	3
,, French . . . ,, ,,	2	3
Whitewood, American . ,, ,,	1	1

Deal floorings,	¾"	1"	1¼"	1½"	2"
	s. d.	s. d.	s. d.	s. d.	s. d.
,,			1 1	1 2	1 3
,,			1 2	1 5	1 6
,,			1 5	1 10	1 11
,,			1 10	2 0	2 2
Deal matchings			14 0	15 6	16 6
,,			15 6	16 6	17 6
,,			1 4	1 6	1 8
Rough boarding			16 0	18 0	1 0
,,			18 0	1 0	1 2
,,			1 6	1 8	1 10

Plywood, per ft. sup. —Thickness	¼"	⅜"	½"	¾"	1"
Qualities	AA.A.B.	AA.A.B.	AA.A.B.	AA.A.B.	AA.A.B.
	d. d. d.	d. d. d.	d. d. d.	d. d. d.	d. d. d.
Birch.	4 3 2	5 4 3	7½ 6 4½	8½ 7 6	
Alder.	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6	
Gaboon					
Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –	
Figured Oak					
1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –	
Plain Oak.					
1 side	6½ 6 –	7½ 7 –	9½ – –	1/- – –	
Oregon P.ne	5 4 –	5½ 5 –	6 – –	– – –	

	d.
Scotch glue . . .	lb. 8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	¼"	⅜"	½"	¾"	1"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23½" long each	10	1/1	1/11	2/8	4/9
,, 3"-11½" long ,,	7	9	1/3	1/8	3/-
Long screws, 12"-23½" long ,,	11	1/3	2/2	2/10	5/3
,, 3"M-½" long ,,	8	10	1/5	1/11	3/6
Bends . . . ,,	8	11	1/7½	2/7½	5/2
Springs not socketed . ,,	5	7	1/1½	1/11½	3/11
Socket unions . . ,,	2/-	3/-	5/6	6/9	10/-
Elbows, square . . ,,	10	1/1	1/6	2/2	4/3
Tees . . . ,,	1/-	1/3	1/10	2/6	5/1
Crosses . . . ,,	2/2	2/9	4/1	5/6	10/6
Plain Sockets and nipples ,,	3	4	6	8	1/3
Diminished sockets . ,,	4	6	9	1/-	2/-
Flanges . . . ,,	9	1/-	1/4	1/9	2/9
Caps . . . ,,	3½	5	8	1/-	2/-
Backnuts . . . ,,	2	3	5	6	1/1
Iron main cocks . . ,,	1/6	2/3	4/2	5/4	11/6
,, ,, with brass plugs ,,	—	4/-	7/6	10/-	21/-

Discounts:

TUBES.	Per cent.		Per cent.
Gas . . .	65	Galvanized gas .	52½
Water . . .	61½	,, water	47½
Steam . . .	57½	,, steam	42½
FITTINGS.			
Gas . . .	57½	Galvanized gas	47½
Water . . .	52½	,, water	42½
Steam . . .	47½	,, steam	37½

SMITH AND FOUNDER—*continued*

	s.	d.
Rolled steel joists cut to length . . cwt.	10	9
Mild steel reinforcing rods, ⅜" . . ,,	8	6
,, ,, ½" . . ,,	8	3
,, ,, ⅝" . . ,,	8	0
,, ,, ¾" . . ,,	7	6
,, ,, ⅞" . . ,,	7	6
,, ,, 1" . . ,,	7	6
,, ,, 1¼" . . ,,	7	6
,, ,, 1½" . . ,,	7	6

Cast-iron rain-water pipes of ordinary thickness metal .	3" s.	3" d.	4" s.	4" d.
	F.R.	8		10
Shoes	each	2	0	3	0
Anti-splash shoes . .	,,	4	6	8	0
Boots	,,	3	0	4	0
Bends	,,	2	7	3	9
,, with access door . .	,,	—		6	3
Heads	,,	4	6	5	0
Swan-necks up to 9" offsets .	,,	3	9	6	0
Plinth bends, 4½" to 6" .	,,	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal .	F.R.	5		6	
Stop ends	each	6		6	
Angles	,,	1	7	1	11
Obtuse angles . . .	,,	2	0	2	6
Outlets	,,	1	9	2	3

PLUMBER

	£	s.	d.
Lead, milled sheets . . . cwt.	18	6	
,, drawn pipes . . . ,,	17	0	
,, soil pipe . . . ,,	18	6	
,, scrap . . . ,,	10	6	
Solder, plumbers' . . . lb.		9½	
,, fine do. . . . ,,	1	0	
Copper, sheet . . . ,,		8½	
,, tubes . . . ,,		11	

L.C.C. soil and waste pipes:	3"	4"	6"
Plain cast . . F.R.	1 0	1 2	2 6
Coated . . ,,	1 1	1 3	2 8
Galvanized . . ,,	2 0	2 6	4 6
Holderbats . . each	3 10	4 0	4 9
Bends . . . ,,	3 9	5 3	10 3
Shoes . . . ,,	2 10	4 4	9 6
Heads . . . ,,	4 8	8 5	12 9

PLASTERER

	£	s.	d.
Lime, chalk . . . per ton	2	5	0
Plaster, coarse . . . ,,	2	10	0
,, fine . . . ,,	4	15	0
Hydrated lime . . . ,,	3	0	9
Sirapite . . . . ,,	3	6	0
Keene's cement . . . ,,	5	0	0
Gothite Plaster . . . ,,	3	6	0
Pioneer Plaster . . . ,,	3	3	0
Thistle Plaster . . . ,,	3	6	0
Sand, washed . . . Y.C.		11	6
Hair . . . . lb.			6
Laths, sawn . . . bundle		2	4
,, rent . . . ,,		3	9
Lath nails . . . lb.			3½

GLAZIER

	s.	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.			s. F.S.	2½
,, ,, 26 oz. ,, ,,			,,	3
Flemish, Arctic, Figured (white)*			,,	7
Blazoned glasses . .			,,	2 6
Reeded; Cross Reeded			,,	11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite				6½
Crown sheet glass (n/e 12 in. x 10 in.)			,,	2 0
Flashed opals (white and coloured)	,,	1 0	and	2 0
¼" rough cast; rolled plate .			,,	5½
¼" wired cast; wired rolled .			,,	9½
¼" Georgian wired cast .			,,	11
¼" Polished plate, n/e 1 ft.			† 10 to ‡1	1
,, ,, 2 ,,			†1 2 ,, ‡1	4
,, ,, 4 ,,			†2 3 ,, ‡2	6
,, ,, 8 ,,			†2 9 ,, ‡3	2
,, ,, 20 ,,			†3 7 ,, ‡4	2
,, ,, 45 ,,			†3 11 ,, ‡4	7
,, ,, 100 ,,			†5 0 ,, ‡5	7
Vita glass, sheet, n/e 1 ft.			,,	1 0
,, ,, 2 ft.			,,	1 3
,, ,, ,, over 2 ft.			,,	1 9
,, ,, plate, n/e 1 ft.			,,	1 6
,, ,, 2 ft.			,,	3 0
,, ,, 5 ft.			,,	4 0
,, ,, 7 ,,			,,	5 0
,, ,, 15 ,,			,,	6 0
,, ,, ,, over 15 ,,			,,	7 6
"Calorex" sheet 21 oz., and 32 oz.	,,	2 6	and	3 6
,, rough cast ¼" and ½"			,,	8½ ,, 1 0
Putty, linseed oil . .		lb.		3

* *Colours*, 1d. *F.S. extra.*
†*Ordinary glazing quality.* ‡*Selected glazing quality.*

PAINTER

	£	s.	d.
White lead in 1 cwt. casks . . cwt.	2	6	0
Linseed oil . . . gall.		2	2½
Boiled oil . . . ,,		2	4½
Turpentine . . . ,,		4	1½
Patent knotting . . . ,,		14	0
Distemper, washable . . cwt.	2	6	0
,, ordinary . . ,,	2	0	0
Whitening . . . ,,		4	0
Size, double . . . firkin		3	0
Copal varnish . . . gall.		13	0
Flat varnish . . . ,,		14	0
Outside varnish . . . ,,		16	0
White enamel . . . ,,	1	15	0
Ready mixed paint . . ,,		13	0
Brunswick black . . ,,		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR

		£ s. d.
Digging over surface n/e 12" deep and cart away	Y.S.	2 9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.	8 6
" to form basement n/e 5' 0" deep and cart away	"	9 0
" " 10' 0" deep and cart away	"	9 6
" " 15' 0" deep and cart away	"	10 0
If in stiff clay	add "	6
If in underpinning	"	4 0
Planking and strutting to sides of excavation	F.S.	1 0
" " to pier holes	"	5
" " to trenches	"	5
" " extra, only if left in	"	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	"	1 6 0
" " (4-2-1)	"	1 12 6
" " underpinning	"	1 16 0
Finishing surface of concrete, spade face	Y.S.	7

DRAINLAYER

		4" s. d.	6" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER

		£ s. d.
Brickwork, Flettons n lime mortar	Per Rod	27 10 0
" " in cement	"	28 15 0
" Stocks in cement	"	35 0 0
" Blues in cement	"	52 0 0
Extra only for circular on plan	"	2 0 0
" backing to masonry	"	1 10 0
" raising on old walls	"	2 0 0
" underpinning	"	5 10 0½
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	"	8
" " " red brick facings and pointing	"	11
" " " blue brick facing and pointing	"	1 4
" " " glazed brick facings and pointing	"	3 6
Tuck pointing	"	7½
Weather pointing in cement	"	3
Slate dampcourse	"	10
Vertical dampcourse	"	1 1

ASPHALTER

		s. d.
½" Horizontal dampcourse	Y.S.	4 6
½" Vertical dampcourse	"	6 9
½" paving or flat	"	4 0
1" paving or flat	"	5 6
1" × 6" skirting	F.R.	1 0
Angle fillet	"	2
Rounded angle	"	2
Cesspools	Each	5 0

MASON

		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	"	13 6
Artificial stone and do.	"	13 0
York stone templates, fixed complete	"	10 6
" thresholds	"	13 6
" sills	"	1 0 6

SLATER AND TILER

		£ s. d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3 10 0
Do., 18" × 9"	"	3 7 0
Do., 24" × 12"	"	3 17 0
Westmorland slating, laid with diminished courses	"	6 0 0
Tiling, best hand-made sand-faced, laid to a 4" gauge, nailed every fourth course	"	3 0 0
Do., all as last, but of machine-made tiles	"	2 16 0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	4 6 0
" " " " " " (green)	"	4 15 0

CARPENTER AND JOINER

		£ s. d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2 5 0
Shuttering to sides and soffits of beams	F.S.	8
" to stanchions	"	8
" to staircases	"	1 8
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	"	4 6
" " roofs	"	6 6
" " trusses	"	7 6
" " partitions	"	8 6
½" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" " " " "	"	1 17 6
1½" " " " "	"	2 3 0
3" × 2" fir battening for Countess slating	"	9 6
Do. for 4" gauge tiling	"	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
" " " 2 "	"	2 9
" " " 3 "	"	3 3
Stout herringbone strutting to 9" joists	F.R.	10½
1" deal gutter boards and bearers	F.S.	1 2
1½" " " " "	"	1 6
2" deal wrought rounded roll	F.R.	8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼" do.	"	2 10 0
1½" do.	"	2 17 0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1½" do.	"	1 9

CARPENTER AND JOINER—*continued*

		s. d.
1½" deal moulded sashes of average size	F.S.	1 9½
2" " " "	"	1 11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1½" pulley stiles, 1½" heads, 1" inside and outside linings, ¾" parting beads, and with brass faced axle pulleys, etc., fixed complete	"	3 7
2" " " "	"	3 10
Extra only for moulded horns	Each	6
1½" deal four-panel square, both sides, door	F.S.	2 0
2" " " "	"	2 8
1½" " but moulded both sides	"	2 4
2" " " "	"	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" " " "	"	1 4
1½" deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1½" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
1½" deal moulded wall strings	"	2 1
1½" " outer strings	"	2 4
Ends of treads and risers housed to string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1½" × 1½" " " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

SMITH AND FOUNDER

		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	15 6
Riveted plate or compound girders, and hoisting and fixing in position	"	19 6
Do. stanchions with riveted caps and bases and do.	"	19 0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	"	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER

		£ s. d.
Milled lead and labour in flats	cwt.	1 12 0
Do. in flashings	"	1 15 6
Do. in covering to turrets	"	2 3 0
Do. in soakers	"	1 7 6
Labour to welted edge	F.R.	3½
Open copper nailing	"	3
Close " "	"	4

		½" s. d.	¾" s. d.	1" s. d.	1½" s. d.	2" s. d.	4" s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks	"	—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	3 9	5 0	8 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—

		s. d.
4" cast-iron ½-rd. gutter and fixing	F.R.	1 0
Extra, only stop ends	Each	1 0
Do. angles	"	1 6
Do. outlets	"	2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1 2
Extra, only for shoes	Each	1 3
Do. for plain heads	"	5 6

PLASTERER AND TILING

		s. d.
Expanded metal lathing, small mesh	Y.S	2 0
Do. in n/w to beams, stanchions, etc.	"	2 9
Lathing with sawn laths to ceilings	"	1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1 5
Do. vertical	"	1 7
Rough render on walls	"	1 2½
Render, float and set in lime and hair	"	1 9
Render and set in Sirapite	"	1 11
Render, backing in cement and sand, and set in Keene's cement	"	2 9
Extra, only if on lathing	"	4
Keene's cement, angle and arris	F.R.	6
Arris	"	1½
Rounded angle, small	"	3
Plain cornices in plaster, including dubbing out, per 1" girth	"	1½
1" granolithic pavings	Y.S.	3 6
1½" " "	"	4 6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17 6
9" × 3" " " "	"	1 2 6
Extra, only for small quadrant angle	F.R.	8

GLAZIER

		s. d.
21 oz. sheet glass and glazing with putty	F.S.	7½
26 oz. do and do.	"	8½
Flemish, Arctic Figured (white) and glazing with putty	"	1 1
Cathedral glass and do.	"	1 2
Glazing only, British polished plate	"	7
Extra, only if in beads	"	2
Washleather	F.R.	4

PAINTER

		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	"	9
Do. with washable distemper	"	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3 3
Do. on woodwork	"	3 6
Do. on steelwork	"	3 0
Do. and brush grain and twice varnish	"	5 6
Stain and twice varnish woodwork	"	1 11
Stain and wax-polish woodwork	"	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper	from	2 9

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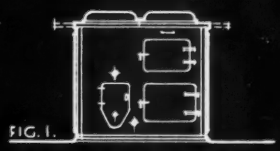


FIG. 1. STANDARD: S.B. Cooker only.

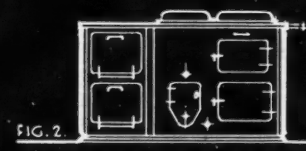


FIG. 2. STANDARD COOKER: S.B. 21. (Hot cupboard at left.)

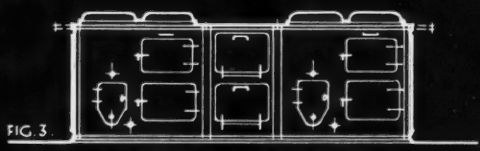
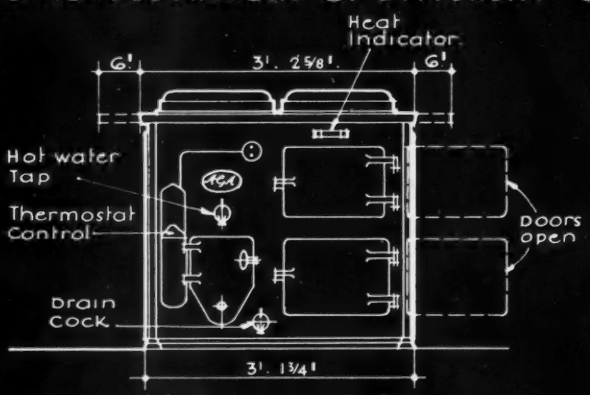
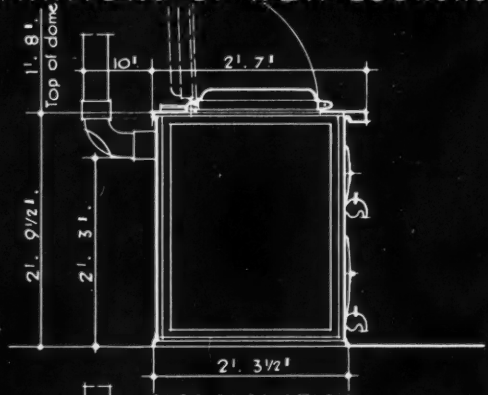


FIG. 3. STANDARD COOKER: S.B. 42. (Two stand cookers with hot cup'bd. between)

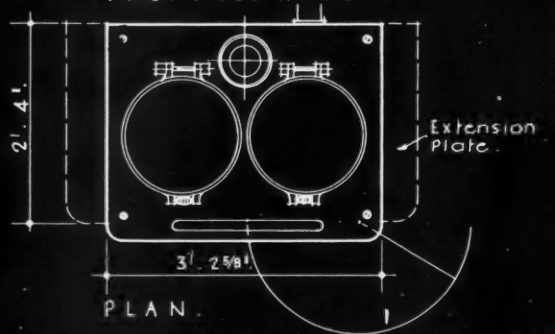
DIAG. ELEVATIONS OF DIFFERENT COMBINATIONS OF AGA COOKERS.



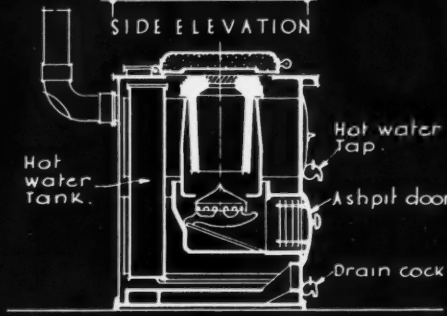
FRONT ELEVATION.



SIDE ELEVATION

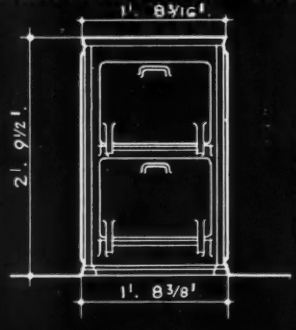


PLAN.

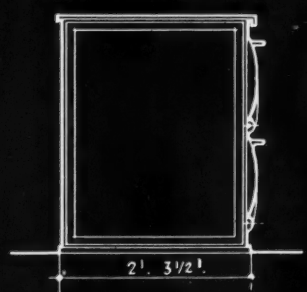


SECTION THRU FIRE UNIT.

DIAGRAMMATIC ELEVATIONS AND SECTIONS OF THE STANDARD S.B. COOKER

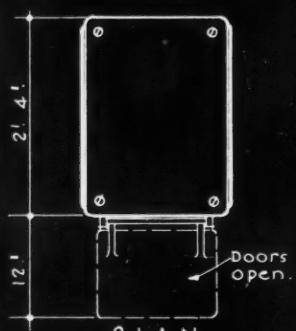


DIAGRAMMATIC ELEVATIONS AND SECTIONS OF THE STANDARD 21" HOT-CUPBOARD.

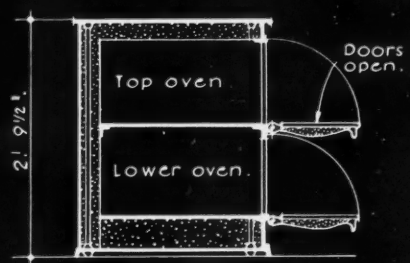


SIDE ELEVATION

This hot-cupboard is used in conjunction with the standard S.B. cooker. for various arrangements see diagrams at the top of this sheet.



PLAN.



SECTION THRU OVENS.

Information from Aga Heat Ltd.

INFORMATION SHEET: KITCHEN EQUIPMENT: THE AGA COOKER.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS. ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1.

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

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KITCHEN EQUIPMENT

Name of Product: The Aga Cooker

The Aga cooker has been designed to secure the greatest possible fuel economy, and the total maximum annual fuel cost for all models is guaranteed.

The fire requires attention only twice in 24 hours and burns continually day and night. The cooker is always ready for use.

Specification :

The whole of the fire assembly is manufactured from a special fire-resisting chrome steel alloy. The ovens, etc., are made of cast iron.

The ten gallon water tank is of copper, tin lined.

The whole cooker is insulated with a highly efficient insulating powder.

The fuel recommended is small gas coke.

The temperature of the whole cooker is automatically controlled by a thermostat.

The cooker is fitted with a device which positively prevents overheating should the ashpit door be left open, allowing an uncontrolled supply of air to the fire.

Finish :

The cooker is finished in vitreous enamel, the front and sides cream and the top black. All exterior metal parts, including the insulating lids of the hot plates, are chromium plated.

Installation :

The cooker is assembled on the site by the trained fitter of the manufacturers, or one of their accredited agents.

Flues :

The flue from the cooker can be connected to the main chimney either by means of a specially built-in brick flue, or by 3½ in. internal diameter asbestos-cement pipe. Further particulars may be obtained from the manufacturers.

Capacity :

Owing to the difference in menus it is difficult to lay down any rules as to the capacity of each model. A general idea is given below and the manufacturers are always prepared to advise on the most suitable model on receipt of specimen menus and numbers to be catered for.

Fig. 1 :

The Standard S.B. Aga Cooker is suitable for medium households.
Fuel consumption. £4 per annum.
Price. £62 plus from £5 10s. for delivery and erection.
Weight. 12 cwt.

Fig. 2 :

The S.B. 21 Aga Cooker is suitable for larger households.
Fuel consumption. £5 per annum.
Price. £78 plus from £5 10s. for delivery and erection.
Weight. 15 cwt.

Fig. 3 :

The S.B. 42 Aga Cooker suitable for small hotels, schools, hospitals, etc.
Fuel consumption. £9 per annum.
Price. £140 plus from £9 for delivery and erection.
Weight. 27 cwt.

The word "Aga" is the registered trade mark of Aga Heat, Ltd.

Name of Manufacturers : Aga Heat Limited

Address : Orchard House, 456-466, Oxford Street, London, W.1

Showrooms : 20, North Audley Street, London, W.1 (Just opposite Selfridge's)

Telephone : Mayfair 6131 (5 lines)

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For characteristics of White Pigments see back of this sheet

SUMMARY OF REQUIREMENTS FOR PAINTING VARIOUS SURFACES

NEW INTERIOR CEILINGS AND WALLS:		NOTES FOR SPECIFICATION CLAUSES:
New Asbestos Sheets:	three coats, flat paint finish.	Knot; prime with thinned water paint; paint two coats White Lead, second coat flatted & stippled.
New Asbestos Sheets and wood battens	three coats, flat paint finish.	As above. For glossy finish to fillets, apply one coat of pale copal varnish.
New Relief Material:	to be painted, three coats.	1ST coat oily; stop; second coat oily, third coat to be flatted and stippled.
New Compo or Fibre Board	three coats, flat paint finish.	Knot, prime & stop strips. Paint 3 coats, 3rd flatted & stippled. Prime back of boards before fixing.
New Compo or Fibre Board	three coats, to be papered.	Knot, prime & stop strips. Paint three coats, finished flat. Prime back of boards before fixing.
New Compo or Fibre Board	three coats, water paint finish.	Knot, prime & stop strips. Prime boards both sides, fix and paint two coats of water paint.
New Compo or Fibre Board	3 coats & varnish high gloss finish.	Knot, prime & stop strips. Paint 3 coats, 3rd flatted, & 1 coat varnish. Prime back of boards before fixing.

NEW EXTERIOR WOODWORK:			
New Wood:	to be grained Oak.	three coats, grain & varnish.	Twice knot & prime before fixing. Stop, and paint two coats. Oil grain, & apply one coat varnish.
New Wood:	to be grained Mahogany etc.	three coats, grain & varnish.	Twice knot & prime before fixing. Stop, paint two coats, grain and apply two coats of varnish.
New Wood:	to be grained any wood effect.	three coats, grain & varnish.	Twice knot & prime before fixing. Stop & paint two coats, brush grain & apply 1 coat varnish.

NEW INTERIOR WOODWORK:			
New Wood:	to be grained Oak.	three coats, grain & varnish.	Twice knot & prime before fixing. Stop, and paint two coats, grain & apply one coat of varnish.
New Wood:	to be grained Mahogany etc.	three coats, grain & varnish.	Twice knot & prime before fixing. Stop, paint two coats, grain & apply two coats of varnish.
New Wood:	to be grained any wood effect.	three coats, grain & varnish.	Twice knot & prime before fixing. Stop & paint two coats, brush grain & apply 1 coat varnish.

GENERAL NOTE ON GRAINING PROCESSES

Graining in oak and brush graining in all colours is usually done in oil colours and one coat of varnish is generally sufficient. Graining in mahogany, rosewood, walnut, etc. is generally done in water colour and two coats of varnish are, therefore, required. In the case of flat finishes, to ensure a more durable result, flat varnishes should always be applied over a preliminary coat of gloss varnish.

The material given above has been extracted from "White Lead Paints, a book of reference for Architects, Surveyors & Engineers," published by the White Lead Publicity Bureau.

INFORMATION SHEET: THE USE OF LEAD PAINTS FOR VARIOUS PURPOSES

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

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INFORMATION SHEET

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WHITE LEAD PAINTS

This Sheet gives the number of coats of paint recommended for various surfaces, together with notes for specification clauses. It completes that section of painting work which was begun with Sheet No. 126 (published July 12, 1934)—i.e., painting on New Surfaces.

The material given in these Sheets has been condensed from "White Lead Paints, Why, When and How Specified. A Book of Reference for Architects, Surveyors and Engineers." Published by the White Lead Publicity Bureau.

Chief Characteristics of White Pigments Used in Paints

I.—White Lead.

The principal characteristics of White Lead as a pigment are that when mixed with linseed oil and dried in a paint film it enters into chemical combination and a lead soap is formed, which has the effect of making the resultant paint film elastic, so enabling it to expand and contract with changes in temperature in unison with the surface to which it has been applied. The consequent waterproof character of a White Lead paint film is one of its most important features. Surfaces so painted wear evenly, making preparation of them for repainting both easy and cheap. Compared with other white pigments, the body and hiding power (opacity) of White Lead paint is good. White Lead paint is, however, in some circumstances, affected by sulphide gases in the atmosphere, and if exposed under these conditions may eventually become discoloured, especially if of an originally light colour. Many other white pigments are less visibly affected by these gases, which exist in most industrial cities, and give rise to far more detrimental results. It should be noted, for instance, that whereas in the case of paints made from some other pigments, chemical gases frequently disintegrate the whole film, White Lead paints, even when affected by sulphide gases, do not in any degree lose their protective power and the film remains intact. It is only from the decorative standpoint that their value is at all affected.

II.—Zinc Oxide.

The particles of zinc oxide are extremely minute and have a lower specific gravity than White Lead ; hence a higher oil absorption and consequently rather less body in a given volume of paint. Paints made from zinc oxide and linseed oils dry with a hard and inelastic film, which is inclined to become brittle and crack on exposure to weather.

The colour of the best qualities of zinc oxide is very good, and this pigment is used with considerable success for interior decoration and as a base for hard gloss paints and enamels ; but the greatest defect of paint made of zinc oxide is that when sulphuric acid is present in the atmosphere, as in most industrial towns, it induces the formation of zinc sulphate, which is soluble in water, so that any film of zinc paint exposed under such conditions is quickly destroyed by rain and storms.

III.—Lithopone.

This is a pigment composed of a combination of zinc sulphide and barium sulphate, the proportions of which vary in the different grades in common use. Lithopone has a high opacity and the best grades are of good colour. It is used as a base for many of the less expensive gloss paints, and in large quantities in the manufacture of water paints. Owing to its comparative cheapness, it has frequently been employed as a base for so-called exterior paints, but in this respect it compares most unfavourably even with zinc oxide. When lithopone is mixed with linseed oil there is no chemical reaction as in the case of White Lead, and paints made from it rapidly disintegrate when exposed to the weather.

IV.—Titanium White.

This white pigment has become of industrial importance only within recent years. It consists of a mixture of titanium oxide with barium sulphate. The outstanding features of titanium white are that it has a low specific gravity coupled with a high refractive index, giving it a very high opacity and, when made into paint, a larger spreading power than has White Lead. Chemically, it is inert, and does not combine with linseed oil in the same way as does White Lead, but it keeps its white colour even in the presence of impure industrial atmospheres. In paint form it is good for interior work, but chalks excessively on outside exposure. It is, therefore, suitable for painting such places as the interiors of chemical laboratories, but, generally speaking, it is more valuable as an ingredient in mixed paint, in combination with other pigments, than by itself.

Other White Pigments.

Without going into too many technical details, the foregoing gives a brief account of the salient features of the white pigments in most general use as bases of paint. There are, of course, a large number of pigments which have not been described. Most of these are used, owing to their cheapness, for increasing the bulk of prepared paints. The best known pigment in this category is undoubtedly Barytes, or barium sulphate, which is very largely used in conjunction with other pigments, but is of no value when ground in a linseed oil medium by itself. Barytes is sometimes mixed with White Lead in certain recognised proportions—the resulting mixture is known as "Reduced White Lead," and has not the guarantee of Genuine White Lead.

Source of Information : The White Lead Publicity Bureau

Address : Rex House, 38 King William Street, London, E.C.4

Telephone : Mansion House 2856-2857

ARCHITECTS ON STAMPS

THE NEW AUSTRIAN ISSUE



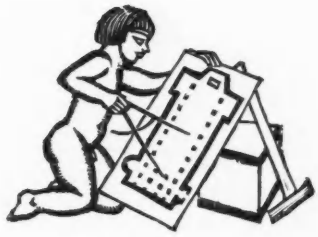
AUSTRIA has just issued a set of six postage stamps each containing a portrait of an Austrian architect. The architects selected for this philatelic canonisation are: 12 groschen stamp, Anton Pilgram (the early sixteenth-century designer of the pulpit and chancel of the Stefansdom); 24 groschen, Fischer von Erlach (1656-1713, the genius of the Austrian Baroque) with the Vienna Karlskirche in the background; 30 groschen, Jakob Prandtauer (1658-1726), and the Abbey of Melk; 40 groschen, A. von Siccardsburg (1812-1868) and E. van der Nüll (1813-1868), who were jointly responsible for the Vienna Opera House; 60 groschen, Heinrich von Ferstel (1828-1883), the Votivkirche, Vienna; and 64 groschen, Otto Wagner (1841-1918), for whose achievements as one of the pioneers of modern building contemporary architects cannot be too grateful. The last shows also the bridge-head of the Nussdorfer Lock on the Danube Canal.





BUILDING SITE

Brook Green, Hammersmith, is the only public open space in the 2½ miles between Kensington Gardens and Ravenscourt Park. To the people of Hammersmith, consequently, it is of the greatest value, and they placed its care in the hands of the Hammersmith Borough Council. The Council and the Council's architect have decided that it should be used as a building site for their new Town Hall, and offer in exchange to provide public tennis courts on a piece of land they have acquired not far away. Residents' protests which, we understand, have been successful in saving the Green, are referred to in the leading article opposite. Above, in summer : left, a fine tree in winter.



SAVING THE GREEN

THE Green Belt has been in the news. Congratulations are being rightly offered to the L.C.C. on their decision to contribute a share of the cost of preserving a belt of green land around London—a praiseworthy attempt (if a belated one, for the idea was recommended two years ago by the Greater London Regional Planning Committee and had been advocated by Sir Raymond Unwin for many years before that) to ensure before it is too late the reservation of at least some amount of open space permanently accessible from outlying built-up areas. Response from local authorities will, it is hoped, be sufficient to provide a definite check on the increasing rapidity with which valuable open space is being swallowed up by the extending boundaries of unplanned suburbia; but the attitude that has recently come to light of one local authority to the question of green spaces is not a good omen of the way others are likely to regard their similar responsibilities. This disturbing example is not merely a case of a lost opportunity of acquiring a new open space, but of a wanton decision that a long-established one should be destroyed.

It is almost incredible that a Borough Council, to whom is entrusted the guardianship of the health and well-being of its area, should be the very body that is willing to sacrifice one of that area's greatest amenities —an open space in a borough where open spaces are all too few; yet such exactly is what has occurred in Hammersmith. The Hammersmith Borough Council, feeling itself in need of a new Town Hall, blandly decided to build one on Brook Green—the only public open space in the 2½ miles between Kensington Gardens and Ravenscourt Park, and one that, under the Metropolitan Commons Supplemental Act of 1881, is dedicated "for the use and recreation of the public as an open space for ever."

Even the name, Brook Green, is a refreshing thing to find on a map of the uninspiring area of depressing streets that constitutes London's Middle West. Signs of a brook have long since disappeared, but the green oasis fortunately remains, more carefully cherished by succeeding generations of Londoners as rural escape becomes more difficult. That this most valuable "lung"—the essential playground of Hammersmith's children—should become a building site would be a piece of vandalism for which no condemnation could be too strong. The health of the inhabitants of the borough, largely dependant on adequate fresh air, is so much more important a consideration than any grandiose expression of municipal megalomania, that the sacrifice of one to the other should be unthinkable. Yet, this self-evident fact notwithstanding, the proposal to build on Brook Green might easily have been translated into irrevocable action: the scheme for doing so was apparently agreed upon in private by the Council, who would have been able to proceed with it unhindered had not news of the Council's intentions reached some residents in the Brook Green Ward, who immediately organized themselves in protest. A Brook Green Defence Committee was formed and, so energetic and well-supported were the efforts of its organizers, Mrs. Baron and Mr. R. A. Duncan, that, as we now understand, the Green has been saved—saved, be it noted, from its appointed guardians.

Despite this satisfactory outcome it still remains a disturbing thought that a local authority is able to make decisions that vitally affect the lives of residents without having to disclose any details, and that a private Act can in effect nullify the safeguarding virtues of an Act of Parliament.

There is one further aspect of this case, one that, for the architectural profession, is particularly disturbing—not to say humiliating. The recommendation for the adoption of the Brook Green site for the new Town Hall originated, it appears, with the architect. For a comment on this fact we cannot do better than quote the words of the deputation of voters and rate-payers that last week attended a Council meeting to protest against the proposal: "One can very well appreciate how an architect would much prefer an open space for such a building. What could an architect desire more than a site giving him four unrestricted elevations? But, ladies and gentlemen, is Brook Green to be maimed for all time as an open space to provide an architect with a site to his liking." This association of the architectural profession with the forces of a social officialdom and antagonism to the larger planning issues, whether justified or not, cannot be anything but humiliating to every architect. The profession has been deploring the sordid waste that lack of planning and a narrow outlook makes of our urban surroundings: architects have been asking that the destiny of our towns be placed more completely in their hands. The architect is the one man who should have been first in advising the Council that an open space was a valuable asset not lightly to be tampered with. Such an attitude to planning as this example shows will not induce the public to believe that the architect can be trusted to undertake large-scale control of development with a proper sense of social responsibility.

For the public the moral is equally clear: keep in touch with the actions of your local authority: it is clear from this case that public opinion *can* be an effective influence, provided it becomes vocal in time.



The Architects' Journal
Westminster, S.W.1
Telephones: Victoria
9212-7
Telegrams:
Buildable
Part
London

NOTES & TOPICS

MIDDLESEX INTERVENES

LAST week I expressed myself (almost despairingly, I admit) on the matter of the "proposed new buildings in Parliament Square." Some of my loyalist readers considered that things had gone too far because, even as I wrote, the demolition of the existing premises was going on.

*

From Monday's newpapers I learn, however, that the Middlesex Council proposes to acquire that very site, by compulsory purchase, for the extension of its own Guildhall (to which I also referred) in spite of signed building contracts.

*

"A new controversy may arise . . ." my morning paper says; and it goes on, with deft intuition, to recall that which, in 1933, brought up and sifted the pros and cons of the building then deemed to be adequate to that wonderful site.

*

I hope that all will go smoothly. That is to say, that I hope the Middlesex Council stands firm and, when all is settled on those lines, and the new development is being considered for that very "attractive site," I hope that the Middlesex Council will read what I said last week about Town Planning. In fact, I hope it reads it at once.

THE GREEN BELT

Mr. Herbert Morrison has achieved a very remarkable success; a very cheap success, too; for its cost will not exceed two million pounds. London is to have what the newspapers call a "green belt"—meaning, of course, a ring of recreation grounds and open spaces which cannot at any time be built upon.

*

I know quite well what the sceptics will be saying. But, so far as I am concerned, the fact that Sir (then Mr.) Raymond Unwin was advocating this policy over twenty years ago detracts nothing from Mr. Morrison's personal triumph in putting it through today. And the fact that it may cost two million pounds when the same thing might long ago have been done for a fraction of that sum is, again, no fault of Mr. Morrison's.

*

The L.C.C. may well be proud of itself on this score. It may equally well (and almost certainly does) deplore the lack of vision which:

(a) is now costing more than it should, and

(b) ensures that the belt (green or red) will be far short of what it ought to be.

*

It is interesting to see that all the papers, technical or other, party or other, approve this piece of what can only be called dictatorship.

*

If Mr. Morrison can get away with that I am emboldened to think that a sound bit of economic thought and town planning is not so very far away. But for the Lord's sake, Mr. Morrison, let it be for the future; don't let it be for "our lifetime"—or we shall have none!

WHAT IS A BRICK?

What would be described as an "incident" if it happened between nations has been going on, I hear, in our very midst. A certain borough surveyor has been refusing to permit the use of sand-lime bricks for building work, because he has discovered that the Building Act requires that all bricks shall be well burnt.

*

It has now been explained to him that these building units are not "bricks" at all, but are reconstructed sandstone—building blocks, in fact; and sandstone is not excluded by the Act. As Sam. Pepys says, "What shall be the end of it, God knows."

JUBILEE WHOOPEE

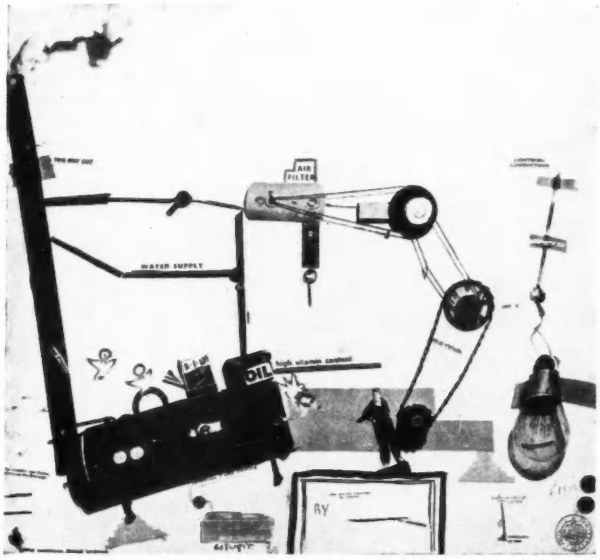
London and other cities will break out in a loyal rash of decoration in May; but it would be a more sincere compliment to His Majesty if the resources of contemporary civilization were used to illuminate and bedeck the streets, and some capable plan of decoration were created. The old tawdry trappings and the unimaginative bunches of coloured lights could so well be replaced by skilfully contrived floodlighting and lines of neon tubing.

*

Also, the London Passenger Transport Board might paint its vehicles silver during the celebrations; the suburban railways might just paint their coaches, many of which have lacked that refreshment since the coronation. Surely Mr. Hore-Belisha could think up something complicated for the occasion, such as silver curbstones and headlights for the boots of policemen on point duty?

*

A silver crown could fittingly surmount the orange pate of every Belibeacon. But whatever fantasy the Minister



"A Mechanical Subject." By Fourth Year students of the Architectural Association. See note on this page.

of Transport may indulge, at least the makers of whoopee symbols might call in competent advice about their designs. Mr. John de la Valette, with his Academy experience of rococo extravaganzas, might be able to give them some tips.

ANALYSIS

A correspondent sends me a most interesting photograph which I reproduce. It has a story.

*

The Fourth Year at the A.A. was set what was known as a "mechanical" subject. After the students had completed their individual drawings the entire year set out to emulate, I suppose, the "Analysis of a Building" pages which appeared a week or two ago in this JOURNAL.

*

Personally, I think that the result is most significant. It shows that the A.A. students are not lagging behind.

"THE CONQUEST OF UGLINESS"

To realize what an authority on design Mr. John de la Valette really is one must turn to that little book he has just edited, which is richly illustrated with a few plates of exhibits from the Burlington House show. It is called *The Conquest of Ugliness*.

*

There is a foreword by the Prince of Wales, and sixteen contributors supply essays. The editor takes the part of a dear, good angel, loaded with loaves for the æsthetic nourishment of a country that he honestly believes is darkened by a famine of ornament. Some people may regard his loaves as stones, or even as bricks, casually dropped by the hand of misunderstanding.

*

Never mind. Mr. de la Valette is a good trier. I see that another good trier, Mr. J. A. Milne, the Chairman of the Royal Society of Arts, was helping to celebrate the first evening of the United Arts Society last week by speaking on "The Artist in Industry," at the Courtauld Institute of Fine Art. A spirited programme was arranged, including Russian and gipsy songs by Mme. Marguerite Spiridovitch, and a talk by Mr. Robert Herring on "A Fresh Start for the Cinema."

BANKERS' TASTE

Somebody told me that Sir Montagu Norman collected something ; I'm not sure what it was, maybe it was ideas, but anyway it didn't belong to this striving and stimulating century. And now I hear rumours that for the new furniture of the Bank of England the advice of an art expert is being sought. I gather that the "expert" is going to select pieces of eighteenth-century furniture that can be copied.

*

Now if they had gone to an expert in *design*, the directors of the Bank might at least have sat down in the twentieth century.

DEAD LEVEL

The Ministry of Health has found beauty and wisdom in the views of York Corporation, felicitously expressed by Mr. Reginal Atkinson, the Town Clerk, who referred to some flat-roofed houses that were proposed for a residential suburb as "monstrosities."

*

This reminds me of some verses I heard recently, which were written after some other flat-roof "case" had exposed to the public eye the inability of local authorities to comprehend the character of the age they serve. They were called :—SHARPS AND FLAT

Now I'm Councillor Jerry Gable,
And I'm not a one to complain,
But I don't mind telling these arshetects
That a flat roof gives me a pain !
It ain't wot Nature intended ;
It 'asn't got old-world charm,
It encourages nudists to go all out
And it leads to no end of 'arm !
They're spoiling the look o' the country,
These 'orrible modern styles ;
And—a man must look after 'is own a bit,
And, 'arf my money's in tiles !

PHOTOGRAPHY—MADE DIFFICULT

I am no hand at "reporting"—I leave that to folks who can write shorthand ; or, better still, to those who can read it afterwards.

*

At the D.I.A. meeting last week (which, as I say, I cannot report) a particularly fine quip emerged, and that I can remember verbatim. Mr. Dell (not unknown as a photographer) said that in his view the main quality of the camera man today was to "make the essential things look plain."

*

In a trice, like a cockatrice, John Gloag sprang to his feet. "May I say," he said, "that in my view it seems more important to make the plain things look essential ?"

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

"*The 'expert' is going to select pieces of eighteenth-century furniture that can be copied*" (*for the Bank of England*) 181

A meeting to inaugurate a new architects' organization 188

"*Without private means, influence, or good fortune in far beyond the average measure an architect in this country never rises much beyond the £400 a year level*" 197

Wright received as rich a reward as any man could ask when his ship set sail at last from Yokohama, and sixty of his foremen, who had paid their own car fare from Tokyo to see him off, stood on the pier and yelled. 202

GREEN BELT FOR LONDON

On the initiative of the Greater London Regional Planning Committee, a conference of local authorities was held in London last week to discuss the question of a more concentrated effort for securing a "green belt" round London outside the London County Council area.

Mr. Herbert Morrison announced that the L.C.C. would be prepared during the next three years to consider applications from county councils for contributions towards the reservation of open spaces. The L.C.C. commitment would be limited to £2,000,000 and in no case would its contributions exceed half of the cost of acquisition or sterilization.

He appealed to the generosity of landowners for support of this scheme, and it was stated that of 32,000 acres of land suitable for playing fields within eleven miles of Charing Cross before 1930, 5,500 acres had been built on, and that by 1933 a further 3,000 acres had been lost.

Representatives of various county authorities, in interviews, expressed hearty agreement with the principles of the proposal, and Sir Banister Fletcher, a member of the committee, said the committee visualized two green belts, the outer one being an irregular ring about 20 miles from Charing Cross, and the inner one lying at a radius of some 12 miles.

ARCHITECT'S LAND GIFT

Mr. Clough Williams-Ellis, F.R.I.B.A., has presented to the National Trust 300 acres of land at Hafod Lwyfog, in Snowdonia, as the nucleus of the first British National Park. He is chairman of the Council for the Preservation of Rural Wales and intends his gift as "a present from Caernarvonshire to the rest of Wales and to the rest of the world."

Mr. Williams-Ellis bought the land to save it from unsuitable development. It had been offered to speculators. An appeal is to be made for funds to secure more land in Snowdonia, and Professor Patrick Abercrombie is to speak of the scheme's town and country planning at a meeting of the Caernarvon Chamber of Commerce tomorrow.

It is expected that in two or three months' time a meeting of all the local authorities and bodies concerned in the National Park proposal will be called to discuss plans for its realization.

THE ARCHITECTS' DIARY

Thursday, January 31

ROYAL ACADEMY. *At Burlington House, Piccadilly, W.1. Exhibition of British Art in Industry. Open until further notice.*

ARCHITECTURAL ASSOCIATION. *At 36 Bedford Square, W.1. Exhibition illustrating the Recent Trends in Metal Finishes for Architectural Purposes. Open until February 9.*

INSTITUTION OF STRUCTURAL ENGINEERS (*Yorkshire Branch*). *At the Hotel Metropole, Leeds.* "*Modern Methods of Reinforced Concrete Construction.*" *By H. H. Broughton. Film dealing with Grain Handling.* 7 *p.m.*

BUILDING CENTRE. *At 158 New Bond Street, W.1.* "*Metallic Rustproof Finishes for Architectural Ironwork.*" *By J. G. Slater.* 8 *p.m.*

SOCIETY OF ANTIQUARIES. *At Burlington House, Piccadilly, W.* "*Excavations of a Late Bronze Age site on Plumpton Plain, near Brighton.*" *By Dr. E. Cecil Curwen, F.S.A., and G. A. Holleyman; with notes on the pottery by C. F. C. Hawkes, F.S.A.* 8.30 *p.m.*

Friday, February 1

INSTITUTE OF REGISTERED ARCHITECTS. *At 43 Grosvenor Place, S.W. First Annual Meeting.* 6 *p.m.*

Monday, February 4

CHARTERED SURVEYORS' INSTITUTION. *At 12 Great George Street, S.W.1.* "*The Administration of the Town and Country Planning Act, 1932, with special reference to Interim Development Orders.*" *By Sydney A. Kelly.* 6.30 *p.m.*

EXHIBITION OF WORKING CLASS FLATS

An exhibition of working class flats is now being held at the offices of the Ministry of Health, Whitehall, S.W.1. The Exhibition will remain open until Monday, February 11 (hours: week-days, 11 a.m. to 5 p.m.; Saturdays, 11 a.m. to 1 p.m.).

Material for this Exhibition has been supplied by local authorities, the R.I.B.A., the Housing Centre, the Building Centre, a number of housing associations, and private individuals. A summary of the exhibits is given below.

1. Local Authorities (L.C.C., Liverpool, Manchester, Leeds, Derby, Edinburgh, Glasgow, and Stoke Newington): Photographs, plans, drawings and models, some relating to re-development schemes possible under the new Housing Bill.

2. R.I.B.A.: Selected photographs from the recent exhibition of international architecture 1924-34.

3. Housing Centre: A selection from the "New Houses for Old" Exhibition, Olympia, 1934.

4. Building Centre: Collection of photographs of Continental blocks of flats.

5. Housing Associations, etc.: (Ecclesiastical Commissioners, Bethnal Green and East London Housing Association, Church Army Housing, Duchy of Cornwall Kennington Estate, East End Dwelling Corporation, Kensington Housing Trust, St. Marylebone Housing Association, St. Pancras House Improvement Society, Stepney Housing Trust, and the Shoreditch Housing Association): Plans, photographs and models.

6. Individuals: Mrs. Meyer Sassoon (model of R. E. Sassoon House, Peckham); and Miss Olive Matthews (model flat for aged persons).

£1,000,000 HULL HOUSING SCHEME

A new suburban housing estate of 330 acres, to be built by private enterprise at a cost of a million pounds, is proposed at Hull. The promoters intend to build 2,500 houses, costing from £250 to £2,000, at Cottingham, three miles from the city, and to provide schools, churches, a cinema, dance hall, swimming bath, inn, parish hall, nursing home, recreation ground and a motor-bus service.

GUILDHALL EXTENSION OR OFFICE BUILDING?

A curious situation has arisen regarding the site in Great George Street, Westminster, on which, as already announced, it is proposed to erect an office building with elevations by Sir Giles Gilbert Scott. The Middlesex County Council have given notice that they will hold a meeting on February 6 to consider the expediency of promoting a Bill in Parliament for the purchase of land in Westminster to extend the present Guildhall.

Thus there may be further controversy over a site about which there has already been much discussion. The Middlesex County Council are considering its compulsory purchase. Meanwhile, the present buildings are now in course of demolition.

BUILDINGS FOR LIVERPOOL AIRPORT

On page 183 are reproduced elevational drawings of the proposed administrative and control building for Liverpool Airport, at Speke, the city's southern satellite. The plans have been drawn in the architectural office of the City Land Steward and Surveyor (Mr. A. D. Jenkins).

Buildings which, with their accessories, are estimated to cost £100,000, are to be set up. The administrative and control building is to be flanked by hangars, and the construction of one of these is being undertaken immediately. The building is to be 350 feet long, and the eye-line of the officer in the control tower will be at 75 feet. On the flying-ground side the building is convex—a design which has been subjected to criticism—but it may be remarked that the whole of the manœuvring space, including the approaches and entrances to the hangars, is in his direct and clear vision.

The public approach, from Speke Road, which is being diverted, is to an entrance hall which gives access on the one hand to the administrative offices and on the other to the booking offices. The administrative

wing includes an office for the manager and meteorological staff and the booking wing has accommodation for operating companies' offices, information bureau and other accommodation necessary for prospective passengers. The central block has accommodation for the customs officers, with stores and bonded stores below, served by lifts, the passport authorities, Post Office, and police.

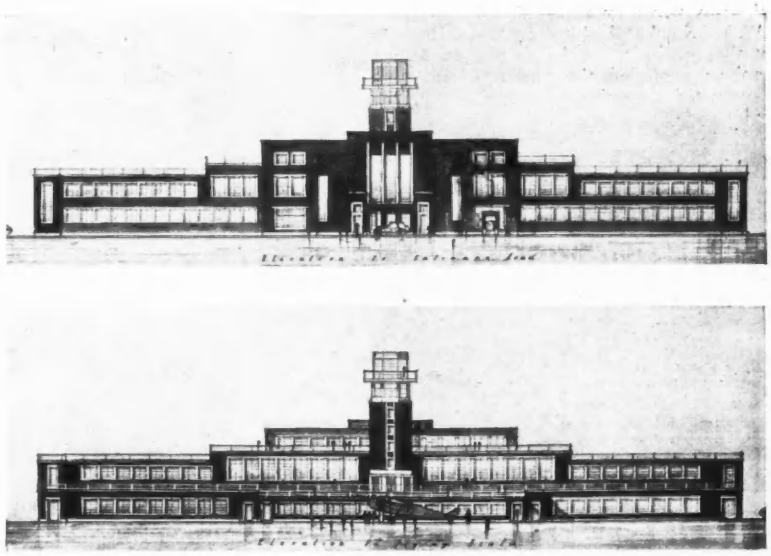
The passenger accommodation is so arranged that foreign and inland passenger traffic is divided. Inward and outward inland passengers are directed to one or other of the wings, and foreign passengers will use one side or other of the central block.

From the entrance hall there is approach by staircases, internal and external, and by lifts, to the first floor, about half of which is occupied by a restaurant, having a clear view over the flying field. The kitchens are on a floor above. The wings of the first floor are occupied on the one hand by bedroom accommodation for pilots and on the other by a flat for the manager.

In front of the restaurant is a terrace for sightseers and a similar use is contemplated for the roof of the restaurant.

The building is to be of steel and brick construction with reinforced concrete floors and roofs, and simple stone facings.

The Speke Sub-Committee of the Liverpool Finance Committee decided on January 24 to recommend to the City Council that the work of draining and levelling additional land for the airport should be proceeded with at the estimated cost of £38,500.



Elevations of proposed administrative and control buildings for Liverpool Airport. *See note on this page.*

SLUM CLEARANCE IN SCOTLAND

The Department of Health for Scotland announce that of the total of 16,658 houses under construction at the end of December, 13,626 were specifically for the rehousing o f persons to be displaced from condemned houses. The corresponding figure at the end of the previous month was 13,022 and at the end of December, 1933, it was 8,771.

In addition to the 13,626 houses under construction there were also 6,418 for which tenders had been approved but the construction of which had not been begun at the end of the month. Many of these should now be under construction.

In the year 1934 tenders were approved for the erection of 17,449 houses specifically to replace unfit houses. This is easily a record and is more than double the 1933 figure (8,171).

NORFOLK AND NORWICH ARCHITECTURAL ASSOCIATION

At the annual meeting of the above Association, held at Norwich, the following officers and Council were elected for the new session: President, Mr. E. W. B. Scott, F.R.I.B.A.; ex-president, Mr. C. Upcher, F.R.I.B.A.; vice-president, Mr. J. O. Bond, F.R.I.B.A.; vice-president (county), Mr. H. C. W. Blyth, L.R.I.B.A.; hon. editor, Mr. T. G. Scott, F.R.I.B.A.; hon. secretary, Mr. E. H. Skipper, F.R.I.B.A.; Council, Messrs. F. H. Swindells, S. J. Wearing, J. N. Meredith; associate member of Council, Mr. H. J. T. Gowen; hon. auditor, Mr. C. H. Dann, A.R.I.B.A.

Mr. Scott, in his presidential address, referred to the publicity campaign of the R.I.B.A. He said: "The Institute, with the opening of their new building, and the King and Queen and the Prince of Wales themselves, by their interest, have given a marvellous lead which has awakened a new public interest in architecture throughout the country. This must be followed up. There is interest but not understanding. People do not appreciate the value of architecture, nor understand our functions and our qualifications. Our troubles—and they are also the troubles of the community—arise from that simple and devastating cause. Our task is to create the appreciation and the understanding which are now lacking."

RIBBON DEVELOPMENT

The House of Commons reassembled after the Christmas Recess on Monday, January 28.

Sir N. Grattan-Doyle asked the Prime Minister whether any immediate legislation was proposed to deal with the increasing menace of ribbon development; and, if so, whether such legislation would be retrospective.

Mr. Ramsay MacDonald said that the answer to the first part of the question was in the affirmative, but his hon. friend would not expect him to anticipate the form which their proposals would take.

Sir N. Grattan-Doyle: Does the right hon. gentleman realize the great public anxiety on this question, and will he take steps to implement the promise that was made in His Majesty's Speech at the opening of the Session?

Mr. MacDonald: Yes, sir, that is our intention.

Sir W. Davison: Does the right hon. gentleman realize how urgent the matter is?

Mr. Wilmot: Is the right hon. gentleman aware that, following on the announcement that such legislation was in contemplation and as a result of the failure of the Government to make a statement that the legislation would be retrospective in its effect, there is ample evidence to show that ribbon building has been accelerated, with permanent damage to the countryside and to the amenities of the surrounding districts?

Mr. MacDonald: I know that in certain quarters that statement is being made, but, according to the information at our disposal, there is no evidence to show that it is the case.

Sir A. Sinclair: The Prime Minister said that immediate legislation is contemplated. Can he say on what date the Bill will be introduced?

Mr. MacDonald: The Bill will be introduced as quickly as possible.

R. I. B. A.

PRESENTATION OF PRIZES

At the R.I.B.A., on Monday last, Mr. A. H. Moberly, M.A.Cantab., F.R.I.B.A., chairman of the R.I.B.A. Board of Architectural Education, delivered his address to architectural students. The address was followed by the annual presentation of the prizes and studentships in the award of the R.I.B.A.

The designs and drawings submitted in competition for the prizes and studentships are on exhibition in the R.I.B.A. Henry Florence Hall until February 2, during the hours of 10 a.m. and 8 p.m. (Saturday, February 2, 5 p.m.).

CONFERENCE OF TEACHERS

A conference attended by teachers at Schools of Art and Technical Institutions was held at the R.I.B.A. on Saturday, January 19. The chair was taken by Mr. A. H. Moberly, M.A.Cantab., F.R.I.B.A., Chairman of the Board of Architectural Education, and a paper on "The Value of Simplicity to the Teacher and to the Student" was read by Mr. G. D. Gordon

Hake, R.W.A., F.R.I.B.A., Headmaster of the R.W.A. School of Architecture, Bristol.

At the conclusion of the Conference the members inspected the works submitted in competition for the R.I.B.A. Prizes and Studentships.

COMPETITION NEWS

BIRMINGHAM CIVIC CENTRE

Following a meeting last week of the General Purposes Committee of the Birmingham City Council, it was announced that approval had been given to the conditions governing a competition for designs for a building to form part of the proposed civic centre.

The following statement was published in the *Birmingham Gazette* for January 22 :—

"The building will consist of an administrative block, on a site adjoining the Hall of Memory, to provide accommodation for the public works and town planning, water and other departments of the Corporation. The competition, which is to be advertised shortly, will be limited to British-born architects practising in Britain. The design will be for a complete block, little more than one-half of which will be erected as a first instalment of the Civic Centre scheme.

"A report on the scheme will be submitted to the City Council at its next meeting. Meanwhile, it is understood that the first instalment is estimated to cost more than £200,000.

"Since the war the Corporation has spent large sums in acquiring property on the Easy Hill estate and in the neighbourhood with a view to the ultimate development of a Civic Centre worthy of the city.

"Designs for an elaborate lay-out of the new centre were invited as far back as 1926 and competitive designs were exhibited at the Art Gallery in August, 1927.

"M. Maximilian Romanoff, an architect and town-planner, practising in Paris, won the first premium of £1,000, but for various reasons, principally on the ground of expense, the whole scheme has been held up.

"Last May the need for additional accommodation for Corporation departments became urgent and the initial steps were taken to provide for an administrative block of municipal offices as a first instalment of the new Civic Centre.

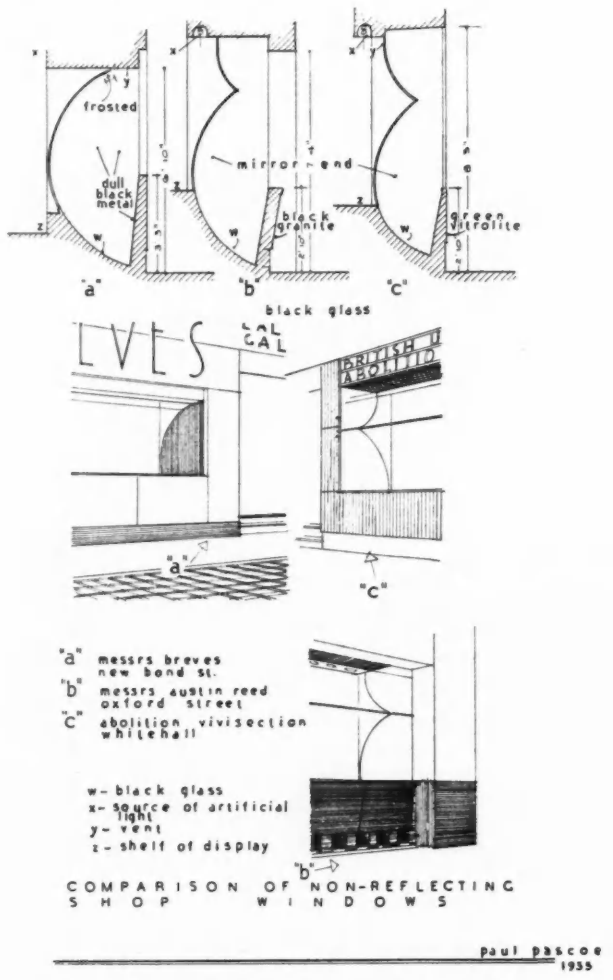
"The General Purposes Committee has since been considering the requirements of the various departments ; and the decision to promote a competition will satisfy those who have pressed for co-operation on the part of the leading architects in the country to ensure that Birmingham's Civic Centre shall be second to none in Britain."

Competitions Open

March 1.—New municipal offices, public library and fire station for the Wembley U.D.C. (Open to architects of British nationality and resident in the British Isles.) Assessor : Stanley Hamp, F.R.I.B.A. Premiums : £300, £250, £150, and £100, for designs placed first, second, third and fourth, respectively. Conditions, etc., are obtainable from the Clerk to the Council, Council Offices, Wembley. (Deposit £1 1s.) Designs must be submitted by March 1.

March 27.—Cemetery chapel and auxiliary buildings at Coney Hill for the Gloucester Corporation. (Open to architects practising on their own account within the area covered by the Wessex Society of Architects.) Assessor : Edward Maufe, F.R.I.B.A. Premiums : 125 and 100 guineas, for the designs placed first and second, respectively. Designs must be submitted to the City Surveyor on or before March 27.

April 30.—The Croydon Corporation invite the submission of designs for laying out an area in Central Croydon which is to provide an extension of the Civic Centre of the Borough and to improve central means of communication. Assessor : Dr. Thomas Adams, F.R.I.B.A., F.S.I., M.T.I. Premiums : £500 for the design placed first ; £350 to be divided (in proportions to be determined by the Assessor) for not more than three designs placed next in order of merit. A copy of the conditions is obtainable on application to the Town Clerk, Town Hall, Croydon. (Deposit £1 1s.) Designs are to be submitted not later than April 30.



Three London shop windows of the non-reflecting type.

THIS ARSHETECTURE

"TOY HOUSES"

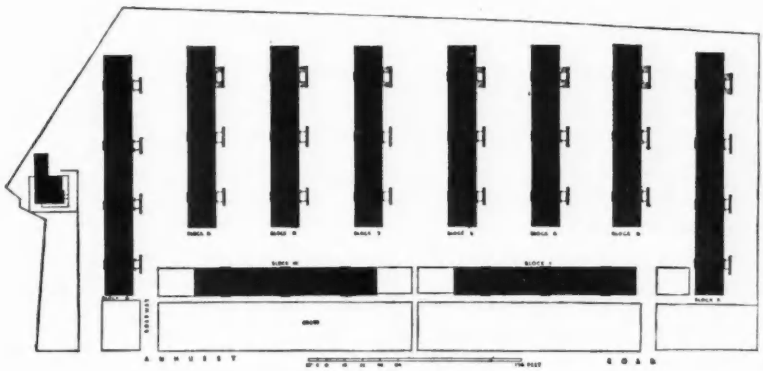
The fashion of toy houses, which began at Abersoch, a lovely little seaside resort in the Lleyn Peninsula, seems (writes a correspondent) to have reached the Spen Valley, though it is only just beginning to manifest itself. In a certain part of the Leeds-Huddersfield main road, which has recently been remade at great cost, elegant houses have been springing up rather rapidly. Among these are several which might not inaptly be designated "toy houses," for this term does not necessarily imply mere diminutive size, but rather the production on a lesser scale of a grander type of house.

For instance, a suburban mansion which looked like a castle would be a "toy house," just as would a cottage which looked like a parsonage. Among the "toy houses" to be seen in the Spen Valley is a pair of semi-detached bungalows, jointly no larger than an ordinary small bungalow, elegant, but so bijou that the eaves are within 9 in. of the lintels. Near by are other pretty houses, whose casements and door panels are tiny, and their whole effect that of impressive residences in miniature. The grouping of gables and other features to produce a handsome effect in miniature is sometimes very ingenious and tasteful.

From the *Bradford Telegraph and Argus.*

F L A T S I N H A C K N E Y



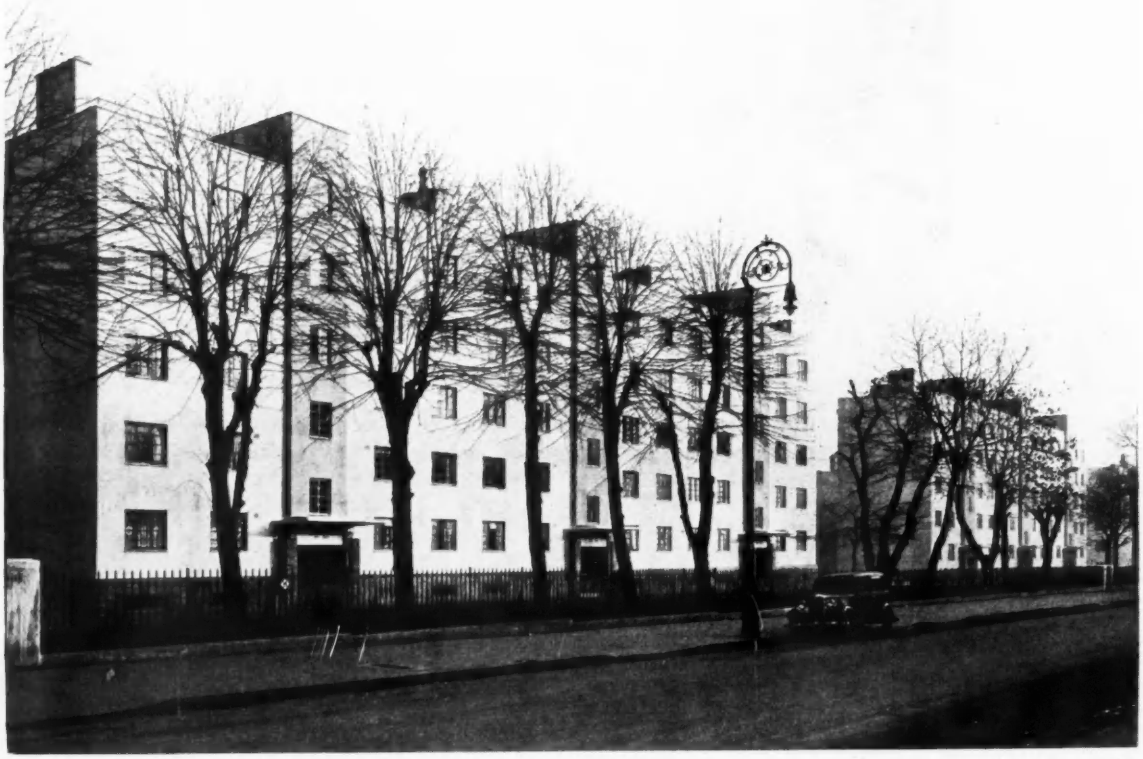


LAY-OUT PLAN

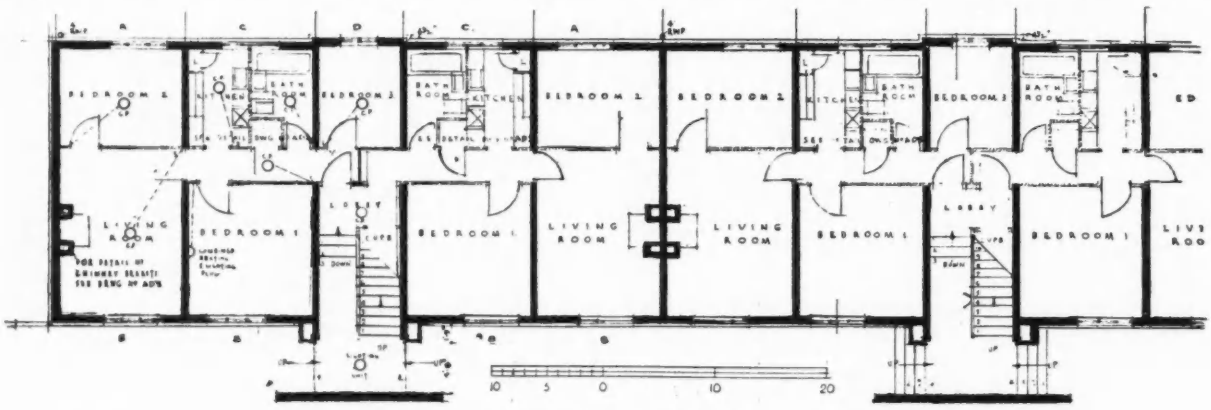
DESIGNED BY SIR JOHN BURNET, TAIT AND LORNE

These flats, built for the Four Per Cent. Industrial Dwellings Co., are an attempt to provide up-to-date housing without resorting to assistance from the subsidy. Economy has been achieved largely by standardization and a carefully organized time and progress schedule. Each staircase serves two flats on each floor; staircase widths being standardized at 8 ft. 1 in., while each flat consists of two 11 ft. 9 in. bays, 4-room flats having the extra bedroom in the staircase bay. Kitchens and bathrooms are standardized throughout and are grouped together to enable plumbing and other service runs to be kept as short as possible.

EVELYN COURT: TENEMENT FLATS,



The photograph above shows the elevation to Amhurst Road; that on the opposite page, an entrance doorway in one of the courtyards.



HALF GROUND FLOOR PLAN

ACCOMMODATION. *320 flats of three and four rooms in ten five-storey blocks: heated drying rooms, pram stores and children's playrooms on the lower ground floor of the front blocks 1 and 10: cottage, office and workshop for a resident superintendent.*

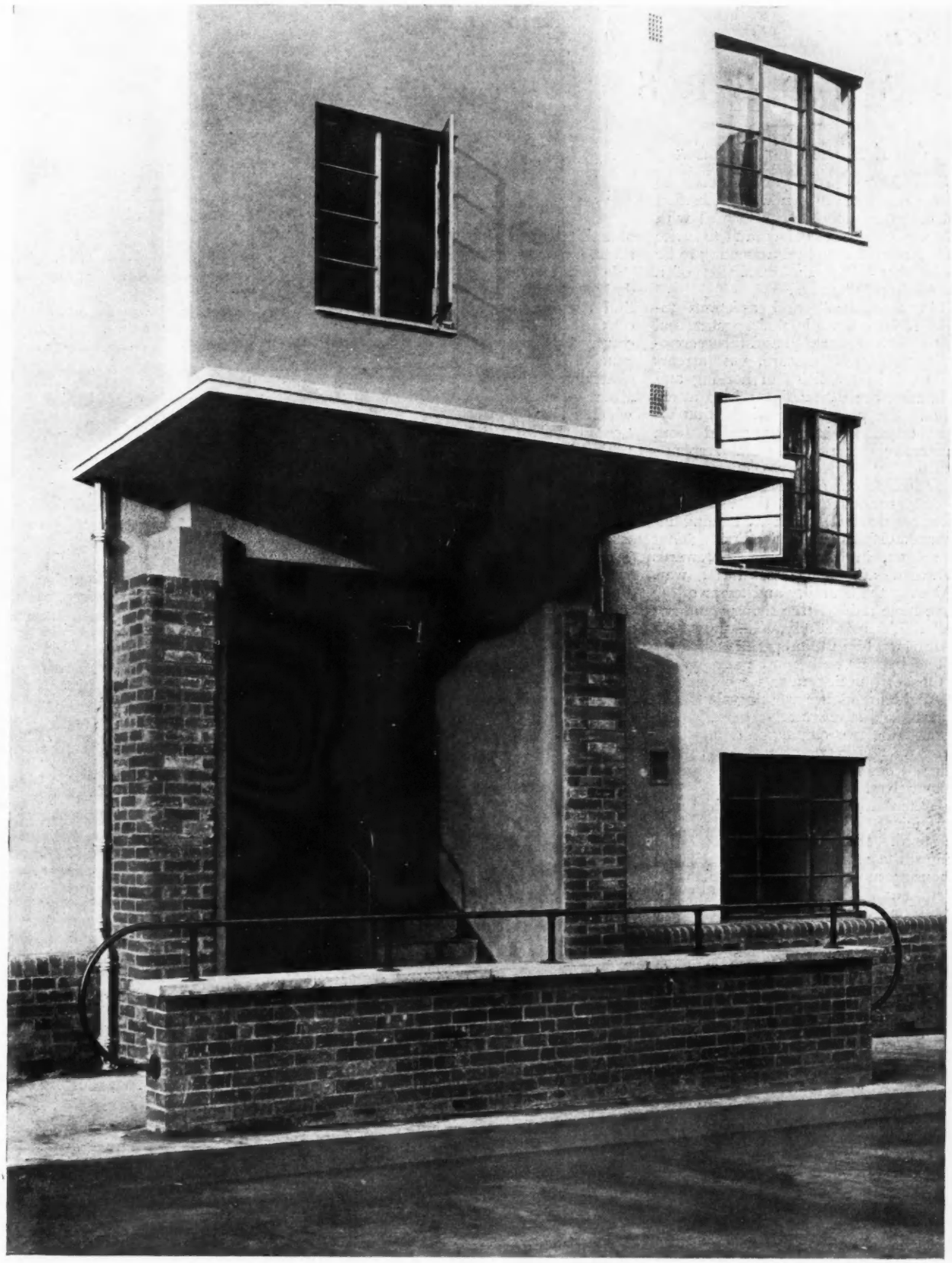
STRUCTURE. *Reinforced concrete frame designed for interchangeable unit shuttering: standard spacing for reinforcement, only two diameters of bar being used for walls and floors: brick panel infillings.*

FINISHES. *External, white rendering with green staircase towers and a brown brick base. Standard metal windows with wide flange frames. Internal, heat and sound insulation between all flats, both on walls and floors, by wallboard; floors finished in linoleum on mastic: skeleton frame doors with a flush ply face hung in pressed metal frames: vermin-proof skirtings and picture rails.*

EQUIPMENT. *Hot water to bath, basin and sink by instantaneous gas heater: electric lighting: courtyard and staircase lighting controlled by time switches: garbage containers in low brick outbuildings at the end of each block.*

BY SIR JOHN BURNET, TAIT AND LORNE

AMHURST ROAD, HACKNEY, E.



LETTERS FROM READERS

New Architects' Organization

SIR,—May we use your columns to draw attention to a new organization of architects about to be formed with the objects set out below, and to invite all interested to attend a meeting to be held shortly for the discussion of a working programme?

Many architects and assistants today feel that, while their professional activities are restricted and their economic position is insecure, vast arrears of work in the fields of housing and planning are demanding skilled attention. For ourselves, we hold that we are obstructed and prevented from assuming our proper social responsibilities by reactionary economic and political forces (symtomized and but feebly countered by the Architects' Registration Act) which are tending unmistakably in one direction. That direction, in our opinion, is towards Fascism and its concomitant, war. Already the brutality and terror of the one have reduced the living standards of millions in Italy, Germany and Austria, while the preparations for the other become daily more plain.

One of our first tasks we consider is to fight for higher working-class standards in housing and general conditions—the two cannot be separated—and we believe that architects holding these views could usefully organize themselves.

A tentative programme which the organization might set itself has been drafted. It includes as its immediate aims the study of and research into housing and other architectural problems and the investigation of the position of employed architects, with a view to constructive activity in this and other fields. A meeting, to which all architects, assistants and students are invited, will be held at Conway Hall, Red Lion Square, W.C.1, on Monday, February 11, at 8 p.m. A detailed memorandum and draft statement of aims, forming the basis of discussion at the meeting, may be obtained by post-card application to 77 Bedford Gardens, W.8.

F. SKINNER
(Secretary, Provisional Committee)

F. SKINNER, A.R.I.B.A.
P. GRAHAM
A. K. CHESTERTON (for the British Union of Fascists)
ANTI-FASCIST
D. V. W. P.
J. H. MADGE
PROGRESSIVE ARCHITECT
F. WICKHAM
SERGE CHERMAYEFF, F.R.I.B.A.
J. M. RICHARDS, A.R.I.B.A.
IVOR L. JAMES, L.R.I.B.A.
Dr. H. M. VERNON
J. R. K.
FRANK LAMBERT, M.A., F.S.A. (Director, Walker Art Gallery, Liverpool)
W. T. FRY

Interest in Architecture

SIR,—No doubt you will agree that it is very pleasing to notice the steadily increasing interest and understanding of architects and their work which is, I think, a new movement of this time.

To hear on the wireless a talk by the designer of the King's House and to find in several lay papers an illustration of the elevation is surely very encouraging. There appeared, also, in the issue of *The Times* for January 23, a charming little essay entitled "The House—An Architect and his Client," which revealed insight and appreciation of the human side of the architect's life. It made one realize how truly is every design a creation and, verily, a part of the architect's life itself.

As a layman who has long admired the patience which architects have exercised and the courage with which they have quietly gone on doing their work and their duty, giving the best that is in them, whether appreciated and understood or not, I venture to rejoice in this new movement, for it must have a far-reaching effect upon contemporary architecture.

P. GRAHAM
Chichester

A Hundred Years Ahead

SIR,—I concede to your correspondents, Mr. A. Croft and Mr. G. H. Stoney, that many of the utterances of Mussolini and the Nazi leaders sound more than a little menacing to British ears, but I think we must remember that the English Channel is still a very big psychological barrier, which makes it very difficult for us to understand the age-old animosities of continental countries. We do not live under a constant sense of menace.

Moreover, the mass of the people can be educated only very slowly in that practical idealism which alone can see the great constructive tasks of peace well bestowed. In the meantime, their enthusiasm has to be mobilized by appeals couched in language which they can understand. In Britain we talk about the need for national unity in terms of the team spirit. That is because we are a sporting nation. In Germany and Italy the people have been bred in an atmosphere of admiration for the military virtues, and it is not surprising, therefore, that their corporate personality should be integrated in terms of those virtues. The fact remains that in reality both Hitler and Mussolini have done more than any other statesman for the pacification of Europe.

Germany's expansion to the east is not conceived by Sir Oswald Mosley as a military expansion, but as a self-determinism on the part of many millions of people which is likely one day to express itself in favour of incorporation in the German Reich.

A. K. CHESTERTON
(for the British Union of Fascists)
King's Road, Chelsea

SIR,—It is amusing to find the British Union of Fascists protesting against the attribution of war aims to their organization. As for their allegations of political propaganda, the forecast of an orthodox church service in the Palace of the Soviets surely discounts this. It has always been the Fascist custom hysterically to announce one policy and then to proceed in exactly the opposite direction. The Nazis shouted socialism before they came into power, but capitalism is nowhere more violently protected than in Germany today. Sir Oswald Mosley himself, some months ago, was publicly announcing that he was definitely not anti-semitic. Recently at about half a dozen Fascist meetings I have heard speakers make virulent attacks on the Jews as a race. Mussolini and Hitler in power openly glorify militarism, colonial expansion and war. Mr. Chesterton will have to brush up his own "sleek intellectual dishonesty" if he is going to convince us that fascist policy in this or any other country is not going to lead us directly into a new war.

ANTI-FASCIST
London

SIR,—Where are all our vaticinatory prophets and prognosticators? That chronological forecast in your penultimate issue should have raised a storm of discussion, as you, Sir, seemed to have anticipated.

But the only comment that it raised was a little routine work on the part of one of Sir Mickey Mouseley's Martial Men, trying to sell celluloid as a fireproof building material. The imagination used in producing each item was certainly very lively, but the logic used in placing them in sequence might be shown to be faulty. For example: a Socialist majority is predicted for 1936, the nationalization of land and banking for 1937, and that of industry for 1942: Fascism is to arrive in England in 1965. The nationalization of land and banking, if it means anything at all, means the transference of power from the hands of the capitalists to the masses, and

would be coincident with the nationalization of industry. This represents the key position in the present struggle, and if it were accomplished in 1937, Fascism would never show its head in 1965, since it is the last terrorist stage of a decayed social system.

No need to await a Fascist Central European Bloc in 1947! Fascism now rules in Germany, Austria, Italy, Bulgaria, Hungary, Spain and several lesser Powers—examples indicating that Fascism follows on the failure of a Social Democratic Government to continue in office without taking control of capital. Such a future is in store for England in 1937 if your predictions with regard to "nationalization" do *not* prove correct.

These contradictions are enough to prove that the general sequence of events is illogical: but you, Sir, may well ask, what have such arguments to do with a professional journal? I need only refer you to the comments of one of your contributors upon the reversion that is now taking place in Germany, from those fine multiple-storeyed housing schemes to little shacks dotted over the countryside like matchboxes.

The whole of that movement in Germany which was the cynosure of our eyes has now been effectively scotched. That this political influence is on the move here is already too evident. One of our town planning experts recently broadcast a statement condemning the magnificent new housing schemes envisualized for the lower classes, on the ground that they made the under-dog politically minded.

The same indication is made obvious in a bland statement by T47485, in his pamphlet entitled "Hundred New Towns for Britain," that "*the industrial leaders of this country appear to have decided upon a policy of decentralization*" (the italics are his).

This can only mean that the industrial leader opposes communal housing on a large and efficient scale. Surely this is art for artful capitalists' sake.

We have already been made aware of the wholesale expulsion from Fascist States of anti-Fascist professional members—often the avowed leaders of their profession. Useless to say this could never happen in England—the "dunt" has already been given.

Among the remaining indications of the growth of Fascist influence in our architecture may be quoted the parsimonious attitude of the present Government towards even adequate provision of buildings for mass educational and cultural purposes; while the naval architect is the busiest man in the land.

Finally, out of the numerous suggestions that might be made for a copious volume on this subject, let us take another consequence of Fascism, namely, that the Nazis have produced no less than three books on "the architecture of funk." They conclude that it is uneconomical to attempt to build a bombproof roof: that therefore the framed building is the most suitable, since the frame may remain intact during bombardment, and only the wall panels will need replacing. This, therefore, rules out the homogeneous concrete structure—the delight and the hope of the present-day architect, so recently fulfilled by the new Code which alone may revolutionize our conceptions of planning.

D. V. W. P.
Sheffield

A number of other readers have also written to protest against Mr. Chesterton's previous letter in which (on behalf of the British Union of Fascists) he disclaimed any connection between fascism and war. As our space is limited, and as many of our correspondents put forward the same arguments and cite the same instances as those whose letters have already appeared, we print only extracts from some of them. We have also given the authors of the article from which this discussion arose the opportunity of replying to Mr. Chesterton; and a letter from them is printed below.—ED., *A.J.*]

Compare Mr. Chesterton's statement that "The aim of all Fascist governments is peace. War utterly destroys the new civilization which they build," with the following:

"Fascism believes neither in the possibility nor the usefulness of perpetual peace. War alone brings up to its highest tension all human energy and puts the stamp of nobility upon the peoples who have the courage to meet it." "For Fascism the growth of Empire, that is to say, the expansion of the nation, is an essential manifestation of vitality." (*B. Mussolini: Political and Social Doctrine of Fascism.*)

J. H. MADGE
Cambridge

The contention by the British Union of Fascists that Fascism does not mean war is typical of Fascist demagogy.

Fascism means not only war but also hunger and a reversion to barbarism.

Hitler (who is the model which serves the B.U.F.) consistently makes declarations of his peaceful intentions, yet in his book *My Struggle*, writes "It is necessary to resort to war" (page 315).

All his actions (e.g., his implication in Dollfuss's assassination, etc., secret arming in direct contravention of treaties which have, however precariously, maintained a semblance of peace up to now) bespeak preparation for a war, that is, in his own words, "German expansion eastwards." . . .

Wages under the Nazi regime are being consistently reduced, while the cost of living shows no relative adjustment. Germany under Hitler rule is bankrupt; the only way out is to gain new markets, which means territory, which obviously means war.

Mussolini is already conducting an imperialist "expansion" (i.e., war) in Abyssinia. . . . He spends as much as he can get on armaments and is faced with a £60,000,000 budget deficit.

The present results of Fascist misrule completely expose the promises made before "assuming" power for the empty, misleading, phrases that they were.

Fascism is the open, naked rule of enormous financial monopolies in an increasingly competitive capitalist world. Hitler and Mussolini and all others of the same persuasion are just the tools of these monopolies.

PROGRESSIVE ARCHITECT
London

"The aim of all Fascist governments is peace," says Mr. A. K. Chesterton in your issue for January 17. If that is so, how does he reconcile this statement with Hitler's remark in his book *Mein Kempf*, pp. 153-4: "For Germany the only possibility for the carrying out of a sound territorial policy lay in the winning of new land in Europe itself.

This great thought was echoed by Mr. A. K. Chesterton in the *Sunday Dispatch* dated January 13, in which he says: "The future of Germany must lie on her eastern frontiers in an empire to which the future sets no limits."

Again, Italy seems to be paying exceedingly close attention to Abyssinia for such a "peaceful" Fascist country. Perhaps, however, Italy doesn't mind if "war utterly destroys the new civilization" which it has presumably built after some fifteen years of Fascism. The building of which led Mussolini to say in a speech to the Italian Senate on December 18, 1930: "Fortunately the Italian people is not yet accustomed to eat several times a day. Its standard of living is so low that it feels scarcity and suffering less."

Fortunate, yes, for the big financiers, industrialists, and landowners who back Mussolini but perhaps the people of Italy have a different word for it.

F. WICKHAM
London

The authors' reply:

SIR,—May we disabuse Mr. Chesterton? Our pious hopes were not the outcome, as he evidently imagines, of specific indulgence in anti-fascist propaganda. Our article, if light-hearted in detail, was serious as an attempt to relate cause to effect; and the accuracy of the premises on which our

anticipations of effect were based receives support from the readers of this JOURNAL who have given chapter and verse to those generalizations of ours which offended Mr. Chesterton.

We do confess to being on the side of socialism and internationalism while they appear to be the only means of achieving world peace, which must be every sane human being's ambition. One cannot but suspect, despite Mr. Chesterton's protestations, that if capitalism survives and fascism continues to manifest itself in aggressive racialism, nationalism and individualism, wars will continue.

SERGE CHERMAYEFF
J. M. RICHARDS

High Building in England

SIR,—As a young architect who has worked among skyscrapers and also helped to design tall buildings, I am constantly surprised at the dislike manifested in our country at this most logical form of building with the modern methods at our command. You recently reported Sir Raymond Unwin as saying, " There is no country that has adopted high building that would not be glad to be without it." Only one country has seriously adopted high building, and that is the United States, and I have never heard it mentioned there that they would be glad to be without it. In normal times tall buildings have proved successful, but at the present time many of them, such as the Empire State Building, are half empty, not because of any dislike of the tall building, but merely as a result of the great depression.

With the invention of the steel-framed building and the high speed elevator, the skyscraper immediately became logical. We, in this country, spread our buildings over the ground, and are confronted in the aggregate with acres of foundation, acres of roof, and miles of corridor. So far no elevator has been designed to move horizontally to assist our transportation, as this would be illogical. I often wonder how many countless miles are traversed by hard-working staffs in our hospitals over the long corridors, and how much time is wasted in getting from room to room in large office buildings such as the London County Hall. Ascending the Empire State Building some years ago I reached the eightieth floor in an incredibly short space of time, and wondered at the time such a distance would have taken horizontally.

Apart from these considerations it is natural to build upward. When we reach greater heights there is a better chance of clearer air, less noise and more sunshine. It is only the thoughtless placing of tall buildings too close together that spoils their value. Many of the more modern skyscrapers are very beautiful and make one feel immensely proud of the achievement of man. We, in this country, should make an effort to get out of the rut and take advantage of the gift of modern steel and high speed elevator design to give us higher and better buildings.

IVOR L. JAMES
Wirral

Ceiling Condensation

SIR,—In your issue for December 27 my book on *The Principles of Heating and Ventilation* was reviewed favourably, but your reviewer took me to task rather unnecessarily on several points. He said that I did not mention the possibilities of condensation of moisture on the ceiling in hot weather when it is artificially cooled by means of panel pipes, and this point was taken up by a correspondent and by the reviewer himself in your issue for January 17, but surely the risk is very small. Probably it would not be incurred more than once or twice a year, and directly any condensation was noticed the engineer in charge could take steps to combat it.

Your reviewer expresses surprise that I have not commented on Mr. A. H. Barker's controversial paper on electric heating. He will find it discussed at some length on pages 61 and 62 of my book. Again, he says that I did not refer to floor warming by embedded pipes. May I refer him to page 93?

H. M. VERNON
London

[*We have submitted Dr. Vernon's letter to our reviewer, who sends the following reply.*—ED., *A.J.*]

SIR,—Dr. Vernon's contention that the risk of condensation on ceilings with cooling coils embedded, is small, is surely an admission that the risk exists, and this is the only point to which attention was drawn in the original review. The question as to how serious the risk is depends on the capabilities of the engineer-in-charge, since if he grossly over-cooled his ceilings he might get condensation dropping off as it does frequently from cold pipes in summer. It is not suggested that any engineer would be so foolish as this, but it must be admitted that the risk is present.

In stating that Dr. Vernon had not commented on Mr. Barker's paper, it was felt that, as his highly contentious figures were quoted, some detailed discussion on them was necessary, particularly as the costs given for electric heating in Chapter VI are not consistent with Barker's conclusions.

Heating by embedded panels in the floor is not mentioned under the section headed " Under floor heating," where one would expect to find it, nor is there any discussion on this method, though the others are fully dealt with. There is, however, a reference to the effect that pipes may be embedded under various floor finishes in the section on " Panel heating " and it is regretted that this was overlooked.

J. R. K.

R.I.B.A. Exhibition

SIR,—I am sorry to see a very misleading statement quoted from THE ARCHITECTS' JOURNAL in today's issue of the *Liverpool Daily Post*. I have not had the opportunity of seeing your JOURNAL, but it is said that you express surprise that Liverpool of all places has not applied for the loan of the R.I.B.A. exhibition of contemporary international architecture.

This statement is misleading. At the beginning of the month, while the exhibition was still on view at the R.I.B.A.'s headquarters, I wrote to Sir Ian MacAlister, asking whether the exhibition would be available for loan to this gallery, and if so when and on what terms. He replied promising to bring the matter before his committee, but I have not yet heard further from him. I await his further reply before bringing the matter before my committee, but in the meantime the responsibility for the alleged neglect rests with the R.I.B.A. itself.

FRANK LAMBERT
(Director, Walker Art Gallery, Liverpool)

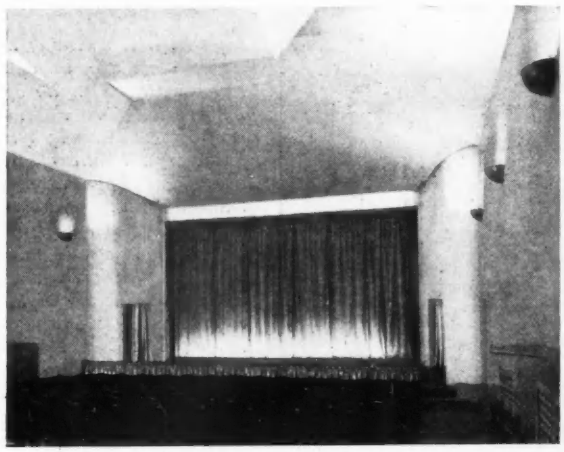
Property Repairs and Income Tax

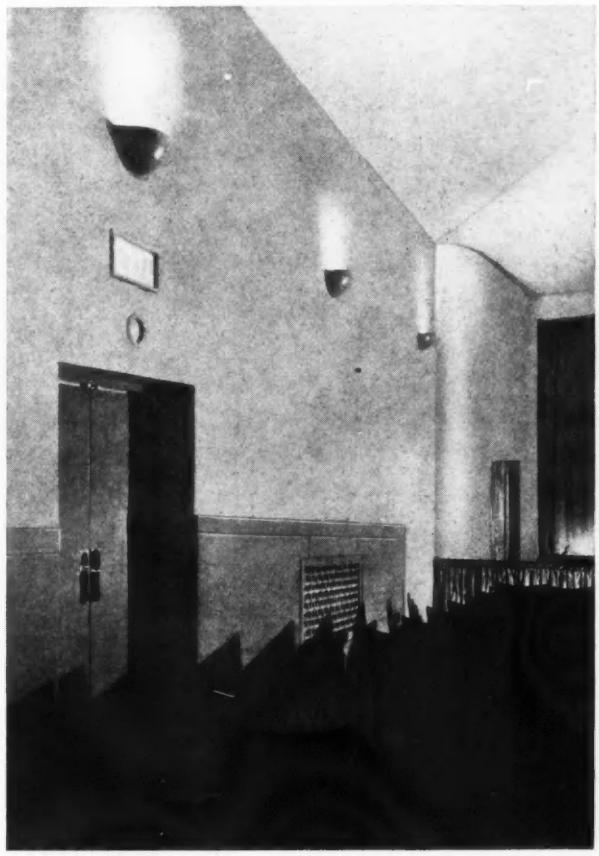
SIR,—During the recent years of depression owners o property have spent only the minimum amount on repairs. Now that there are signs of increasing prosperity many owners are undertaking repairs and redecorations which would normally have been carried out earlier. It is not generally known that repayments of income tax are often obtainable in these circumstances, and with the rate of tax at the present high level, owners will be anxious to claim the greatest possible relief.

Property maintenance claims can be made for a period of six years where the amount spent in maintenance, repairs, and insurance on an average of five years exceeds the statutory allowance for repairs, and are often for substantial sums. This is particularly the case where large estates and old properties are involved. Special provisions and concessions apply to properties which have not been owned for as long as six years.

W. T. FRY
London

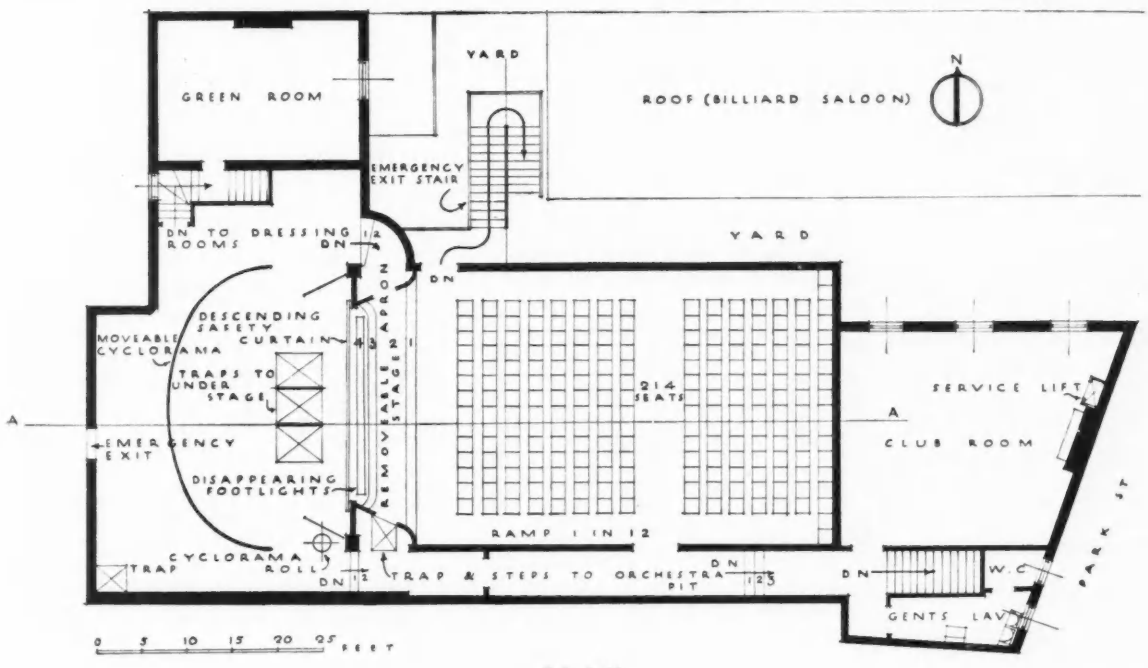
A. D. C. THEATRE, CAMBRIDGE





This new theatre has been built on the same site, in Park Street, as the old one, which was burnt down in 1933. The site is restricted on three sides by buildings and on the fourth by the street. The architects were faced with the limitations imposed by the restrictions of the site and by the necessity, owing to the need for economy, of building on such parts of the older foundations as were still available. Compared with the old building, the auditorium of the new theatre has been increased in width, with a consequent gain in seating accommodation. As originally designed the exits were placed at opposite ends of the crossover, but the authorities insisted that one exit should be moved to a position adjacent to the orchestra.

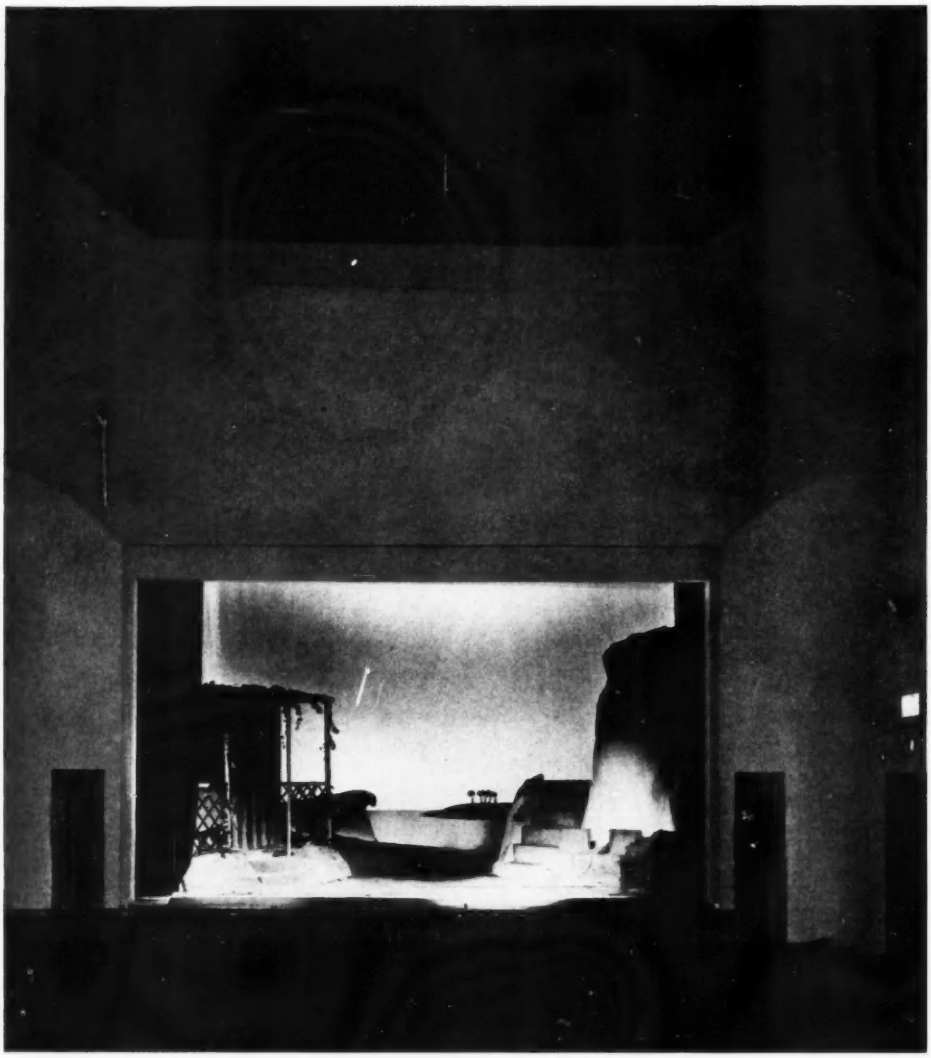
The photographs show : above, a view looking towards the proscenium opening and, right, a side wall of the auditorium.



PLAN

BY HAROLD TOMLINSON IN ASSOCIATION WITH W. P. DYSON

A.D.C. THEATRE, CAMBRIDGE



On the left is a view of the lighted stage and, below, a longitudinal section through the theatre. The electrical equipment is unusually complete for a theatre of this size. The stage is fitted with a canvas cyclorama on a semi-circular track and the cyclorama can be rolled away when desired and the stage used in the normal way. The cyclorama is lighted from both top and bottom by three-colour equipment. The upper portion is lighted by two banks of flood equipment employing 150 watt lamps in clear prismatic reflectors. The lower portion is illuminated by five portable three-colour groundrows, flexible tails and plugs being provided between adjacent sections so that they can be interconnected.

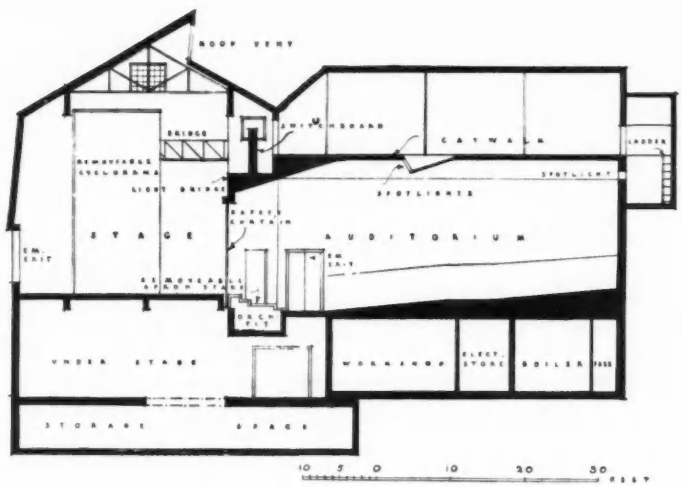
As the height above the stage could not be greatly increased, and in order to obtain a large proscenium opening, the novel expedient was adopted of lowering the safety curtain below, instead of raising it above, the stage. The sub-stage space is also used for the storage of scenery and its preparation for use between the acts. When not being used for musical performances, the orchestra pit is covered with removable steps to form an apron stage and give increased acting area.

DESIGNED BY

HAROLD TOMLINSON

IN ASSOCIATION

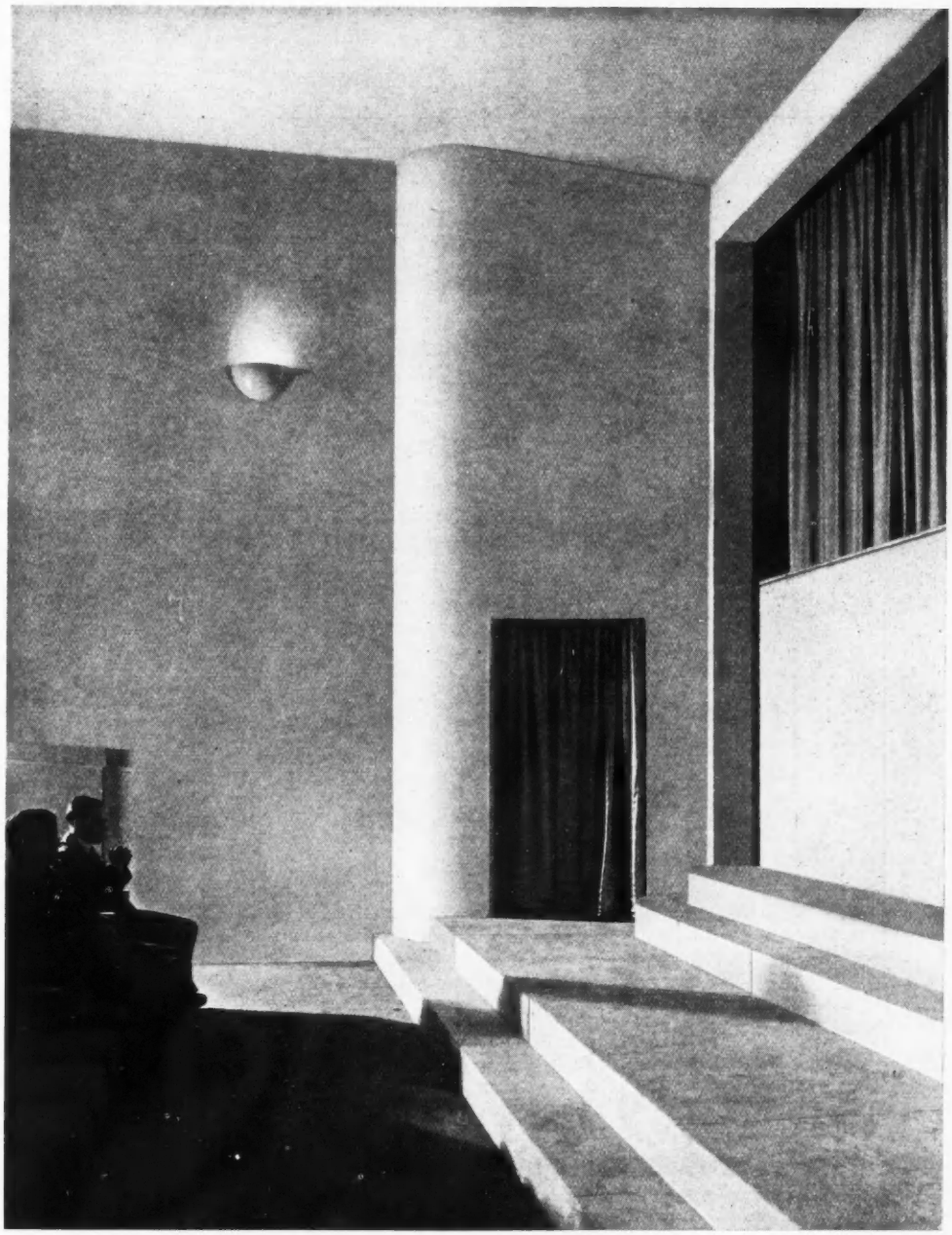
WITH W. P. DYSON



SECTION A—A

WORKING DETAILS : 199

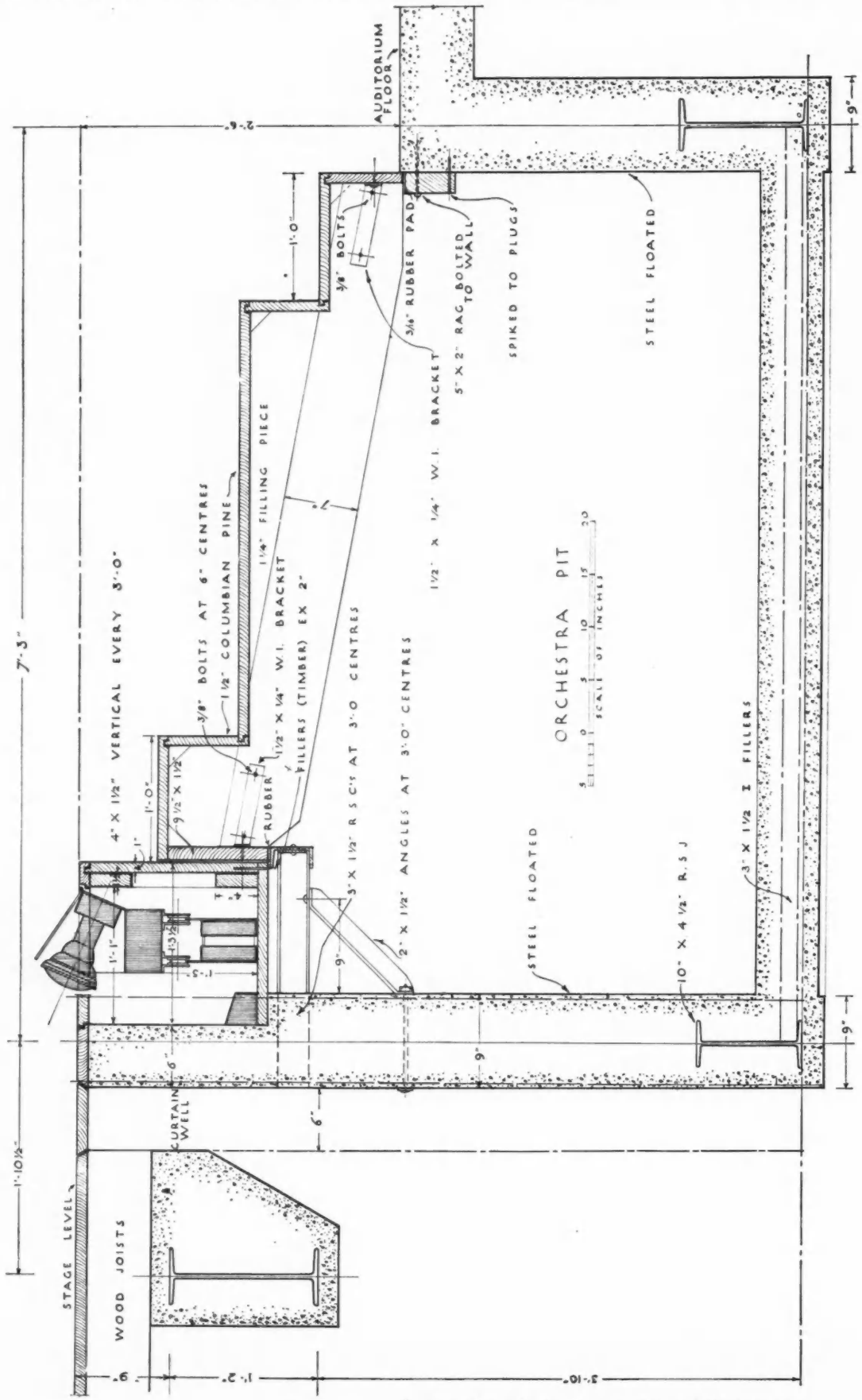
STAGE LIGHTING • A.D.C. THEATRE, CAMBRIDGE • HAROLD TOMLINSON, IN ASSOCIATION WITH W. P. DYSON



The above illustration shows the fire curtain half raised, and the removable apron stage in position over the orchestra pit. The sections overleaf show the general arrangement and structure of the apron stage, the curtain well (a rising curtain was necessary owing to the restricted height), and the disappearing floats immediately behind the apron stage.

WORKING DETAILS : 200

STAGE LIGHTING ● A. D. C. THEATRE, CAMBRIDGE ● HAROLD TOMLINSON, IN ASSOCIATION WITH W. P. DYSON

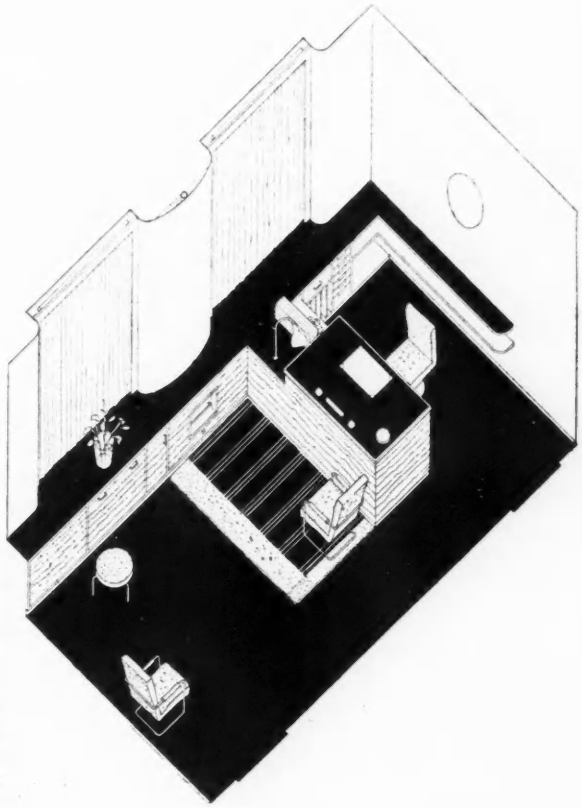


Section through the fire curtain and disappearing floats, illustrated overleaf.

WORKING DETAILS : 201

CUPBOARDS • OFFICE IN ANGEL AND PORTMAN COURT, E.C. • FREDERICK GIBBERD

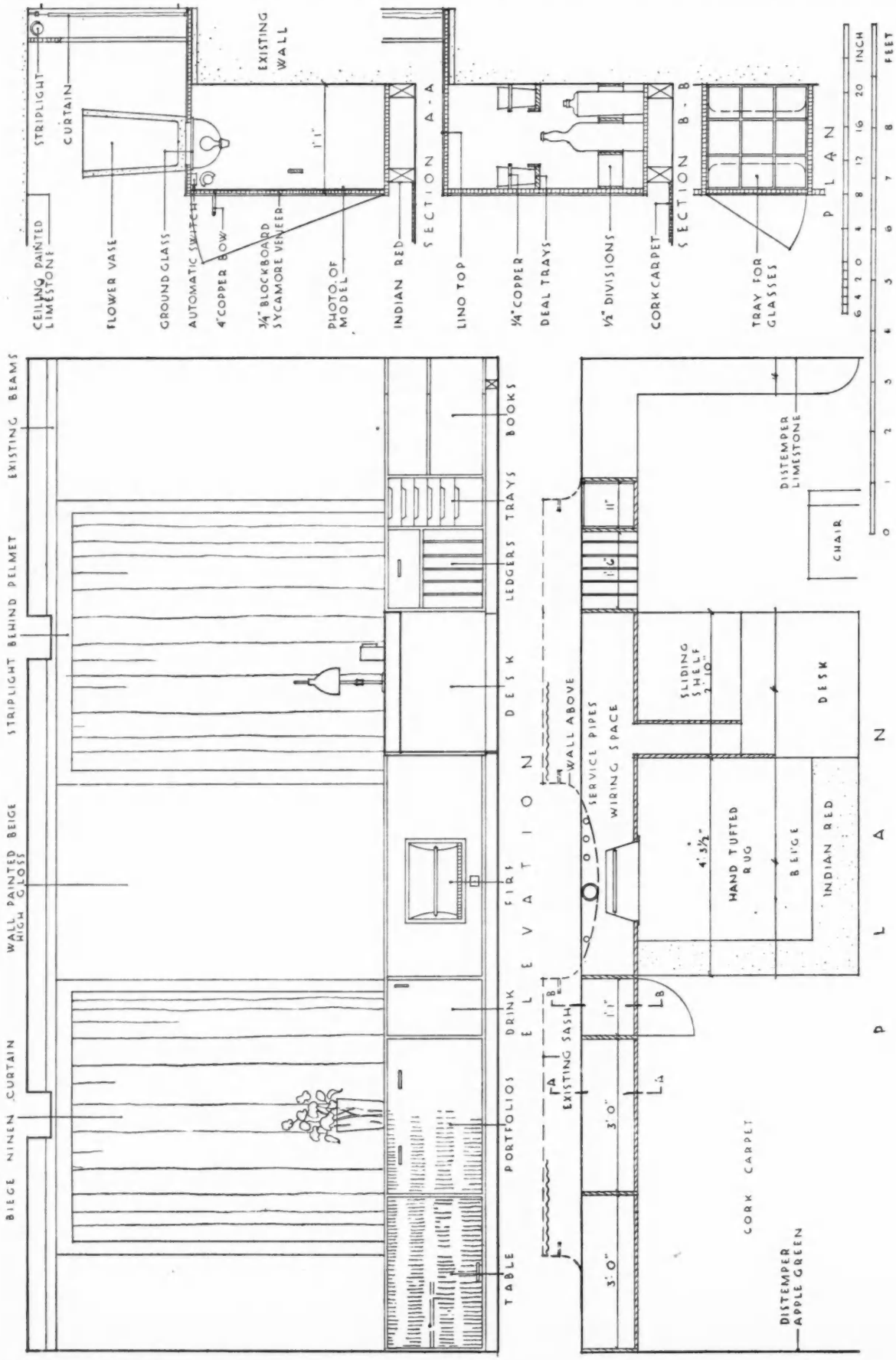




The cupboards illustrated above are in deal, veneered with sycamore and white enamelled internally: the top is covered in fawn linoleum. Each cupboard has a strip light which is switched on when the door opens. The drawings overleaf show a plan, elevation and sections of the portfolio cabinet, drink cupboard and fire.

WORKING DETAILS : 202

CUPBOARDS • OFFICE IN ANGEL AND PORTMAN COURT, E.C. • FREDERICK GIBBERD



Plan, elevation and sections of the cupboards and fire illustrated overleaf.

OUTLOOK UNSETTLED

A YOUNG ARCHITECT'S STOCK-TAKING AT THE BEGINNING OF THE YEAR

TOWARDS the end of any year and the commencement of its successor most people experience a tendency to indulge in periods, brief or not so brief, of what may be called stocktaking. Sometimes these moments are devoted only to good resolutions; but quite often in a luxury of introspection they are extended to cover the general aspects of matters of private and professional concern. And it is the substance of these latter and wider considerations which may pardonably demand some serious thought from the younger architect at the present time.

Six months ago the author of this article happened to encounter, whilst travelling, a former acquaintance and fellow-student at an architectural school. Hearing that this acquaintance was no longer an architect, the author, with a trace of that condescension which must always be the lot of the professional renegade, inquired his reasons for taking such a step. The acquaintance replied: "After considering the matter very carefully I came to the conclusion that without private means, influence, or good fortune in far beyond the average measure an architect in this country never rises much beyond the £400 a year level; and it was essential for me to do better than that." After this answer has been weighed carefully for several months the importance of the statements it contains does not appear to have diminished.

During the period of acute depression in the building trade—a period now most willingly almost forgotten—there were many demands that the architects' house should be set in order. In some respects this was most efficiently done. In its energy of action in helping the most hard-hit members of the profession, the courage of its example to building owners, its rapid achievement of a more widespread influence and prestige, the premier professional society must have commanded the admiration of all architects. But some of the more intimate problems that were raised with a desperate outspokenness in 1932 seem now to be again forgotten. Questions of official architects, the salaries of assistant architects, and the regulation of entry into the profession have all faded from public discussion as though every one concerned were a little ashamed at ever having confessed, even amongst themselves, that all was not for the best in the best of all possible callings.

With the determined honesty with which most people approach their private stocktaking there must have occurred in the minds of many of the younger generation of architects a query as to whether it is indeed for the best that the discussion of these problems should have ceased at a time when, under an energetic Government of the Right, everything from luxury liners to herrings is receiving its due measure of rationalization. Since an example can perhaps demonstrate a viewpoint better than a general statement, it may be profitable to imagine the outlook of a typical young architect at the commencement of 1935. X's stocktaking might be as follows:

"I am 28 years old, have been fully qualified for four years, and I was once in the final for the Soane Medallion. I have been in for four competitions, and was once commended by an assessor. In private practice I have altered two houses and built one for £1,500. I have also prepared plans for five small houses and a factory, and managed at last to be paid something for one of them. I have been with Pilkins and Vanbrugh for five years, and have raised my salary by six attempts and two increases to £312. And, try as I may, that scoundrel Pilkins—who must be making thousands—won't stand for any more. I have also £20 a year as a private income. Now what am I going to try to do this year?"

In an open profession numbering ten thousand active members at least and rapidly increasing (the number of R.I.B.A. Probationers given in the current Kalendar is 4,084), this must be the question being asked of themselves by hundreds of young architects. X's reverie might be extended. In nine cases out of ten, although the Pilkins firm concerned has work for two years ahead, there are two or three men in the office senior to X, and a really bad depression might result in his dismissal. X cannot disregard this vital factor.

With the comparative ease and detachment of mind conferred by the prospect of two years' employment before them, there could not be a better moment for young architects to attempt to estimate what chances the future holds for them of a modest individual professional success and a modest security of income; and, as the representative young architect surveys this problem at the outset of 1935, he must be driven to see that the question is twofold: "What can I do individually—and collectively."

However cheerful his hopes and optimism, it must be confessed that individually he can do little more than he has always done. If he retains his job with his particular Pilkins he must indeed be endowed with an exceptional physique to have at his disposal at the end of an office day more than a moderate amount of energy. If this energy is turned in the direction of competitions, statistics of past results prevent him regarding time thus spent as being much more than part of a postgraduate course of training. If it is turned in the direction of social "window-dressing," he knows that his lack of proper office accommodation and of free time must prejudice his chances of getting any of the bigger crumbs scattered by a public always impressed by appearances.

This unavoidable limitation of the personal initiative of the majority of the increasing numbers of architects brings the conviction that only by successful collective action in finding large new outlets for architectural services can a modest success in an individual capacity be possible in the future for any appreciable proportion of the profession. At the present time the architect is shunned by the great mass of the public both in their private and business concerns. Without this collective action it is almost inevitable that within a decade, for nine-tenths of the profession, only those architects salaried by public departments and large business undertakings will be in a position of reasonable financial security.

A beginning has already been made in this work; but, as is necessary with beginnings, the preaching has been chiefly to the converted, and a much wider missionary endeavour would seem essential in the future. It might be suggested that a travelling exhibition of small houses, factories, and shops should be sent to all towns of appreciable size, and opened, if possible, by the mayor; that private propaganda might be indulged in amongst their acquaintance by members of the R.I.B.A. to a much greater extent; and that a booklet demonstrating the advantages of all types of planning—from toyshops to timber yards—might reach the office of every large employer of labour in the country. Other and better methods might suggest themselves as solutions of a problem that remains unaltered. Amongst a hurried public it is not sufficient that a service of use to them should be available for them should they care to look for it; its usefulness and availability must be common knowledge to them or they will make shift without it.

C

EXHIBITION HOUSE,



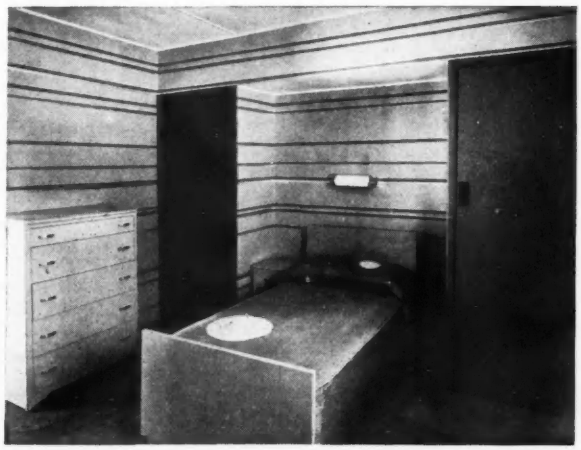
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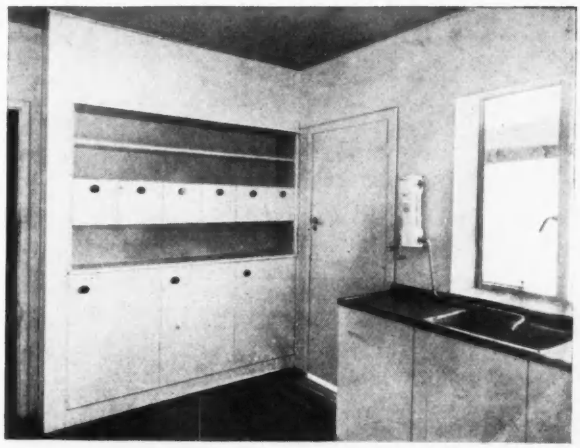
DOUGLASS M. COWIN



Two photographs of the main front: above, a view from the north; left, a view from the north-west, showing the terrace.

PRETORIA, SOUTH AFRICA







On this and the facing page are reproduced five photographs and the ground floor plan of a house, erected of purely temporary materials, in the grounds of the Witwatersrand Agriculture Society, Pretoria, for the design of which Mr. Douglass M. Cowin was awarded the first prize in the competition instituted by the "Rand Daily Mail" for a "bungalow" type of house, suitable for South African conditions, which could be erected for approximately £1,500. The competition was open to all architects resident in the Union of South Africa, and 77 designs were submitted.

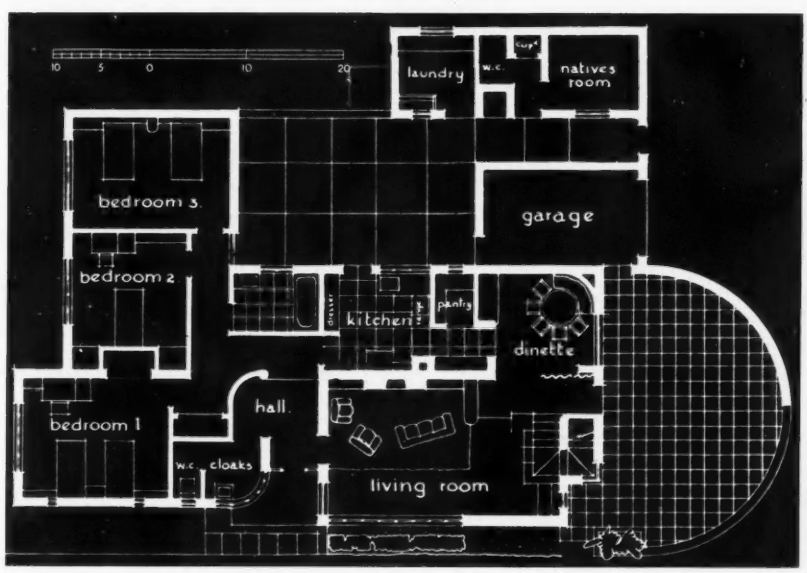
The architect, in his report, said :—

"For external effect reliance has been placed solely on mass and proportion, and no attempt made to enter into a competition with Nature, hopeless from the outset. The adoption of the flat roof has allowed of great freedom in planning; a freedom which is absent when the size and position of the rooms is largely determined by the pitched roof above them.

"The general disposition of rooms has been determined by the aspect, with all the bedrooms on the east to catch the morning sun, and living room and roof terrace facing north. The living room has been generously treated as regards size and height, while the remaining rooms have been reduced to a comfortable minimum—an item of economy when the cost of the house has to be considered.

"The furniture generally has been incorporated as an integral part of the house, and placed on and in recesses of the wall, leaving the floors unencumbered and giving an impression of added spaciousness. This should be particularly noticeable in the dinette, where, by the adoption of a built-in corner seat and sideboard, a small recess only ten feet square forms a dining space capable of accommodating a small family in comfort.

The photographs show : top, left, a bedroom; top, right, the kitchen; centre, the living room. On the right is the ground floor plan.





"Industrial architecture in the eighteenth century . . . conceived in a strong existing tradition." Bentley's piano factory at Woodchester, in the Stroud Valley, illustrated in "Industrial Art Explained," by John Gloag.

L I T E R A T U R E

SUCH A WILDERNESS

[BY ANTHONY BERTRAM]

Industrial Art Explained. By John Gloag. London: Allen and Unwin. Price 5s. net.

SO many voices crying and yet still such a wilderness. But it's a great thing that Mr. Gloag's latest prophetic utterance is so cheap: it can make a wider appeal than most of its kind. Those who dwell in the wilderness count their pence carefully when it comes to buying books, especially unpleasant books like this that upset them, don't make them feel good, put a spoke in their God's-in-His-Heaven-the-world's-O.K. cheery and horrible optimism.

But the trouble is that these barbarians don't read these books, even if they only cost sixpence; they never hear of them; John Gloag isn't, say what you will, a name to conjure with in golf clubs. You can't weigh it against Duggie Stewart. How, the question is, how in the name of all the prophets are the simple, logical, obviously true, tremendously important, but almost completely unrecognized things that Mr. Gloag says to be "got across?" Because it's no good blinking the fact that they *are* almost completely unrecognized. Those who live in the little world that is conscious of them, who read this paper and its likes, who belong to the D.I.A., remember Dorland Hall in 1933, honour Gropius and can find their way to Lawn Road tend to have become—and their friends with them—so design-minded that they have lost touch with the very vast majority of their countrymen.

I'm not saying that the news of the twentieth century isn't spreading, but it's spreading much more slowly than those in "the movement" always remember.

The dwellers in the wilderness know what jazz curtains are and they think them the last word. They haven't heard of the Bauhaus. They know what steel chairs are and they are aware of a vague presence called futurism which includes everything not Victorian or Jacobethan. They have beautiful motor-cars—or they admire them—and hideous or unsuitable homes; they don't see any relation. They simply don't see it. They do not know what design means.

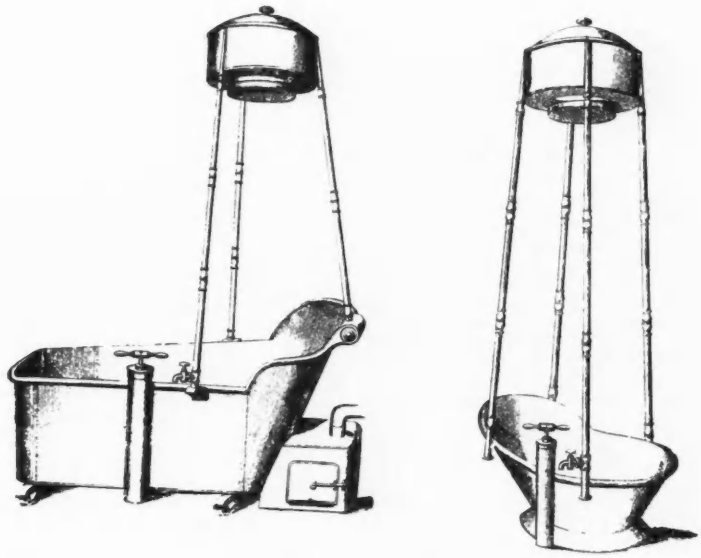
It is necessary now and then to recall this fact and to remember that after the production of good design the next most important thing is propaganda for it. Now this is where Mr. Gloag's book comes in. The masses—not socially considered, of course—the masses won't run to their booksellers or libraries screaming for edition after edition because I have given a favourable review in THE ARCHITECTS' JOURNAL. They know neither me nor it. Not as things are: although if Mr. Gloag had the cause sufficiently at heart to win the Irish Sweep or assassinate Sir Reg. . . (I must be careful. That Incitement to Disaffection Bill and those whom the King has delighted, etc.) or even to smash a diamond-paned window or marry a debutante or do anything really newsy, things might be different. But so long as he is content to remain out of jail and the chatty paragraphs, so long as he confines his propaganda to a cogent, lucid, comprehensive survey of the history and present condition of industrial design he will not be read by a great many other than the received or those who, as they say in the Catholic Church, are under instruction. Therefore the book under review can, in this paper, be most usefully praised as a missionary's *vade mecum*: and every man who really believes in design must be a missionary. His belief will be meaningless if he merely retires into a concrete cell and burns the midnight Neon reading and re-reading the prophetic books. Every believer isn't articulate, but he can arm himself from this book with the elementary facts and dogmas and with them go out to the infidel.

Above all it is the architects who must make it their business to gain that control over men's minds which will eventually give them control over the things made and used by men. As Mr. Gloag says, "the architect is the only designer whose training is such that the manufacturer can be certain of getting the right sort of expert advice on design."

The only point on which I would quarrel with Mr. Gloag—apart from

small matters of personal predelection —is his contention that "the period of asepsis is past," just as I disagree with Mr. John de la Valette's here quoted remark that "the reaction against superfluous objects and aimless ornament has gone the full length." I simply do not believe these statements to be true. Good Heavens, did neither of these gentlemen visit Dorland Hall in 1934? And if they did, can they say that the disease is eradicated, that the reaction has gone *the full length?* Ornament must not break out again until it can break out as a bloom and not as a lot of nasty spots. Besides, the enormous majority of English homes are still quite uninfluenced by the asepsis. We must have far bigger and better bonfires yet before we can relax the discipline of hygiene.

"Fitness for purpose" may be a wearisome platitude to the old guard, but it is still unknown or a puzzling novelty to the majority. Far from the period of asepsis being past, the period of periods isn't even moribund. The period of disguise isn't even moribund. Only this Christmas I passed a new bungalow with asbestos roofing and deal-lath beams called "Ye Olde Hutte." By such devices still is the motorist lured. I know a beam-painted tram in a field that hasn't yet been set upon by infuriated sterilizing mobs. No, the period of asepsis will not be past until the vicar's wife has burnt her krick-knacks and designers can be relied on not to make dining-rooms that are bogus cabins.



Baths: 1855–60. From a contemporary catalogue of George Jennings of Lambeth. From "A History of Everyday Things in England, Part IV: 1851–1934," by Marjorie and C. H. B. Quennell.

DESIGN WITHOUT TEARS

[*BY B. S. HART*]

A History of Everyday Things in England, Part IV, 1851-1934. By Marjorie and C. H. B. Quennell. London: Batsford. Price 8s. 6d. net.

THE doctrine of the infallibility of the grown-up had so many adherents until quite recently that to confess ignorance in answer to any question put by a child amounted to grave heresy. Today, fortunately, it is no longer a cardinal sin to say, "I do not know," as the attitude of intelligent grown-ups in their relationships with children has changed entirely. The four parts of *A History of Everyday Things in England* are representative of the best in this new attitude; they express opinions, not as an absolute law, but as a personal point of view; and although the child is given friendly guidance, he is encouraged to seek out information for himself and to draw his own conclusions.

The authors' tolerance is one of the many pleasing features of this volume, dealing with the Age of Production, —the period from 1851 to 1934. Their dedication is to William Morris, Edward Burne-Jones and Philip Webb, "who more than any other men contributed to the alteration of the appearance of everyday things during the nineteenth century." Their sympathies are clearly with the craftsman-communism of Morris's *News from Nowhere*, but though they linger with loving regret on a description of building methods before mass production was universal, they paint the other side of the picture with creditable fairness, showing how modern methods of production give the worker the benefit of better conditions, shorter hours and higher wages. Racketeering, however, they cannot stomach, "these are unsocial acts, and the people who do these things should be bastinadoed and then banished."

Modern painting and sculpture "are rather beyond us," so unfortunately there is no account of their latest trends, but there is a careful survey of architecture and building construction. The honest attempts of the younger men to find a fitting architectural expression for new methods and materials and changing social conditions are dealt with sympathetically, although reinforced concrete is dismissed too summarily as "not very real building, because it depends on the carpenter to give it form."

There is already a vast amount of literature about motor-cars, aeroplanes, wireless and suchlike mechanical and scientific inventions, so although they are a product of the age, they are only discussed briefly. The authors have decided wisely to deal more comprehensively with other matters which are not so readily accessible to children. The sections on such subjects as mass production, public health, town planning, slums, and the development of refrigeration as a revolutionizing factor in the export and distribution of foodstuffs, are wholly admirable.

The period covered by this volume enables photographs to be used extensively as illustrations, but there are the usual attractive drawings as well. Some of these, however, the traditional shepherds, milkmaids and farm wagons, might well have been omitted, or at least supplemented by additional photographs showing the latest types of agricultural machinery, the sterilized perfection of a modern milking shed, for example. The colour plates are disappointing: *three* double pages of the interior of a motor-car factory are a little superfluous, one only would have conveyed sufficient impression of its size and workings; and the tennis dress for 1934, shown on the only costume plate, would only just pass muster, in these severely specialized days, for a friendly game on the vicarage lawn.

This volume, however, contends manfully with far greater problems than were encountered in any of the earlier books, and it is not only youthful readers who will welcome its lucid explanations and sane viewpoint. And children and grown-ups alike will feel a tinge of regret when they have read it, for it marks the completion of this admirable series.

D.I.A.

FRANK LLOYD WRIGHT

Mr. John Gloag, who has recently returned from a visit to America, delivered a lecture on "Frank Lloyd Wright" at a meeting of the Design and Industries Association, held in London on Thursday last. Following are some extracts from the lecture.

I REMEMBER some years ago speaking to a D.I.A. audience and mentioning the name of Frank Lloyd Wright, and stopping because of the applause that followed the mention of this name. It surprised me at the time, knowing the neglect he has suffered in his own country, that an English audience should be so quickly responsive when his name was mentioned. It surprised me still more, after I had been a few weeks in America, to discover how little known he was in his own country. Having become completely intoxicated with the staggering beauty of New York, and sobered and made envious by the spacious lay-out of Washington, it was only right that I should suffer from the ghastly anticlimax of Chicago. But Chicago was really my starting-point for the home of Frank Lloyd Wright in the Middle West when I went out to Spring Green, Wisconsin, and stayed with him at his house, "Taliesin," and saw something of the work of the Taliesin Fellowship.

It was my good fortune everywhere I went to be able to meet architects and designers and people who were engaged in the most interesting creative work. They had all heard of Frank Lloyd Wright, and they knew how greatly his work had affected the intelligent part of design in America, and also how it had influenced ideas in Europe. Let me give some very brief details of his life. Frank Lloyd Wright was born at Richland Centre, Wisconsin, in 1869. In 1888 he entered the office of Adler and Sullivan, in Chicago. Louis H. Sullivan was a pioneer in design, as great a pioneer as Charles Rennie Mackintosh, or C. F. A. Voysey, or the late Adolf Loos. He inspired young Frank Lloyd Wright with ideas that were singularly alien to the spirit of the time in which he worked. In the first decade of this century Frank Lloyd Wright was building houses that, save for a few external bits of decorative relief, might easily have been devised by the more intelligent sections of the functionalist school of architecture which flourishes today. Before showing you a few examples of his early work, a few of those forerunners of the type of thinking that has become much commoner today, and which we are so apt to attribute almost exclusively to the more vocal of its Continental exponents, I would like to give you some idea of the man himself and of the way in which he is training the apprentices who compose what he calls the Taliesin Fellowship.

Perhaps the best sketch of the life of Frank Lloyd Wright is to be found in that entertaining book called *While Rome Burns*, written by that prince of gossip writers, Alexander Woollcott. Mr. Woollcott called his sketch *The Prodigal Father*. In this month's issue of the *Architectural Review* I have endeavoured to give a picture of Frank Lloyd Wright, but no words, written or spoken, can convey any impression of his charm as a man, and of his wisdom. Frank Lloyd Wright, in a lecture at Princeton two or three years ago, condensed in three sentences the whole theme of one of the great books that have been written about architecture. That book was by Lisle March Phillipps, and was published over twenty years ago. It was called *The Works of Man*. It showed how architecture is a mirror of human character. Frank Lloyd Wright said, "Let a man build, and you have him. You may not have all he is, but certainly he is what you have. Usually you will have his outline." Now from the buildings which you will see, you will realize that Frank Lloyd Wright is far more than a mechanistic functionalist. Concerning that grim and savage phrase, "The house is a machine for living in," before which so many otherwise quite intelligent people have bowed down in unthinking worship, he said to me, "Architecture begins where that concept ends." Ideas bounded by such slogans resulted in the substitution of a negative for an affirmative. Of his own approach to architecture he said: "My buildings are in human scale . . . the people in them are like flowers: they improve the buildings and the buildings improve them." I mentioned the Imperial at Tokyo and he smiled. "I built an oriental symphony," he said. "I was romantic when I ought to have been as hard as a keg of nails. I played down to those people." I put in a protest at this point, and he admitted that the constructional design was creative. As the Imperial was the only building that survived the great Japanese earthquake, and had been expressly designed to resist earthquakes, his admission was rather more than justified.

Now although I am unable to show you any pictures of that remarkable building at Tokyo, I would like to quote Alexander Woollcott's description of it in that sketch which I mentioned just now. He wrote as follows: "The Japanese wished to build an Imperial Hotel in Tokyo as a social clearing-house for their empire. They sent a commission around the world to select an architect for their purpose, and this commission chose our friend from Wisconsin. It was his task to rear a beautiful and spacious palace that would modestly take its cue from all the folkways and traditions of Japan, but which, in one important respect, must differ from all the other buildings round about. It must discover and express the secret of withstanding an earthquake.

"The weight of the deepest sea in the world is forever straining intolerably the tenuous crust of that anxious island, and from time to time its whole surface shudders disastrously. Wright envisaged not only a stately but a flexible pleasure dome which, instead of trusting to any treacherous rock, might float instead on a sea of mud as a battleship floats on the ocean, the weight of its floors sustained not by the walls at all but by centred supports which would balance them as a waiter's fingers balance his tray.

"It was a scheme to outwit rather than to defy the temblors, and it so departed from every routine of habitual construction that, rather than entrust it to conventional builders, Wright himself took charge and brooded over the six hundred toiling artisans who fashioned it, piece by piece, as a thing at once of fine simplicity and infinite guile. Throughout those years he was generously backed with money, patience and shelter from interference by old Baron Okura, a hearty little fellow of some eighty summers, who at the time had just been presented with his sixty-fourth child by his sixteenth wife. At last the great palace was completed—a jointed monolith with a mosaic surface of greenish-coloured, leopard-spotted lava and slim-fluted, gold-coloured bricks. Wright received as rich a reward as any man could ask when his ship set sail at last from Yokohama, and sixty of his foremen, who had paid their own car fare from Tokyo to see him off, stood on the pier and yelled: "Banzai, Wrieto San, Banzai!" as the ship went down the bay. Then one night in 1924 he was awakened in Los Angeles by reporters bearing the news that the worst earthquake in history had wiped out Tokyo and Yokohama. The Imperial Hotel, the reporters said, had crumbled with the rest. It was only after ten days of uncertainty and conflicting rumours that Wright received this cablegram:

"'Imperial stands undamaged a monument to your genius in Japan thousands of homeless provided with uninterrupted service congratulations—OKURA.'

"It seems the Imperial had rocked in the upheaval, but, as the temblor passed, had settled quietly back into position with no crack or dislocation to tell the story. Since then, whenever a temblor visits Tokyo, all the town tries to crowd into the terraced courtyards of the Imperial, seeking the protection of a god that can laugh at an earthquake."

I think I should hesitate to call Frank Lloyd Wright a humanist; he is certainly a functionalist; and he is aware that the machine and the Machine Age are persistently misunderstood. He understands how to design for the machine age, and has been doing it for many years, and I suppose the Taliesin Fellowship is about the only really big research station for machine design that exists today. The Taliesin Fellowship is not an "art colony." It is not an "escapist" school. It is a social research station, unrecognized and unsupported by the country which will benefit by its work, but perhaps none the worse for that. It is training designers as they have certainly never been trained before in America to accept responsibilities for civic and national planning, for architectural and industrial design; it is giving them a profound understanding of the characteristic art of the Machine Age.

All I have been able to show you in pictures is some of Frank Lloyd Wright's past creative work. He is now engaged upon his greatest piece of design, which is the Taliesin Fellowship and the educational work it is doing. He has had a great effect upon his own century in architectural design; I believe that this last piece of work to which he has set his hand may affect the whole character of the machine age, not only in America, but throughout the Western world.

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ST. PAUL'S ECCLESIOLOGICAL SOCIETY

Following is a list of meetings and visits arranged by the St. Paul's Ecclesiological Society. The meetings, are to be held in the R.I.B.A. Building, Portland Place, W.1, at 8 p.m., and the visits will commence at 2.30 p.m.

Wednesday, February 13: "Tintern Abbey as in the Middle Ages," by A. E. Henderson, F.R.I.B.A.

Saturday, February 16: Visit to All Hallows, Lombard Street, and St. Edmund King and Martyr, Lombard Street. Conductor: F. R. Hiorns, F.R.I.B.A.

Saturday, March 16: Visit to Dulwich College. Conductor: Miss E. M. Robinson.

Wednesday, March 20: "Wood Carvings and the Stone Sculptures of Worcester Cathedral," by P. M. Johnston, F.R.I.B.A.

Wednesday, April 10: "Some Recent Investigations at St. Paul's Cathedral," by W. Godfrey Allen, F.R.I.B.A.

Saturday, April 13: Visit to St. Mary-the-Virgin Church, Langley Marish, Slough, Bucks. Conductor: H. V. Molesworth Roberts.

SAVING SOMERSET "BEAUTY" SPOTS"

Such noted "beauty spots" as the Doone Valley, the village street at Dunster and the Exmoor coast line and moorlands are now protected as a result of the Ministry of Health's approval of the regional planning scheme for Exmoor and West Somerset promoted by the Minehead Urban District Council.

TECHNICAL SECTION: 4

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

HAVING established the number of air changes or amount of air which will enter the different rooms of a building, as described in the last issue, the quantity of heat necessary to raise this air to room temperature has to be calculated. As will be seen in the heat loss examples already given, this involves no more than multiplying the volume by the specific heat expressed in B.T.U.'s per cubic foot, the whole, of course, being multiplied by the temperature rise. The specific heat of air may be taken at ·24 B.T.U. per lb., which at 45 deg. F. (an average temperature) is ·019 B.T.U. per cubic foot.

Thus, to simplify matters, the cube may be taken and multiplied by the following factors according to the number of air changes selected.

TABLE XII

	B.T.U. per hour per cubic foot.
Heat required for ½ air change per hour ..	.01
1 " " " ..	.019
1½ " " " ..	.029
2 " " " ..	.038
3 " " " ..	.057
4 " " " ..	.076

It will be noticed that in Fig. 9 the figure ·038 was applied for air loss, corresponding to two changes per hour.

(c) LOSSES IN MAINS

The considerations discussed under (*a*) radiation losses and (*b*) heat required for air change, were perfectly general, i.e., independent of whether the heating system be

(*a*) *Local* such as gas or electric radiators, or

(*b*) *Centralized*, such as a hot water or steam circulating system.

From here on, however, the heat losses depend greatly on the system employed, and in considering losses in mains it is clear while the local systems may have none, in systems employing circulation of steam, hot water, or other fluids (however heated, i.e., with coal, coke, electric immersion or electrode heaters, etc.) mains losses may be heavy.

In a later chapter the methods and constants required for calculating the heat loss of mains of various diameters, temperatures, and insulations will be given in detail. It is only necessary here to mention the general problems involved when these calculations have been made.

In a compact system the mains may be short, so that, when well insulated, the loss may amount to as little as 10 per cent. or so. Indeed, in some cases, the greater part of the mains may be exposed in rooms to be warmed, where their radiation and surface is useful, and does not constitute a loss.

In straggling jobs, on the other hand, the mains may consist of large pipes running hundreds of yards in underground corridors or tunnels where the mains loss may frequently be 30 per cent., even when insulated. Here, of course, the insulation efficiency becomes very important, both for first cost and fuel cost. In the extreme cases, it becomes an important factor in deciding between the *central system* and the *decentralized system*, the comparative virtues of which may be summarized as follows :—

CENTRAL SYSTEM

(1) Involves larger mains and mains losses, but
(2) Less labour and supervision.
(3) Gives a better diversity factor.
(4) Can burn much cheaper fuel and take advantage of mechanical stokers, etc.
(5) Requires only a single flue, boiler house, pumps, etc.
(6) Less loss on boiler radiation.
(7) May enable an economic combination with electric generating plant to be arranged.

By a *central system* is meant one with a single boiler house or its equivalent, and by a *decentralized* system, one with more than one boiler house or its equivalent. This is not to be confused with a *local* system, which has a heat generating unit (such as a gas fire) in each individual room.

Commenting on the above points, it may be of interest to note that in Christ's Hospital, which involved the heating of about twenty separate blocks (see Fig. 15) with about five miles of main piping, the mains losses amount to about 25 per cent., but, nevertheless, by centralizing it, it was found possible

(i) to give much more efficient heating than previously, i.e., more heat and more hot water.

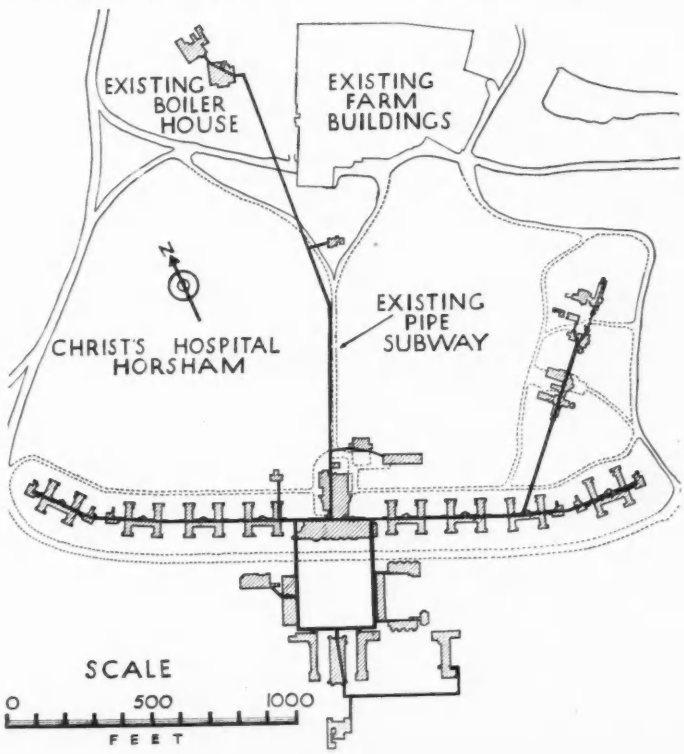


Figure 15.

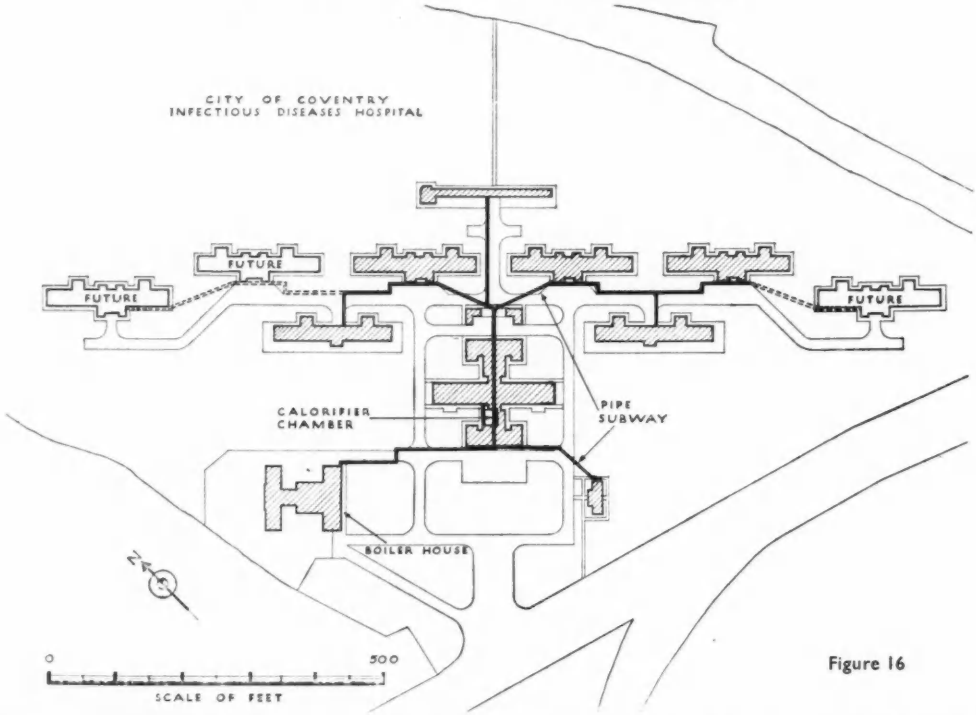


Figure 16

(ii) to effect a saving in fuel of £1,000 per annum with a reduction of labour.

(iii) to enable electricity to be generated at ¾d. a unit as compared with a much higher price from public supply.

Similar results were obtained at Coventry Isolation Hospital (Stanley Atkinson, architect, see Fig. 16), except that no electric generation was provided for.

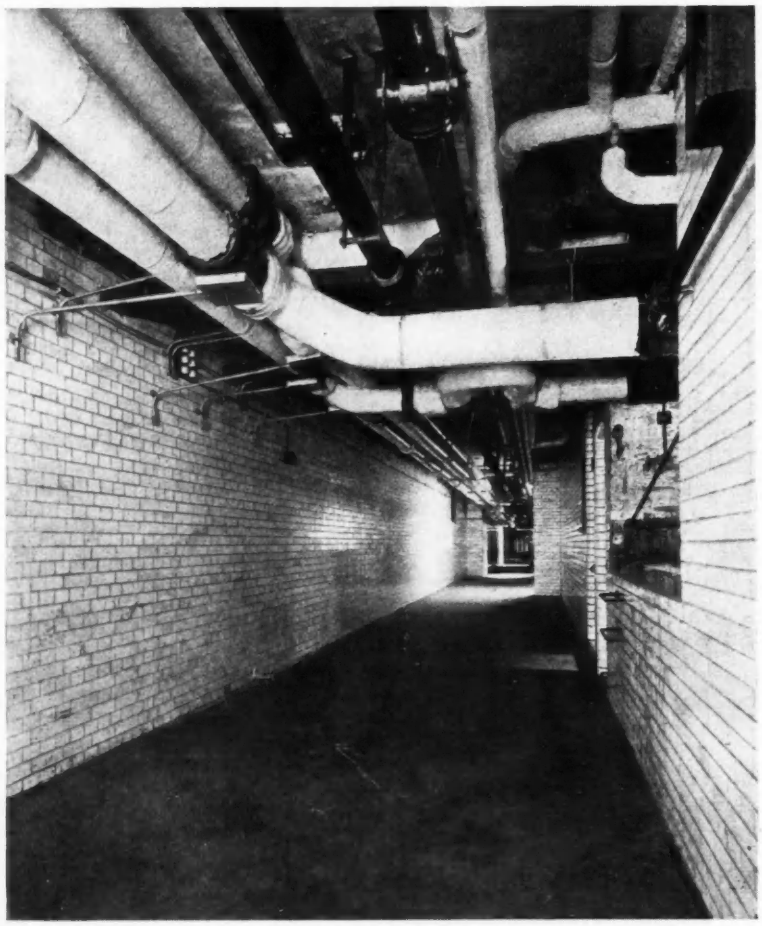


Fig. 17. *Typical example of heating, hot water supply and steam mains from a centralized plant. The main subway at Christ's Hospital.*

An examination of Figs. 15 and 16 will show how distant the buildings of a group can be, and yet pay handsomely for centralization. Fig. 17 illustrates a typical arrangement of mains in a subway.

Had Christ's Hospital been decentralized (i.e., boiler in each building) it would have needed

20 flues and boiler houses,
20 boilers for heating,
20 boilers for H.W.S.,
20 pumps.

The coal would have cost 40s. a ton instead of 23s.

Five extra men would have been involved, the electricity account would have been increased by about £500.

The mains loss of 25 per cent. on the central system would roughly balance the 25 per cent. extra weight of coal required with many small inefficiently run boilers.

In America and on the Continent, development in this direction has gone so far that in New York alone there are about seventy miles of heating mains in the streets feeding adjacent buildings, with a heat capacity of 6,000 million B.T.U.'s per hour. It is unnecessary to go into this in further detail here, as the point has perhaps been made that centralization pays, even when applied to quite extensive and distant groups of buildings.

Among the advantages of the centralized system was mentioned good *diversity factor*. This means that the possibility of all rooms in a large number of buildings, all requiring heat at once, is nearly as remote as that they will all require light at once, and hence a great saving may be made in total

TABLE XIII : BOILER RADIATION LOSSES

Building	How Insulated	Size and Type of Boiler	Hot Water or Steam ; and Approx. Temperature	Boiler Radiat'n Loss
Bank of England	1½ in. Magnesia, 1½ in. Hard-Setting Super-coat and Polished Aluminium	Double-Return Tube Economic 12 ft. long × 8 ft. 6 in. dia. 9,000,000 B.T.U./hour	Hot Water at 150° F.	0·7%
Romney House, Westminster	Aluminium Foil and Steel Jacket	Metropolitan 8 ft. × 7 ft. × 8 ft. 2,500,000 B.T.U./hour	Hot Water at 180° F.	6·6%
India House, Aldwych	1½ in. Magnesia and Steel Jacket	Metropolitan 7 ft. × 6 ft. × 7 ft. 2,000,000 B.T.U./hour	Hot Water at 130° F.	6·3%
Municipal Offices, Worthing	1 in. Magnesia, ½ in. Hard-Setting Super-coat, Painted	Robin-Hood, Cast-Iron Sectional. 1,100,000 B.T.U./hour	Hot Water At 150° F.	4%
Electrode-Heater and Storage cylinders	3 in. Cork, Painted	Boiler, 1,000,000 B.T.U./hour. 2 Cylinders at 7,000 Gallons each	Hot Water at 250° F.	2%

TABLE XIV : EFFICIENCIES OF SOME FIRST-CLASS BOILER INSTALLATIONS UNDER TEST CONDITIONS.

Building	Size and Type of Boiler	Nature of Fuel	Temperature of Flue-Gas Leaving Boiler	CO_2 Content	Average Efficiency
Bank of England	Double-Return Tube Economic 12′×8′ 6″ dia. Hot-water	Oil	250° F.	7%-10%	89%
St. Luke's Printing Works	Economic, Brick Set, 14′ ×8′ Steam	Oil	400° F.	8%-11·5%	76%
Christ's Hospital, Horsham	Economic, Brick Set, 14′ ×8′, with Economiser. Steam	Coal	250° F.	5%-9%	79·6%
Lloyd's Bank, Head Office	Metropolitan, 2,000,000 B.T.U. each. Hot-water	Oil	440° F.	8%-11%	76·3%
	Other Typical Test-Efficiencies are :—				
	Cast-iron Sectional. Hot-water	Coke	500° F.	7%-11·5%	71%
	Cast-iron Sectional with Automatic Stoker. Hot- water	Coal	500° F.	11%-14%	75%
	Gravity-feed Boiler.* Hot-water	Coke	500° F.	14%-15·8%	77·4%
	Gas Boiler. Hot-water	Gas	250° F.	15%	90%

* Dr. Taylor, Proc. I.H.V.E., 1934, p. 387.

plant capacity. The same also applies to the domestic hot water supply.

In Barrow Mental Hospital, which will contain forty separate buildings in the full scheme, calculation has shown that it will pay to centralize this, and to obtain thereby the economies of cheap fuel, self-generated electricity, mechanical stokers, single flue and boiler house, and supervision, although it will need a connecting duct 4,000 ft. long, containing approximately 18,000 ft. of mains in heating and hot water supply systems.

The question of using separate sub-circulating systems from separate calorifiers in each building, fed by steam from a central boiler house is discussed later, but, in general, it may be said that this has fewer advantages than circulating hot water direct without the calorifiers.

(*d*) LOSSES IN BOILER OR OTHER HEATING UNIT

These losses include

(i) Radiation from boiler surface,

(ii) Losses in combustion and flue gases.

The calculation of losses under (i) will be explained in a later instalment. In large well-insulated installations, this loss may amount to as little as 1 per cent. of the heat received by the boiler. In small badly insulated installations the figure may rise to 20 per cent.

Actual figures in a few first-class examples are as given in Table XIII.

It will be appreciated that an electric thermal storage system has this loss (and mains losses) in common with any hot water circulating system, of which it is only a special type, but has no loss under (ii) from combustion and flue gases. This loss was indeed already incurred when the fuel was burnt at the generating station, and has already been paid for in the price paid for electricity.

(ii) Losses in combustion and flue gases. These losses depend greatly on the following factors :—

(*a*) size and type of boiler.

(*b*) output and degree of forcing.

(*c*) control of air supply.

(*d*) method of firing.

(*e*) fuel.

These problems will be discussed in detail under " Boilers," but it may be said here that under the best conditions a boiler rarely has a loss of less than 10 per cent. with gas, and 15 per cent. with coal, coke or oil, and these figures (90 per cent. and 85 per cent. efficiency respectively) are only attained under best combinations of conditions.

With hand stoking, these conditions are difficult to maintain except for short periods, and probably 25 per cent. or 30 per cent. or even 40 per cent. losses are more usual in average cases on continuous working. In small domestic boilers, forced, where the flames go straight up the chimney, much lower efficiencies result.

Measured efficiencies in a few exceptionally good examples are given in Table XIV.

(*e*) MARGIN TO BE ALLOWED FOR OVERCOMING TIME LAG, ETC.

It is clear that if a heating installation had an output capacity exactly equal to the heat losses of the building, with no margin, then, starting from cold in the worst wintry weather, it would theoretically take an infinite time to reach the desired temperature, although it would be closely approached in a few hours. For the desired temperature to be reached in a given time, a suitable margin must be allowed.

In rough figures, for a typical building this relation is often of the following order.

Margin in boiler capacity	Final temperature reached from cold in :—
0 per cent.	Infinity.
10 ,,	5 hours.
50 ,,	2 ,,
100 ,,	1 ,,

A reasonable compromise is, in average cases, to allow a normal margin of 33⅓ per cent. in boiler rating. This means, of course, that in normal running the boiler will not be " all out," and this adds enormously to the convenience and efficiency of its working.

Collection of losses and estimation of boiler capacity. Case (*a*) *Small House* with insulated walls as described on page 167, of 24,000 c. ft., with 1,200 sq. ft. floor area on each of two floors, for which heat loss was calculated at—

	B.T.U.'s per hour.
	62,300
Allow for mains 10 per cent.	6,230
Allow for boiler radiation 5 per cent. ..	3,150
	71,680
Allow margin in boiler rating 33⅓ per cent.	23,890
	95,570

An Ideal Neo-Classic boiler, mark NC 72, will be found to have a rating of 104,600, and this type would therefore be adequate.

To produce 71,680 B.T.U.'s per

hour, if the boiler has an efficiency of 70 per cent., the fuel per hour required needs to have a heat contents of—

$$71{,}680 \times \frac{100}{70} = 102{,}400 \text{ B.T.U.'s}$$

With coal at 12,000 B.T.U.'s per lb., this involves a consumption at the rate of $\frac{102{,}400}{12{,}000} = 8\frac{1}{2}$ lb. an hour.

Case (b) Office Block.

Cube 500,000 c. ft.

With insulated walls and roof as described on page 168, 10,000 sq. ft. floor area, each of five floors, the heat loss was calculated at—

	B.T.U.'s per hour.
	1,065,000
Add for mains 20 per cent.	213,000
Add for boiler radiation 5 per cent. ..	53,000
	1,331,000
Allow margin in boiler rating $33\frac{1}{3}$ per cent.	444,000
	1,775,000

A Metropolitan steel boiler, mark 517, will be found to have a rating of 1,882,000 B.T.U.'s per hour, and this type would therefore be adequate.

To produce 1,775,000 B.T.U.'s per hour if the boiler has an efficiency of 70 per cent., the fuel per hour required needs to have a heat content of—

$$1{,}775{,}000 \times \frac{100}{70} = 2{,}540{,}000 \text{ B.T.U's.}$$

With coal at 12,000 B.T.U's. per lb., this involves a consumption at the rate of—

$$\frac{2{,}540{,}000}{12{,}000} = 212 \text{ lb. per hour.}$$

IN THAT CONTINGENCY

[The following abstracts of inquiries represents a number of those recently submitted to the Building Research Station. The information given in the replies quoted is based on available knowledge. It has to be borne in mind that further scientific investigations may in the course of time indicate directions in which the replies might be supplemented or modified. Moreover, the replies relate to the specific subject of each inquiry, and are not necessarily suitable for application to all similar problems. Crown Copyright Reserved.]

Repairs to Bath Stone Porch

¶ *INFORMATION on methods of making minor repairs to Bath stone masonry was desired by a firm of architects. A classic porch in Bath stone had suffered by the breaking away of some of the members of the cornice. The defects could be dealt with adequately by minor plastic repairs and it was not thought that the work was of such importance that it was necessary to call in specialists in stone restoration. The possibility of making good in cement was specifically mentioned. The porch was painted and would require to be repainted.*

It is agreed that Portland cement mortar would be a suitable medium for plastic repairs. Zinc oxychloride mortar is an alternative—but this requires considerable experience in manipulation. In effecting the repair, the decayed portions of the stones of the cornice should be cut away to a depth of at least 1½-2 in., leaving a rough surface. To provide an adequate key for the repair, a number of holes should be drilled at an angle in the sound stone and in a few of these, loops of non-corrosive metal wire should be fixed with Portland cement mortar. When this mortar has set, the repair can be built up with a mix of one part of white Portland cement and three or four parts of crushed Bath stone of a gritty character and not containing an excess of dust. The most satisfactory procedure is to mould the surface roughly to shape without excessive trowelling, to allow it to set, and subsequently to dress to the required surface.

It should be pointed out that Portland cement mortars have a deleterious action on linseed oil paints and care should be taken in selecting a suitable paint. Tung oil primer should be first applied, followed by the normal linseed oil paint, and the work should preferably be carried out in dry weather during summer. Further information on this subject may be found in *The Effect of Building Materials on Paint Films* (H.M. Stationery Office), price 3d.

Noise Deadening in Flat Roof

¶ *AN architect inquired concerning methods of preventing sound and impact noises passing through a flat roof. The concrete roof of a block of working-class flats had been used as a children's playground, but there had been complaints of the noise of children's play from the tenants of the top-floor flats.*

The flat roof was of concrete and filler joist construction, the concrete being 6 in. thick. The roof was covered with a layer of felt and a ¾ in. thickness of mastic asphalt. The ceiling finish was plaster.

Information was desired as to methods for deadening the noise from the existing roof, and as to methods which could be applied in a new roof when the present building was extended. Elaboration would be ruled out on the score of expense.

The problem of obtaining effective sound-insulation of an existing flat roof under the conditions stated is one of considerable difficulty, and it is realized that the following suggested methods, which appear to be the only ones available, may be impracticable on account of cost.

1 : Impact noises could best be damped by a layer of resilient material above the present roof surface. Slabs of compressed cork would probably be effective for this purpose, but are not likely to prove durable under the effects of severe wear and continuous dampness and would require to be protected by an additional layer of asphalt. The increase in dead load would, of course, need consideration.

2 : Some advantage might be obtained by providing suspended ceilings entirely out of contact with the roof slab. The essential properties of the ceilings themselves are weight and freedom from open joints or air-spaces of any kind through which sound might find its way. For this reason, plaster on laths or on plaster board is probably preferable to most of the other types of ceiling commonly employed.

The provision of a layer of resilient material, however, would involve fewer difficulties in a new roof than in an existing one, and from the point of view of effectiveness and cost would probably be preferable to other methods of sound-insulation. Slabs of cork or fibre wall-boards, laid on the concrete and covered with asphalt, would be of assistance in reducing sound transmission and would at the same time provide valuable protection against heat losses through the roof.

Some attention should be paid to the composition of the top layer of asphalt in order to obtain a material which will be sufficiently hard to resist wear without being excessively brittle. No doubt a reputable firm of asphalters would be able to advise on the grade of asphalt most suitable for the purpose.

In the foregoing notes, reference has been made only to impact noises, but disturbance may also be caused by air-borne noises originating above the roof. These would probably enter the building chiefly by way of the windows and their effect might not appreciably be reduced by elaboration of the roof structure.

LAW REPORTS

TOWN PLANNING ACT—1925

Re Acquisition of Land (Assessment of Compensation Act, 1919.—Markham v. *Derby Corporation.—Chancery Division. Before Mr. Justice Clauson.*

THIS matter came before the Court in a special case stated on an award by an arbitrator, Mr. Hugh C. Webster, F.S.I., on a claim by Sir Charles Markham, Bart., for compensation, as owner of 60½ acres of Chaddesden Park, reserved by the Derby Corporation as an open space.

The point for the decision of the Court was whether the arbitrator was right in law in awarding to Sir Charles Markham £4,396 as compensation, on the ground that the land was injuriously affected as regarded building development within the meaning of the Town Planning Act, 1925. There was a further point as to interest, but that was abandoned.

The point of law at issue was as to the construction to be put upon the words "making of a Town Planning scheme" in section 10 of the Act.

After hearing the legal arguments of Mr. J. V. Gray, for Sir Charles Markham, and Mr. Wm. Allen, K.C., for the Corporation, his Lordship, in a reserved judgment, found that Sir Charles was entitled to the sum awarded by the arbitrator, £4,396, with costs.

His Lordship said section 10 of the Act provided "that any person whose property is injuriously affected by the making of a Town Planning scheme, shall, if he makes a claim within the time limited by the scheme, be entitled to compensation from the responsible authority." In the present case the Corporation settled a scheme, and it was submitted to the Minister of Health for his approval. It was suggested by Mr. Allen, for the Corporation, that the time when the scheme "was made," was the time when the Corporation passed the resolution, which was a condition precedent to the placing of the scheme in final form before the Minister. It was further contended by Mr. Allen that as Sir Charles Markham had purchased the land after the date of the resolution, although prior to the approval of the scheme by the Minister, he was not entitled to put forward a claim for compensation, because no right to it had been assigned to him by the vendor. Mr. Gray, on behalf of Sir Charles, had argued that the "scheme was made" when the Minister gave his approval. In his Lordship's view, until the scheme had been approved by the Minister it had no operation at all. In fact, the whole thing was at large until the Minister had given his approval. He came to the conclusion that the matter was purely one of construction of the words in section 10, and that his judgment must be in favour of the submissions of Mr. Gray. He accordingly decided in

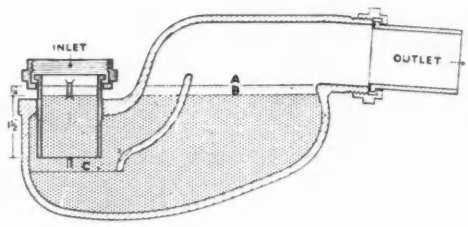
favour of Sir Charles Markham for the compensation awarded.

RESTRICTIVE COVENANT DISPUTE

Re Ecclesiastical Commissioners Conveyance—Chancery Division. Before Mr. Justice Luxmoore.

IN this case, which came before the Court on a summons, Mr. J. I. Mathieson and Mr. G. H. Lyall, as owners of West Heath House, West Heath Road, Hampstead, sought a declaration against the Ecclesiastical Commissioners, Mrs. L. Freeman, of St. Margarets, West View Road, Hampstead, an assignee of the Commissioners, and Mrs. A. Wix, of Finchley Road, Hendon, that restrictive covenant no longer applied to that land. In the alternative applicants asked for a declaration, as to which, if any, of the restrictive covenants were enforceable, and by whom. Mrs. Wix represented the interests of a number of owners of property fronting the Finchley Road.

His Lordship, in a reserved judgment, dealt with the facts of the case and the contentions of the parties. He said in this case the applicants were the successors in title on Mr. H. G. Gotto, to whom the property was conveyed by the Commissioners in 1887. That conveyance contained certain restrictive covenants and the applicants brought these proceedings under the Law of Property Act, 1925, Section 84, sub-section 2, asking for certain declarations. The question raised was, if the restrictions were imposed for the benefit of owners and other hereditaments, who were the persons now entitled to the benefit for such restrictions? It was to be noted that the conveyance contained the stipulation that the covenant contained therein should run with the land, and it was also expressed as a separate covenent between Mr. Gotto and assignees of the Ecclesiastical Commissioners, owners for the time being of any land adjoining or adjacent to that now concerned. It was important to note what the covenants were. Those concerned with the case restricted the land for the use only for the erection of private dwellings, and prohibiting nuisance to adjoining owners or lessees. The surrounding circumstances in this case were unimportant and to deal with the question he had to consider them as they stood at the time of the deed as long ago as 1887. Numerous plots of land were then conveyed to other persons, some with restrictions and some without, and all were in the vicinity of the land in question. In the deed there were the words " owners for the time being " and in his view that qualified the word " assigns " only. If it had been intended that the covenants should apply to the land then belonging to the Commissioners, there would be no necessity to mention the assignees, as they would be entitled to the benefit of the covenant. The assigns must hold the land which formerly belonged to the Ecclesiastical Commissioners. In his opinion therefore the assigns referred to in the covenant were those who held land adjoining or adjacent to West Heath House at the time of the conveyance to Mr. Gotto. He accordingly held that Mrs. Freeman was entitled to enforce the covenants, as were the owners of other plots of land. With regard to Mrs. Wix, none of the persons she represented were entitled to enforce the covenants. He therefore made declarations accordingly.



TRADE NOTES

[*BY F. R. S. YORKE, A.R.I.B.A.*]

Carpet

I HAVE received from T. F. Firth and Sons a brochure describing a new type of carpet—patented and called Firmoda—which, whilst having all the characteristics of the ordinary carpet, differs from it in that the backing, instead of normal sizing, is a material of permanent resiliency, which penetrates the bottom of the weave, anchoring it so that the pile cannot be pulled out.

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When cut, the carpet forms its own selvedge; a clean vertical edge that cannot unravel and needs no binding or sewing. When two pieces of carpet are fitted together and held by a tough web of strapping, impregnated with a special cement, the effect is that of seamless carpeting, which means that a room of large size or irregular shape can be covered with narrow widths and present an almost seamless surface, that could formerly be obtained only by specially woven seamless carpeting and by cutting to waste.

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In case of stains or burns, the affected parts may be cut out and replaced by almost invisible patches. There are no welt seams to mark the place where the repair is made.

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The carpet is made in sixteen standard colours.

Traps for One-Pipe Plumbing

Pemseal re-sealing traps are formed with an internal rib that partitions the trap into two compartments—the outlet, and the air transfer passage, with an inlet branch formed as a separate unit and connected to the trap by screwing.

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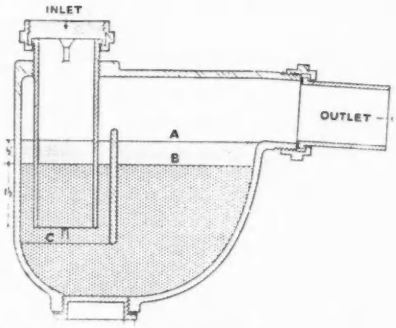
The outlet side is wide in both directions so that it contains a substantially greater amount of water than the inlet. The inlet branch is inserted sufficiently far into the trap to form the required seal.

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The normal water level is shown by the line A. When suction is exerted on the outlet of the trap the water on the inlet side falls to the level shown by the line C. When this point is reached, air flows through the transfer passage to the outlet and prevents further loss of water. When suction ceases, the water flows back from the outlet side until the level on both sides is equal.

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This level is shown by line B. Thus the seal is re-formed. The outlet side, being larger than the inlet side, forms a storage



Section of the basin and sink type. The sketch at the top of this page shows a section of the bath type.

chamber containing sufficient water to compensate for any that may be lost during suction.

Steelwork Tables

The revisions in standard steel sections for structural purposes, recently recommended by the British Standards Institution, have necessitated considerable alterations in the numerous steelwork tables already published.

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I have just received from Redpath Brown & Co. a supplement to their 1928 handbook, giving safe loadings, composition and properties, for a large variety of sections, including single joist plated girders and pillars.

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The supplement is intended to serve as an interim publication, to be used in conjunction with the 1928 edition of the

steelwork handbook until such time as the revised handbook is ready, but it contains some 75 pages of tables clearly set out in such a way as to be of immediate use.

Manufacturers' Items

Artistic Concrete is the title of a booklet recently issued by the Cement Marketing Co., Ltd. It pointed out that " the slum clearance schemes which will be carried out during 1935 will almost inevitably call for blocks of reinforced concrete flats—the logical method of rehousing. No objection can now be advanced against such structures on the score of appearance, since there are innumerable ways in which they can be treated so as to make them attractive externally—and at a cost which need not exceed more than a halfpenny per cubic foot of capacity.

" Each of the range of products for artistic concrete supplied by The Cement Marketing Co., Ltd., is dealt with fully in individual booklets and these will gladly be sent to any who are interested.

" All who are planning new work or renovations are invited to consult the company's technical staff, who will offer suggestions as to the best material to use and the best methods to adopt to obtain the desired colour or finish."

The booklet contains over twenty photographs—reproduced in colour—of houses, churches, bathing pools, etc. These include : House at La Moye, Jersey (by A. B. Grayson, A.R.I.B.A.) ; House at Sandbanks, Poole (by Rumsby and Rodd, LL.R.I.B.A.) ; Methodist Church, Bembridge, I.W. (by E. L. Smith) ; Bathing Poole, Ravenscar (by D. H. Moore, A.M.INST.C.E.).

*

Mr. Howard Foulds, President C.I.S. and Mr. E. M. Malek, M.I.E.E., have been appointed advisory directors of Callender's Cables and Construction Co., Ltd.

*

We are informed by the London Brick Co. and Forders Ltd., that, on January 18, the price of Phorpres 2⅝ in. Pressed and Keyed bricks at all points within the London Cartage Area north of the river Thames was reduced by 3s. per thousand. Within the Home Counties and East Anglia proportionate reductions have been made.

*

Messrs. J. H. Sankey and Son, Ltd., have recently issued a brochure devoted to Pyruma fire cement, a fire-resisting cement and bond. The advantages claimed for this material are set forth in the following paragraphs taken from the brochure :—

" 1 : It is the most *economical* fire cement known.

" 2 : It is *ready for immediate use* and if kept air-tight and covered with a damp rag will keep indefinitely.

" 3 : It is *easy to apply* and manipulate to any shape owing to its plastic and workable condition.

" 4 : It possesses *solidity and strength* and its composition and tenacity is such that in practice 'Pyruma' apparently adapts itself to the expansion and contraction of the firebricks and the *whole structure becomes strengthened and solidified*.

" 5 : It is *tenacious* and adheres to ironwork, bolt heads, etc., which it protects from heat and destructive gases and corrosion.

" 6 : It *preserves and protects the firebricks* and linings of furnaces *from abrasion* and destructive gases, clinkering and most fluxes.

" 7 : It maintains *high thermal efficiency* and *avoids expensive breakdowns and delays*.

" 8 : It *can be moulded or trowelled* into any shape with ease, and saves much cutting and the use of shaped firebricks.

" 9: It ensures a *monolithic and gas-tight structure*.

" 10 : It is particularly useful for filling in cracks and crevices in refractories where pulverized fuel is used in order *to preserve the air slip stream effects of the whirling gases*.

" 11 : It is *resistant to most acids* and is largely used therefore in chemical works.

" 12 : *It sets as hard as stone* and the brickwork itself, with or without heat.

" 13 : It can in emergencies be *applied to a red-hot surface*.

" 14 : Is especially valuable in that owing to its solidity and hard-setting properties, it will stand up and provide either thick or thin joints as desired.

" 15 : It is particularly useful owing to its greatly strengthened tenacity *where there is vibration*, as in steam locomotives, ships' boilers, etc.

" 16 : It is supplied in a number of grades to suit users' varied requirements."

Copies of the brochure are obtainable from J. H. Sankey and Son, Ltd., The Hill, Ilford, Essex.

*

Although established originally as a political society for the purpose of enabling its members to acquire the necessary freehold land qualification of £40 a year to obtain the franchise, the National Building Society, within five years of its establishment in 1849, had ceased to be a purely political movement and was directing its activities to those of a building society. Indeed, it was almost grandmotherly in its care of its members' interests. Not only did it arrange for a supply of water to be laid on at its original estate for the convenience of the first home-buyers, but it secured from the railway companies cheap season ticket terms for its members. These and many other interesting facts are given in a little book which has just been published by Mr. George Elkington, F.R.I.B.A., the present chairman (W. Heffer and Sons, Ltd., Cambridge). The author is a nephew of one of the founders of the Society, whose first executives included Richard Cobden, John Bright, Samuel Morley and other prominent reformers.

*

The Farringdon Works and H. Pontifex and Sons, Ltd., of 43 Shoe Lane, write : " Owing to the sale of our freehold, we are taking the opportunity thus afforded to consolidate this business with that of our West End branch—A. Emanuel and Sons, Ltd.—and the combined firms will be conducted under the trading title of Pontifex and Emanuel. Our new title and address is Pontifex and Emanuel (The Farringdon Works and H. Pontifex and Sons, Ltd., and A. Emanuel and Sons, Ltd.), 9-13, George Street, Manchester Square, London, W.1. Telephone : Welbeck 8210 (7 lines).

" In addition, we have secured further extensive warehouse premises at 10 Little Sutton Street, Clerkenwell, London, E.C.1."

*

We understand that owing to the rapid growth and expansion of the business founded by Mr. G. V. Downer and known as G. V. D. Illuminators, a private limited company of the same name has been formed to take it over and carry out all future contracts and orders. Mr. G. V. Downer is the Managing Director and Chairman of the company.

SOCIETIES AND INSTITUTIONS

NOTTS., DERBY AND LINCOLN ARCHITECTURAL SOCIETY

The annual dinner of the above Society was held at Nottingham on January 17. Mr. C. H. Calvert, A.R.I.B.A. (President), occupied the chair.

The Lord Mayor of Nottingham (Mr. R.E. Ashworth), responding to the toast of " the cities of Nottingham, Derby and Lincoln " (proposed by the President), prophesied that within the next three years the Corporation would have cleared off all the slums in the city of Nottingham, and spoke of his hope for the speedy building of a new bridge across the Trent and a new arterial road to bear the northern traffic through to the south by way of Loughborough and Leicester.

The toast of " the R.I.B.A. and its Allied Societies " was proposed and seconded by Sir Harold Bowden and Mr. W. H. Ansell, F.R.I.B.A., respectively.

During the dinner Mr. Ansell presented a Bronze Medal to Mr. T. Cecil Howitt, of Nottingham, as the architect of the best building erected in the Society's area during the past three years, namely, the new offices of the Raleigh Cycle Company on Lenton Boulevard, Nottingham ; and the Lord Mayor presented to Sir Harold Bowden, managing director of the Raleigh Company, a plaque to be placed on the building in commemoration of the fact.

THE ILLUMINATING ENGINEERING SOCIETY DINNER

The twenty-sixth anniversary dinner of the Illuminating Engineering Society is to be held at the Trocadero Restaurant, London, on February 5, with the President, Mr. H. Hepworth-Thompson, in the chair.

THE BUILDINGS ILLUSTRATED

Sub-Contractors' List

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue :—

Flats in Amhurst Road, Hackney (pages 185-187). General contractors, Holland & Hannen and Cubitts, Ltd., who were also responsible for the joinery and electrical work. Sub-contractors : Willment, Ltd., demolition ; Scaffolding (Great Britain), Ltd., scaffolding ; W. C. Youngman & Co., special shuttering ; T. W. Palmer & Co., iron railings, gates, etc. ; Brown and Tawse, Ltd., staircases, etc. ; D. G. Somerville & Co., Ltd., precast spandril steps ; Ames and Finnis, facing bricks ; Fredk. Braby & Co., pressed steel skirtings and door frames ; Celotex Company of Great Britain, Ltd., Celotex board ; Henry Hope and Sons, Ltd., metal windows ; Limmer and Trinidad Lake Asphalt Co., Ltd., asphalting ; Grano-Metallic Paving and Plastering Co., plastering and granolothic ; Matthew Hall & Co., Ltd., plumbing ; Compton Brothers, glazing ; Modern Surfaces, Ltd., painting ; J. M. Pirie & Co. (London), Ltd., ironmongery ; Catesbys, Ltd., cork lino.

A. D. C. Theatre, Cambridge (pages 191-192). General contractors : Coulson and Son. Sub-contractors : Cocksedge, steelwork ; Lift and Engineering Co., removable cyclorama ; Holophane, Ltd., cyclorama lights ; Allum Bros., auditorium lights ; Merryweather, safety curtain ; T. R. Freeman, heating ; Strand Electric Co., stage lighting and switchboard ; Major Equipment, disappearing footlights ; Henry Hope and Sons, metal windows ; Beck and Windibank, seating ; Pyrene Co., Ltd., fire equipment ; Eaden Lilley, floor coverings and curtains ; L. G. Talman, P. E. F. West and J. J. Hamilton (the last two undergraduates), electrical installation ; J. R. Taylor, curtain.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS).

BERMONDSEY. *Flats.* The B.C. Housing Committee has approved revised sketch plans for the erection of 28 flats at the Leroy Street area, at an estimated cost of £16,400. The B.C. Housing Committee has approved lay-out plans for the development of the Trinity Road area by the erection of 38 flats.

BERMONDSEY. *Flats and Shop.* The B.C. Housing Committee recommends the erection of 28 flats and a shop at the Redriff estate (block 5) at an estimated cost of £15,815.

EDMONTON. *Housing.* The U.D.C. is in negotiation with Enfield U.D.C. for the purchase of land at Cuckoo Hall Lane for housing purposes.

ENFIELD. *Houses, Cinema, etc.* Plans passed by the U.D.C.: 86 houses, The Hatch, Shaw Road, Lansbury Road and Carterhatch Road, for Homemakers, Ltd.; new roads, Beech Hill estate, Hadley Wood, for Mr. N. Rees; factory and office extensions, High Street and Southbury Road, Ponders End, for Messrs. A. J. Maxfield and Son; cinematograph theatre, Southbury Road, for Mr. G. Coles. Plans submitted: Infants' school and hall, St. George's Church, Hertford Road, Freezywater, for Mr. W. A. Hughes; 13 houses, Lincoln Road, Ponders End, for Mr. A. T. Davies; 28 houses, Ordnance Road, for Mr. C. V. Cable.

FULHAM. *Baths.* The B.C. Baths Committee recommends the appointment of Messrs. A. W. S. and K. M. B. Cross as architects for the preparation of a scheme for the reconstruction and reorganization of the public baths and wash houses.

ST. PANCRAS. *Flats.* The B.C. Estates Committee recommends a scheme by the architect for the erection of 54 flats on the Carlow Street clearance area. The total cost of the scheme, including the purchase of land and property and the erection of the flats, etc., is £39,300.

SOUTHERN COUNTIES

BOURNEMOUTH. *Houses, Flats, Shops, etc.* Plans passed by the Corporation: Four houses and shops, Wimborne Road, Winton, for Mr. E Jones; two shops, Wimborne Road, Winton, for Mr. C. H. Goulding; 20 flats, "Dolphinton," Bodorgan Road, for Chine Investments, Ltd.; flats, Gresham Road, for Mr. J. Johnson; two flats, Victoria Park Road, for Mr. Tonks; two bungalows, Daws Avenue, for Mr. J. H. Schofield; three houses, Vicarage Road, for Mr. E. Jones; shop, Southbourne Grove, for Messrs. F. W. Woolworth & Co., Ltd.; six flats, Park Lane, for Mrs. L. Rowley; houses, Granleigh Road, for Messrs. G. B. Ive and Son; 20 flats, Sea Bank, Manor Road, for Mrs. L. Rowley; two houses, Holdenhurst Avenue, for Mr. A. Johnson; two bungalows, Townsville Road, for Messrs. Cove, Whittell and Colmer; eight bungalows, Wimborne Road, for Mr. J. Lee; three flats, Lansdowne Road, for Mrs. Barton Johnson's two flats, Heytesbury Road, for Mrs. S. W. Warde; two houses, Dalmeny Road, for Mr. W. R. Wilkins; two bungalows, Malvern Road, for Mrs. S. Richards; four bungalows, Wimborne Road, Kinson, for Mrs. B. Smith; two houses and shops, Ringwood Road, West Howe, for Mr. W. H. White; two houses, St. Clement's Road, for Mr. Aston; two flats, Howeth Road, for Mr. M. W. E. Fancy; two houses, Pine Vale Crescent, for Mr. H. Fry; three houses, Barnes Road and Hendford Road, for Mr. F. F. Hawkins; eight flats, St. Peter's Road, for Mrs. L. Rowley; squash court and store, Palace Court, Westover Road, for Palace Court, Ltd.; two houses, Avon Road, for Mr. J. F. Ellen; seven bungalows, Hawden Road, for Mr. W. J. Clapcott; rebuilding and extensions, Christchurch Road, Boscombe, for Messrs. F. W. Woolworth, Ltd.

OXFORD. *Building Expenditure.* The Corporation Estates Committee recommends that provision be made in the estimates for the following expenditure: Proposed offices, Blue Boar Street, £6,500; additional conveniences at municipal buildings, £470; corn exchange alterations, £2,000; a new mortuary in connection with the proposed new police station at St. Aldate's, £2,000; widening of Floyds Row, £750; and purchase of new properties, £10,000. The Corporation Housing Committee recommends an expenditure for the financial year 1935-36 of £74,000 for housing purposes.

OXFORD. *Houses and Flats.* Plans passed by the Corporation: 10 houses, Botley Road, for Mr. A. J. Coppock; shop, etc., Rymers Lane, for Mr. E. Willis; four houses, Godstow Road, Wolvercote, for Mr. D. Mealing; eight houses, Coniston Avenue, Headington, for the Gt. Headley Homesteads, Ltd.; 24 flats, Woodstock Close, for Woodstock Estates, Ltd.

PORTSMOUTH. *Slum Clearance.* The Health Committee of the Corporation have now presented their Slum Clearance Scheme for 1935-36. The scheme provides for a clearance of 300 houses, which displaces 1,637 persons. It is proposed to rehouse these people in 357 houses in six different rehousing schemes.

EASTERN COUNTIES

LOWESTOFT. *Houses.* Plans passed by the Corporation: 58 houses, Highland Way, Oulton Road, for Mr. D. Dowell; two houses, Normanston estate, for Messrs. W. J. Croft, Ltd.; six houses, Walmer Road, for Mr. D. Alger; two houses, Irex Road, Pakefield, for Mr. P. C. Easey; flat and office, Victoria Road, for Mr. D. H. Blewitt; 88 houses, Waveney Drive estate, for Mr. B. W. Youngs.

NORWICH. *Houses.* The Corporation Housing Committee recommends a revised scheme for the erection of 40 parlour houses at Elm Grove Lane at an estimated cost of £18,480.

SOUTH-WESTERN COUNTIES

PAIGNTON. *School.* The U.D.C. has informed the Devon C.C. that it has a large area of land on the Preston housing estate which would be suitable for the purpose of a new secondary school and has asked the C.C. whether it is desirous of purchasing such land.

PAIGNTON. *Houses.* Plans passed by the U.D.C.: Eight houses, South Hillside Road, for Messrs. W. H. Mead and Sons; two houses, David Road, for Mr. A. P. Tancock; lay-out, Preston Down Road, for Mr. L. Chadwick; two houses, Saltern Road, for Messrs. Melhuish and Cole; three shops, etc., St. Michael's Road, for Mr. G. Patchett; four flats, Kingshurst estate, for Mr. H. T. Drew; two houses, Kingshurst estate, Oldway Road, for Mr. E. Isaac; eight houses, Orient Road, and three shops and flats, Torquay Road, for Mr. D. Beresford. Plans submitted: Eight bungalows, Great Parks estate, for Messrs. E. and R. F. Wotton; lay-out for eight houses, off Southfield Road, for Mr. J. N. Maunder.

REDRUTH. *Cinema.* Plans have been prepared and deposited with the local authorities by W. H. Watkins, F.R.I.B.A., 1 Clare Street, Bristol, for the erection of a new cinematograph theatre in Fore Street, having accommodation for twelve hundred seats, together with a large café and dance hall.

MIDLAND COUNTIES

KIDDERMINSTER. *Mental Colony.* The county council of Worcestershire is in negotiation with the corporations of Worcester, Burton, Dudley, Smethwick and Wolverhampton regarding the proposal for the establishment of a joint mental colony in the vicinity of Kidderminster, estimated to cost £236,500.

LITTLE WELDON. *Houses.* Mr. D. F. Gibson is developing a site at Gretton Road and Larratt Road by the erection of 29 houses.

MOULTON. *Building Sites.* Mr. J. E. Lucas, of Moulton, has purchased eight acres on the Wantage estate for building purposes.

NORTHANTS. *Police Houses.* The County Council is to erect 62 police houses at the rate of 12 per annum, at a cost of £750 each.

WOLVERHAMPTON. *Houses.* Plans passed by the Corporation: Six houses, Green Lane, Aldersley, for Messrs. D. B. N. Tate & Co.; 34 houses, Powell Street, for Mr. H. Grindley; six houses, Oxley Moor estate, for Messrs. A. H. and H. S. Pidgeon; two houses, Manor Road, Oxley, for Mr. E. Pritchard; two houses, Woodland Road, for Messrs. Biddulph and Thrift; eight houses, Woodland Road, for Mr. J. R. Wooddisse; two houses, Finchfield Lane, for Mr. G. T. Galleymore; two houses, Penn Court estate, for Messrs. Shutt Bros.; four houses, Prosser Street extension, for Mr. R. Dainty; three houses, Hall Street, for Mr. G. Thomas; 18 houses, Holly Bush Lane, for Mr. C. B. Jones; four shops, etc., off Aldersley Road, for Messrs. Blackburn and Crossland; six houses, York Avenue continuation, for Mr. Philip Blundell; 16 houses, Pinfold Lane, for Mr. A. N. Bloxham; 114 houses, Moreton estate, Oxley, for Mr. L. T. Taylor; two houses, Rupert Street, for Mrs. E. M. Saunders; four houses, Penn House Avenue, for Mr. J. V. Powell; 26 houses off Marsh Lane, Oxley, for B. and E. Estates, Ltd.; lay-out of land, Meadows Road and Finchfield Lane, for exors. of James Whitehouse.

NORTHERN COUNTIES

BLACKPOOL. *Houses, etc.* Plans passed by the Corporation: Two houses, Devonshire Road, for Messrs. Midgley and May; two houses, Hawes Side Lane, for Mr. J. W. Lee; four houses, Gretna Crescent, for Mr. J. Kennard; 54 houses, Newhouse Road, for Mr. H. Radcliffe; nine houses and shops, Moor Park Avenue, for Mr. T. Brierley; six houses, Burgess Avenue, for Mr. T. Harrison; six houses, Mansfield Road, for Messrs. J. Fielding and Sons; two houses, Harcourt Road, for Mr. E. Mazurk; 33 houses, Neville Avenue, etc., for Mr. A. A. Holt; five boarding houses, Queen's Drive, etc., for Messrs. Render, Wood & Co., Ltd.; two houses, Victory Road, for Mr. A. Braithwaite; two houses, Calder Road, for Mr. G. H. Parsons; two houses, Warbreck Hill Road, for Mr. A. Ashworth; two houses, Gorton Street, for Mr. F. A. Kirkham; factory, Devonshire Road, for Messrs. Wood, Harris & Co.; two houses, Burgess Avenue, for Mr. T. Harrison; and 184 houses, Worcester Road, etc., for Messrs. Pimley and Topping. Plans submitted: two houses, Ascot Road, for Mr. C. Smith; four houses, Newton Drive, for Mr. W. H. Airey; 10 houses, Mossom Lane, etc., for Mr. W. Spencer; two houses, Toronto Avenue, for Messrs. Briand and Streule; four houses, Ventnor Road, for Messrs. Render Wood, Ltd.; 20 houses, Collingwood Avenue, etc., for Mr. M. Diamond.

BLYTH. *Houses.* The Corporation has approved schemes by the Borough Engineer for the erection of 12 houses on the Crawford Street site, and at a later date 162 houses on sites in Cowpen Road.

BLYTH. *Baths and Wash-houses.* In connection with the proposal for the erection of baths and wash-houses the Corporation has instructed the Borough Engineer to inspect baths recently erected in various London boroughs and to report thereon.

CHESTER. *Flats.* The Corporation has instructed the City Engineer to prepare plans for the erection of flats for aged persons at Hoole Lane.

PENRITH. *Houses.* The U.D.C. is to erect 50 houses for the accommodation of persons displaced from clearance areas.

RAWTENSTALL. *Town Hall.* The Corporation has instructed the Borough Engineer to prepare a scheme for the erection of a new town hall and other buildings on the Newhallhey estate.

WALLSEND. *Housing Sites.* The Corporation is expected shortly to complete negotiations fo the purchse of the following sites for the erection of houses: 12½ acres at Tynemouth Road, 10 acres at Archer Street, 32 acres off Coast Road, 9½ acres at Station Road, and a further 16 acres off Coast Road.

WALLSEND. *School.* The Education Committee is to erect an elementary school on the High Farm estate.

(*Continued on page xxvi*)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 2½	11
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A_2	Boston	Mid. Counties	1 4	1 0
A	Bournemouth ..	S. Counties	1 4	1 0
B_1	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M	1 5½	1 1½
B_1	Bridgwater ..	S.W. Counties	1 3	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A	Brighton ..	S. Counties	1 4	1 0
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
B	Chatham ..	S. Counties	1 3½	11½
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A	Colchester ..	E. Counties	1 4	1 0
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_2	Dorches ..	S.W. Counties	1 2½	11
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham ..	N E. Coast	1 5½	1 1½
A_2	EASTBOURNE	S. Counties	1 4	1 0
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter ..	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome ..	S. W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W. Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley ..	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B	Isle of Wight ..	S. Counties	1 2	10½
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
B	Kendal ..	N.W. Counties	1 3½	11½
B	Keswick ..	N.W. Counties	1 3½	11½
A_2	Kettering ..	Mid. Counties	1 4½	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12–15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A	Luton	E. Counties	1 4	1 0
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
B	Maidstone ..	S. Counties	1 3½	11½
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N.E. Coast	1 5½	1 1½
A_2	Middlewich ..	N.W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_2	Oxford	S. Counties	1 4½	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_2	Peterborough	E. Counties	1 4½	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough ..	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton	S. Counties	1 4½	1 0½
A_2	Southend-on-Sea	E. Counties	1 4½	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4	1 0
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
B	Tunbridge Wells	S. Counties	1 3½	11½
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_2	Wellingborough	Mid. Counties	1 4½	1 0½
A	West Bromwich	Mid Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B_1	YARMOUTH ..	E. Counties	1 3	11½
B_1	Yeovil	S.W. Counties	1 3	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality, and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

	s.	d.
Bricklayer . . . . . per hour	1	7
Carpenter . . . . . ,,	1	7
Joiner . . . . . ,,	1	7
Machinist . . . . . ,,	1	8
Mason (Banker) . . . . . ,,	1	7
,, (Fixer) . . . . . ,,	1	8
Plumber . . . . . ,,	1	7
Painter . . . . . ,,	1	6
Paperhanger . . . . . ,,	1	6
Glazier . . . . . ,,	1	7
Slater . . . . . ,,	1	7
Scaffolder . . . . . ,,	1	3
Timberman . . . . . ,,	1	3
Navvy . . . . . ,,	1	2½
General Labourer . . . . . ,,	1	2½
Lorryman . . . . . ,,	1	5
Crane Driver . . . . . ,,	1	6
Watchman . . . . . per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

	£	s.	d.
Grey Stone Lime . . . . . per ton	2	2	0
Blue Lias Lime . . . . . ,,	1	16	6
Hydrated Lime . . . . . ,,	3	0	9
Portland Cement, in 4-ton lots (d/d site, including Paper Bags) . ,,	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags) . ,,	2	6	0
White Portland Cement, in 1-ton lots ,,	8	15	0
Thames Ballast . . . . . per Y.C.		6	3
¾" Crushed Ballast . . . . . ,,		6	9
Building Sand . . . . . ,,		7	3
Washed Sand . . . . . ,,		8	3
2" Broken Brick . . . . . ,,		8	0
¾" ,, ,, ... ,,		10	3
Pan Breeze . . . . . ,,		6	6
Coke Breeze . . . . . ,,		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

	4" s.	4" d.	6" s.	6" d.
Straight Pipes . . per F.R.	0	9	1	1
Bends . . . each	1	9	2	6
Taper Bends . . ,,	3	6	5	3
Rest Bends . . ,,	4	3	6	3
Single junctions . . ,,	3	6	5	3
Double . . ,,	4	9	6	6
Straight channels . . per F.R.	1	6	2	6
¾" Channel bends . . each	2	9	4	0
Channel junctions . . ,,	4	6	6	6
Channel tapers . . ,,	2	9	4	0
Yard gullies . . ,,	6	9	8	9
Interceptors . . ,,	16	0	19	6
IRON DRAINS:				
Iron drain pipe . . per F.R.	1	6	2	6
Bends . . . each	5	0	10	6
Inspection bends . . ,,	9	0	15	0
Single junctions . . ,,	8	9	18	0
Double junctions . . ,,	13	6	30	0
Lead wool . . . lb.		6		—
Gaskin . . . ,,		5		—

BRICKLAYER

	£	s.	d.
Flettons . . . . . Per M.	2	15	0
Grooved do. . . . . ,,	2	17	0
Phorpres bricks . . . . . ,,	2	15	0
,, Cellular bricks . . . . . ,,	2	15	0
Stocks, 1st quality . . . . . ,,	4	11	0
,, 2nd ,, ... ,,	4	2	6
Blue Bricks, Pressed . . . . . ,,	8	17	6
,, Wirecuts . . . . . ,,	7	17	6
,, Brindles . . . . . ,,	7	0	0
,, Bullnose . . . . . ,,	9	0	0
Red Sand-faced Facings . . . . . ,,	6	18	6
Red Rubbers for Arches . . . . . ,,	12	0	0
Multicoloured Facings . . . . . ,,	7	10	0
Luton Facings . . . . . ,,	7	10	0
Phorpres White Facings . . . . . ,,	3	17	3
,, Rustic Facings . . . . . ,,	3	12	3
Midhurst White Facings . . . . . ,,	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:			
Stretchers . . . . . ,,	21	0	0
Headers . . . . . ,,	20	10	0
Bullnose . . . . . ,,	27	10	0
Double Stretchers . . . . . ,,	29	10	0
Double Headers . . . . . ,,	26	10	0
Glazed Second Quality, *Less* . . ,,	1	0	0
,, Buffs and Creams, *Add* . ,,	2	0	0
,, Other Colours . . ,,	5	10	0
2" Breeze Partition Blocks . . per Y.S.		1	7
2½" ,, ,, ,, . .		1	10
3" ,, ,, ,, . .		2	1
4" ,, ,, ,, . .		2	6

MASON

The following d/d F.O.R. at Nine Elms:	s.	d.
Portland stone, Whitbed . . F.C.	4	4½
,, ,, Basebed . . ,,	4	7½
Bath stone . . . . . ,,	2	10
York stone . . . . . ,,	6	6
,, ,, Sawn templates . .	7	6
,, ,, Paving, 2" . . . F.S.	1	8
,, ,, ,, 3" . . . ,,	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

	£	s.	d.
24" × 12" Duchesses . . . per M.	28	17	6
22" × 12" Marchionesses . . ,,	24	10	0
20" × 10" Countesses . . ,,	19	5	0
18" × 10" Viscountesses . . ,,	15	10	0
18" × 9" Ladies . . . ,,	13	17	6
Westmorland green (random sizes) . per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:			
20" × 10" medium grey per 1,000 (actual)	21	11	6
,, ,, green ,, ,,	24	7	4
Best machine roofing tiles . ,,	4	10	0
Best hand-made do. . . ,,	5	0	0
Hips and valleys . . . each			9½
,, hand-made . . . ,,			10
Nails, compo . . . lb.		1	4
,, copper . . . ,,		1	6

CARPENTER AND JOINER

	s.	d.
Good carcassing timber . . F.C.	2	2
Birch . . . . . as 1" F.S.		9
Deal, Joiner's . . . . ,, ,,		5
,, 2nds . . . ,, ,,		4
Mahogany, Honduras . . . ,, ,,	1	3
,, African . . . ,, ,,	1	1
,, Cuban . . . ,, ,,	2	6
Oak plain American . . . ,, ,,	1	0
,, Figured ,, . . . ,, ,,	1	3
,, Plain Japanese . . . ,, ,,	1	2
,, Figured ,, . . . ,, ,,	1	5
,, Austrian wainscot . . ,, ,,	1	6
,, English . . . ,, ,,	1	11
Pine, Yellow . . . ,, ,,	1	0
,, Oregon . . . ,, ,,		4
,, British Columbian . . ,, ,,		4
Teak, Moulmein . . . ,, ,,	1	3
,, Burma . . . ,, ,,	1	2
Walnut, American . . . ,, ,,	2	3
,, French . . . ,, ,,	2	3
Whitewood, American . . ,, ,,	1	1
Deal floorings, ¾" . . . Sq.	18	6
,, 1" . . . ,,	1	6
,, 1¼" . . . ,,	1	2
,, 1½" . . . ,,	1	5
,, 1¾" . . . ,,	1	10
Deal matchings ¾" . . . ,,		14
,, 1" . . . ,,		15
,, 1¼" . . . ,,	1	4
Rough boarding ¾" . . . ,,		16
,, 1" . . . ,,		18
,, 1½" . . . ,,	1	6

Plywood, per ft. sup.

—Thickness	⅛"	¼"	⅜"	½"
Qualities	AA. A.B.	AA. A.B.	AA. A.B.	AA. A.B.
	d. d. d.	d. d. d.	d. d. d.	d. d. d.
Birch .	4 3 2	5 4 3	7½ 6 4½	8½ 7 6
Alder .	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6
Gaboon Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –
Figured Oak 1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –
Plain Oak . 1 side	6½ 6 –	7½ 7 –	9½ – –	1/- – –
Oregon P.ne	5 4 –	5½ 5 –	6 – –	– – –

	d.
Scotch glue . . .	lb. 8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	½"	¾"	1"	1½"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23½" long each	10	1/1	1/11	2/8	4/9
,, 3"-11½" long ,,	7	9	1/3	1/8	3/-
Long screws, 12"-23½" long ,,	11	1/3	2/2	2/10	5/3
,, ,, 3"M-½" long ,,	8	10	1/5	1/11	3/6
Bends . . . ,,	8	11	1/7½	2/7½	5/2
Springs not socketed . ,,	5	7	1/1½	1/11½	3/11
Socket unions . . ,,	2/-	3/-	5/6	6/9	10/-
Elbows, square . . ,,	10	1/1	1/6	2/2	4/3
Tees . . . ,,	1/-	1/3	1/10	2/6	5/1
Crosses . . . ,,	2/2	2/9	4/1	5/6	10/6
Plain Sockets and nipples ,,	3	4	6	8	1/3
Diminished sockets . ,,	4	6	9	1/-	2/-
Flanges . . . ,,	9	1/-	1/4	1/9	2/9
Caps . . . ,,	3½	5	8	1/-	2/-
Backnuts . . . ,,	2	3	5	6	1/1
Iron main cocks . ,,	1/6	2/3	4/2	5/4	11/6
,, ,, with brass plugs ,,	—	4/-	7/6	10/-	21/-

Discounts:

TUBES.	Per cent.		Per cent.
Gas . . .	65	Galvanized gas .	52½
Water . . .	61½	,, water	47½
Steam . . .	57½	,, steam	42½
FITTINGS.			
Gas . . .	57½	Galvanized gas	47½
Water . . .	52½	,, water	42½
Steam . . .	47½	,, steam	37½

SMITH AND FOUNDER—*continued*

	s.	d.
Rolled steel joists cut to length . . cwt.	10	9
Mild steel reinforcing rods, ⅜" . . ,,	8	6
,, ,, ½" . . ,,	8	3
,, ,, ⅝" . . ,,	8	0
,, ,, ¾" . . ,,	7	6
,, ,, ⅞" . . ,,	7	6
,, ,, 1" . . ,,	7	6
,, ,, 1¼" . . ,,	7	6
,, ,, 1½" . . ,,	7	6

	s.	d.	s.	d.
Cast-iron rain-water pipes of ordinary thickness metal . . F.R.	8		10	
Shoes . . . . each	2	0	3	0
Anti-splash shoes . . ,,	4	6	8	0
Boots . . . . ,,	3	0	4	0
Bends . . . . ,,	2	7	3	9
,, with access door . . ,,	—		6	3
Heads . . . . ,,	4	0	5	0
Swan-necks up to 9" offsets . ,,	3	9	6	0
Plinth bends, 4½" to 6" . ,,	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal . . F.R.	5		6	
Stop ends . . . . each	6		6	
Angles . . . . ,,	1	7	1	11
Obtuse angles . . . ,,	2	0	2	6
Outlets . . . . ,,	1	9	2	3

PLUMBER

	£	s.	d.
Lead, milled sheets . . . cwt.	18	6	
,, drawn pipes . . . ,,	17	0	
,, soil pipe . . . ,,	18	6	
,, scrap . . . ,,	10	6	
Solder, plumbers' . . . lb.		9½	
,, fine do. . . . ,,	1	0	
Copper, sheet . . . ,,		8½	
,, tubes . . . ,,		11	

L.C.C. soil and waste pipes:	3" s.	3" d.	4" s.	4" d.	6" s.	6" d.
Plain cast . . F.R.	1	0	1	2	2	6
Coated . . ,,	1	1	1	3	2	8
Galvanized . . ,,	2	0	2	6	4	6
Holderbats . . each	3	10	4	0	4	9
Bends . . ,,	3	9	5	3	10	3
Shoes . . ,,	2	10	4	4	9	6
Heads . . ,,	4	8	8	5	12	9

PLASTERER

	£	s.	d.
Lime, chalk . . . per ton	2	5	0
Plaster, coarse . . . ,,	2	10	0
,, fine . . . ,,	4	15	0
Hydrated lime . . . ,,	3	0	9
Sirapite . . . ,,	3	6	0
Keene's cement . . . ,,	5	0	0
Gothite Plaster . . . ,,	3	6	0
Pioneer Plaster . . . ,,	3	3	0
Thistle Plaster . . . ,,	3	6	0
Sand, washed . . . Y.C.		11	6
Hair . . . . lb.			6
Laths, sawn . . . bundle		2	4
,, rent . . . ,,		3	9
Lath nails . . . lb.			3½

GLAZIER

	s.	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft. s. F.S.				2½
,, ,, 26 oz. ,, ,, ,,				3
Flemish, Arctic, Figured (white)* ,,				7
Blazoned glasses . . ,,			2	6
Reeded; Cross Reeded ,,				11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite				6½
Crown sheet glass (n/e 12 in. x 10 in.) ,,			2	0
Flashed opals (white and coloured) ,,	1	0 and	2	0
¼" rough cast; rolled plate . ,,				5½
¼" wired cast; wired rolled . ,,				9½
¼" Georgian wired cast. . ,,				11
¼" Polished plate, n/e 1 ft. . ,,	†10 to		‡1	1
,, ,, 2 . ,,	†1	2 ,,	‡1	4
,, ,, 4 . ,,	†2	3 ,,	‡2	6
,, ,, 8 . ,,	†2	9 ,,	‡3	2
,, ,, 20 . ,,	†3	7 ,,	‡4	2
,, ,, 45 . ,,	†3	11 ,,	‡4	7
,, ,, 100 . ,,	†5	0 ,,	‡5	7
Vita glass, sheet, n/e 1 ft. . ,,			1	0
,, ,, 2 ft. . ,,			1	3
,, ,, over 2 ft. . ,,			1	9
,, ,, plate, n/e 1 ft. . ,,			1	6
,, ,, 2 ft. . ,,			3	0
,, ,, 5 ft. . ,,			4	0
,, ,, 7 . ,,			5	0
,, ,, 15 . ,,			6	0
,, ,, over 15 . ,,			7	6
"Calorex" sheet 21 oz., and 32 oz. ,,	2	6 and	3	6
,, rough cast ¼" and ½" ,,		8½ ,,	1	0
Putty, linseed oil . . lb.				3

* *Colours, 1d. F.S. extra.*
†*Ordinary glazing quality.* ‡*Selected glazing quality.*

PAINTER

	£	s.	d.
White lead in 1 cwt. casks . . cwt.	2	6	0
Linseed oil . . . gall.		2	2½
Boiled oil . . . ,,		2	4½
Turpentine . . . ,,		4	1½
Patent knotting . . . ,,		14	0
Distemper, washable . . cwt.	2	6	0
,, ordinary . . ,,	2	0	0
Whitening . . . ,,		4	0
Size, double . . . firkin		3	0
Copal varnish . . . gall.		13	0
Flat varnish . . . ,,		14	0
Outside varnish . . . ,,		16	0
White enamel . . . ,,	1	15	0
Ready mixed paint . . ,,		13	6
Brunswick black . . ,,		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR		£ s. d.
Digging over surface n/e 12″ deep and cart away	Y.S.	2 9
,, to reduce levels n/e 5′ 0″ deep and cart away	Y.C.	8 6
,, to form basement n/e 5′ 0″ deep and cart away	,,	9 0
,, ,, 10′ 0″ deep and cart away	,,	9 6
,, ,, 15′ 0″ deep and cart away	,,	10 0
If in stiff clay	add ,,	6
If in underpinning	,,	4 0
Planking and strutting to sides of excavation	F.S.	1 0
,, ,, to pier holes	,,	5
,, ,, to trenches	,,	5
,, ,, extra, only if left in	,,	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	,,	1 6 0
,, ,, (4-2-1)	,,	1 12 6
,, ,, underpinning	,,	1 16 0
Finishing surface of concrete, spade face	Y.S.	7

DRAINLAYER		4″ s. d.	6″ s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
,, junctions	,,	3 9	4 6
Gullies and gratings	,,	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER		£ s. d.
Brickwork, Flettons n lime mortar	Per Rod	27 10 0
,, ,, in cement	,,	28 15 0
,, Stocks in cement	,,	35 0 0
,, Blues in cement	,,	52 0 0
Extra only for circular on plan	,,	2 0 0
,, backing to masonry	,,	1 10 0
,, raising on old walls	,,	2 0 0
,, underpinning	,,	5 10 0
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	,,	8
,, ,, ,, red brick facings and pointing	,,	11
,, ,, ,, blue brick facing and pointing	,,	1 4
,, ,, ,, glazed brick facings and pointing	,,	3 6
Tuck pointing	,,	7½
Weather pointing in cement	,,	3
Slate dampcourse	,,	10
Vertical dampcourse	,,	1 1

ASPHALTER		s. d.
½″ Horizontal dampcourse	Y.S.	4 6
½″ Vertical dampcourse	,,	6 9
½″ paving or flat	,,	4 0
1″ paving or flat	,,	5 6
1″ × 6″ skirting	F.R.	1 6
Angle fillet	,,	2
Rounded angle	,,	2
Cesspools	Each	5 0

MASON		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	,,	13 6
Artificial stone and do.	,,	13 0
York stone templates, fixed complete	,,	10 6
,, thresholds	,,	13 6
,, sills	,,	1 0 6

SLATER AND TILER		£ s. d.
Slating, Bangor or equal, laid to a 3″ lap, and fixing with compo nails, 20″ × 10″	Sqr.	3 10 0
Do., 18″ × 9″	,,	3 7 0
Do., 24″ × 12″	,,	3 17 0
Westmoriand slating, laid with diminished courses	,,	0 0 0
Tiling, best hand-made sand-faced, laid to a 4″ gauge, nailed every fourth course	,,	3 0 0
Do., all as last, but of machine-made tiles	,,	2 16 0
20″ × 10″ medium Old Delabole slating, laid to a 3″ lap (grey)	,,	4 6 0
,, ,, ,, ,, ,, ,, (green)	,,	4 15 0

CARPENTER AND JOINER		£ s. d.
Flat boarded centering to concrete floors, ncluding all strutting	Sqr.	2 5 0
Shuttering to sides and soffits of beams	F.S.	8
,, to stanchions	,,	8
,, to staircases	,,	1 8
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	,,	4 6
,, ,, roofs	,,	6 6
,, ,, trusses	,,	7 6
,, ,, partitions	,,	8 6
½″ deal sawn boarding and fixing to joists	Sqr.	1 14 6
1″ ,, ,, ,, ,,	,,	1 17 6
1½″ ,, ,, ,, ,,	,,	2 3 0
3″ × 2″ fir battening for Countess slating	,,	9 6
Do. for 4″ gauge tiling	,,	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
,, ,, ,, 2 ,,	,,	2 9
,, ,, ,, 3 ,,	,,	3 3
Stout herringbone strutting to 9″ joists	F.R.	10½
1″ deal gutter boards and bearers	F.S.	1 2
1½″ ,, ,, ,, ,,	,,	1 6
2″ deal wrought rounded roll	F.R.	8
1″ deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼″ do.	,,	2 10 0
1½″ do.	,,	2 17 0
1″ deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1½″ do.	,,	1 9

CARPENTER AND JOINER—*continued*		s. d.
1½″ deal moulded sashes of average size	F.S.	1 9½
2″ ,, ,, ,, ,,	,,	1 11½
1½″ deal cased frames double hung, of 6″ × 3″ oak sills, 1½″ pulley stiles, 1½″ heads, 1″ inside and outside linings, ½″ parting beads, and with brass faced axle pulleys, etc., fixed complete	,,	3 7
2″ ,, ,, ,, ,,	,,	3 10
Extra only for moulded horns	Each	6
1½″ deal four-panel square, both sides, door	F.S.	2 0
2″ ,, ,, ,, ,,	,,	2 8
1½″ ,, but moulded both sides	,,	2 4
2″ ,, ,, ,, ,,	,,	3 0
4″ × 3″ deal, rebated and moulded frames	F.R.	1 0
4½″ × 3½″ ,, ,, ,,	,,	1 4
1½″ deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1½″ deal treads, 1″ risers in staircases, and tongued and grooved together on and including strong fir carriages	,,	2 6
1½″ deal moulded wall strings	,,	2 1
1½″ ,, outer strings	,,	2 4
Ends of treads and risers housed to string	Each	1 9
3″ × 2″ deal moulded handrail	F.R.	1 3
1″ × 1″ deal balusters and housing each end	Each	2 0
1½″ × 1½″ ,, ,, ,,	,,	2 9
3″ × 3″ deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	,,	6 0

SMITH AND FOUNDER		£ s. d
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	15 6
Riveted plate or compound girders, and hoisting and fixing in position	,,	19 6
Do. stanchions with riveted caps and bases and do.	,,	19 0
Mild steel bar reinforcement, ½″ and up, bent and fixed complete	,,	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER		£ s. d.
Milled lead and labour in flats	cwt.	1 12 0
Do. in flashings	,,	1 15 6
Do. in covering to turrets	,,	2 3 0
Do. in soakers	,,	1 7 6
Labour to welted edge	F.R.	3½
Open copper nailing	,,	3
Close ,,	,,	4

		½″ s. d.	¾″ s. d.	1″ s. d.	1½″ s. d.	2″ s. d.	4″ s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks	,,	—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	,,	6½	8	9	11	1 0	—
Boiler screws and unions	,,	3 3	3 9	5 0	8 0	—	—
Lead traps	,,	—	—	—	6 3	8 9	—
Screw down bib valves	,,	6 9	9 6	11 0	—	—	—
Do. stop cocks	,,	7 0	9 6	12 6	—	—	—

		£ s. d.
4″ cast-iron ½-rd. gutter and fixing	F.R.	1 0
Extra, only stop ends	Each	1 0
Do. angles	,,	1 6
Do. outlets	,,	2 9
4″ dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1 2
Extra, on y for shoes	Each	1 3
Do. for plain heads	,,	5 6

PLASTERER AND TILING		s. d.
Expanded metal lathing, small mesh	Y.S	2 0
Do. in n/w to beams, stanchions, etc.	,,	2 9
Lathing with sawn laths to ceilings	,,	1 3
½″ screeding in Portland cement and sand or tiling, wood block floor, etc.	,,	1 5
Do. vertical	,,	1 7
Rough render on walls	,,	1 2½
Render, float and set in lime and hair	,,	1 9
Render and set in Sirapite	,,	1 11
Render, backing in cement and sand, and set in Keene's cement	,,	2 9
Extra, only if on lathing	,,	4
Keene's cement, angle and arris	F.R.	6
Arris	,,	1½
Rounded angle, small	,,	3
Plain cornices in plaster, including dubbing out, per 1″ girth	,,	1½
1″ granolithic pavings	Y.S.	3 6
1½″ ,, ,,	,,	4 6
6″ × 6″ white glazed wall tiling and fixing on prepared screed	,,	17 6
9″ × 3″ ,, ,, ,, ,,	,,	1 2 6
Extra, only for small quadrant angle	F.R.	8

GLAZIER		s. d.
21 oz. sheet glass and glazing with putty	F.S.	7½
26 oz. do and do.	,,	8½
Flemish, Arctic Figured (white) and glazing with putty	,,	1 1
Cathedral glass and do.	,,	1 2
Glazing only, British polished plate	,,	7
Extra, only if in beads	,,	2
Washleather	F.R.	4

PAINTER		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	,,	9
Do. with washable distemper	,,	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	,,	3 3
Do. on woodwork	,,	3 6
Do. on steelwork	,,	3 0
Do. and brush grain and twice varnish	,,	5 6
Stain and twice varnish woodwork	,,	1 11
Stain and wax-polish woodwork	,,	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper from	,,	2 9

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LIFT PLANNING

PASSENGER LIFT SERVICE is considered adequate if the population above the First Floor can be evacuated in one hour.

WAITING TIME between lifts : 20 seconds interval gives exceptional service.
40 seconds interval gives tolerable service.

NUMBER & SIZE OF LIFTS : If a suitable car speed is selected, the "round trip time" can be obtained from the graph given on Sheet N° 2. The trip time divided into the evacuation time gives the number of trips. The number of trips divided into the total population above the first floor gives the number of passengers to be carried on each trip. From this the number & size of lifts can be determined. The larger the lifts, the fewer will the number required, but the longer will be the time interval.

SPECIAL CONDITIONS : The notes given apply to buildings with an even distribution of population. Assembly halls, restaurants etc. create special conditions which should be considered separately.

CONTROL : The notes given apply to attendant-operated, or car-switch lifts. The traffic capacity of automatic control lifts may be up to 50% less.

GOODS LIFTS : are usually planned to suit special conditions. Speed is seldom important, as loading and unloading times are the deciding factor.

STANDARD CAR SPEEDS :

PASSENGER LIFTS :

Private Residences, 100 to 120 ft per min.

Hotels & blocks of Flats,
up to 5 floors, 100 to 200 ft per min.
6 to 10 floors, 200 to 350 ft per min.

Departmental Stores,
up to 5 floors, 100 to 200 ft per min.
6 to 10 floors, 200 to 350 ft per min.
Express service 400 to 600 ft per min.

Office Buildings,
up to 10 floors 250 to 450 ft per min.
10 floors & over 400 to 600 ft per min.

PASSENGER-GOODS LIFTS :
up to 5 floors 50 to 100 ft per min.
6 to 10 floors 100 to 200 ft per min.

GOODS LIFTS :
depending on height 25 to 150 ft per min.

SERVICE LIFTS: 80 to 100 ft per min.

MOTOR CAR LIFTS : 20 to 60 ft per min.

LIFT ENCLOSURES :

It is recommended that all lifts should be surrounded by a solid enclosure of brick or concrete etc. on all sides, and the entrances filled with hinged or sliding doors, which can be of timber or metal.

Doors should be solid of stout and rigid construction so that they cannot warp or become deformed in any way, otherwise stoppages to the lift may be caused, due to the locks not closing properly. For this reason also large panels of glass should not be fitted.

Openwork enclosures, although used in some cases, are not recommended.

For L.C.C. regulations see back of this sheet.

RECOMMENDED SIZES FOR LIFTS :

Sizes of lift cages or equipment have not been standardised by manufacturers generally. In the absence of any accepted standards the following sizes are recommended. Sizes of wells are for lifts with overhead drive. Well sizes must be increased for underdriven lifts.

PASSENGER LIFTS :

NUMBER OF PERSONS	RATED LOAD.	WIDTH CAGE	WIDTH WELL	DEPTH CAGE	DEPTH WELL	CLEAR OPENING
3.	450 lbs.	2'9"	3'9"	2'8"	3'7"	2'0"
4.	600.	3'0"	4'0"	3'0"	4'0"	2'4"
5.	750.	3'5"	4'6"	3'3"	4'3"	2'6"
6.	900.	3'9"	4'10"	3'7"	4'7"	2'9"
7.	1050.	4'1"	5'2"	3'11"	4'11"	3'0"
8.	1200.	4'5"	5'6"	4'1"	5'1"	3'6"
9.	1350.	4'8"	5'9"	4'4"	5'4"	3'6"
10.	1500.	5'0"	6'1"	4'6"	5'6"	3'6"
12.	1800.	5'6"	6'8"	4'10"	5'11"	3'6"
15.	2250.	6'4"	7'6"	5'3"	6'5"	3'6"
18.	2700.	7'2"	8'4"	5'6"	6'8"	3'6"
GOODS LIFT (furniture etc)	15 cwt.	7'0"	8'1"	7'0"	7'11"	6'6"
HOSPITAL LIFT.	12 cwt.	5'3"	6'6"	8'0"	9'0"	4'0"
GARAGE LIFT	50 cwt.	7'6"	9'0"	20'0"	20'7"	6'10"
FOOD LIFTS 1.	½ cwt.	1'8"	2'2"	1'8"	2'2"	1'8"
FOOD LIFTS 2.	1 cwt.	2'0"	2'6"	2'0"	2'7"	2'0"

The sizes given above for the well should be provided wherever possible. Equipment cannot be used to greatest advantage, nor most economically where space is insufficient. For top & bottom over runs etc. see succeeding Information Sheets.

Information from J. & E. Hall Limited.

INFORMATION SHEET : LIFT PLANNING & EQUIPMENT DATA : I.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

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LIFTS

Details Illustrated: Planning Data

This Sheet is the first of a series dealing with Lift Planning and equipment, and setting out in graphic and tabular form the relevant information.

It should be noted that the information given throughout is general and that in the detailed working out of any specific problem the Company's engineers should be consulted.

The following Note, approved by the London County Council, on December 10, 1907, has been issued by them relating to Means of Escape under the London Building Act, 1905, which is repealed and replaced by London Building Act, 1930, Part VIII.

Statement of General Requirements.

The following statement with reference to the requirements in respect of the means of escape in case of fire to be provided in accordance with the provisions of the before-mentioned Acts, has been drawn up with a view to assisting owners and others in submitting applications and proposals to the Council thereunder. This statement must not, however, be taken as binding upon the Council, but only as a general guide or indication, since each case is, after full consideration of the varying circumstances, dealt with on its merits ; and nothing herein contained must be taken as in any way interfering with or derogating from the powers of the Home Office, the Council, the District Surveyors or any other authority whatsoever under the Factory Acts, the London Building Acts or any other Act, or under any bye-laws that may be made under Section 15 and Section 153, sub-section 3, of the Factory and Workshop Act, 1901, or under any bye-laws or regulations relating to the construction of buildings or otherwise, or as constituting any consent, sanction, allowance or permission under any such Act, bye-law or regulation, but all such Acts, bye-laws and regulations must be fully observed and complied with notwithstanding anything herein contained.

Enclosure and Position of Lifts.

In cases where a lift will, in the opinion of the Council, endanger the means of escape, the following requirements should be observed :

(a) Lifts, excepting passenger lifts constructed within the open wells of staircases and enclosed only with metal grilles, should not be placed near to escape staircases and should not be connected directly therewith by means of openings or otherwise.

(*b*) In buildings where fire-resisting floors are provided, lifts should be enclosed all up with incombustible materials and fire-resisting doors or shutters. When the shaft of the lift is carried up to the roof it should be continued through the roof, and, if covered, thin glass should be used, protected on the outside with strong wire guards.

(c) In other buildings where there are large floors undivided by partitions, fixtures, etc., lifts if placed as far as practicable from the staircases, exits, etc., may be enclosed with fire-resisting materials to a height of 4 ft. above each floor level, and above this with stout wire mesh guard.

Name of Manufacturers : J. and E. Hall, Ltd.
Address : 10 St. Swithin's Lane, E.C.4
Telephone : Mansion House 7336
Works : Dartford
Telephone : Dartford 201



THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

SCHEDULE OF SYNTHETIC PAINTS, VARNISHES ETC.

	PURPOSE.	COLOURS.	APPLICATION	COVER'G CAPACITY
ENAMELS : *for detailed description see Sheet N° 4.*				
Dulux White Enamel, 81999.	Interior	White and tinted.	Brush	80-100 sq.yds/gal.
GLOSS PAINTS : *For detailed description see Sheet N° 3.*				
Dulux Glossy Finish	Interior & Ext.	37 standard.	Brush or spray.	100 sq.yds/gal.
Super Elastic Gloss (S.E.G.)	Interior & Ext.	35 standard.	Brush.	80-90 sq.yds/gal.
FLAT PAINTS : *For detailed description see Sheet N° 5.*				
Dulux Eggshell Finish	Interior	32 standard.	Brush or spray.	80-100 sq.yds/gal.
Dulux Flat Finish	Interior	32 standard.	Brush or spray.	80-100 sq.yds/gal.
Supermatt Flat Paint	Interior	31 standard.	Brush.	80-100 sq.yds/gal.
Nayrodec Water Paint	Interior	39 standard.	Brush.	300-500 sq.yds/cwt.
Nayrodec Exterior Quality.	Exterior	14 standard.	Brush.	300-500 sq.yds/cwt.
IMITATION STONE PAINT : *For detailed description see Sheet N° 4.*				
Petrumite	Interior or Ext.	7 standard.	Brush.	125 sq.yds/cwt.
ALUMINIUM PAINT : *For detail description see Sheet N° 3.*				
Dulux Aluminium 87606.	Interior or Ext.	Aluminium.	Brush or spray.	brush 200 / spray 120 } sq yds/gal.
BITUMINOUS PAINTS : *For detailed description see Sheet N° 9.*				
Melanoid Blacks (in grades).	Interior & Ext.	Glossy & Matt.	Brush.	70 sq.yds/gal.
Melanoid Colours (in grades).	Interior & Ext.	12 standard.	Brush.	70 sq. yds/gal.
WOOD PRESERVATIVES : *For detailed description see Sheet N° 6.*				
Tectal	Interior & Ext.	tinted	Brush.	30 sq. yds/gal.
Fastain Oil Varnish Stain.	Interior	11 standard.		50-100 sq.yds/gal.
SCUMBLE STAINS : *For detailed description see Sheet N° 6.*				
Scumble	Interior.	4 standards.	Brush.	
VARNISHES : *For detailed description see Sheet N° 7.*				
Dulux Varnish N.R. 5101.	Interior & Ext.	Glossy.	Brush.	.
Suwidec White Decorative Varnish. N.E. 121.	Interior & Ext.	Glossy.	Brush.	.
Front Door Varnish. N.E. 122.	Exterior.	Glossy.	Brush.	.
One-coat Oak Varnish. Interior N.E. 120.	Interior.	Glossy.	Brush.	.
Exterior N.E. 117.	Exterior.	Glossy.	Brush.	.
General N.E. 118.	Interior & Ext.	Glossy.	Brush.	.
Elastic Copal Oak Varnish. Interior N.E. 105	Interior.	Glossy.	Brush.	.
Exterior N.E. 106.	Exterior.	Glossy.	Brush.	.
Copal Varnish. N.E. 183.	Interior & Ext.	Glossy.	Brush.	.
Pale Encaustic Copal, Eggshell. N.Z. 550.	Interior.	Flat.	Brush.	.
Matt. N.Z. 551.	Interior.	Flat.	Brush.	.
Extra Hard Church Oak Varnish N.H. 204	Interior.	Glossy.	Brush.	.

Information from Nobel Chemical Finishes Limited.

INFORMATION SHEET : DATA ON PRIMERS, PAINTS, VARNISHES ETC. N° 1.

SIR JOHN BURNET TAIT AND LORNE. ARCHITECTS. ONE MONTAGUE PLACE BEDFORD SQUARE LONDON.WC1.

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

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PAINTS

Product : Synthetic Paints, Varnishes, etc.

This Sheet schedules the main types of paints and varnishes produced by the Company for architectural purposes, and is the first of a series which will summarise painting processes for various surfaces.

It should be noted that some of the paints listed are made up of the usually accepted ingredients and others are made with a special synthetic vehicle. The synthetic vehicle has been introduced whenever an improved paint can be produced by so doing.

Synthetic Paints.

It is important to make clear the distinction between the old style paints and the new synthetic materials.

All paint consists of

(a) A pigment.
(b) A non-volatile binder
(c) A volatile solvent

} which are combined to form the "vehicle."

Such paints have for centuries been made up with a vehicle consisting of a heat-treated mixture of one or more of the varieties of natural resin, linseed oil and or other drying oils, to which is added turpentine or an equivalent solvent to thin the binder to working consistency.

The main difference between the old style finish and a synthetic finish is in the preparation of the vehicle. Synthetic finishes themselves fall into two entirely separate groups ; one formed by those paints (correctly described as "synthetic resin" paints) in which a "synthetic resin" replaces the natural product used in ordinary paints ; the second and more important group (correctly described as "synthetic vehicle paints") is that in which the vehicle, by a carefully controlled heat treatment, is completely synthesised from specially chosen pure chemical ingredients with certain compounds of oils. The ingredients of such a vehicle at no time exist in the solid brittle stage, which is the characteristic condition of both the natural and synthetic resin, and a synthetic vehicle prepared in the manner described is, in addition, free from variations in properties due to the lack of uniformity which is inevitable in the products of nature.

The remarkable flexibility, which is characteristic of this synthetic vehicle, gives to the finishes prepared from it exceptional durability with freedom from cracking and flaking. The increased wearing properties on exposure due to the characteristics of the "synthetic vehicle" and the specially selected pigments used with it overcome the surface disintegration which is responsible for chalking and colour fading in the orthodox types of paint.

The difference in the title "Synthetic Resin Paints" and "Synthetic Vehicle Paints" is important and expresses the complete difference between the characteristics and method of manufacture of the two types of finish.

Advisory Service.

It has become recognised that both the manufacture and correct use and application of paints is a specialised section of the building trade, and that the assistance of a properly constituted body with expert knowledge is frequently required by the architectural and engineering professions and by surveyors.

A special Advisory service has been created to provide for these cases ; and to advise or make recommendations on :

Painting specifications for new work.

Investigating defects in painting of any kind.

Maintenance painting.

The service will also undertake the supervision on behalf of the architect or engineer of painting contracts, and will carry out any special investigations or scientific tests required by special circumstances.

Name of Manufacturers : Nobel Chemical Finishes, Ltd.

Address : Architectural Dept., Slough, Bucks

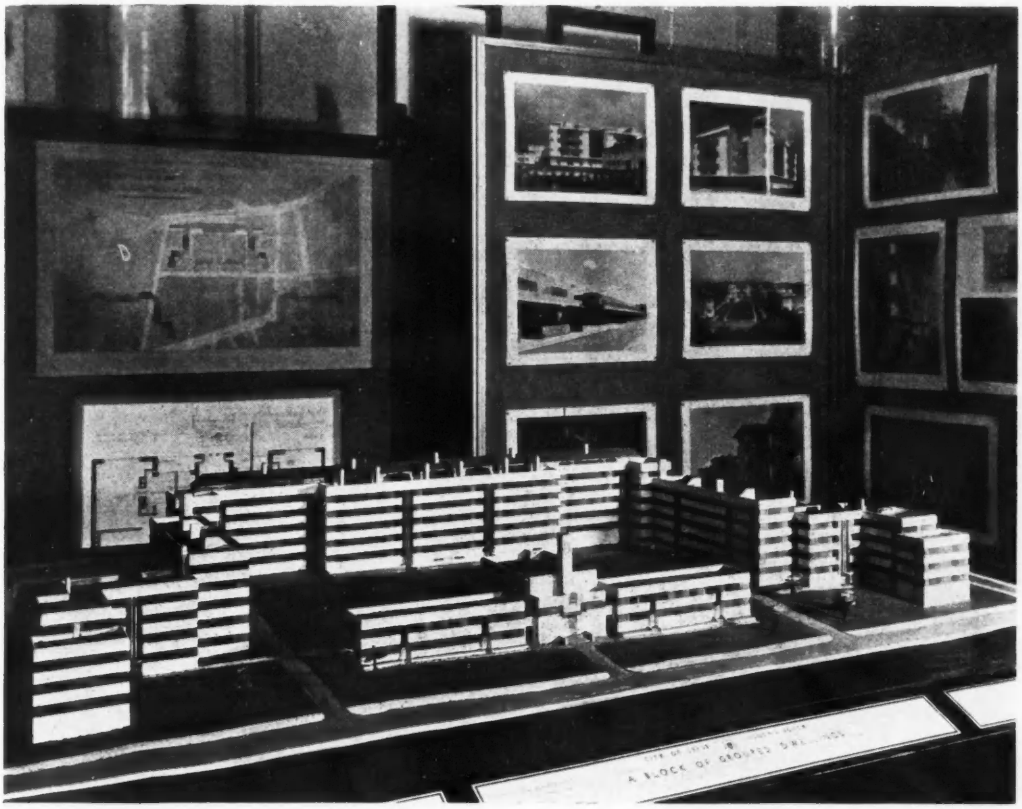
Telephone : Slough 528

London Office : Thames House, Millbank, S.W.1

Telephone : Victoria 2873-2874

BEAUTY AND UGLINESS

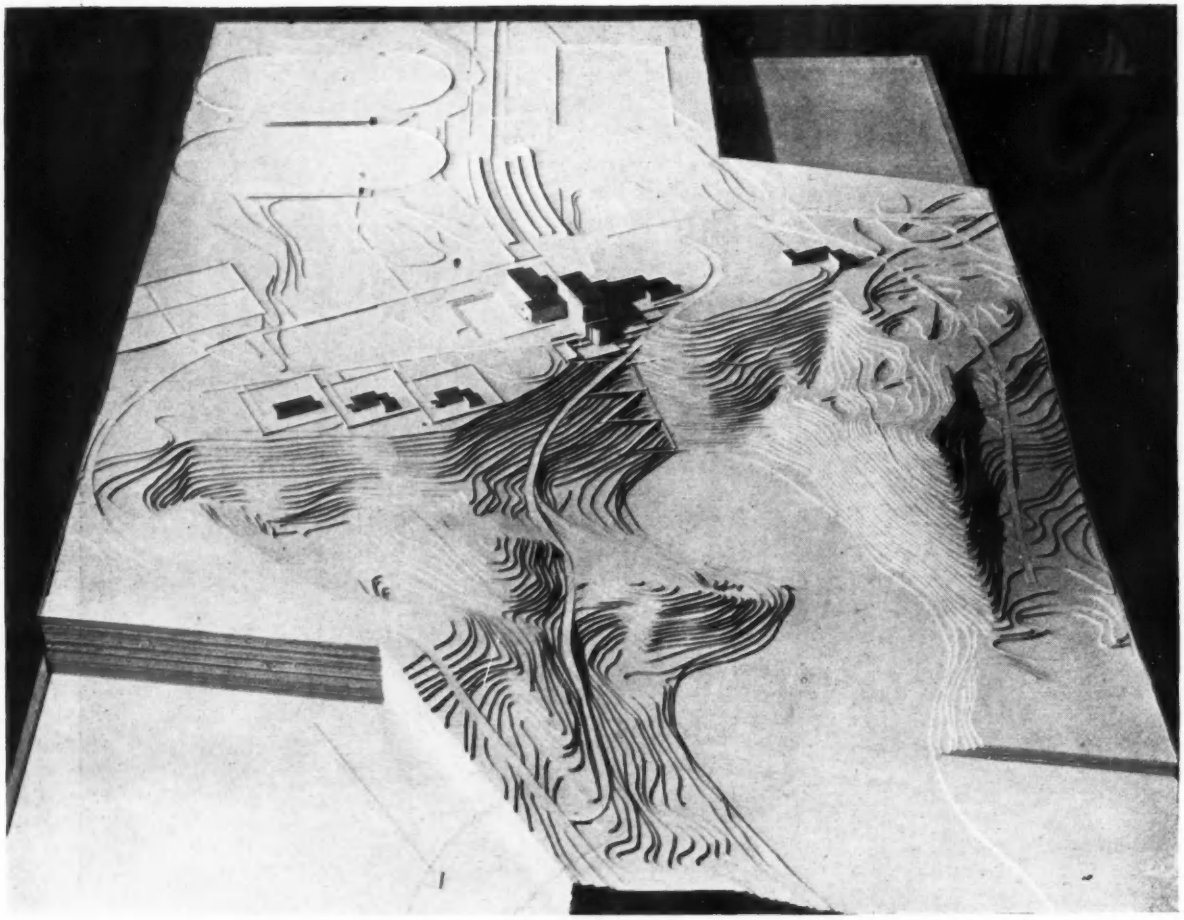
BY THE MINISTER OF HEALTH



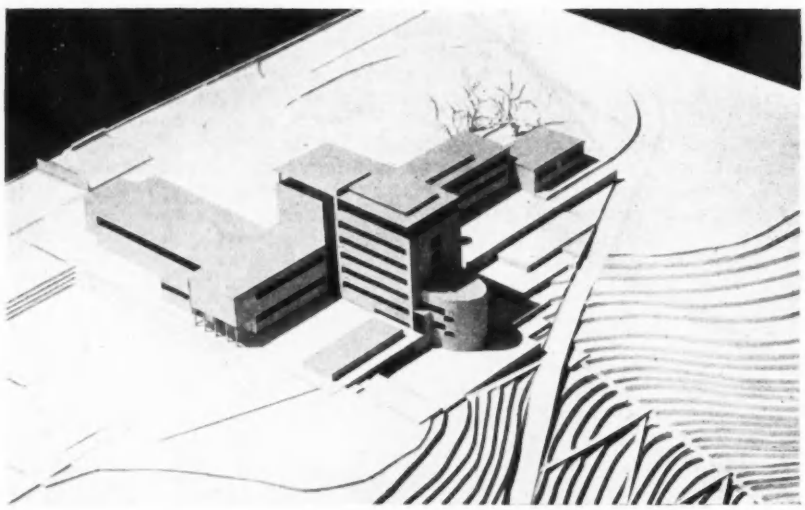
"THIS exhibition shows the complete revolution there has been in house-planning during the last twenty, or even ten, years. The difference between these well-designed flats, with their beautiful courts, and the old blocks of tenements formerly erected, is the difference between light and darkness, beauty and ugliness, intelligence and stupidity," said Sir Hilton Young, when he opened the Exhibition of Working-Class Flats at the Ministry of Health last week.

Material for this Exhibition, which will remain open until February 11, has been supplied by local authorities, the R.I.B.A., the Housing Centre, the Building Centre, a number of housing associations, and private individuals.

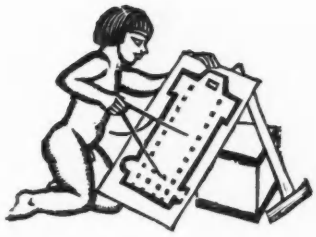
Above is a photograph of one of the models: a block of flats intended to be erected under the Leeds Corporation's rehousing scheme for the Marlborough Street Area. The buildings, designed by Mr. R. A. H. Livett, A.R.I.B.A., Director of Housing, Leeds, provide for 135 flats and shops, the flats varying from two to three bedrooms, with sitting room, scullery, bathroom, etc. The model was executed by the Housing Director and Architectural Staff of the Leeds Corporation.



COMPETITION MODEL



A competition was recently held for the lay-out and design of a School of Physical Culture for Finland, to be built on a spectacular site high up above an inlet of the south Finnish coast, not far from Helsingfors. These photographs illustrate models of the winning design, by Erik Bryggman, of Abo. The buildings, which are to be in reinforced concrete, contain quarters for students and instructors, with lecture halls, gymnasia, etc., and the grounds are laid out for all kinds of sports and athletics, with access to the water for boating and swimming. Work on the scheme is now proceeding, and it is hoped to have it finished this summer.



CHIEF ARCHITECT

A CHARACTERISTIC of these times is a tendency towards the centralization of important services in the hands of a state-controlled bureaucratic organization. In the case of housing (which has only recently become recognized *as* a national social service) it is more than a tendency : experience over a long period has revealed many advantages of public enterprise in housing over private and, although much good work is being done outside official departments, particularly by such semi-public organizations as the many Housing Trusts and House Improvement Societies, it now seems established that housing provision on a large scale shall rest in official (largely municipal) hands.

These self-evident observations are occasioned by the announced retirement of Mr. George Topham-Forrest, chief architect to the London County Council. The L.C.C. is by far the greatest of the above-mentioned municipal authorities to whom the responsibility for the population's living accommodation has been delegated ; and the Council's undertakings during the past decade must include altogether a larger volume of working-class housing than has ever been undertaken by any one city in a similar period—with the possible exception of the pre-Nazi housing drive in Berlin. Mr. Topham-Forrest's name has been associated as architect with many years of these undertakings, and he has seen his department shoulder, energetically if rather conservatively, a huge and growing responsibility. Now, when ill-health compels him to retire, the L.C.C. Housing Department is entering on an even more active and responsible phase of its existence. The national demand for improvement in housing conditions and the Minister of Health's energetic measures for making such improvement possible give the L.C.C., together with the other local authorities over which it has influence if not jurisdiction, an unprecedented opportunity of making London of 1935 as much a landmark in the history of housing activity as, for example, Vienna of 1925. Housing reform is now being carried forward on the tide of public enthusiasm instead of struggling, as it has often had to do in the past, against the discouragement of public apathy.

The beginning of this new phase is a timely moment at which to make sure that the official departments concerned are organized in the most efficient possible way to carry out this important social enterprise. There are two criticisms that have recently been made of the present organization of the L.C.C. Housing Department, neither of which are in any sense a criticism of the Council's chief architect, but both of which need proper consideration if the new chief architect is going to be able to make the best use of the opportunities he will be offered. The first of these concerns an anomaly that has often become apparent in L.C.C. administration ; the disproportionate position of the L.C.C. valuer, who, it seems, is in effect the supreme official in many matters of housing—a position which should surely belong to the architect. Without implying any criticism of the holder of the position of valuer, we would suggest that, housing being essentially a question of planning and design—of the application of technical knowledge and experience—any large measure of control by a financial official must be obstructive in effect rather than progressive.

The second criticism that has been made is one that has all too commonly to be made of bureaucratic organizations : a lack of sufficient co-ordination *within* the organization. Co-operation between the L.C.C. Housing Department and the L.C.C. Town-planning Department has hitherto been not nearly so close as it should be. The workings of both are so manifestly interdependent that absence of co-operation between them is as fantastic as absence of co-operation between a railway engine-driver and the signalman. In each case one is only putting into practice the requirements shown by the other's observations.

The new chief architect of the L.C.C. will have to be (it goes without saying) a man of immense ability and enterprise ; of thorough knowledge and experience. He must not be afraid to cut across the somewhat pedestrian if eminently respectable tradition of L.C.C. design, and learn from the more progressive experiments of other countries. The English tradition in mass housing is not sufficiently one to be proud of to justify sentimental adherence to it in the future.

Finally, since much work besides housing comes within the province of the L.C.C. architects, it might be wise to create a separate post, on an equal status with that of chief architect ; a Director of Housing, who would be responsible for all housing work on the L.C.C., could be chosen specifically for his suitability as a housing architect and whose concentration on this most important of all problems would not be disturbed by the demands on a chief architect's attention of the routine administration of a huge municipal department. Liverpool and Leeds already have housing directors. What Lancashire thinks today . . . Now is the appropriate time to consider whether London might not benefit by adopting the machinery that so successfully operates in those two progressive cities.



The Architects' Journal
Westminster, S.W.1
Telephones: Victoria
0212-7
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Buildable
Part
London

NOTES & TOPICS

SIR CECIL HARCOURT-SMITH'S "MODERNISM"

ACCORDING to "Sayings of the Week" in the *Observer*, Sir Cecil Harcourt-Smith has committed himself to the statement that "the 'unadorned simplicity' of much modern furniture has the squat beauty of a toad." Furniture design did pass through that phase in the early 'twenties, and that is just about the time-lag one expects for the ideas of a public man about design.

*

If, of course, Sir Cecil is judging "modern" furniture from the exhibits at the Art in Industry exhibition at the Academy, he is confusing the date of the show with the prevailing ideas expressed by the furniture there. With one or two exceptions the furniture is of the 1925 Paris Exhibition period, although a few pieces represent innocent reminiscences of the 1923 Gothenburg Exhibition.

BANKERS' TASTE

Apropos my note last week about this matter of the Bank of England's new furniture—it will be remembered that I said that an "expert" is to be employed to select pieces of eighteenth-century furniture that can be copied—I have had a letter from somebody who, apparently, is so afraid of differing from me that he does not sign his name.

*

I should like to print his letter in full, but that, I fear, would not be wise. What he says is, in effect, that the building is a very fine one; the furniture within it should neither follow exact traditional forms, nor should it be "twentieth century," for that would not suit the seats of the gentry who have to sit on it.

*

My correspondent concludes that the furniture should be "drawn by the same man who drew the outside." It is all a very big problem.

BEST-SELLING

America "collects" freely from this country; one cannot help being aware of that. Whether it be bullion or antiques, America is justly proud. In return America sends us red-hot ideas; and, if we are sometimes nervous of picking them up, that is not out of disrespect, but merely because we have a well-earned reputation for preferring to roast our own chestnuts and for waiting till they are cool enough to handle.

*

Which makes it the more remarkable that Mr. F. R. S. Yorke's book, *The Modern House*, seems to have "got over" to a most remarkable extent in the States. It has become, if you please, a Best Seller; the Scientific Book Club recommends it as one of six "books of the month."

*

And the curious thing is that this has happened in spite of the fact that the reviewers have all of them got the point. If they had said that the book set forth the very latest fashion in "olde worlde" English, one could have predicted a vast sale; but they have all observed the practical and economic points; so *that* argument fails and I am forced to the conclusion that it is time England had another Tudor exhibition in the States (on the lines of the Buenos Aires one). Otherwise our fake-antique dealers may lose their market.

LIGHTS OF ART THAT WON'T START

Many weeks ago batteries of traffic signals were posted to command every approach to Notting Hill Gate, which all will agree produces some of the worst traffic blocks in London.

*

That plain Jane, fitness-for-purpose model used everywhere else (including Piccadilly) would hardly do for a Royal Borough like Kensington, or the business end of a thoroughfare as famous for artistic shoppes as Church Street, W.8. The principle of "Applied Art" had to be exemplified. So the short utilitarian posts were titivated with "ornamental" cast-iron bases of mid-nineteenth-century design to harmonize with Kensington's richly embellished lamp-standards.

*

The roadway was reinstated. The prettified traffic signals were duly painted—so far back in 1934 indeed that their fresh black and white, which once so oddly bisected scrolls and cartouches, has turned to two art shades of fog grey. Week by week the number of "traffic deaths" rises. Daily the procession of vehicles waiting to pass this dangerous strait grows longer. But still the art-lights do not flash It is rumoured that ceremonially-minded Kensington is waiting for someone of sufficient importance to switch them on.

*

But one thing does not wait: "Large-scale redevelopment" entailing "the erection of imposing modern premises" straight across the track of essential widenings and realignments of that narrow, meandering, charming old cow-track, Church Street, itself the cause of most of the trouble.

VILLAGE PLANS ON THE AIR

I liked the verbal tug-of-war that was broadcast last week between the "worthies" of Chipping Campden and Broadway. I liked it because I know both those pleasant





Portrait and original; the foreman mason and a gargoyle at Government House, Nicosia, Cyprus. See note on this page.

Cotswold places, and I also knew most of the people taking part in the broadcast.

*

Mr. Don Russell, the proprietor of the Lygon Arms at Broadway, was in the chair; Mr. Woodruff put the case for Campden, and Mr. G. A. Jellicoe let himself go with considerable vim (as P. G. Wodehouse would say) on the subject of Broadway and its town plan. That was the real thing Broadway had over Campden: they had a plan: Campden just has a past.

*

Well, unless it gets a plan, it won't have a future. It is committed to the twentieth century, and some of the jeers about "olde-worldliness" which were good-humouredly hurled by the Broadway party at the Campdenites registered a few hits, at least in the opinion of one listener.

*

The interruptions during the debate were grand. This nation of individualists ought to go in for more interruptions: especially at D.I.A. and Architecture Club and Royal Academy dinners. If we did there might be fewer public dinners or more sense talked at them; and either result would be a GOOD THING.

THE FOREMAN

I have just seen some photographs of the new Government House at Cyprus, which Mr. Maurice Webb is in the middle of building, and I am glad to see that he has revived the old custom of caricaturing foremen and overseers. The carving, in Yerrolakko stone which looks like Bath stone, seems much kinder to the original than some I have seen, but perhaps the climate of Cyprus makes foremen too hot to bother about being ill tempered.

*

What a pity that Harry Spearpoint couldn't have had a permanent place somewhere in the new R.I.B.A. building.

A MORAL MISSED

The contributor who described Austria's new set of stamps in last week's issue failed to point out the most significant thing about it.

*

Those "Architects' Heads" are only sold by the Austrian post offices *at twice their face value*. What a tribute to the importance of our profession!

*

But other countries have had their famous architects, too, to say nothing of great men in general. For instance, Great Britain—though the G.P.O. does not allow the observant foreigner to guess as much.

*

Why not a series bearing the heads of Inigo Jones, Wren, Vanbrugh, Soane, etc., sold in triple value for the benefit of the Society for the Protection of Ancient Buildings (or H.M.O.W.'s activities in the same direction).

*

Apart from the philatelic and philanthropic, architects would be sure to use them when writing abroad. This would enhance our cultural prestige and encourage the "Come to Britain" movement.

*

I am quite unmoved by official arguments that this country (and this alone) cannot compromise its postal dignity by commemorative issues, so long as the walls of post offices are hung with miscellaneous commercial advertisements.

*

It all makes one think again about those first four specimens of our "improved design" in stamps. Better than the old, yes! But . . .

AXIS

A few weeks ago I said something about *Axis*, the new art quarterly whose prospectus I had just seen. Now the first number is out. Though it doesn't aim at a popular appeal (it too conscientiously resists those twin temptations of journalistic enterprise—opportunism and dilettantism), it should please many besides the enthusiasts whose views of art already coincide with its own.

*

This because it is a sincere attempt to present one point of view, without any of the apologetics with which art theory is all too often offered to the public, by a number of impressive names all of whom *agree on a principle*. The point of view, roughly, is that of "abstraction" as æsthetic expression through analysis, in opposition to the intellectual escape provided by *surréalisme*.

*

The examples of work by English artists still (with the exception of a lovely new carving by Henry Moore) have less assurance than those from abroad. Other notable things in a publication that deserves to succeed are the introductory analysis, "Dead or Alive," by the editor (Myfanwy Evans) and a sympathetic essay by Paul Nash aptly entitled "For but not With."

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

The Middlesex County Council has decided to promote a Bill for the compulsory acquisition of the site in Parliament Square for which a scheme for building a block of offices was recently published 218

Proposed block of flats in South Shields to rehouse 400 Arabs 219

The B.B.C. announce a new series of talks called "Inside and Out," which is to deal with various aspects of houses and housing 219

"How many members of urban district councils and their innumerable committees are speculative builders or those interested in the building trades?" 225

WESTMINSTER FLAT SCHEME

Work is expected to begin in April on the ten-storey block of flats, claimed to be the largest in Europe when completed next year, on the former riverside site of the Royal Army Clothing Depôt in Grosvenor Road, Westminster. Details of the scheme were given in the JOURNAL in December. Last week the Grosvenor Estate transferred the site to British and American interests, represented by Mr. Frederick F. French, of the New York company of that name. The purchase price was £350,000 and the cost of the 1,550 flats will be about £1,750,000.

L.C.C. ARCHITECT RETIRING

Mr. G. Topham-Forrest, F.R.I.B.A., chief architect to the London County Council since 1919, is to retire next month. He will be 63 in April. Born and educated in Aberdeen, he was County Education Architect for Northumberland from 1905 to 1914, and County Architect for Essex from 1914 until his removal to London.

He entered the service of the L.C.C. at a time of special difficulty. The most insistent of the post-war problems facing him was that of housing, and he was responsible for the architectural development of large cottage estates for the Council and of its vast reconstruction schemes, and also for the erection, alteration or rebuilding of many education and hospital buildings. The most important hospital building now being erected is the Hammersmith post-graduate medical school and hospital.

Mr. Forrest was responsible also for the architectural treatment of the new Chelsea bridge and, with Sir Reginald Blomfield, that of Lambeth bridge. He has served on various Government committees, on the Council for the Preservation of Rural England, and on the Council for Research on Housing Construction.

In a letter to the L.C.C., Mr. Forrest stated that he would have wished to remain to see the successful issue of the Council's attack on the slums, the rebuilding of its hospitals, and the inception of a great scheme for the replanning of London to which he had given the best years of his life.

THE ARCHITECTS' DIARY

Thursday, February 7

ROYAL ACADEMY. *At Burlington House, Piccadilly, W.1. Exhibition of British Art in Industry. Open until further notice.*

INSTITUTION OF ELECTRICAL ENGINEERS. *At Grosvenor House, Park Lane, W.1. Annual Dinner.* 7 for 7.30 *p.m.*

MINISTRY OF HEALTH, WHITEHALL, S.W.1 *Exhibition of Working-Class Flats. Open from* 11 *a.m. to* 5 *p.m. weekdays,* 11 *a.m. to* 1 *p.m. Saturdays. Until February* 11.

WEST YORKSHIRE SOCIETY OF ARCHITECTS. *At the Gt. Northern Hotel, Leeds. Biennial Dinner.* 8 *p.m.*

BUILDING CENTRE, 158 *New Bond Street, W.1. "Divining for Water, Oil and Coal." By P. Gatward.* 8 *p.m.*

Friday, February 8

TOWN PLANNING INSTITUTE. *At the Caxton Hall, Caxton Street, S.W.1. "The Revised Model Clauses." By T. Alwyn Lloyd, F.R.I.B.A.(M.) (P.P.).* 6 *p.m.*

Monday, February 11

R.I.B.A. *At* 66 *Portland Place, W.1. Exhibition of Library Treasures. Opening day. "The Planning of Municipal Buildings." By Percy E. Thomas, O.B.E., F.R.I.B.A.* 8 *p.m.*

NEW ARCHITECTS' ORGANISATION. *At Conway Hall, Red Lion Square, W.C.1. A meeting for Architects, Assistants and Students.* 8 *p.m.*

Wednesday, February 13

ROYAL SOCIETY OF ARTS. *At John Street, Adelphi, W.C.1. "Domestic Equipment." By Mrs. D. D. Cottington Taylor.* 8 *p.m.*

L.C.C. CENTRAL SCHOOL OF ARTS AND CRAFTS. *At Southampton Row, W.C.1. "English Renaissance Architecture 2. Famous Elizabethan Mansions." By Sir Banister Fletcher, M.Arch., F.S.A., PP.R.I.B.A.* 6 *p.m.*

NEW LONDON ARCHITECTURE MEDAL

The first award of the gold medal to be presented annually by the Tylers and Bricklayers Company to the architect of the building judged to have the most merit within a radius of eight miles from Charing Cross will be announced in June 1935.

The building is to be one of brick and tile (buildings having a small amount of stone or other dressings will not necessarily be excluded) and must have been completed within the last three years ending December 31, 1934.

Any practising architect is at liberty to nominate any buildings including his own for the consideration of the Jury, no special form is necessary and the following information only should be given :—Name, situation and architect of the building signed by the nominator. Nominations must be sent to the Clerk of the Tylers and Bricklayers Company, 6 Bedford Row, W.C.1, not later than March 15.

The Company is to be assisted by the R.I.B.A. in judging the award.

A POST OFFICE EXTENSION

The Post Office has secured the rest of the island site in Queen Victoria Street on which stands Faraday House, the international telephone headquarters, in anticipation of the need for extension. Faraday House was opened in May, 1933, and the complaint was made that it obstructed the view of St. Paul's.

REBUILDING ST. GEORGE'S HOSPITAL

The governors of St. George's Hospital, Hyde Park Corner, decided unanimously last week to rebuild it on the same site, and the work is to start at once. The present building, which was built in 1828 by Wilkins, the designer of the National Gallery, will come down as its successor is going up, and it will not be necessary to close either the hospital or its medical school. The rebuilding, equipment and endowment of St. George's will cost about a million pounds, of which some £65,000 is now in hand.

OFFICE BUILDING IN PARLIAMENT SQUARE

The Middlesex County Council is taking steps to prevent the erection of a new block of offices on a site at the corner of Parliament Square and Gt. George Street, Westminster, for which a scheme for building a block of offices was recently published. At a recent meeting of the Council it was decided to promote a Bill for the compulsory acquisition of the site.

The site is owned by the Westminster House Real Property Company. Plans for the proposed building have been approved by the Royal Fine Arts Commission. The elevations have been designed by Sir Giles Gilbert Scott, R.A., and the architects are Messrs. A. V. Montagu and E. Frazer Tomlins.

Mr. Ernest Hart, clerk to the Council, in a statement to the *Daily Telegraph*, said : "If this building is erected, Guildhall, Westminster, will be completely eclipsed." He further stated that if the Council's Bill went through it would erect a building on the site which would provide ample office accommodation, but which was better calculated to preserve the amenities of Parliament Square.

A NATIONAL THEATRE

Lord Lytton has been asked by the Shakespeare Memorial National Theatre Committee to raise £500,000 to establish a national theatre. At a recent meeting of the committee Lord Lytton stated that they already had funds amounting to £150,000, which left them with the task of raising £350,000.

"We want," he said, "to remove the great reproach that has hung over this country for so many years that it is the only civilized nation in the world without a national theatre. It possesses the greatest dramatic author in the world, and yet it is still without a national theatre."

PROPOSED FLATS AT CHALK FARM

Final negotiations have been reached for the erection by the St. Pancras House Improvement Society of two blocks of reinforced concrete flats at Chalk Farm, from the designs of Messrs. Connell, Ward and Lucas. The flats will be erected on reinforced concrete columns and the vacant space on the ground floor will be used for storing bicycles and perambulators, and also for providing covered-in recreation grounds.

UNITY IN GROSVENOR SQUARE

A further block of flats, to be in harmony with that now being completed, is proposed for Grosvenor Square. The present block occupies the site of four mansions in the North Terrace and has a Georgian elevation broken by stone pilasters. The new block, to be in the same style, will replace two

other mansions in the centre of the terrace and is estimated to cost £100,000.

The Westminster Estate intends that a third block to replace three houses on the south side of the square whose site is almost cleared, shall similarly conform, and that any future rebuilding shall be required to do so, so that ultimately the whole square shall be a unity.

ROYAL SOCIETY OF ARTS

A paper entitled "Abuses of Street Advertising" is to be read by Sir Leslie Scott, K.C., at a meeting of the Royal Society of Arts on February 15. Mr. Frank Pick will preside.

INSTITUTE OF REGISTERED ARCHITECTS

The first annual general meeting of the Institute of Registered Architects was held at 43 Grosvenor Place, Westminster, S.W., on February 1. Sir Robert Tasker, J.P., F.I.A.A., presided.

In the annual report, presented by the chairman, it was stated that "the membership of the Institute is growing steadily. 300 applications have been passed by the Admission Committee during the past year, and the membership figure now stands at 500—it is perhaps of interest to mention that of this figure, members of the R.I.B.A. and its allied societies represent approximately 35 per cent., members of the I.A.A.S. F.A.S. and A.A.S.T.A., 40 per cent., and "unattached" architects 25 per cent."

The Council for the ensuing year was elected, as follows: Sir Edwin Lutyens (President); Major G. B. J. Athoe, and Messrs. Harold Baily, O.P. Bernard, Vincent Burr, W. T. Bowman, G. Leslie Head, Gordon W. Jackson, J. W. Lee, J. L. Mackie, A. E. Mander, H. F. V. Newsome, Victor S. Peel, S. T. Puzey, J. E. Swindlehurst, Sir Robert Tasker, G. H. Widdows, and W. S. Willis.

FLATS FOR ARABS

The South Shields Town Council is likely to consider in the near future the erection of a four or five-storeyed block of tenement flats to rehouse nearly 400 Arabs and other coloured seamen living in the Holborn slum clearance area (states the *North Mail* and *Newcastle Chronicle*).

ON THE AIR

The B.B.C. announce a new series of talks called "Inside and Out," which is to deal with various aspects of houses and housing, as well as including explanations of the Housing Acts, which assist repairing or reconditioning of houses. Mr. Geoffrey Boumphrey is one of the speakers and will exercise a general supervision over the talks. The first one is to be given in the National Programme on February 11, at 10.45 a.m., on "How a House is Built."

The series of talks which is being broadcast from the Midland station, and in which Mr. Boumphrey is also taking part, has created a great deal of interest in the area. The talks deal with town and country planning, and the Nottingham Housing Committee, for instance, has circulated to its members copies of extracts from the talks. On February 4, at 8.30 p.m., the discussion was between Mr. Boumphrey and Alderman William Crane, on the subject of new building materials and methods, under the title "Forward the Builder." On February 18 a discussion on "Tackling the Suburbs" will be broadcast by Mr. Boumphrey and Mr. John Cadbury. Mr. Boumphrey and Mr. Cadbury will discuss the suburb of the present, the ideal suburb, and also suburban life and how it can be improved. Each will call one "witness" in support of his case.

The sixth of a series of broadcast talks on "The Artist and his Public" is to be given by Mr. Eric Newton in the National Programme on Monday next, at 7.30 p.m.

R. I. B. A.

THE NEXT MEETING

The next meeting of the R.I.B.A. is to be held on Monday next, at 8 p.m., when Mr. Percy E. Thomas, O.B.E., F.R.I.B.A., will read a paper on "The Planning of Municipal Buildings."

EXHIBITION OF BOOKS AND DRAWINGS

An exhibition of books and drawings from the R.I.B.A. Library is to be held at the Institute from February 11 to March 6, 1935. The exhibition will be open to the public daily from 10 a.m. to 8 p.m., Saturdays 10 a.m. to 5 p.m. (admission free).

The exhibition will be opened by Sir Frederic Kenyon, C.B.E., K.C.B., D.LITT., F.B.A., etc. at 3 p.m. on February 11.

R.I.B.A. EXAMINATIONS

Following is a list of the R.I.B.A. examinations dates for 1935 and 1936:—

INTERMEDIATE EXAMINATION: May 24, 25, 27, 28 and 30, 1935. (Last day for applications, April 24, 1935). November 15, 16, 18, 19 and 21, 1935. (Last day for applications, October 15, 1935). May 22, 23, 25, 26 and 28, 1936. (Last day for applications, April 22, 1936). November 6, 7, 9, 10 and 12, 1936. (Last day for applications, October 6, 1936).

FINAL EXAMINATION: July 3, 4, 5, 6, 8, 9 and 11, 1935. (Last day for applications, June 3, 1935). December 4, 5, 6, 7, 9, 10 and 12, 1935. (Last day for applications; November 4, 1935). July 8, 9, 10, 11, 13, 14 and 16, 1936. (Last day for applications, June 8, 1936). December 2, 3, 4, 5, 7, 8 and 10, 1936. (Last day for applications, November 2, 1936).

SPECIAL FINAL EXAMINATION: July 3, 4, 5, 6, 8 and 9, 1935. (Last day for applications, June 3, 1935). December 4, 5, 6, 7, 9 and 10, 1935. (Last day for applications, November 4, 1935). July 8, 9, 10, 11, 13 and 14, 1936. (Last day for applications, June 8, 1936). December 2, 3, 4, 5, 7 and 8, 1936. (Last day for applications, November 2, 1936).

SPECIAL EXAMINATION OF LICENTIATES TO QUALIFY AS FELLOWS: April 8, 9, 10, 11 and 12, 1935. (Last day for applications, March 8, 1935). October 28, 29, 30, 31 and November 1, 1935. (Last day for applications, September 28, 1935). March 30, 31, April 1, 2 and 3, 1936. (Last day for applications, March 2, 1936). October 26, 27, 28, 29 and 30, 1936. (Last day for applications, September 25, 1936).

STATUTORY EXAMINATION FOR DISTRICT SURVEYOR AND THE EXAMINATION FOR BUILDING SURVEYOR: May 1, 2 and 3, 1935. (Last day for applications, April 10, 1935). October 9, 10 and 11, 1935. (Last day for applications, September 18, 1935). April 22, 23 and 24, 1936. (Last day for receiving applications, April 1, 1936). October 7, 8 and 9, 1936. (Last day for receiving applications, September 16, 1936).

COMPETITION NEWS

A NEW COMPETITION

Mr. Robert Atkinson, F.R.I.B.A., has been appointed assessor for the competition (open to architects of British nationality) for proposed new central offices for the Hertfordshire County Council at Hertford. Premiums of £350, £250 and £150 are to be offered for the designs placed first, second and third respectively.

MONUMENT IN GREY CORNISH GRANITE

The Cornish Quarry Masters' Association, in order to promote the study of granite as a building material under modern conditions, invite architects, architects' assistants, and architectural students, to submit designs in competition for a monument in grey Cornish granite. The Hon. Humphrey Pakington, F.R.I.B.A., Mr. C. Lovett Gill, F.R.I.B.A., Mr. C. H. Holden, F.R.I.B.A., and Mr. Howard Robertson, F.R.I.B.A., have been appointed assessors, together with Mr. M. L. Wetherall, who will represent the Cornish Quarry Masters' Association. A prize of £50 is to be awarded to the author of the design placed first by the assessors. Copies of the conditions may be obtained from the Secretary of the Architectural Association, 34 Bedford Square, W.C.1.

The result of the competition will be announced, and a criticism will be given, at 6 p.m. on Tuesday, April 16, at the Architectural Association.

The competition drawings will be on exhibition at the Architectural Association, from Monday, April 15, until Thursday, April 18, from 10 a.m. to 7 p.m.

SCUNTHORPE TOWN HALL

The Scunthorpe Urban Council has decided to hold a competition for the design of its proposed Town Hall scheme.

HOUSING SITE, KIRKCALDY

The following notice has been issued by the R.I.B.A.: "Members of the R.I.B.A. and of its allied societies must not take part in the competition for development of King Street Housing Site, Kirkcaldy, because the conditions are not in accordance with the published regulations of the Royal Institute for architectural competitions."

[*For Competitions Open, see page 184 of our last issue.*]

THIS ARSHETECTURE

The *Georgic* is the 27,000-tons motor-liner built in 1932. With all the luxuries of modern liner comfort, she has an old village inn for a smoke-room and a miniature cathedral aboard.

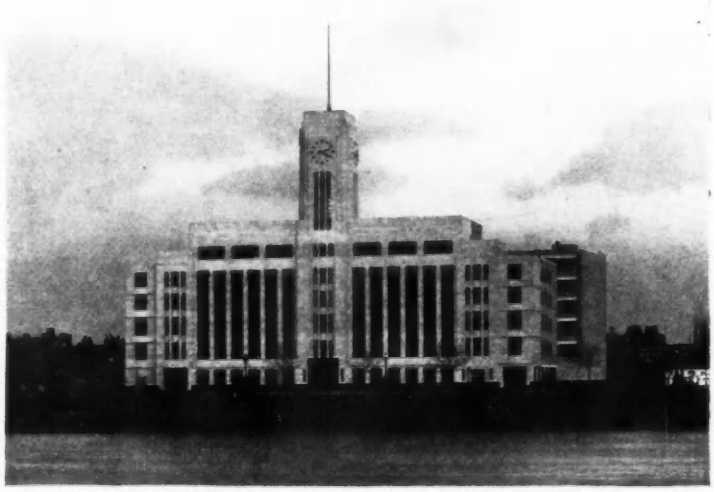
From the *Sunday Dispatch*.

STATIONERY FACTORY AND BOOK-BINDING



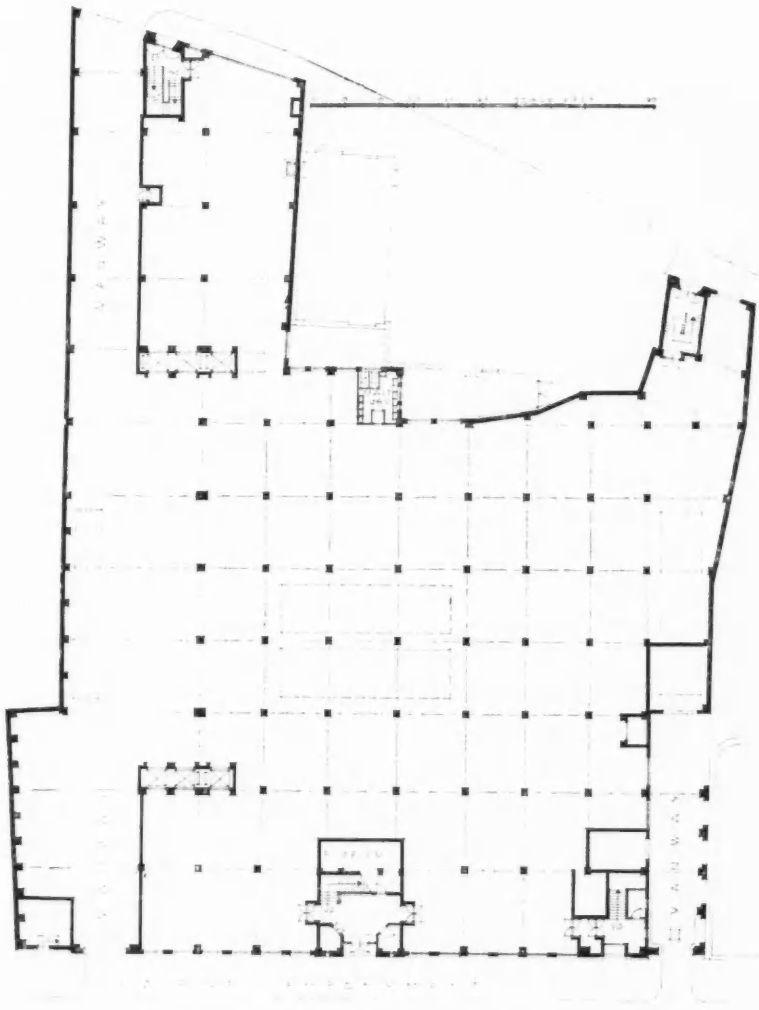
This building, containing a stationery factory and bookbinding workshops, occupies an important site on the Albert Embankment near the south end of Lambeth Bridge and faces across the river towards Thames House. The gravel subsoil provides a good bearing for the heavy paper and machinery loads, and only a reasonable amount of pumping was necessary during excavations, in marked distinction to the troubles which were met in the foundation work for Thames House and Imperial Chemical House. The consulting engineer was Mr. S. Bylander.

The photographs on this page show: top, the Albert Embankment elevation, with the main entrance immediately beneath the clock tower and the vanway entrances at each side; right, the building seen from across the river. A neon sign is to be added to this elevation.

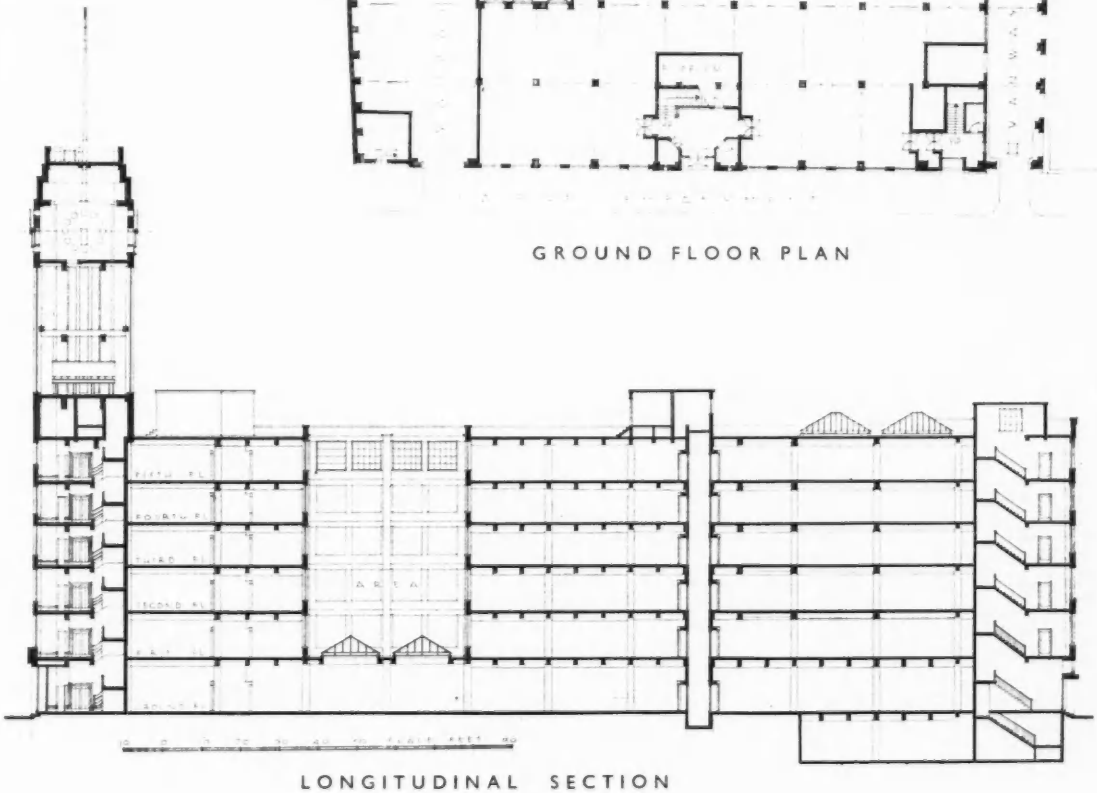


WORKSHOPS FOR W. H. SMITH AND SON

DESIGNED BY HERBERT O. ELLIS AND CLARKE, IN CONSULTATION WITH F. C. BAYLISS



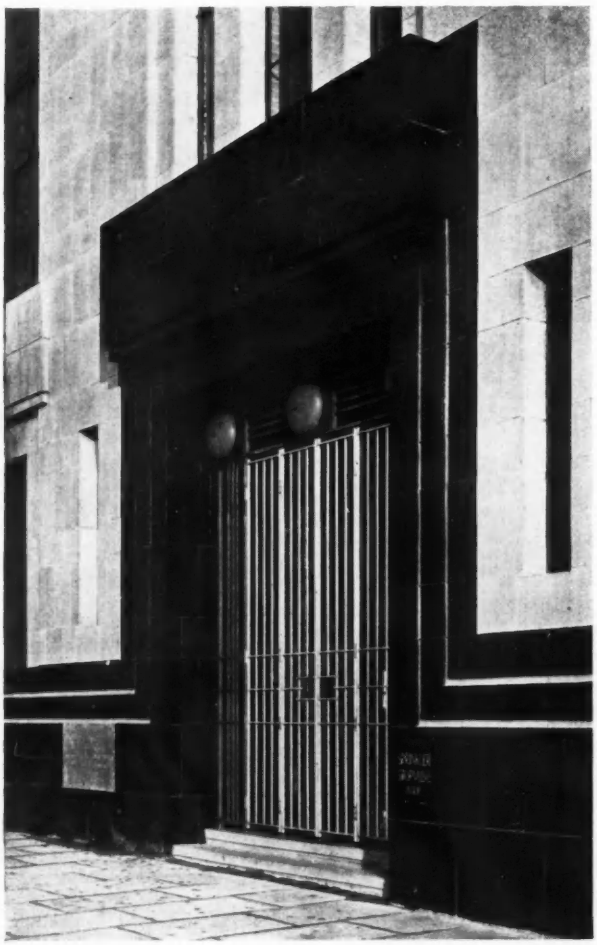
GROUND FLOOR PLAN



LONGITUDINAL SECTION

STATIONERY FACTORY AND BOOK-BINDING

DESIGNED BY HERBERT O. ELLIS AND CLARKE, IN CONSULTATION WITH F. C. BAYLISS



ACCOMMODATION. *Ground floor, two vanways and loading docks: five further open floors to contain printing and book-binding plant.*

STRUCTURE. *Steel frame with solid reinforced concrete floors.*

FINISHES. *External: glazed cream terra-cotta facing slabs on the north (river) elevation, the remainder in lime bricks, base and main entrance surround in black terra-cotta: metal casements. Internal: walls, fair-faced brickwork, teak block floors, vanways paved in reinforced asphalt, roof insulated with cork. The main stairs are in terrazzo with a non-slip tread, subsidiary staircases in granolithic.*

EQUIPMENT. *Heating by coke-fired boilers and ceiling panels: the sprinkler system is supplied from a tank in the clock tower, fed automatically from the ground floor pump room.*

The photographs show: top, the main entrance, with its surround of black faience and stainless steel entrance doors; right, and on the opposite page, details of the main staircase. The balustrade is in black and green.



WORKSHOPS FOR W. H. SMITH AND SON



LETTERS FROM READERS

J. R. J.
F. SKINNER, A.R.I.B.A.
ASSISTANT
J. CRAVEN PRITCHARD
H. SPENCE-SALES
747485

Outlook Unsettled

SIR,—The conception of "collective action" proffered by your contributor in the article under the above title surely lacks all contact with reality. A travelling architectural exhibition opened in various towns by the mayor, etc., seems to me to be fanciful when we consider the acres of slums, congested development and insanitary areas that we, as architects, know full well should be swept away and entirely rebuilt. This enormous work, I suggest, is the *real* "large new outlet for architectural services" that your contributor desires and which is aching to be tapped.

But what organization of architects, however, has the vision and foresight, to say nothing of the humanity and political courage, to range itself thus on the side of the progressive elements in the country? The tiny minority of private practitioners who control the R.I.B.A. are not likely to undertake the job, nor need we expect much from the other established bodies, save perhaps the Association of Architects, Surveyors and Technical Assistants. This body, I note, has recently broken away from the leading-strings of Portland Place, and there seems at last to be some hope for it, and for the thousands of assistant architects whom it would represent, if it now stands on its own feet, takes up with vigour the urgent public problem of housing, and ranges itself on the side of collective *public* action in the provision of "large new outlets for architectural services."

Your contributor, I am sure, would help in the work.

J. R. J.
New Malden, Surrey

SIR,—We were very interested to see the article, "Outlook Unsettled," in your last issue, because it is precisely for such architects as your contributor that the new organization, announced in your columns last week, has been proposed.

We think that your contributor explained his own situation very lucidly, but unfortunately he failed to analyse the general situation of architects today, and we think that we can explain to him why his conclusions are no answer to the situation as it exists. He complains of the unlikelihood of his advancement in his firm, of the difficulties of establishing a private practice, and also mentions the tendency for big firms to keep their own large salaried staffs. This is all a reflection of the trend towards monopolization of industry by fewer and fewer concerns. Naturally it suits these firms better to keep their own rationalized architectural staffs to produce their own types of commercial architecture, and all but the larger firms of private architects will find it more and more difficult to compete in the narrowing market. The more firm the hold of finance capital on industry becomes, the more accentuated will this situation become. And though your contributor's suggestion for travelling exhibitions of work might focus public attention on the younger and more vigorous architects with new ideas, the pernicious economic system, which withholds the fruits of industrial development from the vast majority of the population, would remain.

The only mention your contributor makes of scales of salaries for assistants suggests that the "premier professional society" should attack this question. But this is surely a vain hope when the R.I.B.A., which is an employers' organization, has, as we have shown, its own difficulties to cope with. Assistants will only improve their conditions by joining their own organizations (the A.A.S.T.A. is an employees' organization) and fighting in the same way as other organized workers.

But it is because we feel that here is a situation which is insoluble under the present social system that we propose forming a new organization to attack the problem from a new angle.

F. SKINNER
(Secretary, Provisional Committee)
London

SIR,—We should be grateful to you for the article, "Outlook Unsettled," appearing in THE ARCHITECTS' JOURNAL for January 31. Up to a certain point it clearly sketches in the objective conditions prevailing in the profession today, but certain factors have been overlooked.

The author calls for collective action, and then totally ignores the one avenue of collective action which, if fully supported, offers the only chance of ameliorating the conditions for salaried men. I refer to the Association of Architects, Surveyors and Technical Assistants, which has spent years in endeavouring to persuade salaried men to support the organization which is devoted solely to their interests. Much has already been achieved by this body in regard to a scale of salaries for public offices, and—given adequate support—the way is now clear for the establishment of a similar scale in the offices of private practitioners.

Should we not, as salaried architects, support to the utmost our own organization, which not only concerns itself with our conditions and remuneration, but also looks after our wider professional interests through its statutory representation on the Architects' Registration Council. The preponderance of such representation over that of other interests on this body is conditioned solely by the number of salaried architects who perceive where their true interests lie.

ASSISTANT
Wimbledon

The Green Belt

SIR,—May I be permitted to comment on the remarks of your excellent Astragal? He says that the action of the London County Council in acquiring a green belt around London can be called "a piece of dictatorship."

On the contrary, Mr. Morrison and his friends were elected by the people of London to do this very sort of thing, so that it appears that London democracy is working very well and is very unlike the practice of most modern dictators; and should Mr. Morrison and his friends fail to do their job, we can turn them out again, whereas with a dictator that would be a very difficult thing to do.

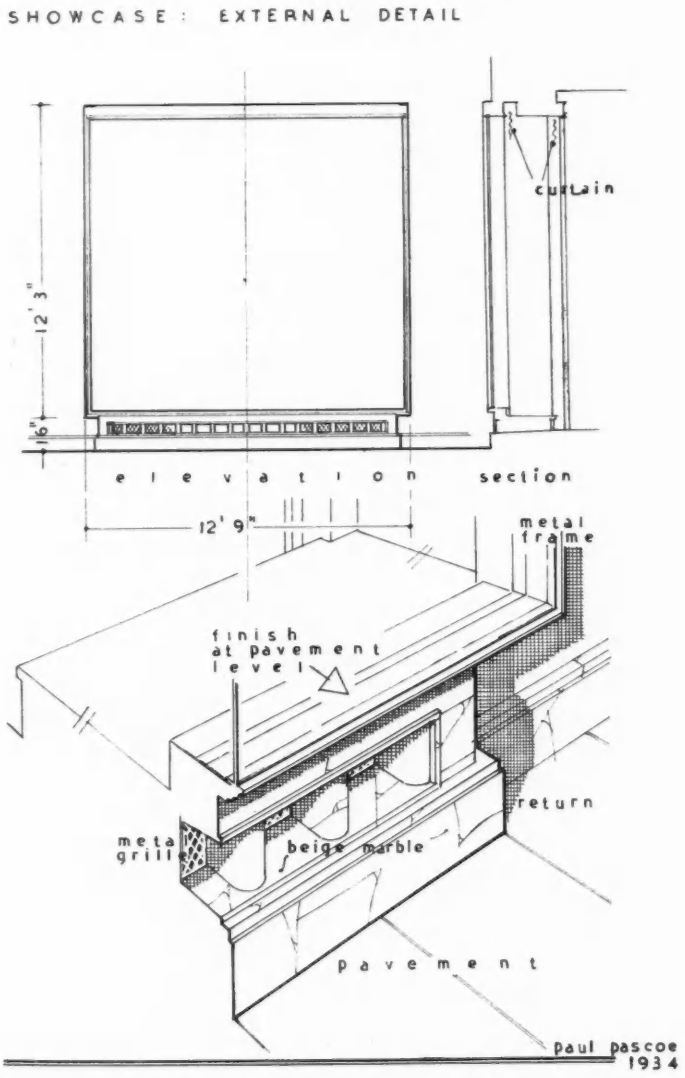
J. CRAVEN PRITCHARD
London

The Cuckfield Case and Others

SIR,—With what righteous indignation we greet these councils' efforts to obstruct the progress of architectural design, and how we bleat forth the full story of our humiliating victories over the powers of shade and darkness!

I am not belittling the great service you are doing, Sir, in drawing attention to these travesties in the misuse of local authority. But I feel that if good architecture is to survive the conflict, the whip used to scourge the councils might also be applied to us apathetic architects. There are motives, I venture to say, in this struggle that are deeper than the mere gratification of æsthetic prejudices. Æsthetics and sentimentalities are herrings drawn across the real issue; the conflict is between the speculative builder and the architect in economic terms.

Unfortunately the architect and the speculative builder are unreconcilable



From Yardley's shop, Bond Street, W. Designers : Wimperis, Simpson and Guthrie, in collaboration with E. J. Ruhlmann.

factors—architecture is a menace not æsthetically, but economically. Numerically and financially the builders are superior : they are unhampered by any code of ethics ; they are politically the stronger force. And in their efforts to exist they are as likely as other groups in the social fabric to use any opportunity for their own ends. Dare I ask how many members of Urban District Councils and their innumerable committees are speculative builders or those interested in the building trades? An investigation would be staggering. I am not passing censure upon the phenomenon but pointing out that the economic conflict is expressed in a political sphere. The governing factor in conflict, proved the world over, is political control. And the builders quite naturally have taken care to secure it.

We flatter ourselves that architecture is an essential service to the community and not the pre-occupation of the dilettante—in fact, that we are a positive and not a negative force. We will be accepted as such not upon our own estimation but upon accomplishments. We must shake off our apathy and face the real problem, which is to combat a social evil deeply embedded in local government. Concerted political, economic and social propaganda is our only weapon and not vagaries about æsthetics and amenities.

H. SPENCE-SALES
London

A Hundred New Towns

SIR,—In a letter published in the last issue of your JOURNAL a correspondent from Sheffield, who signs himself D.V.W.P., quotes from my pamphlet, entitled " A Hundred New Towns for Britain," a statement that " the industrial leaders of this country appear to have decided upon a policy of decentralization," and he says : " This can only mean that the industrial leaders oppose communal housing on a large and efficient scale. Surely this is art for artful capitalists' sake."

In order that your readers may themselves judge the degree of misrepresentation which is expressed in D.V.W.P.'s comment upon this sentence taken from its context, may I ask you to do me the favour of reproducing in full the passage where the sentence occurs? The paragraph in question, which is on page 66 of the pamphlet, is as follows :—

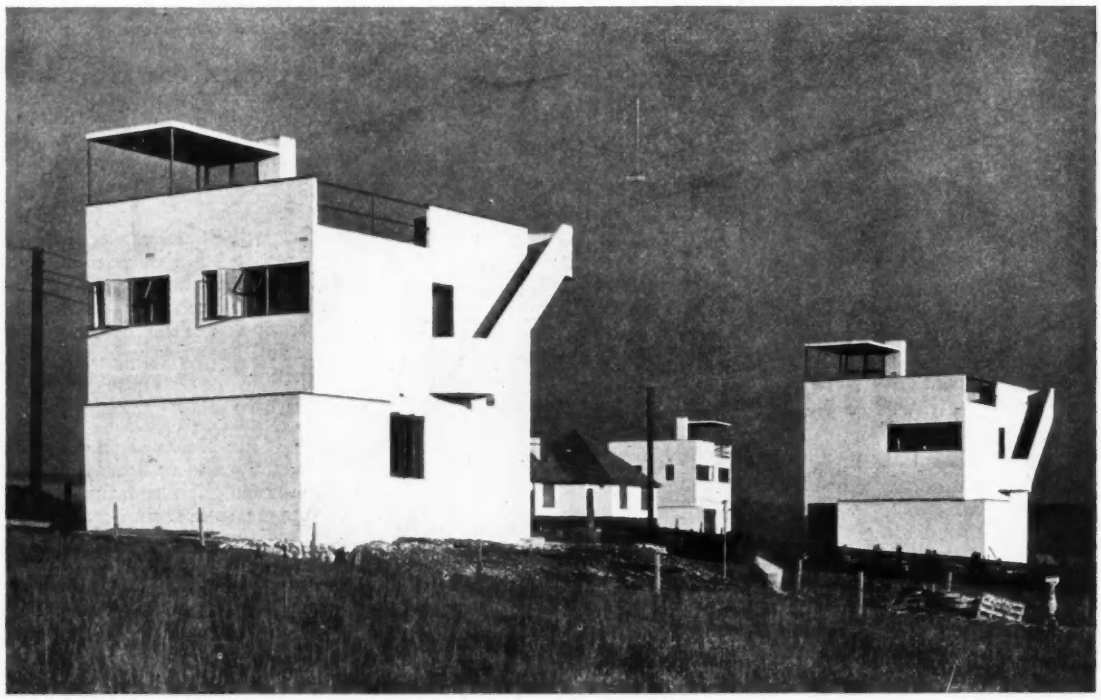
" If the blocks of tenements are built in the existing towns in such large numbers as it is proposed, there is a danger that their occupants will find themselves stranded without employment, *for the industrial leaders of this country appear to have decided upon a policy of decentralization.* The factories are going out in large numbers mostly, it is true, to swell the tide of ribbon development, but the tendency to leave the existing towns is clearly established. For industrial policy is mobile and fluid, but the policy of rehousing an enormous population in blocks of tenements in the existing towns presupposes that industry is static, and indeed would act as a quite arbitrary check upon a natural and desirable process. All that is needed is to guide this outward flow of population and industries so that it may result in the establishment of new and well-planned townships. What is so entirely wrong in the *present* method of decentralization is that the factories leave the existing towns without taking with them the right proportion of non-industrial workers which is needed for a well-balanced urban community."

May I add that there is not a single sentence from the beginning to the end of my pamphlet which can be construed as opposition to " communal housing on a large and efficient scale " !

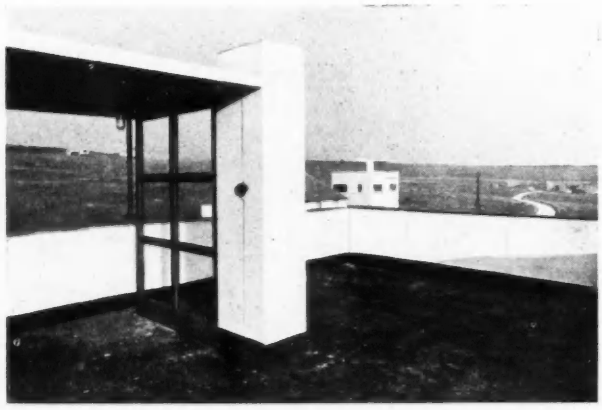
J 47485
London



SEASIDE HOUSES AT







These houses were erected as a speculation, the client stipulating that they should provide a "seaside" atmosphere, and be, at the same time, an æsthetic improvement upon the typical South Coast development. The first three houses, all of the same accommodation but varying slightly in plan, were sold immediately, and more are to be built this year.

DESIGNED BY CONNELL, WARD AND LUCAS

STRUCTURE. *4 in. concrete walls, reinforced with twisted square-section rods; wallboard placed inside shuttering and left in position for internal insulation; first floor carried on a pair of beams running across the long axis of the house and picking up the bottom of the external staircase.*

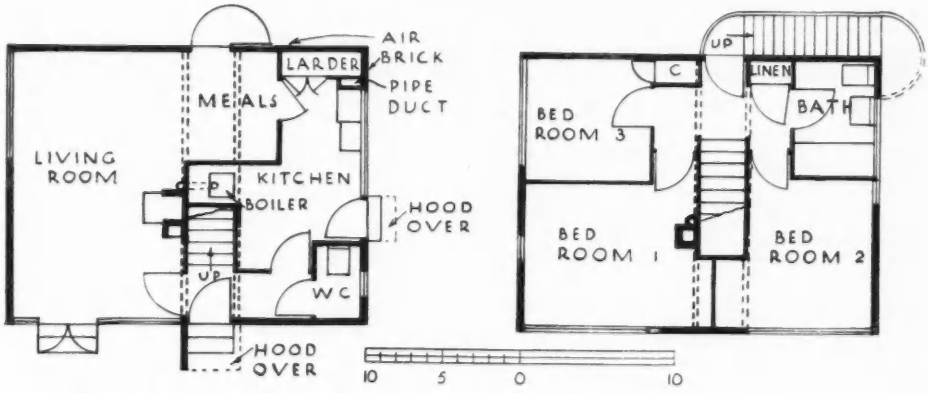
FINISHES. *Exterior, paint; interior, distemper on a skim coat of Keene's; floors, mainly wood; staircase, rubber; roof, asphalt.*

EQUIPMENT. *Central heating; metal windows; concrete canopy, and glazed screen on roof.*

COST. *£1,650 for three houses, including garages.*

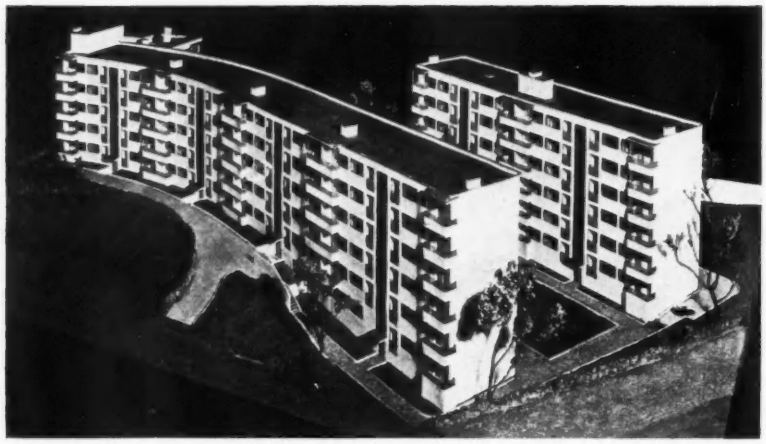
SALTDEAN, NEAR BRIGHTON

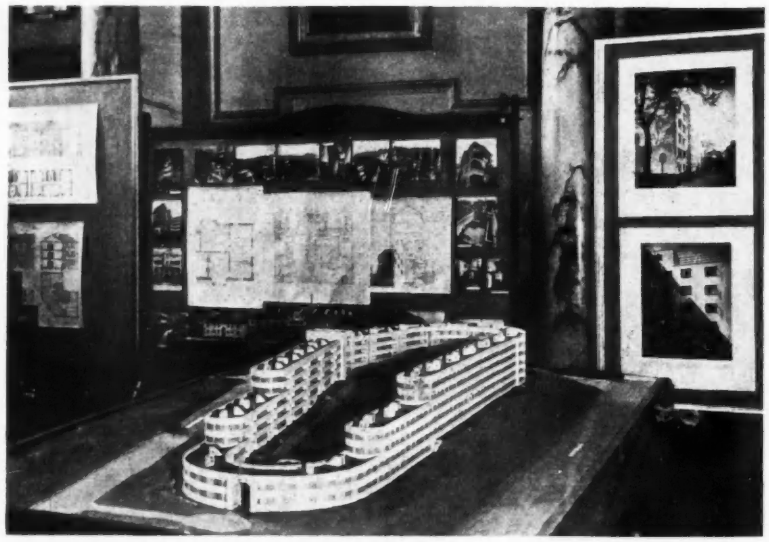


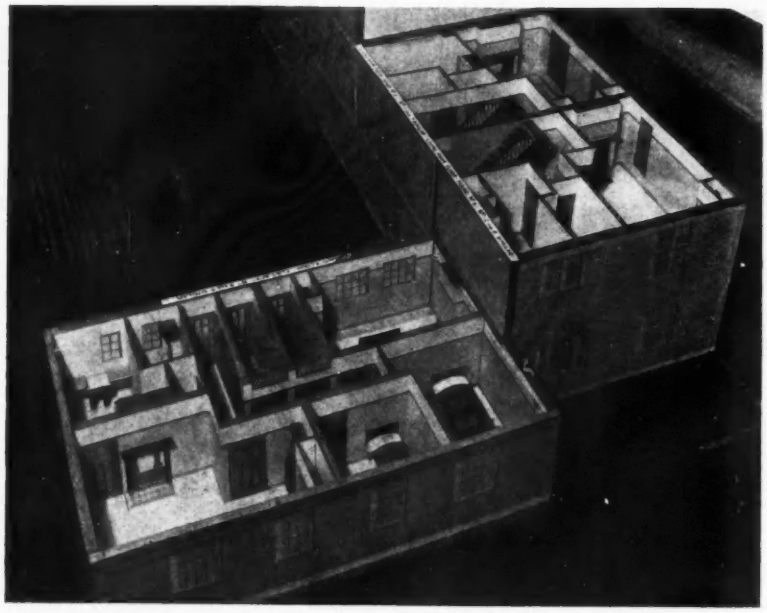


TYPICAL GROUND AND FIRST FLOOR PLANS

EXHIBITION OF WORKING-CLASS FLATS







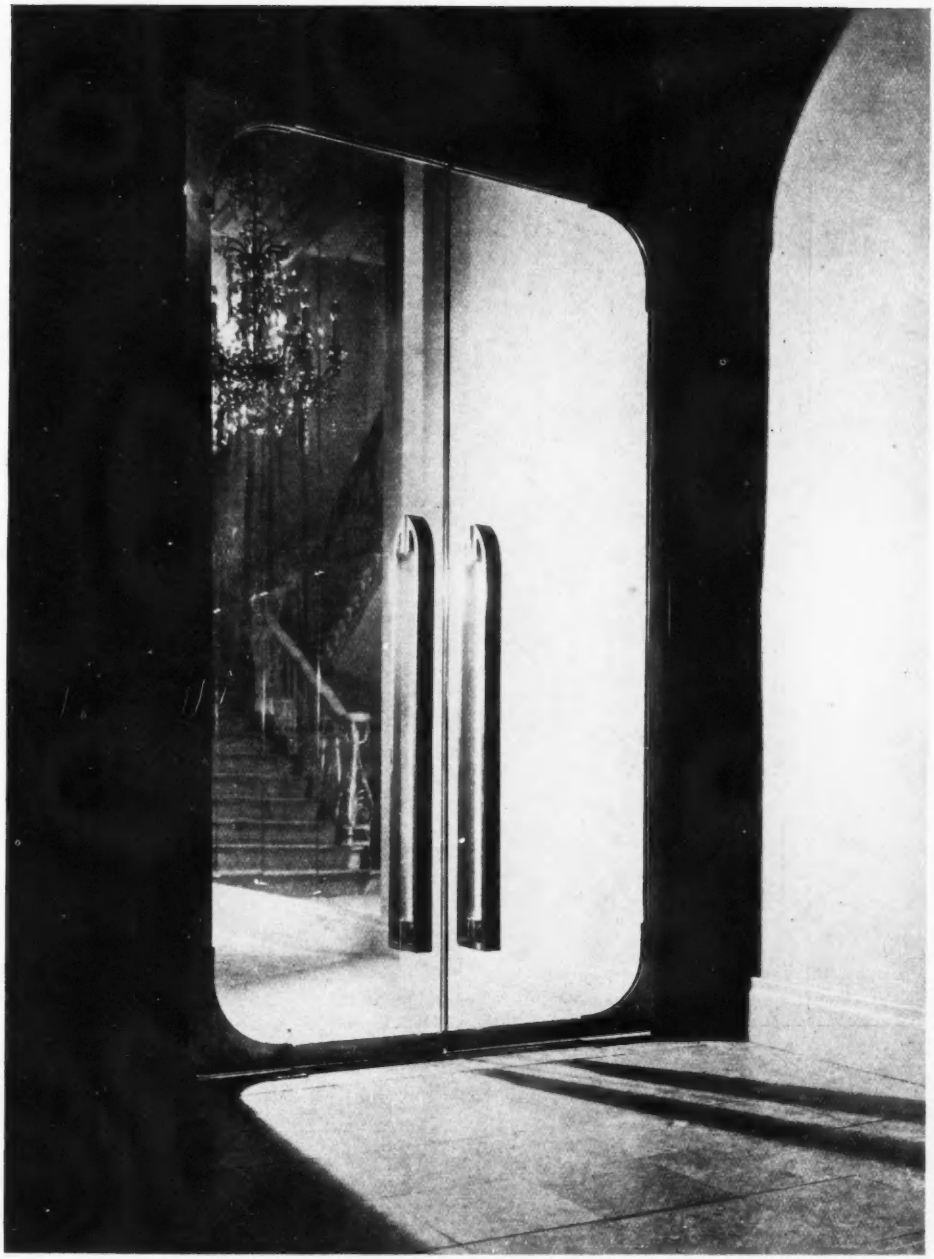
The exhibition of working-class flats, English and Continental, opened by Sir Hilton Young in the Ministry of Health last week, is the first of its kind to be held under the direct auspices of a Government Department and in a Government office. The exhibition, which will remain open to the public until Monday next, has been arranged by the Ministry to show how the twin problems of overcrowding and slum clearance may be solved by the erection of flats. The exhibits include photographs, plans, drawings and models lent by various local authorities, including the L.C.C., Liverpool, Manchester, Leeds, Derby, Edinburgh and Glasgow; selected photographs from the recent R.I.B.A. Exhibition of International architecture 1924-1934; a selection from the Housing Centre's "New Homes for Old" exhibition, held at Olympia last year; a collection of photographs of Continental blocks of flats, supplied by the Building Centre; and plans, photographs and models lent by the following housing associations: Ecclesiastical Commissioners, Bethnal Green and East London Housing Association, Church Army Housing, Duchy of Cornwall Kennington Estate, East End Dwelling Corporation, Kensington Housing Trust, St. Marylebone Housing Association, St. Pancras House Improvement Society, Stepney Housing Trust, and the Shoreditch Housing Association. There are also two private contributions: models of Sassoon House, Peckham (lent by Mrs. Meyer Sassoon), and of a block of flats for aged persons (lent by Miss Olive Mathews). In a leaflet issued in connection with the exhibition it is pointed out that, "on the evidence of this exhibition alone, there can be no doubt that, where the population has to be rehoused near the present site, the erection of blocks of flats facilitates the clearing of the slums and the relief of overcrowding and the provision of comfortable working-class dwellings of a good standard."

The attendance at the exhibition (according to an official of the Ministry of Health) has been extremely satisfactory. Over 100 persons have visited the exhibition each day, including Members of Parliament, architects, borough engineers, town clerks, representatives of public authorities, building societies and principals of various colleges and schools, who have taken parties of students for "instructional purposes."

On this page are reproduced photographs of three models included in the exhibition: top, block of flats for the Capitol Housing Company (Gas Light and Coke Co.), Kensal Green (Executive Architect, E. Maxwell Fry, in collaboration with G. Grey Wornum, C. H. James, Robert Atkinson and Miss E. Denby); centre, Smedley Point Residential Flats, Manchester (Architect, Leonard Heywood, Director of Housing, Manchester); left, sectional plan model of Elgood House, Tabard Street, S.E., for Church Army Housing (Architect, A. S. Soutar).

WORKING DETAILS : 203

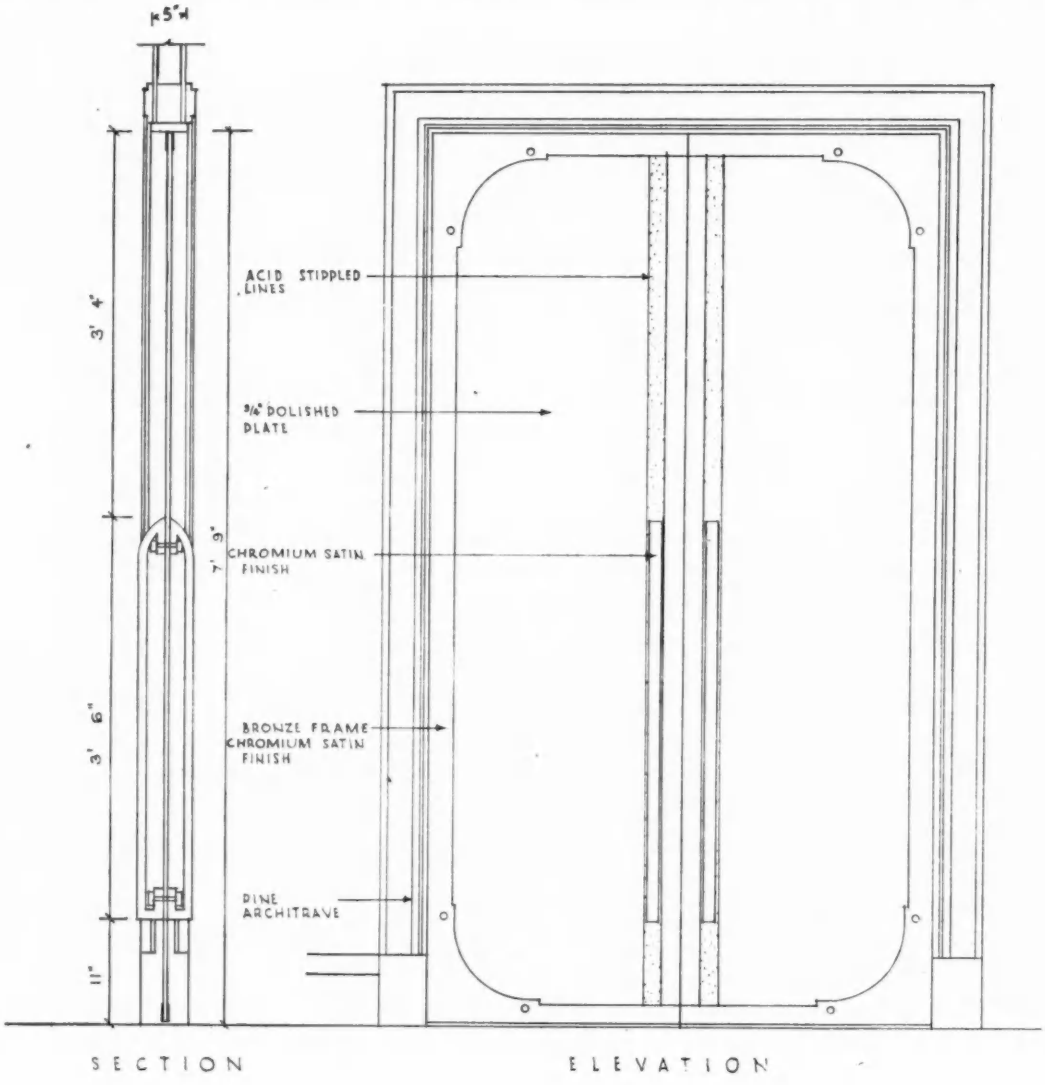
GLASS DOORS • DRESS SHOWROOM IN BRUTON STREET • GERALD LACOSTE

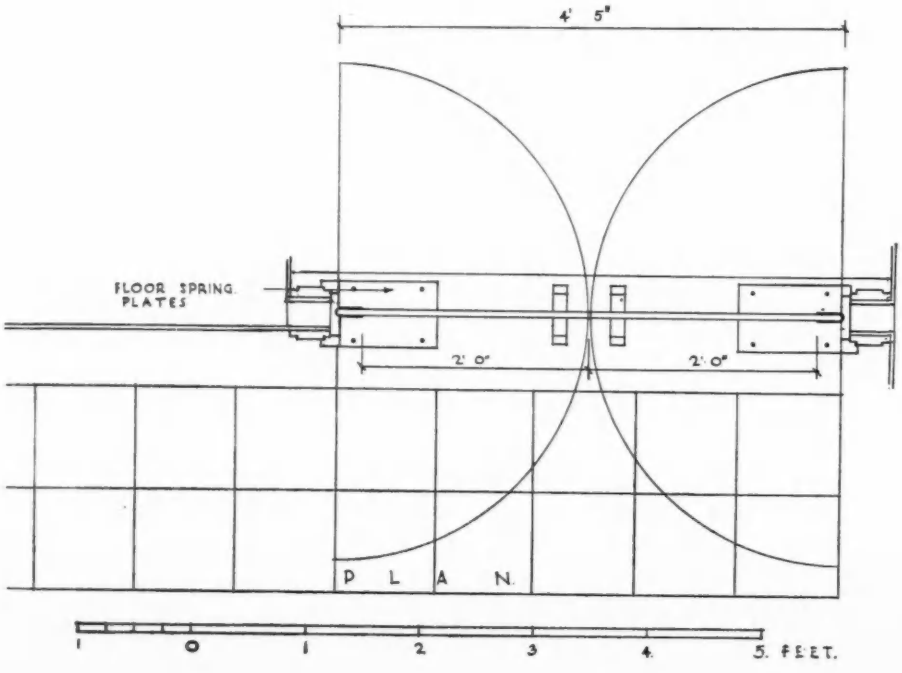


These entrance doors are glazed with $\frac{3}{4}$ in. polished plate glass, the meeting rails of the frame being omitted to give an effect of lightness. The frames are bronze, with a satin chromium finish ; the original rectangular design had to be modified, the corners being radiused to give additional strength at a point of weakness. Detail drawings are reproduced overleaf.

WORKING DETAILS : 204

GLASS DOORS • DRESS SHOWROOM IN BRUTON STREET • GERALD LACOSTE





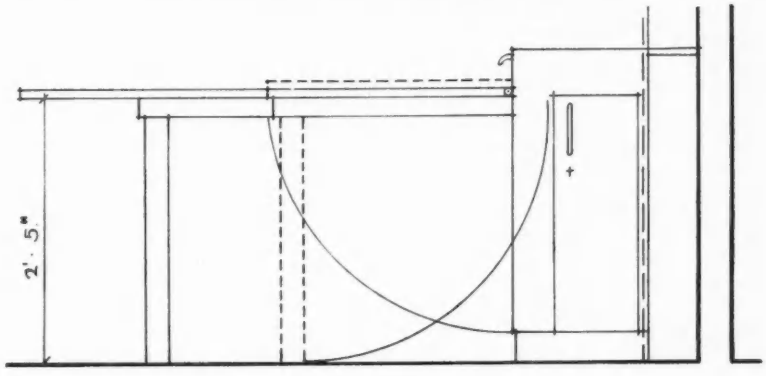
Elevation, plan and section of the glass doors illustrated overleaf.

WORKING DETAILS : 205

FOLDING TABLE • ART IN INDUSTRY EXHIBITION • R. A. DUNCAN

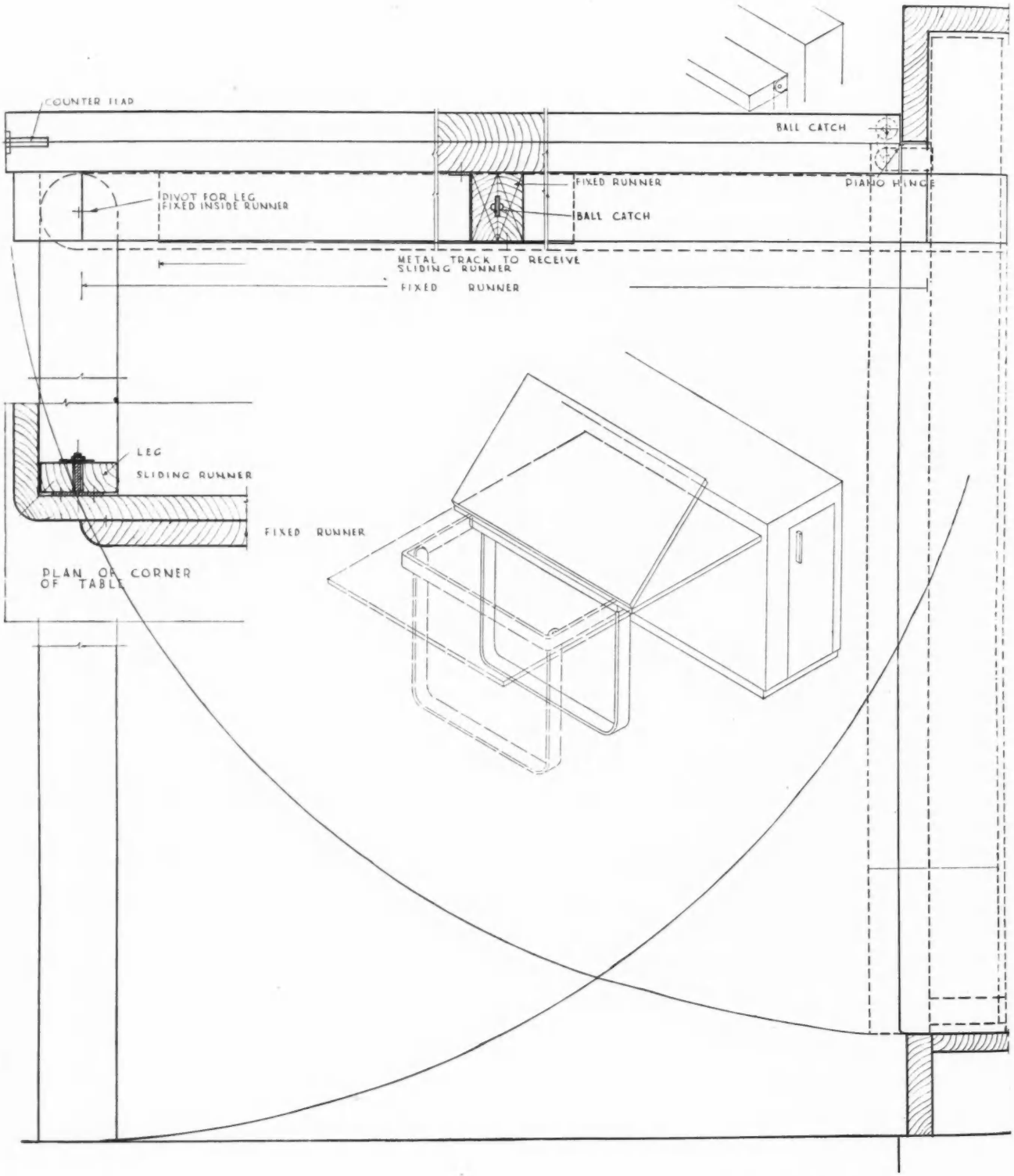


This table, in a minimum dining room, is arranged to fold away when not in use. The drawing on the right and the isometric overleaf show the two positions of the table, half extended and fully open, the supporting leg sliding forward to carry the outer leaf; in the closed position the leg is swung upwards and the two leaves drop down flush with the rest of the cupboard fitting. The table and cupboard are in walnut veneer.



WORKING DETAILS : 206

FOLDING TABLE • ART IN INDUSTRY EXHIBITION • R. A. DUNCAN



Section and isometric of the folding table illustrated overleaf.

PAINTER'S STUDIO AT FORDINGBRIDGE

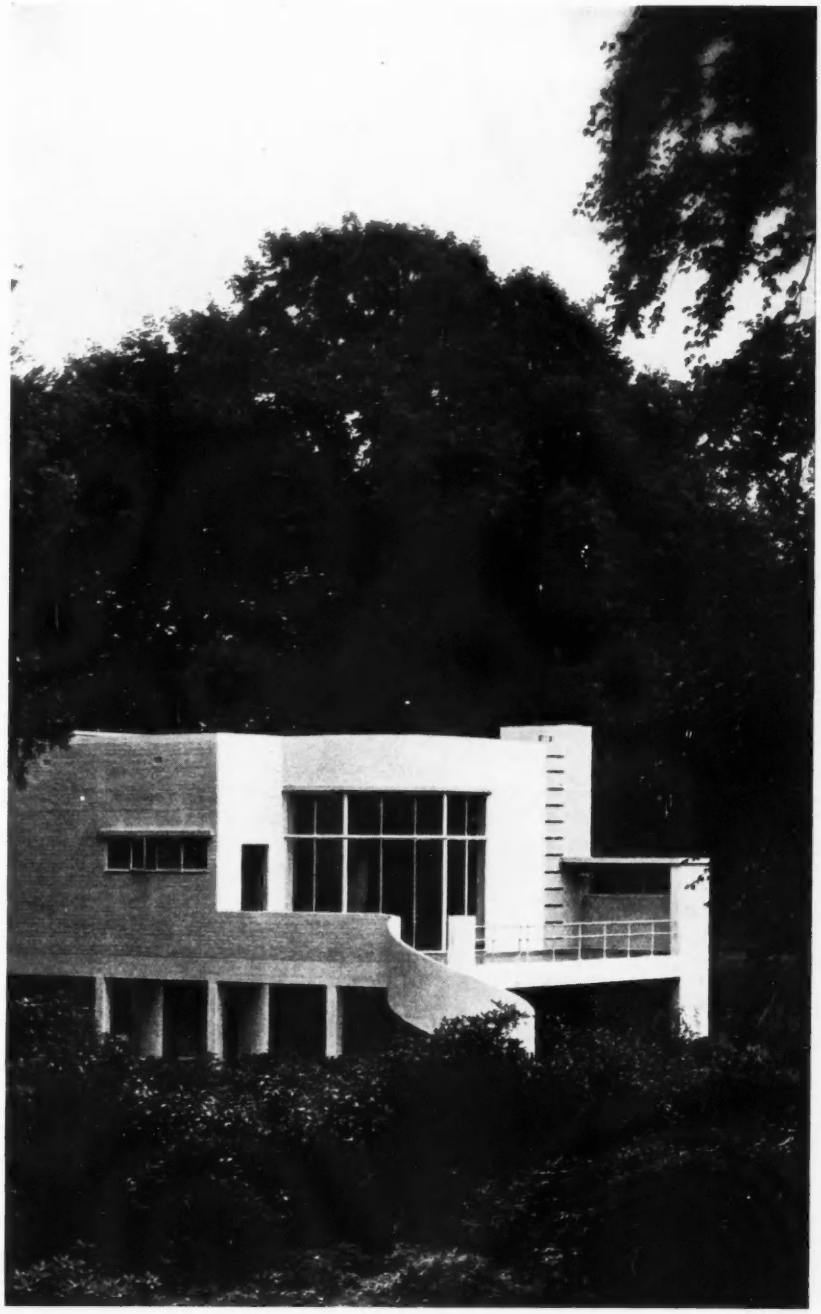
This is a studio for Augustus John, built as a free-standing structure in the grounds of the artist's house near Salisbury. An interesting point about the design is that the proportions are entirely determined by mathematical calculation. The building is planned on a basic grid of units measuring 2 ft. 10 ins. by 2 ft. (the proportions given by a square and its diagonal). The elevations are designed on a grid projected upwards from the plan in units measuring 1 ft. 5 ins. vertically. The contract price was just under £1,200.

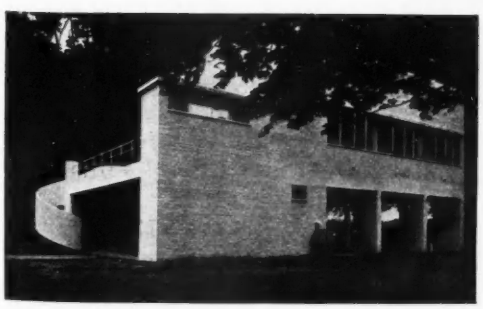
ACCOMMODATION. *The building consists of one large room (the studio) made L-shaped by taking out of it an entrance lobby and recessing the door of it, and an extension of the studio in the form of an open terrace of southern aspect terminated by a covered shelter. These are raised on columns and approached by a spiral staircase. The ground level is partly open and partly occupied by storage space, fuel store, lavatory, etc.*

STRUCTURE. *Reinforced concrete frame, 9 ins. thick; with infilling of 9 in. brickwork. Floor and roof of wood joists on the reinforced concrete beams, the roof covered with asphalt and insulated with wallboard. Spiral staircase in concrete formed of a series of pre-cast rings, each with one step homogeneous with it, the whole when in position forming the shuttering for a reinforced central core. The parapet has a pre-cast concrete coping and the roof of the outside shelter is of pre-cast slabs. Ordinary tongued and grooved shuttering was used throughout.*

FINISHES. *Waterproof surfacing paint externally. Plaster internally. Pine floor to studio. Paving beneath the building and on the terrace of concrete slabs cast in situ.*

EQUIPMENT. *Heating by stove built in recess and hot-water radiators under window-seats along south-east side. Flue from stove continued downwards as ash-disposal chute, accessible in the fuel store at ground level. The two can be made into one for cleaning purposes by operating a damper.*

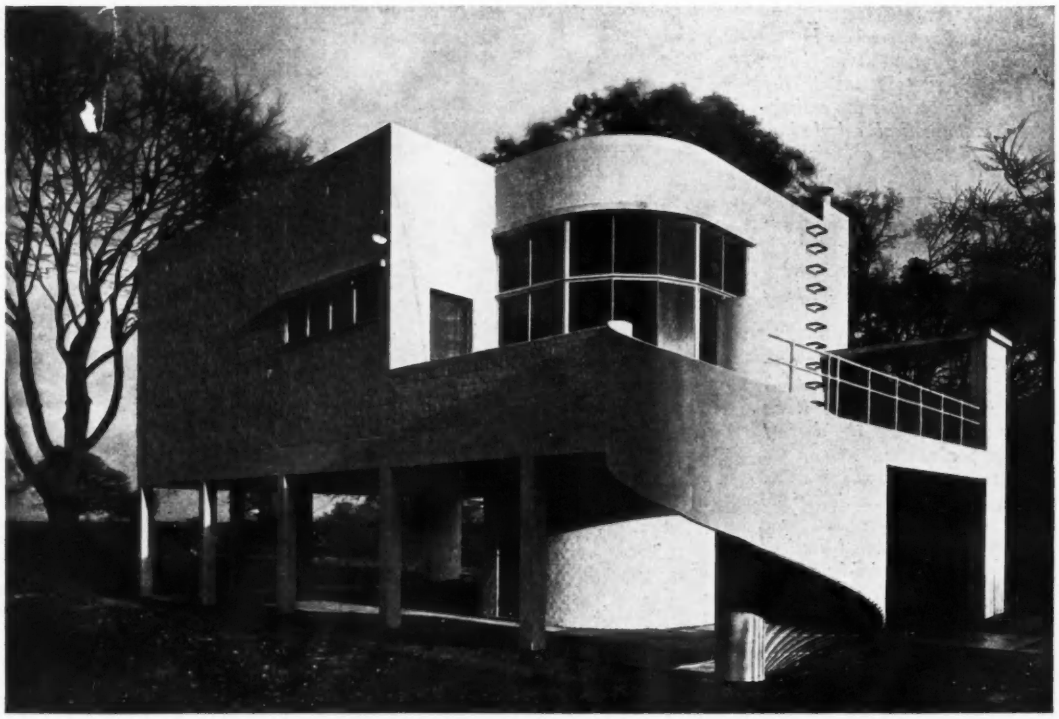




DESIGNED BY CHRISTOPHER NICHOLSON

D

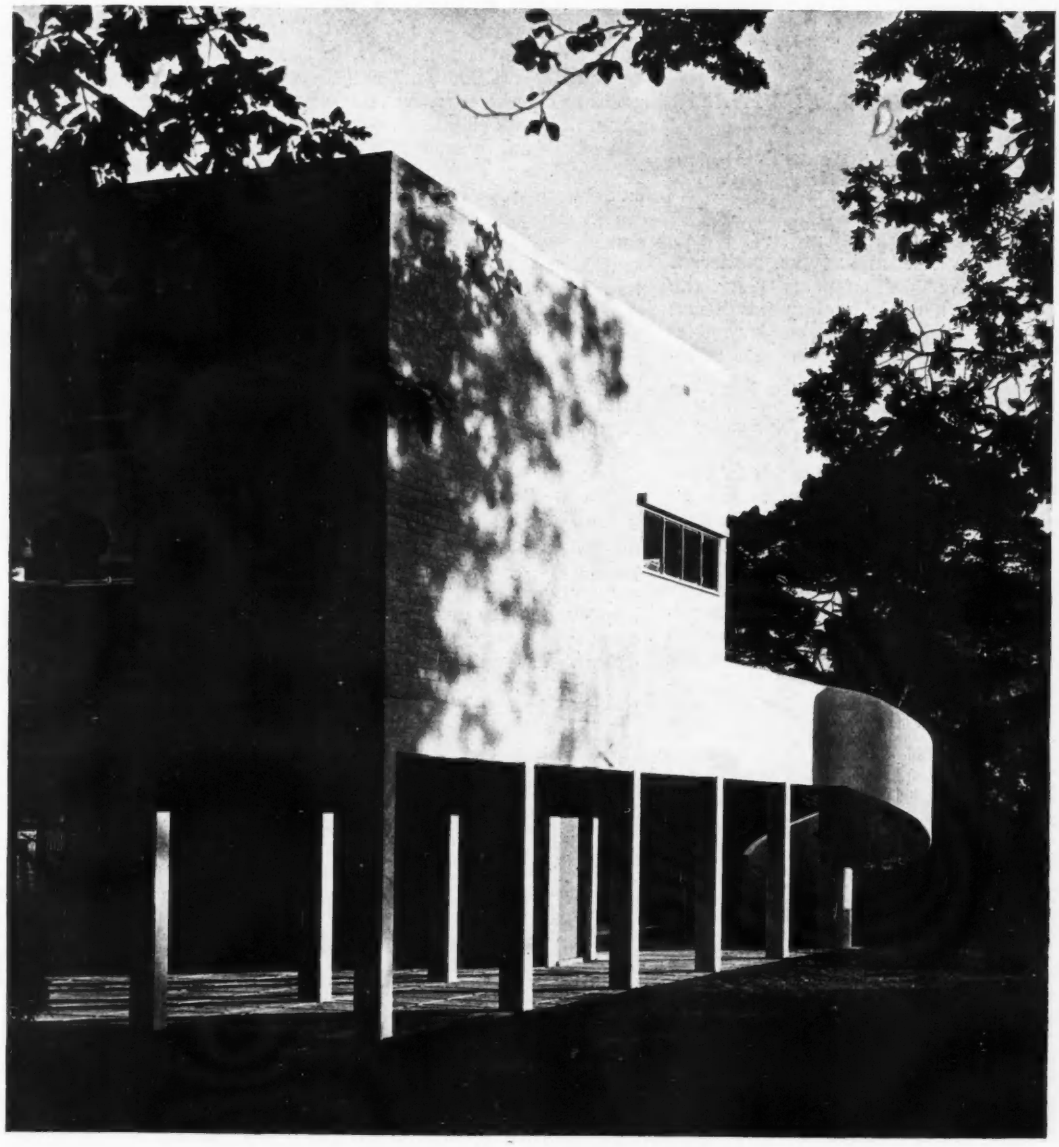
PAINTER'S STUDIO, FORDINGBRIDGE,

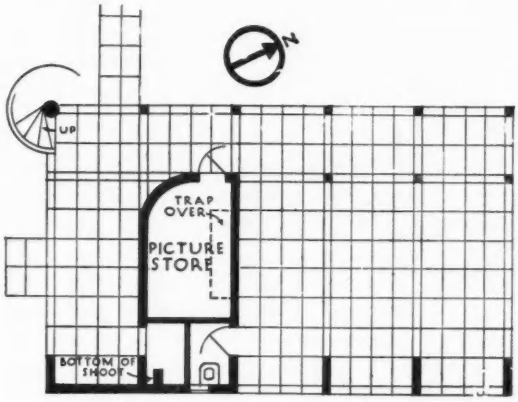


Externally the concrete frame structure and the brick infilling are differentiated by the surface colouring, the paint surfacing with which the walls are finished being coloured white for the former and pink for the latter. Above is a view from the direction of the house in whose grounds the studio stands. Railings, glazing divisions etc., as well as structural proportions, are governed by the grid on which the design is based. In the plans opposite the grid is actually seen, since the jointing of the ground and terrace paving conforms to it. Below is a view in the interior looking towards the sitter's platform. The wide reveals of the piers on the right give a reflected light and allow room over them for an enclosed duct, homogeneous with the concrete frame, containing roof drainage and supply pipes to the radiators. In the studio floor is a large trap door leading to the picture store below.

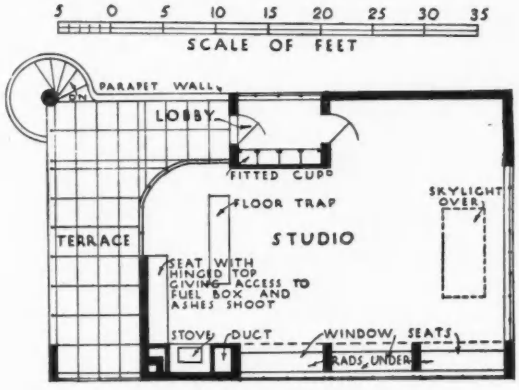


HAMPSHIRE: BY CHRISTOPHER NICHOLSON





GROUND FLOOR PLAN



FIRST FLOOR PLAN

L I T E R A T U R E

C I V I C S E N S E

(BY GEOFFREY BOUMPHREY)

The Work of the Birmingham Civic Society, from June, 1918 to June, 1934. Birmingham: The Birmingham Civic Society.

THIS volume offers in its 146 pages a résumé of (or, rather, a selection from) the reports which the Birmingham Civic Society has issued annually during the sixteen years of its existence. It makes impressive reading. Few people realize, perhaps, that the whole country is indebted primarily to this Society for saving it from a Departmentally-chosen public telephone box and for securing that the design finally adopted was chosen after proper consideration. Nor is it through any lack of effort on the part of the same body that our telephone directories continue to wear their present ignoble covers, altogether unworthy of the dignity of the Department that issues them: the Civic Society designed an admirable substitute, but so far it has been unable to induce the change. In at least one other instance its benefactions must be held to have transcended local bounds: the Birmingham Advisory Art Committee, which was formed in 1922, was the first of its kind in the country, and owes its existence directly to the action of the Civic Society, though the idea originated in a recommendation of the local Architectural Association made some years earlier. The Advisory Art Committee is a voluntary body consisting of twelve ex-officio members and up to four co-opted members, selected for their "technical knowledge in art matters." It exists to give advice in the form of recommendations to such Committees of the City Council as choose to invite its opinion on the design of new public buildings, bridges, monuments, street furniture, and so forth, and on the lay-out of parks and gardens. These recommendations need not, of course, be followed; and it might have been hoped that this proviso would have encouraged the Council to agree to invite them in *all* relevant cases. It will be seen that the functions of the Advisory Art Committee differ from those of an Architects' Panel in being exercised on the Council's own work instead of on that of private enterprise. The Civic Society, being entirely independent of the City Council, allows itself far more scope. Its aims are: to stimulate historical interest in the city; to prevent vandalism and to preserve beauty; to work for a more beautiful city by advocating the public acquisition of land for various open spaces (often buying or helping to buy it from its own funds), by offering advice on any scheme or works controlled by public bodies (if asked, presumably through the Advisory Art Committee—if unasked, on its own initiative) and by educational or other propaganda; and, finally, to select suitable projects to be carried out by itself. Its achievements during the sixteen years of its life make a remarkable list. The Society is fortunate not only in possessing several designers of very real merit (whose anonymity is, probably rightly, preserved), but also in having among its vice-presidents and members many names of influence and affluence. It possesses substantial funds immediately available for the salvation of threatened amenities. Here "immediately" is the operative word, since delay on these occasions usually means an increase in the price to be paid. At a cost of little over £1,000 a year the Society has been able to buy or help to buy several valuable open spaces, one of them 42 acres in extent. The weight of names, likewise, has no doubt been invaluable in pressing the claims of recommendations which might otherwise have been dismissed as impertinences; but it is to be regretted that even this has not sufficed so far to lead to the adoption of the Civic Society's alternative scheme for the proposed new road across New Street Station, since this appears to be preferable in several important respects to that put forward by the proper authority. Again, its efforts, from 1927 to 1929, to prevent the demolition of the fine Cromwellian alms-houses at Aston and the subsequent sale of the site to a brewery, were unavailing. On the whole, however, it has been astonishingly successful, when one remembers the delicate ground it must frequently have had to traverse. The range of its interests is no less remarkable: tombstone design; cemetery lay-out; two rescues of the Birmingham Repertory Theatre (and finally, one hopes, its establishment upon a permanently safe financial basis); the appointment of a competent committee to select a new city organist; the establishment of a scholarship in town-planning; an admirable scheme for the development of Northfield village; well-produced guides to the city, Sutton Park and the Lickey Hills—and, in the case of the last (blest work indeed!) the overthrowing of a proposal to build an outlook tower on the highest point "by way of a memorial to the donors of the hills to the city." Perhaps the highest artistic achievements of the Society have been in the realm of park and playground planning. The various lay-outs in this book make a contribution to the arts of formal and landscape gardening that no student or practitioner can afford to ignore. Of the book itself one might say that it is rather too beautifully produced. The care which has gone to its making has resulted in a hint of preciousness, particularly unwelcome in such a case, since it tends to emphasize the line between æsthetics and everyday life—a line which the Society must obviously wish to erase completely. One touch of humour (*can* it be unconscious?) must be quoted from the preface, by Professor Patrick Abercrombie. "In a city that has shown itself so alert and receptive," says he, "and that has availed itself so thoroughly of modern means of improvement, it might be asked, is there any need of a Civic Society?" One who has recently had occasion to make a survey of the town-planning of Birmingham extending over several weeks, hastens to reassure Professor Abercrombie with a heart-felt "There is."

Shorter Notices

TECHNICAL REFERENCE

The Architects' Diary and Technical Reference, 1935. London: The Architectural Association. Price 12s. 6d.

The Practical Electricians' Pocket Book, 1935. Edited by F. H. Robinson. London: Electrical Trading and Electricity. Price 2s. 6d.

SINCE its first publication, three years ago, the *A.A. Technical Reference Book* has undergone continuous revision, and each succeeding edition has been progressively improved and enlarged. A book such as this, if it is to be of any use at all, must not only provide up-to-date information on familiar subjects but also the results of recent original research, and the findings of such bodies as the Building Research Station and the Forest Products Research Laboratory have been freely drawn upon. The general editorship is in the hands of various specialists, who, under the chairmanship of Mr. L. H. Bucknell, have met once a week during the past year and added some forty pages of additional information to the 160 of the previous edition. The arrangement of the information, in alphabetical order, is probably not an ideal method but the cross referencing is now much more thorough, and a little imagination will always find the required heading if it is not immediately obvious. This year's special articles are on "Housing Finance," by Mr. John Dower, and "Building Finance," by Mr. W. E. A. Bull, while Mr. Lovett Gill has provided a very useful check list and summary of the many considerations involved in a typical flat block, equipment, planning, cost of running, and estimated profit.

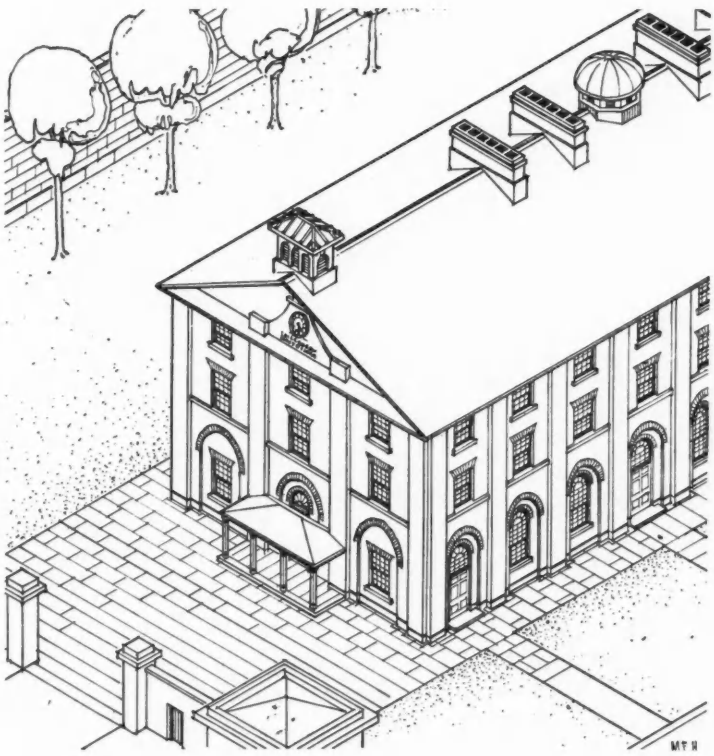
The Practical Electricians' Pocket Book contains a useful summary of the I.E.E. wiring regulations, notes on special purpose switches for domestic use, and, probably most useful of all, a list of electricity supply companies' voltages and frequencies throughout the country. A good deal of the remaining information is rather outside the scope of the average architect's practice, but the price of the book is commendably low.

P. S.

AUSTRALIAN COLONIAL ARCHITECTURE

A SERIES OF MEASURED DRAWINGS

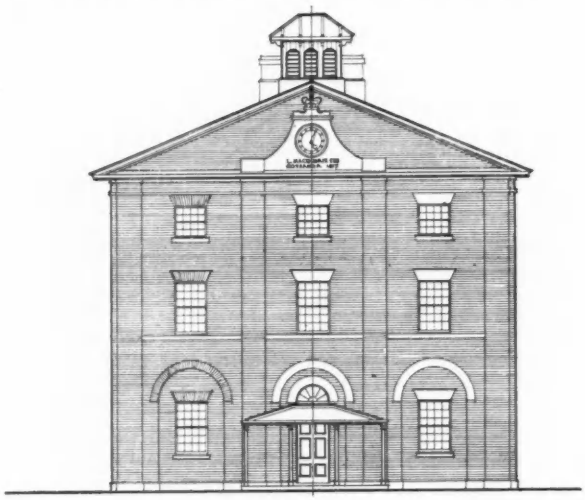
6: Hyde Park Barracks, Sydney, N.S.W.



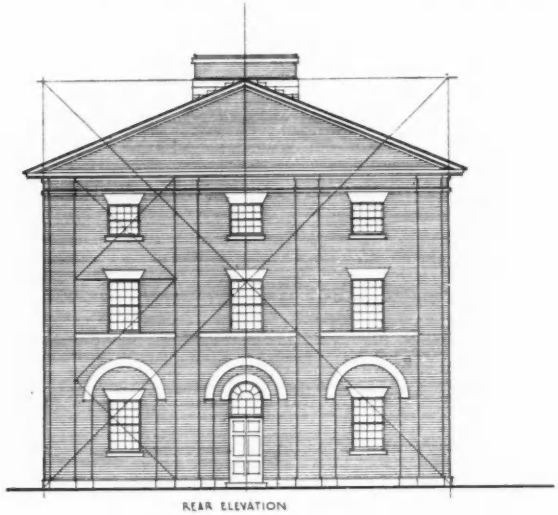
THIS is the last of the series of measured drawings of Colonial buildings in Australia which have been published during the past year. The subject (detailed overleaf) is the Hyde Park Barracks, Sydney. The barracks were erected under the direction of Governor Lachlan Macquarie in 1817, and were used as such for many years. The building, however, has long since been converted into Law Courts, and has been considerably added to and altered. Its original condition is shown on the drawings, although the porch is probably very much later. The architect was Francis Greenway, who was responsible for many of the early buildings of New South Wales.

The building possesses considerable dignity, due mainly to its simplicity of character, and the excellent materials used. It is worthy of notice that the whole design is based on the square, that proportion being repeated even in the smallest units of the elevations.

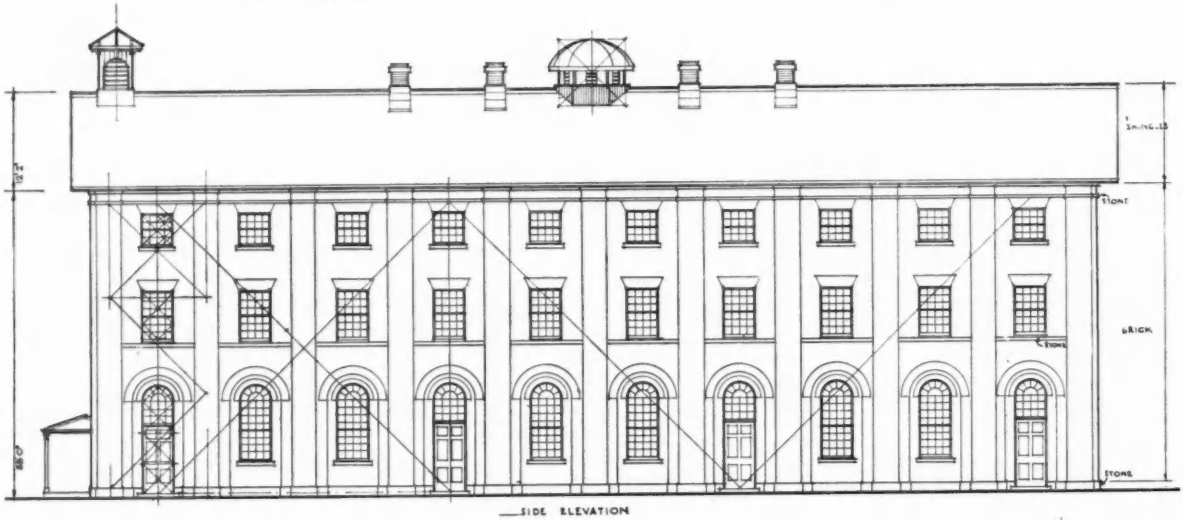
HYDE PARK BARRACKS, SYDNEY, N.S.W.



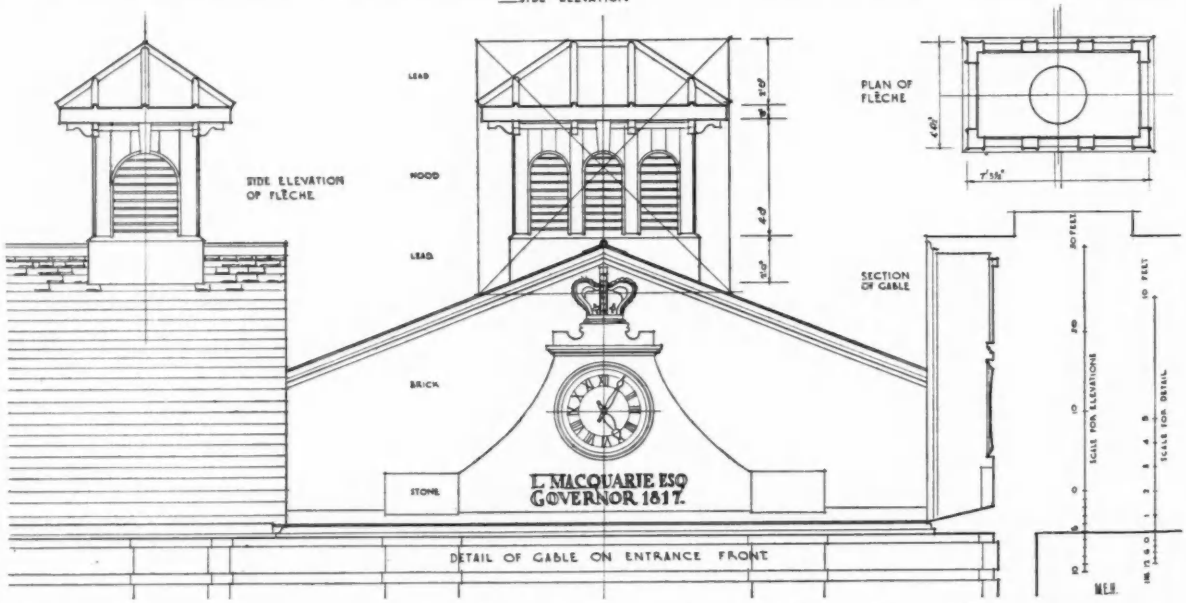
FRONT ELEVATION



REAR ELEVATION



SIDE ELEVATION



DETAIL OF GABLE ON ENTRANCE FRONT

Measured and drawn by M. E. Herman.

TECHNICAL SECTION: 5

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

METHODS OF CALCULATING HEAT LOSSES

THE question arises, what is the heating system for : is it to provide a specified temperature in a building or is it to furnish conditions of comfort ? Many would give the answer, " The one involves the other " ; but there is more in it than this.

The calculations so far described are based on the former method, that is, it is assumed at the outset that a uniform temperature, as measured by an ordinary thermometer, of 60 deg. or 65 deg. is necessary. Yet it has already been pointed out that the mercury thermometer does not properly take into account the whole question of comfort.

The subject may now be approached from another standpoint. The human body is one which emits heat at a given rate by radiation, convection and evaporation. If placed in cold surroundings, that rate will increase, though this is to some extent corrected physiologically by the closing of the pores of the skin and by the removal of the blood from the outer tissues. Nevertheless there is an increased heat output and a feeling of chilliness.

In such cold surroundings the body may, however, be brought back to a state of comfort by allowing heat radiation to fall upon it. Thus, by turning on an electric bowl fire in a cold room an instantaneous feeling of comfort may be brought about by standing in the beam. As the air in the room gets warmer, so a lesser intensity of radiant heat is required for comfort. The converse effect also holds good, that in a room with cold walls, etc. (i.e., cold radiation) a state of comfort can be achieved by warming the air to a sufficiently high temperature. A state of equilibrium is established whereby the heat lost from the body by radiation to surrounding objects and by convection to the air beyond a certain point of comfort is equalized by the absorption of heat from an outside source.

Thus for every air temperature there is a corresponding rate of radiation from other objects or surfaces, either warm or cold, which will produce a state of comfort.

There is, however, a limit to this. Air so cold that six gas fires are necessary to provide adequate radiation obviously cannot possess a comfort equivalent, since the skin would be too parched to appreciate the condition. Nor would a person sitting in an ice cave find real comfort even if he were supplied with air, however hot.

The point to be emphasized, however, is that, within reasonable limits, conditions of comfort may be established in a cool atmosphere by supplying a suitable intensity of heat radiation, and in a room with cold walls and ceiling (producing cold radiation), comfort may be produced by raising the air temperature sufficiently. In either case an ordinary thermometer will give an erroneous indication as to the state of comfort, in the first case by reading too low and in the second by reading too high. Thus there has been evolved a scale known as the *Equivalent Temperature* scale, which attempts to combine air temperature with radiation intensity.

This equivalent temperature is measured by the *Eupatheoscope*,* an instrument consisting of a blackened copper cylinder electrically heated inside and thermostatically controlled so that a surface temperature of 75 deg. F. is maintained, this being the average temperature of the surface of a person in a state of comfort in normal clothing. This temperature is obtained with surroundings at 63·4 deg. F. With these conditions the heat loss from the surface of the body and from the eupatheoscope is 17·5 B.T.U.'s per sq. ft. of surface. The current necessary to maintain this temperature obviously depends on the heat output from the cylinder to its surroundings, and this power is recorded on a curve from which the equivalent temperatures may be established by a previous process of calibration. The calibration is effected by determining the power consumption of the instrument in surroundings of known temperature both above and below the normal of 63·4 deg.

For every temperature of air and surroundings of a room there will be an equivalent amount of radiation, positive or negative, which will prevent the eupatheoscope losing less or more heat than that at the point of comfort, just as, with the human body, there is a corresponding point of maximum comfort obtained with a suitable combination of these effects. The instrument thus gives readings very comparable with the corresponding comfort of the human body.

Unlike the human body, of course, the eupatheoscope is not equipped with any self-balancing mechanism, so that, whilst comfort conditions for the individual may extend over a fairly wide band of temperatures and radiation intensities, this instrument is limited to one particular point. Also the effect of air movement such as a draught over the surface of the instrument is to reduce the equivalent temperature reading, but it has not yet been ascertained that the correction is accurate—many holding that it is excessive, and overstates the effects of air currents.

Nor does variation in humidity have any effect on the eupatheoscope though it has already been pointed out how greatly this affects comfort, especially when the air is in movement.

Whilst, therefore, the eupatheoscope has many uses it is at present primarily a laboratory instrument and its results require careful interpretation.

Other methods of combining these factors in a single instrument or scale are :—

(*a*) Dr. Vernon's *globe thermometer* has already been mentioned as giving a useful guide to the effect of radiation over ordinary air temperatures. It is much more convenient than the eupatheoscope, but its value with air movement is doubtful, and it does not take humidity into account.

(*b*) *The Kata thermometer* is an instrument measuring the cooling power of air conditions including the effect of humidity and air motion, but it does not include the effect of radiation.

(*c*) In the United States an *Effective Temperature* scale has been devised

* A. F. Dufton. Proc. I.H.V.E. 1929. p. 98.

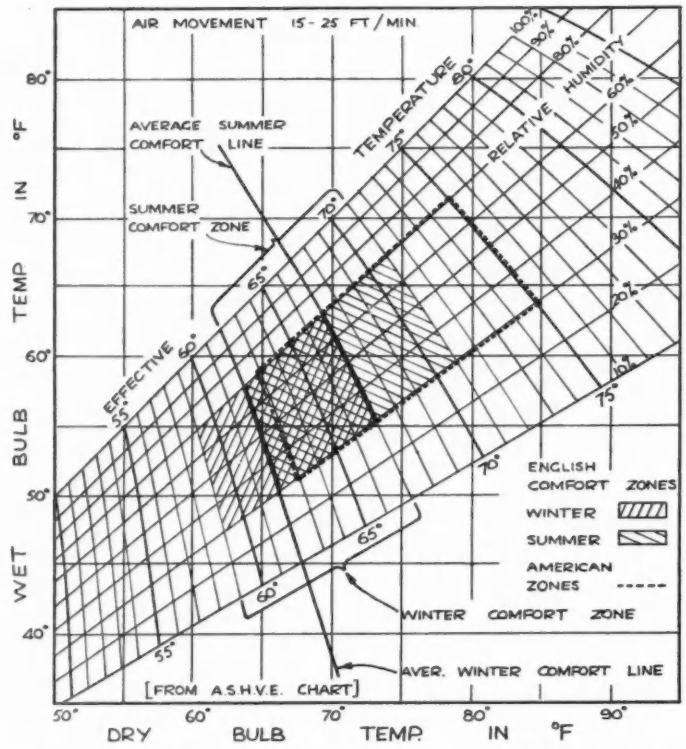


Figure 18. *"Effective temperature" chart, showing winter and summer comfort-zones applicable to Gt. Britain only. The chart takes no account of radiation, and its use is limited to rooms heated by convection; also, to offices, homes and the like, where the occupants remain long enough to become accustomed to the conditions—say three hours' occupancy. The boundary of the corresponding zones recommended for use in the United States is shown by a dotted line.*

combining air movement, air temperature and humidity. This scale is the outcome of a long series of tests carried out on a number of people in a great variety of conditions. They were required to register their feelings in such a way that a series of curves, known as effective temperature lines, could be drawn, and from which a zone of comfort could be established. This scale (see Fig. 18) is very thorough and complete, but again does not include the effect of radiation. The shaded zones in the figure are for this country and are somewhat cooler than the corresponding American ones, since the English idea of comfort is rather different from the American.

Examination of Fig. 18 shows that an effective temperature of 60 deg. F. may be satisfied by either of the following conditions :—

60° F. *Effective Temperature*

	or	
Dry bulb temp. 60° F.		Dry bulb temp. 65° F.
Wet ,, ,, 60° F.		Wet ,, ,, 43° F.
Rel. humidity 100%		Rel. humidity 10%

Similarly an effective temperature of 75 deg. F. may be satisfied by either of the following :—

75° F. *Effective Temperature*

Dry bulb temp. 75° F.	Dry bulb temp. 89° F.
Wet ,, ,, 75° F.	Wet ,, ,, 58° F.
Rel. humidity 100%	Rel. humidity 10%

It will be seen that the effective temperature lies between the wet and dry bulb temperatures.

How then is the criterion of comfort to be established? The various ingenious methods described above are not, as will be appreciated, a complete solution, nor has there yet been devised an instrument sufficiently simple for practical and general use yet accurate in its relationship to the standard of human comfort.

We find, therefore, that the ordinary thermometer still remains as the practical standard of determining whether a building is properly heated or not, the actual temperature required being somewhat affected by humidity, as in the Zone of Comfort Chart. And, after all, the thermometer has the great merit of simplicity, since it is difficult to persuade the average Englishman that his office is comfortable when his thermometer stands at 55 deg., however much one may argue that this deficiency in air temperature is made up by radiant heat. (Perhaps even more so in the case of an American citizen, who likes to see 75 deg. on his thermometer.)

Radiant heat in a cold room sooner or later raises the air temperature by warming the objects on which it falls, and they in turn warm the air by convection. The air temperature and radiant temperature will thus tend to approach one another, and probably the most comfortable condition exists when they are nearly equal. In other words, most people find a room most comfortable when the walls, floor, ceiling, furniture and air are all at roughly the same temperature. This condition is one in which the effect of radiation plays so little part that the reading of an ordinary thermometer is probably a safe standard of comparison, but it does not hold good if the radiation is from a high temperature source.

Allowance for Occupants

A person emits, as shown in Table XV,

TABLE XV

Occupants	Total emission.
At rest	400 B.T.U.'s per hour.
Moving	800 ,, ,, ,,
Light manual work..	1,200 ,, ,, ,,
Heavy manual work	1,600 ,, ,, ,,

a varying amount of heat. This heat includes the heat radiated and that expended on evaporation. Of this, the former alone affects the temperature of the room, and this is shown in Table XVI.

TABLE XVI

Occupants	Sensible heat.
At rest	300 B.T.U.'s per hour
Moving	400 ,, ,, ,,
Light manual work..	600 ,, ,, ,,
Heavy manual work	800 ,, ,, ,,

These figures apply at normal temperature (65 deg.) and humidity (60 per cent. R.H.). At low temperatures they increase and at high temperatures they decrease. Thus, at 98·4 deg. F. (blood temperature) there is no sensible heat loss, and at 32 deg. F. (freezing point) the tabular figures are to be increased by about 75 per cent.

The office building containing 50,000 sq. ft. of floor previously considered, might, if closely packed, accommodate 2,500 people (at 20 sq. ft. each). These could produce $2,500 \times 400 = 1,000,000$ B.T.U.'s per hour. This corresponds with the total heat requirements for the insulated building (see previous calculations) with 65 deg. F. inside and 30 deg. F. outside.

In warmer weather, the 2,500 occupants will raise the temperature above 65 deg., with no other heating at all. Even for the un-insulated building, this accounts for two-thirds of the maximum heat loss in 30 deg. F. weather.

The heat from occupants may, therefore, be an important factor, though the normal occupation is considerably less dense except such buildings as theatres, or cinemas, etc. Normally, however, no reduction can be made for it in the capacity of the heating installation, which has to be able to raise and keep the temperature at 65 deg., before the occupants arrive.

The heat emitted by the occupants does, however, reduce fuel cost during the working day, and is also clearly of

the first importance in calculating the heat to be extracted in summer by ventilation and refrigeration if the temperature is to be kept down. In theatres and concert halls, etc., this is perhaps the most difficult and essential problem, and is dealt with later.

Allowance for Machines

In general, the whole heat equivalent of energy consumed in a building is expended ultimately in warming the air. Thus a building containing 100 H.P. of electric motors working at an average load of 50 H.P. produce $50 \times 2{,}544 = 127{,}200$ B.T.U.'s per hour. It is immaterial whether this power is in the form of calculating machines, fans, wood- or metal-working machinery. The introduction of mechanical appliances to clerical work has greatly affected the heat from this source in banking, insurance, and counting house offices generally.

As with heat from occupants, this source does not generally affect the capacity of the requisite heat installation, but it may greatly affect the fuel consumption, and the cooling necessary in summer.

Allowance for Light

Electric light may be treated as machinery. Thus, in the office building previously referred to, 50,000 sq. ft. of floor may require 50,000 watts of lighting. This produces $50{,}000 \times 3{\cdot}415 = 170{,}750$ B.T.U.'s per hour, i.e., about one-sixth of the total winter heat loss, or, otherwise expressed, enough to raise the temperature about 6 deg. F.

Lighting cannot usually be treated as a factor justifying a reduction in the capacity of the installation, as it normally only becomes fully available after dark, but it reduces annual fuel costs (if the system is scientifically regulated) and may affect the cooling problem. With gas light, much more heat is liberated to produce a given quantity of light.

Table XVII gives the approximate comparison of various systems of lighting.

Table XVII

	B.T.U.'s per ft. lumen	B.T.U.'s per candle approx.
Electric lamps (gas filled)		
Small	·4	2·4
Large	·3	1·8
Gas (incandescent)—		
Single mantle	2·9	17·4
Mantle cluster	2·2	13·2
High Pressure mantle ..	1·4	8·4

Hence, if the same building were lighted to the same standard with incandescent gas, it would produce roughly six times as much heat :
$6 \times 170{,}750 = 1{,}020{,}000$ B.T.U.'s per hour approximately the total winter heat requirement.

This may be convenient in winter but is a nuisance in summer. Unless the gas is to be on in the daytime, the heating installation still needs to be of full capacity, and the ventilation and cooling plant greatly increased.

Allowance for Sun

In some countries the sun shines in the winter, even in some cities. But while the allowance for sun is most important when considering cooling plants under summer conditions, especially in tropical climes (and is treated later under the cooling section) it is so unreliable in winter that no allowance can be made for it when designing a heating plant, as in the coldest weather it may be entirely absent.

Nevertheless, there are other days, even in winter, when its effect on the southerly aspect may be quite important, while rooms facing north receive no such benefit. Hence, in important installations, there is much to be said for having rooms with south aspect on a separate set of mains, so that they can have heat reduced without affecting that in rooms facing north.

TEMPERATURE CONTROL

From what has already been said, it is clear that the ideal system is one in which each room has separate automatic control. It is then supplied with a heating element sufficient to warm it through the full range of temperature without allowing for

(*a*) heat from occupants,
(*b*) ,, ,, machines,
(*c*) ,, ,, light,
(*d*) ,, ,, sun,

and the heat is automatically reduced as and when these factors operate, which may be at quite different times and in different degrees in all the rooms of a building.

Thus, a room facing south may be sufficiently warmed by the sum of (*a*), (*b*) and (*d*), while a neighbouring room facing south might be empty of occupants and machines and receiving only heat from the sun, while a third room facing north might receive no heat at all from any of these sources. Under these circumstances, the first room might need its heat cut off completely, the second one one-half, and the third one left full on.

A system which automatically allows for all such combinations is the ideal, other things being equal. Any departure from this ideal involves loss of comfort and waste of heat, through the opening of windows in rooms which are otherwise too hot. In practice, a compromise is generally to be effected between the ideal, which may be expensive in first cost, and the primitive which may be expensive in fuel.

The more costly the fuel, the more important this item becomes.

Systems of direct electric radiation are perhaps those where the fuel cost is the highest, and these can be so controlled as to take the fullest advantage from complete automatic local regulation. In this way as much as 50 per cent. of the heat may be saved, though the capacity of the installation cannot be reduced. It is, however, only fair to note that even with 50 per cent. saving, the electric running cost will generally be much higher than the running cost of a hot water system on solid or liquid fuel. Indeed, there is no reason why the latter should not also have complete automatic local control, as a thermostat in every room can be supplied under either system.

Thermostatic control to this extent is, however, expensive, and is considered in detail later. It frequently happens that the interest and depreciation on complete individual control of rooms exceeds any possible saving in fuel.

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ART SCHOOLS AND INDUSTRY

An exhibition of industrial and advertisement art by art schools in London is to be opened by Lord Gorell at the County Hall, S.E.1, on Tuesday, March 5, at 12 noon. The exhibition will be open to the public free of charge from March 6 to March 16 between the hours of 11 a.m. and 9 p.m. The exhibits will be of the following types : Furniture and wood trades, including wood carving ; interior decoration ; pottery and stained glass ; art metal trades, silversmithing, jewellery, etc. ; architectural and decorative sculpture ; advertising (posters, commercial art), books, illustrations, etc. ; textile trades, printing, weaving, etc.

Mr. E. M. Rich, Education Officer of L.C.C., writes : " This will be the first time that an exhibition of this kind has been held at the County Hall, and probably no such comprehensive exhibition of students' work in the sphere of industrial art has ever previously been assembled in this country. In deciding to hold the exhibition, the Council has in mind the growing volume of criticism from every section of the world of industrial art—manufacturers, trade designers, consumers, architects and the art press—to the effect that British industrial art is not in such a healthy condition as that of some of our industrial competitors abroad.

" Certain ameliorative measures to combat this state of things were suggested in the report of the Committee on Art and Industry appointed by the Board of Trade under the chairmanship of Lord Gorell which appeared in 1932. Amongst these suggestions was the formulation of an ' exhibitions policy,' which should include exhibition of the best designs and products of schools, trade schools and schools of art. It is with a view to implementing this policy that the Council is organizing its exhibition next March.

" It is felt that important changes are taking place both in the home market and in the markets open to the exporter. In the home markets the great expansion

of education, combined with the redistribution of income, is creating a large class of small purchasers whose taste has been better educated, and who will buy better designed goods if they can get them. The markets of foreign countries open to the exporter are also showing signs of improving taste.

"In these circumstances it is the duty of those responsible for education in this country to attract the designers and craftsmen of tomorrow into the art schools of today, and to provide the best possible training for them in industrial art in co-operation with employers.

"In this country art education is organized under local authorities, and the London County Council, as the local authority controlling the largest variety of art institutions in the country, is making this special effort to show the possibilities of a much closer link between the art schools and industry."

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ABERDEEN SOCIETY OF ARCHITECTS

Mr. R. L. Rollo, F.R.I.B.A., has been elected president of the Aberdeen Society of Architects.

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LEIPZIG SPRING FAIR

We are informed that enquiries for the reservation of space at the Engineering and Building Fair at Leipzig, which will take place from March 3 to March 10 next, are being received in considerably larger numbers than in previous years.

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REINFORCED CONCRETE ASSOCIATION

"The Sound Insulation of Reinforced Concrete Buildings" is the title of a paper to be read by Mr. C. W. Glover, L.R.I.B.A., A.M.INST.C.E., at a meeting of the Reinforced Concrete Association to be held in the new R.I.B.A. building, Portland Place, on February 19, at 6 p.m.

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ANNOUNCEMENTS

Mr. Cecil F. Barker, A.R.I.B.A., has commenced practice at Gordon Chambers, Cheapside, Hanley, Staffs, where he will be pleased to receive trade catalogues.

Captain C. M. Boys Hinderer, M.C., F.R.I.B.A., has commenced private practice and he will be pleased to receive trade catalogues at: P.O. Box 201, Mombasa, Kenya Colony and Protectorate.

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OBITUARY

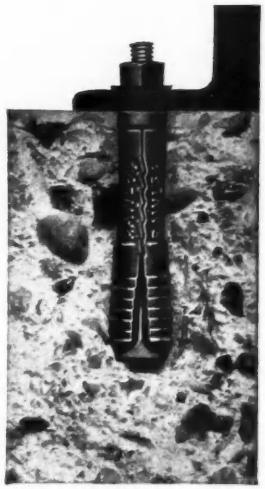
JAMES PAXTON

We regret to record the death of Mr. James Paxton, A.R.I.B.A., which took place at his home in West Kensington on January 23. Mr. Paxton, who was seventy-two years of age was, for a long period prior to his retirement a few years back, architect to the Admiralty, and before that to H.M. Office of Works. He was the youngest and last surviving son of the late Mr. George Paxton, of Richardland, Kilmarnock.

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AN ARCHITECT'S WILL

Mr. Percy H. Adams, F.R.I.B.A., left £27,991 (net personalty, £14,776).

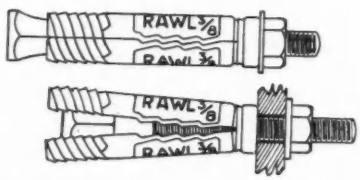


TRADE NOTES

[*BY F. R. S. YORKE, A.R.I.B.A.*]

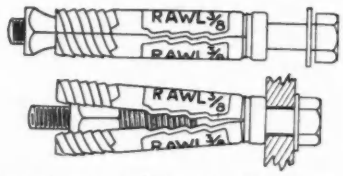
Anchoring Bolts

THE Rawlplug Company claim for Rawl expansion bolts the security in fixing bolts that Rawlplugs are known to afford in fixing screws. The exterior of the expansion bolt consists of a tubular malleable iron shell divided lengthwise into four segments. This shell is designed to give the greatest possible grip against the sides of the hole into which it is placed. The surface of the shell is roughened, the segments have a saw edge, and there is a buttress screw thread round the shell which assists the entry of the anchor,



Type A: Bolt projecting type. In this type the fixture is held by a nut tightening up on the fixed bolt.

gives extra grip and prevents turning in the hole. The upper ends of the segments are flexibly held together by a steel ferrule



Type B: Loose Bolt type. In this type the fixture is held by a standard bolt screwed into the expansion member.

which prevents them separating even when pressure is applied, and at the base by a spring ring which can be removed if necessary just before placing the anchor in position.

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The bolt itself has a shaped forged head, which forces open the segments when the nut is tightened. The bolts have standard Whitworth threads.

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The method of fixing is simple. A hole is bored, the expansion bolt and shell pushed into position, the object to be fixed is put into place over the bolt, and the nut is added and screwed down.

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There are two types, "A" and "B." The only difference is that on type "A" the expanding member is part of the bolt itself, and on type "B" it is detachable. Type "A" is for use on jobs where the shell and bolt can be inserted in the hole together; type "B" is for use where the bolt must be inserted after the shell and expanding member have been placed in position. This type is specially valuable when fixing heavy machinery to concrete beds where it is difficult to lift the machinery over the bolts.

Metal Windows

A new catalogue covering standard products only is issued by Messrs. Crittall. It is divided into four easily identified sections: standard cottage casements, standard cottage casements in wood surrounds, bays, and industrial sashes. Full size or half-full size fixing and coupling details are given in each case.

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The quality of draughtsmanship is, throughout, unusually high for a manufacturer's publication. Colours are used to identify the various sections, and the system adopted appears effective.

Housing

The International Housing Association, Frankfort-on-Main, Hansa-Allee 27, is

holding an International Congress this year, June 23-30, which will deal with questions of particular importance relating to housing. The invitation to hold the Congress was issued to the Association by the town of Prague and the Czecho-Slovakian Government. The reports on the topics of slum clearance, installation of the small dwelling, measurements to house the unemployed and short-time workers will contain important material for study beyond the scope of the usual congress-publication. There will be an international exhibition of plans at which the measures for slum clearance in 20 European and American towns will be shown, with figures in detail.

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Technical equipment for the small dwelling will be shown at the exhibition and illustrated by numerous plans. There will be a separate exhibition devoted to housing and town-planning in Czecho-Slovakia.

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A detailed programme can be had on application to the organizing bureau of the Congress, Monsieur Henri Sellier, conseiller général, 32, Quai des Célestins, Paris 3, or to the General Secretariat, General Secretary Professor Franz Schuster, Frankfurt a/M, Hansa-Allee 27.

Specifications for Painting

More and more manufacturers are falling victims to the excellent habit of providing architects with really useful information instead of making unlikely claims of the familiar "best in the world" type. The various subsidiary companies of Imperial Chemical Industries have always made a point of presenting useful information in an easily accessible form, and the latest work *Painting Specifications*, prepared by the architectural department of Nobel Chemical Finishes, Ltd., is astonishingly full and informative.

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The whole subject of paint has become increasingly complicated during the past few years, not only because of the new synthetic paints themselves, but also because there are so many new surfaces, such as wallboards and patent plasters, to which paints can be applied.

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A considerable amount of very necessary research work has been carried out, and proper specification clauses are given for painting all types of surface, in addition to notes on the preparation of these surfaces, whether new or already covered with paint.

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Incidentally, the first of a series of twelve Information Sheets dealing very fully with paints was published in this JOURNAL last week, sponsored by Nobel Chemical Finishes, Ltd. These Sheets are a summary of the information contained in this book, and the rough drafts of future sheets that I have seen look very good. There is, of course, a good deal of inter-reference from one sheet to another, and they ought, I think, to be filed in sequence.

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The twelve sheets, read in conjunction, should provide an unusually concise statement of the essential facts relating to paint, and after publication the sponsors are issuing the whole set in booklet form. It ought to be worth having.



IN PARLIAMENT

[BY OUR SPECIAL REPRESENTATIVE]

The Housing Bill.

ALMOST the only opposition to Sir Hilton Young's Housing Bill in the House of Commons last week came from the Labour Party. The Government had no difficulty, however, after a two days' debate, in securing the second reading of the measure by a large majority. The Liberal party supported the principle of the Bill, but will move detailed amendments in Committee.

Sir Hilton Young, in commending the Bill to the House, pointed out that this country had been left by the industrial revolution the evil legacy of slums and overcrowding. The Bill was the second of two decisive steps taken to eradicate these evils. The slum clearance effort was now fully organized. During the twelve months up to the latest date for which figures were available, clearance schemes arranged for covered the rehousing of 300,000 people, and during January 5,000 replacement houses had been completed. Progress was therefore already better than scheduled under the five-year plan. The way was therefore now clear for the launching of the attack on overcrowding.

The general plan of the Bill was to lay down a standard, to order a survey, to call for rehousing and redevelopment schemes, to confer all necessary powers on local authorities, and to grant a subsidy. He admitted frankly that the standard chosen was not an ultimate ideal but it was a good practical beginning of the effort to enforce by law universally the measure of sex segregation essential to decency and a measure of space essential to health and comfort. The survey which would be undertaken by local authorities would not take long. The schemes to be submitted would include the building of modern blocks of flats, generally not higher than four storeys, which new methods of design and construction had made popular. The powers to be taken would facilitate the realization of his hope that local authorities would take over the whole of central areas, would replan them, and, finally, redevelop them. This redevelopment would include reconditioning, on the lines recommended by the Moyne Committee.

There was to be no revival of the policy of permanent and general subsidies. The subsidy to be given under the Bill was a controlled subsidy, directed only to the problem of rehousing the worst paid workers on the most expensive sites. It would be payable wherever necessary to bring rents down to the means of poor tenants. It was estimated that it would mean an average rent of rather under 10s. a week inclusive of rates, in most urban areas; and between 3s. and 5s. a week in rural areas. In London the average might be as high as 11s. These figures would mean that flats and rural cottages would automatically attract a subsidy, but for other small houses it would have to be shown that their cost required a subsidy. Other provisions of the Bill, he explained, included the encouragement of public utility societies; the discretionary power to establish management commissions; the formation of a Central Advisory Council, to act as "guide, philosopher and friend," to foster structural improvements, standardization, and the pooling of orders for materials; the grant of permission to owners to carry out their own renovations; and the amendment of the law of compensation under the 1930 Act. This was essential, as public opinion would be estranged by manifest injustices.

Mr. Greenwood, for Labour, moved the rejection in the following terms:—"That this House, realizing that the existing evil of overcrowding is primarily due to the shortage of houses available for letting at rents within the compass of working-class incomes, is prepared to take all necessary measures to cope with a situation which has been aggravated by the policy hitherto pursued by His Majesty's Government, but is of opinion that the legislation now proposed involves unnecessary delay in the provision of houses, provides inadequate financial assistance to local authorities, entails unjustifiable increases in the payment of public moneys to property owners, and seeks to encourage local authorities to transfer their responsibilities to unrepresentative organizations."

Mr. Greenwood accused the Government of increasing overcrowding by the virtual suspension of the Rural Authorities Act of 1931, and the abolition of the subsidy under the 1924 Act. This, he said, had prevented the building of 250,000 houses to let. He approved the resumption of the subsidy principle, but declared that the subsidy was too low. He condemned the compensation provisions as "electioneering" tactics, and described the Bill as window-dressing.

Sir F. Acland, for the Liberals, gave a statesmanlike support to the Bill, though he feared it might lead to profiteering in site values.

Mr. Strauss declared that the Bill would hamper L.C.C. housing plans, but, on the other hand, Miss Cazalet and Sir G. Gillett both asserted that the measure would help to solve the problem in London.

Dr. Addison said that the limitations of effort put on local authorities made him not very hopeful that very material results would arise from the Bill.

The views of an architect were put forward by Mr. Bossom, who said that sky-scrapers would not be very popular here, but we could learn a lot from the methods that had been worked out in producing those great buildings. The Advisory Committee should explore the advantages that wide-scale planning could bring to the housing problem. Why should they not arrange for a nation-wide purchase of materials? Standardization and modernization of building regulations ought also to be considered.

He also suggested that the National Research Bureau should be enlarged and that when they had given their approval to any new material it should be available for use all over the country. The Advisory Committee should be given such powers as would enable them to bring about nation-wide planning.

After Mr. Shakespeare had wound up the debate for the Government, the motion for rejection was negatived by 291 votes to 46. The Bill was then read a second time.

Ribbon Development

At question time, the Prime Minister, in response to appeals from Sir N. Grattan-Doyle, Sir W. Davison, and other members, promised that legislation to deal with ribbon development would be introduced "immediately." By that, he explained, he meant "as early as possible."

LAW REPORT

PUBLIC HEALTH (BUILDINGS IN STREETS) ACT, 1888—ALLEGED CONTRAVENTION.

Butterworth v. *Young.—King's Bench Divisional Court. Before the Lord Chief Justice and Justices Avory and Swift.*

THIS was an appeal by Mr. J. Butterworth, surveyor to the Pocklington (Yorks.) Urban District Council, from a decision of the Pocklington Justices, dismissing an information against Mr. Albert E. Young, a Pocklington solicitor, charging him with contravening section 3 of the Public Health (Buildings in Streets) Act, 1888, by erecting a garage in front of his house at Pocklington, "beyond the front main wall and other houses and buildings in the street."

Mr. Geoffrey Veale, for the appellant, said the Justices dismissed the information and awarded Mr. Young his costs. They held that the houses that had been erected nearby were not regular and continuous, and were at different angles, with the result that there was no street within the meaning of the section. Under these circumstances, the Justices came to the conclusion that the applicant had not committed any offence.

Proceeding, counsel said the facts of the case were that the appellant erected a garage in front of his house which the Council considered was beyond the building line. The importance of the appeal was that if the garage was a "building" in a "street," it then had a front main wall, which might mark a line for other buildings.

Criticizing the Justices' decision, counsel said it was a remarkable proposition that as the houses were not regular and continuous, and were at different angles, that there was no street within the meaning of the section. He submitted that it was still more remarkable to argue that a garage 25 ft. in front of a house was not in the same street as the house. His contention was that the Justices had misinterpreted the meaning of the section, and had misdirected themselves, and that the appeal should be allowed.

Mr. T. P. Perks, for Mr. Young, submitted that there was no question of misdirection in law on the interpretation of he section. The question was one of fact or the Justices' consideration, and he contended that the appeal should be dismissed.

The Lord Chief Justice, in giving judgment, said that the Court came to the conclusion that the question was really one of fact. The Court could not hold that there were no materials on which the Justices were entitled to come to the conclusion they had.

With regard to the submission of Mr. Veale that the Justices had misdirected themselves in law, the Court saw no reason for saying that such was the case. The Justices were entitled to find as they had, and that Court would not interfere. The appeal would, therefore, be dismissed with costs.

Justices Avory and Swift agreed.

THE BUILDINGS ILLUSTRATED

Sub-Contractors' List

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue :—

New Stationery Factory and Bookbinding Workshops for W. H. Smith and Son, Albert Embankment, S.E. (pages 219-223). General contractors, Holland & Hannen and Cubitts, Ltd. Consulting engineer, S. Bylander. Quantity surveyors, Thurgood, Son and Chidgey. Sub-contractors : Moreland Hayne & Co., Ltd., steelwork ; Richard Crittall & Co., Ltd., heating and sprinklers ; Crittall Manufacturing Co., Ltd., windows ; Mellowes & Co., Ltd., roof lights ; Doulton & Co., Ltd., terra cotta facing ; Grovebury Brick Co., facing bricks ; Haskins, shutters ; Express Lift Co., Ltd., lifts ; Limmer and Trinidad Lake Asphalt Co., Ltd., asphalt ; W. J. Furse & Co., Ltd., lightning conductor ; Gillett and Johnston, Ltd., tower clock ; Acme Flooring, Paving and Flooring Co. (1904), Ltd., wood block flooring ; Comyn Ching & Co. (London), Ltd., metalwork ; Art Pavements and Decorations, Ltd., terrazzo ; Rashleigh Phipps & Co., electrical work ; Joseph Kaye and Sons, Ltd., locks ; Cork Insulation Co., Ltd., cork ; Potter Rax Gate Co., collapsible gates ; Ferodo, Ltd., non-slip stair treads ; Roneo, Ltd., metal partitions ; Piggott Bros., flagstaff ; Keystone Paint and Varnish Co., Ltd., paint ; Hoyle, Robson, Barnett & Co., Ltd. ; cement glaze.

Seaside Houses at Saltdean, near Brighton (pages 226-227). General contractors : West and Musgrave, Ltd. Sub-contractors : Twisteel Reinforcement, Ltd., reinforcement ; John Thompson Beacon Windows, Ltd., metal windows.

Studio at Fordingbridge, Hants. (pages 233-235). General contractors, C. H. Boyd and Son, Ltd. Sub-contractors : Smith Walker, Ltd., reinforcement ; Standard Flat Roofing Co., Ltd., special roofings ; Pither's Radiant Stoves, Ltd., combined stove and boiler serving Ideal window radiators ; Stanley Cooper & Co., Ltd., electric wiring ; Merchant Adventurers of London, Ltd., and Oswald Hollmann, electric light fixtures ; Elsan Manufacturing Co., Ltd., sanitary fixtures ; James Gibbons, Ltd., door furniture ; Morris Singer, Ltd., casements ; Venesta, Ltd., joinery—doors ; Tentest Fibre Board Co., Ltd., insulation to floor and ceiling.

Manufacturers' Items

In the list of contractors for Evelyn Court Amhurst Road, Hackney, published in our last issue, we omitted to state that all the exterior and interior finishings and painting were carried out by Modern Surfaces, Ltd.

*

We understand that Messrs. Ideal Boilers and Radiators, Ltd., of Hull, have relinquished the selling agency for Messrs. Holden and Brooke, Ltd.'s Super Selfix circulators and Senflux Non-return valves. Orders and enquiries for these circulators and valves should be sent direct to Messrs. Holden and Brooke, Ltd., Sirius Works, Manchester, 12.

*

A new type of refrigerator, known as the Liftop, has recently been marketed by the International Refrigerator Co., Ltd. This refrigerator, which is said to occupy no more space than an ordinary chair, is fitted with a hinged lid—instead of doors—which, when closed, seals the cabinet. This innovation gives more storage room, and allows the contents to be reached easily.

Full particulars of the Liftop, which costs £29 10s., are obtainable from the International Refrigerator Co., Ltd., at 169 Regent Street, W.1.

*

Following are some extracts from the report of the directors of Messrs. Redfern's Rubber Works, Ltd., of Hyde, near Manchester, which is to be presented at the thirty-first ordinary general meeting of the company, to be held on Friday, February 15 :

	£ s. d.	£ s. d.
The revenue for the year amounted to		25,720 6 10
From which must be deducted :—		
Depreciation ..		7,193 19 9
Leaving a net profit of		18,526 7 1
Add balance brought forward from December 31, 1933		9,934 1 7
		28,460 8 8
Deduct :—		
Dividends on "A" and "B" Preference Shares for half-years ending December 31, 1933, and June 30, 1934	9,000 0 0	
Final Dividend on Ordinary Shares for year ending December 31, 1933	2,000 0 0	
		11,000 0 0
Leaving a Balance available for appropriation of		17,460 8 8
Which the Directors recommend should be appropriated as follows :—		
To the payment of the Final Dividends on "A" and "B" Preference Shares ..	4,500 0 0	
To the payment of a Dividend of 7½ per cent. on the Ordinary Shares ..	6,000 0 0	
To be carried forward ..	6,960 8 8	
		17,460 8 8

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS).

BARKING. *Swimming Bath.* The Corporation Baths Committee reports that the Council referred back to the Committee for further consideration the question of the site for the new swimming bath. The Committee, however, is still of opinion that the site at the junction of Porters Avenue and Gale Street is the most suitable, and accordingly recommends that the Borough Engineer be authorized to negotiate with the L.C.C. for the acquisition of such site.

BARKING. *Town Hall Scheme.* The Corporation Town Hall Committee recommends the appointment of Mr. H. V. Lanchester, F.R.I.B.A., to advise the Council upon its scheme for a new Town Hall.

BRENTFORD. *Housing.* The Brentford and Chiswick T.C. are negotiating for the purchase of the Hadley House site for housing purposes; when these are completed the Borough Surveyor is to prepare a scheme for its development.

BRENTWOOD. *Swimming Baths.* The Surveyor of the U.D.C. is preparing plans for the construction of public swimming baths, and it is hoped that at the next meeting the Council will be in a position to invite tenders.

BRENTWOOD. *Houses.* The U.D.C. has instructed the Surveyor to prepare plans, etc., for 16 houses in Costead Road, Manor Road. Tenders are to be invited for the work.

CATFORD. *Maisonettes.* Mr. H. Buchan proposes to erect maisonettes in Blythe Hill Lane, Catford.

CROYDON. *Houses.* Messrs. West and Son, "Fairhaven," Gladeside, Croydon, are to erect 31 houses at Fairhaven Avenue, plans for which have been approved.

CROYDON. *Garages.* Two large commercial garages are to be erected. One at 1270 London Road, for Rosslare Garages, and one at Kidderminster Road, for Allsop and Wagner, Ltd., 9-10 Park Street.

CROYDON. *Petrol Station, etc.* Mr. N. W. Holden, 68 South End Road, Beckenham, Kent, has submitted plans for the erection of petroleum station, offices, etc., at Chaffinch Avenue, Bywood Avenue.

CROYDON. *Houses, etc.* Gower Builders (London), Ltd., 49 Shirley Way, are to erect 18 houses and garages at Temple Avenue. Plans have been approved; plans submitted by H. Miller, 191 Lower Addiscombe Road, for 15 houses and 13 garages at Graham Close have also been approved.

CROYDON. *Electricity Generating Station.* Subject to the necessary sanctions, the Electricity Committee of the Town Council propose, during the next twelve months, to extend the Electricity Generating Station at an estimated cost of £7,300. It is also proposed to proceed with the extension of the central garage at an estimated cost of £6,200. Various substations are also to be erected at an estimated cost of £4,270.

FINCHLEY. *Synagogue.* Mr. Morris de Metz proposes to erect a synagogue at Norrice Lea, Lyttelton Road.

FINCHLEY. *Flats.* At the Corporation Town Planning Committee a letter was received from Messrs. R. J. Rowley, Ltd., asking for the Committee's views on a proposal to erect blocks of flats on the site and grounds of "Rathgar," Dollis Avenue. The property is situated in an area zoned primarily for the erection of houses only, and the Committee accordingly recommends that Messrs. R. J. Rowley, Ltd., be informed that the Council is not prepared to consent to the erection of the proposed flats; Mr. L. T. Swanne proposes to erect flats on land in the Great North Road, near the Swan Lane open space.

FINCHLEY. *Municipal Offices.* The Corporation has appointed a committee to select a site for the erection of new municipal offices.

FINCHLEY. *Houses and Flats.* Plans passed by the Corporation: 24 flats, Derby Lodge, East End Road, for Wend Estates, Ltd.; four houses, Devon Rise, Hampstead garden suburb, for Mr. A. Reast; 10 shops, six maisonettes and offices, High Road, Whetstone, for Messrs. Drage and Towersey; six houses, Brim Hill, Hampstead garden suburb, for Messrs. Rainbird and Scarfe; four houses, Milton Close, Hampstead garden suburb, for Mr. H. Laurance; two houses, Wentworth Close, for Messrs. F. W. Bristow and Son; two houses, Devon Rise, Hampstead garden suburb, for Mr. A. Reast; four flats, Berwick House, Oak Lane, for Mr. J. F. Sayer; six houses, Spencer Drive, Hampstead garden suburb, for Mr. R. L. Coombs.

LEWISHAM. *Swimming Baths.* The B.C. Libraries Committee recommends that a joint committee of the Libraries and Baths Committees be appointed to take all necessary steps for carrying out the scheme approved by the Council in September last for the construction of swimming baths and a library at Durham Hill, Downham.

LEWISHAM. *Housing, etc.* Plans passed by the B.C.: Development, Manor Estate, Bromley Road, Catford, for Mr. L. A. Culliford; pavilion, Ravensbourne Park, Catford, for Mr. E. A. Crook; houses, Westwood Park, Forest Hill, for Mr. John Lax; four houses, Montacute Road, Bankhurst Road, and Ravensbourne Park Crescent, Catford, for Highfield Estates (Ravensbourne Park), Ltd.; blocks of flats, Dartmouth Grove, Blackheath, for Messrs. Annesley, Brownrigg and Hiscock; buildings, West Hill, Sydenham, for Messrs. Waring and Nicholson.

PUTNEY. *Cinema.* Demolition work has commenced in connection with the erection of a super-cinema at Putney High Street. The cinema, which has been designed by J. Stanley, Beard and Clare, 101-3 Baker Street, W.1, will provide accommodation for 3,000 people. The general contractors are, T. H. Adamson and Sons, 145 High Street, Putney, S.W.15.

WOOLWICH. *Shops.* The Royal Arsenal Co-operative Society propose to erect 50 shops throughout their area during the year. The Society's architect is Mr. S. W. Ackroyd, Commonwealth Buildings, Woolwich, S.E.18.

SOUTHERN COUNTIES

BRIGHTON. *Clinic and Welfare Centre.* The Education Committee has approved plans by the Borough Engineer for the erection of an infant welfare centre and school clinic at Sussex Street, at an estimated cost of £15,500.

BRIGHTON. *Crematorium.* The Corporation is to reserve about 29 acres at Warren Farm, Rottingdean, for the construction of a cemetery and crematorium.

BRIGHTON. *Houses and Flats.* Plans passed by the Corporation: Three houses, Withyham Avenue, Saltdean estate, Rottingdean, for Saltdean Estate Co., Ltd.; houses, Friar Road, for Mr. C. W. Parkes; two houses, Ladies Mile estate, Patcham, for Ladies Mile Estate, Ltd.; two flats, Preston Park Avenue, for Mr. S. Cama; two houses, Mackie Avenue, Patcham, for Ladies Mile Estate, Ltd.; two flats, Longhill Road, Ovingdean, for Mr. P. J. Harwood; two houses, Carden Avenue, Patcham, for Sussex Estate Agency; two flats, 109 Beaconsfield Villas, for Mr. T. R. Braybon; two houses, Falmer Road, Ovingdean, for Mr. E. W. Moppett; flats, 10 Powis Square, for Mr. E. Davis; two houses, Davidor Road, for Mr. E. Davis; six houses, Reigate Road, for Mr. G. H. Pannett; two bungalows, Ainsworth Avenue, Ovingdean, for Mr. G. Brandolino; estate lay-out, Hollingbury Copse estate, for Sussex Property and Building Co., Ltd. Plans submitted: Six houses, Chichester Drive, Rottingdean, for Mr. W. F. Hopkin; 60 bungalows, Farm Hill continuation, Wick estate, Rottingdean, for Coastal Estates (Eastbourne), Ltd. At a meeting of the Corporation Health Committee a letter was read from the Ministry of Health with reference to the proposal to erect 354 houses on the Manor Farm estate, to accommodate persons displaced from clearance areas, stating that it was observed that 192 of the houses were two-bedroomed houses, and inquiring whether the Council was satisfied that the accommodation required was best provided by the erection of so large a number of houses of this type. It was further stated that the Minister had no observations to make on the plans of the proposed houses or on the Council's proposals for the lay-out of the estate, and raised no objection to the Council inviting tenders for the work. It was decided to inform the Ministry that the Council is satisfied that the 192 proposed two-bedroomed houses is the correct apportionment.

ESHER. *Station.* Reference was made at the last meeting to the proposed erection of a station by the Southern Railway Company. Previously it was to have been built near the Royal Mills with an approach road joining Hersham Road. That scheme had since been abandoned in favour of a station nearer to Walton, but the Council considered the former position more convenient both for Esher and West End, owing to the amount of development taking place. The Council are now to urge the Company to revert to the former position.

MARDEN (KENT). *Schoolrooms.* Work has now started on the erection of new Methodist schoolrooms at Marden, to plans prepared by Mr. H. Knight. The work is to be carried out by Mr. H. Goodsell.

EASTERN COUNTIES

CHELMSFORD. *Mission Hall, Houses, etc.* Plans passed by the Corporation: Mission hall, Springfield Park Road, for Dr. Whitley, Mr. F. Allen and Mrs. Olive West; two shops and flats, Broomfield Road, for Mrs. Luckin-Smith; six houses, Widford Grove, for Messrs. W. and A. Pudney; two houses, London Road, for Messrs. Webber and Burrell; two shops and flats, Broomfield Road, for Messrs. A. Darby and Co.; houses, Highwoods estate, for Messrs. Tyler and Dobie; two houses, Hillside Grove; and two bungalows, 7th Avenue, for Messrs. R. H. Currie and Sons.

GRAYS (ESSEX). *Houses.* The M.H. have approved borrowing by the U.D.C. of £21,120 for the erection of 60 houses on the Council's estate.

SOUTH-WESTERN COUNTIES

TRURO. *Cinema.* Plans have been prepared for the erection of a new cinema and café in Lemon Street, having accommodation for about 1,100 people. The cinema is of the balcony type and off the balcony foyer a large café has been arranged with accommodation for dancing. W. H. Watkins, F.R.I.B.A., of 1 Clare Street, Bristol, is the architect.

MIDLAND COUNTIES

MANSFIELD. *Houses.* The Corporation is to erect 52 houses of the Houfton estate by direct labour.

STOKE-ON-TRENT. *Chapel, etc.* The Stoke-on-Trent Corporation Parks and Cemeteries Committee has approved a revised lay-out and estimate by the city engineer for the Carmountside Cemetery and the erection thereon of chapels, lodges and crematorium, at a total estimated cost of £61,145.

STOKE-ON-TRENT. *Houses.* Messrs. J. W. Thornley and Sons (Stoke), Ltd., propose to erect houses at the Greenacres estate, Longton, near Stoke-on-Trent. The architect is Mr. Glyn Sherwin.

NORTHERN COUNTIES

SEAHAM HARBOUR. *Houses.* The U.D.C. is in negotiation for the purchase of approximately 7¾ acres of land for the erection of further houses for persons displaced under clearance schemes.

YORK. *Housing Estate.* The Corporation Housing Committee has appointed a special sub-committee to consider the type of house to be erected on the Water Lane estate.

YORK. *Houses, Estate Lay-outs, etc.* Plans passed by the Corporation: Four houses, Millfield Lane, for Messrs. Sorrell and Scaife; two houses, Westlands Grove, for Messrs W. Birch and Sons, Ltd.; two houses, St. Swithin's Walk, for Mr. J. Foster; 10 houses, Rydal and Arnside Avenues, for Mr. J. N. Dunn; two houses, Danum Road, for Messrs. W. West, Ltd.; two houses, Grantham Drive, for Mr. F. W. Shepherd; 18 houses, Northcote Avenue, for Mr. W. W. Leggett; 14 houses, White House Dale, etc., for Messrs. R. J. Pulleyn and Sons;

(*Continued on page xxxvi.*)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

The districts and rates set out in bold type denote the regradings and consequent changed standard rates of wages authorized to take effect on and from February 1.

			I s. d.	II s. d.
A_1	**ABERDARE** ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_4	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_3	Aylesbury ..	S. Counties	1 3	11½
B_2	**BANBURY** ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A_2	Boston	Mid. Counties	1 4	1 0
A_2	**Bournemouth**	S. Counties	1 4½	1 0½
B_1	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M	1 5½	1 1½
B	**Bridgwater** ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	**Brighton** ..	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	**CAMBRIDGE** ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	**Chatham** ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	**Colchester** ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	**DARLINGTON**	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	**Dorchester** ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley ..	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham ..	N E. Coast	1 5½	1 1½
A_2	**EASTBOURNE**	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter ..	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	**FELIXSTOWE**	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S. W. Counties	1 2½	11
A	**GATESHEAD**	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W. Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	**HALIFAX** ..	Yorkshire	1 5½	1 1½
A	Hanley ..	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	**ILKLEY** ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	**Isle of Wight**	S. Counties	1 2½	11
A	**JARROW** ..	N.E. Coast	1 5½	1 1½
A	**KEIGHLEY** ..	Yorkshire	1 5½	1 1½
A_3	**Kendal** ..	N.W. Counties	1 4	1 0
A_3	**Keswick** ..	N.W. Counties	1 4	1 0
A_1	**Kettering** ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	**LANCASTER** ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12–15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A_1	**Luton**	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	**MACCLESFIELD**	N.W. Counties	1 5	1 0½
A_2	**Maidstone** ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N.E. Coast	1 5½	1 1½
A_2	Middlewich ..	N.W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	**NANTWICH** ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid Counties	1 5½	1 1½
A	**OAKHAM** ..	Mid. Counties	1 4	1 0
A	Oldham ..	N.W. Counties	1 5½	1 1½
A_3	Oswestry ..	N.W. Counties	1 4	1 0
A_1	**Oxford** ..	S. Counties	1 5	1 0½
A	**PAISLEY** ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	**Peterborough**	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	**QUEENSFERRY**	N.W. Counties	1 5½	1 1½
A_2	**READING** ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	**Rochester** ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	**Runcorn** ..	N.W. Counties	1 5½	1 1½
A_1	**ST. ALBANS** ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A_1	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough ..	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_1	**Southend-on-Sea**	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud ..	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	**TAMWORTH** ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	**Teignmouth** ..	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_2	**Tunbridge Wells**	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	**WAKEFIELD**	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	**Wellingborough**	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan ..	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	**Yarmouth** ..	E. Counties	1 3½	11½
B	**Yeovil** ..	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 6½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality, and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger	"	1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
General Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¼" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
¼" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	d.	6" s.	d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single junctions	"	3	6	5	3
Double	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¼" Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead wool	lb.		6		—
Gaskin	"		5		—

BRICKLAYER

		£	s.	d.
Flettons	Per M.	2	15	0
Grooved do.	"	2	17	0
Phorpres bricks	"	2	15	0
" Cellular bricks	"	2	15	0
Stocks, 1st quality	"	4	11	0
" 2nd "	"	4	2	6
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Brindles	"	7	0	0
" Bullnose	"	9	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	0
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midhurst White Facings	"	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	25	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

The following d/d F.O.R. at Nine Elms:		s.	d.
Portland stone, Whitbed	F.C.	4	4½
" Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" " Sawn templates	"	7	6
" " Paving, 2"	F.S.	1	8
" " " 3"	"	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	"	24	10	0
20" × 10" Countesses	"	19	5	0
18" × 10" Viscountesses	"	15	10	0
18" × 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey per 1,000 (actual)		21	11	6
" " green "	"	24	7	4
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each			9½
" hand-made	"			10
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" " 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak plain American	" "	1	0
" Figured "	" "	1	3
" Plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1
Deal floorings, ⅞"	Sq.		18	6
" ⅞"	"	1	1	6
" 1"	"	1	2	0
" 1¼"	"	1	5	0
" 1½"	"	1	10	0
Deal matchings ⅞"	"		14	0
" 1"	"		15	6
Rough boarding ⅞"	"	1	4	0
" 1"	"		16	0
" 1¼"	"		18	0
Plywood, per ft. sup. —Thickness ⅜"	"	1	6	0

Qualities	⅜" AA.A.B. d.	d.	d.	½" AA.A.B. d.	d.	d.	⅝" AA.A.B. d.	d.	d.	¾" AA.A.B. d.	d.	d.
Birch	4	3	2	5	4	3	7½	6	4½	8½	7	6
Alder	3½	3	2	5	4	3	6½	5½	4½	8	7	6
Gaboon Mahogany	4	3	3	6½	5½	4½	9½	7½	–	1/0½	10	–
Figured Oak 1 side	8½	7	–	10	8	–	11½	–	–	1/6	–	–
Plain Oak 1 side	6½	6	–	7½	7	–	9½	–	–	1/–	–	–
Oregon Pine	5	4	–	5½	5	–	6	–	–	–	–	–

	d.
Scotch glue	lb. 8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10			
Pieces, 12"-23½" long each	10	1/1	1/11	2/8	4/9			
" 3"-11½" long "	7	9	1/3	1/8	3/–			
Long screws, 12"-23½" long "	11	1/3	2/2	2/10	5/3			
" " 3"M-½" long "	8	10	1/5	1/11	3/6			
Bends "	8	11	1/7½	2/7½	5/2			
Springs not socketed "	5	7	1/1½	1/11½	3/11			
Socket unions "	2/–	3/–	5/6	6/9	10/–			
Elbows, square "	10	1/1	1/6	2/2	4/3			
Tees "	1/–	1/3	1/10	2/6	5/1			
Crosses "	2/2	2/9	4/1	5/6	10/6			
Plain Sockets and nipples "	3	4	6	8	1/3			
Diminished sockets "	4	6	9	1/–	2/–			
Flanges "	9	1/–	1/4	1/9	2/9			
Caps "	3½	5	8	1/–	2/–			
Backnuts "	2	3	5	8	1/1			
Iron main cocks "	1/6	2/3	4/2	5/4	11/6			
" with brass plugs "	—	4/–	7/6	10/–	21/–			

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½
FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued*

		s.	d.
Rolled steel joists cut to length	cwt.	10	9
Mild steel reinforcing rods, ⅜"	"	8	6
" " ½"	"	8	3
" " ⅝"	"	8	0
" " ¾"	"	7	6
" " ⅞"	"	7	6
" " 1"	"	7	6
" " 1¼"	"	7	6
" " 1½"	"	7	6

Cast-iron rain-water pipes of ordinary thickness metal	3" s.	d.	4" s.	d.
	F.R.	8		10
Shoes	each	2	0	3	0
Anti-splash shoes	"	4	6	8	0
Boots	"	3	0	4	0
Bends	"	2	7	3	9
" with access door	"	—		6	3
Heads	"	4	0	5	0
Swan-necks up to 9" offsets	"	3	9	6	0
Plinth bends, 4½" to 6"	"	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal	F.R.	5		6	
Stop ends	each	6		6	
Angles	"	1	7	1	11
Obtuse angles	"	2	0	2	6
Outlets	"	1	9	2	3

PLUMBER

		£	s.	d.
Lead, milled sheets	cwt.	18	6	
" drawn pipes	"	17	0	
" soil pipe	"	18	6	
" scrap	"	10	6	
Solder, plumbers'	lb.		9½	
" fine do.	"	1	0	
Copper, sheet	"		8½	
" tubes	"		11	

L.C.C. soil and waste pipes:	3"	4"	6"
Plain cast	F.R.	1 0	1 2	2 6
Coated	"	1 1	1 3	2 8
Galvanized	"	2 0	2 6	4 6
Holderbats	each	3 10	4 0	4 9
Bends	"	3 9	5 3	10 3
Shoes	"	2 10	4 4	9 6
Heads	"	4 8	8 5	12 9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	5	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle Plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	9
Lath nails	lb.			3½

GLAZIER

	s.	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.			s.	2½
" " 26 oz. " " " "				3
Flemish, Arctic, Figured (white)*				7
Blazoned glasses			2	6
Reeded; Cross Reeded				11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite				6½
Crown sheet glass (n/e 12 in. x 10 in.)			2	0
Flashed opals (white and coloured)	1	0 and	2	0
⅛" rough cast; rolled plate				5½
⅛" wired cast; wired rolled				9½
⅛" Georgian wired cast				11
¼" Polished plate, n/e 1 ft.	† 10 to	‡1		1
" " 2	†1 2	‡1		4
" " 4	†2 3	‡2		6
" " 8	†2 9	‡3		2
" " 20	†3 7	‡4		2
" " 45	†3 11	‡4		7
" " 100	†5 0	‡5		7
Vita glass, sheet, n/e 1 ft.				1 0
" " " 2 ft.				1 3
" " " over 2 ft.				1 9
" " plate, n/e 1 ft.				1 6
" " " 2 ft.				3 0
" " " 5 ft.				4 0
" " " 7				5 0
" " " 15				6 0
" " " over 15				7 6
"Calorex" sheet 21 oz., and 32 oz.	2	6 and	3	6
" rough cast ⅛" and ¼"			8½	1 0
Putty, linseed oil	lb.			3

* *Colours*, 1d. *F.S. extra.*
†*Ordinary glazing quality.* ‡*Selected glazing quality.*

PAINTER

	£	s.	d.
White lead in 1 cwt. casks	cwt.	2	6	0
Linseed oil	gall.	2	2½
Boiled oil	"	2	4½
Turpentine	"	4	1½
Patent knotting	"	14	0
Distemper, washable	cwt.	2	6	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	firkin	3	0
Copal varnish	gall.	13	0
Flat varnish	"	14	0
Outside varnish	"	16	0
White enamel	"	1	15	0
Ready mixed paint	"	13	6
Brunswick black	"	7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR	£ s. d.
Digging over surface n/e 12" deep and cart away . . . Y.S.	2 9
" to reduce levels n/e 5' 0" deep and cart away . . Y.C.	8 6
" to form basement n/e 5' 0" deep and cart away . . "	9 0
" " 10' 0" deep and cart away . . "	9 6
" " 15' 0" deep and cart away . . "	10 0
If " " . . . . . add "	6
If in stiff clay . . . . . "	4 0
If in underpinning . . . . . "	6
Planking and strutting to sides of excavation . . . F.S.	1 0
" " to pier holes . . . . . "	5
" " to trenches . . . . . "	5
" " extra, only if left in . . . . "	3
Hardcore, filled in and rammed . . . . . Y.C.	10 0
Portland cement concrete in foundations (6-1) . . . "	1 6 0
" " (4-2-1) . . . "	1 12 6
" " underpinning . . "	1 16 0
Finishing surface of concrete, spade face . . . . Y.S.	7

DRAINLAYER		4" s. d.	6" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER	£ s. d.
Brickwork, Flettons n lime mortar . . . . . Per Rod	27 10 0
" " in cement . . . . . "	28 15 0
" Stocks in cement . . . . . "	35 0 0
" Blues in cement . . . . . "	52 0 0
Extra only for circular on plan . . . . . "	2 0 0
" backing to masonry . . . . . "	1 10 0
" raising on old walls . . . . . "	2 0 0
" underpinning . . . . . "	5 10 0
Fair Face and pointing internally . . . . . F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing . .	" 8
" " " red brick facings and pointing . .	" 11
" " " blue brick facing and pointing . .	" 1 4
" " " glazed brick facings and pointing . .	" 3 6
Tuck pointing	" 7½
Weather pointing in cement	" 3
Slate dampcourse	" 10
Vertical dampcourse	" 1 1

ASPHALTER	s. d.
½" Horizontal dampcourse . . . . . Y.S.	4 6
½" Vertical dampcourse . . . . . "	6 9
½" paving or flat . . . . . "	4 0
1" paving or flat . . . . . "	5 6
1" × 6" skirting . . . . . F.R.	1 0
Angle fillet . . . . . "	2
Rounded angle . . . . . "	2
Cesspools . . . . . Each	5 0

MASON	s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete . . . . . F.C.	17 9
Bath stone and do., all as last . . . . . "	13 6
Artificial stone and do. . . . . "	13 0
York stone templates, fixed complete . . . . . "	10 6
" thresholds . . . . . "	13 6
" sills . . . . . "	1 0 6

SLATER AND TILER	£ s. d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10" . . . . . Sqr.	3 10 0
Do., 18" × 9" . . . . . "	3 7 0
Do., 24" × 12" . . . . . "	3 17 0
Westmorland slating, laid with diminished courses . . . "	6 0 0
Tiling, best hand-made sand-faced, laid to a 4" gauge, nailed every fourth course . . . . . "	3 0 0
Do., all as last, but of machine-made tiles . . . . . "	2 16 0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey) . "	4 6 0
" " " " " " (green) . "	4 15 0

CARPENTER AND JOINER	£ s. d.
Flat boarded centering to concrete floors, ncluding all strutting . Sqr.	2 5 0
Shuttering to sides and soffits of beams . . . . . F.S.	8
" to stanchions . . . . . "	8
" to staircases . . . . . "	1 8
Fir and fixing in wall plates, lintols, etc. . . . . F.C.	3 9
Fir framed in floors . . . . . "	4 6
" " roofs. . . . . "	6 6
" " trusses . . . . . "	7 6
" " partitions . . . . . "	8 6
½" deal sawn boarding and fixing to joists . . . . . Sqr.	1 14 6
1" " " " " . . . . . "	1 17 6
1½" " " " " . . . . . "	2 3 0
½" × 2" fir battening for Countess slating . . . . . "	9 6
Do. for 4" gauge tiling . . . . . "	12 0
Stout feather-edged tilting fillet . . . . . F.R.	4½
Patent inodorous felt, 1 ply . . . . . Y.S.	2 3
" " " 2 " . . . . . "	2 9
" " " 3 " . . . . . "	3 3
Stout herringbone strutting to 9" joists . . . . . F.R.	10½
1" deal gutter boards and bearers . . . . . F.S.	1 2
1½" " " " " . . . . . "	1 6
2" deal wrought rounded roll . . . . . F.R.	8
1" deal grooved and tongued flooring, laid complete, including cleaning off . . . . . Sqr.	2 1 0
1¼" do. . . . . "	2 10 0
1½" do. . . . . "	2 17 0
1" deal moulded skirting, fixed on, and including grounds plugged to wall . . . . . F.S.	1 6
1½" do. . . . . "	1 9

CARPENTER AND JOINER—*continued*	s. d.
1¼" deal moulded sashes of average size . . . . . F.S.	1 9½
2" " " " " . . . . . "	1 11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1¼" pulley stiles, 1¼" heads, 1" inside and outside linings, ⅝" parting beads, and with brass faced axie pulleys, etc., fixed complete . . "	3 7
2" " " " " . . . . . "	3 10
Extra only for moulded horns . . . . . Each	6
1¼" deal four-panel square, both sides, door . . . F.S.	2 0
2" " " " " . . . . . "	2 8
1¼" " but moulded both sides . . . . . "	2 4
2" " " " " . . . . . "	3 0
4" × 3" deal, rebated and moulded frames . . . . F.R.	1 0
4½" × 3½" " " " . . . . . "	1 4
1¼" deal tongued and moulded window board, on and including deal bearers . . . . . F.S.	1 9
1¼" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages . . . "	2 6
1¼" deal moulded wall strings . . . . . "	2 1
1¼" " outer strings . . . . . "	2 4
Ends of treads and risers housed to string . . . . Each	1 9
3" × 2" deal moulded handrail . . . . . F.R.	1 3
1" × 1" deal balusters and housing each end . . . Each	2 0
1¼" × 1¼" " " " . . . . . "	2 9
3" × 3" deal wrought framed newels " . . . . . F.R.	1 3
Extra only for newel caps . . . . . Each	6 0
Do., pendants . . . . . "	6 0

SMITH AND FOUNDER	£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position . . . . . Per cwt.	15 6
Riveted plate or compound girders, and hoisting and fixing in position . . . . . "	19 6
Do. stanchions with riveted caps and bases and do. . . . "	19 0
Mild steel bar reinforcement, ½" and up, bent and fixed complete "	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g. . . . . F.S.	11
Wrot-iron caulked and cambered chimney bars . . . Per cwt.	1 10 0

PLUMBER	£ s. d.
Milled lead and labour in flats . . . . . cwt.	1 12 0
Do. in flashings . . . . . "	1 15 6
Do. in covering to turrets	2 3 0
Do. in soakers . . . . . "	1 7 6
Labour to welted edge . . . . . F.R.	3½
Open copper nailing . . . . . "	3
Close " . . . . . "	4

		½" s. d.	¾" s. d.	1" s. d.	1¼" s. d.	2" s. d.	4" s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks		—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	5 9	5 0	8 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—

PLUMBER (continued)	s. d.
4" cast-iron ½-rd. gutter and fixing . . . . . F.R.	1 0
Extra, only stop ends . . . . . Each	1 0
Do. angles . . . . . "	1 6
Do. outlets . . . . . "	2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on . F.R.	1 2
Extra, on y for shoes . . . . . Each	1 3
Do. for plain heads . . . . . "	5 6

PLASTERER AND TILING	s. d.
Expanded metal lathing, small mesh . . . . . Y.S	2 0
Do. in n/w to beams, stanchions, etc. . . . . "	2 9
Lathing with sawn laths to ceilings . . . . . "	1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc. . . . . "	1 5
Do. vertical . . . . . "	1 7
Rough render on walls . . . . . "	1 2½
Render, float and set in lime and hair . . . . . "	1 9
Render and set in Sirapite . . . . . "	1 11
Render, backing in cement and sand, and set in Keene's cement . "	2 9
Extra, only if on lathing . . . . . "	4
Keene's cement, angle and arris . . . . . F.R.	6
Arris . . . . . "	1½
Rounded angle, small . . . . . "	3
Plain cornices in plaster, including dubbing out, per 1" girth . "	1½
1" granolithic pavings . . . . . Y.S.	3 6
1½" " " " " . . . . . "	4 6
6" × 6" white glazed wall tiling and fixing on prepared screed . "	17 6
9" × 3" " " " " " . "	1 2 6
Extra, only for small quadrant angle . . . . . F.R.	8

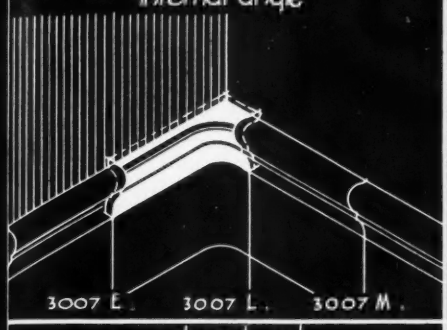
GLAZIER	s. d.
21 oz. sheet glass and glazing with putty . . . . F.S.	7½
26 oz. do and do. . . . . "	8½
Flemish, Arctic Figured (white) and glazing with putty . . "	1 1
Cathedral glass and do. . . . . "	1 2
Glazing only, British polished plate . . . . . "	7
Extra, only if in beads . . . . . "	2
Washleather . . . . . F.R.	4

PAINTER	s. d.
Clearcolle and whiten ceilings . . . . . Y.S.	6
Do. and distemper walls . . . . . "	9
Do. with washable distemper . . . . . "	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces "	3 3
Do. on woodwork . . . . . "	3 6
Do. on steelwork . . . . . "	3 0
Do. and brush grain and twice varnish . . . . . "	5 6
Stain and twice varnish woodwork . . . . . "	1 11
Stain and wax-polish woodwork . . . . . "	4 6
French polishing . . . . . F.S.	1 2
Stripping off old paper . . . . . Piece	2 0
Hanging ordinary paper . . . . . from "	2 9

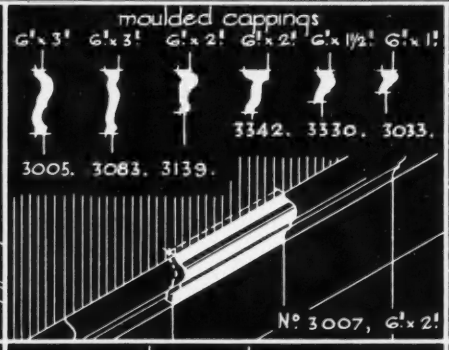
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MOULDED CAPPINGS :

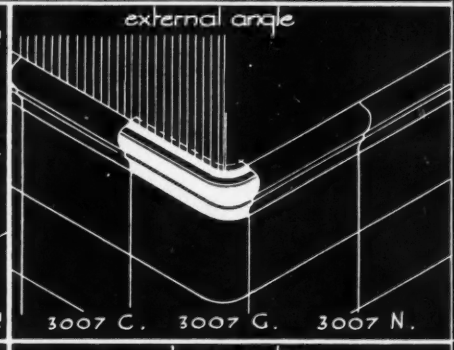
internal angle



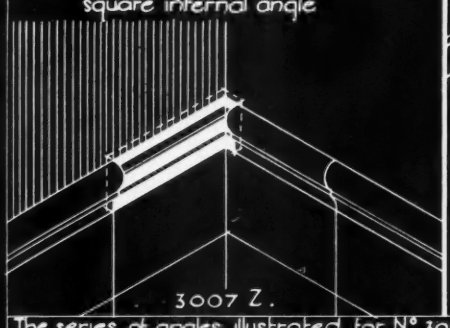
moulded cappings



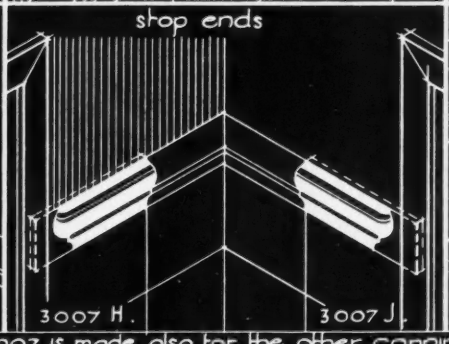
external angle



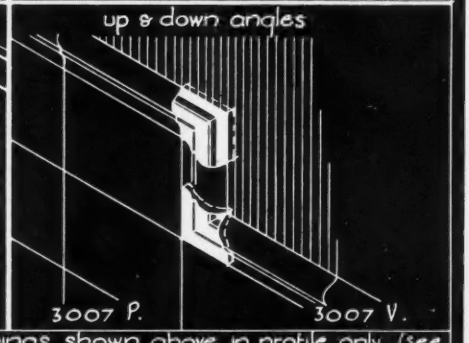
square internal angle



stop ends



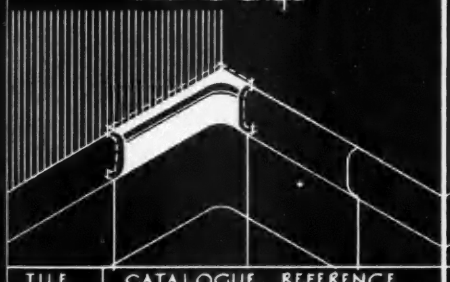
up & down angles



The series of angles illustrated for N° 3007 is made also for the other cappings shown above in profile only. (see under 'moulded cappings'). In each case the catalogue reference of any given angle is the number of the straight tile piece plus the suffix letter of the corresponding 3007 angle illustrated. For all angle sizes see key table.

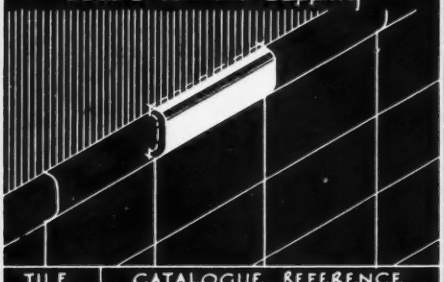
DOUBLE BULLNOSE CAPPINGS :

internal angle



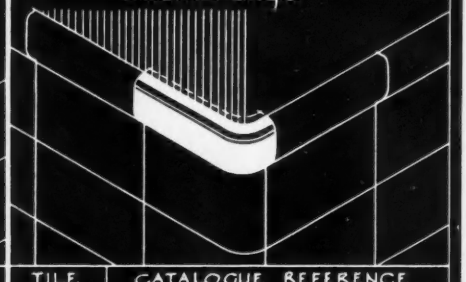
TILE SIZE	CATALOGUE REFERENCE NUMBER
6'x 3'	4044 E.
6'x 2'	3182 E.
6'x 1½'	4054 E.

double bullnose capping



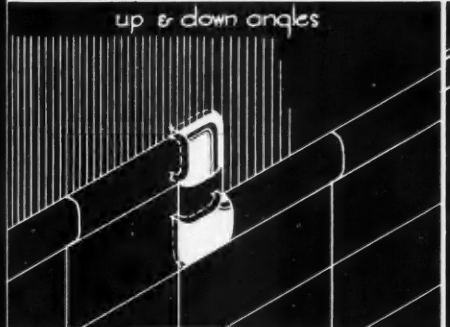
TILE SIZE	CATALOGUE REFERENCE NUMBER
6'x 3'	4044.
6'x 2'	3182.
6'x 1½'	4054.

external angle



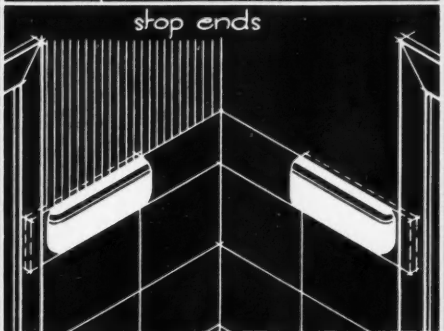
TILE SIZE	CATALOGUE REFERENCE NUMBER
6'x 3'	4044 C.
6'x 2'	3182 C.
6'x 1½'	4054 C.

up & down angles



TILE SIZE	CATALOGUE REFERENCE NUMBER	
.	.	.
2'x 2'	3182 P.	3182 V.
1½'x 1½'	4054 P.	4054 V.

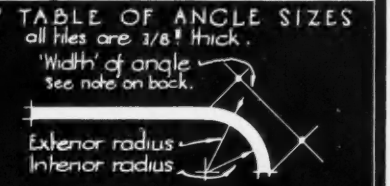
stop ends



TILE SIZE	CATALOGUE REFERENCE NUMBER	
6'x 3'	4044 H.	4044 J.
6'x 2'	3182 H.	3182 J.
6'x 1½'	4054 H.	4054 J.

KEY TABLE OF ANGLE SIZES

all tiles are 3/8' thick.



P = down angle.
V = up angle.
H = left stop end.
J = right stop end.
Z = square internal angle.

ANGLE LETTER		WIDTH	RADIUS Inches	
internal	external	inches	interior	exterior
E	C	1¼	½	⅞
L	G	2	1	1⅜
M	N	3	1¾	2⅛

Information from Richards Tiles Ltd.

INFORMATION SHEET : GLAZED WALL TILE FITTINGS 2 : MOULDED & DOUBLE BULLNOSE CAPPINGS

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 189 •

WALL TILES

Type of Product: Glazed Wall Tile Fittings

(See also Information Sheets 92, 93, 99, 125, 127, 144 and 180 on other Tile products of the same manufacturers.)

The manufacturers' plain—or flat—tiles with which the fittings here illustrated are designed to work, are made in the following shapes and sizes :—

Squares ..	.. 6″×6″, 4″×4″, 3″×3″, 2″×2″
Oblongs ..	.. 6″×3″, 6″×2″, 6″×1½″, 6″×1″ 6″×½″, 4″×2″, 4″×1″, 4″×½″
Hexagons ..	.. (measured from side to side) 4″, 3″ and 2″, with the necessary halves.

Standard Thickness.—For all sizes of plain tiles and fittings, ⅜″. Plain tiles and Rounded Edge Tiles, in white glaze only, and in sizes 6″×6″ and 6″×3″ only, made also ¼″ thick.

Finish.—All tiles and fittings can be supplied in white glaze, and (except those ¼″ thick, as noted), in colours, both plain and mottled, of bright and eggshell finish.

Stocks.—Plain tiles and fittings are stocked by the manufacturers in white glaze finish and in biscuit form (i.e. unglazed) ready for glazing in colour as ordered.

Special Fittings for special purposes are made to order as required.

Cappings.

There are three main classes of cappings—sanitary (including double bullnose) moulded, and embossed. This Sheet deals with the moulded and double bullnose types. (For sanitary cappings other than double Bullnose, see Sheet 180.)

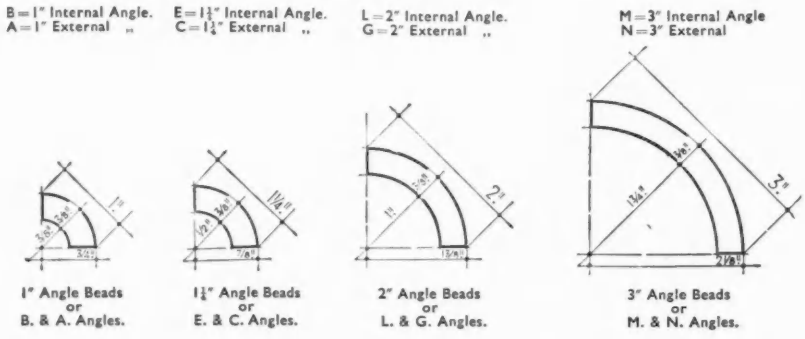
Moulded Cappings, though practically superseded by sanitary cappings for bathroom, hospital and similar tiling, are still extensively used where an ornamental effect is required. A range of moulded cappings is illustrated in profile in this Information Sheet, and No. 3007—typical of the class—is shown in full with its different angles, etc.

Double Bullnose Cappings are so named from having the "Bullnose" on both the upper and the lower edges. They form a compromise between the Sanitary Cappings strictly so-called and the Moulded Cappings, possessing the freedom from corrugations characteristic of the former while having something of the decorative effect of the latter.

Measurement of Tile Angles.

The accepted angular measurement of a tile angle is not that of its radius (though the word radius is often used in this connection) but that of its *greatest width, measured in a straight line.* This applies equally to internal and external angles, the only difference between these being, of course, that the former are glazed on the inner and the latter on the outer surface. The diagrams given below, illustrating angles of different sizes, will make the matter clear.

In the case of Combination Angles and Angles to Cappings, Skirtings and Coves, the size and type of the angular part are indicated by the addition, after the reference number of the fitting itself, of a letter. The following are the letters used, with the meaning of each :



Although the manufacturers supply angles in all these sizes, their standard angle is the 1¼″, that having proved the most satisfactory for all ordinary purposes.

Name of Manufacturers:	Messrs. Richards Tiles, Ltd.
Address:	Tunstall, Stoke-on-Trent
Telephone:	Hanley 7215-8
London Office:	25 Victoria Street
Telephone:	Victoria 9128
Glasgow Office:	53 Bothwell Street, Glasgow, C.2
Telephone	Central 1768

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LIST OF PRIMERS : For use on surfaces which have not been previously painted.

PLASTER PRIMERS (Interior & Exterior.)

† WHITE, for new and smooth plaster. Flat finish — K.M.1795.
† CREAM, for old, perished or porous surfaces. Glossy finish — K.M.1376.
WHITE, for new or old plaster of medium porosity — K.L.7485.

CONCRETE, CEMENT AND BRICKWORK PRIMERS (Interior & Exterior.)

† WHITE — K.M.1339.
† STOPPER, for knife application to make good imperfections after the application of Primer K.M. 1339 — K.M.7012.

METAL PRIMERS : (Interior and Exterior.)

RED-BROWN — K.M.1334.
WHITE — K.M.7153.
GREY — K.M.1345
DARK BROWN, for galvanized iron — K.A.P.4347.

DULUX METAL PRIMERS :

BROWN — 71009.
WHITE — 71405.
GREY — 71404

WOOD PRIMERS : (Interior & Exterior.)

WHITE — K.M.1342.
PINK (Best Quality) — K.M.1267.

† Lead-free according to Acts.

TABLE OF PRIMERS FOR PLASTER, CEMENT, ETC.

INTERIOR WORK.

MATERIAL	APPROXIMATE MINIMUM AGEING PERIOD FOR PAINT. See notes on the back of this sheet.	PRIMER RECOMMENDED.		PRIMER FOR APPLICATION FOLLOWING THE TROWEL. adequate drying time after priming must be allowed.
		Low Suction.	High Suction.	
LIME PLASTER	Three months.	K.L.1795.	K.M.1376.	Not practised.
LIME PUTTY & PLASTER MIXTURES	Three months.	K.L.1795.	K.M.1376.	Not practised.
KEENES CEMENT	four days.	K.L.7485	K.L.7485.	
PIONEER PLASTER	four days.	K.L.1795.	K.M.1376.	K.L.1795.
SIRAPITE, THISTLE, ETC.	Four days.	K.L.1795.	K.M.1376.	Not usually practised.
FIBROUS PLASTER.	Nil, usually dried before fixing.	.	K.M.1376.	.
PORTLAND CEMENT	Six months, (longer if used where excessive humidity is present).	K.L.1795	K.M.1376.	.
CONCRETE	as for Portland Cement.	K.M.1339.	K.M.1339.	.
BRICKWORK.	New: three to six months.	K.M.1339.	K.M.1339.	.
	Old : nil.	K.M.1339.	K.M.1339.	.

EXTERIOR WORK.

KEENES CEMENT, PIONEER PLASTER	Seven days.	K.M.1376.	K.M.1376.	K.L.1795.
PATENT PLASTERS, seldom used on exterior work	Seven days.	K.M.1376.	K.M.1376.	K.L.1795.
PORTLAND CEMENT	Six months.	K.M.1376.	K.M.1376	.
CONCRETE	Six months.	K.M.1376	K.M.1376.	.
BRICKWORK.	New: three to six months	K.M.1376.	K.M.1376.	.
	Old : nil.	K.M.1376.	K.M.1376.	.

Information from Nobel Chemical Finishes Ltd.

INFORMATION SHEET : DATA ON PRIMERS, PAINTS, VARNISHES, ETC. N° 2.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1.

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 190 •

PAINTS

Types described : Primers

This Sheet is the second of a series of Sheets which will deal comprehensively with the subject of painting and the protection of various surfaces.

Primers for Plaster, Wood, Metal, Brick and Other Surfaces

The durability of a paint film must depend to a great extent upon the priming (or first) coat, over which the undercoats and finishing coats are applied. Speaking generally, a priming coat is essential before painting any new work, and if the correct primer is not used, trouble with adhesion or "sinking" may be experienced, the former resulting in flaking and the latter in loss of gloss in the case of gloss paints, or sheariness in the case of eggshell or flat finishes.

Whilst provision is made in the table overleaf for the more usual surfaces encountered in building construction, it is recognised that conditions are sometimes abnormal and, in such cases, the company would be very glad to put forward special recommendations.

As a general recommendation all surfaces must be allowed to dry out thoroughly before being primed.

Plaster primers.

Owing to the variety of types of plaster used in the building trade, it is not possible to recommend one primer which would be suitable in all cases. Plaster surfaces are, however, usually of two kinds :

(a) Smooth, hard and not unduly porous (normal suction).

(b) Smooth, and of medium porosity.

(c) Soft and very absorbent (high suction).

Three primers have, therefore, been provided to meet these conditions :

K.L.1795, for plaster of a low porosity and even texture, K.L.7485, for medium porosity, and K.M.1376, for plaster with an excessive and varying suction.

If a water paint or distemper is to be applied over excessively porous plaster surfaces, Plaster Sealer K.Z.7672 may be first applied to reduce the suction of the plaster.

Portland Cement, Concrete and Pre-cast Cement Primers.

It is most important that these surfaces should be allowed to age for the periods given in the table overleaf, which gives the minimum time recommended, before being painted. One of the two primers recommended for plaster surfaces should be used, or the White Primer K.M.1339 for interior brickwork or concrete, the choice depending on the degree of suction of the surfaces to be painted and the amount of filling required on exterior work.

If gloss paints are to be applied on new work it is advisable to avoid the use of blues and greens, as they are not proof against alkaline agents in fresh cement.

A special cement stopper K.Z.7012 is available for filling up air-holes and obtaining a smooth surface. This stopper is knife applied after the primer.

Brickwork Primers.

On account of the cement used in the pointing of brickwork a natural ageing period of six to twelve months should be allowed before painting whenever possible. White Primer K.M.1339 should then be applied. It is recommended that this primer should also be used on old brickwork if it is desired to use a gloss paint.

Wood Primers.

A special White Primer K.M.1342 containing lead is recommended for both interior and exterior wood surfaces that have not previously been painted. If economy must be studied, Best Quality Pink Primer K.M.1267 may be used instead.

Metal Primers for Use Under Oil Paints.

Two metal primers are made, suitable for both interior and exterior work. The colours are Red-Brown K.M.1334 and Grey K.M.1345. The choice of colour will, of course, depend upon the shade selected for the finishing coat, but the first-mentioned is always to be preferred for the prevention of rust.

A special Dark Brown Primer K.A.P.4347 has been produced for galvanised iron, and it is recommended that this primer should always be specified for this type of surface.

Metal Primers for Use Under "Dulux."

Three special primers have been produced for use under the "Dulux" synthetic finishes. The Brown "Dulux" Primer 71009 is particularly recommended as it possesses exceptional rust-inhibiting properties and it should therefore be used whenever possible. "Dulux" White Primer 71405 is available for use under white and shades of pale cream when cost does not allow the additional coat of undercoating or finishing "Dulux" that might be necessary to obtain complete obliteration if the Brown "Dulux" Primer 71009 were used. "Dulux" Grey Primer 71404 is also available for use under suitable colours.

Ageing Period.

The figures given for ageing times apply to drying under favourable (but normal) atmospheric conditions and to plasters applied to fully dried backings. They are given as indications for the various building products mentioned, but where departures from normal practice are made, e.g., addition of lime, waterproofing agents, etc., prolongation of these periods is often advisable as also it is when bad drying conditions prevail. In certain cases where particularly favourable maturing conditions exist (e.g., application of artificial heat on interior work) it may be possible to reduce these considerably whilst, with cement and concrete, exterior surfaces may be artificially weathered by repeated washing with plain water.

The previous Sheet in this series was No. 188.

Name of Manufacturers : Nobel Chemical Finishes, Ltd.

Address : Architectural Dept., Wexham Road, Slough, Bucks

Telephone : Slough 528

London Office : Thames House Millbank, S.W.1

Telephone : Victoria 2873-2874

WARRANT HOLDERS AT WORK

CLEARING THE KING'S HOUSE SITE



WORK has already begun on the site at Burhill, Surrey, where a house is to be built by the Royal Warrant Holders for presentation to His Majesty on the occasion of this year's Jubilee. The architect for the house is Mr. Beresford Marshall, L.R.I.B.A., whose design was selected by His Majesty from a number submitted. In the words of the architect, it is to be in a "refined Georgian" style. A full size replica of the house will be on exhibition at the "Daily Mail" Ideal Home Exhibition at Olympia next month. The photograph shows clearing work on the site.

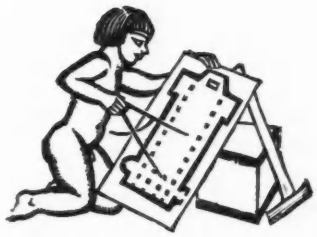




R.I.B.A. LIBRARY EXHIBITION

The R.I.B.A. exhibition of books and drawings from the library was opened last Monday by Sir Frederic Kenyon. It consists of a large number of items, arranged both chronologically and, in the case of drawings, according to the type of building they illustrate, many of which were not available (and some hardly even known to exist) before the Institute's removal into its new building.

Two of the drawings exhibited are reproduced here. Above: "Design for a 'Bascule' Bridge across the River Thames," by Sir Horace Jones (1819-1887); a pencil and wash perspective by G. D. Stevenson, 1878. The Tower Bridge was finally built in 1886-94, by Sir Horace Jones in collaboration with Sir John Wolfe Barry, to a somewhat different design. Left: a preliminary ink sketch by Alfred Waterhouse, R.A. (1830-1905) of his design for Darlington Town Hall. Some comments on the exhibition by Astragal are on page 252.



AGAIN BROOK GREEN

THOSE who were shocked at the proposals the investigations of the Save Brook Green Committee revealed have been congratulating themselves on the success of at least one fight against short-sighted expediency being accepted at the expense of long-sighted public interest. "Brook Green is saved," they claim; but they must not be too sure. Continued watchfulness is needed for some while yet. It is not only that the reversal of the decision to build on Brook Green was only taken by the Hammersmith Borough Council in committee, that the matter has still to be ratified by the Council at their meeting on February 27 next; the fact that has to be kept in mind is that there appears still to be an active movement to get the Council's decision again reversed and the scheme for building on the Green proceeded with. The people of Hammersmith cannot rest until they have absolute assurance from the Council they have elected to represent them that the reservation of Brook Green, under the Metropolitan Commons Supplemental Act, "for the use and recreation of the public as an open space for ever" shall not be violated even on the most plausible plea.

The persistent champion of the rejected building scheme has been, in some ways not surprisingly, the architect to the Council, Sir Brumwell Thomas, who was responsible, it is said, for the recommendation that the Green would be a suitable site on which to build a Town Hall. On Friday there appeared a letter from him to the *Daily Telegraph* and an interview with him in the *Daily Sketch* that were the first intimations that the Council's decision to spare the Green was not to be undisputed. In these Sir Brumwell Thomas makes several statements that cannot pass without question. He refers to "uninformed" opposition which was responsible for the reversal of the Council's original decision. He says "people are now asking if there should not be a further consideration before Hammersmith loses a splendid opportunity." He says that, "unless it (the Council's decision) is reversed again there is little doubt that at no distant date the failure of this town-planning scheme will be deplored." Why the building of a town hall should be classed as town planning and the preservation of an open space as failure to town plan is not easily apparent, except in his statement, which, considered in relation to all the circumstances of this particular case, can hardly be more than a personal opinion, that "it can be said with authority that the preservation of open spaces and the 'siting' of public buildings are two equally important considerations, and that unquestionably they should be considered in relation to one another." Brook Green, it must not be forgotten, is the only public open space in the 2½ miles from Kensington Gardens to Ravenscourt Park. As a precedent (or at least as support) for his pertinacity Sir Brumwell quotes Sir Christopher Wren's celebrated plan for London. "Succeeding generations," he says, "have deplored that Sir Christopher Wren's plan was not carried into effect," and implies that similar regrets would follow the abandonment of his scheme for Hammersmith. He elevates this latter as an "important local town-planning proposal" which is being obstructed by the "uninformed local interest," forgetting apparently that Brook Green is already protected as a permanent open space by an even more important (because actually operative) town-planning proposal, the Kensington and Brook Green Town Planning Scheme No. 14. The practical assault his proposal to utilize the Green as a building site makes on the neighbouring amenities he dismisses by saying that "the reply to all the points which have been raised is that no trees were to be sacrificed"; forgetting also, apparently, the loss of air, sunshine and continuity of open outlook that a large building in the middle of it would entail, and the noise from the traffic a busy Town Hall would attract. The acquisition for the public of half an acre of tennis courts adjoined by existing buildings across the road seems very poor compensation. Finally, Sir Brumwell Thomas summarizes the reasons for his scheme being abandoned: that the "insufficiently informed local interest" should (though to our knowledge no one has expressed the intention of doing so) "delay the whole matter by appeal to the Courts for a judicial interpretation of a certain few words by which Brook Green is secured to the public." If the mere "scrap of paper"—the Metropolitan Commons Act—on which the survival of the Green as an open space depends can possibly be interpreted otherwise than as a promise to the public that it shall be *preserved* as an open space, then it is as well that Hammersmith has in her private residents some watchful and energetic guardians of her amenities.

However, Sir Brumwell's right to justify his own recommendations may be left for others to decide—his right to place his proposals on a basis comparable with Wren's proposals for St. Paul's may be left for posterity to decide; what is disturbing for the architectural profession is to find one of their number in the position of advocating the destruction of a public asset. It should be possible to say: "the amenities are safe; we have an architect." Architecture must be in an unhappy state if the private citizen has to defend his own and the public's amenities not for lack of an architect, but because of one.



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NOTES & TOPICS

PARLIAMENT ACTS IN WESTMINSTER

IT is not without some satisfaction that I read that the Middlesex County Council has decided to promote a Parliamentary Bill enabling it to acquire, compulsorily, the Parliament Square site, to which I have been referring for a week or two.

*

I hope that the Bill becomes law in the shortest possible time. There should be no excuse for discussion on this very vital point. If we allow this admirable site to be developed at random, and without regard to its importance (for, as I have said, it is one of the finest in Europe), then we can never again be considered as having any sense of the appropriate.

LIBRARY ON SHOW

Greater opportunity of inspecting the contents of the R.I.B.A. library was one of the benefits promised us when the Institute's new building should be completed. That promise has been fulfilled most lavishly by the librarian and his staff with the exhibition of some of the library's treasures which Sir Frederic Kenyon opened on Monday.

*

It has (wisely, I think) been selected as a *popular* exhibition. The exhibits, that is to say, are not chosen for their academic importance so much as for their pictorial interest ; though in many cases the books and drawings shown would have got in on either basis. Among such is the library's greatest treasure, the *Wren Parentalia*, which might be described as the Institute's *Codex Sinaiticus*.

*

I recommend *everyone* to go—which is a sincere compliment. I cannot begin to describe the exhibition in a few words. I can only record a few personal observations inspired by it.

*

That it would be nice if nowadays we could just *draw* architecture—factually, instead of feeling compelled to make *presentations* (see the drawings of Wyatt, Adam, Smirke, etc.) ; perhaps the necessity for realistic presentation is a criticism of a public that can no longer think architecturally, not of the architect.

*

That our grandfathers had much more fun with competitions than we ever do (see the competition drawings for the Albert Memorial, the Royal Exchange, St. George's Hall, Liverpool, and the Foreign Office).

*

That when an early nineteenth-century architect is said to be versatile, it *means* versatile—Oxford Dictionary : versatile : turning readily from one subject to another ; capable of being moved or turned as on a hinge (see Thomas Rickman and R. C. Hussey's competition designs for the Fitzwilliam Museum, Cambridge—three alternative designs, elaborately and knowledgably worked out, respectively in the Gothic, Roman and Greek manners).

*

That architecture that is theoretically bad can be enjoyable—a trusim this—if it is sincere (see the specimens from the selection of Mocatta's railway drawings—small stations on the Brighton Railway, date 1840, in Gothic and Classic styles. I like the Early English one best).

*

That a librarian's job (though most interesting) must be an arduous one ; and that the R.I.B.A. are to be congratulated on their present librarian. Mr. Carter's personal knowledge as well as personal activity is immense (as evidence of the latter see the descriptions on labels and mounts of innumerable drawings all in his own—incidentally exceptionally beautiful—handwriting).

BIBLE, THE HOLY

And talking of the R.I.B.A. library there is a sequel to a note I wrote a short while ago ; I remarked on the appearance of *The Holy Bible, Genesis to Malachi*, under the heading " Professional Practice " on the Accessions to Library Page of the R.I.B.A. *Journal*.

*

I learn now that this was not due either to printers' accident or editorial irony. It was under the Professional Practice heading because that's where it belonged. The copy of the Bible (New Testament omitted) was acquired by the library for Jews to swear on in arbitration cases.

*

If you can only find it there is a rational explanation for almost everything.

ST. GEORGE'S HOSPITAL

Saint George's Hospital, I understand, is to be rebuilt on the same site—one of the most valuable in London.

*

I had understood that, in these days of easy transport, the tendency was to put the hospitals (as such) outside the towns, and to have casualty clearing stations and out-patients' departments in the urban areas.

*

Gradually I come to the conclusion that common



The Beaujou Hospital of Paris, which has been rebuilt at Clichy. It is claimed to be the largest hospital in Europe.

sense will never show itself—except by Act of Parliament.

*

That site must be one of the noisiest in the West End, certainly at those hours when the patients—I was on the point of writing "inmates"—wish to sleep. The authorities, on the other hand, will argue that it is nearer to the greeneries (and yalleries) of Hyde Park than any other hospital.

*

I am told that the Saint George's site is almost a gift from the Duke of Westminster. If that is a fact, there is little to be said—except that, with due deference, His Grace must be losing much.

CARLTON HOUSE TERRACE

I would not refer to this matter again, only I hear that it is shortly to be repainted.

*

There is a curious perversity which prompts people who elect to live in terraces to pretend that the houses are detached, really. They therefore paint them in different colours to signify how dashed Darjeeling *pukka* they are.

*

Seen from clubland, Carlton House Terrace is one thing. Seen from Saint James's Park it is (pardon me, Colonel), one of the finest architectural matters in London—and should be treated as such.

*

I hope that, when the time comes, the Terrace will be *properly* painted, with good paint which will perform its honest action of preservation; and that the colour chosen will be a good colour, compatible with the tradition of the work as well as with the exigencies of this peculiar climate.

*

It might not be a bad thing to call in an architect who understands this little-thought-of subject—who is an expert on colour, to advise—L. H. Bucknell, for example.

JUBILEE FLOODLIGHTING

I may be premature; but, too often, I have been too late!

*

London is, during the Jubilee Celebrations, to be floodlit. I have seen some "floodlighting"—Bath Abbey, Westminster Abbey, Buckingham Palace, Somerset House—lit by electricians whose objects have been, apparently (*a*) to use as much "wattage" as possible; and (*b*) to remove such sculptural or architectural qualities as the buildings possessed.

*

The modern electrical "floodlighter" lives in a world entirely without shadow, or, if possible, even shade.

*

I imagine that some control will be exercised over this matter. So far as public buildings are concerned, this glare (desirable or undesirable) will not be allowed to run riot. Is it too late to ask that, with the electricians (under or not under contract) there shall be *very quickly* established a board of architects (perhaps from the R.I.B.A.) who shall give their advice upon this making or marring of Jubilee London?

*

Incidentally, it would be a very valuable lesson to us—even those outside the electrical trade.

ANOTHER COMPLAINT FROM LIVERPOOL

I have to offer my most sincere apology to the Walker Art Gallery in Liverpool, whose Director, Mr. Frank Lambert, has protested about my remarks on the omission of that city to apply for the loan of the R.I.B.A. centenary exhibition.

*

The source of my information was, as I wrote at the time, that same paper which Mr. Lambert quotes.

*

So far as I am concerned, I feel bound to say that I had not meant any sting such as has penetrated the epidermis of Mr. Lambert. The Walker Art Gallery has its own commitments, which are no concern of mine, and are in any case very soundly thought out. My idea in drawing attention to the newspaper cutting was not to criticize the Walker Gallery, but to applaud the vivacity of the *Liverpool Post* in actually feeling the absence of an exhibition of so very practical a nature.

*

So far as the R.I.B.A. is concerned, the same excuse has to be made as I might have had to make for the Walker Art Gallery—that of commitments. Applications for the centenary exhibition have been many; "first come, first served"; but people *will* all want it at the same time, and to sort out a tour of this sort is not so easily done. I hope, at least, that by now Mr. Lambert has had a satisfactory reply to his request.

SOAP APPEAL

Why I draw attention to it I don't know! But, the fact is, I have just received from the U.S.A. particulars of the eleventh annual competition "for Small Sculpture in White Soap." It is promoted (need I say?) by the National Soap Sculpture Committee.

*

Honestly I don't know what to do about it. I think of sending on the conditions to the organizers of the Royal Academy Exhibition.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

Over 250 members of the profession attended the inaugural meeting of a new architects' organization at the Conway Hall..... 254

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"The public is not interested as to whether it obtains its architectural services through the medium of a salaried department or through that of a private practitioner"..... 263

Anti-aerial-attack planners seem to be in substantial agreement that in future the ratio of the built-up to unbuilt-up areas must not exceed 1:9 271

PROTEST AGAINST WIMBLEDON COMMON FLATS

Protests are being made against proposals to erect two blocks of flats overlooking Wimbledon Common. Objection has already been laid by Sir Charles Tyrrell Giles, chairman of the Wimbledon and Putney Commons Conservators, to the scheme to build on the site of the Clock House, and opposition is expected also to plans to build a block on the site of a large house on Parkside, bordering the Common. Sir Charles stated that the flats would spoil the view over a wide area and ruin the value of neighbouring property.

NO SALFORD TOWN HALL EXTENSION

A recommendation to extend the Salford Town Hall in order to provide extra municipal accommodation was heavily defeated at last week's meeting of the City Council. The proposal was put forward by a special committee which suggested, also, that Bexley Square, fronting the Town Hall, should be the civic centre.

Alderman S. Finburgh, opposing the proposals, said the scheme would cost between £300,000 and £400,000 ultimately, and the wisest course would be for the council to wait until they were in a position to plan a new Town Hall worthy of the city's prestige. Alderman J. F. Emery said the state of the city's finances ruled out the slightest possibility of the amount necessary being spent, and he could not see that position altered for the next few years.

THE HONAN SCHOLARSHIP

The Honan Travelling Scholarship for 1935, awarded by the Liverpool Architectural Society, has been won by Mr. D. P. Reay, a fourth year student taking the degree course in the Liverpool School of Architecture. This Scholarship, which is of the value of £50, is open to all members of the Liverpool Architectural Society who are under thirty years of age.

The subject set for the Honan competition this year was a seaside recreation centre on a promontory on the South Coast near an important town.

THE ARCHITECTS' DIARY

Thursday, February 14

R.I.B.A. *At 66 Portland Place, W.1. Exhibition of Library Treasures. Open until March 2.*

ROYAL ACADEMY *At Burlington House, Piccadilly, W.1. Exhibition of British Art in Industry. Open until further notice.*

BUILDING CENTRE. *At 158 New Bond Street, W.1. "Consideration of the Home Office Manual of Safety Requirements in Theatres and other Places of Public Entertainment." By Lt.-Col. Guy Simons, D.S.O. 8 p.m.*

SOCIETY OF ANTIQUARIES OF LONDON. *At Burlington House, Piccadilly, W.1. "Excavations at Clarendon Palace." By Professor Tancred Borenius and John Charlton. 8-30 p.m.*

Friday, February 15

LONDON SOCIETY. *At the Royal Society of Arts, John Street, Adelphi, W.C.2. "Abuses of Street Advertising." By the Rt. Hon. Sir Leslie Scott, K.C. 5 p.m.*

BUILDING CENTRE. *At 158 New Bond Street, W.1. Timber Development Association Exhibition. "A Timber Fortnight." Last day.*

Saturday, February 16

LONDON SOCIETY. *Visit to Royal Masonic Hospital, Ravenscourt Park, W.6. 3 p.m. Also on February 23.*

ST. PAUL'S ECCLESIOLOGICAL SOCIETY. *Visits to All Hallows, Lombard Street and St. Edmund King and Martyr, Lombard Street. 2.30 p.m.*

Tuesday, February 19

REINFORCED CONCRETE ASSOCIATION. *At the R.I.B.A., 66 Portland Place, W.1. "The Sound Insulation of Reinforced Concrete Buildings." By C. W. Glover, A.M.Inst. C.E., L.R.I.B.A. 6 p.m. for 6.30 p.m.*

Wednesday, February 20

L.C.C. CENTRAL SCHOOL OF ARTS AND CRAFTS. *At Southampton Row, W.C.1. "English Renaissance (1550-1900) 3, Famous Jacobean Mansions." By Sir Banister Fletcher, M.Arch., F.S.A., PP.R.I.B.A. 6 p.m.*

THE HOUSING BILL

Mr. Geoffrey Shakespeare, M.P., Parliamentary Secretary to the Minister of Health, speaking at Birmingham last week, said that the three-fold policy of the Government, starting with the abolition of the general subsidy and leading on to the slum crusade, and now to the tremendous attack against overcrowding, not only justified itself on the merits of the case in clearing up some grave social evils, but would give an immense amount of continuous employment to men in their own jobs. He thought that if private enterprise continued as at present, and the Bill got into its stride, 750,000 men would be given continuous employment under the housing policy of the Government, and there would probably be something between £125,000,000 and £150,000,000 capital expenditure each year on the housing needs of the nation.

NEW ARCHITECTS' ORGANIZATION

On Monday evening last the inaugural meeting of the new architects' organization, which all members of the profession had been invited to attend, was held in the Conway Hall. Rather more than 250 architects, assistants and students were present. A memorandum outlining the aims of the proposed organization was read by Mr. F. Skinner, the secretary of the provisional committee. This indicated the initiators' reasons for believing that all architects and allied technicians who could see no possibility of a satisfactory solution of housing and town-planning problems or of the architect being allowed to take his place as a responsible member of society under the present system of property relationship, and who realized the growing casualness of architectural employment and restriction of professional opportunity could usefully organize themselves; that there was a great deal of work waiting to be done in the way of investigating and analysing official housing proposals, assisting and advising working-class demands for better housing and living conditions, working in co-operation with such bodies as the A.A.S.T.A. for the improvement of the status of employed architects and undertaking many kinds of architectural propaganda. After discussion by a number of speakers, a resolution was put to the meeting that an organization be formed with this memorandum as a basis. The resolution was passed, and a committee elected to undertake the establishment of the organization and to formulate a working programme.

ARCHITECTS' REGISTRATION COUNCIL

We have received the following notice from the Architects' Registration Council of the United Kingdom: "The attention of the Council has been directed to the use by a number of registered architects of the description 'Registered Architect and Surveyor,' implying that the user is registered both as an architect and as a surveyor. In the United Kingfom there is no Act in being for the statutory registration of surveyors, and in cases where a registered architect practices as a surveyor also he should use the description 'Registered Architect. Surveyor.'"

CITY ARCHITECT FOR GLASGOW

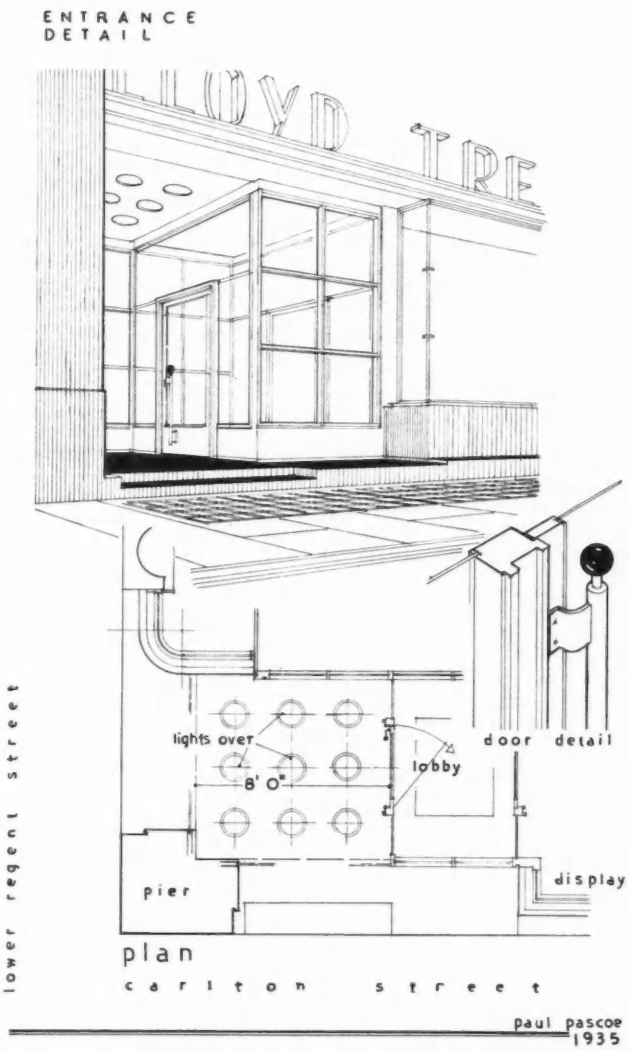
The appointment of a city architect, under whom all the civic architectural work would be centralized, was recommended by the General Finance Committee of Glasgow Town Council at a meeting held last week. It was proposed that the Council should make such an appointment, the salary to range from £1,400, rising to a maximum of £1,800.

SCHOOL FOR LONDON HOSPITAL

Lady Riddell is giving an inheritance of £100,000 from her late husband for the building and equipment of a nurses' residence and preliminary training school for St. Thomas's Hospital. The building will be designed by Sir Edwin Cooper, R.A.

WEST YORKSHIRE SOCIETY OF ARCHITECTS

Mr. Victor Bain, F.R.I.B.A., speaking at the bi-annual dinner of the above Society, held at Harrogate on February 7, urged the need for a national planning council to consider all schemes of regional development put forward by municipalities in order to prevent "a repetition of past civic follies." He said: "We all realize the many mistakes of the past caused by unchecked development, but let us think of the present and the future. What is being done to control municipal development? Local authorities are given power under the Town and Country Planning Act to control



Showrooms in Lower Regent Street, W.1. Designer : G. Pulitzer-Finali.

the buildings of private enterprise, yet local authorities can build themselves as, where, and how they please in their locality.

"This swaggering, bureaucratic form of control is not likely to produce the best planning. It will lead to a repetition of the civic follies of the past century. What is required today is a statutory National Planning Council of experts, to which all municipal building schemes, and schemes of regional development, should be submitted for approval before sanction is granted."

HOUSING IN LEEDS

The Leeds Corporation Housing Committee is proposing to spend £2,768,991 on housing during the next financial year. The schemes include the completion of 4,000 houses, most of the Quarry Hill flats, 90 shops, two municipal hostels and 24 special houses for doctors and nurses.

OBITUARY

We regret to record the death of Mr. John Ernest Sunter, A.R.I.B.A., of Chester. Mr. Sunter, who was only 27 years of age, received his early training with Mr. P. H. Lawson, A.R.I.B.A., with whom he was articled for five years. He was first in all England in the R.I.B.A. intermediate examination and qualified at the age of 21, in 1928. He became a member of the Liverpool Architectural Society in 1931. For a time in the architectural department of Imperial Chemical Industries, Ltd., at Winnington, he left them in 1930 to join Mr. Herbert J. Rowse, of Liverpool. Later he was appointed chief assistant to Messrs. Barnish and Silcock, of Liverpool.

AN ARCHITECT'S WILL

Sir Harold Brakspear, K.C.V.O., F.R.I.B.A., of Pickwick Manor, Corsham, left £10,843 (net personalty, £9,576).

R. I. B. A.

EXHIBITION OF BOOKS AND DRAWINGS

Sir Giles Gilbert Scott, R.A., presided at the opening by Sir Frederic Kenyon on Monday of the R.I.B.A. exhibition of books and drawings from the library.

Sir Frederic said the exhibition was addressed to two publics. The R.I.B.A. was good enough to offer to the general public the chance not only of seeing its new building but also of seeing on that building's walls a selection from the drawings and literature that belonged to the finest library of its kind in this country and probably in the world.

The exhibition was also for the student. It was the generous policy of the Institute to welcome serious workers in the library, and probably the chief value of the Institute's collection lay, if it were properly used, in the training of those who were to be engaged in the profession of architecture. The study of the past in architecture was essential for reasonable progress in the future.

A vote of thanks to Sir Frederic Kenyon was proposed by Mr. Martin Shaw Briggs, F.R.I.B.A., chairman of the R.I.B.A. Literature Standing Committee.

MUNICIPAL BUILDINGS

Following are some extracts from a paper entitled "The Planning of Municipal Buildings," read by Mr. Percy E. Thomas, O.B.E., F.R.I.B.A., at the R.I.B.A., on Monday last.

It is evident from the number of schemes which have recently been launched that a large number of corporations are finding the necessity for expansion. A considerable number of schemes for municipal buildings of one kind and another have been promoted during the last couple of years alone, and for most of these architectural competitions have been held, from which it is evident that the competition system is still considered by local authorities to be the best method of selecting their architect.

The recent powers given to local authorities to plan developed areas should considerably help in securing better and more spacious sites than in the past. In a few cases the architect has been called upon to replan the centre of a town and allocate sites for the various public buildings. Croydon and Darlington are two recent examples of this procedure, which might very well be followed by other municipalities.

Civic buildings should, wherever possible, be well set back from the surrounding roads, with a spacious forecourt laid out in a manner suitable to the district. Apart from architectural reasons, the provision of a forecourt provides adequate parking space and ensures the necessary quietude for the offices, etc. The more open space that can be provided around the buildings the better will be the result.

A study of the plans of the smaller type of municipal buildings reveals the fact that almost a standard type of plan has been developed. This usually consists of the arrangement of the various departments on two or more floors grouped around two courtyards, with the council chamber at the rear on the first floor, and the rates office below the council chamber, the staircase being between the courtyards. The main entrance in buildings of this type should suffice for all purposes except possibly a clinic or public assistance department.

With regard to the disposition of the various departments, there are a few definite rules to be observed. For instance, the rates office, being the one most used by the public, should be on the ground floor and near the main entrance. The town clerk's department should be in close proximity to the council suite, while the borough surveyor or engineer is usually on an upper floor, so that good light is obtained for his drawing offices. It should be remembered that a large number of people visit the surveyor's department for the inspection of plans and other purposes, and a staircase convenient to this department, with easy access from the street, is desirable.

Apart from the various corporation departments, there is what may be termed the council suite, consisting of the council chamber, committee rooms, consultation rooms, members' common room, robing and reception rooms, mayor and mayoress's parlours, and a luncheon

room. These rooms are usually grouped together on the first floor near the head of the main staircase, and should be so planned that the corridor which serves them is not used for ordinary intercommunication between departments.

There is another type of building (I am glad to say, not a very common one) where the municipal offices are combined with business premises, but as the shopping portion of the scheme depends entirely upon local circumstances, and the municipal buildings follow the same principles as other types, I do not propose to deal further with them.

In the larger municipal buildings, or civic centres, as they are now more often called, other buildings are combined with the municipal buildings, either to form one complete building, or a group of buildings. These may consist of an assembly hall, law courts, police and fire station, library, and sometimes a museum and art gallery. Examples of this type are Cardiff, Southampton, Stretford, Tunbridge Wells, Swinton and Swansea. Cardiff and Clacton are examples of the type where the municipal buildings and assembly hall are combined in one building. The disadvantage of this arrangement is that it is difficult to use the hall independently (a condition which is now generally required), not only because of difficulties of circulation, but of disturbance to the offices if the hall is used during business hours. A better arrangement is illustrated by the examples at Worthing and Wimbledon, where the hall is at the rear of the municipal offices, although near enough to be used in conjunction with them on civic occasions.

Municipal authorities usually require that there should be a convenient and dignified approach from the council suite to the assembly hall, and this is not an easy matter, as the council suite is usually on the first floor and the assembly hall on the ground floor. A convenient arrangement is to provide a luncheon or reception room as a connecting link, which can be used by either municipal buildings or hall as required, as at Southampton, Swansea and Worthing.

An alternative way is to have the connection on the first floor to the gallery or foyer of the assembly hall, a good example of which is found at Wimbledon.

Where law courts or other buildings are included, they may either be grouped round a central courtyard, as at Swansea, or arranged as separate buildings facing a common open space, as at Tunbridge Wells, Walthamstow, Swinton and Stretford, whilst another variety is at Southampton, where the author has adopted a very ingenious arrangement of making the assembly hall the centre, with the other units on the axes. A factor sometimes governing the disposition of the units in a building of this class is the necessity of building the various departments at different times. This is rather against the quadrangle type on account of the unfinished appearance until the while is completed.

Where the courts form part of the group, it is an advantage, though not essential, if they can be connected to the municipal offices, and for heating, ventilating and cleaning purposes it is an advantage if the whole group of buildings can be linked together in some way, providing, of course, each unit is capable of being shut off and used independently when necessary.

COMPETITION NEWS

MUNICIPAL BUILDINGS, BIRMINGHAM

Conditions of the competition for the proposed municipal offices, Birmingham, are now obtainable (deposit £1 1s.) from Mr. Herbert H. Humphries, M.Inst., C.E., the City Engineer and Surveyor, Council Offices, Birmingham. The competition, of which Sir Reginald Blomfield is the assessor, is open to architects of British nationality practising in the British Isles. The premiums to be awarded are: For the design placed first, £1,000; for the design placed second, £600; for the design placed third, £400; for the design placed fourth, £250. Designs must be submitted to the Town Clerk, Birmingham, not later than Friday, June 28.

The buildings will form part of the general scheme for the new civic centre, and are estimated to cost £250,000.

MUNICIPAL OFFICES, ROMFORD

The Romford R.D.C. has approved a scheme for the erection of municipal offices at an estimated cost of £35,000. It is expected that the design will be the subject of an open competition.

POLICE STATION, ETC. BISHOPSGATE

The Corporation of London invites architects whose principal office is within the City of London, or the area of the Metropolitan Police, to submit designs in competition for a new police station, dwellings and hospital in Bishopsgate. Mr. H. Austen Hall, F.R.I.B.A., has been appointed assessor; and premiums of £250, £100 and £50 are to be offered for the designs placed first, second and third respectively. The latest date for submission of designs is May 31. Conditions, etc., are obtainable from the Town Clerk, Guildhall, E.C.2. (Deposit £1 1s.)

COMPETITION RESULTS

Mr. Gilbert Fraser, M.C., F.R.I.B.A., the assessor in the competition (limited to architects practising in Liverpool, Birkenhead, Chester and Wirral) for Council offices at Wirral, has made his award as follows:—

Design placed first (£40): Messrs. Edwin S. Gray and F. H. Crossley, L. and A.R.I.B.A.

Design placed second (£30): Messrs. Woolfall and Eccles, FF.R.I.B.A., and Frank Rimmington, F.R.I.B.A., joint architects.

Design placed third (£20): Mr. Leonard Barnish, F.R.I.B.A. (of Messrs. Barnish, Silcock and Thearle).

Colonel J. M. Arthur, the assessor in the competition (limited to architects practising in Scotland) for a new pavilion at Cragburn for the Gourock Town Council, has made his award as follows:—

Design placed first (£100): Messrs. J. and J. A. Carrick, L. and A.R.I.B.A., of Ayr. Design placed second (£50): Mr. Eric A. Sutherland, F.R.I.B.A., of Glasgow.

Competitions Open

March 1.—New municipal offices, public library and fire station for the Wembley U.D.C. (Open to architects of British nationality and resident in the British Isles.) Assessor: Stanley Hamp, F.R.I.B.A. Premiums: £300, £250, £150, and £100, for designs placed first, second, third and fourth, respectively. Conditions, etc., are obtainable from the Clerk to the Council, Council Offices, Wembley. (Deposit £1 1s.) Designs must be submitted by March 1.

March 27.—Cemetery chapel and auxiliary buildings at Coney Hill for the Gloucester Corporation. (Open to architects practising on their own account within the area covered by the Wessex Society of Architects.) Assessor: Edward Maufe, F.R.I.B.A. Premiums: 125 and 100 guineas, for the designs placed first and second, respectively. Designs must be submitted to the City Surveyor on or before March 27.

April 30.—The Croydon Corporation invite the submission of designs for laying out an area in Central Croydon which is to provide an extension of the Civic Centre of the Borough and to improve central means of communication. Assessor: Dr. Thomas Adams, F.R.I.B.A., F.S.I., M.T.I. Premiums: £500 for the design placed first; £350 to be divided (in proportions to be determined by the Assessor) for not more than three designs placed next in order of merit. A copy of the conditions is obtainable on application to the Town Clerk, Town Hall, Croydon. (Deposit £1 1s.) Designs are to be submitted not later than April 30.

May 31—Sending-in day. Proposed new police station, dwellings and hospital, Bishopsgate. See note on this page.

June 28.—Sending-in Day. Proposed municipal offices for the Birmingham City Council. See note on this page.

No date.—Proposed council offices, Hertford, for the Hertfordshire County Council (open to architects of British nationality). Assessor: Robert Atkinson, F.R.I.B.A. Premiums: £350, £250, and £150 for the designs placed first, second, and third, respectively.

THIS ARSHETECTURE

An Irishman recently returned from Mexico and decided to settle down in Dublin. But he was faced with a big problem. He wanted a "Mexican house," and he searched long for it but failed until he heard about Mount Merrion Park.

He went there and the result is that special plans have been made for the erection in the Park of a "Mexican house," with its suggestion of crudeness, in itself beautiful, its Spanish-Italian design and its patio and picturesque fountain.

This single incident is mentioned to point to the whole basis of this housing scheme, novelty and originality. "Avoid Repetition" is the watchword, and how well is repetition avoided. No two houses are exactly alike. I don't believe there are even two chimneys alike, and in all this extraordinary search for newness is an underlying simplicity which results in a fine town plan, nothing jazzy, everything sober and solid in which rural beauty is retained to a large degree.

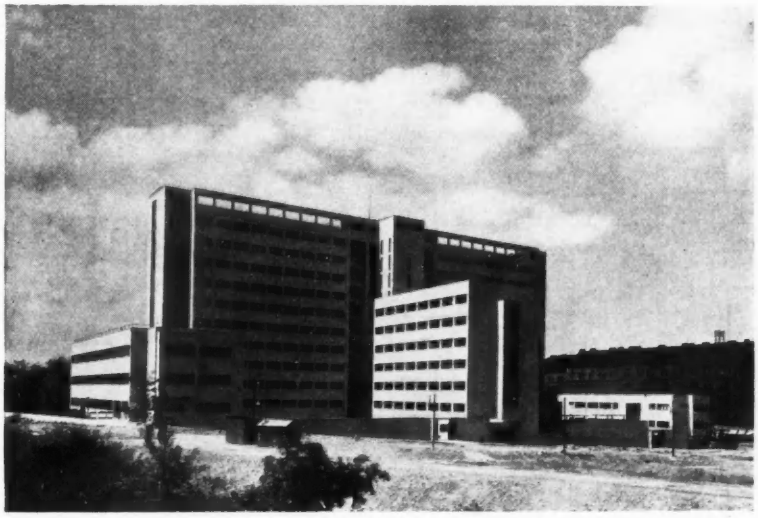
The Irishman's love of home is reflected in the scheme. The style is modern domestic, and the houses for people who are attached more to home than are the people in Continental countries, who spend much of their leisure time in the coffee shop.

From "The Irish Press."

PENSIONS OFFICES, PRAGUE

DESIGNED BY JOSEF HAVLIČEK AND KAREL HONZIK

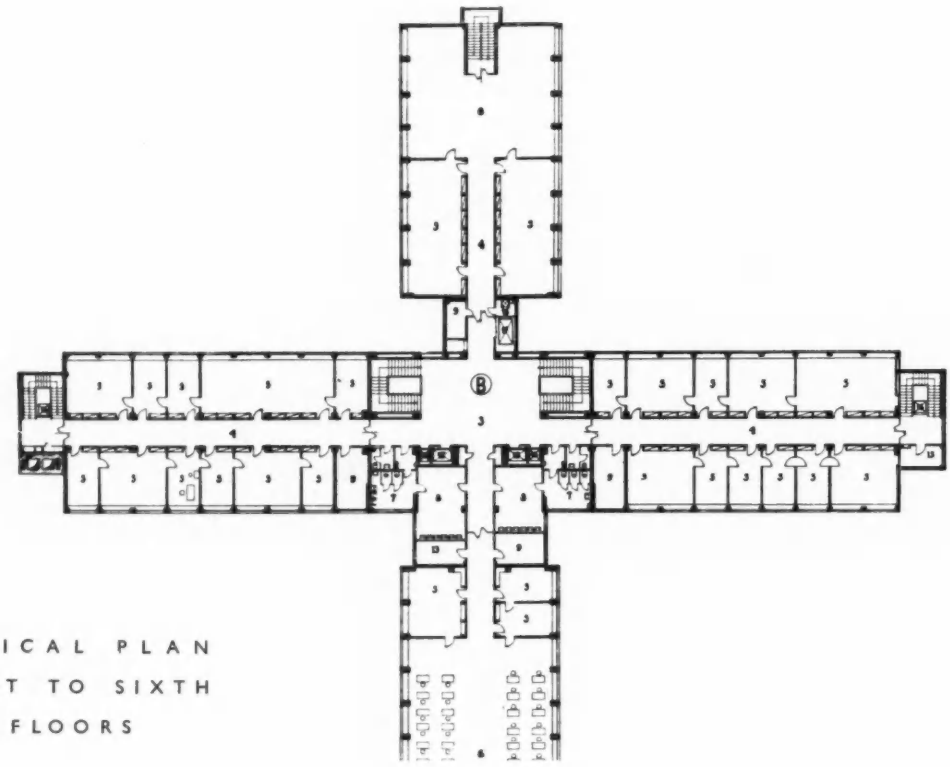




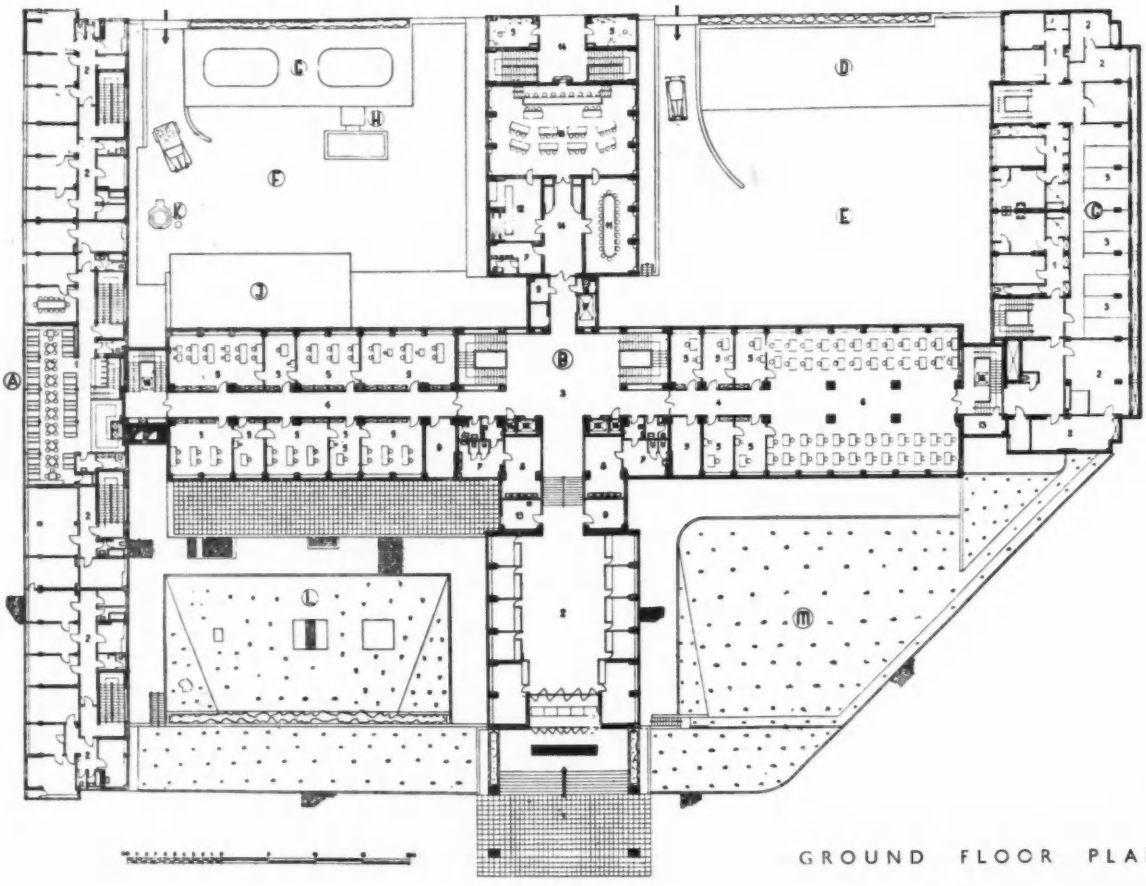
This, the most important recent building in Prague, is the General Public Insurance Institute for Old Age Pensions. It was the subject of a competition (limited to nine architects) held in 1928, when the directors of the Institute decided to unite all their various departments, previously distributed among a number of public buildings, under one roof. The original winning design, by Havlicek and Honzik, was for a 14-storey building but, this having been rejected as too high by the Town Planning Committee, it was revised and the masses re-grouped to take its present form.

The photographs show a close-up view from the west, and (left) a general view from the south-east.

PENSIONS OFFICES, PRAGUE: DESIGNED BY



TYPICAL PLAN
FIRST TO SIXTH
FLOORS

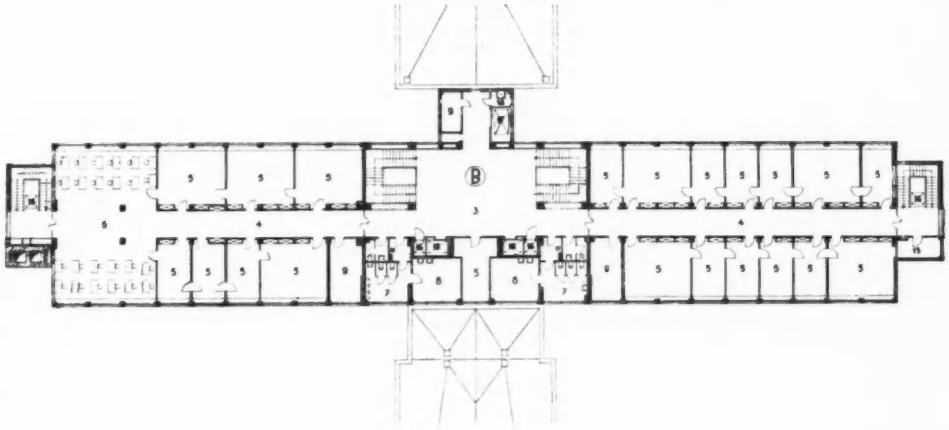


GROUND FLOOR PLAN

JOSEF HAVLIČEK AND KAREL HONZIK



General view from the north-east. The high central block and the transept-like wings contain the offices, and the two low terminal wings contain shops and flats, some of the latter being reserved for employees in the building.



TYPICAL PLAN
SEVENTH TO
ELEVENTH FLOORS

KEY TO PLANS

A. Wing containing flats and offices for rent, with shops on the ground floor.
1: Café.
2: Flats.

B. Central block containing offices of the Institute of Pensions.
1: Main entrance.
2: Information office.
3: Central hall.
4: Corridors.
5: Single offices.
6: General office.
7: Lavatories.
8: Cloakrooms.
9: Machine rooms.
10: Meeting hall.
11: Committee room.
12: Buffet.
13: Cleaning equipment.
14: Ante-room.
15: Express elevator.
16: Normal elevator.
17: Elevator for furniture, etc.
18: Elevator for papers.

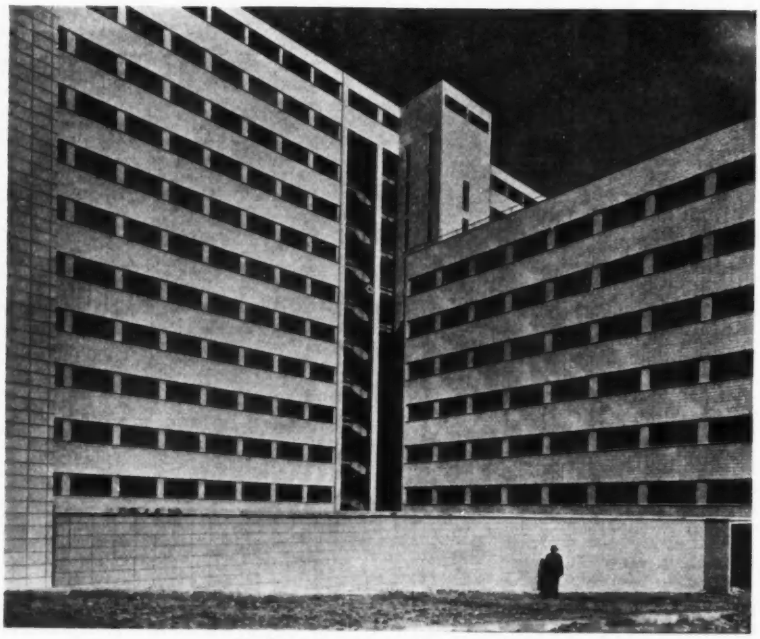
C. Wing containing flats (on upper floors) for the employees of the Institute.
1: Living quarters for engineers.
2: Laundry, drying-room, ironing-room, etc.
3: Storage.

D. Garages.
E. Garage yard.
F. Service yard.
G. Refrigerating and ventilating plant.
H. Weighbridge for coal.
J. Fuel store.
K. Refuse outlet.

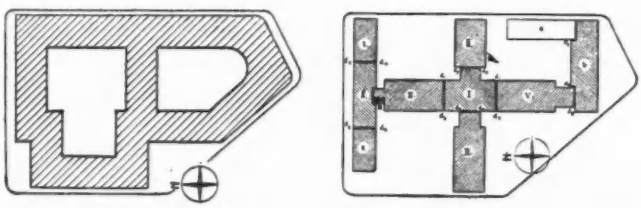
PENSIONS OFFICES, PRAGUE: DESIGNED BY



Roof terrace, for employees' recreation.



Looking into the south-east angle.



Left: the building planned on the usual closed court method of office planning.
Right: the open method adopted by the architects.

SITE. *The building is in the Zizkov quarter of Prague, a normal residential area, in the neighbourhood of a large park. The land immediately round the building is in process of being replanned and laid out as a new open space.*

LAY-OUT. *The building is cruciform in general plan; this shape having been chosen by the architects in preference to the usual enclosed court shape as providing the more reasonable lay-out for an office floor. (See alternative diagrams at foot of this page.) All offices can be reached from the central hall with minimum corridor length and without change of direction. Good lighting and an open view are obtainable in every room.*

PLANNING. *The office building proper occupies the central block of cruciform shape, the main wing rising 12 storeys above the ground level and the cross-wing 7. In the main wing one upper floor is given over to employees' recreation and rest rooms; the ground floor contains the public information hall, meeting hall, etc. The two transverse wings on the north and south fronts are each three storeys high. The former, facing the main road, has shops on the ground floor, and the upper floors are rentable as flats, offices, cafés, etc. The south wing, facing the park, contains living accommodation for employees in the office building. This separation of functions into different wings simplifies the construction and the planning of the services, allowing service piping to run from basement to roof in each wing without change of function.*

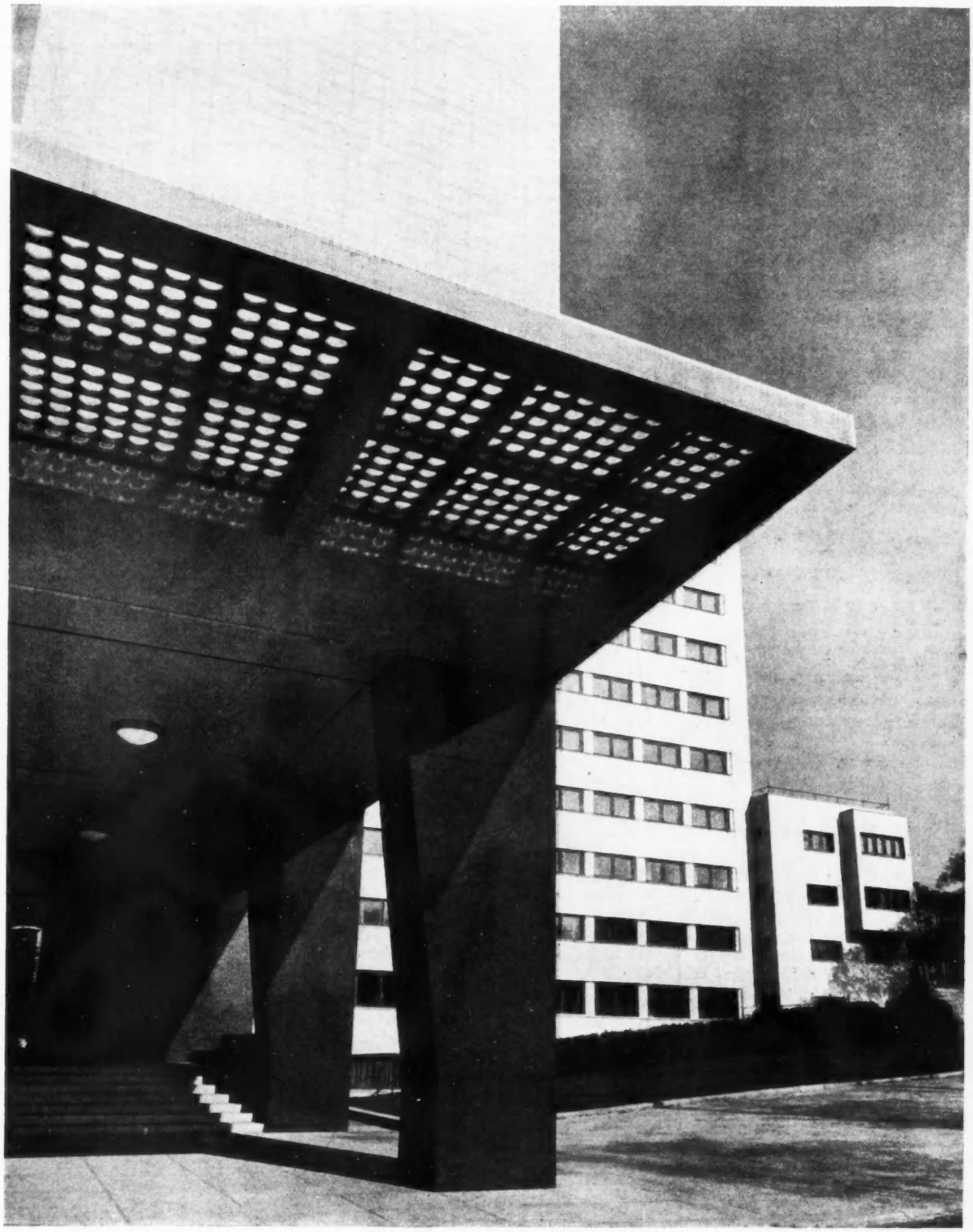
The planning is based on a single office unit, designed to house one employee and one secretary with typewriter, or two employees. This unit is standardized throughout, larger offices being composed of several standard units with the dividing wall omitted. This permitted absolute standardization of doors, windows, cupboards, etc., through the whole office block. There is a standardized machine room, containing ventilating plant, etc., on each floor.

CONSTRUCTION. *The building is of reinforced concrete frame construction with outer filling walls of concrete slabs. Other walls and partitions are of ordinary (non-cavity) bricks, sound-insulated by packing 2 cm. of a patent insulating material made of felt plates between two 7.5 cm. brick skins.*

The external finish is of large ceramic plates, 16-18 mm. thick, which give a surface found by experiment to have excellent weather-resisting properties. These plates have a standard size of 20 cm. by 40 cm. for the continuous horizontal wall-surface, and 5 cm. by 5 cm. for the vertical infilling between windows. This latter surface is set back 4 cm. from the main face of the building. Special cill and corner pieces are made of the same material.

The floors contain the following series of finishing materials laid on the structural concrete: plates of pressed cork and asphalt (2½ cm.); a layer of cellular concrete; felt-paper; liquid asphalt, and, as final finish, linoleum. In the halls, instead of the liquid asphalt and linoleum there is cement and ceramic tiles. Staircases are of reinforced concrete.

JOSEF HAVLIČEK AND KAREL HONZIK



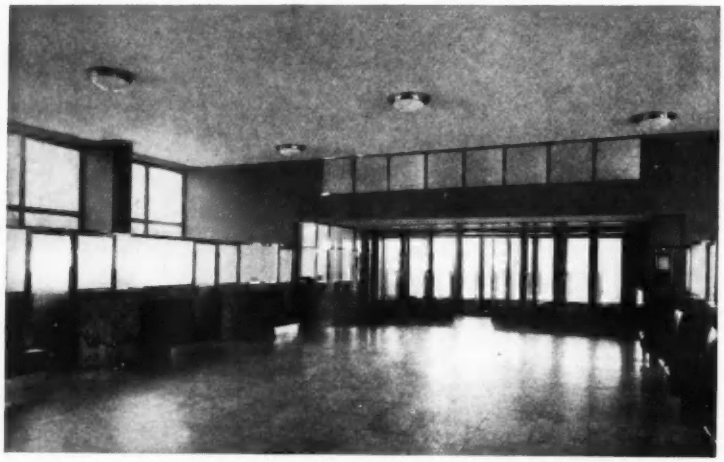
The main entrance to the office block.

EQUIPMENT. *Every office-unit is equipped with two ranges of built-in cupboards, one under the windows and one along the corridor wall. High up in the corridor wall is also borrowed light for the corridor and the fresh air inlet from ducts in the corridor ceiling. The air outlet is in the skirting on the same side (see section on page 262). Door frames are of standard steel section, painted with a red varnish—blue in the halls ; doors are laminated wood with a natural oak finish. Door furniture, balustrades, etc., are in "white bronze" (70 per cent. bronze, 20 per cent. nickel). Windows are of wood. Owing to the complete air-conditioning system the windows must be hermetically closed, and can only be opened for cleaning purposes. They are in natural oak in a standard size*

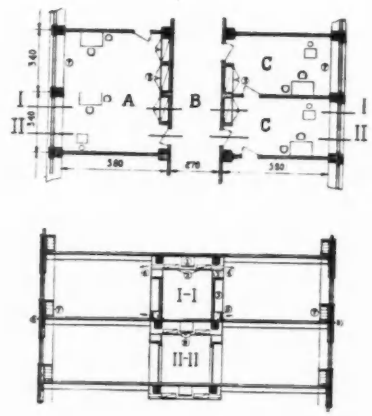
PENSIONS OFFICES, PRAGUE



A typical large (3-bay) office.



The public information hall on the ground floor.



PLAN AND SECTION OF STANDARDIZED OFFICE UNIT.

A, C : Offices.
B : Corridor.
1 : Electric Cables.
2 : Fresh-air ducts.
3 : Borrowed light for corridors.
4 : Fresh-air inlet to offices.
5 : Cupboards.
6 : Air return.
7 : Cupboards under windows.

DESIGNED BY

JOSEF HAVLIČEK

AND

KAREL HONZÍK

(except for halls and staircases) of 2.9 by 1.5 metres, double glazed with one vertical division. Hall and staircase windows are of pressed steel, continuous for the whole height of the building, the floor stopping short of them about 25 or 30 cm. These have one horizontal division for each floor. They are pivot-hung, and can be swung through a 180 deg. angle so that the outside surface becomes the inside for cleaning purposes.

Heating, cooling and ventilation are combined in the same American system of air-conditioning, the air ducts being carried through the building along the corridor ceilings, and circulating through the rooms back to the plant. Each of the four wings of the building has its own circulation system because of the difference in the outside temperature on the north, south, east and west. These are regulated by thermostatic control.



The central hall on an upper floor.

LETTERS FROM READERS

A. SEYMOUR REEVES (Secretary, A.A.S.T.A.)
H. M.
C. E. T. CRIDLAND (Hawkes & Snow, Ltd.)
CYRIL ADLER
A. K. CHESTERTON
ROBERT TOWNSEND, A.R.I.B.A.
H. T. BROCK GRIGGS
JAMES MacQUEDY

Outlook Unsettled

SIR,—The article entitled "Outlook Unsettled," which appeared in your issue for January 31, contains many true statements as to the state of things in the profession which should have attention; but in some respects the conclusions of the author, or his constructive proposals, are very much open to question. He appears to be of the opinion that the rapidly dwindling field of private practice for architects can be extended by propaganda. The practicability of this is very doubtful. The architectural profession is part of our national life, and has to share, in common with all other occupations, the general trend of development.

The public is not interested as to whether it obtains its architectural services through the medium of a salaried department or through that of a private practitioner, but with all professions and occupations there has been for many years a great development of practice through salaried departments as distinct from the private office. Not only municipal and other public bodies obtain architectural services in this way, but a large and increasing number of commercial firms have followed suit. Is it not time that we ceased to look back with longing eyes on those palmy days of the mid-Victorian period when the private practitioner was almost the only medium for architectural services? Is it not time that we looked ahead and accepted the fact that this great change has come to stay, and that we must adapt ourselves to these new conditions, and that by attempting to make a frontal attack upon this new position we can only dissipate our energies and lose nearly everything?

Your author remarks that various awkward subjects are not now being discussed, as though everyone were a little ashamed at having confessed that all was not for the best. So far as the A.A.S.T.A. is concerned it has not receded one inch in this matter, and is, I think, the only organization which is persistent in calling attention to this great change, and to the need for adapting our methods in order to cope with it. No other profession or occupation has attempted to resist the principle involved in this rationalization of practice, but most others have evolved rational safeguards to meet the new conditions. This is the policy of the Association of Architects, Surveyors and Technical Assistants.

A. SEYMOUR REEVES
(Secretary, A.A.S.T.A.)

SIR,—The last paragraph of the article under this heading is vital, viz.: "Amongst a hurried public it is not sufficient that a service of use to them should be available . . . its usefulness and availability must be common knowledge to them or they will make shift without it." Advertising is indeed essential. I can think of no better way of educating the general public than by means of your admirable JOURNAL. The ideal would be that it should be in every home. The abysmal ignorance of even highly enlightened members of the public in matters concerning architecture is hardly realizable.

To give a concrete instance of the value of your JOURNAL I will relate my own experience. My sister, a woman of ordinary intelligence, with absolutely no highbrow pretentions, has perforce seen this magazine for a number of years. (She prefers it to others, for which I have occasionally forsaken the JOURNAL). She now has good taste in buildings, notices them and can criticize them intelligently. Having taken to architecture late in life myself, I can realize what was the state of my mind before my architectural education began.

I should like THE ARCHITECTS' JOURNAL to be sent to every town and county councillor *in his home*, and am convinced that if this could be done, at the end of a year they would be interested, at the end of two years enlightened, and in three years' time would be apostles of our noble art. The only question is, where is the money to come from for this really cheap form of education which, added to the present publicity campaign, would be of inestimable value? I am willing to subscribe to a fund, but how is it to be organized? A booklet would be only of passing interest; the study of your JOURNAL would become a habit.

H. M.
Woodbridge

[*We publish this letter with suitable diffidence. We are grateful to our correspondent for her very complimentary estimation of the* JOURNAL's *value and would certainly co-operate in any movement for the higher education of town councillors.*—ED., *A. J.*]

Manufacturers and their Products

SIR,—As the letter from F. R. Jelley, in your issue for January 10, is, in part, a reply to one by me, I feel that some further remarks by a manufacturer are necessary.

If Mr. Jelley would be constructive rather than destructive then the poor manufacturer whom he despises so much would at least know the best way to approach him. At the moment, Mr. Jelley's contention seems to be that most or all of the manufacturers are fools and possibly knaves, whereas he seems to overlook the fact that without the fool manufacturer, although he might have more time to write extremely witty letters at other people's expense, he would certainly be out of a job.

When I replied to the original letter, I replied in perfect good faith and hoped that we should get an explanation from the members of Mr. Jelley's profession which would enable us and other manufacturers to form some plan of campaign of introduction to architects, which would be acceptable to the architect and sufficiently adaptable to meet all types of client.

I suggest that Mr. Jelley's obvious dislike should be discussed in a more helpful channel; and, as my address is quite close to his, if he feels the writing of this one letter is the ultimate point of his obvious hatred of all commercial people, he takes the opportunity of meeting me somewhere, perhaps over an excellent lunch. The matter could then be thrashed out so that the conclusions reached could be passed on to the other manufacturers, who regularly advertise in your columns and who, according to Mr. Jelley himself, are wasting both their valuable time and money by so doing.

C. E. T. CRIDLAND
(Hawkes and Snow, Ltd.)
Birmingham

A Hundred Years Ahead

SIR,—Mr. Aitken, in his letter of January 24, has seized the smallest possible opportunity to deliver a subtle attack on the Jews. He considers the hundred years' forecast as Jewish-Communist doctrine. If he believes these opinions to be Communist it is up to the authors to right him. What amazes me, though, is the mentality which says Jew and Communist in the same breath. True, Karl Marx and Trotsky had Jewish parents, but one doesn't consider Socialism an Irish product because Mr. Bernard Shaw is one of its principal advocates. Sweep-

ing statements made on the basis of a cursory glance at the facts are terribly unjust to the people against whom they are directed.

A great number of people seem to have this Jewish conspiracy complex, and nothing could be more childish or foolish. There are absolutely no grounds for such accusations, bar the ravings of Hitler and Mosley, who wish to turn people's minds away from the real issues at stake by inventing the foulest lies against the Jews.

Mr. Aitken has heard these lies so often and so loudly repeated that he has believed them. I am sorry for him. The Jew is striving to attain one end, and that is the right to live as a human being, to walk freely and to be of service to humanity.

CYRIL ADLER
Chelsea

SIR,—" Progressive Architect " apparently keeps his progressiveness for architecture, since his statement that Fascism is " the open naked rule of enormous financial monopolies in an increasingly competitive capitalist world " is nothing more than the moonshine of a socialist reactionary. If monopolies rule how can the capitalist world become " increasingly competitive " ? Moreover, does your correspondent know that employers and employees have an equal share with consumers, under fascism, in the government of their own industries, and that the vast majority of the people who have fallen under the ban of Mussolini's displeasure have been financial jugglers, unscrupulous industrial monopolists, commercial cheats and political pandars ?

I would inform your more moderate correspondent, Mr. J. H. Madge, that the expansion of a nation is not necessarily territorial expansion. There is such a thing as spiritual expansion and I believe that if Mr. Madge will go either to Italy or Germany he will be impressed by the fact that this is a very real thing.

Finally, I come to the authors of the original article. I can quite well believe that they are " on the side of socialism and internationalism." Both these " isms " mean international trade and consequently the masterdom of international finance, precisely as they mean the degradation of the standards of life of the more advanced countries to the level of the less advanced. I suggest that instead of writing light-hearted—or should it be light-headed ? —articles to a serious journal they would be better employed upon a mission to Japan, persuading the coolies there that a plate of rice is not really a substantial meal and that they cannot claim to be civilized beings until they all wear boiled shirt fronts, like Mr. J. H. Thomas.

Meanwhile, fascism will organize for power in this country, so that we may insulate ourselves from the chaos of world conditions, develop our own vast resources, employ our own idle men and machines and build up a vast home market by equating purchasing power with power to produce. By this withdrawal from the scramble for international markets we shall eliminate one of the most potent causes of war, and by our respect for the principle that other nations should be allowed to mind their own business, while we mind ours, we shall cause far fewer antagonisms between the nations of the world than is possible under a system which enables our seven hysterical individuals to write about friendly countries in such a way as to arouse emotions whose logical outcome must be war.

A. K. CHESTERTON
(for the British Union of Fascists)
King's Road, Chelsea

SIR,—It is fairly clear that those who maintain that fascism means a rosy and peaceful future for the world have singularly failed to justify their contentions. Two more quotations from the " leaders " of fascism :

" The political, economic and spiritual life of a nation ought to be based on its military necessities " (Mussolini).

" In eternal peace, mankind would be ruined " (Hitler).

Mr. Chesterton's explanation of the warlike utterances of continental fascism is typical of the demagogic methods used by fascists throughout the world ; but even discounting everything that has been said by the eaders, the fundamental basis of fascism—economic nationalism—is bound, when carrying an industrial superstructure, to lead to a violent struggle for colonial markets, which in turn cannot but end in war. Nowhere has the appeal to good sportsmanship been more actively used than in appealing to the English people to fight the battles of capitalism.

There are other aspects of this question of fascism, however, that should be considered by architects, and among these is the general lowering of the cultural level in fascist countries. " We are probably moving toward a period of humanity reposing on a lower standard of life. We must not be alarmed by this prospect. Present-day humanity is very strong and is capable of asceticism such as we perhaps have no conception of." (Mussolini). This is merely saying to the vast majority of the population that their standard of living has to be forced down and down, and the working classes have to pull their belts tighter and tighter.

Even in Italy where the achievements of fascism are pointed to with pride : " Fascism has to its credit no great housing schemes to provide better homes for the working classes. Its record of public services . . . hospitals, sanatoria, and schools is poorer than that of any other European country in the same political category. Slum areas have been cleared in order to make room for grandiose conceptions . . . but no real provision has been made for the population dispossessed." In this quotation from Hugh Quigley in *Current History* the " grandiose conceptions " referred to are public buildings, built to impress the populace and glorify the fascist state.

Another question of interest to architects is the decentralization policy carried out in housing by fascist governments—the policy of depopulating the towns and building up more or less self-supporting small holdings, with the land in the ownership of the smallholders. This move is at once economic and political. It reduces the standard of living of masses of former industrial workers and is at the same time designed to prevent the growth of political consciousness. These aspects of fascism affect architects closely.

These moves are not limited to continental countries, and should be vigorously opposed whenever they occur in England, as in the reduction of standards by the new Housing Act and so on.

ROBERT TOWNSEND
Highgate

SIR,—On the question of war, there can be no greater guarantee of peace than that countries, in this century of action, should be led by men who have themselves suffered in the war and know what it means.

The language of these men is neither liked nor understood by those static international-minded " intellectuals " to whom the significance of patriotism would appear to be unknown.

Fascism means peace by strength.

H. T. BROCK GRIGGS
Chelsea

SIR,—I enjoyed the letter from Mr. Chesterton on behalf of the British Union of Fascists. One sentence in it is especially informative. " Germany's expansion to the east," Mr. Chesterton says, " is not conceived by Sir Oswald Mosley as a military expansion, but as a self-determinism on the part of many millions of people."

I had no idea before that any of Germany's political plans were *conceived* by Sir Oswald. We ought all to be proud to find it revealed that our Mosley is the initiator, and Hitler, after all, only engaged in carrying out the English leader's conceptions.

JAMES MACQUEDY
London

[*We have received a great many letters on the subject of those printed above and, owing to the demands on our space and the purely political nature of most of them, have been compelled to publish them only in abbreviated form. For the same reasons (pure politics as such not being within our province) we must now close the correspondence.*—ED., *A. J.*]

WORKING DETAILS : 207

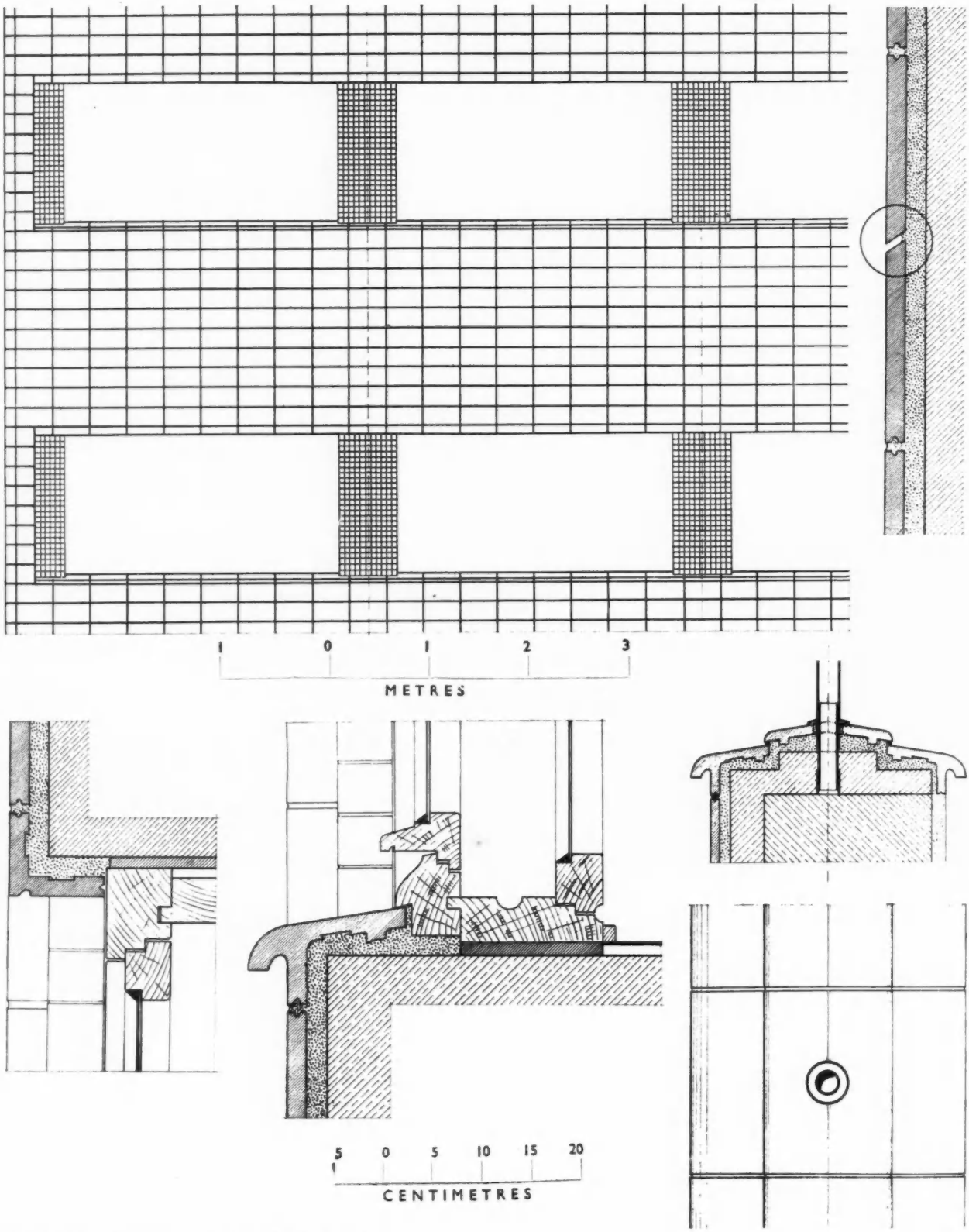
WALL FACING • PENSIONS OFFICES, PRAGUE • HAVLIČEK AND HONZIK



In view of the acid-laden atmosphere of Prague, this building was faced with cream-coloured ceramic tiles 40 cm. by 20 cm. by 1·7 cm., a smaller size (5 cm. by 5 cm.) being used for the filling between the windows. For cills and parapet capping a purpose-made section with an integral drip is employed (see drawings overleaf). Since the whole building is supplied with conditioned air, the windows are opened for cleaning only, and the large inward swing of the casements (about 4 ft. 6 in.) is considered reasonable. The staircase windows are horizontally pivoted, and can be swung through 180° for cleaning. The upper drawings overleaf show the lay-out of the facing and an expansion joint detail.

WORKING DETAILS : 208

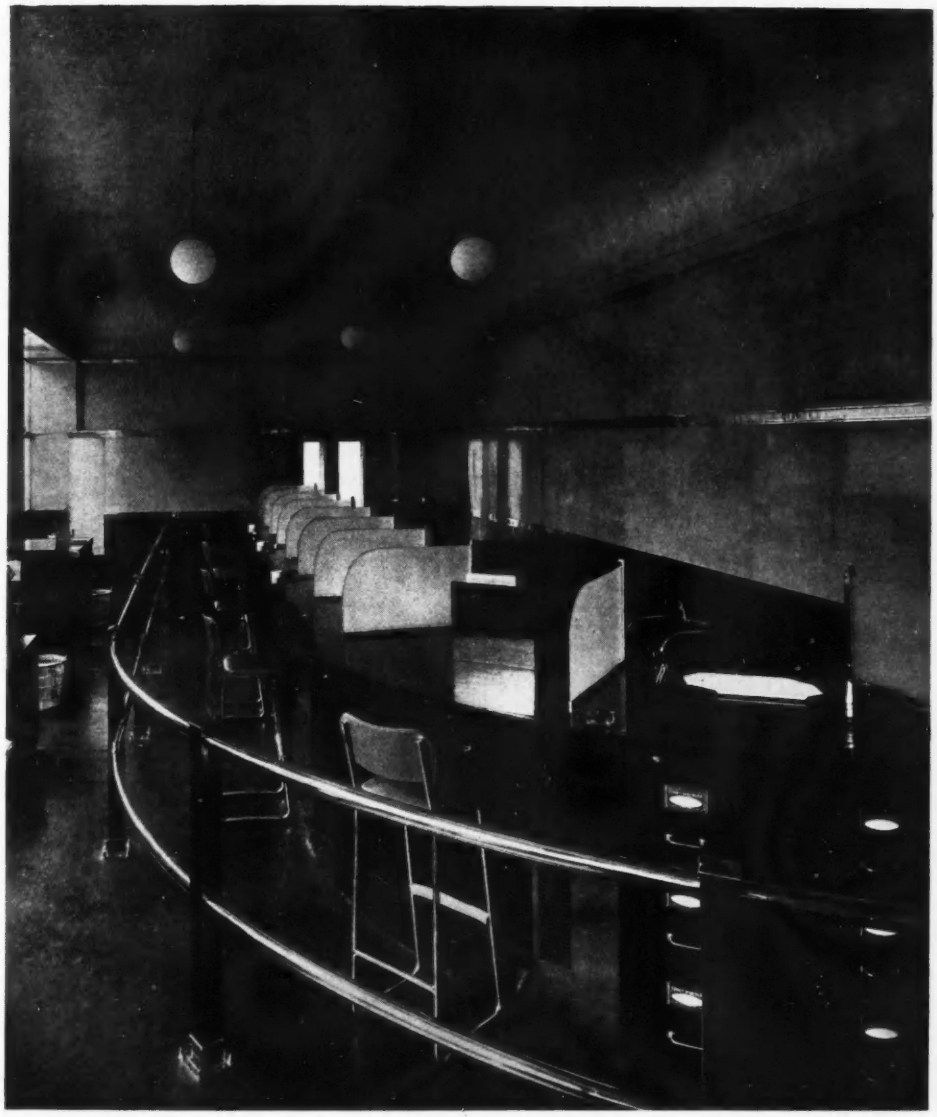
WALL FACING • PENSIONS OFFICES, PRAGUE • HAVLIČEK AND HONZIK



Elevation, sections and a window detail from the building illustrated overleaf.

WORKING DETAILS: 209

OFFICE COUNTER • HALIFAX BUILDING, ABERDEEN • MARSHALL MACKENZIE AND GEORGE

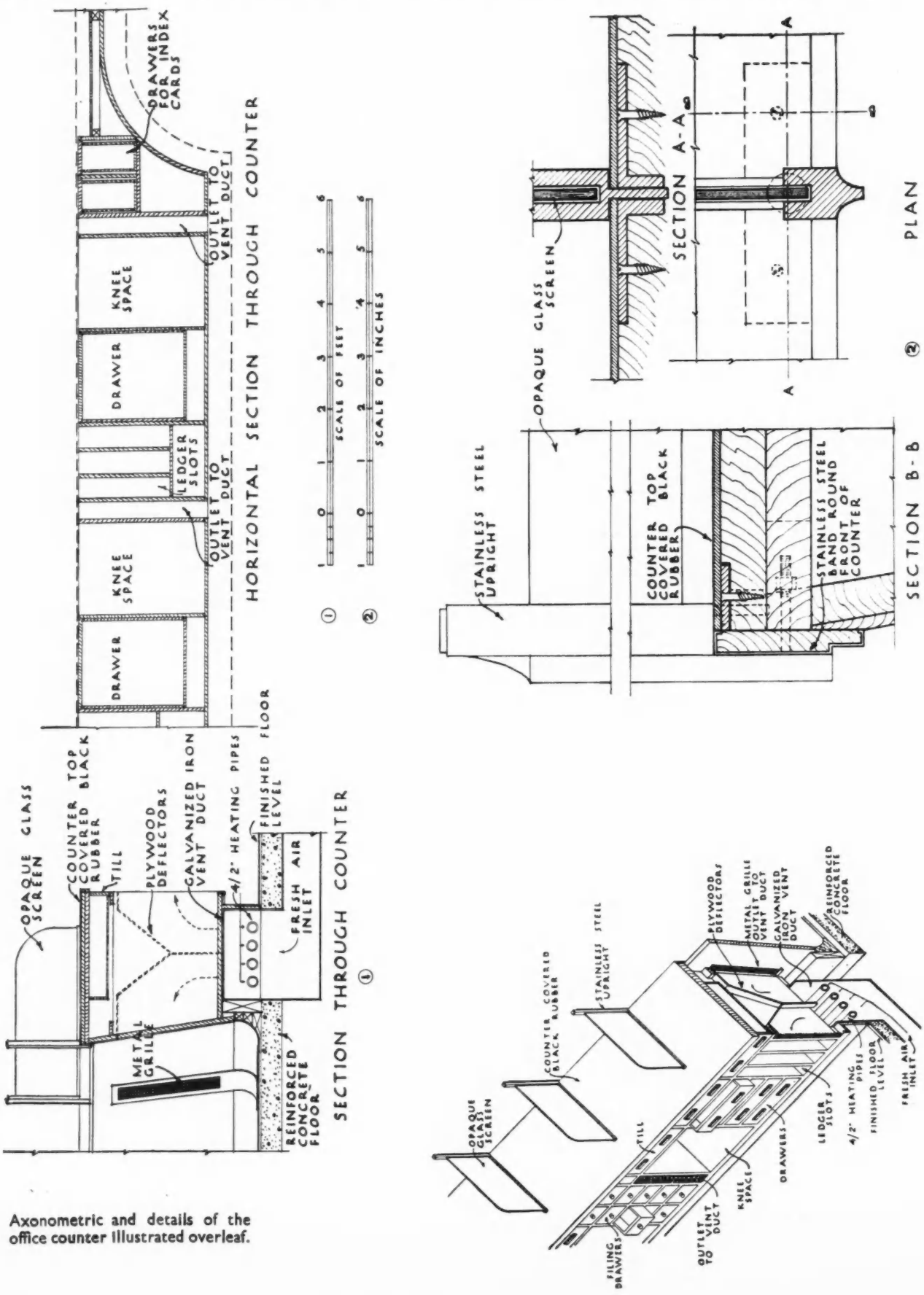


This office counter, for a building society, is divided into sections to give privacy to customers arranging loans. The drawings overleaf show the fixing of the glazed divisions and the lay-out of the filing cabinets and drawers. Heating is by four 2-in. pipes in a duct beneath the counter (see axonometric) with grilles opening into the spaces for the clerks and the public.

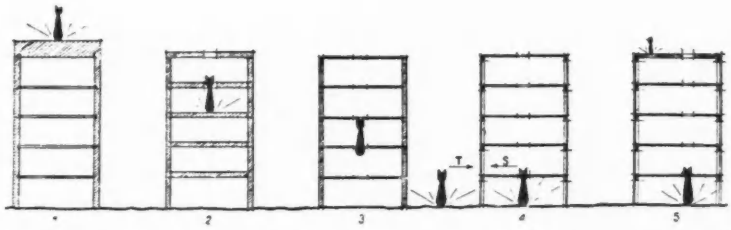
FILING REFERENCE:

WORKING DETAILS : 210

OFFICE COUNTER • HALIFAX BUILDING, ABERDEEN • MARSHALL MACKENZIE AND GEORGE



Axonometric and details of the office counter illustrated overleaf.



Five different kinds of anti-aircraft protection possible for a five-storeyed building: 1, With roof designed to avert penetration; 2, With floors designed to produce a "breaking action" on the bomb; 3, With protective walls; 4, With safety valves; 5, A combination of 1 and 4. From "Bautechnischer Luftschutz."

L I T E R A T U R E

THE CITY OF DREADFUL NIGHT

[*BY BAIRD DENNISON*]

Bautechnischer Luftschutz. By Dip.Ing. Hans Schlossberger. Berlin: Bauwelt Verlag. Price 7.80 m.

THIS book breaks fresh ground, for it deals with an entirely new aspect of architecture: the technique of civil defence against military attack by hostile aircraft. With commendable directness the author announces that for the purposes of his subject "war will be regarded as a natural phenomenon." Which said, he proceeds to sound that pious note echoed in unison by realist politicians, military philanthropists, armament manufacturers, the cruel-to-be-kind inventors of still better lethal gases, and the sort of "higher" financial interests the Senate Commission is still busy exposing at Washington:

"It is the paramount duty of the aerial-defence expert to do his utmost to promote peace and prevent war. Men who have made the effect of air-bombs their study need no pacifist propaganda to open their eyes to the full horror of war in the future."

The time is quite close, Herr Schlossberger assures us hopefully, when protection from the terror that stalks on high will be a far more important factor in building than any of those now preoccupying architects. Controversies over flat *v.* gabled roofs are likely to be relegated to archæology when the first mixed bag of high-explosive, incendiary, gas and bacteriological bombs descends impartially on both in the first important European city to be selected as a target. Aerial warfare is bound to have a greater influence on architecture than any discovery since that of gunpowder. What, precisely, that effect will be must defy prognostication until after our next experience of the ultimate argument between nations. As usual it is the architects who are letting us down. Contemptuous or ignorant of these patent facts, they evince no desire to become as expert in the military science of our own day as Leonardo da Vinci and Albrecht Dürer were in that of theirs. "So far they have hardly touched this inexhaustible field in which so much work remains to be done." Do they need reminding that, in all the "arming countries" (a category which apparently includes every European nation except Germany and possibly Iceland), squadrons of aircraft stand ready day and night for the signal to set off on this little joy-ride; and that the world's munition factories are working at high pressure? A little further on, however, it becomes clear that this bitter reproach applies only to German architects: a lack of keenness all the more reprehensible to Herr Schlossberger in view of the clause of the Treaty of Versailles (surely already a dead letter!) that denies pacific Germany any "active" form of aerial defence. Their foreign colleagues are not letting the grass grow under their feet. According to the German Press they have already undertaken a great deal of valuable practical research which their governments have naturally not allowed to be published. But Nazi organs, like that deservedly popular periodical, *Gasschutz und Luftschutz*, have kept their readers supplied with impressive details of Sir Herbert Baker's masterly circumvallation of the Bank of England.

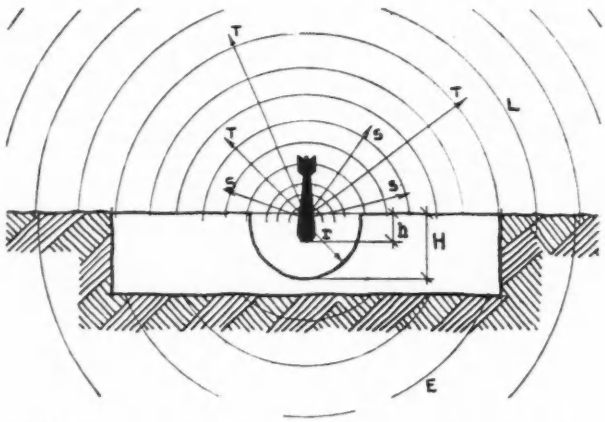
History, it seems, is once more tiresomely repeating herself. Joannis Thoma, one of the Emperor Charles V's handy men in "fortification and the use of the spheres," had to complain that the architects of his generation knew next to nothing of a trade to be learned, "not in the schools of Bologna and Padua, but in actual investments and assaults." There was, for instance, that arty amateur Antonio di San Gallo, who made such a garden-city mess of the military re-planning of Florence. On the other hand, Leinhard Frönsperger's treatise on the architecture of defence (1557) advocated the construction of "blind buildings" to waste the enemy's powder and shot—a direct anticipation of the elaborate scale dummies of vital quarters of Paris put up to mislead German airmen during the last war to end war. In planning the Grands Boulevards in 1850 Haussmann was guided far more by military-political motives than æsthetic or humanitarian considerations. And was not that outstanding "specialist," the great Vauban, one of the supreme architects of all time?

Herr Schlossberger is far too genial a writer to allow us to be overwhelmed with pessimism for long. He promises us that the next war for freedom will spell, not the end of civilization, but simply of our out-of-date form of habitation. Though progress in the technique of offensive armament has been most encouraging during the last few years, building research has not lagged behind. Have we forgotten the old axiom that there will never be a weapon against which some degree of protection cannot be devised? But at present everything seems to point to that degree being singularly limited. Having rejected the basic $x=y$ calculation of the leading French anti-aerial expert that a four-metres thickness of concrete cancels out one ton of H.E.—because Colonel Vauthier's formula assumes that bombs will be dropped from the boobyish height of only 6,000 feet, and ignores the unimaginably enhanced potentiality of the air-bombs of tomorrow—Herr Schlossberger starts with the provision of "strong rooms" for existing types of buildings (more particularly tenement-blocks) as the only general safeguard now practicable. In higher buildings the thickness of the floors must be calculated so as to break the impact of gravity by progressive stages. Top storeys will inevitably be neatly punched through by time-charge bombs whatever their roofing, but there seems quite a sporting chance that explosions may be accelerated, and their effects to some extent localized, before the lower rooms are reached. With that naïve German candour which has so long contributed to the gaiety of the nations a minor warning is given *en passant* that even in the most efficiently sandbagged homes, offices and factories life cannot be expected to continue altogether as the common round, the trivial task during air-raids. "A certain unpleasantness is bound to result for the occupants." And the countries most directly menaced will, of course, be those with the densest urban populations—England in the first place, with Germany a close second. But protection is bound to become simpler and cheaper with the pre-fabrication

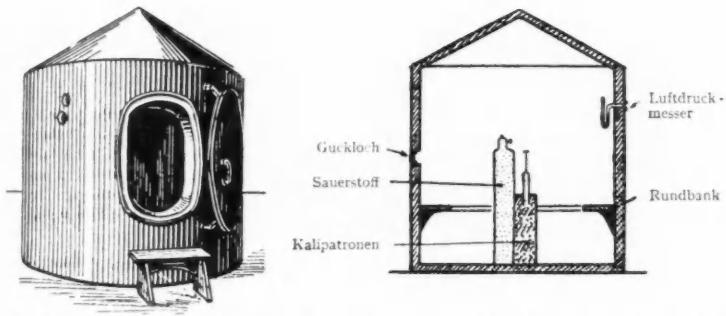
and dry assembly of defensive-structural parts. It will not be long before reasonably air-safe homes are being industrially mass-produced in hygienic gas-tight factories. And here Herr Schlossberger—surely no author ever had a more appropriate name!—heartens us with another of his rare and refreshing fruits of optimism. All future wars rolled together will be powerless to inflict a fresh "style" on long-suffering humanity. Among its incidental changes the next will result in certain tendencies of contemporary architectural design becoming more emphatic and certain others disappearing. That is all. We need dread the advent of no Paraplane Architecture in the grand American-Beaux-Arts manner for the sufficient reason that the salient characteristics of the Sky-proof Vernacular of tomorrow already exist in rudimentary form in the best functional buildings of today. (That unpopular term should lose its sting once "functional" becomes synonymous with a less abstract conception of "shelter" than . . . I was about to add—"is preached by 'MARS'"—till I remembered that Mars has a family connection with the God of War.)

This brings us to what is perhaps the most interesting part of this momentous book. Herr Schlossberger claims that his investigations conclusively prove that no single requirement of aerial protection runs counter to the best modern architectural theory and practice. Nor does such protection imply dwelling behind cyclopean blocks of concrete or deep down in armour-plated burrows. The most significant deduction to be drawn from the peril of the air is that poison gas has triumphed over the slum (though not yet apparently over the slum-dweller's humbler brother, the dock-rat). Corridor streets and the sunless courtyard wells of the old *Mietskasernen* are ideal gas-traps. This means that the town's spider's web or tartan of huddled streets will have to be unravelled, and that wide open spaces with artificial sheets of water must be generalized. In fact all the most advanced regional planning and social hygiene is identical with the new urbanism of living and dying under cover. Herr Schlossberger's infectious enthusiasm goes still further. He assures us that every technical prerequisite of civilian aerial defence would have undiminished practical value if (by some inscrutable miracle) wars should be no more. *Que veut-on de plus?* Without their knowing it pacifists and militarists are striving for the same goal.

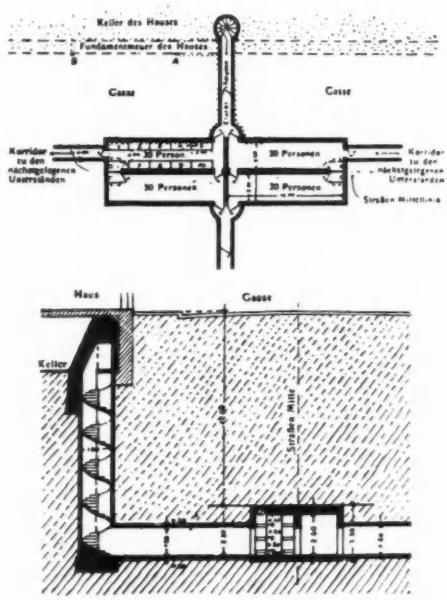
The first task is therefore to unknit the closely-woven fabric of the big towns. Because of their superior density per acre buildings of medium



The effect of an explosive bomb on a concrete slab: h, Depth of penetration caused by force of impact; r, Radius of destruction resulting from gas-pressure; L, Air-shock zone (upper concentric circle); E, Earth-shock zone (lower concentric circle); T, Effective radius of flying fragments; S, Effective radius of splinters.



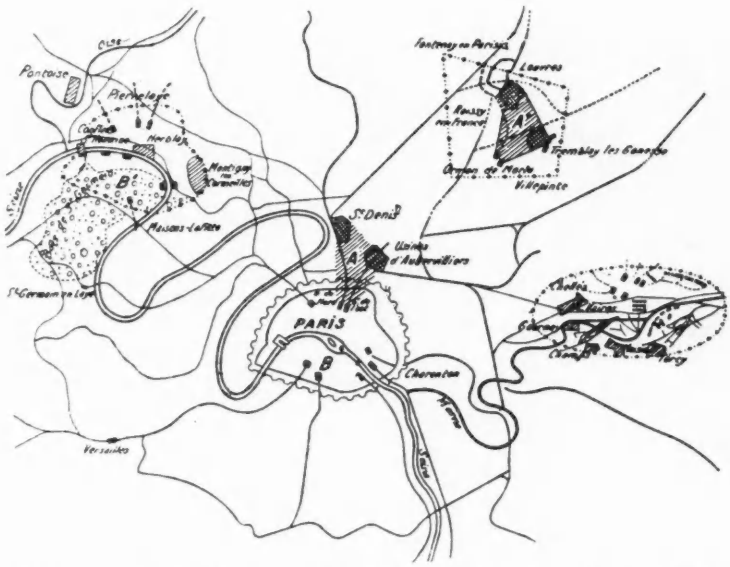
Exterior and section of the ABRI MARCILLE, *a French patent transportable "strong room" made of precast concrete. The two central cylinders contain oxygen and potash charges and the instrument high up in the wall is an air-pressure gauge. On the opposite wall is a peep hole.*



Bomb-proof shelter for 120 persons under a street, shown in plan and section: a form of civic protection that is considered technically rather unsatisfactory.

Diagrams on this page are reproduced from "Bautechnischer Luftschutz."

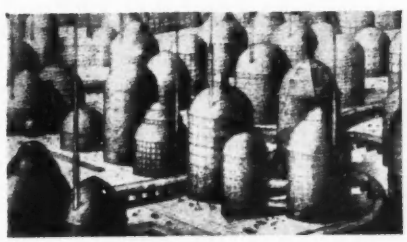
height are the most dangerous, while four-storeyed ones are the most expensive to protect. The next war will spell the end of that central administrative core for which the Germans prefer the English word "city." Anti-aerial-attack planners seem to be in substantial agreement that in future the ratio of built-up to unbuilt-up areas must not exceed 1 : 9. Thus the most revolutionary proposals of Corbusier and Gropius find enthusiastic endorsement from a somewhat unexpected quarter. Vauthier based his schemes largely on Corbusier's Voisin Plan for Paris, and in his magnificent project for the redevelopment of Algiers Corbusier has apparently returned the compliment by incorporating some of Vauthier's suggestions. Unravel the town we must if we want either to live or let live. Herr Schlossberger finds a solution in the linear town devoid of a "city" and a civic centre alike, or any concentration of buildings at particular points. Only he insists that its spinal cord must be camouflaged so as to avoid any semblance of diagonalism, and supports Sierk's demand for the prohibition of all building on traffic arteries. This linear city must be surrounded by farms and market-gardens to insure relative self-sufficiency in provisioning, since one of the first effects of aerial warfare will be the interruption of those national systems of distribution by which large communities are now fed. "The new cities will be large villages with an urban culture." The unconscious prototype illustrated, Frick in Switzerland, has direct parallels in the ribbon development along our newest arterial highways. In fact, the present rather abnormal incidence of horizontal mortality among the house-proud cottagers of the Great West Road will soon be more than compensated for by their superior degree of vertical immunity. Karl Friedrich's "City and Country as a Single Entity" seems to be the type of plan which comes nearest to realizing the ideal of an air-safe town—the term is once again purely relative, for with every page it becomes clearer that virtually nothing above ground can be made safe except in parts. Regional must supersede town planning, and the first call on all grants for the relief of unemployment should be for what may be called the progressively disintegrating *extrusion* of our cities. Every penny spent on their extension, as extension is understood today, will inevitably command its pound of flesh "under active service conditions." On the other hand, a wholesale "back to the land" emigration of townsfolk must obviously be prevented, for this would be just as economically disastrous as the present exodus of peasants in the reverse direction. André Mayer estimates that if we decided to transform our continent into a chain of aerially invulnerable fortresses—somewhat on the model the French recently adopted for the refortification of their eastern frontier—it would provide work for the whole adult population of Europe for the next decade. Yet humanity in its blindness is still far from unanimous in recognizing that the blessings of preparing for war are superior to any number of five-year plan and new-deal palliatives for the workless.



The three great camouflage areas of Paris during the war—elaborate dummies of whole quarters and industrial areas designed to "draw" hostile aircraft. From "Bautechnischer Luftschutz."

Nothing could be more conscientiously thorough than this textbook with its pages and pages of detail drawings showing how separate rooms and whole buildings may be "airproofed." The half-tone illustrations include the latest domestic air-filters which German manufacturers are now offering at most reasonable prices. There are diagrams of the effective radii of explosions on concrete and impregnation by mustard gas which a child could understand. The scholarly bibliography contains the titles of no fewer than 315 technical books and articles, most of which are referred to in the text. It may come as a slight surprise to Anglo-Saxon readers that a good proportion of these were published in the two most fanatically peace-loving nations on earth, Great Britain and the United States.

Herr Schlossberger should deserve to rank among the outstanding benefactors of the human race, for he has been the first to give prophylactic point to that once merely jocular threat: "If there's a roof handy it might drop on you!"



Professor Mariani's idea of the bomb-proof city of the future in which spires have become periscopes. Herr Schlossberger rejects this solution on technical grounds.

Shorter Notices

A Great Housing Policy: the Overcrowding Bill Explained. By Sir Francis Fremantle, M.P. London: National Union of Conservative and Unionist Associations. Price 3d.

SIR HILTON YOUNG, the Minister of Health, in the debate on the Housing Bill in the House of Commons last week, reminded us that this country had been left by the industrial revolution the evil legacy of slums and overcrowding. Yet overcrowding was known to exist long before that period. In 1580 Queen Elizabeth, by proclamation, tried to secure that no house should be inhabited by more than one family. It seems odd, therefore, that we should have had to wait until the twentieth century before drastic action, in the form of a Parliamentary Bill, was thought necessary to overcome this evil.

The new Bill recites as its first object the making of "further and better provision for the abatement and prevention of overcrowding." But, as Sir Francis Fremantle

tells us in his little booklet, this is not the only object of the Bill. He points out that " it concerns itself also with the redevelopment of suitable areas in large towns, the reconditioning of houses, the establishment of a Central Advisory Committee and local House Management Commissioners, the position of the Public Utility Societies, the consolidation of the Local Authorities' housing accounts, and certain amendments of the existing body of housing law."

Sir Francis discusses all the above-mentioned points in the space of some 10,000 words, and concludes with the following observations : " The proof of any legislative pudding is in the administrative eating. If the proposals in the present Bill are passed into law, the real test will come when they are translated into action by the local authorities, assisted by other housing agencies, working in liaison with the Ministry of Health. The proposals in themselves complete what before was only half of the remedial pattern ; they offer for overcrowding no less drastic and comprehensive a remedy than is already operative for the slum, and they offer it for immediate adoption. They complete our main armoury. It remains to ensure that the new weapons are strongly and justly wielded, without any relaxation of existing powers and responsibilities, without any impairment of the campaign against the slums. The task is a formidable one, but the reward to be reaped in public health and welfare compels its undertaking. It is to be hoped that we shall be able to look back within a reasonable space of years, and to find that at last the double roots of all housing evil—the slum and the overcrowded area—have been finally excised and that the proverbial standard of the English home has become a general reality."

W. P. K.

Outlines of the Law of Housing and Planning. By John J. Clarke. London : Sir Isaac Pitman and Sons. Second edition. Price 10s. 6d. net.

THIS is an enlarged as well as a second edition of Mr. Clarke's textbook. The additional matter is on the Ministry of Health's provisional Model Clauses o 1934, on procedure under the Town and Country Planning Act, 1932, and on the rights of appeal under the same Act. In essence it is really a detailed story of the various Acts under which Housing, Public Health, Town and Regional Planning and Highways are administered and of the powers of the various authorities in whose hands administration lies. It is comprehensively written, and, in these times appreciation of the value of all kinds of planning is becoming commoner, such a study as this of the machinery of planning should appeal to a far wider professional public than the students, lecturers, local government officers and housing authorities at whom the book expressly aimed.

Books reviewed in these columns may be ordered through The Architectural Press, 9 Queen Anne's Gate, S.W.1

O F F I C E S I N





THROGMORTON STREET, E.C.

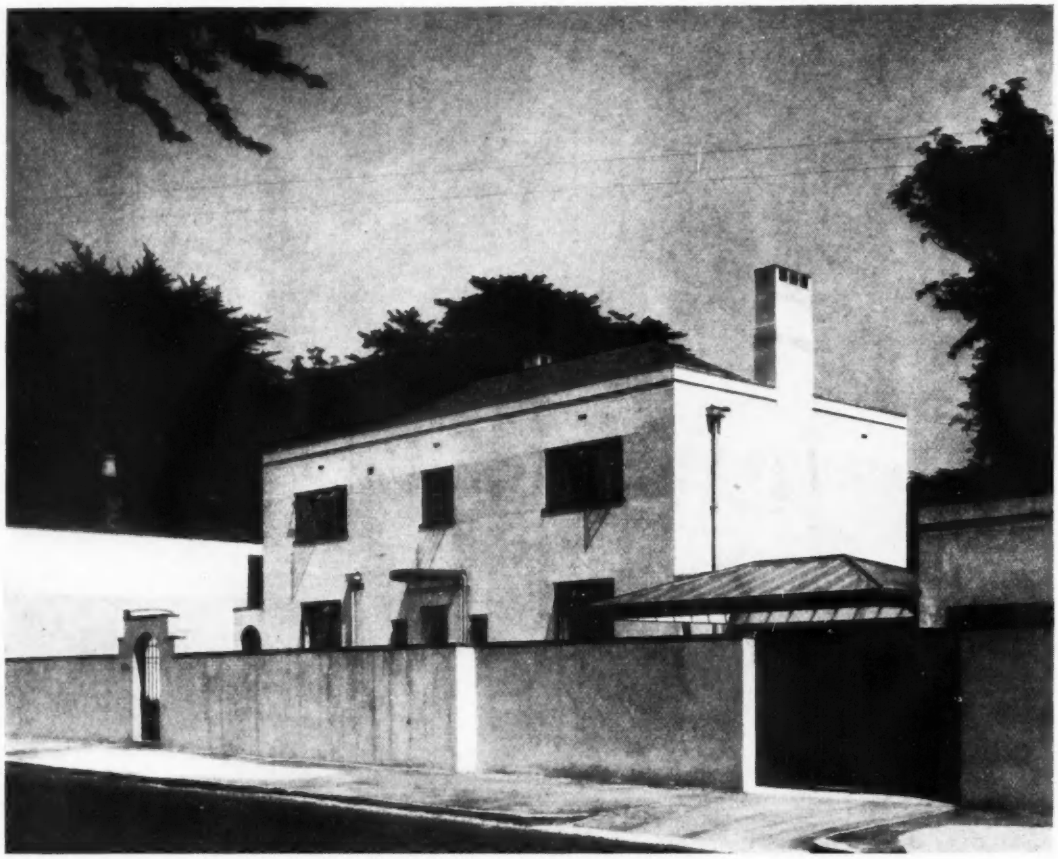
The work illustrated here consists of redecorations and a certain amount of replanning carried out in an existing building. The whole of the panelling is in laminated board with a veneer of Black Bean; skirtings are in ebonized wood, above which is a band of contrasting Black Bean. The photographs show, right, the secretary's desk in the main private office; below, one of the smaller offices. On the facing page are two further views of the main private office; the table and chairs are also in Black Bean.

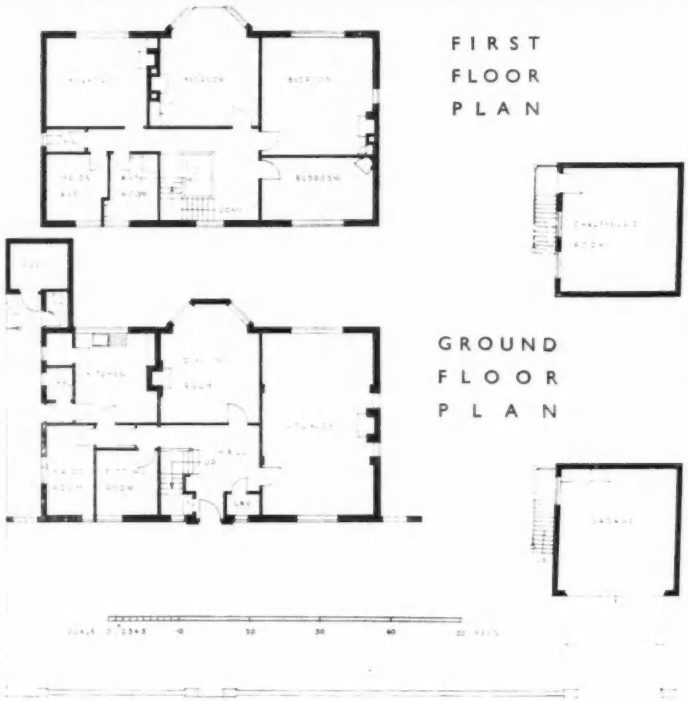




DESIGNED BY JOSEPH EMBERTON

HOUSE AT EDGBASTON





FIRST FLOOR PLAN

GROUND FLOOR PLAN

This house was designed to be in keeping with its neighbours on the Edgbaston Estate, where there still remain many fine examples of early nineteenth century stucco work. The rendering is putty colour, carried out in horizontal lifts of approximately three feet per day to avoid streakiness, the gates, woodwork generally, and steel casements being painted a light shade of green. The front door is protected by a glazed canopy carried on a semi-circular channel, and the forecourt is laid out as a Dutch Garden with a painted and gilded wall sundial in Campden stone.

STRUCTURE: *11 in. cavity walls, rendered; slate roof.*

FINISHES. *Walls finished internally with a wood float for distemper; hardwood flush doors; staircase balustrade plastered over mesh and brick lathing and capped with an oak handrail.*

COST. *£3,000, including garden work.*

DESIGNED BY FRANCIS W. B. YORKE

TECHNICAL SECTION: 6

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

NIGHT LOSSES

GRAVE errors will be incurred in estimating fuel consumption and behaviour generally of a system on the basis of the heat being fully on (in coldest weather) during the period of occupation, and fully off for the rest of the time.

Owing to the great heat contents of a building (mass × specific heat) it may, under such conditions, be far below comfort temperature for part or even the whole of the occupied period, and much more heat has to be supplied if satisfactory results are to be obtained.

How much more, depends on the factors :

(1) Cooling time of building.
(2) " Margin " in heating system.
(3) Length of occupied period.

It is necessary and interesting to study the behaviour of buildings from this point of view, and, as a preliminary, it is necessary to consider the properties of a *cooling curve*, i.e., the curve giving the rate at which the temperature falls off when a warmed building has its heat supply cut off in cold weather.

In the case of relatively small temperature differences, such a curve is approximately governed by the fact that the rate of cooling at any time is proportional to the temperature difference.

Thus (referring to Fig. 19), if a warm object at a temperature T_1 is introduced into a place where everything is at a lower temperature T_2, the rate of cooling will at first be proportional to $T_1 - T_2$. But when the temperature falls to a lower temperature T, then the rate of cooling is proportional to $T - T_2$, and is consequently always becoming less.

It is easy to show that such a curve has the formula :—

$$\frac{T - T_2}{T_1 - T_2} = e^{-kt}.$$

where k is a constant depending on the ratio of heat contents to cooling surface, and t is the time.

Alternatively $\log_e \frac{T - T_2}{T_1 - T_2} = -kt.$

Such a curve is drawn in Fig. 19. The temperature of the building never reaches the lower temperature of the surroundings (although it approaches it as near as may be required in a definite time). Hence it cannot be said, accurately, that there is a cooling time. Yet it would be extraordinarily useful if we could invent and define one, because we could then compare it for different buildings.

The authors have therefore introduced an *equivalent cooling curve* (shown by the line *AE* in Fig. 19) defined by the consideration that (1) it shall be a straight line, and (2) that the heat lost in cooling shall be the same as with the true cooling curve.

Requirement (1) means that the rate of cooling is assumed constant instead of variable, and requirement (2) that the area under *ABC* continued shall be the same as the area under *AE*.

The time *OE* may then be, and is defined to be, the *equivalent cooling time*.

It is easy to show that the ordinates of the cooling curve at certain points have the following values :—

Proportion of Equivalent Cooling Time	Proportion of $T_1 - T_2$	
	(Accurately)	(Approx.)
·5	·368	$\frac{3}{8}$
1.0	·135	$\frac{1}{8}$
1.5	·05	$\frac{1}{20}$

From these facts it is easy to determine the equivalent cooling time of any building.

If the heat is suddenly shut off, we can obtain three values of the equivalent cooling time :—

(*a*) Measure the time taken to drop $\frac{5}{8}$ of the temperature difference between the initial inside and the outside temperature and multiply by two.

(*b*) Measure the time taken to drop $\frac{7}{8}$ of the temperature difference.

(*c*) Measure the time taken to drop $\frac{19}{20}$ of the temperature difference and multiply by two-thirds.

Conversely, to draw the equivalent cooling curve for a given cooling time, set up these ordinates, at times equal to one-half, one whole, and one and one-half of the equivalent cooling time and draw an even curve through the four points so obtained.

When a building has the heat turned on at a uniform rate, which will ultimately raise it from T_2 to T_1, the *warming curve* is the inverse of the cooling curve between the same limits of temperature and the same construction may be adopted, the equivalent cooling time and the equivalent warming time being the same (see Fig. 19).

Another interesting point about cooling curves is that the tangent of the curve at the initial temperature strikes the base line at the point corresponding to half the equivalent cooling time. In

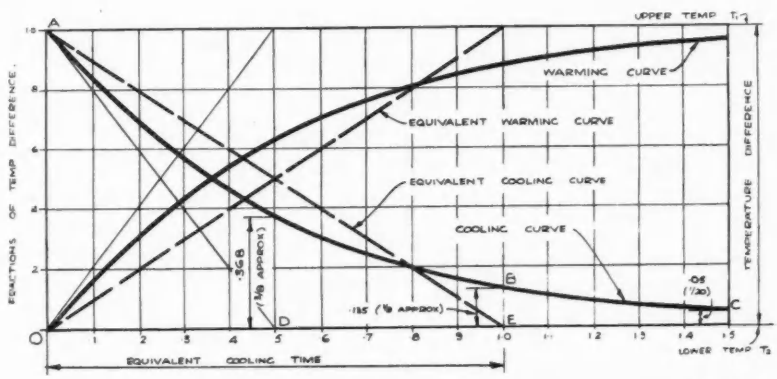


Figure 19. *Cooling and warming curves. Equivalent cooling curve and cooling time.*

Fig. 19 *AD* is tangent to the cooling curve at *A* and *OD* is half *OE*.

This is also useful both for drawing the cooling curve, and for determining the equivalent cooling time.

We can now apply this to some actual examples.

The five examples in Figs. 20 to 24 all have this in common, that the total heat supplied during the 24 hours is 15 units, one unit being defined for this purpose as the heat which exactly balances the losses for one hour when the building is at the desired temperature (70 deg. in this case). In every case, the period of occupation is also assumed to be 9 a.m. to 6 p.m., as frequently applies for offices, and the external temperature 30 deg. It goes without saying that the heat lost in every 24 hours is also 15 units, and in each case it will be found that the area of diagrams under the cooling and warming curves is exactly the same as that in the heat input diagrams.

In Figs. 20 and 21 these 15 heat units are all supplied at a uniform rate in the 15 hours from 3 a.m. to 6 p.m., this rate being that which would just balance the losses at 70 deg. if left on long enough, no margin in the heating system being available.

In Fig. 20 the equivalent cooling time is 6 hours, and in Figs. 21 to 24 inclusive, 12 hours.

In Fig. 22, the heat is left on all night at one quarter full on, and full on from 6 a.m. to 6 p.m.

In Fig. 23, the heating system has a "margin" of 50 per cent. over its normal duty, and this is fully used from 6 a.m. to noon (i.e., half the equivalent cooling time).

In Fig. 24, the system has a margin of 100 per cent., which is fully used from 6 a.m. to 9 a.m. (i.e., one quarter the equivalent cooling time).

The temperature during the occupied period may be considered as satisfactory in Fig. 20 (preheating at full rate for a time equal to the equivalent cooling time) and in Fig. 23 (preheating at full rate + 50 per cent. margin for half equivalent cooling time); and better still in Fig. 24 (preheating at full rate + 100 per cent. margin for one-quarter equivalent cooling time).

The temperatures in Figs. 21 and 22 are, however, not satisfactory, and three additional heating units (as previously defined) would be needed in further preheating to make them so.

From these and other data, the diagrams, Figs. 26 to 28, have been constructed showing the percentage of full 24-hour heat loss (if the building were continuously heated at the full rate) needed for various values of

cooling time,
hours occupied,
margin in heating installation.

It will be seen that the greater the cooling time, the more is the heat required, especially when the margin in the installation is low.

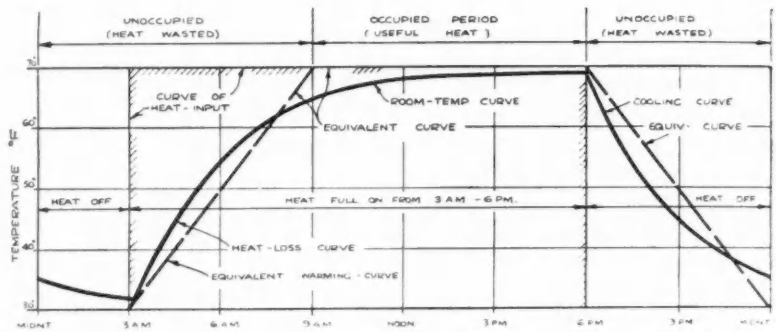


Figure 20. *Twenty-four hour heating log at 30° F. conditions, for a building having an equivalent cooling-time of six hours, and a heating system designed for [70°—30°] working, with no margin. The heat is full-on from 3 a.m. to 6 p.m.*

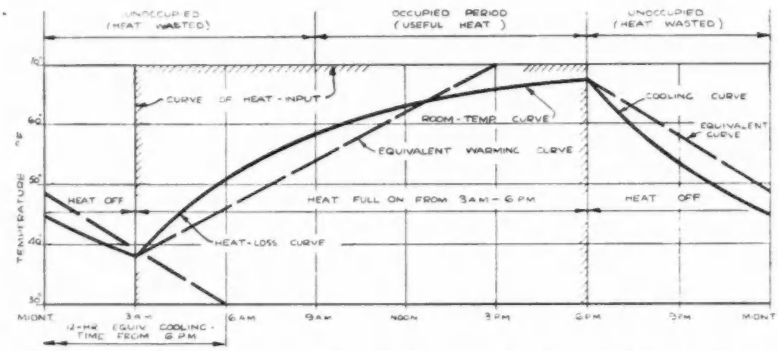


Figure 21. *Heating log corresponding to Fig. 20, but for a building having an equivalent cooling time of twelve hours.*

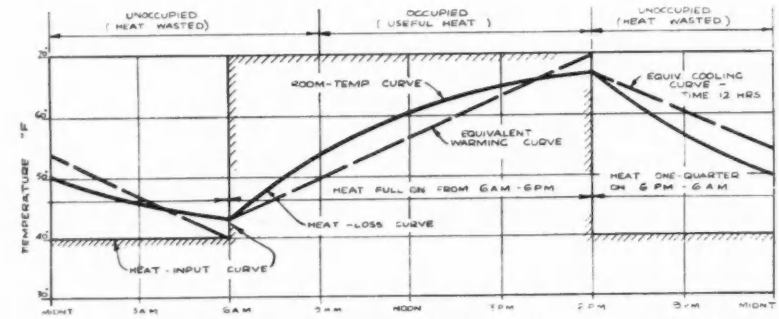


Figure 22. *Twenty-four hour heating log at 30° F. conditions, for a building having an equivalent cooling time of twelve hours, and a heating system designed for [70°—30°] working with no margin. The heat is full on from 6 a.m. to 6 p.m., and one-quarter on from 6 p.m. to 6 a.m.*

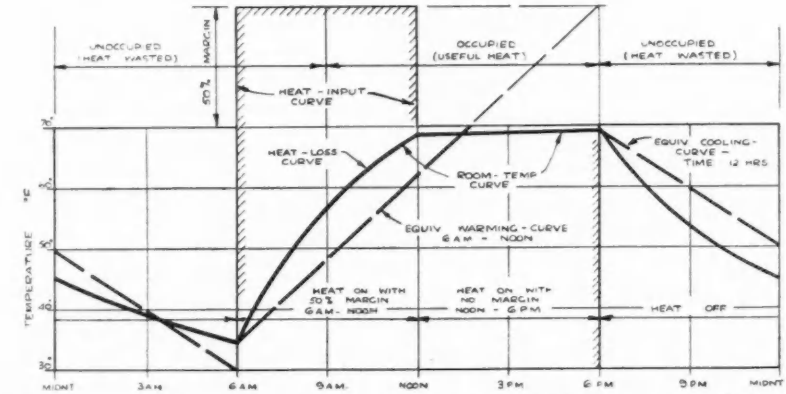


Figure 23. *Heating log corresponding to Fig. 22, but with heating system having 50% margin, fully used from 6 a.m. to noon. No heat at night (6 p.m. to 6 a.m.).*

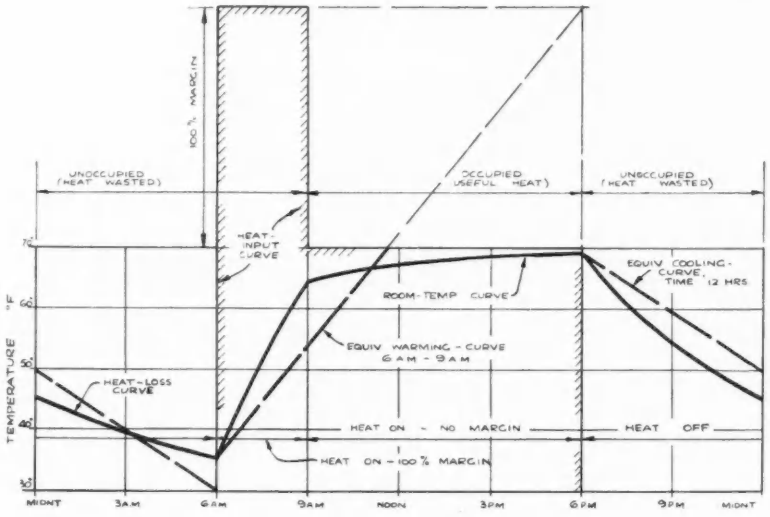


Figure 24. *Heating log corresponding to Fig. 23, but with system having 100% margin, fully used from 6 a.m. to 9 a.m. No heat at night (6 p.m.—6 a.m.).*

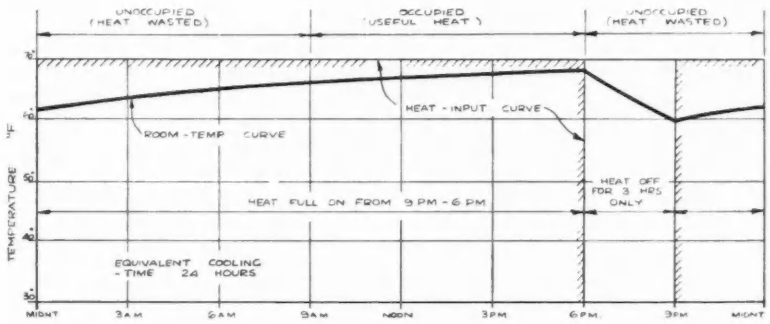


Figure 25. *Heating log at 30° F. conditions for a building having an equivalent cooling time of twenty-four hours, and a heating system designed for [70°—30°] working with no margin. The heat is off for three hours only (6 p.m.—9 p.m.).*

The heat required naturally increases with the period occupied. For example, it will be seen that when the occupied period is 12 hours (50 per cent.), the heat loss is also 50 per cent. of the full 24-hour loss when the cooling time is zero, but increases with a cooling time of 24 hours to 82½ per cent. with 100 per cent. margin; 87½ per cent. with 50 per cent. margin; and 100 per cent. with no margin.

Cooling times of six hours are common when applied to single rooms in a cold house, but when the whole house is heated, a 24-hour time is more usual. In the former case heat is lost through all four walls, floor and ceiling, in the latter through the outside surfaces only.

It may be asked how it is that systems with little margin manage at all. The answer is that in the coldest weather they need to be run practically the whole 24 hours, as shown by Fig. 25.

This is not so economical as when a large margin is available.

In more moderate weather, say, outside temperature about 50 deg., the system with no margin at 30 deg. now has a 100 per cent. margin, and at 43⅓ deg. F. has a margin of 50 per cent., which explains why a system with no margin at 30 deg. works quite economically at more moderate temperatures.

But the provision of a 50 per cent. margin, even on the 30 deg. conditions, makes for general economy and convenience.

In all the logs given (Figs. 20-25) it has been assumed that there is no time lag in the heating system itself, i.e., that it can be turned fully on or off without delay. This is almost true of direct electric heating, but the curves need rounding a little at the highest and lowest points before they can apply to oil firing and still more for coal or coke fired boilers.

(1) Gas fires, electric radiators, and similar systems of direct heating, may clearly be shut off completely at night until the morning warming is needed.

(2) Oil or other automatically fired boilers may be shut down completely at night, but the heat contents of the boilers and distributing system are lost during the night and have to be compensated in the morning by starting up earlier before the warmth is required.

(3) Coal or coke fired boilers may be let out each evening and relighted in the morning—an inconvenient but economical arrangement — in which case the above equally applies. They are, however, more generally banked up for the night, in which case the losses incurred are those already described, and in addition the fuel consumed during the night, this often being considerable.

This fuel is not all an extra loss, as it clearly leaves a slightly warmer condition for the start in the morning, a condition which makes for greater comfort. This is because the effect of cold walls and furniture with very hot radiators is avoided, this being by no means so pleasant as the latter condition, in which the fabric of the building is still warm, so that a lower radiator temperature will suffice to balance losses. The fuel consumed at night may nevertheless be considerable and must be allowed for.

To give an example of the loss under (2), suppose we consider a hot water system in the office building previously referred to, which consumes about one million B.T.U.'s per hour in 30 deg. F. conditions.

This might have a water contents in the heating system as follows :—

	Gallons
Radiators or panel	600
Mains	440
Boilers	400
	1,440

If this is at 160 deg. F. hot, and 60 deg. F. cold, it cools at night by about 100 deg., corresponding to 1,440,000 B.T.U.'s. This is the loss under (2). This can be treated approximately by adding to the cooling time of the building.

It was shown on page 206 that, under the conditions defined, our office building consumed 212 lb. of coal an hour which the heating system is emitting at one million B.T.U.'s per hour. At night this system would probably consume 15 per cent. of this = 32 lb. an hour.

So we have the following log (assuming a 33⅓ per cent. margin and equivalent cooling time of 12 hours) :

	Hours.	Consumption per Hour.	Fuel Used. lbs.
Night—			
6 p.m. to 6 a.m.	12	32	384
Morning—			
6 a.m. to 9 a.m.	3	280	840
Day—			
9 a.m. to 6 p.m.	9	212	1,908
			3,132

So that the additional night loss (3) owing to fuel burnt when the boilers are " banked " amounts to :

$$\frac{384 \times 100}{3132} = 12\tfrac{1}{4} \text{ per cent.}$$

It may fairly and truly be argued that

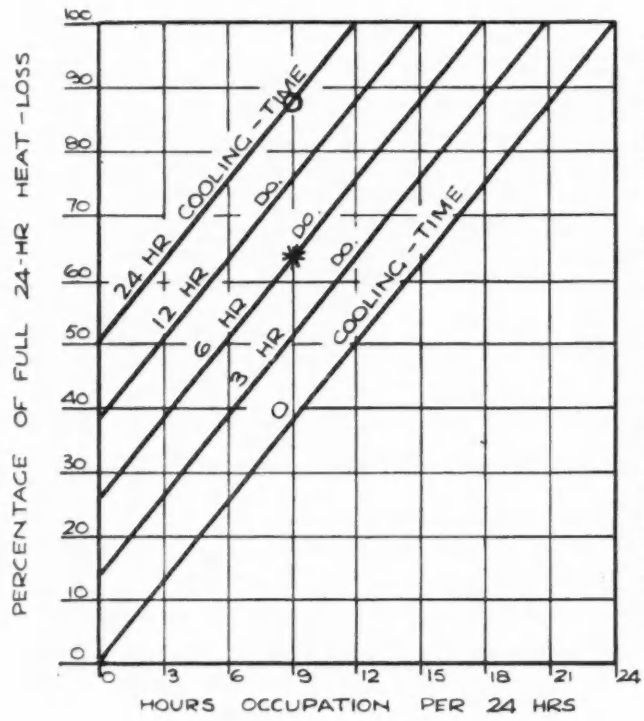


Figure 26. *No margin in heating installation.* * *is represented by Fig. 20;* ○ *is represented by Fig. 25.*

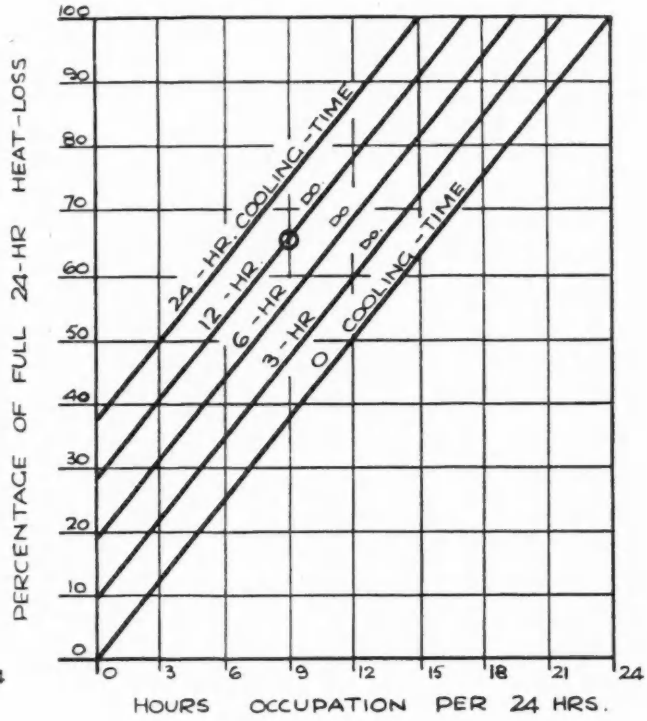


Figure 27. *50% margin in heating installation.* ○ *is case represented by Fig. 23.*

some of this fuel is useful in leaving the building and the water warmer at 8 a.m. next morning than would otherwise be the case, but in fact it is mostly lost.

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THE GEFFRYE MUSEUM

The following lectures have been arranged by the Geffrye Museum, Kingsland Road, Shoreditch, E.2: February 21: "Design, with special reference to the Furniture Section of the Royal Academy Exhibition of Art in Industry," 1935, by C. A. Richter; February 28: "Metal Mounts in relation to Modern Furniture," by J. Seymour Lindsay; March 7: "British Empire Timbers, their success in Modern Furniture and Decoration," by Walter C. Potter; March 14: "William Morris, Machinery and Modernity," by H. P. Shapland; March 21: "Some Great Houses recently demolished in London and the Furniture they contained," by C. A. Hindley; March 28: "Methods of Decorating Furniture of the Seventeenth and Eighteenth Centuries," by Ingleson C. Goodison. Each lecture will commence at 7.30 p.m.

LE PLAY SOCIETY

The Administrative Council of Le Play Society (58 Gordon Square, W.C.1), have arranged an interesting programme for the Easter Vacation. Under the leadership of Mr. H. S. Williamson, Principal of the Chelsea School of Art, and with Mrs. H. V. Lanchester as hostess, a party is to leave London for Spain on April 6. From Madrid a journey south will be made by touring car. Another party is to go to the Apennines. Dr. G. Furlong, Lecturer at the National Gallery, will lead, and the hostess will be Miss Margaret Tatton.

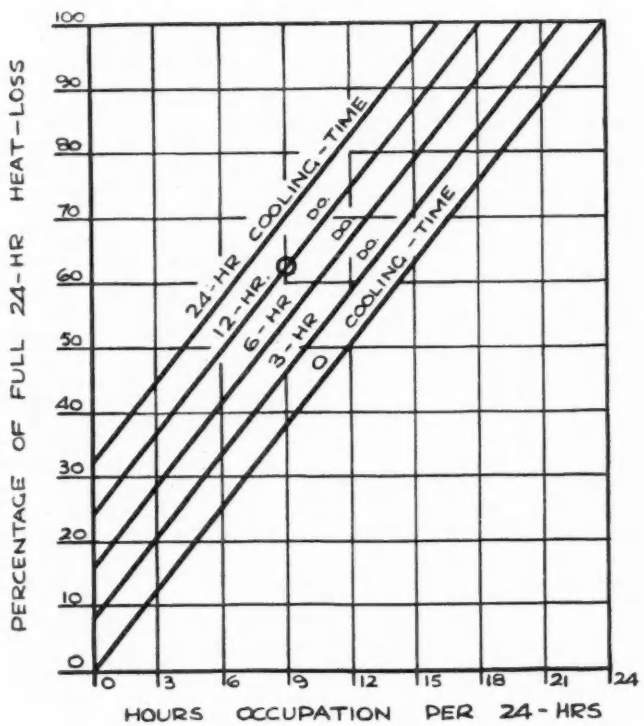
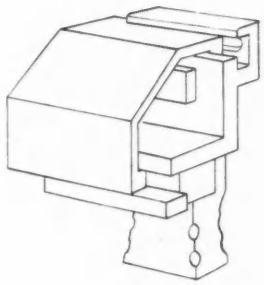


Figure 28. *100% margin in heating installation.* ⊙ *is case represented by Fig. 24.*

From Florence the group will go by motor to Arezzo, Perugia, Rimini and Ravenna, by way of Gubbio, Urbino and San Marino. Regional survey work at home is to be undertaken at Ipswich and its neighbourhood, under the guidance of Mr. George Morris, B.SC., and Mr. Guy Maynard, F.R.A.I., Curator of the Ipswich Museum; also in the Cotswolds, Miss Charlotte Simpson, B.SC., F.R.G.S., having a special Training Course at Cranham. Those interested in either of these activities should write to Miss M. Tatton, Director, 58 Gordon Square, W.C.1.



TRADE NOTES

[BY F. R. S. YORKE, A.R.I.B.A.]

Stair Rod Holder

PORCHESTER is the name given to a fitting (described by J. R. Pearson (Birmingham) Ltd., as "pleasing without being elaborate") designed for building-in to stone, marble or concrete staircases, to take the ends of stair rods in hotels and similar buildings, where fairly frequent removal of stair carpet is necessary.

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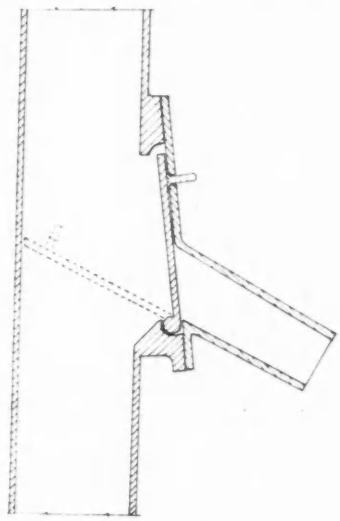
The fitting is made of bronze. A covering member, which slides in either direction sufficiently far to allow the rod to be released, is fitted with a ball catch so that it cannot be entirely removed, so avoiding loss of time in refitting. There is only one pattern, so the question of left- or right-hand does not occur (diagram above).

Soft Water

The Thames Bank Iron Company have just introduced a device by means of which rain-water can be diverted from a down pipe of any standard diameter to a butt or garden pool.

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The fitting is a casting in the form of a short length of iron rain-water pipe with a square box and spout on one side. Behind the removable cover to the box is a flap that can be released, simply by removing a pin, to fall back and fill the aperture in the main pipe, so diverting water through the spout. The spout is tapered and grooved to take a normal garden hose.



A device by means of which rain-water can be directed from a down pipe of any standard diameter to a butt or garden pool. See note on this page.

Water-Raising Pump

In L.C.C. housing schemes it is frequently necessary to raise hot water from a wash-boiler at one level to a bath above it. For this purpose Newman, Hender & Co. provide a semi-rotary wing pump (Fig. 1) with a special swivelling member on the suction side. A short length of ¾ in. wrought iron tubing and a strainer, forming a dip pipe, are attached to this member. The dip pipe is lowered into the boiler when it is desired to pump hot water to the bath, and can be lifted against the wall when not in use.



Figure 1.

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The same firm supply an improved patent automatic water-raising unit (Fig. 2) that can be adopted as an alternative when the water pressure on the main is not less than 40 lb. per sq. in.

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The horizontal union of this unit is connected to the main cold water supply pipe. The vertical union is connected to the pipe supplying the bath. The swivel on the left is attached to the dip pipe, which can be lowered into the wash-boiler, and swivelled back against the wall and out of the way when not required.

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The wash-boiler is filled by means of the cold water bib tap shown. When the water is just below boiling point, the main valve of the fitting is opened, and it immediately commences to deliver water to the bath. When all the hot water has been removed from the boiler, the main valve is closed and the operation is completed. The time taken is approximately 2½ minutes. The operation appears quite simple—just turning a tap on and off.

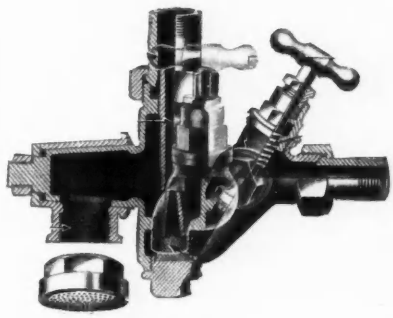


Figure 2.

IN PARLIAMENT

[BY OUR SPECIAL REPRESENTATIVE]

Stonehenge

SIR PERCY HURD asked the First Commissioner of Works what was the term and nature of the arrangement with the National Trust under which the trust handed over to a Government department land at Stonehenge which was donated to the trust by private subscribers to the Stonehenge Preservation Fund in the belief that it would be under the control of the trust; and what prior steps were taken to ascertain the views of the donors of this historic memorial.

Mr. Ormsby-Gore said that the National Trust had made the Commissioners of Works guardians of the site of the car park under the provisions of the Ancient Monuments Acts. He was sure that his hon. friend would realize that the sole object both of the National Trust and of his Department in forming the car park was to take a further and much needed step in the preservation of the amenities of Stonehenge, and that it would be difficult to argue that the Trust was not justified, from every point of view, in using its property at Stonehenge in such a way as to benefit the surroundings of the monument.

He did not find it easy to see how the National Trust could have effectively consulted the many contributors to the purchase of the land round Stonehenge.

Several prominent local archæologists were supporting the proposed scheme.

Lieutenant-Colonel Moore asked what was the present position in regard to the Earl Haig memorial statue.

Mr. Ormsby-Gore said that the full size clay model was now practically complete, and it would, he hoped, soon be possible for the sculptor to proceed with the plaster cast.

Silver Jubilee

Lieutenant-Colonel Moore asked the First Commissioner of Works if he had received any gifts for the decoration of the royal parks in commemoration of the Silver Jubilee and from whom; and would he state the purpose to which he proposed allocating such gifts.

Mr. Ormsby-Gore said that Mr. Sigismund Goetze, the donor of the existing new gates on the east side of the gardens, allowed him to make public the fact that he was contributing a sum of £3,600 towards the cost of a new main south entrance, with fine ornamental ironwork gates, to the Inner Circle Gardens. Mr. Goetze wished the work to be considered as a commemoration of Their Majesties' Silver Jubilee. He was sure that hon. members would share his gratitude to this well-known artist for this further proof of his generosity.

Housing Progress

Captain Heilgers asked the Minister of Health what had been the increase in the rate of house building since September, 1931; and what was the addition to Exchequer liabilities since that date.

Mr. Shakespeare said that the number of houses erected in the half-year ended September 30, 1934, showed an increase over the number of houses erected in the half-year ended September 30, 1931, of over 65 per cent. The addition to the liabilities of the Exchequer as the result of housing undertaken since September, 1931, was of the order of £1,400,000 per annum, an increase of about 11 per cent.

Building Regulations

Sir Charles Cayzer asked the Minister of Health whether he had considered the Report issued by the Building Industries National Council with regard to the simplification of the regulations governing the designing of buildings from the point of view of the provision of adequate means of escape in case of fire; and whether he proposed to redraft the regulations in such a form that they could be applied as broad principles rather than as hard-and-fast requirements.

Mr. Shakespeare said that the Minister had no power to issue such regulations as he gathered his hon. friend had in mind. The report to which his hon. friend referred was stated in its preface to be intended to deal with difficulties arising in London, and in London matters of this kind are regulated by the London Building Act. His right hon. friend understood that the London County Council intended to promote a Bill in the present session, the object of which was to empower them to substitute bye-laws for statute law as the instrument for controlling building.

Bricks

Mr. Thorne asked the Minister of Health if his attention had been called to the manufacture of coloured bricks made of concrete; if he could state whether the durability of the concrete brick was equal to the clay brick; whether they were of the standard size; and if he was in a position to state the price per thousand.

Mr. Shakespeare said that the hon. member had been good enough to draw the attention of his right hon. friend to a newspaper cutting on the subject of his question. His right hon. friend was advised that concrete bricks and clay bricks suitably constructed might be equally durable. It was open to the manufacturers, if they so desired, to apply to the Building Research Station for a report on the material now in question.

Metropolitan Police (Borrowing Powers) Bill

Sir John Gilmour, moving the second reading of the Metropolitan Police (Borrowing Powers) Bill, said one of the objects of the Bill was the provision of section houses. Under the present conditions men lived in cubicles where they could not get light except from a passage outside and where in most cases there was no opportunity to read. They were aiming at providing in place of these cubicles a properly lighted and heated bed-sitting room, and, in addition, a canteen common room, recreation, accommodation and restaurant.

Another object was the provision of married quarters. The expenditure upon them was expected to be between £500,000 and £750,000.

He also referred to the central office of the Metropolitan Police Force at Scotland Yard. The number of people now working in Scotland Yard was about four times as many as it was originally constructed to accommodate, and where secret and confidential documents were being dealt with the circumstances hardly made it possible to carry out the work properly. If they were to remain where they were in Scotland Yard they must extend towards the north, along the embankment frontage. The estimated cost of the new building was between £300,000 and £400,000. The total expenditure under the Bill, as nearly as could be estimated, was £4,500,000.

THE BUILDINGS ILLUSTRATED

Sub-Contractors' List

The following is a list of the general contractors and some of the sub-contractors for the buildings illustrated in this issue:—

Offices in Throgmorton Street, E.C. (pages 272-273). General contractors: Trollope and Colls, Ltd. Sub-contractors: F. H. Wheeler, electric lighting; Edinburgh Weavers, Ltd., curtains material; Joseph Avery & Co., curtains, making up; B. Cohen and Sons, Ltd., chairs; D. Burkle and Son, Ltd., table.

House at Edgbaston (page 274). General contractors: William Sapcote and Sons, who were also responsible for the Dutch garden. Sub-contractors: Setchell and Sons, Ltd., slates; Prince, plastering; James Gibbons, Ltd., casements, glazed canopy, w.i. gate, locks and fastenings; Griffin Foundry, Ltd., wall tiling, grates and mantels, sanitary goods; Bruce Harris, electric wiring, etc.; Andersons, Ltd., flat roofs and gutters; Thos. Parsons and Sons, Ltd., paints; Birmingham Seneptois, Ltd., wall sun-dial; W. and J. Davis, landscape gardeners; Art Pavements and Decorations, Ltd., marble paving; Venesta, Ltd., doors.

Manufacturers' Items

Amongst recent orders received by British Insulated Cables, Ltd., are: 34 tons of cadmium copper line wire for Lithuania, the wire to be in accordance with British Post Office specification, 1,000 miles of motor car flexible for a manufacturer of motor accessories, a power factor condenser installation with a capacity of 400 kVA for a motor car factory, and 45 condensers of various sizes, totalling 311 kVA, for a steel manufacturer; the supply, laying and jointing of 20 miles of 33 kV cable, with pilot and telephone cable, between Ocker Hill and Brierley Hill and Ocker Hill and Slow Heath; and 25 tons of soft aluminium sheet for a north country manufacturer.

*

In the list of contractors for the new Stationery Factory and Book-binding Workshops for W. H. Smith and Son, published in our last issue, we inadvertently omitted to state that the non-slip treads in the terrazzo main staircase on the ground floor are 6 in. by 4 in. by ¾ in. round-nosed Alundum non-slip tile in the buff colouring, and were supplied by Adamite Co., Ltd.

BANK NEWS

The net profits of Westminster Bank, Ltd., for the past year, after providing for rebate and income tax, and after appropriations to the credit of contingency accounts, out of which accounts full provision for bad and doubtful debts has been made, amount to £1,524,879 16s. This sum, added to £460,495 18s. 3d. brought from 1933, leaves available the sum of £1,985,375 14s. 3d.

The dividend of 9 per cent. paid in August last on the £4 shares and 6¼ per cent. on the £1 shares absorbs £602,145 11s. 7d. A further dividend of 9 per cent. is now declared in respect of the £4 shares, making 18 per cent. for the year; and a further dividend of 6¼ per cent. on the £1 shares will be paid, making the maximum of 12½ per cent. for the year.

£100,000 has been transferred to bank premises account, and £200,000 to officers' pension fund, leaving a balance of £481,084 11s. 1d. to be carried forward.

The directors have restored to the reserve the amount of £1,820,157 which was in 1931 withdrawn to meet depreciation on the bank's investments and has since been held in a special account.

*

The directors of the Midland Bank Ltd., report that, full provision having been made for all bad and doubtful debts, the net profits for the year 1934 amount to £2,292,217 which, with £866,483 brought forward, makes £3,158,700, out of which the following appropriations amounting to £1,403,376 have been made:—

To interim dividend, paid July 16, 1934, for the half-year ended June 30, 1934, at the rate of 16 per cent. per annum less income tax	£883,376
To reduction of bank premises account	£250,000
To reserve for future contingencies..	£270,000
Leaving a sum of £1,755,323 from which the directors recommend a dividend, payable February 1, next, for the half-year ended December 31, 1934, at the rate of 16 per cent. per annum less income tax	£883,376
And a balance to be carried forward of	£871,946

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On February 13, at the L.C.C. Central School of Arts and Crafts, Southampton Row, W.C., Sir Banister Fletcher, F.S.A., PP.R.I.B.A., delivered the second of a series of nine University Extension lectures on "English Renaissance Architecture."

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS).

BRENTFORD. *Offices.* The Middlesex County Council have approved in principle the erection of a building on a site lying between Glenhurst Road, Brentford, and the Great West Road, for public assistance, local taxation, etc. The estimated cost of the work is £20,000. The County Architect is Mr. W. T. Curtis, F.R.I.B.A., 10 Great George Street, S.W.1.

CHISELHURST AND SIDCUP, ETC. *Libraries.* The Education Committee propose the provision of Libraries at an estimated cost of £11,000; and at Crayford at an estimated cost of £5,000.

EAST HAM. *Baths.* The Corporation Baths Committee has had under consideration the question of the acquisition of a site for baths in the north of the borough, and has instructed the Borough Engineer to report with full details of a proposed site at the next meeting of the Committee.

EAST HAM. *Factory.* Commercial Structures, Ltd., propose to develop a factory site of about 13 acres south of the East Ham and Barking by-pass road.

EAST HAM. *Houses.* Plans passed by the Corporation: 27 houses, Gainsborough and Landseer Avenues, for Mr. R. J. Slater, architect.

HARROW. *Hotel.* A new hotel is to be erected in College Road for Messrs. Benskins, subject to the consent of the Licensing Sessions. Plans by Major H. P. G. Maule, F.R.I.B.A.

SURBITON. *Demolition, etc.* Demolition work is shortly to commence on the existing buildings at Nos. 72 and 73 Victoria Road, the site of which has been acquired by Messrs. A. G. Bonsor. Premises are to be erected on the major portion of the site for Messrs. F. W. Woolworth & Co., Ltd., the remaining portion is to be occupied by auction and estate offices for Messrs. A. G. Bonsor.

TWICKENHAM. *Bridge.* The Ministry of Transport have intimated their willingness to make a maximum grant of £5,195 towards the construction of the new railway bridge in Percy Road. The Borough Engineer estimates the cost of the works at £6,927.

UXBRIDGE. *Houses.* The U.D.C. are to proceed with the development of the third section of the Avenue Housing Estate. The architect has prepared plans, and it has been decided to approach the Unit Construction Co., Ltd., to carry out the work, subject to the consent of the M.H. The architect also reported that he was proceeding with the preparation of plans for 12 houses for aged persons. A further site has been secured at Violet Farm for housing purposes.

SOUTHERN COUNTIES

BEXLEY. *Schools.* School sites are to be acquired in the Bexley area for additional schools, by the Kent E.C. County Architect, Mr. W. H. Robinson, F.R.I.B.A., Maidstone.

CHARTHAM. *Schools.* The Board of Education have approved the acquisition of a site at Chartham for a central school. The Board have also approved the adaptation of the York Road Council School at Dartford as a Central School for Girls, for the Kent E.C. County Architect, Mr. W. H. Robinson, F.R.I.B.A., Maidstone.

CRAYFORD. *School.* The Kent E.C. are to provide a School at Crayford for 350 infants and juniors, at Mayplace Road, to plans by the County Architect, Mr. W. H. Robinson, F.R.I.B.A., Maidstone.

CUCKFIELD. *Houses.* The U.D.C. have secured a site of 6¾ acres at Hurstpierpoint for housing purposes. The plans will be prepared by the Council's Surveyor.

ELHAM. *Houses.*—Mr. A. R. Bowles, architect, of Folkestone, has been requested to prepare plans and specifications for houses proposed to be erected on the Lympne Estate.

FAVERSHAM. *School.* Subject to the approval of the Board of Education, and in consultation with the Faversham E.C., a site is to be acquired for a proposed central school by the Kent E.C. The County Architect is Mr. W. H. Robinson, F.R.I.B.A., Maidstone.

HINCHLEY WOOD. *Church, etc.* The Guildford Diocesan new churches and Cathedral fund committee have allocated £2,000 towards the building of a church-cum-hall for Hinchley Wood. A site has already been given, and it is expected that work will start very shortly.

MAIDSTONE. *Flats.* The T.C. have accepted the tender of Messrs. W. T. Burrows and Sons of £4,983 for the erection of two blocks of 12 flats at Ringlestone.

ORPINGTON. *School.* The Kent E.C. propose erecting a permanent school for 350 infants and juniors on the Crofton site in addition to a temporary school for 250. Additional sites are also to be purchased. Plans by the County Architect, Mr. W. H. Robinson, Maidstone.

PORCHESTER. *School.* The Hampshire E.C. have agreed to secure a site in the district for the provision of a senior school. The County Architect is Mr. A. L. Roberts, F.R.I.B.A. The Castle, Winchester.

ST. MARY CRAY. *School Enlargement.* The Kent E.C. propose, owing to the extensive development of the district, to enlarge the St. Mary Cray secondary school. Plans by Mr. W. H. Robinson, F.R.I.B.A., County Architect, Maidstone.

SANDWICH. *Clinic.* The Kent Education Committee are to acquire a site for the erection of ophthalmic and dental clinic. Plans by the County Architect, Mr. W. H. Robinson, Maidstone.

SOUTHSEA. *Hotel.* A new hotel with eight storeys is to be erected on a site overlooking the canoe lake. Provision has been made in the plans for 14 private suites in the centre of the building, rising to the top storey: the upper floors on either side will provide for 130 bedrooms. There will be 28 self-contained service flats, 14 on either side of the east and west wings; the scheme also includes a masonic temple, swimming pool, sun balconies, etc. The architects are Messrs. Buckland and Heywood, of Birmingham and London. The estimated cost of the total scheme is £200,000.

WARSASH. *Club.* It has now been decided that owing to the rapid development of the Salterns estate, the present working men's club would cease to exist, but the donor, Sir Warden Chilcott, has intimated that he will provide another site, probably in Newtown Road, and have erected theron a more suitable and more convenient club premises.

SOUTH-WESTERN COUNTIES

CAMBORNE. *Cinema.* It is understood that a new cinema will shortly be erected at Camborne, on the site at present occupied by Mr. J. R. Buddle at Chapel Street. The site is about 130 ft. by 60 ft., and the cinema, when complete, will seat roughly 1,100 persons.

CAMBORNE. *Post Office Alterations.* Messrs. Walters & Co., of Redruth, have secured the contract for the complete rebuilding and reorganization of the post office premises, at Chapel Street. The scheme includes premises adjoining the post office, the front of which is to be rebuilt in granite to correspond with the exterior of the post office.

TORQUAY. *Library.* The Corporation reports that the Minister of Health has approved generally the proposals of the Corporation to erect a new library and to adapt the existing library for the purpose of public offices.

TORQUAY. *Reservoir.* The Corporation Waterworks Committee recommends that the scheme for the construction of Fernworthy reservoir at an estimated cost of £130,000 be proceeded with as speedily as possible and that a qualified civil engineer be appointed for designing and supervising the construction of such reservoir.

TORQUAY. *Houses.* Plans passed by the Corporation: 25 houses, Barton Road, for Mr. P. D. Cavanna; six houses, Rooklands Estate, St. Michael's Road, for Mr. R. E. Narracott; three houses, Park Hill Road, for Col. Newcombe; two houses, Briwere Road, for Mr. F. White; four houses, Briwere Road, off Old Woods Hill, for Messrs. H. Lloyd and Son. Plans submitted: Block of flats, Babbacombe Road, for Mr. G. W. Hands; two houses, Shiphay Lane, for Mr. B. Evans; two flats, Warren Road, for Mr. J. Rathbone; four houses, Stuggy Lane, for Mr. H. J. Breyley; four houses, Stantaway Hill, for Messrs. H. Kershaw & Co.

MIDLAND COUNTIES

BIRMINGHAM. *Maisonettes.* The Corporation Housing Committee has approved lay-out plans by the City Engineer for the erection of 84 maisonettes at Brantley and Westwood Roads, Witton, at an estimated cost of £24,052, plus £7,500 cost of land.

ILKESTON. *Hospital.* The Corporation has instructed the Borough Engineer to prepare draft plans for the erection of a new isolation hospital.

ILKESTON. *Houses.* Plans passed by the Corporation: Two houses, Cotmanhay Road, for Messrs. J. W. Stapleton and Sons; four houses, Nursery Hollow, for Mr. J. Cooper; and three houses, Heanor Road, for Mr. W. H. Dawson. Plans submitted: Two houses, off Manor Road, for Mr. A. Wheatley.

NORTHERN COUNTIES

LEEDS. *Town Planning.* The Town Planning Committee of the Corporation has refused an application by Messrs. A. and L. Cansfield to develop land at Street Lane and Moor Allerton Drive, by the erection thereon of a cinema and five shops. The Town Planning Committee has refused an application by Mr. Ernest Todd for permission to develop land at Amberton Road by the erection thereon of a cinema. Under the draft town planning scheme, the land is reserved primarily for the erection of houses. The Town Planning Committee has considered an application by the trustees of Joseph Pickersgill for permission to develop land at Otley Road and Alma Road, by the erection thereon of a cinema, six houses and shops and 12 garages in accordance with plans submitted by the trustees. The land, however, is intended primarily for the erection of dwelling houses, and the Committee has refused the application to develop on the lines proposed.

LEEDS. *Houses and Flats.* The Corporation has approved lay-out plans by the Housing Director for the erection of 284 houses and flats on the Westfield estate. The Corporation has approved lay-out plans by the Housing Director for the erection of 1,266 houses and flats, two doctors' or dentists' houses, and 17 houses and shops on the Sandford House estate, and authorized him to obtain tenders for the work. The Corporation Housing Committee has approved lay-out plans for the erection of 152 houses and flats off Osmondthorpe Lane. The Corporation Housing Committee is to erect 242 houses and flats off Lea Farm Road.

LEEDS. *Bathing Pool.* The Corporation has approved a scheme for further improvements at the Roundhay Park bathing pool.

LEEDS. *Zoological Gardens.* At the Parks Committee of the Corporation an offer was received from Messrs. Bramham and Gale, estate agents, on behalf of Mr. A. R. McKill to purchase the Elmet Hall estate for the purpose of establishing zoological gardens. The Committee referred the offer to a sub-committee for consideration and also requested such sub-committee to consider the question of the establishment of zoological gardens by the Corporation at Temple Newsam.

LEEDS. *Industrial Buildings.* The Corporation Housing Committee is to erect buildings for industrial purposes off Osmondthorpe Lane.

LEEDS. *Houses.* Plans passed by the Corporation: Houses, Ivy Street, York Road and Ivy Avenue, for Mr. William Jowett; houses, Landseer Avenue, Bramley, for Messrs. Barker and Cheer.

MANCHESTER. *Hospital Additions.* The governors of the Eye Hospital, Nelson Street, Chorlton-on-Medlock, are to erect an out-patients' department.

SCOTLAND

GLASGOW. *Houses.* The Corporation has approved lay-out plans by the Housing Director

(*Continued on page xxxviii.*)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing

The districts and rates set out in bold type denote the regradings and consequent changed standard rates of wages authorized to take effect on and from February 1.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Alfreburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A_2	Boston	Mid. Counties	1 4	1 0
A_2	**Bournemouth**	**S. Counties**	**1 4½**	**1 0½**
B_1	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M	1 5½	1 1½
B	**Bridgwater** ..	**S.W. Counties**	**1 3½**	**11½**
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	**Brighton** ..	**S. Counties**	**1 4½**	**1 0½**
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_3	**Chatham** ..	**S. Counties**	**1 4**	**1 0**
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	**Colchester** ..	**E. Counties**	**1 4½**	**1 0½**
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	**Dorchester** ..	**S.W. Counties**	**1 3**	**11½**
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee	Scotland	1 5½	1 1½
A	Durham	N E. Coast	1 5½	1 1½
A_2	EASTBOURNE	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorgan-shire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter ..	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S. W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W. Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heywood ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_3	**Kendal** ..	**N.W. Counties**	**1 4**	**1 0**
A_2	**Keswick** ..	**N.W. Counties**	**1 4**	**1 0**
A_1	**Kettering** ..	**Mid. Counties**	**1 5**	**1 0½**
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12–15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	**Maidstone** ..	**S. Counties**	**1 4**	**1 0**
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N.E. Coast	1 5½	1 1½
A_2	Middlewich ..	N.W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth ..	S. Wales & M.	1 2½	11
	& S. and E. Glamorganshire			
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham	N.W. Counties	1 5½	1 1½
A_5	Oswestry ..	N.W. Counties	1 4	1 0
A_1	**Oxford** ..	**S. Counties**	**1 5**	**1 0½**
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	**Peterborough**	**E. Counties**	**1 5**	**1 0½**
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate	S. Counties	1 3½	11½
A	Retford	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton	Yorkshire	1 4½	1 0½
A_2	Slough	S. Counties	1 4½	1 0½
A_1	Solihull	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_1	**Southend-on-Sea**	**E. Counties**	**1 5**	**1 0½**
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	**Teignmouth** ..	**S.W. Coast**	**1 4½**	**1 0½**
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_3	**Tunbridge Wells**	**S. Counties**	**1 4**	**1 0**
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	**Wellingborough**	**Mid. Counties**	**1 5**	**1 0½**
A	West Bromwich	Mid Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan ..	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	**Yeovil** ..	**S.W. Counties**	**1 3½**	**11½**
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality, and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger	"	1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
General Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
¾" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single junctions	"	3	6	5	3
Double "	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¼" Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6

IRON DRAINS:

		£	s.	d.
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead wool	lb.		6		—
Gaskin	"		5		—

BRICKLAYER

		£	s.	d.
Flettons	Per M.	2	15	0
Grooved do.	"	2	17	0
Phorpres bricks	"	2	15	0
" Cellular bricks	"	2	15	0
Stocks, 1st quality	"	4	11	0
" 2nd "	"	4	2	6
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Brindles	"	7	0	0
" Bullnose	"	9	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	0
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midburst White Facings	"	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	29	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

The following d/d F.O.R. at Nine Elms:

		s.	d.
Portland stone, Whitbed	F.C.	4	4½
" " Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" " Sawn templates	"	7	6
" " Paving, 2"	F.S.	1	8
" " 3"		2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	"	24	10	0
20" × 10" Countesses	"	19	5	0
18" × 10" Viscountesses	"	15	10	0
18" × 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey per 1,000 (actual)		21	11	6
" " green " "		24	7	8
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each			9½
" hand-made	"			10
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak plain American	" "	1	0
" Figured "	" "	1	3
" Plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1
Deal floorings, ¾"	Sq.	18	6
" 1"	"	1 1	6
" 1¼"	"	1 2	0
" 1½"	"	1 5	0
" 1¾"	"	1 10	0
Deal matchings ¾"	"	14	0
" 1"	"	15	6
Rough boarding ¾"	"	1 4	0
" 1"	"	16	0
" 1¼"	"	18	0
Plywood, per ft. sup. —Thickness ⅛"		1 6	0

Qualities	¼" AA.A.B.			⅜" AA.A.B.			½" AA.A.B.			¾" AA.A.B.		
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Birch	4	3	2	5	4	3	7½	6	4½	8½	7	6
Alder	3½	3	2	5	4	3	6½	5½	4½	8	7	6
Gaboon Mahogany	4	3	3	6½	5½	4½	9½	7½	–	1/0½	10	–
Figured Oak 1 side	8½	7	–	10	8	–	11½	–	–	1/6	–	–
Plain Oak 1 side	6½	6	–	7½	7	–	9½	–	–	1/–	–	–
Oregon Pine	5	4	–	5½	5	–	6	–	–	–	–	–

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	¼"	⅜"	½"	¾"	1"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23¾" long each	10	1/1	1/11	2/8	4/9
" 3"-11⅞" long "	7	9	1/3	1/8	3/–
Long screws, 12"-23¾" long "	11	1/3	2/2	2/10	5/3
" " 3"M-⅞" long "	8	10	1/5	1/11	3/6
Bends "	8	11	1/7½	2/7½	5/2
Springs not socketed "	5	7	1/1½	1/11½	3/11
Socket unions "	2/–	3/–	5/6	6/9	10/–
Elbows, square "	10	1/1	1/6	2/2	4/3
Tees "	1/–	1/3	1/10	2/6	5/1
Crosses "	2/2	2/9	4/1	5/6	10/6
Plain Sockets and nipples "	3	4	6	8	1/3
Diminished sockets "	4	6	9	1/–	2/–
Flanges "	9	1/–	1/4	1/9	2/9
Caps "	3½	5	8	1/–	2/–
Backnuts "	2	3	5	6	1/1
Iron main cocks "	1/6	2/3	4/2	5/4	11/6
" " with brass plugs "	—	4/–	7/6	10/–	21/–

Discounts:

TUBES.

	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½

FITTINGS.

Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued*

		s.	d.
Rolled steel joists cut to length	cwt.	10	9
Mild steel reinforcing rods, ⅜"	"	8	6
" " ½"	"	8	3
" " ⅝"	"	8	0
" " ¾"	"	7	6
" " ⅞"	"	7	6
" " 1"	"	7	6
" " 1¼"	"	7	6
" " 1½"	"	7	6

Cast-iron rain-water pipes of ordinary thickness metal	3" F.R. s.	3" d.	4" s.	4" d.
Shoes	each	2	0	3	0
Anti-splash shoes	"	4	6	8	0
Boots	"	3	0	4	0
Bends	"	2	7	3	9
" with access door	"	—		6	3
Heads	"	4	0	5	0
Swan-necks up to 9" offsets	"	3	9	6	0
Plinth bends, 4½" to 6"	"	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal	F.R.	5		6	
Stop ends	each	6		6	
Angles	"	1	7	1	11
Obtuse angles	"	2	0	2	6
Outlets	"	1	9	2	3

PLUMBER

		£	s.	d.
Lead, milled sheets	cwt.	18	6	
" drawn pipes	"	17	0	
" soil pipe	"	18	6	
" scrap	"	10	6	
Solder, plumbers'	lb.		9½	
" fine do.	"		1	0
Copper, sheet	"		8½	
" tubes	"		11	

L.C.C. soil and waste pipes:	3" F.R.	3"	4"	4"	6"	6"
Plain cast	F.R.	1 0	1	2	2	6
Coated	"	1 1	1	3	2	8
Galvanized	"	2 0	2	6	4	6
Holderbats	each	3 10	4	0	4	9
Bends	"	3 9	5	3	10	3
Shoes	"	2 10	4	4	9	6
Heads	"	4 8	8	5	12	9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	5	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle Plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	9
Lath nails	lb.			3

GLAZIER

		s.	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.	s. F.S.				2½
" " 26 oz.	" " "				3
Flemish Arctic, Figured (white)*	"				7
Blazoned glasses	"			2	6
Reeded; Cross Reeded	"				11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite					6
Crown sheet glass (n/e 12 in. x 10 in.)	"			2	0
Flashed opals (white and coloured)	"	1	0 and	2	0
⅛" rough cast; rolled plate	"				5½
⅛" wired cast; wired rolled	"				9½
¼" Georgian wired cast	"				11
¼" Polished plate, n/e 1 ft.	"	† 10 to		‡ 1	1
" " 2	"	†1 2	"	‡1	4
" " 4	"	†2 3	"	‡2	6
" " 8	"	†2 9	"	‡3	2
" " 20	"	†3 7	"	‡4	2
" " 45	"	†3 11	"	‡4	7
" " 100	"	†5 0	"	‡5	7
Vita glass, sheet, n/e 1 ft.	"			1	0
" " " 2 ft.	"			1	3
" " " over 2 ft.	"			1	9
" " plate, n/e 1 ft.	"			1	6
" " " 2 ft.	"			3	0
" " " 5 ft.	"			4	0
" " " 7	"			5	0
" " " 15	"			6	0
" " " over 15	"			7	6
"Calorex" sheet 21 oz., and 32 oz.	"	2	6 and	3	6
" rough cast ⅛" and ¼"	"			8½	" 1 0
Putty, linseed oil	lb.				3

* *Colours*, 1d. *F.S. extra.*

†*Ordinary glazing quality.* ‡*Selected glazing quality.*

PAINTER

		£	s	d.
White lead in 1 cwt. casks	cwt.	2	6	0
Linseed oil	gall.		2	2½
Boiled oil	"		2	4½
Turpentine	"		2	1½
Patent knotting	"		14	0
Distemper, washable	cwt.	2	6	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	firkin		3	0
Copal varnish	gall.		13	0
Flat varnish	"		14	0
Outside varnish	"		16	0
White enamel	"	1	15	0
Ready mixed paint	"		13	6
Brunswick black	"		7	0

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR

		£ s. d.
Digging over surface n/e 12″ deep and cart away	Y.S.	2 9
,, to reduce levels n/e 5′ 0″ deep and cart away	Y.C.	8 6
,, to form basement n/e 5′ 0″ deep and cart away	,,	9 0
,, ,, 10′ 0″ deep and cart away	,,	9 6
,, ,, 15′ 0″ deep and cart away	,,	10 0
If in stiff clay	add ,,	6
If in underpinning	,,	4 0
Planking and strutting to sides of excavation	F.S.	1 0
,, ,, to pier holes	,,	5
,, ,, to trenches	,,	5
,, ,, extra, only if left in	,,	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	,,	1 6 0
,, ,, (4-2-1)	,,	1 12 6
,, ,, underpinning	,,	1 16 0
Finishing surface of concrete, spade face	Y.S.	7

DRAINLAYER

		4″ s. d.	6″ s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
,, junctions	,,	3 9	4 6
Gullies and gratings	,,	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER

		£ s. d.
Brickwork, Flettons n lime mortar	Per Rod	27 10 0
,, ,, in cement	,,	28 15 0
,, Stocks in cement	,,	35 0 0
,, Blues in cement	,,	52 0 0
Extra only for circular on plan	,,	2 0 0
,, backing to masonry	,,	1 10 0
,, raising on old walls	,,	2 0 0
,, underpinning	,,	5 10 0½
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	,,	8
,, ,, ,, red brick facings and pointing	,,	11
,, ,, ,, blue brick facing and pointing	,,	1 4
,, ,, ,, glazed brick facings and pointing	,,	3 6
Tuck pointing	,,	7½
Weather pointing in cement	,,	3
Slate dampcourse	,,	10
Vertical dampcourse	,,	1 1

ASPHALTER

		s. d.
½″ Horizontal dampcourse	Y.S.	4 6
½″ Vertical dampcourse	,,	6 9
½″ paving or flat	,,	4 0
1″ paving or flat	,,	5 6
1″ × 6″ skirting	F.R.	1 0
Angle fillet	,,	2
Rounded angle	,,	2
Cesspools	Each	5 0

MASON

		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	,,	13 6
Artificial stone and do.	,,	13 0
York stone templates, fixed complete	,,	10 6
,, thresholds	,,	13 6
,, sills	,,	1 0 6

SLATER AND TILER

		£ s. d.
Slating, Bangor or equal, laid to a 3″ lap, and fixing with compo nails, 20″ × 10″	Sqr.	3 10 0
Do., 18″ × 9″	,,	3 7 0
Do., 24″ × 12″	,,	3 17 0
Westmorland slating, laid with diminished courses	,,	6 0 0
Tiling, best hand-made sand-faced, laid to a 4″ gauge, nailed every fourth course	,,	3 0 0
Do., all as last, but of machine-made tiles	,,	2 16 0
20″ × 10″ medium Old Delabole slating, laid to a 3″ lap (grey)	,,	4 6 0
,, ,, ,, ,, ,, ,, (green)	,,	4 15 0

CARPENTER AND JOINER

		£ s. d.
Flat boarded centering to concrete floors, ncluding all strutting	Sqr.	2 5 0
Shuttering to sides and soffits of beams	F.S.	8
,, to stanchions	,,	8
,, to staircases	,,	1 8
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	,,	4 6
,, ,, roofs	,,	6 6
,, ,, trusses	,,	7 6
,, ,, partitions	,,	8 6
½″ deal sawn boarding and fixing to joists	Sqr.	1 14 6
1″ ,, ,, ,, ,,	,,	1 17 6
1½″ ,, ,, ,, ,,	,,	2 3 0
½″ × 2″ fir battening for Countess slating	,,	9 6
Do. for 4″ gauge tiling	,,	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
,, ,, ,, 2 ,,	,,	2 9
,, ,, ,, 3 ,,	,,	3 3
Stout herringbone strutting to 9″ joists	F.R.	10½
1″ deal gutter boards and bearers	F.S.	1 2
1½″ ,, ,, ,, ,,	,,	1 6
2″ deal wrought rounded roll	F.R.	8
1″ deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼″ do.	,,	2 10 0
1½″ do.	,,	2 17 0
1″ deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1¼″ do.		1 9

CARPENTER AND JOINER—*continued*

		s. d.
1½″ deal moulded sashes of average size	F.S.	1 9½
2″ ,, ,, ,, ,,	,,	1 11½
1½″ deal cased frames double hung, of 6″ × 3″ oak sills, 1¼″ pulley stiles, 1¼″ heads, 1″ inside and outside linings, ⅜″ parting beads, and with brass faced axle pulleys, etc., fixed complete	,,	3 7
2″ ,, ,, ,, ,,	,,	3 10
Extra only for moulded horns	Each	6
1½″ deal four-panel square, both sides, door	F.S.	2 0
2″ ,, ,, ,, ,,	,,	2 8
1½″ ,, but moulded both sides	,,	2 4
2″ ,, ,, ,, ,,	,,	3 0
4″ × 3″ deal, rebated and moulded frames	F.R.	1 0
4½″ × 3½″ ,, ,, ,,	,,	1 4
1½″ deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1½″ deal treads, 1″ risers in staircases, and tongued and grooved together on and including strong fir carriages	,,	2 6
1½″ deal moulded wall strings	,,	2 1
1½″ ,, outer strings	,,	2 4
Ends of treads and risers housed to string	Each	1 9
3″ × 2″ deal moulded handrail	F.R.	1 1
1″ × 1″ deal balusters and housing each end	Each	2 0
1½″ × 1½″ ,, ,, ,, ,,	,,	2 9
3″ × 3″ deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	,,	6 0

SMITH AND FOUNDER

		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	15 6
Riveted plate or compound girders, and hoisting and fixing in position	,,	19 6
Do. stanchions with riveted caps and bases and do.	,,	19 0
Mild steel bar reinforcement, ¼″ and up, bent and fixed complete	,,	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER

		£ s. d.
Milled lead and labour in flats	cwt.	1 12 0
Do. in flashings	,,	1 15 6
Do. in covering to turrets		2 3 0
Do. in soakers	,,	1 7 6
Labour to welted edge	F.R.	3½
Open copper nailing	,,	3
Close ,, ,,	,,	4

		½″ s. d.	¾″ s. d.	1″ s. d.	1½″ s. d.	2″ s. d.	4″ s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks		—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	,,	6½	8	9	11	1 0	—
Boiler screws and unions	,,	3 3	3 9	5 0	8 0	—	—
Lead traps	,,	—	—	—	6 3	8 9	—
Screw down bib valves	,,	6 9	9 6	11 0	—	—	—
Do. stop cocks	,,	7 0	9 6	12 6	—	—	—
4″ cast-iron ½-rd. gutter and fixing	F.R.						1 0
Extra, only stop ends	Each						1 0
Do. angles	,,						1 6
Do. outlets	,,						2 9
4″ dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.						1 2
Extra, on y for shoes	Each						1 3
Do. for plain heads	,,						5 6

PLASTERER AND TILING

		s. d.
Expanded metal lathing, small mesh	Y.S	2 0
Do. in n/w to beams, stanchions, etc.	,,	2 9
Lathing with sawn laths to ceilings	,,	1 3
½″ screeding in Portland cement and sand or tiling, wood block floor, etc.	,,	1 5
Do. vertical	,,	1 7
Rough render on walls	,,	1 2½
Render, float and set in lime and hair	,,	1 9
Render and set in Sirapite	,,	1 11
Render, backing in cement and sand, and set in Keene's cement	,,	2 9
Extra, only if on lathing	,,	4
Keene's cement, angle and arris	F.R.	6
Arris	,,	1½
Rounded angle, small	,,	3
Plain cornices in plaster, including dubbing out, per 1″ girth	,,	1½
1″ granolithic pavings	Y.S.	3 6
1½″ ,, ,,	,,	4 6
6″ × 6″ white glazed wall tiling and fixing on prepared screed	,,	17 6
9″ × 3″ ,, ,, ,,	,,	1 2 6
Extra, only for small quadrant angle	F.R.	8

GLAZIER

		s. d.
21 oz. sheet glass and glazing with putty	F.S.	7½
26 oz. do and do.	,,	8½
Flemish, Arctic Figured (white) and glazing with putty	,,	1 1
Cathedral glass and do.	,,	1 2
Glazing only, British polished plate	,,	7
Extra, only if in beads	,,	2
Washleather	F.R.	4

PAINTER

		s. d.
Clearcolle and whiten ceilings	Y.S.	0
Do. and distemper walls	,,	9
Do. with washable distemper	,,	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	,,	3 3
Do. on woodwork	,,	3 0
Do. on steelwork	,,	3 0
Do. and brush grain and twice varnish	,,	5 6
Stain and twice varnish woodwork	,,	1 11
Stain and wax-polish woodwork	,,	4 0
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper	from ,,	2 9

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DIAGRAMMATIC PLANS OF SINKS

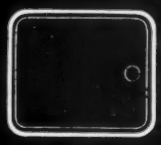
These diagrams give the inside dimensions of each type of sink as provided in the standard sink units set out below.



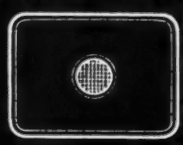
T 32.
9 3/4" x 9 3/4" x 11 1/2".



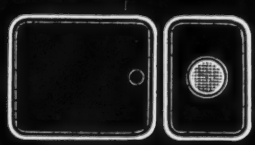
T 34 E.
13 1/2" x 9 1/4" x 8 3/4".



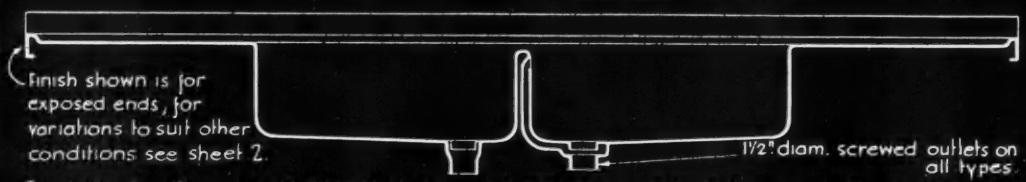
A 40 E. 15 3/4" x 13 1/2" x 6 1/4"
A 48 E. 19" x 13 1/2" x 7"
A 50 E. 19 3/4" x 15 3/4" x 8"
A 55 E. 21 3/4" x 19 3/4" x 9 1/2"
A 70 E. 27 1/2" x 17 1/4" x 8"



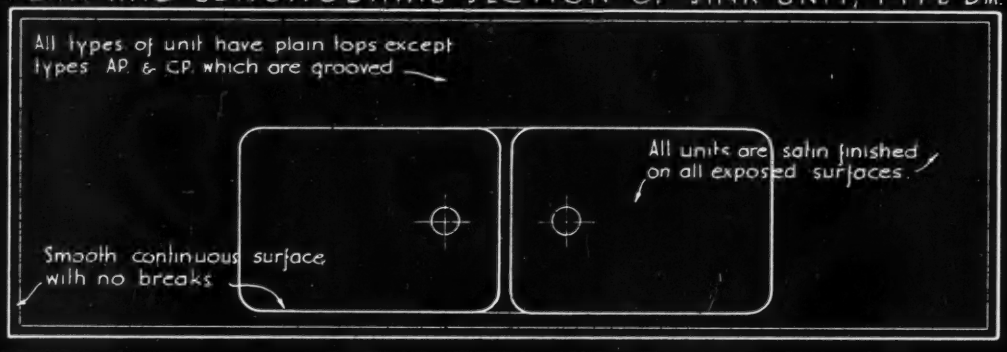
B 50 E.
19 3/4" x 15 3/4" x 8"
B 55 E.
21 3/4" x 19 3/4" x 9 1/2"
B 70 E.
27 1/2" x 17 1/4" x 8"

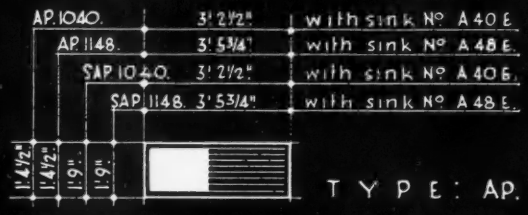


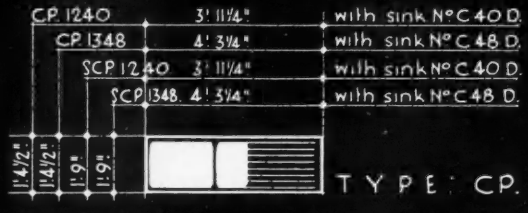
C 40 D.
15 3/4" x 13 1/2" x 6 1/4" &
13 1/2" x 9 1/4" x 8 3/4"
C 48 D.
19" x 13 1/2" x 7" &
13 1/2" x 9 1/4" x 8 3/4"

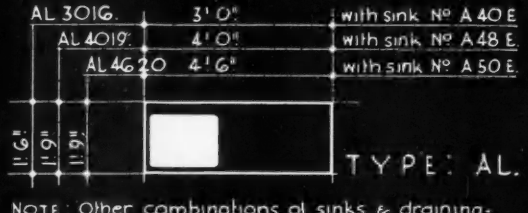


PLAN AND LONGITUDINAL SECTION OF SINK UNIT, TYPE DM.



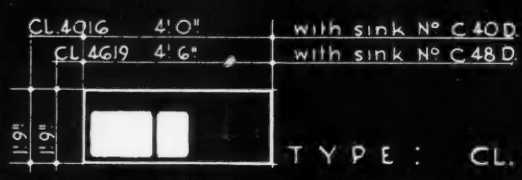


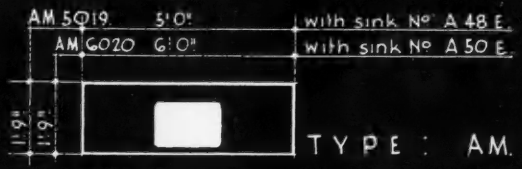


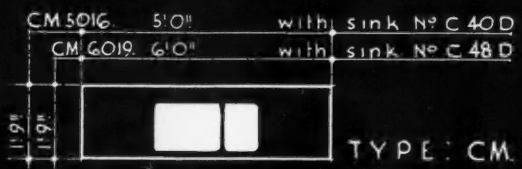


NOTE: Other combinations of sinks & draining-boards are made to requirements.

DIAGRAMS SHOWING OVERALL SIZES OF STANDARD SINK UNITS.







Information from A. Johnson & Co. (London) Ltd

INFORMATION SHEET: KITCHEN EQUIPMENT: STAINLESS STEEL SINK UNITS.1.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 191 •

KITCHEN EQUIPMENT

Product : Savestane Stainless Steel Sinks

Description :

The Sink Units set out on this Sheet are the standard types and sizes produced ; the sinks shown at the top of the Sheet are used in the sink units, and are also obtainable separately if required.

Corrugated sink units cannot be varied in size without incurring an extra charge, as these are pressings.

Plain top draining-boards can be supplied to any size or shape required.

Manufacture :

The Sinks and Sink Bowls are drawn from a solid sheet of Stainless Steel, and are welded into the draining-board by electric resistance welding. This weld is ground off so that the finished unit presents a completely smooth surface without junctions and joints.

Finish :

All exposed surfaces are polished to a special " satin " finish, to prevent scratching.

Cleaning :

The Savestane Stainless Steel used in the manufacture of the sink units is not affected by any of the ordinary acids met with in the preparation of foods. The metal does not tarnish and should be cleaned by using soap and water only. No abrasive powders or wire brushes are necessary.

Sound deadening :

The draining-board of all standard sink units is lined on the underside with suitable sound deadening material.

Resilience :

The units, being made from thin sheets of extremely tough and strong steel, are resilient and yield to shock, thus reducing breakages of china and glass to a minimum.

Manufacturers : A. Johnson and Co. (London), Ltd.

Address : Dukes Road, Acton, W.3

Telephone : Acorn 1158

London Office and Showrooms : Africa House, Kingsway, W.C.2

Telephone : Holborn 7337

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SPECIFICATIONS FOR PAINTING ON WOOD SURFACES

GLOSS PAINTS ON WOOD SURFACES:

PRODUCT	TYPE OF SURFACE		PRIMING COAT	SECOND COAT	THIRD COAT	FOURTH COAT
DULUX. *for details see the back of this sheet.*	Unpainted surfaces.	Interior	White Primer, K.M.1342	*Dulux, selected shade brushed out uniformly.	Dulux, selected shade.	Not usually required but an additional coat may be applied if desired.
		Exterior	White Primer, K.M.1342	*as above.	as above.	
	Previously painted surfaces.	Interior	Not required unless stripped to bare wood as above.	*Dulux, as above	Dulux, as above.	
		Exterior		*Dulux, as above.	Dulux, as above.	
	*An undercoat can be supplied for use when white or light tints are used over a darker background.					
S.E.G. SUPER ELASTIC GLOSS PAINT *For details see the back of this sheet*	Unpainted Surfaces.	Interior	White Primer, K.M.1342	S.E.G. undercoat of appropriate shade	†S.E.G. undercoat of appropriate shade.	S.E.G. finishing coat, selected shade.
		Exterior	White Primer, K.M.1342.	as above.	as above.	as above.
	Previously painted surfaces.	Interior	Not required unless stripped to bare wood.	Omit undercoat if surface is in good condition	S.E.G. finishing coat, selected shade.	
		Exterior	as above.	as above.	as above.	
	†The second coat of undercoat may be omitted except in the case of first class work.					

ALUMINIUM PAINTS ON WOOD SURFACES:

PRODUCT	TYPE OF SURFACE		PRIMING COAT	SECOND COAT	SUCCEEDING COATS
DULUX ALUMINIUM PAINT, 87606. *for details see the back of this sheet.*	Unpainted surfaces	Interior	Grey Primer, K.M.1345, may be omitted if desired.	Dulux Aluminium	Additional coats as desired.
		Exterior	Grey Primer, K.M.1345, may be omitted if desired	Dulux Aluminium	
	Previously painted surfaces.	Interior	Not required unless stripped to bare wood	Dulux Aluminium	Additional coats as desired.
		Exterior	Not required unless stripped to bare wood	Dulux Aluminium.	

Information from Nobel Chemical Finishes Ltd.

INFORMATION SHEET: DATA ON PRIMERS, PAINTS, VARNISHES, ETC. No 3.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 192 •

PAINTS

Types Described : Dulux Glossy, Super Elastic Gloss and Dulux Aluminium Paints

This Sheet is the third of a series dealing comprehensively with the subject of painting and the protection of various surfaces.

DULUX GLOSSY cannot be classified with any existing oil, cellulose or synthetic resin finish. It constitutes an entirely different type, being manufactured from a chemically prepared synthetic vehicle. The properties this vehicle possesses confer on Dulux abnormal durability and hardness, combined with flexibility and adhesion. All the Dulux finishes may be applied by brush or spray by any workman of average skill.

Spreading Capacity.

Approximately 100 sq. yds. per gallon, brush applied.

General Characteristics.

(1) Dry dust-free in six hours and are hard dry in eighteen to twenty-four hours.

(2) Sets rapidly and, as a result, less trouble is encountered from dust. Light rains shortly after application do not damage the surface.

(3) Retains its original colour for an unusual length of time. The effective life is at least 50 to 100 per cent. greater than that of straight oil paints.

(4) Although presenting a hard surface, is flexible and adhesive. Retains these properties to a degree hitherto unattainable, and consequently does not chip or crack after long periods of ageing.

(5) Is resistant to the action of brine and salt laden air, which constitute a rigorous test for paint materials. It also offers resistance to the action of gases, fumes and other agencies encountered in exterior painting, especially in industrial areas.

(6) Prolonged practical tests have shown that it is highly resistant to moisture and, therefore, protects wood and metal surfaces from decay and corrosion.

(7) Is easily cleaned without damaging the surface. The film hardness contributes to ease of cleaning.

SUPER ELASTIC GLOSS (S.E.G.) PAINT.

A superior oil-type gloss paint suitable for use on either interior or exterior surfaces of wood, metal, plaster, etc. Has remarkable durability, affording great protection to structural materials, at the same time retaining its high gloss. It works exceptionally freely under the brush and flows out to a perfect finish. It should be applied over its appropriate undercoat.

Spreading Capacity.

Approximately 80 to 90 sq. yds. per gallon.

DULUX ALUMINIUM—87606.

Prepared from the "Dulux" vehicle it combines quick drying properties with the durability associated with the "Dulux" glossy finishes already described.

General Characteristics.

(1) Initial brilliance of dried film and retention of brilliance on ageing.

(2) Dries in four to six hours.

(3) May be applied direct to the surface to be painted; as many coats may be applied over each other as desired.

(4) May be used as a sealer or primer coat under any conditions in which aluminium paints of the orthodox style are used.

(5) Glossy Finishes or S.E.G. (oil type) Paints may be applied over Aluminium paint.

Spreading Capacity.

Over 200 sq. yds. per gallon brush applied on bare metal. By spray the covering is over 120 sq. yds. per gallon.

PREPARATION OF WOOD SURFACES FOR PAINTING

New Wood Surfaces.

As the protective and preservative values of any paint applied to woodwork depend largely upon the condition of the surface to which it is applied, it is necessary that the surface should be properly prepared. The wood should be well seasoned, clean and dry, and preferably sand-papered and dusted. Grease and oil stains must be removed completely by washing with white spirit or turpentine. Before painting, all resinous knots and fissures should be cut out and made good. Failing this, burning out followed by treatment with best knotting or flat white lead paint should be carried out. After the priming coat has dried, nail-holes and surface imperfections may be made good with best linseed oil putty or white lead hard stopping.

Old Wood Surfaces.

If the old finish is in a bad condition, cracked, blistered or consists of an excessive number of paint coats, it is advisable that the paint should be entirely removed, by burning off or by means of paint remover, and the surface treated in the same way as recommended for new work. Where such drastic treatment is not called for, all loose or perished paint should be completely removed by scraping, sand-papering or wire brushing. Before repainting, the wood should be thoroughly dry. Where the old work presents a glossy surface it is advisable to sand-paper lightly to assist the adhesion of the new paint.

Primers.

White Primer K.M.1342 is recommended for use under normal conditions, but if a "lead free" primer is essential two primers are available, viz., White Primer K.M.1283 and Lead Colour Primer K.M. 1371. Old work should be prepared in accordance with general instructions.

Previous sheets in this series were Nos. 188 and 190.

Name of Manufacturers : Nobel Chemical Finishes, Ltd.

Address : Architectural Dept., Slough, Bucks

Telephone : Slough 528

London Office : Thames House Millbank, S.W.1

Telephone : Victoria 2873-2874

BRITANNIA AT BOULOGNE

WAR MEMORIAL TWENTY YEARS AFTER

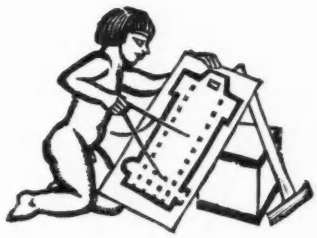


NEXT summer this surprising statue of Britannia is to be erected at the entrance to Boulogne harbour in memory of the British troops who disembarked there during the war of 1914-1918. The monument is to be 60 ft. high, and will be the first sign of the French coast seen by passengers crossing from Folkestone. The statue is the work of a local sculptor, M. Pierre Stenne. The design has not yet been finally accepted, and it is said that the trident will probably be omitted; also that the British Dominions will be asked to supply blocks of local stone which will be fixed into the pedestal as contributions from the British Empire.



MOUNTAIN ART GALLERY

The building to house the G. S. Art Collection stands on one of the highest peaks of the Santa Monica mountains, Southern California, overlooking the Pacific Ocean. The collection is one of modern art, devoted primarily to the work of Klee, Kandinsky, Jawlensky and Feininger, and is exhibited in a large room having one long glazed wall, part of which is a sliding door of glass 18 ft. wide. This gives on to a balcony from which can be viewed the cloud formations beneath. The building also contains a fire-proof office and living quarters for the owner of the collection. The architect for the building was Richard J. Neutra, in association with Gregory Ain.



THE A.A. SCHOOL OF NATIONAL PLANNING

THERE is always the danger that the many who begin by being disturbed by present incoherent conditions of existence may find in such comforting words as "Planning" so effective an anodyne that they fail to pursue their enthusiasm as far as the point of realistic application. "Planning" is a popular intellectual pastime, about the rightness of whose principles few would quarrel, but it is not an end in itself. The proof of a plan is in the putting into practice; without operative machinery the best-conceived plan is only a Utopian fancy.

The latest recruit to the ranks of planning propaganda is the Architectural Association, which has announced the formation of a School of Planning and Research for National Development; designed to conduct a post-graduate course in the technique of planning in various spheres. To provide the nation with a body of trained technicians, fitted to solve the many problems of organization and co-ordination which our complicated existence entails, is an admirable ambition, and the Association is to be congratulated on being the first in this new educational field, as they were in other fields, of technical education. There is one aspect of the enterprise, however, that has to be realized: the enterprise must not stop short at mere education of the technician. There is the vital question of patronage.

"Planning a nation's future," says the A.A.'s announcement, "is the function of the nation expressing itself through its accredited representatives, aided and advised by adequately trained technical brains. The present basis of planning being Regional, not National, technical thought of such scope does not as yet exist. The need for it should require no further demonstration. There remains the question of the method of training." We would add: there remain many other questions—among them the means of application of the technical brain (in a world full of qualified but unemployed technicians) so that the mass of the community shall benefit by it.

While there is a demand (though not all the demand there might be) for the architect's services there is no specific demand for the services of the planner *as such.* Ability to plan does not in itself qualify a man for the appropriate administrative position; it is merely a desirable attribute in many occupations. There are other essential qualities that might equally well be taught as school subjects: a school of honesty (no more than planning an end in itself) might be opened for financiers; but not till no financier was allowed within the City's boundary unless he had taken his Diploma in Honesty could the school be said to be functioning usefully. In the same way a School of Planning must train those who are to plan, not merely those who believe in doing so. If the A.A.'s school can reach far outside the architectural profession and get its training recognized among planning authorities; if the holding of its (or a similar) Diploma in Planning could be made compulsory for all applicants for local government, L.C.C. administration and many other Civil Service posts, then it would be doing a real service to the nation and the charge of preaching only to the converted could not be made against it. Architects will benefit by large-scale planning, but they are seldom in a position themselves to initiate it.

A course of planning under the heading "transportation"—one of the subjects specifically and quite rightly mentioned in the A.A.'s announcement—might produce a trained mind very little different from that of the ordinary transport engineer, who has merely acquired his knowledge by a rather more haphazard method, by experience rather than by instruction; unless it makes some attempt to include in the curriculum an analysis not only of practical problems met with but of practical difficulties in putting the solution into practice. Problems will have to be approached on a far broader basis than the customary one of mere expediency; for unwillingness to plan is much more the cause of our unplanned state than any technical incompetence. The A.A.'s proposal to "enlist the interest and support of a body of prominent men, who control gigantic activities which influence the national future to so enormous an extent" will have, therefore, to be pursued with the greatest care as to where true public interest lies.

We do not suggest that the proposed School would have to become a nursery of political ideology, but the political issue, to a certain degree, cannot be avoided: planning and politics are in many senses synonymous. Nevertheless, whatever the organizers' particular political approach to a planned existence—whether that of P.E.P. and the corporate state, or of Wells and world-socialism, their business is with the technologist who is to put the plan into workable—and working—form; the operative in the political machine-room: but in this case the operative is also the advisor on the design of the machine. The closest possible contact is necessary between him and the administration in order that his technical advice should take the form of practical amelioration of unsatisfactory conditions and their causes, not being content (as are so many political theorists) with mere statement of the ideal condition.

The need for planning is a matter on which we have always held definite opinions. We welcome the initiative of the Architectural Association; and in spite of, or rather because of, the pitfalls that thus beset them, we wish them every success in any attempt they may make to augment the facilities for intelligently considered technical education. A responsible appreciation of the value of public-spirited planning is a thing this country can very well do with.



The Architects' Journal
Westminster, S.W.1
Telephones: Victoria
9212-7
Telegrams:
Buildable
Part
London

NOTES & TOPICS

ST. GEORGE'S AGAIN

I COMMENTED last week on the apparent oddity of rebuilding St. George's Hospital with windows "overhearing" what police statistics prove has become the busiest traffic centre in all London. St. George is certainly the best of saints, but he lacks practical experience in grappling with the dragon of din.

*

But the governors' decision entails another of far greater moment which has nothing to do with the choice of site.

*

The names of the architects consulted as to the suitability of Hyde Park Corner have been made known. The names of those to be entrusted with the design of the new building have not. Nor—as usual—has any design been published simultaneously with the appeal for rebuilding funds.

*

It looks as though the governors mean to follow that bad old precedent of our hospitals: *selecting a designer instead of a design.*

*

A large metropolitan general hospital is probably the most highly specialized type of building there is. Abroad, therefore, it is almost invariably the subject of an important architectural competition.

*

This avoids any danger of "the mixture as before" solution, and enables the latest ideas in ward-planning and the newest technical resources to be carefully compared and sifted. It also gives younger brains a chance.

*

Here, as there, the citizen foots the bill to the tune of millions—here by voluntary contributions, there through involuntary taxation. But the real difference is that as "a generous benefactor" he has infinitely less say in the spending of them than as a perhaps recalcitrant tax-payer.

*

For a panel of architects acting as the official assessors of a hospital competition is obviously—what a Board of Hospital Governors as obviously is not—an organ of informed public opinion possessing the essential professional qualifications to represent it.

*

I wonder what the R.I.B.A. thinks about it all.

FORESIGHT

Sing Hey-ding-a-ding-ding for Mr. Walter Spyer, J.P., who asked the Lord Mayor, at the Guildhall the other day, "why it was necessary to spend so large a sum as £750" on professional advice about the laying down of an aerodrome to serve the City of London.

*

All hail! Mr. Spyer; I agree with you. Why indeed? These experts!!

*

£750!—and all about an airport! Have we not our London docks? Have we not our railway termini?—and what beauties of efficiency! No! If we are to spend a million or so in building and equipping an airport, let us do it as we have always done—at random.

CARLTON HOUSE TERRACE

Apropos my remarks last week about the repainting of this (pardon me, Sir Reginald) ADMIRABLE piece of architecture.

*

A correspondent (who is in an excellent position to know at least *something* about the matter) tells me that it has all "been settled."

*

I confess that I have no official knowledge myself. All I can say is that Carlton House Terrace is not only an architectural, but something of a romantic, treasure, which, by fairly recent showing, is nationally appreciated. That being so I repeat that preservation of the structure must not be lost sight of.

*

If you go at once to The Mall and see how the last painting has behaved you will agree with me that this subject of paint is not unimportant. My correspondent (who is, I quite frankly confess, a manufacturer of a very sound and well-known product—and, of course, a disappointed one) has not been asked to make a practical test of his product. Well, of course, if all the firms who wanted the contract were asked to carry out tests *in situ*, Carlton House Terrace would be like a camouflaged aircraft hangar. But what, I am asking, is the matter with a definite specification founded on B.R.S. standards (with guarantee, of course) and *then* competitive estimates?

CONCERNING HONESTY

Personally, I believe that the opportunity of most mediocre building materials lies in the attitude of architects themselves.

*

The architect, far too often, not only has insufficient knowledge of the materials which he has to use, but resolutely refuses to learn anything about them.

*

If only he would either learn, or, alternatively, adopt one brand in each sphere as a sort of datum line, he would be in a position to get honest prices, at least in so far as each manufacturer would know and take costs for what would be required of him.

*

That one-time honoured and quite honest phrase "*to the satisfaction of the architect*" has come to mean little, except that the tradesman has either to be sure that the



Woolwich must be the only place in this country where speculative houses are sold from a stall in the market square. The stall stands side by side with the butcher's and the greengrocer's.

architect's liver is regular or else that some adequate percentage must be added to cover the effects of ill-temper.

*

Reverting to paint. An architect recently said: "I never specify paint. I tell the builder that this or that is to be painted in such and such a colour, and if it is not properly done, I say, 'Do this again properly.'"

*

That attitude, of course, does more harm to architects than they can ever guess. It is one reason why prices go up instead of coming down. It is one reason for the suspicion which exists between architects and the building trades—and, as a result, the public.

*

It is an admirable subject for discussion at some future meeting of the junior members of the R.I.B.A.

STANDARDIZATION

A tremendous quantity of good sense was poured out last week by Francis Lorne to the Northern Architectural Association. His title was "A Standard of Values for Architecture Today." (A stimulating thought in itself!)

*

This affair of standardization has not been completely ignored for some years past; but it was commonly considered to mean baths, and mortice locks and stoves. It needed the Prince of Wales to shake up that particular bag and pull out the idea of true standardization as applied, specially, to Housing—i.e., complete houses.

*

Mr. Lorne (having chosen a subject which made it impossible to flog a dead horse) very ably scratched what is, even yet, quite a young foal. But it is growing up, and the R.I.B.A. might do worse than arrange for that address to be circulated to "all whom it may concern"—i.e., the G.B.P. as a whole.

*

Mr. Lorne chose a most apt example of the value of the *designer*, as such. He chose the Ford car. He indicated that the "T" model, though mobile and efficient, lacked grace; while the most up-to-date Ford, though still efficient, is comely and agreeable to look upon.

*

I hope that the whole text of the paper will be available, because it can almost be described as epoch-making, though in a consciously elementary way. Now, if architects as a body advertised collectively, the spirit of that address would be worth more than one can guess. As it is, very few people will ever see it.

THE ARCHITECTS' AND TECHNICIANS' ORGANIZATION

Such a huge attendance as welcomed the inaugural meeting of the new body of architects and students (henceforward to be called, I understand, the Architects' and Technicians' Organization) at the Conway Hall at the beginning of last week is a sign of vitality at the very least.

*

It was not a widely advertised meeting, and the eagerness to come and join in the discussion shows that the younger members of the profession are aware that their opportunities of doing the responsible work they are trained to do are not all they might be.

*

That they want to take their responsibilities seriously, not merely to find stepping stones to a successful career, is shown in their emphasis on the unsatisfactory nature of architectural patronage, deploring the frequent position of the architect as a man paid only to please a client regardless of wider issues.

*

These are controversial questions, but then only out of controversy can productive research arise.

*

If the new organization can really bring the architect into closer contact with the problems of working-class "shelter," in co-operation with such active workers as Mr. Le Gros Clark (the secretary of the Committee against Malnutrition) who spoke at the meeting; and if it can successfully undertake its intended analysis of conditions of architectural employment, then it will have justified itself by two valuable services to the architect's body, as it were, and to his soul.

A NEW R.A.

Yet another architect has been made an R.A. Mr. Walter Tapper is to be congratulated on this signal and well-merited honour—all the more so as he is now 72 and the age-limit for election as a Royal Academician is 75.

MR. WILENSKI JOINS

Mr. R. H. Wilenski is the latest art-critic to turn his attention to the Royal Academy Exhibition of "Art in (meaning *on*) Industry."

*

He has written stimulating articles in *The Listener* on "What is the Twentieth-Century Style?"

*

Everyone who is not an escapist should read the first, if only for that ruthless paragraph in which "the many enemies of the style of our epoch" are duly enumerated, qualified and branded.

THE RECEDING TIDE

And also for his properly pugnacious rejoinder to Mr. John de la Valette that "the receding tide of elimination has only receded till the exhibition ends; and will return, as tides do, and eliminate still more.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

"*A representative repetition of this (the Royal Academy) Exhibition should be made at Brussels next May*" 290

"*If you want to see the most amazing collection of grandmotherly fittings parading around in modern garb, visit the Royal Academy Exhibition of British Art in Industry*" .. 290

The salaried architectural assistant's remuneration is about on equal terms with that of the municipal dustman 300

"*The only consideration that could be urged against the present proposal (to erect a block of offices in Parliament Square) is that the whole site should become an open space, but that course is not suggested in the Bill contemplated by the Middlesex County Council.*" 300

FRENCH ARCHITECT ON THE R.A. EXHIBITION

M. Alfred Laprade, who is Inspecteur Général des Beaux Arts in Paris, and will take an important part in organizing the 1937 Paris Exhibition, visited last week the Royal Academy Exhibition on behalf of the French Ministry of Fine Arts.

He stated that two or three years ago the French and German view was that British manufacturers were so far behind in their efforts to solve the artistic problems connected with their production that their attempts were considered as *dérisoires* and the doom of British industries seemed in sight.

This Exhibition showed him that enormous strides had recently been made in many sections. He referred particularly to glass, pottery, silver and pewter as evidence of progress based on sound, inherently national lines, while furnishing and dress fabrics seemed to him to have reached a very high level. In the furnishing fabrics room he pointed to several materials as being of the kind which France was now trying to produce.

He asked that special invitations be sent to the heads of a number of great French stores to visit this show, and added that he would tell them they would find here many wares which, both as to low price and artistic design, would be of interest to them, and he expects substantial orders for several lines of goods.

M. Laprade said that he thought a representative repetition of this Exhibition should be made at Brussels next May, and looked forward to a very stimulating display by British manufacturers in Paris in 1937, if the progress shown here was maintained in the meantime.

SCHEME TO REBUILD BRIGHTON'S FRONT

A scheme to replace Brighton's present sea-front with blocks of flats is to be placed before the Town Council by Sir Herbert Carden, a former mayor. In an interview Sir Herbert said that though Brighton had the finest sea-front in the world it was hopelessly out of date. He thought that every building, hotels excepted, on the King's Road and Marine Parade should be pulled down and replaced by flats ten to twelve storeys high and equipped with lawns, gardens, restaurants and swimming pools. At present it was impossible to accommodate the people who wanted to live on the Brighton front. Mr. Wells Coates, he said, had drawn up plans for the scheme.

It is also proposed to provide a pleasure park, with a sports arena to seat 60,000, two swimming pools and a paddling pool, on a site of over 200 acres on the London-Brighton road. The cost is estimated at £400,000.

THE ARCHITECTS' DIARY

Thursday, February 21

R.I.B.A. *At 66 Portland Place, W.1. Exhibition of Library Treasures. Open until March 2.*

ROYAL ACADEMY. *At Burlington House, Piccadilly, W.1. Exhibition of British Art in Industry. Open until further notice.*

GEFFRYE MUSEUM. *At Kingsland Road, Shoreditch, E.2. "Design, with special reference to the Furniture Section of the Royal Academy Exhibition of Art in Industry, 1935." By C. A. Richter.* 7.30 *p.m.*

ARCHITECTURE CLUB. *At the Architectural Association, 36 Bedford Square, W.C.1. "Noise and the Modern Home." Supper discussion in which Sir James Purves-Stewart, Alfred Bossom, M.P., and Hope Bagenal will take part. Supper* 7.30 *p.m. Discussion* 8.30 *p.m.*

Saturday, February 23

LONDON SOCIETY. *Visit to Canonbury Tower, Highbury, N.5.* 2.30 *p.m.*

Monday, February 25

R.I.B.A. *At 66 Portland Place, W.1. Social Evening. "The Harp and its Music." Lecture Recital by Gwendolen Mason.* 8.30 *p.m.*

Tuesday, February 26

ARCHITECTURAL ASSOCIATION. *At 36 Bedford Square, W.C.1. "Reinforced Concrete versus Steel in Buildings." Discussion by C. J. Kavanagh and Douglas Green.* 8 *p.m. Exhibition of Working Drawings of London University Building. Open until March 9.*

Wednesday, February 27

ROYAL SOCIETY OF ARTS. *At John Street, Adelphi, W.C.2. "Veneers and Their Production." By Walter C. Potter.* 8 *p.m.*

L.C.C. CENTRAL SCHOOL OF ARTS AND CRAFTS. *At Southampton Row, W.C.1. English Renaissance* (1525–1900). 4. *Character of the later Renaissance. Inigo Jones and His Works." By Sir Banister Fletcher, M.Arch., F.S.A., PP.R.I.B.A.* 6 *p.m.*

A.A. SCHOOL OF PLANNING

The membership of the Advisory Board of the Architectural Association's "School of Planning and Research for National Development" (referred to in this week's leading article) is as follows :—

Chairman : Sir Raymond Unwin, PP.R.I.B.A. ; Dr. Thomas Adams, B.Eng., F.R.I.B.A., PP. T.P.I. ; Major Harry Barnes, F.R.I.B.A. ; Mr. H. H. Humphries, C.B.E., M.INST. C.E., L.R.I.B.A. ; Mr. G. L. Pepler, PP. T.P.I., F.S.I. ; Mr. Frank Pick ; Sir J. Arthur Salter, K.C.B., M.A., D.C.L. ; Sir Giles Gilbert Scott, R.A., PP. R.I.B.A.; Sir Leslie Scott, K.C. ; Mr. Louis de Soissons, C.B.E., F.R.I.B.A., S.A.D.G. ; Sir Josiah Stamp, C.B.E., LL.D., D.SC. ; Mr. Christopher Turnor ; Sir Jonah Walker Smith, M.P., M.I.C.E. ; and the Director of Education of the A.A. School of Architecture.

The committee of control is comprised of the following : Chairman : The Hon. Humphrey Pakington, F.R.I.B.A. (President of the A.A.) ; Mr. J. R. Leathart, F.R.I.B.A. ; Mr. Howard Robertson, F.R.I.B.A., S.A.D.G. ; Mr. E. A. A. Rowse, A.R.I.B.A., A.M.T.P.I., A.M.I.Struct.E. ; and Mr. F. R. Yerbury (General Secretary of the A.A.).

The administrator appointed to assist the Principal (Mr. E. A. A. Rowse) in the organization and control of the School is Mr. T. Ritchie, A.R.I.B.A., A.M.T.P.I.

NORTHERN ARCHITECTURAL ASSOCIATION

Reference to the R.A. Exhibition was made by Mr. Francis Lorne, F.R.I.B.A., in a paper before the Northern Architectural Association last week on "A Standard of Values for Architecture To-day." He said : "If you want to see the most amazing collection of grandmotherly fittings parading around in modern garb, visit the Royal Academy Exhibition of British Art in Industry. You will see a lot of modern ornament plastered on industry, but the art and the industry have not fused in design any more than before, they are still separate, they are neither in tune with themselves nor with life. We have for too long been pseudo Greeks, Romans, Goths, Elizabethans, Jacobeans, Tudors, Georgians, and more lately modern Dutch, Swedes and Germans.

"The practice of our profession is beset with stupendous difficulties," he continued. "It is perhaps the most difficult and exacting profession in the world. Our responsibilities are enormous. They are toward art and toward functional things, too, design, plan, conveniences, money and time, not to speak of the ever-present public authority. But over and above all of them our real job is to steam-roll ugliness, to search for order and beauty in every department of life, and, having found them, to spread them as far over and as far into society, to remake society, in fact, as much as it is possible for us to do in our day."

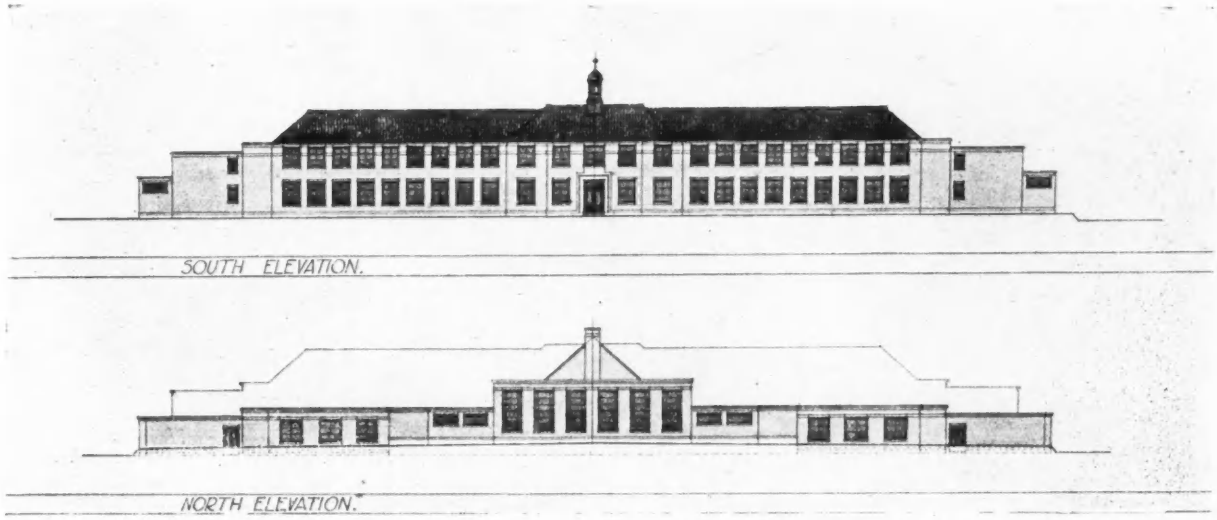
£500,000 SOUTH LONDON HOUSING SCHEME

A compulsory purchase order in connection with a £500,000 South London housing scheme is recommended to the London County Council by the Housing and Public Health Committee. The site, of nearly 20 acres, is on the north side of Larkhall Lane, Clapham, and it chiefly comprises old houses with large gardens. A thousand houses could be erected on the land.

ARCHITECTS AND ENGINEERS

"Architecture and Engineering" was the subject of a talk by Sir Owen Williams, K.B.E., in the series of "Careers for Youths" lectures held in the *Daily Express* Theatre, Shoe Lane, E.C., last week.

"It is my view," said the lecturer, "that an engineer represents that side of the architect which constitutes knowledge of construction. In the limited sense an engineer may be an assistant to an architect, or an architect an assistant to an engineer ; but in the full sense an architect must be an engineer before he has a sufficient basis of personal knowledge on which his advice to his client can be based. You find, therefore, that the profession of



Elevations of the winning design in the competition for a new Grammar School, East Barnet. By W. F. Granger. Site plan and ground and first floor plans are reproduced overleaf.

architect and engineer, hitherto considered to be separate and distinct, must ultimately become again, as they were originally, merged into one."

BUILDING INDUSTRIES NATIONAL COUNCIL

The Building Industries National Council announce that Mr. Sydney Tatchell, F.R.I.B.A., has accepted the chairmanship of the Special Committee for Public Relations in succession to Mr. Howard Robertson, F.R.I.B.A., S.A.D.G.

Mr. Howard Robertson, who will retain his membership of the Special Committee, has been Chairman since its inception.

The problem of the fluctuations of activity in the building industry has received the attention of the Council and it is realized that to ascertain even the most elemental facts relative to the causes of such fluctuations calls for widespread statistical research. At the suggestion of Mr Howard Robertson it has been agreed that, for the purpose of co-ordinating the efforts of all the Committees of the Council concerned with the many aspects of the problem, the necessary investigations will be undertaken under the chairmanship of Mr. Sydney Tatchell, who is also Chairman of the General Purposes Committee. Mr. Howard Robertson will resume the Chairmanship of the Committee when the Report and recommendations of the Council on the causes of fluctuations in the industry are issued.

R. I. B. A.

THE ROYAL GOLD MEDAL FOR ARCHITECTURE

Intimation has just been received that H.M. the King has approved the award of the Royal Gold Medal to Mr. Willem Marinus Dudok (Holland) in recognition of the merit of his work as an architect. The medal will be presented to Mr. Dudok at a general meeting of the Institute on April 15.

SOCIAL EVENING

A musical evening has been arranged by the Social Committee for Monday, February 25, when Gwendolen Mason, F.R.A.M., will give a lecture-recital on "The Harp and its Music."

In her talk Miss Mason will explain the development of the harp from a technical and musical point of view, giving illustrative passages from the music of the various periods discussed.

The lecture will commence at 8.30 p.m. There will be no charge for admission, but programmes will be sold at the door.

ELECTION OF MEMBERS

At a recent meeting of the Institute, the following members were elected :—

As FELLOWS (6) : Messrs. K. H. McConnel, W. B. Stedman, R. Jones, E. Morgan, E. W. Pedley, and R. A. Thomas.

As ASSOCIATES (11) : H. V. Abbott, H. H. Castle, S. L. Copnall, K. Cummings, J. F. Duncan, W. Halkerston, T. Hill, F. F. Johnson, H. G. Rennie, J. G. Trude, and W. M. Woodhouse.

As LICENTIATES (15) : Messrs. E. N. Bailey, W. C. Baldry, H. S. Barnett, H. L. Bown, J. T. Clark, L. Crowfoot, F. H. Foster, A. Foulkes-Jones, T. H. Nunn, G. Robson, J. A. Senior, H. A. Wakeford, A. E. Williams, W. J. Woods, and L. G. Zwinger.

FINAL AND SPECIAL FINAL EXAMINATIONS : INDIA

The R.I.B.A. Examination Board in India has arranged to hold the R.I.B.A. Final and Special Final Examinations in Bombay from April 5 to 13, 1935. The last day for applications, which should be sent to the Hon. Secretary of the R.I.B.A. Examination Board in India, 43 Apollo Street, Fort, Bombay, is March 11.

COUNCIL MEETING

Following are some notes from a recent meeting of the Council of the R.I.B.A. :

Architects and Housing Work : On the recommendation of the Public Relations Committee it was decided to submit a memorial to the Minister of Health pointing out that, following upon the speech of the Prince of Wales at the Centenary Banquet, the architectural profession was ready and waiting to assist in the national service in the matter of housing and slum clearance, and urging that proper use should be made of the knowledge, training and experience of the profession.

The London Building Act 1930 : Tribunal of Appeal : Sir Banister (Flight) Fletcher (Past President) was reappointed as a member of the Tribunal of Appeal.

Aerodromes Advisory Board : Mr. Maurice E. Webb (F.) and Mr. John Dower (A.) were appointed as the R.I.B.A. representatives on the Aerodromes Advisory Board for the year 1935.

Advisory Council on Plant and Animal Products : Advisory Committee on Timbers : Mr. A. H. Barnes (F.) and Mr. Alan E. Munby (F.) were appointed to represent the R.I.B.A. on the Advisory Committee on Timbers of the Advisory Council on Plant and Animal Products for the three years beginning January, 1935.

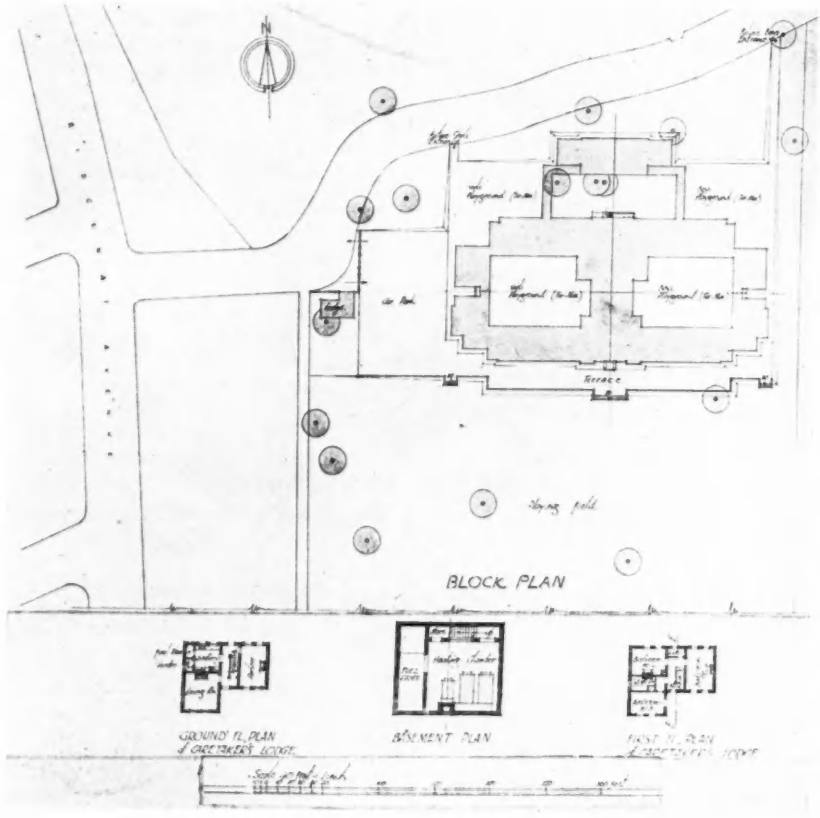
The Standardization of Dimensions of Clay Bricks : Mr. S. Pointon Taylor (F.), Mr. A. H. Barnes (F.), Mr. W. E. Vernon Crompton (F.) and Mr. Alan E. Munby (F.) were appointed to represent the R.I.B.A. at a Conference called by the British Standards Institution to consider the standardization of dimensions of clay bricks, and on a Technical Committee which has been set up as a result of the Conference.

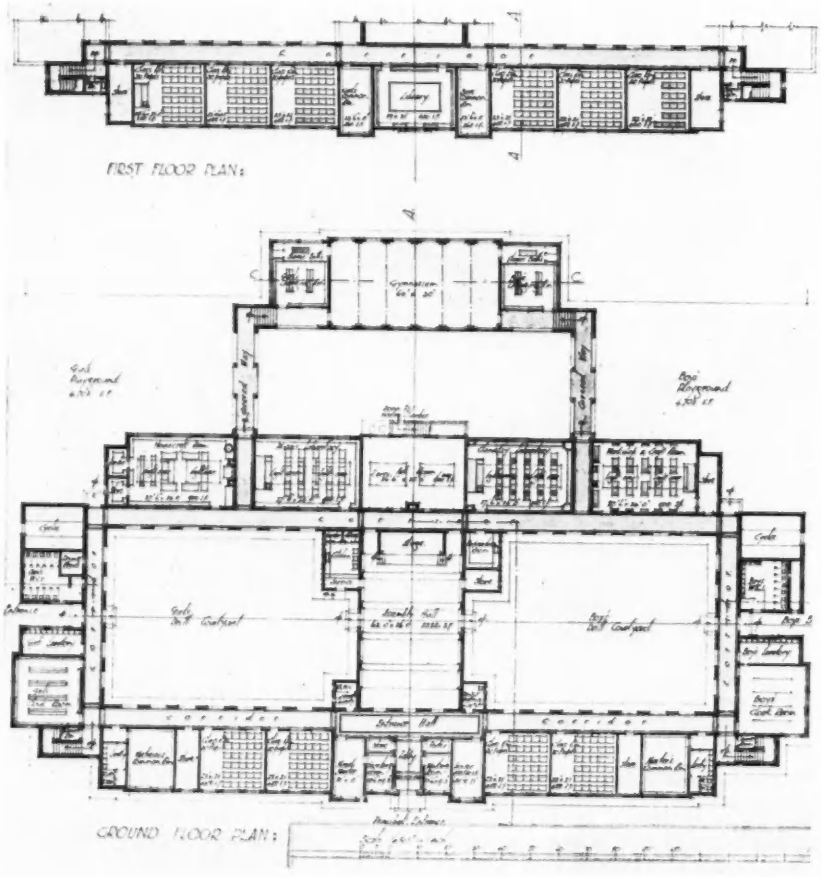
Co-ordination of Sequence of Trade Headings in Specifications : Mr. W. E. Vernon Crompton (F.) was appointed to represent the R.I.B.A. on the Committee of the British Standards Institution set up to consider the co-ordination of sequence of trade headings in specifications.

Parliamentary Science Committee of the British Science Guild : Mr. A. H. Barnes (F.) and Mr. Alan E. Munby (F.) were appointed to represent the R.I.B.A. on this Committee.

The Royal Sanitary Institute and Sanitary Inspectors Examination Joint Board : Mr. Alan E. Munby (F.) was appointed to represent the R.I.B.A. on the Royal Sanitary Institute and Sanitary Inspectors Examination Joint Board.

Seventh International Congress for Art Educa-





Site plan and ground and first floor plans of the winning design in the competition for a new Grammar School, East Barnet. By W. F. Granger.

tion, Drawing and Art Applied to Industry: Professor C. H. Reilly (F.) was appointed to represent the R.I.B.A. on the British Committee of this Congress.

The Architects' and Surveyors' Approved Society: Mr. Herbert Shepherd (F.) and Sir Ian MacAlister were reappointed as the R.I.B.A. representatives on the Committee of Management of the Architects' and Surveyors' Approved Society.

Association for the Development of Modern School Practices: Mr. Alan E. Munby (F.) was appointed to represent the R.I.B.A. on the Advisory Committee set up by the above body.

Public Relations Committee: On the recommendation of the Public Relations Committee it was agreed that Mr. Basil R. Ward (A.) be co-opted as an additional member of the Committee.

Reinstatements: The following ex-members were reinstated: As Fellow: Mr. Alfred John Dunn. As Associate: Mr. James Straton Ferrier. As Licentiate: Mr. Arthur Clayton.

Resignations: The following resignations were accepted with regret: Messrs. Walter Phillips Wynne-Williams (A.), Albert Phipps Coles (L.) and A. Seymour Reeves (L.).

Transfer to the Retired Members Class: The following members were transferred to the Retired Members Class: As Retired Fellows: Sir Reginald Blomfield, and Messrs. J. Campbell, L. K. Hall, E. W. Jennings, G. A. Johnson, F. Kempster, H. C. Kent, A. Mackintosh, and A. Woodeson. As Retired Associates: Messrs. A. McGibbon, H. Price, and C. W. Surrey. As Retired Licentiates: Messrs. G. A. Chapman, R. H. Clucas, W. J. Dilley, and G. P. Smedley.

COMPETITION NEWS

LAY-OUT OF LUMPS FORT SITE, PORTSMOUTH

The Portsmouth Town Council has approved a recommendation from the Southsea Piers, Beach and Publicity Committee that a competition should be held, under the regulations of the Town Planning Institute, for the lay-out of the Lumps Fort site. It is proposed to offer prizes of £300, £200 and £100. The assessor is to be nominated by the President of the Institute.

MUNICIPAL OFFICES, BIRMINGHAM

Conditions of the competition for proposed municipal offices, Birmingham, are now obtainable (deposit £3 3s.—not £1 1s. as stated in our last issue) from Mr. Herbert H. Humphries, M.Inst.C.E., the City Engineer and Surveyor, Council Offices, Birmingham.

GRAMMAR SCHOOL, EAST BARNET

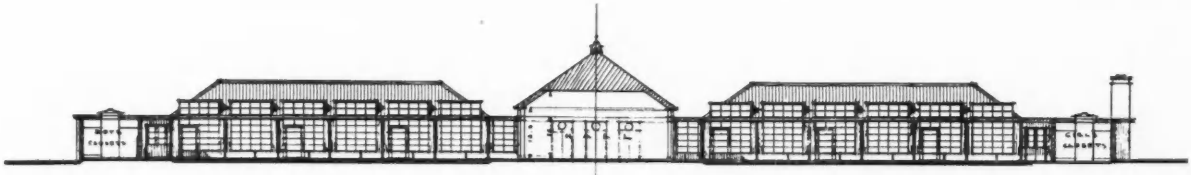
Sir Felix Clay, Bart, M.A., F.R.I.B.A., the assessor in the limited competition for a proposed new grammar school at East Barnet for the Hertfordshire C.C., has awarded the first place to the design submitted by Mr. W. F. Granger, F.R.I.B.A. (of Leathart and Granger).

In the report presented by the author of the winning design it is pointed out that "it has been felt that as this school is on back land, the principal elevation should face the playing fields; with this in view, the school has been planned giving a fine terrace in front of the school.

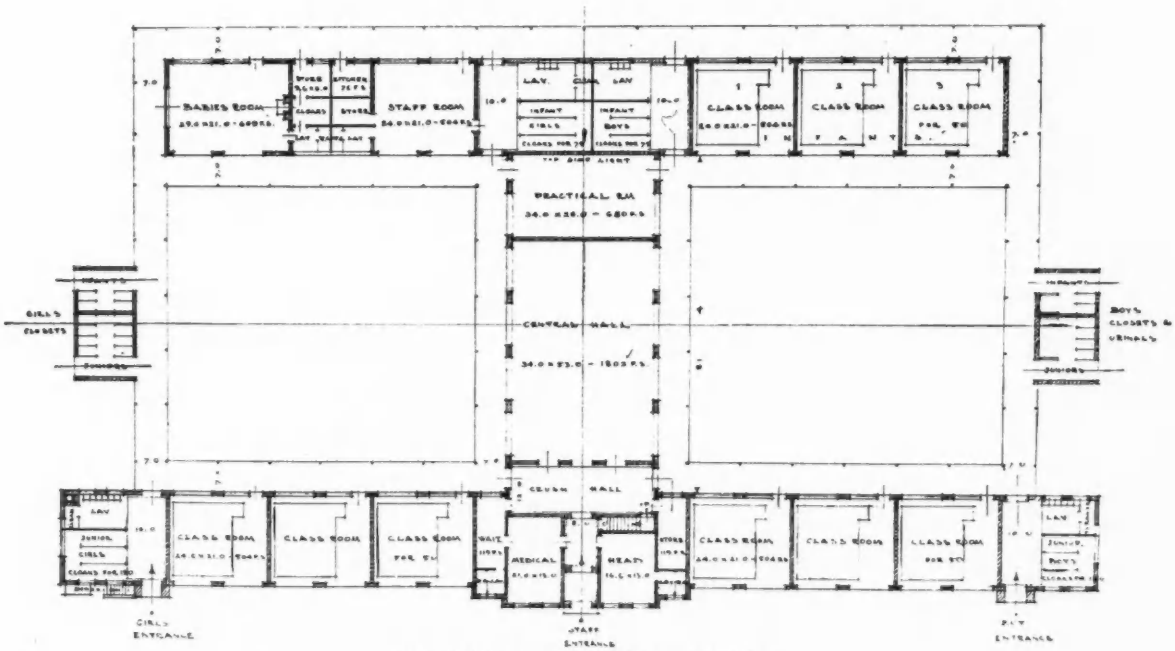
"The elevations have been treated in a



ELEVATION TO RAVENSDALE ROAD



REAR ELEVATION OF MAIN BLOCK



GROUND FLOOR PLAN

The winning design in the competition for a school at Wyken. By A. H. Gardner. See Competition News.

simple manner as requested. Stone has been reserved solely for plinth and copings with a little to emphasize the main entrance. Windows are steel casements in oak frames, All external doors are in oak. A good hand-made sand-faced multi-coloured brick is proposed for the external walls and similar hand-made sand-faced tiles for the roofs. The building is of brick construction with steel trusses in roof with wood purlins and boarding. The foundation concrete will be reinforced." The estimated cost of the building is £30,000.

SHOP-FRONTS

Messrs. Lennards, Ltd., of Bristol, invite young architects and architectural assistants to submit designs for new shop-fronts and re-casting old ones. The promoters of this competition "desire an entirely fresh approach to the problem, without freakishness or excessive modernity." Over 200 branches are concerned, and full particulars and conditions may be obtained on application to the Estates Department, Lennards Ltd., Queens Road, Bristol, 8. The approved design (if any) will be awarded a prize of £100. (As we go to press we learn that the R.I.B.A. has, for the present, forbidden its members from taking part in this competition, as the conditions do not conform with its regulations. The R.I.B.A. Competitions Committee is negotiating with the Promotors in the hope of securing an amendment).

SCHOOL AT COVENTRY

Mr. A. C. Bunch, F.R.I.B.A., the assessor in the competition for a new elementary school at Wyken, for the Coventry Education Committee, has made his award as follows :

Design placed first (£100) : Mr. A. H. Gardner, A.R.I.B.A.

Design placed second (£50) : Mr. Rolf Hellberg, A.R.I.B.A.

Design placed third (£30) : Messrs. Parker and Plowman.

Following are some extracts from the report presented by the author of the winning design : "The buildings are of the quadrangle type with simple covered ways completing the outer ends of the enclosed courts. All classrooms face S.S.E. Elevations : facings would be of Kenilworth bricks with a recessed joint and the roof would be covered with sand-faced interlocking pantiles. Construction : brick walls on concrete foundations, with 11 in. hollow external walls and 14 in. side walls to the hall." The estimated cost of the scheme is £14,750.

Competitions Open

March 1.—Sendin-in Day. New municipal offices, etc., for the Wembley U.D.C. (Open to architects of British nationality and resident in the British Isles.) Assessor : Stanley Hamp, F.R.I.B.A. Premiums : £300, £250, £150, and £100, for designs placed first, second, third and fourth, respectively. Designs must be submitted by March 1.

March 11.—Sending-in Day. Children's Block, Sanatorium, Glenlomond, for Fife and Kinross Joint Sanatorium Board. (Limited to architects practising in Fife.)

Assessor: James Lochhead, F.R.I.B.A. Premiums: £80, £40 and £20. Latest date for submission of designs, March 11.

March 14.—Sending-in Day. Civic Centre, Darlington. (Limited to six firms of architects: Adshead and Ramsey, H. V. Ashley and Winton Newman, C. Cowles Voysey, W. Dougill, Ivor Jones and Percy Thomas and E. Berry Webber.) Assessor: H. V. Lanchester, F.R.I.B.A. Premiums: £100, £75 and £50. Latest date for submission of designs, March 14.

March 15.—Sending-in Day. Extensions, Sheffield University. (Limited to six firms of architects: Chapman and Jenkinson, R. Fielding Dodd, Flockton and Son, Gibbs and Gibbs, Hadfield and Cawkswell, T. A. Lodge and J. Amery Teather.) Assessor: W. C. Fenton, F.R.I.B.A. Latest date for submission of designs, March 15.

March 27.—Cemetery chapel and auxiliary buildings at Coney Hill for the Gloucester Corporation. (Open to architects practising on their own account within the area covered by the Wessex Society of Architects.) Assessor: Edward Maufe, F.R.I.B.A. Premiums: 125 and 100 guineas, for the designs placed first and second, respectively. Designs must be submitted to the City Surveyor on or before March 27.

March 30.—Sending-in Day. Alterations and extensions to the Coventry and Warwickshire Hospital for the Committee of Management of the Hospital. (Limited to six firms of architects: Buckland and Haywood, Elcock and Suttcliffe, Martin and Martin and W. H. Ward, T. R. J. Meakin, and W. A. Pite, Son and Fairweather.) Assessor: S. N. Cooke, F.R.I.B.A. Latest date for submission of designs, March 30.

April 8.—Sending-in Day. Monument in Grey Cornish granite for the Cornish Quarry Masters' Association. Assessors: The Hon. Humphrey Pakington, F.R.I.B.A., C. Lovett Gill, F.R.I.B.A., C. H. Holden, F.R.I.B.A., Howard Robertson, F.R.I.B.A. and M. L. Wetherall. Premium: £50. Conditions are obtainable from the Secretary of the Architectural Association, 34 Bedford Square, W.C.1. Latest date for submission of designs, April 8.

April 30.—The Croydon Corporation invite the submission of designs for laying out an area in Central Croydon which is to provide an extension of the Civic Centre of the Borough and to improve central means of communication. Assessor: Dr. Thomas Adams, F.R.I.B.A., F.S.I., M.T.I. Premiums: £500 for the design placed first; £350 to be divided (in proportions to be determined by the Assessor) for not more than three designs placed next in order of merit. A copy of the conditions is obtainable on application to the Town Clerk, Town Hall, Croydon. (Deposit £1 1s.) Designs are to be submitted not later than April 30.

May 31.—Sending-in day. Police station, dwellings and hospital, Bishopsgate, for the Corporation of London. Assessor: H. Austen Hall, F.R.I.B.A. Premiums: £250, £100 and £50. Conditions, etc., are obtainable from the Town Clerk, Guildhall, E.C.2. (Deposit £1 1s.) Last date for submission of designs, May 31.

June 28.—Sending-in Day. Municipal offices for the Birmingham City Council. Assessor: Sir Reginald Blomfield, R.A., PP.R.I.B.A. Premiums: £1,000, £600, £400 and £250. Conditions, etc., are obtainable from Mr. Herbert H. Humphries, M.Inst.C.E., the City Engineer and Surveyor, Council offices, Birmingham. (Deposit £3 3s.) Last day for questions, March 30. Designs must be submitted to the Town Clerk, Birmingham, not later than June 28.

No date.—Technical College, Bolton, for the Bolton Education Committee. Assessors: Bradshaw Gass and Hope, FF.R.I.B.A. Premiums: £500, £250 and £100. Conditions are not yet available.

No date.—New College for technical, commercial and art studies, Birmingham, for the Birmingham Education Committee. Assessor: J. R. Adamson, F.R.I.B.A. Conditions are not yet available.

No date.—Town Hall, Bury, for the Bury T.C. Assessor: J. Hubert Worthington, F.R.I.B.A. Conditions are not yet available.

SOCIETIES AND INSTITUTIONS

SOUTH WALES INSTITUTE OF ARCHITECTS

Under the auspices of the South Wales Institute of Architects (Central Branch) and the Institute of Builders (South Wales Branch) a lecture on "The Troubles of the Modernists" was given recently by Mr. R. A. Duncan, A.R.I.B.A.

After showing the drastic nature of the change from Classic to Mediæval and the almost equally drastic change from Mediæval to Renaissance, the lecturer dealt with the great change of outlook since the Great War, largely due to the striking nature of scientific and mechanical developments which have taken place. He spoke of the passing of the arts and crafts movement and of changes in architectural technique rendered necessary by the growing use of steel and reinforced concrete and by the steady increase in the height of buildings. He felt that a great measure of standardization was inevitable and he thought it essential that this should not include the use of machine-made ornament. He visualized steady growth of simplicity in architecture, with its main lines increasingly in harmony with the mechanical development of the age. In dealing with certain recent examples of building work normally classed as "functional" he indicated that this was quite the wrong word to use for them as certain of their characteristic features were clearly added for effect.

A vote of thanks to the lecturer was proposed and seconded by Messrs. W. S. Purchon, F.R.I.B.A., and Percy E. Thomas, F.R.I.B.A., respectively.

DORIC ARCHITECTURAL CLUB

The fourth annual dinner of the Doric Architectural Club was held recently at Oxford, under the chairmanship of Professor H. S. Goodhart-Rendel, M.A., F.R.I.B.A.

The toast of "the Club" was proposed and responded to by Councillor H. S. Rogers, M.A., F.R.I.B.A., and the President, respectively.

Mr. Stanley Hamp, F.R.I.B.A. (President of the Berks., Bucks. and Oxon Architectural Association), referred to the Panel of Architects set up in the three counties to assist builders and others concerned to preserve the beauty and amenities of the countryside. He said that these three counties were amongst the most lovely in England, yet everywhere ugliness and spoliation were creeping in. All members were urged by him to give their support to the Panel in its work. Mr. William Walcot, F.R.I.B.A., also responded to the toast.

During the evening, the President presented the Club Silver Medal for Design to Mr. A. E. Gerrard, and the prize (given by Mr. J. H. Brookes) for sketching to Mr. P. Palazuelo.

F.A.A.S.

The third annual dinner and dance of the London and Home Counties Branch of the Faculty of Architects and Surveyors is to be held at the Criterion Restaurant, Piccadilly Circus, W.1, on Thursday next, February 28, at 7.15 p.m.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND

At the first Council meeting of the new session of the above Institute, the following were elected to the various committees:—

Professional Practice.—Messrs. G. F. Beckett, T. J. Byrne and J. H. Webb.

Arts.—Messrs. L. F. Giron, F. G. Hicks and J. J. Robinson.

Publication.—Messrs. L. F. Giron, C. A. Harrington and T. F. Strahan.

Town Planning.—Messrs. J. M. Mitchell, J. Moore, J. W. O'Sullivan and Manning Robertson.

The Board of Architectural Education was constituted as follows:—Messrs. G. Atkinson, E. A. Barrett, R. M. Butler, T. J. Byrne, W. H. H. Cooke, J. V. Downes, L. F. Giron, G. H. Leask and J. J. Robinson.

ANNOUNCEMENT

Mr. R. Furneaux Jordan, A.R.I.B.A., has removed his offices to No. 7 Gower Street, W.C.1. Telephone No.: Museum 8483.

THIS ARSHETECTURE

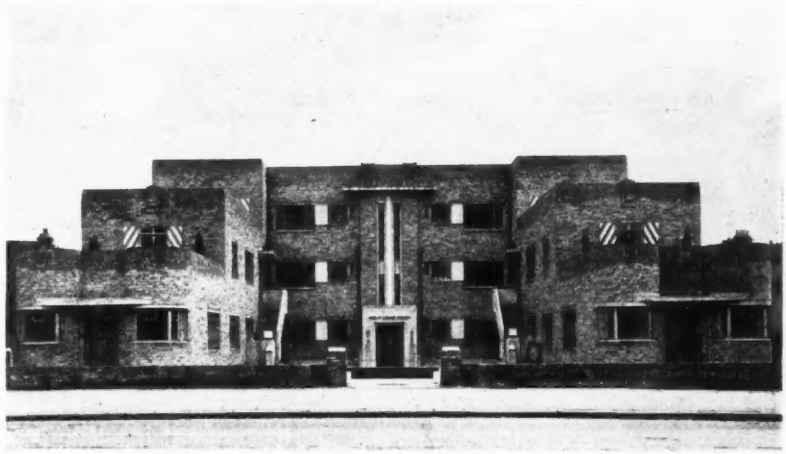
The New Year number of the *Architects' Journal* makes some interesting and amusing suggestions concerning the changes in architecture during the next hundred years. In 1940 there are to be bridges for children across the main roads, in 1945 may come floating platforms for transatlantic air services, and in 1962 a Channel bridge—not a tunnel this time. The first elevated aerodrome is projected for 1996, and in 2013 the first steel block building. There are many other forecasts—some of them wildly improbable and others with some degree of possibility. It is difficult to foresee a steel block building in this country—British architecture suits British cities, and we can leave it at that.

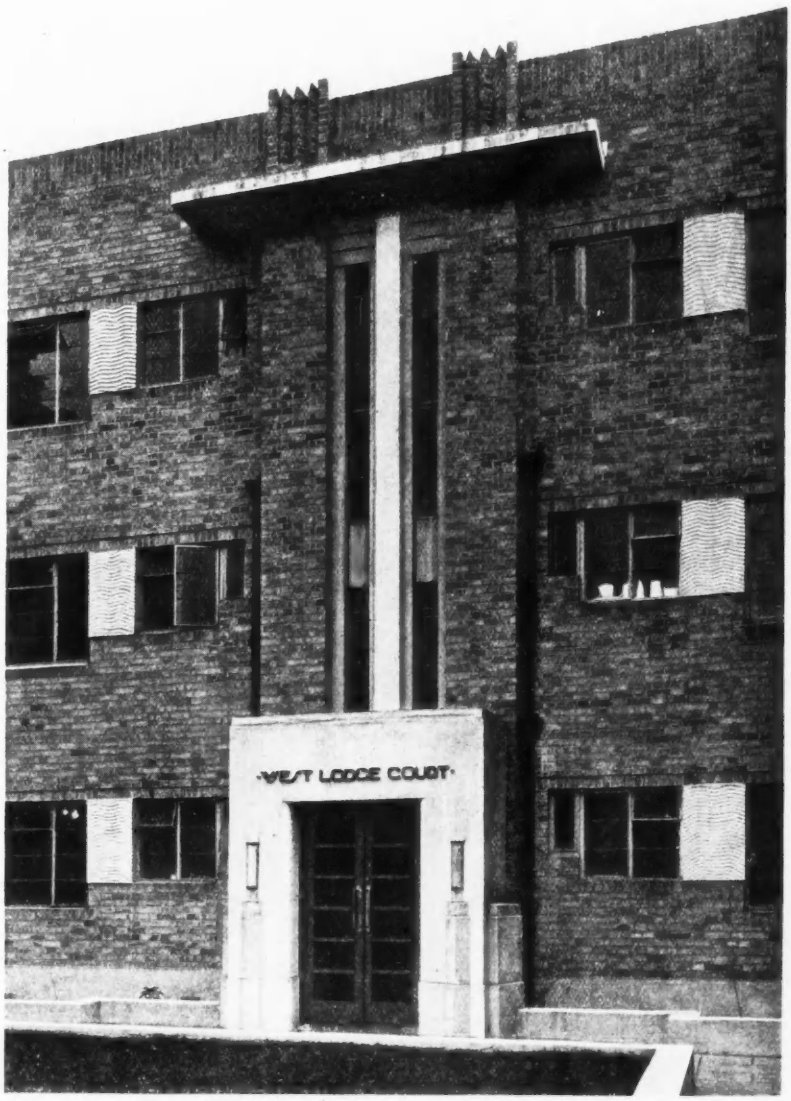
From "The Weekly Sentinel," Hanley.

BLOCK OF FLATS AT ACTON

DESIGNED BY

R. G. COX





This block comprises 12 two-bedroom flats, 4 one-bedroom flats and 2 one-room flats, let at rents varying from £75 to £115 a year.

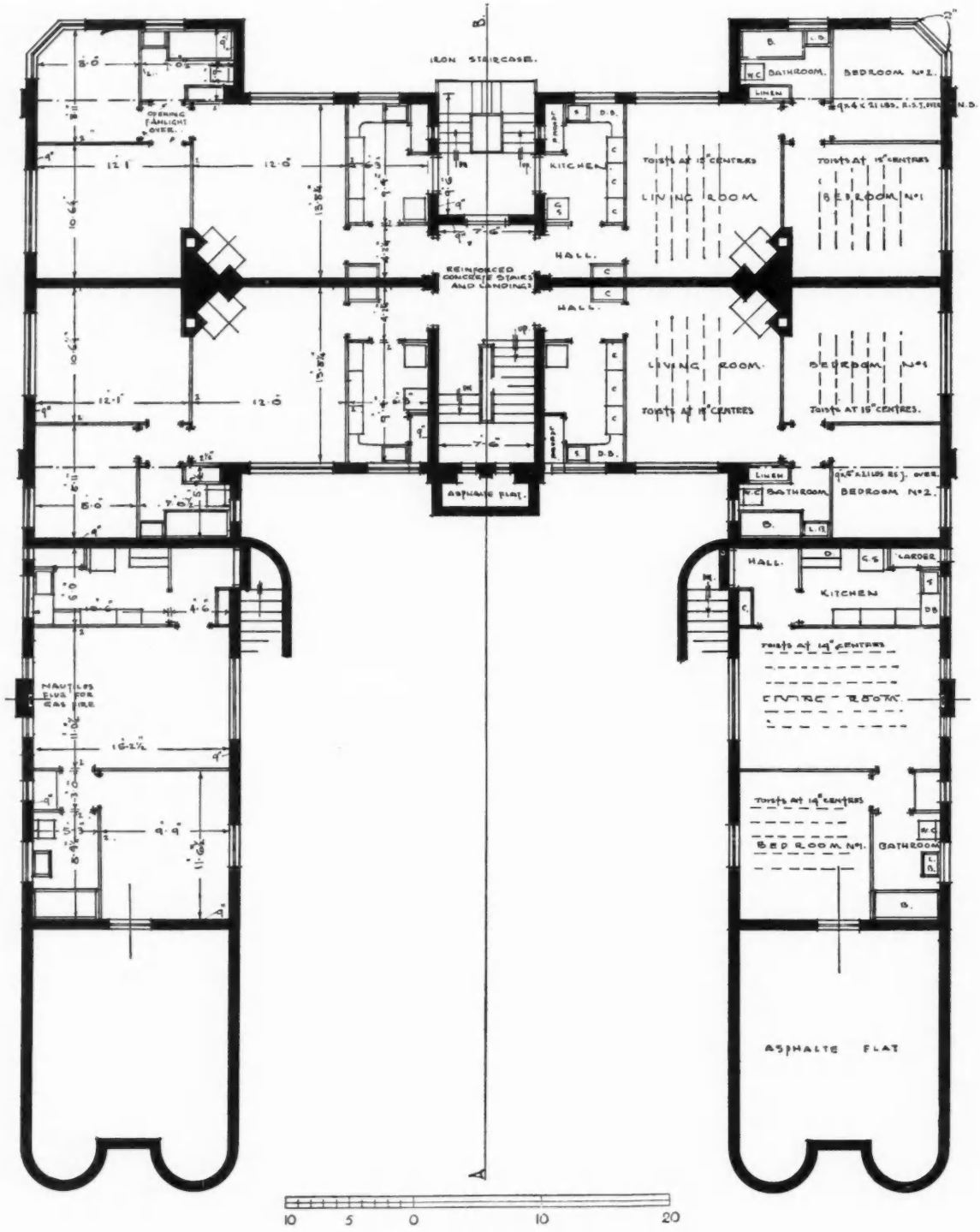
PLANNING. *The flats are set back in stages, to give a three-storey centre block with two-storey wings each of which has a one-storey termination, so that many of the flats have a roof garden over the flat adjacent on the floor below. The majority of the flats overlook a central courtyard. With the exception of the one-bedroom flats in the wings, which have an external staircase, all the flats on the upper floors are approached from a common central internal staircase.*

MATERIALS. *The facing brickwork is of pressed bricks, with an applied sand face, in a warm orange tone. To accentuate the horizontal treatment of the brickwork, the horizontal joints were raked back and all vertical joints flush pointed. The floors, for reasons of economy, are of wood joists, but a fairly successful method of sound-proofing, by nailing insulating wood pulp boards to the underside of the joists and plastering direct thereon, is employed. Special care was taken to see that the insulating board was carried into a chase in the brickwork. Windows are of metal, with wide flanges painted to match the pointing of the brickwork. Plinths and similar details are in coloured cement. The staircase has a solid balustrade wall, capped with a 5 in. by 2 in. oak handrail, limed and wax polished. Rubber flooring is used in halls and stairs.*

EQUIPMENT. *Kitchens have sinks and gas cookers built into tiled recesses. Electric storage water heaters, thermostatically controlled, are installed to provide domestic hot water. Each flat is provided with a separate storage locker, 5 ft. by 3 ft. by 7 ft. high, at the rear of the building, for outside storage of articles that are seldom in use.*

The photographs on this page show the street elevation, looking into the courtyard, and a detail of the main entrance portion.

B L O C K O F F L A T S A T



Above is a typical floor plan—the first. The plans of the other floors are similar, except that on the ground floor the flat roofs terminating the wings are replaced by one-room flats, entered between the circular bays. The top floor consists of centre block only. On the facing page is a detail of the entrances to the two flats that occupy one of the wings.

ACTON: DESIGNED BY R. G. COX



PRINTING WORKS, EAST HARDING



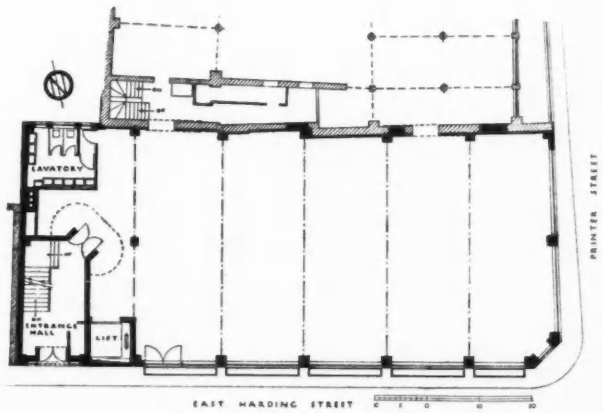
This new building replaces the original printing house which was known for 165 years as "King's House." This was built in 1769 by Charles Eyre who was then the King's Printer under Royal Letters Patent for the printing of Bibles and Prayer Books, which Patent is still held by the firm of Eyre and Spottiswoode.

STRUCTURE. *Steel frame with reinforced concrete floors throughout, there being no internal columns to impede the lay-out of the various machines. Walls internally and externally are faced with sand lime bricks, and the long windows give the maximum amount of lighting to the various floors.*

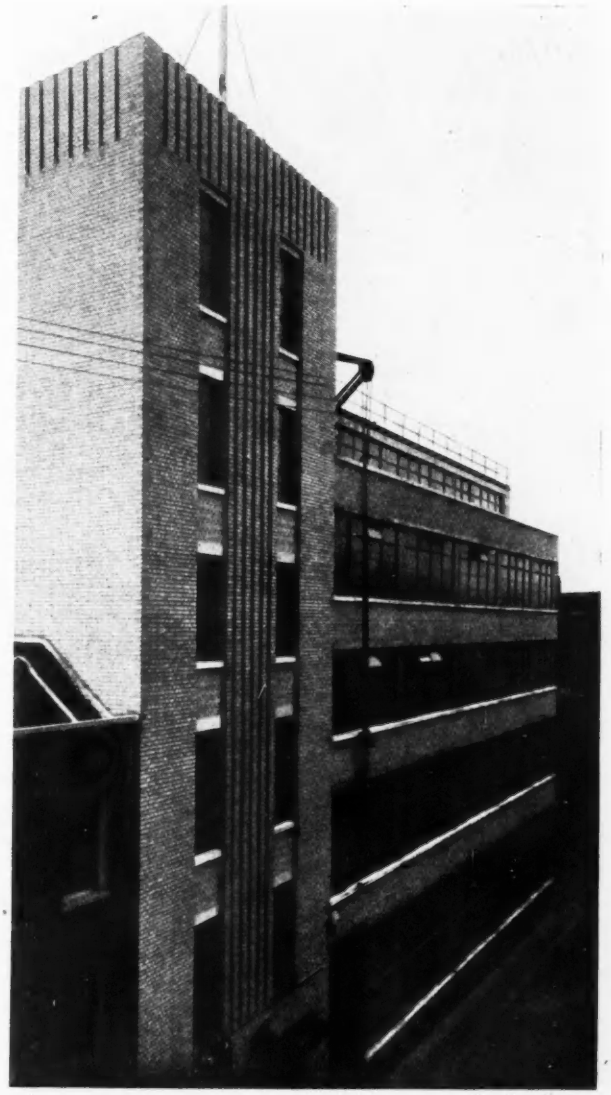
EQUIPMENT. *Heating is by means of panels in the ceilings, fed from the gas-fired boilers in the basement, and the building is sprinklered throughout.*

STREET AND PRINTER STREET, E.C.

The photographs show two views of the East Harding Street front, and a detail of the main entrance. The Iron Gate and Lamp Brackets formerly gave access to the Courtyard of the old building.



GROUND FLOOR PLAN



Hamilton Studios.



DESIGNED BY HERBERT O. ELLIS AND CLARKE

LETTERS FROM READERS

RONALD VICTOR-SMITH

R. WYNN OWEN, F.R.I.B.A.

PAUL V. MAUGER, A.R.I.B.A., A.M.T.P.I.

R. C. WHITE-COOPER, A.R.I.B.A.

Brighton Front

SIR,—I see from the daily papers that there is a plan afoot to rebuild Brighton front—famous as the finest piece of architecture possessed by any seaside town in Europe. This, in the words of the paper, is the scheme with which a certain Brighton official plans to crown his career as the builder of modern Brighton.

Can nothing be done to save this fine architectural conception, or must it be destroyed to be replaced by twelve-storeyed blocks of flats, as is intended, the architectural treatment of which buildings has never yet been satisfactorily effected ?

RONALD VICTOR-SMITH
Reading

Outlook Unsettled

SIR,—The outlook of the architectural profession is certainly unsettled as the result of a depression extending from the Shetland Isles to Land's End, which will continue until the profession in general ceases to remain oblivious to the prevailing economic atmosphere. The community in general has discovered definitely that architectural service can be procured more economically by the employment of architects upon a salaried basis than by the process of enlisting the services of architects on a commission basis. The former procedure is now adopted by all sections of the community—ecclesiastical, municipal, county and educational authorities, etc. —and has extended to almost every form of commercial undertaking which finds the repeated employment of the profession necessary. In fact, it would appear that the only element which still remains unconscious of this economic change is the architectural profession.

The result of this is that while the profession continues to think in terms of private practice the public is procuring its requisite architectural service at its own price. The loss to the profession as a whole must be very considerable, but as long as the profession continues to live in a fool's paradise this loss will continue. In many cases the salaried architectural assistant's remuneration is about on equal terms with that of the municipal dustman, and until the members of the profession learn the elementary economic lesson, which the members of almost every conceivable trade have grasped many years ago, they cannot hope for better conditions or remuneration. The profession stolidly continues to delude itself with the idea that its nucleus is still the private practitioner, whereas in reality the amount of work carried out by architects working on a salaried basis exceeds that of the private practitioner.

The older generation in the profession will naturally preserve the foregoing delusion to the end of the road, but the younger men should appreciate that the future relationship of the profession economically to the employing public will be services rendered upon a salaried basis. Remuneration upon this basis is now settled by the employing public because each individual architect has to make his own best bargain with the full knowledge that the profession is so overcrowded that there are always others who will accept less.

There is only one remedy for this highly unsatisfactory condition if the profession is to maintain its status in the eyes of the employing public, and that is the collective unity of the profession—collective unity amongst men who have realized the economic conditions of the times in which they live and are prepared to see that the profession is adequately remunerated for its services. It therefore behoves every young man in the profession to take a part in the establishment of an adequate scale of salaries for architects. The days of individualism in this matter have passed, so this means membership of a body which is legally qualified to negotiate upon such matters, and there is but one such organization in the profession.

The writers of three previous letters under this heading have made reference to the Association of Architects, Surveyors and Technical Assistants, of 26 Buckingham Gate, S.W.1, which by its representation on the Registration Council is legally recognized as the representative body of all salaried architects. This organization is an existing reality, so all one has to do is to become one of its active units, and so place himself in a position to pull his weight towards the removal of the existing depression and unsettled outlook of the architectural profession.

R. WYNN OWEN
Watford

Air Attack

SIR,—In your last issue you published a review of a German book on the protection of buildings from air attack. I imagine that this subject moves many people to feelings of disgust at the folly of the human race which is busy devising its own destruction by attack from the air, while some of its best minds are pre-occupied in designing means of protection against this menace.

But of all groups of society our profession is in a special position to appreciate the effects of aerial warfare on buildings and to dread the destruction of great architecture. The sight of a slum or of a bit of nineteenth-century bye-law development may make us say that some systematic bombing might have its use. It is, however, well to remember that its effectiveness would be none the less striking on St. Paul's, the Sainte Chapelle or Santa Sofia, whether by intentional or—more probably—indiscriminate action.

This is all rather obvious, but not, I think, irrelevant to present-day dangers and the possibility of averting them. For is it not the duty of the architectural profession in all countries to add their influence to the growing body of opinion which is urging the necessity of abolishing military aircraft? It may not be generally known that the need for this abolition was agreed to by the Air Commission of the Disarmament Conference and schemes to attain it submitted, but for some reason this Commission has not been called since 1933.

PAUL V. MAUGER
London

The Parliament Square Site

SIR,—In his "Notes and Topics" of February 14 Astragal comments upon the Parliament Square site and suggests that it should not be allowed to be developed " at random."

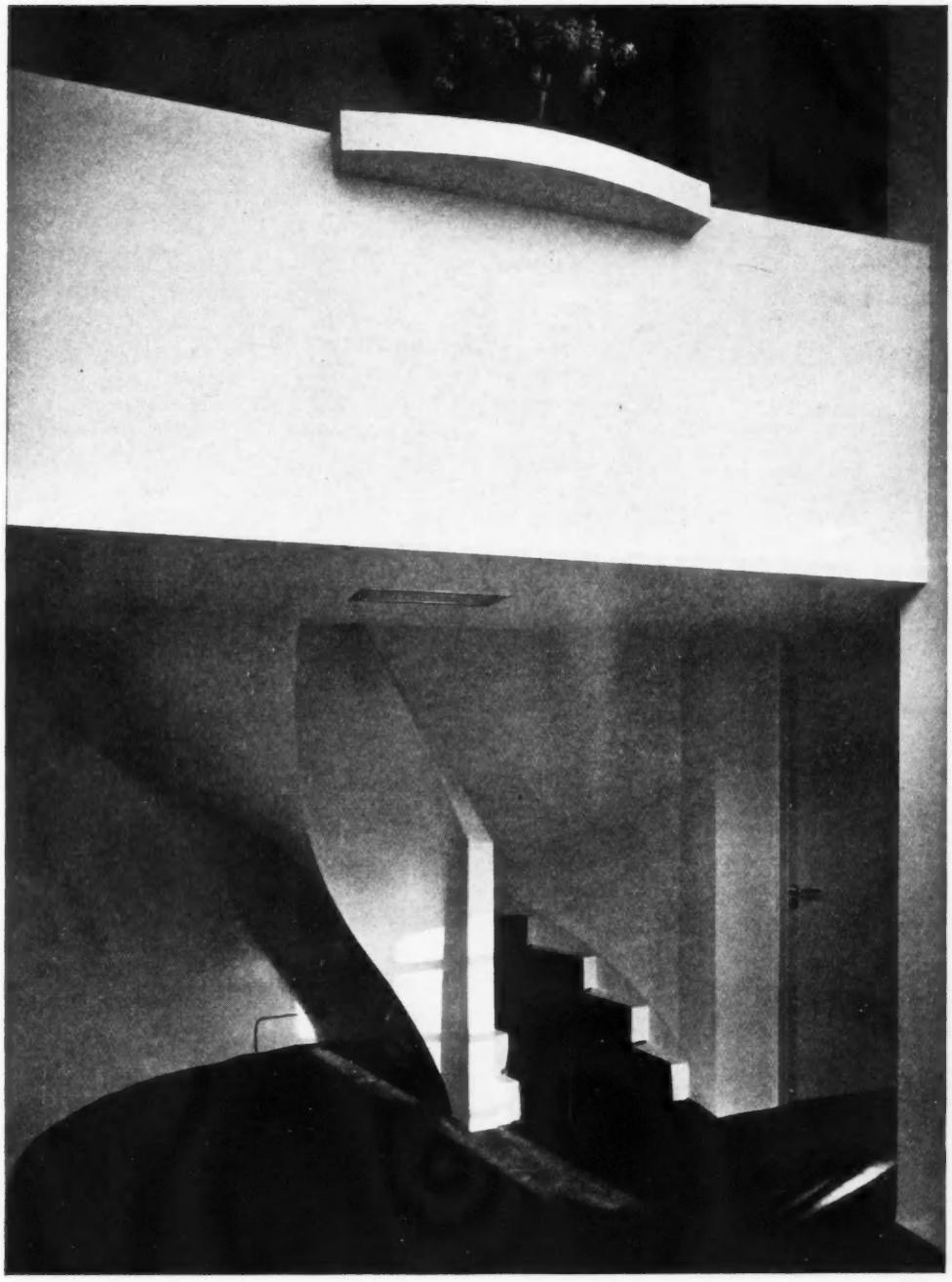
Surely after two years' discussion, with plans that have been approved by the authorities particularly concerned with the buildings within the area, and an elevation by Sir Giles Gilbert Scott, designed to harmonize with the buildings in Great George Street and enhance the dignity of Parliament Square, there is little that is " random " in the scheme. From an architectural point of view it is immaterial whether the building is let as offices of the highest class or used to house the officers of the various departments of the Middlesex County Council and their staffs, which staffs, indeed, are likely to outgrow the strictly limited accommodation possible on the site unless the building erected is much higher than allowed under the present scheme.

The only consideration that could be urged against the present proposal with some force and reason is that the whole site should become an open space, but that course is not suggested in the Bill contemplated by the Middlesex County Council.

R. C. WHITE-COOPER
London

WORKING DETAILS : 211

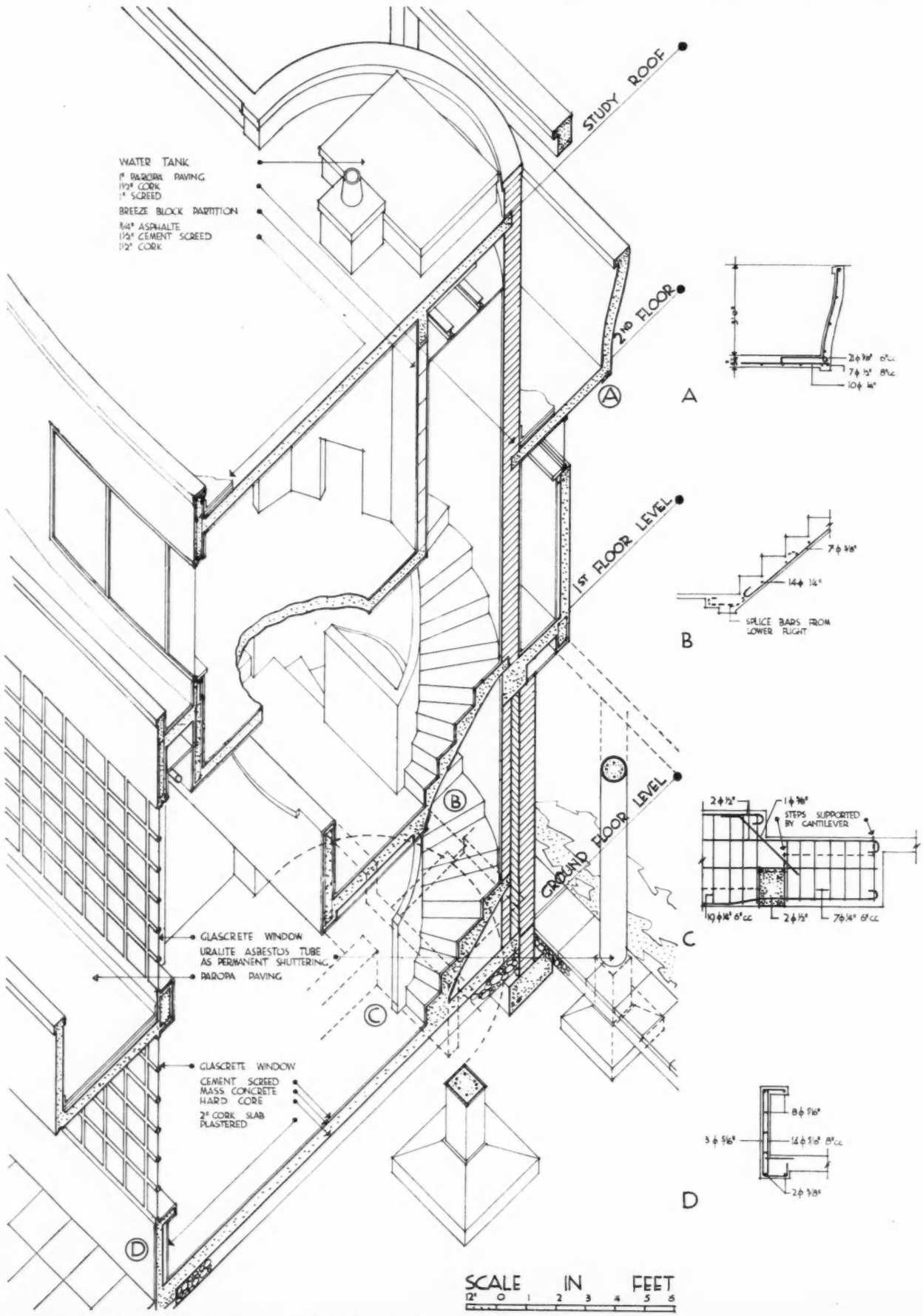
WALL STRUCTURE • HOUSE AT SYDENHAM HILL • HARDING AND TECTON



The entrance hall illustrated above runs through two storeys, with a gallery at first-floor level. As shown in the axonometric overleaf, the staircase is in reinforced concrete, with an enclosing wall of brick, and the window is in pre-cast vibrated concrete.

WORKING DETAILS : 212

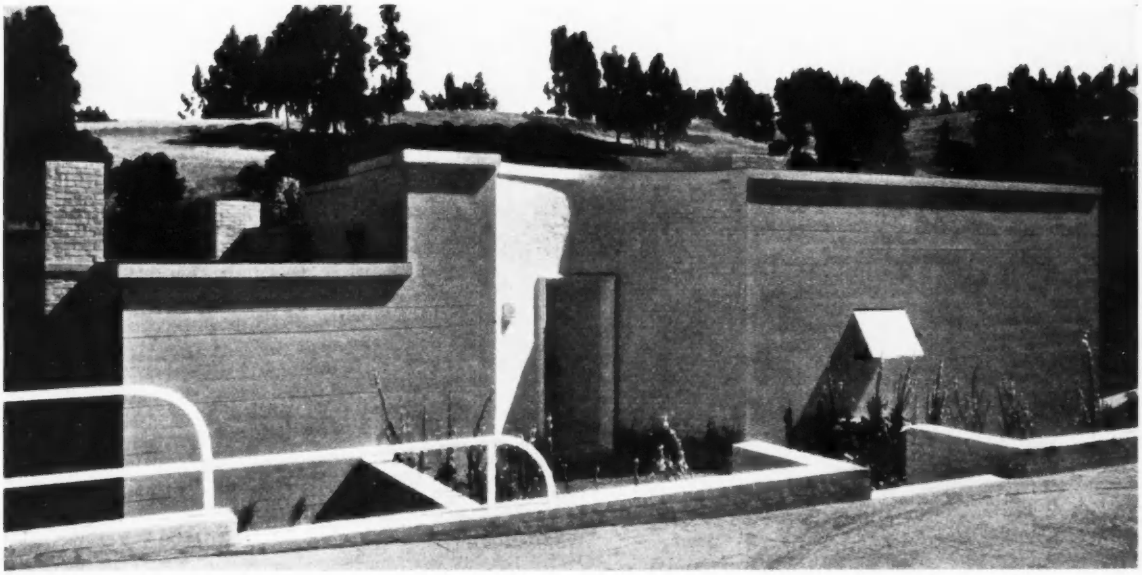
WALL STRUCTURE • HOUSE AT SYDENHAM HILL • HARDING AND TECTON



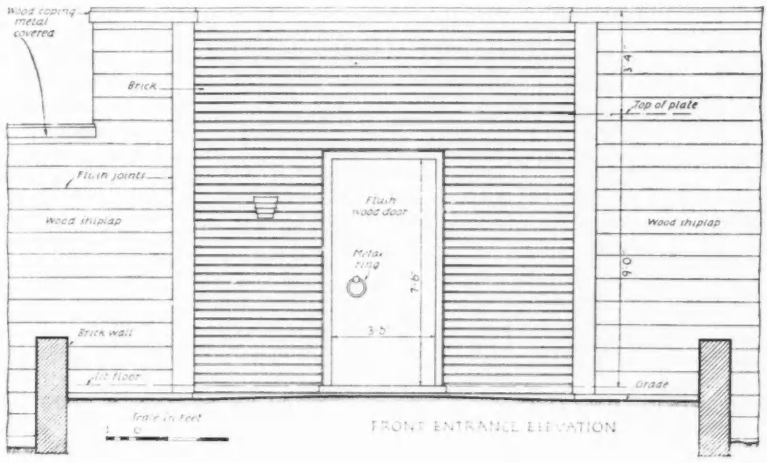
Axonometric and details of the entrance hall illustrated overleaf.

WORKING DETAILS : 213

WALL STRUCTURE • HOUSE AT BURLINGAME, CALIFORNIA • HALL & PROETZ AND WURSTER

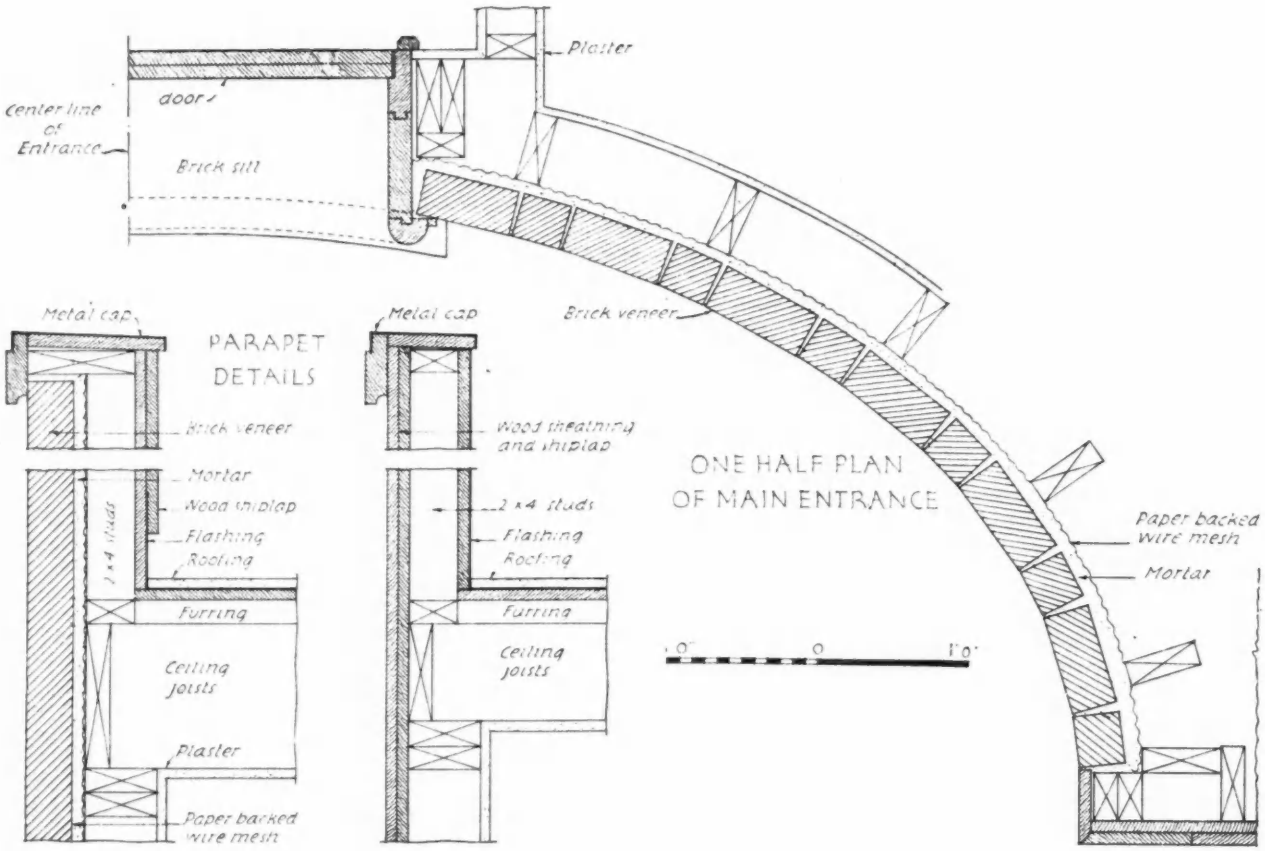


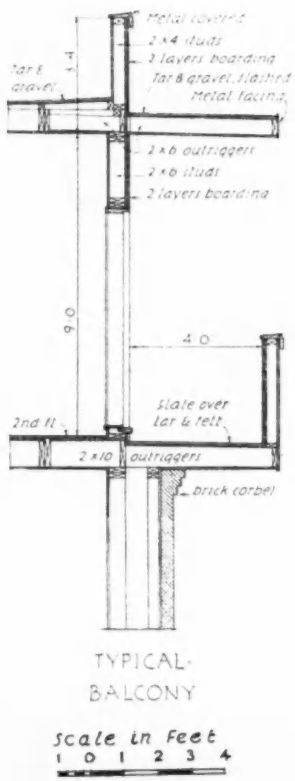
This house is of brick veneer construction on a braced wooden frame. The site slopes steeply away from the road and the entrance doorway illustrated here is on the first floor, the staircase leading directly downwards to the main ground floor rooms. The drawings overleaf show the wall structure, parapet and typical balcony sections, with two door and window details.

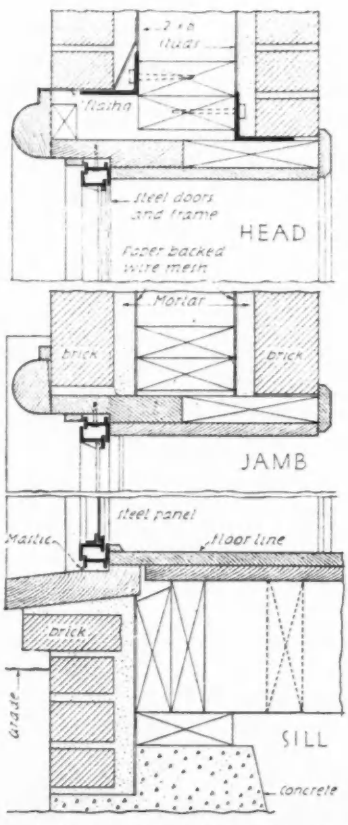


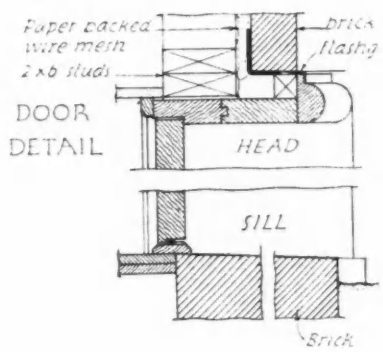
WORKING DETAILS : 214

WALL STRUCTURE • HOUSE AT BURLINGAME, CALIFORNIA • HALL & PROETZ AND WURSTER









Plan, sections and details of the entrance doorway illustrated overleaf.

L I T E R A T U R E

THE NEW WREN VOLUME

[*BY GRAHAME B. TUBBS*]

The Wren Society, Vol. XI. for 1934 : Miscellaneous Designs. Oxford : the University Press (for the Wren Society). By subscription only (£16 16s., for the whole, or £1 1s. a year), to be completed in 20 Vols. by 1943.

THERE is a magic in great men's names that causes them to be taken in vain by the uninitiated ; thus all unidentified pictures of the late fifteenth century are by Lucas van Leyden ; all unsigned portraits of the eighteenth century are from Sir Joshua's hand and, according to public report, Inigo Jones or Wren designed any seventeenth-century building if the name of the designer is unrecorded. The verification or otherwise of these popular beliefs, often possible only after collation of drawings and documents that are now in different collections, has always been an important part of the Wren Society's activities, and the Eleventh Volume, which has recently been published, settles conclusively the disputed authorship of several works, including the seventeenth-century alterations at Westminster Abbey, the New Dormitory at Westminster School, and the schools at Hertford and at Appleby in Leicestershire.

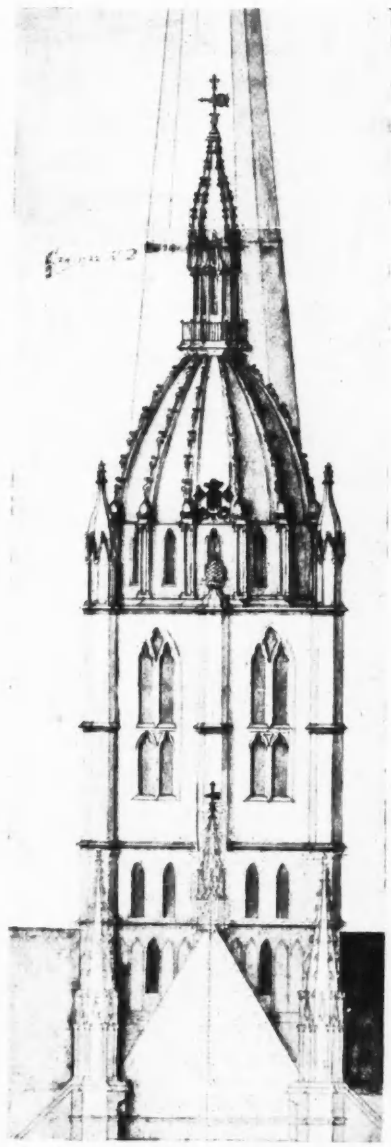
The collections of Wren drawings at All Souls' College, the Bodleian, the Soane Museum and Westminster Abbey Library have been drawn upon for this volume, which is concerned with Wren's work at Westminster and the schools with which his name is associated. The question of the extent of Wren's responsibility for the new work at the Abbey has been investigated by the editors, Arthur T. Bolton and H. Duncan Hendrie, and they have come to the conclusion that, although he saved the structure, none of his work is now visible, it having been removed by subsequent architects. One gets a good idea as to his views from the vivid memorandum that he made for a new Dean when he was 80 years of age. He considered that the Abbey was intended originally to have a central spire, and his suggestions for the tower and crowning cupola, now in the Westminster Abbey Library, are reproduced, as is a plan showing his proposal for supporting these on a light truncated cone over the arches of the crossing. Of his scheme he says : " I have made a Design which will not be very expensive, but light, and still in the *Gothick* Form, and of a Style with the rest of the Structure . . . to deviate from the old Form would be to run into a disagreeable Mixture, which no Person of good Taste could relish." Wren also prepared a report, which has not been printed before, on Salisbury Cathedral, which is of great interest and importance and these two documents put forward clearly his views on mediæval architecture and its origins, some of which make amusing reading today. Of the mediæval style he wrote : " The *Goths* were rather Destroyers than Builders, I think it should with more reason be called the *Saracen* style " ; this because it was brought to Europe from the East by the Crusaders.

The New Dormitory at Westminster School, which was finished in 1722, is an important landmark in architectural history, but there has been some doubt as to its author. The documents and drawings here given show clearly the development of the project, which was started by Wren but which, after litigation and long delay, was completed by Lord Burlington, his design having been preferred to Wren's or to Hawksmoor's or Dickinson's. This meant the triumph of the neo-Palladianism of the Burlington group over the Vanbrugh-Hawksmoor School ; baroque was dead and, for a while, aridity and pedantry held sway and the living craft tradition of Stone, Gibbons and Tijou was displaced by the " correct " full-size detail of the architects' drawing-board.

In dealing with Wren's Schools the editors have followed their admirable practice of printing all relevant information that they could find in minute-books, building accounts and correspondence. The latter shows that Wren took a personal interest in Christ's Hospital and there is a good letter of his urging the importance of teaching drawing to the boys. He does not, however, seem to have been popular with the Governors as they decided to omit his name from the Oration at the opening ceremony !

Wren's chief work at the Blue Coat School was paid for by a Lord Mayor, Sir John Moore, who also built a school at his native town, Appleby in Leicestershire. As he was a sub-contractor at St. Paul's he thought it judgmatic to ask Wren to prepare a design, which he did, having had a survey made by an assistant, Woodstock, who was to have been resident architect, but who died before the work started. Moore then abandoned Wren's scheme and appointed Sir William Wilson, whose building exists today. It is in the style that was in fashion at Court 50 years before and is a good example of how the older tradition of design lingered in the more remote districts. Wilson was a sculptor and something of a character ; a short biographical sketch and his portrait are appended.

This volume, like all its predecessors, is beautifully produced and subscribers (there should be more of them !) have wonderful value for their guinea.



Sir Christopher Wren's design for a central tower and spire for Westminster Abbey, 1722. From the Wren Society's eleventh volume.

DILAPIDATIONS

The Law of Repairs and Dilapidations. By Sir T. Cato Worsfold. Bt. (Second edition.) London : Sir Isaac Pitman and Sons. Price 7s. 6d. net.

IN 1912 Dr. (now Sir) T. Cato Worsfold issued his well-known treatise on the law as it then stood in relation to repairs and dilapidations and, as it put the matter so

that all who ran might read, it enjoyed a wide popularity.

Much, of course, has happened since the first edition was written, and though it is impossible to say that the interest in the subject is now wider it certainly is keener in consequence of the trend of recent events. Post-war legislation includes some twenty Acts of Parliament which, directly or indirectly, and in greater or less degree, bear upon the respective liabilities of landlords and tenants, lessors and lessees, councils and ratepayers, and others brought into relation, in connection with property. This legislation is, broadly, of three kinds —that which is in the normal development of property law—that arising out of the increasing socialization of public services —and that of a special or emergency nature such as the Rent Restriction Acts. The period has also brought great changes in the life of the people as evidenced by the increase of occupier-ownership of houses, and the increasing popularity of flats.

Now these changes have necessitated a complete restatement of the position as regards repairs, renewals, dilapidations, etc., and the conditions under which the several parties concerned may become liable. Not the least element in this necessity is that the latent possibilities of this recent legislation cannot as yet have been adequately probed in the courts, and there is a real need for the guidance of a professional mind which has fully and carefully considered them.

In his new edition of *The Law of Repairs and Dilapidations*, Sir Cato Worsfold has fully taken into account these changed conditions and the various Acts and law cases bearing on the subject. A section deals also with Ecclesiastical dilapidations and explains the bearing of the Measure of 1923 and other statutes affecting this important aspect of church property.

Publications Received

Mediæval Town Planning—a lecture. By T. F. TOUT. Manchester University Press. Price 2s.

A Survey of British Industrial Arts. By HENRY G. DOWLING, F.R.S.A. Benfleet: F. Lewis, Ltd. Price 21s.

The Story of the Royal Society of Arts. London: John Murray. Price 3s. 6d.

Twenty-one Studies and Etchings of Palestine. By PERCY J. SMITH. London: Soncino Press.

The Story of England's Architecture. By T. E. Tallmadge. London: J. M. Dent and Sons, Ltd. Price 12s. 6d.

Housing Standards and Statistics—The Second Report of the Council for Research on Housing Construction. London: P. S. King and Son, Ltd. Price 7s. 6d.

The Design Development of Indian Architecture. Part 1. By CLAUDE BATLEY, A.R.I.B.A. London: John Tiranti.

Architectural Evolution. By H. A. TOWNSEND. London: Arthur H. Stockwell, Ltd. Price 2s. 6d.

Building Society Practice. By G. S. RILEY. London: MacMillan & Co., Ltd. Price 10s. 6d.

Art Debunked. By HERBERT FURST. London: Frederick Muller, Ltd. Price 5s.

Illustrated Souvenir. British Art in Industry Exhibition. Price 2s. 6d.

PERIODICALS

JANUARY ANTHOLOGY

AMERICA

American Architect

(Monthly, $1. 572 Madison Avenue, New York)

JANUARY. Wood; a useful article on the basic properties and characteristics of wood, with notes on optimum veneer sizes. Current small house work. The new R.I.B.A. building.

Architectural Forum

(Monthly, $1. 220 East 42nd Street, New York)

January. Schools number: an exceptionally thorough survey, starting with a review of the amount of money at present spent and the amount that should be spent on education; notes on school planning and construction by Richard Neutra, William Lescaze and others; new developments in equipment, and a comprehensive bibliography of books and articles on school subjects.

Architectural Record

(Monthly, 50 c. 115 West 40th Street, New York)

January. Portfolio of traditional houses, and some good photographs of recent work by a Mexican architect, Luis Barragan—no plans. An article by Mr. John Gloag on "The Architect as Design Authority." Heat insulation notes.

Pencil Points

(Monthly, 35 cents. 330 West 42nd Street, New York)

January. An article, the first of a series on modern European architects, dealing with the work of Marcello Piacentini. Comparative measured drawings of oriel windows.

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BELGIUM

L'Emulation

(Monthly, 10 fr. 12, rue du Grand Cerf, Brussels)

No. 9. 1934. Further examples of designs submitted for the Brussels Broadcasting House competition, with notes on the acoustics of studios and concert halls.

FINLAND

Arkitekten

(Monthly, 15 marks. Ainogatan 3, Helsingfors)

December 1934. Report by a national commission on the possibility of uniform building regulations: the suggestion is made that only qualified persons should be allowed to build.

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FRANCE

L'Architecture

(Monthly, 6 fr. 51 rue des Ecoles, Paris (5e))

January 15. The American Embassy in Paris, by Delano and Aldrich. A new plage at Lys-Chantilly by M. Tiercinier, a narrow pool parallel with the river Lys equipped with diving stages, water chute and wave-making machinery.

La Technique des Travaux

(Monthly, 10 fr. 54 rue de Clichy, Paris (9e))

January. Flat block in Paris by Jean Ginsberg and Francois Heep; a students' club at Brunn by Bohuslav Fuchs. Notes on the design of simple r.c. beams.

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GERMANY

Baugilde

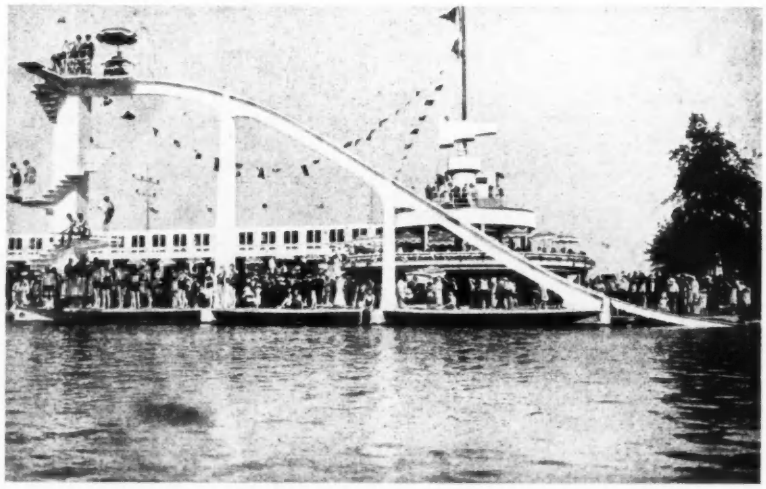
(Fortnightly, 1 m. 50. Grünstrasse 4, Berlin, S.W.19)

No. 1. A sanatorium at Ruhpoldinger. Schemes submitted in competition for a training school at Waldsieversdorf. No. 2. Holiday houses by Ernst Kreytenberg and others. One family traditional houses in Munich.

Baukunst und Städtebau

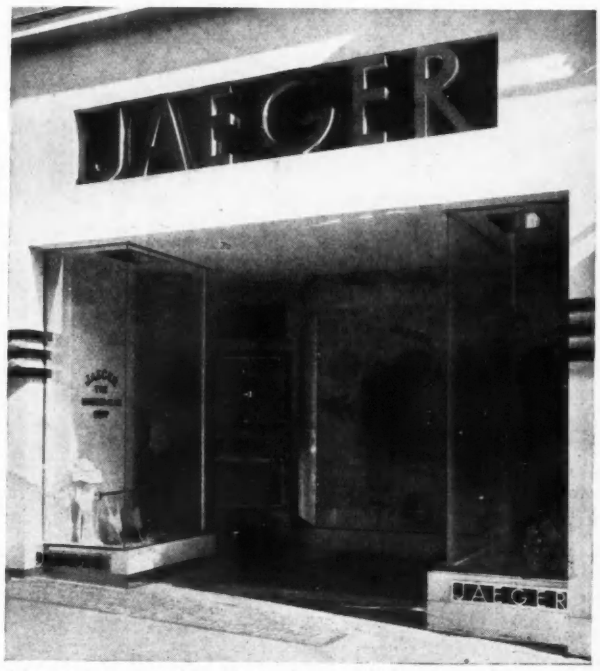
(Monthly, 1 m. 90. Bauwelt Verlag, Berlin, S.W.68)

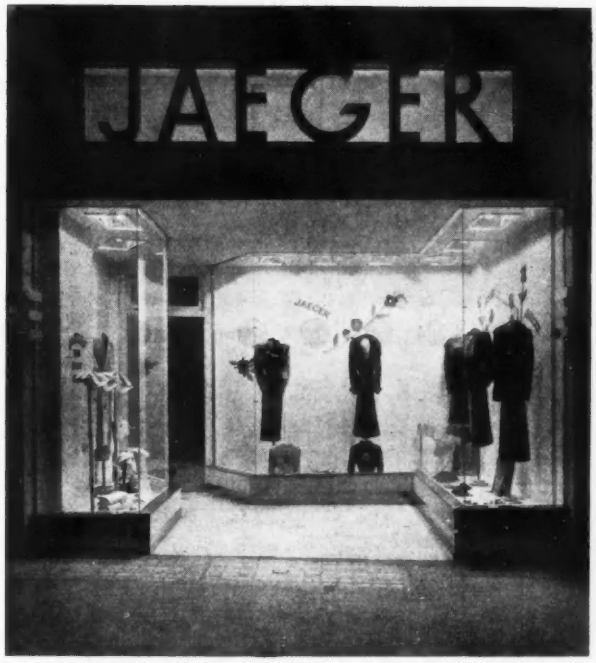
January. The work of Emil Eggermann, traditional houses in North and South Germany. A new open-air swimming pool at Lüdenschied.



The diving stage and water chute at the Lys-Chantilly plage. Architect: M. Tiercinier. [*From "L'Architecture."*]

SHOP-FRONT AT BIRMINGHAM





This shop front, designed by J. Duncan Miller, is carried out with a surround of wallboard, painted cream, relieved by three bands of stainless steel on each pilaster, and red block letters let into a recess backed by obscured glass with an illuminated effect at night. The lobby floor is in terrazzo. The windows have frameless angles, and the displays are illuminated by rectangular reflectors fitted into a false ceiling.

Baumeister
(Monthly, 3 m. Georg D. W. Callwey, Munich)

January. Country houses, mostly in wood ; a holiday house on the Danube near Vienna, by Fritz Gross. Traditional wooden houses in Norway.

Bauwelt
(Weekly, 2 m. 52 per month. Ullstein publishers, Berlin S.W. 68)

January 3. Results of a sports hall competition at Göttingen, won by Brand and Jucho. A good traditional house, by Wilhelm Doll.
January 10. Competition for a church at Stuttgart, won by Ernst Leistner. Country shops with living accommodation in Sweden.
January 17. Piggeries. Shops and offices in Dortmund, Pinneberg and Vienna.
January 24. External sculpture and paintings for buildings.
January 31. An office building at Milwaukee, by Holabird and Root.

Deutsche Bauzeitung
(Weekly, 3 m. 40 per month. Seydelstr 6, Berlin S.W. 19)

January 9. New and old churches in Altona Nieustedten.
January 16. Electricity in America and Germany compared : a small swimming pool in a private house.
January 30. Competition for a new theatre at Istanbul won by Hans Poelzig.

Innen Dekoration
(Monthly, 2 m. 50. Mecharstrasse 121, Stuttgart)

January. A country house at Marienbad, by Fritz Gross. Children's rooms, and recent work by the Deutsche Werkstätten.

Moderne Bauformen
(Monthly, 2 m. 25. Julius Hoffmann, Stuttgart)

January. Pensions office at Prague, by Havlicek and Honzik. A well-reasoned article on the insulation of rooms.

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HOLLAND

Bonwkundig Weekblad Architectura
(Weekly, 15 florins per annum. Weteringschaus 102, Amsterdam)

January 5. Heating units for private houses, an illustrated article by F. G. Unger.
January 12. Covered tennis courts at Amsterdam, by A. Boehen and W. Zweedijk.
January 19. Church sculpture by Jan Poortenaar.

de 8 en opbouw
(Fortnightly, 30 cents. Amstel 22, Amsterdam C.)

No. 1. Illustrations of numerous types of mass produced chairs.
No. 2. The planning of schools.

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ITALY

Architettura
(Monthly, 18 lire. Via Palermo 10, Milan(1))

January. A special issue entirely devoted to the results of the competition for the "Palazzo del Littorio" ; 43 schemes are illustrated, some good, some very much the reverse.

Rassegna di Architettura
(Monthly, 12 lire : via Podgora 9, Milan(105))

January. A seaside colony for the children of Italians on foreign service by Clemente Busiri-Vici.

POLAND

Architektura i Budownictwo
(Monthly, 82 loty. Wspólna 40, Warsaw)

January. Town planning in Poland : competition results.

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SWEDEN

Byggmästaren
(Weekly, 15 kr. per annum. Kungsgatan 32, Stockholm)

January 9. The Philadelphia Savings Bank building by Howe and Lescaze.
January 16. New grain silos at Frihamn, by A. Björkman.

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SWITZERLAND

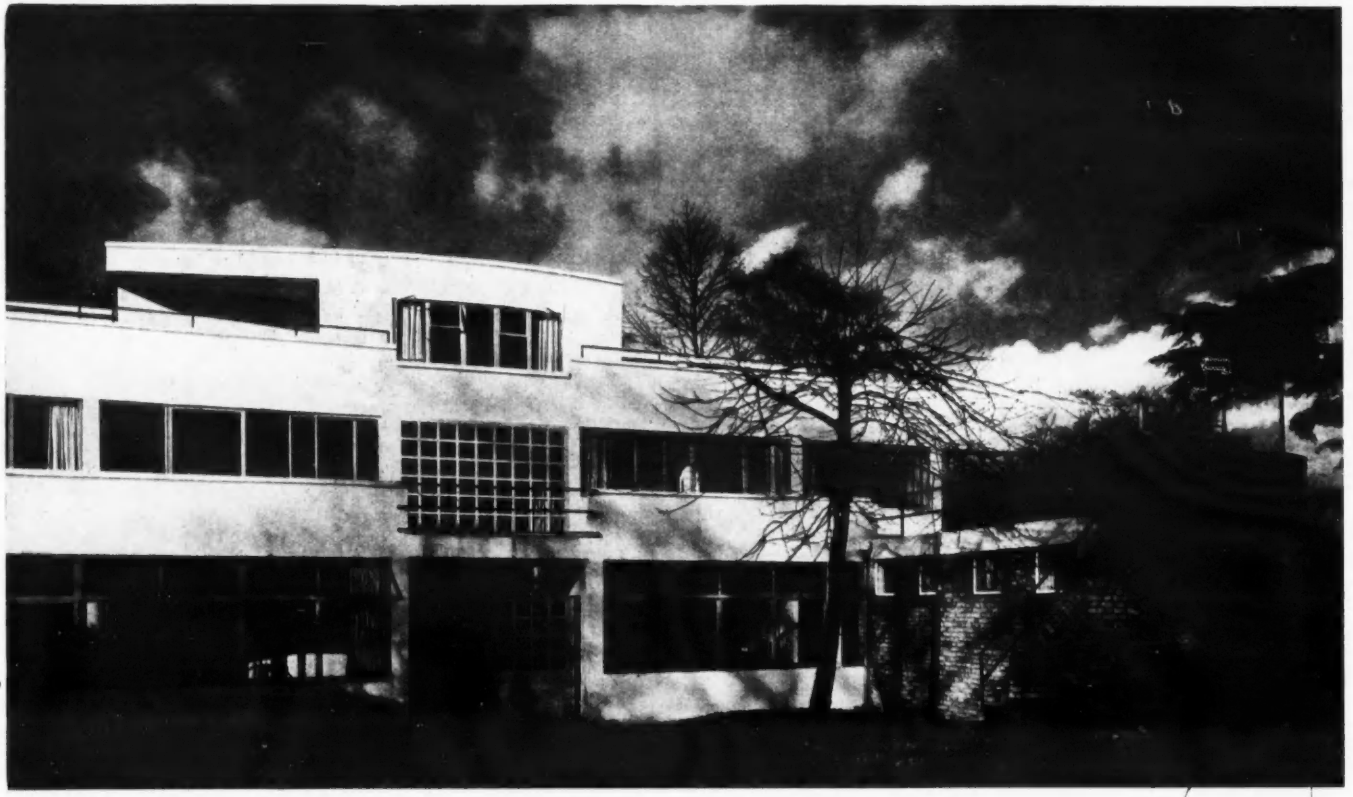
Schweizerische Bauzeitung
(Weekly, 1 fr. Dianastrasse 5, Zurich)

January 5. The Pauluskirche and meeting house at Zurich, by Arter and Risch.
January 12. Several small week-end cottages by various architects.
January 19. Mainly civil engineering projects.
January 26. The Hallenschwimmbad at Basle, a building for various types of medicinal bath as well as for swimming : Bercher and Tamm, architects.

Werk
(Monthly, 3 fr. 60. Muhlebachstrasse 59, Zurich)

January. A country house near Zurich by Max Haefeli : a good plan. Illustrations of current Swiss painting and sculpture.

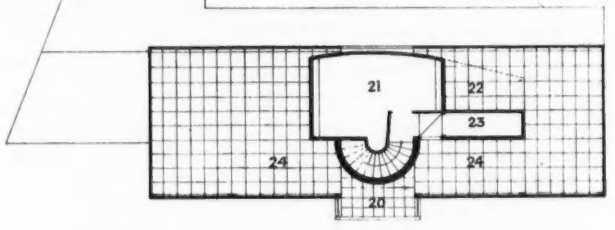
HOUSE AT SYDENHAM HILL





KEY TO SECOND FLOOR PLAN

20 : Balcony
21 : Study
22 : Shelter
23 : Boxroom
24 : Terrace

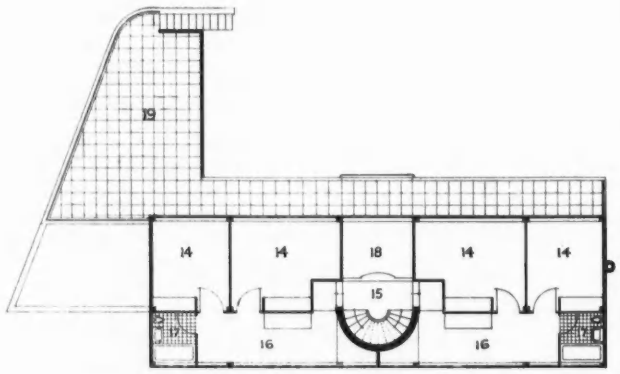


SECOND FLOOR PLAN

STRUCTURE: *Reinforced concrete frame with 4 in. concrete panel walls lined with 2 in. cork for heat insulation. Yellow London stock bricks for the service wing and the semi-circular staircase. Hollow tile floors and asphalt roof. Terraces are covered with concrete slabs.*

FINISHES: *Externally the concrete surface was rubbed down while still green and sprayed with a waterproof paint; the walls are light cream; soffits and recesses, eau-de-nil; window frames, brown in concrete walls, light cream in brick walls, railings, grey. Internally, floors in the service area are jointless composition with polished oak parquet in the living room; the remaining floors are finished in smooth cement and close covered with carpet.*

EQUIPMENT: *All windows (except those in the service wing, which are standard steel casements) are specially made steel units arranged to slide in the main living and bedrooms. The hall window, which runs through two floors, is in pre-cast vibrated concrete. Heating is mainly by electricity, though three coal fires were insisted upon by the client; thermal storage electric heaters provide hot water at each draw-off point. The photographs show: above, the main garden elevation; right, a view from the gallery of the entrance hall.*

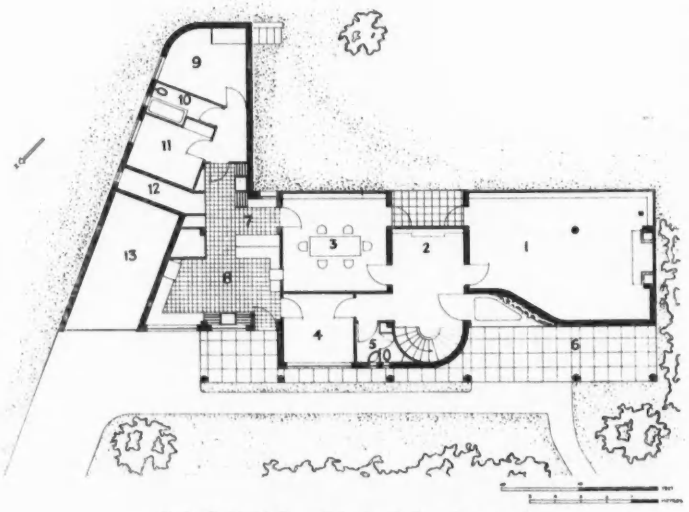


FIRST FLOOR PLAN

KEY TO PLANS

FIRST FLOOR PLAN

14 : Bedrooms
15 : Gallery
16 : Corridor
17 : Bathroom
18 : Upper part of Hall
19 : Terrace



GROUND FLOOR PLAN

GROUND FLOOR PLAN

1 : Living Room
2 : Hall
3 : Dining Room
4 : Maid's Room
5 : Lavatory
6 : Entrance
7 : Pantry
8 : Kitchen
9 and 11 : Maids' Bedrooms
10 : Bathroom
12 : Coal Store
13 : Garage



It was originally intended that this house should be built on ground belonging to Dulwich College. The trustees of the estate, however, demanded houses "somewhat Georgian in style," and another site was ultimately found just off Sydenham Hill. The site was a small one of just over ¼ of an acre, and an effort was therefore made to provide ample terrace space. Above is a photograph of the main entrance front showing the entrance loggia and the curved brickwork of the semi-circular staircase.

TECHNICAL SECTION: 7

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL. M.I.H.V.E.

VARIOUS HEATING SYSTEMS DESCRIBED

THE number of different heating systems is almost unlimited, if every combination of fuel, method of firing, transmission medium, type of radiating or convecting element is considered. It is therefore useless to attempt to describe them at all clearly or systematically unless they are classified. Though the authors have not seen this attempted previously, it has been done in many other sciences (botany, zoology, chemistry, etc.), and they have ventured to propose a classification, which is indicated in Fig. 30.

It will be seen that there are two large main divisions, *Direct* and *Indirect*.

The *direct systems* consume the fuel or energy purchased, in the room to be heated, and are the same as the "local" systems already referred to (page 203).

The *indirect systems* consume the fuel or energy purchased outside the room to be heated, these being the same as the central or decentralized systems also mentioned on page 203 (January 31).

The *direct systems* are subdivided into four main subdivisions, according to whether *the fuel* (*or energy source*) is solid, liquid, gaseous, or electrical. These are each subdivided according to the nature of the emitting or radiating element. This group is simplified by the fact that there is no transmitting medium.

The *indirect systems* are subdivided according to the kind of *transmitting medium*, which may be solid, liquid, vapour, or gaseous, and these in turn are subdivided according to their emitting element and other characteristics.

Within this great group, the fuels may be interchanged in any combination of transmitting medium and emitter and a place is found for them in the figure consistently with this.

We may comment shortly on the different systems as follows :—

DIRECT—SOLID FUEL

Open Fires

Open fires were, of course, the primitive source of heat, greater economy being obtained in mediæval times by having the hearth in the centre of the room and allowing the gases to escape through a hole in the roof. Little heat was lost, but the system was not without its disadvantages.

Later, flues were invented, whereby economy was sacrificed for the greater advantage of smoke elimination.

Some of the cheap Victorian fireplaces would appear to have been designed by coal merchants, for the heated air from them went straight up the flue, and most of the radiation was masked by ironmongery. Efficiency would be from 10 per cent. downwards.

Modern grates, often without bars or ironwork of any description, direct the hot gases to a sloping firebrick back which radiates out into the room, and, when burning under the best conditions, can have efficiencies of from 15 per cent. to 20 per cent. This compares with about 60 per cent. for a boiler system under average conditions. The open fire in its best form has the advantages of giving ventilation, a centre of interest in the room, and a feeling of homeliness and friendly glow.

It has the disadvantages of burning three to four times the amount of coal required in boilers to give the same warmth, the coal and ashes have to be carried about, consuming labour and producing dirt, which requires more labour to remove it. Its ventilation may be excessive (ten changes an hour not being uncommon) so as to cause draughts, and these draughts are specially objectionable as the replaced air is generally cold and untempered unless radiators or other heating supplement the open fire.

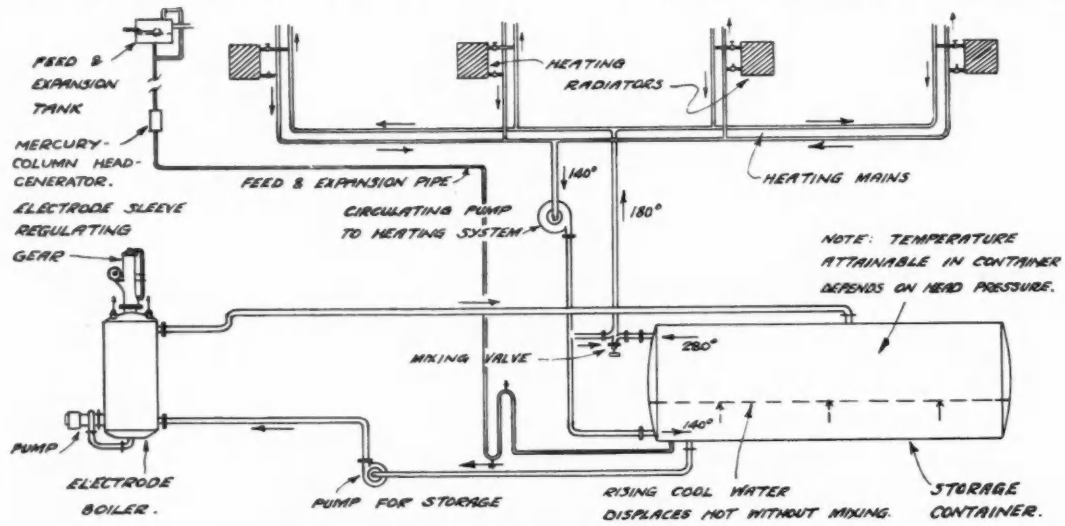


Figure 29. *Diagram of electrical thermal storage system.*

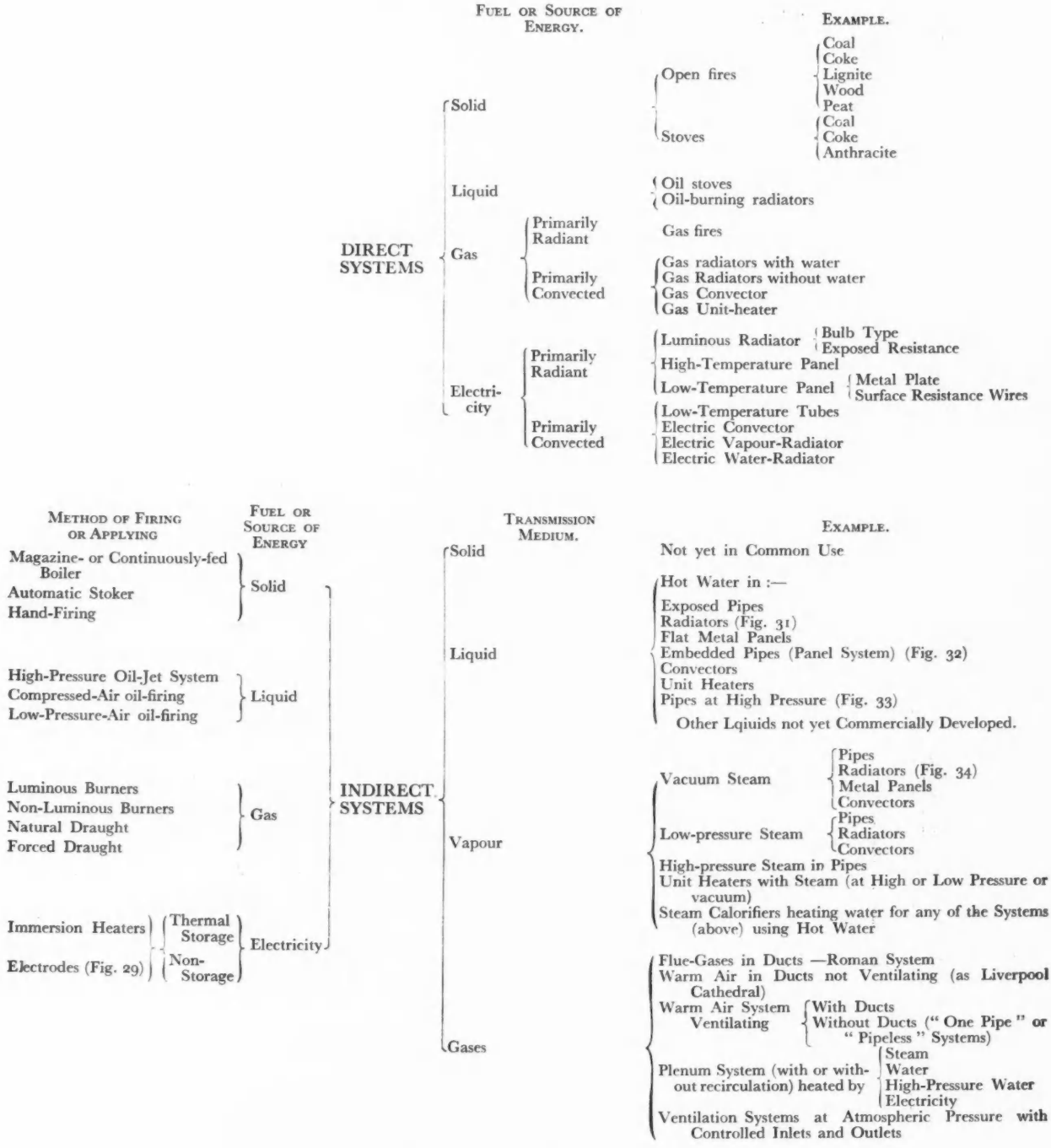


Figure 30. *Classification of Heating Systems.*

Many of the dirt and labour disadvantages are mitigated if peat, and (better still) wood, can be procured at a cost which can be afforded.

The labour associated with the laying and lighting of fires can be reduced if the recently developed open coke-burning fire is used. With this the ignition is effected by gas burners which are lit under the coke until the fire is well alight. The radiant heat from coke is probably greater than from coal, and the burning carbon monoxide from the top of the coke is pleasant to watch.

Open fires of any sort are, of course, impracticable for buildings of any considerable size, partly owing to the labour and inefficiency already referred to, and partly owing to the great waste of space and cost of the multiplicity of flues which they require.

Stoves

Anthracite stoves in this country, and the large coal stoves so common on the Continent, are much more efficient, labour saving, and draught reducing than the open fire, and will keep alight all night. The fire is not visible in them, however, and for this reason their use in this country is generally confined to halls and corridors. Their efficiency may be as high as 50 per cent., in which case they begin to approach the economy in fuel consumption of a boiler system, and are naturally lower in first

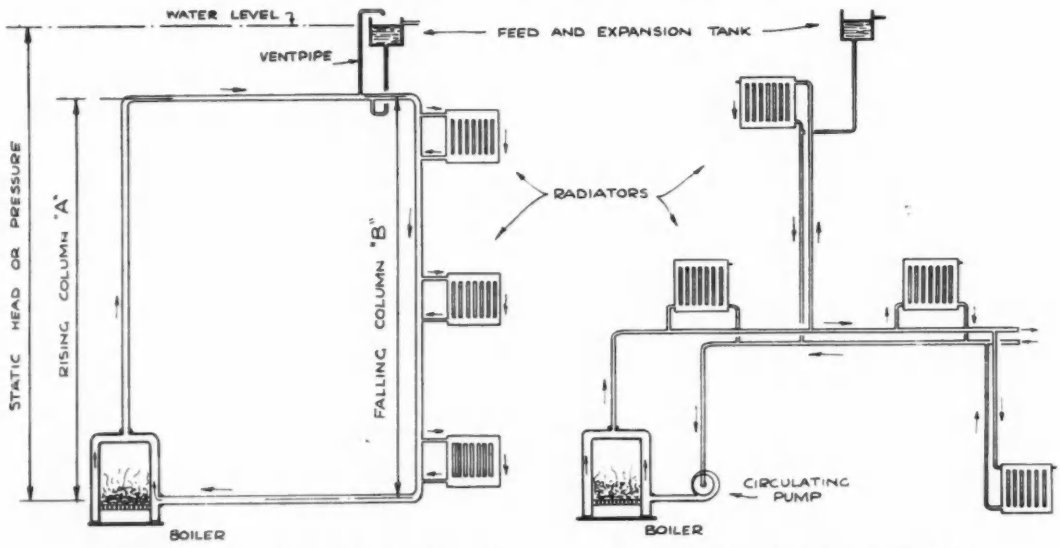


Figure 31. *Hot water radiator systems. In A (gravity circulation), circulation is produced when the boiler fire is lighted, since the weight of column B is greater than that of column A, due to the higher temperature of the latter. In B (pump circulation), circulation is produced by a pump, which may be driven by electric motor or other means; this enables smaller pipes to be used and the water to be transmitted over greater distances than with gravity circulation.*

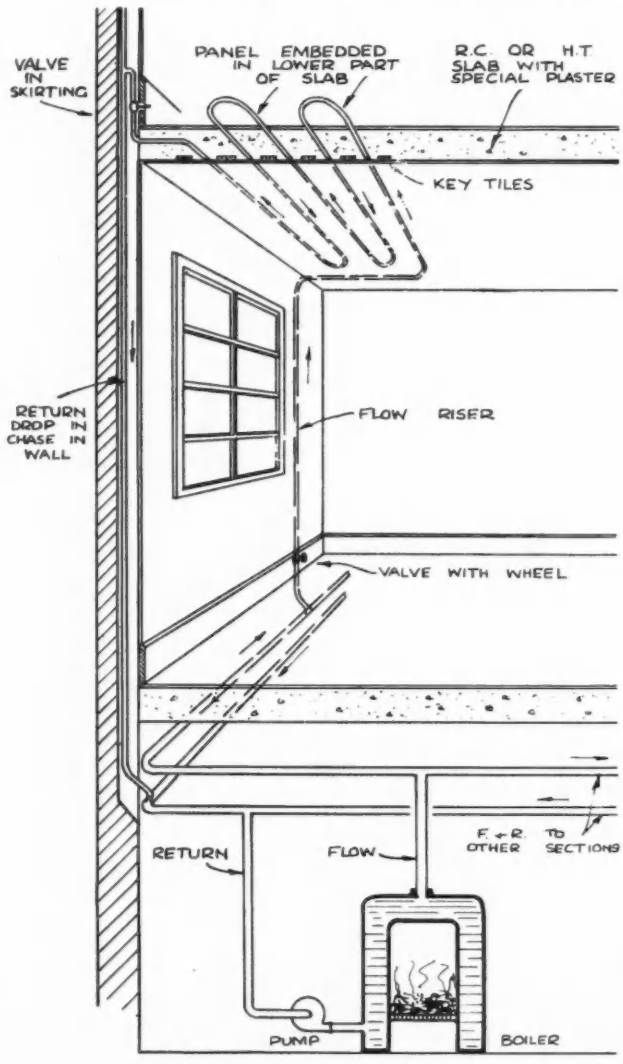


Figure 32. *Hot water embedded panel heating system.*

cost than many other systems. However, they still entail carrying fuel and ashes about in the habitable rooms and involve more labour (except in small houses) than a central system.

Coke stoves of the so-called slow-combustion type often found in churches are less efficient than anthracite stoves and, owing to the intense local heating which they produce, are often the cause of bad draughts. These stoves also sometimes give rise to sulphurous smells due to sudden change of wind or down draught, and, on the whole, their use is not to be advised except where extreme economy in first cost precludes all other methods.

LIQUID FUEL

Oil stoves which discharge the fumes into the room are objectionable, and there are few conditions in which they can be tolerated as a permanent method of heating.

Oil often contains 2 per cent. of sulphur, which produces sulphurous or sulphuric acid on burning, bad for health and destructive of furniture.

Oil radiators, consisting of an oil burner whose flue gases circulate in a radiator before discharging into the room, have most of the objections of oil stoves, except that a little of the sulphuric acid may be condensed in the radiator. Cheapness and portability are generally the deciding factors in their use.

GAS FUEL

Fires

Gas fires have been greatly improved in recent years by increasing the radiation effect with special forms of radiant

elements. Their efficiency is claimed to be about 70 per cent. in the best examples working under good conditions. They have the disadvantage of depending on high temperature radiation. The radiation has now, in fact, reached such a high temperature that many people find it unpleasant, and it is probably impossible to expose the skin to these rays for any considerable period without feeling an excessive dryness and parchiness.

Dr. Leonard Hill claims to have invented a complaint known as "nose-shutting" to which, he says, he and many other people are subject in the presence of infra-red radiation. His hypothesis is that high temperature radiation overcomes the discomfort which he feels with a radiation from a lower temperature source and that certain materials, such as water vapour, intercept the rays, which accounts, he says, for the common practice of placing a dish of water in front of a gas fire. This water vapour obviously can have no effect on the humidity of the room since it all escapes up the flue, but he states that it possesses the property of preventing stuffiness by cutting off the nose-shutting rays. This theory is, however, not generally accepted or acceptable.

Even if gas fires are 70 per cent. efficient and anthracite stoves only 50 per cent., the comparison of cost with gas at 9d. per therm and anthracite at 60s. per ton (cal. value = 14,000 B.T.U.'s per lb.) works out as follows :—

Gas $9 \times \frac{100}{70} = 12{\cdot}9$ pence

Anthracite $2{\cdot}31 \times \frac{100}{50} = 4{\cdot}6$,,

or roughly one third.

This applies for house warming.

If, however, the gas fire is required not so much for house warming as for giving local and temporary comfort by radiation, say, for dressing or dining, it will be on for so short a time that it may effect a great economy over stove or open fire heating. This, in fact, is the main use and virtue of the gas fire, namely, that its heat is instantly "on tap." For continuous heating, however, it is an expensive method, and for this reason does not find a place in the heating of large buildings.

Radiators

Gas-steam radiators operate with a flame under a radiator partly filled with water which vaporizes and so warms the whole surface quickly. It usually contains a safety valve, and sometimes a thermostat which reduces the gas flow when the desired temperature is reached. They are open to the objections that the products of combustion usually escape to the room. The efficiency is, of course, 100 per cent.

These radiators are also made *without water*, in which case metallic conduction and convection of the flue gases serves to distribute the heat, the fumes passing up through the vertical tubes and escaping at the top into the room. The same objections, of course, apply.

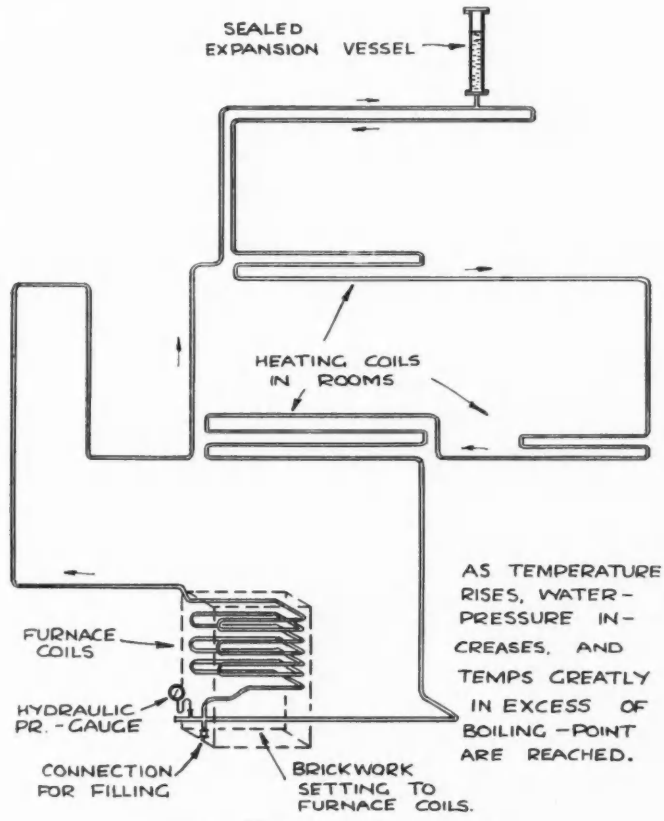


Figure 33. *High pressure hot water system.*

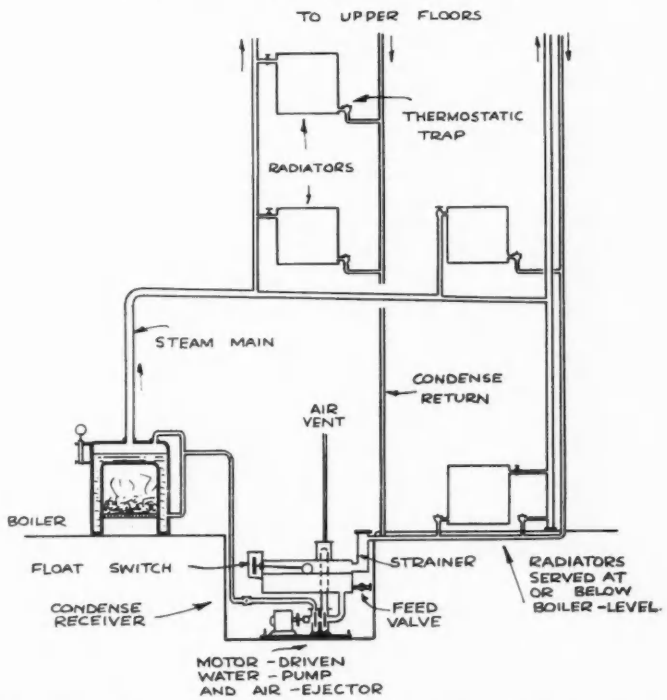


Figure 34. *Vacuum steam system. With this system radiator temperatures well below normal boiling point may be maintained.*

Both types of radiator are used chiefly in halls, shops, tea rooms and other places where low first cost is important.

Convectors consist of a gas radiator contained in a metal box with gratings at bottom and top through which the air enters and escapes after being warmed. The convection currents are then under control and a higher air temperature is the result. The chief advantage is that the appearance is better than the plain gas radiator and there is a reduced risk of burning to any person who touches the surface accidentally. They are used chiefly in halls of small houses.

Unit Heaters are described later. Gas-fired heaters are similar, and may be convenient if gas is cheap and no steam or hot water supply is available. The removal of fumes through a flue is normally essential. Gas-fired unit heaters are useful in small factories, workshops, garages and other large spaces where a little noise does not matter.

IN THAT CONTINGENCY

The following abstracts of inquiries represent a number of those recently submitted to the Building Research Station. The information given in the replies quoted is based on available knowledge. It has to be borne in mind that further scientific investigations may, in the course of time, indicate directions in which the replies might be supplemented or modified. Moreover, the replies relate to the specific subject of each inquiry, and are not necessarily suitable for application to all similar problems. [Crown Copyright Reserved.]

Failure of Plastering

¶ *A FIRM of flooring contractors reported injury to plaster work near floors covered with magnesium oxychloride composition. The plastering was not affected on straight walls or internal angles, but only on external angles. In order to prevent injury, the lower edge of the plaster had been treated with linseed oil, but, in spite of this, a certain amount of magnesium chloride had seeped up the wall. It was further stated that the plaster used was a calcium sulphate plaster (of the retarded semi-hydrate type) and that, at external angles, in order to make this part of the work harder than the rest the plasterer had mixed a proportion of Portland cement with it.*

In view of the description of the conditions near the junction of the flooring and the plaster, it is by no means surprising that trouble has occurred. In two respects the procedure followed appears to have been defective, the one being the composition of the plaster used on the external angles, the other the method of making the junction between the plastering and the jointless floor.

To deal with these in order: Portland cement should never be mixed with any calcium sulphate plaster for ordinary building work. A mixture of the cement and plaster will be weak, and, if the work remains moist for a time or subsequently becomes moist, gross expansion, due to the formation of calcium sulpho-aluminate is likely to occur.

In the second place, in bringing jointless floors up to plastering, adequate precautions must be taken to prevent magnesium chloride from the flooring mix being absorbed by the plaster. A treatment of the lower edge of the plaster with linseed oil is not sufficient for this purpose. The composition must be effectively separated from the plaster above by means of a fillet of wood, Portland cement mortar or a suitable metal. If the backing to which the plaster is applied is absorptive, then this also must be insulated from the composition flooring; a rendering of dense Portland cement mortar is suitable for the purpose. Otherwise magnesium chloride will be absorbed by the wall and find its way into the plaster above.

The failure reported is, therefore, probably explained by a combination of two effects: (1) the mixture of cement with gypsum plaster tending to gross unsoundness; (2) the absorption by the plaster of magnesium chloride, which is hygroscopic and would maintain humid conditions and cause expansion due to the formation of calcium sulpho-aluminate. We may add that, quite apart from defects in the composition of the plaster, the presence of magnesium chloride absorbed from a jointless floor may do harm to any plaster of the calcium sulphate type, since under moist conditions there will be serious softening and progressive breakdown. Injuries to paint or other decorations subsequently applied to plaster of this or any other type are also to be expected if magnesium chloride is absorbed from the floor.

Re-use of Old Bricks

¶ *SOME old houses were being demolished and modern two-storey flats were to be erected on the cleared site. The builder desired to use as much of the old material as possible, but before doing this, he desired to obtain an assurance that the bricks were sound. He therefore inquired whether the Building Research Station could undertake to test them.*

The Station is prepared to carry out comprehensive tests on bricks to determine their general characteristics (see Notes from the Information Bureau of the Building Research Station, November, 1934, No. LIII), but it is rather doubtful whether the usual procedure is applicable in this case, for the following reasons: The value of tests on a limited number of bricks taken from a batch is entirely dependent on the accuracy with which the sample taken is representative of the bricks in bulk. No refinements in testing can compensate for inaccuracy in sampling. When old property is demolished, four or five different types and conditions of bricks might be found. It would be entirely useless to take a general sample of the mixture unless the sample were inconveniently large, and even then the range of properties likely to be encountered would be so great that probably no opinion could be given as to the general utility of the bricks. The testing of numerous batches would prove too expensive to be justified in every case. It is therefore necessary to depend very largely on sorting and hand picking on the site.

As a guide in selection of the material to be used, it is suggested that bricks of the various types should be kept separate, the individual batches being sorted before use.

A good quality brick is a highly desirable unit, and if, after exposure for many years, it shows no obvious signs of decay, it may be expected that the limit of its useful life is still distant. Facing bricks, which are apparently still hard and have not developed defects such as powdering of the surface, may be re-used with confidence subject to the limitations given later as to the characteristics of the mortar; but any which show signs of decay should be rejected, as it is quite likely that when re-used, decay may be accelerated.

It may be found that a different quality of brick has been used on the inner leaf of the outside walls, and in partitions. These should only be used in similar positions in the new buildings. Any plaster on these bricks should be removed with scrupulous care, otherwise trouble may arise when new plaster of a different type, or decorations, are applied.

Bricks from flue linings should be rejected; tarry deposits and possibly absorbed sulphur gases may contaminate these. The adhesion to new mortar, plaster or rendering may be poor and decay on exposure to the weather is not improbable. Bricks which may be contaminated from use in or near water closets should, of course, be rejected.

The choice of mortar to be used is extremely important. It is likely that the old houses were built in a lime mortar, and if, now, the old bricks were laid in a dense cement mortar, rapid decay might set in. As, possibly, a plain lime mortar may not possess a sufficiently rapid rate of hardening for modern conditions of building, a "compo" mortar or a semi-hydraulic lime mortar ("greystone") may be used. A suitable composition for the former would be three parts hydrated lime (or two parts lime putty) with not more than one part Portland cement by volume, the proportion of sand would depend upon its general grading and loam content, but about four times the volume of the lime would be suitable.

The temptation to compensate for the softness of old bricks by setting in a strong mortar must be resisted.

(*Note.*—If the old property was known or suspected to be infested with insect vermin, special precautions should be taken.)

Blistering of Asphalt on a Concrete Roof

¶ *A LOCAL authority reported a case of blistering of asphalt. This is stated to have developed over a concrete flat, and on the blisters being opened up traces of moisture were found on the cement screeding. The asphalt, which was normally $\frac{3}{4}$ in. thick, was only $\frac{1}{4}$ in. thick at the crown of the blister and the outside of the blister was badly cracked, though there had been no evidence of water penetrating.*

The asphalt had been stripped and re-laid. Further blisters appeared and the roof was again examined. The asphalt was found to be adhering well to the roof except under the blisters. In these places were found small particles of what appeared to be lime or in some cases dry clay; the screed was soft and powdered up under the finger.

The blisters were confined to one area of the roof some distance away from a parapet but the parapet copings were said to be extremely porous. The surface under the blisters was found to be dry in all cases.

It was suggested that a chemical reaction between lime, clay, concrete and asphalt might have set up gas-pressures and caused the blistering.

The question of blistering of asphalt was discussed in an article contributed to the *Journal* of the Royal Institute of British Architects (1933, *41* (3), p. 138-9) and an explanation

of the behaviour reported appears to be afforded by the conclusions set out therein.

The causes of blistering may be summarized as follows :—

1. Irregular adhesion of mastic to concrete.
2. Unfavourable texture of concrete base.
3. Access of moisture to the base.
4. Sufficiently high temperatures to set up the necessary vapour pressures and soften the mastic.

Each of these four conditions might prevail over the whole roof or might vary from one point to another. The likelihood of blisters occurring at any particular point is therefore dependent on a combination of four factors, and there is no reason to assume any further cause, such as a chemical reaction giving rise to gas-pressures, to explain their appearance in one part of the roof only.

The particles of lime and clay would, in our opinion, only assist in the formation of blisters in so far as they prevented adhesion between the mastic and the base. A similar effect would be caused if the surface of the screeding were dry or powdery in patches, or if blow-holes had formed in the asphalt while it was being laid since these may provide the initial lack of bond necessary for the formation of a blister.

The part which the texture of the base plays in the formation of blisters is not yet fully understood, but it is likely that its effect is to prevent the release of pressure during hot weather. It is found that this property of concrete may vary throughout one sample, and a roof slab of apparently uniform composition may provide widely different conditions over its area.

The means by which moisture gains access to a concrete roof can usually be surmised only from a knowledge of the conditions affecting the particular case. Water which enters by way of a porous parapet may in time penetrate to distant points in the roof, from which it can dry out less readily than from the region at which it entered. It does not follow therefore that moisture absorbed through a parapet will necessarily lead to blistering in close proximity to the parapet.

The fourth condition, that of high temperature in the mastic, requires little comment. This is a factor necessary to the formation of blisters but is not a sufficient cause by itself.

It is generally agreed that the formation of blisters can be avoided by the use of an underfelt or a similar membrane beneath asphalt, which prevents irregular adhesion to the roof. The increased cost is slight, only a few pence per yard, and would generally be considered amply justified by the assurance of freedom from this trouble.

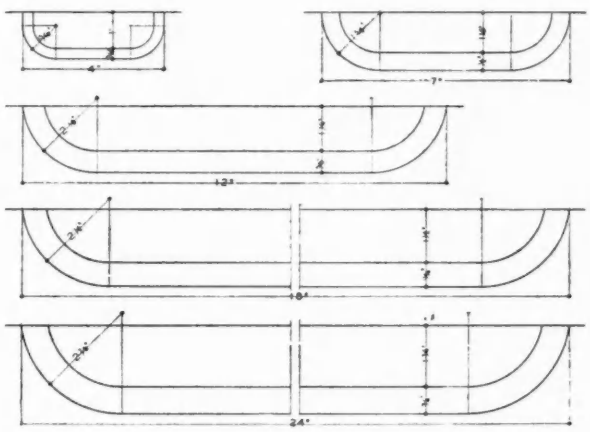
Timber Stains on Stucco

¶ *A BUILDER reported an unpleasant brown staining on white cement stucco, caused apparently by tannin leaching out of chestnut framing and running down the stucco. He desired to know how the stain could be removed and the surface of the timber sealed to prevent further trouble.*

The Forest Products Research Laboratory, when consulted on this problem, stated that, if the stain on the stucco were due to leaching of tannins from the wood as suggested, it could probably be removed by treatment with hot oxalic acid solution in the proportion of ½ to ¾ oz. to 1 quart of water. If this failed a cold solution of bleaching powder might prove effective.

For treatment of the timber to prevent further staining, an ordinary oil paint could be used or, if there were objections to the use of this, raw linseed oil.

(The inquirer later reported that the oxalic acid removed the greater part of the staining, but left the roughcast grey. The surface was, therefore, washed with a slurry of white cement and sand. The appearance was then entirely satisfactory.)



TRADE NOTES

[*BY F. R. S. YORKE, A.R.I.B.A.*]

Door Handles

THE bow handles designed some years ago by Mr. Wells Coates, and used by him on his own work, are now being manufactured for general sale by Taylor, Pearse & Co., from tubes made by Tube Products, Ltd. They are finished in Tayleroid, a synthetic resin that retains its polish and will not chip or crack.

•

The design is the result of an attempt to provide a convenient handle for swing doors and doors fitted with a ball catch. The bow handles may be fixed either vertically or horizontally. Their length and spacing from the door face enable finger-plates to be eliminated, as they obviously accommodate people of different heights.

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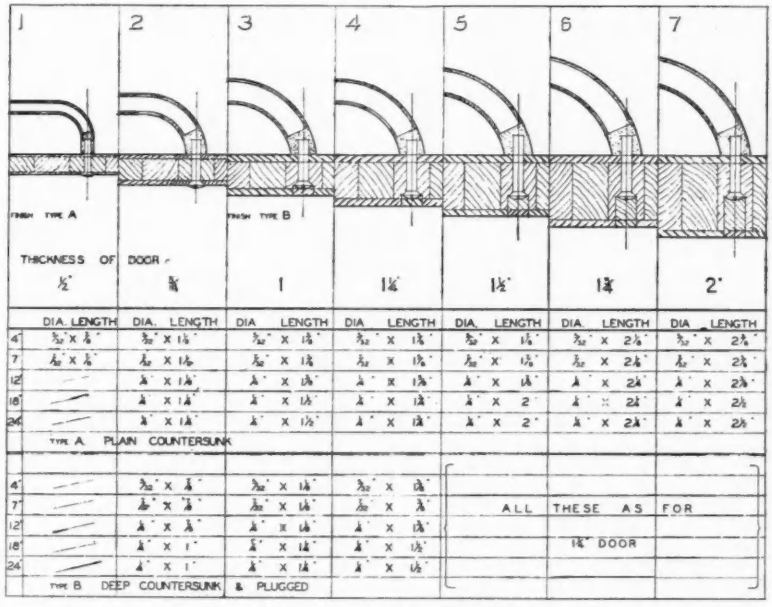
The smallest handle is 4 in. long giving ample room for all fingers, and affording a comfortable grip.

•

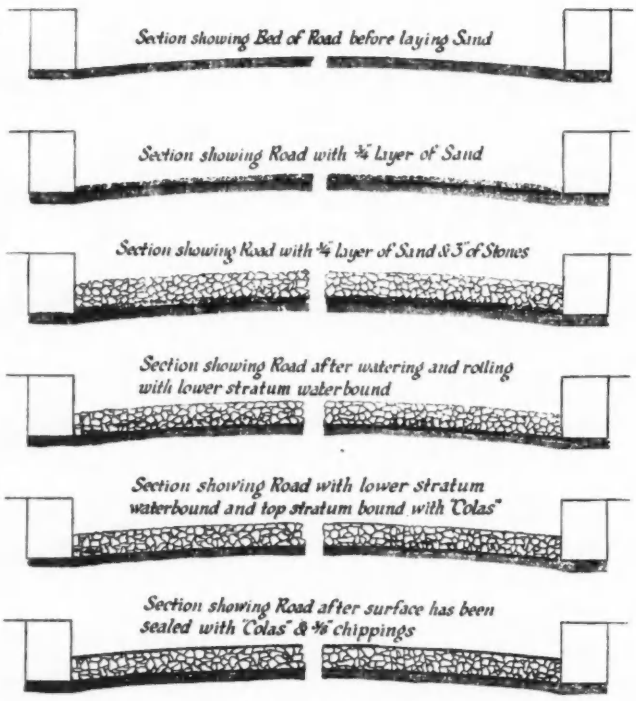
Where used for drawers, these handles have the advantage of giving a more distributed pull along the drawer front than is afforded by the normal type, so minimizing the "binding" that occurs when the drawer is pulled asymmetrically.

•

The fixing is by means of a Whitworth



Details of door handles designed by Wells Coates. See note on this page.



See specification for new path work.

threaded screw, screwing into a steel plug filling at the end of the tube handle.

•

Mr. Coates has found in his experience there is no need to use any sort of rose on the door face if the method of fixing suggested here is adopted. The pull of the thread on the handle and in the thickness of the doors, together with the shape of the head, provide an absolutely firm fixing.

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Where it is desired to preserve a quite flush face, the screw heads may be sunk and plugged, as shown in the drawing reproduced overleaf.

•

The prices are :—

4 in. × $\frac{5}{16}$ in.	handles	1/10 each
7 in. × $\frac{1}{2}$ in.	,,	2/3 ,,
12 in. × $\frac{5}{8}$ in.	,,	3/10 ,,
18 in. × $\frac{11}{16}$ in.	,,	4/8 ,,
24 in. × $\frac{3}{4}$ in.	,,	5/9 ,,

The handles are finished in black, ivory, cresta neutral tint, light red, terra cotta, green and blue.

Road and Path Surfaces

Colas is an emulsion of pure bitumen, applied cold, for grouting a reconstructed road or path and for surface dressing and repairing an existing surface.

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When Colas is applied as a surface dressing to a drive originally made of good quality stone that has, in the course of time, become firmly consolidated, all potholes and depressions must be swept clean of mud, dust and loose material, and the surface weeded.

•

Then Colas is applied in the depressions and these are filled with clean stone of a suitable size, varying with the depth of holes, and the filling is rammed until thoroughly compacted to the level of the surrounding surface. Colas is then poured to coat all the stone, and is covered with a light coating of small chippings or coarse sand, and again rammed to the level of the surrounding surface.

•

Colas is next applied over the whole surface at the rate of one gallon to two or three sq. yds., and before it has time to set, it is covered evenly with $\frac{1}{4}$ in. to $\frac{3}{8}$ in. stone chippings or shingle at the rate of a ton to 120 sq. yds. The surface is rolled, and again rolled on the following day.

•

If the drive has not previously been treated with a binder, it is recommended that a second coat, to the same specification, be applied within six months. It appears that if this second coat be applied, no further attention will be necessary for a considerable time, and the surface will stand continual hard wear and severe weather. A specification suggested by Messrs. Colas Products, for the construction of new paths (see diagram on this page) is :

•

Excavate to about 4 in., form the foundation of 3 in. broken brick, large clinkers or other suitable hard material, filling the interstices with sand or ashes, well water and roll. Spread a layer of $\frac{3}{4}$ in. clean chippings or sharp gravel at the rate of approximately 30 square yards per ton, well water and roll until thoroughly consolidated.

•

Apply Colas at the rate of $\frac{1}{2}$ to $\frac{3}{4}$ gallon per sq. yd. Cover evenly with $\frac{1}{4}$ in. to $\frac{3}{8}$ in. stone chippings or clean, sharp shingle at the rate of 80 sq. yds. per ton before the Colas has had time to set, and well roll. Apply a second dressing of Colas at the rate of one gallon to 3 or 4 sq. yds. Cover evenly with $\frac{1}{8}$ in. clean stone chippings or clean coarse sand—1 ton covering about 200 sq. yds. of surface—and well roll.

•

The second dressing of Colas should not be applied until the first application has thoroughly set. An interval of at least two days, preferably longer, should elapse between the two coats. In the event of the foundation being formed on clay, it is advisable to lay 2 in. of ashes or clinker on the foundation before spreading the $\frac{3}{4}$ in. chippings. This will prevent the clay working to the surface.

IN PARLIAMENT

[BY OUR SPECIAL REPRESENTATIVE]

The Housing Bill

GOOD progress has already been made in Standing Committee of the House of Commons with the Housing Bill.

At the first sitting Sir Percy Harris moved an amendment to Clause 1 (which provides that local authorities shall prepare and submit a report on overcrowding in their area before a date to be fixed by the Minister of Health) to the effect that the reports should be submitted within six months of the passage of the Bill.

Sir Hilton Young, in reply, said that a beginning was being made with the Bill under the best auspices with an expression of determination that overcrowding must be dealt with in the shortest possible time. That was the intention of the Bill and expressed the spirit in which it had been conceived by the Government. He gave the assurance with the greatest certainty and clearness that it was the intention of the Government that the survey should be carried out in the shortest possible time. But to fix a limit of six months for the completion of the survey would be to fix too long a limit for small areas. It was essential that the Minister should have power to fix each stage of the processes specified in the Clause. To deprive him of the power of fixing a maximum period would be to take a powerful weapon out of his hands.

The amendment was negatived.

Slum Clearance

At question-time in the Commons, in reply to Sir G. Ellis, Mr. Shakespeare said that the net progress made during January in the slum clearance campaign was as follows :—

Clearance areas were declared comprising 4,995 houses ; Clearance or Compulsory Purchase Orders were made covering 3,692 houses ; Clearance or Compulsory Purchase Orders were confirmed covering 4,963 houses ; Rehousing was approved to the extent of 5,946 houses.

Proposed Building in Parliament Square

Mr. Hall-Caine asked the First Commissioner of Works whether any steps were to be taken by his department to ensure that the amenities of Parliament Square would be preserved in the event of the scheme maturing for building a tall block of offices on the corner of Great George Street ; and whether he would arrange to take such action before plans had been made in detail.

Mr. Ormsby-Gore said that the scheme for the new buildings which it was proposed to erect on land belonging to the Ecclesiastical Commissioners at the corner of Great George Street had been submitted by the promoters both to the Royal Fine Art Commission and to the L.C.C. He had had the opportunity of examining the plans and elevations, and he could not think that the new building as proposed would be otherwise than an improvement on the one which it displaced.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS).

EALING. *Shops and Flats.* Mr. T. Brammall Daniel, F.R.I.B.A., Members' Mansions, 36 Victoria Street, S.W.1, acting for The Lucas Estates (1933), Ltd., has submitted amended plans for the erection of shops and flats over the G.W.R. Line, Ealing Broadway.

EALING. *Shops and Flats.* Mr. H. Kenchington, F.R.I.B.A., 7 Staple Inn, Holborn, W.C.1, is the architect for the proposed scheme for 12 shops and 22 flats at Medway Parade, for Mr. S. Kersham.

EALING. *Flats.* The Town Council has approved a lay-out, submitted by Sir Reginald Blomfield and Son, 1 New Court, Temple, E.C.4, of a block of 40 flats, proposed to be erected at Eaton Rise (West Side Country Club).

EALING. *Factory.* Mr' A. W. Young, architect, 1 Emery Hill Street, S.W.1, has submitted a block plan of a proposed factory to be erected in Brumwill Road.

EALING. *Swimming Pool.* Messrs. R. Toms and Partners, 115 Park Street, Mayfair, W.1, are the architects for the construction of a Swimming Pool and Filtration Plant House, for the Bell Property Trust, Ltd., at Hanger Lane.

EALING. *Bakehouse.* The Town Council has approved plans by Mr. A. P. Starkey, Westminster Bank Chambers, Station Road, Harrow, for the construction of a Bakehouse and garage, at Mandeville Road, for Mr. J. Myers.

FRIERN BARNET. *Houses and Flats.* Plans passed by the U.D.C.: 12 houses, Friern Mount Drive, for Messrs. C. F. Day, Ltd.; five houses, Manor Drive, for Messrs. H. Ginn and Son; 48 flats, Aldby, Oakleigh Road North, for Mr. C. E. Owen Ward; 24 flats, Friern Park, for Messrs. Harwood Nash & Co.

GREENFORD. *Hotel.* An hotel is to be erected at the junction of Greenford Road and Western Avenue, for Messrs. Young & Co.'s Brewery, Ltd. The architects are Messrs. Clemence & Co., St. Mary's House, 59 Quarry Street, Guildford.

HAMPTON. *Flats.* Messrs. M. E. and O. H. Collins propose to develop the Little Graham Estate, High Street, by the erection of four blocks of four flats.

HOUNSLOW. *Houses.* Messrs. Roper, Son and Chapman, architects, 162 High Street, Hounslow, have prepared plans for the proposed erection of 277 houses, new roads and sewers, on the Parkland Estate, Great West Road. The plans have been approved.

NORTHOLT. *Flats.* Ten blocks, comprising 80 flats, are to be erected at Whitton Avenue, by Messrs. F. Young (Floriston), Ltd., Estate Office, Ashbourne Avenue, Harrow-on-the-Hill.

NORTHOLT. *Houses.* Mr. Geo. Leonard Russell, 1 Broad Street Buildings, Liverpool Street, E.C.1, has prepared plans for the development of part 2 of the Rectory Estate, by the erection of 90 houses, by Messrs. Percival Smirk (Estates), Ltd.

NORTHOLT. *Licensed Premises.* The Cannon Brewery Co., Ltd., propose to erect premises ("Dean's Arms"), near Northolt Station. Tenders are in hand, and the architect is Mr. W. L. Eves, F.R.I.B.A., 54 High Street, Uxbridge.

SOUTHERN COUNTIES

CHATHAM. *Hotel.* The Licensing Authorities have granted permission for the erection of hotel premises at the corner of the Maidstone Road and Woodside Avenue, Wigmore, by Messrs. Style and Winch. The estimated cost of the hotel is £6,000.

CHATHAM. *Licensed Premises.* Sanction has now been granted Messrs. Frederick Leney and Sons, to erect new premises, to be known as the "Lord Nelson," at Woodside Road, Wigmore, at an estimated cost of £4,000.

GILLINGHAM. *Town Hall.* The Minister of Health has now agreed to the Town Council's plan to provide a civic centre on a site adjoining the Park in Canterbury Street. The building, which will be Georgian in character, is estimated to cost £85,000.

GRAVESEND. *Swimming Baths.* The Corporation has referred to the Baths Committee, for consideration, a proposal by Councillor Lester that the Council consider the question of building new swimming baths as soon as possible.

LYMINGTON. *Hotel.* Application has been made to the licensing authorities for permission to erect an hotel ("The West Solent Hotel") on the site of South Hayes, Lymington. The scheme is to cost £15,000, and the architect is Mr. Philip A. Tilden, F.R.I.B.A., Morley House, 320 Regent Street, W.1. The application was deferred until the licensing session to be held on March 7.

PORTSMOUTH. *Houses and Flats.* The Corporation has passed the following plans: Two houses, Blackfriars Road, for Mr. C. R. Woolranch; two houses, College Street, for Mr. J. Reedman; block of flats, Highland Road, Eastney, for Messrs. E. and A. Sprigings; shop and flats, 338 Commercial Road, for Messrs. Bagleys, Ltd., on behalf of Mr. E. B. Jewell; four houses, Station Road, Drayton, for Messrs. Price Bros.; four houses, Powerscourt Road, for Mr. F. W. Barnes; 74 houses, Highbury Grove, for Messrs. G. and W. Mitchell.

RICKSMANWORTH. *School.* The Herts Education Committee has acquired a site for the provision of a grammar school for Rickmansworth and Chorleywood.

TOTTON (HANTS). *Licensed Premises.* Messrs. Strong & Co., Romsey, propose to erect new licensed premises at Salisbury Road, Little Testwood, Totton. The cost of the proposed premises is estimated at £5,000.

SOUTH-WESTERN COUNTIES

ILFRACOMBE. *Hotel.* The Urban District Council is negotiating with the Ilfracombe Hotels Association for the purchase of the Ilfracombe Hotel. Mr. G. C. Lawrence, F.R.I.B.A., of the firm of Oatley and Lawrence, 25 Orchard Street, Bristol, is to be invited to advise the Council as to the suitability and adaptability of the premises for the purposes of the Council, including the provision of an orchestral and conference hall, to accommodate 1,500 people, a café, licensed premises, a dance hall and sun-bathing accommodation.

MIDLAND COUNTIES

BROMSGROVE. *School.* The Worcestershire Education Committee has approved plans for additions and alterations to the County High School, at an estimated cost of £13,000.

OMBERSLEY, ETC. *Cottages.* The Worcestershire C.C. is to erect a police station and two police cottages at Ombersley. The C.C. is also to erect a number of police cottages in the county at an estimated total cost of £14,820.

UPTON-ON-SEVERN. *School.* The Worcestershire Education Committee is to erect a senior school.

WALSALL AND WEST BROMWICH. *Hospital Extension.* The Walsall and West Bromwich (Barr Colony) Joint Board proposes to increase the accommodation at Barr mental colony from 700 to 1,100 beds, with a possible future extension to 2,000 beds.

NORTHERN COUNTIES

BARROW-IN-FURNESS. *Concert Hall.* The Corporation has asked the Borough Engineer to report as to the construction of a concert hall at Biggar Bank.

BEADNELL. *Road Construction.* The Northumberland C.C. has arranged terms with the owners of the Craster Estate, regarding road construction on the estate which is to be developed with due regard to the amenities of the district.

CARLISLE. *Houses and Shops.* Plans passed by the Corporation: House and shop, Scotland Road, for Messrs. A. Blakeley and Sons; four houses, Cumwhinton Road, for Border Engineering Contractors, Ltd.; six houses, Brunton Crescent, for Mr. E. J. Hill; offices, etc., Lowther Street, for Ribble Motor Services, Ltd.; 12 houses, Belle Vue, Upperby Road, etc., for Messrs. Benwell and Slack.

CARLISLE. *Hospital Extensions.* The managers of the Cumberland Infirmary have purchased

(*Continued on page xxxiv.*)

THE BUILDINGS ILLUSTRATED

Sub-Contractors' List

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue :—

Extensions to Eyre and Spottiswoode's Premises, East Harding Street, E.C.4 (pages 298-299). General contractors, Trollope and Colls, Ltd. Quantity surveyor, Sydney Gordon. Sub-contractors: Stuart's Granolithic Co., Ltd., pre-cast cills; Wadsworth, crane; Moreland Hayne & Co., Ltd., steelwork; Clarke and Vigilant Sprinklers, Ltd., sprinklers; Crittall Manufacturing Co., Ltd., windows; Grovebury Brick Co., facing bricks; Haskins Bros., shutters; Express Lift Co., Ltd., lifts; Limmer and Trinidad Lake Asphalte Co., Ltd., asphalt; W. J. Furse & Co., Ltd., lightning conductor; Rashleigh Phipps & Co., electrical work; Joseph Kaye and Sons, Ltd., locks; Cork Insulation Co., Ltd., cork; Roneo, Ltd., metal partitions; Piggott Bros., flagstaff; Keystone Paint and Varnish Co., Ltd., paint.

West Lodge Court (pages 295-297). General contractors, Bunting Construction Co., Ltd. Sub-contractors: Hoskins and Sewell, Ltd., metal windows; Victor T. Montrose & Co., Ltd., electrical work; Rowley Gallery of Decorative Art, Ltd., furnishings; Davenport, decorators; W. H. Gascoigne & Co., plumbing; Excel Asphalte Co., Ltd., asphalt; Gliksten Doors, Ltd., joinery; Standard Wall Paper Co., Ltd., sanitary fittings; Smith Walker, Ltd., steelwork; Hygienic Cabinets Co., Ltd., kitchen fittings; Runnymede Rubber Co., Ltd., rubber flooring; H. J. Greenham (1929), Ltd., bricks; Charles Harrison, ironmongery; A. Goldstein & Co., Ltd., glazing; W. T. Henley's Telegraph Works Co., Ltd., cables.

Shop Front at Birmingham (page 307). Harris and Sheldon, shop fitters; Haggar and Hawes, lighting.

House at Sydenham Hill (pages 308-309). General contractors, Pell and Clayton, Ltd. Sub-contractors: C. J. Pell & Co., consulting engineers and steel reinforcement; Williams and Williams, Ltd., metal windows; A. A. Diment, electrical installation; Troughton and Young, Ltd., electrical fittings; Ferranti, Ltd., electric fires; J. A. King & Co., Glascrete windows; Dennison, Kett & Co., Ltd., rolling shutters; British Doloment Co., Ltd., jointless floors; Hollis Brothers & Co., Ltd., parquet; Gordon Russell, Ltd., door furniture; Easiwork, Ltd., kitchen equipment; James Latham, Ltd., flush doors; Frazzi, Ltd., Paropa roofing; Light Steelwork (1925), Ltd., railings; Spray-textures, Ltd., Castex external paint; Alfred Goslett & Co., Ltd., sanitary fittings; Waring Tube Heating Co., Ltd., electric hot towel rail.

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie ..	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A_2	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_1	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B,	Chichester ..	S. Counties	1 3	11½
A	Chorley ..	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee	Scotland	1 5½	1 1½
A	Durham	N E. Coast	1 5½	1 1½
A_2	EASTBOURNE ..	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorgan-shire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter	S.W. Counties	*1 4½	1 0½
B	Exmouth	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE ..	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S. W. Counties	1 2½	11
A	GATESHEAD ..	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W. Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX	Yorkshire	1 5½	1 1½
A	Hanley	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich	E. Counties	1 3½	11½
B_1	Hastings	S. Counties	1 3	11½
A_2	Hatfield	S. Counties	1 4½	1 0½
B	Hereford	S.W. Counties	1 3½	11½
A_2	Hertford	E. Counties	1 4½	1 0½
A	Heysham	N.W. Counties	1 5½	1 1½
A	Howden	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW	N.E. Coast	1 5½	1 1½
A	KEIGHLEY	Yorkshire	1 5½	1 1½
A_2	Kendal	N.W. Counties	1 4	1 0
A_2	Keswick	N.W. Counties	1 4	1 0
A_1	Kettering	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12-15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLES-FIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate	S. Counties	1 3	11½
A	Matlock	Mid. Counties	1 4	1 0
A_1	Merthyr	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N.E. Coast	1 5½	1 1½
A_2	Middlewich ..	N.W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton	Yorkshire	1 4½	1 0½
A_2	Slough	S. Counties	1 4½	1 0½
A_1	Solihull	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_1	Southend - on - Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_3	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD ..	Yorkshire	1 5½	1 1½
A	Walsall	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby	Yorkshire	1 4½	1 0½
A_2	Widnes	N.W. Counties	1 5½	1 1½
A	Wigan	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality, and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger	"	1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
General Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
¾" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single junctions	"	3	6	5	3
Double "	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¾" Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead wool	lb.		6		—
Gaskin	"		5		—

BRICKLAYER

		£	s.	d.
Flettons	Per M.	2	15	0
Grooved do.	"	2	17	0
Phorpres bricks	"	2	15	0
" Cellular bricks	"	2	15	0
Stocks, 1st quality	"	4	11	0
" 2nd "	"	4	2	6
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Bindles	"	7	0	0
" Bullnose	"	9	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	0
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midhurst White Facings	"	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	29	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

The following d/d F.O.R. at Nine Elms:		s.	d.
Portland stone, Whitbed	F.C.	4	4½
" " Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" " Sawn templates	"	7	6
" " Paving, 2"	F.S.	1	8
" " " 3"	"	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	"	24	10	0
20" × 10" Countesses	"	19	5	0
18" × 10" Viscountesses	"	15	10	0
18" × 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey per 1,000 (actual)		21	11	6
" " green "	"	24	7	4
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each			9½
" hand-made	"			10
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak plain American	" "	1	0
" Figured "	" "	1	3
" Plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1
Deal floorings, ¾"	Sq.	18	6
" ⅞"	"	1	1	6
" 1"	"	1	2	0
" 1¼"	"	1	5	0
" 1¼"	"	1	10	0
Deal matchings ¾"	"		14	0
" ⅞"	"		15	6
" 1"	"	1	4	0
Rough boarding ¾"	"		16	0
" 1"	"		18	0
" 1¼"	"	1	6	0

Plywood, per ft. sup.

—Thickness	¼"	⅜"	½"	¾"
Qualities	AA.A.B.	AA.A.B.	AA.A.B.	AA.A.B.
	d. d. d.	d. d. d.	d. d. d.	d. d. d.
Birch	4 3 2	5 4 3	7½ 6 4½	8½ 7 6
Alder	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6
Gaboon				
Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –
Figured Oak				
1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –
Plain Oak				
1 side	6½ 6 –	7½ 7 –	9½ – –	1/– – –
Oregon Pine	5 4 –	5½ 5 –	6 – –	– – –

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	¼"	⅜"	½"	¾"	1"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23½" long each	10	1/1	1/11	2/8	4/9
" 3"-11½" long "	7	9	1/3	1/8	3/–
Long screws, 12"-23½" long "	11	1/3	2/2	2/10	5/3
" " 3"M-1½" long "	8	10	1/5	1/11	3/6
Bends "	8	11	1/7½	2/7½	5/2
Springs not socketed "	5	7	1/1½	1/11½	3/11
Socket unions "	2/–	3/–	5/6	6/9	10/–
Elbows, square "	10	1/1	1/6	2/2	4/3
Tees "	1/–	1/3	1/10	2/6	5/1
Crosses "	2/2	2/9	4/1	5/6	10/6
Plain Sockets and nipples "	3	4	6	8	1/3
Diminished sockets "	4	6	9	1/–	2/–
Flanges "	9	1/–	1/4	1/9	2/9
Caps "	3½	5	8	1/–	2/–
Backnuts "	2	3	5	6	1/1
Iron main cocks "	1/6	2/3	4/2	5/4	11/6
" " with brass plugs "	—	4/–	7/6	10/–	21/–

Discounts: TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½
FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued*

		s.	d.
Rolled steel joists cut to length	cwt.	10	9
Mild steel reinforcing rods, ¼"	"	8	6
" " ⅜"	"	8	3
" " ½"	"	8	0
" " ⅝"	"	7	6
" " ¾"	"	7	6
" " 1"	"	7	6
" " 1¼"	"	7	6
" " 1½"	"	7	6

		s.	d.	3" s.	3" d.	4" s.	4" d.
Cast-iron rain-water pipes of ordinary thickness metal	F.R.	8					10
Shoes	each	2	0	3	0		
Anti-splash shoes	"	4	6	8	0		
Boots	"	3	0	4	0		
Bends	"	2	7	3	9		
" with access door	"		—	6	3		
Heads	"	4	0	5	0		
Swan-necks up to 9" offsets	"	3	9	6	0		
Plinth bends, 4½" to 6"	"	3	9	5	3		
Half-round rain-water gutters of ordinary thickness metal	F.R.	5					6
Stop ends	each	6					6
Angles	"	1	7			1	11
Obtuse angles	"	2	0			2	6
Outlets	"	1	9			2	3

PLUMBER

		£	s.	d.
Lead, milled sheets	cwt.	18	6	
" drawn pipes	"	17	0	
" soil pipe	"	18	6	
" scrap	"	10	6	
Solder, plumbers'	lb.			9½
" fine do.	"		1	0
Copper, sheet	"			8½
" tubes	"			11

L.C.C. soil and waste pipes:		3"	4"	6"
Plain cast	F.R.	1 0	1 2	2 6
Coated	"	1 1	1 3	2 8
Galvanized	"	2 0	2 6	4 6
Holderbats	each	3 10	4 0	4 9
Bends	"	3 9	5 3	10 3
Shoes	"	2 10	4 4	9 6
Heads	"	4 8	8 5	12 9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	5	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle Plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	9
Lath nails	lb.			3

GLAZIER

		s.	d.	a.	d.
Sheet glass, 21 oz., squares n/e 2 ft. s. F.S.					2½
" " 26 oz. " " "	"				3
Flemish, Arctic, Figured (white)*	"				7
Blazoned glasses				2	6
Reeded; Cross Reeded	"				11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite					6
Crown sheet glass (n/e 12 in. x 10 in.)	"			2	0
Flashed opals (white and coloured)	"	1	0 and	2	0
¼" rough cast; rolled plate	"				5½
¼" wired cast; wired rolled	"				9½
¼" Georgian wired cast	"				11
¼" Polished plate, n/e 1 ft.	"	† 10 to		‡1	1
" " 2	"	†1	2 "	‡1	4
" " 4	"	†2	3 "	‡2	6
" " 8	"	†2	9 "	‡3	2
" " 20	"	†3	7 "	‡4	2
" " 45	"	†3	11 "	‡4	7
" " 100	"	†5	0 "	‡5	7
Vita glass, sheet, n/e 1 ft.	"			1	0
" " " 2 ft.	"			1	3
" " " over 2 ft.	"			1	9
" " plate, n/e 1 ft.	"			1	6
" " " 2 ft.	"			3	0
" " " 5 ft.	"			4	0
" " " 7	"			5	0
" " " 15	"			6	0
" " " over 15	"			7	6
"Calorex" sheet 21 oz., and 32 oz.	"	2	6 and	3	6
" rough cast ¼" and ⅜"	"			8½ "	1 0
Putty, linseed oil	lb.				3

* *Colours*, 1d. *F.S. extra.*
†*Ordinary glazing quality.* ‡*Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	6	0
Linseed oil	gall.		2	2½
Boiled oil	"		2	4½
Turpentine	"		1	1½
Patent knotting	"		14	0
Distemper, washable	cwt.	2	6	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	firkin		3	0
Copal varnish	gall.	1	3	0
Flat varnish	"		14	0
Outside varnish	"		16	0
White enamel	"	1	15	0
Ready mixed paint	"		13	6
Brunswick black	"		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR

		£ s. d.
Digging over surface n/e 12″ deep and cart away	Y.S.	2 9
,, to reduce levels n/e 5′ 0″ deep and cart away	Y.C.	8 6
,, to form basement n/e 5′ 0″ deep and cart away	,,	9 0
,, ,, 10′ 0″ deep and cart away	,,	9 6
,, ,, 15′ 0″ deep and cart away	,,	10 0
If in stiff clay . . . . . add	,,	6
If in underpinning . . . . . ,,	,,	4 0
Planking and strutting to sides of excavation	F S.	1 0
,, ,, to pier holes	,,	5
,, ,, to trenches	,,	5
,, ,, extra, only if left in	,,	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	,,	1 6 0
,, ,, (4-2-1)	,,	1 12 6
,, ,, underpinning	,,	1 16 0
Finishing surface of concrete, spade face	Y.S.	7

DRAINLAYER

		4″ s. d.	6″ s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
,, ,, junctions	,,	3 9	4 6
Gullies and gratings	,,	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER

	£ s. d.
Brickwork, Flettons n lime mortar . . . . . Per Rod	27 10 0
,, ,, in cement	,, 28 15 0
,, Stocks in cement	,, 35 0 0
,, Blues in cement	,, 52 0 0
Extra only for circular on plan	,, 2 0 0
,, backing to masonry	,, 1 10 0
,, raising on old walls	,, 2 0 0
,, underpinning	,, 5 10 0½
Fair Face and pointing internally	F.S. 1½
Extra over fletton brickwork for picked stock facings and pointing	,, 8
,, ,, ,, red brick facings and pointing	,, 11
,, ,, ,, blue brick facing and pointing	,, 1 4
,, ,, ,, glazed brick facings and pointing	,, 3 6
Tuck pointing	,, 7½
Weather pointing in cement	,, 3
Slate dampcourse	,, 10
Vertical dampcourse	,, 1 1

ASPHALTER

		s. d.
½″ Horizontal dampcourse	Y.S.	4 6
½″ Vertical dampcourse	,,	6 9
½″ paving or flat	,,	4 0
1″ paving or flat	,,	5 6
1″ × 6″ skirting	F.R.	1 0
Angle fillet	,,	2
Rounded angle	,,	2
Cesspools	Each	5 0

MASON

		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	,,	13 6
Artificial stone and do.	,,	13 0
York stone templates, fixed complete	,,	10 6
,, thresholds	,,	13 6
,, sills	,,	1 0 6

SLATER AND TILER

		£ s. d.
Slating, Bangor or equal, laid to a 3″ lap, and fixing with compo nails, 20″ × 10″	Sqr.	3 10 0
Do., 18″ × 9″	,,	3 7 0
Do., 24″ × 12″	,,	3 17 0
Westmorland slating, laid with diminished courses	,,	6 0 0
Tiling, best hand-made sand-faced, laid to a 4″ gauge, nailed every fourth course	,,	3 0 0
Do., all as last, but of machine-made tiles	,,	2 16 0
20″ × 10″ medium Old Delabole slating, laid to a 3″ lap (grey)	,,	4 6 0
,, ,, ,, ,, ,, ,, (green)	,,	4 15 0

CARPENTER AND JOINER

		£ s. d.
Flat boarded centering to concrete floors, ncluding all strutting	Sqr.	2 5 0
Shuttering to sides and soffits of beams	F.S.	8
,, to stanchions	,,	8
,, to staircases	,,	1 8
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	,,	4 6
,, ,, roofs	,,	6 6
,, ,, trusses	,,	7 6
,, ,, partitions	,,	8 6
⅞″ deal sawn boarding and fixing to joists	Sqr.	1 14 6
1″ ,, ,, ,, ,,	,,	1 17 6
1½″ ,, ,, ,, ,,	,,	2 3 0
4″ × 2″ fir battening for Countess slating	,,	9 6
Do. for 4″ gauge tiling	,,	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
,, ,, ,, 2 ,,	,,	2 9
,, ,, ,, 3 ,,	,,	3 3
Stout herringbone strutting to 9″ joists	F.R.	10½
1″ deal gutter boards and bearers	F.S.	1 2
1½″ ,, ,, ,,	,,	1 6
2″ deal wrought rounded roll	F.R.	8
1″ deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼″ do.	,,	2 10 0
1½″ do.	,,	2 17 0
1″ deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1¼″ do.	,,	1 9

CARPENTER AND JOINER—*continued*

		s. d.
1¼″ deal moulded sashes of average size	F.S.	1 9½
2″ ,, ,, ,,	,,	1 11½
1½″ deal cased frames double hung, of 6″ × 3″ oak sills, 1¼″ pulley stiles, 1¼″ heads, 1″ inside and outside linings, ⅝″ parting beads, and with brass faced axle pulleys, etc., fixed complete	,,	3 7
2″ ,, ,, ,,	,,	3 10
Extra only for moulded horns	Each	6
1¼″ deal four-panel square, both sides, door	F.S.	2 0
2″ ,, ,, ,,	,,	2 8
1½″ ,, but moulded both sides	,,	2 4
2″ ,, ,, ,,	,,	3 0
4″ × 3″ deal, rebated and moulded frames	F.R.	1 0
4½″ × 3½″ ,, ,, ,,	,,	1 4
1¼″ deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1¼″ deal treads, 1″ risers in staircases, and tongued and grooved together on and including strong fir carriages	,,	2 6
1¼″ deal moulded wall strings	,,	2 1
1½″ ,, outer strings	,,	2 4
Ends of treads and risers housed to string	Each	1 9
3″ × 2″ deal moulded handrail	F.R.	1 3
1″ × 1″ deal balusters and housing each end	Each	2 0
1½″ × 1½″ ,, ,, ,,	,,	2 9
3″ × 3″ deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	,,	6 0

SMITH AND FOUNDER

		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	15 6
Riveted plate or compound girders, and hoisting and fixing in position	,,	19 6
Do. stanchions with riveted caps and bases and do.	,,	19 0
Mild steel bar reinforcement, ½″ and up, bent and fixed complete	,,	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER

		£ s. d.
Milled lead and labour in flats	cwt.	1 12 0
Do. in flashings	,,	1 15 6
Do. in covering to turrets	,,	2 3 0
Do. in soakers	,,	1 7 6
Labour to welted edge	F.R.	3½
Open copper nailing	,,	3
Close ,, ,,	,,	4

		½″ s. d.	¾″ s. d.	1″ s. d.	1½″ s. d.	2″ s. d.	4″ s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks		—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	,,	6½	8	9	11	1 0	—
Boiler screws and unions	,,	3 3	5 9	5 0	8 0	—	—
Lead traps	,,	—	—	—	6 3	8 9	—
Screw down bib valves	,,	6 9	9 6	11 0	—	—	—
Do. stop cocks	,,	7 0	9 6	12 6	—	—	—

		£ s. d.
4″ cast-iron ½-rd. gutter and fixing	F.R.	1 0
Extra, only stop ends	Each	1 0
Do. angles	,,	1 6
Do. outlets	,,	2 9
4″ dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1 2
Extra, on y for shoes	Each	1 3
Do. for plain heads	,,	5 6

PLASTERER AND TILING

		s. d.
Expanded metal lathing, small mesh	Y.S	2 0
Do. in n/w to beams, stanchions, etc.	,,	2 9
Lathing with sawn laths to ceilings	,,	1 3
½″ screeding in Portland cement and sand or tiling, wood block floor, etc.	,,	1 5
Do. vertical	,,	1 7
Rough render on walls	,,	1 2½
Render, float and set in lime and hair	,,	1 9
Render and set in Sirapite	,,	1 11
Render, backing in cement and sand, and set in Keene's cement	,,	2 9
Extra, only if on lathing	,,	4
Keene's cement, angle and arris	F.R.	6
Arris	,,	1½
Rounded angle, small	,,	3
Plain cornices in plaster, including dubbing out, per 1″ girth	,,	1½
1″ granolithic pavings	Y.S.	3 6
1½″ ,,	,,	4 6
6″ × 6″ white glazed wall tiling and fixing on prepared screed	,,	17 6
9″ × 3″ ,, ,, ,,	,,	1 2 6
Extra, only for small quadrant angle	F.R.	8

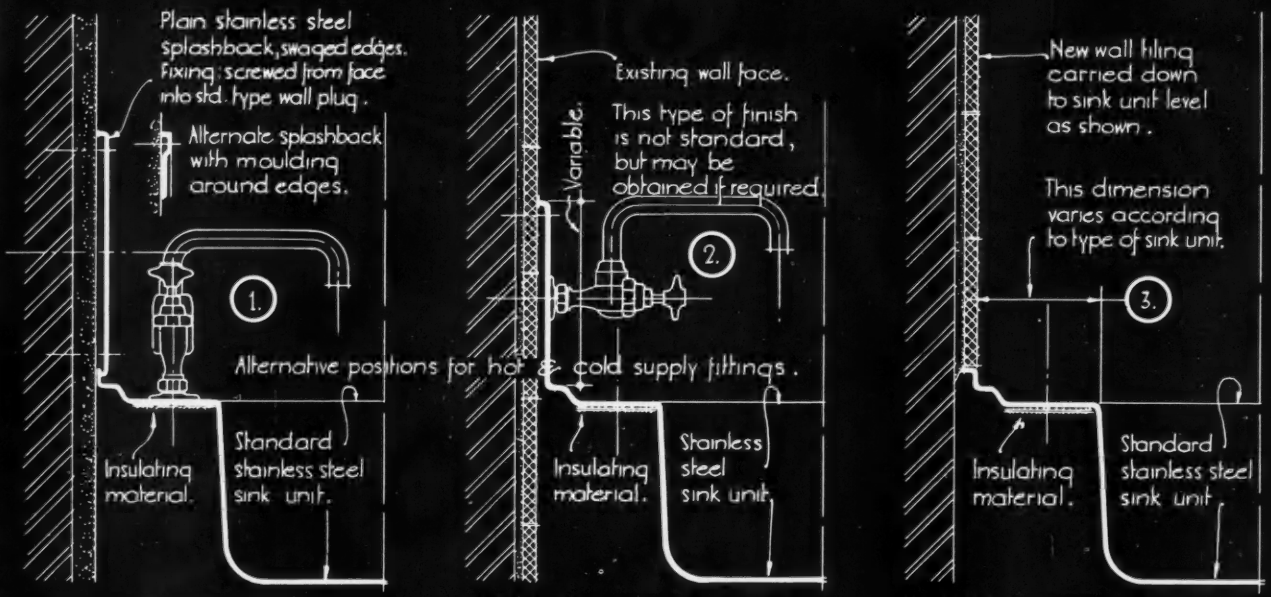
GLAZIER

		s. d.
21 oz. sheet glass and glazing with putty	F.S.	7½
26 oz. do and do.	,,	8½
Flemish, Arctic Figured (white) and glazing with putty	,,	1 1
Cathedral glass and do.	,,	1 2
Glazing only, British polished plate	,,	7
Extra, only if in beads	,,	2
Washleather	F.R.	4

PAINTER

		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	,,	9
Do. with washable distemper	,,	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	,,	3 3
Do. on woodwork	,,	3 6
Do. on steelwork	,,	3 6
Do. and brush grain and twice varnish	,,	5 6
Stain and twice varnish woodwork	,,	1 11
Stain and wax-polish woodwork	,,	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper . . . . . from	,,	2 9

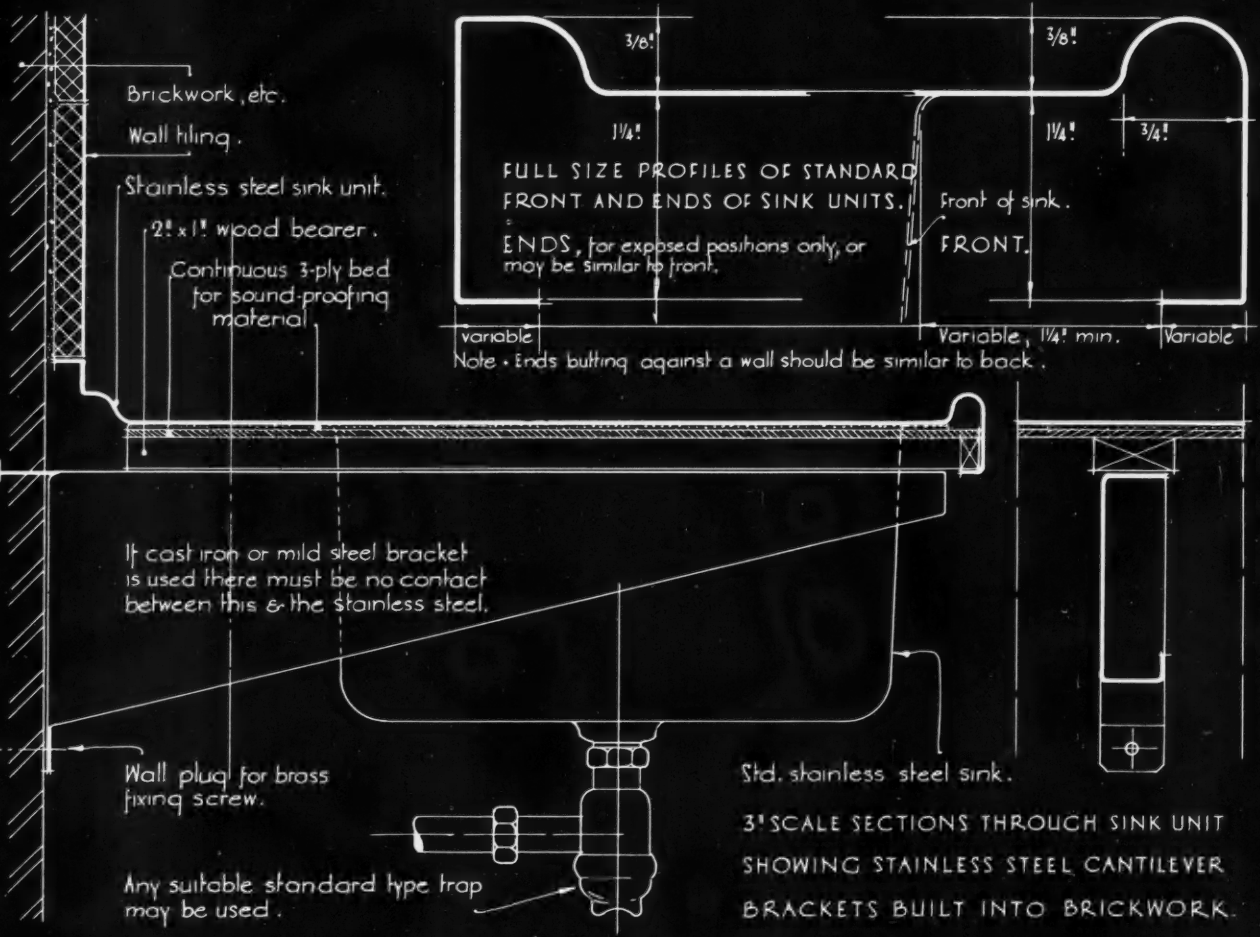
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SECTION SHOWING SINK UNIT FITTED WITH S.S. SPLASHBACK, FIXED ON THE FACE OF PLASTER.

SECTION SHOWING SINK UNIT FITTED ON TO THE FACE OF EXISTING WALL SURFACES.

SECTION SHOWING SINK UNIT FITTED WITH NEW WALL TILING BUTTED AGAINST FLANGE OF UNIT.



3" SCALE SECTIONS THROUGH SINK UNIT SHOWING STAINLESS STEEL CANTILEVER BRACKETS BUILT INTO BRICKWORK.

Information from A. Johnson & Co. (London) Ltd.

INFORMATION SHEET • KITCHEN EQUIPMENT • STAINLESS STEEL SINK UNITS, 2

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1.

Supplement to THE ARCHITECTS' JOURNAL for February 21, 1935

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 193 •

KITCHEN EQUIPMENT

Product : Savestane Stainless Steel Sinks

This Sheet shows various fixing details for use in conjunction with Information Sheet No. 191, which set out the standard types and sizes of Standard Sink Units.

Finish Against Walls :

Special study has been given to the finish of the sink unit against walls with the object of evolving the most satisfactory joint, providing good fixing and an easy-clean surface to correspond to the jointless surface of the unit itself.

Section No. 1 shows the standard finish for use with a Stainless Steel splash back.

Section No. 2 shows a method used where it is not convenient to cover the edge of the sink with a splash back or tiling. In this case the material of the sink unit is itself turned up the wall to form a splash back. This method is not one of the standard finishes but may be obtained to order on any type of sink unit.

Section No. 3 shows the finish used in conjunction with wall tiling.

Splash Backs :

Are made in two types, with an all-flush surface or recessed to give a slightly raised margin on all sides. They are not made in standard sizes, so that any height or size of back can be obtained to suit the particular conditions.

Water Supplies :

Any suitable type of brass tap can be used ; the types indicated on this Sheet are brass chromium plated taps with mixing valve and swivel nozzle. These fittings are not made by the company but can be supplied when required.

Traps :

Any suitable type of trap may be used, the type indicated on this Sheet being a patent deep seal trap. These fittings are not made by the company but can be supplied if required.

Cantilever brackets :

Cantilever brackets of the type shown are made in Stainless Steel for each size of sink unit and are built into the wall, and screwed to the wooden batten below the sink unit. It is important to note that cast or wrought iron cantilevers should not be used unless insulated from contact with the sink unit, otherwise galvanic action is likely to occur between the two metals. Such contact must be avoided in all cases, especially where moisture is present.

Manufacturers : A. Johnson and Co. (London), Ltd.

Address : Duke's Road, Acton, W.3

Telephone : Acorn 1158

London Office and Showrooms : Africa House, Kingsway, W.C.2

Telephone : Holborn 7337

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SPECIFICATIONS FOR PAINTING ON WOOD SURFACES.

ENAMELS ON WOOD SURFACES:

PRODUCT.	TYPE OF SURFACE		PRIMING COAT.	SECOND COAT	THIRD COAT.	FOURTH COAT
DULUX NON-YELLOWING WHITE ENAMEL, B1999. also available in tints to order *for details see the back of this Sheet.*	Unpainted surfaces.	Interior	White Primer K.M. 1342.	Dulux Undercoat 178101.	Dulux Undercoat 178101. may be omitted if desired	Dulux Enamel.
		Exterior	Not recommended for exterior		finishing	
	Previously painted surfaces.	Interior	Not required unless stripped to bare wood.	Dulux Undercoat 178101.	Dulux Undercoat 178101. may be omitted if desired.	Dulux Enamel.
		Exterior	Not recommended for exterior		finishing.	

IMITATION STONE PAINT ON WOOD SURFACES.

PRODUCT.	TYPE OF SURFACE.		PRIMING COAT.	SECOND COAT	THIRD COAT.	FOURTH COAT.
PETRUMITE IMITATION STONE PAINT. *for details see the back of this Sheet.*	Unpainted surfaces.	Interior	White Primer K.M. 1342.	Petrumite, interior quality.	Petrumite, interior quality.	. . .
		Exterior	White Primer K.M. 1342.	Petrumite, exterior quality.	Petrumite, exterior quality.	. . .
	Previously painted surfaces.	Interior	Not required unless stripped to bare wood.	Petrumite, interior quality.	Petrumite, interior quality.	. . .
		Exterior	Not required unless stripped to bare wood.	Petrumite, exterior quality.	Petrumite, exterior quality.	. . .

Information from Nobel Chemical finishes Ltd.

INFORMATION SHEET: DATA ON PRIMERS, PAINTS, VARNISHES, ETC. No 4.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 194 •

PAINTS

Type Described : Enamel and Imitation Stone Paint

This Sheet is the fourth of a series dealing comprehensively with the subject of painting and the protection of various surfaces.

DULUX Non-Yellowing White Enamel is made from a new synthetic vehicle to which is attributed its outstanding characteristics. Laboratory experiments and practical tests have shown that Dulux White Enamel has properties hitherto unattainable.

General Characteristics.

For interior decoration it possesses the following characteristics :

(1) A mirror-like gloss which it retains over a long period of ageing.

(2) Retention of whiteness in daylight, under artificial light and in the dark.

(3) Exceptional initial whiteness and absence of yellowing with age.

(4) Excellent build and high opacity.

(5) Good brushing properties and flow, resulting in an exceptionally smooth surface.

Spreading Capacity.

Estimated covering capacity, approximately 80 to 100 sq. yds. to the gallon, one coat.

Application.

The specification recommended for application on new work is as follows :

1 coat of Primer, appropriate to the surface to be finished.

2 coats of Dulux White Undercoat 178101. (For some classes of work one coat only of undercoat may be found sufficient.)

1 coat of Dulux White Enamel 81999.

Not less than sixteen to eighteen hours' drying should be allowed between each coat applied in the system.

Tinting.

Dulux White Enamel may be tinted with small quantities of best quality oil-stainers to produce light tints.

PETRUMITE Imitation Stone Paint is a prepared oil paint which provides a unique finish for either interior or exterior walls, pillars, etc. It is supplied in two distinct qualities—Interior and Exterior. Petrumite feels, looks, and weathers like stone, and can be used on brick, stone, cement, plaster or wood.

Method of Application.

Apply with flat brush and, when tacky, stipple lightly. When hard apply a full, flowing second coat and stipple lightly with a soft brush slightly moistened with turpentine. If a sawn stone effect is required, knife over while wet. If desired, the surface may be stippled lightly to ensure uniformity. When this last coat is nearly hard joints may be cut out to give the effect of pointing, and these may be lined out with an ordinary oil paint of suitable colour. This paint does not clog the brushes, which, after use, can be easily cleaned with turpentine substitute.

General Characteristics.

Petrumite is made to match—

Light Bathstone	Light Yorkstone
Dark Bathstone	Dark Yorkstone
Portland Stone	Terra Cotta

(1) Although more expensive than ordinary paint, is very much more durable : can be scrubbed with soap and water and should outlast four or five coats of ordinary paint.

(2) The covering capacity is 125 sq. yds. per coat per hundredweight, and the obliterating power is much greater than that of ordinary paint.

(3) A most durable and weatherproof finish and a variation from the usual paint or distemper finish for decorative work.

Previous Sheets in this series were Nos. 188, 190 and 192.

Name of Manufacturers : Nobel Chemical Finishes, Ltd.

Address : Architectural Dept., Slough, Bucks

Telephone : Slough 528

London Office : Thames House, Millbank, S.W.1

Telephone : Victoria 2873-2874

THE EUMORFOPOULOS COLLECTION

FIRST INSTALMENT ON EXHIBITION





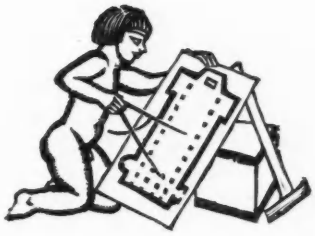
THE acquisition by the nation of the celebrated Eumorfopoulos collection of Chinese objects of art is considered to be the most important addition to the national collections in recent years. Those portions that are already the property of the nation are this week being exhibited to the public for the first time in the British and Victoria and Albert Museums. They consist of selections from the collection proportionate to the amount of the total purchase price that has so far been paid—rather less than half the total of £100,000. The rest of the collection is to be taken over as payment for it can be made; and, in order to avoid the necessity of setting aside for this purpose the whole of their purchase grants for some years to come, the Trustees of the British Museum are appealing to the public for contributions towards the completion of the purchase. Though the major part of the collection will naturally remain in the two London museums, a group of the ceramics will be available for loan to important provincial museums.

The objects illustrated above, which are among those now on exhibition, are: left, the head of a horse, in jade (Han dynasty, 206 B.C. to A.D. 220), in the Victoria and Albert Museum; right, bronze wine vessel (Chou dynasty, 1122-255 B.C.), in the British Museum. Photographs are by courtesy of the Museum authorities.



MEXICAN PHOTOGRAPH

The Mexican architect, Luis Barragan, has recently remodelled an old house of vernacular type for his own occupation at Chapala, a lake resort in Mexico. This photograph, taken by R. Salcedo Magaña, of a flight of external stairs in a partially enclosed courtyard, shows the rich effect obtainable, under brilliant sub-tropical sunlight, by the formal manipulation of very simple surfaces; also the semi-abstract design possibilities, which have hardly yet been properly explored, latent in architectural photography. [*By courtesy of "The Architectural Record."*]



PRESERVE THE SOLIDARITY OF THE PROFESSION

THE growing number of occasions on which the designs of qualified architects have been pronounced detrimental to local amenities by the authorities whose business it is to protect the amenities —usually the Town Planning Committees of Urban or Rural District Councils—has been causing concern within the architectural profession. It is a matter for concern from many aspects. In previous observations on the subject we have stressed that aspect of it that affects the architect as a private practitioner, as the purveyor of properly considered architecture to a client and a public who have often shown themselves to have a more sensibly balanced opinion as to what constitutes properly considered architecture than the authority that has the power to translate opinion into effective action. We have discussed the unsatisfactory nature of the æsthetic dictatorship by the æsthetically uneducated which is often, in effect, established by local authorities when they make use of their powers under the Town Planning Act.

Another aspect of the matter, affecting architects as members of their profession, also requires comment and is particularly evident in the report of a recent Ministerial inquiry into a case that arose at Witney, in Oxfordshire, which is published on another page of this issue ; this is, briefly, the effect on public opinion of architects wrangling amongst themselves on detail matters of design, giving evidence in opposition to each other at a public inquiry and generally giving the impression that an architect's decisions, when, for instance, designing a house, are as often purely arbitary gratifications of a whim as responsible answers to practical needs.

The architect as a professional man is in the unavoidable position of depending entirely on patronage—on the public good-will—for opportunities of practising his art. Before he can expect to be given all the responsibility he claims—before he can expect to be recognized as the natural and logical consultant on all matters of planning and design, he must establish in the public mind confidence in the architectural profession as a *profession* ; as a body of trained individuals, every one of whom knows where his responsibility lies.

In this case at Witney we find a number of architects giving evidence on the subject of the size of window-panes (in itself a subject which, when made the major issue in a solemn Ministerial inquiry, is likely to place the profession in a rather ridiculous light—certainly cannot add to its dignity) some preferring one type of window and some another, leaving the public to draw its own conclusions as to whether its own interests are a primary or secondary consideration.

The builders who gave evidence, on the other hand, showed a more practical attitude, obviously putting first the saving of their clients' labour and money ; and any layman attending the inquiry or reading the account of it in the local paper can only have had confirmed in him the impression that the speculative builder is the man to go to for consideration of practical issues ; that the architect is concerned first with a pretty elevation which he may only achieve at the expense of what is practical—that he is not necessarily interested in economy or convenience. We know that this is not true, that most architects are conscientiously careful of their clients' welfare from every point of view ; but the layman's impression of the way the architect goes to work (relegating him to the position of a luxury that the average house-builder cannot afford) is an all too common one, and such public arguments as that at Witney can only encourage it.

The rights and wrongs of this particular case are irrelevant to the issue under consideration ; it is the principle that gives publicity to dissension within the profession that is so detrimental to its well-being. Cases such as these, as we wrote at the time of the celebrated Ruislip case, make the profession ridiculous ; in fact, they constitute a complete denial of the meaning of the term " profession."

When members of the architectural profession indulge in this kind of childish ventilation of intra-professional disagreement they are placing the profession to which they belong in an undignified and humiliating position ; they are lowering the respect in which it and the integrity it stands for is held, making it more and more difficult for the responsible members to establish their claim to essential membership of the community.



The Architects' Journal
Westminster, S.W.1
Telephones: Victoria
9212-7
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London

NOTES & TOPICS

THE PRINCE'S LESSON FROM AUSTRIA

THE advantage of being a Prince of Wales is that when you say something people take notice of it. You can make an observation that may have been made dozens of times before, but you can be sure in your case that its echoes will travel beyond the circle of those who already agree with it. Our Prince of Wales most fortunately has the habit of observing just those things that most need (if one may say so without disrespect), the Royal publicity impetus.

*

His Royal Highness has just been visiting the Karl Marx Hof in Vienna, where he remarked on the useful precedent it might set for the solution of our own housing problems. He is reported to have asked for detailed information and literature about it, that he could hand to the authorities at home. The point, of course, is that it needs the Prince of Wales to point out to our cautious authorities what they might have discovered long ago.

*

The merits of the Viennese housing enterprises are already quite well appreciated over here, among their admirers being the majority of architects, but we shall not get courageous contemporary planning on the Viennese scale until the idea is appreciated by those who are in a position to carry it out.

ARCHITECTS AND L.C.C. HOUSING

But, perhaps, more individual architects *will* have the opportunity of putting their housing enthusiasms into practice ; for a momentous housing announcement has just been made by the L.C.C. : their proposal to employ architects in private practice to supplement the L.C.C.'s own architectural department, for the acceleration of housing activity.

*

That looks very like the chance to partake in the re-housing drive that the profession has been longing for. A wise move on the part of the L.C.C. ; widening, as it were, its vocabulary of architectural experience. One can but hope that the private architect will prove himself properly equipped.

ST. GEORGE'S HOSPITAL

As a satisfactory conclusion to my remarks on the necessity for proper steps with regard to selecting the architect for so important a job as the new St. George's Hospital, I learn that something has been done.

*

A committee has been appointed to decide whether the new buildings shall be designed by a selected architect, whether certain (presumably already selected) architects shall be invited to submit designs or whether a competition shall be held. So far, so good.

WAR OF THE AGES ?

At last week's meeting of Junior Members of the R.I.B.A. there was quite a lively discussion. Naturally. They were discussing " What is wrong with the R.I.B.A. ? "

*

There are very many younger men who are only too anxious to work for the Institute and contribute to its administration ; the existence of the Mars Group is, in a way, proof of this. Mars ought to be *in* the R.I.B.A., not outside it ; what Mars is trying to do now the Institute began to do years ago, and it is almost criminal that a body of enthusiasts should have to begin again at the beginning —and independently, too.

*

I am not prepared to say that Mars would have been smiled upon by the R.I.B.A. Council if it had asked for co-operation. But I *am* prepared to say that the Council of that august body has not the confidence of the younger men, which would be necessary before such an approach could be made.

*

These " Junior Meetings " are admirable, because they tend to organize the coming generation of administrators. It is up to the Council to see that the fullest possible (by which I mean much more than benign, tolerant) notice is taken of men under 35. They have youth ; they have enthusiasm ; few of them can be quite without ability or vision. They are certain to assert themselves, and they have every right to exert some influence in moulding the world in which they themselves (not their fathers) are going to live.

*

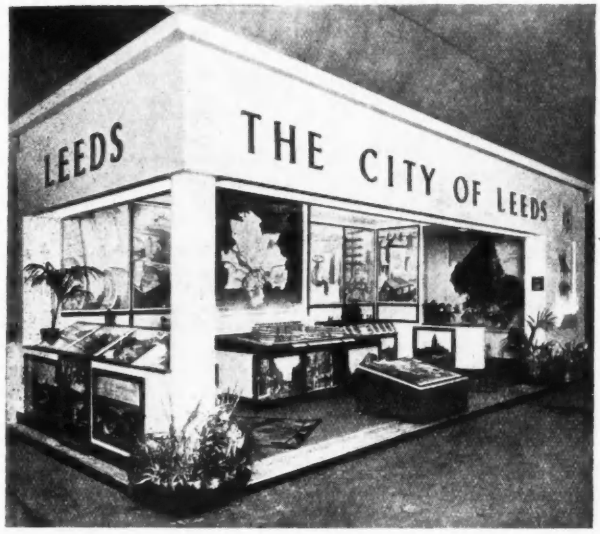
I should like to see the average age of the R.I.B.A. Council reduced to, say, 46. (I am told it is over 60 at the moment.)

*

I should like to see the older men retire gracefully, or get down to fundamentals of present-day problems. Otherwise this century will be wasted in a " War of the Ages," as the last one was wasted over " Styles." I am not pressing the Infallibility of Youth ; I am regretting that youthful ability and enterprise should have to answer repression by decentralising architectural administration.

THE THREAT TO WIMBLEDON COMMON

The local John Evelyn Club, with every champion of Wimbledon's semi-rural amenities behind it, is up in arms. There is a " threat " to build flats at the corner of Windmill Road and Parkside, which would " overlook the Common." (Incidentally the mile of imposing Victorian residences facing Parkside has overlooked it,



The City of Leeds Stand at the British Industries Fair at Olympia, designed by four of the fifth-year students of the Leeds School of Architecture; namely, H. Bailey, E. Brown, J. Dean and H. Scatchard. The design was the subject of a competition open to all members of the West Yorkshire Society of Architects. The stand is constructed of fire-proofed timber and the exterior walls, counter fronts and ceiling are faced with asbestos sheet to resist fire.

so far as the leafy genteel seclusion of "and grounds" permits, for over half a century.)

*

I went to see the site and found a three-acre enclave, that must have been filched from the Common originally, on which stands a large red-brick mansion in nineteenth-century "Vernacular" known as the Clock House.

*

Now clearly someone ought to buy this land and restore it to the Common. But if (as more often happens) nobody does, it is not unreasonable to ask, why should a tower-like block of flats rising from the ruins of Clock House *necessarily* "spoil the view over a wide area" any more than a church spire already visible from any point within it?

*

Sir Charles Tyrrell Giles, the chairman of the Common Conservators, who made this sweeping assertion, added "and ruin the value of neighbouring property." If built, the flats are obviously far more likely to enhance it. (Perhaps he meant "æsthetic value.")

*

Let me make my point plainer. I feel the chances are about seven to one on the flats spoiling the view, for the odds are quite seven to one against their being designed by a properly qualified architect.

HUGH QUIGLEY

Mr. Hugh Quigley, I hear, is the new editor of *Design for Today*. He is likely to make that paper well worth watching, because he has pronounced views on nearly everything, and is, I should say, well informed and is not afraid to speak his mind.

*

Like all such people, now and again he finds himself confronted with opposition; like most of them he emerges on top. When the *Architectural Review* produced its electrical number rather over a year ago Mr. Quigley was closely concerned. The Central Electricity Board (to which he is economist) was horrified at the "modernity" of the views expressed, and Mr. Quigley had to explain.

*

Mr. Quigley, as part of his work on electrical development, has made himself familiar with the problems of slum clearance and housing, on which he is now regarded as an authority—in fact, the current issue of *Design for Today* is chiefly devoted to these subjects.

AMERICAN TABLE GLASS

Towards the end of March we are to see, at the Fine Art Society, what promises to be a very interesting exhibition of Steuben Glass. It is a new material, said to be finer than anything which chemistry has yet produced.

*

Of the four chief designers two are architects; one (Sidney Waugh) is a Rome Scholar in Sculpture. One of the others (John M. Cates) won the 1933 competition for the replanning of Stockholm.

*

I am anxious to see the glass, which, from photographs, looks promising; it also looks like glass, which means that everybody will say that it has a Swedish character. They always say that about simple shapes.

*

It will be interesting to see what America does with this material, after a study of European precedents.

"REGENCY RAKES"

Bath?—Certainly; because of Beau Nash (Romance) and the Wood family (Architecture). And, if I may say so, quite right too.

*

Cheltenham?—Little known; but much to respect.

*

And yet Cheltenham is one of the best surviving Regency towns left to us more or less unspoiled. There are terraces in that town which over-ride the atmosphere of "retired militia" which, in canvas gaiters and check jackets, parades the, shall I say *late* Victorian? "Promenade"!

*

At the top of this Promenade (vile word) there is the Queen's Hotel, closing the vista. And, as you go towards the Queen's, beside it, is the "Winter Garden"—a tribute from the Crystal Palace to this new age of glass! It stands on a very fine site indeed; it is a site which many an architect must look upon with something very much like lust.

*

I hear that this site is to be "developed" in the near future. If that be true I hope that the term will be considered in the light of the best dictionary meanings; notably that of improvement.

*

Cheltenham has a responsibility to the architectural precedent of this country; it has a duty to ultimate development. If there is to be activity on this mis-used, mis-understood plot, let it be decided by competition, open to the best town-planning and architectural brains in the country.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

In order to expedite the erection of houses under the L.C.C.'s programme it is proposed to employ architects in private practice to supplement the work of the Architect's Department of the Council 326

Recently Manchester, Newcastle and Leeds have added courses in town planning to their architectural schools, and now we have a second London school 332

A partner in a firm of builders said that prospective clients were always asked whether they would like small or large panes. If they said large ones, they were told they could not have them..... 336

A recently invented liquid (for filling radiators) which can be heated to 480 deg. F. without boiling, and freezes without expansion..... 349

L.C.C. HOUSING: EMPLOYMENT OF ARCHITECTS IN PRIVATE PRACTICE

The following recommendation of the Housing and Public Health Committee of the London Council was presented at a meeting of the Council on Tuesday last:

"With a view to expediting the erection of dwellings in connection with the Council's housing programme, we have had under consideration a proposal for the employment of architects in private practice to supplement the work of the architect's department. Arrangements have been made for securing an expanding output of new dwellings by that department, such as is visualized by the programme of slum clearance and rehousing upon which the Council has embarked. By employing the services of architects in private practice, however, it would be possible, during the period before the maximum production by the architect's department is obtained, to supplement the work of the department and so obtain at short notice a greater immediate output of constructional work than would otherwise be practicable in view of the bulk of other work already in hand. After careful consideration of the matter, we are of opinion that the proposal should be adopted as an experiment, but it should be an overriding consideration that the arrangement must be separate from, and independent of, the organization of the architect's department, and be directed to the provision of dwellings beyond the maximum number which that organization can handle for the time being.

"The output on housing work is governed not only by the rate of purchase of sites, but also by the actual times when sufficient information of the sites is available to enable plans and contract particulars to be prepared in readiness for building on the sites when subsequently cleared and ready for development. It is essential that the firms to be employed should be directly responsible to the Council, the Council's officers being concerned only in advising as to the suitability of the plans from the housing point of view. Although the main motive of the suggested arrangement is to increase output at short notice, it may be that, by adopting the proposal, the Council may secure some useful experience by reason of differences in design, treatment, etc., of dwellings as compared with the types hitherto considered.

"We suggest that the selection of the firms of architects to be employed should be made by us and that we should also be authorized, subject to the concurrence of the Finance Committee, to settle the details of the arrangements with them. The firms to be engaged should be firms of standing with special experience in the erection of block dwellings, and, in making the selection, regard will be had to all the relevant circumstances to ensure the employment of a suitable firm for a particular scheme."

THE ARCHITECTS' DIARY

Thursday, February 28

FACULTY OF ARCHITECTS AND SURVEYORS. (*London and Home Counties Branch.*) *Annual Dinner and Dance. At the Criterion Restaurant, W.1.* 7.15 *p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS. *At 10 Upper Belgrave Street, S.W.1.* "*Vibration and Percussion in Concrete Depositing.*" *By T. J. Gueritte.* 6.30 *p.m.*

BUILDING CENTRE. *At 158 New Bond Street, W.1.* "*Properties of Bricks in Relation to Processes of Manufacture.*" *By A. Zaiman.* 8 *p.m.*

LIGHTING SERVICE BUREAU. *At 2 Savoy Hill, W.C.2.* "*Artificial Light in Relation to Decorative Surfaces.*" *By R. O. Ackerley.* 7.30 *p.m.*

GEFFRYE MUSEUM, *Kingsland Road, Shoreditch, E.2.* "*Metal Mounts in Relation to Modern Furniture.*" *By J. Seymour Lindsey.* 7.30 *p.m.*

ROYAL ACADEMY. *At Burlington House, Piccadilly, W.1. Exhibition of British Art in Industry. Open until further notice.*

ARCHITECTURAL ASSOCIATION. *At 36 Bedford Square, W.C. Exhibition of the working drawings of the London University Building. Until March 9.* 10 *a.m. to 10 p.m.*

DESIGN AND INDUSTRIES ASSOCIATION. *Annual General Meeting. At the London School of Hygiene and Tropical Medicine, Gower Street, W.C.1.* 6 *p.m.*

AUCTIONEERS' AND ESTATE AGENTS' INSTITUTE. *At 29 Lincoln's Inn Fields, W.C.2.* "*Planning Building Estates (chiefly in Rural and Semi-Rural Areas) simply and speedily by Agreement.*" *By L. A. Blackbourn.* 7 *p.m.*

Friday, March 1

INSTITUTION OF STRUCTURAL ENGINEERS. (*Midland Counties Branch.*) *At the James Watt Memorial Institute, Birmingham.* "*Sound-proofing Construction in Buildings.*" *By T. P. Bennett.* 6.30 *p.m. Western Counties Branch. At the Merchant Venturers' Technical College, Bristol.* "*The Æsthetic and Structural Value of Pre-cast Concrete.*" *By A. C. James.* 7.15 *p.m.*

Monday, March 4

CHARTERED SURVEYORS' INSTITUTION. *At 12 Gt. George Street, S.W.1.* "*Fungus Attack and Dry Rot in Buildings: together with some account of insect attack, especially the death watch beetle.*" *By K. St. G. Cartwright and Dr. R. C. Fisher.* 6.30 *p.m.*

Tuesday, March 5

INSTITUTION OF CIVIL ENGINEERS. *At Gt. George Street, S.W.1.* "*Major Improvement Works of the Port of London Authority, 1925-1930.*" *By F. W. Davis and W. Mackenzie.* 6 *p.m.*

Wednesday, March 6

ROYAL SOCIETY OF ARTS. *At John Street, Adelphi, W.C.2.* "*The Problem of Noise.*" *By Sir Henry Richards.* 8 *p.m.*

ART SCHOOLS AND INDUSTRY. *At the County Hall, S.E. Exhibition of Industrial and Advertisement Art by art schools in London. Until March 16.* 11 *a.m. to 9 p.m.*

BRIDGES

Mr. Hore-Belisha, the Minister of Transport, in a circular letter to local authorities on the question of new bridges and reconstructed bridges, urges upon all local authorities contemplating the alteration of ancient bridges or the erection of new ones "the great importance of securing at the outset reliable expert advice upon the design, not merely from the standpoint of the stability of the structure, but also of its proportions and artistic character. Seeing how long a life may be anticipated for public monuments of this class, it will hardly be questioned that every care should be taken to build bridges, and form their approaches, in a manner which will display the sound judgment of the days in which we live."

SOUTH WALES INSTITUTE OF ARCHITECTS

An exhibition of architects' working drawings, arranged by the South Wales Institute of Architects (Central Branch) and the Welsh School of Architecture, was held recently at the Technical College, Cardiff. The exhibits included some of the working drawings prepared for the following buildings: R.I.B.A. Building (G. Grey Wornum, F.R.I.B.A.); House in Lees Place, Grosvenor Square, London (T. A. Darcy Braddell, F.R.I.B.A.); Charterhouse School Chapel (Sir Giles Gilbert Scott, R.A., P.R.I.B.A.); Church of St. Thomas the Apostle, Hanwell (Edward Maufe, M.A., F.R.I.B.A.); House, Highgate Village (C. H. James, F.R.I.B.A.); and a House near Mill Hill (P. D. Hepworth, F.R.I.B.A.).

Mr. T. Alwyn Lloyd, F.R.I.B.A., speaking on "Flats or Cottages in Urban Development" at a recent meeting of the Institute, said that ribbon development need not necessarily result from housing in cottages and suggested that well-designed flats should not be compared with badly designed cottages. He felt that blocks of flats had their advantages in special cases, but that, generally speaking, in this country the small house was cheaper and more acceptable. In both cases site planning was of great importance and in both cases the trained designer was necessary.

BIRMINGHAM AND FIVE COUNTIES ARCHITECTURAL ASSOCIATION

The Birmingham and Five Counties Architectural Association has decided to take advantage of the offer made by the R.I.B.A. for the award of a medal to the building of highest architectural merit, built during the five years ended December 31, 1934, within its area, which comprises Warwickshire, Worcestershire, Staffordshire, Herefordshire and Shropshire. The building must front a street, road or square, or court to which the public has access. Each member of the association is allowed one nomination.

A jury constituted of six architects and two laymen has been appointed by the council.

The architect of the selected building will receive a bronze medal presented by the

R.I.B.A., a replica of the London Architecture Medal designed by Mr. Langford Jones, together with a diploma inscribed on vellum and signed by the jury. A circular plaque, also designed by Mr. Langford Jones, and executed in lead by Mr. Allan Wyon, 10 in. in diameter, with lions and columns from the R.I.B.A. badge picked out in gold, and lettered R.I.B.A. Architectural Medal 1934, will be affixed to the building.

INSTITUTION OF CHEMICAL ENGINEERS

Mr. H. J. Pooley, General Secretary of the Society of Chemical Industry, who was the first student to go through a course of Chemical Engineering at a British University—Liverpool, 1894–98—has been awarded the Osborne Reynolds medal for meritorious contribution to the progress of the Institution of Chemical Engineers.

ROME SCHOLARSHIP IN ARCHITECTURE, 1935

The Faculty of Architecture of the British School at Rome has admitted the following candidates to the competition for the Rome Scholarship in Architecture for 1935 :—

W. W. Atkinson (Architectural Association) ; H. Bennett (Manchester University) ; T. J. Cahill, B.ARCH., A.R.I.B.A. (Manchester University) ; R. W. Cave (London University) ; G. A. Crockett (London University) ; S. Greenwood (Liverpool University) ; Mary N. Grieve, B.ARCH., A.R.I.B.A. (Armstrong College Durham University) ; P. E. D. Hirst (Liverpool University) ; A. Reiach, A.R.I.B.A. (Edinburgh College of Art) ; F. H. Risdon (Architectural Association) ; D. W. Roberts (Welsh School of Architecture, Cardiff) ; C. G. Stewart (Edinburgh College of Art) ; R. R. Wilkins (Architectural Association) ; H. O. Wragge (Manchester University).

PHILHARMONIC HALL, LIVERPOOL

Negotiations for the building of a new Philharmonic Hall for Liverpool, which began in July, 1933, when the old hall was burned down, continue with a certain deliberation. The Liverpool Philharmonic Society's Committee and a joint sub-committee of the Corporation Finance and Estate Committees, who have met only once in the long course of the negotiations and have done their business together by letter, have at last reached a stage when draft heads of agreement have been communicated to the public and openly discussed.

ANNOUNCEMENTS

Mr. F. Russell Cox, A.R.I.B.A., has removed his office to 30, Waterloo Street, Birmingham, 2. Telephone No. : Central 2979.

Mr. W. David Hartley, F.R.I.B.A., and Mr. E. G. Vivian have transferred their Reading offices to No. 12, Cross Street (telephone No. Reading 2768), where they will be pleased to receive trade catalogues.

Mr. Stanley Ripley, A.R.I.B.A., who was recently appointed to the position of architect to the Prescot District Council, will be pleased to receive trade catalogues at No. 2 West Street, Prescot.

PLANNING IN PRACTICE

Following are some extracts from a paper entitled "Some Problems in the Practice of Architecture Today," read by Mr. Francis Lorne, F.R.I.B.A., at a recent meeting of the Manchester Society of Architects.

One of the problems we have to face today is concerned with the efficient planning of our buildings of the future.

It is a sign of how completely we have got out of touch with the realities of our work when one sees the strange and fearful look which pervades the face of the average architect when one speaks of efficiency, system and method in art. There is a strange fear existing that system and method destroy art. This attitude has taken much of the virility from our work. Where fear and an inferiority feeling exist our art suffers. Great art grows methodically, surely and systematically. The greatness of an artist consists in the perfect assembly and grouping of all his problems, for all great art is the result of thinking methodically and beautifully.

Our buildings are not the work of one individual, but are mostly the work of a vast assembly of individuals, and unless the architect can think methodically, plan methodically and set this assembly of men to working methodically, he will merely accentuate his difficulties, jeopardize his own position, and become what is only too often the case, the joke of the building world, instead of its creative centre. The dreamy lack of efficiency in the architect's office and his manner of executing a contract of the last fifty years will not hold water any longer. It will not do that our system is so bad we can't find a letter or a drawing when required. It will not do that the building has cost 10 per cent. more than it should and will take two months more to finish. It will not do that certain things were not thought of and, therefore, are not on the plan. We must so absorb the business or social life of our client that we can solve his problem much better than he can himself. We must live the life of our client for a while as an actor lives his character. We must arrive at the door with him, walk into the entrance hall of his building in our imagination as he will do when it is built. We must plan the things he will require just as he will want them, and so well, in fact, that he will be surprised when he finds them. We must take him throughout his building by stairs and lifts to the rooms he will want conveniently placed and in their relative arrangements better than he could have wished if he arranged them himself; and when we have done this we have only started our real problem, for we must do it all with distinction and artistry. In doing this we must not forget the army of his associates and fellow-workers who work with him. We must live their lives for awhile and plan for them in the same way. We must develop liberal and generous planning, lines of communication in lifts and stairs, toilets and cloakrooms, keep relative parts always together, kitchens with dining-rooms, wards with operating theatres, directors with the staff, which so frequently have been remote owing to the vagaries of our planning ; keep service rooms at the heart of the scheme and not push them off somewhere because we are not interested in them architecturally. Everything in a building is important architecturally and nothing is unimportant enough to be sacrificed to the arrangement of a Renaissance plan. Whatever we plan will be for twentieth-century requirements, not for sixteenth-century requirements, no matter how good these may have been in their day.

Let us visualize for a moment that every Englishman will demand for the future that he work in a building which is efficiently lit by day and night : that he will not want to see the light of day or gain the sight of grass, trees and flowers between heavy stone columns or have them entirely cut off by heavy balustrades, cornices or parapets which mean nothing in his life ; that he will demand that they be heated and ventilated internally, that the noise of his outdoor activities be cut off from his indoor endeavours, and that the interiors of his buildings will be elastic enough to suit his ever-changing form of life.

To be able to plan this life of the future our architects will have to be informed in many sciences, mechanical, social and economic. This brings us to our third problem of the growing necessity for more scientific knowledge in the curriculum of the architect.

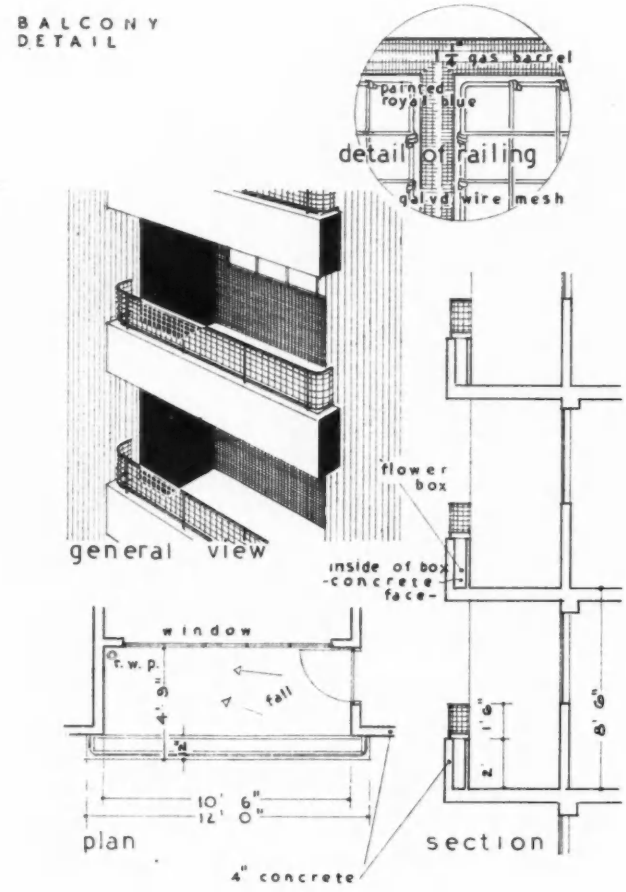
Perhaps because most of us have considered that science has little relationship with art there has been among us little knowledge of the sciences relating to architecture, the sciences of frame structure, of acoustics, heating, ventilation, lighting and sanitation. Surely if an intimate knowledge of bone structure and anatomy is not beneath the dignity of a painter, steel and concrete structure should not be beneath the dignity of an architect, and as the painter of the figure starts with the bone frame and builds up his figure on that, it is also the logical way for us to work. The painter who started with the flesh and worked back to the bone would be looked upon as a bit of an idiot, and yet this is precisely what most of us do in architecture today.

With the great increase of traffic in our streets and the increase in the use of steel and concrete frame for carrying our buildings through which sound travels so easily, the abatement of noise becomes increasingly important if we would retain a little of our sanity. We shall have to consider the acoustic treatment of every building and find a means of excluding the noises of the street and of insulating one interior compartment from another. We shall have to plan our auditoriums, not on the romantic basis of what looks like a nice plan, but scientifically on the basis of acoustics, so that everyone can hear and see perfectly. I think we are getting beyond the generation which was content to pay for seats in an auditorium in which it could hear little and see less.

In the next generation we are likely to pass out of the habit of thinking of heating and ventilation as two separate affairs and grow into the habit of thinking of them as one—that is, conditioned air. The noises from the streets of our cities become more unbearable every day, and some day soon we shall have to hermetically seal our exteriors—that is, have windows with no opening parts whatever and provide conditioned air to the interiors at a temperature according to the period of the year, warming it in the winter, cooling it in the summer, and thermostatically controlling every room. Much of our London winter and much of your Manchester winter, too, is spent enshrouded in fog. Surely it will be better for us to spend our indoor lives with warm washed air, free from impurities, than to breathe through open windows our soot-laden atmosphere.

It is not likely that for long people will be sympathetic to the inefficient glare of our present forms of lighting, where our eyes are offended either by table lamps when we look down or by ceiling lights when we look up. Out lighting, instead of being a fitting like a piece of furniture, will be built into the structure as an integral part of it, and the light therefrom evenly distributed without the glaring offences from which we suffer now.

It is not likely that future man will permit for a moment in our private houses, in our hotels and public buildings, the minimum of sanitary



R. E. Sassoon House, St. Mary's Road, Peckham. Designers: Adams, Thompson and Fry, in collaboration with Miss Elizabeth Denby.

fittings which somehow we have permitted for so many years. I think you will find in a few years it will be ridiculous to put up an hotel without a bathroom to every bedroom. Heaven alone knows the amount of the world's criticism of our badly heated, badly bathroomed hotels. In order to change this there must be a considerable increase in the efficiency of planning and the grouping of facilities to minimize the plumbing, a considerable simplification in the age-worn methods of plumbing and the standardization of fixtures. When one realizes the hundreds of types of these fixtures there are throughout the country to satisfy individualism "run riot," there is little wonder that our bathrooms are so few and so expensive. The time is not far distant when every Englishman will demand as his right a living-room, a bedroom, a bathroom and a kitchenette with some form of central heating and plenty of hot water, because he will find that to preserve his soul he must have privacy: in other words, have a door to lock by which he can keep the world out, and plenty of hot water, which is the greatest civilizing influence in the world. As the public for whom we build in the future is likely to demand a greater supply of these amenities of living, it is not difficult to realize that the money which goes into these things will come out of, and can only come out of, what has formerly been put into architectural treatment. This will force us willingly or unwillingly to adopt much simpler terms in architecture. It will force us, too, well over into the field of standardization and mass production in building and an entire revaluation of the materials entering into construction. It will force us to the consideration of many of the synthetic materials on the market eminently appropriate for their purpose, but until now sedulously cold-shouldered by the profession as not genuine stone, brick or wood. I suppose we think because brick goes back to the Pharaohs, it is not in a sense a synthetic material. I hope, however, in the increasing use of synthetic materials we shall drop the tendency to make them look like stone, marble, glass or wood, but be honest about them and treat them on their own merits. In the selection of our materials I hope we shall grow to be guided by the various excellent research stations and building centres which provide us with actual scientific knowledge upon the values these materials possess for certain desired results, and not be merely romantic about them because they give effects in texture, etc., which our romantic fathers have taught us to believe to be good.

We must not forget that we are entering an entirely new age of building when our work will date almost as quickly as a woman's gown: an age where suitability for purpose will become increasingly important and where flexibility will be important too. It will be essential that buildings be assembled with a view to change and their lifetime will be much shorter than in the past. The conditions of life are changing so rapidly that it is well-nigh impossible for us to build beyond our own generation and more difficult for us to dream of what our children will require. The nonsense of building for hundreds of years must be exploded. It must be apparent to most of you that buildings today are scrapped, not because they are decayed, but because they are out of date, and it is cheaper to rebuild than to remodel. Once upon a time a man wore a suit of clothes for many years and a carriage lasted him a lifetime; now he seldom wears his suit more than a season or two, and he buys a new model car every other year. This attitude is certain to grow and reflect itself in architecture.

I think in the near future we shall come to look upon furniture as an integral part of the structure in our design, instead of thinking of furniture as isolated units arranged in a room. We have suffered for many generations from the curse of what Mr. Frank Lloyd Wright calls the "interior desecration," whose main function has been the perpetuation of style. This perpetuation of style is probably the principal reason why most of the furniture in houses today is unfitted for our requirements. We have found that as new generations come along new habits come with them which do or should change the form of our furniture as they change the form of our building. We have also found how frequently buildings well designed to fit modern modes of living have been entirely ruined with traditional furniture of another period and entirely different form of life. In the years to come we shall undoubtedly find that the architect will design the entire building outside and inside, structure as well as furniture, and the furniture will tend to be built into the building, forming a part of its design in keeping with the new requirements.

In order to grasp the principles which underlie this new movement and be able to plan for it, the architect must have a knowledge of the social conditions in which he lives and of the economic laws which govern his living. He will tend as years go by to be less concerned with abstract theories of æsthetics and more concerned with the growing demands to improve the living conditions of his race. Conditions will demand of him a much wider knowledge and use of the scientific inventions of his day and it will be incumbent upon him to use these for the creation of a new type of building providing greater amenities of living. He will tend, therefore, to use less and less the materials which have been handed down to him by his fathers and more and more the materials of his own more scientific invention. He will have to approach his problem with the attitude of the scientist and be guided in his work by fact more than by romantic sentimentalism. He will tend less and less to be just a perspective and elevational monger or dealer in ornament and more and more an intelligent, well-informed planner of humanity.

THIS ARSHETECTURE

Everyone who has any interest in housing knows that the great fault of post-war "schemes" is that they have too little design—in other words, that they haven't had enough attention from architects. This particular "scheme" is to be on a site where good design is specially desirable. The landowner has stipulated that an architect shall be engaged to look after the matter. And for this reason the Labour town councillors have turned his offer down, and are preparing to take the land over its owner's head.

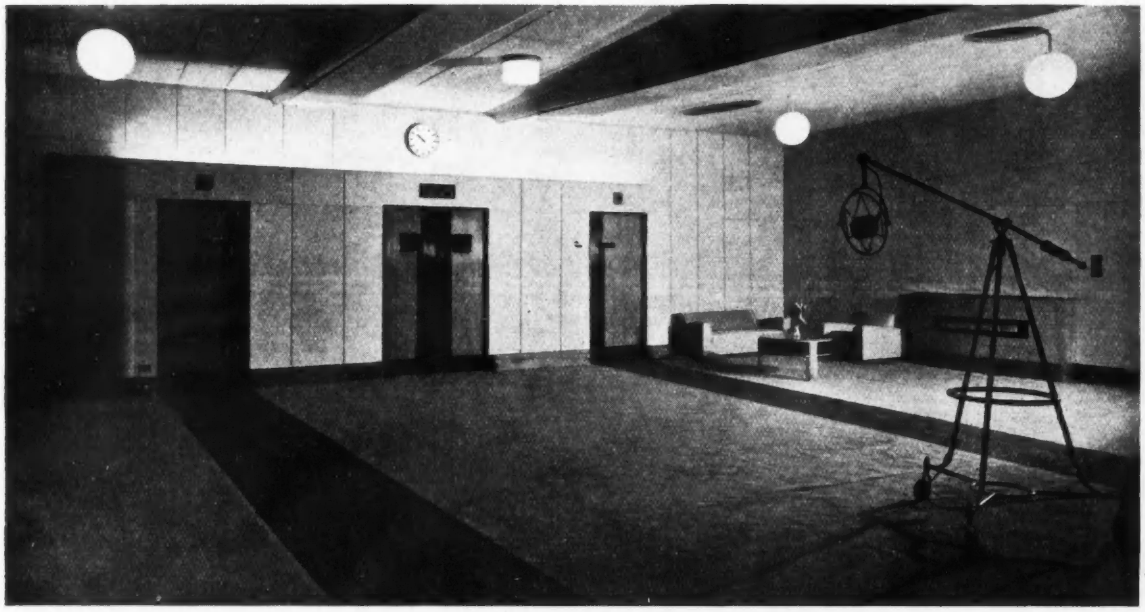
One hopes that they will fail. For if they succeed we shall have to believe that Scotland has taken a long step towards the most unintelligent sort of Socialism.

From the *Bulletin and Scots Pictorial*, Glasgow.

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[*For Competitions Open see page 293 of last week's issue.*]

B. B. C. STUDIOS, NEWCASTLE



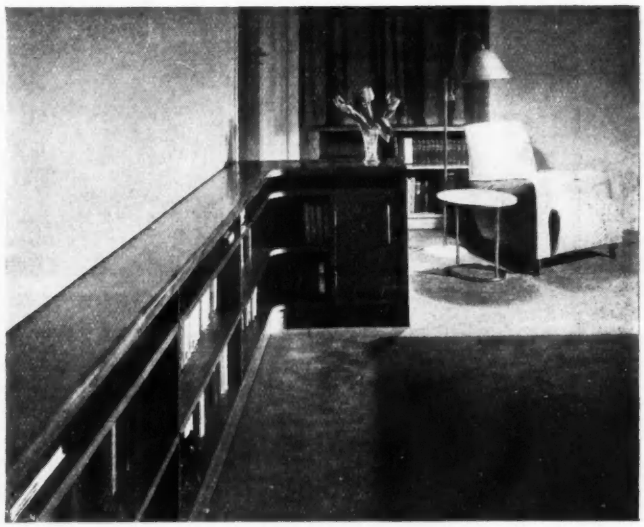
The work illustrated here involved the conversion and redecoration of an existing building for which no survey was available. Structural alterations were few, work being confined to a judicious lining up of odd breaks in the old building and the removal or concealment of the more regrettable mouldings and balustrades. The B.B.C. insists on a rigid acoustic schedule, and in the large studio, illustrated on this page, a maximum of 500 sq. ft. of hard reflecting surface was allowed. Apart from doors, skirtings and metallic fittings such as clocks and lights, all surfaces are in wallboard, with the exception of the reveals, which are in fibrous plaster. Three different wallboards have been used, the darkest near the doors and the lightest on the opposite wall and ceiling; furniture and carpet are beige. Artificial ventilation is provided by tapering extract ducts: the fresh air being drawn through ducts at the back of the fireplaces, passing through a detachable and renewable filter packed with steel wool, and entering the room through bakelite grilles. The doors are mahogany with black rubber stile plates.

DESIGNED BY WELLS COATES



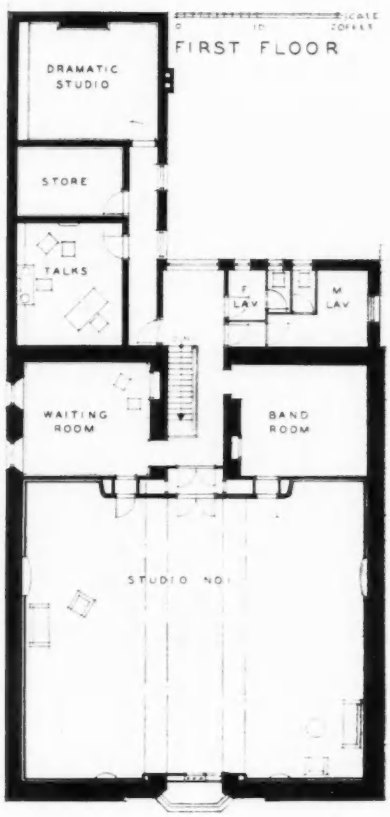
B. B. C. STUDIOS, NEWCASTLE:



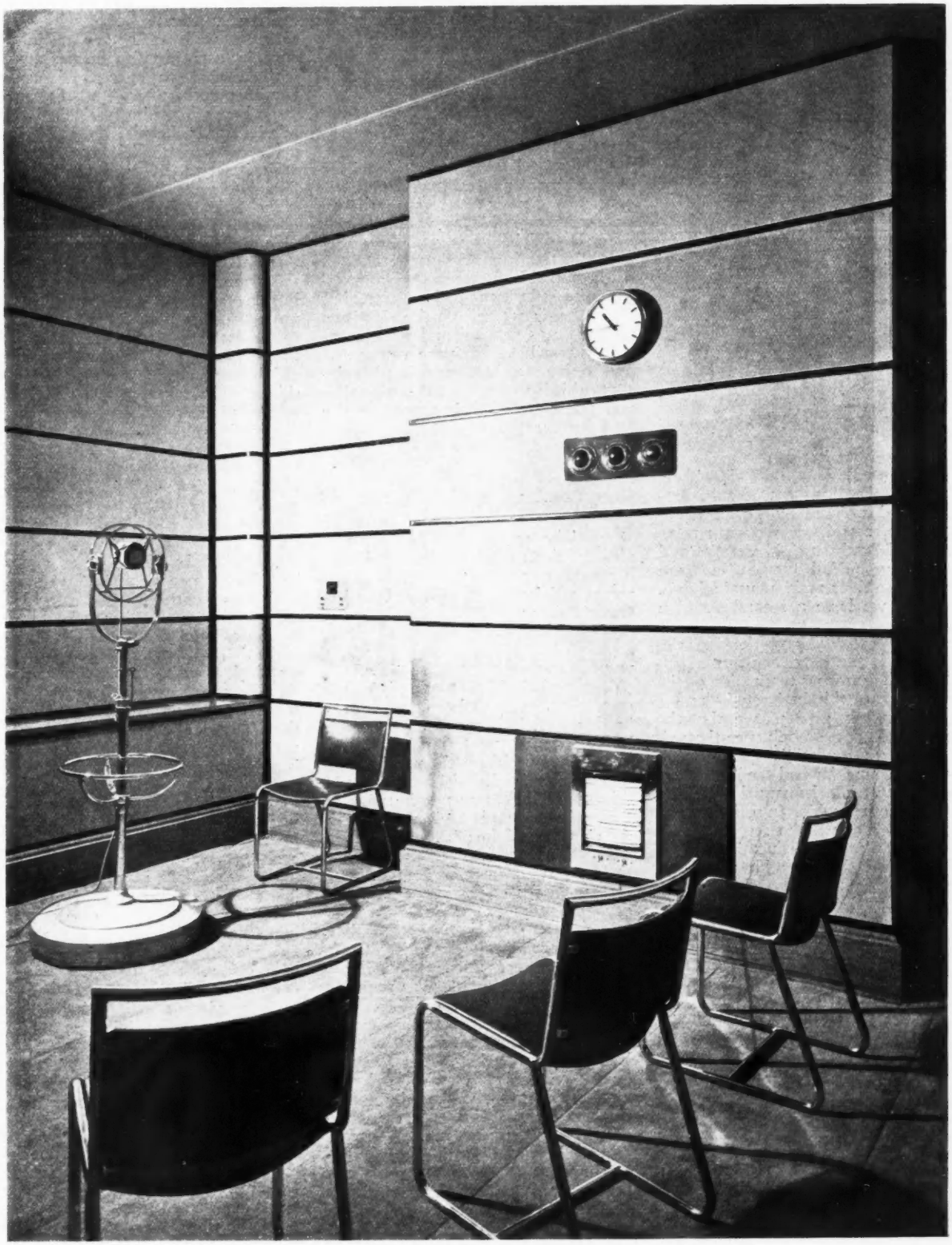


The photographs on this page show: left, the entrance hall and porter's box. The carpet is in mottled green and grey with a black rubber surround; above is a corner of the Station Director's office, and, below, the dramatic studio. On the facing page is a detail of the dramatic studio, the walls of which are covered with 2 in. of rock wool for sound absorption, with rubber cover strips.





DESIGNED BY WELLS COATES



LETTERS FROM READERS

PROFESSOR PATRICK ABERCROMBIE, M.A., F.R.I.B.A.
V. HARDING
D. WINTON THORPE, A.M.I.E.E.
Dr. OSCAR FABER, O.B.E., D.Sc., A.M.I.E.E., M.I.H.V.E.
J. R. KELL, M.I.H.V.E.
H. KAYLOR, B.Sc.Tech., A.M.I.Struct.E.
J. D. M. HARVEY

Schools of Planning

SIR,—Like many people interested in the control of human environment, I read with great interest the announcement of a new Department of Planning and Research for National Development within the Architectural Association School. For many years the Liverpool Department of Civic Design, founded by the late Lord Leverhulme in 1909 as an integral part of the School of Architecture in the University, was the only place in this country where town and country surveying and planning were systematically taught; the town planning review established at the same time has given the department an international outlook. Then London University followed suit, Professor Adshead leaving Liverpool to create the second school there; more recently Manchester, Newcastle and Leeds have added courses in town planning to their architectural schools, and now we have a second London school.

All these extensions of the facilities for research and education are indications of the growing realization of the importance of this basic study, and I am particularly glad to see that the new school hopes to influence through its teaching the administrative official, the town councillor and the Member of Parliament. I look forward to the day when some instruction in sociology and practical civics will be regarded as a normal feature of all education.

May I add that in asking Sir Raymond Unwin to act as chairman of an advisory board the Architectural Association has made a wise choice: his ripe judgment and unrivalled experience have for several years been of the utmost value to this department in his capacity as External Examiner.

PATRICK ABERCROMBIE
Liverpool

R.I.B.A. Elections

SIR,—Younger members of the R.I.B.A. seem hardly to realize their powers in regard to nomination and election of candidates for the Council and various offices of the Institute. This is partly due to apathy, but mostly to the fact that no adequate warning of, or invitation to, the nomination of candidates for all the offices is given.

It is an unwritten law that the President is elected from the Council automatically, and the Vice-Presidents are elected by the Council. Actually, according to Bye-law No. 35, any seven or more members may nominate any other candidate for any of the offices provided that he is willing to stand.

It is of vital importance to the profession, the industry and the nation that the administration of the Institute should be as capable and representative as possible. Now the young and progressive members are a large majority and it is urgent for them to realize and make use of their powers at the forthcoming election of officers.

V. HARDING
London

Comparative Heating Systems

SIR,—The question of heating and air-conditioning is of such immense importance to architects that the recent articles in your journal by Dr. Oscar Faber and Mr. J. R. Kell most certainly have attracted the notice, and, one hopes, the study, of all whose work is connected with building.

When technical information is broadcast to a large number of readers, as in this case, it becomes all the more important that no factor bearing on the various problems discussed should be either omitted or glossed over. In this connection I am wondering whether the authors have not given electricity the dirty end of the stick so far as their calculations, and, more important, their conclusions, are concerned.

On page 131 of your issue for January 17 the authors suggest that the relative cost of a therm produced by different fuels is the basic key to the question of economics. Now, is this so? To drive my motor car 100 miles costs me about 30s., or about 3½d. per mile. The petrol for this journey costs 6s., or about ¾d. per mile. May I, with reason, then, console myself for the cost of running my car by the comfortable thought that the cost of petrol is the basic key to the economics of motoring? I think not.

The authors of this article suggest that it is proper to compare the relative operating costs by taking electricity (except thermal storage) as 100 per cent. efficient, while coal or coke installations are taken at 50 per cent. efficiency in relation to the cost of a therm as applied to the fuel used. The comparative figures on page 167 in the issue for January 24 are based on the same assumption and show the cost of heating a private house with 6 in. concrete walls of 24,000 cubic feet capacity as being £35 6s. per annum with a coal or coke fired central heating plant, against £128 16s. for the same house heated electrically! Even admitting for the moment the 50 per cent. instaliation efficiency for coal or coke, it seems that we have the same fallacy to contend with: that the cost of fuel is the basic key to the question of economics. If it is, then this remarkable discrepancy between £35 6s. and £128 16s. is correct. Unfortunately for this argument, just as the cost of petrol in the economics of motoring is by no means the most important factor, so the cost of a therm in comparative figures of this sort is also no guide.

If I may introduce a practical consideration into an article which admittedly is intended to be theoretical, I would draw attention to the fact that, in the first place, an assumption has been made in the article that electric heating would be in use for the same number of working hours during the year as the coal or coke system, except in so far as the hours of use are affected by thermostatic control. This, of course, is not the case, since, with the exception of a few rooms in a private house, the electric heating system will be completely shut off at night-time, and in the bedrooms will be switched off during the daytime, while in the dining room it will be switched on only for two or three hours during the day. But still we have not brought all the factors into account. In every installation, however large, however small, the handling of fuel costs some money. This may vary, from the wages of a large staff of men down to an hour or so each day on the part of a cook general. In the case of very small houses we may, if we wish, ignore this labour cost—though it exists, however small it is. But in the case of larger houses the labour question is as much a factor to be considered in the economics of heating as in anything else. A comparison of two systems of heating with a view to finding out their respective costs to the owner is quite incomplete unless labour is considered.

The question of boiler efficiency has been taken in your contributors' article at 50 per cent., but I should rather doubt whether there is likely to be complete agreement among authorities as to an average boiler efficiency of this figure taken over the year, including periods when the boiler is banked, for this is a not unusual state of affairs at many times in the case of private houses.

The flexibility of electric heating is another most important factor, since

a house which is left empty for periods long or short will consume no electricity, and there will only arise the necessity for the system being used during the actual hours of occupation, plus a warming-up period which will average about one and a half hours. One assumes that the authors of the article would themselves admit that the original cost of a direct electric heating system is likely to be substantially lower than a coal or coke fired boiler system; yet no mention is made in the calculations of the very important factor of the saving in interest on the capital cost of the apparatus. The absence of a boiler-room presumably means lower rates. Here is another small item which perhaps will help to make the comparison look a bit different.

The leading low temperature electric heating systems today give remarkably long life for the element; indeed, it is usual for the manufacturers to guarantee it for a period of five years. But, apart from the elements, which can be easily replaced when the time comes, the apparatus itself suffers no deterioration in use, with the result that a reasonable depreciation figure for an electric system of low-temperature heaters is 2 per cent. per annum, whereas most authorities would fix the depreciation on a hot water system at figures varying between 4 per cent. and 6 per cent. per annum. Perhaps this also may reasonably be brought into the calculation.

D. WINTON THORPE
London

[*We have submitted the above letter to the authors of the article referred to, who send the following reply.*—ED., *A.J.*]

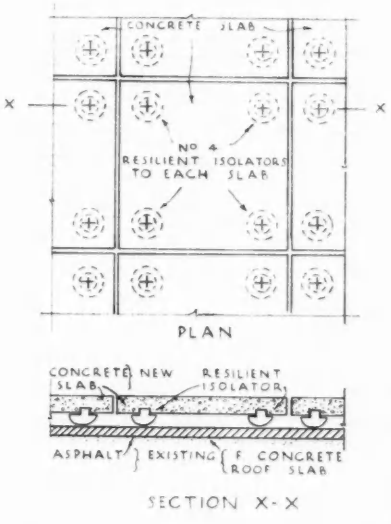
SIR,—We are grateful to Mr. Thorpe for his comments. We are sorry he cannot console himself by thinking that the cost of petrol is the "basic key to the cost of motoring." We have not ever suggested that labour and convenience ought not to be given full value in making a comparison between different forms of heating. Reference to page 131 shows that we emphasized the need to take into account all the considerations (*a*) to (*e*) which include installation cost, convenience, cleanliness, etc., mentioned by your contributor, and that we indicated that these matters would be further referred to later, when electric heating will be treated more fully.

OSCAR FABER
J. R. KELL

Noise Deadening in a Flat Roof

SIR,—May I be permitted to suggest an alternative possible solution to the problem of noise-deadening in flat roofs, which was mentioned in the ARCHITECTS' JOURNAL for January 31. It has been made quite clear to me that the addition of a layer of compressed cork slab or fibre wallboard is entirely inadequate to deaden the impact noise which passes through the existing roof. For heat insulation, the addition is most beneficial, but not for sound insulation. The weight per unit area on the cork slab, by the new asphalt covering, is negligible, and there is no discontinuity to arrest the transmission and the load is insufficient to offer a barrier to the noise.

The prevention of the sound transmission would be aided by the introduction of a large inert mass, with point supports made from resilient material such as rubber. The accompanying sketch indicates a suggested type of isolator which would be compressed by the concrete slabs, having a thickness of, say, 1½ ins. (This method assumes that the extra dead load involved can be carried safely.) The slabs forming the new paving would have joints between them to allow rainwater to penetrate through and, falling on the sloping surface of the asphalt below, the rainwater would find its way to the outlets (see Trade Notes, A.J., December 13, 1934, for a similar device used on a block of flats in Paris).



A parallel to the scheme outlined above is to be found in the case of a loaded and unloaded vehicle. It is well known that when a car is loaded the springs, being compressed to their designed amount, are capable of absorbing the vibrations due to the irregular surface of the road. The example of the unloaded vehicle is analogous to the roof covered with cork and asphalt where there is insufficient load on the resilient material and it is well known that in the case of the vehicle, the springs, under these circumstances, can even amplify the vibrations.

With regard to the suggestion for using a suspended ceiling, the possibility that the sound might by-pass or short-circuit the false ceiling should not be overlooked. The vibrations enter the concrete and travel down the partitions, making the latter vibrate and re-radiate the sound in the rooms below.

It is conceivable that a perfectly constructed suspended ceiling would still leave half of the noise trouble. Further, the working-class flats as constructed have probably the minimum clearance permitted, floor to ceiling, and this fact would preclude the introduction of a false ceiling in the existing block.

H. KAYLOR
London

The Parliament Square Site

SIR,—It is surprising to find Mr. White-Cooper defending the use of the Parliament Square site for speculative purposes. His point is, apparently, that a building used for housing officials of the M.C.C. would look the same as one consisting of offices of the "highest"—i.e., most expensive—class.

Surely the present Middlesex Guildhall, whatever its romantic failings, to say nothing of the Council's recent schools, gives better promise. But, quite apart from this, something is wrong here. It looks as if the important directors and companies who would rent the offices would be getting nothing for their money if there is any confusion between their building and one housing County Council officials! Is Mr. White-Cooper's architectural ideal a plan passed by the authorities concealed behind a façade designed to harmonize with buildings æsthetically *passé* to the last degree? Such a conception is surely nothing but a "random" one.

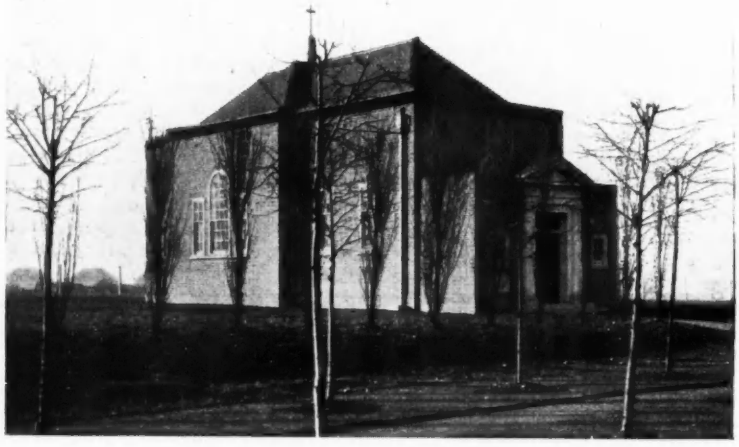
The point at issue is not only the appearance of the building, but its character and use as well. For anyone admitting no difference between a company working for its own profit and an official body administering social service, the controversy must indeed be incomprehensible. The site is one demanding official occupation: the building should be kept as low as possible so as not to assault the proportions of the open space, except at the Great George Street end, where its height should be sufficient to conceal the stock brick flank which greets the visitor arriving *via* Waterloo as he crosses Westminster Bridge.

J. D. M. HARVEY
London

Owing to lack of space we have been compelled to hold over a number of letters until next week.

CHAPEL AT MOTTINGHAM:

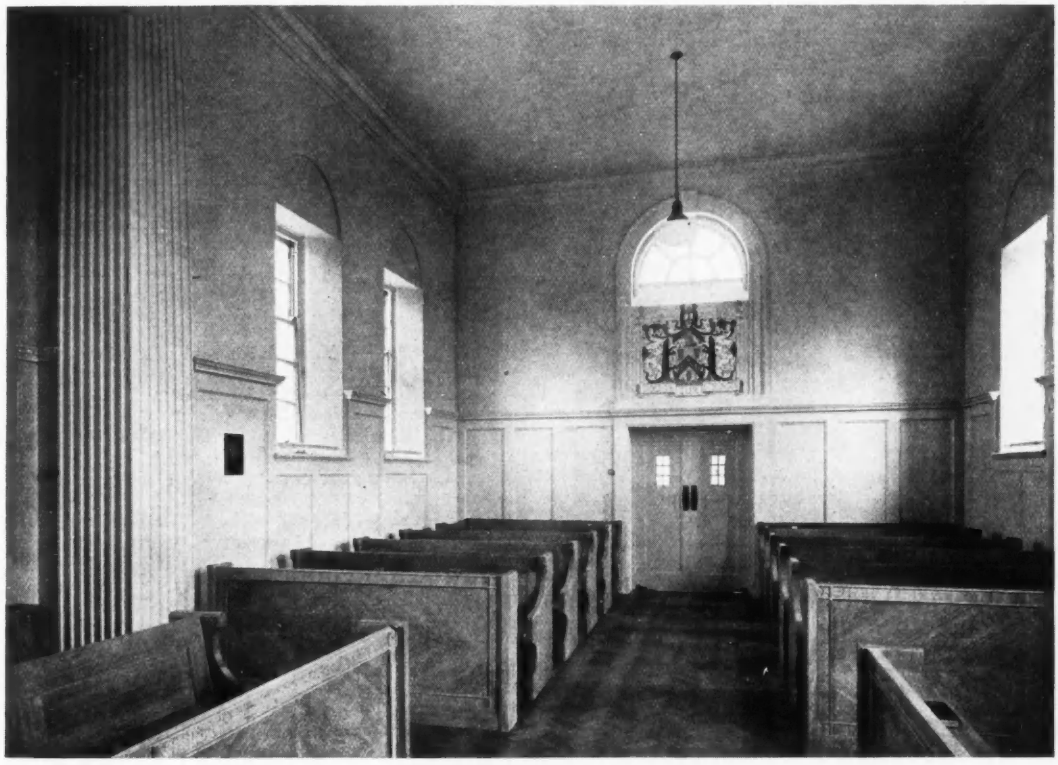


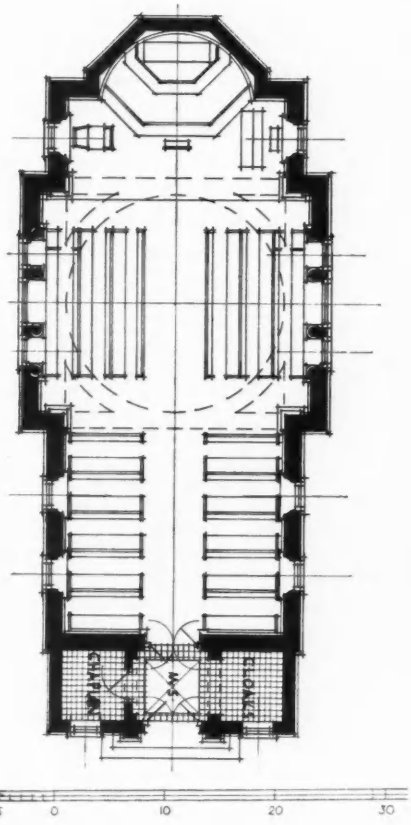


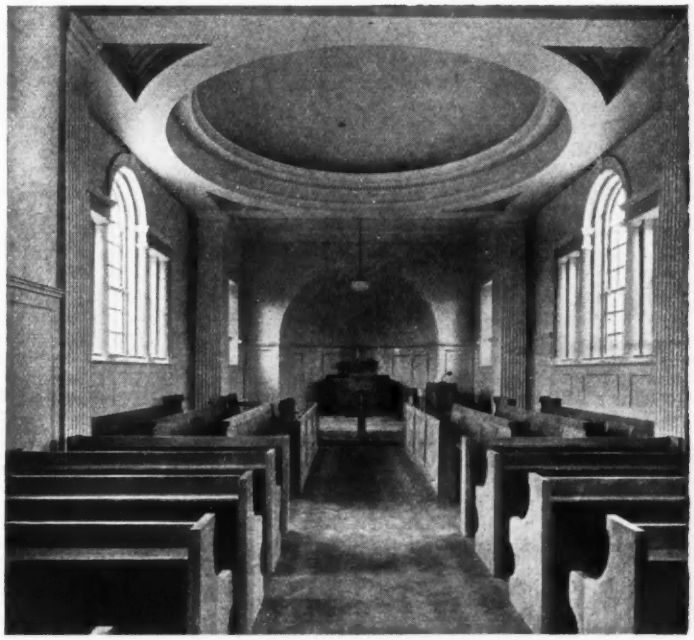
This chapel has been built by the Worshipful Company of Ironmongers as an addition to their existing Almshouses at Mottingham, Kent, and is designed to accommodate the forty pensioners at regular daily services, with supplementary seating for the members of the Court of the Company, who attend services at regular intervals throughout the year. The chapel is designed to recapture, as far as possible, the atmosphere of the old chapel of the former Almshouses in Kingsland Road, now part of the Geffrye Museum. The building is a simple brick structure with Portland stone dressings and a tiled roof carried on steel trusses ; lintols are in reinforced concrete.

On the left is a general view of the building and, above, elevation and sections of the narthex.

DESIGNED BY SYDNEY TATCHELL







Above, two views of the interior; seating and sanctuary furniture, designed by Gordon Stark, is in limed oak sprayed with a transparent cellulose, and the electric heating is by tubes in the pews.

THE WITNEY CASE

LARGE OR SMALL PANES?

In the Witney case all the reasons for the rejection of an architect's design by the local Town Planning Committee centred round the size of the window panes, a number of architects expressing different opinions on the subject in the public inquiry. Extracts are printed below from the arbitration proceedings, as reported in the "Oxford Times." Up to the time of going to press the arbitrator's award had not been announced. The case is referred to in our leading article on page 323.

AN appeal was heard at Witney on Tuesday, before an inspector appointed by the Minister of Health, against a decision of the Witney Urban District Council, under the Planning Act. The appeal was lodged by Miss D. Buckingham and Mr. W. Haley, who propose to erect a house on the Oxford Road, of which Mr. Gilbert T. Gardner, of Oxford, is the architect.

The specific ground of the appeal was against the Committee's insistence on the use of small panes of glass, or leaded glazing, as opposed to large panes.

"I am strongly of opinion that an attempt to force a building owner, by alleged legal pressure or threats, to use small panes of glass (or leaded glazing) in the windows of a house is a form of dictatorship in a matter of taste that in my view cannot be tolerated," said Mr. Gardner. "The threat to which I take strong exception is that if the condition relative to small panes of glass in the windows is not observed the protection said to be afforded by the Interim Certificate becomes inoperative.

"This is a case where Miss Buckingham definitely declines to assume any unnecessary burden, and it is not a case where I, as the architect, am endeavouring to force my personal views upon the Committee. I am satisfied that Miss Buckingham's views in regard to small panes of glass are sincere and well founded and are not due to any capricious waywardness or to any endeavour deliberately to run contrary to the expressed view of the Joint Town Planning Committee.

"The question has been the subject of considerable grievance in this area for a long time, and I ask you to advise the Minister of Health that, in your view and having regard to all the circumstances, the condition laid down in the Interim Development Certificate relative to window panes should be struck out on the ground that the Joint Town Planning Committee has exceeded its powers in making such a condition, and that it is unreasonable that such a matter as that in question should become part of a permanent town planning scheme."

Mr. R. C. Maxwell (Counsel for the Joint Planning Committee): "You refer to alleged legal pressure or threats. What threats have been used?"—"The threat that the Interim Certificate would be inoperative and, therefore, in the event of a solicitor desiring to convey a property there would be grave difficulties."

"Are you a member of the Panel of Architects?"—"I am not."

"Have you been asked to join?"—"I refuse to answer that question."

"Have you any objection to the principle of the Panel of Architects?"—"I have no objection to the principle."

Miss Buckingham said that the installing of leaded glazed windows meant additional expense and extra trouble in cleaning.

Mr. Maxwell pointed out that another of Miss Buckingham's objections was on the score of less light and sunshine being permitted to enter through small panes, and asked whether she realized how many houses in Witney had small panes.

Miss Buckingham replied that she did not, but she knew that many of the tenants were always grumbling about the small panes. She had timed the cleaning of the two types of windows, and found that it took four times as long to clean the small panes. The estimated cost of the proposed house was between £700 and £800, and from inquiries she found that the additional cost which would be involved by the leaded glazed windows would be from £5 to £7.

Mr. Maxwell: "That is not a lot of money on that sum, is it?"—"It may not be to people who have money, but it is to two who have to go out to work."

Applause greeted this reply, upon which the Inspector called for order.

Mr. W. Haley said he thought most people were in sympathy with town planning, but private enterprise in Witney had been hindered. Since town planning had become operative, few people had been able to build houses entirely to their own taste.

Mr. Owen Dring, Woodstock Road, Witney, stated that he had been "more or less compelled" to have small panes in the front windows of his new house.

Mr. H. Brown, Burford Road, said the small panes of glass which he had to have in his two houses caused a great deal of extra work. Mrs. Cantwell and Mrs. Owen Dring also spoke of the work involved in cleaning the small panes.

Mr. J. R. Barnes, partner in the firm of Messrs. Barnes and Sons, builders, of Witney, said that prospective clients were always asked whether they would like small or large panes. If they said large ones they were told that they could not have them. "But we always try it on and take a plan for large windows to the Surveyor, who generally objects and the clients have to have small panes," added Mr. Barnes.

Mr. B. Taylor, of Messrs. Bartlett Bros., builders, of Witney, expressed the view that the Oxford Road area was a place for large windows. He estimated the extra cost involved by leaded glazed windows as 1 per cent. on the capital outlay.

For the Town Planning Committee, Mr. T. Rayson (secretary of the Panel of Architects and one of the advisers to the Witney Planning Committee) said the proposed house was designed in the traditional character of the district, except as regarding the windows. The question was essentially one of design, not of taste, and the house in question was in every way desirable except in the one particular.

Mr. Maxwell: "Is it fair to say that a plan otherwise correct is mutilated in effect by the absence of small panes?"—"Where the design is traditional it is absolutely essential."

Replying to other questions, Mr. Rayson said small panes were more trouble to clean, but the views some people held in regard to less light being permitted to enter through small panes were fictitious.

Mr. H. S. Rogers (chairman of the Oxford Town Planning Committee and a member of the Witney Advisory Panel), in a letter stated that in his opinion the house in question, in view of its environment, should have its windows fully divided by glazing bars or leaded lights at least so far as the front and side elevations were concerned.

Mr. F. C. Hannen (architect of Luton and Witney) said he thought the policy pursued by the Witney authority was a right one.

Mr. T. F. Thomson (Town Planning Surveyor for the Witney area) stated that the question before the inquiry was of principle which wanted to be settled one way or the other. It had been proved scientifically that if the small leaded glazing bars were dealt with in a certain way, the reflection from the facets tended to give increased light.

Mr. Maxwell: "During the five years that you have been Town Planning Surveyor, is it right to say that the responsible authority has been consistently successful in maintaining a development harmonizing with the general surroundings?"—"Yes. The point is that we have powers under Section 12 of the Town and Country Planning Act to regulate these things. This is the first time there has been an appeal on this question."

Mr. E. A. Huddleston (vice-chairman of the Witney Joint Planning Committee) said that having regard to the general design of the buildings in the locality, what might be termed the Cotswold type, he thought that the Committee were justified in acting upon the advice of the Panel of Architects and insisting, wherever there was view to the general public, that the window spaces should be divided. It had been the general case that people had seen the reasonableness of their requests and accepted them.

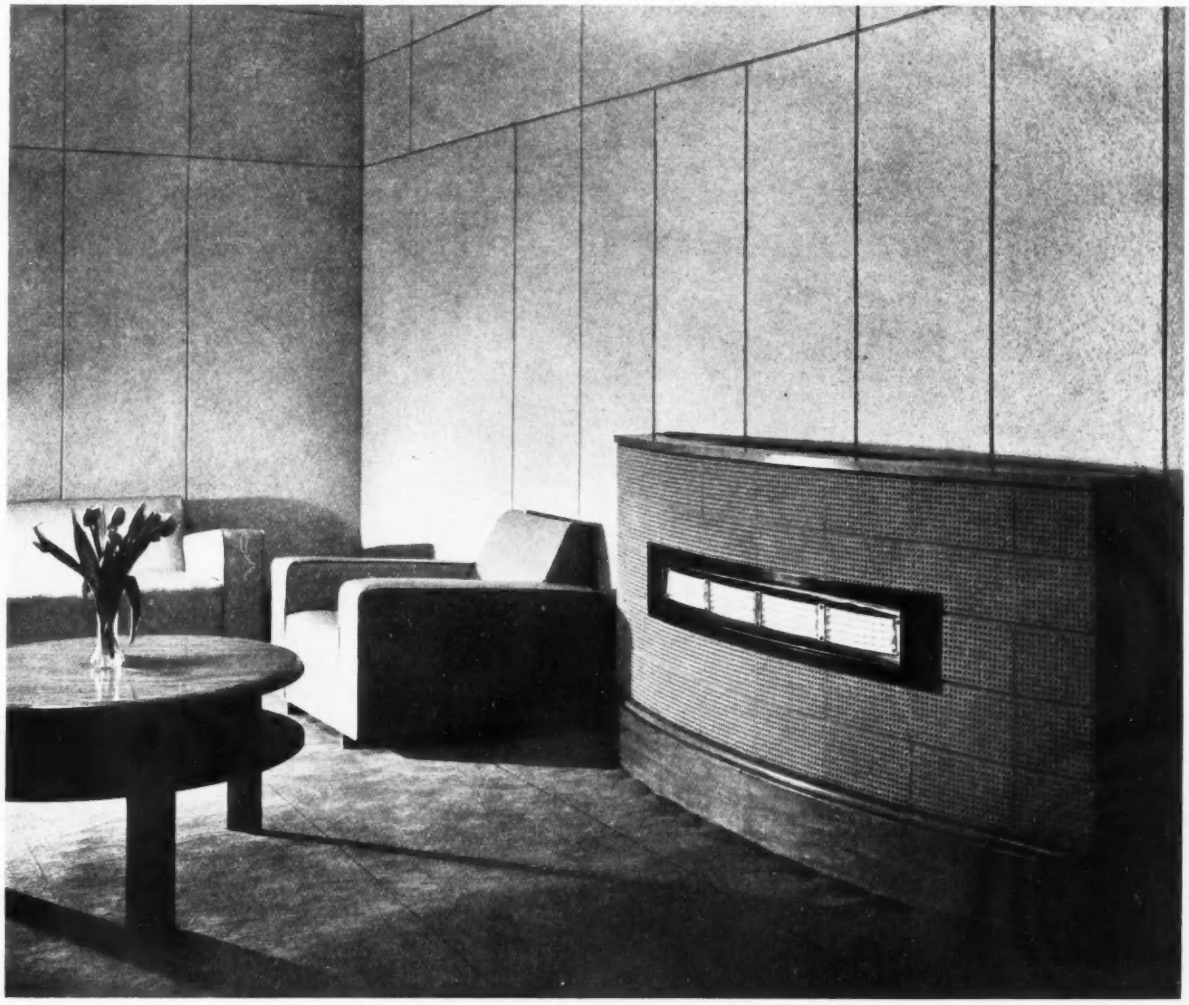
Mr. Maxwell said their point was that what was proposed would be out of keeping with the traditional building of Witney as it had been in the past and which it was hoped to preserve in the future. What was being asked was something which, on the evidence, was out of keeping with the beauty of the old town. The authority had followed the wishes of the Ministry in every way and had acted with meticulous care under the best possible advice. The question was of extreme importance, and he did not think it would be going too far to say that an adverse decision by the Ministry would take the heart out of a Committee which was doing a great work.

Mr. Gardner said that he had taken up the matter on the ground that there was a form of dictation and because it was a matter which had aroused a considerable amount of adverse criticism in Witney.

The Inspector closed the inquiry with an intimation that he would view the site.

WORKING DETAILS : 215

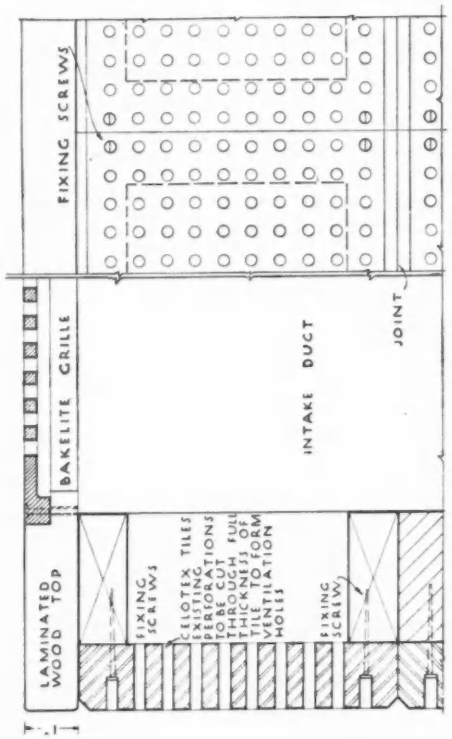
FIREPLACE • B.B.C. STUDIOS, NEWCASTLE • WELLS COATES



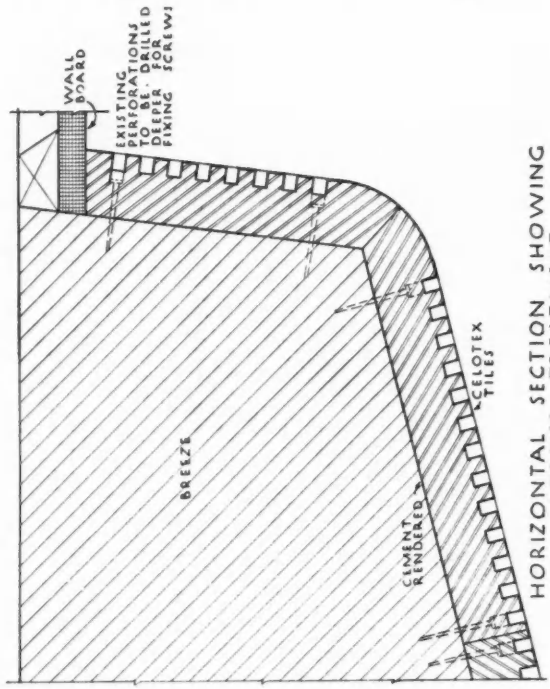
This fireplace is faced with absorbent acoustic tiles and is finished with a light red mahogany skirting. The ventilation system consists of a pair of extract ducts in the ceiling, and at the back of this fire is a fresh air inlet, the arrangement of which is shown in the axonometric overleaf. Incoming air passes through a removable filter packed with steel wool, over the back of the fire, and into the room, partly through a bakelite grille and partly through the acoustic tiles, some of which are drilled right through: see section. The fire is rated at four kilowatts.

WORKING DETAILS : 216

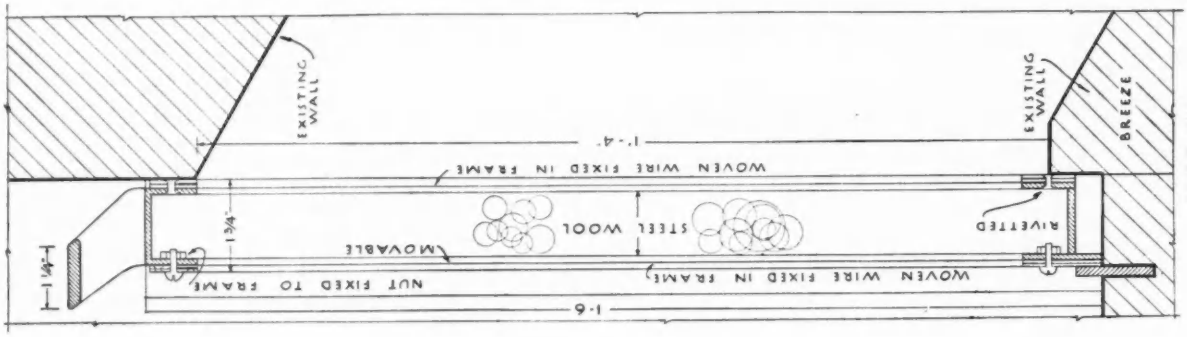
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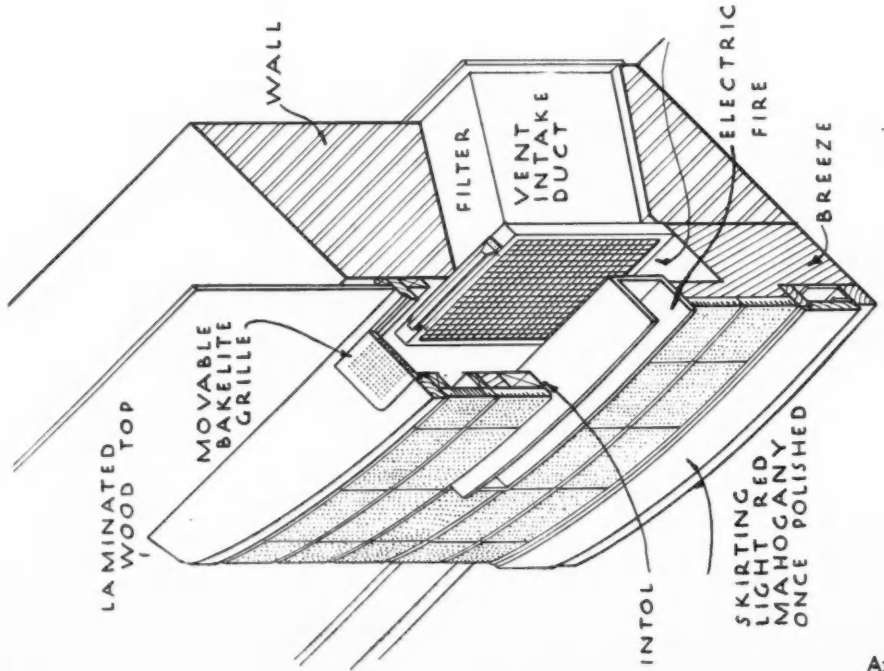
SECTION AND ELEVATION OF CELOTEX TILES

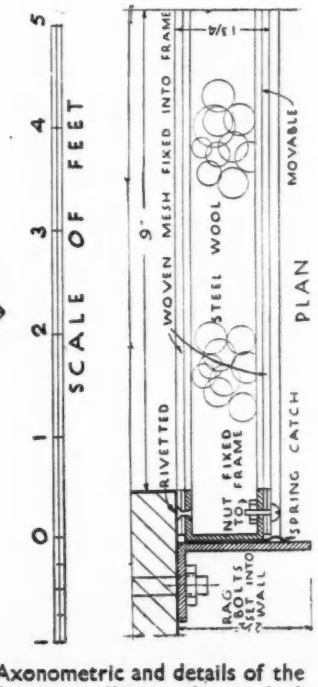


HORIZONTAL SECTION SHOWING CORNER TREATMENT



SECTION





PLAN

Axonometric and details of the fireplace illustrated overleaf.

WORKING DETAILS: 217

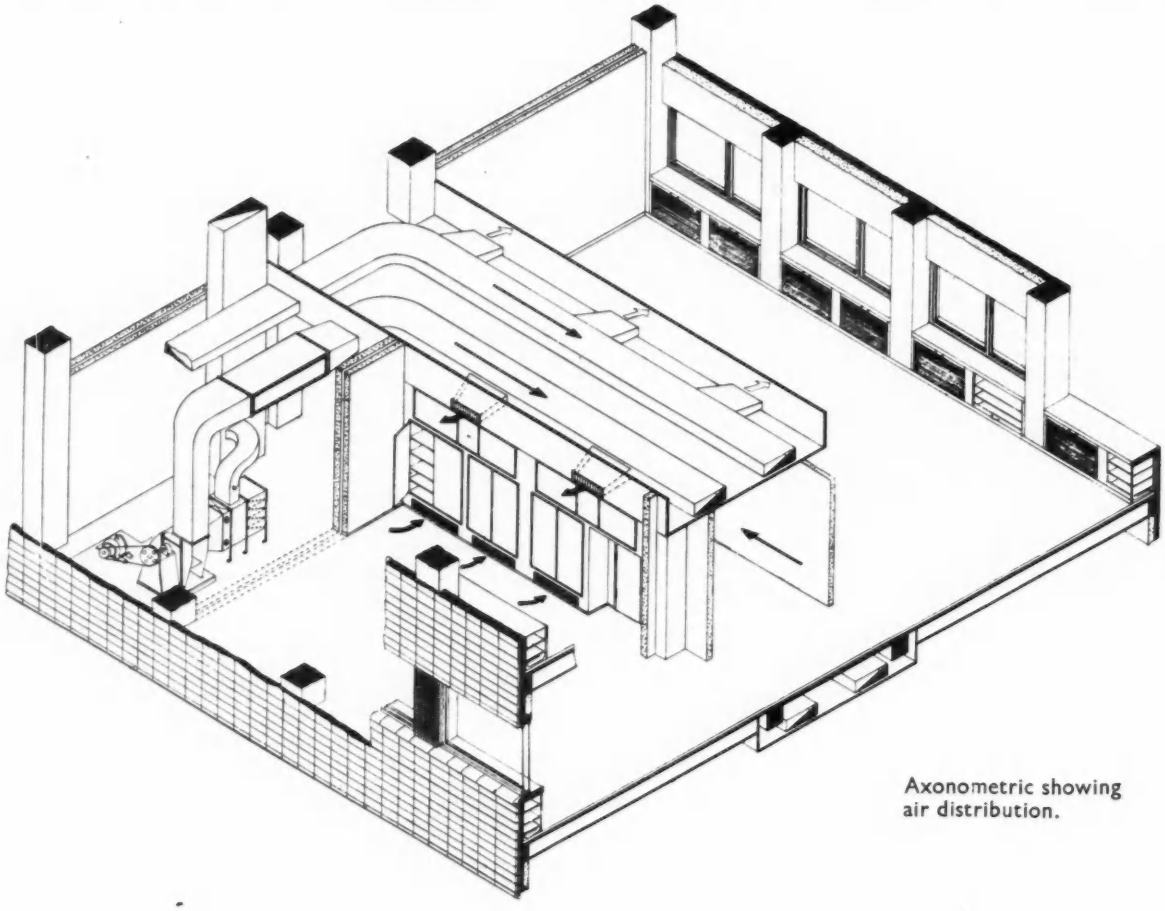
AIR CONDITIONING • PENSIONS OFFICES, PRAGUE • HAVLIČEK AND HONZIK



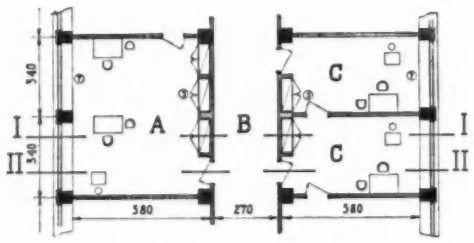
This building has an open cruciform plan with a large area of exposed wall surface, and it was therefore decided to provide a full system of air conditioning with double glazed windows which would be opened for cleaning only. The main plant is in a sub-basement, where incoming air is filtered, humidified, heated or cooled, according to the external temperature, and delivered to secondary regulating plants, of which there are four on each floor. The air is circulated through ducts in the false corridor ceilings, enters the offices through grilles and is extracted via the corridors, whence it returns to the secondary regulating plant; see axonometric overleaf. There are four to five air changes per hour, and the secondary plant is designed to maintain unvarying conditions under all external influences, sun, wind, rain or shadows.

WORKING DETAILS : 218

AIR CONDITIONING • PENSIONS OFFICES, PRAGUE • HAVLIČEK AND HONZIK

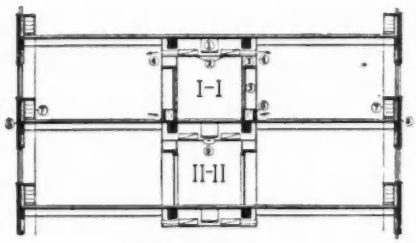


Axonometric showing air distribution.

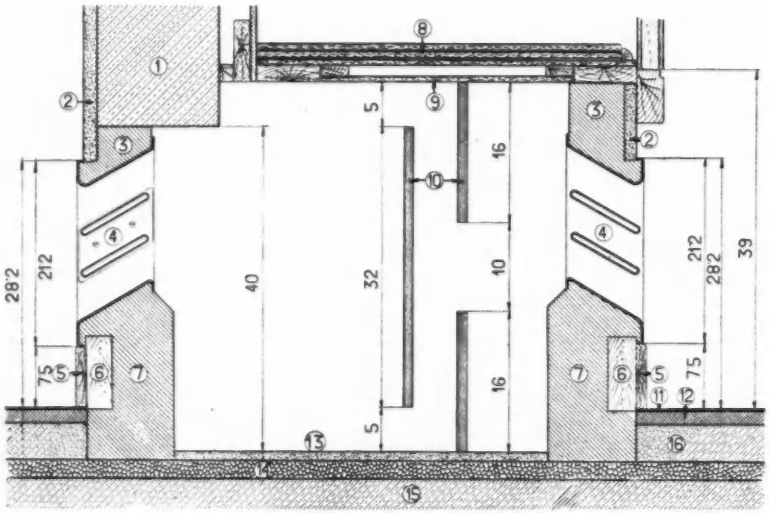


Typical office plan.

1. Cable duct.
2. Air ducts.
3. Glazed panels.
4. Inlet grilles.
5. Cupboard.
6. Extract grille.
7. Shelving.
8. Ceramic facing.
9. Ceiling light.



Typical section.



Section through extract vent.

1. R.C. wall.
2. Plaster.
3. Framing round " 4."
4. Metal frame with fixed slats.
5. Skirting.
6. Skirting grounds.
7. Framing round " 4."
8. Movable cupboard floor.
9. Access panel.
10. Wallboard baffles.
11. Linoleum.
12. Bituminous mastic.
13. Cement.
14. Cork and asphalt slab.
15. R.C. floor.
16. Cellular concrete.

HOUSE AT SANTA MONICA, CALIFORNIA

This house, for the occupation of Anna Sten, the film actress, is on a hillside site, quite close to and overlooking the Pacific Ocean (which is seen in the lower photograph). The house itself is planned on two storeys, forming one side of a walled garden, which contains a swimming pool and terminates in the blank back wall of a garage for four cars. This wall is screened by a pergola. Pool and garage are on a lower level than the house, owing to the slope in the ground, and are approached from it by terraced steps in stone. The structure is in reinforced concrete framing, with a white cement finish. Steel windows have large glass areas overlooking the ocean.

The lower photograph is a general view, and the upper one a closer view from inside the garden, looking across the swimming pool.

DESIGNED BY

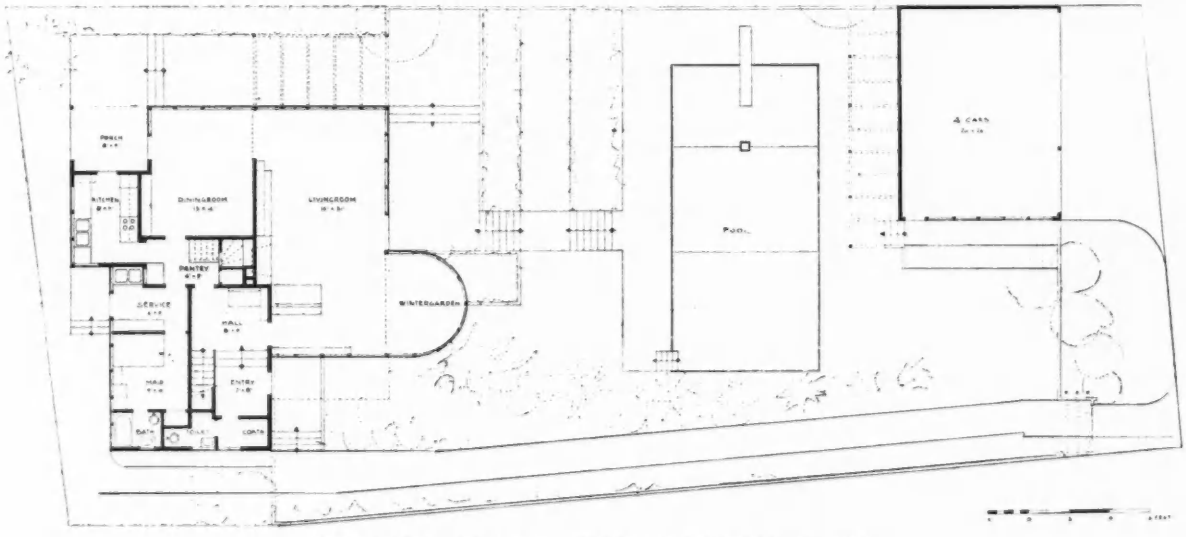
RICHARD J. NEUTRA





FIRST FLOOR PLAN

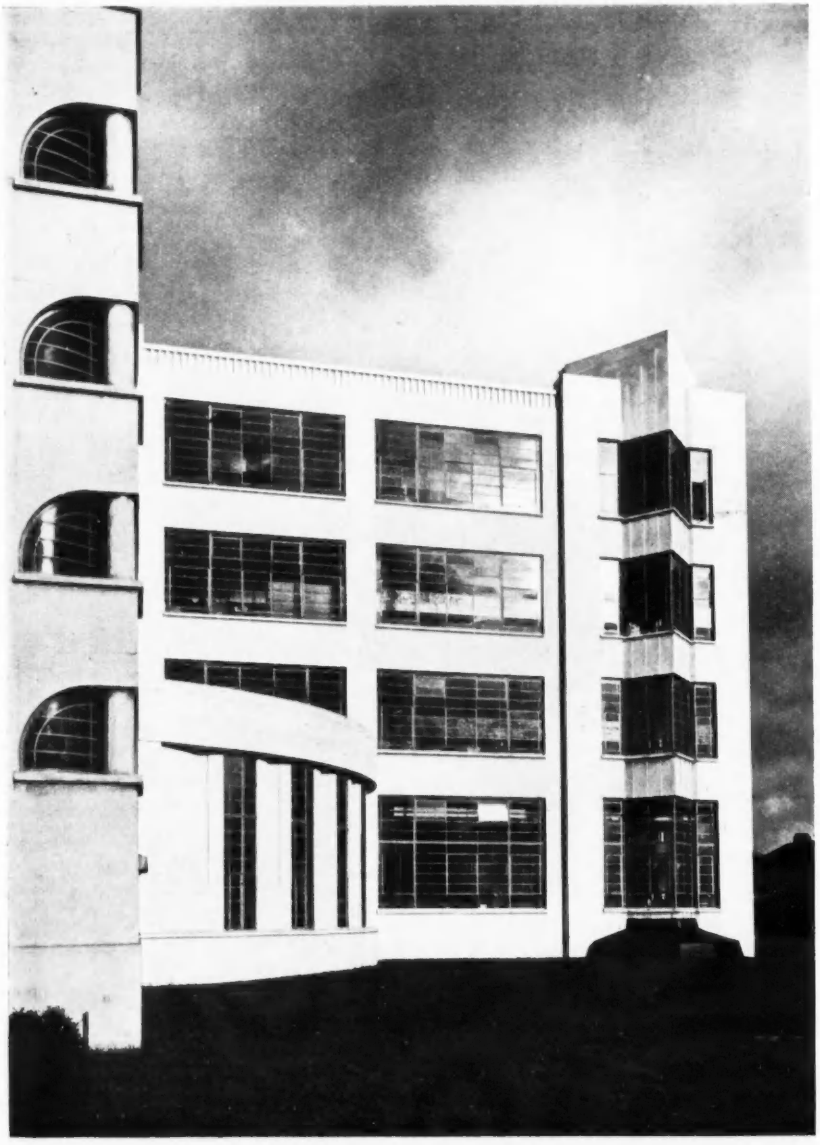


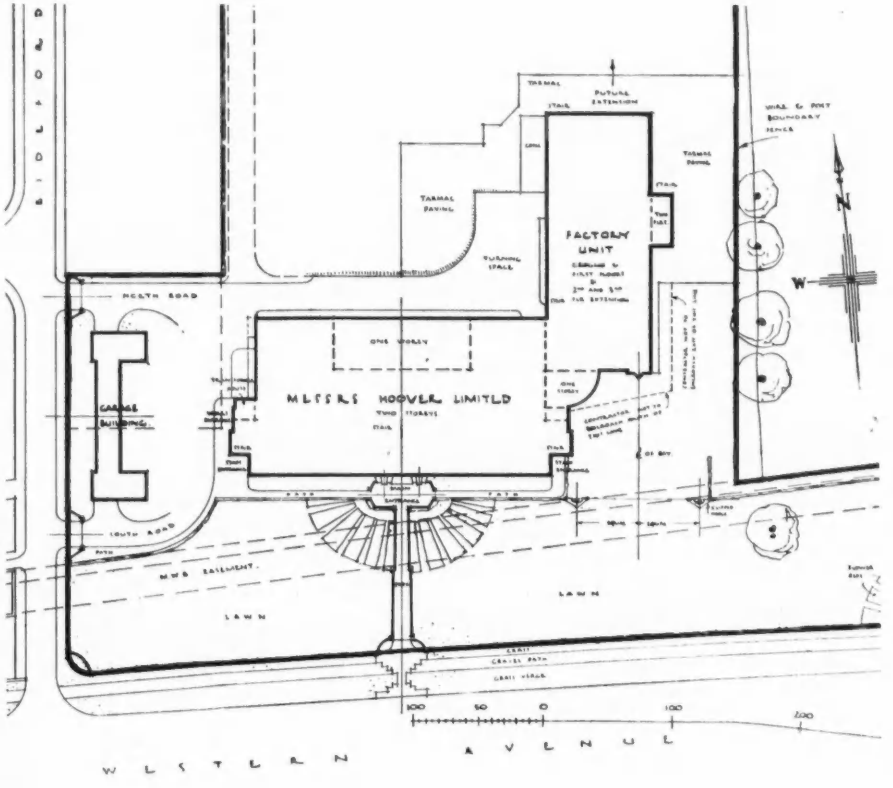


GROUND FLOOR AND GARDEN PLAN

C

FACTORY EXTENSION AT PERIVALE, MIDDX.





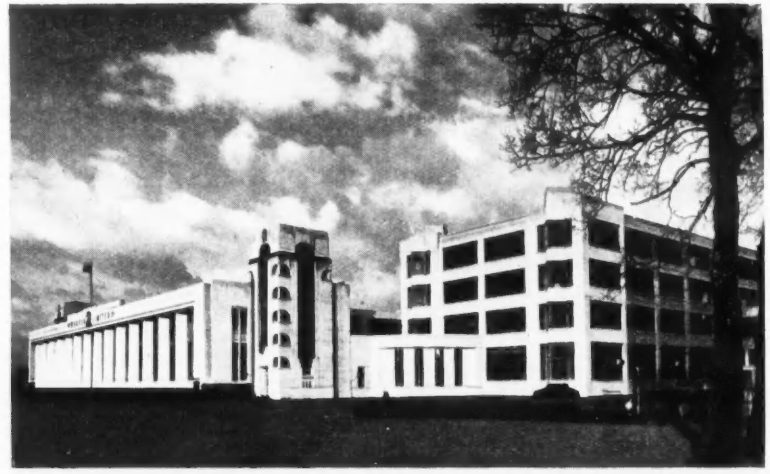
SITE PLAN

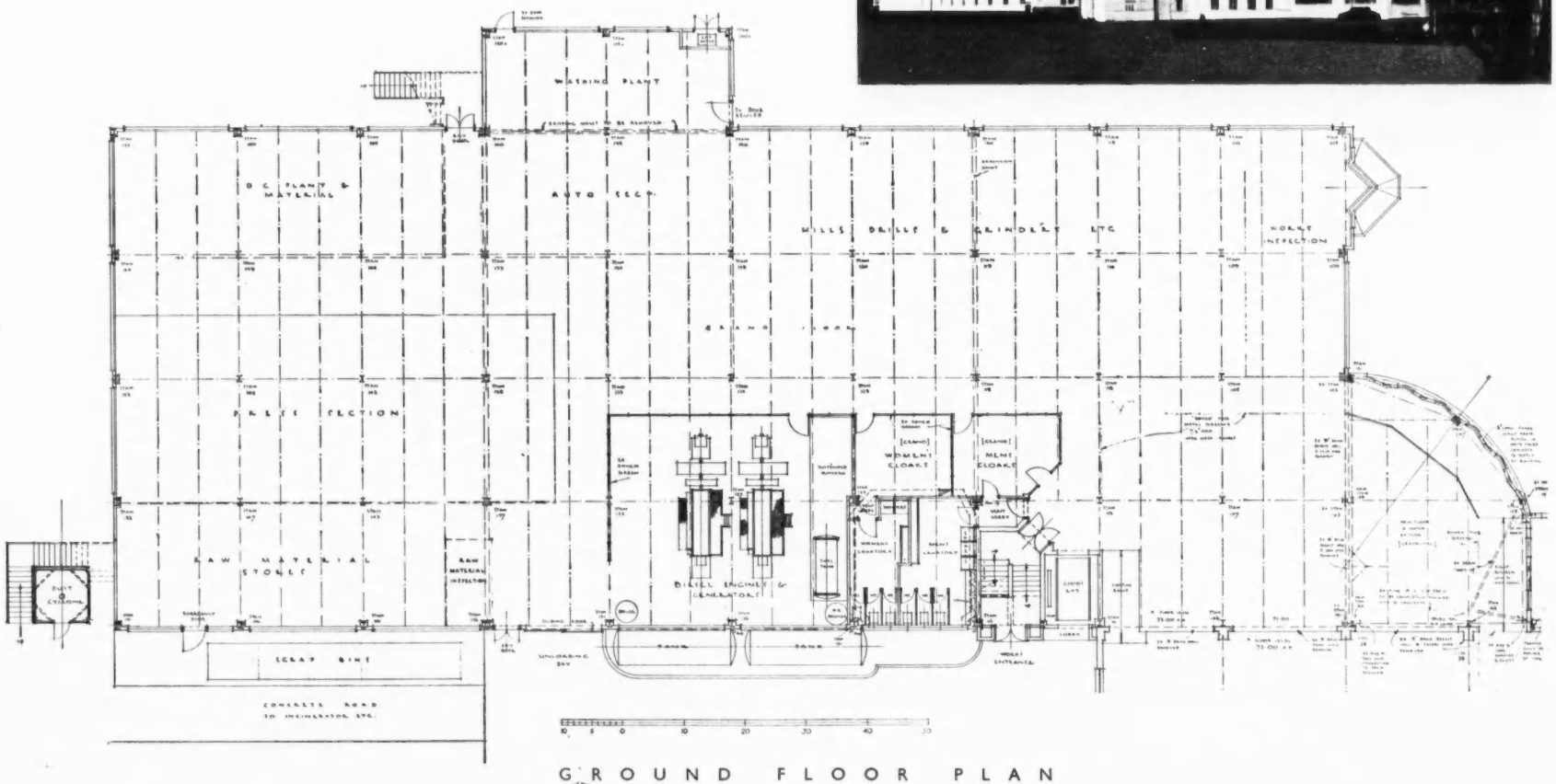
The original Hoover factory, shown on the left of the photograph on the opposite page, was finished in 1932, and a four-storey extension has recently been completed by the same architects. The east wall of the existing building was removed, and the new unit is reached by a pair of ramps, one of which is in the curved connecting link. The building is a simple steel-framed structure with stanchions at 20 ft. centres, and is designed largely to provide clear floor space for machinery, any necessary "planning" being carried out by means of movable glazed steel partitioning. Floors are granolithic and the building is faced externally with white cement rendering.

DESIGNED BY

WALLIS, GILBERT

AND PARTNERS





GROUND FLOOR PLAN

L I T E R A T U R E

THE ARCHITECT'S COMPANION

[*BY FREDERICK GIBBERD*]

Specification, 1935. Edited by F. R. S. Yorke, A.R.I.B.A. London: The Architectural Press. Price 10s. 6d. net.

A SPECIFICATION is a document prepared as a detailed explanation of the materials and constructional methods to be employed in the parts of a building. Were *Specification*, the annual publication of the Architectural Press, a collection of typical specification clauses, it would be a useful book. But it is more than this, for it contains exhaustive information on current materials and building practice. In the presentation of this data lies the real value of *Specification*: by its completeness and quality must the book be judged.

The 1935 edition has surpassed all its predecessors, and one can quite honestly say it is invaluable. Mr. F. R. S. Yorke, the new editor, is blessed with that rare asset, an ordered and keenly analytical mind; and he has certainly brought it to bear with full force on his production. One has only to glance through the pages to see immediately how the scientific spirit has been blown through them to cleanse them of all superficialities and irrelevances.

The book is divided into 27 trade divisions, which cover the whole of the material at the disposal of the building industry. Each division gives highly concentrated data on the materials and constructional systems that come within its scope, supported by numerous diagrams and analytical tables. The information given is thoroughly up to date and obviously written by expert technicians. The rather vague sections which have hitherto appeared in *Specification*, under the headings, "Building Practice" and "Building Specialities," have been scrapped and their information put under the trade divisions.

Specification is essentially a book for quick reference. It is, therefore, of primary importance that a material or structural system can be looked up and information on it immediately found. In this respect the success of this year's edition is due to improved lay-out generally, simplified chapter and sub-headings, and a vast number of uniform diagrams; the latter in particular, as an architect can, of course, grasp visual information quicker than written. Typical of *Specification's* new simplicity is the Flooring section, a page from which is here reproduced. As can be seen, a concise description and isometric drawings of each type allows one to grasp its salient features at a glance. The importance of technical information to both architect and manufacturer, displayed in a comparative and analytical manner, cannot be over-emphasized. Twenty-seven types of floor are dealt with in this way, and it would not be an exaggeration to say that the average architect is not conversant with half of them, and, even if he desired to be, the prospect of writing letters, extracting data from catalogue "literature," and interviewing representatives would in all probability quickly decide him to remain in blissful ignorance.

There are numerous special articles in the trade divisions, and the customary technical articles at the front of the book. The subjects dealt with in the latter are: Framed Construction, Wall Coverings, Sliding Members and Gear, Covered Sports Courts and The Equipment of Flats. Although the annual articles are a popular feature of *Specification*, I cannot help but feel that they spoil its continuity. Greater simplicity would be achieved by incorporating the same information under the various trade divisions or, in the case of a complete subject, such as that on sliding-door gear, by forming an entirely new section.

The gentlemen who make the publication of *Specification* financially possible prevent it from being in *every* respect a really fine production—the advertising, to be polite, is not inspired. I cannot see what possible interest or use there can be in page after page of trade marks, and illustrations of buildings which are only too familiar. "Trade Announcements," as they are called, face a page of text, which enables manufacturers to explain further the materials dealt with therein. A few have taken full use of this opportunity with excellent results; in particular, the London Brick Company and Forders, Ltd., the Invisible Panel Warming Association and the Norris Warming Co., Ltd., who have all compiled supplements which are really informative.

It is customary to finish a book review with a sentence of commendation for the grateful publisher to quote. I do not intend to do this, as *Specification* is quite above any hackneyed methods of praise.

LABOUR HOUSING

[*BY PHILIP H. MASSEY B.Sc. (Econ.) F.R.Econ.S.*]

Up With the Houses! Down With the Slums! Labour Party. Price 2d.
Fair Rents and No Profiteering. Labour Party. Price 1d.

THE Housing Problem, according to *Fair Rents and No Profiteering*, is a two-fold one. The first part of the problem is to "abolish the slums and overcrowding, build an immense number of new houses at low rents, and compel the proper repair and renovation of existing houses." The Labour Party explains how it will do these things in *Up With the Houses! Down With the Slums*, while *Fair Rents and No Profiteering* is devoted to a plan for regulation of rents on a much greater scale than is obtained under existing legislation.

There are five stated primary objectives of Labour's housing plan:—

- A self-contained dwelling for every family of two or more persons, at a rent it can afford to pay;
- The abolition of overcrowding;
- The demolition of the slums and every unfit house;
- The thorough repair of every house that can be made fit;
- The large-scale replanning of built-up areas, with provision for open spaces, the strict control and planning of developing areas, and the preservation of the countryside. "The essence of the standard is that behind the front door is to be found all the amenities which are necessary to family life, reserved to the use of one family."

The standards of accommodation laid down are arranged under the headings of minimum room requirements and "other reasonable requirements." The best known of the existing standards of overcrowding are noted. The Party considers that minimum room requirements are:—

- A living room (in addition to kitchen or scullery), not slept in, for every family of two or more persons;
- In new houses, a living room, not slept in, with scullery in addition, for every family of over two persons, together with a parlour in most cases;
- Separate bedroom accommodation for males and females over ten years of age;
- Minimum floor and air-space requirements in bedrooms.

The need for spacious lay-out of flat-dwellings, with gardens and playgrounds, is emphasized, together with the desirability of planning schools, libraries, cinemas, hospitals, shops, etc., at the same time as houses. The Party announces itself as strongly opposed to the building of huge dormitory cottage estates in outlying districts of great cities. Where a large estate is unavoidable, there should be strictly controlled mixed development—that is a satellite town, with its own industries, not a dormitory suburb. Town and country planning is not dealt with at length in the report, but it is obvious, from the short section specifically devoted to this matter, that its fundamental importance is appreciated.

Passing on to "The Number of Houses Needed" summary statements of some previous attempts at measurement are given. Particular attention is devoted to those of Sir Ernest Simon in *The Anti-Slum Campaign* and those appearing in this JOURNAL under my name. The immediate needs of Great Britain are assessed at 2,250,000 houses, while it is pointed out that if the standards laid down earlier in the report were applied, the figure would be far greater.

A brief history of post-war building, and a consideration of the policy of the present Government lead to the description of private enterprise, in respect of housing, as

SPECIFICATION No. 37. FLOORS. 167

King Floors are built from hollow tile tubes designed to fit, without cement grout, between R.S. filler joists spaced at centres not exceeding 3 ft. A covering of cement concrete is laid over the tubes to form a flush top surface. The tubes are 2 ft. 11 in. long and 4, 5, 6, and 7 in. deep. Shorter lengths can be provided if required. The ends of the tubes are slotted to obtain support from the bottom flanges of the filler joists, and by virtue of these slots the tubes afford a 1 in. thick cover to the under surface of the steel. The tubes can be supplied with a soffit either keyed for plastering or smooth.

Kleine Hollow Brick Floors were introduced into this country in 1905. The hollow bricks, made from baked clay in various standard sizes, are placed end to end in rows on temporary centering, and reinforcement is placed in concrete joints between the rows of hollow bricks.

The ends of the hollow bricks are mortar-jointed with a 2 : 1 mix of sand and cement mortar before being placed in position.

Burnt-clay tiles or slips, equal in width to the concrete joints, are laid between all courses of hollow bricks to provide a brick soffit under the entire floor, giving a uniform key for plaster, and increasing the fire-resistance of the floor. They also ensure that no concrete is broken away, on removal of the timber centering, to leave the reinforcement exposed. All reinforcing rods are threaded with patent steel washer separators at approximately 2-ft. centres, so that the rods occupy on the job the exact positions they are designed to occupy when the calculations are made, and receive their proper covering of concrete.

Before concreting is commenced, a thick mixture of sand and cement mortar, without stones, is poured into the joints to a sufficient depth to cover the reinforcing rods, so entirely surrounding the rods with the densest possible covering, and ensuring absence of voids.

All concrete used in the construction of the floors is composed of 1 part cement to 3 parts stone aggregate (measured in bulk), the stone aggregate passing a ¾-in. mesh and being graded with a quantity of sand sufficient to fill all interstices.

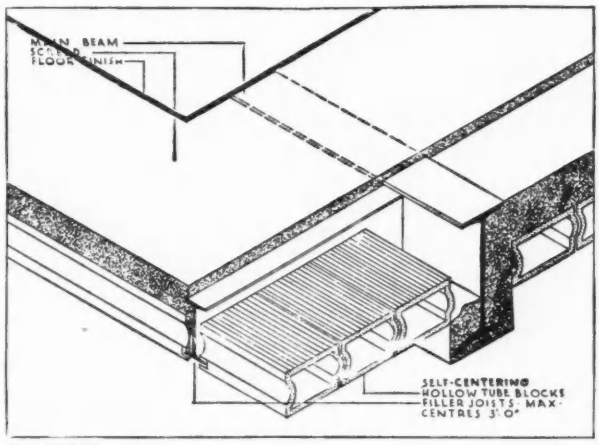
Rapid Floors are relatively new in this country, but a similar type has been used extensively on the Continent. They are composed of a series of pre-cast reinforced concrete beams, approximately "I" section, reinforced in accordance with the load to be carried and the distance to be spanned. The reinforcement consists of one rod in each flange, and wire stirrups connecting the rods. The beams are laid side by side to form a cavity floor, the top flanges interlocking and forming a V-joint for grouting.

The beams are cured, under factory conditions, before being transported to the building, and may, therefore, be used immediately they are in position. Shuttering is eliminated, and there is no delay due to waiting for concrete to harden. An even floor thickness is maintained over a large range of spans and loads, since the size of reinforcement is varied to suit conditions without a consequent increase in the depth of the beam. The over-lapping edges of the top flanges assist in the distribution of unequal floor loads.

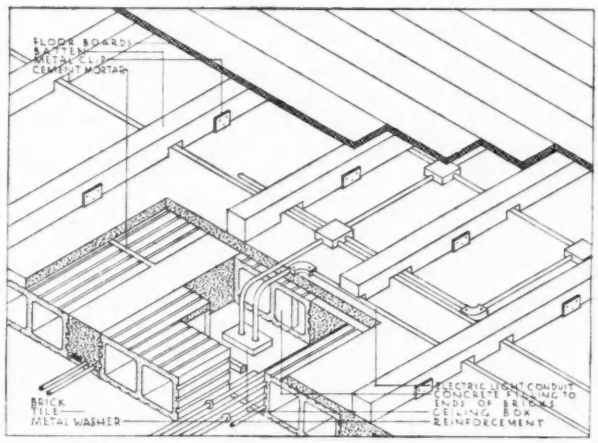
Any normal type of floor covering may be used, and, if required, the joints may be filled with soft concrete to take nails for floor boards, or floor clips may be embedded in the grout when the joint is filled.

The standard types of beam are 5½ in., 6½ in., and 8 in. deep. The ends are shaped to suit the bearing, or the reinforcement may be projected from the ends for fixing to other beams or to the bearing.

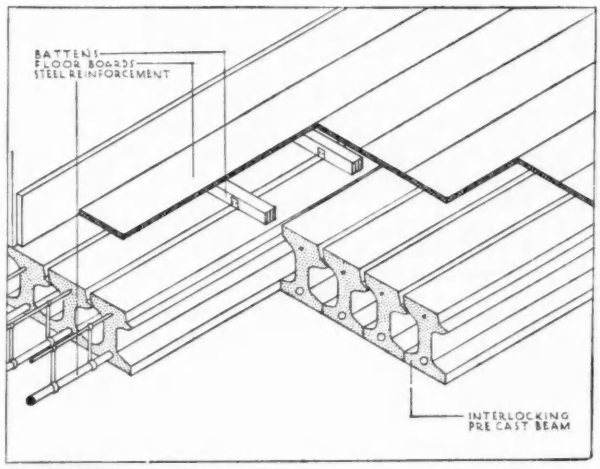
The standard mix of concrete has been determined by analysis of the aggregate—washed shingle and sand—and rapid hardening Portland cement. The manufacture calls for a stiff mix of concrete, and since it also provides for adequate ramming, the weakening of the concrete either by an excess of water or by voids, due to the difficulty of placing a stiff concrete under site conditions, is avoided.



16 KING



17 KLEINE



18 RAPID

A typical page from the Flooring Section of "Specification, 1935," by F.R.S. Yorke, reviewed on the opposite page.

impotent. "In any case, the continuous programme envisaged in this report is far too big for haphazard speculative building."

The housing plan of the Labour Party is summarized as follows :—

"*Parliament* to lay down the general lines of housing policy and finance, as heretofore.

"*Minister of Health* responsible for the size and speed of the national housing programme and the constituent local programmes, and having concurrent powers to undertake local programmes where local authorities are unable or unwilling to carry them out.

"*National Housing Commission* responsible for administration, and for arranging and ensuring that the programmes are carried out ; and, subject to the final responsibility of the Minister, the authority for drawing up the programmes in the first instance, in conjunction with the local authorities.

"*Local Authorities* to undertake the local programmes if they can and so desire ; otherwise the work to be directly undertaken by the Commission exercising concurrent powers on the authority and on behalf of the Minister."

It is considered that such a combination is likely to be more successful than the existing arrangement or any form of independent housing board. Housing, it is emphasized, cannot be "taken out of politics," since it is essentially a Government responsibility, and since it requires public money for subsidies.

Sections on "Unfit Houses, By-Laws and Reconditioning," "Rents and Finance" and "Rural Housing" complete the former pamphlet.

Fair Rents and No Profiteering opens with an extremely useful history of rent control. The Labour Party believes in the principle of permanently controlling Class C and Class B houses, and a plan for controlling rents of decontrolled houses and those which have never come under the Rent Acts, but which are within the Class B and C limits, is suggested. It is emphasized that a complete recasting of these Acts is necessary.

It is useful to have before us, in convenient form and at a nominal cost, a statement of the main lines of housing policy of one of the political parties, and whatever readers of this JOURNAL may think of "Socialism" there is no doubt that they would do well to be acquainted with Labour housing policy.

Shorter Notices

The Monastic Remains of Norfolk and Suffolk. By Claude J. W. Messent. Norwich : H. W. Hunt. Price 7s. 6d. net.

THIS book is a complete survey of all that remains of the 300 monasteries that at one time existed in these two counties. Though East Anglia must have suffered as much as most parts at the Dissolution, for an unhappily large number of the monastic establishments described have left no substantial trace—many being only in evidence in the form of scanty foundations or re-used material in neighbouring farm buildings, there is still enough interesting material surviving to justify this anthology. Indeed, it has long been needed as a handbook to the archæologist, as no publication on the subject so complete has appeared since Richard Taylor's exhaustive but unwieldy *Index Monasticus* of 1821. The author has arranged his survey alphabetically, giving under each heading the location of the remains, their extent and a brief history of the establishment. The printing and paper are not at all attractive but, then, the price is low for so specialized a book. There are a large number of illustrations by the author—pen and ink drawings reproduced in half-tone, which are extremely naif in technique, but, perhaps because of that, preserve a pleasing freshness and sincerity. J.M.R.

The Testing of Bituminous Mixtures. By D. C. Broome. London : Edward Arnold & Co. Price 15s. net.

IN the "Roadmakers' Library," of which Messrs. Edward Arnold & Co. have begun the publication under the general editorship of Dr. P. E. Spielmann, himself the joint author with Mr. E. J. Elford of the first volume, *Road Making and Administration*, the second volume has now been issued. It appears under the title of *The Testing of Bituminous Mixtures* and is the work of Mr. Donald C. Broome, research chemist to the Limmer & Trinidad Lake Asphalt Co., Ltd. These facts are of particular importance in the present connection, as there is not as yet any body of English literature on the subject of bituminous road materials and all those concerned in this publication are, in one way or another, engaged in the manufacture or use of these compounds and are, in addition, actively associated with the devising and setting-up of standards in this branch of industry. It will therefore be clear that by reason both of its sponsors and its timely appearance, this may be regarded as an important contribution to the resources of all who are interested in the various uses of bituminous materials.

The present volume has been written primarily as a laboratory handbook for those engaged in the testing of the constituents, the aggregates and the finished work. As such it may be accepted as, for all practical purposes, complete. The materials and their constituents are adequately described and their physical characteristics detailed. All the recognized physical and chemical tests are given in full with descriptions and illustrations of the apparatus used and with the calculations, corrections and calibrations involved. Although thus complete in almost every respect, one thing seems lacking. From the mass of alternative tests offered no indication of choice is given as to the most suitable tests or results to standardize. The book is certain to be a work of reference for many other roadmakers than those working in the laboratories and it is just this kind of discrimination between different methods and results that would develop its maximum value to them.

As it is, however, they will find it most helpful in providing the key to what is being done in the laboratories, in interpreting and defining properties, methods, values, etc., as applied to these particular materials and in correlating and comparing materials and specifications expressed in terms of the results of different tests.

Paradoxically as it might seem in a Roadmakers' Library a chapter on "Roofing Felts," written by Mr. R. O. Child, has been included, and to those whose work rises above the level of the roadway this is a necessary addition as it rounds off and completes the laboratory story of the applications of bituminous materials in the building industry. F.A.C.

Publications Received

Outlines of the History of Architecture : Part 3—Renaissance Architecture. By REXFORD NEWCOMB. London : Chapman and Hall. New York : John Wiley. Price 15s.

Symbols for Designers. By ARNOLD WHITTICK. London : Crosby Lockwood and Son, Ltd. Price 12s. 6d.

The Growth of Stuart London. By NORMAN G. BRETT-JAMES. London : Geo. Allen and Unwin, Ltd. Price 25s.

Gardens and Gardening. Edited by F. A. MERCER. London : Studio, Ltd. Price 10s. 6d.

Design. By NOEL CARRINGTON. London : John Lane, The Bodley Head. Price 3s. 6d.

The Styles of English Architecture, Part 1. By Arthur Stratton. London : B. T. Batsford, Ltd. Price 1s. 6d.

Design and Mediæval Architecture. By HELEN ROSENAU. London : B. T. Batsford, Ltd. Price 2s. 6d.

Decorative Art, 1935. Edited by G. C. HOLME. London : Studio, Ltd. Price 7s. 6d. wrappers, 10s. 6d. cloth.

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Liverpool Architectural Society

Professor L. P. Abercrombie, M.A., F.R.I.B.A., lectured last week to the Liverpool Architectural Society. He said that while town planning powers for built-up areas were certainly in existence, the specific reference in the new Bill was slight, and couched in "delightfully generalized and evadable phrases."

There was no such mandate as might read, "All rehousing schemes must form part of the planning scheme which the local authority is preparing for its built-up area and for its extension, both within its area and regionally."

In a reference to the Town and Country Planning Act Professor Abercrombie said that it was perhaps at first disappointing in its methods of dealing with built-up areas, but the general powers of street planning, zoning, density and site coverage, heights, and architectural control, were all available.

The financial aspect was governed by a real application of compensation and betterment—it remained to be seen how it would work. The period plan, though not statutory, was worth attempting. Touching country planning, Professor Abercrombie suggested that there might be some system of pooling incremental rateable value.

Electrical Development Association

The annual luncheon of the British Electrical Development Association is to be held at the Savoy Hotel, W.C 2, on Friday, March 15, at 1 p.m.

TECHNICAL SECTION: 8

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

ELECTRIC HEATING

Primarily Radiant

ALL direct electric heating is 100 per cent. efficient, and, owing to its cost, is mainly confined to supplementing other forms of heat, or to give temporary comfort in isolated rooms.

Luminous Radiators include large electric bulbs, like lighting bulbs, but generally run at a lower rating to give less light and a longer life. Lamps of this type (see Fig. 40) are generally rated at about 200 watts each, and may be about 12 in. long by 2 in. diameter. It therefore takes about five to obtain a kilowatt of heating, so that they are bulky for a given heating capacity. On the other hand, they are cheap to run for an apparently considerable effect. A recent development is to enclose these lamps in a copper case with louvres, which reflects the light and heat twice, as in Fig. 41, which, in conjunction with the warm tone of lacquered copper, gives a psychological effect of great comfort, even if little actual warmth is emitted.

Radiators with *exposed resistances* include the types shown in Fig. 42, in all of which the filament is red-hot, has a low time lag (about one minute) and gives off about 50 per cent. radiation and 50 per cent. convection. The capacity generally varies from 1 to 3 kW.

Atrocities in " period design " are also much in demand; these contain a heating element and a large tray filled with lumps of resin or yellow glass with a lamp under and a small rotating member throwing shadows, intended to give the idea of a coal fire. It is a moot point whether a thing which is intended to deceive has merit or demerit in proportion to the success of the deception. Personally, we prefer a thing which does not pretend to imitate something else.

High Temperature Panels, consisting of a tile of ceramic material (often about 25 in. by 13 in., 13 in. by 12 in. or 25 in. by 5 in.), enclosing a resistance element, have been used for schools and the like (see Fig. 43). They are generally placed high up on the walls facing diagonally downwards, are controlled by thermostat or eupatheostat and reach a temperature of about 500 deg. F. with an emission of about 2,000 B.T.U.'s per sq. ft. (600 watts per sq. ft.).

The radiation is about 80 per cent. These panels are much below red heat, but would, of course, set fire to curtains, etc., as the temperature builds up when the heat loss is interfered with. They can be combined with lighting fittings.

Low Temperature Panels. These may consist of a flat metal plate (as in Fig. 44), to the back of which is attached a heating element of nickel chromium wire encased in a flexible refractory material, insulated from the plate by mica strips, and covered on the back with a mattress of insulating and non-hygroscopic material. These generally operate at 160 deg. F., which is the maximum temperature free from risk of burning the human skin on accidental but prolonged contact. If covered by thick carpet or curtain the temperature would, of course, build up dangerously.

Another system consists of electric resistance wires embedded in a kind of wallpaper (strengthened by a fabric) which can be stuck to walls or ceilings with heat insulating material behind. It generally runs at about 90 deg. F., and about 18 watts per sq. ft. with about 90 per cent. radiation when on ceilings with still air. There is no reason why it should not be as effective as hot-water panel heating, apart from the cost of running, but some

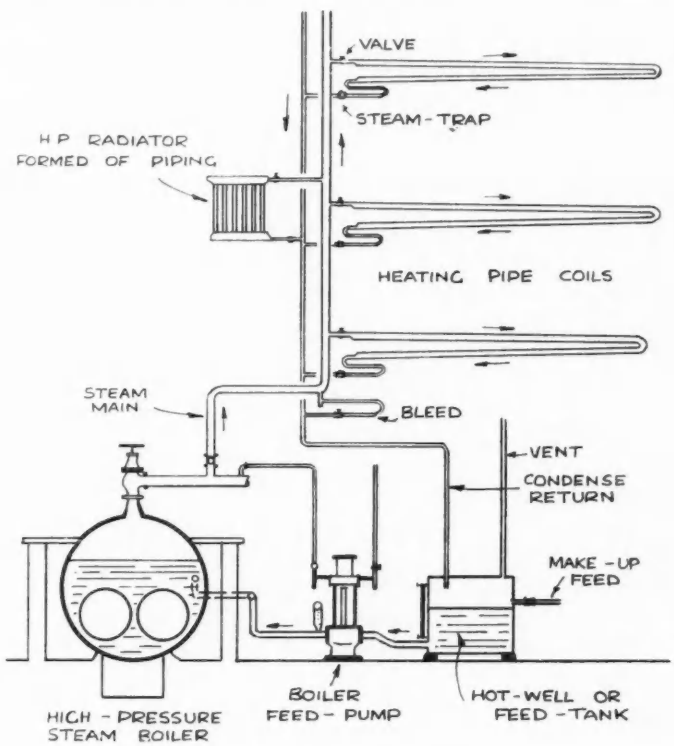


Figure 35. *High-pressure steam system.*

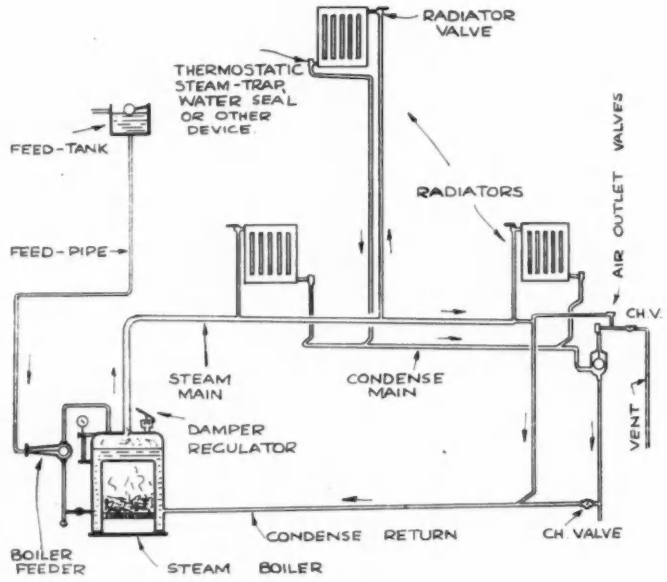
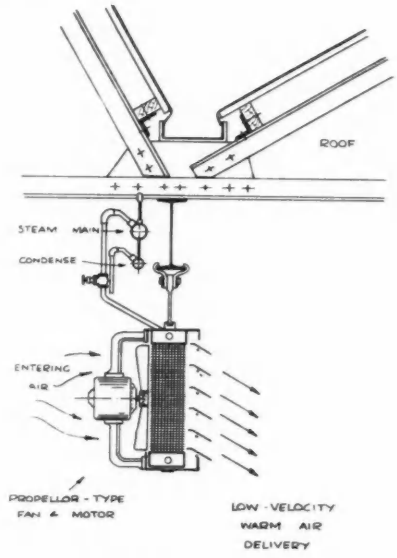


Figure 36.



a) SUSPENSION TYPE.

Figure 39 (a).

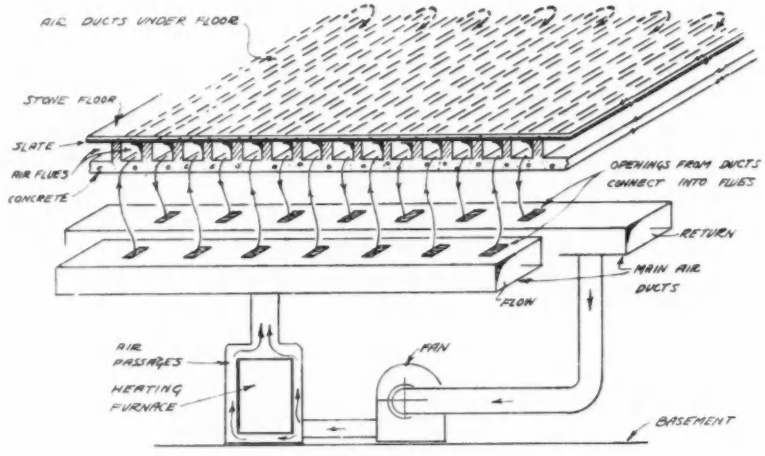
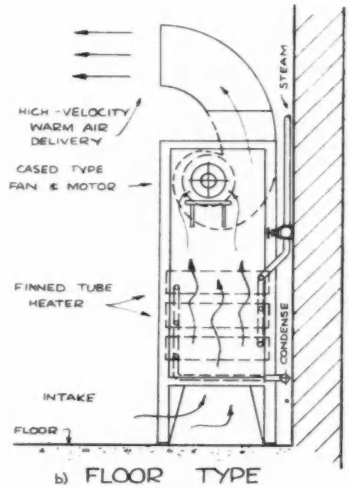


Figure 37.



b) FLOOR TYPE

Figure 39 (b).

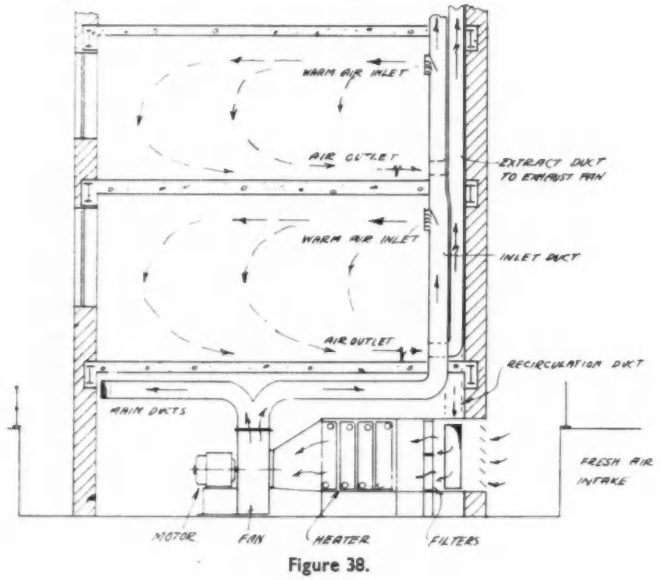


Figure 38.

Figure 36. *Low-pressure steam heating system, operating at pressures up to 10 lb. per square inch. A variation of this system, known as the Vapour system, operates at a pressure not exceeding 8 oz. per square inch, and will work under slight vacuum, giving temperatures in the radiators below normal boiling-point.*

Figure 37. *Diagram of floor heating system at Liverpool Cathedral.*

Figure 38. *Plenum system of heating.*

Figure 39 (a). *Unit heater : suspended type.*

Figure 39 (b). *Unit heater : floor type.*

Figure 35 and the figures on this page will be described in greater detail in future instalments.

direct electric installations have been rather discredited by being installed with a greatly under-estimated heating capacity, in an attempt to meet the high running costs, with the unfortunate result of giving inadequate heating.

Much ingenuity has been expended by electrical engineers in proving that buildings electrically heated do not

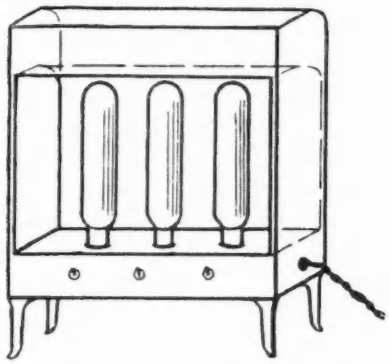


Figure 40. *Luminous electric radiator.*

require much heat. The results have often proved the contrary.

Primarily Convected

Some of these are not unlike the high-temperature panels, but run at a lower temperature (160 deg. to 200 deg. F.), and are placed low instead of high in the room. Many are of tubular shape, being, in fact, enclosed in a thin steel tube for protection, and are frequently fixed to skirtings under windows. They will emit about 70 per cent. convection and 30 per cent. radiation. They will, of course, build up much higher temperatures if covered with curtain or carpet. Tubes 2 in. to 1½ in. diameter are rated at about 60 watts to the foot run.

Electric Convectors generally consist of high-temperature tubes in a box with gratings above and below, through which an air current is induced, as in Fig. 45. These are safer than many other types of electric heater, but depend entirely on convection, and consequently the warming effect is much slower, and they produce the same effect of stuffiness which any high-temperature element (steam or electric) seems to involve in dust-charged atmospheres.

Electric Vapour Radiators are ordinary cast iron water radiators with an electric element underneath which heats a small quantity of water until it vaporizes and condenses on the inner surface, so heating the whole to a temperature of about 212 deg. F. While these are safe, it seems a pity, when facing the cost of direct electric heating, not to get something with a more attractive appearance, a smaller time lag, and more direct radiant effect. These radiators vary from ¾ to 3 kW in capacity.

Electric Water Radiators are similar but nearly filled with water, and the chief difference in result is that the time lag is about an hour instead of about twenty minutes.

Electric radiators of similar type and appearance are also made without water or vapour.

The devising of new electric radiators has something in common with the writing of books, of which it has been well said that there is no end.

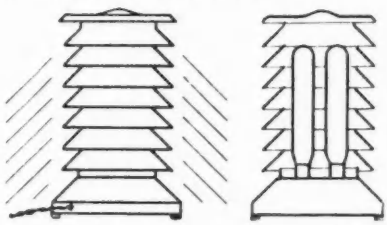


Figure 41. *Enclosed luminous electric radiator.*

INDIRECT SYSTEMS

Solid medium. There is at present no system in common use employing this, but heat transfer by a metallic rod from a fire (conduction) or by a moving chain passing over a fire to the place to be heated and returned (almost convection of solids) can be envisaged.

Liquid media. The liquid medium

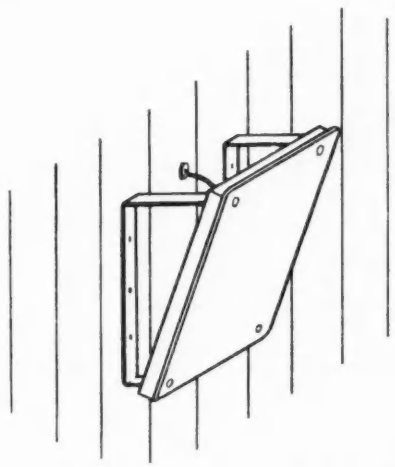


Figure 43. *High temperature electric heating panel.*

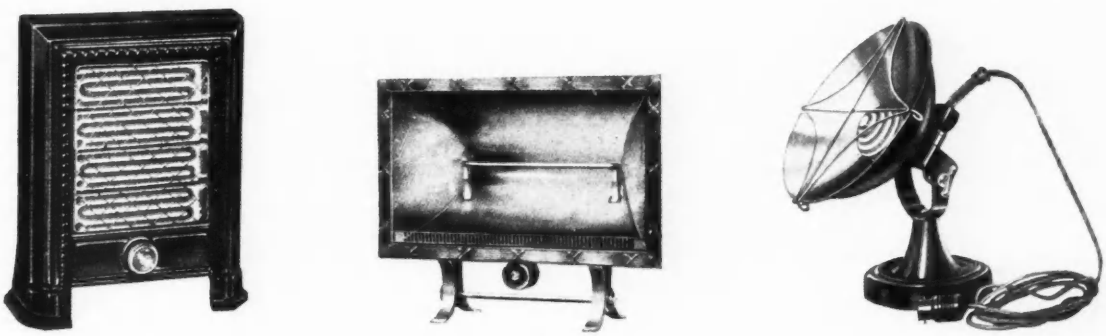
employed is always water, owing to its cheapness and high specific heat.

It has the disadvantage, in some applications, that it freezes at a temperature often experienced in temperate zones and can do much damage by its consequent expansion. Its further disadvantage, for some purposes, is that it boils at a relatively low temperature (212 deg. F.) and produces great pressure when this temperature is exceeded.

These disadvantages are overcome in a recently invented liquid (a mixture of organic liquids) which can be heated to 480 deg. F. without boiling, gives much lower pressures than water at high temperatures, and freezes without expansion at 32 deg. F. Its disadvantage is its great cost, which has hitherto prevented its use in ordinary heating systems, though it is in use for several industrial purposes.

Water is still the medium implied whenever a liquid is used for heating systems.

Hot water systems generally have the great advantage over vapour systems (including high and low pressure steam) of being in practice



A B C

Figure 42 (a, b & c). *Exposed resistance radiators.*

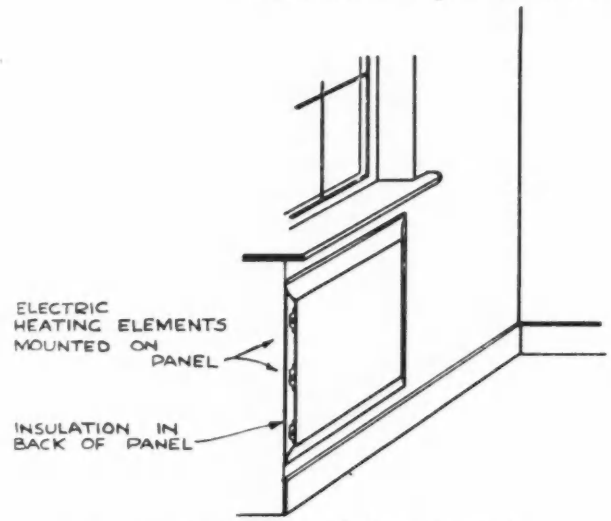


Figure 44. *Low-temperature electric heating panel.*

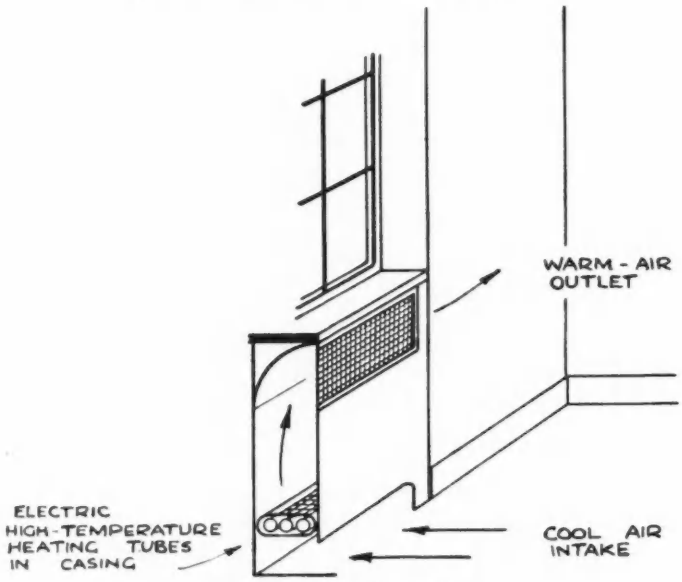


Figure 45. *Electric convector.*

readily capable of regulation to meet outside temperature changes, of being really simple, safe and silent, and of providing a surface at a moderate temperature which neither burns nor produces stuffiness by roasting the dust particles.

They have, however (continuing the comparison) the disadvantages of greater time lag, a greater surface of radiator required, a greater static pressure (which matters more in high buildings) and greater cost. Nevertheless, except in special cases (factories, garages, etc.), their greater cost is well justified by their advantages.

Exposed Pipes. This is the cheapest form of heating surface, of which the early greenhouse system is a well-known forerunner. Cast iron and steel pipes (2 in. to 4 in. diameter) are still commonly used in factories and garages

(Technical data will be given later.)

Radiators are too well known to require any description. Makers' catalogues describe these in detail and need not be reproduced here.*

Flat Panels may be either cast iron, with waterways in protuberances cast on behind, or of wrought sheets with tubes brazed or welded thereto. They may either be built into the wall or ceiling with insulating material behind them, and in this position give about 60 per cent. radiation on walls and 90 per cent. radiation on ceilings, or they may have ribs on the back, and stand clear of the wall with an intervening air current, in which case they are intermediate in function between the ordinary "radiator" and the true flat panel, and for this case the heat by radiation falls from about 60 per cent. to 30 per cent., the convected heat, of course, gaining correspondingly.

* The amusing thing about the radiator is that it only radiates about 20 per cent. of its heat and convects the rest.

LAW REPORT

CLEARANCE ORDERS.—POWERS OF MINISTER OF HEALTH.

Appeals under the Housing Acts 1925-1930 re Birkenhead and Kingston-on-Thames Orders—King's Bench Division. Before Mr. Justice Swift.

THE first appeal was by Mr. C. A. Frost and others, who own properties in Cambridge Place, Birkenhead, and was against clearance orders made by the Birkenhead Corporation on October 4, 1933, under a proposed clearance scheme.

It appeared that a map was prepared in which the properties to be demolished, the appellants' and some belonging to the Corporation, were marked in pencil. Before the clearance order was confirmed by the Minister of Health, the Corporation sought the advice of the Minister as to whether such houses were rightly included in the map and the area. The Minister advised that they ought not to have been included, and they were thereupon deleted from the map and excluded from the clearance area.

A local inquiry was duly held, at which the appellants, as owners of some of the property to be demolished, objected to the confirmation of the clearance order, on the ground that the area which it was proposed to include in the order was a different area from that included in the original map, and therefore they contended that the whole proceedings were a nullity. The Minister, however, took a different view, and confirmed the order. The appellants now came before the Court on appeal from the order.

Mr. F. E. Pritchard, for the appellants, submitted that the Minister had confirmed a scheme differing from the one originally put forward, and that to do so was outside the powers conferred upon him under the Act. Further, he contended that the Minister had no right to advise the local authority, since he was acting in a judicial capacity, and that he ought not to have advised one side in the absence of the other.

Sir Donald Somervell, K.C. (Solicitor-General), for the Minister of Health, explained that the reason why the Corporation could not include their houses in the clearance order, was that properties made the subject of such an order attracted a subsidy from the Treasury. The appellents could not, under the circumstances, claim to be prejudiced, and he submitted that the fact that the Minister's representative had an interview with the Town Clerk of Birkenhead and wrote letters to him, had in no way affected the legal and fair position in the slightest degree.

In the second case, Mr. H. J. Offer and his wife, owners of property in the Canbury Passage area of Kingston-on-Thames, objected to the Minister's confirmation of the clearance order on the ground that the Minister failed to act judicially as required by the Act.

Mr. H. A. Hill, for the appellants, explained that at the public inquiry they objected to the inclusion of their property in the order. At the inquiry it transpired that before the area had been made the subject of the clearance order the senior housing inspector of the Ministry visited the area and commented that it contained the class of house with which the local authority could deal under the 1930 Act. Following that, the local council proposed

the clearance scheme. Counsel contended that the Minister, through his representative, having regard to his judicial position, could not give such advice and guidance to the local authority when it concerned a matter on which later he was to adjudicate judicially. The duty of the Minister was carefully to restrict his advice to matters which would not conflict with his judicial duties.

His lordship, after further argument, dismissed both appeals with costs in favour of the Minister. His lordship said it was clear that the rights of appeal by persons aggrieved by clearance orders were limited by section 11 of the Act, and they could not appeal on account of hardships or challenge the justice of the order. They could only complain that the requirements of the Act had not been complied with or that something had been done that was outside the powers of the Act that made the order invalid. He held that the appellants had not been prejudiced by what had happened, and he did not think that their contention could stand that the order that had been confirmed by the Minister had not the backing of any resolution of the Corporation. It was quite competent for the Corporation to modify the area, and it was certain that the Minister could create modifications right up to the last moment.

He held that the local authority had power to alter the extent of a clearance area after they had once defined it on the map. Further, he held that the rule laid down by the Court of Appeal, that the Minister was acting judicially in determining whether to confirm a clearance order, had no application to matters dealt with by him before the local inquiry took place, and therefore he was entitled at that stage to advise the local authority. He could not distinguish the case of Kingston from that of Birkenhead.

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Fifteen acres of slums in the Sweet Street area are to be entirely cleared by the Leeds Corporation, which intends to rehouse 500 families in flats, extend the playground accommodation and provide better schools.

Nearly 2,000 houses and flats are also to be built on three existing estates.

Tenders are to be sought immediately.

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The first annual general meeting of the British Oil Burner Manufacturers Association, which was preceded by a luncheon, was held at the Connaught Rooms on February 14, when Mr. F. H. Horton, of Messrs. G. N. Haden and Sons, Ltd., presided.

Mr. F. H. Horton, in dealing with the activities of the Association, referred to the fact that a great deal of time during the year had been devoted to the consideration of a specification for minimum standards of design, manufacture and installation of automatic oil burning plants (domestic and central heating). Considerable progress had been made as a result of informal discussions which had taken place with certain interested authorities. Before very long it should be possible to issue the specification, which should be of much value to the industry.

Mr. F. H. Horton was re-elected president for the ensuing year, whilst Messrs. F. L. Bolt, R. L. Nash and W. A. Hubbard were re-elected vice-presidents and honorary secretary respectively. Com. A. Marsden, of Messrs. Filma Burners, Ltd., was elected to a seat on the Council.

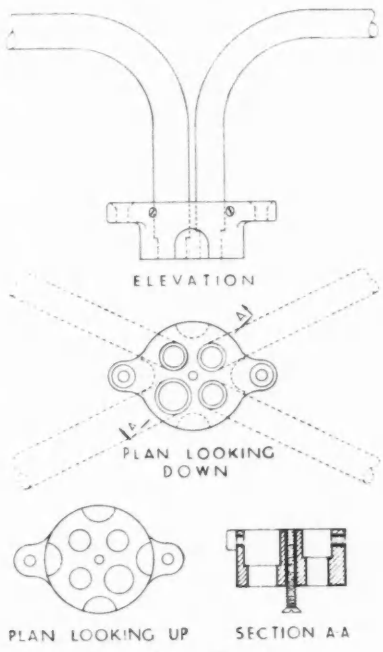


Figure 1

TRADE NOTES

[*BY F. R. S. YORKE, A.R.I.B.A.*]

Electric Wiring Systems

AT West Lodge Court, illustrated in last week's issue of the ARCHITECTS' JOURNAL, the electrical system installed by Victor T. Montrose and Company incorporates a new type of conduit fitting in the form of continuity cylinder-blocks.* I understand that these provide couplings that enable the entire close-joint or brazed conduit system to be laid complete, and the cable to be drawn in after the plaster and other finishings have been applied, without the assistance of draw-in boxes or other continuity fittings.

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The universal continuity cylinder-block (Fig. 1), for use in ceilings, is a malleable iron casting with two fixing lugs, containing four conduit entry holes for either $\frac{1}{2}$ in., $\frac{5}{8}$ in. or $\frac{3}{4}$ in. conduit. The conduit is held and bonded by means of grub screws. A hole is tapped through the centre of the block to take a $\frac{3}{16}$ in. Whitworth screw for holding a wood fixing block to ceiling.

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In the case of concrete floors, the cylinder-blocks are laid on the shuttering, where ceiling points are required and held in position temporarily by wood screws through lugs. The conduit is then bent and set down into the blocks in a manner similar to that adopted where back-outlet looping boxes occur in a screwed barrel system. When the concrete is hard and the shuttering removed, the face of the cylinder-block is flush with the ceiling.

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In the case of wood joist floors, a piece of batten approximately 4 in. wide by $\frac{3}{4}$ in. thick is wedged close to the laths between the joists where the ceiling point is required, and a hole is drilled in the batten to seat

* Pro. Pat. No. 33413/34.

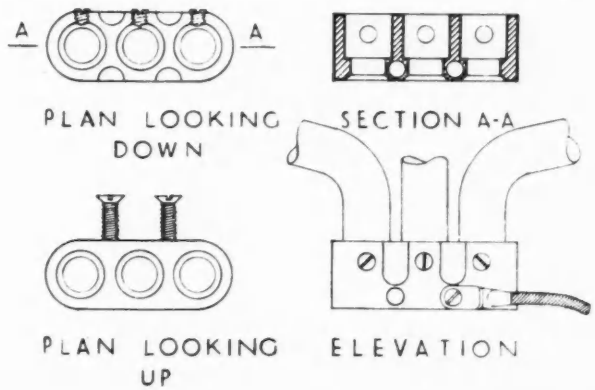


Figure 2

the block, which is secured to the batten by wood screws through lugs, The conduit is then set and run as before described.

•

In order to earth and couple the conduit at distribution fuse-boards, wall or bracket points, the cylinders are cast in blocks of two and three conduit entries in line (Fig. 2), for either ½ in., ⅝ in. or ¾ in. conduit, and, as with the universal cylinder-block, the conduit is held and bonded by grub screws. The two-way block has one hole tapped for a $\frac{3}{16}$ in. Whitworth screw, and the three-way block has two such holes for connecting the blocks together where a number of conduits must be bonded at a distribution fuse-board—i.e., where seven conduits are to be bonded or coupled, one three-way and two two-way blocks are connected by means of metallic bars secured by the $\frac{3}{16}$ in. screws. At wall or bracket points, these tapped holes are used for securing the electric fittings to the wall.

•

In the "slip" or close joint conduit system, continuity is made by pin-grip tee and elbow fittings, the cable being threaded through these fittings and conduit during course of erection of the building. The actual wiring is therefore exposed to damage by other trades. Should, for instance, a nail be driven through a run, the damage is not appreciated until the finish of the job, when the wiring is tested. The cable is also exposed to the chemical action and dampness of the plaster, and, most important, earth continuity throughout the conduit system is never certain. It is therefore desirable that the conduit system be complete and the cable drawn in only when the building work is finished. Previously, in new buildings, this system was only made possible by use of screwed conduit, and in certain cases this system could not be afforded. With the new continuity cylinder blocks, with either close-joint or brazed conduit, most of the advantages of a screwed barrel system are obtained, and the price is, I understand, very reasonable.

Plastics

A sound film shown at Bush House last week by Bakelite Ltd., illustrated the whole process of manufacture of moulded synthetic resin products from raw material to the finished article.

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In the final manufacturing process, Bakelite resin is placed in heated moulds and after a few minutes the finished moulded product is complete. It seems that anything from a bottle stopper to a gear wheel can be moulded from synthetic resin by this process. Door furniture, electrical fittings, table and counter tops, and laminated sheets for panelling are among the building materials made from Bakelite.

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I understand that the film may be borrowed by societies and institutions upon application to Bakelite, Ltd., 68 Victoria Street, London, S.W.1.

IN PARLIAMENT

[BY OUR SPECIAL REPRESENTATIVE]

AFTER a long discussion in the House of Commons, in which the Labour Party moved the rejection, the Scottish Housing Bill was read a second time. There are now, therefore, the two Housing Bills in Committee.

Sir Godfrey Collins, the Secretary of State for Scotland, in moving the second reading of the Scottish Bill, said that he refused to believe that, apart from any general rise in wholesale prices, any section of the vast building trade would raise prices above the present levels. Indeed, by bulk purchase and a regular output, prices might be reduced. He hoped at a very early stage to get local authorities and manufacturers together voluntarily, so that they might consider making suitable arrangements for spreading their requirements in material evenly over long periods, for buying materials in bulk, and for generally organizing the supplies of all the many commodities that went to the building of a house. If those means failed and prices rose without adequate reason, the Government would, of course, have to consider what further steps were necessary in the public interest to prevent profiteering. No Exchequer subsidy would be paid for houses of less than three apartments. There was a general desire to improve the architectural outlook in new building schemes and to avoid drabness. To secure this result, he recently appointed a strong committee, composed mainly of well-known Scottish architects, to consider what could be done. Their report was expected shortly. It seemed opportune, when Parliament was passing a Bill the effect of which would be to rebuild large areas of their cities, to seize the opportunity to set a higher standard of architecture. Drab and mean surroundings did not encourage a bright and healthy outlook.

During the continuation of the committee stage of the English Bill, Sir Hilton Young, the Minister of Health, replying to questions about the time in which local authorities must complete their surveys of housing and overcrowding conditions in their areas, said that it was necessary, in order to secure the greatest possible speed and progress, that there should be a proper measure of elasticity and that the Minister of Health should be able to fix the different minimum dates for each stage of the proposed procedure. It was in that way that a maximum rate of progress could be achieved. The dates for submitting schemes would not be specified before the surveys were complete. There were many authorities whose surveys should occupy weeks rather than months, because a large amount of the information as to housing conditions was already in their possession, and there were other cases, such as London, where the work must take longer.

Clause 2 of the Bill lays down a definition of overcrowding, and Mr. Greenwood sought to insert a proviso to make it clear that no occupant of a house should normally have to sleep in a living room.

Sir Hilton Young expressed his sympathy with those who wished to set a higher standard than that in the Bill, and which might ultimately be practicable, but that was not what Parliament had to consider when at the beginning of an attack on overcrowding. They had to consider what was the best standard that could be imposed on the country as a whole without a risk of the Bill breaking down as the result of specifying a standard which would be beyond attainment. Nothing could be more unwise than to risk failure by trying to jump too far. The standard in the Bill had been decided after prolonged consultation with local authorities and their officers all over the country. The amendment was rejected by 32 votes to 7.

THE BUILDINGS ILLUSTRATED

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue :—

B.B.C. Studios, Newcastle (pages 329-331). General contractor, S. F. Davidson. Sub-contractors : A. H. Parker, Ltd., furniture ; Best and Lloyd, light fittings ; Straight-Lite Reflectors, Ltd., light louvre ; J. H. Hawes, Ltd., door handles ; James Gibbons, floor springs ; Comyn Ching & Co. Ltd., door checks and air filters ; Nettlefold and Sons, Ltd., tubular locks ; William Warne & Co., Ltd., rubber kicking and finger plates ; Tentest Fibre Board Co., Ltd., insulating board ; Merchant Trading Co., Ltd., Donnacona ; Patent Impermeable Millboard Co., Ltd., Insulwood ; Cashmore Art Workers, plaster work to beams in Studio 1 ; General Electric Co., light troughs in Studio 1 ; Berry's Electric, Ltd., electric radiators ; Falconer Cross & Co., electric work, cover plates to signal lights, etc. ; Korkoid Decorative Floors, floors to corridors ; Crittall Manufacturing Co., Ltd., metal windows ; James Clark and Sons, Ltd., Wiretex glass ; The Tees Slag Wool Co., mineral wool.

Chapel at Mottingham (pages 334-335). General contractors, Higgs and Hill, Ltd. Craftsman : George Alexander, R.B.S., low relief panel containing Company's Coat of Arms ; E. H. Evans, heraldic painter : Gordon Stark, Ltd., seating and sanctuary furniture : Bainbridge Reynolds, altar crosses and vases and other wrought metalwork. Quantity surveyors : Young and Brown. Sub-contractors : Jackson and Sons, domed ceiling and other decorative plaster work ; Colliers, tiles ; Smith Walker, Ltd., steelwork ; Duncan Watson (Electrical Engineers), Ltd., electric lighting and heating ; Horseley Smith & Co., Ltd., flooring.

Extensions to Hoover Factory (pages 342-343). General contractors : Higgs & Hill, Ltd. Sub-contractors: Banister Walton & Co., Ltd., constructional steelwork ; Henry Hope, and Sons, Ltd., steel sashes ; British Trolley Track Co., sliding door gear ; E. J. Elgood, Ltd., granolithic work ; Leeds Fireclay Co., Ltd., sanitary fittings ; Hammond Bros. and Champness, lifts ; H. W. Dutton & Co., Ltd., heating ; Comyn Ching & Co., Ltd., ironmongery ; Limmer and Trinidad Lake Asphalt Co., Ltd., asphalt ; W. H. Gascoigne & Co., plumbing works ; McDowall Steven, rainwater heads ; Mellowes & Co., Ltd., lantern lights ; Haywards, Ltd., steel staircase ; Mather and Platt, Ltd., fireproof door ; Roberts, Adlard & Co., Ltd., tiling ; Roneo, Ltd., steel screens : Hollis Bros. & Co., Ltd., wood block flooring ; R. W. Brooke & Co., Ltd., wood block flooring ; F. Thomas & Co., electric light fittings ; Ash's Manufacturing Co., Ltd., kitchen equipment ; A. Goldstein, glass ; Brookes, Ltd., granite curbs ; W. Knight & Co., paving. Contractors for second and third floors and annexe : Banister Walton & Co., Ltd., constructional steelwork : B.R.C. Engineering Co., Ltd., reinforcing steel ; W. H. Gascoigne & Co., plumbing, etc. ; Henry Hope and Sons, Ltd., steel sashes ; John Lightfoot, Ltd., electrical work ; Roneo, Ltd., steel partitioning ; E. J. Elgood, Ltd., grano-pavings ; Cork Insulation Co., cork slabs ; Haywards, Ltd., fire escape stairs ; Limmer and Trinidad Lake Asphalt Co., Ltd., asphalt work ; Leeds Fireclay Co., Ltd., sanitary fittings ; Jos. F. Ebner, wood block floors ; H. W. Dutton & Co., Ltd., heating ; Stuart's Granolithic Co., artificial stone steps ; Air Ducts, Ltd., vent trunks ; Emerson and Norris, artificial stone cills ; Mellowes & Co., lantern lights ; Carter & Co., Ltd., floor tiling and terrazzo ; Comyn Ching & Co., Ltd., ironmongery ; Ash's Manufacturing Co., canteen equipment; R. C. Cutting & Co., lightning conductor ; Hammond Bros. and Champness, lift ; Turner Hall & Co., Ltd., cold glaze cement work.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS).

CLAPHAM. *Houses.* The Wandsworth B.C. has approved the erection of 32 houses in connection with the Union Street clearance area, Clapham. The architect is Mr. E. G. Culpin, F.R.I.B.A.

COULSDON. *Fire station, etc.* The U.D.C. has now approved plans by the Surveyor for the erection of a fire sub-station, with two flats over, a drill tower, six cottages and quarters for single firemen, at Sanderstead.

CROYDON. *Bridges.* The Borough Council has approved an expenditure during the year of £31,000 in connection with the Croham Road Bridge (South Croydon Railway Station) and East Croydon Bridge.

CROYDON. *Houses.* Approval has been given for the following developments by the Town Planning Committee: Mr. B. G. Nutting, 10 Gracefield Gardens, S.W.16, 20 houses, Green Lane; L. G. Leanse, 161 Regent Street, W.1, 18 houses, Eversley Road and Hermitage Road; Revell & Co., Ltd., The Glade, 12 houses, Carmo Manor Estate; New British Garden Estates, Ltd., 15 houses, Crossways, Addington.

CROYDON. *Maternity Block.* A maternity block is about to be erected by the Corporation, at the Mayday Hospital, Mayday Road.

CROYDON. *Church, etc.* Messrs. Smee and Houchin, FF.R.I.B.A., 22, Essex Street, W.C.2, have prepared plans for the erection of a church and classrooms at Wickham Road at Eldon Avenue.

EALING. *Houses.* Plans have been prepared by Messrs. Swannell and Sly, High Street, Rickmansworth, on behalf of Mr. E. K. Robinson, for the proposed erection of 32 houses at Carr Road.

EPPING. *Houses.* The R.D.C. has accepted the tender of E. J. Higgins, Potter Street, Harlow, for the erection of 20 houses at Potter Street.

GREENFORD. *Houses.* Messrs. Houselands Ltd., 47 Victoria Street, S.W.1, propose to erect 27 houses at Greenford Road.

GREENWICH. *Clearance Scheme.* The B.C. has obtained sanction to borrow £16,000 for the acquisition of land and properties in the Lamb Street clearance area. A further application will be made in due course for a loan for the erection of houses on such area.

HAMPTON. *Estate development.* Messrs. Greville Collins, Ltd., are to develop the Manor House Estate.

HARROW. *Fire Station.* Mr. C. W. Richardson, architect, has prepared revised plans and estimates for the proposed main fire station in Pinner Road. The scheme provides for officer's residence, two blocks of flats, drill yard, etc. The cost is estimated at £16,869.

HARROW. *Houses and Shops.* The following developments have been sanctioned under the Hendon Rural Town Planning scheme: The General Housing Co., Ltd., Derby Road, Southall, 28 houses, Hill Road, Pinner; Hardings (London), Ltd., Kenton Lane, Kenton, 116 houses, Elgin Avenue, Kenton; H. R. and P. (London), Ltd., 151 Kenton Lane, Harrow, 12 shops with flats over, Kenton Lane; A. J. Hensey, Preston Road, Wembley, 12 houses, Lulworth Drive, Pinner.

HARROW-ON-THE-HILL. *Houses.* Messrs. P. H. Edwards, Ltd., 237 Golders Green Road, N.W.11, have prepared plans for the proposed erection of 95 houses at Welldon Avenue, Kenilworth Avenue, and Arundel Drive, on the Earlsmead Estate, while T. F. Nash, Ltd., Eastcote Lane, South Harrow, are to erect 18 houses at Torbay Road.

HOUNSLOW. *Studio.* Messrs. A. J. Cripps & Co., Ltd., 116 Putney Bridge Road, S.W.15, have secured the contract for the erection of studio buildings, at Worton Hall Studios, Worton Road, Isleworth.

KINGSTON-ON-THAMES. *Hospital Extension.* The Public Assistance Committee of the Surrey County Council has had under consideration a report of a Sub-Committee upon a proposal for the extension of the Kingston and District Hospital. The presence of the Central Relief Institution Buildings is somewhat of a handicap, but it is hoped to evolve a scheme of hospital extension without disturbing those buildings. With that end in view, four architects were interviewed, each with special experience in hospital work, and the Committee has decided to invite Mr. Wallace Marchment, F.R.I.B.A., to prepare a general lay-out plan of the new buildings and other necessary works and to report thereon.

NORTHOLT. *Extensions.* Plans submitted by Messrs. Hitchins, Jarvis and Partners, consulting engineers, Hallam House, 3 Central Buildings, S.W.1, have been approved for extensive alterations and additions to the Northolt Brick Works, Ruislip Road.

PUTNEY. *Flats.* Messrs. Roy Gibson, Ltd., 142, Priory Lane, S.W.15, are to erect large blocks of flats on the site of "Wildcroft," Putney Heath.

PUTNEY. *Dwellings.* The redevelopment of the Felsham Road clearance area is to be undertaken immediately, by the erection of 72 one- two- and three-bedroom dwellings. Mr. Basil Hughes, F.R.I.B.A., 4 Raymond Buildings, Gray's Inn, W.C.1, is the architect, acting for the Wandsworth Borough Council.

RICHMOND (SURREY). *Houses and Flats.* The Town Council has approved an expenditure of £61,711 for the erection of 120 houses and flats in connection with the Second slum clearance scheme.

ST. PANCRAS. *Housing Schemes.* The B.C. Estates Committee recommends the appointment of Mr. A. J. Thomas as architect for the Carlow Street and Highgate Road housing schemes and Messrs. Waggett and Bradford as quantity surveyors for the Highgate Road scheme.

SHOREDITCH. *Town Hall Extensions.* The B.C. Establishment Committee recommends in principle a scheme by the Borough Engineer for the extension of the Town Hall on the site of the Rivington Place and Rivington Street property recently acquired by the Council, at an estimated cost of £35,000.

STREATHAM. *Flats.* Mr. B. G. Utting, Gracefield Gardens, S.W.16, is to erect a large block of flats at the junction of Telford Avenue and Blairderry Road.

STREATHAM. *Houses.* The Wandsworth B.C. has approved the appointment of Messrs. Henry Riley & Co., 82 Victoria Street, S.W.1, for the preparation of quantities in connection with the redevelopment of the Greyhound Square area.

WESTMINSTER. *Hospital.* The City Council has approved elevation plans submitted by Messrs. Adams, Holden and Pearson for a new hospital building to be erected at St. John's Gardens by Westminster hospital governors.

WESTMINSTER. *Flats, etc.* Plans passed by the City Council: Flats, Marsham Street and Page Street, for Messrs. T. P. Bennett and Son (amended); buildings, 14-15 Ramilies Place, for Mr. H. I. Ashworth; building, 26-7 Medway Street, for Mr. A. M. Cawthorne; flats, Kingston House and Alford House, Kensington Road, for Mr. O. H. Leicester; flats, 3 and 4, Rutland Mews East, for Mr. E. K. Rowe; building, 78-94 Brompton Road, for Messrs. Myer and Watson-Hart; shops and flats, Horseferry House, Thorney Street and Page Street, for Messrs. Howard and Partners.

WESTMINSTER. *Welfare Centre.* The City Council has appointed an architect to prepare sketch plans and estimates in connection with a proposed new maternity centre and day nursery at Bessborough Street, at an estimated cost of £45,000.

SOUTHERN COUNTIES

BOGNOR. *Hotel.* A new hotel is to be erected at the corner of Nyewood Lane and Goodman Drive. Mr. P. J. Mazzocchi, managing director of the company, has undertaken if the plans are approved, that the hotel shall be erected by June 24, 1936, at a cost of not less than £10,000.

MAIDSTONE. *County Offices.* The Kent C.C. has prepared a scheme for the extension of the county offices, at a cost of £85,000.

SOUTHAMPTON. *Nursery Home.* Work is shortly to commence upon the erection of a nursery home, which has been planned by the Borough Engineer, on the Hollybrook Estate in Upper Shirley. The scheme is said to contain all the latest ideas in this class of building, and is estimated to cost £20,000.

SOUTH-WESTERN COUNTIES

SOUTH MOLTON. *Houses.* The Town Council has instructed the Surveyor to make a survey for the purpose of erecting another 50 houses.

TRURO. *Garage and Showrooms.* Messrs. H. T. P. Motors, Ltd., Truro, are to erect extensive garage and showrooms premises near The Green. The architect is Mr. H. J. Hammick, L.R.I.B.A., 63 Old Town Street, Plymouth. The contractors are Messrs. Carkeek and Sons, Ltd., Plymouth.

TRURO. *Houses.* The City Council has now chosen a site at Tregalls for the erection of a further 150 houses in connection with the slum clearance scheme. The plans will be prepared by the Borough Surveyor, Mr. Barnes.

EASTERN COUNTIES

BEDFORD. *Estate* Messrs. Robinson and Hall are developing an estate at Cardington Road.

ROCHFORD. *Housing.* The Rural Council has purchased 16½ acres of Townfield Farm, Wakering. Six and a half are to be used for housing, the remainder is to be used as a playing field.

SOUTHEND. *Children's Homes.* The Southend Public Assistance Committee proposes to purchase the Old Rectory site at Shoeburyness for the erection of new children's homes. It is proposed to convert the Old Rectory itself into an administration block for the Homes.

SOUTHEND. *Municipal College.* The Southend Education Committee has approved in principle the provision of a Municipal College for Southend. Detailed plans of the new buildings are to be immediately proceeded with. The details of cost will be presented to the Committee at a later date. Mr. Frank W. Smith, A.R.I.B.A., Municipal Buildings, is the architect to the Education Committee.

MIDLAND COUNTIES

NUNEATON. *Technical College.* The Warwickshire Education Committee is acquiring a site in Newtown Road, for the erection of a technical college, towards the cost of which £10,000 is being contributed by the Miners Welfare Fund.

WINGFIELD-DIGBY. *School.* The Warwickshire Education Committee is acquiring 25 acres on the Wingfield-Digby estate for the erection of new premises for the Coleshill grammar school.

NORTHERN COUNTIES

CARLISLE. *Houses.* The Corporation is to expedite the remainder of the five years' re-housing programme so as to provide for the erection of 160 houses p.a. instead of 80 as at present. Messrs. John Laing and Son, Ltd., propose to erect houses on the Morton estate.

CHORLTON-ON-MEDLOCK. *Church.* St. David's Welsh Church, Lime Grove, has been sold to the Victoria University of Manchester, and the trustees of the church have acquired "Woodthorpe," Oxford Place, Victoria Park, Manchester, on which it is proposed to erect a new church and parochial hall to plans prepared by G. Caradoc Roberts, of Roberts, Wood and Elder, architects, of 26, King Street, Manchester, 2.

CRUMPSALL. *Housing Estate.* Lay-out plans for an extensive housing estate at Crumpsall within a few minutes' walk of the station, estimated to cost £220,000 have been approved by the Manchester Corporation. The estate comprises an area of about 48 acres and 15 acres are to be reserved as open spaces. The scheme provides for 376 houses to be erected by Messrs. W. J. Davies (Builders), Ltd., under the Housing (Financial Provisions) Act, 1933, zoned at 12 to the acre. Provision has been made for the erection of 10 shops and houses also. The plans have been prepared by Roberts, Wood and Elder, F.I.A., F.A.S., architects of 26 King Street, Manchester, 2. The majority

(Continued on page xxxii)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_2	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A_2	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_1	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_2	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley	N.W. Counties	1 5½	1 1½
A	Burslem	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_3	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett	N.E. Coast	1 5	1 0½
A_2	Conway	N.W. Counties	1 4½	1 0½
A	Coventry	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON ..	N.E. Coast	1 5½	1 1½
A	Darwen	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee	Scotland	1 5½	1 1½
A	Durham	N E. Coast	1 5½	1 1½
A_2	EASTBOURNE ..	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A_1	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE ..	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S. W. Counties	1 2½	11
A	GATESHEAD ..	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W. Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_3	Kendal	N.W. Counties	1 4	1 0
A_3	Keswick	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12–15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_3	Maidstone ..	S. Counties	1 4	1 0
A_3	Malvern	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate	S. Counties	1 3	11½
A	Matlock	Mid. Counties	1 4	1 0
A_1	Merthyr	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N.E. Coast	1 5½	1 1½
A_2	Middlewich ..	N.W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth ..	S. Wales & M.	1 2½	11
	& S. and E. Glamorganshire			
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton ..	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate	S. Counties	1 3½	11½
A	Retford	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley	Mid. Counties	1 4½	1 0½
A	Runcorn	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton	Yorkshire	1 4½	1 0½
A_2	Slough	S. Counties	1 4½	1 0½
A_1	Solihull	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport	N.W. Counties	1 5½	1 1½
A	S. Shields	N.E. Coast	1 5½	1 1½
A_1	Stafford	Mid. Counties	1 5	1 0½
A	Stirling	Scotland	1 6	1 1½
A	Stockport	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea	S. Wales & M.	1 5½	1 1½
A	Swindon	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4½	1 0½
A_2	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_3	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD ..	Yorkshire	1 5½	1 1½
A	Walsall	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby	Yorkshire	1 4½	1 0½
A	Widnes	N.W. Counties	1 5½	1 1½
A	Wigan	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop	Yorkshire	1 4	1 0
A_1	Wrexham	N.W. Counties	1 5	1 0½
A	Wycombe	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality, and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger	"	1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
General Labourer	"	1	5
Lorryman	"	1	6
Crane Driver	"	1	6
Watchman	per week	2	10 0

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
¾" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single junctions	"	3	6	5	3
Double "	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¾" Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead wool	lb.		6		—
Gaskin	"		5		—

BRICKLAYER

		£	s.	d.
Flettons	Per M.	2	15	0
Grooved do.	"	2	17	0
Phorpres bricks	"	2	15	0
" Cellular bricks	"	2	15	0
Stocks, 1st quality	"	4	11	0
" 2nd "	"	4	2	6
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Brindles	"	7	0	0
" Bullnose	"	9	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	0
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midhurst White Facings	"	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	29	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

The following d/d F.O.R. at Nine Elms:		s.	d.
Portland stone, Whitbed	F.C.	4	4½
" " Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" Sawn templates	"	7	6
" Paving, 2"	F.S.	1	8
" " 3"	"	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	"	24	10	0
20" × 10" Countesses	"	19	5	0
18" × 10" Viscountesses	"	15	10	0
18" × 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey per 1,000 (actual)		21	11	6
" " green " "		24	7	4
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each			9½
" hand-made	"			10
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak plain American	" "	1	0
" Figured "	" "	1	3
" Plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1
Deal floorings, ¾"	Sq.	18	6
" ⅞"	"	1 1	6
" 1"	"	1 2	0
" 1¼"	"	1 5	0
" 1½"	"	1 10	0
Deal matchings ¾"	"	14	0
" ⅞"	"	15	6
" 1"	"	1 4	0
Rough boarding ¾"	"	16	0
" 1"	"	18	0
" 1¼"	"	1 6	0

Plywood, per ft. sup.

—Thickness	¼"			⅜"			½"			⅝"		
Qualities	AA.	A.	B.	AA.	A.	B.	AA.	A.	B.	AA.	A.	B.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Birch	4	3	2	5	4	3	7½	6	4½	8½	7	6
Alder	3½	3	2	5	4	3	6½	5½	4½	8	7	6
Gaboon Mahogany	4	3	3	6½	5½	4½	9½	7½	–	1/0½	10	–
Figured Oak 1 side	8½	7	–	10	8	–	11½	–	–	1/6	–	–
Plain Oak 1 side	6½	6	–	7½	7	–	9½	–	–	1/–	–	–
Oregon Pine	5	4	–	5½	5	–	6	–	–	–	–	–

	d.
Scotch glue	lb. 8

SMITH AND FOUNDER

Tubes and Fittings:

(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	¼"	⅜"	½"	¾"	1"	1¼"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10		
Pieces, 12"-23½" long each	10	1/1	1/11	2/8	4/9		
" 3"-11½" long "	7	9	1/3	1/8	3/–		
Long screws, 12"-23½" long "	11	1/3	2/2	2/10	5/3		
" " 3"M-½" long "	8	10	1/5	1/11	3/6		
Bends "	8	11	1/7½	2/7½	5/2		
Springs not socketed "	5	7	1/1½	1/11½	3/11		
Socket unions "	2/–	3/–	5/6	6/9	10/–		
Elbows, square "	10	1/1	1/6	2/2	4/3		
Tees "	1/–	1/3	1/10	2/6	5/1		
Crosses "	2/2	2/9	4/1	5/6	10/6		
Plain Sockets and nipples "	3	4	6	8	1/3		
Diminished sockets "	4	6	9	1/–	2/–		
Flanges "	9	1/–	1/4	1/9	2/9		
Caps "	3½	5	8	1/–	2/–		
Backnuts "	2	3	5	6	1/1		
Iron main cocks "	1/6	2/3	4/2	5/4	11/6		
" " with brass plugs "	—	4/–	7/0	10/–	21/–		

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½
FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued*

		s.	d.
Rolled steel joists cut to length	cwt.	10	9
Mild steel reinforcing rods, ⅜"	"	8	6
" " ½"	"	8	3
" " ⅝"	"	8	0
" " ¾"	"	7	6
" " ⅞"	"	7	6
" " 1"	"	7	6
" " 1¼"	"	7	6
" " 1½"	"	7	6

		3" s.	3" d.	4" s.	4" d.
Cast-iron rain-water pipes of ordinary thickness metal	F.R.		8		10
Shoes	each	2	0	3	0
Anti-splash shoes	"	4	6	8	0
Boots	"	3	0	4	0
Bends	"	2	7	3	9
" with access door	"	—		6	3
Heads	"	4	0	5	0
Swan-necks up to 9" offsets	"	3	9	6	0
Plinth bends, 4½" to 6"	"	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal	F.R.		5		6
Stop ends	each		6		6
Angles	"	1	7	1	11
Obtuse angles	"	2	0	2	6
Outlets	"	1	9	2	3

PLUMBER

		£	s.	d.
Lead, milled sheets	cwt.	18	6	
" drawn pipes	"	17	0	
" soil pipe	"	18	6	
" scrap	"	10	6	
Solder, plumbers'	lb.			9½
" fine do.	"		1	0
Copper, sheet	"			8½
" tubes	"			11

L.C.C. soil and waste pipes:	3"		4"	
Plain cast F.R.	1	0	1	2
Coated "	1	1	1	3
Galvanized "	2	0	2	6
Holderbats each	3	10	4	0
Bends "	3	9	5	3
Shoes "	2	10	4	4
Heads "	4	8	8	5

	6" £	6" s.	6" d.
Plain cast F.R.	2	6	
Coated "	2	8	
Galvanized "	4	6	
Holderbats each	4	9	
Bends "	10	3	
Shoes "	9	6	
Heads "	12	9	

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	5	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle Plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	9
Lath nails	lb.			3

GLAZIER

	s.	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.			s. F.S.	2½
" " 26 oz. " " " "				3
Flemish, Arctic, Figured (white)*			"	7
Blazoned glasses			"	2 6
Reeded; Cross Reeded			"	11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite				6
Crown sheet glass (n/e 12 in. × 10 in.)			"	2 0
Flashed opals (white and coloured)	1	0	and 2	0
¼" rough cast; rolled plate			"	5½
¼" wired cast; wired rolled			"	9½
¼" Georgian wired cast			"	11
¼" Polished plate, n/e 1 ft.	† 10	to	‡1	1
" " 2 "	†1	2	,, ‡1	4
" " 4 "	†2	3	,, ‡2	6
" " 8 "	†2	9	,, ‡3	2
" " 20 "	†3	7	,, ‡4	2
" " 45 "	†3	11	,, ‡4	7
" " 100 "	†5	0	,, ‡5	7
Vita glass, sheet, n/e 1 ft.				1 0
" " " 2 ft.				1 3
" " " over 2 ft.				1 9
" " plate, n/e 1 ft.				1 6
" " " 2 ft.				3 0
" " " 5 ft.				4 0
" " " "				5 0
" " " 15 "				6 0
" " " over 15 "				7 6
"Calorex" sheet 21 oz., and 32 oz.	2	6	and 3	0
" rough cast ⅛" and ¼" "			8½ ,, 1	0
Putty, linseed oil			lb.	3

* *Colours*, 1d. *F.S. extra.*

†*Ordinary glazing quality.* ‡*Selected glazing quality.*

PAINTER

	£	s.	d.
White lead in 1 cwt. casks	cwt.	2	6	0
Linseed oil	gall.	2	2½
Boiled oil	"	2	4½
Turpentine	"	4	1½
Patent knotting	"	14	0
Distemper, washable	cwt.	2	6	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	brain		3	0
Copal varnish	gall.	13	0
Flat varnish	"	14	0
Outside varnish	"	16	0
White enamel	"	1	15	0
Ready mixed paint	"	13	6
Brunswick black	"	7	0

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR

		£ s. d.
Digging over surface n/e 12" deep and cart away	Y.S.	2 9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.	8 6
" to form basement n/e 5' 0" deep and cart away	"	9 0
" " 10' 0" deep and cart away	"	9 6
" " 15' 0" deep and cart away	"	10 0
" " add	"	6
If in stiff clay		4 0
If in underpinning	"	6
Planking and strutting to sides of excavation	F.S.	1 0
" " to pier holes	"	5
" " to trenches	"	5
" " extra, only if left in	"	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	"	1 6 0
" " (4-2-1)	"	1 12 6
" " underpinning	"	1 16 0
Finishing surface of concrete, spade face	Y.S.	7

DRAINLAYER

		4" s. d.	6" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER

		£ s. d.
Brickwork, Flettons in lime mortar	Per Rod	27 10 0
" " in cement	"	28 15 0
" Stocks in cement	"	35 0 0
" Blues in cement	"	52 0 0
Extra only for circular on plan	"	2 0 0
" backing to masonry	"	1 10 0
" raising on old walls	"	2 0 0
" underpinning	"	5 10 0½
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	"	8
" " " red brick facings and pointing	"	11
" " " blue brick facing and pointing	"	1 4
" " " glazed brick facings and pointing	"	3 6
Tuck pointing	"	7½
Weather pointing in cement	"	3
Slate dampcourse	"	10
Vertical dampcourse	"	1 1

ASPHALTER

		s. d.
½" Horizontal dampcourse	Y.S.	4 6
½" Vertical dampcourse	"	6 9
½" paving or flat	"	4 0
1" paving or flat	"	5 6
1" × 6" skirting	F.R.	1 0
Angle fillet	"	2
Rounded angle	"	2
Cesspools	Each	5 0

MASON

		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	"	13 6
Artificial stone and do.	"	13 0
York stone templates, fixed complete	"	10 6
" thresholds	"	13 6
" sills	"	1 0 6

SLATER AND TILER

		£ s. d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3 10 0
Do., 18" × 9"	"	3 7 0
Do., 24" × 12"	"	3 17 0
Westmorland slating, laid with diminished courses	"	6 0 0
Tiling, best hand-made sand-faced, laid to a 4" gauge, nailed every fourth course	"	3 0 0
Do., all as last, but of machine-made tiles	"	2 16 0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	4 6 0
" " " " " " (green)	"	4 15 0

CARPENTER AND JOINER

		£ s. d.
Flat boarded centering to concrete floors, ncluding all strutting	Sqr.	2 5 0
Shuttering to sides and soffits of beams	F.S.	8
" to stanchions	"	8
" to staircases	"	1 8
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	"	4 6
" " roofs	"	6 6
" " trusses	"	7 6
" " partitions	"	8 6
½" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" " " " "	"	1 17 6
1½" " " " "	"	2 3 0
½" × 2" fir battening for Countess slating	"	9 6
Do. for 4" gauge tiling	"	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
" " " 2 "	"	2 9
" " " 3 "	"	3 3
Stout herringbone strutting to 9" joists	F.R.	10½
1" deal gutter boards and bearers	F.S.	1 2
1½" " " " "	"	1 6
2" deal wrought rounded roll	F.R.	8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼" do.	"	2 10 0
1½" do.	"	2 17 0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1½" do.	"	1 9

CARPENTER AND JOINER—*continued*

		s. d.
1½" deal moulded sashes of average size	F.S.	1 9½
2" " " " "	"	1 11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1¼" pulley stiles, 1¼" heads, 1" inside and outside linings, ⅝" parting beads, and with brass faced axle pulleys, etc., fixed complete	"	3 7
2" " " " "	"	3 10
Extra only for moulded horns	Each	6
1½" deal four-panel square, both sides, door	F.S.	2 0
2" " " " "	"	2 8
1½" " but moulded both sides	"	2 4
2" " " " "	"	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" " " "	"	1 4
1¼" deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1½" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
1½" deal moulded wall strings	"	2 1
1½" " outer strings	"	2 4
Ends of treads and risers housed to string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1½" × 1½" " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

SMITH AND FOUNDER

		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	15 6
Riveted plate or compound girders, and hoisting and fixing in position	"	19 6
Do. stanchions with riveted caps and bases and do.	"	19 0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	"	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER

		£ s. d.
Milled lead and labour in flats	cwt.	1 12 0
Do. in flashings	"	1 15 6
Do. in covering to turrets	"	2 3 0
Do. in soakers	"	1 7 6
Labour to welted edge	F.R.	3½
Open copper nailing	"	3
Close "	"	4

		½" s. d.	¾" s. d.	1" s. d.	1½" s. d.	2" s. d.	4" s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks		—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	3 9	5 0	8 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—

		s. d.
4" cast-iron ½-rd. gutter and fixing	F.R.	1 0
Extra, only stop ends	Each	1 0
Do. angles	"	1 6
Do. outlets	"	2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1 2
Extra, on y for shoes	Each	1 3
Do. for plain heads	"	5 6

PLASTERER AND TILING

		s. d.
Expanded metal lathing, small mesh	Y.S	2 0
Do. in n/w to beams, stanchions, etc.	"	2 9
Lathing with sawn laths to ceilings	"	1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1 5
Do. vertical	"	1 7
Rough render on walls	"	1 2½
Render, float and set in lime and hair	"	1 9
Render and set in Sirapite	"	1 11
Render, backing in cement and sand, and set in Keene's cement	"	2 9
Extra, only if on lathing	"	4
Keene's cement, angle and arris	F.R.	6
Arris	"	1½
Rounded angle, small	"	3
Plain cornices in plaster, including dubbing out, per 1" girth	"	1½
1" granolithic pavings	Y.S.	3 6
1½" " "	"	4 6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17 6
9" × 3" " " "	"	1 2 6
Extra, only for small quadrant angle	F.R.	8

GLAZIER

		s. d.
21 oz. sheet glass and glazing with putty	F.S.	7½
26 oz. do and do.	"	8½
Flemish, Arctic Figured (white) and glazing with putty	"	1 1
Cathedral glass and do.	"	1 2
Glazing only, British polished plate	"	7
Extra, only if in beads	"	2
Washleather	F.R.	4

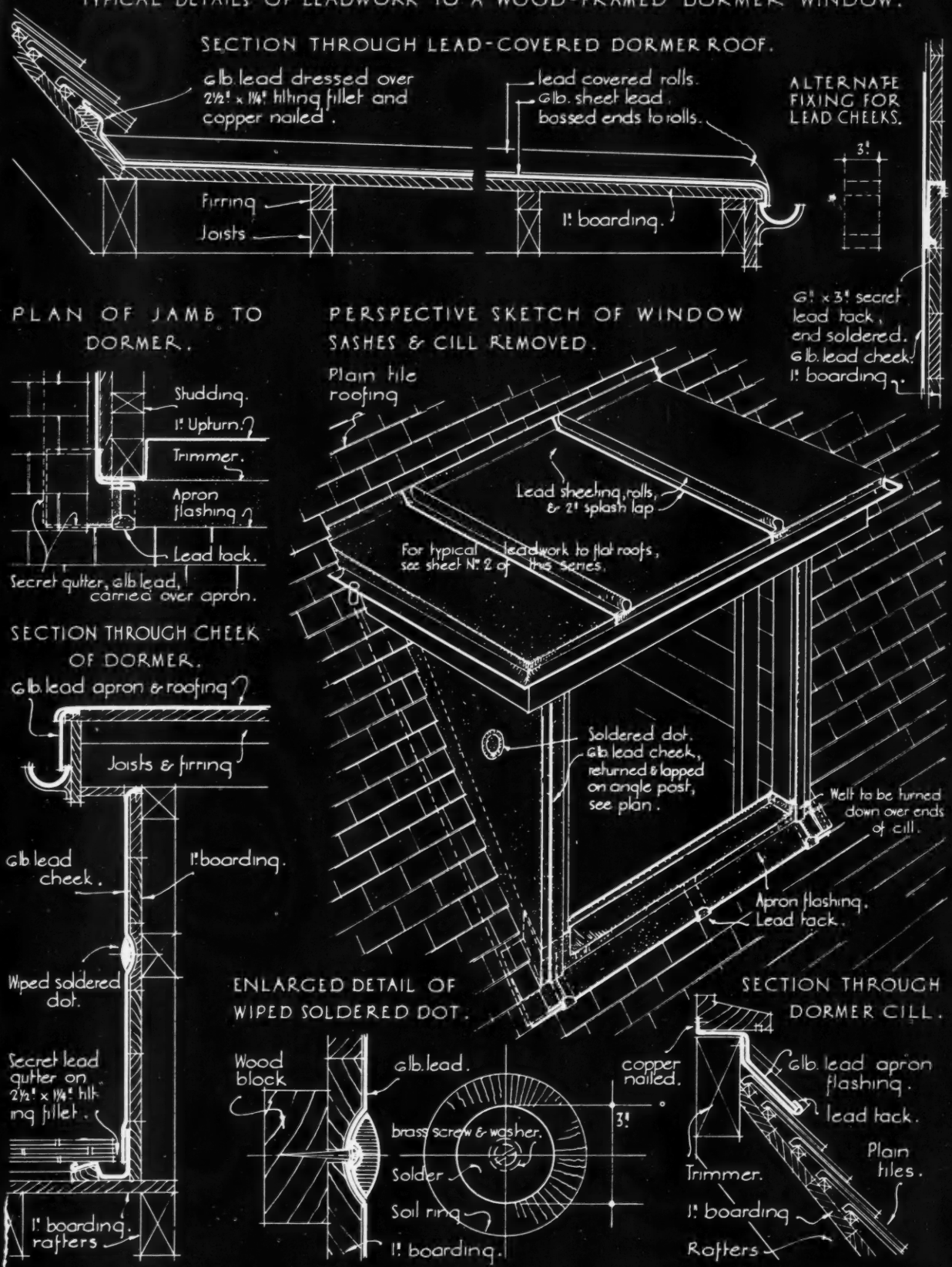
PAINTER

		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	"	9
Do. with washable distemper	"	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3 3
Do. on woodwork	"	3 6
Do. on steelwork	"	3 0
Do. and brush grain and twice varnish	"	5 6
Stain and twice varnish woodwork	"	1 11
Stain and wax-polish woodwork	"	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper from	"	2 9



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TYPICAL DETAILS OF LEADWORK TO A WOOD-FRAMED DORMER WINDOW.



Information from the Lead Sheet & Pipe Development Council.

INFORMATION SHEET : THE USES OF LEAD IN BUILDING CONSTRUCTION · 7 ·

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 195 •

LEAD IN BUILDING CONSTRUCTION

Type Illustrated : Leadwork to Dormer Windows

Description :

This is the seventh of a series of Sheets dealing with the uses of lead in building construction, and illustrates typical leadwork to a wood-framed dormer window set in a tiled roof slope.

Top Covering.

The perspective sketch of the dormer shows a boarded flat roof covered with 6 lb. lead pointed by wooden rolls, for details of which see Sheet No. 2 of this series. The various large scale sections indicate methods of lapping and securing the 6 lb. leadwork to the cheeks and cill.

All the sheet lead in large pieces is laid upon 1 in. square edged boarding, firmly nailed close to the top edges, and for this purpose accurately thicknessed boards should be employed.

Cill.

The protection of the woodwork commences at the cill, where a lead flashing is laid across the upper edge of the curb, and is subsequently turned up 1 in. behind the window cill and copper nailed. The outer edge is dressed down the face of the curb and laid upon the tiles so that a double overlap is obtained at least equal to that of the tiles, the lower edge being secured by lead or copper clips. This flashing is carried at least 2 in. around the angles, and is dressed down over the roof boarding before the tiling is continued up the slope on each side of the dormer.

Dormer Cheeks.

The spandrel sides of the dormer are shown boarded and covered with 6 lb. lead. Lead cheeks may be in one or more pieces according to the size of the dormer side, with joints, where required, made by plain vertical welts. To secure the top edge it may be turned at right angles over the edge of the top board and copper nailed between the joists before the roof boards are fixed. At the lower edge the lead cheeks act as a cover flashing to the up-turn of a 6 lb. lead secret gutter, or to lead soakers placed at the intersection of the tiling with the dormer.

The front vertical edge of the cheek is lapped 3 in. along the face of the angle post, close copper nailed and folded back 2 in. to cover the latter.

Support to Lead Cheeks.

Large areas of vertical leadwork may become so heavy that their own weight drags them downwards and so continually and permanently stretches the lead, which is not elastic.

This action is accentuated during rises of temperature, when the lead expands, and moves downwards and is not elastic enough to regain its original position as the material cools and attempts to contract.

It may partially succeed in contracting in light pieces, but some of the expansion becomes permanent. When supported at intermediate points as shown, instead of along the top edge only, there is less stretch because there is less weight to maintain between points of support, and any stretch that does occur will be spread over short portions and consequently be more uniform.

Two methods of support are illustrated, the use of soldered dots and the employment of secret lead tacks.

Soldered Dots.

In this method a circular sinking is scooped out of the covering board about 3 in. in diameter, and $\frac{3}{8}$ in. deep. The surface sheet is dressed into this, and screwed down at the centre of the depression by an ordinary brass screw bearing on a brass washer. The screw head should project as much as possible to ensure adhesion to the solder, which is then used to fill the depression. To prevent adhesion of the solder to the portion outside the depression a ring of black "soil"—lampblack and size—is painted upon it, the lead surface within scraped bright and clean and then wiped flush with plumber's solder.

Secret Lead Tacks.

These are strips of sheet lead 2 in. to 3 in. wide and 6 in. to 9 in. long, soldered to the back of the covering which is to be suspended, and having one end laced through a notch in the joint of the boarding. The end should be turned down $1\frac{1}{2}$ in. or more inside and copper nailed.

Both the above methods are effective, but the lead tack is invisible and chiefly employed where it is desired to hide the means of support.

Previous Information Sheets of this series, Nos. 148, 149, 157, 161, 167 and 182, dealt with the application of lead to parapet gutters and flat roofs, the jointing and supporting of lead piping, and the insulation of X-ray Departments.

Source of Information : The Lead Sheet and Pipe Development Council

Address : Golden Cross House, Charing Cross, W.C.2

Telephone : Whitehall 7264

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SPECIFICATIONS FOR PAINTING ON WOOD SURFACES.

FLAT PAINTS ON WOOD SURFACES:

PRODUCT	TYPE OF SURFACE		PRIMING COAT.	SECOND COAT	THIRD COAT
DULUX EGGSHELL & FLAT FINISHES *For details see the back of this sheet.*	Unpainted surfaces	Interior	White Primer K.M.1342.	Dulux, selected shade. Eggshell or Flat finish as desired.	Dulux, selected shade, Eggshell or Flat finish as desired.
		Exterior	Not recommended for exterior finishing.		
	Previously painted surfaces	Interior	Not required unless stripped to bare wood.	Dulux, selected shade, Eggshell or Flat finish as desired.	Dulux, selected shade, Eggshell or Flat finish as desired.
		Exterior	Not recommended for exterior finishing.		
SUPERMATT FLAT OIL PAINT. *For details see the back of this sheet.*	Unpainted surfaces.	Interior	White Primer K.M.1342.	Supermatt, selected shade.	Supermatt, selected shade.
		Exterior	Not recommended for exterior finishing.		
	Previously painted surfaces.	Interior	Not required unless stripped to bare wood.	Supermatt, selected shade.	Supermatt, selected shade.
		Exterior	Not recommended for exterior finishing.		
NAYRODEC WATER PAINT. *For details see the back of this sheet.*	Unpainted surfaces.	Interior	Petrifying Liquid K.Z. 2059, tinted with shade of Nayrodec selected.	Nayrodec of selected shade, thinned with Petrifying Liquid K.Z.2059 or clean water.	Nayrodec of selected shade, thinned with Petrifying Liquid K.Z.2059 or clean water.
		Exterior	As above, but not recommended for great durability externally.	Nayrodec of selected shade, thinned with Petrifying Liquid K.Z. 2059. only.	Narodec of selected shade, thinned with Petrifying Liquid K.Z. 2059. only.
	Previously painted surfaces.	Interior	First coat may be omitted if surface is in good condition.	Nayrodec of selected shade, thinned with Petrifying Liquid K.Z.2059 or clean water.	Nayrodec of selected shade, thinned with Petrifying Liquid K.Z.2059. or clean water.
		Exterior	As above but not recommended for great durability externally.	Nayrodec of selected shade, thinned with Petrifying Liquid K.Z. 2059 only.	Nayrodec of selected shade, thinned with Petrifying Liquid K.Z. 2059 only.

Information from Nobel Chemical finishes Ltd.

INFORMATION SHEET: DATA ON PRIMERS, PAINTS, VARNISHES, ETC. No 5.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 196 •

PAINTS

Product : Flat Paints

This is the fifth of a series of Sheets dealing comprehensively with the subject of painting and the protection of various surfaces.

"DULUX" EGGSHELL AND FLAT FINISHES FOR INTERIOR USE.

The finishes have been specially produced to meet the demand for interior finishes having properties comparable with those of "Dulux" Glossy. Both flat and eggshell finishes have the "Dulux" characteristics of hardness, durability and unusual hiding power as described in Information Sheet No. 192 (No. 3 of this series). These eggshell and flat finishes can be washed or cleaned repeatedly without detriment to the surface.

In application they have the ease of brushing of "Dulux" Glossy with equally good flow, so that for normal good quality work stippling, which is usual with flat paints, is rendered unnecessary. They may be applied by spray if required.

In either quality the colours may be mixed to obtain shades additional to those in the standard range.

Spreading Capacity.
Approximately 80 to 100 sq. yds. per gallon.

"SUPERMATT" FLAT PAINT.

A hard drying flat paint on an oil varnish basis, intended for interior walls and ceilings of office buildings, hospitals, churches, schools and residences. Meets the most exacting specification for quality and durability. No lead or poisonous pigment of any kind is used in its manufacture. Dries with a smooth matt finish to which dust and dirt do not readily adhere and which may be easily restored to its original freshness by washing.

Spreading Capacity.
Approximately 80 to 100 sq. yds. per gallon on surface of normal and uniform porosity.

"NAYRODEC" WATER PAINT.

A superfine oil bound water paint primarily for interior decoration giving equally satisfactory results on all types of surface.

"Nayrodec" Exterior Quality has been produced to meet a demand for a distemper for outside use.

When exterior quality is required the reference numbers given below should be quoted :

Golden Ochre	K.W.1880
Cream	K.W.1881
Terra Cotta	K.W.1882
Shell Grey	K.W.1883
Pale Grey	K.W.1884
Salmon	K.W.1886
Smoke Grey	K.W.1887
Snuff Brown	K.W.1888
Neutral Grey	K.W.1889
Buff	K.W.1937
Stone	K.W.1938
Biscuit	K.W.1939
Hazel	K.W.1940
Autumn Leaf	K.W.1885

Special Note.
"Nayrodec" Exterior Quality must be thinned with Petrifying Liquid K.Z.2059.

Covering Capacity.
Approximately 300 to 500 sq. yds. per cwt.

Previous Sheets in this series were Nos. 188, 190, 192 and 194.

Name of Manufacturers : Nobel Chemical Finishes, Ltd.
Address : Architectural Dept., Slough, Bucks
Telephone : Slough 528
London Office : Thames House, Millbank, S.W.1
Telephone : Victoria 2873-2874

IMPROVING THE VIEW

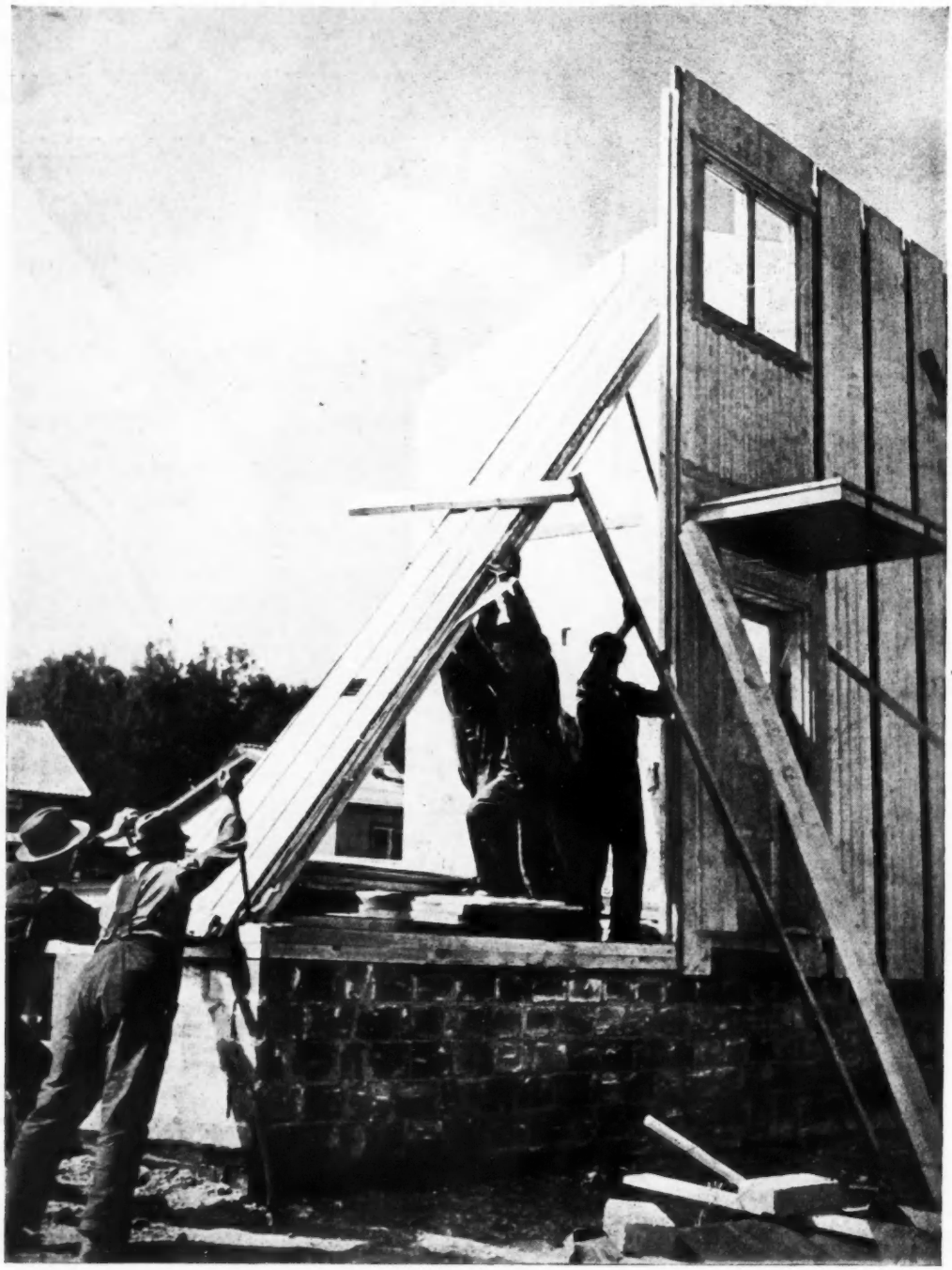
BLACKPOOL VERSUS THE WIRRAL SOCIETY



THE Wirral Society (the Hundred of Wirral Committee of the Cheshire Branch of the C.P.R.E.) has been conducting a campaign against the advertising methods of the Blackpool Corporation, as exemplified in this hoarding.

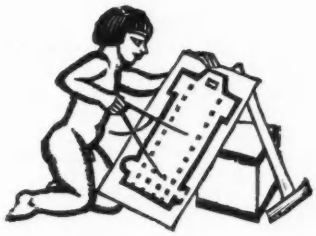
The hoarding stood for some while beside the Chester to West Kirby road: the Society suggested its removal and, after pressure by the County Council, whose bye-laws would have allowed enforcement of its removal, it was taken down. Within two months, however, it reappeared at Little Sutton, on the Chester to Birkenhead road, in an urban district and, therefore, outside the County Council's control. The Wirral Society has protested to the Blackpool Corporation, but the latter body does not seem to hold the same opinions as the Society on the æsthetic merits of the advertisement.

"Our view," said an official of the Blackpool Publicity Department, "is that they (these advertisements) do not disfigure the countryside. In many cases they even improve the immediate surroundings by hiding tumble-down hovels, unsightly slag-heaps, and so on." Further, a Blackpool councillor told the Wirral Society that the advertisement has "something of an artistic nature about it, and in certain positions has the effect of improving the view." Nevertheless, the Society is continuing its efforts.



BUILDING THEIR OWN HOUSES

A number of working-class housing colonies have been successfully established in Sweden, on the outskirts of Stockholm and Gothenburg, organized on the principle that the erection of each dwelling is done by the future occupant, generally with the help of his neighbours and friends. The material is supplied by the city authorities in largely pre-fabricated, easily assembled, parts, and printed drawings and instructions are issued at the same time, the work being done under official supervision. The photograph above shows one stage in the progress of a typical dwelling: the erection of the external walls, which are delivered on the site in sections, already complete with door and window openings. A description of this Swedish housing experiment, in which details are given of the financial organization and of the various types of design and construction employed, constitutes the eighth of the JOURNAL'S *"Housing Supplements," in this issue.*



L.C.C. HOUSING: THE PRIVATE ARCHITECT'S SHARE

HOW much opportunity for architects is to be read into the proposal that architects in private practice should undertake a share of the important task of housing to which the London County Council stands committed? As quoted in the last issue of this JOURNAL, the terms of the recommendation on the subject, laid before the L.C.C. by its Housing and Public Health Committee, betray a certain reserve. "The proposal should be adopted as an experiment"; ". . . it may be that . . . the Council may secure some useful experience by reason of differences in design, treatment, etc." (that is quite possible); "we should be authorized, subject to the concurrence of the Finance Committee, to settle the details of the arrangements with them" (namely, presumably, the firms of architects to be selected by the Housing Committee and the fees they are to be paid); and so forth.

Nevertheless, the suggestion is a definite step forward, on which the Council is to be congratulated. It does tacitly recognize the principle of co-operation, that is to say, of wise planning, under which ability at large should be drawn into the service of the community. Some may think the recognition overdue; they will make ironical note that it comes, even now, at the behest of expediency rather than of forethought. But, however it comes, it will hardly take by surprise our own readers, for we have been diligent in our exhortations to them to study the technique of housing against a contingency we have always anticipated. During the past nine months or so we have published a number of HOUSING SUPPLEMENTS by way of prelude to the profession's housing adventure. With the aid of these and such other informative literature as the recent housing interest has evoked, it is to be hoped that the profession will find itself properly equipped.

We began by speaking of the private architect's "*share* of the important task"; for the phraseology of the Committee's statement is definite enough upon this point. Clearly, no radical departure from established official usage is in contemplation: the aid of architects in private practice is to be asked in an emergency to supplement the work of the Architects' Department of the L.C.C.—not at all to supersede it. The proposal arises primarily from the fact that that department is labouring under pressure (a condition to which, surely, it can have been no stranger in the past?), due in part to "the bulk of other work already in hand." As to what is to happen when that pressure has been relieved nothing is said. It is, however, impossible to suppress the reflection that the end of the present month will see the retirement (full of honours) of the Council's chief architect. The situation may be thought to derive from that coincidence a certain fluidity that it would not otherwise present.

There is one sentence from the Committee's recommendation that deserves especial remark: "It is essential," it runs, "that the firms (of architects) to be employed should be directly responsible to the Council, the Council's officers being concerned only in advising as to the suitability of the plans from the housing point of view." That may imply a great or small degree of official veto over the designs of the architects in private practice; but what is important is that (if the words mean what they say) the private architects will be responsible only to the Council and not to the Council's Architects' Department: a wise and diplomatic provision, and one that is best calculated to attract architects "of standing, with special experience in the erection of block dwellings."

At the moment the Committee's recommendation has yet to be implemented, but as it has originated from the determination to expedite the housing programme of the L.C.C., presumably that body will lose no time in ratifying it. We commend to its attention, when so engaged, the points we have indicated as likely to arise in the minds of architects in private practice. It would both clarify the situation and save time to anticipate certain questions that will assuredly be asked; among them:—

(1) What is the extent of the work that is to be "put out"?

(2) On what principles is the assistance to be recruited—by nomination, invitation or application—and thereafter directed?



The Architects' Journal
Westminster, S.W.1
Telephones: Victoria
0 2 1 2 - 7
Telegrams:
Buildable
Parl
London

NOTES & TOPICS

WEAK AND BLEAK BRIDGES

MR. HORE-BELISHA has just sent out a circular letter urging local authorities to submit plans for new bridges to the Royal Fine Arts Commission. He adds that neglect to act on this advice will be taken into account in all applications for a grant from the Road Fund.

*

In theory this is clearly a move in the right direction. The trouble is that in practice local authorities usually interpret "suitability to their surroundings" as meaning putting art *on to* a structural design already complete in itself, instead of putting art *into* the planning of the bridge as a structure. The initial design may be good or bad, but "surface rendering" with a veneer coat of period art to "hide the engineering features" will not improve it in either case.

*

As some 6,000 weak bridges have been scheduled for rebuilding under the new Five Year Plan it looks as if the Royal Fine Arts Commission will be kept pretty busy.

*

That it may be obliged to increase its staff is not the only aspect of this question which is agitating M.P.s.

*

Sir John Pybus, a former Minister of Transport, has given notice of his intention to ask whether Mr. Hore-Belisha has taken cognizance of the fact that when the London County Council adopted this course and submitted a design for a new Waterloo Bridge by Sir Giles Gilbert Scott, his then colleague on the Royal Fine Arts Commission, Sir Reginald Blomfield, strongly opposed the scheme on the ground of ugliness and unsuitability for its immediate environment.

*

And further, whether he will at once reassure local authorities that they will rank equally for a grant in respect of bridges even if they prefer to submit their designs, not to the Royal Fine Arts Commission, but to some other acknowledged body of architectural or engineering experts.

DIPLOMACY AT THE A.A.

That was a surprising meeting at the A.A. last week. You wouldn't expect discussion of proposed revisions to the A.A. bye-laws to provide good after-dinner entertainment; but so it proved.

*

Apparently the A.A. Council had not expected such interest in the new bye-law which aroused all the controversy—a bye-law creating a kind of probationer class in the A.A., without voting powers, to which students should belong. However, the students rolled up in their dozens to defend their status, and the chairman's attempts to cope with rather an undignified situation were heroic, if. from the Council's point of view, unavailing.

*

The situation, of course, was not of his making; he was only the mouthpiece of his Council, who naturally wanted discussion of their plans put off to a less public occasion. The climax of the meeting came when a motion to do so had 65 votes cast against it and 64 for postponement, the chairman claiming his casting vote to make it equal, and wondering what should be done next. A charming conceit, Mr. Chairman. But the discussion took place, and the students won—by an overwhelming majority.

*

Of course, if the students feel strongly enough about any measure (as they did about this when they found what was proposed), they can always outnumber the Council—perhaps the realization of that fact was behind the Council's scheme.

THE WITNEY RESULT

Silly though it may be for architects to be seen quarrelling in public about the size of window panes, it is some comfort to find official opinion firmly on the side of sanity.

*

Since the Witney Case was reported in the JOURNAL, the arbitrator has given his award for Mr. Gardner, and the local Town Planning Committee will take a long time to regain the prestige they must have lost through their part in the matter.

*

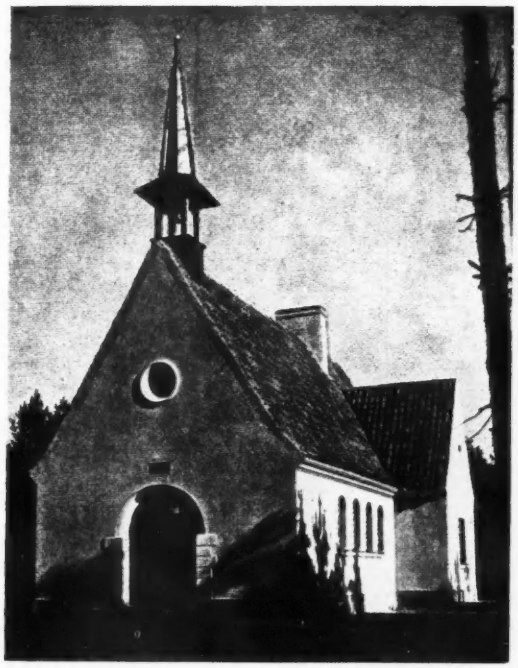
Besides congratulations, condolences must be offered to Mr. Gardner on being dragged into opposition to a body with whose principles (if not whose practices) he must really agree. But the people really to be congratulated are the speculative builders, who came out of the court having given the impression that *they* were the people who looked after the housewife's convenience while the professional architects squabbled over the elevations.

A JUDGE TURNS SOUND CRITIC

Mr. Justice Mackinnon had some frank words to say recently about "dreadful little houses erected without the assistance of an architect."

*

The occasion was an appeal by the P.M.G. against the Borough Council who refused permission to put up an extra telegraph pole in Maidstone Road, New Southgate.



From the exhibition of Modern Latvian Architecture, organized recently by Professor Eizens Laube and the Latvian Union of Architects, and held at the Municipal Museum at Riga: a hospital chapel at Strencu; architect, Fr. Skujins.

His Lordship said that one more pole would not "depreciate the beauty or the lack of beauty in that street."

*

One remark of this sort, coming from a Judge of the High Court, is worth more than the loudest shouting by societies, whether architectural or other. A very great deal of attention is paid to such pronouncements by Judges, and Mr. Justice Mackinnon's comments have received their share of notice in the Press.

*

The G.P.O. is remarkable amongst Government departments for its "design consciousness," and here, by accident, it has brought about a nice point. I look forward to the day when the Post Office, of set purpose, reserves its worst examples of street furniture for such districts as Maidstone Road, New Southgate. When that time comes the pillar boxes will all be of the ornate Early Edwardian type; there will be telephone poles and the worst types of kiosk in profusion, thus providing these "dreadful little houses" with exactly the amenities they deserve.

JUBILEE DECORATION

I am glad to hear that the Bond Street association of shopkeepers has appointed Mr. Walter Goodesmith to act as architect in charge of the Jubilee decorations in that street. The fact should be given the widest possible publicity, because there are many such associations and the "snob value" of Bond Street must be considerable enough to suggest to some of them that they might well follow such an admirable example.

*

Meanwhile, if there should be only one street's decorations co-ordinated I cannot say that I look forward with any great glee to the appearance of the rest of London during the festivities. Admittedly there are many buildings which will be better covered up; but the desirability of so doing will vary according to what is used for the gracious act of camouflage.

*

In addition, of course, it is not undesirable that architects should decide what is best covered up and what emphasized architecturally—by floodlighting as well as festooning.

GREY WORNUM ON TIMBER

Having seen the number of different woods used by Mr. Wornum in the new R.I.B.A. building, I was not in the least surprised to find him the guest of honour at a recent luncheon given by the Timber Development Association, nor, knowing him, was I surprised to find him talking a large amount of modest good sense in a short time.

*

Light relief at shows of this kind is always a great help, and I was delighted by his reference to the "friendly bug-bearing trees" which produce shellac, after a short description of the real bugbears of dry rot and other evils which have now been finally laid—"or whatever one does do with bugbears."

AN ENGINEER DEFINES

In the course of a recent lecture on architecture and engineering, which was one of a series, organized by the *Daily Express*, on "Choosing a Profession," Sir E. Owen Williams made some pointed but genuinely constructive criticisms about both.

*

The most essential thing in each, he began, was "a capacity for detachment." I quote some of the other remarks that I felt were decidedly worth pondering:

Advice based on present circumstances is dangerous in that it encourages entry by false education into conditions which cannot last very long.

Ability to draw is often regarded as the sole qualification for being an architect, and for the builder presumably merely love of the open air.

The architect is regarded as a façade-mongerer and the builder as a construction broker.

In law the builder is supposed to be at least as good an architect as the architect himself.

In knowledge the architect should be a master of construction. He is not supposed to have a more experienced knowledge of design than of any other particular part of the craft of building.

Actually the word "engineering" means "one who begins at the beginning," having the same derivation as "genesis."

THE CONCRETE COMPETITION

I have not yet seen the drawings in the competition promoted by the Cement Marketing Company for working-class flats in reinforced concrete; I merely know (as indeed everybody now does) the names of those who are premiated.

*

What I am wondering is whether they all *look* like concrete. I expect that some do and that, again, some do not.

ASTRAGAL

Owing to the inclusion in this issue of the eighth of our series of HOUSING SUPPLEMENTS *we are compelled to hold over the Technical Section. This will be resumed next week, with the ninth of Dr. Faber's and J. R. Kell's articles on Heating, Air Conditioning and Mechanical Equipment.*

NEWS

POINTS FROM THIS ISSUE

The Prince of Wales is to speak on "Co-ordination in Housing" at a meeting of the Housing Centre on March 28 363

The result of the Cement Marketing Company's competition for workingmen's flats 364

A Swedish Housing Experiment: cottages designed largely in prefabricated parts and assembled and erected by their future occupants 377

"The cost of towers, pavilions, etc., on Government buildings is 3s. 6d. per cu. ft." 387

COUNCIL BAN WIMBLEDON FLATS

The Wimbledon Council has refused to allow a block of flats to be built on the site of the Clock House, a large house on Wimbledon Common. The scheme was opposed by local residents, and Sir Charles Tyrrell Giles, chairman of the Putney and Wimbledon Common Conservators, said a block of flats would spoil the view over a wide area and ruin the value of neighbouring property.

BROOK GREEN DISPUTE SETTLED

The dispute between Hammersmith Borough Council and residents of Brook Green, who fought the proposal to erect a new Town Hall on the Green, ended last week in a victory for the residents. The Council approved a recommendation of its General Purposes Committee that it should proceed as quickly as possible with the building of the Town Hall on the original site opposite the Green.

The committee's report stated: "While being still of the opinion that the site at Brook Green is, from a town planning point of view, an ideal one, and that its utilization would have effected a substantial public improvement, which would have been appreciated by future generations, we are of the opinion that, having regard to the strenuous opposition the proposal has invoked, the doubt which has arisen as to the legal position, and the urgent necessity of proceeding as soon as possible with the provision of the new Town Hall, arrangements should be made for it to be built on the site already acquired by the Council on the south side of Brook Green."

THE ARCHITECTS' DIARY

Thursday, March 7

ROYAL ACADEMY. *At Burlington House, Piccadilly, W.1. Exhibition of British Art in Industry. Open until further notice.*

ARCHITECTURAL ASSOCIATION. *At 36 Bedford Square, W.C. Exhibition of the working drawings of the London University Building. Until March 9. 10 a.m. to 10 p.m.*

ART SCHOOLS AND INDUSTRY. *At the County Hall, S.E. Exhibition of Industrial and Advertisement Art by art schools in London. Until March 16. 11 a.m. to 9 p.m.*

NOTTINGHAM, DERBY AND LINCOLN ARCHITECTURAL SOCIETY. *At Derby. "The Future of English Domestic Architecture." By Darcy Braddell.*

INSTITUTION OF CIVIL ENGINEERS. *At the Hotel Metropole, Leeds. "Sydney Harbour Bridge." By J. Walton. 7.30 p.m.*

GEFFRYE MUSEUM, *Kingsland Road, Shoreditch, E.2. "British Empire Timbers, their Success in Modern Furniture and Decoration." By H. P. Shapland. 7.30 p.m.*

Friday, March 8

TOWN PLANNING INSTITUTE. *At Caxton Hall, Caxton Street, S.W. "Planned Distribution of Heating." By Dr. Oscar Faber. 6 p.m.*

INCORPORATED INSTITUTE OF BRITISH DECORATORS. *Annual Dinner and Dance. At the Trocadero Restaurant, Piccadilly, W.1. 7.30 p.m.*

L.C.C. SCHOOL OF BUILDING, *Ferndale Road, Brixton, S.W. Exhibition of Work and Distribution of Prizes. By Basil C. Aldous. 7 p.m.*

Monday, March 11

R.I.B.A., 66 *Portland Place, W.1. "The Exhibition of Industrial Art at the Royal Academy." By J. Spedan Lewis and John de la Valette. 8.30 p.m.*

Tuesday, March 12

ILLUMINATING ENGINEERING SOCIETY. *At the Institution of Mechanical Engineers, Storey's Gate, S.W.1. "Recent Developments in the Lighting of Airways and Aerodromes." By H. N. Green. 7 p.m.*

INSTITUTION OF HEATING AND VENTILATING ENGINEERS. *(London and District Branch.) At the Borough Polytechnic, Borough Road, S.E.1. "Modern Methods of Automatic Control for Central Heating Systems." By B. T. Winafield. 7 p.m.*

ROYAL SANITARY INSTITUTE, 90 *Buckingham Palace Road, S.W.1. "London's Water." By Sir William Prescott. 5.15 p.m.*

Wednesday, March 13

ROYAL SOCIETY OF ARTS, *John Street, Adelphi, W.C.2. "Properties, Characteristics and Uses of Stainless Steel." By S. A. Main. 8 p.m.*

NEW LONDON FIRE BRIGADE HEADQUARTERS

A new scheme for the headquarters of the London Fire Brigade has been prepared for the L.C.C. About a year ago the Council decided to build new premises to replace the old building in Southwark, and a site was acquired on the Albert Embankment at a cost of £85,000. Plans were prepared for a building to cost £250,000, but it is now proposed to acquire additional property, and the new scheme will add £279,000 to the cost. It provides, among other things, for additional residential accommodation for the training school staff, the closing of the stations in Vauxhall and Waterloo Road, an extension of the administrative offices, and the provision of a conference hall.

TRANSPORT IN U.S.S.R.

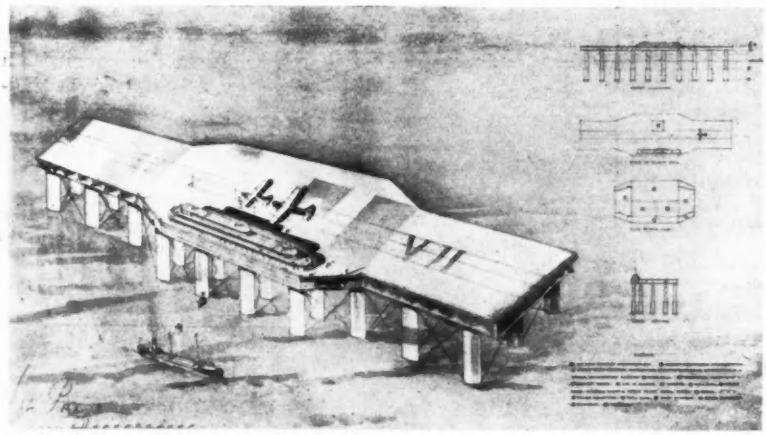
The Commissariat of Means of Communication of the U.S.S.R. has decided to demolish a large number of railway stations and other railway buildings inherited from the old regime. The formulation of the new railway stations formed the subject of a conference of architects recently held in Moscow. Dozens of Soviet towns are to have new stations. A new one is already being built in Novosibirsk, and a similar station has been designed for Sverdlovsk. The projected new Kursk Railway Station in Moscow, several designs for which have already been made, will, it is said, be one of the largest in the world.

NORTH BRITISH ARCHITECTURAL STUDENTS' ASSOCIATION

At the yearly Congress of the North British Architectural Students' Association held in Glasgow last week, it was decided that the centre for next year's Congress would be Newcastle-upon-Tyne.

The Association is composed of architectural students from Manchester, Sheffield, Leeds, Edinburgh, Glasgow and Newcastle.

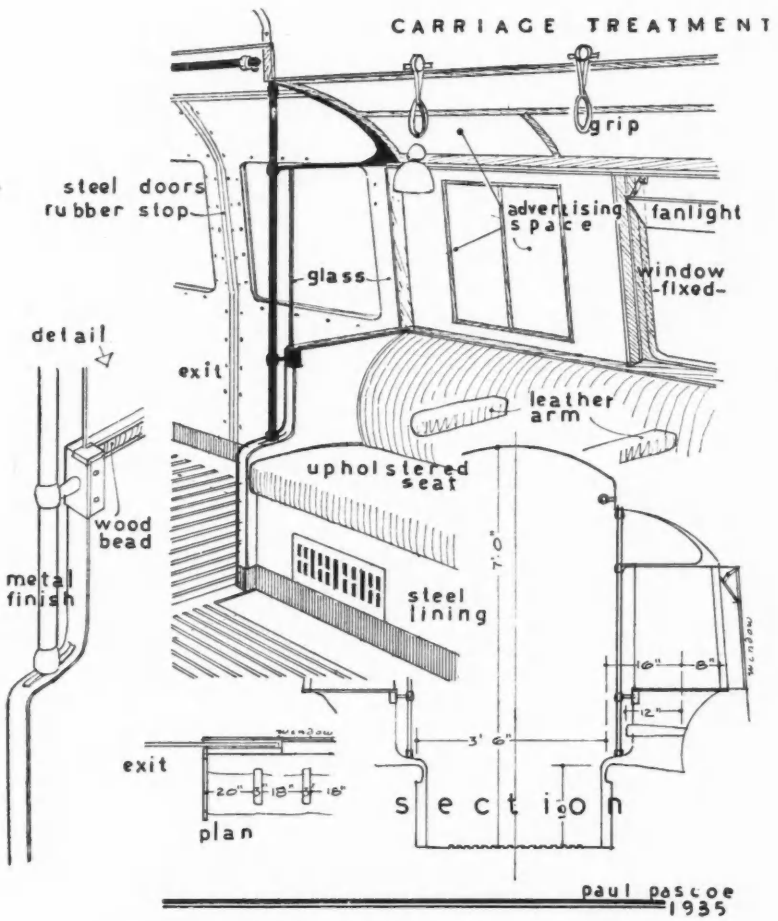
It was also announced that a Newcastle student, Mr. L. B. Starling, had been successful in winning the first architectural competition open to all the schools of architecture in the Association. A photograph of the winning design is reproduced on this page.



Landing Stage in Mid-Atlantic. Winning design, by L. B. Starling (of the Armstrong College School of Architecture) in the competition promoted by the North British Architectural Students' Association. See note on this page.

TIMBER DEVELOPMENT

At a luncheon held last week by the Timber Development Association (Lord Dunmore in the chair), Mr. G. Grey Wornum read a



A typical carriage from the London Underground Railways.

short paper on "The Application of Timber to Modern Architecture." Timber, Mr. Wornum said, was the one material which increased in beauty with the passage of time and which, if properly used, could be relied upon to behave as it should. The variety of colours and textures now available in different kinds of wood seemed to him to be unlimited, and he could not imagine any finish for which wood was unsuitable. From the structural point of view timber had much to commend it, particularly since a cheap process of fireproofing would probably be available during the next few months, but architects were still a little doubtful of the timber-framed small house. Owing to the development of the brick tradition the local builder could no longer translate a simple plan into a reliable and economical rule of thumb wood frame, and this meant added complications and detailing of drawings, as well as extra supervision on the job.

OVERCROWDING

Speaking at a luncheon of the Building Societies' Association on Friday last, Sir E. Hilton Young, the Minister of Health, said that if the evil of overcrowding was ever to be effectively remedied, they must be prepared to rebuild, in relation to proper schemes of town planning, the overcrowded inner areas of our towns which were badly developed and obsolete. As regards a large part of the overcrowded population, it was neither right nor practicable to expect them to move far away from their present homes and work. Suppose that we were to make it a condition of the rehousing of this part of the population now crowded into the inner areas that they should be decentralized, and that the new accommodation to be provided for them should be in garden cities, suburbs and satellite towns, what would be the result? The result must be either to inflict upon them intolerable hardship, or to postpone the remedy for overcrowding which was so urgently required to a far distant future—a future, indeed, that might never be capable of practical realization.

A.A.S.T.A.

The annual dinner of the Association of Architects, Surveyors and Technical Assistants is to be held at the Rembrandt Rooms, Brompton Road, South Kensington, on Friday, March 29.

LIVERPOOL AIRPORT

Liverpool Corporation Finance Committee last week accepted tenders for the construction of the control tower and of the first of two hangars at Liverpool airport. The designs for the control tower and administrative building was recently illustrated in THE ARCHITECTS' JOURNAL.

For the building work the tender of Sir Lindsay Parkinson & Co., Blackpool, of £24,220, was accepted, and for the steel construction that of Messrs. F. Morton & Co., Garston, of £20,090.

CENSUS OF ENGLAND AND WALES: A SPECIAL VOLUME ON HOUSING

The latest volume issued in connection with the 1931 Census of England and Wales is entirely devoted to an analysis of housing conditions.

The volume is entitled *Housing: Report and Tables*, and comprises tables and commentary which would have been distributed between the "General Tables" and "General Report" volumes had the practice of former occasions been followed.

It was thought desirable, in view of the public interest in housing at the present time, to bring together the tables and comments relating to the subject into a special volume.

The main subjects on which information is given are:—

Structurally Separate Dwellings—Number, Increase and Size.
Increase and size of Private Families.
Housing Conditions as expressed by Density Statistics.
Density Statistics as an expression of Overcrowding Proper.
Special investigations:
of Camberwell, Sheffield and the worst wards in London on the basis of a specially constructed housing standard;
of Manchester on the accommodation-sharing question;
and of some post-war housing estates.

These are of particular interest, and lead to a final chapter devoted to "Housing Requirements in the Immediate Future."

This Report will be the subject of our next Housing Supplement.

THE COAL UTILIZATION COUNCIL

Mr. Raymond Walker has been appointed architect-adviser to the Coal Utilization Council.

ROYAL SOCIETY OF BRITISH SCULPTORS

The Gold Medal "for distinguished services to sculpture" has been awarded to Capt. Adrian Jones, M.V.O., H.R.B.S., by the Royal Society of British Sculptors.

THE HOUSING CENTRE

H.R.H. the Prince of Wales has consented to speak on "Co-ordination in Housing" at a meeting of the Housing Centre, which is to be held at the Mansion House on Thursday, March 28.

The growth of the voluntary movement has been one of the most striking features in the recent development of interest in housing and slum clearance, and in 1933 the four chief societies concerned with housing and town planning propaganda—the Garden Cities and Town Planning Association, the Mansion House Council on Health and Housing, the New Homes for Old Exhibition, and the Under Forty Club—combined to form a Housing Centre for joint action. The Centre, the activities of which are directed by a representative Committee, has had its headquarters for the past eighteen months at Bush House, first in the model cottages and recently in small offices in the building itself. The need for permanent and suitably equipped premises has for long been urgent, and these have now been found at 13 Suffolk Street, which has available a large gallery

for exhibitions and conferences. A number of firms have provided a great part of the equipment and decorations for the Centre, free of charge. The newly formed National Federation of Housing Societies, to which it is expected the Prince will make special reference in his Mansion House speech, and the Society of Women Housing Estate Managers will also have their headquarters in the same building, and close co-operation will be maintained between all the bodies housed in the Centre. The Centre will be opened formally on March 20 by Sir E. Hilton Young, the Minister of Health.

A most interesting record of "A Hundred Years of Housing" is now in process of formation by the Centre, and will be the first exhibition to be shown at the new premises. The facilities at the Centre are available to representatives of municipal authorities and housing societies, and to the public.

A sum of approximately £2,000 per annum will be required to maintain the Housing Centre, £500 of which is needed for the Exhibition, and an appeal is being launched with a view to obtaining a capital sum for the endowment of the Centre and an additional income from annual subscriptions. It is proposed to form a society entitled "Friends of Housing" for those who are interested in the work, with a minimum subscription of £1, which will entitle members to certain special privileges.

ANNOUNCEMENT

Messrs. Webster and Trower, chartered architects, have dissolved partnership. Mr. W. E. Norman Webster, F.R.I.B.A., will continue to practice at 1A and 2A Station Street, Spalding, and Mr. T. F. Trower, L.R.I.B.A., will practice at "Elsom House," Broad Street, Spalding.

R. I. B. A.

R.I.B.A. EXHIBITION ON TOUR

The recent Exhibition of International Architecture held during the centenary of the Institute is to begin a tour of provincial centres by being opened at the Manchester Art Gallery by Sir Josiah Stamp on Friday, April 5. It will then be transferred to the Walker Art Gallery, Liverpool, early in May and will be open to the public there from the middle of May to the end of June. After Liverpool it will probably be shown at Birmingham Municipal Art Gallery and then at Hull Municipal Museum; the dates of these are not yet settled. Applications have been received from other towns and dates are in process of being arranged.

The exhibitions at Manchester, Liverpool, Birmingham and Hull will be the full R.I.B.A. Centenary Exhibition, consisting of some 800 photographs and 30 models. A new section of some 30 photographs will, however, be added illustrating the new building of the R.I.B.A. in Portland Place.

COMPETITION NEWS

COMPETITION RESULT

The result of the competition (promoted by the Cement Marketing Co.) for designs for working-men's flats in reinforced concrete has been announced as follows:—

First premium (£300): Architects: Messrs. B. Lubetkin and Tecton, 57 Haymarket, S.W.1, in collaboration with Engineer: Mr. Ove Arup.

Second premium (£200): Architects: Messrs. A. P. Lloyd, M.C., A.R.I.B.A., and E. W. Collins, A.R.I.B.A., 71 Lincoln's Inn Fields, in collaboration with Engineer: Mr. George Smith, B.SC., A.M.INST.C.E., A.I.STRUCT.E.

Third premium (£100): Architects: Messrs. H. V. Ashley and Winton Newman, FF.R.I.B.A., 14 Gray's Inn Square, W.C.1, in collaboration with Engineers: Messrs. Whitaker, Hall and Owen.

One hundred and twenty-three schemes were submitted: these will be on exhibition at the Imperial Institute, South Kensington, from March 25 to March 31 inclusive. The winning designs will be published in a later issue of the JOURNAL.

The assessors were: Messrs. Joseph Emberton, F.R.I.B.A., Burnard Geen, M.INST.C.E., and L. H. Keay, O.B.E., F.R.I.B.A.

COMPETITION FOR PUSHKIN MONUMENT

In connection with the forthcoming centenary of the death of Pushkin, the Leningrad Soviet has requested the Union of Architects to promote an All-Union competition for the design of a monument of the poet. The Union has convened a meeting of Pushkin authorities, painters and sculptors, at which the details of the competition will be decided.

HOUSES

The management of the Manchester Building Trades Exhibition, which is to be held from April 2 to 13, invites architects to submit designs for houses of three types. A premium of £20 will be awarded to the author of the design placed first in each class, and a further sum has been allotted at the discretion of the assessors (Messrs. W. A. Johnson, F.R.I.B.A., Francis Jones, F.R.I.B.A., and Prof. R. A. Cordingley, M.A., F.R.I.B.A.). The competitions are open to all British subjects, and full particulars are obtainable from Provincial Exhibitions, Ltd., City Hall, Deansgate, Manchester. The latest date for submission of designs is March 25.

ALTERATIONS TO THE BIRKDALE CONSERVATIVE CLUB

The following notice has been issued by the R.I.B.A.: "The conditions of the competition for proposed structural alterations at the Birkdale Conservative Club are not in accordance with the regulations of the R.I.B.A. The Competitions Committee are in negotiation with the promoters in the hope of securing an amendment. In the meantime members should not take part in the competition."

SUTTON COLDFIELD: SCHOOLS

The Sutton Coldfield Education Committee has decided to promote a competition for designs for proposed new schools at Boldmere. Mr. A. G. Bunch, F.R.I.B.A., has been appointed assessor.

Competitions Open

April 8.—Sending-in Day. Monument in Grey Cornish granite for the Cornish Quarry Masters' Association. Assessors: The Hon. Humphrey Pakington, F.R.I.B.A., C. Lovett Gill, F.R.I.B.A., C. H. Holden, F.R.I.B.A., Howard Robertson, F.R.I.B.A. and M. L. Wetherall. Premium: £50. Conditions are obtainable from the Secretary of the Architectural Association, 34 Bedford Square, W.C.1. Latest date for submission of designs, April 8.

April 30.—The Croydon Corporation invite the submission of designs for laying out an area in Central Croydon which is to provide an extension of the Civic Centre of the Borough and to improve central means of communication. Assessor: Dr. Thomas Adams, F.R.I.B.A., F.S.I., M.T.I. Premiums: £500 for the design placed first; £350 to be divided (in proportions to be determined by the Assessor) for not more than three designs placed next in order of merit. A copy of the conditions is obtainable on application to the Town Clerk, Town Hall, Croydon. (Deposit £1 1s.) Designs are to be submitted not later than April 30.

May 31.—Sending-in day. Police station, dwellings and hospital, Bishopsgate, for the Corporation of London. Assessor: H. Austen Hall, F.R.I.B.A. Premiums: £250, £100 and £50. Conditions, etc., are obtainable from the Town Clerk, Guildhall, E.C.2. (Deposit £1 1s.) Last date for submission of designs, May 31.

June 28.—Sending-in Day. Municipal offices for the Birmingham City Council. Assessor: Sir Reginald Blomfield, R.A., PP.R.I.B.A. Premiums: £1,000, £600, £400 and £250. Conditions, etc., are obtainable from Mr. Herbert H. Humphries, M.Inst.C.E., the City Engineer and Surveyor, Council offices, Birmingham. (Deposit £3 3s.) Last day for questions, March 30. Designs must be submitted to the Town Clerk, Birmingham, not later than June 28.

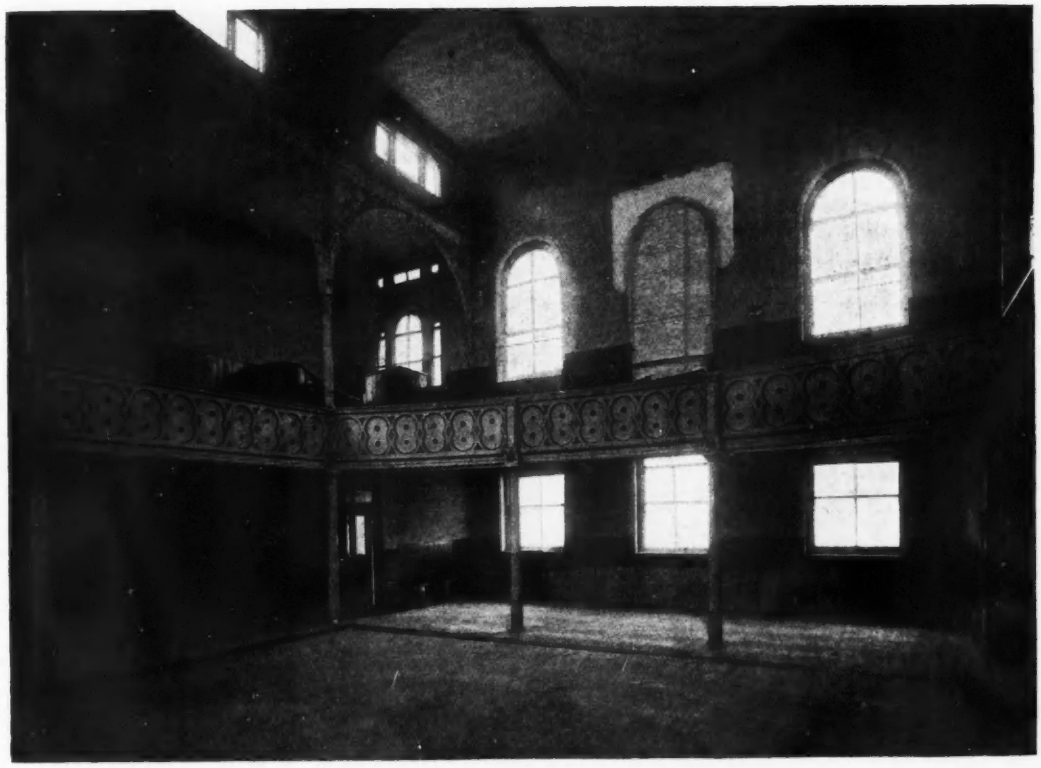
July 31, 1935.—Competition for design for open fireplace and surrounds (to be constructed in any materials the competitor deems practical or desirable) for the Coal Utilization Council. Assessors: the Directors of the Building Centre. Premiums: 50 guineas, 20 guineas and 10 guineas for designs placed first, second and third, respectively. Conditions, etc., are obtainable from the Coal Utilization Council, Columbia House, Aldwych, W.C. (The closing date for this competition has been extended; see note on page 580 in our issue for October 18.)

THIS ARSHETECTURE

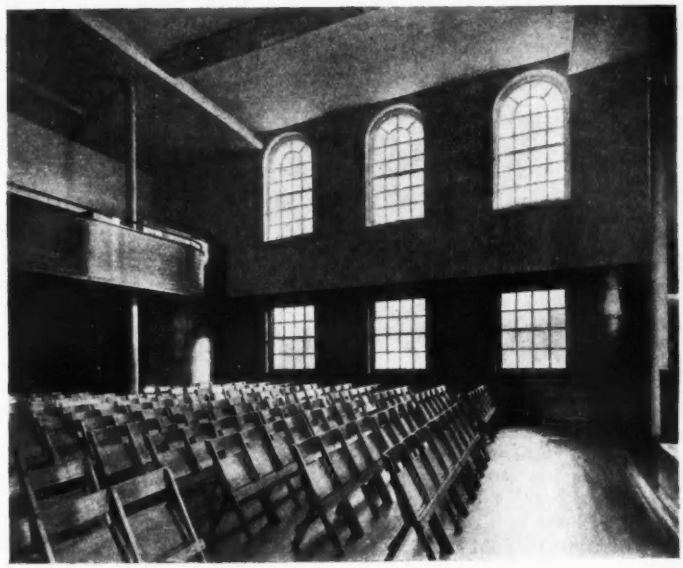
The (British Art in Industry) Exhibition is extraordinarily attractive. It is entirely lighted by artificial light so that on the darkest and most depressing day the visitor is greeted with a glow of beauty.

From the *Journal of the Royal Society of Arts.*

NORTH GATE HALL, OXFORD

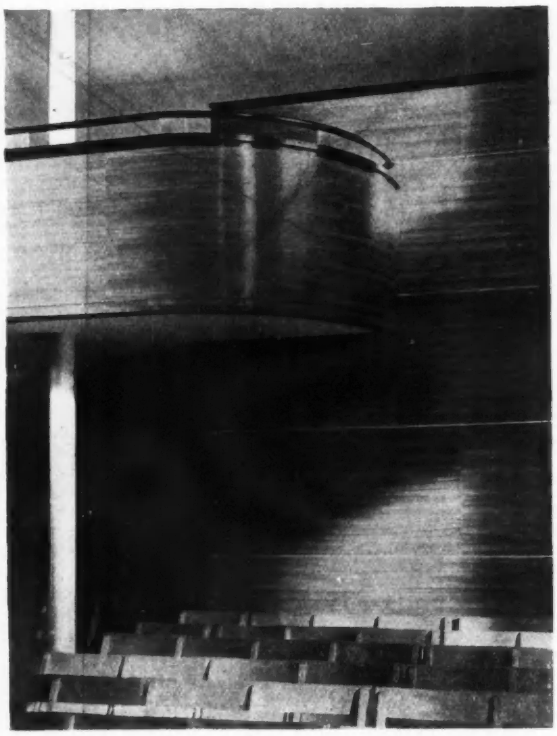


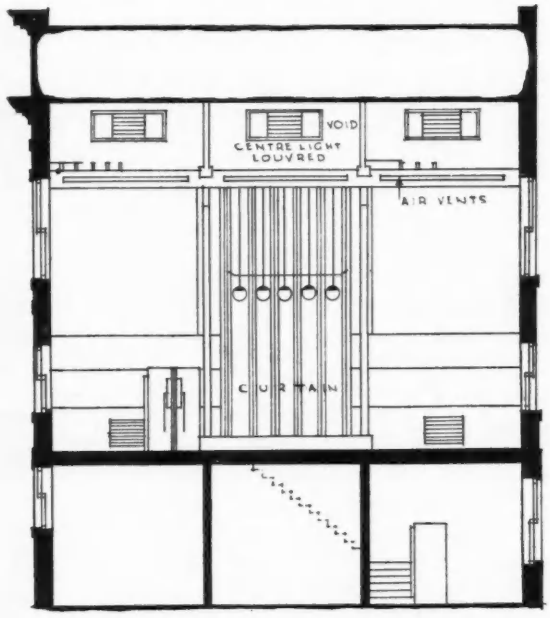
DESIGNED BY SIR JOHN BURNET, TAIT AND LORNE



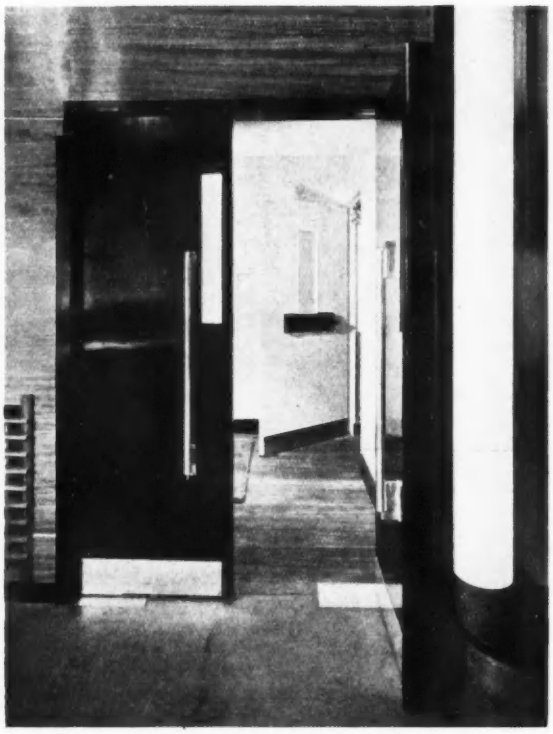
The Hall, before reconstruction, was the United Methodist Free Church and was built in 1871. The alterations mainly consist of the removal of the whole of the old galleries, vestibules and the cast iron roof and gallery supports, which can be seen in the illustration above. A new and lower ceiling has been formed in two levels to cover the old and unsightly iron roof brackets, which had to remain for structural reasons; the roof beams and balcony are now carried by slender steel columns. Two new entrance vestibules have been formed with new doors to St. Michael's Street and with teak staircases to the Hall. In the Hall the lower part of the walls has been panelled with Australian walnut, the horizontal "V" shape joints of which have been gilded. The walls above the panelling and the ceiling have been painted white; and the floor is covered with blue coloured ruboleum. The main lighting is provided by two continuous opal glass ceiling troughs and the heating by means of a gas fired low pressure hot water system. Accommodation is provided for 377 persons, including 74 in the gallery. The façade to St. Michael's Street has been modified by the removal and building up of unnecessary windows and ornament to simplify the appearance.

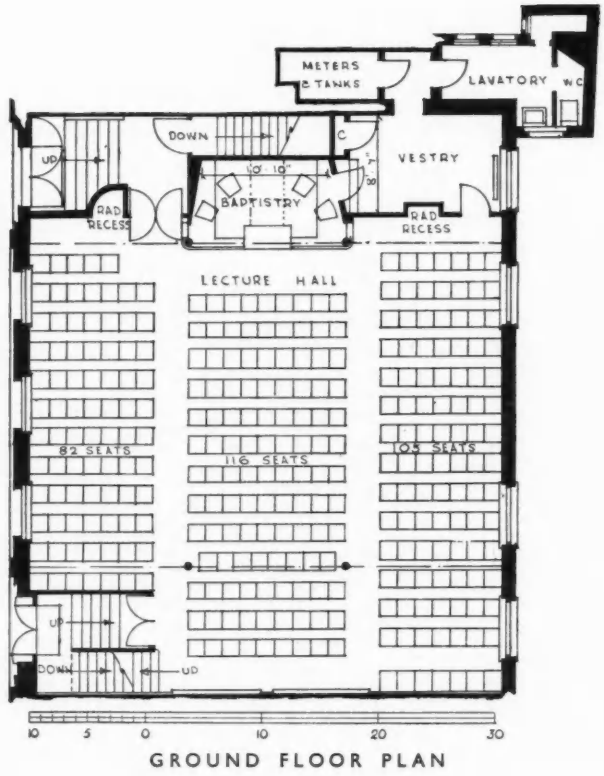
NORTH GATE HALL, OXFORD: DESIGNED BY





SECTION LOOKING WEST

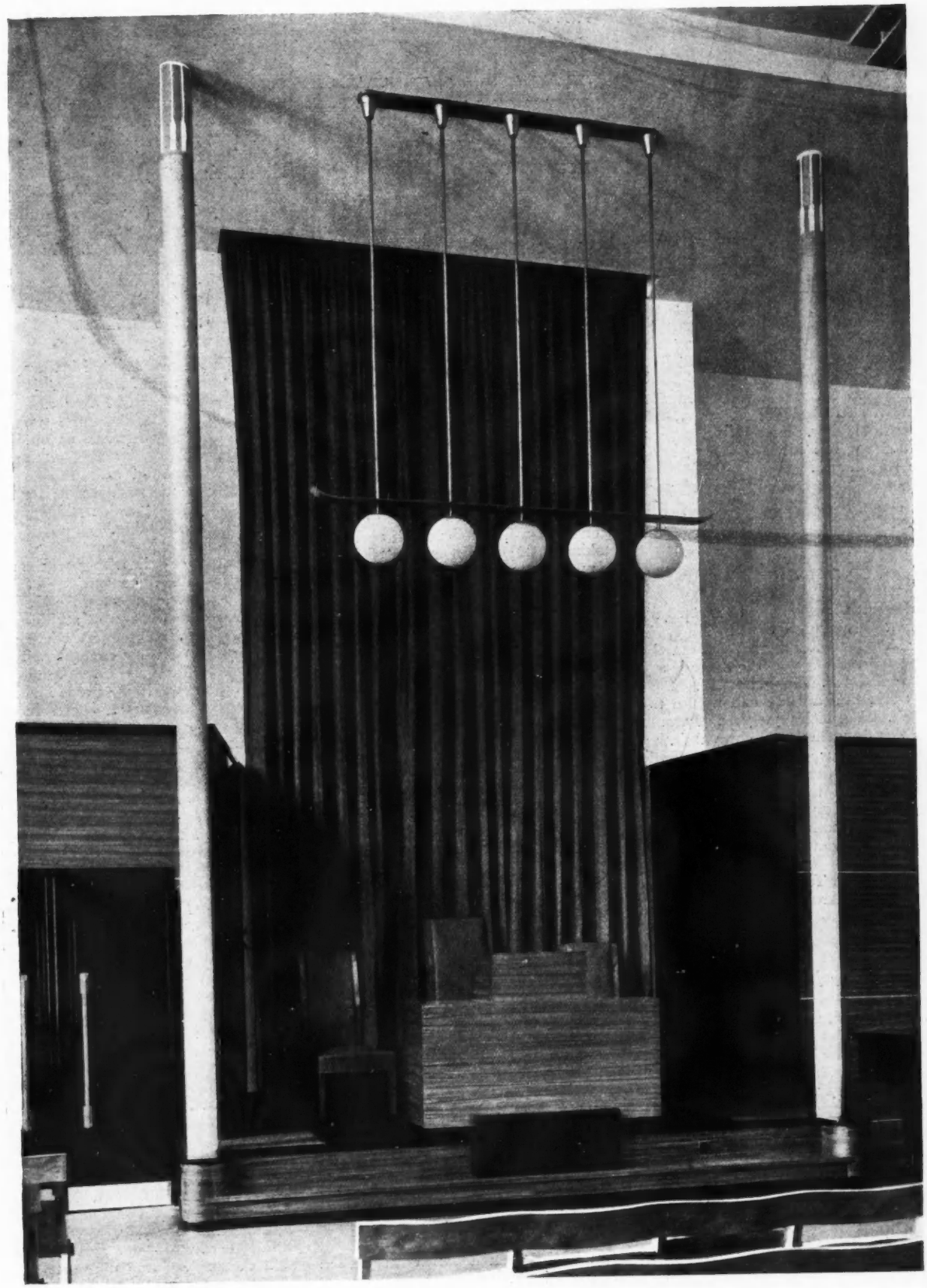




GROUND FLOOR PLAN

The photographs on this page show: top, a detail of the gallery and below, the entrance doors. On the opposite page is a view of the Speaker's platform, beneath the removable floor of which is a baptistry. The platform is panelled in macassar ebony, the reading desk is in Australian walnut and ebony, and the curtain is blue and beige, lit by a strip lamp from a recess at the top.

SIR JOHN BURNET, TAIT AND LORNE



LETTERS FROM READERS

UNDER 70

MAJOR G. B. J. ATHOE (Secretary, I.A.A.S.)

P. F. SCHOOL

E. J. FARRELL (Director, George M. Callender & Co.)

SIR LEONARD HILL, Hon. A.R.I.B.A.

JOHN T. CHASNEY (Secretary, Wallpaper Manufacturers' Employers' Association)

CAMPBELL JOHNSTON

ILLUMINATUS

R.I.B.A. Elections

SIR,—Is Mr. Harding certain of his facts? He maintains that any seven members may nominate candidates for election to the Council and to the Standing Committees of the R.I.B.A., but I seem to remember that the Council and Committees *themselves* nominate their own successors, and that members vote on these circulated lists. The bye-laws are no longer published in the *Kalendar*, and I have therefore no means of checking my own convictions. If Mr. Harding were right members would have the remedy in their own hands.

UNDER 70
Huddersfield

War of the Ages?

SIR,—With reference to Astragal's observations under this heading, in your issue for February 28, you may be interested to hear that the average age of the I.A.A.S. Council is 49. I do not think that anyone can accuse the Association of lacking vigour. I would take this opportunity of congratulating you upon your excellent and timely "leader" (in the same issue), on "The Solidarity of the Profession." Dog does not eat dog; and I am sure that all thinking men in the profession will endorse your views.

G. B. J. ATHOE
(Secretary, The Incorporated Association of Architects and Surveyors.)
London

Hot Water in Council Houses

SIR,—Though not directly engaged in the architectural profession, I was interested in the Trade Note on water-raising pumps in your issue for February 14, and I would like to raise the point of the provision of proper hot water systems in Council housing schemes.

I would suggest that the idea of a Council housing scheme is to house a certain section of working people who cannot afford to buy their own house, yet who, as much as anyone else, require decent houses. So far, so good; but who is responsible for allowing gigantic schemes to go forward without questioning the need for a really efficient hot water system? It seems to me that people who live in Council houses have more need for a hot water system than do the wealthier classes. Why? you may ask. Well, obviously, the workman returns home from work tired and often dirty (not his fault in some trades, you will agree); what could be better than just a turn of the tap and, swish! a bath of, at least, warm water. But no such thing. If a worker returns home and wants a refresher, let him make up his mind that it's an evening's job. (This is where the pump comes in.)

He first of all has to fill the copper, then light a fire underneath and keep stoking until he is almost too "fed up" to pump the water up "when it boils." Then, bless my soul! his troubles have only just started! It is my own experience that pumps installed in Council houses are purely for ornamental purposes, so that when the resident has friends arrive it gives him a chance to discuss some subject other than the weather.

Here let me say that on more than one occasion, owing to complete failure of the "pump," I have actually baled my hot water into a pail and walked it upstairs, a very agreeable pastime let me assure you. Then, again, even if you succeed in getting a couple of gallons up, that is about all you will get, because the tube on the pump falls about six inches short of the bottom of the copper, so you see you are bound to make use of the primitive method of baling out. This, in modern architecturally designed houses!

Is there a reasonable explanation? The cost surely cannot be the reason why such a state of affairs is allowed to exist. Why cannot architects, when they are called upon to design Council houses, for the sake of health and happiness, incorporate a good sound hot water system in their plans?

P. F. SCHOOL
Morden

Noise Deadening in a Flat Roof

SIR,—We have read, with interest, the suggestion made by Mr. H. Kaylor, in your issue for February 28, for the prevention of sound transmission in flat roofs, and note his reference to the device used on a block of flats in Paris (upon which his own scheme is based) as described in Trade Notes in an earlier issue.

We think it should be pointed out that the French system referred to is patented, and that it is also covered by Letters Patent in the United Kingdom Nos. 19174/5–34, of which we have the sole rights. This may prevent misunderstanding.

E. J. FARRELL
(Director, George M. Callender & Co.)
London

Physiological Effects of Infra-red Radiation

SIR,—In an article on Heating, Air Conditioning and Mechanical Equipment, by Dr. Oscar Faber and Mr. J. R. Kell, published in the JOURNAL for February 21, reference is made to experiments made by me on the influence of infra-red radiation on the nasal mucous membrane; it is stated that my views "are not generally accepted or acceptable." I have found that infra-red rays from dull red or dark sources of heat acting on the skin reflexly produce congestion of the nasal membrane and reduce the airway, and give feelings of stuffiness in certain susceptible people, while rays from bright red sources counteract this effect. My findings have been disputed by Messrs. Dufton and Bedford, but, as I have pointed out in the Journal of the Institute of Heating and Ventilating Engineers, the methods used by these authors are too insensitive to yield results. I have been confirmed in my observations by Dr. W. A. R. Thomson, at H.M.S. *Excellent*, and also by Dr. H. A. E. Van Dishoeck, of Groningen, who has used a very accurate method of experiment. His results are shortly to be published in the *Journal of Hygiene*. Dr. Thomson found about 90 per cent. of his men susceptible to "nose-shutting" rays and nearly 50 per cent. to "nose-opening" rays. In some of the susceptible people, but not all, a trough of water when placed between the source of dull red, or dark, heat gives relief. This is due to the water vapour rising from the trough acting as a screen to the "nose-shutting" rays. There is no doubt of this being the case. It is always difficult to secure belief for a new point of view, but there is no question that the quality of the rays given off by sources of heat affects comfort. Short infra-red rays penetrate the outer skin and excite transudition and flushing, while longer infra-red rays do not penetrate but heat the surface, and may give a less pleasant sensation of warmth. Some people are far more susceptible than others to these influences. Hence some

want the window open in a heated railway carriage and others like it shut.

LEONARD HILL
London

Wallpaper at the Academy

SIR,—On behalf of the Committee of Wallpaper Manufacturers who have been collaborating with the Exhibition Advisory Committee, I send you a photograph of the wallpaper display to be seen in a window at the Royal Academy Exhibition of "British Art in Industry," as this may be of interest to your readers.

You will appreciate that besides the general idea of showing the artistic side of manufactured articles certain "shop windows" have been provided at the Academy in order to give facilities for showing how art can be used in the display of such goods. It is in one of these windows that the wallpaper display has been arranged, in the hope of improving the general standard of window dressing in wallpaper decoration.

The setting was designed and the papers arranged by Mr. Richard Henniker, M.A., A.R.I.B.A. It is of interest to note that Mr. Henniker has actually utilized nearly two hundred papers in his display.

JOHN T. CHASNEY
London



The wallpaper "shop window" at the Royal Academy.

Beauty in Architecture

SIR,—Your correspondent defines beauty in architecture as resulting from seemliness in relation to surroundings, pleasing proportion, well chosen material, permanence and possibly individuality.

If two similar sized buildings are built near to each other and no radical advance in building science occurs during the period separating their construction; if they are intended to last approximately the same time, and to serve similar purposes, then if they are both reasonably well designed, they must substantially resemble each other in shape and general appearance; and the nearer the buildings approach to perfection the more will they resemble each other. In any given set of circumstances there is only one correct design for a building. How often is an architect compelled to ignore all recent advances in our knowledge of building in order to preserve the "amenities" of a piece of countryside? A thatched roof is often specified for a new country cottage in spite of the fact that it is now possible to get more efficient roofs which are cheaper both in first cost and maintenance. Perhaps the best example of this is the thatch-roofed petrol station. Waste can never be justified by claiming to preserve seemliness. The proportion of a building is of no importance save only as it affects its usefulness. It is the result of the various circumstances attending the design, and when deliberate regard is made to appearance the result is false, a sham, untrue, and we all know what Keats said. We have all seen reinforced-concrete bridges of such a slenderness and lack of curve as would be impossible with genuine arch construction, disguised with a facing cut to represent the joints in the make-believe stonework. Such structures are very beautiful when honestly treated, and in many cases there is no reason why concrete should be treated in any way after striking the shuttering. But when you mess them about and try to make them look like something they are not, you make them ugly, and no proportion or shape or anything else can make them beautiful.

Materials in themselves have no effect upon the beauty of a building. It is possible to achieve as much beauty with corrugated iron as with marble. There is, of course, one material or form of construction which is best suited as achieving the desired result with the minimum cost for any particular building, and, once a designer determines this, he has no choice in the matter.

An exaggerated desire for permanence to my mind suggests a totally unfounded faith in the impossibility of improving present-day methods of construction and design, or alternatively a desire that a building should serve as a monument to its designer. Happily the class of person who approves of monuments is steadily decreasing. It is an excellent thing for an architect to design a temporary building now and then, for usually the man who wants such a structure is not likely to waste money on useless decoration or to give full rein to a designer's particular brand of "Art," and the architect is reminded thereby that his main function is that of guardian of the pocket of his client, protecting him from the wiles of contractors, councils, and agents, and often from his own ideas on architecture.

Individuality in design is possible only in the particular mistakes a designer makes or avoids, and as the general level of knowledge rises the possibilities for the display of individuality in a good design will necessarily be reduced.

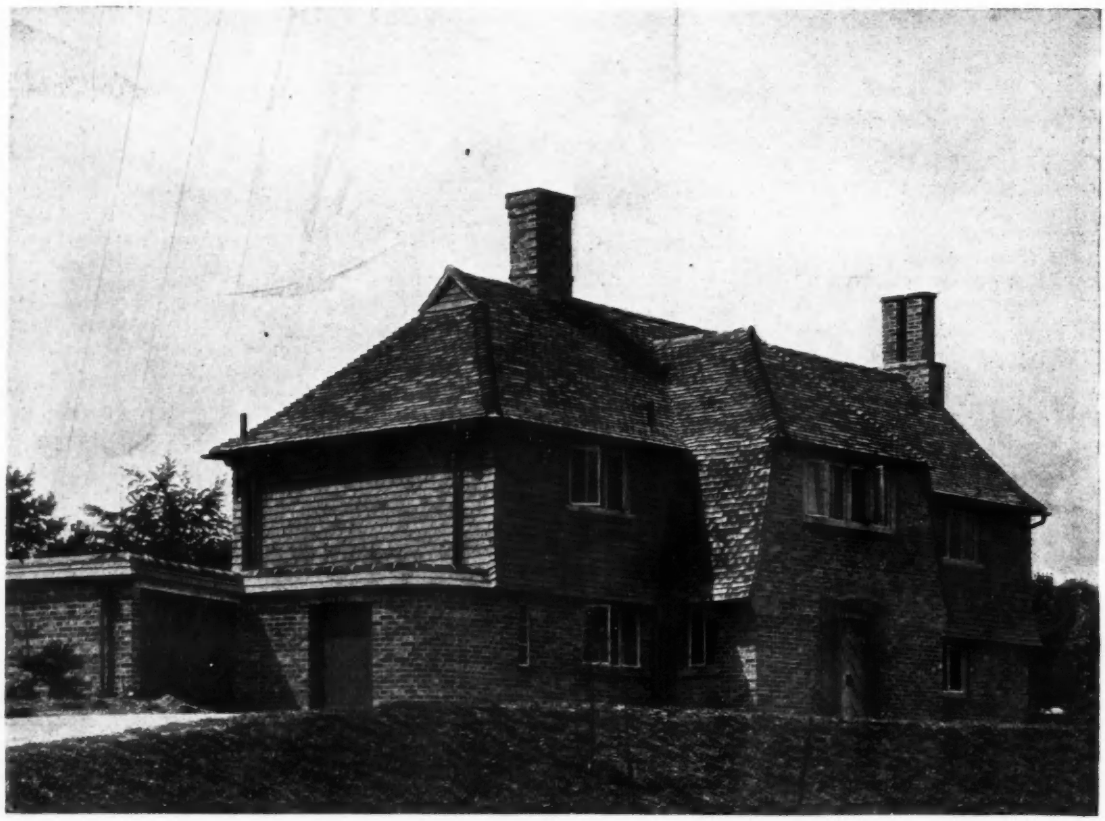
CAMPBELL JOHNSTON
Swansea

Lowside Windows

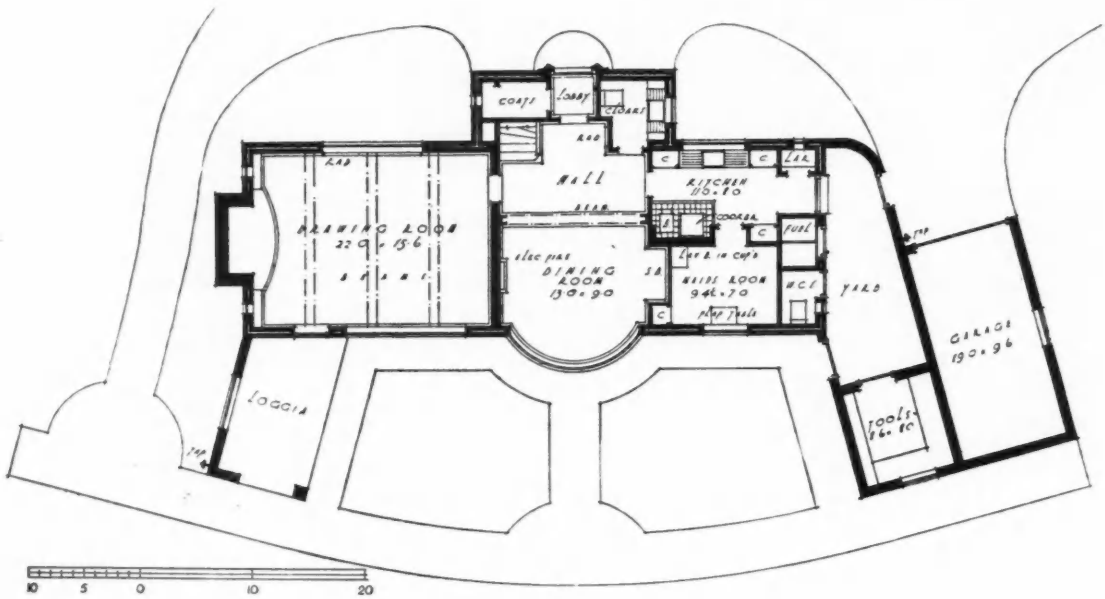
SIR,—It has been said that Lowside windows, which always give a view of the altar from the outside, were provided in churches for the benefit of lepers or excommunicated people or that someone might reach out and ring a bell at the Elevation in the Mass. What is the latest view on the matter?

ILLUMINATUS
Southsea

HOUSE AT KINGSLEY GREEN, SUSSEX:



This house stands on a steeply sloping site, near Haslemere, with a fine view to the north, and has therefore been planned with long windows on both sides of the living room. Single-storey wings on either flank contain garage and loggia. Above is a view of the entrance front, from the east. The front door surround is of purpose-made bricks.



GROUND FLOOR PLAN

BY MINOPRIO AND SPENCELY

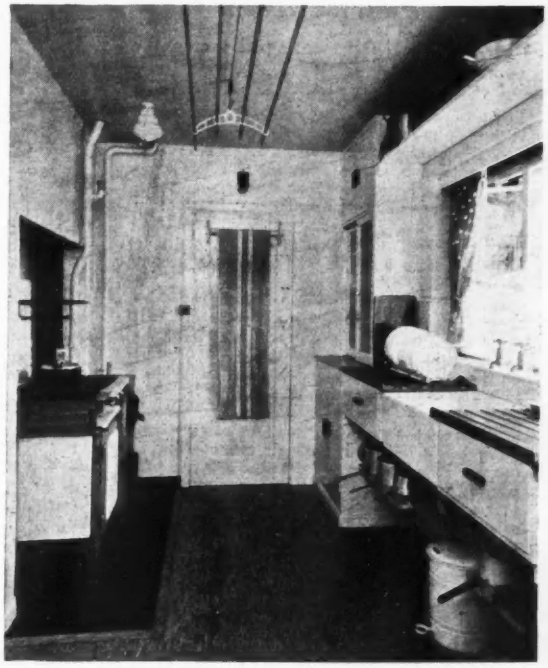
CONSTRUCTION. *Multi-coloured bricks for the main walls and chimney stacks: red tile hanging on the upper storey, and dark red roofing tiles. Limed oak window frames with metal casements.*

FINISHES AND EQUIPMENT. *Interior woodwork is mainly in pine, slightly stained and wax polished: pine floors. Grit finished plaster of pinkish parchment colour in principal rooms, hall and staircase.*

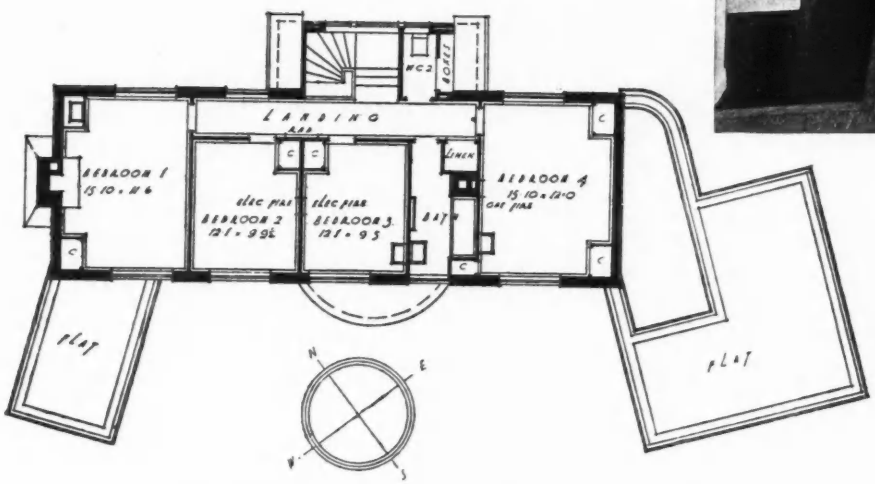
COST. *£2,000, including drive, gates, paths, paving and terracing.*







The illustrations on this page show: top, the garden (south) elevation: centre, left, the dining-room, and right, the kitchen.



FIRST FLOOR PLAN

SOCIETIES AND INSTITUTIONS

ARCHITECTURAL ASSOCIATION

"Reinforced Concrete versus Steel in Buildings" was the subject of a discussion between Mr. Douglas H. Green (managing director of the Trussed Concrete Steel Co.) and Mr. C. J. Kavanagh (director of the British Steelwork Association) at a general meeting of the Architectural Association last week.

Before the discussion began the meeting was asked to approve of a number of alterations in the A.A. bye-laws that had been framed by the A.A. Council. Emphatic objection was raised to one of these, particularly by a large number of students who attended, realizing that a clause creating a new "probationary" class of membership deprived them, in effect, of their voting powers in the Association. Prolonged discussion resulted, and this clause was eventually rejected. (See Astragal's comments on page 360.) The papers by Mr. Green and Mr. Kavanagh then followed.

THE CASE FOR CONCRETE

Mr. Green, in presenting the case for concrete, said :—

The reinforcement of concrete with metal was first practised in the early years of this century. Although the known life of concrete exceeds two thousand years, reinforced concrete as a composite material can only lay claim to some 35 years. Nevertheless, as the preservative action of concrete towards metal properly embedded in it is beyond all doubt, we have no reason to believe that reinforced concrete has other than a life beyond which we are not really interested.

Let me first of all mention a few of the fundamental properties of reinforced concrete. It is a plastic material and can, therefore, be moulded into any desired shape. It is cast on the site of the work and is therefore subject to an elastic organization. It is monolithic, and stresses distribute themselves evenly throughout the mass, any tendency to unequal stress being adjusted through the medium of creep. It is made up of the cheapest material to resist compression and the cheapest material to resist tension. The one embedded in the other is both fire and corrosion resisting. As a medium of construction it is completed as the work proceeds by one organization and one set of workmen. It is subject to a wide variation of surface treatment.

With these properties reinforced concrete appears to be as nearly as possible the perfect building material, but it is also clear that an understanding of its qualities and basic principles are necessary to its proper use. Being quite different in its properties from brickwork or structural steel, it requires a technique of its own, and most of the failures and disappointments that have come from the use of reinforced concrete are due to an endeavour to apply the technique of brickwork or of structural steel to a material that is so fundamentally different.

I have often referred to reinforced concrete as the three-in-one building material, and I believe it is in the full understanding of this term that success lies. Every building has to perform three independent functions. It has to carry loads imposed upon it ; it has to protect the interior space from the elements ; and it has to present a pleasing surface and texture on both the exterior and interior. Reinforced concrete is the best material at present devised that can do all these three things at one and the same time.

Let us now consider how the properties of concrete affect reinforced concrete technique. Being a plastic material moulded on the site, the area of material required to resist a load can be changed in shape, within reasonable limits, to suit the planning or æsthetic requirements of a building. We are in no way tied down to standard or stock sections for our members. A column, for example, need not be square. It can be made oblong in either direction, L-shaped, T-shaped, or even star-shaped. Beams, on the other hand, can be made to a shape so that the compression flange replaces a considerable area of floor, or they can be made to replace a considerable area of wall with little additional expense.

The monolithic nature of reinforced concrete enables the balanced cantilever to be employed with great advantage and economy. Also the closed frame or mushroom type construction. Arches or circular work can be carried out with equal facility. With skilful handling all these features can be employed both towards architectural effect and economy.

The utilization of reinforced concrete weight-carrying members to replace walling calls for a technique of finishing. This is much too large a subject to deal with in any detail, but I can assure you that great strides are being made in this direction and that no one need refrain from utilising the advantages that reinforced concrete offers through any fear that he will not be able to attain the desired texture or finish.

The foregoing have a marked effect on the cost of a structure and, apart from the economies which can obviously be made in the planning of the building, each member shows an economy of its own in comparison with steelwork. The fact that the encasing material is used to resist stresses must, I think, produce an economy. It does, in fact, reduce the tonnage of steel required by approximately 50 per cent.

THE CASE FOR STEEL

Mr. C. J. Kavanagh, in presenting the case for steel, said :—

In considering the relative merits of steel frame building methods and reinforced concrete, it is not simply a question of one material versus another, the difference between the two techniques is enormous. The steel frame method represents an open and ordered assembly—a dry technique—and a wide choice of competitive materials, each selected for a particular and definite purpose in the structure. In fact, the method of assembly, important as it is in the initial building operations, is also a measure of its suitability for adaptation throughout its life, its alteration, or its final demolition.

When we come to regard the reinforced concrete monolithic structure, we tumble upon a constructional method which attempts, by the use of one material, to satisfy such varying requirements as strength, weather resistance, appearance, maintenance, insulation against heat and cold. Unlike steel, which is a ductile material, a monolithic system is extremely inappropriate to take up the settlements and movements to which all buildings are subjected. From an acoustic point of view, a rigid homogeneous system which is keyed up tightly produces a series of sound boxes which, unless further expensive counter measures are employed, make for a most unpleasant structure Steel frame undoubtedly lends itself much better to acoustic measures.

The old brick building had a great deal in its favour. Its disadvantages were that it took up a great deal of habitable space, that its foundation problems were more costly, that it was practically inadaptable to changing needs. As a system of construction—a slow vertical progression—it made for a great deal of labour on the site and was not conducive to a speedy and predetermined series of operations. It had, however, the great merit of being a dry technique ; the materials used had been through the test of time and had produced a habitable combination. Its economic limitations, however, led to the steel frame technique which, as developed today, incorporates the best principles of the older method and has made possible the more easy assembly of a wide range of new materials and new constructions, each better satisfying specific requirements. It has, moreover, opened up a new horizon in planning flexibility. The steel frame multi-storey constructional method characterizes itself by a simultaneous vertical and horizontal progression of work rather than by a purely vertical one. The steel frame is entirely self-supporting and when used in conjunction with the new systems of floor construction presents the lightest type of building. At comparatively small cost it gives the architect a load carrying structure which is erected to its full height in a very short time. Its stairways can be completed simultaneously with the frame, providing access everywhere. An incredibly short time elapses before large expanses of horizontal platforms are made available upon which the subsequent building operations can proceed in a predetermined and logical sequence.

It is the immense working face both horizontally and vertically which is the revolutionary idea behind steel, but one which has yet to be fully appreciated and properly evaluated. It represents to building what the travelling band represents to motor-car manufacture.

The whole of the building progress is uncluttered. The system gives full and free access everywhere from the basement to the roof; it gives the architect and the builder a perfect control of the whole complicated series of operations which a job of assembly entails. The steel, beyond taking care in a clear and precise manner of all the loads and transmitting them at suitable points to the foundations, is simultaneously a gauge or register for all other components and even a carrying device for the hoisting and placing of materials and finished components at the right time and in the right place.

A slow vertical progression, whether of brick or reinforced concrete, is by comparison an antiquated machine. Starting with a forest of scaffolding it interferes with the flow of materials, obscures inspection, hinders every other operation and leads to a turmoil and confusion of trades—and tongues—all of which retard sound and economic construction. It is a hedged-in series of operations attempting to manufacture a building on the spot rather than a systematic and precise work of assembly.

REINFORCED CONCRETE ASSOCIATION

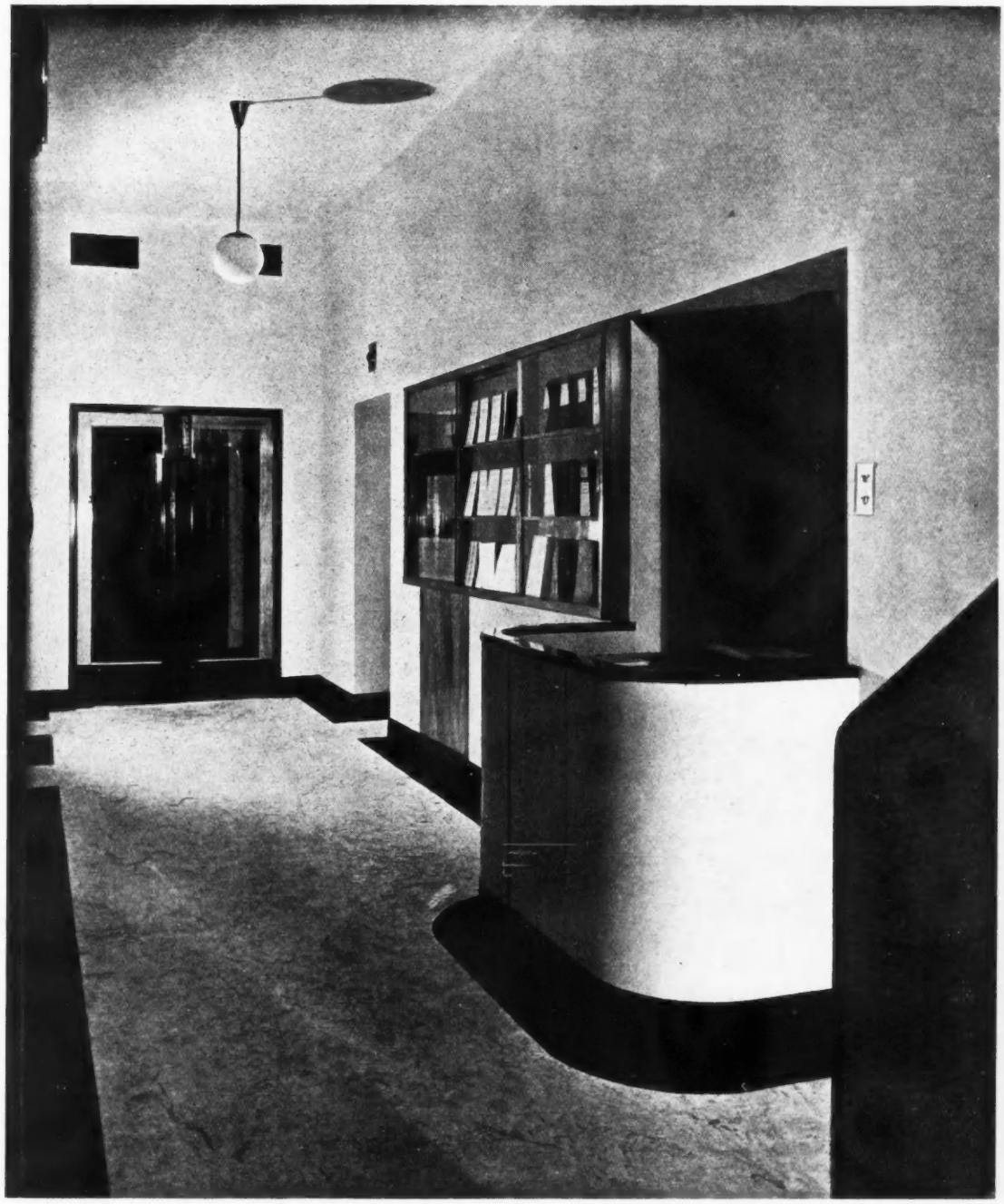
A meeting of the Reinforced Concrete Association was held last month at the R.I.B.A., when Mr. C. W. Glover, A.M.INST.C.E., read a paper on "Sound Insulation of Reinforced Concrete Buildings."

The lecturer said that one effective method of control lies in the interposition of discontinuity in the path of vibrations, but if the design of the structure precluded any possibility of breaking the continuity of structural contact then other methods must be resorted to. The use of resilient pads under the bearing of pre-cast reinforced concrete units of a structure offered a solution in this type of construction. Monolithic reinforced concrete buildings from the nature of their design were not open to such treatment, although, on the other hand, their mass and rigidity had a damping influence upon sound and vibration which materially assisted towards a solution of the problem. In the course of his lecture Mr. Glover described methods applicable to such cases.

FILING REFERENCE:

WORKING DETAILS : 219

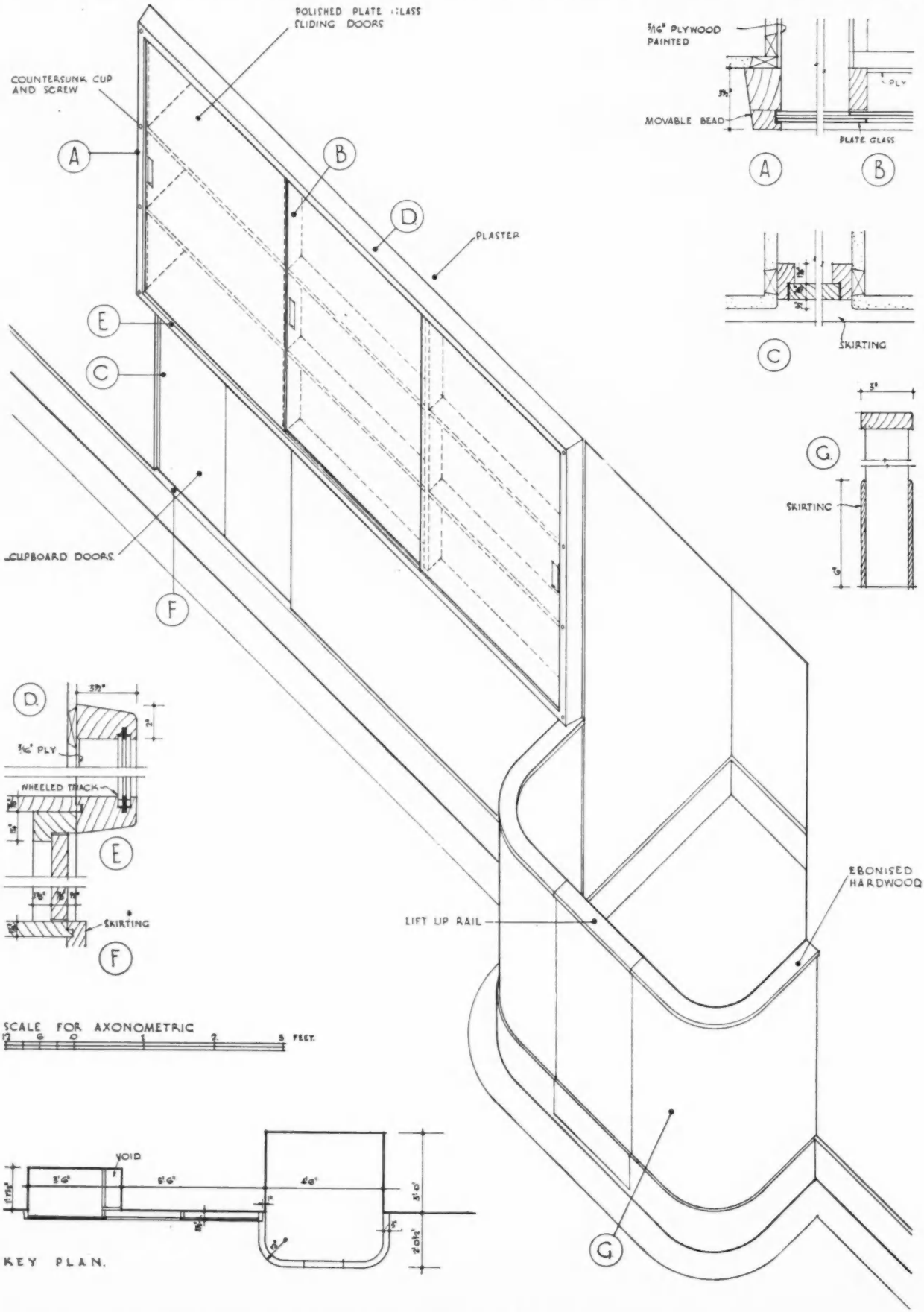
PORTER'S BOX AND BOOKCASE • B.B.C. STUDIOS, NEWCASTLE • WELLS COATES



The entrance hall illustrated above is provided with a small porter's box and a bookcase and cupboards for the display and storage of B.B.C. publications. The axonometric overleaf shows the general lay-out, with details of the joinery work. The carpet is a mottled green and grey with a black rubber surround.

WORKING DETAILS : 220

PORTER'S BOX AND BOOKCASE • B.B.C. STUDIOS, NEWCASTLE • WELLS COATES



Axonometric and details of the porter's box and bookcase illustrated overleaf.

WORKING DETAILS : 221

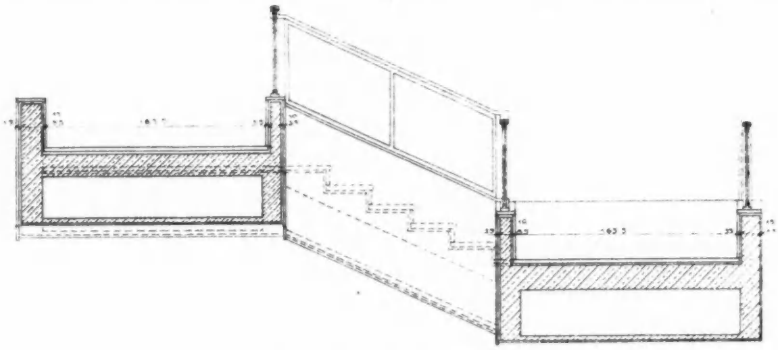
STAIRCASE • PENSIONS OFFICES, PRAGUE • HAVLIČEK AND HONZIK



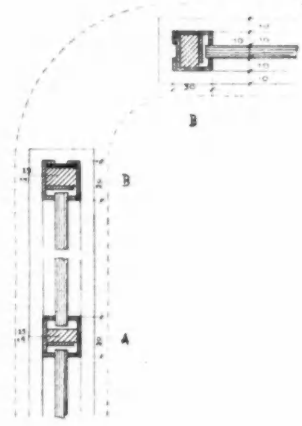
This staircase is constructed in reinforced concrete with a facing of veined white Bohemian marble : the treads are granite, with black marble risers. The sections overleaf show the lay-out of the staircase and the construction of the glazed balustrade, the handrail of which is in polished bronze.

WORKING DETAILS : 222

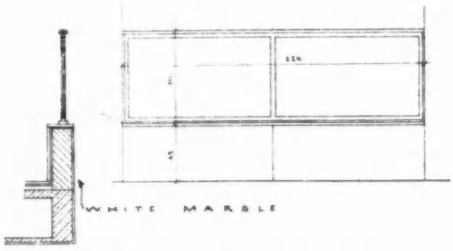
STAIRCASE • PENSIONS OFFICES, PRAGUE • HAVLIČEK AND HONZIK



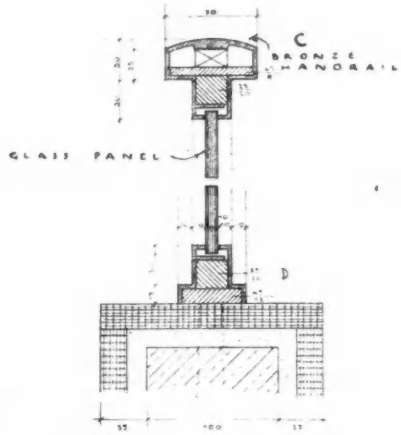
TYPICAL SECTION



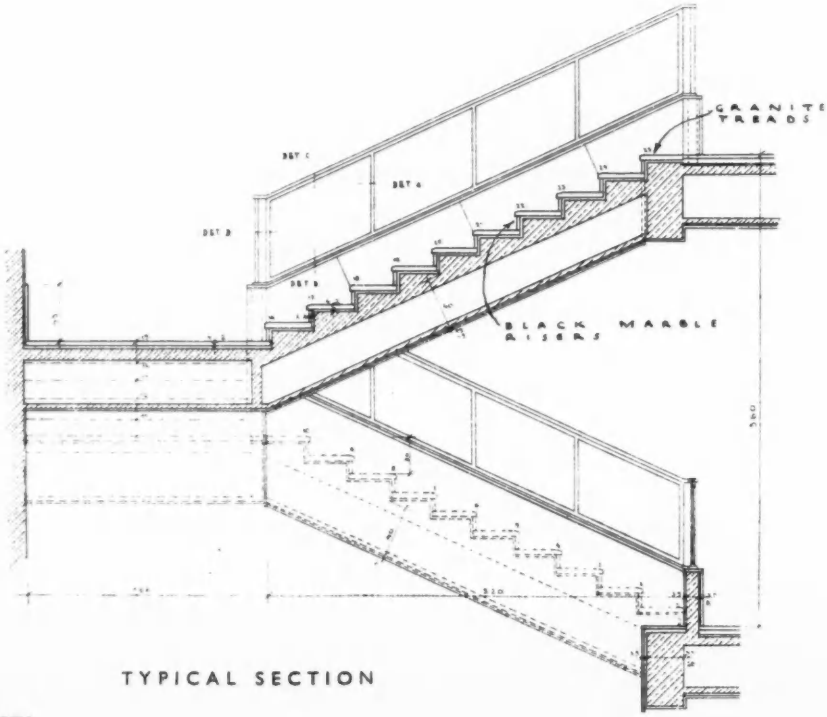
PLAN AT CORNER



SECTION AND ELEVATION AT LANDING



SECTION THROUGH BALUSTRADE



TYPICAL SECTION

Sections of the staircase illustrated overleaf.

HOUSING SUPPLEMENT : 8

Previous HOUSING SUPPLEMENTS *have dealt with the provision of workers' housing accommodation in terms of large scale housing blocks, probably the only satisfactory solution for our own concentrated urban population. This* SUPPLEMENT, *the eighth of the series, describes a housing experiment on a different principle, undertaken by Swedish municipal authorities, which provides small individual dwellings, laid out on garden city lines, on the outskirts of large cities. The original point in the experiment is that the houses were designed largely in pre-fabricated parts, which were assembled and erected by their actual occupants, under official supervision and with official financial assistance; a system which has proved practicable in a country where, as in Sweden, the average workman has some experience in the handling of timber.*



LABOUR AS CAPITAL

A SWEDISH HOUSING SYSTEM: COTTAGES ERECTED BY THE OCCUPANTS

[By Llewellyn E. Williams, A.R.I.B.A.]

SINCE the war Sweden, in common with other European countries, has experienced increasing difficulty in accommodating her working class urban population in decent homes at economic rents. The poorer quarters of Stockholm and Gothenburg had, even before 1914, become unhealthily overcrowded, although the former city had for many years been purchasing estates on its outskirts and laying them out as garden suburbs. The loans granted to house builders on these estates were generous, being up to 75 per cent. of the value, the authorities bearing all the expense of laying out roads, putting down drainage and other services; and so successful have the schemes proved that today the city owns some 20,000 acres on which in 1934 over 6,600 houses had been erected. The sites are leasehold for a period of 60 years at very low ground rents amounting to about 5 per cent. of the value of the site, with renewal rights at the end of the term. The building loans are obtained from the Aktienbolag Stockholms Tomträttskassa which is for all practical purposes a municipal institution, the entire shares being owned by the Corporation. The whole scheme has proved very satisfactory, though the leaseholders have been drawn rather from the lower middle classes than from the manual workers it was intended primarily to help.

Unfortunately, while most workmen are able to pay rents and maintain a fair standard of living out of their wages, they are totally unable to accumulate capital enough to provide the necessary remaining 25 per cent. of the cost of one of these houses, so what is known as the "small cottage" scheme (småstugebyggen) has been evolved to offer still easier terms to that large section of the population which can offer labour in place of cash. The original proposals, made in 1927, visualized quite small cottages with ground areas of about 5 by 7 metres, no modern conveniences and no proper roads. To the credit of the City Council these timid suggestions were scrapped, and it was decided to lay out the new areas with proper streets, sewers, gas, water and electric mains. A beginning was made in 1927 with 200 cottages, and the scheme has gone forward until today over 1,550 small cottages have been built by the assisted labour of the owners.

The plan adopted by the city which is responsible for this success may be briefly tabulated as :—

1. Planning and preparation of the area selected for the settlement, and arranging the necessary finance.
2. Preparation of drawings and complete working instructions for the erection of the various standard types of cottage.
3. Choosing suitable applicants from among the number who apply for the grants.
4. Ordering in bulk the materials to be used and arranging for transport to the sites.
5. Making contracts on a large scale for such work as the home builders are not able or not permitted to undertake.
6. The creation of a department for technical instruction and control of the building operations.

Sites have in all cases been selected that are within 30 minutes' journey from the centre of the city by tram or bus, for which the single fare is about 25 öre, or 2½d. The blocks of cottages are laid out and the whole area planned beforehand. The usual arrangement is to have the cottages placed close to the street line so that the interior part of each block will form an open space. The sizes of the plots vary from 525 sq. metres to 750 sq. metres, and the annual ground rent for such a plot varies between 35 and 100 öre per sq. metre (3½d. to 10d.). Natural

woods are retained as parks, and all ground found unsuitable for building on because of the extra cost of foundations or other reasons is laid out as playing fields or children's playgrounds. Shopping centres, schools and all the necessary post and telegraph arrangements are collected near the tram or bus stop. To the east of Stockholm the estate at Angby (see photograph) is a typical lay-out which preserves woods lakes and all natural features, while to the south two other estates in the Enskede district are being developed in as rural if less romantic surroundings.

One of the most important considerations has been the choice of suitable cottage types. In the districts of Olovslund and Skårdnäck, the first area to be laid out, all the cottages were of the plan called Type III, which originally had a mansard roof; but, experience proving this unsuitable for unskilled builders, a plain pitch is now used. A Type III cottage (see plans of the various types on page 380) contains on the ground floor a sitting room and a kitchen ; the kitchen is large enough to serve as a dining-room. In the basement is a combined bathroom and wash-house, larder, and a large space which may be used for a workshop or garage. The cottage builder can at his own expense later fit up the attic as two bedrooms. To provide accommodation on a slightly ampler scale Type II was produced in 1929. This contains on the ground floor two rooms and a kitchen and two rooms upstairs, the basement remaining as in Type III.

Type I is a compromise between these two types. It has the same arrangement on the ground floor as Type III, and the first floor fitted up as one room in place of two. In all these types the eaves of the roof are about 3 ft. above the first floor level, and the bedrooms have slanting ceilings ; there is therefore some waste space. A new type has been designed called Type IV, which has two full storeys and allows windows to be placed at first floor level on all sides of the house. The ground floor of this type has one room, a kitchen and a small hall, and the upper storey can be planned as two or three rooms. The roof has a very flat pitch which gives these cottages a gaunt, châlet-like appearance, but

	Ground area	Cubic contents
Type I ..	41.3 sq.m.	267 cm.
Type II ..	50.1 ,,	355 ,,
Type III	46.9 ,,	333 ,,
Type IV	41.8 ,,	330 ,,
Type V ..	55 ,,	224 ,,

	Price
Type I ..	10,200 kronor
Type II ..	13,000 ,,
Type III ..	11,400 ,,
Type IV ..	12,100 ,,
Type V ..	9,200 ,,

Table I: sizes and costs, Stockholm.



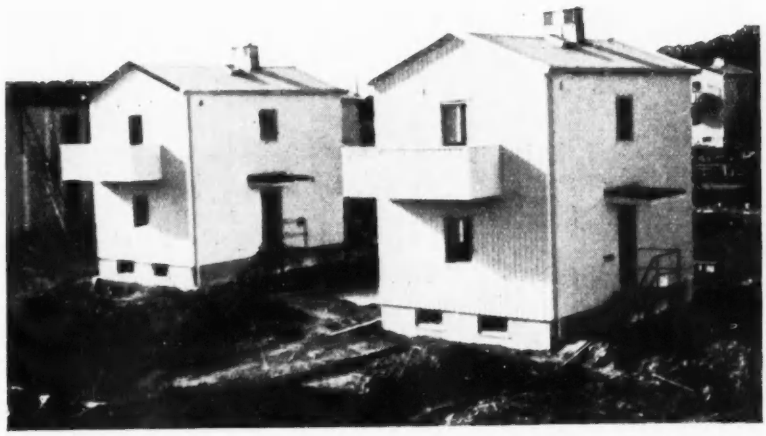
Existing woods and natural features are preserved whenever possible. An aerial view of the estate at Angby, on the eastern outskirts of Stockholm, a typical lay-out of small dwellings organized on the Swedish principle described in the accompanying article.



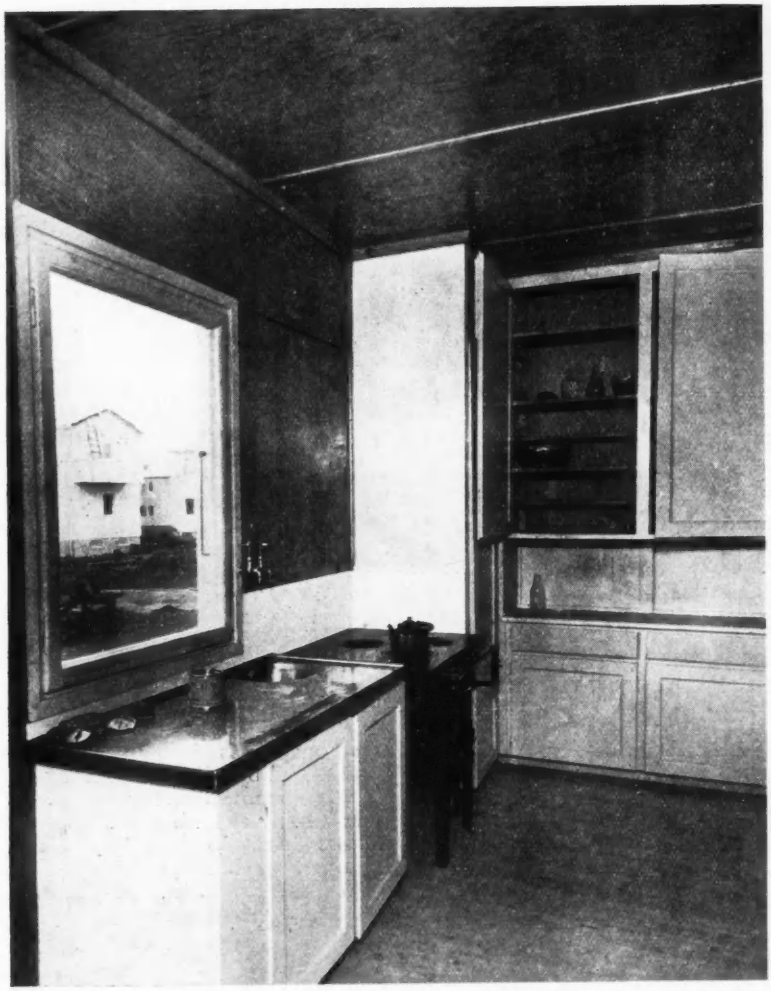
The dwellings are sited close to the road to give secluded gardens at the back. A typical street.



This dwelling (type 2) on a Stockholm estate has an enclosed porch, a semi-basement and the first floor within the roof slope. *See plans on page 380.*



Dwellings on one of the estates near Gothenburg have spacious projecting balconies to bedroom windows. The photograph shows the external appearance of types 2 and 3. *See plans on page 381.*



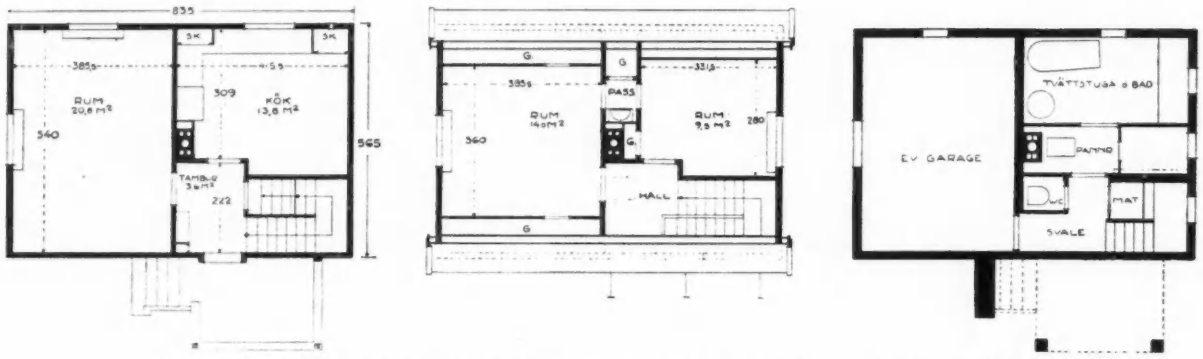
The kitchens in the types illustrated above are equipped with gas cooker and sink with stainless steel top and cupboards underneath. Walls and ceilings are panelled in plywood. An opal glass splash-plate surrounds sink and cooker.

since 1930, when the first of this type was built, it has become increasingly popular on account of its convenience.

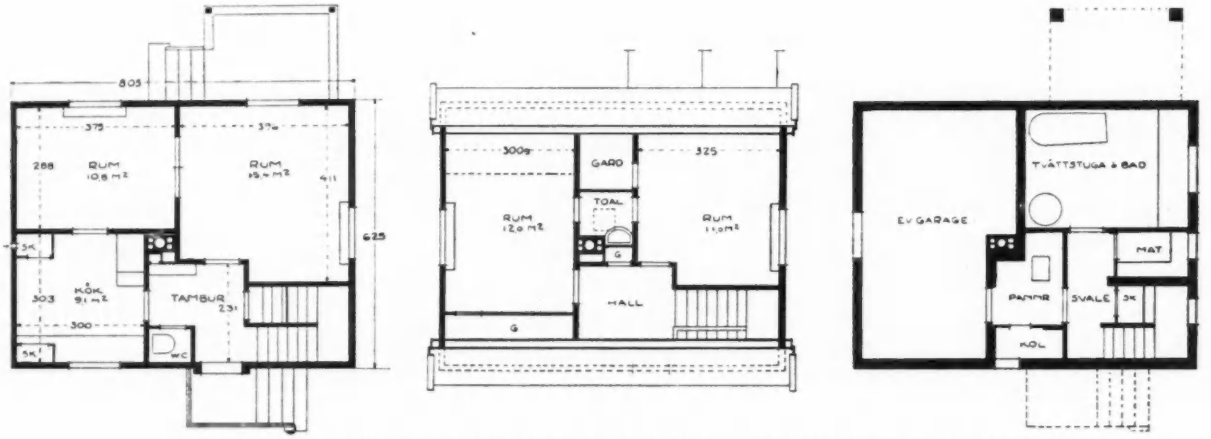
A further type called Type V is a small, one-storey bungalow containing two rooms and a kitchen. It is the lowest-priced type at present built, and has been erected on sites of only 350 sq. metres in area. Table I gives the areas and cubic contents of each type.

The selection of the proper people for the "small cottage" scheme is most vital to its success. Some sort of means test is necessary to ensure that folk with capital enough to purchase houses on the ordinary loan terms do not crowd out the really poor, for the applicants have always been in excess of the number of cottages included in the various schemes. The city authorities generally give preference to those with a good record who have families of young children to whom residence in the garden suburbs would be of special benefit. Applications are considered in March, the selected candidates are taken by an official to choose their sites during April, and are given one week's option. If they call at the Bureau before the expiration of that time and pay a nominal deposit they become possessed of the site, and can immediately begin work under the direction of the department in control of the district. At the same time they can apply to the instructor for all information and help. These instructors set out the cottage, arrange the levels and order the digging, which is always the first consideration. If rock is encountered the necessary drilling and blasting is done by the City Engineers who, if required, will remove the shattered granite. Similar help is given if the foundation subsoil is found to be so poor that special reinforcement is required under the walls. This heavy work, which has to be undertaken in the early spring, usually after the day's labour is finished or during the week-end, is the testing time of the home builder, and one of the reasons why the applicants have to be so carefully selected. It takes a keen healthy man to persevere with digging in wet clay under the cold blasts of a Swedish April! Erection begins in earnest in June and the home builder is required to have the cottage ready for a final inspection round about the new year, although by the end of August most of the families have moved in and are leading a rough and ready existence in the cottage carcase.

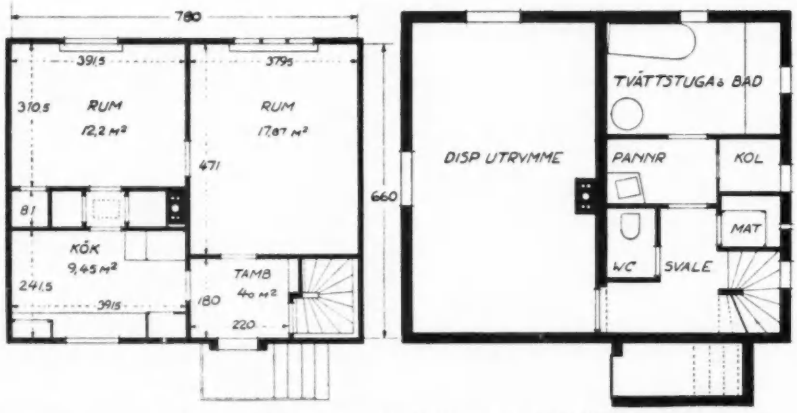
The authorities have long recognized that standardization of materials is the greatest asset in reducing building costs. The cottages are all built of wood above the basement level. Wood is the natural building material of the country, and its heat insulation qualities are great; tests have shown that a wood board 10 cm. thick is equal in



TYPE 3, STOCKHOLM: GROUND, FIRST AND BASEMENT FLOOR PLANS



TYPE 2, STOCKHOLM: GROUND, FIRST AND BASEMENT FLOOR PLANS



TYPE 5 (no upper floor), STOCKHOLM : GROUND AND BASEMENT FLOOR PLANS

The dwellings on the Stockholm estates are standardized in five typ s. Four of these have two main floors and a semi-basement, the fifth only one floor and basement. The plans of Types 2, 3 and 5 are reproduced on this page. Types 1 and 4 are similar to them with only slight variations in plan.

On the facing page are plans of two of the three types employed in the Gothenburg estates, one with three floors (one semi-basement) and one with two. The third type (not illustrated) is only a variation of Type 2.

this respect to a brick wall 48 cm. thick. The old houses in the country used to be built with hewn logs, having the joints packed with oakum, but modern construction has substituted a cross-section of several layers of wood with some kind of building and damp-proofing cardboard or paper between each layer, the air spaces in the framing being packed with sawdust or similar material. There are now several systems of such construction all of which have the walls put together in a factory and delivered in sections, including windows, floors and doors. This reduces the cost of transport, eliminates waste and shortens the time of erection of the walls and roof.

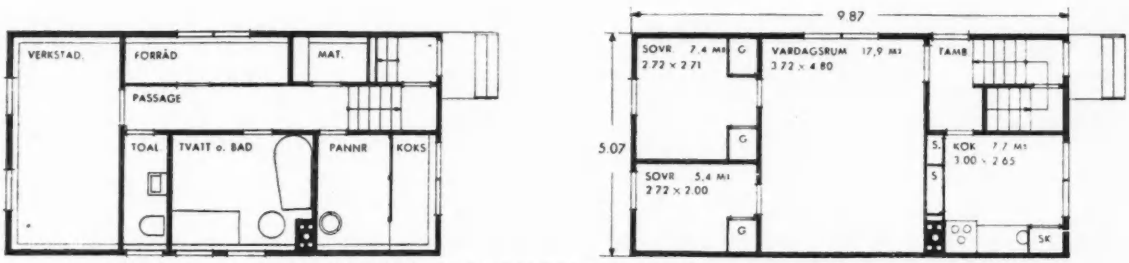
Four of the best known makes of this method of building are as follows (constructional details are shown in sketches on page 384) :

System Ibo

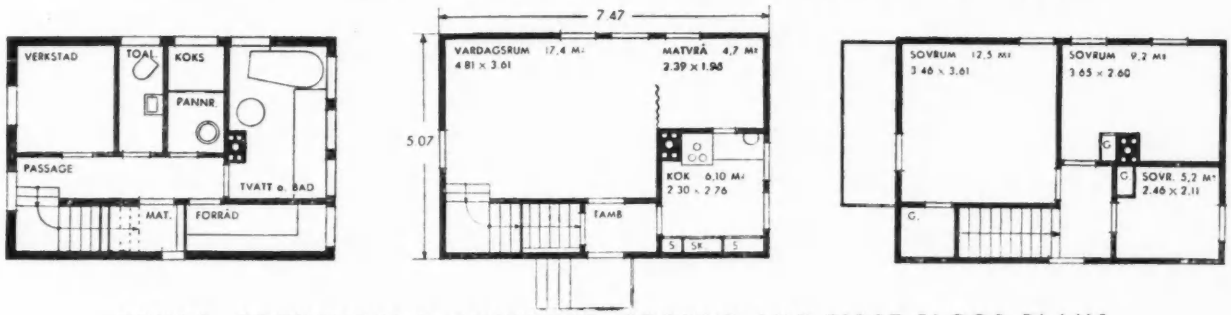
The outer walls consist of two layers of 1 in. thick boards on 2 in. by 6 in. framing. The spaces between studs are filled in with pressed sawdust. Insulating paper is laid between the framing and boarding. Vertical joints in the outermost boarding are covered with $\frac{3}{4}$ in. by $1\frac{1}{2}$ in. battens. Between the two layers of outer boarding is laid asphalted paper. Inner partitions are constructed similar to the outer walls, but without the second layer of external boarding.

System Knivsta

The outer walls are delivered ready made to the height and widths required. The construction consists of



TYPE 1, GOTHENBURG: BASEMENT AND GROUND FLOOR PLANS



TYPE 2, GOTHENBURG: BASEMENT, GROUND AND FIRST FLOOR PLANS

2 in. thick planking and a framing of 2 in. by 3 in. studding covered externally with 1 in. by 7 in. rebated boarding in two layers, the joints of the outermost layer being covered with $1\frac{1}{2}$ in. by $2\frac{1}{2}$ in. notched battens. The space between the studding is filled in with hard packed sawdust or plane shavings. The inner planking is rebated, birds-mouthed and packed with hemp. The bearing partitions consist of two layers of $1\frac{1}{4}$ in. thick boards on each side of 2 in. by 3 in. studding with the spaces filled in the same manner as the outer panels. The non-bearing walls are framed on layers of 1 in. by $\frac{3}{4}$ in. thick boarding on both sides of 2 in. by 3 in. studs placed at an average distance apart of 2 ft.

System Sesam

The sections consist of walls of 2 in. grooved and tongued planking covered with a 16 mm. layer of "Arke" matting (an insulating material of seaweed preparation between two layers of tough kraft paper). Over this is a layer of 1 in. thick grooved and tongued boarding, and over this asphalt paper and then a layer of planking with cover strips externally.

The inner walls consist of 2 in. studding with $\frac{3}{4}$ in. planking on both sides, filled with sawdust.

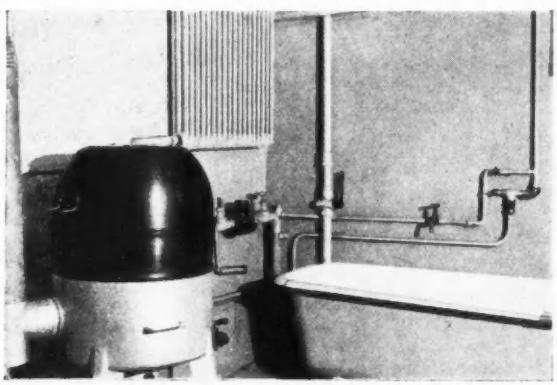
System Stadens

The outer walls consist of 2 in. thick grooved and tongued boarding covered with insulating paper; on this is laid $1\frac{1}{2}$ in. studs with the spaces filled in with sawdust. This is covered with insulating paper, and with a horizontal layer of $\frac{3}{4}$ in. thick planed boarding which is covered with asphalt paper and in turn with 1 in. sawn boarding with the joints covered by laths.

The internal walls are made of 2 in. studding covered with $\frac{3}{4}$ in. boarding on both sides and filled with sawdust between layers of insulating paper.

Such types of construction are universally used in the small cottage schemes, and the city engineers are constantly experimenting and improving the various sections. This ready-made method helps the home builder and reduces the amount of skilled labour required. With each house the authorities issue printed instructions and drawings, and when the actual framework is being erected they supply special experienced carpenters to supervise the propping of the wall sections and the jointing. In normal circumstances the home builder is allowed free the services of such a

[*Continued on page 384*]





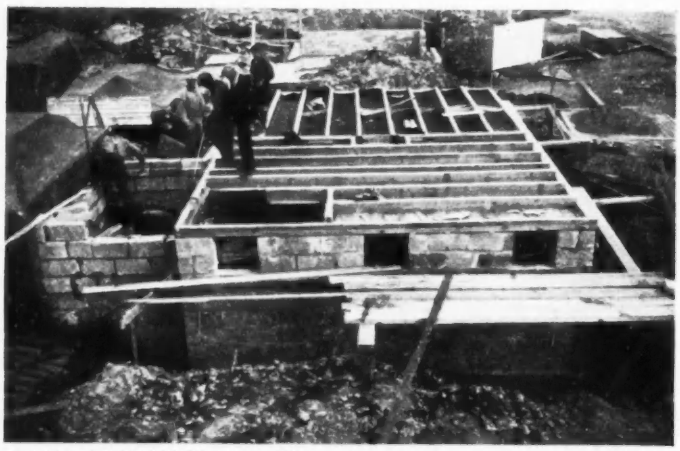
Above: combined bathroom and wash-house in basement, showing central heating radiator and hot-water boiler. Right: bedroom in Type 2 cottage (Stockholm).



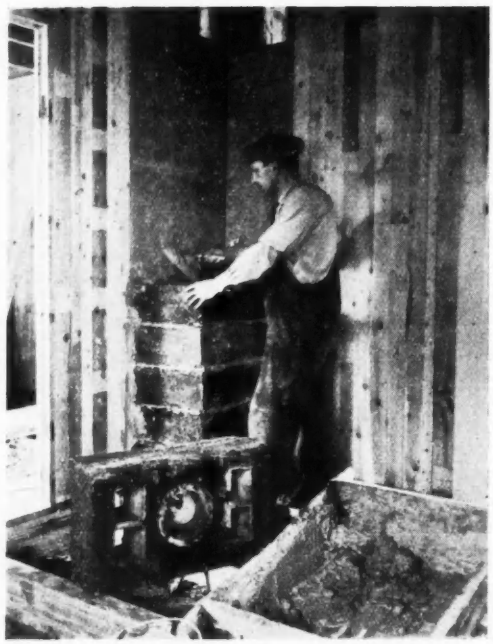
1 : BUILDING THE BASEMENT. *The basement is in concrete blocks, which are delivered to the occupant-builder by the city in sufficient quantity for the type of dwelling chosen. The damp-proof course is in bitumenized felt.*



2 : THE BASEMENT WALLS COMPLETE. *The basement walls are now ready for the ground floor joists to be laid on them. The vertical damp-proofing (up to ground level) is made with two coats of liquid asphalt.*



3 : THE FLOOR JOISTS LAID. *The wall-plates for the timber superstructure can also be seen. The ceiling of the basement is boarded and damp-proof paper laid on the underside of the joists to prevent damp from the bathroom and wash-house penetrating to the living-room over.*



4 : LAYING THE FLUES. *For ease of erection, the flues are supplied in standard sections with the pipes embedded in concrete blocks.*



5 : BUILDING THE CHIMNEY STACK. *The same concrete blocks, with flues embedded, are continued upwards to form the chimney-stack.*

The photographs on this and the facing page illustrate progressive stages in the erection of one of the dwellings on a Stockholm estate. The work on the site, as described in the accompanying article, is all done (with the help of his neighbours) by the future occupant, to whom the city supplies the materials in units that can be assembled with the minimum of building experience. Printed instructions and drawings are issued at the same time.



6: ERECTING THE WALLS. *The main walls of the dwelling (which are of wood) are delivered in sections and up-ended on the concrete-block basement walls. In this stage the services of a skilled carpenter are supplied (free up to a period of 24 working hours).* *See also page 358.*



7 (RIGHT): THE INTERNAL PARTITIONS. *These are delivered complete with doors and architraves.*



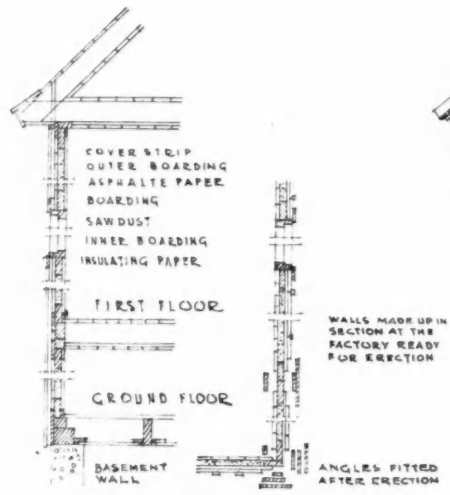
8: ROOFING. *The roof is being prepared for tiling. The joists are boarded, and battens and insulating paper are laid underneath the tiles.*

carpenter for a period of 24 working hours. All materials are bought and paid for by the city, and in each building area there is an issuing office for the delivery of nails, cement, etc., and the loan of scaffolding, tarpaulins, ladders and builder's plant.

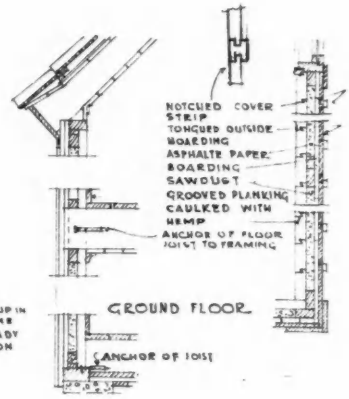
Other building materials besides the wooden framing are specially chosen to help the unskilled builder. The basement walls are delivered in precast concrete blocks, as the making of shuttering for pouring mass concrete was beyond the skill of the average man with little continuous time at his disposal. The blocks are made in a standard size of 20 by 25 by 50 cm., with one or two special shapes, and are thus not too large to handle. The chimney stack which runs through the centre of each cottage and contains five vents was another difficulty to the amateur. Earthenware fireproof flue sections are bedded in concrete blocks weighing about 40 kilos each—a weight that can be lifted by one man, who places one block above the other so that the flue pipes form continuous chimneys and vents. Horizontal damp-proofing is provided by strips of bituminous sheeting and, where below ground, the concrete block walls are painted externally with an asphalt emulsion.

The regulations insist that all connections to the drains, water, gas and electric power must be carried out by special contractors, and as the average man is not capable of glazing, doing ironwork or installing the hot water system, the city makes special contracts with tradesmen to do this work in the various districts. If on the other hand the home builder is himself skilled in any of these trades he can exempt such work by giving notice when he signs the contract, and obtain a credit.

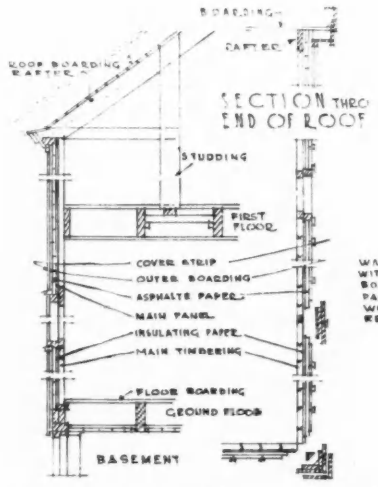
This credit agreement is an important part of the scheme, and allows the home builder to erect his cottage without contributing any capital to the venture. The credit is for a fixed amount, usually 90 per cent. of the building cost, repayable over a period of 30 years. As surety for this the home builder gives the city a mortgage with prior lien in the leasehold rights he has acquired in virtue of his leasehold deed. The money is paid out in various ways. Certain materials must be purchased from the city and the receipts applied to the credit. The various special contractors required are paid for out of this credit and a certain percentage is retained by the city to defray the cost of administration and instructors, for the authorities are determined that the scheme shall be self-supporting and not a charge on the rates. The remaining 10 per cent. of the building costs must therefore be contributed by the home builder in the form of work. Estimates show that



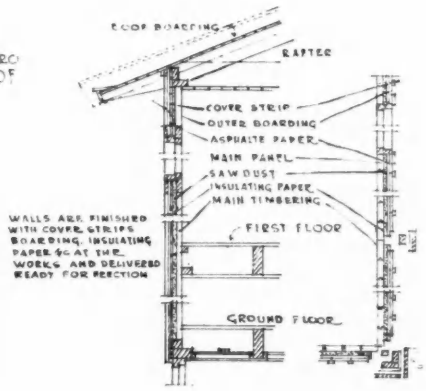
Section and plan of the "Ibo" system of construction. See page 380.



Section and plan of the "Knivsta" system of construction. See page 380.



Section and plan of the "Sesam" system of construction. See page 381.



Section and plan of the "Stadens" system of construction. See page 381.

when completed the home builder has still about 1,000 kronor of his 90 per cent. credit unspent, according to how careful or otherwise he has been in the erection of his house. The city allows him to use this unspent amount to pay for work on the cottage he is unable to do himself, but in which the authorities have not contracted to help. Thus a painter may pay a labourer to assist in digging, or a carpenter may get help from a bricklayer, but usually this unspent part of the credit is applied to installing something outside the standard specification, such as a garage, or to covering in the open porch to enlarge the living-room. Thus most of the cottages have more money spent on them than is estimated for in the programme, and when complete have

	Type I	Type II	Type III	Type IV	Type V
Instalment on loan ..	597 kr.	719 kr.	630 kr.	669 kr.	539 kr.
Ground rent	160 ,,	200 ,,	180 ,,	200 ,,	150 ,,
Rates., etc., including water rate and insurance	125 ,,	140 ,,	133 ,,	136 ,,	113 ,,
Total	882 ,,	1,059 ,,	943 ,,	1,005 ,,	802 ,,

Table 2 : annual charges.

a value considerably in excess of the estimated building cost and are an ample security for the city. The annual charges on each type are given in Table 2.

For comparison it must be remembered that the rent for a two-room flat in the working quarter of Stockholm is about 980 kronor.

The "small cottage" scheme at Gothenburg was begun in 1933, when the first colony of some 240 cottages was built at Bracke. Three different types of plan were provided, known as Type I, Type II and Type III, (see plans on page 381). Type I comprises three rooms and a kitchen on one floor, while Types II and III have four rooms and a kitchen planned on two floors, the only difference being that in Type II there is a dining recess in the living-room and in Type III the kitchen opens direct into a separate dining-room. All the cottages have gas, water and electric light laid on, and a central warming system. The combined bath and washing room in the basement is provided with a means of warming the bath water, and also with a gas point for gas heater. The kitchens have gas cookers and sinks, with ample cupboard room. In Types I and III the draining boards are of rustless steel, while in Type II they are of teak. Behind the cooker and sink the wall is protected with opal glass tiling. The walls of the kitchen, hall and stairs are finished with plywood panelling. The w.c.'s in the basement have ventilation to the open air, which is an improvement on the arrangement at Stockholm, and Types II and III have balconies on the first floor, opening out of the largest bedroom, where a child's cot or pram can be left in safety. The floor areas and

	Ground area	Cubic contents
Type I ..	50·04 m.	257 cm.
Type II ..	37·72 ,,	296 ,,
Type III ..	37·72 ,,	296 ,,

	Price
Type I	9,560 kr.
Type II	11,280 ,,
Type III	11,360 ,,

Table 3: sizes and costs, Gothenburg.

cubic contents approximate closely to the Stockholm types, as is shown in Table 3.

The general construction follows the Stockholm method, with two exceptions. The basement walls are made of poured concrete in a proportion of 1 to 6. A simple shuttering has been evolved and the walls in these houses are 20 cm. thick. The roofs, also, are not tiled but of a flat pitch, and covered with two layers of kraft paper with an asphalt preparation between. In Gothenburg, too, it has been arranged for more of the specialist work to be done by outside help, and less by the actual home builder. Financially, the arrangements are similar to those in Stockholm; the ground is, however, freehold, and a credit of 90 per cent. of the cost of the land and house is made to the owner. When the house is completed and finally surveyed two loans are substituted for the credit:—

1. The basic loan amounting to 50 per cent. of the sum of the credit which is advanced to the builder of the cottage by the Gothenburg Savings Bank.

2. The remaining 40 per cent. which is advanced by the town authorities.

The basic loan (that of 50 per cent.), with interest at 4 per cent., is free from redemption for a period of ten years. The town authorities' loan is redeemable by a yearly instalment of 6½ per cent. of the original sum loaned, of which instalment 4½ per cent. is interest, and the balance a capital repayment, spread over a period of 26 years.

The two chief objections that have been raised to the introduction of this form of housing in England are (1) the risk of fire and (2) the difficulty of preventing vermin from thriving in the packing of the walls. While it is admitted that the risk of fire from internal accidents is not greater in a wooden than in a brick house, once a cottage has caught alight it is far more difficult to localize the blaze, and it is argued that sufficiently to isolate each cottage would involve giving a large plot of ground to each, and thus swallow up in site costs any advantage that might be gained by cheap building. As to the second objection—whether the Swedes are a cleaner race than the English remains to be proved, but the vermin difficulty has not arisen with them. It has been shown over and over again that most slum dwellers are not dirty by choice but by necessity, and given clean surroundings and a chance of being house-proud are as clean as any other members of the community. It is this factor of pride in his house which has been one of the most satisfactory features of the Swedish experiment. By the "small cottage" movement the State endeavours to give the present rootless city population an attachment to the soil and a pride in the community, which a workman living precariously in a tenement block of flats can never attain.



9: THE FINAL OPERATION. *Painting the external walls.*

L I T E R A T U R E

ARCHITECTURE WITHOUT TEARS

[*BY WILLIAM TATTON-BROWN*]

Architecture Here and Now, by Clough Williams-Ellis and John Summerson. London: Thomas Nelson and Sons, Ltd. Price 7s. 6d. net.

IN spite of its name, *Architecture Here and Now* is not an analysis of present diversity of opinion and absence of principle. It does not attempt to offer a new creed, or suggest new solutions to the contemporary dilemma. It makes no analogies between architecture and the other arts. There is little, in fact, of what one could be led to expect from the title, which, as the publishers explain on the dust cover, might have been "Architecture Debunked."

The authors explain that the idea of the book is to introduce us to the architecture which is alive today. After a few preliminary historical remarks, we are told that what is commonly called traditional "is more accurately the Georgian revival of twenty years ago, modified to suit our needs." Various buildings are amusingly "debunked." Thames House, for instance, is described as "fat and rich looking"; South Africa House as "a vague, half romantic building with curious animal sculptures," and Cambridge University Library as "classical compromise to solve an essentially modern problem." There is an excellent illustration showing how the steel framework of traditional buildings is first cased in concrete and then concealed in stone, and we learn that "the sort of impressiveness which these buildings aim at has been given up in almost every country except England, and even here it is at last on the decline."

All this is well said and true, but when the authors come to the real theme of the book they are less sure of themselves. They maintain that "modernism, which was approved a few years ago only by a few intelligent people, has now become positively fashionable." They suggest that it owes its origin to various buildings in Europe, which are classified and described, country by country, but no attempt is made to explain the theoretical basis of the modern movement and there is no serious discussion of its future. The only comment made on the present situation is that "English architecture is at the moment a queer mixture of good and bad, reasonable and unreasonable, new-fashioned and old-fashioned. But obviously it is sorting itself out, and there is no reason to be depressed about the future." The reader is thus given the impression that the only thing which differentiates a modern building from a traditional is that the one is copied from contemporary Europe and the other from classical antiquity, and on the whole we should prefer the former because it is more fashionable.

It is here that I fall out with the authors, for architecture is surely independent of the caprice of fashion. There is an inevitable quality about all the historic styles of architecture which makes each style the faithful expression of its period. Architecture, in fact, to be architecture at all, must be of the very stuff of which the age is made; it must be "Here and Now," otherwise it is something else—decoration, archæology or scene-painting. Instead of analysing the peculiarities of the contemporary world which make up this inevitable quality, the authors discuss fashions. Instead of describing how an architect approaches his problem today, they describe modern buildings. No attempt, for instance, is made to explain how in a period of rapid development the architect is inclined to be more preoccupied with considerations of function, materials and technique than with æsthetics, and how this tendency is likely to be accentuated by a more scientific approach to his work. The authors ignore all this, and confine their discussion of contemporary architecture to remarks about simplicity and order. They under-estimate, moreover, the importance of technical inventions not directly connected with buildings, which have had nevertheless considerable influence on architecture. Thus there is no mention of lifts in the section on urban domestic buildings, and "a block of flats" we are told "is an unwieldy thing and can be very ugly when it is not well designed." This querulous attitude is not confined to flats. "The architecture of road transport," they say, "though not so imposing as railway architecture, is just as important and just as likely to be ugly and depressing if it is badly designed. . . .," "factories themselves need not be ugly" and "there is nothing intrinsically bad about a bungalow."

All the same, there is much sound and painstaking writing, explaining to the layman the technicalities of planning and construction in the simplest language. The chaper headed "Synthesis" is an excellent exposition of the extension of the architect's scope from the small unit of the building, through town-planning to regional-planning. The illustrations are for the most part well chosen and the comments adequate. The brief excursions into history, wherever they occur, are always entertaining and to the point.

THE PURSUIT OF ARTINESS

[*BY J. M. RICHARDS*]

The Conquest of Ugliness. Edited by John de la Valette. London: Methuen and Co. Price 8s. 6d. net.

THOSE who have visited the current exhibition of British Art in Industry must realize how completely it has failed to achieve what such an exhibition should. For those who have not visited it this book has been published, successfully to perform the same disillusioning service. It is a symposium, edited by Mr. John de la Valette, the organizing secretary, comprising essays by a number of those who have contributed to the exhibition. These are sandwiched between an introduction and a "summing-up" by the editor, and preceded by a brief foreword by H.R.H. the Prince of Wales. His Royal Highness's words, as anyone would expect who had heard speeches of his on the subject, are exactly to the point and show an excellent appreciation of the æsthetic requirements and possibilities of modern industry. It is, therefore, particularly unfortunate that so much of the book that follows (which will appear to the public to have been given the seal of Royal approval) is quite uninterested in modern industry as a function of modern existence, regarding it generally as an interloper which must be persuaded to conform to polite standards of decorative taste.

Those who have visited the exhibition (and come away puzzled as well as disappointed) might still be expected to have a look at this book—from a morbid desire to discover what was the æsthetic creed behind Burlington House's rich but esoteric ritual; but again they will be disappointed. They will naturally look for the explanation in the introduction by the editor himself. It has, printed at the top, "For Glory and for Joy," which is not, as might be supposed, the book's dedication to a couple of film-stars for whose Hollywood mansions the exhibits are intended, but is the title of the introduction. In it Mr. de la Valette, in vague terms and high-flown phrases, declares his belief in the joy that "lies at the root of art as of beauty," and

in the moral value of "objects that are in good taste" (whatever that may be) particularly to those "at the lower end of the social scale." He disapproves of everything un-English, from the Italian "futurism" of pre-war days—"the futile meanderings of unoccupied minds"—to the "mechanized art" (a very different thing, apparently, from Art in Industry) of post-war Germany—"well attuned to the predilections of its people, but entirely alien to the spirit of either the English or the French. Nevertheless both countries for a while suffered acutely from this influence." He deplores the fact that, "by 1933 the receding tide of elimination had almost swept away everything worth looking at," and is thankful that now there is seen "a desire on the part of artists to take a practical share in remedying a state of affairs which was developing into a national calamity"; words that might have meant so much that was admirable, but which, in their context, can only point not forward but back. Back, in fact, to what Mr. de la Valette has pleaded for on a previous occasion—to "decoration." Nevertheless, through the whole introduction there appears no reasoned outlook or considered philosophy beyond a general good will towards everyone and everything provided it is English and in "good taste"—except perhaps towards industry as a function by itself in which, as I have said, he is not very interested. So as we walk down the steps of Burlington House and wonder why this art object or that expensive eccentricity found a place in the exhibition there, we can only echo "for Glory and for Joy"; and we must be satisfied with that.

The essays by the other contributors to the book vary inevitably in their degree of perception; some of them warble in chorus with the editor, a few express simpler and less reactionary sentiments; but none of them are completely free from compromise, and any good sense they may show in theory is contradicted in practice in the corresponding department at the Academy and in the photographic illustrations to this book. These are particularly *naif* and depressing, and their captions reveal—quite strikingly—the editor's outlook. To quote but three: about a picture of some modernistic textiles, "British furnishing materials have reached high perfection. Manufacturers have also succeeded in using the gifts of artists to adapt their products to the latest taste"; about a picture of a book bound in leather stamped with a smart sophisticated design, "the technique of bookbinding is excellent in Britain but recent economic conditions appear to have hampered artistic developments. There is room for more invention in design and a lighter touch in decoration"; and about a picture of an *art-nouveau* carpet, "carpets have recently been starved of ornamental design, but decorative patterns are again coming into their own." This last sentiment is an appropriate one on which to end.

Shorter Notices

Oxford Renowned. By L. Rice-Oxley. London Methuen and Co. Price 7s. 6d. net.

IF the credit must be given to Lytton-Strachey for revolutionizing the method of biography, it is to an entirely anonymous benefactor that we owe the parallel revolution in methods of guide-book writing—or perhaps we owe it merely to an insistent public demand. At any rate, it has taken place: fifty years ago a book on the University City, by a writer with enormous knowledge of its history and associations, would have been a forbidding volume, indigestible to all but the scholar and the most fact-hungry visitor; today the earlier dignity is discarded, and the same topographical information is presented as easy after-dinner reading. In this book, a second and revised edition of that first published in 1925, Mr. Rice-Oxley is almost gossipy in his description of Oxford—City and University, but his authority to gossip is always evident. In the architectural field he has catholic taste, and appreciates the many good qualities of the much-abused nineteenth-century Gothic work in the University. His reference to William Butterfield in discussing that great architect's work at Keble, the author's own college, as: "a perverse and obstinate artist, yet one endowed with originality," is a good example of his pleasing use of the appropriate word.

The new edition of the book retains the oddly old-fashioned water-colour illustrations by Professor Knapp-Fisher. Some of these are charming, though the rather fat nature of the washes denies them that precision which made the work of the earlier school of water-colour draughtsmen so appropriate a medium for architectural illustration. J. M. R.

Spon's Architects' and Builders' Price Book, 1935. Edited by Clyde Young. London: E. & F. N. Spon, Ltd. Price 5s. net.

THIS is a sort of builder's Bradshaw crammed with information concerning costs, material used and jobs performed by the builder, from excavation, fill and ram at 3s. 6d. per yard cube in London, to hire of lamps, blow, at 1s. 1d. per day, including profit, and picking locks at 1s. 4½d. each. Information is presented under normal trade headings: drainlayer, bricklayer, carpenter, joiner and so on, either as measured prices or as tabulated constants of labour and material. It is full of interesting, as well as useful, information. In the preliminary pages there are rough approximate estimates from which it can be seen that plastering and papering on walls costs £2 per square of 100 ft., and a water supply service, as for private houses, including taps, service pipes, digging, etc., and mains and cisterns costs from £25.

Several pages are devoted to tables giving cubic costs of building from which we find that the actual cost of the reinforced concrete carcase of a G.P.O. building is 2½d. per cu. ft., whilst the cost of towers, pavilions, etc., on Government buildings is 3s. 6d. per cu. ft.; cowhouses cost 11d. per cu. ft. in the provinces, and 1s. 1d. per cu. ft. in London. A mine of detailed information. F. R. S. Y.

Books reviewed in these columns may be ordered through The Architectural Press, 9, Queen Anne's Gate, S.W.1.

THE HOUSING BILL

WHEN the Standing Committee of the House of Commons which is considering the Housing Bill met again last week the position of local authorities who are themselves landlords was discussed.

Clause 9 places on local authorities the duty of enforcing the provisions of the Bill, and Sir Hilton Young, the Minister of Health, pointed out that experience had shown that local authorities had always discharged their duties in a public spirited manner and in the public interest. Though there were ample powers in the Bill to meet any cases of failure on the part of local authorities to do their duty as landlords, he did not think the powers would have to be exercised by the Minister. He recognised, however, that it was necessary to have a provision to ensure that an offence against the Bill should not be allowed to continue, and after consultation with the Solicitor-General he had decided that there should be a provision for the prosecution of a local authority which allowed overcrowding in its own houses. It would, of course, be necessary to protect local authorities against frivolous prosecution, and he would propose that at a later stage such prosecutions could only take place with the grant of the Attorney-General.

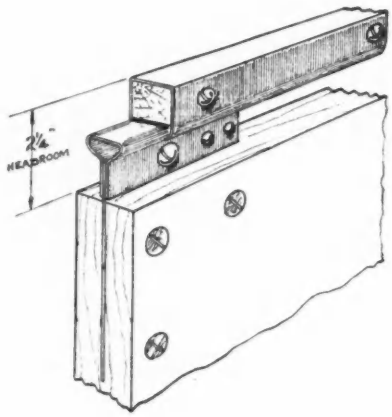
Lord Winterton, at a later stage, urged that the Bill should apply to overcrowding anywhere and not merely to working-class houses. He said that there was much overcrowding in the houses of what was described as "the lower middle class."

Sir Hilton Young said that the Bill applied to houses occupied by the working-classes because it was in that type of dwelling that the overcrowding with which the measure was intended to deal was formed. But the definition of working-class house would extend upwards to include the cases that Lord Winterton had in mind.

Later in the proceedings, Sir Hilton Young announced that he proposed with the report stage to move an amendment requiring the local authority to give a certificate as to suitable alternative accommodation in respect of their own houses as well as of the houses owned by other landlords.

Lord Winterton inquired if the Minister was prepared to reconsider definitions of overcrowding in the Bill which restricted it to working-class houses and to make the Bill applicable to overcrowding wherever it took place.

Sir Hilton Young said that he had, in fact, begun to reconsider the matter. The first results of his reconsideration had been, on the whole, to confirm his view that the definition was sufficient to cover the class of houses that Lord Winterton had in view, but, nevertheless, he would reconsider the matter.



TRADE NOTES

[BY F. R. S. YORKE, A.R.I.B.A.]

Damp Course

ASTOS, a new damp-proof course made by the Ruberoid Company, is entirely mineral in composition and contains no perishable fibres. It is approximately 50 per cent. asbestos fibre and 50 per cent. blended asphalt, put together in such a way that the material is a uniform composition of asbestos and asphalt throughout, from one surface to the other.

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It is obtainable with or without a thin lead lining, and is approximately $\frac{1}{8}$ in. thick, weighing 7 lb. per yard super without, and 9¼ lb. per yard super with the lead lining. Prices are 2s. per yard and 3s. 3d. per yard. The material is made in widths up to 36 in. and is supplied in rolls containing eight lineal yards.

Sliding Door Gear

A silent gear for sliding doors, that employs neither balls nor rollers, is described in a pamphlet issued by Messrs. George W. King. The gear is supplied in a variety of forms, and can be used to carry single or double doors, windows and sliding fronts to wardrobes, serving hatches, show-cases, etc. The gear can be adapted to carry doors running on the face of existing surfaces, but in new work is housed within the wall.

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The type illustrated here can be made to carry doors up to 120 lb. in weight for any length of travel. The standard overhead gear for a single door consists of a steel runner 5 ft. 8 in. long, two steel hanger brackets, two gliders, and two door plates. The run back is guided by means of hardwood slips nailed to the floor, or in better work by special fibre shoes running on a brass tee section. The price for a standard single door set for doors up to 2 ft. 9 in. wide, complete with brass floor guide and fibre shoe is £1 6s. 6d.

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In explaining the economy of such gear, in spite of what appears at first a rather high price, the manufacturers say, "It is obvious that the initial cost of a sliding door must exceed to a small degree that of a swing door; but in small houses and flats, where every inch of space must be utilized, the 6 sq. ft. of 'carpet area' which must be allowed for when swinging doors are used, can be successfully eliminated when sliding doors are used.

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"A small flat consisting of living room, two bedrooms, hall, bath, kitchen and w.c., occupies a total floor area of 600 sq. ft. Such a flat would normally be fitted with seven doors, the swinging of which would occupy not less than 42 sq. ft. Forty-two sq. ft. of floor area is equivalent to at least 400 c. ft. of building, and an actual saving in building costs of £25 upwards could be secured by redesigning and substituting sliding for swing doors."

Manufacturers' Items

Messrs. W. R. White & Co., the patentees and manufacturers of the Whiteway reflector, have moved to larger premises at 22 Bruton Street, Berkeley Square, London, W.1, where they have equipped a showroom to demonstrate the use of the Whiteway system of lighting for pictures and tapestries. The new telephone number is Mayfair 2676.

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The General Asphalte Co., Ltd., have moved to new and larger offices at Romney House, Marsham Street, S.W.1. Telephone No. Victoria 2695-6.

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Messrs. Prodorite, Ltd., of Eagle Works, Wednesbury, the flooring and acid proofing contractors, have appointed Mr. G. G. Holman to the position of manager of their London office (Melbourne House, Aldwych, W.C.2). We understand that Mr. Holman will be pleased to provide architects with any information connected with industrial acid proofing and industrial flooring problems.

Exhibition Lighting

"Exhibitions and the Lighting Effects" was the title of a paper read by Mr. R. A. Duncan, A.R.I.B.A., at the second of the series of conferences for architects organized by the Lighting Service Bureau and held at Brettenham House last month. In the course of his paper Mr. Duncan said:

"In such an exhibition as the *Daily Mail* Ideal Home Exhibition, dramatic interior effects are vital as the show, for, while having its serious side to both seller and buyer, it is to a considerable extent an amusement and depends partially upon that to attract the public. In such cases, the interior artificial lighting is no mean problem. It has to be efficient and effective and at the same time provide something to talk about. It thus presents all the problems of colour, of pattern, of volume and efficiency. Thus it is possible to catch all the snags—unexpected and unwanted colour effects, bad reflections, and the like. It also presents that most difficult of all problems, the handling of the day and night lighting. It is a problem almost without solution from the showman's point of view. I am of the opinion that in spite of the added expense it would be well to cut out the daylight and use only artificial light. All new permanent exhibition buildings should be so designed originally as to admit of this being done easily."

THE BUILDINGS ILLUSTRATED

Sub-Contractors' List

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue:—

North Gate Hall, Oxford (pages 365–367). General contractors, John Laing and Son, Ltd. Sub-contractors: Archibald D. Dawnay and Sons, Ltd., constructional steelwork; Brightside Foundry and Engineering Co., heating installation; Lowe and Oliver, electrical installation; J. H. Shouksmith and Son, plumbing; Eric Munday, Ltd., bronze lettering; Venesta Ltd., Australian walnut panelling, macassar ebony plywood: Troughton and Young, electrical fittings; Linoleum Manufacturing Co., linoleum: N. F. Ramsay & Co., Ltd., ironmongery; Stic B Paint Sales, Ltd., stone covering colour; George M. Hammer & Co., chairs; D. Burkle and Son, Ltd., reading desk and platform chairs; G. Jackson and Sons, Ltd., fibrous plaster to columns; Synchronome, Ltd., electric clock.

House at Kingsley Green (pages 370–371). General contractors, Chapman, Lowry and Puttick, Ltd. Sub-contractors: W. Alfrey; bricks; Nyewood Brick and Tile Co., tiles; John Bolding and Sons, Ltd., sanitary fittings; W. James & Co., Ltd., windows; J. D. Beardmore & Co., Ltd., door furniture; Noelite, Ltd., terrace paving; Nutbourne Brickworks, Ltd., bricks to front entrance doors; Davis Gas Stove Co., Ltd., gas fires.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS).

BERMONDSEY. *Flats.* The B.C. has approved sketch plans for the erection of 39 flats on the Trinity Road area, at an estimated cost of £23,137.

BETHNAL GREEN. *Dwellings.* The L.C.C. Housing Committee is anxious to acquire suitable sites in East London for the erection of dwellings in connection with rehousing operations and recommends the purchase of the Waterloo House institution, Bethnal Green, at the price of £27,000, for the development of the site by the erection of dwellings.

EALING. *Shops and Flats.* Messrs. Marshall and Tweedy, FF.R.I.B.A., have prepared lay-out plans for Messrs. Warwick Estates, Ltd., for the proposed erection of 55 shops with flats over, and 34 garages, at The Fairway and Currey Road, Whitton Avenue. The lay-out has been submitted, but not yet approved.

EGHAM. *Flats.* Messrs. Fassnidge, Son and Norris, Ltd., are to erect a block of 14 flats at Broomhall Estate, Sunningdale.

HAMPTON. *School.* The Middlesex E.C. proposes the acceptance of the tender of Messrs. F. D. Hidden & Co., Ltd., at £18,964, for the erection of an elementary school on the Rectory Farm Estate. The County Architect is Mr. W. T. Curtis, F.R.I.B.A., 10, Great George Street, S.W.1.

HARROW. *Cinema.* Work has now commenced upon the erection of a cinema dance hall and café at Station Road. The contractors are Messrs. T. F. Nash, Ltd., South Harrow.

HARROW WEALD. *Licensed Premises.* New licensed premises are to be erected at Belmont Circus, Kenton Lane, by The Cannon Brewery Co., Ltd., at an estimated cost, including site, of £16,000.

HONOR OAK. *Dwellings.* The L.C.C. has approved plans for the erection of 143 dwellings on the Honor Oak estate, at an estimated cost of £65,000.

HOUNSLOW. *Fire Station.* The Minister of Health has approved the proposals of the Borough Council for the erection of a Central Fire and Ambulance Station at Pears Fountain. The Council has now approved the appointment of Mr. J. MacBain, Surveyor, 21, Hart Street, W.C.1, as quantity surveyor.

POPLAR. *School.* The L.C.C. Education Committee is to reconstruct the Cubitt Town school, Poplar, at an estimated cost of £44,575.

SOUTH HARROW. *School.* New school accommodation is to be provided by the Middlesex Education Committee on the Tithe Farm Estate. Plans are to be prepared by Mr. W. T. Curtis, F.R.I.B.A., Guildhall, S.W.1.

SOUTHGATE. *Houses, etc.* The Corporation has passed the following plans: Houses, Stone Hall estate, for Mr. Alfred Croker; nine houses, Ashbridge Gardens, for Mr. F. F. Tomlin (amended plans); three shops, 14 flats and 10 garages, Bowes Road and Powys Lane, for Mr. J. Jarrett (amended plans); 20 flats, Upper Park Road, for Messrs. Bradshaw & Co. (amended plans); 12 houses, Sheringham Avenue, for Messrs. Melhuish and Henson (amended plans); house, Eversley Crescent, for Messrs. Brown and Warman; 30 houses, Chestnut Close and Merivale, for Mr. J. Neilson.

SOUTHGATE. *School.* The Middlesex Education Committee is to obtain a site in Southgate for the erection of a secondary school.

SOUTHWARK. *Dwellings.* The L.C.C. is to erect 47 dwellings on the first portion of the Tarn Street area, Southwark (corner of Rockingham Street), at an estimated cost of £25,000.

TWICKENHAM. *Technical Institute.* Preliminary plans, prepared by the architectural experts attached to the Board of Education and the Middlesex Education Committee, have been approved in principle in draft form, for the provision of a Technical Institute at Twickenham, to accommodate 1,000 students. The draft plans are now, we understand, before the Twickenham Higher Education Committee and the Board of Education for their observations. It is estimated that the preliminaries will postpone a start in building operations until late in the year. The completion of the building it is estimated, will be reached in the later months of 1936. Tenders will probably be asked for at the next or the following meeting of the Middlesex Education Committee. The selected site is near St. Martin's Church and Twickenham railway station.

WOOD GREEN. *Modernization of Baths.* The Corporation Health Committee has approved plans by the borough engineer for carrying out the first part of the scheme for the modernization of the Western Road baths, at an estimated cost of £15,750; and the Corporation has approved a scheme by the borough engineer for the extension of the public library at an estimated cost of £11,000 and instructed him to prepare detailed plans in connection therewith.

SOUTHERN COUNTIES

BRIGHTON. *Flats.* Plans passed by the Corporation: Six houses, Chichester Drive, Saltdean estate, Saltdean, for Mr. W. F. Hopkin; estate lay-out, Woodland Way, Peacock Lane and The Parkway, Varndean estate, for Varndean Estates, Ltd.; five houses, Valley Close, for Mr. T. R. Braybon; public hall, Ladies Mile estate, Patcham, for Ladies Mile Estate, Ltd.; estate lay-out, Friar Road, Hollingbury Copse estate, Patcham, for Sussex Property and Building Co., Ltd.; 24 houses, Singleton Road, Carden Avenue estate, Patcham, for Messrs. Braybons, Ltd.; 15 flats, 28, Preston Park Avenue, for Park Mansions, Ltd.; 42 bungalows, Mackie Avenue, and Lomond Avenue, Ladies Mile estate, Patcham, for Ladies Mile Estate, Ltd.

BRIGHTON. *Welfare Centre.* The Corporation Health Committee has approved sketch plans by the borough engineer for the erection of a maternity and child welfare centre and school clinic at Sussex Place at an estimated cost of £15,000, and authorized him to obtain tenders for the work.

BRIGHTON. *Zoological Gardens.* The Corporation has approved generally of proposals by Mr. M. S. W. Sarel, of 15, George Street, London, W., for the establishment of botanical and zoological gardens, with numerous appurtenant buildings, on a site of about 214 acres on the Withdean estate. The project includes proposals for a large open area for cattle and horse shows, two swimming pools, paddling and boating pools, car parks, sports premises, lodges, and restaurant and refreshment premises (with licences). The architect is Sir Charles Allom.

GUILDFORD. *Public Halls.* The Guildford Corporation is in negotiation with Messrs. Rive and Harper regarding the proposal for the erection of public halls on a site at the junction of London Road and York Road.

GUILDFORD. *Hotel.* A new hotel is to be erected at the corner of Woodridge Hill and the Guildford-Godalming by-pass by Messrs. Courage & Co., Alton. The estimated cost of the building is £12,000.

EASTERN COUNTIES

CHELMSFORD. *Schools.* The Education Committee has instructed the borough engineer to prepare preliminary plans for the erection of two senior schools in the south ward, off Princes Road.

CHELMSFORD. *Houses and Flats, etc.* Plans passed by the Corporation: Shop and flats, Moulsham Street, for Mr. C. H. Green; seven houses, Widford Village Road, for Mr. H. T. Hart; nine houses, Highfield Road, for Messrs. Tyler and Dobie; four houses, 5th Avenue, for Messrs. W. and A. Pudney; four houses Hillside Grove, for Messrs. R. H. Currie and Sons; lay-out for houses (amended), Arbour Lane, for Mr. E. H. Howard; five houses, Widford Village Road, for Mr. W. Dawes; and six houses, Writtle Road, for Mr. E. Cannon.

RUNWELL. *Hospital Extension.* It was reported to the last meeting of the Southend Town Council that the accommodation now being provided at the Runwell Mental Hospital, for the joint boroughs of Southend and East Ham, would, within a comparatively short time, be insufficient. It is now proposed to complete the hospital by the addition of a further 130 beds beyond those already approved, at a cost of £50,000, for which sanction is to be sought.

MIDLAND COUNTIES

KETTERING. *Houses.* Messrs. Drury & Co. propose to erect 66 houses off Piper's Hill Lane, Kettering.

LEICESTER. *Houses.* The Corporation is to erect approximately 900 houses on the Braunstone estate.

STOKE-ON-TRENT. *Central Museum, etc.* The Corporation is to consider further proposals with regard to the provision of suitable sites for the erection of a central museum and art gallery, and also a central library.

STOKE-ON-TRENT. *School.* The Education Committee has appropriated approximately six acres of land at the Meir (No. 3) site for the erection of a school.

NORTHERN COUNTIES

BIRTLEY. *Swimming Baths.* The Parish Council has obtained sanction for a loan of £15,000 for the provision of swimming baths.

EASINGTON. *Church and Cinema.* The National Spiritualist Church trustees are to erect a church in School Street, Easington, and Messrs. Yodeon, Ltd., are to erect a cinema in Seaside Lane, Easington.

LOWER CRUMPSALL. *Factory.* Plans for a new factory in Factory Lane, for Messrs. James Howarth, Ltd., have been prepared by Roberts, Wood and Elder, F./A.F.A.S., architects, 26, King Street, Manchester, 2.

MANSFIELD. *Houses.* The Ministry of Health has sanctioned the proposal of the Corporation to erect 52 houses, by direct labour, on the Revensdale estate, at a cost of £14,770.

MANSFIELD. *Fire Station.* The Corporation has instructed the borough engineer to prepare plans for the erection of a new fire station with firemen's quarters.

MANSFIELD. *Swimming Baths.* The Corporation has asked its Development Committee to consider the provision of a modern swimming establishment, at a cost of £30,000.

MANSFIELD. *Houses, etc.* Plans passed by the Corporation: 11 houses, Beaumont Avenue, for Messrs. H. Blythe and Son; five houses, Robin Down Lane, for Mr. J. P. Smith; six houses, Big Barn Lane, for Mr. J. W. Baxter; 34 houses (amended), Mayfair Avenue, for Heathcote Estates (Whitton), Ltd.; 14 houses, Stuart Street, for Mr. B. Black; factory extension, Sutton Road, for Messrs. Sale and Turner, Ltd.

MORECAMBE. *Houses, etc.* Plans passed by the Corporation: Eight houses, Michaelson Avenue, for Mr. F. Turner; eight houses, Smithy Lane, for Mr. H. F. Shackleton; six houses, Middleton Road and Wesley Drive, for Messrs. Wm. Gardner & Co.; motor bus depot, Heysham Road, for Corporation Transport Committee; eight houses, Seymour Avenue, for Mr. W. Huddleston; and six houses, South Grove, for Mr. H. L. Moody. Plans submitted: 26 houses, Charles Avenue and South Road, for Mr. C. F. Napper.

MORECAMBE. *Dance Hall, etc.* The Morecambe Corporation has approved further plans submitted by the New Morecambe Central Pier Co., Ltd., for the erection of a dance hall with bars, cafés, and kiosks on the Central Pier.

SCOTLAND

DUMBARTON. *School.* The Dean of Guild has approved plans for the erection of a new school at Crosslet Road, for the Dumbarton Education Committee. The estimated cost is £35,000.

KIRKCALDY. *Houses.* Plans and lay-outs for over 700 houses have been prepared by the Burgh Surveyor, Mr. George Duffus. It is proposed to erect 286 houses on the King Street site, 408 houses on the Cairns Street and Park Road sites, and 76 houses at Ramsay Road.

WALES

SWANSEA. *Hospital.* The Welsh National Memorial Hospital Association is in negotiation with the Corporation for the purchase of a site for the erection of a national hospital. The

(*Continued on page xxxvi.*)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A_2	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A_2	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A_2	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_1	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol ..	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester ..	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley ..	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_2	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley ..	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham ..	N E. Coast	1 5½	1 1½
A_2	EASTBOURNE	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter ..	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome ..	S. W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W. Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley ..	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_2	Kendal ..	N.W. Counties	1 4	1 0
A_2	Keswick ..	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12–15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N.E. Coast	1 5½	1 1½
A_2	Middlewich ..	N.W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham ..	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford ..	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough ..	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud ..	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_2	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid. Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan ..	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil ..	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality, and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger	"	1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
General Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
1½" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
1½" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single junctions	"	3	6	5	3
Double "	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
4½" Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6

IRON DRAINS:

		£	s.	d.
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead Wool	lb.		6		—
Gaskin	"		5		—

BRICKLAYER

		£	s.	d.
Flettons	Per M.	2	15	0
Grooved do.	"	2	17	0
Phorpres bricks	"	2	15	0
" Cellular bricks	"	2	15	0
Stocks, 1st quality	"	4	11	0
" 2nd "	"	4	2	6
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Brindles	"	7	0	0
" Bullnose	"	9	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	0
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midhurst White Facings	"	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	29	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

The following d/d F.O.R. at Nine Elms:

		s.	d.
Portland stone, Whitbed	F.C.	4	4½
" " Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" Sawn templates	"	7	6
" Paving, 2"	F.S.	1	8
" " 3"	"	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	"	24	10	0
20" × 10" Countesses	"	19	5	0
18" × 10" Viscountesses	"	15	10	0
18" × 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey	per 1,000 (actual)	21	11	6
" " green	"	24	7	4
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each			9½
" hand-made	"			10
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" " 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak plain American	" "	1	0
" Figured "	" "	1	3
" Plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1
Deal floorings, ⅞"	Sq.	18	6
" 1"	"	1	1	6
" 1¼"	"	1	2	0
" 1½"	"	1	5	0
" 1¾"	"	1	10	0
Deal matchings ⅞"	"		14	0
" 1"	"		15	6
Rough boarding ⅞"	"	1	4	0
" 1"	"		16	0
" 1¼"	"		18	0
		1	6	0

Plywood, per ft. sup.

—Thickness	¼"	⅜"	½"	¾"
Qualities	AA.A.B.	AA.A.B.	AA.A.B.	AA.A.B.
	d. d. d.	d. d. d.	d. d. d.	d. d. d.
Birch	4 3 2	5 4 3	7½ 6 4½	8½ 7 6
Alder	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6
Gaboon Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –
Figured Oak 1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –
Plain Oak 1 side	6½ 6 –	7½ 7 –	9½ – –	1/– – –
Oregon Pine	5 4 –	5½ 5 –	6 – –	– – –

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	¼"	⅜"	1"	1¼"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23½" long each	10	1/1	1/11	2/8	4/9
" 3"-11½" long "	7	9	1/3	1/8	3/–
Long screws, 12"-23½" long "	11	1/3	2/2	2/10	5/3
" " 3"M-½" long "	8	10	1/5	1/11	3/6
Bends	8	11	1/7½	2/7½	5/2
Springs not socketed "	5	7	1/1½	1/11½	3/11
Socket unions "	2/–	3/–	5/6	6/9	10/–
Elbows, square "	10	1/1	1/6	2/2	4/3
Tees "	1/–	1/3	1/10	2/6	5/1
Crosses "	2/2	2/9	4/1	5/6	10/6
Plain Sockets and nipples "	3	4	6	8	1/3
Diminished sockets "	4	6	9	1/–	2/–
Flanges "	9	1/–	1/4	1/9	2/9
Caps "	3½	5	8	1/–	2/–
Backnuts "	2	3	5	6	1/1
Iron main cocks "	1/6	2/3	4/2	5/4	11/6
" " with brass plugs "	—	4/–	7/6	10/–	21/–

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½
FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued*

		s.	d.
Rolled steel joists cut to length	cwt.	10	9
Mild steel reinforcing rods, ⅜"	"	8	6
" " ½"	"	8	3
" " ⅝"	"	8	0
" " ¾"	"	7	6
" " ⅞"	"	7	6
" " 1"	"	7	6
" " 1¼"	"	7	6
" " 1½"	"	7	6

Cast-iron rain-water pipes of ordinary thickness metal	3" s.	3" d.	4" s.	4" d.
	F.R.	8		10
Shoes	each	2	0	3	0
Anti-splash shoes	"	4	6	8	0
Boots	"	3	0	4	0
Bends	"	2	7	3	9
" with access door	"	—		6	3
Heads	"	4	0	5	8
Swan-necks up to 9" offsets	"	3	9	6	8
Plinth bends, 4½" to 6"	"	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal	F.R.	5		6	
Stop ends	each	6		6	
Angles	"	1	7	1	11
Obtuse angles	"	2	0	2	6
Outlets	"	1	9	2	3

PLUMBER

		£	s.	d.
Lead, milled sheets	cwt.	18	6	
" drawn pipes	"	17	0	
" soil pipe	"	18	6	
" scrap	"	10	6	
Solder, plumbers'	lb.			9½
" fine do.	"		1	0
Copper, sheet	"			8½
" tubes	"			11

L.C.C. soil and waste pipes:	3"	4"	6"
Plain cast	F.R.	1 0	1 2	2 6
Coated	"	1 1	1 3	2 8
Galvanized	"	2 0	2 6	4 6
Holderbats	each	3 10	4 0	4 9
Bends	"	3 9	5 3	10 3
Shoes	"	2 10	4 4	9 6
Heads	"	4 8	8 5	12 9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	5	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle Plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	9
Lath nails	lb.			3

GLAZIER

	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.	F.S.	2½
" " 26 oz. " " "	"	3
Flemish, Arctic, Figured (white)*	"	7
Blazoned glasses	"	2 6
Reeded; Cross Reeded	"	11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite		6
Crown sheet glass (n/e 12 in. x 10 in.)	"	2 0
Flashed opals (white and coloured)	"	1 0 and 2 0
⅛" rough cast; rolled plate	"	3½
¼" wired cast; wired rolled	"	9½
¼" Georgian wired cast	"	11
¼" Polished plate, n/e 1 ft.	"	† 10 to ‡1 1
" " 2	"	†1 2 " ‡1 4
" " 4	"	†2 3 " ‡2 6
" " 8	"	†2 9 " ‡3 2
" " 20	"	†3 7 " ‡4 2
" " 45	"	†3 11 " ‡4 7
" " 100	"	†5 0 " ‡5 7
Vita glass, sheet, n/e 1 ft.	"	1 0
" " " 2 ft.	"	1 3
" " " over 2 ft.	"	1 9
" " plate, n/e 1 ft.	"	1 6
" " " 2 ft.	"	3 0
" " " 5 ft.	"	4 0
" " " 7 "	"	5 0
" " " 15 "	"	6 0
" " " over 15 "	"	7 6
"Calorex" sheet 21 oz., and 32 oz.	2 6 and	3 6
" rough cast ⅛" and ¼"	"	8½ " 1 0
Putty, linseed oil	lb.		3

* *Colours*, 1d. *F.S. extra.*
†*Ordinary glazing quality.* ‡*Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	6	0
Linseed oil	gall.	2	2½	
Boiled oil	"	2	4½	
Turpentine	"	4	1½	
Patent knotting	"	14	0	
Distemper, washable	cwt.	2	6	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	firkin	3	0	0
Copal varnish	gall.	13	0	0
Flat varnish	"	14	0	0
Outside varnish	"	16	0	0
White enamel	"	1	15	0
Ready mixed paint	"	13	6	
Brunswick black	"	7	0	

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR		£	s.	d.
Digging over surface n/e 12" deep and cart away	Y.S.		2	9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.		8	6
" to form basement n/e 5' 0" deep and cart away	"		9	0
" " 10' 0" deep and cart away	"		9	6
" " 15' 0" deep and cart away	"		10	0
If in stiff clay	add "			6
If in underpinning	"		4	0
Planking and strutting to sides of excavation	F.S.		1	0
" " to pier holes	"			5
" " to trenches	"			5
" " extra, only if left in	"			3
Hardcore, filled in and rammed	Y.C.		10	0
Portland cement concrete in foundations (6-1)	"	1	6	0
" " (4-2-1)	"	1	12	6
" " underpinning	"	1	16	0
Finishing surface of concrete, spade face	Y.S.			7

DRAINLAYER		4" s.	d.	6" s.	d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1	6	2	3
Extra, only for bends	Each	2	8	3	9
" junctions	"	3	9	4	6
Gullies and gratings	"	16	6	18	0
Cast iron drains, and laying and jointing	F.R.	4	9	6	9
Extra, only for bends	Each	10	6	15	6

BRICKLAYER		£	s.	d.
Brickwork, Flettons n lime mortar	Per Rod	27	10	0
" " in cement	"	28	15	0
" Stocks in cement	"	35	0	0
" Blues in cement	"	52	0	0
Extra only for circular on plan	"	2	0	0
" backing to masonry	"	1	10	0
" raising on old walls	"	2	0	0
" underpinning	"	5	10	0½
Fair Face and pointing internally	F.S.			1½
Extra over fletton brickwork for picked stock facings and pointing	"			8
" " " red brick facings and pointing	"			11
" " " blue brick facing and pointing	"		1	4
" " " glazed brick facings and pointing	"		3	6
Tuck pointing	"			7½
Weather pointing in cement	"			3
Slate dampcourse	"			10
Vertical dampcourse	"		1	1

ASPHALTER		s.	d.
½" Horizontal dampcourse	Y.S.	4	6
½" Vertical dampcourse	"	6	9
½" paving or flat	"	4	0
1" paving or flat	"	5	6
1" × 6" skirting	F.R.	1	0
Angle fillet	"		2
Rounded angle	"		2
Cesspools	Each	5	0

MASON		s.	d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17	9
Bath stone and do., all as last	"	13	6
Artificial stone and do.	"	13	0
York stone templates, fixed complete	"	10	6
" thresholds	"	13	6
" sills	"	1	0	6

SLATER AND TILER		£	s.	d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3	10	0
Do., 18" × 9"	"	3	7	0
Do., 24" × 12"	"	3	17	0
Westmorland slating, laid with diminished courses	"	6	0	0
Tiling, best hand-made sand-faced, laid to a 4" gauge, nailed every fourth course	"	3	0	0
Do., all as last, but of machine-made tiles	"	2	16	0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	4	6	0
" " " " " " (green)	"	4	15	0

CARPENTER AND JOINER		£	s.	d.
Flat boarded centering to concrete floors, ncluding all strutting	Sqr.	2	5	0
Shuttering to sides and soffits of beams	F.S.			8
" to stanchions	"			8
" to staircases	"		1	8
Fir and fixing in wall plates, lintols, etc.	F.C.		3	9
Fir framed in floors	"		4	6
" " roofs	"		6	6
" " trusses	"		7	6
" " partitions	"		8	6
¾" deal sawn boarding and fixing to joists	Sqr.	1	14	6
1" " " " " "	"	1	17	6
1¼" " " " " "	"	2	3	0
¾" × 2" fir battening for Countess slating	"		9	6
Do. for 4" gauge tiling	"		12	0
Stout feather-edged tilting fillet	F.R.			4½
Patent inodorous felt, 1 ply	Y.S.		2	3
" " " 2 "	"		2	9
" " " 3 "	"		3	3
Stout herringbone strutting to 9" joists	F.R.			10½
1" deal gutter boards and bearers	F.S.		1	2
1¼" " " "	"		1	6
2" deal wrought rounded roll	F.R.			8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2	1	0
1¼" do.	"	2	10	0
1½" do.	"	2	17	0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.		1	6
1¼" do.	"		1	9

CARPENTER AND JOINER—*continued*		s.	d.
1½" deal moulded sashes of average size	F.S.	1	9½
2" " " " "	"	1	11½
1¼" deal cased frames double hung, of 6" × 3" oak sills, 1¼" pulley stiles, 1¼" heads, 1" inside and outside linings, ⅝" parting beads, and with brass faced axie pulleys, etc., fixed complete	"	3	7
2" " " "	"	3	10
Extra only for moulded horns	Each		6
1¼" deal four-panel square, both sides, door	F.S.	2	0
2" " " " "	"	2	8
1¼" " but moulded both sides	"	2	4
2" " " " "	"	3	0
4" × 3" deal, rebated and moulded frames	F.R.	1	0
4½" × 3½" " " "	"	1	4
1¼" deal tongued and moulded window board, on and including deal bearers	F.S.	1	9
1¼" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2	6
1¼" deal moulded wall strings	"	2	1
1¼" " outer strings	"	2	4
Ends of treads and risers housed to string	Each	1	9
3" × 2" deal moulded handrail	F.R.	1	3
1" × 1" deal balusters and housing each end	Each	2	0
1¼" × 1¼" " " "	"	2	9
3" × 3" deal wrought framed newels	F.R.	1	3
Extra only for newel caps	Each	6	0
Do., pendants	"	6	0

SMITH AND FOUNDER		£	s.	d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.		15	6
Riveted plate or compound girders, and hoisting and fixing in position	"		19	6
Do. stanchions with riveted caps and bases and do.	"		19	0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	"		17	6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.			11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1	10	0

PLUMBER		£	s.	d.
Milled lead and labour in flats	cwt.	1	12	0
Do. in flashings	"	1	15	6
Do. in covering to turrets	"	2	3	0
Do. in soakers	"	1	7	6
Labour to welted edge	F.R.			3½
Open copper nailing	"			3
Close " "	"			4

		½" s.	d.	¾" s.	d.	1" s.	d.	1¼" s.	d.	2" s.	d.	4" s.	d.
Lead service pipe and fixing with pipe hooks	F.R.	10		1 0		1 3		2 0		2 10		—	
Do. soil pipe and fixing with cast lead tacks	"	—		—		—		—		—		5	6
Extra, only to bends	Each	—		—		—		—		2 0		6	9
Do. to stop ends	"	6½		8		9		11		1 0		—	
Boiler screws and unions	"	3 3		3 9		5 0		8 0		—		—	
Lead traps	"	—		—		—		6 3		8 9		—	
Screw down bib valves	"	6 9		9 6		11 0		—		—		—	
Do. stop cocks	"	7 0		9 6		12 6		—		—		—	
4" cast-iron ½-rd. gutter and fixing	F.R.									1 0			
Extra, only stop ends	Each									1 0			
Do. angles	"									1 6			
Do. outlets	"									2 9			
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.									1 2			
Extra, on y for shoes	Each									1 3			
Do. for plain heads	"									5 6			

PLASTERER AND TILING		s.	d.
Expanded metal lathing, small mesh	Y.S	2	0
Do. in n/w to beams, stanchions, etc.	"	2	9
Lathing with sawn laths to ceilings	"	1	3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1	5
Do. vertical	"	1	7
Rough render on walls	"	1	2½
Render, float and set in lime and hair	"	1	9
Render and set in Sirapite	"	1	11
Render, backing in cement and sand, and set in Keene's cement	"	2	9
Extra, only if on lathing	"		4
Keene's cement, angle and arris	F.R.		6
Arris	"		1½
Rounded angle, small	"		3
Plain cornices in plaster, including dubbing out, per 1" girth	"		1½
1" granolithic pavings	Y.S.	3	6
1½" " " "	"	4	6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17	6
9" × 3" " " " "	"	1 2	6
Extra, only for small quadrant angle	F.R.		8

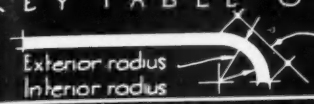
GLAZIER		s.	d.
21 oz. sheet glass and glazing with putty	F.S.		7½
26 oz. do and do.	"		8½
Flemish, Arctic Figured (white) and glazing with putty	"	1	1
Cathedral glass and do.	"	1	2
Glazing only, British polished plate	"		7
Extra, only if in beads	"		2
Washleather	F.R.		4

PAINTER		s.	d.
Clearcolle and whiten ceilings	Y.S.		6
Do. and distemper walls	"		9
Do. with washable distemper	"	1	1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3	3
Do. on woodwork	"	3	6
Do. on steelwork	"	3	0
Do. and brush grain and twice varnish	"	5	6
Stain and twice varnish woodwork	"	1	11
Stain and wax-polish woodwork	"	4	6
French polishing	F.S.	1	2
Stripping off old paper	Piece	2	0
Hanging ordinary paper from	"	2	9

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SANITARY AND MOULDED SKIRTINGS :

KEY TABLE OF ANGLE SIZES :

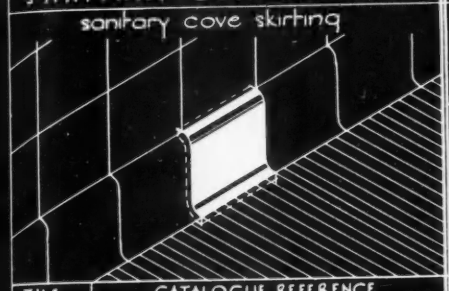


All tiles are 3/8" thick.
H - left stop end.
J - right stop end.

ANGLE LETTER internal	ANGLE LETTER external	WIDTH inches	RADIUS inches interior	RADIUS inches exterior
E	C	1¼	½	⅞
L	G	2	1	1⅜
M	N	3	1¾	2⅛

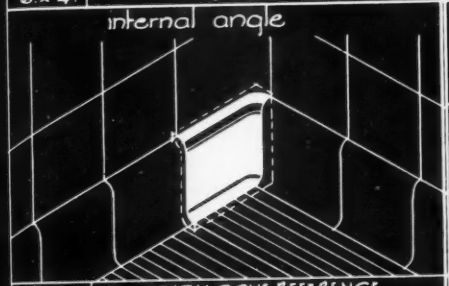
SANITARY COVE SKIRTINGS

sanitary cove skirting



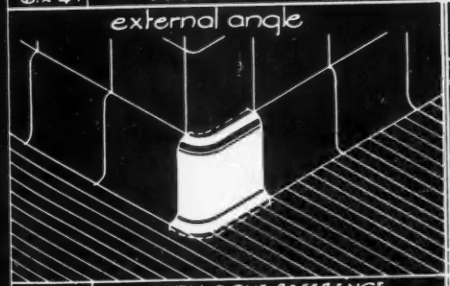
TILE SIZE	CATALOGUE REFERENCE NUMBER
6"x 6"	3264.
6"x 4"	3999.

internal angle



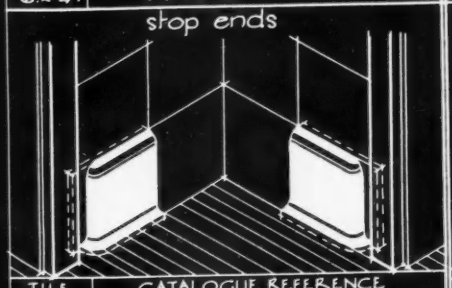
TILE SIZE	CATALOGUE REFERENCE NUMBER
6"x 6"	3264 E, 3264 L.
6"x 4"	3999 E.

external angle



TILE SIZE	CATALOGUE REFERENCE NUMBER
6"x 6"	3264 C, 3264 G.
6"x 4"	3999 C.

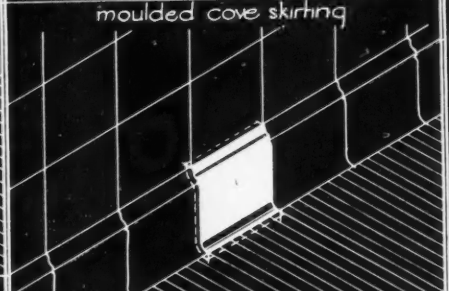
stop ends



TILE SIZE	CATALOGUE REFERENCE NUMBER
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6"x 4"	3999. H, 3999 J.

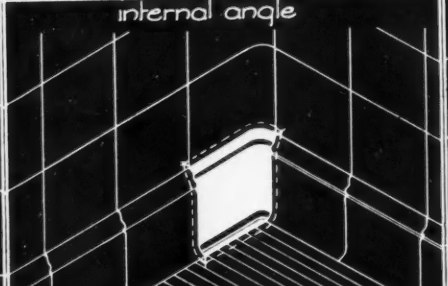
MOULDED COVE SKIRTING

moulded cove skirting



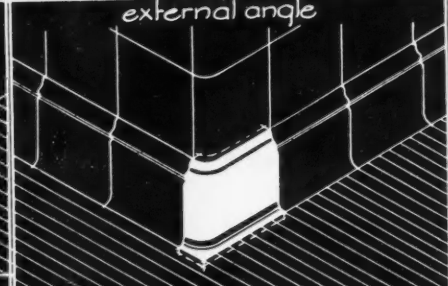
6"x 6" N°G82.

internal angle



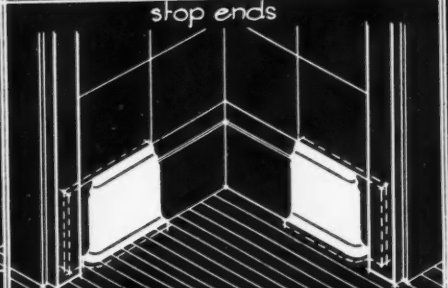
6"x 6" N°G82E, 6"x 6" N°G82L

external angle



6"x 6" N°G82C 6"x 6" N°G82G

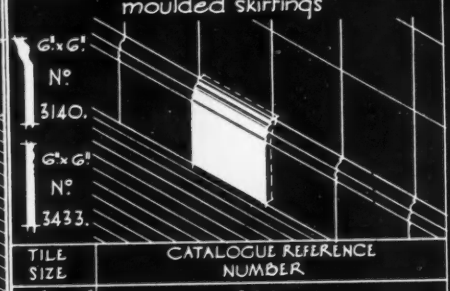
stop ends



6"x 6" N°G82H 6"x 6" N°G82J

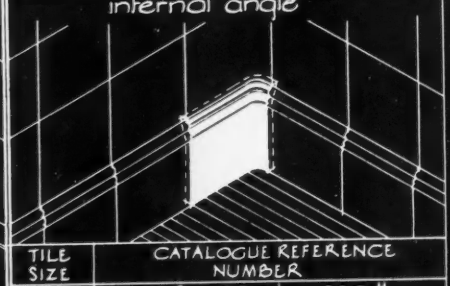
MOULDED SKIRTINGS

moulded skirtings



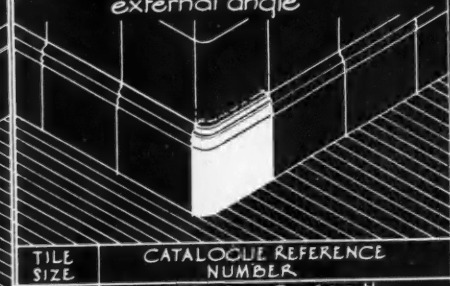
TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 6"	580.
6" x 6"	3433.
6" x 6"	3140.

internal angle



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 6"	580 E, 580 L, 580 M.
6" x 6"	3433 E,
6" x 6"	3140 E.

external angle



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 6"	580 C, 580 G, 580 N.
6" x 6"	3433 C.
6" x 6"	3140 C.

stop ends



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 6"	580 H, 580 J.
6" x 6"	3433 H, 3433 J.
6" x 6"	3140 H, 3140 J.

Information from Richards Tiles Ltd.

INFORMATION SHEET: GLAZED WALL TILE FITTING S.3·MOULDED SKIRTINGS

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1.

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INFORMATION SHEET

• 197 •

WALL TILES

Type of Product : Glazed Wall Tile Fittings

(See also Information Sheets Nos. 92, 93, 99, 125, 127, 144 on other Tile Products of the same Manufacturers, and Sheets Nos. 180 and 189 for previously illustrated Glazed Tile Fittings.)

The manufacturers' plain—or flat—tiles, with which the fittings here illustrated are designed to work, are made in the following shapes and sizes :—

Squares	...	6″×6″, 4″×4″, 3″×3″, 2″×2″
Oblongs	...	6″×3″, 6″×2″, 6″×1½″, 6″×1″, 6″×½″, 4″×2″, 4″×1″, 4″×½″
Hexagons	...	(measured from side to side) 4″, 3″ and 2″, with the necessary halves.

Standard Thickness.—For all sizes of plain tiles and fittings, ⅜″. Plain tiles and Rounded Edge Tiles, in white glaze only, and in sizes 6″×6″ and 6″×3″ only, made also ¼″ thick.

Finish.—All tiles and fittings can be supplied in white glaze, and (except those ¼″ thick, as noted), in colours, both plain and mottled, of bright and eggshell finish.

B=1″ Internal Angle. A=1″ External ,, E=1¼″ Internal Angle. C=1¼″ External ,, L=2″ Internal Angle. G=2″ External ,, M=3″ Internal Angle N=3″ External ,,



1″ Angle Beads or B. & A. Angles. 1¼″ Angle Beads or E. & C. Angles. 2″ Angle Beads or L. & G. Angles. 3″ Angle Beads or M. & N. Angles.

Stocks—Plain tiles and fittings are stocked by the Manufacturers in white glaze finish and in biscuit form (i.e. unglazed) ready for glazing in colour as ordered.

Special Fittings for special purposes are made to order as required.

Skirtings.

Skirtings form the bottom course of wall tiling. Used generically, the term embraces three main classes :—

(a) Skirtings properly so called, having some distinctive feature towards their upper edge,

(b) Cove Bases, and (c) Coves, both without that feature.

Skirtings proper are dealt with here.

For *Cove Bases* and *Coves* see Information Sheet to be published in April next.

Skirtings proper are of two kinds—*sanitary* (or *bullnose*) *skirtings*, and *moulded skirtings*. Either type may have an internal sweep or cove where it meets the floor, so that we have :—

(1) *Sanitary Skirtings* (i.e. without cove).
(2) *Moulded Skirtings* (i.e. without cove).
(3) *Sanitary Cove Skirtings*.
(4) *Moulded Cove Skirtings*.

The Sanitary Skirtings without coves are now so little used that they have not been illustrated ; they can, however, be supplied in sizes 6″×6″, and 6″×4″ if required, being identical respectively with bullnose cappings 3960 and 3935 shown in Information Sheet 180.

Measurement of Tile Angles.

The accepted angular measurement of a tile angle is not that of its radius (though the word radius is often used in this connection) but that of its *greatest width, measured in a straight line*. This applies equally to internal and external angles, the only difference between these being, of course, that the former are glazed on the inner and the latter on the outer surface. The diagrams given below, illustrating angles of different sizes, will make the matter clear.

In the case of Combination Angles and Angles to Cappings, Skirtings and Coves, the size and type of the angular part are indicated by the addition, after the reference number of the fitting itself, of a letter. The following are the letters used, with the meaning of each :

Although the manufacturers supply angles in all these sizes, their standard angle is the 1¼″, that having proved the most satisfactory for all ordinary purposes.

Name of Manufacturers :	Messrs. Richards Tiles, Ltd.
Address :	Tunstall, Stoke-on-Trent
Telephone :	Hanley 7215-8
London Office :	25 Victoria Street
Telephone :	Victoria 9128
Glasgow Office :	53 Bothwell Street Glasgow, C.2
Telephone :	Central 1768

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SPECIFICATIONS FOR STAINING, VARNISHING, & PRESERVING WOOD SURFACES.

STAINS AND VARNISHES ON WOOD SURFACES:

PRODUCT	TYPE OF SURFACE.		FIRST COAT.	SECOND COAT.	THIRD COAT.
STAIN-WATER SPIRIT or NAPTHA. (System A.)	Varnished or unvarnished surfaces.	Interior or Exterior	Stain selected.	Varnish as for clear varnish finish.	
FASTAIN (System B.) *for details see the back of this sheet.*	Varnished or unvarnished surfaces.	Interior	Fastain of selected shade.	Hard Undercoating Varnish N.H.210	Finishing Varnish as for clear varnish finish.
		Exterior	Fastain of selected shade.		

WOOD PRESERVATIVE:

PRODUCT	TYPE OF SURFACE.	PRIMING COAT	SECOND COAT	THIRD COAT.
TECTAL No 1. *For details see the back of this sheet.*	Unpainted or surfaces previously treated with wood preservative. Interior or Exterior.	One or more coats of Tectal Wood		Preservative.

WOOD PRESERVATIVES:

Research work by various authorities has shown that the best wood preservative should possess the following characteristics:

1. A high proportion of phenols.
2. A high boiling temperature.
3. A low viscosity.
4. Freedom from impurities, especially naphthalene.

The reasons for these requirements are

1. The preservative action depends on the presence of phenols.
2. Permanence of effect depends on high boiling temperature or absence of volatility
3. Penetration depends on fluidity or low viscosity, & also on the absence of naphthalene which, by crystallising in the pores, tends to block them.

Information from Nobel Chemical Finishes Ltd.

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INFORMATION SHEET
• 198 •
PAINTS

Product : Stains and Varnishes

This is the sixth of a series of Sheets dealing comprehensively with the subject of painting and protection of various surfaces.

General Instructions.

PREPARATION OF WOOD SURFACES FOR STAINS AND WOOD PRESERVATIVES

New Wood Surfaces.

New woodwork to which stains are to be applied should be clean, smooth and thoroughly dry. Wood preservatives should be applied only to bare wood.

Old Wood Surfaces.

Before applying stains to old work the surface should be thoroughly cleaned by washing. All traces of cleaning agents must be removed. A wood preservative must not be applied over paint or varnish.

Previous Sheets in this series were Nos. 188, 190, 192, 194 and 196.

" FASTAIN " OIL VARNISH STAIN

Colours.

Supplied in 10 glossy shades and Jacobean oak (flat).

General Characteristics.

" Fastain " is a high-grade oil varnish and stain for all kinds of woodwork, floors, etc. It works easily, enabling the user to cover large surfaces without the blemishes inseparable from the use of spirit varnish stains, etc. " Fastain " dries in approximately four to six hours with a brilliant gloss. It imparts a rich colour to the wood, and is transparent. When additional gloss and durability are required, a finishing coat of varnish is recommended.

It is especially adapted for church work, floor surrounds, stairs, panels, wainscots, rafters, offices, etc.

Note.

Flat " Fastain " (Jacobean oak) is exactly similar to Glossy " Fastain " in that it is a varnish stain, but dries with a rich, dull finish.

Covering Capacity.

Will cover from 50 to 100 sq. yds. to the gallon, according to the nature of the surface.

SCUMBLE

A finely ground oil colour suitable for scumbling, graining or glazing. Can be applied in a heavy or thin coat according to depth of colour required and the figuring can be varied by flogging, graining or wiping out as desired. Different tones of colour may also be obtained by varying the colour of the undercoat. The shades may be varied by blending the standard shades to obtain the colour required.

Over Scumble use Suwidec or other selected varnishes for a bright gloss finish. For a flat finish apply a first coat of Hard Undercoating Varnish and a finishing coat of Pale Encaustic Copal Varnish (matt N.Z. 551 or eggshell gloss, N.Z. 500).

" TECTAL " WOOD PRESERVATIVE

" Tectal " is a high-class wood preservative, and, although derived from a tar oil base, it differs materially from creosote. It possesses three times the preservative action of creosote, penetrates further and lasts longer. The base of " Tectal " is an oil of low viscosity, high boiling point and containing from 30 to 40 per cent. of phenolic bodies. It is also completely free from naphthalene. The following comparison shows the difference between an average coal tar preservative and " Tectal."

	Coal Tar Oil	" Tectal "
Sp. gr. ..	1·03	0·99
Flash point	70° C.	90° C.
Boiling temperature	130-340° C.	200-360° C.
Phenols ..	10-15 per cent.	35 per cent
Viscosity ..	2·5	1·6

In practice it has been found that " Tectal " possesses 400 times the minimum power necessary to destroy *Merulius lacrymans*, the causative agent of dry rot.

General.

The timber must be bare so that the preservative can penetrate ; it is useless to apply on top of paint, varnish, etc., but can be successfully used on top of an old preservative such as creosote. Two coats should be given, allowing at least twenty-four hours to elapse for penetration between coats.

Where maximum penetration and protection against dry rot, etc. is required, e.g. in joists and other places where appearance is no object, " Tectal " No. 1 should be specified.

When decorative appearance is also desired the appropriate colour may be used. In interior work, after drying, any excess of colour should be wiped off with a rag lightly damped with white spirit.

" Tectal "-treated wood may be polished with " Belco " wax or a similar polish.

Oil paints or oil varnishes cannot be used satisfactorily on wood which has been previously treated with wood preservative. In cases where it is essential that old "Tectal"-treated wood should be painted or varnished the wood should be well " sealed " by giving it one or two coats of Shellac Varnish H.C.607 or Sealer H.C.652.

Spreading Capacity.

This is very indefinite since the degree of penetration of " Tectal " varies considerably according to the texture and sappiness of the wood. On well seasoned red deal 1 gall. is sufficient for 30 sq. yds. (one coat).

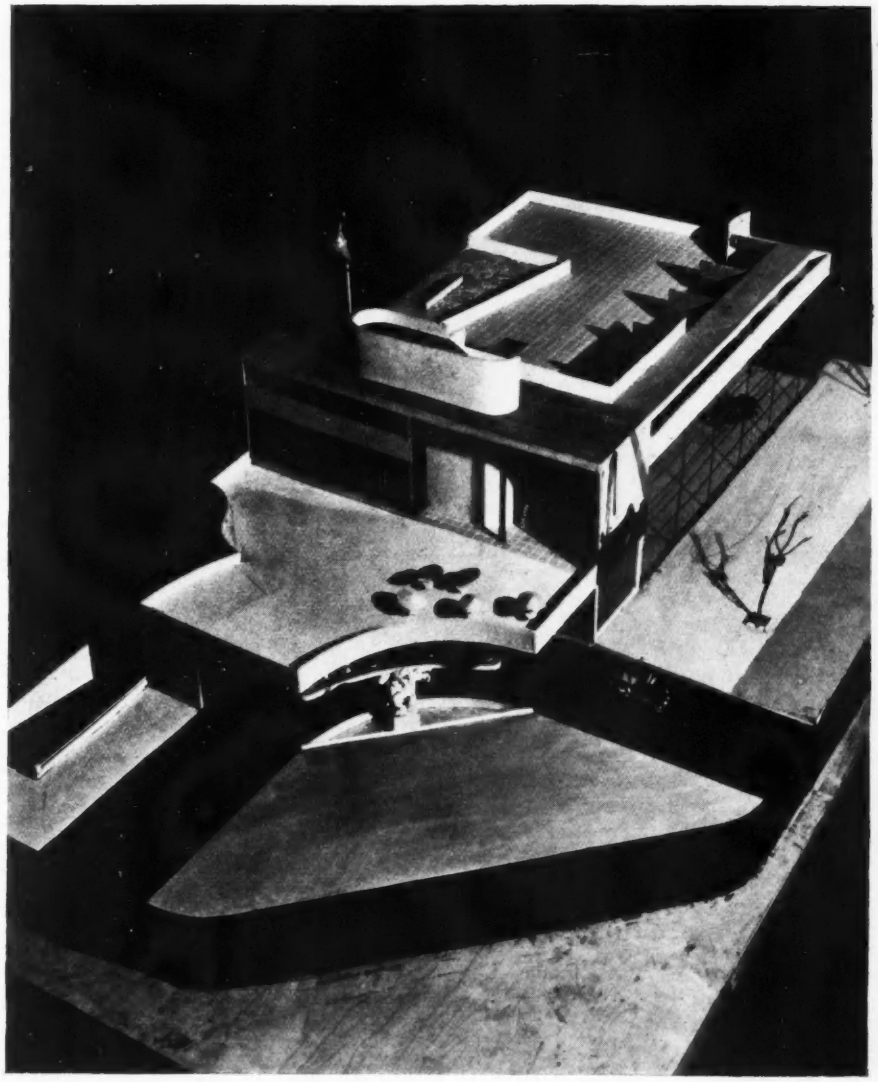
Fencing Posts, Pit Props, etc.

If these are immersed in a bath of " Tectal " for a few minutes, protection and penetration can be given very cheaply. For fencing posts in particular, immersion in a bath up to above ground level is the best method of treatment, but it is not essential. On rough timber the colour produced is rather darker than on smooth wood.

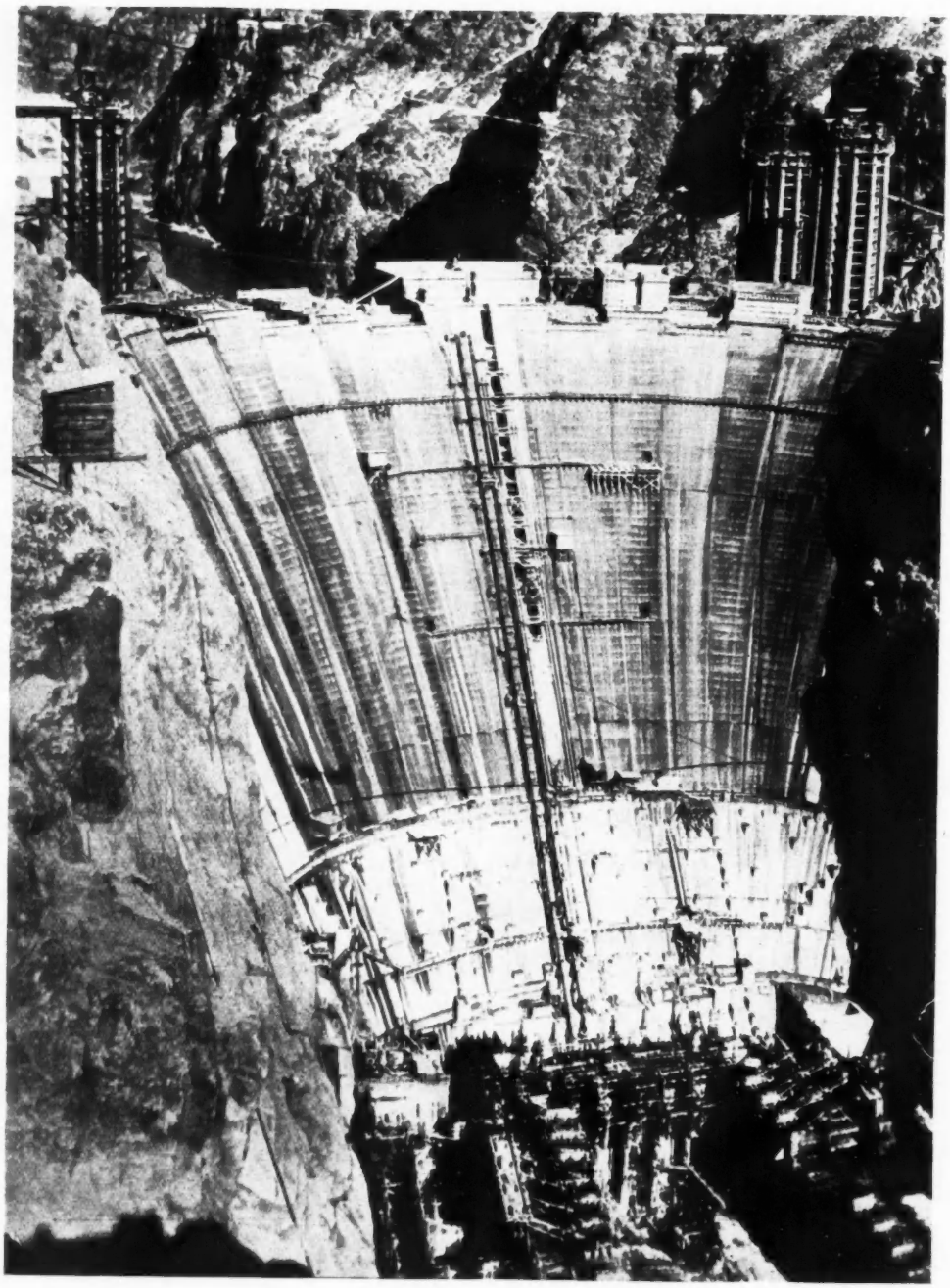
Name of Manufacturers : Nobel Chemical Finishes, Ltd.
Address : Architectural Dept., Slough, Bucks
Telephone : Slough 528
London Office : Thames House, Millbank, S.W.1
Telephone : Victoria 2873-2874

UNDER (AND ON) ONE ROOF

"MOTORDROME" AT FINCHLEY



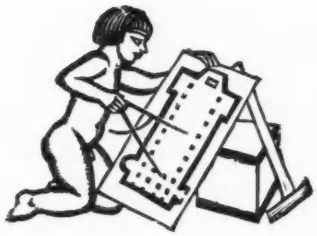
THIS model is of a building shortly to be erected at the corner of the North Circular Road and Regent's Park Road. It is to contain a garage (in the basement), a car service station (the drive in and out are seen in the foreground) with a terrace-loggia over, and car-sales show-rooms entered from the terrace. The flat roof of the latter serves as a testing space on which customers can try out cars from the show-rooms. There is a car-lift connecting the two. Adjoining the terrace are a tea-room and a flat for the resident manager. The building is to be in reinforced concrete. Architects: A. Bouxin and A. V. Pilichowski.



PUBLIC WORKS

Across the 2,000 ft. wide Colorado river, below the Grand Canyon, now stands completed the Boulder Dam, 750 ft. high, the largest step in America's gigantic programme of public works. With the closing of the sluices a reservoir 115 miles long will be created, covering an area of 145,000 acres. It will take three years to fill. The purpose of the enterprise is to irrigate 1,000 square miles of desert country, in Colorado, Wyoming, Utah, New Mexico, Nevada, Arizona and California, now uninhabitable; also to establish a hydro-electric plant capable of generating 1,000,000 horse-power.

The huge concrete wall of the Boulder Dam is seen in its last stages before completion in the above photograph. The cost of the dam was £30 million. Including the collateral works it is £70 million.



COTTAGES OR FLATS

IT is a truism that, with the Englishman, an appeal to sentiment means more than an appeal to reason, and tradition (which is, perhaps, the same thing as sentiment) carries more weight than expediency. We would rather half solve a problem by a compromise with tradition, even if the factors that gave rise to the tradition are no longer pertinent, than undergo the disturbance of a logical reaction to reality. The discomfort that compromise entails we are, indeed, rather proud of; it is the measure of our respect for our own and distrust of other people's experience.

One tradition that we are particularly reluctant to let go is represented by that familiar forensic formula, "an Englishman's home is his castle"; not in its original connotation implying the immunity of his home from external interference so long as his behaviour affects only himself, nor in the new connotation the phrase is now acquiring which implies a literal resemblance to the castellated residence, but in so far as it denotes the Englishman's fear of assuming any obligations that render his immediate surroundings subject to influences outside his control; his desire to be responsible only to himself in ordering the background of his existence.

The prejudice which survives in this country against collective living in the sense of multi-storeyed dwellings as opposed to separate villas is an example of the persistence of ideas based on sentiment, even when reason points to a change of method. It is a symptom of alarm, as at a threat to his independence, and is in this case anti-social. Neither reason nor experience justifies his confusion between collectivization and standardization.

However, though we can explain many of the peculiar difficulties that attend and prejudices that obstruct the march of improvement by referring thus to characteristics of national psychology, it is not through psychological or sentimental appeal that the public can be persuaded to accept the conditions and take advantage of the opportunities of our time. That appeal must be made on an absolutely practical basis; any attempt to convert the man in the street on theoretical or academic grounds will seem to him suspect, and will only strengthen his determination to abide by his own tradition.

The importance of the pragmatic method of approach is well shown in the recent correspondence in *The Times* on this subject of cottages versus flats. A letter urging the advantages of the cottage or suburban form of housing, over five signatures* which included those of two well-known architects, stated one side of the case in terms of national preference and theoretical application; a number of practical points, it is true, were enumerated, but those were the Englishman's stock arguments against the violation of his castle rather than valid disadvantages of flats as they might be built. The other side of the case was put in a reply by the MARS Group, from a purely practical standpoint. The Group's letter stated, in effect, not that a block of flats (*in vacuo*) was, in its opinion, better than a number of cottages (*in vacuo*); but that there was a housing problem that could only be solved by realistic examination of the form in which people could best be housed, from the point of view of economics, social science, health, transport, and the standard of living generally. The housing problem is one of such urgency that it is quite essential to eradicate all of the tendency we have remarked upon to compromise with tradition for prejudice's sake. Expediency—not, of course, in the narrow commercial, but in the wider social sense—must be the criterion.

With that criterion in mind how much more reasonable is the principle of multi-storey housing on a small proportion of the site, with all its advantages of collective services, ordered existence and economical construction and all its avoidance of transport complication, than the principle of individual dwellings spread over huge areas; of truly urban as opposed to suburban development. If the points made by the signatories of the first letter to *The Times* are compared with the examination of them by MARS it will be seen how strongly all practical considerations point in the direction of honest acceptance of the fruits of unsentimental (even un-English) experience: say the pro-cottagers: "playing-fields . . . . are better than merely watching others play," says MARS: "one of the greatest advantages of multi-storied housing is precisely that it preserves the maximum proportion of the site for gardens and recreation. Five-storey blocks, 30 ft. wide, for example, spaced 80 yards apart, mean that less than 10 per cent. of the area is built upon. This gives 50 per cent. greater proportion of open space than with cottage development. Moreover, the playing fields are immediately accessible for the occupants." The pro-cottagers say: "courtyards become unbearably noisy." MARS says: "In a properly planned scheme courtyards would naturally be non-existent . . . the pre-war enclosed court principle has long since been discredited in favour of parallel blocks separated by wide open spaces." The pro-cottagers ignore the labour-saving possibilities of centralized services, which MARS rightly stresses; and so on. Finally, the wider issues of town planning, on the successful consideration of which will depend the value of any housing enterprise as a real contribution to better living conditions, offer, as MARS points out, the most cogent answers to the pro-cottage arguments. On such practical bases must the issue be judged.

* Holroyd F. Chambers, Louis de Soissons, A. T. K. Grant, Grey Wornum and F. R. Yerbury.



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NOTES & TOPICS

R.I.P.

THE Royal Academy Exhibition of British Art in Industry, which passed away quietly last Saturday, was buried at No. 66 Portland Place, on Monday evening. The funeral orations were delivered by Mr. John de la Valette and Mr. J. Spedan Lewis.

*

Mr. de la Valette's remarks about the right training of the modern architect were not such a "red herring" as they evidently appeared to at least a part of the audience. They had, it is true, only an indirect application to the R.A. Exhibition; but it was the exhibition which raised the point in the mind of the organizer. How far the present shortcomings in architectural training can be altered by legislation by the Board of Architectural Education, and how far a change depends upon individual outlook upon the functions of the architect today, it is difficult to say. But everyone will do well to peruse Mr. de la Valette's remarks at leisure.

*

Mr. Spedan Lewis, who had reluctantly agreed to read an address at all, read a very good one. As chairman of John Lewis and Peter Jones he may be regarded as knowing something of what he was talking about. Personally I thought him quite sound and, considering the difficulties, lucid. The fact that Sir William Llewellyn and Mr. de la Valette considered him to be "off the point" was, to my mind, merely another indication of the ostrich outlook which has permeated the Exhibition organization and has failed to grasp so many fundamental points in the essential partnership between making and selling.

*

I really felt very sorry for the President of the Royal Academy who proposed a vote of—I was about to write "thanks"—to the two speakers. He became quite lachrymose about the criticisms, and apparently still believes firmly that the Exhibition was nearly perfect in most respects.

*

However, I think we can hope that we have heard the last of it now, at one of the most amusing meetings I have ever attended.

*

The *really* constructive things were said by Mr. Frank Pick (seconding the vote of thanks) and by Mr. de la Valette, who is a brilliant impromptu speaker, in his reply.

CHEAP AND SERVICEABLE

While on this topic I would like to quote what "Critic" in a recent number of the *New Statesman and Nation* wrote:

> Sensible people united in deploring the recent Royal Academy Exhibition of British Art in Industry. It was tragic that this admirable idea should be so wasted; that instead of an exhibition to show how beautiful simple, cheap and serviceable articles could be, we should be offered this hotchpotch of costly, elaborate and precious monstrosities. But the neatest criticism I have yet seen is conveyed in a few pages of photographs issued as a supplement to the new issue of *Service*, the little quarterly publication of the Rotary International. Here are common objects—candlesticks, glasses, jugs, bottles, knives, cruets and kitchen utensils. They are of excellent design and all mass-produced. The text explains the joke—none of them cost more than sixpence. Indeed, it does not need a very sharp eye to see that they all come from Woolworths.

I give a reproduction of one of the photographs referred to.

CORBY

Those who listened to Geoffrey Boumphrey's broadcast talk about Corby, the new steel-works town in Northamptonshire, from the Midland Regional Station on Monday night, must have felt grateful to the B.B.C. for their initiative in planning these talks and their courage in allowing them to be realistic.

*

There were all sorts of rumours, of censorship and what-not, when the same talk was suddenly cancelled without notice before Christmas; but it has been given as the author wrote it and, whatever caused it to be held up meanwhile, we can let bygones be bygones.

*

Nothing but good can come from frank criticism of things as they exist when the criticism is constructive and made with knowledge and authority; and this is the sort of



"Plain unpretentious fitness marks all tools, kitchen or other. The strainer has a hexagon shaped handle of pleasant colour. The oilcloth is a bright red check. Total cost: 2/5 (including a ¼ yd. of oilcloth.)" From "Service." See note on this page.



Spending the premium: members of Messrs. Tecton, who were awarded the first premium in the Cement Marketing Company's competition for working men's flats, left Croydon aerodrome on Saturday morning for a week-end in Paris. They are here seen about to enter the aeroplane. Left to right: Messrs. L. A. T. Drake, B. Lubetkin, W. Tatton-Brown (in background) and F. Skinner, Miss Mary Cook, Mr. O. Arup (the engineer, with Mrs. Arup) and Miss Margaret Church.

case where five minutes of practice is worth about an hour and a half of town-planning theory.

*

As extracts from Mr. Boumphrey's talk are to be printed elsewhere in this issue, and the whole can be read in *The Listener*, there is no need for me to enlarge on the aptness of his criticism. It *was* apt and it *was* constructive. May the B.B.C. continue to be so broadminded.

HUSTINGS

Oh-dear-oh-dear-oh-dear! I cannot resist making a comment about "Under 70's" letter in last week's JOURNAL —more especially as Mr. Harding's spirit has evidently been broken by such a complete missing of the point of his own letter and he has not rejoined.

*

"Under 70" is quite right. So is Mr. Harding.

*

The Council and Committees of the R.I.B.A. do nominate their own successors; but any seven members may nominate alternatives before the conclusion of the general meeting at which the lists are read out. So that, as has been said, "members have the remedy in their own hands."

*

That was what I gathered Mr. Harding was trying to point out. And if many members of presumably long standing are unaware of their own privileges it is high time that the whole thing were carefully explained.

*

Incidentally, if so few individual members know that they can propose candidates it is just as well, perhaps, that the Council and Committees do it for them; otherwise I imagine that the whole administrative organization would have died out long ago.

EVERY MAN HAS HIS PRICE

At the dinner of the Incorporated Clerks of Works Association, Mr. T. P. Bennett, who was in the chair, evolved a novel way of raising money for the Benevolent Fund.

*

Mr. Fred May was there, doing caricatures for this JOURNAL, and through his courtesy the chairman was allowed to auction the results of his skill. If the prices paid represent the prestige of architects in the minds of the clerks of works, they are illuminating.

*

Mr. Bennett "went" for 25 guineas—so high a figure that I suspect some hanky-panky. (Probably public spirit combined with the onus of chairmanship made him buy it himself!) Mr. W. H. Ansell is, apparently, valued at 3 guineas and Mr. Cart de Lafontaine fetched 25s.

*

I suspect, however, that the prices were governed more by the "caricaturableness" of the subjects than by their professional reputations.

ANECDOTE

This is a true story which I am about to tell. From it those of us who are unable to kill their natural romanticism quite dead may take some comfort; those who are rabidly hard-boiled may take a lesson.

*

An architect friend of mine is altering a house at Stow-on-the-Wold. Amongst the builders who presented themselves, hoping to do the work, was a certain Mr. Groves, hailing from Milton-under-Wychwood—surely as attractive a name for a village as any in England.

*

My friend, so far satisfied with the man's evident ability and understanding of what is required of a man who dares to build on the Cotswolds, asked for two "architect references." "Sir Christopher Wren and Sir Edwin Lutyens," came the reply.

*

Sure enough Mr. Groves's ancestor actually quarried stone (from, I think, the Guiting quarry) for St. Paul's Cathedral, and Wren's name is in the firm's books; in fact another architect has since assured me that he has himself seen it there.

*

"And this is the man," as my friend remarked, "whom I am instructing how to build in the Cotswold manner!" I find great comfort in the existence of such men.

THE NEED FOR MORE EXHIBITIONS

A correspondent to a little-known weekly paper declares his wish to jerry-build. "It is true," he writes, "that I shall dispense with an architect; but an architect is not a craftsman; he is partly an artist and partly a business man —both of which rank considerably lower in the scale of God's species."

*

The writer is a craftsman, of course; he makes furniture and barters it for "acceptable specimens of pottery by a local craftsman."

*

This is, of course, an extreme case, but it serves to indicate a very common state of mind which imagines that in these complicated days things can just "happen" like that. One of the important things which architects have to do is to explain to such people, individually and in mass, that neither making nor distribution can nowadays go undirected.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

"*A scheme for the grading of buildings and materials which, if adopted, will result in considerable extra expenditure and will add to the difficulties of the designers of buildings and will hamper development by the building owner*" 404

"*... After seeing this, my first thought was that town planning at Corby might as well shut up shop*"..... 406

"*We ought to seize the chance of our next big exhibition in London to build a permanent building for shows of art and industry*"..... 413

THE HOUSING CENTRE

The Lord Mayor of London will take the chair at the Mansion House meeting on Thursday, March 28, on behalf of the Housing Centre, at which H.R.H. the Prince of Wales is to speak on "Co-ordination in Housing." The other speakers will include the Marquess of Londonderry and Sir Reginald Rowe, chairman of the Housing Centre.

REPORT ON SATELLITE TOWNS

The Marley Committee's report on garden cities and satellite towns has been signed and its publication is expected in a few weeks. It is understood to recommend the setting up of a development board on commission and with full powers to undertake the functions of housing, town planning and garden cities. The decentralization of factories and the construction of satellite towns are other expected recommendations.

NEW LEEDS EDUCATION BUILDINGS

The Leeds City Council has approved a £250,000 scheme to improve the accommodation for education in art, commerce and technology. The proposals, which will take ten years to carry out, envisage among other things the transfer to the suburbs of the City of Leeds School; the building of a school for 600 boys at Cross Gates at a cost of £60,000; a ring of five suburban secondary schools for girls; a new building, costing £43,000, for certain departments of the School of Technology, which is now spread over nine buildings separated by considerable distances; the adaptation of the City of Leeds School building for the College of Commerce; and the transfer to the College of Art of the Thoresby High School for Girls, whose pupils will be distributed among the suburban schools.

The scheme will be divided into six stages. One of these will be the rehousing of the School of Architecture and the erection of a building for the technological branch of mechanical and electrical engineering at a cost of £47,000. Another stage will be the construction of a central administrative and union building costing £45,000.

THE ARCHITECTS' DIARY

Thursday, March 14

ART SCHOOLS AND INDUSTRY. *At the County Hall, S.E. Exhibition of Industrial and Advertisement Art by art schools in London. Until March 16. 11 a.m. to 9 p.m.*

WEST YORKSHIRE SOCIETY OF ARCHITECTS. *At the College of Art, Leeds. "Sculpture on Machine-made Buildings." By Eric Gill. 6.15 p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS. *At 10 Upper Belgrave Street, S.W.1. "Welding Construction." By C. Helsby. 6.30 p.m.*

INSTITUTION OF ELECTRICAL ENGINEERS. *At Savoy Place, W.C.2. "The Engineer Administrator." By E. S. Byng. 6 p.m.*

GEFFRYE MUSEUM. *At Kingsland Road, Shoreditch, E.2. "William Morris, Machinery and Modernity." By H. P. Shapland. 7.30 p.m.*

INSTITUTION OF HEATING AND VENTILATING ENGINEERS (*Manchester and District Branch*). *At the Engineers' Club, Manchester. "Progress of Work Through Office to Completion." By C. E. Knight. 7 p.m.*

SOCIETY OF ANTIQUARIES. *At Burlington House, W.1. "The Excavation of the Giants' Hill long barrow, Skendleby, Mines." By C. W. Phillips. 8.30 p.m.*

HOSPITAL AND NURSING HOME EXHIBITION. *At Horticultural Hall, Greycoat Street, S.W.1. Exhibition of drawings and photographs of hospitals, 11 a.m. to 7.30 p.m. Also, Friday, March 15, 11 a.m. to 6 p.m.*

Friday, March 15

INSTITUTION OF STRUCTURAL ENGINEERS (*Midland Counties Branch*). *At Nottingham. The lay-out design and construction of Aerodromes and Airports." By H. E. Brooke-Bradley. 7 p.m.*

LONDON SOCIETY. *At the Royal Society of Arts, John Street, Adelphi, W.C.2. "The Inns of Court." By C. E. A. Bedwell. 5 p.m.*

HAMPSHIRE AND ISLE OF WIGHT ARCHITECTURAL ASSOCIATION. *At the Technical College, Bournemouth. "Increased Use of Veneers and Plywood and their effect on Modern Joinery." By P. Cutbush.*

ELECTRICAL DEVELOPMENT ASSOCIATION. *Annual Luncheon. At the Savoy Hotel, W.C. 1 p.m.*

DESIGN AND INDUSTRIES ASSOCIATION. *Manchester and District Branch. At 16 St. Mary's Parsonage, Manchester. "Design in Town and Country." By Thomas Sharp. 7.30 p.m.*

Saturday, March 16

ST. PAUL'S ECCLESIOLOGICAL SOCIETY. *Visit to Dulwich College. 2.30 p.m.*

Tuesday, March 19

LONDON SOCIETY. *At Lancaster House, St. James's S.W.1. Twenty-third annual general meeting. 4.30 p.m.*

ARCHITECTURAL ASSOCIATION. *At 36 Bedford Square, W.C. "Architectural Critics." By Robert Atkinson. Also, exhibition illustrating London Development. Until March 30. 10 a.m. to 10 p.m.*

Wednesday, March 20

INSTITUTION OF STRUCTURAL ENGINEERS. (*Midland Counties Branch: Junior Members' Section*). *At the Star and Garter Hotel, Wolverhampton. "The Detailing of Structural Steelwork." By V. H. Lawton. 7 p.m.*

ST. PAUL'S ECCLESIOLOGICAL SOCIETY. *At the R.I.B.A., Portland Place, W.1. "Wood Carrings and Stone Sculptures of Worcester Cathedral." By P. M. Johnston. 8 p.m.*

THE HOUSING BILL

In a memorandum submitted to the Minister of Health by the Auctioneers' and Estate Agents' Institute it is pointed out that overcrowding is "one of the worst, perhaps the worst, evil in the housing question at the present moment. It will take a long course of education of the persons concerned and affected to produce a more or less permanent improvement. It is because we feel that this cannot be done in a rush that we express the general opinion that the standard, as indicated in the Schedule, is higher than we should have anticipated, and we are afraid, judging from practical experience amongst our members, that the actual effect, if the Schedule is left in its present form, will be to create too difficult a problem at the outset, which may delay, rather than assist, an early attainment of the desired improvement."

BIRKENHEAD'S "GARDEN CITY"

The Birkenhead Town Council has approved a scheme to provide a "garden city" for 10,000 people on its Woodchurch estate. Some 2,700 houses are to be built, 1,834 by the Corporation and the rest by private enterprise. An arterial road, three churches, a shopping centre, a library and schools are also included in the scheme, which is expected to take five years to complete.

£160,000 WALLASEY RINK AND DANCE HALL

The Wallasey Council has tentatively approved the scheme of a London syndicate to build on the river front an ice rink, dance hall, buffet, garage, roof gardens and terraces, at a cost of £160,000.

NEW SCHOOLS FOR CHESHIRE

Cheshire County Council Education Committee proposes during next year to spend between £200,000 and £250,000 on new schools and obtaining sites, it was announced by Alderman C. E. Davenport on his re-election as chairman of the committee last week.

DEPUTY PRINCIPAL ARCHITECT, DUBLIN

We understand that Mr. H. Allberry, A.R.I.B.A., F.R.I.A.I., has retired from the position of Deputy Principal Architect of the Board of Public Works, Dublin.

R. I. B. A.

ROYAL ACADEMY EXHIBITION OF ART IN INDUSTRY

Following are some extracts from papers on the "Royal Academy Exhibition of Art in Industry," read by Mr. John de la Valette and Mr. J. Spedan Lewis at the Institute on Monday last:

By John de la Valette

One of the fundamental principles laid down by the Executive Committee for the Exhibition was that neither in the selection of the exhibits, nor in their presentation, should the views of any narrow clique or school be allowed to predominate. It was realized that we live in a time of transition in which no particular school of thought can be said to have crystallized into such a perfect artistic expression of its ideals, that it should be allowed to be standardized at the expense of the other trends which are struggling towards the same goal.

It was along this line of thought that the

CLERKS OF WORKS ASSOCIATION



Some of the members and guests present at the annual dinner of the Incorporated Clerks of Works Association of Great Britain, held at the Café Royal, Regent Street, W., on Saturday last. The sketches are by Fred May.

decision was reached not to entrust any single architect with the arrangement of the Exhibition as a whole, but to invite a number of eminent men, differing in outlook, to concentrate each upon a specific part of the whole problem, and to work out, in close consultation with the trades concerned, what seemed to them the best method of arranging and presenting the exhibits within their section.

Thus to each of the Advisory Committees, composed mainly of manufacturers, an architect or a decorator was attached whose task it was to study the aims of the industries concerned, and to find the best methods for placing these before the public. It was for these reasons that the three great architects who formed part of the Executive Committee—Sir Giles Gilbert Scott, Sir Edwin Lutyens and Mr. Arthur Davis—refrained from imposing their personal views on their colleagues, although as members of the Planning Sub-Committee Sir Edwin and Mr. Davis contributed materially towards maintaining the necessary cohesion between the arrangements in different sections.

As I said before, in every gallery an architect or decorator has worked in close touch with the Advisory Committee for the respective section, the final plans being in each instance passed by the Executive Committee with only such modifications as were found inevitable for financial or other practical reasons. But in a general way it may be said that the appearance of the galleries and the methods adopted for the display of the exhibits were settled in consultation between the architects and the manufacturers directly concerned. If the latter are not in every instance completely satisfied with the result, is it unfair to remind them that the architects have invariably been most willing to conform to the views of the trade, and that if the latter have not formulated these views more effectively at the proper time, they cannot blame anyone else?

May I now for a moment break away from discussing the Royal Academy Exhibition to refer to certain thoughts and questions which have arisen in my mind at various times during the past 15 years, and which have become focused on certain definite points during the past 25 months. I have come to ask myself repeatedly, what is the exact function which the architect performs in the social structure under present-day conditions, and whether, under these conditions, it could still continue to be what it had been in the past.

In short: Is the modern architect still a master builder? Is it possible for him to be one in the sense which this word has had in the past?

One great difference which, it strikes me, exists between the methods of these master builders of the European Middle Ages, or the great periods of India and the East, and our contemporary builders of great works, is the lack of freedom in the execution of the details which is left to the craftsmen today. I think there are two causes for this: the first and most important is that, I am afraid, the architect has, to some extent, lost his grip of all the details of the building processes which the master builder so fully possessed.

The modern architect has ceased to have that intimate knowledge of the building crafts which his predecessors had, and which enabled them to judge the anticipated results of each individual craftsmen's work sufficiently, to dispense with indicating more than its general outline. I cannot help feeling that the modern architect has on the one hand been partly superseded by engineers and technicians, and on the other has lost his intimate working touch with craftsmen and manufacturers. As a result he no longer feels confident that he can completely control their contributions to his great work, unless he lays down minutely and in detail what each of them shall exactly do. The result of this is that the technicians, manufacturers, and craftsmen who depend for their orders on the architect, do his bidding whenever it is at all possible, without feeling that they have freedom to propose what, from their intimate knowledge, they might consider better or more attractive solutions.

In fact, unless the appropriate engineers, technicians, and in certain cases, craftsmen, are consulted before the plans are actually laid down, it may well become impossible to incorporate their most fruitful suggestions at all. This line of thought would seem to indicate that there should be consultation from the start with the necessary technicians and craftsmen.

To establish such consultation with outside firms can never be easy, and may well be impossible. I have, therefore, frequently asked myself whether it would not be in the interests of their clients as well as of the architects, if instead of having a large number of individual architects, each striking out on his own, learning his experience individually and at the expense of his customers, there were to be a closer grouping of architects in firms within which each of them could specialize in the direction for which he seemed best gifted. This would provide competent links between those chief architects, who would then be the modern master builders, and the technicians, craftsmen, trades or industries whom they employ.

The exhibition at the Royal Academy shows, in all sections, examples of the advantages which industry may derive from assistance by architects, whenever they are dealing with matters within their competence. But there are also examples in the exhibition, and a large number outside it, of the real harm that has been done to artistic production through the indiscriminate venturing by architects into spheres not specifically theirs.

If the architectural profession could enable its far too numerous individual members to crystallize out into some such well-organized groups as have here been faintly outlined, it would enable the master minds amongst architects to become again, what I am afraid they cannot be held to be to-day, master builders having full knowledge of all the processes involved in building.

By J. Spedan Lewis

My first suggestion is that the managers of an exhibition of this kind should not only make up their minds quite thoroughly upon the question, what functions it is to serve, but should also publish effectively their own answer to that question.

I should like to see in the advertisements of such an exhibition, and in a conspicuous place at its entrance, an extremely clear-cut statement that its principal aims are so and so, and that those are the standpoints from which it is prepared to be criticized, although critics will be entitled, of course, to contend also that it should have aimed at different things or at more things.

Some press notices that I have seen have made me feel that some of those who have to stimulate and influence public opinion have had no very clear idea of what the exhibition was really driving at and have therefore judged it from a false standpoint.

I have asked myself what were in fact the principal aims of this exhibition. My own answer is that they were four.

One was to affect the home demand directly by making the general public more sensitive to beauty and to convenience and more aware of the latest developments in those directions.

Another was to affect the home demand indirectly by enlightening and stimulating shopkeepers not only in their choice of their stocks, but also in their methods of arranging and displaying those stocks.

Another was to help the country's export trade by spreading among buyers for foreign markets knowledge of the goods that British producers are offering at present.

And finally, the Exhibition aimed at improving British productions by bringing them into close comparison and under general criticism.

I do not know whether this analysis would meet with general agreement. I do not feel at all sure that it is sound, but it does seem to me that some announcement of this kind would have improved the Exhibition's relations with the general public, including the press.

It seemed to me that the four aims that I have mentioned were to some extent incompatible, and that the managers of the Exhibition were really confronted with a problem of dividing their space and other resources so as to give an expedient share to each of them.

It seemed to me that if the managers had had nothing to consider except improving the taste of the general public and increasing their knowledge of what is available, the whole of the Exhibition should have been arranged partly as specimen rooms and for the rest as a shop or a series of shops.

In fact, a great part of it was arranged in neither of those ways, but rather in the manner of a wholesale showroom or of a museum collection, such as might be made generations hence of objects that happened to be in use at the present time.

I ought, I think, to remark that I suspect that the Exhibition relied too much upon attracting visitors by what I may call higher as opposed to lower motives. By higher motives I mean the ideas of making life beautiful and of promoting the prosperity of our own manufacturers. By lower motives I mean such things as mere curiosity and amusement.

Speaking still from the standpoint of direct stimulation and information of the general public, it seemed to me a very great mistake that every article exhibited did not bear its price. Speaking as a shop-keeper, I should have said that, if it was expedient to exhibit an article at all, it was expedient to name its price.

COMPETITION NEWS

SALFORD CIVIC CENTRE

The result of the civic centre competition, confined to past and present students of the Salford Royal Technical College, has been announced as follows: First premium (£25), Mr. V. I. Tomlinson, of Pendleton; second premium (£15), Mr. H. Bennett, of Leeds; third premium (£10), Mr. J. A. Dargie, of Salford. The assessors were: Mr. H. Rhodes, head master of the Salford School of Art, and Mr. H. H. Chapham, head of the building and civil engineering department at the Technical College.

The competition was promoted by Councillor P. Ashcroft, chairman of the Development Committee of the Salford Corporation, for the three best designs for combined town hall and municipal buildings accompanied by suggestions as to the most suitable site in relation to the general planning of the city.

[*For Competitions Open see page 364 of last week's issue.*]

THIS ARSHETECTURE

A new thrill is being prepared for passengers on the cruising ship *Reliance*, which is one of America's most popular pleasure vessels.

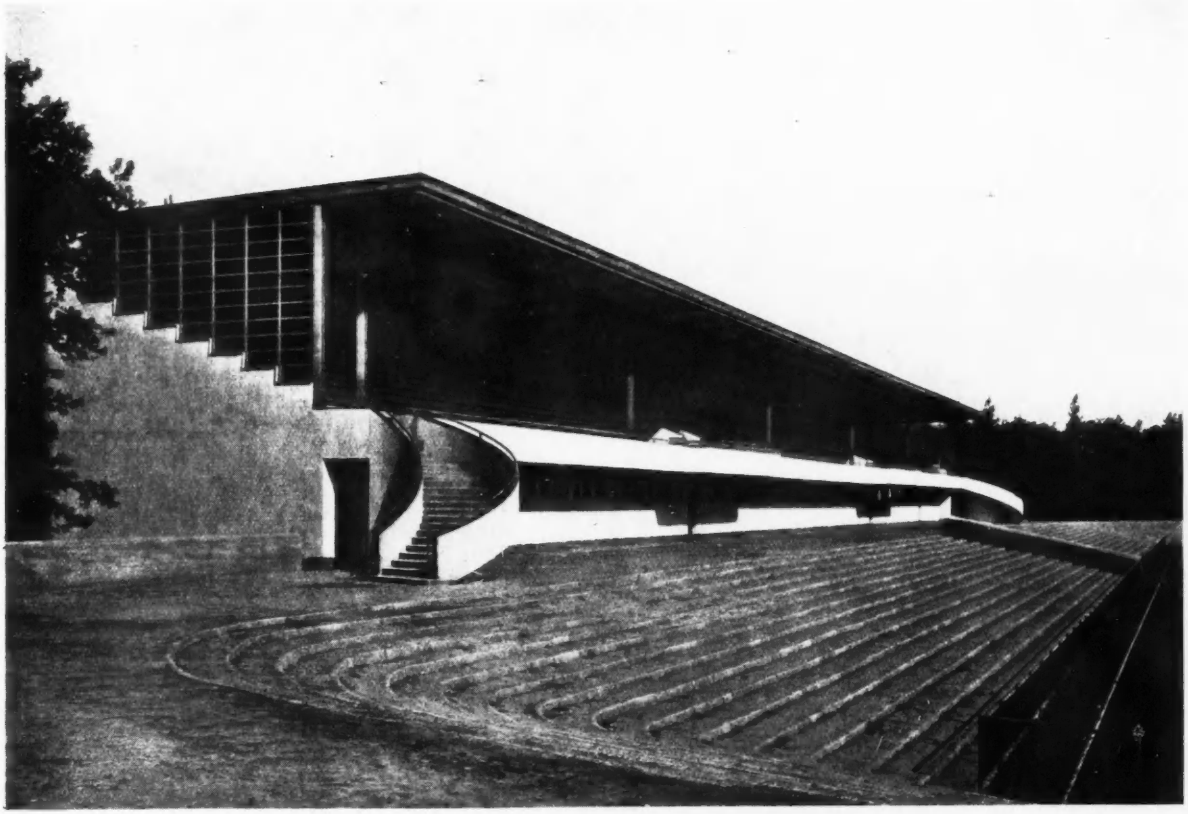
The dining saloon is being transformed into a submarine grotto.

The doors are of artificial rock, studded with barnacles and sea-shells, while the wall decorations consist of artificial waves, in which rainbow-coloured fish, illuminated inside, are propelled by electric batteries.

Coral formations hang from the ceiling. Star-fish are strewn on the sea-green floor, and plantlike animals with waving tendrils placed in the corners, add to the illusion.

The tables resemble old sea chests, straight from Davy Jones's locker, and vases containing cut flowers are supplanted by seaweeds placed in shells.—*From "Reynolds's Illustrated News."*

SPORTS CLUB, BERLIN-CHARLOTTENBURG



This stadium and club-house stand among dense pine woods close to Eichkamp Station in the western outskirts of Berlin. The grand stand seats 1,750 spectators, and there is standing room for another 36,000 on a stepped concrete terrace placed immediately below it. There are three separate avenues of access, of which the most important is from the Neufert-Allee. Here an open-air café screens a spacious car-park (with its own filling station) and divides them from the roadway; the difference in level between the road and the turnstiles commanding the top row of the standing places being reduced by a ramped approach.

The building, 104 metres long, has been planned on three storeys, with the club-house accommodation beneath the actual grand stand.

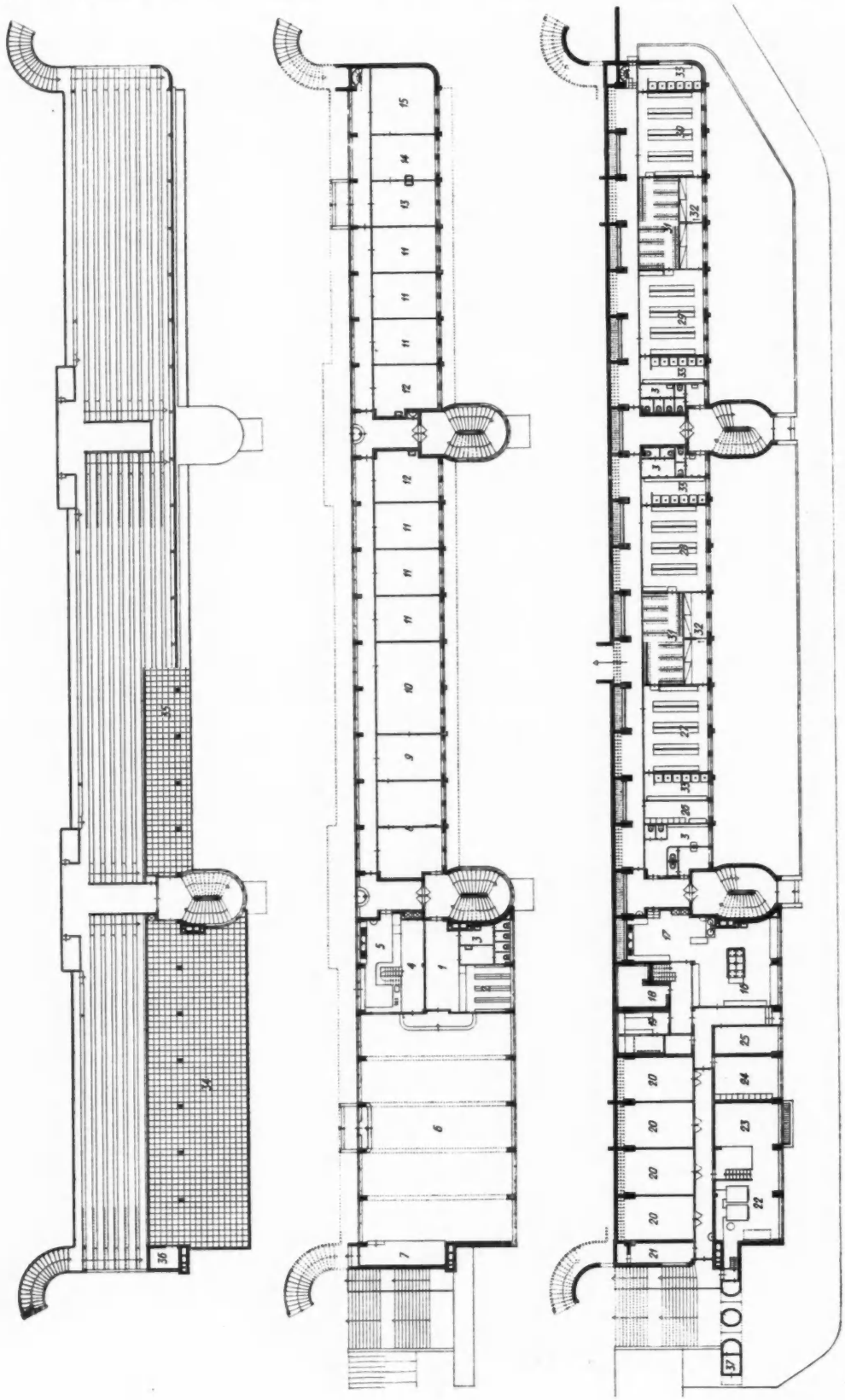
The photographs on this page show: above, the front view of the grand stand; right, one of the turnstile entrances showing the back of the grand stand and part of the café.



DESIGNED BY

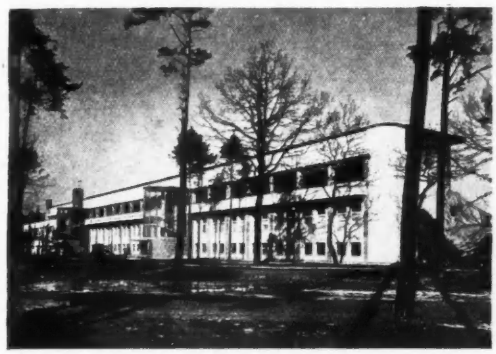
FRED FORBAT

SPORTS CLUB AND GRANDSTAND,



Plans of the **grand** *stand building.* ***Left:*** *plan at upper level, showing the stand and the roof terrace. Centre: plan at ground level containing club-rooms, etc.* ***Right:*** *plan at lower ground level containing changing rooms, services, etc.*

BERLIN-CHARLOTTENBURG



In the basement (which is slightly below street level) there are changing- and massage-rooms, baths, showers and lavatories; also the kitchens and heating-plant. On the ground floor is a very large members' dining-room, buffet, guest rooms, cloak-rooms, club-rooms, and the club's offices. Immediately under the stepped tiers of seats is a large terrace café (also used for sun-bathing) cantilevered over the dining room below. This is carried on beams supported by steel stanchions placed at 4-metre longitudinal and lateral intervals. The grand stand proper is a steel-framed structure. Its roof is boarded over and covered with tarred felt, dashed with shingle, and supported by slender steel columns spaced 20 metres apart so as not to obscure the view of the stadium. In the rear are two oval staircases with steel and glass cages, which communicate with all levels and give direct exits to the road. All other parts of the building are of brick construction.

A tunnel from the changing-rooms in the basement leads directly on to the running-track.





The photographs on this page show: top left, the grand stand building from the car park; above, one of the two staircases inside by day; left, outside by night.

DESIGNED BY FRED FORBAT

MORE COVER FOR STEELWORK

PROPOSED AMENDMENTS TO THE LONDON BUILDING ACT

The recently published report of the Advisory Committee on Amendments to the London Building Act, dealing with the grading of buildings for fire-protection purposes, reveals proposals which, if incorporated in the Act, would have considerable effect on building practice.

In the following article a practising architect with experience of large steel-framed buildings analyses the proposals and their probable consequences.

THIS document* should be studied by all interested in the designing and erection of buildings in London. It is a report of the Advisory Committee on the Amendment of the London Building Act, entitled "Grading of Buildings and Building Materials." It contains proposals for the protection of life and the prevention of the spread of fire. With this object in view it puts forward a scheme for the grading of buildings and materials which, if adopted, will result in considerable extra expenditure and will add to the difficulties of the designers of buildings and will hamper development by the building owner.

Architects and building owners have legitimate reason to complain of the stringency of many of the existing London County Council Regulations, particularly those applicable to steel-framed buildings, but it has to be admitted that buildings erected in accordance with these requirements are in all probability superior to those erected in any other country, as regards construction, means of escape and safety from fire. It is therefore all the more difficult to understand the reason for these fresh impositions. Now, had there been cases on record of the collapse of modern buildings constructed under the present method of protecting steelwork, resulting from fires, a revision of existing regulations might reasonably have been expected, but we are informed on most excellent authority that no serious consequences have attended any fires in steel-framed buildings with fire-resisting construction throughout, erected in accordance with the Act of 1909.

Briefly the effect of these new proposals will result in :—

1. Increased cost of buildings.
2. Increased difficulties in developing certain sites.
3. Increased use of sprinklers in the smaller type of building.
4. Increased difficulties in design and construction.

The proposals are prefaced by a Report of the Advisory Committee, but the Report contains no statement of the facts which show the necessity for the majority of the proposals.

It is suggested that new buildings should be graded as follows :—

Height exceeding	30 ft.	but not exceeding	40 ft.,	Grade	E
"	40 ft.	"	60 ft.,	"	D
"	60 ft.	"	90 ft.,	"	C
"	90 ft.	"	120 ft.,	"	B
"	120 ft. (when such height has been permitted by the Council),			"	A

Such buildings, however, need not necessarily be of one grade throughout, and special requirements are suggested in respect of basements.

The Report states that "since the better class of new buildings are in practice already graded, it is not apprehended that the requirements proposed will be regarded as irksome," but in our opinion this statement is unjustifiable. Take, for example, a steel-framed building exceeding 90 ft. in height, which would come under Grade B. The interior columns and beam soffits would have to be cased with 3 ins. of concrete instead of 2 ins. as at present and, if the Council permitted the erection of a building under Grade A, exceeding the height of 120 ft., the internal columns and all beam soffits would have to be cased with 4 ins. of concrete, so that the higher the building to be erected, the heavier the construction, which is a direct contrary to the practice of the designers of high buildings, who strive to reduce the weight as far as practicable in order to avoid difficulties with foundations. The ordinary light wire mesh covering for beams and stanchions to receive a casing of 2 ins. would not be practicable where the extra thickness is required, and a heavier and so more costly type of mesh reinforcement would be necessary.

Beams in external walls are singled out for special attention in buildings exceeding 90 ft. in height, and it is proposed that they shall be cased 4 ins. thick on the outside, while 2 ins. is permitted on the inside. Now surely the risk of fire is greater from the inside than from the outside. We suspect this is an attempt to deal with corrosion ; if so it should be clearly stated, and such a requirement should not form part of the proposals under review. Further, it will be easily appreciated that difficulties in design will present themselves in the case of an external beam with 4 ins. of casing on the outside, in order effectively to carry the brick walls above—particularly where brick or stone facings are employed : for it is stated that only 1 in. of this outer casing may be of brick or stone and the remainder must be of solid concrete, although it is usually considered that brickwork is superior from the point of view of resistance to fire than gravel concrete.

Floor thicknesses are also to be increased. The present thickness of solid material to comply with the London County Council Regulations of 1925 is 3 ins., but it is proposed to increase this thickness appreciably in the case of Grades A and B. It will be noticed that even in Grade C (buildings 60 ft. to 90 ft. in height) the floors are to be considerably thicker and heavier than at present permitted, with a consequent increased loading of steelwork and foundations and increased cost. No adequate reason is given for such a change. The proposals governing the use of hollow-tile floor construction are so drastic that they would in all probability render this type of floor obsolete.

No new building, unless constructed to a defined grade, would be permitted to be used as a trade building except under severe restrictions ; and if any two divisions of 250,000 c. ft. were united, sprinklers would have to be installed throughout the whole building, even though the two divisions might be separated by a dividing wall with protected openings. All trade buildings of Grades C and B which exceed 500,000 c. ft. in extent or with divisions exceeding 250,000 c. ft. would be required to have sprinklers throughout.

It is proposed " that the principle of grading should be applied to all new buildings or buildings completed after the passing of the Amending Act which exceed a height of 30 ft. measured from the ground to the upper surface of the floor of the topmost storey." Again, " that the requirements shall apply to new buildings and to old buildings which may, after the passing of the Amending Act, be so altered in construction or use as to bring them by reason of their dimensions or use within the definition of the clauses specified in the requirements."

One may well ask what is meant by " alteration in construction or use." It seems to us that the owner of an existing building who desires to make a small addition to his building may be confronted with very great difficulties. Take, for example, the case of a private house in any typical West End street which, being no longer convenient to the owner, he desires to convert for use as a high-class dressmaking establish-

*No. 3031, published by the London County Council, procurable (price 6d.) from Messrs. P. S. King and Son, Ltd., of 14 Great Smith Street, S.W.1.

ment, with showrooms on ground and first floors and workrooms above. If it is decided that this building comes under Grade D (between 40 ft. and 60 ft. in height) then he will have to pug all the floors with 5 ins. of concrete, providing the wooden joists are sufficiently strong for this purpose. Should the building come within Grade C, however (60 ft. to 90 ft. in height), he will be compelled to take out these wooden floors and replace them with reinforced concrete. The extra weight consequent on this may quite possibly, in the case of older buildings, call for the underpinning of the walls, and the resultant cost would be prohibitive.

There are very stringent proposals in respect of means of access to a trade or warehouse building in case of fire, which would rule out numbers of sites in London for the accommodation of trade or warehouse buildings. They provide "that unless otherwise approved by the Council a trade or warehouse building must abut on a thoroughfare or thoroughfares not less than 40 ft. wide, the portion to be in accordance with the following scale :—

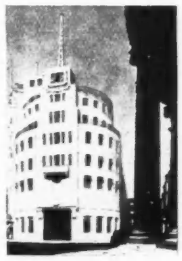
If the building exceeds	250,000 c. ft., at least	½
" " "	1,000,000 c. ft. "	¾
" " "	2,000,000 c. ft. "	1
" " "	3,000,000 c. ft. "	1¼
" " "	4,000,000 c. ft. (must be an island site)	

providing that no division exceeding 500,000 c. ft. in extent shall be at a greater distance than 150 ft. from a thoroughfare not less than 40 ft. wide." It is not clear whether these requirements are to apply to old buildings, neither is it suggested how the lengths of frontage can be expressed as a portion of the site.

Under existing regulations one may erect a building not exceeding 250,000 c. ft., using steel stanchions and girders without casing them in concrete, but it is proposed to alter all this. Under the new proposals all structural steelwork on which the stability of external or party or divisions walls depend, are to be cased in concrete, but other stanchions and girders are exempted *provided provision is made for expansion.* It may be possible to provide for expansion of girders in some cases by omitting bolts or providing slotted holes, which in practice would be highly dangerous, but this certainly would not apply to stanchions.

Now it might well be asked, who is to determine under which grade any particular building will come? It is proposed that this should be left to the discretion of the district surveyor. In certain types of building this grading might be a very complicated matter, and it is subject only to appeal to the L.C.C. or to the Tribunal of Appeal. This must of necessity lead to confusion, for practising architects are well aware that even in existing circumstances the opinions and decisions of district surveyors vary considerably on many matters concerning the administration of the Building Act.

It will be interesting to know the attitude of the Royal Institute of British Architects towards the proposals generally. We know they are not acceptable to some of the leading authorities interested in and representative of the building industry. It is rather significant that the chairman of the Advisory Committee is also a member of the Standing Practice Committee of the Royal Institute, which committee we are told materially assisted in the preparation of the scheme.



INDUSTRY COMES TO

CORBY

On Monday night Mr. Geoffrey Boumphrey broadcast from the Midland Regional Station the fifth of his series of talks under the general title of "Ripe for Development." This talk described the new steelworks town of Corby, in Northamptonshire, Mr. Boumphrey giving his opinion of the town-planning measures which have been attempted there. It was called "Industry Comes to Corby." The talk had been originally announced for November 30, but was postponed at the last moment. Following are extracts from Mr. Boumphrey's talk, reprinted from *The Listener* :—

Corby seemed to offer a chance of seeing town-planning at work on a more or less clean map. A year ago it was a little country village of eighteen hundred inhabitants ; before another year is gone its population will be close on ten thousand ; in ten or twenty years it may be thirty, forty, fifty thousand, or even more—nobody knows. The reason for this extraordinary expansion is steel. Corby stands in the middle of thousands of acres of ironstone. Corby has been chosen as the site for enormous works, where the ironstone will be smelted into iron, the iron converted into steel, and the steel made into tubes—up to a hundred and seventy thousand tons of it a year. Something like two thousand five hundred men will be employed here by this one firm, and, with their families, they will bring the population up to close under ten thousand. What will happen after that, nobody knows. Other firms may decide to move to the neighbourhood of Corby ; the same firm may put down more production units and their staff expand still more. It is easy to see how chaotic Corby might become if its development were not controlled right from the beginning.

The Kettering Rural District Council, in whose area Corby lies, wisely decided to prepare a town-planning scheme, and appointed an expert to get it out for them. This was two years ago. Shortly afterwards the Northamptonshire County Council came in and a joint committee was formed.

I began by talking about town-planning on a more or less empty map, starting with a clean sheet and that sort of thing : I soon found out there was nothing like that at Corby. As I said, the village stands in the middle of thousands of acres of ironstone. It's built on ironstone. If it wasn't for the ironstone Corby would remain a little village, and no plan would be called for. But the firm who own or lease the ironstone naturally want to use it ; and the nearer it is to the village and their furnaces (other things being equal) the more valuable it is to them, because of the saving in transport costs, so that they're in the awkward position of wanting to house eight thousand people close to their works and yet wanting to use the ironstone from beneath—at any rate—some of the ground which many people would consider best placed for housing. A difficult problem for them.

I'd better try and give you an idea of how the ironstone is worked. It lies, round about Corby, under anything from ten to forty feet or more of over-burden—or covering soil. This is cleared off first by huge mechanical diggers. They're grand machines. The biggest at Corby (and, I believe, in the world) takes up to ten cubic yards of earth at a single scoop and works on a face up to fifty feet high. It isn't difficult to imagine what the country looks like when some hundreds of acres have been treated like this—especially for anyone who remembers a battlefield or two in the late war. If you arrange your shell-holes in continuous lines and use only the largest size, you have it. About the only use the ground can be put to for many years is for growing timber—conifers, presumably—and the carting of these, when the time comes for them to be felled, can't be too easy.

At any rate, the town-planners have had to face the fact that the whole countryside round Corby looks like being gradually turned into something far less pleasant than a desert, at the rate of fifty acres a year, and that complete regeneration will take at least a century. That naturally must have seemed to them all the more reason for laying out the town itself on the best possible lines. But here they came straight up against two difficulties : ironstone, and the fact that the housing had already been started. The railway passes two or three hundred yards west of the centre of the village, bending a little to the east of its roughly north and south line as it gets north of the station. The furnaces, coke-ovens, and all the noisy, smoky and fume-producing plant that goes to make up a modern steelworks, lie two or three hundred yards to the north of the old village and are spreading eastwards. The new tube works are taking up acres and acres more in the same direction towards Great and Little Weldon. It seems to me and to others that the obvious place for housing development was well to the south-west of the works and the old village (so that the prevailing south-west wind would carry the smoke and noise away), near the railway station and grouped off a new main east-to-west road by-passing the old Corby—which will have to be made in any case. This might have caused a little more difficulty in sewage disposal, but nothing that couldn't have been easily got over.

But the first portion of the housing estate has been placed north of the old village, and north-west of the blast furnaces and steelworks from which it is separated only by the railway and a sixty foot strip of land. After seeing this, my first thought was that town-planning at Corby might as well shut up shop.

But the town planners have had to struggle on. They propose a town centre to the south of the old village. In the meantime, I've little doubt in my own mind as to what will actually happen. As it becomes possible to get possession of the houses in the old village street (at present most of them come under the Rent Restriction Act) this will be turned into a shopping centre ; and the planned town centre which is farther away from the bulk of the present housing may easily become a centre in name and in

little else—though if the whole area now zoned for housing is eventually developed, it will fall more centrally.

Had the bulk of the housing been *started* in what I consider the proper place, to the south-west of Corby, well away from the works, reaching almost to two pleasant woods, which I hope may be spared for many years, this objection would not have applied. As things are now, I can't help a perhaps irrational feeling that the proposed town centre is something in the nature of a sop to town-planning. "It is too late now for us to lay out Corby on really fine lines, but we'll give it a fine town centre at any rate."

I've said, earlier on, that practically all the older houses in and near Corby are built of local stone, and very nice it looks, weathering from golden brown to grey. Stone, of course, is too expensive to use for big working-class estates, and even the use of reconstituted stone, though considered, was found impracticable—although Weldon reconstituted stone was, until lately, actually a local product. And so the new Corby has been built in red brick with red tiles.

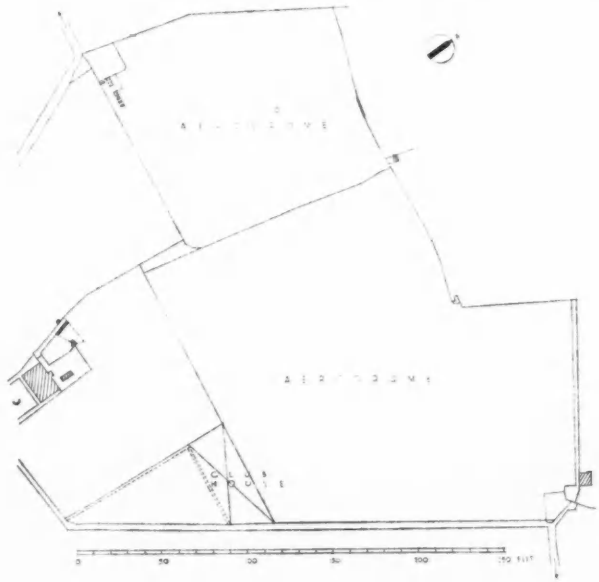
The housing is mainly on garden suburb lines, that is to say, it is chopped up into small units. Whenever one comes across a block of six or eight houses, one heaves a sigh of relief—at least, I do. Always that repetition of little blocks—at least it isn't a repetition: what's called a "pleasing variation" is sought. The result makes anything like architecture impossible to my mind. Still, it's not fair to blame Corby for that: it's the system generally favoured to-day, and it's almost impossible to use any other if you're dependent on Government help. But even of its class, Corby does not seem to me to be a particularly bright example. I should not rank it anywhere near some of the later housing at Nottingham, Leicester, or Birmingham, for instance. The grouping I consider poor. It's obvious that thought has been taken with the idea of getting certain artistic effects—vistas, special effects at corners, and so on; but the general impression given, as I see it, is that of muddle—houses set at odd angles, roof-lines cutting across each other. They do these things better in Nottingham. I found on some occasions, bedroom windows facing straight into each other across a gap of only five or six yards. So much for the privacy which, we are told, makes the Englishman prefer this sort of semi-detached housing to grouping in larger units. If I were a manufacturer of lace curtains, I should be all for garden suburbs—and by no means on account of *bedroom* windows only.

The restless, muddled effect on me of the main estate is made worse by the variety of bricks used—common brick here, facing brick there, a mixture of both somewhere else, and then perhaps a slab of stucco. Here, I know, the architect was handicapped to some extent in having to make use of bricks already on the site when he was appointed. To my mind, in housing of this class, where every penny has to be counted, the utmost simplicity of design, material and grouping should have been the aim. It might have been possible then, if smaller artistic considerations had been ignored, to achieve some sort of architectural dignity for the whole.

REBUILDING OF WEST-END CINEMA

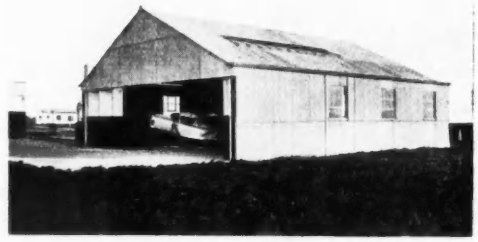
The Capitol Cinema, in the Haymarket, is to be demolished and replaced by a smaller cinema designed by Mr. W. E. Trent, F.R.I.B.A. The new building will seat 1,200, as against the 2,000 of the present building. It is explained that as films are put on for a run in the West End, it is not necessary to have so large an accommodation as in the suburbs and provinces, where the programmes are frequently changed.

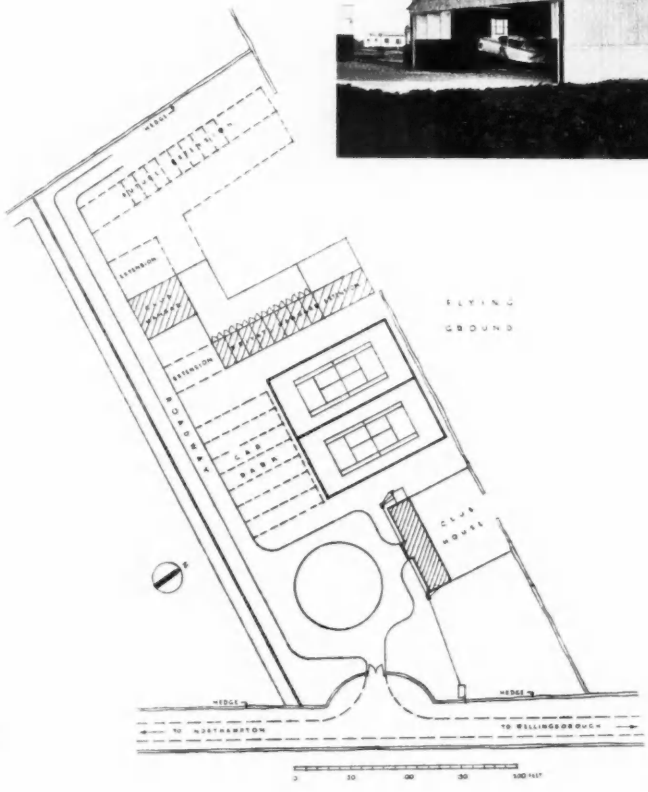
SYWELL AERODROME,



AERODROME LAY-OUT

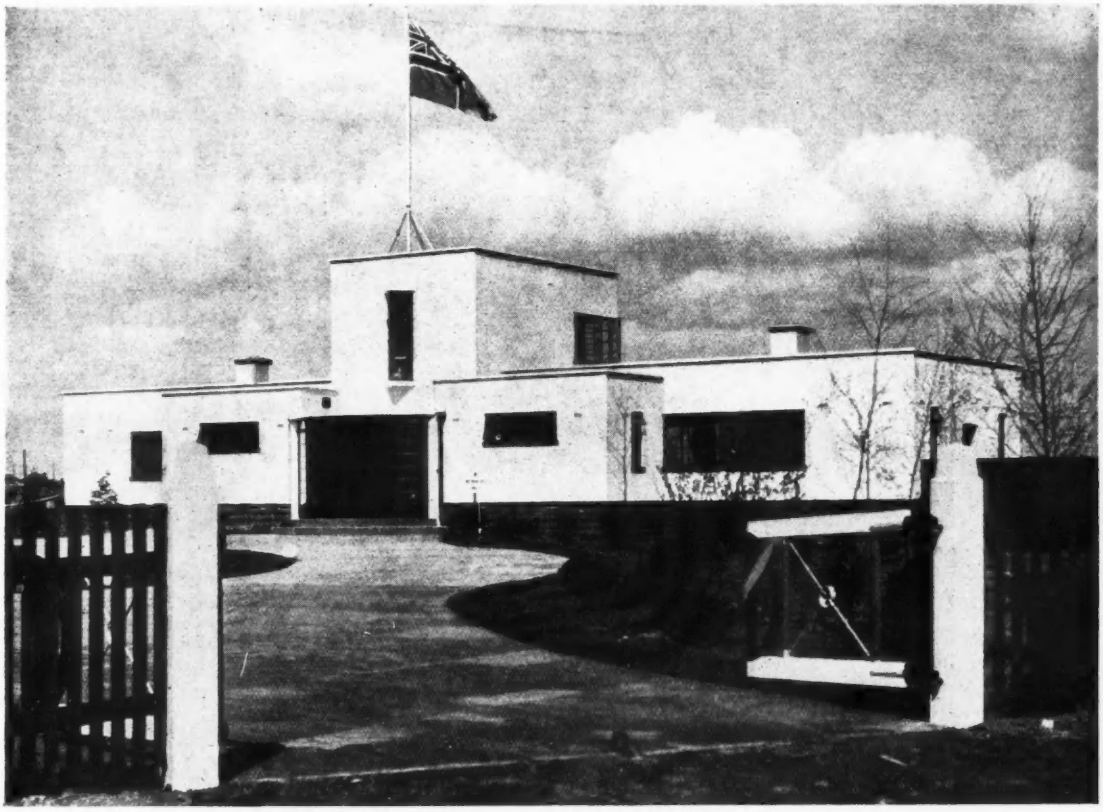
Right, a photograph of the hangar, a light steel structure covered with asbestos sheeting, and capable of housing light aeroplanes without folding the wings.

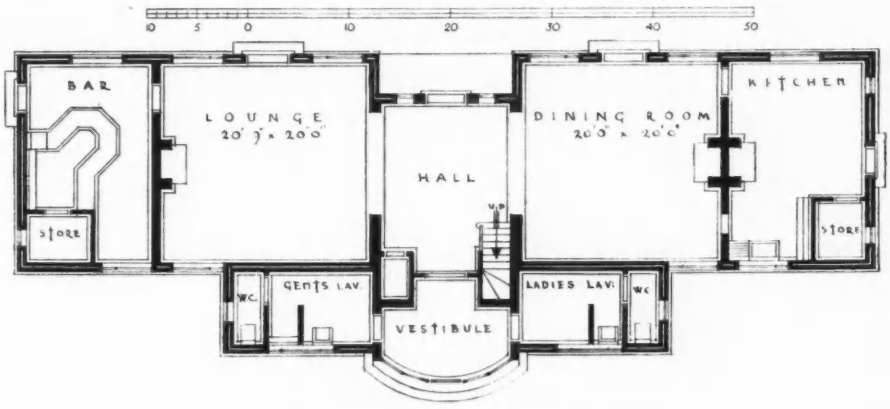




LAY-OUT OF BUILDINGS

MOULTON, NORTHAMPTONSHIRE





GROUND FLOOR PLAN

DESIGNED BY

SIR JOHN BROWN

AND

A. E. HENSON

These buildings, for the Northamptonshire Aero Club, are arranged on a three-acre plot to the south of the landing ground, leaving an unobstructed line for the approach of aircraft. A new hangar, of steel and asbestos, with a 40 ft. span, has been erected to house light aircraft without folding the wings, and there is a range of eight lock-up hangars for private owners. The club house is in brick and reinforced concrete with a white cement rendering; the ground floor contains the members' dining room, lounge and bar, and on the first floor is a control room with an uninterrupted view over the aerodrome. Access can be obtained to the whole of the flat roof area which is used as a grand stand during aerial displays.

For the lay-out of the aerodrome the architects worked in consultation with Captain Duncan Davies.

LETTERS FROM READERS

C. F. ANNESLEY VOYSEY

ALFRED C. BOSSOM, M.P., F.R.I.B.A.

F. EVAN C. DAVOLL

CECIL SHARP, F.R.I.B.A.

E. A. A. ROWSE, A.R.I.B.A., [Principal, the Architectural Association School of Planning and Research for National Development]

Ultra-modern Architecture

SIR,—It has more than once been stated and printed that I was in a measure the instigator, pioneer, or original cause of the modern movement in architecture; in some way responsible for the square box, roofless buildings we now see, unfortunately, *not* only in our own country. I am sure those who express such a view have no intention of libelling me. I make no claim to anything new. Like many others, I followed some old traditions and avoided some others. I made the most of my roofs, seldom, if ever, making them of a less pitch than 55 degrees.

Steel construction and reinforced concrete are the real culprits responsible for the ultra-modern architecture of to day.

C. F. ANNESLEY VOYSEY
London

Rents of Working-class Houses

SIR,—Since my statement in the House of Commons some days ago that it was possible for a good architect to design working-class houses of the three bedroom non-parlour type, to let an economic rent of 10s. a week or less, including rates, and without either national or municipal subsidy, I have received a number of communications confirming this affirmation.

I feel that if the country is to make a success of the present tremendous drive to remove slums and overcrowding the whole enterprise must be considered as one great national undertaking, but at the same time the individual character of each locality should be maintained. It would be fatal, in my judgment, to attempt to impose a universal unity of design, at the expense of local needs and preferences.

Large-scale planning is essential, and also the standardization of certain interior details, but it is important that local authorities should appoint architects of good standing and who have experience of both the requirements of the neighbourhood and of its building materials to undertake the designing work in connection with their rebuilding schemes.

In the circumstances I wonder if any of your readers who have already designed working-class houses that are being rented at 10s. a week or less, inclusive of rates, could send me available particulars, in order that I might substantiate my assertion by an even wider range of references than are at present available.

ALFRED C. BOSSOM
House of Commons

Hot Water in Council Houses

SIR,—In your issue for March 7 Mr. P. F. School draws attention to the lack of efficient hot-water services in Council houses. The last paragraph of his letter suggests that architects are at fault, but a more likely cause is that architects have not even been engaged to carry out the majority of housing schemes, such work generally being entrusted to the local town surveyor or sanitary inspector. Very few of these officials possess more than a very elementary knowledge of building, and it is asking too much of them to expect results other than are found throughout the country.

Mr. School may be interested to know that I have embodied constant hot and cold water services to bath and sink (with hot airing cupboards), without undue cost, in several housing schemes. These services operate automatically from the living-room fire, and are appreciated by tenants who can ill afford more than one fire. The fact that these particular houses are let at 5s. 6d. per week and the cost of the houses is £298 each inclusive will also indicate that many other housing details have received serious consideration.

Architects can, and will, give their best in Council housing, as in other work, if the opportunity is offered fairly.

F. EVAN C. DAVOLL
Ross-on-Wye

SIR,—In the last issue of your JOURNAL you published a letter under the title "Hot Water in Council Houses," which letter appears to be complaints about architects, Council houses and hot water generally—in fact architects in particular are in "hot water." Why all this pother? Even an architect can and is designing Council houses in which are embodied a living room stove which not only does the cooking and gives a cheerful fire but provides a constant supply of hot water day and night (the tenant of course supplying the fuel, this is not done by the Council). It supplies hot water to the sink and the bath, and in addition heats a drying cupboard at the side of the stove in which wet clothes, coats and boots may be hung and placed, providing them dry and warm over night for the morning use.

The cost cannot be the reason as stated, for the rental of these houses is only 7s. per week.

CECIL A. SHARP
Cheam, Surrey

The A.A. School of Planning

SIR,—Professor Abercrombie's letter in your issue for March 2 referring to the new School of Planning and Research for National Development, recently founded by the Architectural Association, possibly expresses a slight misunderstanding which may exist in the minds of many of your readers.

Some town planning has for many years been included as an integral part of the Architectural School's course; but the scope of the subject has never made the foundation of a separate section necessary. Further the Association has always considered the excellent Departments of Civic Design, attached to the Architectural Schools of Liverpool and London Universities, as meeting very adequately the requirement for training in the subject. Any action on the part of the Association in this direction would have been redundant.

It must, however, be stressed that the new school is not intended to teach town or even country planning, as recognized at present. It has long been one of our national failings to consider the part before the whole. Even a very extensive regional scheme does not meet the need for large scale planning, so urgently felt of recent years by the great industrialists of this country. The Architectural Association, recognizing that the principles of planning must eventually be extended to the widest field, in order to ensure perfect co-ordination of sections of the nation, has, with the help of the Advisory Board, founded the School of Planning and Research.

The school has aroused very wide interest, not only among those who hope to benefit by following its courses of study, but also among men prominent in political, economical and industrial circles. This would seem to confirm the impression that there has existed for some time a very general feeling, that there is a need for the establishment of a school such as has now been founded. The Architectural Association, appreciating the great opportunities open, decided that a school of such importance could not function as a subsidiary department, but should be entirely free to develop its appropriate policy. The Association has, therefore, provided ample premises at No. 7 Bedford Square.

E. A. A. ROWSE
The Architectural Association

WORKING DETAILS : 223

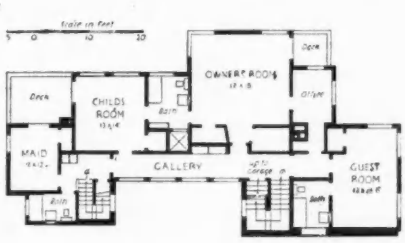
TIMBER FRAMING • HOUSE AT BERKELEY, CALIFORNIA • WILLIAM WILSON WURSTER



In spite of the steeply sloping site, the house illustrated above has a fairly orthodox American domestic plan, save only that the garage is at second floor level and is reached by a bridge from road level, and by an internal staircase. Structurally, the house has a braced wood frame covered with boarding and stucco, details of which are illustrated overleaf.



GROUND FLOOR PLAN



FIRST FLOOR PLAN

FILING REFERENCE:

WORKING DETAILS : 224

TIMBER FRAMING • HOUSE AT BERKELEY, CALIFORNIA • WILLIAM WILSON WURSTER

Sections through garage, floor and roofs of the house illustrated overleaf.

WORKING DETAILS : 225

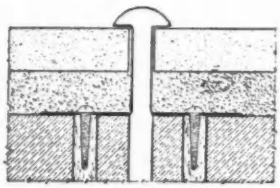
EXPANSION JOINTS • PENSIONS OFFICES, PRAGUE • HAVLIČEK AND HONZIK



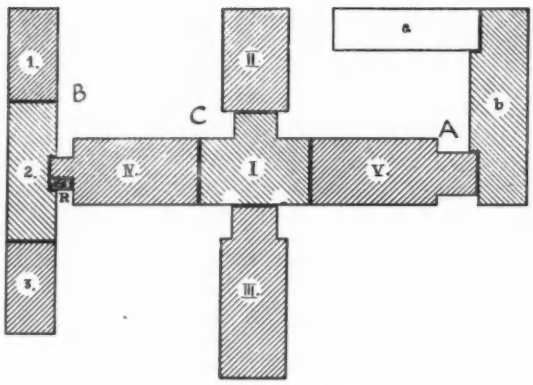
As shown in the site lay-out overleaf, this building has been divided into nine structurally separate units. The various sections show how the expansion joints in the ceramic facing slabs are sealed with sheet lead, and the general arrangement of the internal joints in floors and ceilings.

WORKING DETAILS : 226

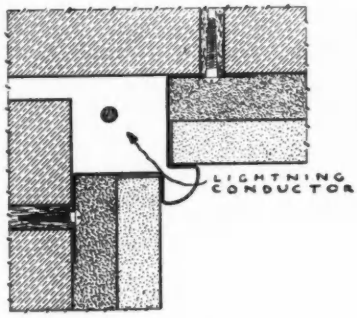
EXPANSION JOINTS • PENSIONS OFFICES, PRAGUE • HAVLIČEK AND HONZIK



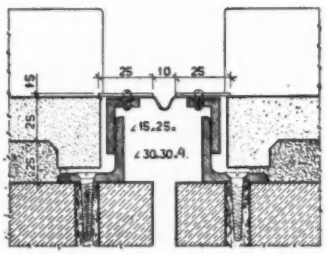
JOINT AT B



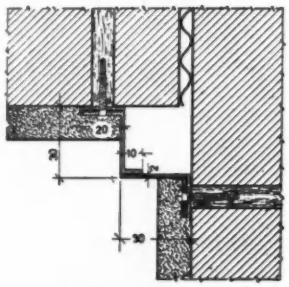
SITE LAY-OUT



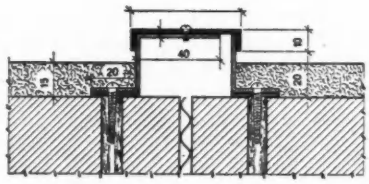
JOINT AT A



JOINT AT C



JOINT BETWEEN CEILING AND WALL

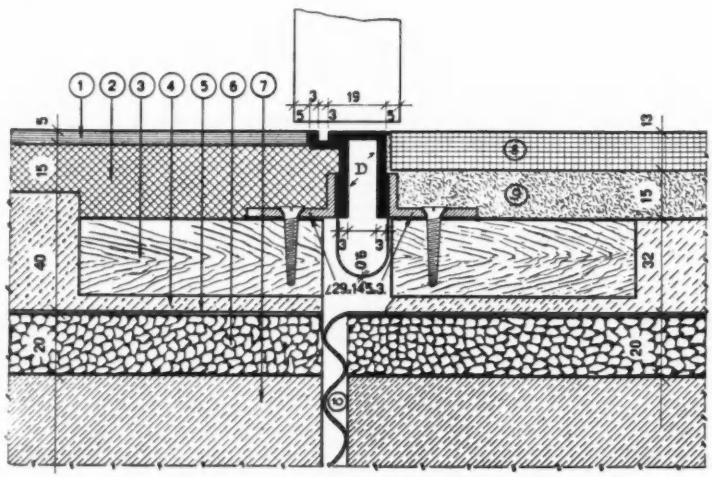


PLAN OF WALL JOINT

KEY

1. Linoleum.
2. Asphalt.
3. Wood grounds.
4. Cellular concrete.
5. Bituminous paper.
6. Compressed cork and asphalt.
7. R.C. ceiling.
8. Paving slabs.
9. Cement screed.
10. Corrugated bituminous paper.
D. Bronze sliding members, sealed with lead sheet.

Key plan and expansion joints of the facade illustrated overleaf.



JOINT IN FLOOR BENEATH PARTITION

SOCIETIES AND INSTITUTIONS

HANTS. AND ISLE OF WIGHT ARCHITECTURAL ASSOCIATION

Lt.-Col. R. F. Gutteridge, F.R.I.B.A., presided at the fifth annual dinner of the above Association, held at Southampton last month. Those present included : Mr. and Mrs. W. H. Ansell, the Mayor and Mayoress of Southampton (Councillor and Mrs. Waller), the Mayor and Mayoress of Winchester (Councillor and Mrs. J. O. Hodder), Mr. Alan Arnold, F.S.I., Sir Ian MacAlister and Lady MacAlister, Mr. Stanley Hamp, F.R.I.B.A., Major H. P. G. Maule, D.S.O., F.R.I.B.A. and Mrs. Maule, the Earl and the Countess of Bective, Councillor M. H. Pugh, Mr. G. Grey Wornum, F.R.I.B.A., and Mrs. Wornum, Mr. Eric L. Bird, A.R.I.B.A., Mr. H. P. Carte de la Fontaine, F.R.I.B.A., Mr. K. H. Vickers and Mrs. Vickers. Mr. C. H. Pace and Mrs. Pace, and Mr. S. G. Stanton.

Lt.-Col. Gutteridge said : " In every authority in Hampshire, in greater or lesser degree, housing and slum clearance has to be considered, and considered now. I suggest to the local authorities that they call in as consultants one, two or three of their local architectural practitioners (according to the nature and size of their problem) and discuss the subject with them. This Association would, in its turn, call these selected architects together so that views could be pooled and discussed, and a common understanding arrived at on main principles both of planning, standardization of construction and other similar common details. The architects so retained would be able to supply better sketch schemes owing to this close collaboration with their confrères, and further, the authorities would have the advantage of the considered opinion of a body of experts. The scheme presented by these men would be sketches, amplified by such details as would be necessary to allow the working drawings and superintendence of the work to be carried out by the local authorities' own officials. This expenditure, I feel sure, would be well worth while, for architects are trained to plan, although we are generally accused by a misguided public of only thinking of the frills."

Other speakers included : Messrs. Alan Arnold, W. H. Ansell, Stanley Hamp, Eric L. Bird, C. H. Pace, K. H. Vickers and Major Maule.

LIVERPOOL ARCHITECTURAL SOCIETY

Mr. Howard Robertson, F.R.I.B.A., S.A.D.G., lectured on " Exhibitions " at last week's meeting of the Liverpool Architectural Society. British participation in the forthcoming Brussels Exhibition—for which he is the architect of the British Pavilion—was important, said Mr. Robertson. The British Pavilion occupied a very interesting and individual site, and it was having a dramatic " prestige " exhibit in addition to commercial galleries. It would have also a garden feature typical of English garden craft.

Æsthetically, exhibition buildings and lay-outs showed a bewildering evolution. The transition was not only from classic traditions to modern, it was from the wedding-cake conception to that of the machined surface. But the old classical style was part of the grand manner in lay-out that had been mislaid, and the Paris Colonial Exhibition of 1931 was one of the few which recaptured the spirit of the grand manner in a modern idiom. The forthcoming Brussels Exhibition would do this partially, but not so completely.

Foreign exhibitions had often been cleverly schemed so as to have as their nucleus some good permanent buildings. We had in England no permanent exhibition building of artistic importance. We ought to seize the chance of our next big exhibition in London to build a permanent building for shows of art and industry.

The British exhibition sense was growing, but exhibitors were still shy. One reason was the immediate chorus of disapproval by art critics of almost any English show. At the Royal Academy Exhibition of Art in Industry, for instance, many splendid things were shown. There were faults in the display, of course. But the merits were far greater than the demerits, and the critics had seldom bothered to mention this fact or to give any broad, well-informed criticism on a constructive basis.

Professor L. B. Budden presided, and a vote of thanks was proposed by Mr. W. G. Holford and seconded by Mr. Bernard A. Miller. Mr. Wesley Dougill also spoke.

FACULTY OF ARCHITECTS AND SURVEYORS

The officers of the Faculty of Architects and Surveyors for this year are : President, Sir Charles Allom ; Vice-Presidents, Messrs. H. Langford Moyle, E. G. Lynde, A. E. McEwen-Waghorn, E. J. Michaux, W. P. Reynolds, and G. C. Roberts. Members of Council : Messrs. C. F. Anderson, E. H. Andrewes, R. Browne, E. H. Chandler, G. W. Colborne, S. A. Griffiths, E. F. Harmer, C. L. Paice, W. G. Percy, G. Roberts, J. N. Singleton, A. T. Somerville and J. A. Southern. Secretary, Mr. H. B. Whitfield.

The officers of the London and Home Counties Branch of the Faculty for the current session are : Chairman, Mr. R. Browne : Vice-Chairman, Mr. J. A. Southern ; Honorary Treasurer, Mr. E. J. Michaux. Committee : Messrs. W. Bell, H. A. Bower, W. Butcher W. J. Clark, G. J. A. Donaldson, F. G. E. Ford, W. Lane, E. G. Lynde, W. G. Noone, W. G. Percy, W. P. Reynolds, O.B.E., A. T. Roberts, K. A. Saunders, L. A. Sutton and A. H. Wood. Honorary Secretary, Mr. W. S. Chapple.

The third annual dinner of the London Branch was held at the Criterion Restaurant on February 28. Mr. R. Browne presided.

The Chairman, responding to the toast of the " F.A.A.S." (proposed by Mr. E. G. Lynde), said that the Association was formed some eight years ago, and since that date its membership had increased to an extent which he was sure must have have surpassed the highest expectations of those responsible for its formation. Referring to the work of the architect and surveyor, he said that each had a definite duty to perform, and one part of his duties was to beautify the land. He should provide all the owner wanted, but at the same time he should see what he provided was in keeping and did not offend against the general surroundings. If the architect was to work with the speculative builder and to allow production and economy to become the watchword, then in his opinion artistry would go to the wall. It was important that the architect should keep himself free from what was really a growing menace—mass production—which was taking place now all over the country.

Other speakers included Sir Charles Allom, Mr. R. W. Rowles and Mrs. W. Lane. Sir Charles Allom suggested that the Association should promote an exhibition devoted to " beauty in architecture." He thought that the exhibition of art and industry at Burlington House, which had been arranged with the authority of the Royal Society of Arts, should have been much greater in scope.

IN PARLIAMENT

[BY OUR SPECIAL REPRESENTATIVE]

Bridges

SIR JOHN PYBUS asked the Minister of Transport whether he would reassure local authorities that they would rank equally for a grant in respect of bridges even if they preferred to submit their designs not to the Royal Fine Arts Commission but to some other acknowledged body of architectural or engineering experts ; and whether, before urging highway authorities in Great Britain to seek the advice of the Royal Fine Arts Commission as to whether new or reconstructed bridges were of pleasing design and suitable to their surroundings, he had taken cognisance of the fact that when the London County Council adopted this course and submitted a design for a new Waterloo Bridge by Sir Giles Gilbert Scott, his then colleague on the Royal Fine Arts Commission, Sir Reginald Blomfield, strongly opposed the scheme on the ground of ugliness and unsuitability for its immediate environment and the neighbourhood of Somerset House.

Mr. Hore-Belisha said the local authorities required, so far as he was aware, no reassurance in this matter. He had every reason to believe that they were most anxious to co-operate in securing the highest attainable standards. He was not, of course, concerned with individual differences of opinion, if such arose, about matters of taste, but he was anxious that questions of architectural design and suitability of the surroundings, which were matters of special importance in the case of road bridges, should receive the most careful consideration, and a reference to the Royal Fine Arts Commission seemed to him appropriate and reasonable.

The Housing Bill

Steady progress is being made in Standing Committee with the Housing Bill, better known perhaps as the Overcrowding Bill.

Clause 19 extends the powers of local authorities to acquire houses and other buildings to facilitate the provision or improvement of housing accommodation for the working classes by alteration, enlargement, repair or improvement.

Lord Winterton moved an amendment to provide that a local authority should not be allowed to acquire the houses if the owner were willing to carry out the work that was required. Under the clause, he said, it would be possible for a local authority to acquire a good estate in order to rehouse people on a bad estate. That would be a serious interference with public interests.

Sir Hilton Young said he agreed that an owner who was himself prepared to do the work of reconditioning should be allowed to do it. The same end would be served and interference that would be unwelcome to property rights and interests would be avoided. He assured Lord Winterton that the Bill provided for owners the protection desired.

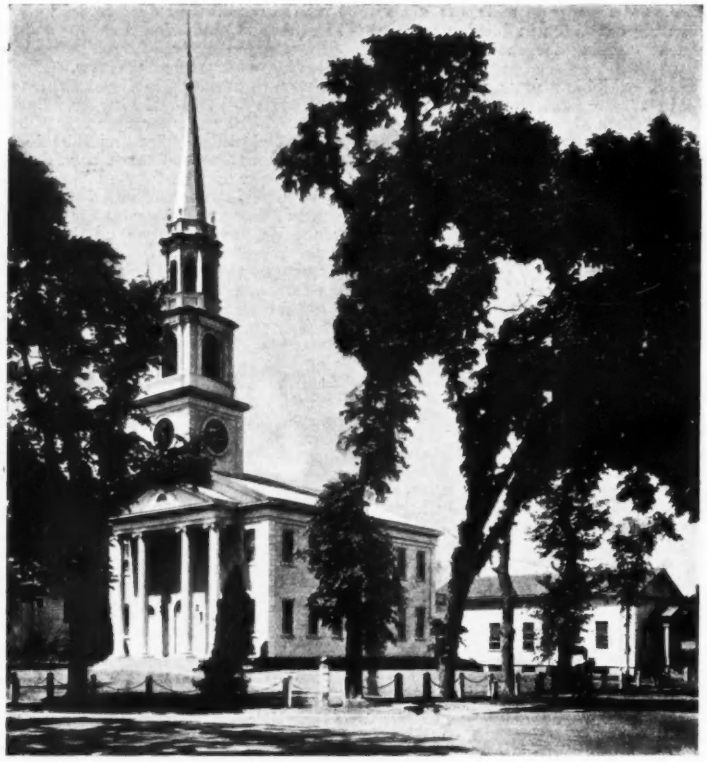
The amendment was withdrawn.

Clause 22 provides that the Minister of Health shall appoint a Central Housing Advisory Committee to advise him and the Housing Management Commission.

Mr. Crossley urged that more specific powers should be given to the Committee. He pointed out that if the architectural profession was represented on the Committee it might be possible to give architectural guidance to local authorities.

Mr. Bossom said it was important that there should be planning of housing schemes to ensure that prices were not forced up by unnecessary and unavoidable competition.

Sir Hilton Young said that his experience of housing administration had convinced him that the proposed Advisory Committee would be a useful body. On the one hand the executive power must be reserved to the Minister and, on the other, it was valuable that the Minister should have at his disposal all the knowledge on housing that was available in the country. He believed that the powers conferred on the Committee were of the sort that would make the best use of it.



American Colonial: the Congregational Church, Lyme, Connecticut. From "The Church Architecture of Protestantism."

LITERATURE

BASES OF CHURCH DESIGN

[*BY S. E. DYKES BOWER*]

The Church Architecture of Protestantism. By Andrew Landale Drummond. Edinburgh: T. and J. Clark. Price 15s. net.

THE title of this book provokes a rather obvious question. Is there any architecture of Protestantism? The answer must be a dubious yes—an architecture interesting enough in quality, but small in quantity and almost entirely of the past. It is not easy to share the author's confident vision of a Protestant renascence of art. If enthusiasm by itself were enough, all might be well; but enthusiasm misdirected is apt to be all wrong. In America, where Protestantism can best be studied on a large scale, it appears to be not renascence but reaction that is inspiring ecclesiastical architecture.

An interest in the subject is, it is true, far wider there than in England and Scotland, where, among the non-liturgical churches, it is still confined to the few whose "Catholic leanings crave the accompaniment of Catholic trappings." But it has manifested itself in remarkable forms. We read of Bureaux of Church Architecture, "Five years goals in Architecture and Worship," and churches built as "Spiritual Plants" complete with fellowship rooms of the hotel lounge type and premises for games and the provision of solid meals. Riverside Church, New York, is an example. Above the assembly hall and gymnasium in the basement the nave rises 100 ft. The tower is 400 ft. high and contains a 72-bell carillon, the largest in the world (*sic*). The elevator shaft runs up to the 20th floor. On one side is the church narthex, on the other the information office and chapel (in twelfth-century French Gothic) for small weddings, funerals and private devotions. Six storeys over the chapel provide accommodation for women's organizations and a double basement houses choir, ushers and "The Cloister Club." The lack of a sectarian dedication is deliberate, because a "truly catholic" attitude is to be shown by the provision of various types of service: "highly liturgical," "intellectual," "simple Evangelical," and so on. As for the architecture, frankly modern construction has been combined with Period Gothic "in a way that would horrify Dr. Cram"—a horror that, in spite of the author's apologetic assurance that "such masonry as is visible is genuine," we can very well understand.

But there is something more portentous than Riverside Church. In this resounding sentence an American divine laments that there is "nothing in many a city to typify the presiding nature of religion, the ordering, chaos-dispelling power of religion, the motivating, penetrating, morale-sustaining quality of religion." Let him study the prospectus of the Skyscraper Church. "The big idea is in the star-spangled manner. . . . Every church is an investment, paying dividends. Usually they are spiritual dividends and spiritual alone. At the Broadway Temple they will be both spiritual and material, and the material dividends will be transformed into spiritual dividends elsewhere. . . . The great composite structure will include stores, apartments for 126 families and an hotel accommodating 500 guests. Revenue from its commercial units will pay off the entire indebtedness in 20 years and then yield $200,000 a year. This $200,000 will be expended in promoting religious and social work throughout the New York area. . . . Religion and Revenue, Salvation and 5 per cent. are to be united on an ethical basis and gilt-edged real estate mortgage. Invest in your fellow-men's salvation."

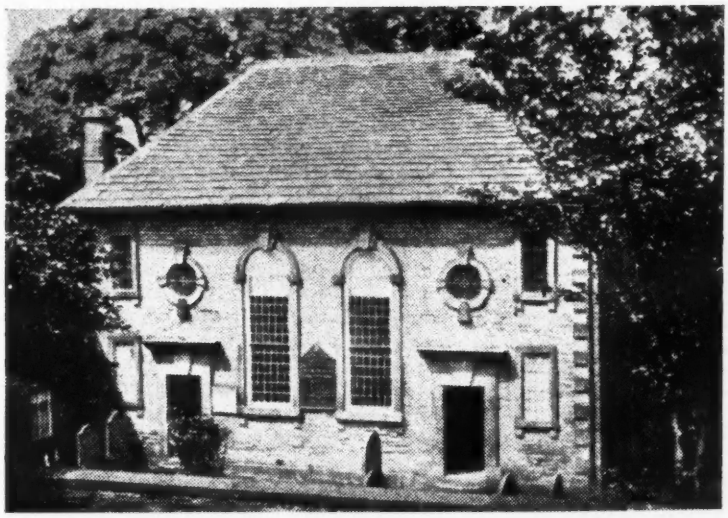
The architect of this 36-storey building designed it after three visits to Europe to study cathedrals, in the belief that he could create a genuinely American type of church building corresponding to the American type of office building. It is interesting, therefore, to read that "Northern Romanesque is evidently the inspiring source." At least, no pains have been spared to be up to date in other respects. "Whirl is King, having driven out Zeus," somebody has written, after Aristophanes, so it is natural that the still, small voice should be discredited. "Only by becoming visible and vocal can Evangelism be heard above the roar of a city like New York. That lighted cross. Millions will behold it. It will be visible far out at sea and be a beacon to aviators a hundred miles away." No wonder the Skyscraper Church has been summed up as "the most naive device for serving both God and Mammon that the wit of man has yet invented"; or that the *American Mercury* headed its leader "Putting Jehovah Across."

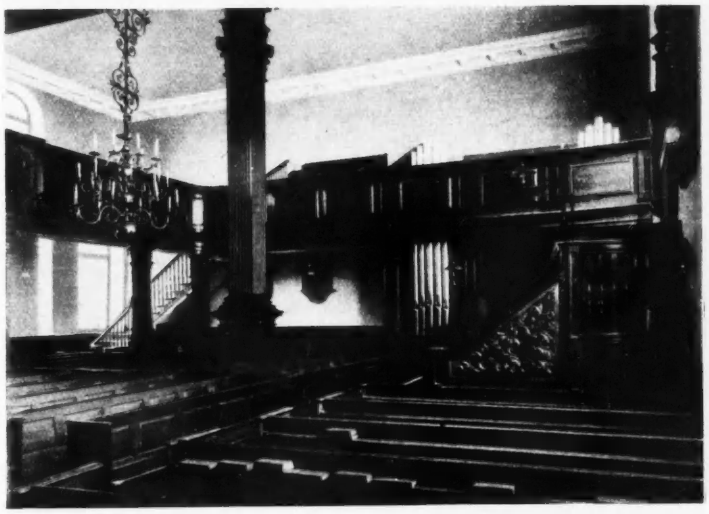
It may be argued, no doubt, that there is another side to the picture and

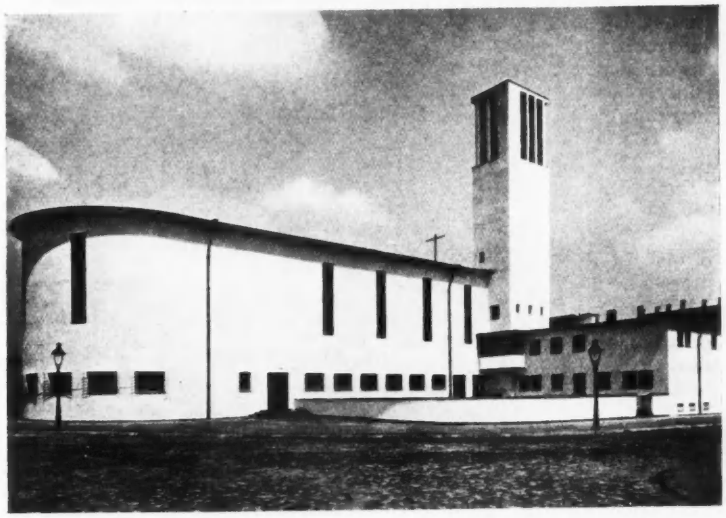
it would be unjust not to recognize the sincerity and earnestness of the efforts of the non-liturgical churches in America to raise the standard of their architecture. Unfortunately, that Beauty is the handmaid of Religion has only been realized after the discovery that it is easier to destroy than to create.

Psychologically, then, that American Protestant art should be fifty if not one hundred years behind the times is not surprising. Church architecture there is undergoing a Gothic revival which there is no reason to think is one whit better than our own. Of the Gothic churches illustrated in this book by far the majority appear to be feeble if not thoroughly bad as architecture. As places for Protestant worship they are utterly anomalous. Yet Gothic is officially encouraged. "An attempt to express the architectural language of Christianity in Classic architecture is as faulty as displacing the New Testament by the writings of pagan philosophers, . . . Increasingly the Gothic Order is considered the most expressive of Christianity." Is it to be wondered at that such teaching has led to strange results? Gothic demands its own enrichments, and it has been found necessary among other things to create a new hagiology. Thus Gandhi "teaching the New Testament in India" is portrayed as a type of "Enlightenment," and Colonel Lindbergh appears in a stained-glass window. The French Gothic cathedral of St. John, New York, contains a "Sports" window that includes pugilists (no sillier, it is true, than the golfers' window in a Liverpool church), and elsewhere we read of Christ represented as "Humanitarian" and "Lover of Beauty."

Yet to rebuke such pretentious sentimentality America has at hand the simple dignity of its Colonial churches, just as in England and Scotland the grave and sober meeting-houses of the seventeenth and eighteenth centuries shame Nonconformist architecture of the last one hundred years. Protestantism, if it is to develop an art of its own in the future, would do better to study its own early achievements than to rely on the aid of borrowed plumes. The chancel and altar belong to a sacramental form of worship, and the genius of Protestantism is essentially non-sacramental. It stands rather for the Majesty of the Word, the symbol of which must be the pulpit. With the emphasis on hearing rather than seeing, the plan should be that of the auditorium not the shrine, and the task of the Protestant architect is to achieve what has been aptly called The Numinous with the pulpit as central feature and the Communion table (not







Top and centre: English Unitarian: Underbank Chapel, Stannington; and Mary Street Chapel, Taunton, interior. Bottom: Modern German: Melanchthon-Kirche, Köln-Zollstock, Germany. From "The Church Architecture of Protestantism."

altar) in front of it. He should seek to express not the church but the meeting-house, and eschew elaboration and symbolism in favour of simplicity and perfection of form and proportion.

To do justice to Dr. Drummond's book would be impossible in a short review. It is a deeply interesting work and valuable as a singularly complete survey of a subject that has never been adequately treated before. It suffers perhaps from being overlong; the prodigious wealth of quotations and footnotes chokes the flow of the argument, and the fact that more than a few of the quotations and examples occur twice causes a certain amount of redundancy. But as a book that is at once historical, philosophical, theological and architectural it is a notable achievement and deserves to be widely read.

It is, of course, provocative, and to praise it is by no means to imply agreement or approval of all it says. In particular the author's architectural judgment seems to be either uncertain or over-generous, and a disposition to look for the best in everything causes him to bestow benevolence where it would seem to be ill-deserved. This makes for confusion in gaining a clear impression of what the book is driving at, which is the more unfortunate because its ideas seem fundamentally to be sensible and sound. The illustrations, however, are a serious weakness. Out of over a hundred there are only two of early Nonconformist chapels in England. Almost one third are of pseudo-Protestant structures, far less significant as architecture than many an obscure Carmel, Ephraim or Horeb in some lane or side street of a provincial town. It is to be hoped that this book, by stimulating an interest in Protestant architecture, may inspire someone to make a systematic study of early chapels and meeting-houses; no service could better assist such a real renascence as the author hopes for and believes in.

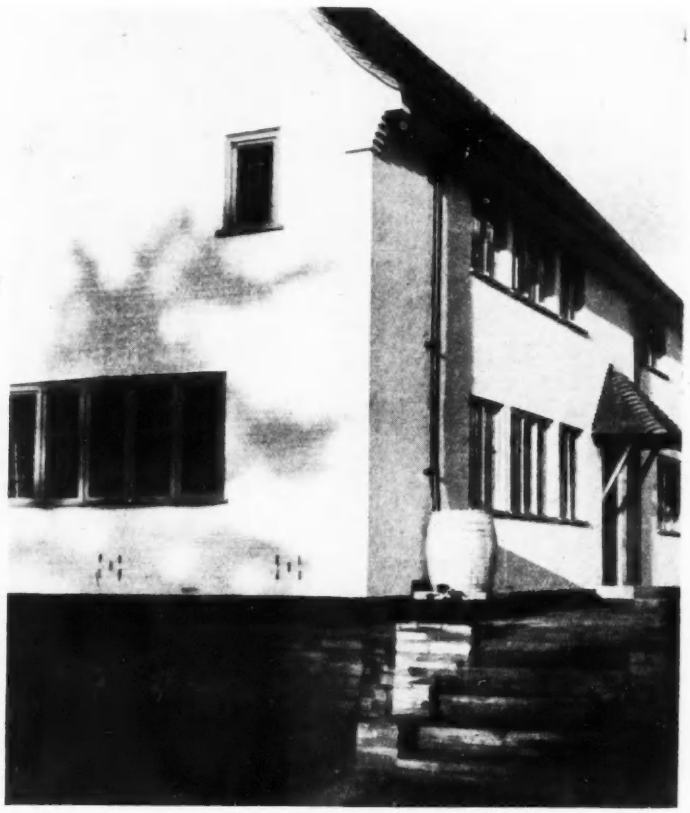
Town Planning

The Minister of Health has issued a set of Model Clauses for the guidance of local authorities preparing schemes under the Town and Country Planning Act 1932. The Clauses are based on Provisional Clauses prepared by the Department and revised in the light of recommendations made by the Advisory Committee on Town and Country Planning appointed by the Minister.

Yorkshire Educational Association

The third conference of the Yorkshire Educational Association for the Building Industry is to be held at the Sheffield University on April 6. Sir Raymond Unwin, F.R.I.B.A., is to open the conference at 2.30 p.m. with an address on "Craftsmanship in Modern Building." In the evening, Mr. E. G. Warland, A.I.STRUCT.E., will speak at 6 o'clock on "Modern Masonry."

H O U S E A T

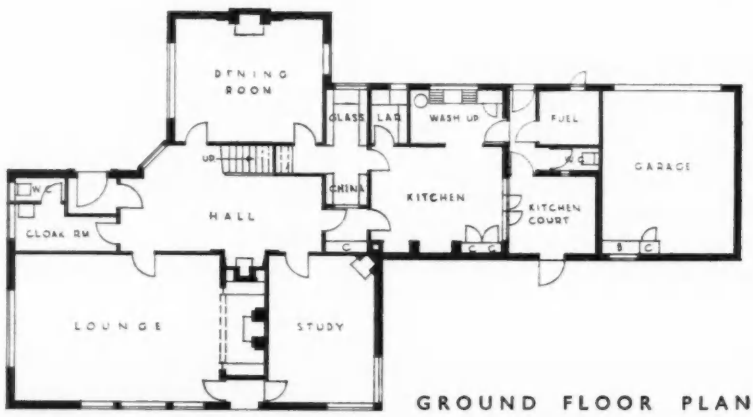


This house, which has been built of traditional materials to conform with local practice, has an open plan designed to take the greatest advantage of sunlight—the breakfast-dining room, for example, occupies a projecting wing, with windows on the east and the west. The lounge and study have direct access to the garden on the south, with a view over open country sloping towards extensive woodland. A coppice on the site has been preserved and planted with wild flowers. The contract price (including equipment) was £3,500.

EXTERIOR. *Elevations are of local brick, cream coloured, with external woodwork painted blue. The pitched roofs are of hand-made tiles and the stone dressings of Guiting stone.*

INTERIOR. *The principal bedroom has an open timber roof and—as has the lounge—an enclosed (or "ingle") fireplace. The fireplaces are all of brick tiles or stones. The staircase has a solid balustrade with oak hand-rail.*

EQUIPMENT. *There are unusually spacious service quarters: sliding doors are provided between kitchen and wash-up for access during working periods. Heating is by low pressure hot water.*



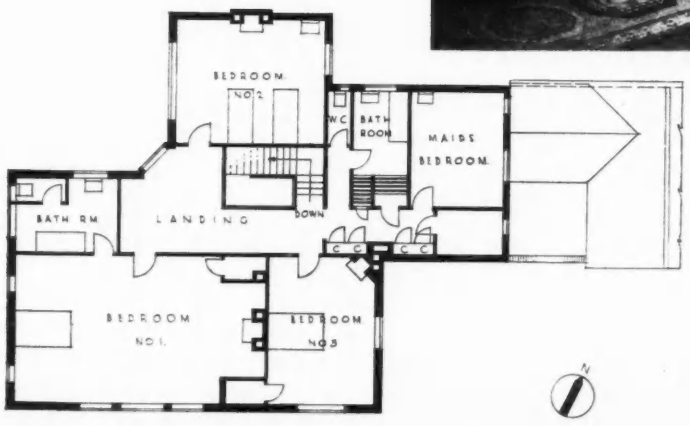
GROUND FLOOR PLAN

SOLIHULL, WARWICKSHIRE



DESIGNED BY FRANCIS W. B. YORKE



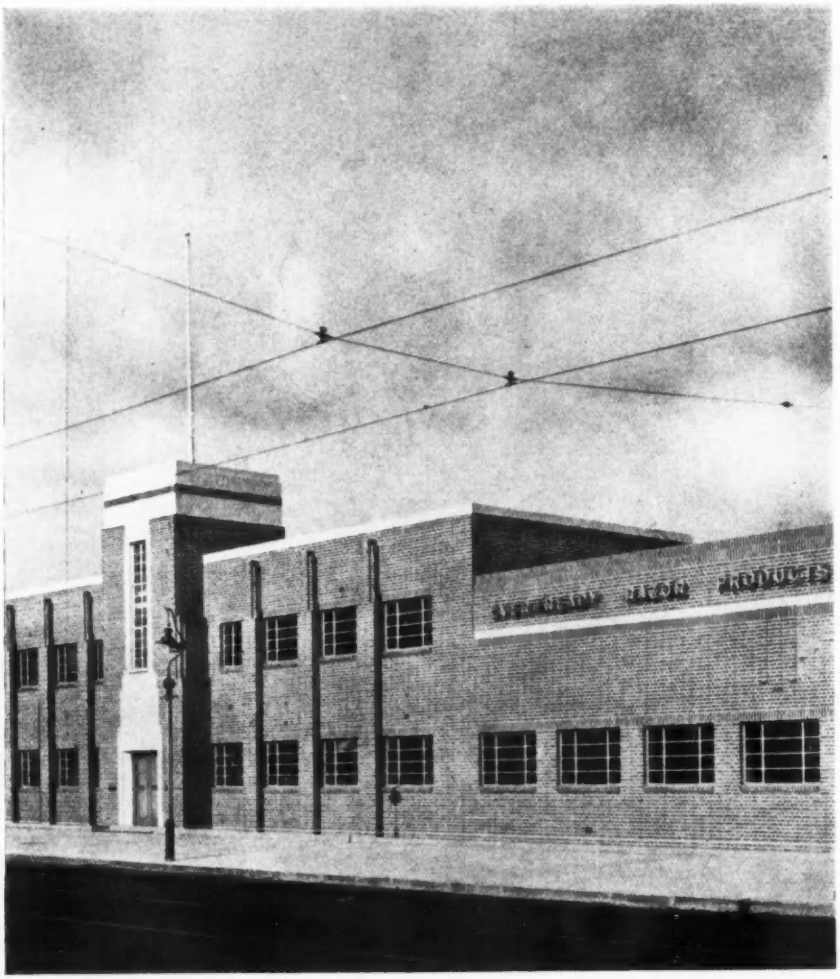


FIRST FLOOR PLAN

The photographs on this page show the house and garage from the south-east, and the ground-floor staircase hall, looking into the dining room.

EVER-READY RAZOR FACTORY,

DESIGNED BY GEORGE HUBBARD AND SON IN ASSOCIATION WITH R. A. BAKER





This factory, built in a contract time of five months, is a single storey structure covering an area of 4,000 square yards, with a two-storey block of offices arranged centrally on the Edgware Road (south) frontage. The photographs on this page show: above, part of the main façade; right, the entrance to the garage.

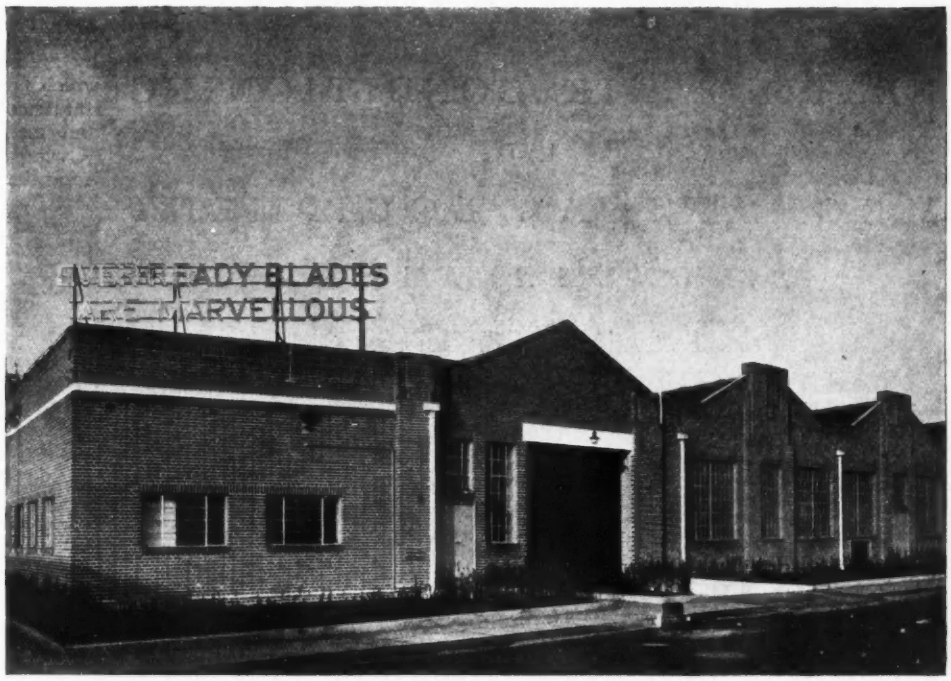
LAY-OUT. *The building has a frontage to the Edgware Road of 226 feet, with a return frontage to the Greenway of 183 feet: to the north is a service road giving access to the works garage and the boiler house.*

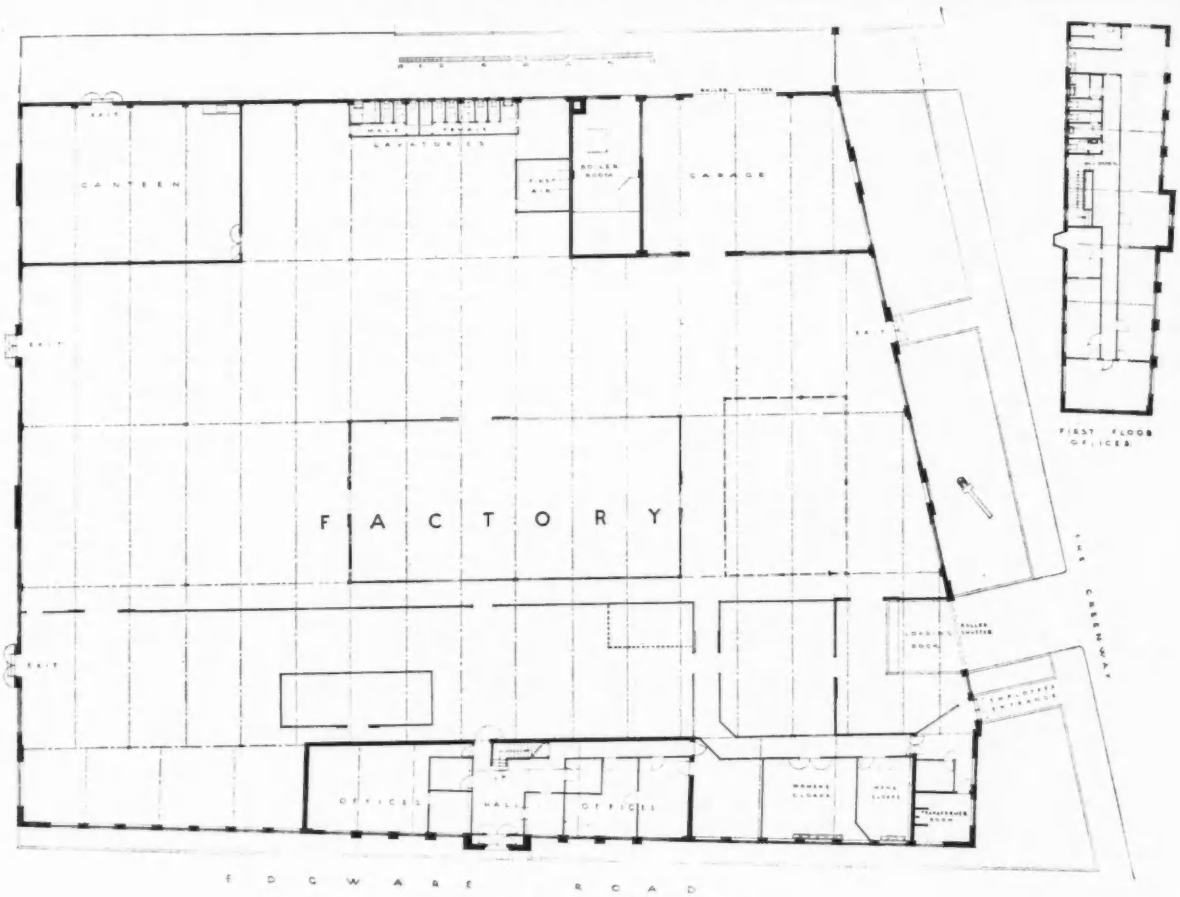
STRUCTURE. *Cavity walls faced with multi-coloured red bricks with a white joint, and artificial stone dressings. The roof is slate, carried on steel trusses, and provided with lights on the northern slopes; internal walls are in white sand-lime bricks.*

FINISHES AND EQUIPMENT. *Factory floors are in concrete, reinforced and finished with patent paving slabs to withstand heavy traffic: office floors are oak block. Rolling shutters are provided at the entrances to the loading dock and the works garage.*

EDGWARE ROAD, COLINDALE

The elevation to the Greenway, showing the entrance to the loading dock. The walls are faced with multi-coloured red bricks and artificial stone dressings.





GROUND FLOOR PLAN

TECHNICAL SECTION: 9

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

INDIRECT SYSTEMS (*continued*)

THE "*panel system*," so-called, consists of pipes embedded in the ceiling, walls or floor. This will be dealt with in considerable detail in a later instalment, as, for many applications, it is perhaps the best form of warming. It may, therefore, suffice here to say that the pipes are usually about ½ in. bore, spaced at 4½-in. to 6-in. centres, run at 130 deg. F. or less, bottom flush with bottom of concrete ceiling and plaster applied afterwards; that a square foot of plaster emits under these circumstances about 100 B.T.U.'s; that the plaster surface temperature varies from about 100 deg. F. at the pipes to 90 deg. midway between them; that pipes are generally in copper in work of great permanence, and iron in the more commercial type of building, and that no screwed joints in the pipe are advisable.

These are all to be taken as general remarks only, as the subject will be dealt with in detail later.

Fig. 46 illustrates the method of laying these coils, which are for heating the floor below from the ceiling. (See also Fig. 32.)

This form of heating gives about 90 per cent. radiation when in ceilings, 60 per cent. in walls and 50 per cent. in floors. The ceiling position is generally the most satisfactory, as furniture cannot intercept the radiation, as may happen with wall heating. The floor position is generally confined to entrance halls, etc., where people do not stay for appreciable periods with their feet in contact with the warmed surface.

When on ceilings no appreciable convection is induced, and hence a feeling of stagnation may be experienced unless some ventilation, natural or mechanical, is provided. This is in any case desirable with any system of warming buildings intended chiefly for personal occupation.

The system has very great advantages over most others in :—

(*a*) Not lifting dirt particles from the floor in the induced air currents, thus eliminating the black markings on walls and ceilings so well known with ordinary radiators, especially when run at a high temperature and placed near walls.

(*b*) In consequence of (*a*), less frequent decoration, with its cost and interruption of occupation, is needed. As a rule, the periods between redecoration may be doubled.

(*c*) Also in consequence of (*a*), occupants do not breathe the dirt raised from the floor by convection currents.

(*d*) Very uniform warmth over the whole room.

(*e*) Complete freedom for architectural treatment and design, absence of space wasted by radiators, and elimination of dust pockets.

Ceiling panels do not prevent downdraughts from tall windows, but a wall panel under the windows can be made to do so.

Panel heating has a long time-lag, owing to the great weight of concrete warmed. This is a disadvantage for buildings such as halls, theatres, cinemas, shops, etc., where a sudden concentration of people may occur. Nevertheless, it can be compensated by an adjustment of the ventilation, which can be effected almost instantaneously in a properly designed and maintained installation.

Owing to the fact that panel heating transmits a large percentage of its heat by radiation, a comfort effect is achieved even with a through-draught of cold air. A radiator system, depending chiefly on convection—i.e., the warming of the air and its circulation to the individual to be warmed—clearly breaks down if the warmed air is immediately blown out of the nearest window.

Panel heating is, therefore, particularly suitable for schools, hospital wards and other places where thorough ventilation is desirable.

It follows from the above that a reduction of fuel consumption is associated with panel heating under such circumstances, and this is borne out by experience.

HOT WATER CONVECTORS

A hot water convector generally consists of a finned air heater so placed as to induce an air-current, as shown in Fig. 47. It has all the disadvantages associated with the ordinary radiator as regards the carrying of dirt by the air from the floor to the walls. The complete elimination of heat transmission by radiation is unhappy in many applications and contrary to the modern trend, which is increasingly in the direction of radiation. Such systems also make for dirt pockets, difficult to clean.

On the other hand, the emission is greatly increased by the induced air current and the chimney effect of the flue, and hence a lower weight of metal and water suffices for a given emission. This gives a lower time lag than ordinary radiators, a point in its favour; and it is probably less

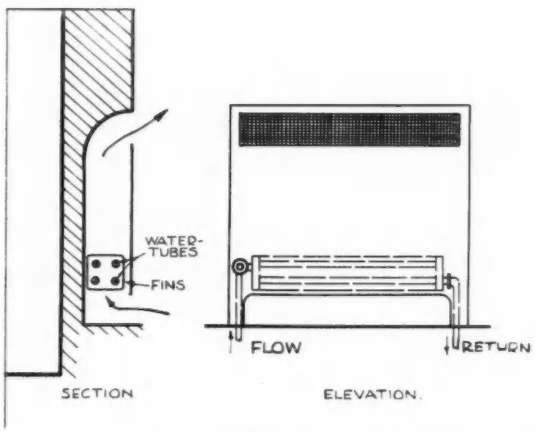


Figure 47. *Hot water convector.*

obtrusive and more amenable to architectural treatment.

The absence of the radiant component makes it unsuitable for places requiring good through-ventilation for reasons already given under panel heating. The system is much used in France and America, especially with steam, and tends to give the feeling of stuffiness not so much objected to in these countries.

An interesting feature is that the emission increases rapidly with the height of the flue, being nearly doubled when this is increased from 12 to 36 inches.

Unit heaters (Fig. 39)

These consist essentially of an electrically-driven fan blowing air from the room to be warmed over a heating coil, generally of the motor-car radiator type, and thence back into the room to be warmed over directing louvres. The units are generally slung overhead and the louvres directed diagonally downwards so as to bring the warm air to breathing level. They are more frequently used with steam because of the greater emission produced with a given size of unit, and the large pipes which are required to give the requisite heat supply with water.

The principle is, nevertheless, the same, and the water unit heater has the advantage of being less liable to bake the dust and produce a smell or feeling of stuffiness, though, owing to the great air circulation produced by the fan, stuffiness is not a common complaint. When water is used, pump circulation is invariably adopted to promote the flow.

Unit heaters are eminently suitable for large factories, garages and similar buildings where noise is not considered objectionable, and for such purposes are economical in first cost.

Difficulty is occasionally experienced with this system in circulating the warmed air to all parts of the building, and it is generally found that a large number of small units are better in this respect than a smaller number of large ones.

Floor type unit heaters are described later under "steam," and are not commonly used with hot water owing to the large output and compact size which is possible with steam.

High Pressure Hot Water in Pipes (Fig. 33)

This system consists essentially of a closed circuit of strong pipe of $\frac{7}{8}$-in. bore containing water pumped to an initial pressure so as to get rid of free air.

The water is heated by coils of piping set in a brickwork furnace.

The highest point of the system is provided with a sealed expansion cylinder of strong piping partly filled with water and partly with air. As the temperature increases and the water expands, this air space is reduced and the pressure correspondingly increased. Thus temperatures of water considerably above normal boiling point are achieved with the advantage of large heat emission from a small surface, and rapid circulation due to the great temperature drop which is possible. As a result of this the circulating pipes may be carried for considerable distances regardless of levels, provided the furnace is at the lowest point.

Temperatures of about 300 deg. F. are usual for ordinary heating, but 500 deg. F. or more is common where the system is used for baking, enamelling or drying.

The water used is generally mixed with an anti-freezing mixture to prevent damage from frost, and the furnace coils are generally of thicker metal to offset the effects of corrosion or burning.

The system was in extensive use about fifty years ago, and is still found in churches, chapels, libraries and shops in various parts of the country, but it suffers from the disadvantages of

(*a*) Great intensity of heat, producing strong convection currents and draughts ;

(*b*) Danger of explosion should a pipe or joint burst ;

(*c*) Bad distribution of the warmth, since the portions nearest to the furnace are considerably hotter than those more remote.

It is probably true to say that the system is no longer installed in new buildings other than for special purposes such as enamelling ovens, baking and drying.

Another and more recent development of high pressure hot water, is a system in which an ordinary steam boiler, with steam above and water below, has a flow pipe taken from below the dividing line. From this the hot water under pressure is circulated, and returns, with pump circulation, to the bottom of the boiler.

This gives the high temperatures and low emission areas associated with steam with the elimination of some of its objections and complications.

Its use is generally confined to factories, for the warming of air for plenum heating, drying, etc.

Obviously, with all these high temperature systems, the radiating surface must be protected against being touched by an individual, otherwise severe burning may occur.

HOT WATER SYSTEMS GENERALLY

From the above descriptions of hot water systems it will be apparent that they could be classified on the basis of temperature of emitting element. Thus high pressure hot water would come at the top of the scale and the embedded panel system at the bottom, with all the other systems between. It is probably true to say that the larger the surface heated and the lower its temperature, the greater the feeling of comfort produced. Even the ordinary hot water radiator is found to give more satisfaction and greater economy if run at a lower temperature than that usually employed, with its size proportionately increased.

The great choice of systems which this range of temperature gives, together with the advantages of ease of control, simplicity and silence, no doubt accounts for the general acceptance of hot water as the medium of heating in this country for buildings of every class and description.

INDIRECT SYSTEMS

Vapour Medium

The whole class of vapour or steam systems is subdivided in respect of pressure of operation or, in other words, temperature of emitting element, just as with the hot water systems referred to above.

This classification in the case of steam systems results in the following :

System	Pressure of Steam	Temperature
Vacuum	20 in. mercury column vacuum to atmospheric pressure	160° F. to 212° F.
Low pressure	Atmospheric to 10 lb.	212° F. to 240° F.
High pressure	20 to 100 lb. per sq. in.	250° F. to 340° F.

It will be observed that the lowest temperature (160 deg. F.) of normal steam operation is well above that at which low pressure hot water system. are commonly worked in mild weathers

Vacuum Steam System. (See Fig. 34.)

The vacuum steam system consists of an ordinary steam boiler operating at atmospheric pressure or below, connected to main piping serving radiators, pipe coils, and convectors, as with a hot water apparatus, though the authors would consider it inadvisable in "panel" systems owing to its temperature, which would be liable to cause cracking of plaster and an unpleasant intensity of radiation. The steam condenses in the various emitting elements and returns by a system of return-pipes connected to a vacuum pump. The water is returned to the boiler and the air separated out and discharged to atmosphere. There are numerous devices and complications which have been introduced into the system by various makers to improve its operation or range, so that there are several different versions in existence, though all are the same in principle.

The purpose of the vacuum is to increase the flexibility or range of temperature over which the system works, since, as the pressure is reduced below atmospheric, water can be made to boil at temperatures much below 212 deg. F. The limit is set in practice by the commercial efficiency of vacuum pumps and by the air leaks into the



Figure 46. *Embedded panel heating coils for the top floor of a city building laid ready for the reinforcement and concreting over. In this case copper piping is being used and the ends of the coils can be seen turned up ready for connection to the hot water rising mains.*

system which tend to destroy the vacuum, so that temperatures much below about 160 deg. F., corresponding to a vacuum of 20 in. of mercury column, are difficult to maintain for considerable periods.

A grave disadvantage in some applications is the noise or hammering which occurs, particularly on warming up. This is common to almost any steam system and is due either to the sudden contraction of a volume of steam into a globule of condensation or to the impingement at high velocity of condensation against the walls or bends of the pipes. By very careful installation this defect can be minimized, though not entirely eliminated.

The advantages of the vacuum system are :—

(*a*) Short time lag.

(*b*) Leaks, if any, are inward and not outward, and hence do not cause the trouble of water leaks.

(*c*) Return pipe sizes are small.

(*d*) Radiator sizes are less than with water, and the cost is thus generally proportionately less.

If combined with thermostatic radiator control this system is much improved and often quite successful in specific cases. It cannot be said, however, that it possesses the general application to a wide variety of types of building of the low pressure hot water system.

Low Pressure Steam (Fig. 35)

This system is similar in all respects to the vacuum system, except that the pressure is maintained above atmospheric, generally at about 5 lb. per sq. in., so that the surface temperature of the pipes or radiators is about 220 deg. or more, and the condensation is returned to the boiler by gravity and not by a vacuum pump.

It has no flexibility, since a pressure must be maintained for the even distribution of the steam, and the heat is therefore full on or completely off. In this climate, where the average outside temperature is 40 deg. or 45 deg. in winter, this is an undesirable feature, though in colder countries such as the United States, Canada, and the central European countries this disadvantage is not so apparent. Owing to the high temperature of its heating surface the strong convection currents and baking of the dust particles common to all intensely hot elements occurs. This produces stuffiness in the atmosphere, which is generally objectionable.

The running cost of this method is higher than hot water due to its inflexibility, though the initial cost of low pressure steam is less on account of the smaller radiators and pipes which may be used.

High Pressure Steam (Fig. 36)

For high pressure steam heating a high pressure boiler is necessary, and this method is therefore used only where such a boiler is required for other purposes, such as in a factory where the processes demand it. It is, for instance, a common method in the older types of Lancashire cotton mill, where steam boilers are necessary for driving the mill engines.

The heating surface is entirely of pipes or pipe coil radiators, as cast iron radiators are not made strong enough to withstand the high pressure involved.

The system has little to recommend it apart from extreme economy in first cost, and it has in any event no place in houses, flats, offices, hospitals, or other similar buildings.

Unit Heaters with Steam (Fig. 39)

Unit heaters have already been described under the heading of hot water, though they are in much greater use with steam for the reasons already given. They are a useful and economical method of space heating where the noise of the fan is not a drawback, and are easily controlled thermostatically by the simple means of shutting off and re-starting the fan. They have the added advantage, if it is needed, of promoting a brisk circulation of air in the summer, and, as is well known, this often produces a feeling of coolness due to the evaporation of moisture from the skin.

With steam a type of unit heater standing on the floor is in common use, generally in the heavier types of factory or workshop. With these, large outputs in a small space can be provided, and a type of fan can be incorporated

sending a stream of warm air for a considerable distance.

Unit heater systems tend to suffer from the disadvantage of "layering" of the air, often leaving the feet cold and the head warm, and to overcome this a wide variety of types has been produced claiming to eliminate this trouble by careful design of the discharge louvres, or by the proper control of the velocity and temperature of the air. On the whole it may be said that a large volume at a low temperature is probably better than a small volume at a high temperature, and provided this is borne in mind in the choice of the unit, the system can be quite successful.

Steam under vacuum, or at low or high pressure, may be used with the various types of unit heater.

Steam Heated Calorifiers

A calorifier is really a heat exchanger consisting of a battery of pipes fed with steam, enclosed in a cylinder containing the water to be heated.

The system is employed where steam boilers are provided for other purposes and where hot water for heating the building or buildings is required from the same source.

Thus in a hospital steam is often necessary for cooking, sterilizing and laundry, yet hot water heating and hot water supply are required for the buildings. For these, calorifiers would be provided with only one set of boilers of steam type.

In the classification table this system should strictly therefore be placed under a heading "Dual media," since both vapour and liquid are employed in the transmission of heat from the source to the point of use.

Exhaust Steam Systems

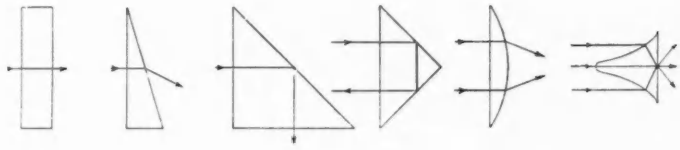
Where exhaust steam from engines or electric generators is available this may be used with advantage for heating for reasons which will be stated later. Where such application is possible it may be used direct in vacuum or low pressure steam apparatus. or through calorifiers for the heating of water.

Note: for Figures 32, 33, 34 see issue for February 21; for figures 35, 36, 39 see issue for February 28.

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WEST YORKSHIRE SOCIETY OF ARCHITECTS

The first general meeting of the Huddersfield and District Branch of the West Yorkshire Society of Architects was held last month at the School of Art, Huddersfield. The following officers were elected: Chairman, Mr. Norman Culley, F.R.I.B.A.; Vice-chairman, Mr. Clifford Hickson, F.R.I.B.A.; Committee, Messrs. Frank Abbey L.R.I.B.A., J. E. Lunn, L. Smith; hon. secretary, J. L. Thorpe.



TRADE NOTES

[*BY F. R. S. YORKE, A.R.I.B.A.*]

Glass

A NEW form of translucent glass, known as Thermolux, originally made in Italy, is now being manufactured in this country by the Triplex Glass Company.*

•

Thermolux is a compound glass, with a central lamina composed of spun silk threads, arranged in a regular manner, and held between two sheets of clear glass. This central layer is porous, and in order that the air it contains may remained undisturbed, the edges are hermetically sealed.

•

The advantages of the glass are that it provides insulation against sun heat, directional light diffusion and conservation of indoor warmth, and that it eliminates glare.

•

The glass is claimed to transmit sunlight, without sun heat, permitting an undistorted transmission of the visible wavelengths of the spectrum, and so giving all indoor colours their true values.

•

The diffusion of light is as nearly as possible complete, so that there is no effect of blinding illumination contrast—such as may occur where there are patches of sunlight on a floor.

•

In a room glazed normally, light is not always economically distributed. There may be very bright patches of concentrated light near the window, falling upon a non-reflecting surface, with relative darkness at the far end of a deep room.

•

Where Thermolux is used, the multiplicity of refractory surfaces in the central glass silk lamina, re-directs light that strikes at an angle, to a horizontal plane, throwing it well into the room.

•

It seems the glass may be particularly useful in such places as factories, where the extension of the period of usefulness of daylight is an important factor, effecting considerable saving in the cost of artificial illumination. I am told it has been found that in a factory having an area of 120,000 superficial feet the lighting bill may be reduced by as much as £100 per annum. This figure is based on east and west glazing, which is ideal.

•

I understand the insulation against radiant heat is due:

(1) To a certain degree of reflection of heat, partly by the brilliant surface of the glass, and partly by the central spun glass lamina.

(2) The heat absorbed by the outer sheet of clear glass cannot pass into the air playing upon the inner surface of the inner sheet without overcoming the resistance of three surfaces, besides that of the central lamina itself.

(3) The heat rays from the sun are diffused in much the same way that light rays are diffused. Therefore, the rays that do come through the glass, do not all proceed straight to the floor to heat it, and cause hot air to rise round the occupants of the room, but they are, to some extent, deflected upwards above the heads of the occupants, heating the air in the upper part of the room, so that it appears they are more likely to improve ventilation than to produce discomfort.

•

Apart from its capacity to insulate against radiant heat, the glass is said to reduce heat losses from the interior. In this respect it is claimed to be about 50 per cent. more efficient than ordinary clear or figured glass.

•

Unlike prismatic glass, Thermolux is smooth on both faces. At night, when it is dark outside, the glass does not appear black from the interior, but reflects artificial light, and appears as a finely fluted mirror.

•

The glass is supplied in three thicknesses, according to the amount of glass silk in the interlayer, which itself depends upon the degree of obscurity desired. The interlayers may be $\frac{1}{26}$ in., $\frac{1}{16}$ in., or $\frac{1}{8}$ in. thick.

•

Prices for the thinner sizes are:—

Up to 5 ft. super	..	2s. 6d. per sq. ft.
,, 10 ft. ,,	..	2s. 9d. ,, ,,
,, 15 ft. ,,	..	3s. 0d. ,, ,,
,, 20 ft. ,,	..	3s. 3d. ,, ,,
,, 25 ft. ,,	..	3s. 6d. ,, ,,

For the $\frac{1}{8}$ in. interlayer add 3d. per sq. ft.

Electric Lighting

A revised edition of *The Science of Light*, that brings the textbook into line with progress in illumination since 1930, when the book first appeared, has just been issued by Messrs. Holophane.

•

It contains a great deal of well-ordered illuminating engineering data in its 32 pages, but the presentation is such that one who knows little about the technicalities of lighting shrinks from reading it. This is probably because the type is very small, and subdivisions are not as immediately apparent as they should be in a reference work of this nature.

•

The text explains the principles of illuminating engineering and their application; it gives interesting information concerning reflection and refraction. (See headpiece, which shows how the direction of a light ray may be altered by changing

* Marketed by the Thermolux Glass Co., 1 Albemarle Street, W.1.

the shape of the boundary lines of the two media, air and glass.)

•

There are tables of colour effects, effects of surroundings, co-efficients of reflection of various surfaces, intensity of illumination in foot-candles required in various types of building—art galleries, billiard rooms, etc., and so on. There are definitions of terms, and recommendations for selection and spacing of light units, and illumination calculation.

LAW REPORTS

ALLEGED OBSTRUCTION OF LIGHT

Salmon v. Cooper—King's Bench Division. Before Mr. Justice Goddard.

IN this case, Mr. E. Salmon of Wolsley Road, Crouch End, sued Mr. S. Cooper, to recover damages for the alleged obstruction of light to two windows of his house, which adjoined defendant's house, and he also asked for an injunction restraining defendant from maintaining hoardings he had erected.

Mr. Tucker, K.C., for the plaintiff, said his client was the owner of his property, which he purchased in 1921. Prior to that date he had been a tenant. Plaintiff had erected on the south side of his house a sitting-room in the place of a conservatory he had pulled down. Plaintiff's complaint was that the defendant had erected a hoarding on his property adjacent to the sitting-room and had thus deprived it of the light which hitherto came to the conservatory.

Mr. G. O. Slade for the defendant, argued that what the defendant had done had not deprived the plaintiff of light.

His lordship, after hearing the evidence, said the plaintiff had altered his house, and in the place of a glass conservatory he had erected a brick-built sitting-room with two windows looking towards defendant's house. The defendant thereupon erected the hoarding, no doubt with the object that plaintiff should not acquire the right of light. The plaintiff, to succeed, must show that the diminution of light caused by the hoarding was a nuisance. But, after hearing the evidence, he was abundantly satisfied that if the plaintiff's premises had always been as they were now the defendant's action in erecting the hoarding would have been wrongful. But, in his view, the present case was different. The right of the plaintiff was to a sufficient light for a conservatory, and tnot for a new brick-built room. It was obvious to anyone that the amount of light required by the two classes of buildings was entirely different. He was of opinion that the hoarding would have left ample light for a conservatory. Plaintiff was not entitled to alter a mass of glass to a brick-built room and then set up a claim for all the light for the windows in the bricks. The action therefore failed, and he gave judgment for the defendant with costs.

LIABILITY FOR ACCIDENT IN UNLIGHTED ENTRANCE HALL

De Rance v. Cubitt Estates, Ltd.—King's Bench Division. Before Mr. Justice du Parcq.

THIS was an action by Mrs. Haider De Rance, a violinist, residing in a flat at 15 Warwick Square, S.W., to recover damages for personal injuries from the Cubitt Estates, Ltd., her landlords. Defendants denied negligence and pleaded contributory negligence on the part of the plaintiff.

Plaintiff alleged negligence and breach of agreement on the part of the defendants. In 1933 plaintiff took a flat from the defendants and her case was that, under the agreement of tenancy, the defendants undertook to keep the staircase and vestibule properly lighted at all reasonable hours. In breach of that, she alleged that on a night in April last, when she returned home shortly after 11.30 p.m., the hall was in darkness, and that she fell over a chair, which was out of its usual place, and sustained injuries. Plaintiff had protested to the housekeeper about the light being turned out at 11 p.m., but was told that that was his orders, She denied that the place of the chair in the hall had been shifted at her request.

Mr. Martin O'Connor, for plaintiff, contended that the chair, being in the fairway of the hall, was a "trap" after dark.

His lordship, without calling upon Mr. Croom Johnson, K.C., for the defendants, gave judgment for the defendants with costs. He said he was satisfied that the chair was not in an unusual place, and that the plaintiff had made a mistake in regard to its position.

Failure of Paint on New Plaster Work

The following enquiry was recently sent to the Building Research Station :

¶ *ARCHITECTS reported injury to paint applied to new plaster work in an extension to a house. The circumstances were these : The plastering on brickwork was carried out in hydraulic lime and sand undercoat and skimming coat of calcium sulphate plaster. On stud partitions, the undercoat was plaster and sand, with a neat skimming coat of the same plaster. The ceilings and frieze were decorated with a distemper of the lime-wash type and certain walls with an oil bound distemper. A few weeks after decoration, the paint commenced to bubble and could then be pulled off the wall quite easily in a continuous film. On lath and plaster partitions, no defects appeared, nor was there any trouble with the distempered walls or partitions.*

Samples of the plastering on external walls and partitions were submitted for examination.

The Building Research Station sent the following reply.

While a complete explanation of the failure cannot be given in the absence of an inspection of the work, it is possible to make fairly definite suggestions, based on previous cases actually inspected.

Fom the information available and from an examination of the samples, it appears that the most probable cause of the defect is physical failure of the film due to moisture entrapped in the wall. If the decoration were applied soon after the plastering had been completed, a large amount of moisture would still remain both in plaster and brickwork, more especially if the latter were also new.

The presence of this entrapped water, assisted possibly by the presence of salts in solution, will in certain circumstances cause the formation of blisters. This will occur more readily when one side of the wall is hermetically sealed by tiles or stucco, and it will occur less readily when the water can evaporate from the other side, as when a distemper has been used there or when it is an external uncovered wall.

The work on lath and plaster has no large reservoir of mosture and some opportunity to dry out from the back, and there is, therefore, far less chance of trouble. The absence of the defects where a distemper has been applied is due probably to the fact that such a form of decoration allows the passage of water vapour and evaporation can therefore proceed.

If the above is the true explanation, the trouble is entirely due to premature decoration with oil paint, a bad practice which is far too common. It is unnecessary to consider any of the materials to be at fault. If the trouble occurs solely on external walls and especially where there is no stucco, it may be attributed to moisture penetrating the walls, but the present case is probably adequately explained by the effect of moisture introduced during the building operations.

Fuller details are given in Building Research Bulletin No. 11, "The Effect of Building Materials on Paint Films," obtainable from H.M. Stationery Office, price 3d.

THE BUILDINGS ILLUSTRATED

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue.

Ever-Ready Factory, Colindale (pages 418-419). General contractors, Percy Bilton (Construction) Ltd. Sub-contractors : H. Young & Co., Ltd., constructional steelwork ; Luxfer, Ltd., roof glazing ; General Asphalte Co., Ltd., roofs ; H. C. Parker & Co. and The Sevenoaks Brick Works, Ltd., bricks ; Carrier-Ross Eng. Co., Ltd., heating and air conditioning ; Mather and Platt, Ltd., sprinkler system ; Hall and Stinson, Ltd., electric lighting, etc. ; Franco-Signs, Ltd., neon lighting ; Allied Guilds, Ltd.; stone dressings ; Hill and Spink, Ltd., joinery , Pringle Art Metal and Lighting Co., Ltd., entrance gates ; Vigers Bros., Ltd., wood block flooring ; Parker, Winder and Achurch, Ltd., fencing, sanitary fittings, door furniture, etc. ; Shutter Contractors, Ltd., roller shutters ; International Paint Co., Ltd. and Paint and Cellulose Spraying Co., special painting ; Dictagraph Telephones, Ltd., internal telephones ; Helical Bar Engineering Co., Ltd., reinforced concrete floor ; Ironite Co., Ltd., ironite flooring ; Roanoid, Ltd.. door furniture, name plates, etc. ; Lion Foundry Co., Ltd., gutters.

Club House, etc., Sywell Aerodrome (pages 406-407). General contractors, T. Wilson and Son, Ltd. Sub-contractors, Electric Light and Power Co., Ltd., electric light installation. ; Troughton and Young, Ltd., electric fittings ; Crittall Manufacturing Co., Ltd., metal windows ; George Jennings (Lambeth) Ltd., sanitary fittings ; Callender's Cable Co., Ltd., wiring installation ; W. Richards and Son, steelwork ; D. Anderson and Son, Ltd., flat roofing ; Helliwell & Co., Ltd., patent glazing ; Cement Marketing Co., Snowcrete.

House at Solihull (pages 416-417). General contractor, H. B. Tarleton, who was also responsible for the furniture. Sub-contractors : G. Line and Sons, well sinking and pump ; Griffin Foundry, Ltd., sanitary fittings ; Henry Hope and Sons, Ltd., windows and leaded glazing ; Ward and Croft, grates ; Gordon Hughes Electrical Co., electrical engineering ; Paton Engineering Co., heating ; Hinton, Perry and Davenhill, tiles ; D. Anderson and Son, Ltd., flat roofing ; R. W. Browne, rubber flooring : James Gibbons, Ltd., w.i. gate, etc. ; Griffin Foundry, wall tiling ; G. E. Grooves, stonework ; Birmingham Sculptors, stone carving ; G. and T. Davies, landscape gardeners : Reginald Hawkes, hand-woven curtains, etc.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS).

BRIXTON. *Swimming Bath.* The L.C.C. is to construct a swimming bath in Brockwell Park, Brixton, at a cost of £23,000.

CHARLTON. *Houses and Flats.* The L.C.C. has prepared plans for the development of the Park Lane estate at Charlton, at a cost of £169,500. About 378 houses and flats will be erected.

CHELSEA. *Dwellings.* The B.C. has approved a proposal by Cadogan Developments, Ltd., to erect 68 houses at a new street between Draycott Avenue and Rawlings Street.

DEPTFORD. *Telephone Exchange.* H.M. Office of Works is to erect a new telephone exchange in Deptford.

HARROW. *Church, etc.* The authorities of the South Harrow Baptist Church have now acquired the premises of Mr. T. W. Farr, in Northolt Road, upon the site of which is to be erected a church to seat 500, together with a full range of school buildings. The old church on the opposite side of the road is to be demolished and a block of shops erected on the site.

HOUNSLOW. *Flats.* Messrs. P. Chase Gardener & Co., High Street, Hounslow, have prepared plans for the erection of 40 flats off Staines Road.

KENNINGTON. *Dwellings.* The L.C.C. is to erect two blocks of dwellings on the Kennington Park estate, at a cost of £76,000.

LEWISHAM. *Houses, etc.* Plans passed by the B.C.: 60 houses, Manor estate, for Manor Estates (Hither Green), Ltd.; mission hall, Mayeswood Road, for Messrs. L. E. Tompkins & Co.; six houses, Le Lay Avenue, for Mr. C. C. Eaglen; house, Mill Road, for Messrs. T. H. Sawyer and Son, Ltd.; 15 houses, Peak estate, for Messrs. Brett and Son.

MALDEN. *Municipal Buildings.* The U.D.C. has approved in principle lay-out plans for the new municipal buildings. The Council's Surveyor is now to prepare detailed plans and estimates.

RICHMOND. *Swimming Pool.* Mr. S. Clough, F.R.I.B.A., Cecil Chambers East, 86 Strand, W.C.2, has prepared plans for the construction of a Swimming Pool at the Sports-drome, Clevedon Road, East Twickenham.

STAINES. *Church.* Plans have now been prepared for the London Diocesan Fund for a church, proposed to be erected at Kenilworth Gardens, Staines.

TOLWORTH. *Shops.* Shops are to be erected by the Royal Arsenal Co-operative Society on the new arterial road. The site will provide facilities for ultimate extensions. The plans are to be prepared by Mr. S. W. Ackroyd, A.R.I.B.A., Albion Road, S.E.18.

TOTTENHAM. *Baths.* The Corporation Baths Committee has instructed the borough engineer to review the scheme for the construction of proposed open-air baths at Lordship recreation ground and to suggest alterations whereby the total cost may be reduced to a sum not exceeding £30,000.

TWICKENHAM. *Flats.* Mr. W. Boyd Scott proposes to erect 72 flats at Park House, Ravensbourne Road. Plans have been submitted to the Council, but have not yet been approved.

TWICKENHAM. *Houses.* The Town Council has approved amended plans, submitted by Mr. F. Roberts, for the erection of 66 houses on the Whitton Park estate.

SOUTHERN COUNTIES

CHELTENHAM. *Church.* The Rev. Canon P. M. C. Johnstone has asked Cheltenham Corporation to reserve a site on the Whaddon Farm estate for the erection of a church.

OXFORD. *Flats.* The Corporation has approved plans by the borough engineer for the erection of 32 flats on the Rose Hill estate.

OXFORD. *School.* The Oxfordshire Education Committee proposes to erect a school at the Rose Hill estate, Oxford.

OXFORD. *Houses.* The Corporation has approved lay-out plans for the erection of 115 houses on the Wolvercote estate.

OXFORD. *Houses, etc.* Plans passed by the Corporation: Extensions, St. Hugh's College, St. Margaret's Road, for College Council; 67 houses, Iffley Turn, for Mr. F. A. Sutton; additions, Walton Street, for Oxford Eye Hospital Committee; oratory, Marston Street, for Society of St. John the Evangelist; 10 houses, Wytham Street extension, for Messrs. T. H. Kingerlee and Sons, Ltd.; six houses, Quarry Field estate, for Messrs. Walker and Baker; 25 flats, 20/4 Bardwell Road, for London Provincial Corporation, Ltd.; 10 houses, Coniston Avenue, Headington, for Great Headly Homesteads; 140 houses, off Littlemore Road, Cowley, for Messrs. Pye Bros.; and 30 houses, New Cross Road, Headington Quarry, for Mr. R. C. Munt.

SOUTH-WESTERN COUNTIES

HEREFORD. *Houses.* The Hereford Corporation has appointed Messrs. Nicholson and Clarke as architects for the erection of a further 132 houses on the Hinton Court estate.

HEREFORD. *Cinema, etc.* Plans passed by the Corporation: Cinema, Commercial Road, for Messrs. Leslie H. Kemp and Tasker, on behalf of Mr. L. Morris; cinema, Commercial Street, and revised plans for cinema, Elgin Street, for Mr. P. R. Satchwell, on behalf of Odeon (Hereford), Ltd.; two houses, Edgar Street, for Mr. C. C. Rowe.

EASTERN COUNTIES

BLACK NOTLEY. *Sanatorium.* The Essex C.C. has approved plans for extensions at Black Notley sanatorium, at a cost of £68,839.

BROOMFIELD COURT. *Sanatorium.* The Essex C.C. has approved plans for the erection of a sanatorium at Broomfield Court, at a cost of £250,000.

WOODFORD. *Houses.* Plans passed by the U.D.C.: 25 houses, Hill Farm Estate; six shops, Snakes Lane; 28 houses, Chigwell Road; 32 houses, Roding Lane.

MIDLAND COUNTIES

STOKE-ON-TRENT. *Houses, etc.* Plans passed by the Corporation: Six houses, Summerville Road, Trent Vale, for Mr. J. H. Summerfield; 18 houses, Lansdowne Road, Harshill for Mr. E. Pierce; 34 houses, Occupation Street, for Mr. F. Gibson; 30 houses, The Hawthorns, Stone Road, Trent Vale, for Birchenwood Brick and Tile Co., Ltd.; six houses, Leadbeater Avenue, for Mr. N. Marsden; 28 houses, Hamilton Road, Dresden, for Mr. G. F. Norris; and 20 houses, Belgrave and Stone Roads, Longton, for Mr. A. Lilley. Plans submitted: 292 houses, Blurton Road, Blurton, for Mr. C. W. Ball; five shops, Sandon Road, Meir, for Mr. G. A. Golding; 56 houses, Stone Road, and Belgrave Road, Longton, for Mr. G. F. Norris; and 18 houses, Trentham Road, Ash Green, Trentham, for Messrs. Cooper and Jones.

NORTHERN COUNTIES

BIRKENHEAD. *School.* The Education Committee propose compulsorily to acquire land in the Prenton district for the erection of an elementary school for 700 children.

BIRKENHEAD. *Flats.* The Corporation has approved plans by the borough engineer for the erection of 75 tenements on the Pattern Street area.

BIRKENHEAD. *Houses, etc.* Plans passed by the Corporation: Development, Walker Park estate, for Messrs. N. Griffiths (Birkenhead), Ltd.; lay-out for Derby House estate, New Chester Road and Rock Lane West, for Second North Provincial Property Co., Ltd., and lay-out for 63 houses and 11 shops, Tranmere Hall estate, Prenton Road East, for Messrs. W. M. and M. W. Shennan.

BOLTON. *Houses, etc.* Plans passed by the Corporation: 14 houses, Hooton Street, for Mr. Charles Booth; 18 houses, Lynwood Avenue, for Mr. William Jones; bakery extension, Back McKean Street, for Messrs. Price Bros.; workshop, Manchester Road, for Messrs. James Bramhall and Sons; alterations, Star and Garter Hotel, Bow Street, for Messrs. J. Sharman and Sons, Ltd.

DUDLEY. *Houses.* Plans passed by the Corporation: 37 houses, Tipton Road, for Mr. W. Lindley; works extensions, Vine Street, for Dudley Drop Forging Co., Ltd.; four houses, Walker Street, for R. Talbot exors.; six houses, Buffery Road, for Mr. J. E. Watchorn; six houses, The Broadway, for Messrs. Brookes Bros.; four houses, Priory Close, for Mr. W. Gough.

ECCLES. *School.* The Education Committee has instructed Messrs. Biram and Fletcher, architects, to proceed with the preparation of plans for the erection of Winton senior school.

KEIGHLEY. *Houses.* The Corporation has obtained sanction for a loan of £24,125 for the erection of 80 houses at Woodhouse.

LEEDS. *Flats.* The Corporation has approved plans by the housing director for the erection of an alternative type of flats for aged persons on on the Gipton housing estate.

LEEDS. *Sub-Fire Station, etc.* The Corporation has approved plans by the city architect for the erection of a sub-fire station and police section station on the new road leading from York Road to the Wyke Beck Valley Road at an estimated cost of £26,260.

MANCHESTER. *Flats.* The Corporation is to erect 1,589 flats and utility buildings on the Collyhurst and West Gorton clearance areas and 560 flats and three shops elsewhere.

PENSHAW. *School.* The Rev. Joseph Leavy is to erect a Catholic school for 350 children at Penshaw, co. Durham.

SCARBOROUGH. *Cinema.* Building operations will shortly commence at Scarborough on the erection of a new super cinema (from designs by Mr. Harry W. Weedon, A.R.I.B.A., of 84 Colmore Row, Birmingham) on part of an island site situated at the corner of Westborough and the New Road, immediately opposite the London and North Eastern Railway Station. The plans provide for a theatre (with seating accommodation for 1,700), restaurant and shops. The estimated cost is £60,000.

SHEFFIELD. *Houses, etc.* Plans passed by the Corporation: Sub-station, Saxon Road, for Corporation Electricity Committee; estate lay-out, Mulehouse Lane, for Messrs. Fowler and Marshall; vinegar works, Hawkesley Avenue, for Messrs. Nixon, Rowbotham & Co.; shops, Hatfield House, Labe and Sicey Avenue, for Messrs. Chapman and Jenkinson; 21 houses, East Bank Road and East Road, for Mr. G. R. Parkin; 14 houses, Causeway Head Road, for Dore Estates, Ltd.; 17 houses, King James Street, for Mr. H. Haywood; seven houses, Bents Drive, for Mr. R. S. Hutchinson; 496 houses (scheme No. 3), Arbourthorne estate, for the Corporation Estates Committee; 26 houses, Newlands Grove and Foxwood Road, for Hallewell Estates, Ltd.; 12 houses, off Richmond Road, for Messrs. E. and H. Oliver; six houses, Westwick Road, for Messrs. Wright and Walton; nine houses and alterations, Ringstead Crescent, for Messrs. T. A. Knowles and Sons.

SOUTHPORT. *School.* The Education Committee has approved plans for the erection of an R.C. school at Grantham Road.

STOCKPORT. *Shops.* The second portion of the Co-operative Society's central premises is about to be erected. The total cost of the new buildings is between £70,000 and £80,000. The C.W.S. Building Department are the general contractors, and the plans were prepared by the Society's own architects.

WARRINGTON. *Extensions to Hospital.* The Corporation has under consideration a comprehensive scheme for alterations and additions at the borough general hospital at an estimated cost of £100,000.

WARRINGTON. *Houses, etc.* Plans passed by the Corporation: 61 houses, Hallfields Road estate, for Messrs. R. and S. Smith; four houses, Rock Road, for Mr. C. Gornall; nine houses, Pickmere Street, for Messrs. T. and C. Rigby; 10 houses, Wilderspool Causeway, for Mr. F. Berry; factory, Wilderspool Causeway, for Messrs. J. Bennett & Co.; lay-out for 60 houses, off Chester Road, for Messrs. Woosey and Walton.

YORK. *School.* The Education Committee

(Continued on page xlviii)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_1	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester ..	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley ..	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley ..	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham ..	N E. Coast	1 5½	1 1½
A_2	EASTBOURNE	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter ..	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S. W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W. Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley ..	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_3	Kendal ..	N.W. Counties	1 4	1 0
A_3	Keswick ..	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12-15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N.E. Coast	1 5½	1 1½
A_2	Middlewich ..	N.W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton ..	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham ..	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford ..	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough ..	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud ..	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_3	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKE	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan ..	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given

The rates for every trade in any given area will be sent on request

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality, and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger	"	1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
General Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
¾" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single junctions	"	3	6	5	3
Double	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
½" Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6

IRON DRAINS:

		£	s.	d.
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead Wool	lb.		6		—
Gaskin	"		5		—

BRICKLAYER

		£	s.	d.
Flettons	Per M.	2	15	0
Grooved do.	"	2	17	0
Phorpres bricks	"	2	15	0
" Cellular bricks	"	2	15	0
Stocks, 1st quality	"	4	11	0
" 2nd "	"	4	2	6
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Brindles	"	7	0	0
" Bullnose	"	9	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	0
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midhurst White Facings	"	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	29	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

The following d/d F.O.R. at Nine Elms:

		s.	d.
Portland stone, Whitbed	F.C.	4	4½
" Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" Sawn templates	"	7	6
" Paving, 2"	F.S.	1	8
" " 3"	"	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	"	24	10	0
20" × 10" Countesses	"	19	5	0
18" × 10" Viscountesses	"	15	10	0
18" × 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey per 1,000 (actual)		21	11	6
" " green "	"	24	7	4
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each			9½
" hand-made	"			10
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" " 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak plain American	" "	1	0
" Figured "	" "	1	3
" Plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1

			£	s.	d.
Deal floorings,	¾"	Sq.		18	6
"	1"	"	1	1	6
"	1"	"	1	2	0
"	1¼"	"	1	5	0
"	1½"	"	1	10	0
Deal matchings	¾"	"		14	0
"	1"	"		15	6
Rough boarding	¾"	"	1	4	0
"	1"	"		16	0
"	1¼"	"		18	0
Plywood, per ft. sup.		"	1	6	0

Thickness	¼"	⅜"	½"	¾"
Qualities	AA. A. B.	AA. A. B.	AA. A. B.	AA. A. B.
	d. d. d.	d. d. d.	d. d. d.	d. d. d.
Birch	4 3 2	5 4 3	7½ 6 4½	8½ 7 6
Alder	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6
Gaboon				
Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –
Figured Oak				
1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –
Plain Oak				
1 side	6½ 6 –	7½ 7 –	9½ – –	1/– – –
Oregon Pine	5 4 –	5½ 5 –	6 – –	– – –

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	½"	¾"	1"	1¼"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23½" long each	10	1/1	1/11	2/8	4/9
" 3"-11½" long "	7	9	1/3	1/8	3/–
Long screws, 12"-23½" long "	11	1/3	2/2	2/10	5/3
" " 3"M-½" long "	8	10	1/5	1/11	3/6
Bends	8	11	1/7½	2/7½	5/2
Springs not socketed "	5	7	1/1½	1/11½	3/11
Socket unions "	2/–	3/–	5/6	6/9	10/–
Elbows, square "	10	1/1	1/6	2/2	4/3
Tees "	1/–	1/3	1/10	2/6	5/1
Crosses "	2/2	2/9	4/1	5/6	10/6
Plain Sockets and nipples "	3	4	6	8	1/3
Diminished sockets "	4	6	9	1/–	2/–
Flanges "	9	1/–	1/4	1/9	2/9
Caps "	3½	5	8	1/–	2/–
Backnuts "	2	3	5	6	1/1
Iron main cocks "	1/6	2/3	4/2	5/4	11/6
" " with brass plugs "	—	4/–	7/6	10/–	21/–

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½
FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued*

		s.	d.
Rolled steel joists cut to length	cwt.	10	9
Mild steel reinforcing rods, ½"	"	8	6
" " ⅝"	"	8	3
" " ¾"	"	8	0
" " ⅞"	"	7	6
" " 1"	"	7	6
" " 1¼"	"	7	6
" " 1½"	"	7	6
" " 2"	"	7	6

Cast-iron rain-water pipes of ordinary thickness metal	F.R.	3" s. 8	3" d. 10	4" s. 9	4" d. 0
Shoes	each	2	0	3	0
Anti-splash shoes	"	4	6	8	0
Boots	"	3	0	4	0
Bends	"	2	7	3	9
" with access door	"		—	6	3
Heads	"	4	6	5	6
Swan-necks up to 9" offsets	"	3	9	6	6
Plinth bends, 4½" to 6"	"	3	9	5	3

Half-round rain-water gutters of ordinary thickness metal	F.R.	5		6	
Stop ends	each	5		6	
Angles	"	1	7	1	11
Obtuse angles	"	2	0	2	6
Outlets	"	1	9	2	3

PLUMBER

		£	s.	d.
Lead, milled sheets	cwt.	18	6	
" drawn pipes	"	17	0	
" soil pipe	"	18	6	
" scrap	"	10	6	
Solder, plumbers'	lb.			9½
" fine do.	"		1	0
Copper, sheet	"			8½
" tubes	"			11

L.C.C. soil and waste pipes:		3"	4"	6"
Plain cast	F.R.	1 0	1 2	2 6
Coated	"	1 1	1 3	2 8
Galvanized	"	2 0	2 6	4 6
Holderbats	each	3 10	4 0	4 9
Bends	"	3 9	5 3	10 3
Shoes	"	2 10	4 4	9 6
Heads	"	4 8	8 5	12 9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	3	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle Plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	9
Lath nails	lb.			3

GLAZIER

		s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.	F.S.		2½
" " 26 oz. " " " "	"		3
Flemish, Arctic, Figured (white)*	"		7
Blazoned glasses	"	2	6
Reeded; Cross Reeded	"		11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite			6
Crown sheet glass (n/e 12 in. × 10 in.)	"		2 0
Flashed opals (white and coloured)	"	1 0	and 2 0
¼" rough cast; rolled plate	"		5½
¼" wired cast; wired rolled	"		9½
¼" Georgian wired cast	"		11
¼" Polished plate, n/e 1 ft.	"	† 10 to	‡1 1
" " 2	"	†1 2 "	‡1 4
" " 4	"	†2 3 "	‡2 6
" " 8	"	†2 9 "	‡3 2
" " 20	"	†3 7 "	‡4 2
" " 45	"	†3 11 "	‡4 7
" " 100	"	†5 0 "	‡5 7
Vita glass, sheet, n/e 1 ft.	"		1 0
" " " 2 ft.	"		1 3
" " " over 2 ft.	"		1 9
" " plate, n/e 1 ft.	"		1 6
" " " 2 ft.	"		3 0
" " " 5 ft.	"		4 0
" " " 7	"		5 0
" " " 15	"		6 0
" " " over 15	"		7 6
"Calorex" sheet 21 oz., and 32 oz.	"	2 6	and 3 6
" rough cast ¼" and ½"	"	8½ "	1 0
Putty, linseed oil	lb.		3

* *Colours*, 1d. *F.S. extra.*

†*Ordinary glazing quality.* ‡*Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	6	0
Linseed oil	gall.		2	2½
Boiled oil	"		2	4½
Turpentine	"		4	1½
Patent knotting	"		14	0
Distemper, washable	cwt.	2	6	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	firkin		3	0
Copal varnish	gall.	13	0	
Flat varnish	"	14	0	
Outside varnish	"	16	0	
White enamel	"	1	15	0
Ready mixed paint	"	13	6	
Brunswick black	"	7	0	

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR		£	s.	d.
Digging over surface n/e 12" deep and cart away	Y.S.		2	9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.		8	6
" to form basement n/e 5' 0" deep and cart away	"		9	0
" " 10' 0" deep and cart away	"		9	6
" " 15' 0" deep and cart away	"		10	0
If in stiff clay add	"			6
If in underpinning "	"		4	0
Planking and strutting to sides of excavation	F.S.		1	0
" " to pier holes	"			5
" " to trenches	"			5
" " extra, only if left in	"			3
Hardcore, filled in and rammed	Y.C.		10	0
Portland cement concrete in foundations (6-1)	"	1	6	0
" " (4-2-1)	"	1	12	6
" " underpinning	"	1	16	0
Finishing surface of concrete, spade face	Y.S.			7

DRAINLAYER		4" s.	d.	6" s.	d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1	6	2	3
Extra, only for bends	Each	2	8	3	9
" junctions	"	3	9	4	6
Gullies and gratings	"	16	6	18	0
Cast iron drains, and laying and jointing	F.R.	4	9	6	9
Extra, only for bends	Each	10	6	15	6

BRICKLAYER		£	s.	d.
Brickwork, Flettons n lime mortar	Per Rod	27	10	0
" " in cement	"	28	15	0
" Stocks in cement	"	35	0	0
" Blues in cement	"	52	0	0
Extra only for circular on plan	"	2	0	0
" backing to masonry	"	1	10	0
" raising on old walls	"	2	0	0
" underpinning	"	5	10	0½
Fair Face and pointing internally	F.S.			1½
Extra over fletton brickwork for picked stock facings and pointing	"			8
" " " red brick facings and pointing	"			11
" " " blue brick facing and pointing	"		1	4
" " " glazed brick facings and pointing	"		3	6
Tuck pointing	"			7½
Weather pointing in cement	"			3
Slate dampcourse	"			10
Vertical dampcourse	"		1	1

ASPHALTER		s.	d.
½" Horizontal dampcourse	Y.S.	4	6
½" Vertical dampcourse	"	6	9
½" paving or flat	"	4	0
1" paving or flat	"	5	6
1" × 6" skirting	F.R.	1	0
Angle fillet	"		2
Rounded angle	"		2
Cesspools	Each	5	0

MASON		s.	d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17	9
Bath stone and do., all as last	"	13	6
Artificial stone and do.	"	13	0
York stone templates, fixed complete	"	10	6
" thresholds	"	13	6
" sills	"	1	0	6

SLATER AND TILER		£	s.	d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3	10	0
Do., 18" × 9"	"	3	7	0
Do., 24" × 12"	"	3	17	0
Westmorland slating, laid with diminished courses	"	6	0	0
Tiling, best hand-made sand-faced, laid to a 4" gauge, nailed every fourth course	"	3	0	0
Do., all as last, but of machine-made tiles	"	2	16	0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	4	6	0
" " " " " " (green)	"	4	15	0

CARPENTER AND JOINER		£	s.	d.
Flat boarded centering to concrete floors, ncluding all strutting	Sqr.	2	5	0
Shuttering to sides and soffits of beams	F.S.			8
" to stanchions	"			8
" to staircases	"		1	8
Fir and fixing in wall plates, lintols, etc.	F.C.		3	9
Fir framed in floors	"		4	6
" " roofs	"		6	6
" " trusses	"		7	6
" " partitions	"		8	6
½" deal sawn boarding and fixing to joists	Sqr.	1	14	6
1" " " " " "	"	1	17	6
1½" " " " " "	"	2	3	0
3" × 2" fir battening for Countess slating	"		9	6
Do. for 4" gauge tiling	"		12	0
Stout feather-edged tilting fillet	F.R.			4½
Patent inodorous felt, 1 ply	Y.S.		2	3
" " " 2 "	"		2	9
" " " 3 "	"		3	3
Stout herringbone strutting to 9" joists	F.R.			10½
1" deal gutter boards and bearers	F.S.		1	2
1½" " " " "	"		1	6
2" deal wrought rounded roll	F.R.			8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2	1	0
1¼" do.	"	2	10	0
1½" do.	"	2	17	0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.		1	6
1¼" do.	"		1	9

CARPENTER AND JOINER—*continued*		s.	d.
1¼" deal moulded sashes of average size	F.S.	1	9½
2" " " " "	"	1	11½
1½" deal cased frames double hung, of 6" × 3" oak sills. 1¼" pulley stiles, 1¼" heads, 1" inside and outside linings, ½" parting beads, and with brass faced axle pulleys, etc., fixed complete	"	3	7
2" " " "	"	3	10
Extra only for moulded horns	Each		6
1½" deal four-panel square, both sides, door	F.S.	2	0
2" " " " "	"	2	8
1½" " but moulded both sides	"	2	4
2" " " " "	"	3	0
4" × 3" deal, rebated and moulded frames	F.R.	1	0
4½" × 3½" " " "	"	1	4
1½" deal tongued and moulded window board, on and including deal bearers	F.S.	1	9
1½" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2	6
1½" deal moulded wall strings	"	2	1
1½" " outer strings	"	2	4
Ends of treads and risers housed to string	Each	1	9
3" × 2" deal moulded handrail	F.R.	1	1
1" × 1" deal balusters and housing each end	Each	2	0
1½" × 1½" " "	"	2	9
3" × 3" deal wrought framed newels	F.R.	1	3
Extra only for newel caps	Each	6	0
Do., pendants	"	6	0

SMITH AND FOUNDER		£	s.	d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.		15	6
Riveted plate or compound girders, and hoisting and fixing in position	"		19	6
Do. stanchions with riveted caps and bases and do.	"		19	0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	"		17	6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.			11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1	10	0

PLUMBER		£	s.	d.
Milled lead and labour in flats	cwt.	1	12	0
Do. in flashings	"	1	15	6
Do. in covering to turrets		2	3	0
Do. in soakers	"	1	7	6
Labour to welted edge	F.R.			3½
Open copper nailing	"			3
Close "	"			4

		½" s.	d.	¾" s.	d.	1" s.	d.	1½" s.	d.	2" s.	d.	4" s.	d.
Lead service pipe and fixing with pipe hooks	F.R.	10		1 0		1 3		2 0		2 10		—	
Do. soil pipe and fixing with cast lead tacks		—		—		—		—		—		5	6
Extra, only to bends	Each	—		—		—		—		2 0		6	9
Do. to stop ends	"	6½		8		9		11		1 0		—	
Boiler screws and unions	"	3 3		3 9		5 0		8 0		—		—	
Lead traps	"	—		—		—		6 3		8 9		—	
Screw down bib valves	"	6 9		9 6		11 0		—		—		—	
Do. stop cocks	"	7 0		9 6		12 6		—		—		—	

PLASTERER AND TILING		s.	d.
Expanded metal lathing, small mesh	Y.S	2	0
Do. in n/w to beams, stanchions, etc.	"	2	9
Lathing with sawn laths to ceilings	"	1	3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1	5
Do. vertical	"	1	7
Rough render on walls	"	1	2½
Render, float and set in lime and hair	"	1	9
Render and set in Sirapite	"	1	11
Render, backing in cement and sand, and set in Keene's cement	"	2	9
Extra, only if on lathing	"		4
Keene's cement, angle and arris	F.R.		6
Arris	"		1½
Rounded angle, small	"		3
Plain cornices in plaster, including dubbing out, per 1" girth	"		1½
1" granolithic pavings	Y.S.	3	6
1½" " " "	"	4	6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17	6
9" × 3" " " " "	"	1	2	6
Extra, only for small quadrant angle	F.R.			8

GLAZIER		s.	d.
21 oz. sheet glass and glazing with putty	F.S.		7½
26 oz. do and do.	"		8½
Flemish, Arctic Figured (white) and glazing with putty	"	1	1
Cathedral glass and do.	"	1	2
Glazing only, British polished plate	"		7
Extra, only if in beads	"		2
Washleather	F.R.		4

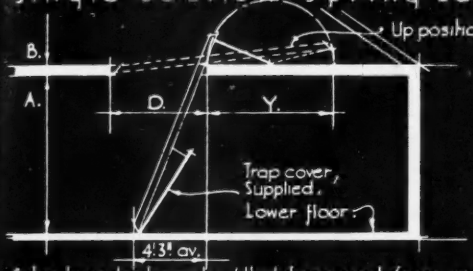
PAINTER		s.	d.
Clearcolle and whiten ceilings	Y.S.		6
Do. and distemper walls	"		9
Do. with washable distemper	"	1	1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3	3
Do. on woodwork	"	3	6
Do. on steelwork	"	3	0
Do. and brush grain and twice varnish	"	5	6
Stain and twice varnish woodwork	"	1	11
Stain and wax-polish woodwork	"	4	6
French polishing	F.S.	1	2
Stripping off old paper	Piece	2	0
Hanging ordinary paper from	"	2	9



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LOFT LADDERS : SINGLE & DOUBLE SECTION, HAND OPERATED.

MODEL 2.S.4.S. (WITH TREADS 6' WIDE, MODEL 2.S.G.S). single section spring balanced type.



Std. width : 1' 6"
Treads : 4" x 1"
Rise : 8"
Inclination: 68½°
Trap width: 1'9" to 2'9"

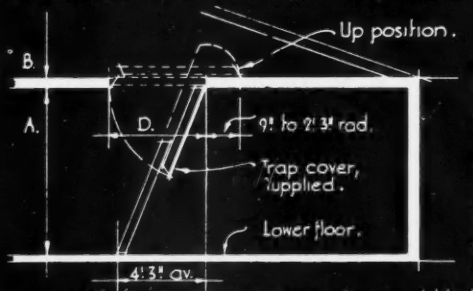
Extra handrail can be fitted if required. (min. width of opening 2'0"). This model may be fitted with counter-weight = Model No. 2.S.4.

NOTE · (see tables) :
With trap length D, roof clearance 3'4" radius, Y = 6'2" along floor.
" " D1, " 3'8" " , Y = 6'10" " "
With trap length D2, roof clearance 4'0" radius, Y = 7'6" along floor.

TABLE GIVING LENGTH OF TRAP OPENING REQUIRED FOR VARYING DIMENSIONS OF A & B.

A.	B.	D.	D1.	D2.	A.	B.	D.	D1.	D2.
8'0"	5'	4'6"	3'10"	3'3"	8'9"	5'	5'3"	4'7"	4'0"
	6'	4'7"	3'11"	3'4"		6'	5'4"	4'8"	4'1"
	7'	4'8"	4'0"	3'5"		7'	5'5"	4'9"	4'2"
	8'	4'9"	4'1"	3'6"		8'	5'6"	4'10"	4'3"
8'3"	5'	4'9"	4'1"	3'6"	9'0"	5'	5'6"	4'10"	4'3"
	6'	4'10"	4'2"	3'7"		6'	5'7"	4'11"	4'4"
	7'	4'11"	4'3"	3'8"		7'	5'8"	5'0"	4'5"
	8'	5'0"	4'4"	3'9"		8'	5'9"	5'1"	4'6"
8'6"	5'	5'0"	4'4"	3'9"	9'3"	5'	5'9"	5'1"	4'6"
	6'	5'1"	4'5"	3'10"		6'	5'10"	5'2"	4'7"
	7'	5'2"	4'6"	3'11"		7'	5'11"	5'3"	4'8"
	8'	5'3"	4'7"	4'0"		8'	6'0"	5'4"	4'9"

MODEL D.L.A.4.S. (WITH 6' TREADS, MODEL D.L.A.G.S). double section spring balanced type.



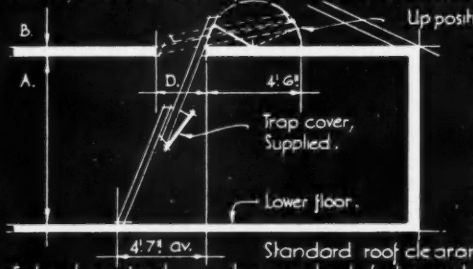
Std. width : 1' 6"
Treads : 4" x 1"
Rise : 8"
Inclination : 68½°
Trap width : 1'9" to 2'9"

This model may be fitted with counter-weight balance, Model D.L.A.4. Lower section is released by catch to slide over the upper section.

TABLE GIVING LENGTH OF TRAP OPENING REQUIRED FOR VARYING DIMENSIONS OF A & B.

A.	B.	D.	A.	B.	D.
8'0"	5'	4'6"	8'9"	5'	5'3½"
	6'	4'7"		6'	5'4½"
	7'	4'8"		7'	5'5½"
	8'	4'9"		8'	5'6½"
8'3"	5'	4'9"	9'0"	5'	5'7"
	6'	4'10"		6'	5'8"
	7'	4'11"		7'	5'9"
	8'	5'0"		8'	5'10"
8'6"	5'	5'0½"	9'3"	5'	5'10½"
	6'	5'1½"		6'	5'11"
	7'	5'2½"		7'	6'0"
	8'	5'3½"		8'	6'1"

MODEL S.D.4.S. (WITH TREADS 6' WIDE, MODEL No. S.D.G.S.). double section spring balanced type, min. opening 2'0" square.



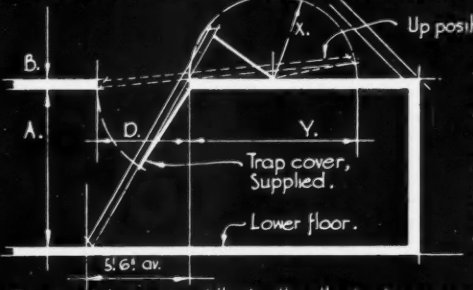
Std. width : 1' 6"
Treads 4" x 1"
Rise : 8"
Inclination : 68½°
Trap width : 1'9" to 2'9"

Standard roof clearance 2'3" rad. min.
Extra handrail can be supplied if desired. If fitted with counter-weight balance instead of springs, Model is No. S.D.4.
N.B. The shorter the opening D, the greater roof clearance required.

TABLE GIVING LENGTH OF TRAP OPENING REQUIRED FOR VARYING DIMENSIONS OF A & B.

A.	B.	D1.	D2.	A.	B.	D1.	D2.
8'0"	5'	3'0"	2'4"	8'9"	5'	3'9"	3'1"
	6'	3'1"	2'5"		6'	3'10"	3'2"
	7'	3'2"	2'6"		7'	3'11"	3'3"
	8'	3'3"	2'7"		8'	4'0"	3'4"
8'3"	5'	3'3"	2'7"	9'0"	5'	4'0"	3'4"
	6'	3'4"	2'8"		6'	4'1"	3'5"
	7'	3'5"	2'9"		7'	4'2"	3'6"
	8'	3'6"	2'10"		8'	4'3"	3'7"
8'6"	5'	3'6"	2'10"	9'3"	5'	4'3"	3'7"
	6'	3'7"	2'11"		6'	4'4"	3'8"
	7'	3'8"	3'0"		7'	4'5"	3'9"
	8'	3'9"	3'1"		8'	4'6"	3'10"

MODEL 3.S.4.S. (WITH TREADS 6' WIDE, MODEL 3.S.G.S). Single section spring balanced type, with extra handrail.



Std. width : 1' 8"
Treads : 4" x 1"
Rise : 8"
Inclination : 60°
Trap width : 2'0" to 2'9"

This model may be fitted with attached counter-weight balancing unit instead of springs, Model No. 3.S.4.

TABLE GIVING LENGTHS OF TRAP OPENING REQUIRED. The sizes given should be adhered to as nearly as possible.

A.	B.	D.	X.	Y.	A.	B.	D.	X.	Y.
8'0"	5'	4'5"	4'0"	8'0"	8'9"	5'	4'11½"	4'3"	8'6"
	6'	4'6¾"	4'0"	8'0"		6'	5'0¾"	4'3"	8'6"
	7'	4'7½"	4'0"	8'0"		7'	5'2"	4'3"	8'6"
	8'	4'8¾"	4'0"	8'0"		8'	5'3¼"	4'3"	8'6"
8'3"	5'	4'8½"	4'0"	8'0"	9'0"	5'	4'9¼"	4'6"	9'0"
	6'	4'9¾"	4'0"	8'0"		6'	4'10½"	4'6"	9'0"
	7'	4'11"	4'0"	8'0"		7'	4'11¾"	4'6"	9'0"
	8'	5'0¼"	4'0"	8'0"		8'	5'1"	4'6"	9'0"
8'6"	5'	4'8"	4'3"	8'6"	9'3"	5'	5'1"	4'6"	9'0"
	6'	4'9¼"	4'3"	8'6"		6'	5'2¼"	4'6"	9'0"
	7'	4'10½"	4'3"	8'6"		7'	5'3½"	4'6"	9'0"
	8'	4'11¾"	4'3"	8'6"		8'	5'4¾"	4'6"	9'0"

Information from Loft Ladders Ltd.

INFORMATION SHEET : DISAPPEARING LOFT LADDERS : NO·1·

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1. Alan A. Bayne.

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INFORMATION SHEET

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LOFT LADDERS

Type Illustrated : Hand-operated Ladders

This is the first of two Sheets dealing with disappearing loft ladders, and illustrates four hand-operated wooden types which, when in use, are entirely hidden by the trap cover.

Construction :

All ladders are made on the lattice principle with solid treads only, and are constructed from Silver Spruce and British Columbian Pine, for strength, lightness and durability.

Balancing Units :

Most models of disappearing loft ladder are now supplied with a patent spring loaded counterbalancing unit, thus obviating the use of a suspended counterweight in the loft. This unit is composed of a series of helical springs arranged in a steel tube in which a plunger moves to *compress* the springs when the ladder is lowered. The steel tube, in most cases, is attached to the back of the ladder and the plunger is connected by a suitable entrained chain to a fixed point on the main fitting in the loft. The ladder itself is operated by means of a long arm which hooks into a concealed catch on the trap cover.

Suspended counterweight ladders are also operated by means of a long arm. Easy manipulation and smooth running are ensured by means of a steel wire, which coils round a drum on the mainshaft, in its turn controlled by means of a small counterweight concealed in the loft.

For gear-operated types, see future Information Sheets.

Trap Doors :

May be flush faced or panelled and are supplied by the manufacturers to fit any new or existing trap opening. Model S.D.4.S. is specially adaptable to small trap openings from 2 ft. sq. upwards. On certain models a patent special automatic catch may be supplied for locking the trap door when the ladder is in the "up" position. All trap covers are constructed of British Columbian Pine, mortice and tenon framed, with plywood panels unless otherwise specified. If specially required, the trap cover can be prepared to take glass at an extra charge. The glass is not normally supplied by the manufacturers. Trap openings should be provided with timber linings with 2 in. by ½ in. stops 1 in. up from the ceiling face, unless rebated. If rebated, sizes should be given between rebates, otherwise between linings.

Where the trap opening exceeds 2 ft. 9 in. in width, it is advisable to form a separate side panel, framed and finished as above, hinged to the *side* of the trap opening and held in position by two barrel bolts. This hinged panel need be opened only to allow passage of bulky articles into the loft, thus obviating bringing down a trap cover the full width of the opening on the back of the ladder and obstructing the landing below when the ladder is in use.

Finish :

Unless otherwise specified, all ladders are treated with a light oak colour wood preservative stain, with the exception of the underside of trap cover, which is left untreated.

Erecting :

Although inclusive quotations for erecting may be submitted if required, fixing diagrams sufficient for individual erecting are supplied with all models.

PRICES OF MODELS DETAILED ON THIS SHEET

Model	2.S.4. and 2.S.4.S.	£7	5	0
,,	2.S.6. and 2.S.6.S.	£8	0	0
,,	D.L.A.4. and D.L.A.4.S. ..	£6	0	0
,,	D.L.A.6. and D.L.A.6.S. ..	£6	15	0
,,	S.D.4. and S.D.4.S. ..	£7	15	0
,,	S.D.6. and S.D.6.S. ..	£8	10	0
,,	3.S.4. and 3.S.4.S.	£8	0	0
,,	3.S.6. and 3.S.6.S.	£8	15	0

Extra Handrail 7s. 6d.

Prices are for cash with order and include delivery in London area.

Information from : Loft Ladders, Limited
Address : Broadway Works
Bromley, Kent
Telephone : Ravensbourne 2024 (2 lines)

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SPECIFICATIONS FOR VARNISHING, PAINTING ETC. ON WOOD & PAPER SURFACES.

CLEAR VARNISH FINISH ON WOOD SURFACES:

PRODUCT	TYPE OF SURFACE		PRIMING COAT.	SECOND COAT	THIRD COAT.
DULUX VARNISH. Exterior quality. NR. 5101. SUWIDEC VARNISH. NE. 121. Exterior & interior quality. SPECIAL FRONT DOOR. NE. 122. COPAL VARNISH. NE. 183. Exterior quality ELASTIC COPAL OAK. Exterior quality. NE. 106. ONE-COAT OAK Exterior quality. NE. 117. ONE-COAT OAK Interior quality. NE. 120. ELASTIC COPAL OAK Interior quality. NE. 105. *for details see back of this sheet.*	Unvarnished & unpainted surfaces.	Interior & Exterior.	Pale Goldsize NG 402.	Hard Undercoating Varnish NH. 210.	Finishing varnish of quality selected.
	Previously varnished or painted surfaces. (in reasonable condition for revarnishing).	Interior & Exterior	Not required unless stripped to bare wood.	Finishing varnish of quality selected.	Finishing varnish of quality selected if required.

GRAINED WOOD FINISH ON WOOD SURFACES:

PRODUCT.	TYPE OF SURFACE		PRIMING COAT.	SECOND COAT.	THIRD COAT.	FOURTH COAT.
DULUX VARNISH Exterior Quality. NR 5101. SUWIDEC VARNISH. NE. 121. Exterior & Interior quality	Unvarnished & unpainted surjaces.	Interior & Exterior	White Primer K.M. 1342.	Scumble undercoat	Scumble graining coat.	Finishing Varnish of quality selected
ONE COAT OAK Exterior quality NE. 117. ONE COAT OAK Interior quality. NE 120. *for details see back of this sheet.*	Previously varnished or painted surjaces. (in reasonable condition for revarnishing)	Interior & Exterior	Not required unless stripped to bare wood.	Scumble undercoat	Scumble graining coat.	Finishing Varnish of quality selected.

FLAT PAINT, DISTEMPER OR VARNISH FINISH ON PAPER SURFACES:

PRODUCT	PRIMING COAT	SECOND COAT.	THIRD COAT.
SUWIDEC VARNISH NE 121. *for details see back of this sheet.*	Glue size	Suwidec.	One or more additional coats of Suwidec may be applied if desired.
DULUX EGGSHELL & FLAT FINISHES, *for details see back of sheet N°5 of this series.*	White Primer KM. 1342 preferred. for high-grade papers glue size may be used.	One or two coats of Dulux as required.	
NAYRODEC WATER PAINT *for details see back of sheet N°5 of this series.*	One or two coats of	Nayrodec as desired.	

Information from Nobel Chemical Finishes.

INFORMATION SHEET: DATA ON PRIMERS, PAINTS, VARNISHES ETC. N°7.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

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INFORMATION SHEET

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PAINTS

Product : Varnishes, Paints and Distempers

This is the seventh of a series of Sheets dealing comprehensively with the subject of painting and protection of various surfaces.

PREPARATION OF SURFACES FOR VARNISHING

New Wood.

This should be well seasoned, clean and dry. All grease and oil must be completely removed and the wood should be well sand-papered and dusted.

New Varnish or Paint Work.

All glossy finishes must be flatted before varnishing. Graining colours must not be too oily, as this may lead to trouble by "cissing," bad drying or cracking. All paintwork must be hard and dry before applying the varnish.

Old Varnish or Paint Work.

If this is in bad condition all the old varnish and paint must be completely removed and the surface treated as for new wood. Where such drastic treatment is not called for, the whole surface must be sand-papered and well cleansed with sugar soap or other reliable cleanser. Care must be taken to wash off all traces of cleansing agents such as soda or soap powder and the surface must be allowed to dry thoroughly before varnishing. It is not advisable to varnish over any old work, no matter how good, without previously lightly flatting and well washing.

"DULUX" VARNISH N.R. 5101 FOR EXTERIOR USE ONLY

Dulux Varnish has all the properties of the Dulux Glossy Finishes described on Sheet No. 3—durability and hardness, combined with flexibility even after long periods of ageing. This varnish is recommended for exterior work. It is pale and is suitable for use over white or light colours, it is applied in exactly the same way as an oil-varnish.

"SUWIDEC" SUPERFINE WHITE DECORATIVE VARNISH N.E. 121

One of the palest copal oil varnishes made ; it is suitable for use over white or tinted paint and wallpapers. Dries in twelve hours and is equally suitable for outside work, being durable and impervious to weather conditions. When applied under proper conditions, is entirely free from bloom.

SPECIAL FRONT DOOR VARNISH N.E. 122

A brilliant and durable copal varnish which retains its gloss for long periods under rigorous conditions : may be specified for any exterior varnish work.

ONE-COAT OAK VARNISH

A pale, full-bodied copal oak varnish, suitable for all one-coat work. It works easily and dries with a hard glossy finish of high durability. One-Coat Oak is manufactured in three qualities :

(1) Interior	N.E.120
(2) Exterior	N.E.117
(3) General	N.E.118

ELASTIC COPAL OAK

A reliable finishing varnish which has great elasticity. The exterior quality will afford good protection under all weather conditions. The interior quality is quicker drying and provides a hard-wearing durable film.

(1) Interior	N.E.105
(2) Exterior	N.E.106

COPAL VARNISH N.E. 183

This varnish has been developed to meet the demand for a good quality copal varnish at a reasonable price, it is a pale, full-bodied varnish suitable for application over all but the palest of shades, and has a good gloss and build ; exposure tests prove excellent durability.

This varnish may be used for inside and outside work, but is not suitable for seats, floors or similar work which normally requires a hard finish. It may be used also as a mixing varnish.

PALE ENCAUSTIC COPAL VARNISH

Produced to meet the demand for Matt or Eggshell Finish, it is suitable for interior decoration only and can be easily applied to all painted or varnished surfaces.

To obtain the best results the paint or varnish surface to which the Encaustic Varnish is to be applied should be thoroughly hard, when the application of one coat of Encaustic Varnish will result in an eggshell or matt finish, according to whether

Pale Encaustic Copal Varnish (Eggshell) N.Z.550

or Pale Encaustic Copal Varnish (Matt) N.Z.551 is used.

EXTRA HARD CHURCH OAK VARNISH N.H. 204

For church seats and inside work to be handled, where hardness of surface is essential.

Is easily applied and has a brilliant hard-wearing finish which brings out and preserves the grain of the wood.

In new work the undercoat must be thoroughly hard and with old work the surface be absolutely clean and free from any trace of grease.

On properly prepared work one coat will give a durable finish.

Previous Sheets in this series were Nos. 188, 190, 192, 194, 196 and 198.

Name of Manufacturers :	Nobel Chemical Finishes, Ltd.
Address :	Architectural Dept., Slough, Bucks
Telephone :	Slough 528
London Office :	Thames House, Millbank, S.W.1
Telephone :	Victoria 2873-2874

ARCHITECT, PRINCE ALBERT

MODEL HOUSES AT THE 1851 EXHIBITION

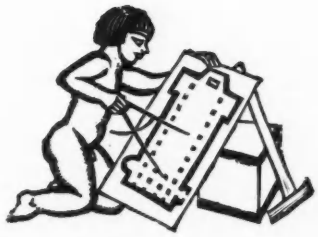


YESTERDAY, March 20, Sir Hilton Young formally opened the new premises of the Housing Centre at 13 Suffolk Street, S.W., where an exhibition of "A Hundred Years of Housing" is now on view. Above we reproduce one of the exhibits: a photostat of a page from "The Dwellings of the Labouring Classes," by Henry Roberts, F.R.I.B.A., illustrating the model houses for four families erected by command of H.R.H. Prince Albert at the Great Exhibition of 1851. The houses were subsequently rebuilt in Kennington New Park. "Amongst the vast collection of objects presented in the Exhibition of 1851," says the author, "the visitor who estimated their real value and importance, not by the cost or labour of production, not by the artistic merit or gorgeous effect, but by their adaptation to advance the physical, the social, and the moral condition of the great masses of the people—of those who form the basis of the social edifice, would justly and gratefully appreciate the unpretending contribution made by His Royal Highness the Prince Albert, of Model Houses for Families, of the class of manufacturing and mechanical operatives. His Royal Highness had this building raised on his own account, with a desire of conveying practical information calculated to promote the much-needed improvement of the dwellings of the Working Classes, and also of stimulating Visitors to the Exhibition, whose position and circumstances enable them to carry out similar undertakings, and thus without pecuniary sacrifice, permanently to benefit those who are greatly dependent on others for their home and family comforts."



MACHINE WITH A PAST

Dale Mill, Derbyshire, is the last windmill in the county that is still in use; and one of the last of its kind, for that matter, in England.



STANDARDIZATION IN THE BUILDING INDUSTRY

IT is curious that the same sociological phenomena that made the benefits of standardization possible were responsible also for the conditions that did most to restrict their fullest utilization. With the development of industry in the early years of the last century ; with the arrival, that is to say, of the machine as the dominant production factor, the principle of standardized production was unassailably established ; but with the development of industry was also established the spirit of competitive commercialism that has successfully deprived us of such advantages as standardization ought to bring : the spirit that moved the manufacturer to indulge in wasteful duplication of enterprise, to create work instead of leisure with the expansion of his field and to prefer always something different to something merely suitable.

The absurdity of making an immense variety of slightly different objects, all fulfilling exactly the same function and only different for reasons of commercial rivalry and financial and artistic snobbery, is becoming more apparent now that such snobbery is not a thing we can any longer afford. We are being driven, by economic expediency as well as by an intellectual reaction against romantic individualism, to accept honestly the dominant presence of the machine ; not attempting to disguise its presence by the veneer of variety, but to accept the simplifying mechanization of whole processes and sequences of processes. It is not only in the sphere of the design of machine-produced objects that honest recognition of the nature of the machine is required, though that is the direction in which attention has recently been concentrated, but in the technique of machine production.

An example of the thorough application of machine-methods to production and design is found, as Mr. Alfred Bossom pointed out in a recent letter to *The Times*, in the modern motor-car industry, in which rationalization of method has enabled the output from one factory to be multiplied twenty-six times in a dozen years. The parallel that Mr. Bossom draws between the motor-car and the building industries is not altogether a valid one—much of the expansion in the former industry was due to a normally increasing demand, cars can be standardized in themselves without detriment to their suitability to individual needs, and the motor-car industry has a tendency towards that very repetition for its own sake among rival manufacturers which we have been condemning. Nevertheless, highly organized machinery for production such as the motor-car industry has perfected provides some precedents from which the building industry should be willing to learn.

Building more and more tends to assume the logical industrialized form of the manipulation of independently determined standardized parts ; parts that do not conform to the standard are a drag on the market. They are, in a sense, waste products, preventing the efficient functioning of the machine. Any attempt to lay down standards by which all manufacturers shall abide, substituting healthy competition in quality for unhealthy competition in novelty and ephemeral appeal, is to be welcomed. The standardized building unit (which by no means implies—a common fallacy—standardization of the finished building) will give us better architecture : æsthetically, because more logical ; practically, because simpler and more economical.

The existence of the British Standards Institution has long been familiar and, to the extent that its activities have been applied to the building industry, its work has been of the greatest value. Now, it is announced, its programme of standardization as it affects the building industry is to be greatly extended by co-operation between the Institution and the Building Industries National Council.

"A survey of the work already carried out by the Institution, as well as of work at present in hand, is being made," says the announcement, "and as soon as this is available the National Council will indicate what further materials and components, formulated in order of urgency, need to be standardized, and these will be dealt with as quickly as possible.

"In addition the Building Industries National Council are about to review the existing British Standard Specifications concerning the building industry, particularly those of a dimensional character, with a view to seeing how far it may be possible to standardize assembled units, such as plumbing units, for the component parts of which British Standard Specifications already exist. Such proposals for standardized assemblies will then be submitted to the Institution with a view to their issue along the usual lines of British Standards."

This association—of technical experience in standardization, industrial realization of the need for it, and collective *authority to put it into practice*—seems the ideal one for the purpose. The Building Industries National Council has initiated a programme which completely justifies its existence as a corporate body. If it can resolve the present chaotic state of building material and equipment manufacture into even a small degree of order and economy it will have achieved something of inestimable value ; both as an immediate aid to the economical practice that, for example, the housing problem demands in its solution, and as a permanent impetus to the building industry in a direction of progressive rationalization.



The Architects' Journal
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London

NOTES & TOPICS

"MINE OWN (INCREASINGLY) ROMANTIC TOWN"

THERE must be nearly as many public-spirited bodies in Edinburgh "for increasing the attraction of the Old Town"—a careless slip, I meant of course the *Auld Toun*—as there are Burns Societies elsewhere.

*

Sir John Lorne McLeod, the President of the Cockburn Association, recently convened the initial meeting of yet another in the Council Room of the Royal Incorporation of Architects in Scotland.

*

Its object, he explained, was "to acquire old buildings of historical or architectural interest *in the Old Town*, which often cost more to keep in repair than their rent will repay, and from a commercial aspect can only be pulled down; to recondition their insides for dwellings, offices, warehouses, etc., and vest their custody in the National Trust for Scotland."

*

This, says Sir John, will appeal to the civic pride of Edinburgh. It will. Both because Edinburgh likes long sentences and because this one gauges the measure of its civic pride to a nicety.

*

Let us admit at once that these aims are wholly laudable. But if the Old Town is Edinburgh's archæological treasure-house, etc., etc., the spaciously planned eighteenth-century New Town remains her supreme *architectural* glory. Significantly enough—so hypnotic has been the effect of that fatal Wardour Street line of Stevenson's—the Adam houses of the New Town do not, as they say, "fall within the scope" of the new association.

*

You cannot live on the past much longer than you can live on your own fat. "Auld Reekie" is dying spiritually because its only pride is a sentimentally retrospective one. A vigorous, realistic civic league on the Birmingham model is needed to arrest the picturesque defeatism of "the historical capital of Scotland" mentality, and brace Edinburgh's anæmia with the will to make herself a worthy modern city.

*

There is, for instance, the eyesore of Princes Street, "the finest thoroughfare in Europe." And so it is if you turn your back to the provincially commercial buildings of all shapes, styles and sizes strewn along its two miles in a rigid "eyes front" to the castle. Those ignoble structures call for progressive rebuilding to elevations as simple, elegant and uniform as the stately Georgian streets behind them.

30 M.P.H.

This week the speed limit returns to our roads again. It has been amusing to see the solemn descriptions in the Press of how traffic is now compelled to "crawl along" at 25 miles an hour, the shaking of the "progressive-minded" head at this stupid waste of the motorist's valuable time—what use he made of the ten minutes he saved by going at 40 miles an hour I have never been able to discover.

*

My theory that the entire motor industry exists on mankind's competitive speed mania is certainly borne out by the "expedition at all costs" arguments put forward by the very vocal motoring public.

*

I even read a complaint by one Motoring Correspondent about the many owners of high-powered racing cars, "designed to run at 50 or 60 miles an hour, whose engines stalled even in the low gear they were compelled to run in." Shame!

*

But the new regulations have produced one gigantic joke: the necessity of labelling nearly every one of the by-pass roads a "built-up area." What a criticism of our planning intelligence—and what a complete negation of the term "by-pass."

ARCHITECTURAL CRITICS

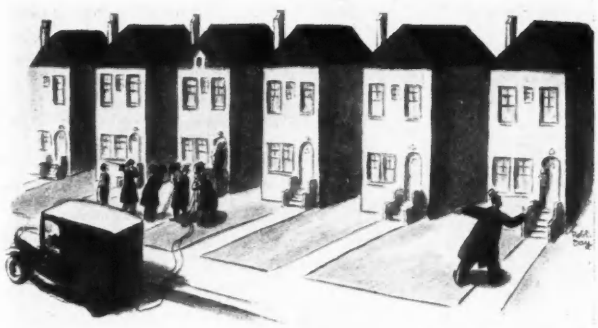
Mr. Robert Atkinson, who amused the A.A. on Tuesday with his address on "Architectural Critics," can always be relied upon to devastate. Sometimes he does it quietly and kindly; more often he is frank almost to the point of being a critic himself. In these days, when most people are terrified of giving offence, it is refreshing to find somebody who doesn't mind.

MATERIAL CONSIDERATIONS

Following that speech of Mr. Grey Wornum's at the lunch given by the Timber Development Association, I've heard several comments from the old and the very young school of architects. I gather that we are not likely to endure a repetition of the nineteenth-century "battle of the styles" in a "battle of the materials."

*

One well-known architectural critic (I must be careful, after Mr. Robert Atkinson's pleasantries on Tuesday evening) summed up matters by saying that competition between steel, glass, concrete and timber was about as



"Look, Myra! Chapin has won the architectural award for the best building of 1934."

From a recent issue of the "New Yorker."

unreal as competition between motor cars, broadcasting, aeroplanes and cooking. As those things contributed something to the social pattern, each in their own admirable way, so did the materials for building.

*

Incidentally, he said of wood that it is the one material that has everything to gain from time in appearance. A fact that is sometimes overlooked.

R.I.B.A. ELECTIONS: THE PROCEDURE

A correspondent who ought to know writes :—

I was much interested in your notes about the election of the R.I.B.A. Council and Committees. The following facts may interest you.

A fortnight before each annual meeting a printed reminder is sent to every voting member calling his attention to the fact that additional nominations can be sent in in the ensuing fortnight, both for the Council and for the Standing Committees. This reminder does, in fact, have an effect. In the last six years no less than 104 of these additional nominations have been received, an average of over 17 a year. The great majority of them are for the Council.

So far from the Council and the Standing Committees renominating themselves, they are compelled by Bye-law 35 to issue a nomination list which contains more than the number of names that can possibly be elected, so as to ensure that there will be contested elections in every case.

SHAND IN FORM

The current issue of *Form*, the Swedish periodical about the design of things, with which we have no native publication exactly comparable (I suppose the nearest is *Design for Today*), has on its cover the words "Englands-Nummer."

*

The principal article is entitled "Engelska formproblem"—Swedish is not really so easy as all this. The author of it is P. Morton Shand. That should be enough for anyone who asks whether in that article this country's difficulties—and her peculiarly conditioned approach to them—have been fairly analysed; her achievements properly, but not perfervidly, enumerated with due but not with carping or too fatalistic recognition of her limitations.

*

I don't know of the counterpart in any other country of P. Morton Shand; and if there was one I think I should, for he must certainly be known to any Continental "Astragal." His opinion everywhere is so enormously respected: that's what makes him so much more than the channel through which our continental contacts are maintained—anyone with no more talent than that of the globe-trotter could be that.

*

As an architectural critic he is more than respected—he is read. I would instance his recent serial of retrospective analysis of the development of domestic design, published in *The Architectural Review* under the title of "Scenario for a Human Drama," as a major contribution to architectural understanding.

*

His virtue as a critic, quite apart from his wit and his lucid prose, lies in his remorselessly scholarly mind. He is never content with the unsubstantiated opinion or the undocumented generalization; and how much rarer is the journalist with the mind (and training) of a scholar than the so-called scholar with the mind of a journalist.

*

By the way, P. Morton Shand is still alive. I have been thinking that my remarks about him read like an obituary. On the contrary, they are perfectly sincere.

ST. GEORGE'S HOSPITAL

A letter signed by Lords Greville and Winchilsea, Treasurers of St. George's Hospital, appeared in *The Times* the other day. They made a remark so wildly misleading to the world at large, and showing so clearly their lack of understanding of matters architectural, that I hope the R.I.B.A. has by this time communicated with them.

*

If not, I suggest that if there are any copies still left of the Centenary Exhibition Catalogue, a bundle should be sent down to Hyde Park Corner for distribution to the Governors, drawing their special attention to the parts which deal with fees and the Professional Code.

*

In the letter Londoners are asked to subscribe "in a manner that will enable us to command *the best architect* and the best materials." (The italics are mine.) Surely their Lordships must be aware that the best and the worst architects have their fees settled for them by the R.I.B.A. That (officially) there is *never* any variation from the Institute scale. And that a competition seems, therefore, to be the solution.

FLATS FOR WESTMINSTER

I have been given the following unofficial information concerning the block of flats in Grosvenor Road.

*

The proposed flats are to be erected on the site of the Royal Army Clothing Department in Grosvenor Road and Chichester Street. The new building will be ten storeys high, will contain about 1,350 flats, and will cost £1,750,000.

*

The promoters are a syndicate in which the Fred. T. French Construction Co., of New York, are concerned, together with British interests.

*

Mr. Fred French is at the offices of the Phillmore Construction Co., Ltd., 3, Carlos Place, S.W.1. The architect is Mr. Douglas Ives of that address.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

The conditions of two new competitions are now available 435

"Architects can no longer concern themselves with construction in a separated professional compartment. They must anticipate in the reconstruction of society" 435

"The R.I.B.A. has accepted the invitation of the Department of Overseas Trade to arrange a section, illustrating the work of British architects, at the forthcoming International Exhibition at Brussels" 436

MARLEY REPORT TO BE WITHHELD

It is now understood that the Marley Committee's report on garden cities and satellite towns, which was to be published in a few weeks, will be withheld, at any rate until the Government's new Housing Bill is passed. The reason for this step is said to be that some of the committee's recommendations—as for instance that relating to the cure of overcrowding by the erection of satellite towns—are in conflict with the provisions of the Bill.

NEW WESTMINSTER HOSPITAL

The plans for the new Westminster Hospital were described last week by Mr. K. A. Wolfe Barry, the hospital's chairman. There was no possibility, he said, of expansion on the present site. A strip of land on either side of St. John's Gardens, 600 yards away, had been acquired, and the enlarged hospital would be built on the larger, or eastern, area, and the new medical school and nurses' home on the other side. A subway under the pavement of Horseferry Road would connect the two sites.

The superstructure of the school would be started about August, but it would take at least another year to prepare detailed plans of the main hospital building.

HOUSING

Sir Hilton Young, the Minister of Health, speaking last week at a dinner of the Incorporated Society of Auctioneers, referred to the progress made with improvement of housing conditions under the Government's policy.

He said that since the present Government took office the number of new houses built had exceeded 800,000, of which 300,000 were built last year, a record year in our history of house building. Concurrently the most prosperous progress had been made with the first national effort to clear the slums. The rate at which the problem was being dealt with had now been raised to a rate of 60,000 houses a year, which meant the rehousing of about 300,000 slum dwellers a year. A position had thus been reached in which it was only necessary to keep the effort up in order to ensure success with the programme of rehousing, in good new houses, a million and a quarter slum dwellers in a period of five years.

THE ARCHITECTS' DIARY

Thursday, March 21

HOUSING CENTRE, 13 *Suffolk Street, S.W.1. Exhibition: "A Hundred Years of Housing." Open until further notice.*

ARCHITECTURAL ASSOCIATION, 36 *Bedford Square, W.C. Exhibition illustrating London Development. Until March 30.* 10 *a.m. to* 10 *p.m.*

ARCHITECTURE CLUB. *At the Architectural Association, 36 Bedford Square, W.C. Third Supper-Discussion: "Seaside Architecture."* 7.30 *p.m.*

SOCIETY OF ANTIQUARIES, *Burlington House, W.1. "Colne Priory, Essex, and the Burials of the Earls of Oxford." By Dr. F. H. Fairweather.* 8.30 *p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS (*Yorkshire and District Branch.*) *At the Hotel Metropole, Leeds. "Stresses in the Steel Reinforcement of Concrete Structures." By R. H. Evans.* 7 *p.m.*

GEFFRYE MUSEUM, *Kingsland Road, Shoreditch, E.2. "Methods of Decorating Furniture of the Seventeenth and Eighteenth Centuries." By Ingleson C. Goodison.* 7.30 *p.m.*

Friday, March 22

INSTITUTION OF SANITARY ENGINEERS. *At Caxton Hall, Caxton Street, S.W.1. "The Manufacture of Cast-Iron Pipes, with special reference to Prevention of Corrosion." By P. H. Wilson.* 6 *p.m.*

NORFOLK AND NORWICH ASSOCIATION OF ARCHITECTS. *At Curat House, Norwich. "The Use of Cement." By A. W. Purchase.* 5.30 *p.m.*

Monday, March 25

R.I.B.A., 66 *Portland Place, W.1. "The Work of Messrs. Smith and Brewer." By H. M. Fletcher.* 8 *p.m.*

ROYAL SOCIETY OF ARTS, *John Street, Adelphi, W.C. "Research on the Testing of Building Materials." By R. E. Stradling.* 8 *p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS. (*Midland Counties*). *At the James Watt Memorial Institute, Great Charles Street, Birmingham. "Reinforced Concrete Structures for the Retention of Water and Other Fluids." By W. Hunter Rose.* 6.30 *p.m.*

Tuesday, March 26

DAILY MAIL IDEAL HOME EXHIBITION. *At Olympia. Until April 18.*

LONDON SOCIETY. *Visit to Bentall's Store, Kingston-on-Thames.* 2.45 *p.m.*

Wednesday, March 27

ROYAL SOCIETY OF ARTS, *John Street, Adelphi, W.C. "Industry and Art Education on the Continent." By E. M. O'R. Dickey.* 8 *p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS. (*Scottish Branch*). *At 129 Bath Street, Glasgow. "Welding for Steel Frame Buildings." By A. Ramsay Moon.* 7.15 *p.m.*

WEST YORKSHIRE SOCIETY OF ARTS

Mr. Victor Bain, F.R.I.B.A., presided at a meeting of the above Society, held at Leeds on March 14, when a lecture on "Sculpture on Machine-made Buildings" was given by Mr. Eric Gill.

Mr. Gill said that one was allowed more license in the interior of buildings than in the streets and public places, where nobody had the right to exhibit to the public things which were demonstrably foolish. It was all to the good that people were beginning to realize that sound construction was more desirable than machine-made ornament, and consequently they should see that sculpture was absurd on machine-made buildings. Sculpture as such did not "go" with modern buildings, not because the sculpture was bad, but because it was the wrong kind of thing. There was only one place, or one kind of place for sculpture on buildings today, and such place was where it was seemly and reasonable to put a carved symbol as a sign of the purpose of the building.

IN PARLIAMENT

Mr. Mander asked the Minister of Health if he would state the present position with regard to the erection of a motor racing track at Portslade; and what steps were being taken for the protection of the remainder of the South Downs.

Mr. Shakespeare said that the Minister understood that permission to construct the proposed motor race course had been given by the Portslade-by-Sea Urban District Council. As regarded the second part of the question, schemes were in preparation, and development was subject to control by the local authorities over the whole of the South Downs.

Mr. V. Adams asked the Minister of Transport what were the plans of the Government for the replacement or reconstruction of Charing Cross Bridge.

Mr. Hore-Belisha said he recently asked the London and Home Counties Traffic Advisory Committee to review the case for safeguarding the possibility of constructing a road bridge in the neighbourhood of Charing Cross, in so far as such case rested upon considerations of traffic.

Last week the Standing Committee of the House of Commons which is considering the Housing Bill discussed Clause 23, which provides for the appointment of local Housing Management Commissioners to which the regulation and control of working class houses might be transferred.

An amendment was moved to make the appointment of such commissioners compulsory, but Sir Hilton Young, who described the clause as one of the most hopeful in the Bill, said that after the most careful consideration, the Government had decided that, in the first place, the clause should be optional and its operation as an experiment would be watched. He was, however, willing to reconsider the question.

On this understanding, the amendment was withdrawn.

THE LATE F. H. CRITTALL

We regret to record the death, at the age of 75, of Mr. Francis Henry Crittall, founder of the Crittall Manufacturing Company, the steel-window firm.

The business was founded in 1882 in a shed behind an ironmonger's shop at Braintree, Essex. Now the company has factories and land at Braintree, Witham, Silver End, and Malden, Essex, and has branches and subsidiary companies in many countries.

Mr. Crittall retired from the position of governing director of the firm about

18 months ago, when he was succeeded by his son, Sir Valentine Crittall.

ANNOUNCEMENT

The partnership between Messrs. Walker and Westendarp has been dissolved. Mr. Walker has joined the staff of the Coal Utilization Council, and Mr. Westendarp will continue to practise at the same address: New Oxford House, Hart Street, W.C.1.

COMPETITION NEWS

WORKING-MEN'S FLATS

The premiated designs in the competition (promoted by the Cement Marketing Co.) for designs for working-men's flats are reproduced on pages 437-451 of this issue.

MUNICIPAL OFFICES, ROMFORD

The Romford Urban District Council invites architects of British nationality and practising in the British Isles to submit designs for the building of Municipal Offices at Romford. Mr. Kenneth M. B. Cross, M.A., F.R.I.B.A., has been appointed as assessor and the following premiums will be awarded: £250, £100 and £50 for the designs placed first, second and third respectively.

Designs must be submitted not later than June 29.

Particulars of the competitions are obtainable from the Clerk to the Council, Arcade Chambers, South Street, Romford. Deposit £1 1s.

COUNCIL OFFICES, WESTMORLAND

The Westmorland County Council invites architects of British nationality, practising in the British Isles, to submit designs in competition for county offices to be erected at Kendal. Premiums of £200, £125 and £75 will be awarded to the authors of the designs placed first, second and third respectively. The Council has appointed Mr. G. H. Foggitt, F.R.I.B.A., as assessor.

Application for conditions of competition and instructions to competitors should be made to Mr. H. B. Greenwood, Clerk to the Westmorland County Council, Exchange Chambers, Kendal. Deposit £1 1s. The latest date for submission of designs is July 4.

A COMPETITION FOR SCOTTISH ARCHITECTS

A sum of £250 is to be offered in prizes for designs of a four-apartment house of the cottage type by a sub-committee of Glasgow Corporation which is promoting a Housing and Health Exhibition to be held in the Kelvin Hall, Glasgow, in October next.

The competition will be limited to Scottish architects, and is intended particularly for younger men in the profession.

Premiums of £100, £75, £50 and £25 are to be offered for the designs placed first, second, third and fourth respectively. The assessors are: Colonel G. Gardner-McLean, of the Glasgow Institute of Architects; Mr. William B. McNab, Director of Housing; and Mr. J. H. Ferrie, Principal Architect to the Housing Department.

It is hoped that the competition will produce designs of a standard which will warrant one or more of them being used in the building of model houses at the forthcoming exhibition.

THE FUTURE FOR STUDENTS

ON Monday last, March 18, a meeting was held of the Students' Section of the newly-formed Architects' and Technicians' Organization, at which Mr. Serge Chermayeff, F.R.I.B.A., gave an address on "The Architect and the World Today." Following are some extracts from Mr. Chermayeff's paper:

The promise of democracy has not been fulfilled for the creative artist or technician. It is evident that the architect's traditional rôle as the artist *protégé* of a rich patron is persisting in spite of every indication that this is no longer possible. Individual patrons, the Kings, the Princes and the Priests have disappeared as effective supporters of the Arts, and remain only in relatively few isolated instances as more and more tired curators of collections which are being virtually assimilated by the State museums. Their nineteenth- and twentieth-century successors are individual industrialists, merchants and finanaciers, who are becoming less and less satisfactory patrons except as bidders at charity balls for useless trifles. The patrons of the architect for work of any scale are large firms, trusts and syndicates. The only possible alternative patron to these that the architect can look to is the State—so far the architects have not had that opportunity of serving the community through so disinterested a patron. In consequence, the architect is being driven to reliance on individualist clients. He has become a sycophant. In most cases he remains a sort of architectural lounge lizard: more rarely if he is adroit in other directions than architecture proper, he may achieve, at the age of sixty, or so the stature of a lounge lion. But all the time he will have remained acutely conscious of the buttered side of his bread, to the exclusion of his technical and social responsibility, which he is essentially qualified to assume as a direct consequence of his special training and experience when he is young, healthy, and at his best.

New planning and new design of structure is not merely a variation in æsthetic principles, a consequence of new discoveries in structural materials. It is infinitely more. It is the expression of an earnest desire of intelligent and highly trained people to change living conditions in proportion to the immense strides made in general education, medicine and applied technique. The problems in building which require the architect's fullest attention and concentrated effort are problems of economic planning in housing and industry. The problem of building for reason and with means which will not saddle the obsoleteness of bygone ages on millions of our contemporaries or those who will come after. In architecture it is quite clear that research is far advanced, while the means of applying the fruits of this research objectively do not exist.

But the application of technique to building is only one side of the problem that faces us in the raisings of our standard of life. To quote from Sir Stafford Cripps: "We must have some economic system which enables us not only to produce, but also to distribute, the products we are capable of making. Indeed, one of the great difficulties that we are experiencing to-day is that there has been a revolutionary advance in the technique, without any change in the underlying economic structure of industry, which controls distribution and production." Technical invention has far outstripped social invention in its advance, and it is now necessary to invent some new economic methods which will prevent our suffering from the too rapid technical advance, and enable us to obtain the full benefits of the work of our scientists and inventors. A great many processes which can be used by the architect for the benefit of the many are finding an outlet only in work of a luxurious character for the economically privileged, and are haled as a sign of returning prosperity. Sir Stafford Cripps continues: "It is a mistake to assume that luxury production increases the national wealth. If ten thousand workers are occupied on the production of luxury goods while there is still an unsatisfied need for ordinary commodities, the labour of these workers is being wasted. Just as in times of war the whole productive effort of the community is concentrated on war materials, and all luxury production is stopped because it is wasteful, so in the great war that must be waged on poverty and disease, all productive effort should be spent on overcoming these evils before it is wasted on the wholly unnecessary luxuries."

Public attention is side-tracked from the importance of problems such as housing of the masses to demonstrations of individual ingenuities of an exclusive kind.

The abundance of spuriousness which prevails is swamping sane contribution, and is the result of cupidity, stupidity and complacence. In England, to a greater extent than almost anywhere else, with a possible exception of the United States, the middle classes copy the rich. When the rich collected antiques, there sprung up among their followers a need for the sham antique. Now the middle classes are accepting and propagating the sham modernism of commercialism, as artificial and aggravating an anachronism as the "Bright Young People" who use them.

The practice of architecture should embrace far more than the technique of the application of materials and Art to building. It should include the application of technique to thinking. Architects can no longer concern themselves with construction in a separated professional compartment. They must participate in the reconstruction of society.

There are few of us concerned with building in any form who are not immediately aware of the specialized building forms peculiar to our day, and who are not equally aware of the advantages which modern building technique has to offer. Equally, there are very few among us who do not constantly meet with a stream of examples of misapplication and misunderstanding. We see the most complex examples of modern structure arising here and there, not for reasons of progressive service to the community, but as the results of speculation and profit making—uncontrolled, unplanned and, unfortunately, for the most part rather ugly.

Mass production and pre-fabrication of

all essential structural parts of simplest dwellings could contribute some form of standardized architecture such as has been attempted already in U.S.S.R. and America.

Through collective technical effort the materials required for the making of essential buildings could be controlled to facilitate the architect in the production in this country of all those things which the mass of humanity lacks, but which it is their right to know about and to demand, and all of which the technical resources can give them. But we know that the mention of the word standardization or rationalization represents to one part of the community an attack on individual expression —actually the loss of possibilities of private profit. To another it stands for the exploitation of the working classes, because up till now these have never received the benefits of technical advance, and have only seen it exploited for the benefit of the few.

It is for architects to prevent the continued misuse of technical development, and particularly at all costs to prevent the continued misapprehension of rationalization and its real possibilities.

We as professional men are facing a crisis which demands collective and objective action. The contribution being made by most professional bodies in this direction is negligible. They are individualist fundamentally. This critical period does not appear to be the time for individualism. We are faced with economic problems in reconstruction affecting the lives of millions.

R. I. B. A.

THE BRUSSELS INTERNATIONAL EXHIBITION

The R.I.B.A. has accepted the invitation of the Department of Overseas Trade to arrange a section, illustrating the work of British architects, at the forthcoming International Exhibition at Brussels. The British section will be one of a group of similar exhibits, contributed by the principal countries of the world, in the Modern Art Building. It will consist of some 150 enlarged photographs and drawings, illustrating British architecture in the twentieth century, but giving special emphasis to the solution of present-day problems. The inclusion of drawings of buildings in course of erection or projected will serve to indicate the latest tendencies.

British architecture will also be represented at the Exhibition by the British Empire Pavilion which is being erected to the design of Mr. Howard Robertson, F.R.I.B.A.

The exhibits will be largely drawn from the collection made for the recent R.I.B.A. Centenary Exhibition, some necessary additions being made to include immediate pre-war and post-war buildings as well as projected schemes.

ELECTION OF MEMBERS

At a recent meeting of the Council of the R.I.B.A. the following members were elected:—

As HON. ASSOCIATE (1): The Rt. Hon. Viscount Esher.

As FELLOWS (6): Messrs. J. H. Forshaw, H. B. Gibbs, W. J. Knight, H. M. Wood, F. Wager, and C. H. Wallis.

As ASSOCIATES (83): A. E. Aikman, W. J. Bedford, J. M. Belford, E. S. Benson, G. H. Brown, T. A. Bull, A. G. Bullen, P. F. Burridge, T. H. Burrough, J. Catchpole, A. G. Chapman, A. L. Clarke, W. P. Clayton, R. S. Coulthard, G. A. Coutts, R. G. Covell, E. R. Crane, G. A. Crockett, J. M. Currey, G. Ellis, W. C. Ellis, N. St. G. Fletcher, (Miss) B. G. Goodwin, K. J. Grice, (Miss) E. M. Hamp, B. E. Hatton, R. J. Hersch, L. J. Hodges, I. S. Hodgess, J. W. Holgate, E. M. Hooper, R. Jackson, J. E. Kean, C. M. Keeping, (Miss) J. E. Kennedy, A. D. Kirby, S. F. Kirk, A. Ledoyen, (Miss) B. L. Leech, C. L. Lister, W. L. Lowe, L. H. McDermott, J. W. Mansel, E. S. Maré, A. J. Marshall, S. C. Mason, J. H. Mersh, E. Middleton, F. W. Morgan, H. L. Morgan, (Miss) J. E. Muncaster, A. G. Nisbet, B. W. Olley, H. J. Orchard, R. B. Padmore, S. B. Porteous, L. P. Rees, F. B. Reyner, R. J. Roberts, W. C. Robson, D. Roth, A. Saint, R. P. Sharman, G. Siddall, (Miss) A. M. Silk, A. L. Smith, J. H. Spender, S. Stern, A. R. Taylor, R. G. Tee, K. Templeman, M. H. Thwin, E. A. Tornbohm, C. G. Toy, H. C. Upton, W. A. Weatherhead, B. T. Whincap, G. E. White, H. W. Wood, P. Woodcock, J. S. Woodhouse, P. Woore, and Sir A. T. E. Hay.

As LICENTIATES (14): Messrs. H. K. Ablett, W. E. Bickers, J. G. Birkett, L. Crampton, F. Firth, H. L. Fox, D. R. Hall, C. G. Jones, E. C. Leach, C. W. Morris, H. Simcock, F. Sunderland, W. H. Williams, and Sir W. Milner.

THE R.I.B.A. HENRY L. FLORENCE BURSARY, 1935

The R.I.B.A. Henry L. Florence Bursary has been awarded to Mr. William G. Holford, B.ARCH., A.R.I.B.A.

Mr. Holford is at present Senior Lecturer at the Liverpool School of Architecture, University of Liverpool.

SHOP-FRONTS

The following notice has been issued by the R.I.B.A.: "Members of the R.I.B.A. and of its Allied Societies must not take part in the competition for shop-front designs for Messrs. Lennards, Ltd., because the conditions are not in accordance with the published Regulations of the Royal Institute for Architectural Competitions."

COUNCIL MEETING

Following are some notes from a recent Council meeting of the R.I.B.A.:

Intermediate Examination: Test in Design: On the recommendation of the Board it was decided that candidates in the Intermediate Examination be given ten days' notice of the titles of the design subjects.

The Register of Students: On the recommendation of the Board it was decided to require overseas students who remain on the register after five years from the date of election to the studentship to pay the students' usual annual contribution of £1 1s.

International Exhibition, Brussels, 1935: The Council, on the recommendation of the Exhibition Sub-Committee and the Art Standing Committee, have accepted the invitation of the Department of Overseas Trade to undertake the arrangement of a section on the work of British Architects at the International Exhibition to be held at Brussels from April to October of this year. The work has been entrusted to the Exhibition Sub-Committee.

University of London Architectural Education Committee: Mr. T. A. Darcy Braddell (F.) and Mr. Hubert Lidbetter (F.) were nominated as the R.I.B.A. representatives on the University of London Architectural Education Committee for the twelve months beginning March 1, 1935.

Advisory Council on Plant and Animal Products: Advisory Committee on Timbers: Lt.-Col. P. A. Hopkins (F.) was appointed as the third R.I.B.A. representative on the Advisory Committee on Timbers.

Standardization of Dimensions of Clay Bricks: Mr. S. Pointon Taylor (F.), Mr. A. H. Barnes (F.), Mr. W. E. Vernon Crompton (F.) and Mr. Alan E. Munby (F.) were appointed to represent the Institute on the Technical Committee which has been set up to deal with the standardization of the dimensions of clay bricks.

The Architects' Registration Council: Appointment of R.I.B.A. Representatives: The following members were appointed to represent the R.I.B.A. on the Architects' Registration Council for the year ending March, 1936:—Major Harry Barnes (F.) and Messrs. W. H. Ansell (F.), Henry V. Ashley (F.), T. A. Darcy Braddell (F.), H. M. Fletcher (F.), C. Lovett Gill (F.), A. G. Henderson (F.), A. B. Knapp-Fisher (F.), Hubert Lidbetter (F.), A. H. Moberly (F.), J. Alan Slater (F.), Sydney Tatchell (F.), Percy Thomas (F.).

The Architects' Registration Council: Appointment of R.I.B.A. Representatives on the Admission Committee: The following members were appointed to represent the R.I.B.A. on the Admission Committee of the Architects' Registraton Council:—Messrs. Kenneth M. B. Cross (F.), J. Douglas Scott (A.), Thomas E. Scott (F.), Geoffrey C. Wilson (F.).

Reinstatements: The following ex-members were reinstated:—As Fellows: Mr. C. W. Bowles; as Associate: Mr. W. P. Wynne-Williams; as Licentiates: Mr. A. W. Moss and Mr. H. Oldfield (Retd. L.).

Resignations: The following resignations were accepted with regret: Messrs. J. G. Walker (A), J. Potts (L.), J. R. Stark (L.), F. G. I. Legg (Retd. L.).

Transfer to the Retired Members' Class: The following members were transferred to the Retired Members' Class:—As Retired Fellows: Messrs. A. S. Conrad, W. St. Leger Crowley, A. W. Hennings, F. Lishman, G. W. Lord, F. B. Peacock, J. H. Pitt, H. V. Wolstenholme. As Retired Licentiate: Mr. G. G. Lynes.

THIS ARSHETECTURE

"ART IN INDUSTRY" CRITICS CRITICIZED

Critics of the recent Royal Academy Exhibition of Art in Industry were described as "cowardly" by Mr. J. A. Milne, chairman of the Royal Society of Arts and vice-chairman of the exhibition, in an address at Manchester last Thursday. He said the wholly destructive criticism in certain quarters could have only one meaning: that the critics were actuated solely by personal and selfish interests.

This sort of criticism, he added, was hitting below the belt, but eventually that kind of cowardly critic was found out. Lessons had to be learned and perhaps the principal fault of the exhibition was in having too beautiful a setting. Perhaps there was too much architecture for the articles.



Perspective of the winning design, by Lubetkin and Tecton.

CEMENT MARKETING CO.'S COMPETITION FOR

WORKING-MEN'S FLATS

As announced in our issue for March 7 the awards in this competition were made as follows :—

FIRST PRIZE (£300) : *Messrs. B. Lubetkin and Tecton. Engineer : Mr. Ove Arup.*

SECOND PRIZE (£200) : *Messrs. A. P. Lloyd, M.C., A.R.I.B.A., and E. W. Collins, A.R.I.B.A. Engineer : Mr. George Smith, B.Sc., A.M.I.C.E., M.I.Struct.E.*

THIRD PRIZE (£100) : *Messrs. H. V. Ashley and Winton Newman, FF.R.I.B.A. Engineers : Messrs. Whitaker, Hall and Owen.*

Since then the assessors (Messrs. Joseph Emberton, F.R.I.B.A., Burnard Geen, M.Inst.C.E., and L. H. Keay, O.B.E., F.R.I.B.A.) have made the following additional awards :—

HIGHLY COMMENDED

Messrs. Connell, Ward and Lucas, AA.R.I.B.A. in conjunction with Mr. Cyril Sweett, F.S.I., and Mr. George Kilner.

Mr. R. Vaughan, A.A.Dipl., A.R.I.B.A., in conjunction with Mr. Clement Gilbin, M.Soc.C.E. (France), M.I.Struct.E.

Mr. S. Chermayeff, F.R.I.B.A., in conjunction with Messrs. Helsby and Hamann and F. Samuely ; Mr. Cyril Sweett, F.S.I., and Mr. J. Stinton Jones, M.I.Mech.E., M.I.E.E., M.R.San.I.

Mr. Eugen C. Kaufman and Mr. Ove Arup.

Mr. H. Spence Sales and Mr. C. R. Glover.

Mr. G. Grenfell Baines.

On the pages following are the report of the assessors, illustrations of the premiated designs with extracts from the reports submitted by their authors and a review by Elizabeth Denby of the designs submitted.

THE ASSESSORS' REPORT

IT was one of the intentions of the Competition that the designs submitted should be for buildings eminently suitable for erection in reinforced concrete and that the fullest use should be made of the many advantages which this form of construction offers to the planner. With the great Slum Clearance Scheme still in its initial stages, it was hoped that the designs submitted would be suitable for adoption by both Public Utility Societies and local authorities. The method of construction is one particularly favourable to economy in first cost, and this and subsequent maintenance are matters of the greatest importance, for both directly affect the rent at which flats can be let.

In reviewing the designs submitted, particular attention was paid to the general lay-out and the siting of the various blocks to ensure a maximum of sunlight penetrating into the rooms, to the grouping of gardens and playgrounds, and the separation of the blocks of flats to give a residential rather than an institutional character to the scheme. In considering the general planning of the flats, the arrangement of kitchens, private balconies and concentration of plumbing points were points specially noted.

Of the 123 sets of drawings submitted, more than half had considerable merit, and the standard of design indicated that considerable progress had been made towards a more economical housing of the working classes. Though there was a general tendency to follow the plans already adopted by various bodies, in some cases the schemes appear, both as regards appropriateness of arrangement and economy in structure, to be as satisfactory as any yet devised.

The scheme placed first appears to us to be of outstanding merit, but it has been more difficult to determine the placing of the second and third, as there are a number of designs that appear to be of almost equal merit. No. 103 (that of Mr. R. Vaughan) would have been better placed had not this competitor broken one of the conditions laid down in the com-

petition—namely, that the accommodation should be provided on five storeys.

Design Placed First.

This scheme places the blocks on the site in such a manner as to ensure a maximum of sunshine, the whole of the bedrooms facing east, and the living rooms west. The approach, by means of staircases arranged within the block, removes the numerous disadvantages of the long external approach balcony, and the cost of the scheme is one of the most favourable submitted.

The approach to the staircases themselves form a continuous covered way obtained by recessing the ground floor, which, provided as it is with pram and bicycle sheds, and not overlooked by any of the living rooms, is a most attractive arrangement.

The private balconies, which are of ample dimensions, are arranged in such a manner as to obstruct as little as possible the penetration of the sunshine into the living rooms. They are so arranged that the mother, working in either the living room or the kitchen, would have the children on the balcony under constant supervision.

The arrangement of the back-to-back fireplace, arranged as it is with relation to the kitchen and bathroom, provides a most economical and appropriate solution to the heating and plumbing problem.

The disposal of refuse has been most adequately dealt with by the placing of a vertical chute through the half-landings of the well-ventilated staircases, discharging into a container in an underground corridor, from which it is collected in a trolley.

The scheme provides excellently arranged communal laundries, and shows considerable ingenuity in the solution of many of the smaller problems involved in this type of building; solutions which, without any material additional cost, would remove a lot of the nuisances from which communal dwellings have hitherto suffered.

The structure, being of a cellular nature, is most appropriate for reinforced concrete, and the cost, namely £94·81 per habitable room, is extremely low, and is probably lower than has yet been achieved. The competitor states that firm quotations for the work, based on bills of quantities, have been received, and our examination would tend to confirm this.

Design Placed Second.

This scheme, whilst not so satisfactory as the scheme placed first as regards the arrangement of the blocks on the site from the point of view of aspect, represents a good lay-out. The internal planning is good, and the arrangement of the structure economical.

The arrangement of the one- and five-roomed flats on the two lower floors, bearing in mind that these are most likely to be occupied respectively by old people and people with large families, shows that careful attention has been given to planning.

Design Placed Third.

The arrangement of the buildings on the site is good, the interior planning sound and economical, and the arrangement of the structure appropriate for reinforced concrete construction.

THE DESIGNS REVIEWED

[*By ELIZABETH DENBY*]

THE competition initiated by the Cement Marketing Company for a design in reinforced concrete for 200 working-men's flats on a four-acre site was particularly important and opportune in view of the increase in building of this nature likely to take place in the immediate future.

Because the ideas advanced in the competition may be looked on as interpreting and to some extent crystallizing the accepted contemporary standards of living I must begin by criticizing three of the conditions which in my view unfairly hampered the competitors in applying modern ideas in their designs. They are:

1. Development in five-storeyed block—required as "the height most generally accepted by Local Authorities." This is misleading. Outside Scotland, London and Liverpool are the only cities where flats have been built in any number, though Manchester and Leeds have schemes in hand. The other authorities are waiting for a lead. Competent opinion may well urge that five storeys are too high without lifts, too low for lifts, while the dreariness of standardizing any one roof-level over a large area is insufferable. An opportunity of stimulating rhythmic treatment of a site—even a four-acre site—has been lost.

2. No less than 65-70 per cent. of the accommodation was required to be provided in three-roomed or smaller dwellings. Until families consist of children of the same sex, or unless the living-room is supposed to be used also as a bedroom, the need is emphatically for dwellings with three bedrooms. At least 50 per cent. of any scheme should therefore consist of four-roomed dwellings.

3. A combination-coal-range in the living-room is an anachronism. Rebuilding areas will be an opportunity to abolish smoke, and smokeless fuel should alone be permitted—either coke or anthracite, etc. A range is, in any case, an unnecessary expense, flues are costly and cumbersome; for six months in the year a fire is unnecessary in the living room during the day, though hot water is essential from the first thing in the morning, and finally, in my experience, women are increasingly using gas or electric cookers, winter and summer, irrespective of range. Another opportunity was lost here of inviting alternative solutions for cooking, heating and hot-water supply suited to modern needs and equipment.

I will not raise here the question of density of development, as costs were obviously based on them, but I strongly deplore the growing tendency to consider 50 or 60 dwellings to the acre a desirable density. Experience abroad points to anything between 25 to 35 families as the suitable urban development.

Within these limitations many of the schemes are of great interest, and in particular those submitted by Messrs. Tecton, the first prize-winners, by Messrs. Connell, Ward and Lucas and by Mr. Chermayeff. A surprising variety of treatment, amenity and competence obtains among the nine schemes (three prize-winning and six commended*) which I was permitted to examine, and—with the exception of the first prize which is triumphantly and indisputably Tecton's—it is difficult to see what criteria the assessors had in mind in making their selections.

As the Cement Marketing Company propose to issue the winning plans and specifications in detail I do not propose to discuss them here except in relation to the other entries. Nor am I competent to remark at all on the technical side of the competition, except perhaps that some of the designs appeared equally or perhaps better suited to steel and brick construction!

Lay-out and Aspect. Many competitors went to great trouble in calculating angles of light, and then drew opposite conclusions from one another. Messrs. Tecton and Mr. Vaughan adopted the simple and straightforward plan of four equal blocks, oriented from north to south, bedrooms facing east, living rooms west. Messrs. Ashley and Winton Newman, Mr. Chermayeff, Mr. Kaufman and Mr. Spence Sales chose a southern aspect, Messrs. Ashley and Winton Newman adopting the strangely old-fashioned device of filling the centre of the site with a block of flats. Messrs. Connell, Ward and Lucas tilted their six blocks to face living-rooms south-east, kitchens north-west—though it is arguable that a south-west aspect would be most agreeable in our climate for living-rooms which are used mainly in the late afternoon and evening. Messrs. Lloyd and Collins and Mr. Baines encircle the site with

* Some illustrations of the six commended designs will be given in our next issue. ED. *A.J.*

their buildings, living-rooms and bedrooms facing on three sides away from the gardens on to the street.

Suggestions for the open space were on the whole interesting, though Mr. Kaufman was the only competitor who recognized the demand and need for allotments in urban areas. His design for kindergarten and crèche is pleasant, and a covered playing space is provided under two of the blocks, raised on posts for the purpose. This device is followed by many of the designers, notably Mr. Spence Sales, who, in addition to four very pleasant communal rooms, eight telephone boxes, and good pram and cycle storage, has remembered that lavatory accommodation in the garden of high blocks of dwellings is a necessity.

Each design has grouped the pram and cycle storage economically and efficiently except perhaps Messrs. Lloyd and Collins who used valuable central playing space for these sheds (roofed with corrugated asbestos sheeting) and for drying grounds.

Messrs. Connell, Ward and Lucas, Mr. Chermayeff, Mr. Kaufman and Mr. Sales have given the greatest measure of communal facilities, and Messrs. Tecton have indicated, by pleasant grouping how the roof can best be utilized as garden space with some degree of privacy.

Incidentally, with the English passion for cats, sandpits are not practicable in towns.

Approach. Disappointingly, only two out of these nine entrants realised the importance of the internal private staircase as opposed to a gallery approach—which, after all, puts the flat on the level of the cottage entered directly from the pavement. Messrs. Tecton found that the private staircases cost only £250 more on their whole scheme, and the expenditure was well made. They have provided a grille through which dust can be swept from the staircase to lighten cleaning. Mr. Kaufman and Mr. Vaughan tried to overcome the lack of privacy of their gallery entrances by designing maisonettes, Mr. Kaufman reversing alternate dwellings to prevent bedrooms being under other people's living rooms.

Mr. Chermayeff provides points for hose connection on each gallery for cleaning; also a central fuel store for tenants—an admirable idea, as fuel is cheaper bought in bulk. He, Mr. Kaufman and Mr. Sales have provided hoists for coal, etc., which are really essential in liftless, five-storeyed buildings.

Numbers. Six of these competitors provided the 200 dwellings required. Mr. Chermayeff managed to include five more four-room dwellings, while Mr. Vaughan and Mr. Kaufman provided 196 and 189 respectively—incidentally they were the only two who designed maisonettes as opposed to flats.

	Cost per Habitable Room on Whole Scheme £ s. d.	Area of Rooms in Four-roomed Flat			
		Living Room (Minimum 150) Sq. ft.	Bedroom 1 (Minimum 125) Sq. ft.	Bedroom 2 (Minimum 95) Sq. ft.	Bedroom 3 (Minimum 65) Sq. ft.
First Prize :					
Lubetkin and Tecton ..	94·81	203	126	100	98
Second Prize :					
Lloyd and Collins	100 6 0	177	142	96	64
Third Prize :					
Ashley and Winton Newman	123 11 3½	165	125	95	65
Commended :					
Connell, Ward and Lucas ..	97 18 5	156	145	100	72
R. Vaughan	109·05	169	135	110	67
S. Chermayeff	108 11 9	221	136	121	71
E. Kaufman	95 12 0	167	145	112	86
S. Sales	124 2 0	190	130	112	80
G. Baines	99·3875	150	125	95	65

The table, besides showing the average cost per room in each scheme, also shows the sizes of the four-roomed dwellings. Too few of the designers realised that larger flats require larger living-rooms. Messrs. Tecton's plan of increasing the size of the living-room and of the smaller bedrooms while leaving the larger bedrooms the same size seems to recognise admirably the need of the larger families.

By placing their five-room dwellings on the top floor, with extra balcony space, extra hand basin and W.C., Messrs. Tecton may succeed in reconciling large families to live in flats—though the stairs will always be trying. Messrs. Lloyd and Collins have put their one-room dwellings on the ground floor and the five rooms on the first floor for humanitarian reasons—but they would, I suggest, be well advised for those reasons to reverse the plan.

Laundry. The usual plan has been to place laundry or drying-room or both either on the ground or on the roof. This is not a good arrangement. However well-equipped and labour-saving the building, the labour of dragging wet linen up and down flights of stairs, the inconvenience of leaving young children alone or finding someone to look after them (true, Mr. Kaufman and Mr. Sales have provided crèches and kindergartens), and leaving the dinner unattended, outbalances the advantages of communal washing. Mr. Chermayeff has provided the most practical design, with a copper in each flat, and a drying-room on every floor with a separate well-ventilated apartment for each family.

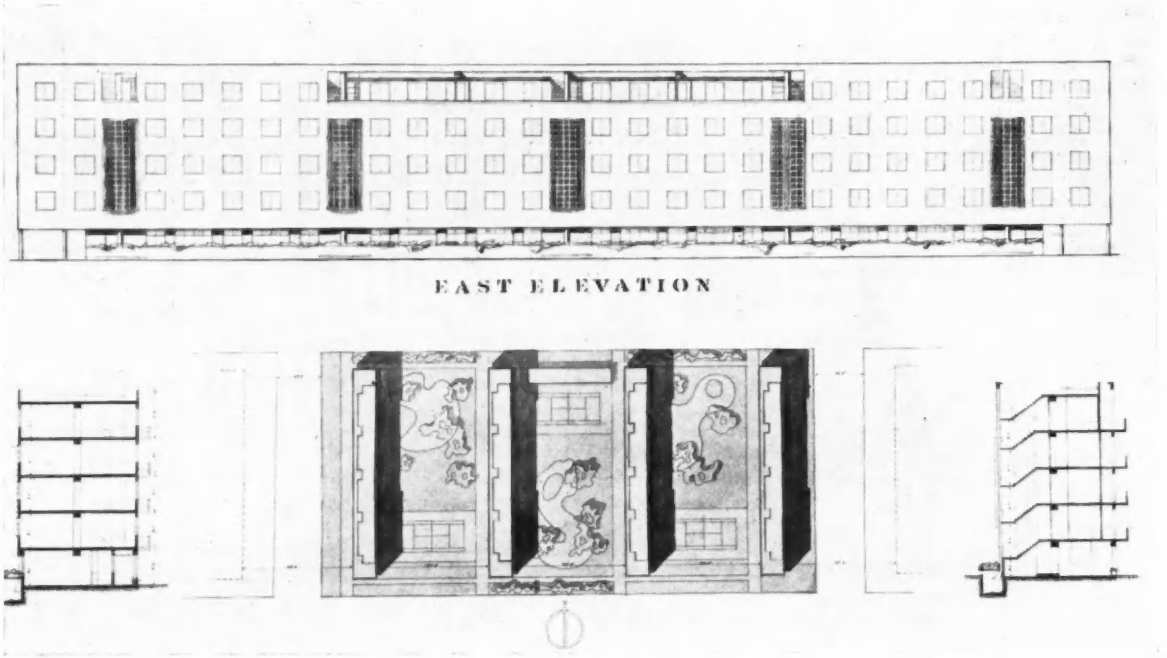
Refuse Collection. The most reasonable and efficient method I have seen, apart from the Garchy system, has been adopted by Messrs. Tecton, and is reproduced here. Chutes are installed in each scheme, except Mr. Kaufman's. He has arranged for the refuse bins to be collected from each dwelling (taken from its ledge in the kitchen through a special door) and taken on a low trolley down a hand-driven lift.

This somewhat bald enumeration of the various points outstanding in the nine schemes under discussion does scant justice, I am afraid, to them. The verve and skill, the close thought and imagination which must have been concentrated on each detail as well



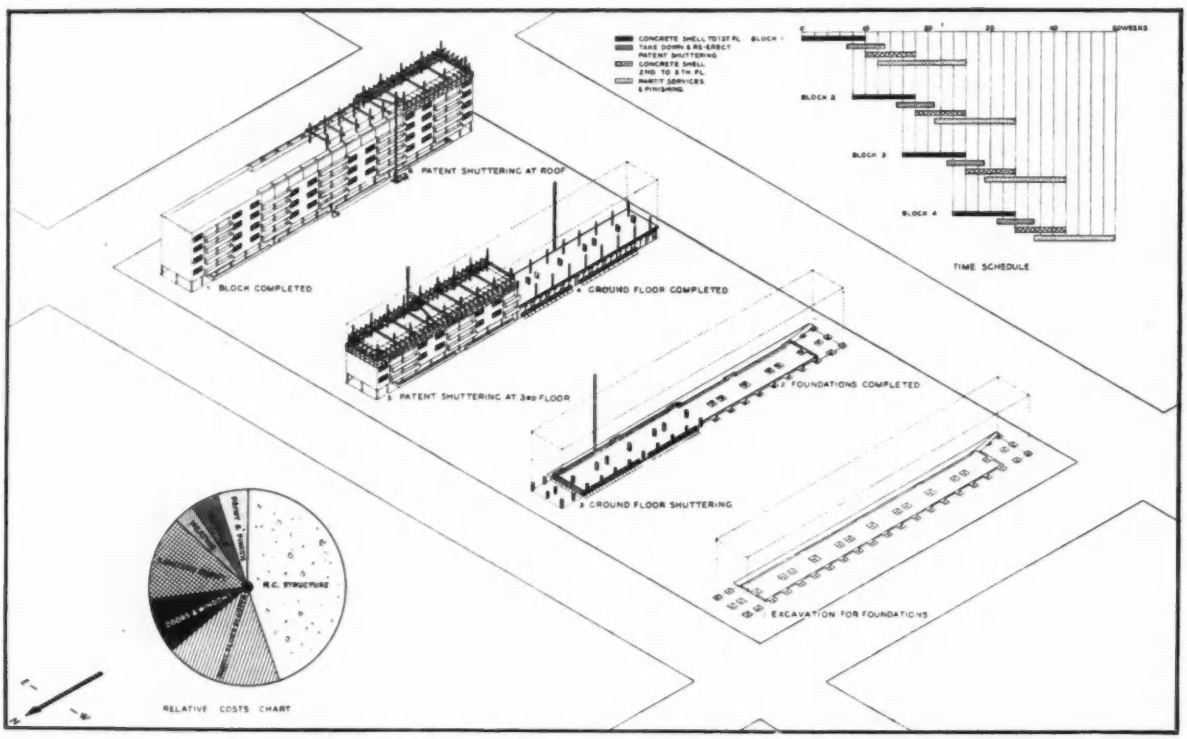
Design placed first, by Lubetkin and Tecton : sketch of a living room.

COMPETITION FOR WORKING-MEN'S FLATS: THE



EAST ELEVATION

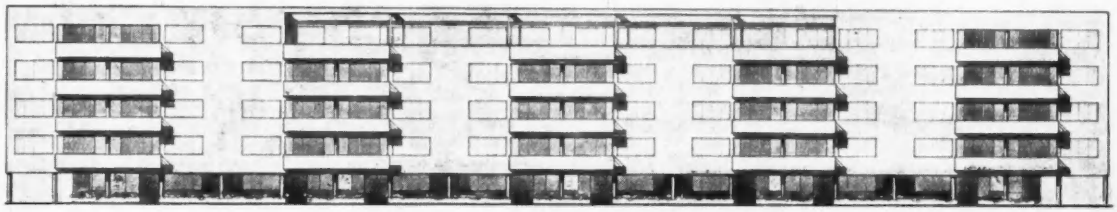
The winning design: east elevation, lay-out and sections.



The winning design: time and progress schedule and costs.

as on the schemes as a whole, dissipates some of the nervousness which pessimists and idealists alike must feel at the schemes which are being made to rebuild whole areas of old cities "for workers." These plans hint that their designers do not think of workers as belonging only to one class—they seem to realise that families, whatever their income, have the same fundamental needs, that perhaps they even need more because they have less. All power to those who are prepared to put up and those who will commission the building of such flats as these.

WINNING DESIGN, BY LUBETKIN AND TECTON



WEST ELEVATION

REPORT

ON THE DESIGN PLACED FIRST

FOLLOWING are extracts from the report submitted by the competitors placed first :—

The buildings are disposed on the site in four equal blocks, moving from north to south. In this way all the bedrooms face east, and all the living-rooms without exception face west. The spacing between the blocks is such that even during the most unfavourable day of the year all the flats are sun-lit from 9.25 a.m. to 4.30 p.m. This applies to the ground floor flats. All the other flats are lit during the whole year from approximately sunrise until sunset.

All the floors have the same plan, which permits standardization of construction and of all services. Moreover the kitchens and the bathrooms are not only vertically grouped but they are also grouped in relation to each other on every floor, so that they can use the common duct (accessible on each floor) through which all the piping runs.

In front of the kitchens and bathrooms in every flat is a wide balcony. Although the cost of such balconies is rather high we nevertheless consider them to be a real necessity.

The balconies have railings along the side which makes it easy to sweep off the dust collecting thereon, but the front is of reinforced concrete to give protection from the wind. They are planned in such a way that they do not take any sunlight from the living-room, and at the same time they protect the kitchens and bathrooms from overheating by forming deep recesses. A small larder is provided in the kitchen with an additional enclosed space on the balcony well protected from the sun.

In each flat there is an entrance hall with cloak cupboards, etc., through which access is provided to the kitchen and bathroom, living-room and one bedroom. The corridor space is thrown into the living-room so that a bigger room is created in every flat, in which the greater part of the tenant's life is spent. From this living-room the other bedrooms are accessible. One bedroom is always accessible from the entrance lobby so that the family can dispose of this room temporarily to a stranger or to a sick person without disturbing the life of the family.

The heating of the block is arranged by means of a back to back fireplace in the living-room, combined with a range in the kitchen, so that one fire provides heating and cooking thermal units as well as supplying 22 gallons of hot water per day used in kitchen and bathroom. During the summer months it can still be used as a range without heating the living room. One electric fire is provided in each bedroom. Also one gas point is provided in the kitchen for a gas ring.

Every single room has built-in cupboards which fit in the span between the central stanchions and cover the only beam. These cupboards have adjustable, loosely fitting wire mesh shelves in order to make them insect proof. They are studied to accommodate a unit equipment for men and women to standard sections (standardized throughout the building).

The roof is accessible to all the tenants, and could be easily arranged as a recreation ground. The roof could by means of light partitions be arranged to provide sunbathing space, and in our calculations we have taken into account the possible load of these partitions on the roof slab.

The solution of the garbage problem has been gone into rather carefully, and a special system has been devised. A sealed Uralite pipe, having only one joint to each floor, passes through all the half landings right down to the basement. Two half landings have a special access trap which is arranged in such a way that the air from the shoot can never penetrate freely to the staircase. The opening of the shoot on to the landing is, therefore, permanently shut. The tenants walk half a landing up or down to their respective access traps, which allows a great economy in these expensive parts of the shoot. At the bottom the shoot has a special garbage container accessible through a longitudinal tunnel running from one end of the block to the other. The tunnel serves also as access gallery to all supplies (gas, electricity, water, etc.), saving a lot of excavation and facilitating maintenance. In this way all the pipes are accessible everywhere on the estate.

A central laundry has been adopted rather than separate plants, in each block, on account of its lower installation cost and considerable economy in supervision and maintenance.

Under the laundry a very large storage space, approached by ramps, is provided. There are, along the covered gallery, serving as access to staircases, stores for prams, one to each staircase, so that after depositing the pram in the store the baby can be carried under cover. At both ends of each block ample space is provided for vertical storage of bicycles, each of which is attached by a chain to its stand.

REINFORCED CONCRETE STRUCTURE

The lay-out with four identical blocks is chosen especially in order to reduce the cost of the reinforced concrete structure, and each block has been designed as simply as possible with the same object in view. Where, as in this case, the shuttering can be re-used many times, the most economical floor is one of solid reinforced concrete, continuous over the supports, with spans of about 13 ft. As the walls have to be made of at least 4-in. thick solid concrete, it is obviously economical to utilize them to carry as much as possible of the load, thus avoiding unnecessary beams and columns and simplifying the shuttering. The logical conclusion is a cross section with two floor spans of about 13 ft., supported in the middle on a continuous longitudinal beam, and at the two ends on the longitudinal walls of the block. The slab is continuous over the support and cast monolithic with the walls, thus ensuring the maximum continuity of the whole structure. The walls are 5 ins. thick, and act both as columns and as beams over the windows; there are no projections for columns or beams.

The centre beam is made wide and low, partly in order to get sufficient compression area over the supports without introducing haunches, and

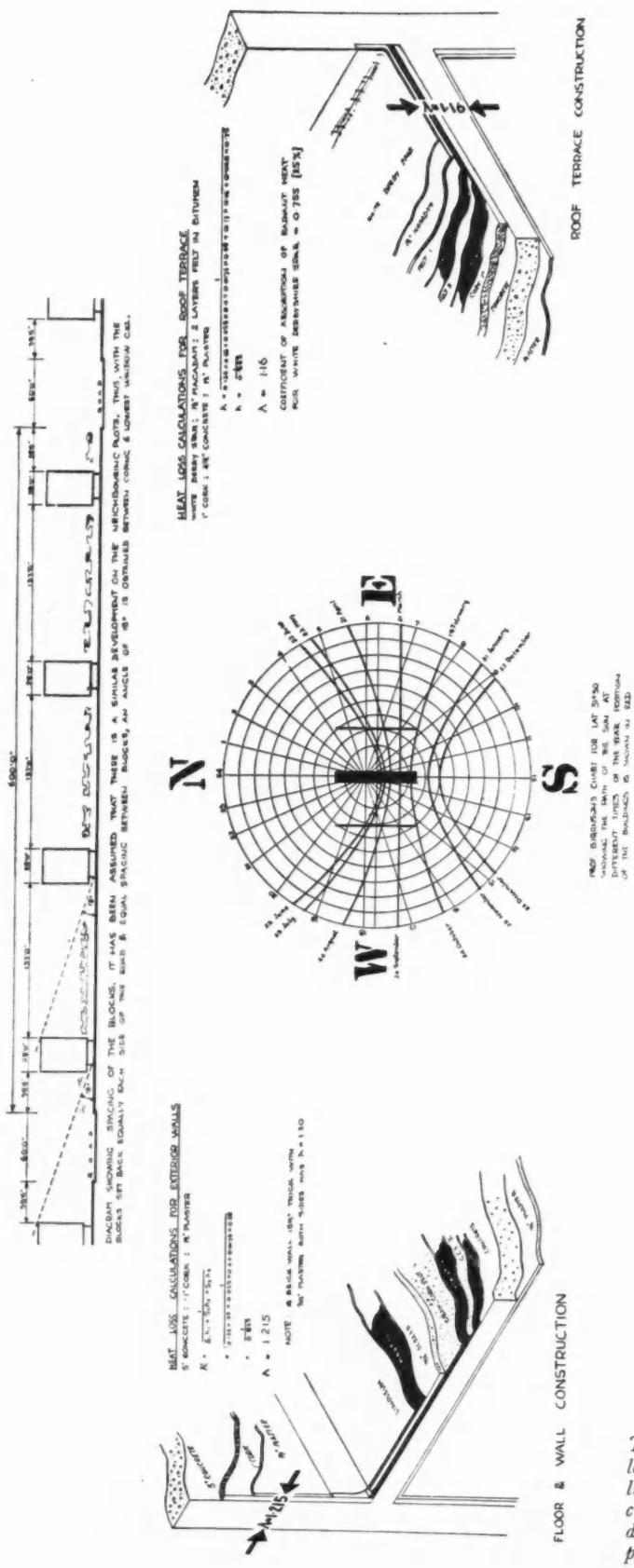
ESTIMATED TOTAL COST OF STRUCTURE, £57,600 (THE FOUR BLOCKS).

	Total Cost.	Cost per Habitable Room	Cost per Sq. Ft. of Floor Area.
		No. of rooms 608	113,600 sq. ft.
	£	£	s.
Foundations up to ground floor level	2,400	3·95	·422
External walls	12,920	21·3	2·27
Floors, roof, stairs	14,925	24·55	2·63
Partitions and flues	7,135	11·75	1·26
Windows and doors	4,890	8·04	·86
Sanitary equipment	7,450	12·25	1·31
Heating and hot water	1,780	2·93	·313
Lighting	2,100	3·46	·37
Outbuildings, if any	4,000	6·58	·704
	£57,600	£94·81	10·139

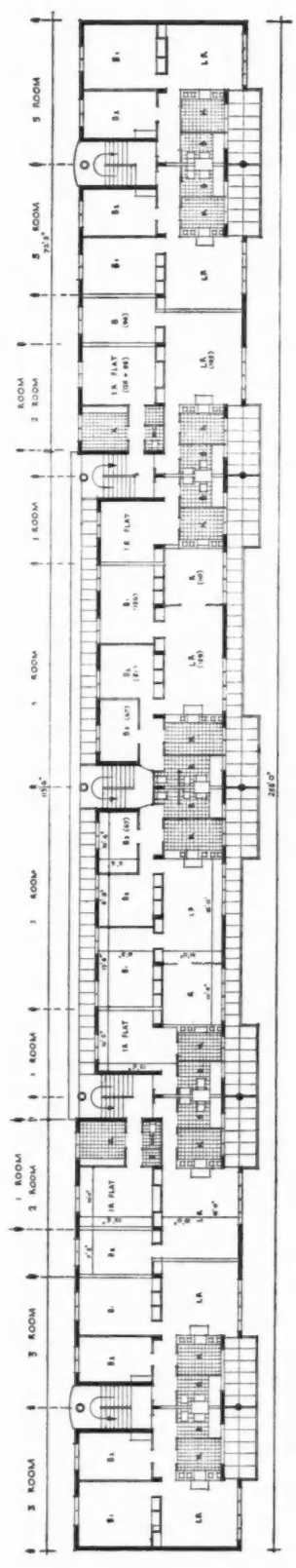
Quantity of Structural Concrete, 4,880 cubic yards. Quantity of Steel Reinforcement, 292 tons.

Design placed first: table of costs.

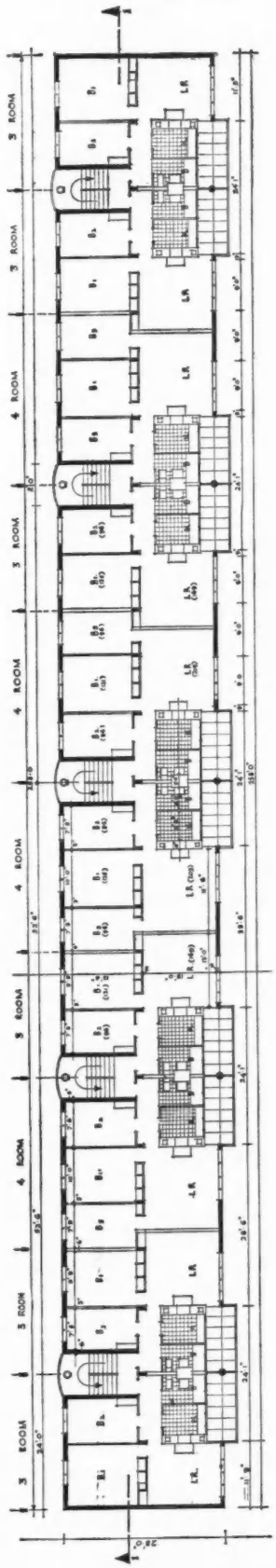
COMPETITION FOR WORKING-MEN'S FLATS: THE



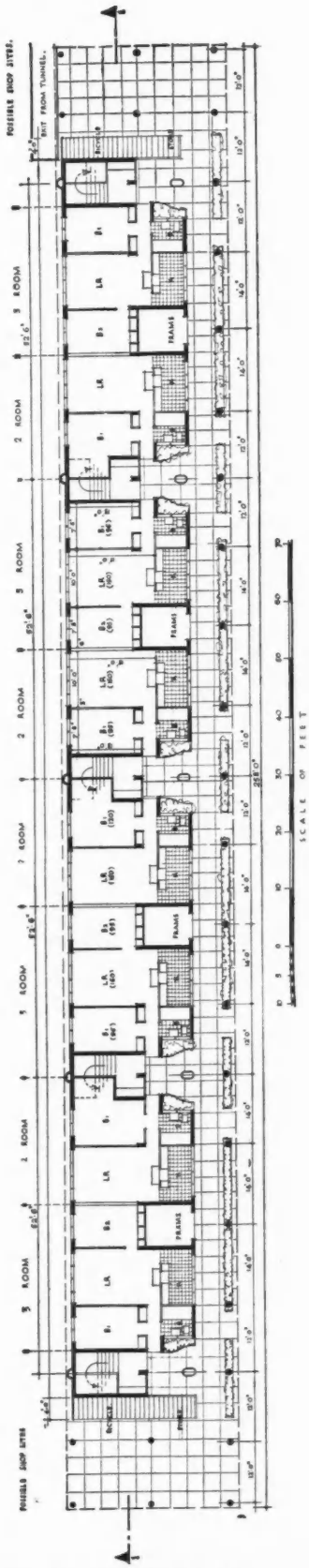
The winning design left; orientation, lighting and some constructional details: right; floor plans.



WINNING DESIGN, BY LUBETKIN AND TECTON



PLAN: FIRST TO THIRD FLOORS



PLAN: GROUND FLOOR

partly to reduce the free span of the slabs. Incidentally, the shuttering is simplified, and the area of shuttering diminished. The columns are all of the same width as the beam so as to make them fit the lay-out of the partitions and to simplify the shuttering. Where the balconies occur, the cross section is modified by pushing one of the outer walls further inwards, but the principle of construction remains the same. An expansion joint is to be provided in the middle of each block.

Shuttering.—The system of shuttering which it is proposed to use is one which has only recently been brought out, but which has proved extremely successful on an important building in London. The main advantages of the system are :—

1. Speed of construction.
2. Excellent wall surface (no marks from wires or bolt holes, construction joints very nearly eliminated).
3. Low cost.

This system enables the building to be constructed entirely without scaffolding. The whole of the shuttering for the outer walls is suspended from a movable timber raft, and between each lift this raft is screwed upwards in relation to the temporary post supporting the raft, until the new position of the shutters is reached. The outer and inner shutters are held in position by timber clamps, which are held together by a bolt just above the level of the concrete to be deposited.

The moving of the shutters from one position to the next is a very simple operation for which skilled men need not be employed, and the strong clamps and bolts make it easy to tighten the shutters efficiently against the wall cast the foregoing day, thus eliminating any "lip" at the joint. Cradles can be slung from the shutters, so that the outer walls can be inspected and rubbed down if required the day after they are cast. The shutters themselves could be faced with building board, roofing felt, metal sheets, or other suitable materials, but it has been found that good, planed and tongued and grooved boards give excellent results, and it is proposed to use this method here.

The total time required for constructing the four blocks in accordance with this programme would be 50 weeks.

Sound Insulation.—The surfaces of the floors have been insulated by providing two layers of a bituminous felt with layers of granulated cork on each surface, immediately over the concrete floor, and covering this with ¾ in. cement screed. Linoleum is then stuck on to the floor with a reliable cement. In this way, any vibrations which reach the screed will be damped by the elastic layers underneath, and the bigger mass provided in the concrete floors will not be set in motion.

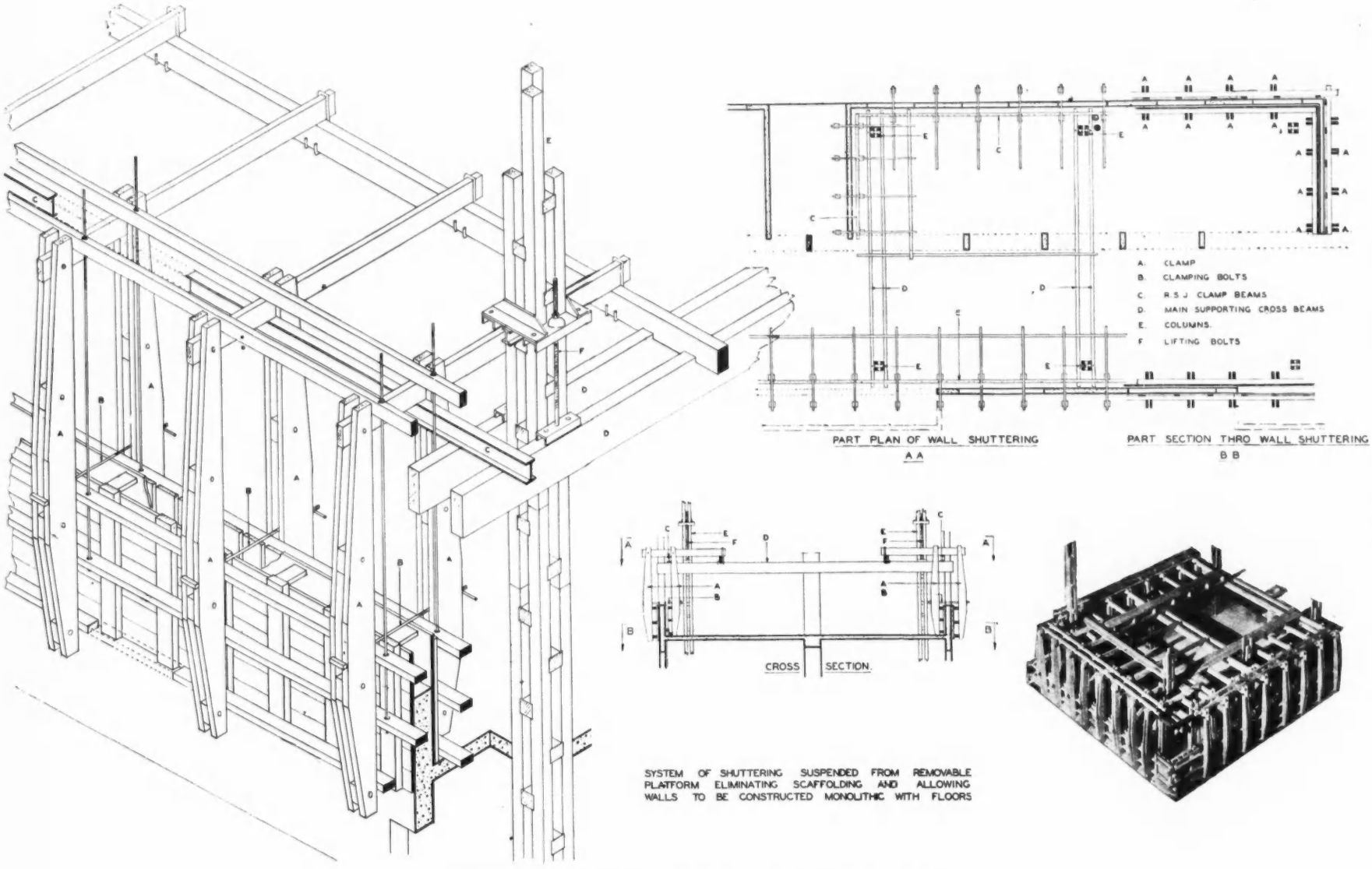
The ceilings will be given a skimming coat of plaster and distempered. The outer walls are insulated against cold with 1 in. cork and plaster, and this would also be a very good sound insulation.

The partitions are of breeze, plastered both sides. They are placed on strips of bituminous felt to prevent vibrations reaching the floor. Double breeze partitions with a hollow space between are to be provided between the flats. The danger of noise penetrating to the flats through water pipes, drains, etc., is greatly diminished in this scheme because all service pipes are confined to the flue in between the two bathrooms.

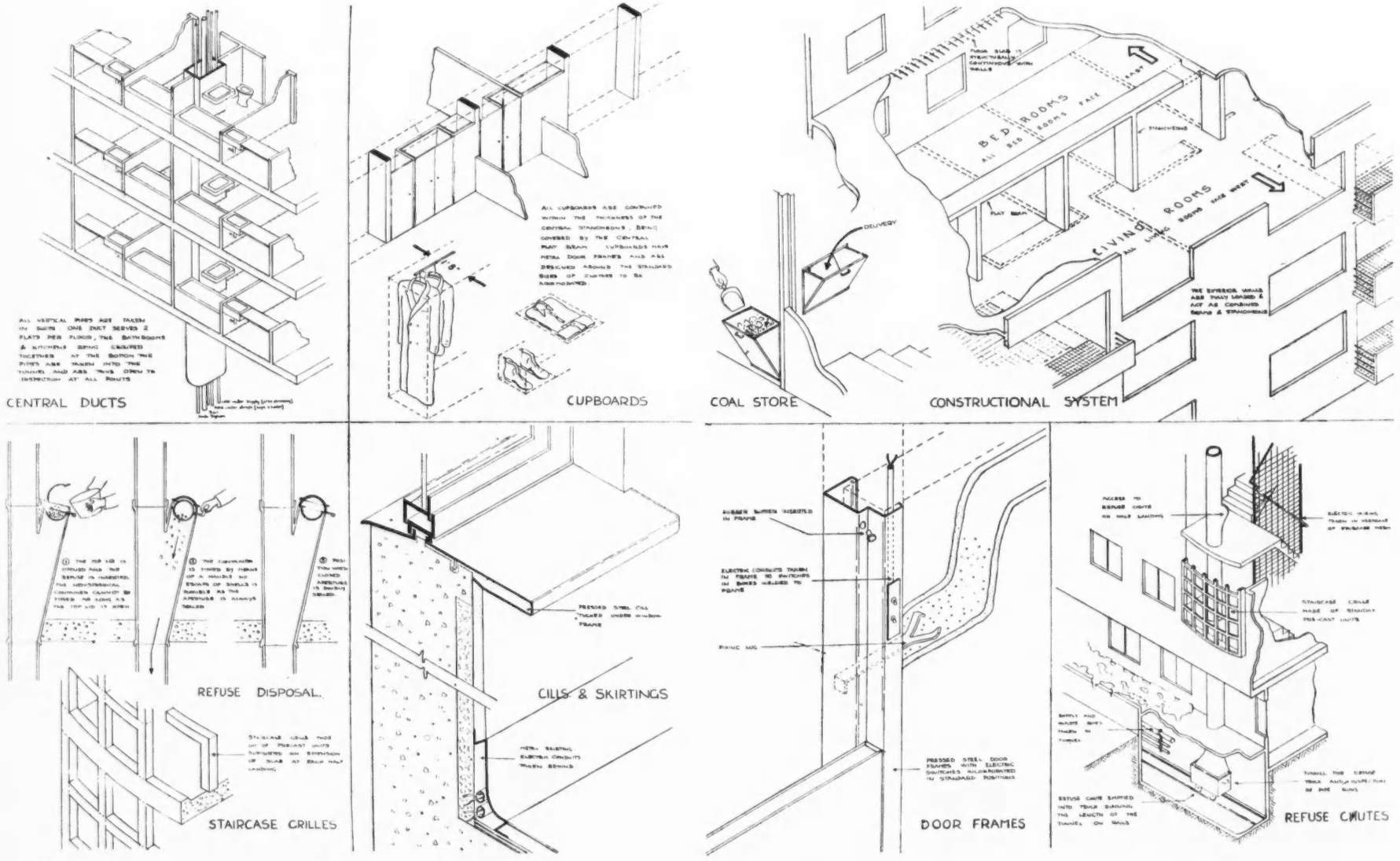
Treatment of Outer Surfaces.—The outer walls are to be slightly roughened immediately after the shuttering is lifted, and are later on to be treated with two coats of Cullamix Stipple Mixture, stippled on with a bannister brush.

PLUMBING

Interior.—The grouping of the kitchens and bathrooms of two flats together as well as the



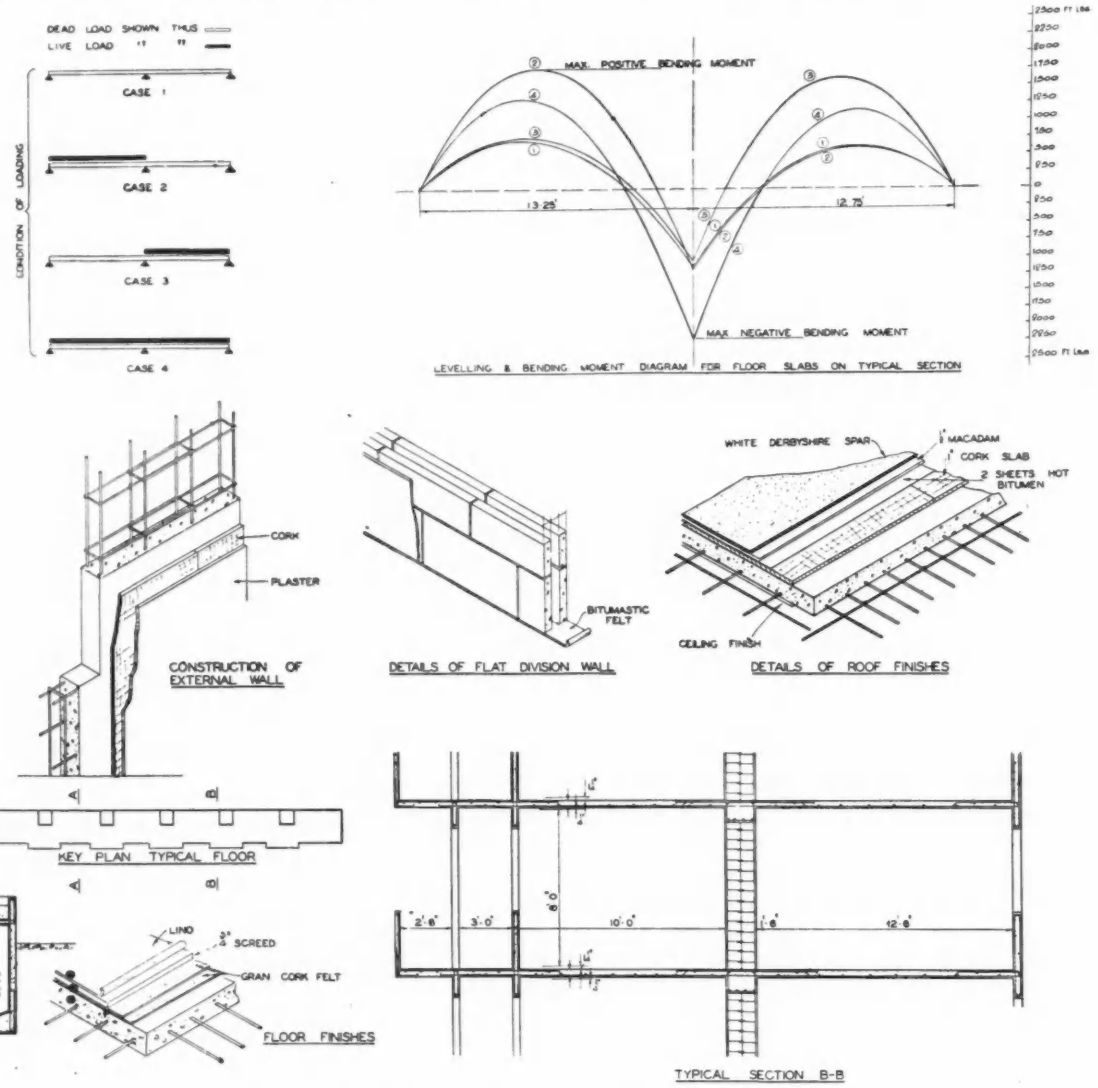
The winning design: explaining the system of sliding shuttering.



Some design and constructional details.

WINNING DESIGN, BY LUBETKIN AND TECTON

COMPETITION FOR WORKING-MEN'S



The winning design, by Lubetkin and Tecton: the reinforced concrete structure.

repetition of the same plan on all the floors makes it possible to include all the main pipes going downwards and upwards in a duct specially provided for them and accessible for a specialist on every floor. The services which run to and from the duct are very short which also increases economy. At the bottom of the duct there is an accessible chamber and the same duct is taken beyond the level of the roof for ventilation purposes.

DRAINS.—It is proved by experience that the drains and plumbing in working-class tenements are subject to very severe tests; that is why, in spite of the higher cost, we have included for all the drains to be in 5 in. cast iron, including the chambers at five points per block. All the drains are, therefore, included in the tunnel in the basement running all along the block and are accessible for control purposes its whole length. The floor of the tunnel is formed into a channel for purposes of easy sweeping and it drains down to one point.

DOORS.—All the doors are to be panelled 1¾ ins. thick.

DOOR FRAMES to be steel with specially designed profile, including six legs for fixing, and the threshold buried in screed.

SKIRTINGS are to be pressed metal skirtings running all along the walls and mitred at the corners.

WINDOW BOARDS.—In consideration of the hard wear, these are to be made of metal with a special profile to be filled in with compo in order to make them soundproof.

WINDOWS are metal with all the standard equipment.

KITCHEN EQUIPMENT consists of larder, cupboards, sink and teak draining-board, as per drawing.

COAL CUPBOARDS are accessible from the landing and from the interior of the flats. They are of reinforced concrete and have sloping floors. Two trap doors falling outwards are provided to each cupboard, also a security lock inside and outside making them burglar-proof.

ROOF.—On the concrete slab forming the last ceiling there is a layer of 1 in. expanded and compressed cork in slabs of 2 ft. by 1 ft., stuck to the roof with bituminous emulsion. The falls are obtained by sloping concrete in order to economize on screed. Over the cork, two layers of bituminous felt embedded in asphalt mastic are laid to falls and the whole is covered by ¾ in. tar-macadam with a fine aggregate. In order to reduce the intensity of the sun heat on the black absorbing surface of tar-macadam, thus over-heating the top floor flats, a special layer of white Derbyshire spar is applied to the tar-macadam which leaves its surface permanently light coloured.

STAIRCASE WALLS.—All the external staircase walls are done in precast concrete elements. A thin wire mesh is applied to these elements as reinforcement and as a further protection.

ELECTRICITY.—We have included under this item the intake chambers, double pole ironclad switch gear to control the various services, with all the angle iron framework. Nothing is included for Company's special service charges. All rising mains to be concealed in staircase balustrade, with supports at intervals of 24 ins.

The rising mains are to be connected to a fuse board on each floor, which is to be provided with a 40 amp. double pole fuse-way for each flat, on that floor served by the particular rising main. Every room has one lighting point in the ceiling, the living room has additional plug in the skirting, and every room except the living room has built-in electric fireplace.

COST

As far as the prices are concerned, they are not arbitrary assumptions, but are based on a Bill of Quantities, prepared from accurate calculations, and firm quotations have been obtained from Contractors in all cases except for a few secondary items. Except for these, we are, therefore, in a position to get the work carried out at the prices mentioned.

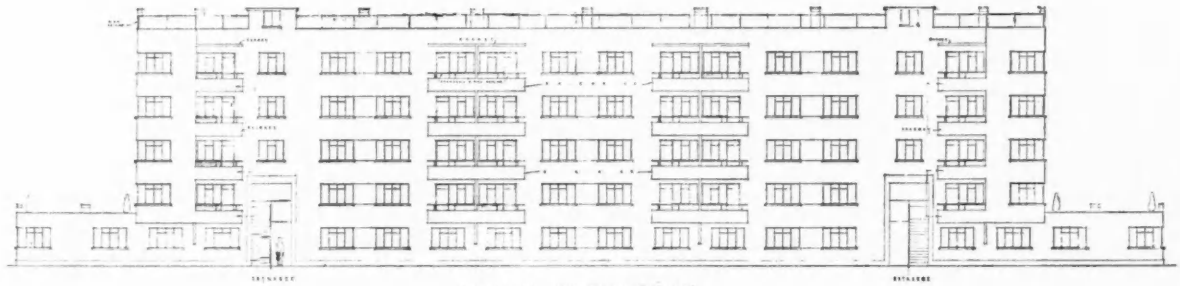
FLATS: DESIGN PLACED SECOND



Perspective of the design placed second, by A. P. Lloyd and E. W. Collins.



BACK ELEVATION



FRONT ELEVATION

REPORT

ON THE DESIGN PLACED SECOND

Following are extracts from the report submitted by the competitors placed second :—

The Flats to be built in five blocks of similar design, planning and construction. Each block to consist of 40 flats of the following types :—

	1 Rm.	2 Rm.	3 Rm.	4 Rm.	5 Rm.
Ground Floor	2	—	6	2	—
First Floor	—	—	2	2	2
Second Floor	—	2	4	2	—
Third Floor	—	2	4	2	—
Fourth Floor	—	2	4	2	—
Totals (40 Flats)	2	6	20	10	2

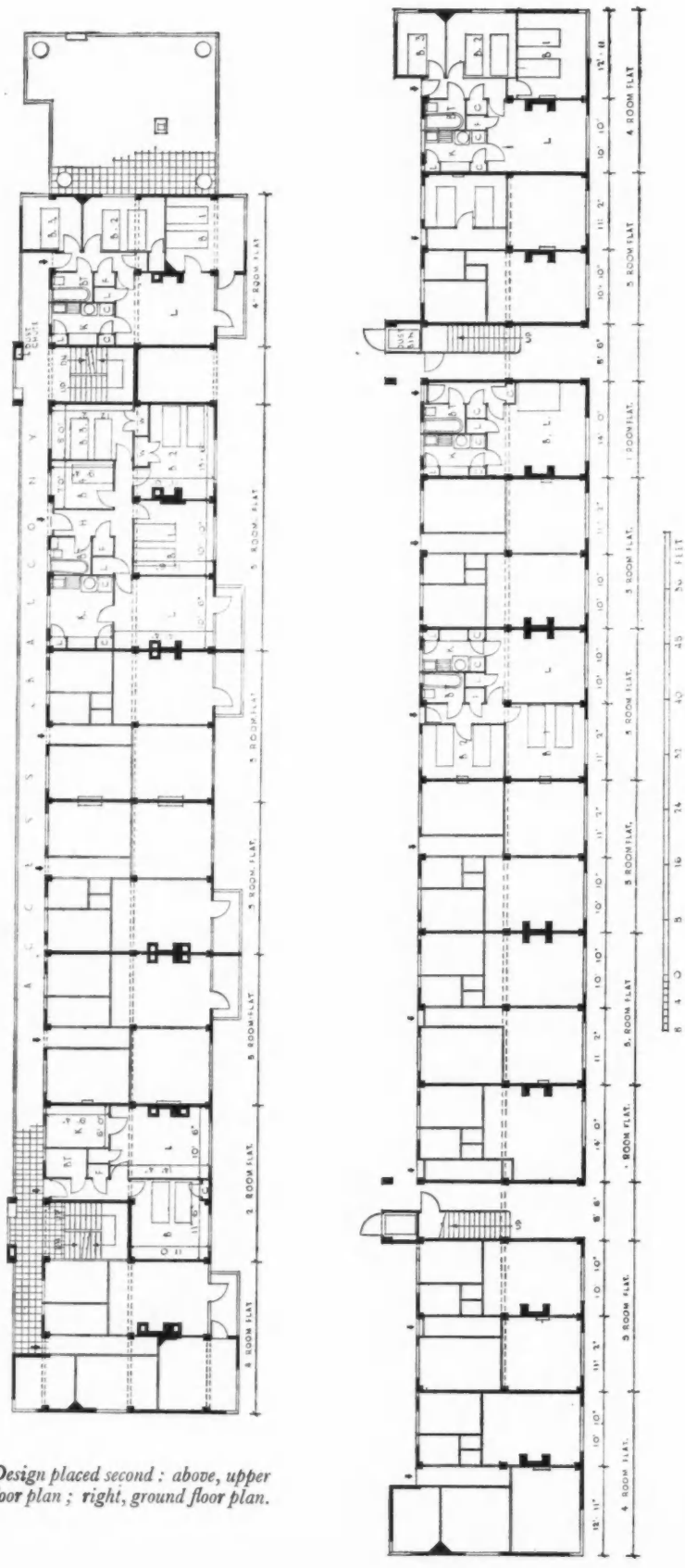
so that in the complete scheme of five blocks totalling 200 flats there would be :—

1 Rm	2 Rm.	3 Rm.	4 Rm.	5 Rm.
10	30	100	50	10 Flats

The one room flats have purposely been kept on the ground floor and the five room flats on the first floor so as to minimise climbing of stairs to those childless families (presumably aged couples) and to those with the largest families. The stairs are continued up to give access to the roofs.

The site has been laid out to give one large recreational space between the blocks and two

COMPETITION FOR WORKING-MEN'S FLATS: DESIGN



Design placed second: above, upper floor plan; right, ground floor plan.

internal courts (separated from the recreational space by screen walls) which would be laid out with lines for drying of clothes. Also against the screen walls would be the pram and/or cycle sheds—in number one to each flat.

METHODS OF CONSTRUCTION

Generally.—To keep down the cost of the reinforced concrete floors and framework, short span floors and beams have been adopted by the close spacing of the columns. The columns are standardized at 10 ins. square throughout to simplify the centering.

Generally the reinforced concrete structure is carried on three rows of columns. Four inch external reinforced concrete walling is employed throughout. The floors span across the building, the central longitudinal beam acting as the mid-support. The cantilevered access and private balconies are in solid construction slightly sloped upwards on the underside.

Construction and Insulation of Walls.—The external and staircase walls to be in 4 in. reinforced concrete formed with wood shuttering outside and inside, with 1 in. cork slabs left permanently in position as insulation. Balcony fronts in 4 in. reinforced concrete with wood shuttering both sides. Party walls are, except where brick stacks occur, also in 4 in. reinforced concrete, and are to have 1 in. cork slabs both sides as shuttering and left permanently in position as insulation.

Construction, Insulation and Finish of Floors and Roofs.—Ground floor slab to be in 6 in. lightly reinforced concrete made with water repellent cement and covered with $\frac{1}{2}$ in. rubber flooring laid in rubber solution.

All upper (suspended) floors and flat roofs to be two-way reinforced concrete floors with hollow concrete tiles. On the upper surface of the floors is laid a layer of insulating board and to this $\frac{1}{4}$ in. rubber. This gives a total floor thickness of $7\frac{3}{8}$ ins. and the floor gives an average sound insulation value of approximately 65 decibels and would make the vertical transmission of sound from flat to flat practically negligible.

The roof slab would be similarly treated as far as its underside is concerned but the upper surface would be covered with two layers of asphalt on which would be laid precast "Cullamix" tiles (12 in. by 12 in. by $\frac{1}{2}$ in.), which would give an attractive and good surface to the flat roofs. This tile finish to the roof slabs would add to the insulating qualities both of sound and solar heat already provided by the layer of insulating board between the asphalt and roof slab.

Internal Walls and Partitions.—The internal partitions generally to be in 2 in. precast breeze concrete blocks.

Internal walls where coal fires occur (in living rooms) to have breasts and flues built in brickwork and stacks carried up 7 ft. above flat roof level.

Treatment of Exterior Walls.—The whole of the external wall surfaces including balcony fronts (both sides), parapet walls, stacks, etc., to be rendered in two coats.

Windows.—All windows to be standard steel casement built direct into concrete walls. External cill to be of cast iron. Internal window cills to be formed of precast "Cullamix" tiles.

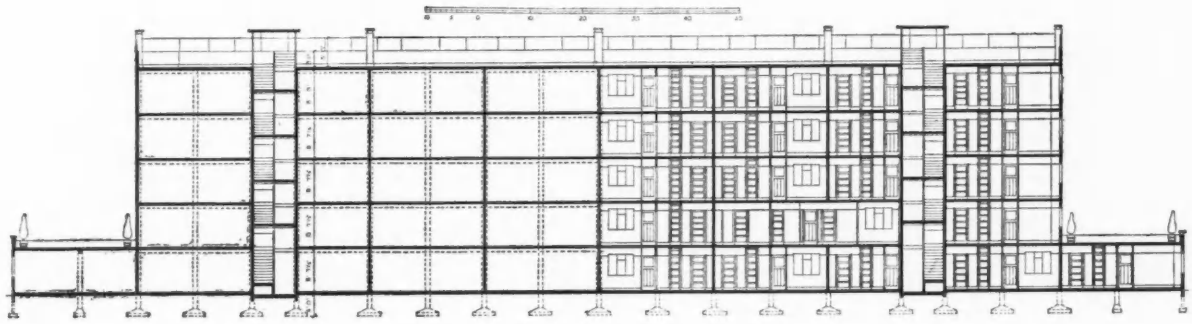
Doors.—Entrance doors to all flats to be standard steel doors in steel frames, upper panels glazed and lower panels filled with oak. All internal doors to flats to be standard soft wood doors.

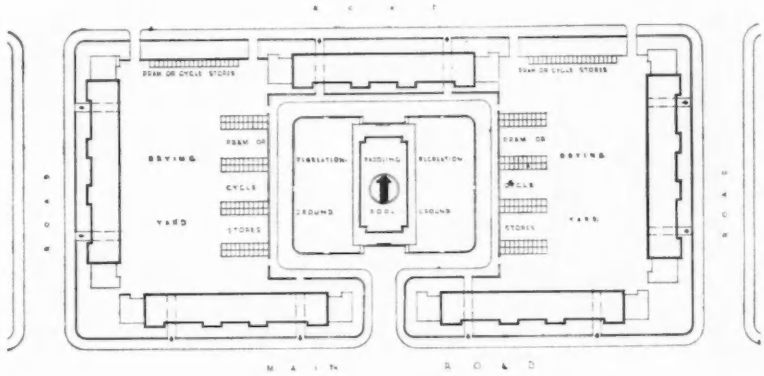
Frames, Skirtings and Picture Rails.—All internal door frames, skirtings and picture rails to be in pressed steel.

Kitchen Equipment.—All kitchens to be fitted with table top dresser, folding table flap to gas coppers, larder and broom cupboards, etc., as shown on plans. Gas coppers to be connected to water supply and provided with asbestos flue outlets to open air.

Refuse Disposal.—Refuse would be disposed of by means of two shutes to each block, placed

PLACED SECOND, BY A. P. LLOYD AND E. W. COLLINS





Design placed second : above, section ; right, lay-out plan.

near the staircases and discharging at ground level into metal bins on wheeled carriers in the special compartments provided for this purpose. These compartments to be fitted with steel doors. Also all shute shafts will be ventilated immediately under the canopy at main roof level.

Drainage.—This to be on what is termed the "one pipe" system.

Mesh Grilles to Balcony and Main Flat Roof.—Above concrete walls to a total height of 3 ft. 6 ins. above floors of balconies, provide and fix metal tubular railing filled with steel mesh grilles to all balcony fronts. Similar railing and mesh grille to be fitted above parapet of main flat roof to a total height of 5 ft. 6 ins. above roof level.

Glass Screens to Head of Stairs at Flat Roof Level.—Metal screens with wired glass panels are to be provided at the top of the main stairs where these discharge on to the main roof with flat roof canopy over same carried out to the line of parapet wall and supported by two small circular steel tubes.

Electric Wiring.—All electric wiring to be in screwed conduit and each flat to have one ceiling point to each room and entrance hall, and flats with five bedrooms to have built-in I.K.W. electric fires to two bedrooms in each as previously mentioned.

ESTIMATED TOTAL COST OF STRUCTURE, £12,438 (One Block of 40 Flats).

	Total Cost	Cost per Habitable Room (124 Rooms)	Cost per Sq. Ft. of Floor Area (21,500 sq. ft.)
	£	£ s. d.	d.
Foundations up to ground floor level	346	2 16 0	3.86
External walls	1,652	13 6 6	18.44
Floors, roof, stairs	4,413	35 12 0	49.26
Partitions and flues	2,164	17 9 0	24.16
Windows and doors	1,294	10 8 6	14.44
Sanitary equipment	1,131	9 2 4	12.62
Heating and hot water	784	6 6 6	8.75
Lighting	414	3 6 8	4.62
Outbuildings, if any	240	1 18 6	2.68
	£12,438	£100 6 0	138.83

Quantity of Structural Concrete, 820 cubic yards. Quantity of Steel Reinforcement, 38¼ tons.

Design placed second : table of costs.

REPORT

ON THE DESIGN PLACED THIRD

Following are extracts from the report submitted by the competitors placed third :—

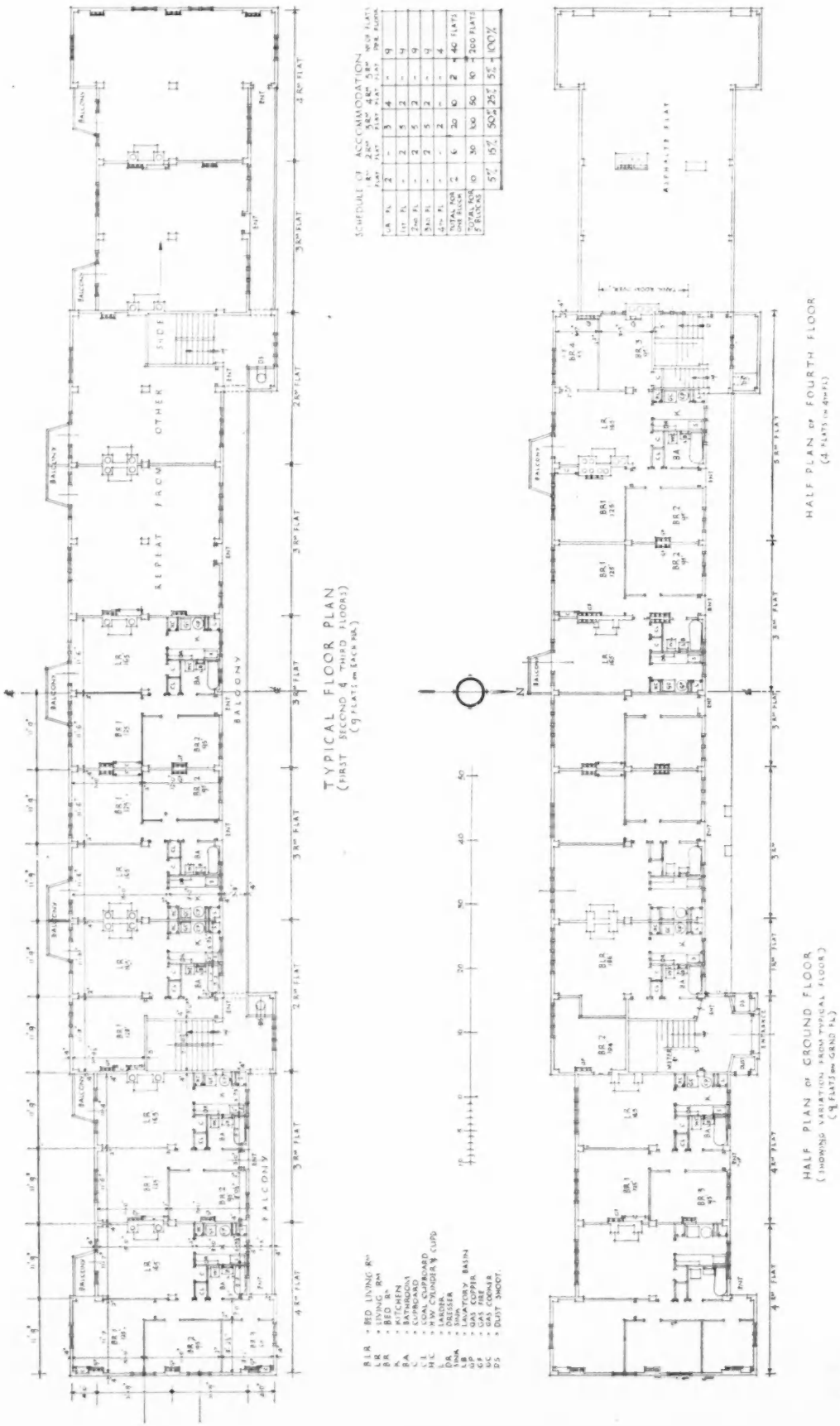
CONSTRUCTION

The buildings are designed as reinforced concrete frames, the pillars being generally 14 ins. by 9 ins. on the ground and first floors, 12 ins. by 9 ins. on the second and third floors, and 10 ins. by 9 ins. on the fourth floor ; some lightly loaded external pillars are smaller. The beams are generally 9 ins. in width, and 12 ins. or 14 ins. in depth, including the floor thickness, and with the pillars would give the necessary resistance to wind pressure.

The floors are designed as 4½ in. solid concrete slabs reinforced with ½ in. diameter rods to demonstrate the capabilities of reinforced concrete floors, and sound and heat insulation is obtained by the use of Masonite or similar type boards for the ceilings, and stout linoleum for the floors, it being considered that this will be quite satisfactory as regards air-borne sounds, and the reinforcing rods are not continuous over the beams in the case of the party walls, to avoid transmission of vibration.

The external walls are 4 in. solid concrete, containing high tensile steel mesh reinforcement of 7 in. square mesh, lined with 1 in. cork slabs and plastered on the inner side. These walls are carried on beams at each floor, including the ground floor. The party partitions are designed as 4½ in. hollow concrete blocks, the

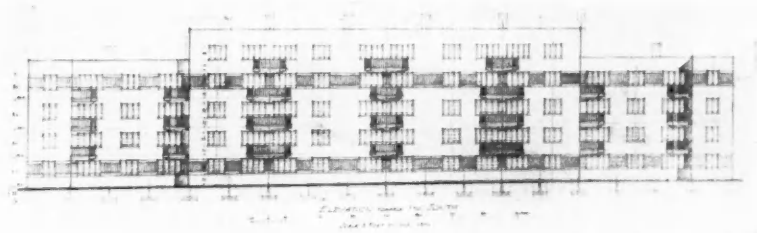
COMPETITION FOR WORKING-MEN'S FLATS: DESIGN

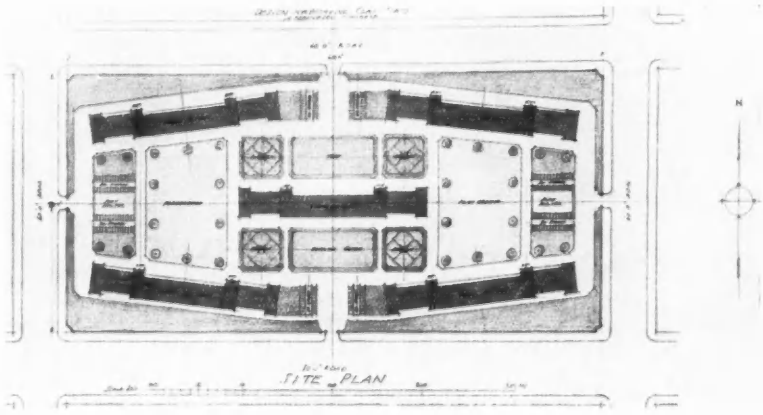


Design placed third: floor plans.

PLACED THIRD, BY H. V. ASHLEY AND WINTON NEWMAN







Design placed third: above, perspective sketch; right, south elevation and lay-out plan.

other internal partitions as 2 in. breeze slabs plastered both sides in each case.

The roof is of similar construction to the floors, except that the upper surface is covered with asphalt, and there is an air space between the ceiling and the under side of the concrete, for the purpose of insulation against heat and cold.

DESIGN.

The plan is based on a unit of 11 ft. 9 ins. and is so schemed that the proportion of rooms to the flat can be varied without upset—as shown the percentage has been rigidly adhered to.

In the lay-out of the site, we have arranged five blocks, each block containing 40 flats, the centre part being five storeys in height, and the wings four storeys—the blocks are so placed as to give them maximum area for the amenities generally, and by "splaying" the fronts, east and west, the value of the morning and evening sun is realized.

The whole of the exterior wall surfaces would be treated with "Ivory White" "Cullamix," applied with a brush and stippled direct on to the hessian finish of the reinforced concrete walls; it is proposed to line the shuttering with the hessian or scrim before the concrete is deposited. Colour in bands would be introduced into the "Cullamix," and certain piers between windows would have a corrugated shuttering to give a definite scalloped effect in these positions.

Regarding the architectural design, it is evident that competitors are confined to the materials specified in the conditions, but it is thought that by breaking up the block, and suitable fenestration and colour treatment, some individual and interesting quality can be achieved in what might otherwise be a rather drab enterprise.

ESTIMATED TOTAL COST OF STRUCTURE, £15,000 (Less Outbuildings).

	Total Cost	Cost per Habitable Room			Cost per Sq. Ft. of Floor Area	
		124	per	Block	22,100 Sq. Ft.	
	£	£	s.	d.	s.	d.
Foundations up to ground floor level	442	3	11	3½		4¾
External walls	3,350	27	0	4	3	0
Floors, roof, stairs	3,900	31	9	0½	3	6
Partitions and flues	2,350	18	19	0	2	1½
Windows and doors	2,420	19	10	4	2	2
Sanitary equipment	960	7	14	10		10½
Heating and hot water	850	6	17	1		9
Lighting	350	2	16	5½		4
Outbuildings, if any	350	2	16	5½		4
Preliminaries	350	2	16	5½		4
Totals	£15,322	£123	11	3½	13	9¾

Quantity of Structural Concrete, 1,150 cu. yards. Quantity of Steel Reinforcement, 73.25 tons.

Right, design placed third: table of costs.

LETTERS FROM READERS

Corby

SIR,—You published in your issue for March 14 Mr. Boumphrey's article on Corby, or all of it which appertains to the housing estates. I have sent a reply to *The Listener*, and I enclose a copy, and should be obliged if you could find room to publish it, since your JOURNAL is widely read by numbers of the profession, many of whom may never have heard of *The Listener*.

I want also to draw your attention to certain very pertinent inaccuracies in "Notes and Topics," under the pseudonym of "Astragal." In the second paragraph he states, "it has been given as the author wrote it." This is untrue. In fact, at a meeting Mr. Boumphrey and the B.B.C. were told that they would be sued for libel by me should they broadcast his article as it stood; and I and other interested parties spent a morning informing him of the numerous departures from fact and misleading statements which his article contained. Mr. Boumphrey has omitted the former, varied but not removed some of the latter, and has added further inaccuracies. "Astragal" also states, "the criticism is constructive and made with knowledge and authority." That part of the broadcast dealing with the housing—incidentally I had no part in the town planning of Corby nor the choice of sites—contains not a *single* constructive sentence. As to knowledge, Mr. Boumphrey, at the meeting referred to above, showed a lamentable ignorance of the Ministry of Health and other regulations and economic facts governing housing schemes. Is an engineer without a regular practice an *authority* on the work of a practising architect? Surely "Astragal" has been led astray from his usual virtuosity when he allows himself to write with such little "knowledge and authority" as to word the next sentence to imply that Mr. Boumphrey is a practical town planning expert-cum-architect.

The last paragraph is dreadfully final, and convinces the reader that at any rate *here* is one who speaks with "knowledge and authority." I refer to the italics in "it *was* apt and it *was* constructive." Had "Astragal" been behind the scenes as I have, or known Corby even as little as Mr. Boumphrey does, he would realize how *in*apt and *de*structive is the combination of broadcast and article, with illustrations, entitled "Industry Comes to Corby."

LAURENCE M. GOTCH
London

[*We print with pleasure Mr. Gotch's reply to Mr. Boumphrey's criticisms, which reads as follows.*—ED., *A.J.*]

Mr. Boumphrey comes to Corby with all the destructive effort of a mechanical digger but with much less productive result. He has now criticized the housing on the Corby estates by word of mouth from Midland Regional, in print in *The Listener*, and by means of photographs.

As I can reply only in a short unillustrated article, my immediate answer is to ask people to go to Corby and judge for themselves. They might glance again at the photographs when on the spot. One of them (p. 432) gives a view of a garden close from an angle; Mr. Boumphrey may remember that he had opportunity to judge it, and to appreciate its vista, from the normal line of approach. The next photograph gives a side door and side elevations, with no suggestion of the unifying curve along the line of frontages. Not one of the photographs shows a completed architectural scheme, and too much trouble has been taken to suggest a false sense of contrast.

So also with the talk. As an architect I have no objection at all to valid criticism, though prejudiced or carping criticism may be another matter. Mr. Boumphrey has every right to his opinions, but he should take care of his facts. On a visit to Corby he made it clear that he had preconceived ideas about building of housing estates—as one might say that Bush House does not come up to the standards of the Skyscraper—but when the steel firm courteously offered him a piece of land on which to build a pair of houses to his own design, his reply was, "I am not an architect!" Well, I *am* an architect, and regret not being able to fit my work, or my clients' wishes, into the rigid frame of Mr. Boumphrey's prejudices. Moreover, he made many mistakes of fact in his first written review of Corby. Most of these he corrected when they were pointed out to him, but the ease with which he could correct them and yet hold to his opinions did not make him appear any the better critic of architectural practice.

A number of misleading statements remain. For example, the housing is not chopped up into small units, for a large majority of the houses are in blocks of four or more, and I fail to see how the number of small units that do not exist make "anything like architecture impossible." Again, he found "some bedroom windows facing straight into each other across a gap of only five or six yards," but this is true of only 8 per cent. of the bedroom windows. The average distance between the houses is 18 feet, and I would like to know of any other housing estate with houses just under 12 to the acre of which this can be said, taking into account the wide roads and the many open spaces? Incidentally, the majority of the bedrooms have south windows. On windows again, Mr. Boumphrey says that in most cases the glass line is only a few inches above his eye-level—and his height is under five feet and eleven inches. The average height of an adult is five feet seven inches, and the eye-level is therefore five feet three inches.

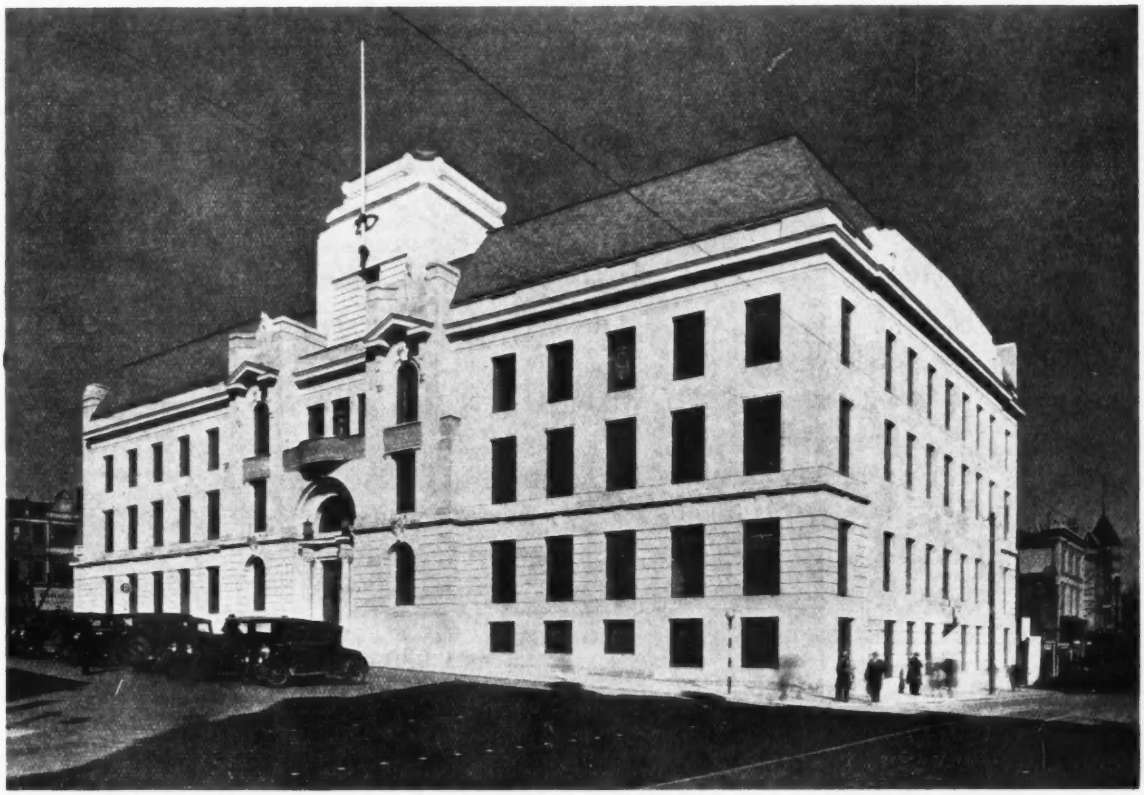
In over a thousand houses there are only three windows below the level of five feet eleven inches. Apart from those, the average height is six feet four inches. The average superficial area of the glass is approximately 15 per cent. of the bedroom floor space. The rooms are, therefore, well windowed, and Mr. Boumphrey can see the sky if he wants to find it. Small panes are used for the definite purpose of giving the right scale to a house and for economy in maintenance; I submit that ease of cleaning is a matter of opinion.

Mr. Boumphrey's method of criticism is to seek for defects, so no doubt many listeners formed a poor opinion of Corby. What about more positive points? If they had been told of an earlier building plan for Corby, with uniform houses in straight lines around a playing-field of irregular shape, they would have had more facts with which to judge. Or the objection to "houses set at odd angles," with "roof-lines cutting across each other" is, in fact, a good point for my clients, who wished to combine the greatest possible individuality in the houses with the most economic rent for the occupiers. Let us remember that the rents, without rates, in the main estate are eight, nine or ten shillings a week, and that a workman out of Glasgow tenements comes back to what is recognizedly his private house with its own character. Within economic limits and within conditions set by the Ministry of Health for housing estates—of which conditions Mr. Boumphrey seems to have no detailed knowledge—I am satisfied that both my clients and myself have done our utmost.

As for the East Carlton Estate, Mr. Boumphrey gives us credit for taking "a great deal of care and trouble," so there is little to be done except to receive the tribute gracefully, perhaps with some wonder as to what the critic really wants after he has compared Corby unfavourably with "the new works—acres of really efficient looking buildings going up in a miraculously short time." (For some of which I was also the architect.) Here again an older scheme was scrapped. Houses facing outward to the road were turned inward to the Park. Here, again, cost dictated the predominant use of brick, though I myself would have been delighted to design stone-built houses in my native district.

But why does Mr. Boumphrey ignore more positive details, such as that the average frontage of 43 feet per house is about 50 per cent. more than that of suburban housing estates where rents are approximately 25 per cent. higher, though the extra width involves additional cost on roads and sewers? Or that the houses are mostly detached and deliberately planned to give both sitting-room and two out of three bedrooms a view over the "really beautiful" park?

BUILDING SOCIETY'S OFFICES, WOOLWICH

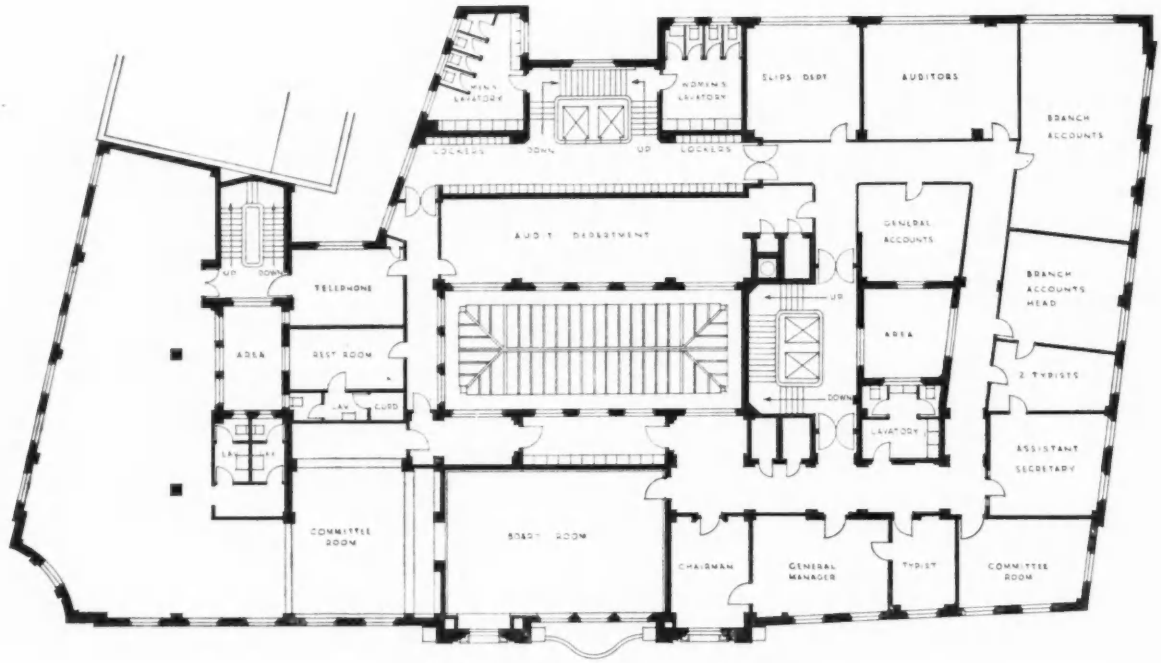


This building is planned on a sloping site, open on three sides, and a basement floor, containing boiler and electrical rooms and a garage for staff cars, has been arranged at the lower level. The remainder of the building consists of offices arranged round the top-lit central banking hall, with board and committee rooms on the top floor. STRUCTURE. *Steel frame, faced with Portland stone and roofed with Westmorland slates.* FINISHES AND EQUIPMENT. *The entrance and banking halls are lined with Hopton Wood stone; board and committee rooms in oak. Flooring throughout is rubber on hollow tile, with the exception of the board room, which is in oak. Heating is by embedded ceiling panels.*

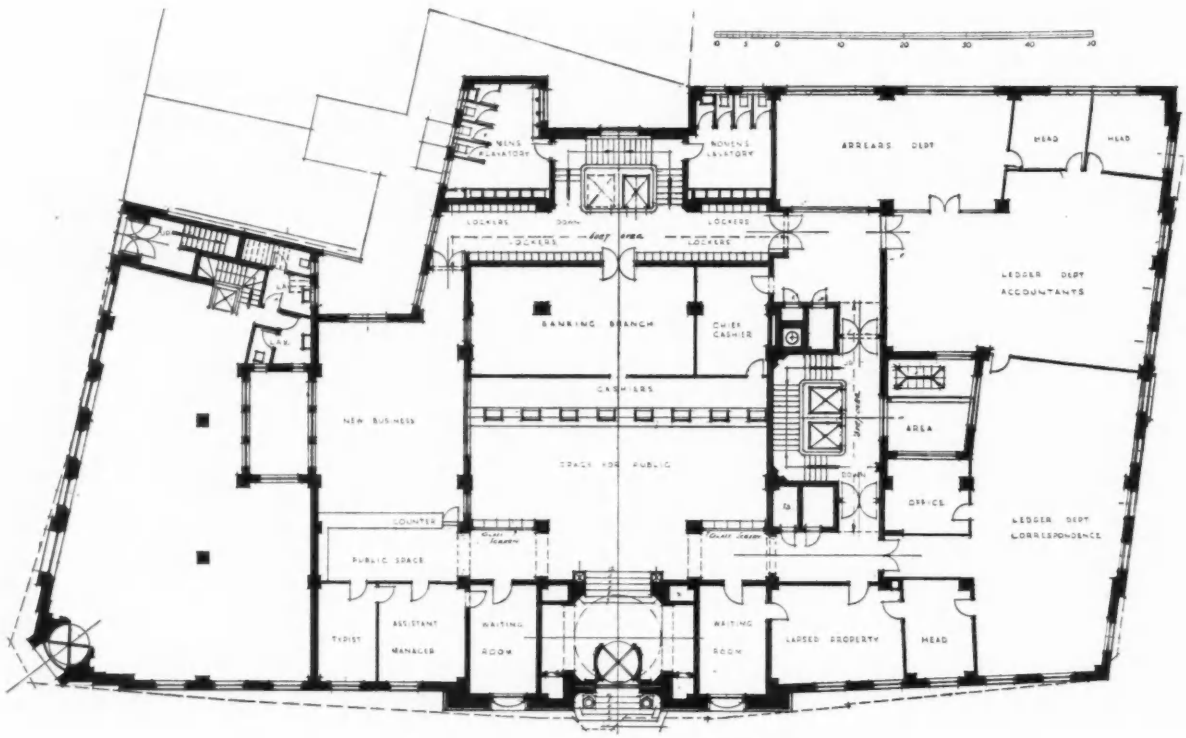


DESIGNED BY LIONEL U. GRACE AND W. G. FARMER

BUILDING SOCIETY'S OFFICES,



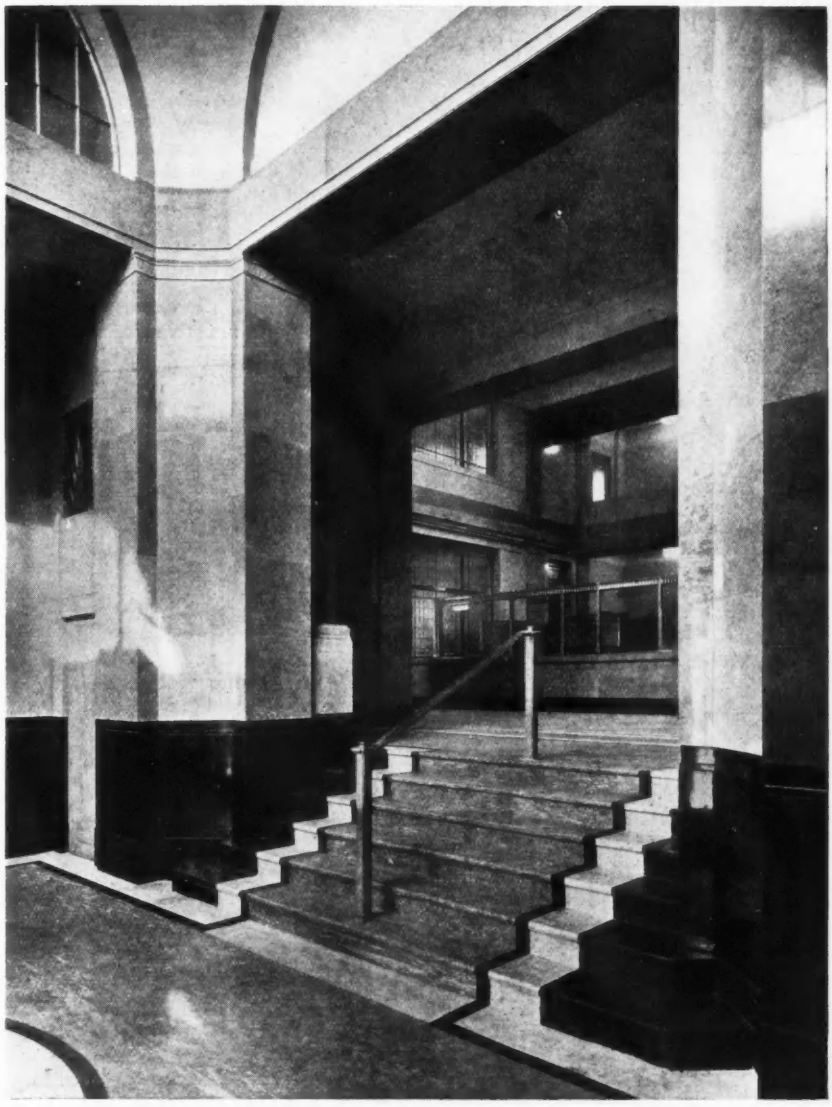
UPPER FLOOR PLAN

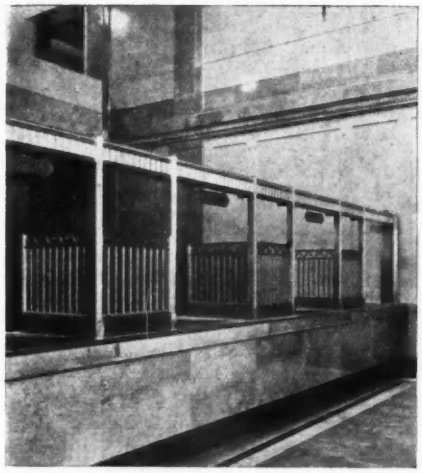


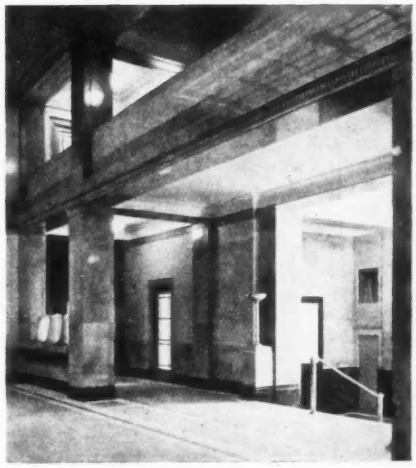
GROUND FLOOR PLAN

GREEN LANE, WOOLWICH

DESIGNED BY LIONEL U. GRACE AND W. G. FARMER







The photographs show : above, a view of the entrance hall looking up the stairs to the main banking hall ; left, two further details of the banking hall, showing the silver bronze grilles to the cashiers' counter, and the gallery above the entrance staircase. The walls are lined with Hopton Wood stone.

L I T E R A T U R E

EXPLORING BIRMINGHAM

[*BY PHILIP H. MASSEY, B.Sc. (Econ.), F.R. Econ. S.*]

Birmingham's Black Spots. Birmingham: L. S. Florence (Highfield, Selly Park Road). Price, Sixpence net.

IN the introduction to this pamphlet it is stated that :—

"An official survey should, of course, have been made as a basis for the city's Five Year Slum Clearance plan, but, so far as we know, no authoritative estimate has been made since 1914. In that year a Special Housing Inquiry Committee reported to the Council that there were 43,366 back-to-back houses and 58,028 houses without a separate lavatory; and 'thought it fair to assume that any scheme of rehousing the population now provided with inadequate accommodation would have to contemplate the erection sooner or later of not less than 50,000 houses.' Between that date and November, 1933, only some 600 houses were replaced. More than 10,000 have, it is true, been reconditioned, but it is very doubtful whether they have all been brought up to a reasonable standard."

The survey reported on in this pamphlet was carried out in February-April, 1934. It consisted of an extensive examination, by 1 in 70 random samples, of the seven central wards of the city (St. Bartholomew's, St. Martin's, Market Hall, Ladywood, St. Paul's, St. Mary's and Duddeston) and an intensive examination of four small bad areas. Minimum requirements for a standard house, described in detail in the pamphlet, were applied to the houses visited in both sections of the survey.

In connection with the first section of the survey, 627 houses were visited. Only 329 of these enjoyed through ventilation. (A house which had any kind of opening on a second side was generously described as having through ventilation.) 412 of the houses shared w.c.s; in a few cases there was only one between three houses. 377 were two-bedroomed, and the second bedroom was in some cases below 90 sq. ft.

116 of the houses visited in the seven central wards had no water laid on and "a pantry for really well-ventilated food store is rarely found." 108 were damp and 78 verminous. It is pointed out that the houses called damp were, so far as possible, those with rising damp or damp penetrating the walls, not merely a leaking roof, and that only those houses quite badly infected with vermin were included as verminous.

173 of the houses were in bad internal repair, 136 in bad external repair, and in 85 the yard, outhouses or w.c.s, etc., were in bad repair.

"Wash-houses and w.c.s often have leaking roofs and defective doors and windows and old-fashioned or faulty appliances. There is very rarely one dustbin to each house, with the consequence that containers often overflow about the yard, and if it is wet the result is a sodden wet mass in winter, and it is probably very smelly in summer."

The evils of partial reconditioning—described by one tenant as "codging-nodging"—are specially noted. This is frequently due, of course, to an owner's fear of a house being condemned in the near future.

The overcrowding standard adopted was—sex separation over ten years of age, not more than two persons per minimum-sized bedroom, no one to sleep in living-room. At least 133 families were overcrowded on this standard, and 103 others, not overcrowded, wished to move. Only 66 of the 236 could afford over 10s. rent.

Conditions were far worse in the areas selected for intensive examination. Of the 425 houses in these four areas, only 112 had through ventilation, 367 shared w.c.s, 111 had no water laid on, 107 were damp and 104 verminous. 222 houses were in bad internal repair and 122 in bad external repair. 147 families were overcrowded and 96 others wished to move, but only 45 could afford more than 10s. rent.

Following the analysis of conditions of houses investigated, the seven wards are considered separately with some individual examples of particularly poor conditions. It is considered that St. Bartholomew's ward should be left entirely to industrial concerns. General remarks and a summary of the investigation lead to a brief estimate of the needs of Birmingham as a whole.

In the seven wards, which covered one-fifth of the houses in Birmingham at the 1931 Census, 41·6 per cent. of the houses investigated were "below standard." It is considered that if the figures estimated for the seven wards on the basis of the results of the sample investigation are doubled, the result (38,000 below standard) would be a conservative estimate of the position in Birmingham as a whole. About 28,000 of these would be utterly unfit and about 10,000 could be made habitable if throughly repaired. Besides these, there would be a further 18,000 back-to-backs, not classed as "below standard," which should go as soon as possible.

Shorter Notices

Farm Buildings. By Edwin Gunn, A.R.I.B.A. Surbiton, Surrey: H. C. Long. Price 5s. net.

AGRICULTURE normally absorbs the activities of some 1,350,000 persons in Great Britain—more than any of our industries except building and transport. The oldest of them all, it is—therefore, no doubt—the most severely handicapped by antiquated premises. Realization is spreading, rather late in the day, that farming can be made to pay only by rationalization. That means newer and/or better buildings. Here, then, are fields (by the acre !) that the architect, especially in the provinces, should not leave untrodden. With Mr. Gunn by his side, he can step through the mire and over the snags with confidence.

"It is," he writes, "with farming as a business that the author is concerned." In the course of a lifetime spent at close quarters with that business he has encountered the good-enough-for-my-grandfather attitude. "Many farmers do not . . . realize that the maintenance of needless or partly-used buildings may represent . . . more than the interest on capital sums that would enable them to be replaced or adapted," he says; and forthwith proceeds to show, by precept and example (the numerous drawings are concise and illuminating) how this may be done with strict regard to economy and utility. Circulation, of course, supplies the key (in a milking shed there are four circulations to be planned, preferably independently, under one roof: of fodder; of milk; of dung; and of animals—the last aided by "cow-valves," i.e., non-return doors). Things big and (particularly) little that must be taken into account emerge in every other sentence.

Why are 7 ft., 12 ft. and 14 ft. "master" dimensions? How can the whole operation of milking 50 to 60 cows be brought within the compass of a man and a boy? Why, in pigsties, should the external pen doors be placed diagonal to, not opposite, the inner sty doors? What flooring will best endure the pounding of fidgety horses and stampers? Easy—when, like Mr. Gunn, you know the answers! There are typographical errors—but quite obvious ones—on pages 66 and 77.

H. F.

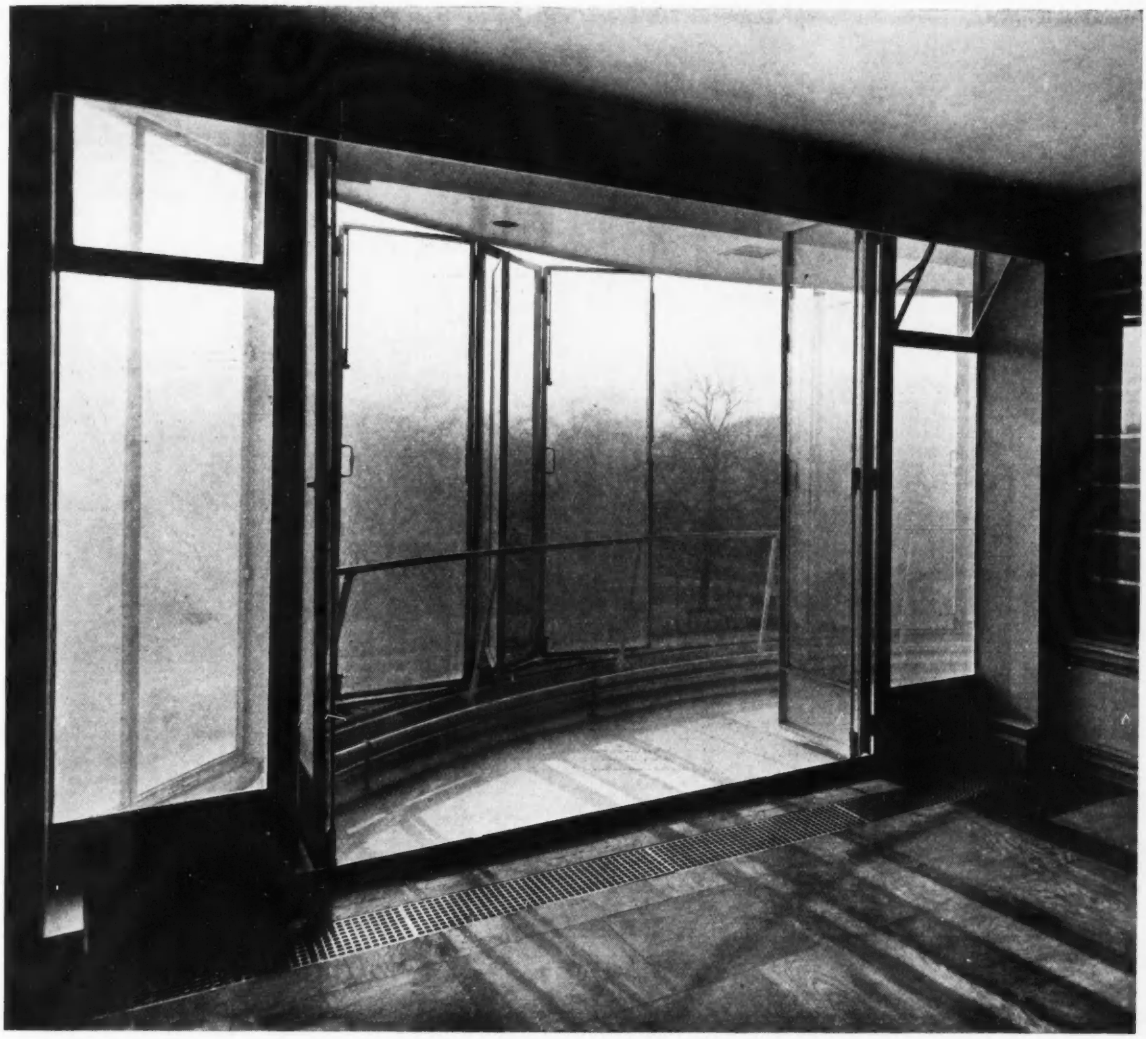
Architectural Evolution. By H. A. Townsend. London: Arthur Stockwell, Ltd. Price 2s. 6d. net.

THIS book is founded on a good idea: to produce a reference handbook of architectural history, consisting of tabulated examples. A list is first given of the "styles of architecture," beginning with the earliest historical periods, with the dates during which they were extant ("modern" architecture is rather arbitarily made to date from 1920); and then, under each heading, the names of representative buildings are tabulated with the dates (if known) of their construction. Most space, of course, is given to European buildings. The examples are only given up to the end of the Georgian period. If similar tables, as is promised, are continued up to modern times in a second volume, it will make much more interesting reading than the first: the author will have reached the period when the relative importance of examples is a matter of personal opinion rather than of the accepted verdict of posterity.

Though the book cannot be said to contain any original research or information not available elsewhere, the information has not hitherto been available elsewhere in so compact and inexpensive a form. Many people may find it useful as a reference book. It would be twice as useful, however, if the name of the architect were given in more than occasional isolated cases.

WORKING DETAILS : 227

SUN BALCONY • SEAMORE PLACE, LONDON, W. • FELIX GOLDSMITH

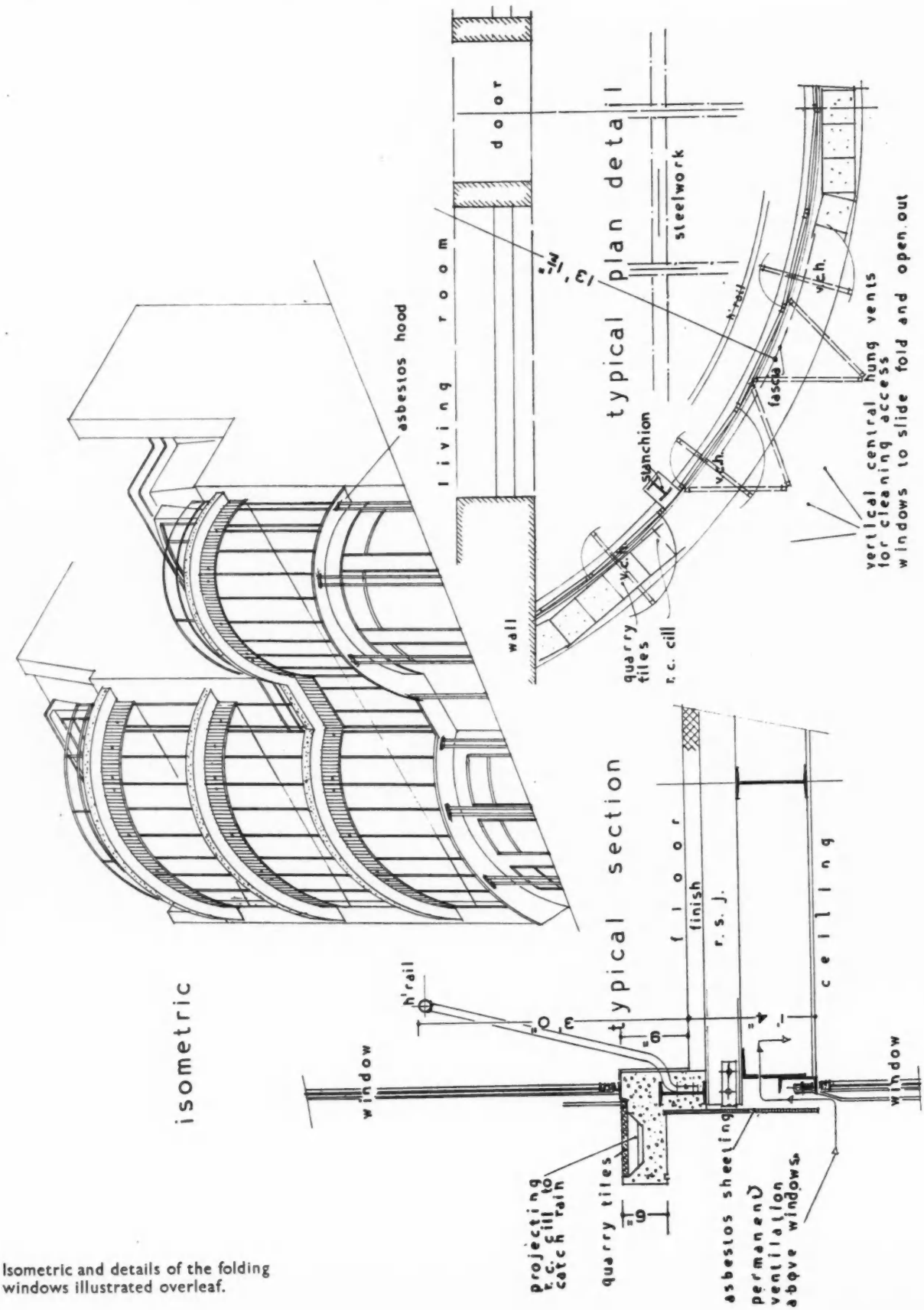


The folding windows illustrated above have been fitted to existing bays during the conversion of the house into flats. The living room and bedroom open on to the same bay and the whole of the glazing can be folded right back, leaving an unobstructed opening. To avoid condensation, heating pipes are run round the balcony at floor level and the inner window is warmed from pipes in the floor covered by a metal grille. The typical plan and section overleaf show the lay-out of the folding windows, and the fixing of the safety rail.

FILING REFERENCE:

WORKING DETAILS : 228

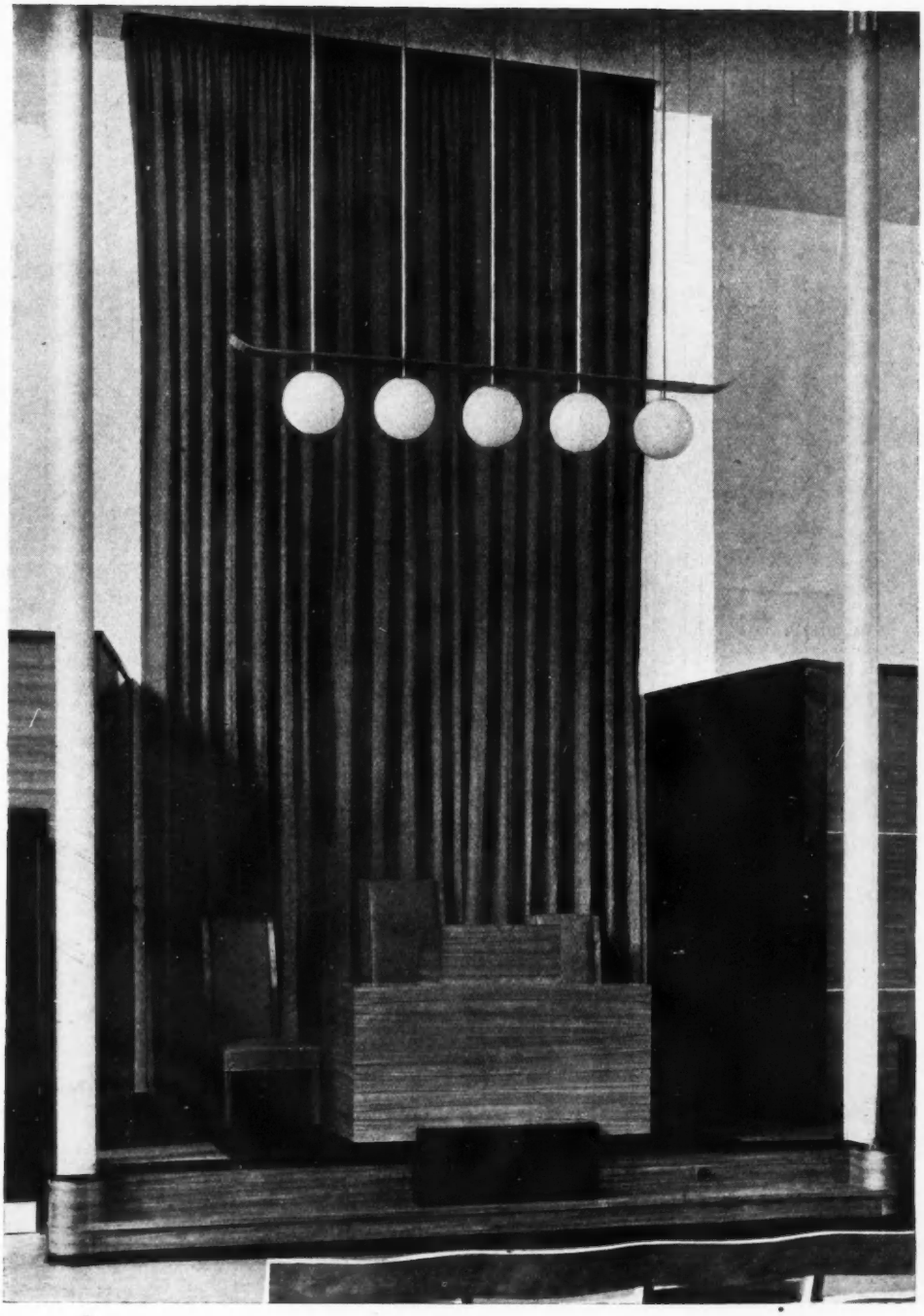
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Isometric and details of the folding windows illustrated overleaf.

WORKING DETAILS : 229

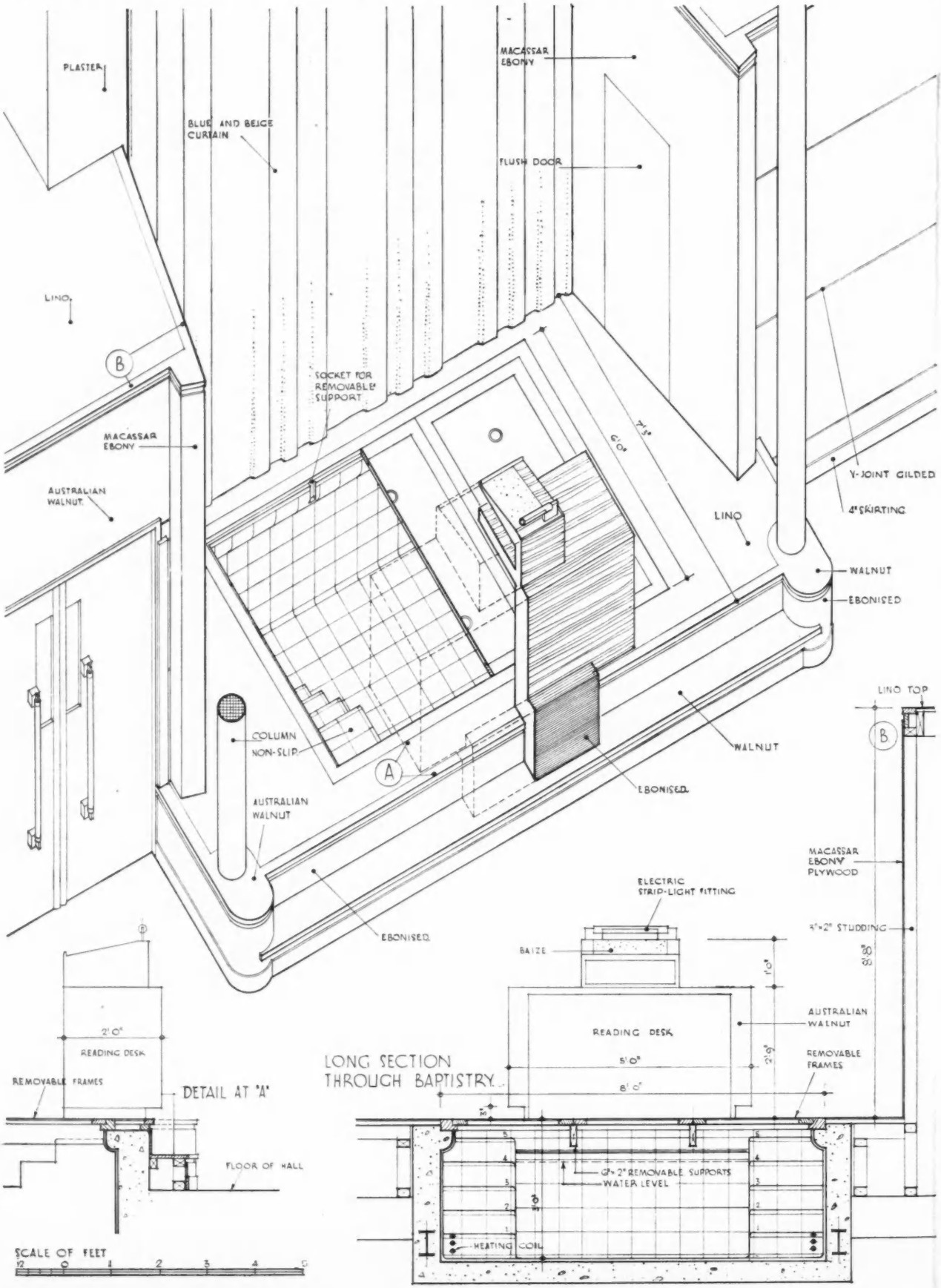
BAPTISTRY AND READING DESK • NORTH GATE HALL, OXFORD • SIR JOHN BURNET, TAIT AND LORNE



This reading desk and speaker's platform is arranged with a removable floor, which gives access to a tiled baptistry beneath it. The platform is panelled in macassar ebony, the reading desk is in Australian walnut and ebony, and the curtain is blue and beige, lit by a strip lamp from the recess at the top. The axonometric and details overleaf show the arrangement of the steps leading down into the baptistry, which is filled with heated water, and the framing of the removable floor.

WORKING DETAILS : 230

BAPTISTRY AND READING DESK • NORTH GATE HALL, OXFORD • SIR JOHN BURNET, TAIT AND LORNE



Axonometric and details of he baptistry and reading desk illustrated overleaf.

TECHNICAL SECTION: 10

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

INDIRECT SYSTEMS: GASES

Flue gases in ducts (Roman System)

THE culture of the Romans developed a type of heating which produced much the same effect as our radiant systems of today by warming the floors and walls from a furnace in the basement. Examples are brought to light from time to time in this country, and those at Bath are quite well known. Recent excavations at Verulamium show clearly that this form of central heating was an essential item of all the better class houses of the time, yet the art was evidently completely lost when the Romans departed, and it has taken some sixteen hundred years or more to get back to their state of civilization in this respect.

Even to this day there lingers a prejudice against any form of warming in the home other than by the open fire, which, after all, is but a refinement of the method adopted in the dark ages after the Roman influence had died out. The Roman method, however, was probably extravagant, but this was of small importance, since the wood or charcoal which they burnt was readily obtainable.

The Roman system comprised a furnace below the ground from which the hot gases were conveyed in ducts under the floor to flues in the walls, emerging to the atmosphere at various points around the building. Sometimes proper ducts were formed, and in other cases the whole space under the floor, known as a "Hypocaust," appears to have been used. The wall flues were invariably of hollow tiles, very similar to their modern counterparts. The floor consisted of a slab corresponding to our concrete slabs supported on "Pilæ," and over this a mosaic was laid. Probably the distribution of heat was not uniform, but there can be no doubt that the general effect was highly successful.

Warm air in floor ducts (Liverpool Cathedral)

A comparison of the Roman system with that at the new Liverpool Cathedral (Fig. 38) shows that the principle is the same, though the medium is different.

At Liverpool, air is warmed by a furnace, and circulated through the ducts beneath the floor by means of a fan. This gives much better distribution of heat and avoids the danger of the gases depositing soot in inaccessible places. The result is most satisfactory and it is found that a floor temperature of 66-68 deg. F. is all that is necessary to maintain 60 deg. in the Cathedral in the coldest weather. The building is stated to be entirely devoid of draughts, though it must be admitted that a hot water system with radiators under the large windows is probably partly responsible for this.

Those responsible for the enterprise at Liverpool deserve to be congratulated for their great daring in returning to so old a system and applying it in a new form. Whether this system is suitable for buildings other than those of a monumental character is open to question, as considerable difficulties are apparent if one considers applying it, for example, to a modern multi-storey building such as a block of flats or offices.

Warm air with ducts (Ventilating)

The more common method of utilizing air as the medium of transmission comes under the category of *Warm Air Ventilating*, by which is meant that the warm air is discharged into the room to be heated.

The only difference between this method and the "Plenum" system referred to below is that in the "warm air" apparatus the air circulates by gravity through the ducts, due to the difference in temperature beween the hot rising and cold falling columns of air; whereas in the Plenum system the air is impelled through the ducts by means of a fan.

Thus, owing to the limitations in the sizes of ducts, the warm air system is applicable only to residences and small buildings, but the Plenum system may be used in any size of structure even to the very largest.

A warm air system is cheap to instal, as it consists simply of a cast iron fire pot and flue chamber, enclosed in a steel casing connected to a series of metal ducts terminating at the inlet registers in the various rooms; the natural convection currents set up when the furnace is heated serving to convey the warm air to the points required. The ducts should be lagged to prevent heat loss, and a humidifying pan of water often forms part of the furnace. The air to be warmed is generally introduced from outside, but may be arranged for re-circulation from the building in order to save fuel. A basement is essential for the furnace.

The system suffers from the defects of any purely convection system, but in an aggravated form, since the air may often reach 170 deg. F. at the gratings and probably more round the furnace. These high temperatures produce the roasted "burnt iron" smell and devitalized effect which is so difficult to account for scientifically, but which is generally thought to be due to the carbonization of the dust particles. The distribution tends to be affected by winds, and layering of the air is difficult to avoid.

In this country it has never found favour, though some of the older churches still use it, and it comes into the public view from time to time when a congregation or a clergyman has been overcome by fumes in church. These occurrences are due to the firepot having burned out, with the result that poisonous carbon monoxide and other fumes find their way direct into the building.

As with other high temperature systems, such as the steam system, we find it much in use in America and on the Continent. That the intricacies of design have been developed to a high state of perfection is apparent from the various textbooks and literature on the subject emanating from these sources.

"One-pipe" or "Pipeless" heaters

These are really identical in principle with the warm air system as described above, except that they have no distributing ducts (see Fig. 48). The furnace, enclosed in a casing as before, is placed in the basement immediately under the hall, where it discharges the warmed air through a grating in the floor. The heated air rises naturally

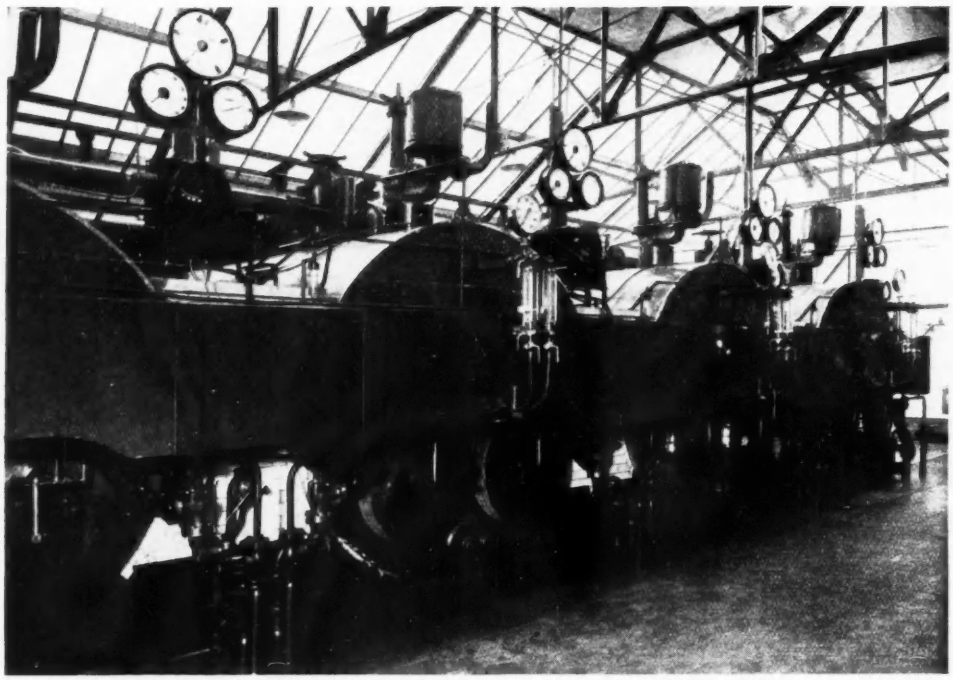


Figure 47. *A typical installation of "Economic" boilers, arranged for oil firing.*

up the stairwell to the top floor and enters the various rooms through any doors which have been left open. The cooler air which is displaced falls in the same way and returns to the heater through the outer portion of the same grating in the floor of the hall, this portion being divided from the centre.

The system is known to work quite well in cases such as that described above, but it has failed when attempts have been made to apply it to long rambling houses where some definite method of distribution is essential. It can never be said to warm the whole of a house, but in heating the hall and central portions it does perform a very useful function.

The Pipeless or One-pipe system has the merit of cheapness in first cost, and simplicity in operation, but it cannot be looked on as a complete system of heating, nor is it applicable to more than a small proportion of the various types of houses that are built, whilst for other and larger buildings it is entirely unsuitable.

Plenum System

The plenum system of heating comprises a centrifugal fan; a heater warmed by steam, hot water, electricity or gas, and a system of ducts distributing the air to the points required, as in Fig. 38.

Air is drawn in at the fresh air intake and is warmed at the heater to a temperature generally between 90 deg. and 120 deg. F. When this air is discharged into the room to be heated it cools to the room temperature, so giving up its heat to the walls, floor, ceiling, etc., just as the heated air from a convection radiator system cools down in its circulation through a room.

There is an important difference between these two systems in that the warmed air of the plenum system is under a slight pressure, so that inward leakages of air through windows, etc., usual with radiator systems, are non-existent, and all air leakages are outward. This means, however, that a great loss of heat is continually taking place, since all air supplied by the fan has been warmed in winter from, say, 30 deg. to 120 deg., and has cooled only from 120 deg. to 60 deg., so that one-third of the heat input is entirely wasted. It is therefore usual for such systems to incorporate a re-circulating arrangement by which air from the building is returned to the system for re-heating. This usually takes the form of a damper at the inlet, which can be set to give any proportion of fresh to re-circulated air. When 100 per cent. re-circulation takes place the pressure in the building is lost and infiltration will then occur, and so it is common practice to allow a maximum of 75 per cent. of air to be returned to the system.

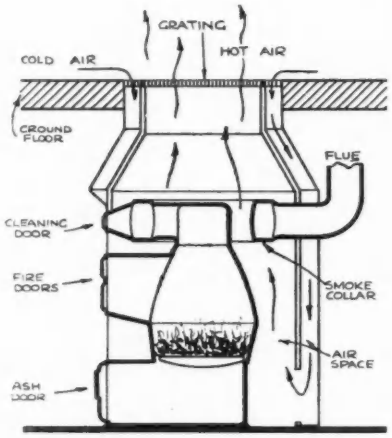


Figure 48. *Section of "pipeless" furnace for warm air heating system.*

Strong winds have the effect of counteracting the immeasurably small internal pressure generated by a Plenum system so that on the windward side of a building air leakages inward through windows, etc., may still occur with a corresponding drop in temperature.

Owing to the dirt brought in by the fresh air stream an air filter is generally interposed with the object of cleaning the air supply.

The system is particularly suitable, and has been much used, for the heating of factories, owing to its economy of installation, absence of apparatus at floor level, and shortness of time lag.

For the warming of offices or domestic types of building it is, however, not to be recommended. The continuous operation of the fan is necessary for distribution of the heat, and this may form a large part of the running costs. A heated air supply to rooms occupied by sedentary workers often conduces to a state of lethargy or lifelessness which is sometimes so oppressive as to cause headaches. Apart from these considerations there is often difficulty in accommodating large air ducts in a building and it is for these reasons that the system has found little favour except in the case of factories and similar open space type of building.

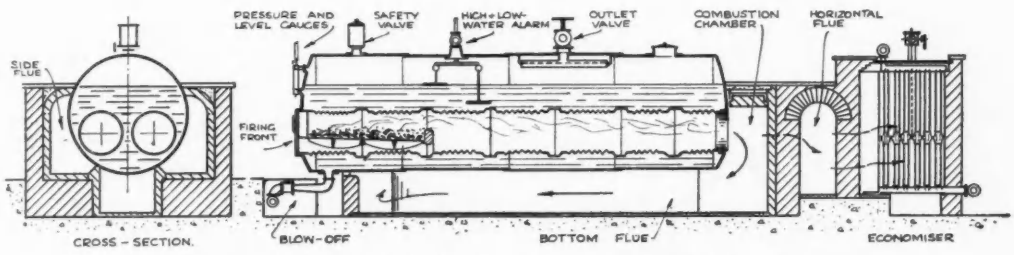


Figure 49. *Lancashire boiler for steam-raising at medium and high pressures.*

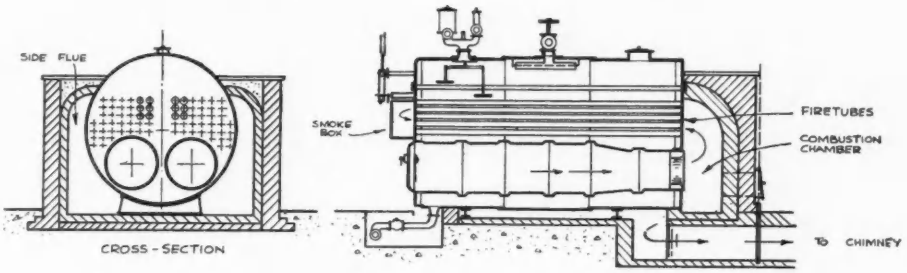


Figure 51. *Economic type boiler for steam-raising at high pressures and for water heating.*

Ventilating Systems

A ventilation system is not truly a heating system and is mentioned here only to point out its differences from the Plenum system.

When a building is ventilated mechanically it has a fan, heater, filter and duct system similar to that described above, but the air is warmed only to room temperature or a few degrees below, and the warming of the rooms is accomplished by direct radiators, panels, or other system entirely independent from the ventilation.

It is necessary to remove the air from the room and a system of exhaust ducts and fans is provided for this purpose.

The great advantage of such a combined system is that a feeling of freshness can be maintained in the rooms, and the objectionable features of a heated air supply are avoided. This system will be dealt with in greater detail later.

Heating Systems. General

The above descriptions of various systems of heating in use at the present time are believed to cover every type. At a later stage it is intended to go into questions of initial cost of comparative methods, and running costs with different fuels. Before doing this, however, it will be necessary to discuss questions of design of the main systems in common use.

BOILERS AND CALORIFIERS

It is not proposed to spend much time on the old-fashioned types of boiler which have been in common use for over a hundred years (in some cases) and thirty years or more (in others) and were primarily designed to raise steam for driving engines and for process work.

They are referred to briefly as they are still much used for steam generation, and even in some cases for water heating, but a more detailed description can be obtained in older mechanical textbooks.

Lancashire Boilers (Fig. 49) consist essentially of a horizontal steel shell, often 30 ft. long and 9 ft. diam. with flat ends stayed by gusset plates, or with dished ends unstayed, and two horizontal flues below the centre line, generally about 2 ft. 6 in. diam., in which the grate is provided near the front.

The gases travel to the back, pass under the boiler to the front in brick "settings," and return to the back in side flues, all with the object of obtaining additional heating area, and of extracting more heat before releasing the gases to the chimney. Even so, the discharge temperature is often 600 deg. F. under normal load and 800 deg. F. under full output, which means reduced efficiency and a danger of cracking flues, chimneys, etc.

Hence, an "economizer" for heating feed water is often interposed between boiler and chimney, and this may bring the gases down to about 300 deg. to 400 deg. F., whereby the efficiency is much increased. The economizer generally consists of a stack of pipes about 4 in. diameter which are often provided with scrapers worked mechanically for keeping the outside clean of ash deposit and soot.

The boiler plates are generally $\frac{3}{4}$ in. to 1 in. thick on outer shells and $\frac{1}{2}$ in. to $\frac{3}{4}$ in. on flues, but may be thicker for high pressures. The flues are sometimes corrugated to reduce the stresses otherwise caused by their greater temperature and expansion acting on the ends of the boiler.

The advantages are :

(*a*) Low first cost.
(*b*) Simplicity.
(*c*) Ease of cleaning.
(*d*) Long life.
(*e*) Big steam capacity, useful with a fluctuating load.

The disadvantages are :

(*a*) Great space required.
(*b*) Long time lag.
(*c*) Not the highest efficiency.
(*d*) Require frequent or continuous stoking.

Maximum pressures are normally up to 250 lb. per sq. in. Heating capacity about $2\frac{1}{2}$ million—8 million B.T.U.'s per hour with natural draught, and up to three times as much with forced draught and economizers.

Cornish Boilers are similar to the Lancashire type, but are generally not more than 20 ft. long and 6 ft. in

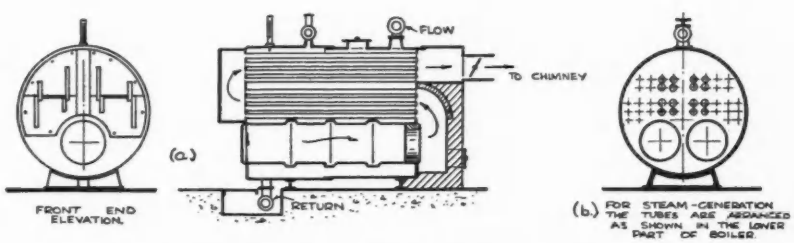


Figure 50. *Return tube boiler, (a) for water; (b) for steam.*

diameter. Their distinguishing feature is the use of a single instead of a double flue. They are historically interesting as having been first employed to drive the Newcomen and Trevithick engines in the Cornish tin mining industry about 1790, when the first beam engines were introduced. In those days their working pressure was about 5 to 10 lb. per sq. in., but today they can be made for pressures up to 200 lb. per sq. in. Their heating capacity may be up to half that given for Lancashire boilers.

"*Economic*" *Boilers.* These are similar to the types just described in having a horizontal flue or flues near the bottom of a horizontal shell. They differ, however, in being shorter (generally not more than 14 ft.) and in bringing the gases back to the front in a series of fire tubes.

The gases can then be alternatively
(*a*) Collected at the front and go to stack.
(*b*) Returned to the back in a further stack of fire tubes (Fig. 50).
(*c*) Returned to the back outside the shell in brick settings (Fig. 51).

(*a*) and (*b*) have the advantages of not needing settings, (*b*) giving the highest efficiency. It has already been mentioned that this type with the (*b*) alternative is used for water heating in the Bank of England and gave under test the remarkable efficiency of 89 per cent., but the conditions here are unusually favourable in having :—
(*a*) Low water temperature.
(*b*) Exceptionally efficient lagging.
(*c*) Absence of forcing.
(*d*) Very low discharge gas temperatures.
(*e*) Oil firing.

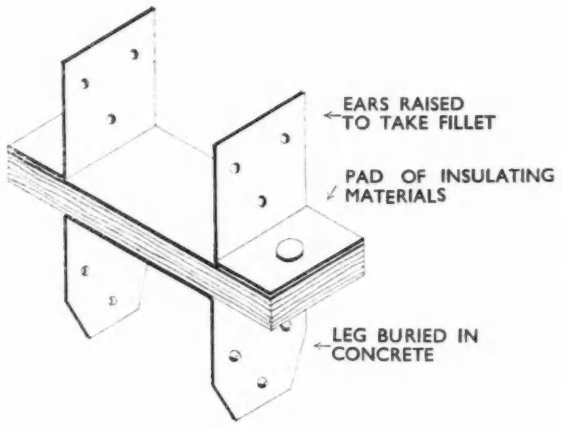
"Economic" boilers are used both for steam and hot water and have the advantages, as compared with Lancashire or Cornish boilers of
(*a*) Saving of space and weight for a given capacity.
(*b*) Lower time lag.
(*c*) Greater efficiency without economisers.

They require frequent or continuous stoking, whether hand or mechanical. They can be constructed for pressures as for Lancashire type, and have a wide range of heating capacity from 800,000 to 11,000,000 B.T.U.'s per hour with natural draught and 50 per cent. to 100 per cent. more with forced or induced draught and economisers.

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£500,000 Flats for Marylebone

A nine-storey block of flats is to be built at a cost of about £500,000 on an island site of one acre almost opposite the Marylebone Town Hall. To be known as Dorset House, and designed by Mr. T. P. Bennett and Mr. Joseph Emberton, it will contain 185 flats above shops. The rents have been fixed between £145 for flats with one reception-room and one bedroom to £400 for flats with two reception rooms, four bedrooms and two bathrooms.



TRADE NOTES

[*BY F. R. S. YORKE, A.R.I.B.A.*]

Insulated Floor Clips

INSULATING a floor is normally an expensive business, but a new floor clip that is about to be marketed appears to serve as an effective isolator, whilst adding only 17s. to the cost of a square of flooring.

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The normal floor clip that holds wood fillets for securing floor boards to concrete or hollow tile floors is made in one piece from 20-gauge mild steel. The legs are pressed into the concrete whilst it is soft, and the ears are not raised until it is time for the fillets to be laid.

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The new clip is made of similar mild steel, but is in two parts, fixed above and below a pad of flexible insulating material by means of countersunk rivets, and in order that isolation shall be as complete as possible separate rivets are used for fixing legs and ears, and the clip is quite flexible.

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Three types are made :—
1. For fixing to concrete floors.
2. For fixing above wood joists.
3. For fixing to brick or concrete walls.

The clip is a development of the standard Bull Dog type marketed by the Redalon Company.

Book About Paint

One of the most interesting books I have seen concerning paint and painting comes from the White Lead Publicity Bureau. It is a work of reference for architects and engineers, entitled *White Lead Paints, Why, When and How Specified.*

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The first chapter deals with white pigments and gives comparative properties of white lead and other pigments used in paint : zinc oxide, lithopone (zinc sulphide and barium sulphate), titanium white (titanium oxide and barium sulphate), and barium sulphate (barytes).

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White lead, mixed with linseed oil and dried in a paint film, enters into chemical combination with the oil and forms a lead soap. This has the effect of making the paint film elastic, so that it is able to expand and contract with changes in temperature, in unison with the surface to which it is applied. It is, therefore, waterproof and is not inclined to become brittle and crack on exposure to weather. Surfaces painted with white lead paint, wear evenly, so that preparation of the surface for repainting is economical.

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The second chapter gives reasons for painting and notes on priming paints, undercoats and finishes. Then cost is considered. It is suggested that at least 75 per cent. to 80 per cent. of the total cost of a normal job of painting is accounted for by labour, and in repainting where the previously painted surface has to be prepared the proportion may be even greater. The amount of labour involved in preparing the surface depends to a great extent on the kind of paint already on it, and the only sound basis on which the relative value of different paint materials can be estimated is by comparing the total expense involved in maintaining a satisfactorily protected surface over a period of years.

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In such a comparison allowance must be made for these factors, that contribute towards the ultimate cost of protection :—
1. Cost of paint and labour in initial painting.
2. Cost of preparation of surface for repainting.
3. Cost of paint and labour for first repainting.
4. Cost of preparation of surface for second repainting.

The cost per year of maintaining a protected surface is seen when the sum of the cost of this work is divided by the number of years between date of first painting and date when third painting is necessary. Items 2 and 4 may include renewal of decayed woodwork if the old paint has not afforded proper protection.

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The most interesting chapter from the architect's point of view is the fifth, which is divided into three parts, giving type specifications for painting new work, maintenance painting and painting metal surfaces. There are general clauses covering workmanship and materials, followed

by typical specifications for eighty specific cases.

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At the end of the book there is useful information concerning the cause and cure of common defects.

THE BUILDINGS ILLUSTRATED

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue :—

Woolwich Equitable Society's building, Green's End, Woolwich, S.E.18 (pages 453-455). General contractors, Thomas and Edge, Ltd. Sub-contractors: Roberts Adlard, Westmorland slates ; Accordo Blinds, window blinds ; Bath and Portland Stone Firms, Ltd., Portland stone facings ; Carter & Co., wall and floor tiling ; B. Cohen and Sons, Ltd., furniture to board room and committee room ; H. W. Cullum, Ltd., acoustical installation ; Chubbs Locks and Safe Co., safes, strong room doors, etc. ; S. Elliott and Sons, Ltd., bronze entrance doors and board room panelling ; Empire Stone Co., artificial stonework ; Fenning & Co., Ltd., marble and terrazzo work and granite steps ; General Electric Co., electrical fittings ; G. A. Harvey & Co. (London), Ltd., steel shelving fitment ; Instanta, Ltd., electric signal-clocks ; Kleine Co., patent reinforced hollow brick floors ; W. T. Lamb, white brick facings ; Luxfer, Ltd., pavement lights ; A. and J. Main & Co., steelwork ; Potter Rax Gate Co. lift enclosure, roof guard rails and handrails to staircase ; Rosser and Russell, Ltd., central heating and domestic hot water service ; L. F. Roslyn, stone carving ; Sankey-Sheldon, Ltd., metal hat and coat lockers ; Silvertown Co., rubber flooring ; Starkie Gardner, Ltd., garage entrance gates, bronze and glazed screen, ventilating grilles, etc. ; Stitson, White & Co., sanitary fittings, drainage and plumbing ; Sturtevant Engineering Co., Ltd., vacuum cleaning plant and pneumatic tubes ; Sumerling & Co., kitchen equipment ; Waygood-Otis, Ltd., lifts ; C. E. Welstead, metal casements and laylights ; Wilmer & Co., iron spiral staircase ; Yannedis & Co., ironmongers ; T. Clarke & Co., electrical installation ; Stevens and Adams, Ltd., wood block flooring ; J. W. Gray and Sons, lightning conductor ; Thomas Potterton, Ltd., gas fired boilers.

Manufacturers' Items

Mr. Leslie G. Tomlinson has disposed of the Silverdale Tileries to the United Tile Manufacturers, Ltd., a public company which has been formed to acquire a group of well-known tileries in the Midlands. He is continuing to manage the business for the company until they take possession, about Easter, when he will leave the works. His associated firm—Messrs. Wheatly and Co., are not affected by the change, except that in future there will be no connection between the two works. He will therefore continue to act as a partner in Messrs. Wheatly and Co.

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On Friday, March 8, Messrs. Electrolux, Ltd., of 153-155 Regent Street, London, W.1, held a conference of their refrigerator distributors at the George Hotel, Luton. Approximately 130 delegates attended from the company's distributing agents throughout Great Britain.

The object of the conference was to launch the 1935 refrigeration campaign and to introduce a new air-cooled cabinet (approximately 4 c. ft.), which is shortly to be put on the market.

Large extensions have recently been made to the Electrolux Works and the company is anticipating a very successful season. In the morning the party made a tour of the company's factory at Leagrave, near Luton, to see Electrolux refrigerators in various stages of manufacture.

Luncheon was held at the George Hotel, which was followed by the conference.

In the evening all delegates returned to London and attended a dinner at the May Fair Hotel.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS).

CAMBERWELL. *Parish Hall, Flats, etc.* Plans passed by the B.C. : Parish Hall, Brunswick Square, for Messrs. Newberry and Fowler ; rebuilding 99-109 Rye Lane, for Mr. L. Loveday ; flats, Forest Hill Road, for Mr. R. H. Brine ; rebuilding 290 Southampton Street, for Messrs. L. Solomon and Son ; four houses, Sydenham Hill, for Mr. R. C. Overington ; rebuilding, 583 Old Kent Road, for Messrs. Courage & Co., Ltd.

CATERHAM. *Houses, etc.* Plans passed by the U.D.C. : Five houses, Alexandra Road, Warlingham, for Mr. M. Wright ; four houses, Limpsfield Road, Hamsey Green, for Mr. H. W. Woodcock ; seven shops, Godstone Road, for Mr. A. C. Cowtan ; six houses, Essendene Road, for Messrs. Sinden, Tomkins and King ; development, Sunnyside estate, for Messrs. R. J. Clarke & Co.

CHELSEA. *Shelters, etc.* Plans passed by the B.C. : Shelters, Chelsea House, Lowndes Road, for Sir John Burnet, Tait and Lorne ; block of flats and houses, site of 37-47 Jubilee Place, for Mr. A. Blomfield.

DARENTH. *Training College.* The L.C.C. has prepared plans for modernizing the Darenth training colony, at a cost of £301,300.

EALING. *Flats.* Lay-out plans have now been approved for the proposed erection of 80 flats in 10 blocks at Whitton Avenue, by Messrs. Geo. Young (Floriston), Ltd., Ashbourne Avenue, Harrow-on-the-Hill.

EALING. *Flats.* Messrs. Hall-Jones and Partners, of Haven House, Haven Green, W.5, are the architects for a block of flats, proposed to be erected at Mount Avenue.

EALING. *Houses.* Messrs. Ruddock and Meighen, Burford House, Harrow View, Wealdstone, have prepared plans for the erection of 95 houses in Ferrymead Avenue, Ferrymead Drive, Greenway Gardens, Crossmead Avenue and Rosedene Avenue.

EALING. *Shops and Flats.* The Council has approved lay-out plans submitted by Messrs. Marshall and Tweedy, 4 Cavendish Place, W.1 (acting for Messrs. Warwick Estates, Ltd.), for the erection of 55 shops with flats or maisonettes over and 34 garages at Whitton Avenue, The Fairway and Currey Road.

GREENFORD. *Offices and Factory.* Messrs. Nathan & Co., Ltd., are to erect offices and factory premises at Greenford Road. The architects are Messrs. Wallis, Gilbert and Partners, 15 Elizabeth Street, S.W.1.

GREENFORD. *Flats.* Five blocks, comprising 111 flats, are to be erected at Greenford Road. The architect is Mr. Guy Nicholls, of the Broadway, Stanmore, Middlesex.

NORTHOLT. *Houses, Shops, etc.* Negotiations are taking place between the Ealing Town Council and Messrs. Henry Boot (Garden Estates), Ltd., of 10 The Boltons, South Kensington, S.W.10, in connection with the proposed development of the Lime Tree Farm Estate, where it is proposed to erect 1,200 houses, 40 shops, a hall and a cinema.

PINNER. *Cinema.* The Harrow Council has approved plans by Messrs. Emden Egan, architects, of 7 Garrick Street, W.C.2, for the erection of a cinema at Bridge Street, Pinner.

PINNER. *Fire Station.* The U.D.C. has now approved the provision of a fire station in Pinner Road, at an estimated cost of £22,398. Application is now to be made to the Ministry of Health for sanction to borrow that amount.

PERIVALE. *Houses.* Messrs. Parkwood Building Co., Ltd., are to proceed with the development of the Perivale Wood Estate by the erection of 106 houses. The architects are Messrs. Dodge and Reid, of 72 High Street, Brentford.

STANMORE. *Houses and Flats.* Messrs. Hartley Estates, Ltd., are to develop the Lynton Estate by the erection of 92 houses (off Camrose Avenue) and 168 flats ; Wonder Homes, Ltd., are to erect 58 houses in Hilbury Gardens and 24 in Culver Grove ; and Sir E. Owen Williams is to erect 24 flats in Valensia Road.

WOOD GREEN. *Extension to the Town Hall.* The Corporation has discussed with the architect, Mr. C. H. James, the question of the town hall extension, and has arranged for the preparation of a scheme for a new building adjoining the town hall.

SOUTH-WESTERN COUNTIES

PLYMOUTH. *Swimming Baths.* The Corporation has instructed the city engineer to report on proposals by the A.S.A. and Water Polo League for the construction of swimming baths at Central Park, at an estimated cost of £40,000.

PLYMOUTH. *Housing Site.* The Corporation has instructed the city architect to prepare plans for the lay-out of a housing site at Wolseley Road.

PLYMOUTH. *Houses, etc.* Plans passed by the Corporation : 32 building sites, Prince Maurice estate, for Mr. W. Jinkin ; 16 houses, Lower Compton Road, for Mr. G. Glenwater and Miss Goff ; eight houses, 7/14 Peverell Terrace, for Messrs. Hill and Lang ; two houses, Meadow estate, for Messrs. Webb and Son ; new buildings and alterations, Frankfort Lane, for *Western Morning News* ; bungalow, Ingra Road, for Mr. F. Pearse ; alterations and additions, 8, 9, 10 and 11 Bedford Street, for Messrs. Jays' Furnishing Stores ; 14 houses and 12 shops and dwellings, Victoria Road, St. Budeaux, for Mr. W. Andrews ; three houses, Little Ash Park, for Mrs. S. G. Monk.

TORQUAY. *Houses.* The Corporation is to consider the question of the erection of about 100 further houses at Windmill Hill and the erection of houses for the working classes at Shiphay.

MIDLAND COUNTIES

CORBY. *Shops.* Corby Properties, Ltd., Peterborough, are to erect shops at The Jamb, Corby, Northants.

SUTTON COLDFIELD. *Cinema.* Building operations will shortly commence in connection with a new Odeon Theatre, which is to be erected on a site at the corner of Birmingham Road and Holland Road, Sutton Coldfield, from the designs of Mr. Henry Weedon, A.R.I.B.A. The estimated cost is £50,000.

WOLVERHAMPTON. *Houses.* Messrs. Manley and Regulus, Ltd., are to erect 182 houses on an estate at Showell Road, Wolverhampton.

WOLVERHAMPTON. *Houses.* Plans passed by the Corporation : Three houses, Elm Street, for Mr. A. E. Hartill ; five houses, Mount Street, for Mr. W. Winsper ; four houses, Wychbury Road, for Mrs. O. Denning ; 29 houses, Pinfold Lane, for Mr. L. T. Taylor ; factory, Ettingshall Road, for Morris Springs, Ltd. ; six houses, Oxley Moors estate, for Messrs. Pidgeon Bros. ; three houses, Coleman Street, for Mr. W. H. S. Morris ; 33 houses, Warstones Road, for Messrs. A. and J. Mucklow ; seven houses, Pinfold Lane, for Mr. L. F. Butler ; development, Finchfield estate, for James Whitehouse trustees ; works extensions, Dean Street, for Utility Electrical Co. ; seven houses, Pendeford Lane, for Mr. P. Gallagher ; four houses, Pinfold Lane, for Mr. C. J. Williams ; 20 houses, off Church Road, Bradmore, for Mr. Geo. Wilkes ; 28 shops and 32 houses, Fallings Park, for Mr. M. A. Boswell ; extensions, Corner House, Showell Road, for Atkinsons Brewery.

NORTHERN COUNTIES

BIRKENHEAD. *Offices, etc.* Messrs. George Dickie and Son are considering a scheme for the erection of offices and garages in Chester Street, Birkenhead.

BLACKPOOL. *Houses.* Plans passed by the Corporation : 16 houses, Chiltern Avenue, for Messrs. Hodgson and Whitakker ; house, Inver Road, for Mr. P. C. Miller ; six houses, St. Luke's Road, for Messrs. E. Elliott & Co. ; four houses, Highfield Road, for Mr. J. Pell ;

(Continued on page xxx)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_1	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_2	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Buralem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B,	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham ..	N E. Coast	1 5½	1 1½
A_2	EASTBOURNE	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorgan-shire. Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S. W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W. Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley ..	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_2	Kendal ..	N.W. Counties	1 4	1 0
A_2	Keswick ..	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12–15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N.E. Coast	1 5½	1 1½
A_2	Middlewich ..	N.W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham ..	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford ..	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_2	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough ..	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_1	Southend - on - Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_2	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKE	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby	Yorkshire	1 4½	1 0½
A	Widnes	N.W. Counties	1 5½	1 1½
A	Wigan	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given

The rates for every trade in any given area will be sent on request

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality, and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger		1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
General Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10	0

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
¾" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single junctions	"	3	6	5	3
Double "	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¾" Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead Wool	lb.		6		—
Gaskin	"		5		—

BRICKLAYER

		£	s.	d.
Flettons	Per M.	2	15	0
Grooved do.	"	2	17	0
Phorpres bricks	"	2	15	0
" Cellular bricks	"	2	15	0
Stocks, 1st quality	"	4	11	0
" 2nd "	"	4	2	8
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Brindles	"	7	0	0
" Bullnose	"	9	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	0
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midhurst White Facings	"	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	29	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

The following d/d F.O.R. at Nine Elms:		s.	d.
Portland stone, Whitbed	F.C.	4	4½
" " Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" " Sawn templates	"	7	6
" " Paving, 2"	F.S.	1	8
" " " 3"	"	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	"	24	10	0
20" × 10" Countesses	"	19	5	0
18" × 10" Viscountesses	"	15	10	0
18" × 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey per 1,000 (actual)		21	11	6
" " green "	"	24	7	4
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each			9½
" hand-made	"			10
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" " 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak plain American	" "	1	0
" Figured "	" "	1	3
" Plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1
Deal floorings, ¾"	Sq.		18	6
" ⅞"	"	1	1	6
" 1"	"	1	2	0
" 1¼"	"	1	5	0
" 1½"	"	1	10	0
Deal matchings ¾"	"		14	0
" ⅞"	"		15	6
" 1"	"	1	4	0
Rough boarding ¾"	"		16	0
" 1"	"		18	0
" 1¼"	"	1	6	0

Plywood, per ft. sup.

—Thickness	¼"	⅜"	½"	¾"	1"
Qualities	AA.A.B.	AA.A.B.	AA.A.B.	AA.A.B.	AA.A.B.
	d. d. d.	d. d. d.	d. d. d.	d. d. d.	d. d. d.
Birch	4 3 2	5 4 3	7½ 6 4½	8½ 7 6	
Alder	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6	
Gaboon Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –	
Figured Oak 1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –	
Plain Oak 1 side	6½ 6 –	7½ 7 –	9½ – –	1/– – –	
Oregon Pine	5 4 –	5½ 5 –	6 – –	– – –	

	d.
Scotch glue	lb. 8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	½"	¾"	1"	1¼"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23½" long each	10	1/1	1/11	2/8	4/9
" 3"-11½" long "	7	9	1/3	1/8	3/–
Long screws, 12"-23½" long "	11	1/3	2/2	2/10	5/3
" " 3"M-1½" long "	8	10	1/5	1/11	3/6
Bends "	8	11	1/7½	2/7½	5/2
Springs not socketed "	5	7	1/1½	1/11½	3/11
Socket unions "	2/–	3/–	5/6	6/9	10/–
Elbows, square "	10	1/1	1/6	2/2	4/3
Tees "	1/–	1/3	1/10	2/6	5/1
Crosses "	2/2	2/9	4/1	5/6	10/6
Plain Sockets and nipples "	3	4	6	8	1/3
Diminished sockets "	4	6	9	1/–	2/–
Flanges "	9	1/–	1/4	1/9	2/9
Caps "	3½	5	8	1/–	2/–
Backnuts "	2	3	5	6	1/1
Iron main cocks "	1/6	2/3	4/2	5/4	11/6
" " with brass plugs "	—	4/–	7/6	10/–	21/–

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½
FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued*

		s.	d.
Rolled steel joists cut to length	cwt.	10	9
Mild steel reinforcing rods, ½"	"	8	6
" " ⅝"	"	8	3
" " ¾"	"	8	0
" " ⅞"	"	7	6
" " 1"	"	7	6
" " 1¼"	"	7	6
" " 1½"	"	7	6

Cast-iron rain-water pipes of ordinary thickness metal	F.R.	3" s.	3" d.	4" s.	4" d.
		8		10	
Shoes	each	2	0	3	0
Anti-splash shoes	"	4	6	6	0
Boots	"	3	0	4	0
Bends	"	2	7	3	9
" with access door	"	—		6	3
Heads	"	4	0	5	6
Swan-necks up to 9" offsets	"	3	9	6	6
Plinth bends, 4½" to 6"	"	3	9	5	
Half-round rain-water gutters of ordinary thickness metal	F.R.	5			6
Stop ends	each	6			6
Angles	"	1	7	1	11
Obtuse angles	"	2	0	2	6
Outlets	"	1	9	2	3

PLUMBER

		£	s.	d.
Lead, milled sheets	cwt.	18	6	
" drawn pipes	"	17	0	
" soil pipe	"	18	6	
" scrap	"	10	6	
Solder, plumbers'	lb.		9½	
" fine do.	"	1	0	
Copper, sheet	"		8½	
" tubes	"		11	

L.C.C. soil and waste pipes:		3"	4"	6"
Plain cast	F.R.	1 0	1 2	2 6
Coated	"	1 1	1 3	2 8
Galvanized	"	2 0	2 6	4 6
Holderbats	each	3 10	4 0	4 9
Bends	"	3 9	3 3	10 3
Shoes	"	2 10	4 4	9 6
Heads	"	4 8	8 5	12 9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	5	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle Plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	9
Lath nails	lb.			3

GLAZIER

		s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.	s. F.S.		2½
" " 26 oz. " "	"		3
Flemish, Arctic, Figured (white)*	"		7
Blazoned glasses	"	2	6
Reeded; Cross Reeded	"		11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite			6
Crown sheet glass (n/e 12 in. × 10 in.)	"		2	0
Flashed opals (white and coloured)	"	1 0 and	2	0
¼" rough cast; rolled plate	"			5½
¼" wired cast; wired rolled	"			9½
¼" Georgian wired cast	"			11
¼" Polished plate, n/e 1 ft.	"	† 10 to	‡1	1
" " 2	"	†1 2 "	‡1	4
" " 4	"	†2 3 "	‡2	6
" " 8	"	†2 9 "	‡3	2
" " 20	"	†3 7 "	‡4	2
" " 45	"	†3 11 "	‡4	7
" " 100	"	†5 0 "	‡5	7
Vita glass, sheet, n/e 1 ft.	"		1	0
" " " 2 ft.	"		1	3
" " " over 2 ft.	"		1	9
" " plate, n/e 1 ft.	"		1	6
" " " 2 ft.	"		3	0
" " " 5 ft.	"		4	0
" " " 7	"		5	0
" " " 15	"		5	6
" " " over 15	"		7	6
"Calorex" sheet 21 oz., and 32 oz.	"	2 6 and	3	6
" rough cast ¼" and ½"	"	8½ "	1	0
Putty, linseed oil	lb.			3

* *Colours*, 1d. *F.S. extra.*
†*Ordinary glazing quality.* ‡*Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	6	0
Linseed oil	gall.		2	2½
Boiled oil	"		2	4½
Turpentine	"		4	1½
Patent knotting	"		14	0
Distemper, washable	cwt.	2	6	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	firkin		3	0
Copal varnish	gall.	1	3	0
Flat varnish	"		14	0
Outside varnish	"		16	0
White enamel	"	1	15	0
Ready mixed paint	"		13	6
Brunswick black	"		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR

		£ s. d.
Digging over surface n/e 12" deep and cart away	Y.S.	2 9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.	8 6
" to form basement n/e 5' 0" deep and cart away	"	9 0
" " 10' 0" deep and cart away	"	9 6
" " 15' 0" deep and cart away	"	10 0
If in stiff clay	add "	6
If in underpinning	"	4 0
Planking and strutting to sides of excavation	F.S.	1 0
" " to pier holes	"	5
" " to trenches	"	5
" " extra, only if left in	"	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	"	1 6 0
" " (4-2-1)	"	1 12 6
" " underpinning	"	1 16 0
Finishing surface of concrete, spade face	Y.S.	7

DRAINLAYER

		4" s. d.	6" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER

		£ s. d.
Brickwork, Flettons n lime mortar	Per Rod	27 10 0
" " in cement	"	28 15 0
" Stocks in cement	"	35 0 0
" Blues in cement	"	52 0 0
Extra only for circular on plan	"	2 0 0
" backing to masonry	"	1 10 0
" raising on old walls	"	2 0 0
" underpinning	"	5 10 0
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	"	8
" " " red brick facings and pointing	"	11
" " " blue brick facing and pointing	"	1 4
" " " glazed brick facing and pointing	"	3 6
Tuck pointing	"	7½
Weather pointing in cement	"	3
Slate dampcourse	"	10
Vertical dampcourse	"	1 1

ASPHALTER

		s. d.
½" Horizontal dampcourse	Y.S.	4 6
½" Vertical dampcourse	"	6 9
½" paving or flat	"	4 0
1" paving or flat	"	5 6
1" × 6" skirting	F.R.	1 0
Angle fillet	"	2
Rounded angle	"	2
Cesspools	Each	5 0

MASON

		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	"	13 6
Artificial stone and do.	"	13 0
York stone templates, fixed complete	"	10 6
" thresholds	"	13 6
" sills	"	1 0 6

SLATER AND TILER

		£ s. d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3 10 0
Do., 18" × 9"	"	3 7 0
Do., 24" × 12"	"	3 17 0
Westmorland slating, laid with diminished courses	"	6 0 0
Tiling, best hand-made sand-faced, laid to a 4" gauge, nailed every fourth course	"	3 0 0
Do., all as last, but of machine-made tiles	"	2 16 0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	4 6 0
" " " " " (green)	"	4 15 0

CARPENTER AND JOINER

		£ s. d.
Flat boarded centering to concrete floors, ncluding all strutting	Sqr.	2 5 0
Shuttering to sides and soffits of beams	F.S.	8
" to stanchions	"	8
" to staircases	"	1 8
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	"	4 6
" " roofs	"	6 6
" " trusses	"	7 6
" " partitions	"	8 6
½" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" " " " "	"	1 17 6
1½" " " " "	"	2 3 0
½" × 2" fir battening for Countess slating	"	9 6
Do. for 4" gauge tiling	"	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
" " " 2 "	"	2 9
" " " 3 "	"	3 3
Stout herringbone strutting to 9" joists	F.R.	10½
1" deal gutter boards and bearers	F.S.	1 2
1½" " " "	"	1 6
2" deal wrought rounded roll	F.R.	8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼" do.	"	2 10 0
1½" do.	"	2 17 0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1½" do.	"	1 9

CARPENTER AND JOINER—*continued*

		s. d.
1¼" deal moulded sashes of average size	F.S.	1 9½
2" " " " "	"	1 11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1¼" pulley stiles, 1¼" heads, 1" inside and outside linings, ⅜" parting beads, and with brass faced axle pulleys, etc., fixed complete	"	3 7
2" " " " "	"	3 10
Extra only for moulded horns	Each	6
1½" deal four-panel square, both sides, door	F.S.	2 0
2" " " " "	"	2 8
1½" " but moulded both sides	"	2 4
2" " " " "	"	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" " " "	"	1 4
1½" deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1½" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
1½" deal moulded wall strings	"	2 1
1½" " outer strings	"	2 4
Ends of treads and risers housed to string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1½" × 1½" " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

SMITH AND FOUNDER

		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	15 6
Riveted plate or compound girders, and hoisting and fixing in position	"	19 6
Do. stanchions with riveted caps and bases and do.	"	19 0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	"	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER

		£ s. d.
Milled lead and labour in flats	cwt.	1 12 0
Do. in flashings	"	1 15 6
Do. in covering to turrets	"	2 3 0
Do. in soakers	"	1 7 6
Labour to welted edge	F.R.	3½
Open copper nailing	"	3
Close " "	"	4

		½" s. d.	¾" s. d.	1" s. d.	1¼" s. d.	2" s. d.	4" s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks	"	—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	5 9	5 0	8 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—

		s. d.
4" cast-iron ½-rd. gutter and fixing	F.R.	1 0
Extra, only stop ends	Each	1 0
Do. angles	"	1 6
Do. outlets	"	2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1 2
Extra, on y for shoes	Each	1 3
Do. for plain heads	"	5 6

PLASTERER AND TILING

		s. d.
Expanded metal lathing, small mesh	Y.S	2 0
Do. in n/w to beams, stanchions, etc.	"	2 9
Lathing with sawn laths to ceilings	"	1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1 5
Do. vertical	"	1 7
Rough render on walls	"	1 2½
Render, float and set in lime and hair	"	1 9
Render and set in Sirapite	"	1 11
Render, backing in cement and sand, and set in Keene's cement	"	2 9
Extra, only if on lathing	"	4
Keene's cement, angle and arris	F.R.	6
Arris	"	1½
Rounded angle, small	"	3
Plain cornices in plaster, including dubbing out, per 1" girth	"	1½
1" granolithic pavings	Y.S.	3 6
1½" " " "	"	4 6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17 6
9" × 3" " " " "	"	1 2 6
Extra, only for small quadrant angle	F.R.	8

GLAZIER

		s. d.
21 oz. sheet glass and glazing with putty	F.S.	7½
26 oz. do and do.	"	8½
Flemish, Arctic Figured (white) and glazing with putty	"	1 1
Cathedral glass and do.	"	1 2
Glazing only, British polished plate	"	7
Extra, only if in beads	"	2
Washleather	F.R.	4

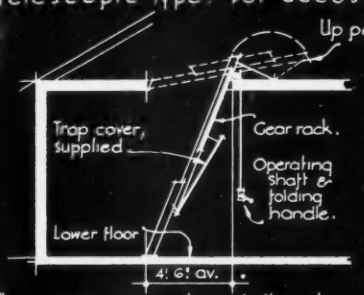
PAINTER

		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	"	9
Do. with washable distemper	"	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3 3
Do. on woodwork	"	3 6
Do. on steelwork	"	3 0
Do. and brush grain and twice varnish	"	5 6
Stain and twice varnish woodwork	"	1 11
Stain and wax-polish woodwork	"	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper	from "	2 9

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LOFT LADDERS · SINGLE AND DOUBLE SECTION · HAND OR GEAR OPERATED.

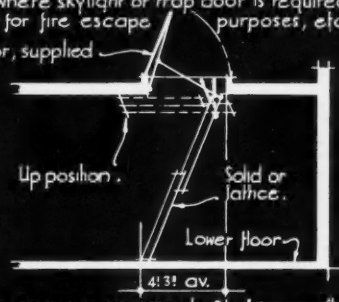
MODEL R.D. GEAR OPERATED, DOUBLE SECTION
Telescopic type. For access to lofts, etc.



Overall width : 1! 7!
Solid stiles & treads : 4! x 1!
Rise : 8!
Inclination : 68½°
Gear operated.

The gearing raises or lowers both sections of ladder automatically.

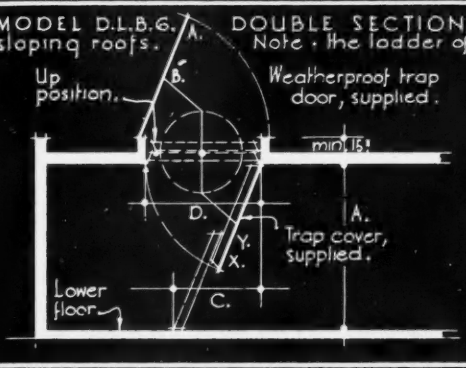
MODEL F.E.2: HAND OPERATED, DOUBLE SECTION.
For flat, or sloping roofs where skylight or trap door is required to open automatically, as for fire escape purposes, etc.



Std. width : 1! 6!
Treads : 4! x 1!
Rise : 8!
Inclination : 68½°
Single section, No F.E.L.

Minimum size of trap opening required, 2! 0! square (lining).

MODEL D.L.B.G. DOUBLE SECTION, HAND OPERATED TELESCOPIC TYPE, for access to flat or to sloping roofs.
Note : the ladder of this model is self-balanced by the outside trap door or skylight.



Std. width of ladder : 1! 6!
Treads, 6! x 1", Rise, 8!
Inclination of ladder : 68½°

SELF-BALANCE :
Is obtained if necessary, by fixing metal weights on to the trap door between A and B, or on underside of the treads of upper section ladder at X & Y.

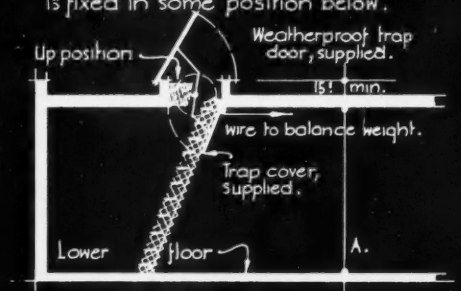
TABLE GIVING TRAP OPENING SIZES FOR VARYING DIMENSIONS · A ·

A.	D.	C.
8! 0!	5! 6!	4! 4!
8! 3!	5! 9!	4! 5!
8! 6!	6! 0!	4! 6!
8! 9!	6! 3!	4! 7!
9! 0!	6! 6!	4! 8!

& pro rata for intermediate heights.
Min. width of trap opening, 2! 0!

MODEL L.T.4. : SINGLE SECTION, HAND OPERATED COLLAPSIBLE STEEL TRELLIS LADDER, with wooden treads. Type 1, for access to flat or sloping roofs; type 2, for access to lofts, etc.

TYPE 1 : Ladder is balanced by the top trap door and balance weight is fixed in some position below.



Standard width of ladder : 1! 6!
Size of treads, 4! x 1! Rise, 8!
Inclination of ladder : 68½°

TYPE 2 : Alternative method of balancing by weights in loft, with no top trap door.

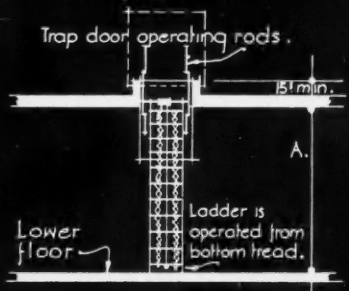


TABLE GIVING MIN. LENGTHS OF TRAP OPENING · D ·

A.	D.	H.
8! 0!	2! 6!	5! 6!
8! 6!	2! 9!	6! 0!
9! 0!	3! 0!	6! 6!

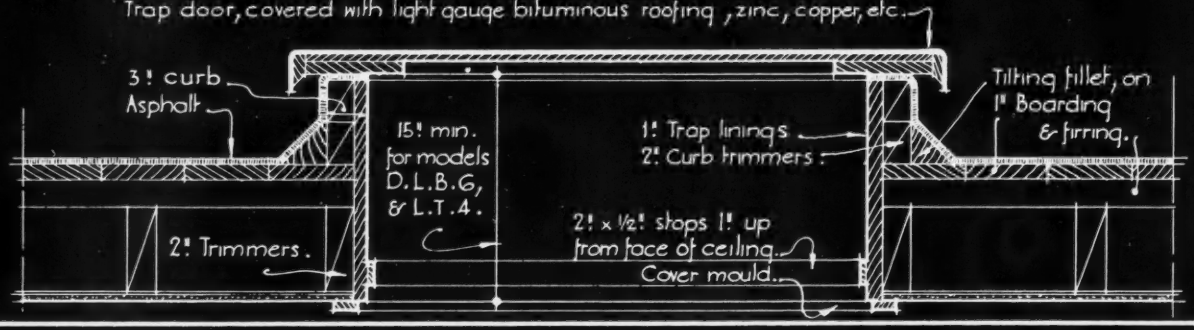
H = height req^d for counterweight.
Min. width of trap opening, 2! 0!
D = minimum length of trap.

ELEVATION OF TYPE N° 1 in down position.



The arrangement of the trap operating rods shown here is typical for Model N° D.L.B.G above.

DETAIL OF TRAP DOOR OPENING TO FLAT ROOFS :



Information from Loft Ladders Ltd.

INFORMATION SHEET · DISAPPEARING LOFT LADDERS · NO · 2 ·

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1.

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET
• 201 •
LOFT LADDERS

Type Illustrated : Gear and Hand Operated

This is the second Sheet dealing with disappearing ladders, and illustrates single and double section types, hand or gear operated, for access to flat or sloping roofs as well as lofts.

Construction.

The ladders are made with solid or lattice sides as indicated, with solid wooden treads, built in silver spruce and British Columbian Pine for strength, lightness and durability.

Balanced units : Model RD, for access to lofts, is gear operated, and controlled by the folding handle shown. *Model FE2*, for access to flat or sloping roofs, is so weighted that with the release of the control cord on the side wall the ladder immediately descends to the down position and automatically opens the trap door to the roof. *Model DLB6*, with the outside trap door on the roof, is balanced by the application of suitable weights to either the trap door or to the ladder itself. Lowering and raising is performed by the separate long arm supplied for the purpose, the lower section of the ladder being finally released from its supporting catch and lowered to the floor by hand.

Model LT4, constructed with collapsible steel trellis sides and wooden treads, is obtainable for access to either flat or sloping roofs, (Type 1), or access to lofts (Type 2). The trap cover of Type 1 is balanced by operating rods with the outside trap door, and upon being opened, automatically releases the weight-balanced steel trellis ladder, which is then lowered to the floor by the pressure of the hand upon the bottom tread. Type 2, for access to loft only, and therefore with no outside trap door, is of the suspended counterweight type, operated by means of a long arm as before, which hooks into the concealed catch on the trap cover. Easy manipulation and smooth running are ensured in the ladder itself by a separate counterweight balance in the loft, the wire rope from which is attached to the bottom tread, as for Type 1. Lowering is by hand pressure on this tread.

Inside Trap Covers may be flush faced or panelled, and are supplied by the manufacturers to fit any new or existing trap opening. All trap covers are mortice and tenon framed with plywood panels, unless otherwise specified. If specially required, trap covers can be prepared to take glass. The glass is not normally supplied by the manufacturers.

Trap Openings should be provided with timber linings, and 2 in. by ½ in. stops, 1 in. up from the ceiling face as shown unless rebated. If rebated, sizes should be given between rebates, otherwise between linings.

Outside Trap Doors, where shown, are included in the price of the ladder, and may be covered with light gauge bituminous roofing, zinc or copper as required, at extra cost.

Finish.—Unless otherwise specified, all ladders are treated with a light oak wood preservative stain.

Erecting.—Although inclusive quotations for erecting may be submitted if required, fixing diagrams sufficient for individual erecting are supplied with all models.

PRICES OF MODELS DETAILED ON THIS SHEET

Model R.D.	.. ..	£12 0 0
Model F.E.2	.. ..	£ 8 0 0
Model D.L.B.6	.. ..	£ 8 15 0
Model L.T.4	.. ..	£10 0 0

Prices are for cash with order and include delivery in London area.

The previous Sheet in this series was No. 199.

Information from : Loft Ladders, Ltd.
Address : Broadway Works, Bromley, Kent
Telephone : Ravensbourne 2024 (2 lines)

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SPECIFICATIONS FOR PAINTING ON METAL SURFACES.

ENAMEL ON METAL SURFACES:

PRODUCT	TYPE OF SURFACE		PRIMING COAT.	SECOND COAT	THIRD COAT	FOURTH COAT.
DULUX NON-YELLOWING WHITE ENAMEL 81999 Also available in tints to order. *for details see back of sheet N°4.*	Unpainted surfaces.	Interior	White Primer 71405.	Dulux Undercoat 178101.	Dulux Undercoat 178101. (may be omitted if desired.)	Dulux Enamel.
		Exterior	Not recommended for exterior finishing.			
	Previously painted surfaces.	Interior	Not required unless stripped to bare metal.	Dulux Undercoat 178101.	Dulux Undercoat 178101. (may be omitted if desired.)	Dulux Enamel.
		Exterior	Not recommended for exterior finishing.			

ORNAMENTAL BLACK PAINT ON IRONWORK

PRODUCT.	TYPE OF SURFACE		COATS
GLOSSY NB.311. EGGSHELL KL.1790. FLAT KL.1789.	Unpainted surfaces. & Previously painted surfaces.	Interior	One coat of Black as required.
		Exterior	Not recommended for exterior finishing.

IMITATION STONE PAINT ON METAL SURFACES:

PRODUCT	TYPE OF SURFACE.		PRIMING COAT.	SECOND COAT	THIRD COAT.
PETRUMITE IMITATION STONE PAINT. *for details see back of sheet N°4.*	Unpainted surfaces	Interior	White Primer KM.7153. for light finishing tint: Grey Primer KM.1345. For dark colours: Brown Primer KM.1334	Petrumite Interior quality.	Petrumite Interior quality.
		Exterior	as above.	Petrumite, Ext. quality.	Petrumite, Ext. quality.
	Previously painted surfaces.	Interior Exterior	not required unless stripped to bare metal.	Petrumite, Int. quality. Petrumite Ext quality.	Petrumite, Int. quality. Petrumite, Ext. quality.

GLOSS PAINTS ON METAL SURFACES

PRODUCT.	TYPE OF SURFACE		PRIMING COAT	SECOND COAT	THIRD COAT	FOURTH COAT.
DULUX GLOSSY *for details see back of sheet N°3.* • *Owing to their rust-inhibiting properties Primers 71009 and K.M.1334 are recommended for use wherever they are practicable.*	Unpainted surfaces.	Interior & Exterior	•Red-Brown Primer 71009. for light finishing tints: White Primer 71405. for dark colours: Grey Primer 71404.	Dulux, selected shade, a thin coat brushed out uniformly.¶	Dulux, selected shade.	Not usually required.
	Previously painted surfaces	Interior & Exterior	Not required unless stripped to bare metal.	Dulux, selected shade, a thin coat brushed out uniformly.¶	Dulux, selected shade	Not usually required.
			¶ An undercoat can be supplied for use when white or light tints are used over a darker background.			
S.E.G. SUPER ELASTIC GLOSS PAINT. *for details see back of sheet N°3.*	Unpainted surfaces.	Interior & Exterior	•Red Brown Primer K.M.1334 for light finishing tints: White Primer KM.7153 For dark colours: Grey Primer K.M.1345.	S.E.G. Undercoat (of appropriate shade.)	S.E.G. Undercoat†	S.E.G. finishing Coat, selected shade.
	Previously painted surfaces. •	Interior & Exterior.	Not required unless stripped to bare metal.	Omit undercoats if surface is in good condition	Omit undercoats if surface is in good condition	S.E.G. finishing Coat, selected shade.
			† The second coat of undercoating may be omitted except in the case of first-class work.			

for note on Primers see sheet N° 2.

Information from Nobel Chemical finishes Ltd.

INFORMATION SHEET: DATA ON PRIMERS, PAINTS, VARNISHES ETC. N° 8.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

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INFORMATION SHEET

• 202 •

PAINTS

Product : Various Paints on Metal Surfaces

This is the eighth of a series of Sheets dealing comprehensively with the subject of painting and the protection of various surfaces.

PREPARATION OF METAL SURFACES FOR PAINTING

New Iron and Steel Surfaces :

Successful results in painting metal surfaces depend to a large extent upon the condition of the surface to which the paint is applied.

No paint should be applied until the surface has been freed from all dust, dirt, oil and grease. That the surface is completely dry and no moisture entrapped in crevices, joints, etc., is essential in order to obtain satisfactory results and to prevent rust spots subsequently appearing in the paintwork. Loose mill scale should be removed by wire brushing.

Painting in damp, unfavourable weather should be avoided, and, where circumstances make this necessary, some artificial drying method, such as heating with a lamp, should be employed.

Any rust present must be removed, either by a thorough brushing with wire brushes, or by the use of Deoxidine, which needs careful washing off with water after application and complete drying before painting is begun.

Sometimes new constructional ironwork is delivered on the site coated with a cheap priming paint with no lasting qualities. In such cases it is usually advisable to remove this form of primer, as it has a tendency to flake off, taking the finishing coat with it. The primers recommended in the specifications give the best results.

Old Iron and Steel Surfaces :

Before previously painted surfaces are re-painted, loose or scaling particles of old paint must be removed by scraping or wire brushing. Where possible, treatment with a rust removing preparation, such as Deoxidine, followed by a thorough washing and drying, should precede application. All grease and oil must be washed off with a suitable solvent and the surface cleaned and dusted before the paint is applied.

Old work should be prepared in accordance with the following general instructions.

(1) Where necessary, remove old paint completely, either by burning off, or by the use of Paint Remover H.Z.900, and use the systems recommended for new surfaces.

(2) Where work is in good condition and requires only to be rubbed down, one or two coats of undercoating may be omitted according to the condition of the surface.

(3) If, after rubbing down, bare patches of metal appear, those portions should be touched up with primer before proceeding.

New Galvanised Iron :

Paint does not adhere satisfactorily to new galvanised iron. Past experience has shown that natural weathering over a long period gives the most satisfactory surface from the point of view of the adhesion of paint films, but in many cases it is not possible to allow prolonged weathering, and it is often necessary for the work to be painted almost immediately after erection. In such cases it has been found that a chemical etching action, such as is described below, gives the best key for the finish. The two most satisfactory methods of etching galvanised iron are as follows :

(1) The surface, after being freed from grease and extraneous matter, should be washed with a solution of copper sulphate ("blue vitriol") crystals in water. A 10 per cent. solution is sufficient. A black deposit is formed on the galvanised surface which should be removed by washing thoroughly with hot water.

(2) An alternative method of obtaining a satisfactory key by means of etching the galvanised surface is to treat the surface, after preliminary cleaning, with a 10 per cent. solution of Deoxidine No. 7. The Deoxidine should then be washed off with hot water.

The advantage of the first system is that the operator can easily detect which part has undergone treatment, whereas in the second process care must be taken to see that the whole of the surface has been treated. It is also worthy of note that if the black deposit mentioned in the first system hardens off and is difficult to remove with hot water, a light wash with weak Deoxidine, such as is recommended in System No. 2, will remove the deposit without difficulty.

Dark Brown Metal Primer K.A.P. 4347 is recommended as being the most suitable primer for use over galvanised iron.

Previously Painted Galvanised Iron :

Where peeling and scaling conditions exist on surfaces previously painted, it is necessary to remove all loose particles of paint with a wire brush or by scraping, followed by a thorough dusting of the surface to ensure that it is clean. Paint which is adhering satisfactorily usually need not be removed, and the undercoat or finishing coat may be applied immediately over it. All bare spots should be touched up with the correct priming paint.

Previous Sheets in this series were Nos. 188, 190, 192, 194, 196, 198 and 200.

Name of Manufacturers : Nobel Chemical Finishes, Ltd.

Address : Architectural Dept., Wexham Road, Slough, Bucks

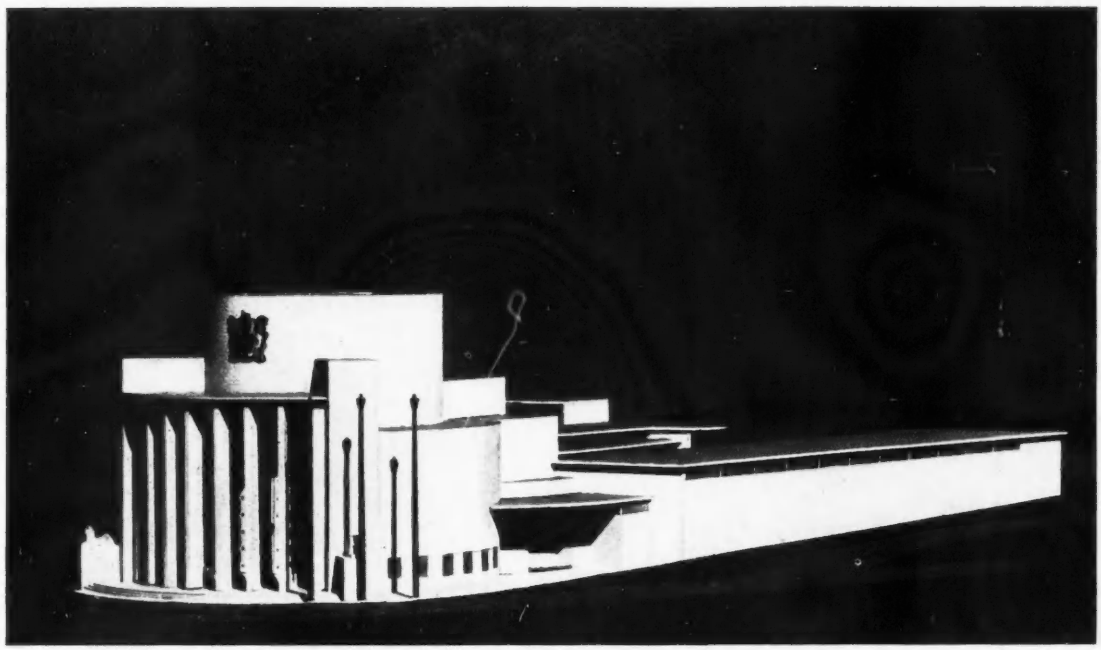
Telephone : Slough 528

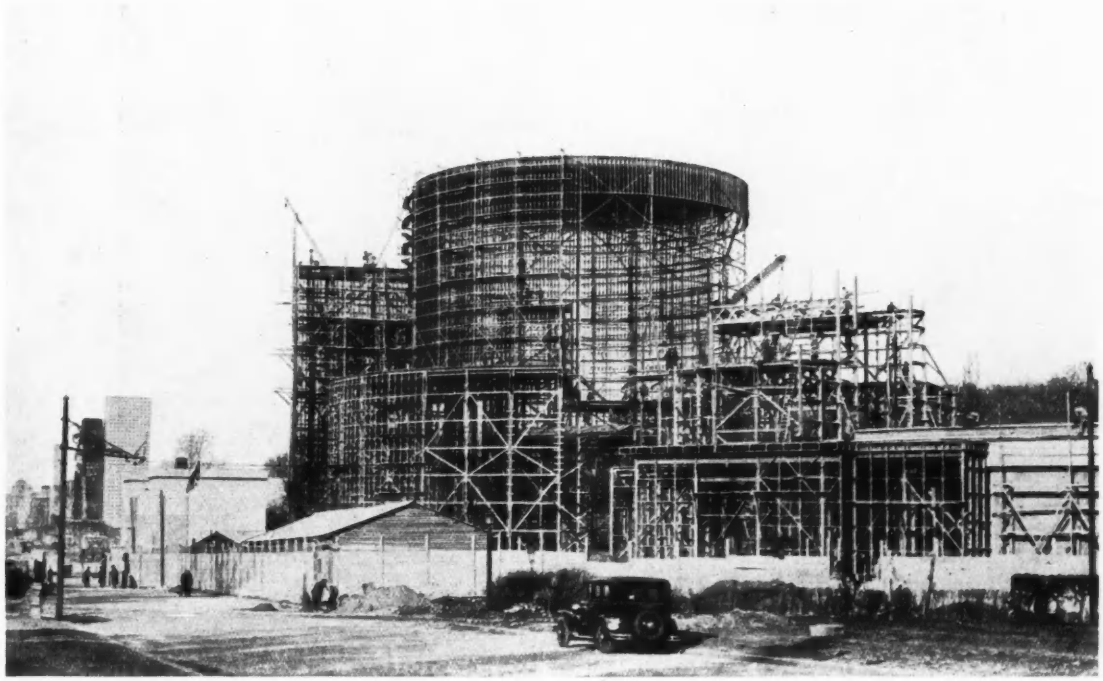
London Office : Thames House, Millbank, S.W.1

Telephone : Victoria 2873-2874

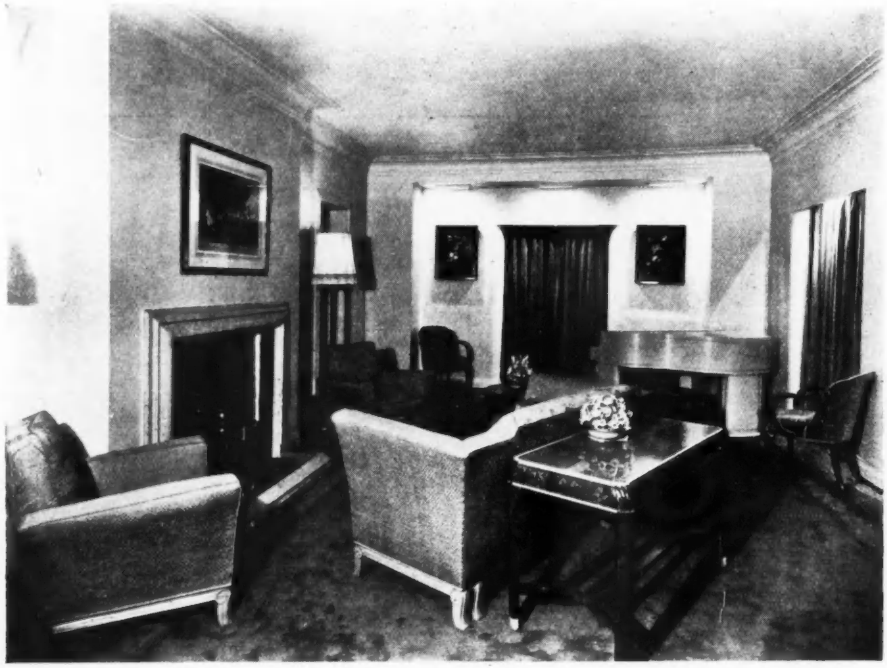
EXHIBITION ARCHITECTURE

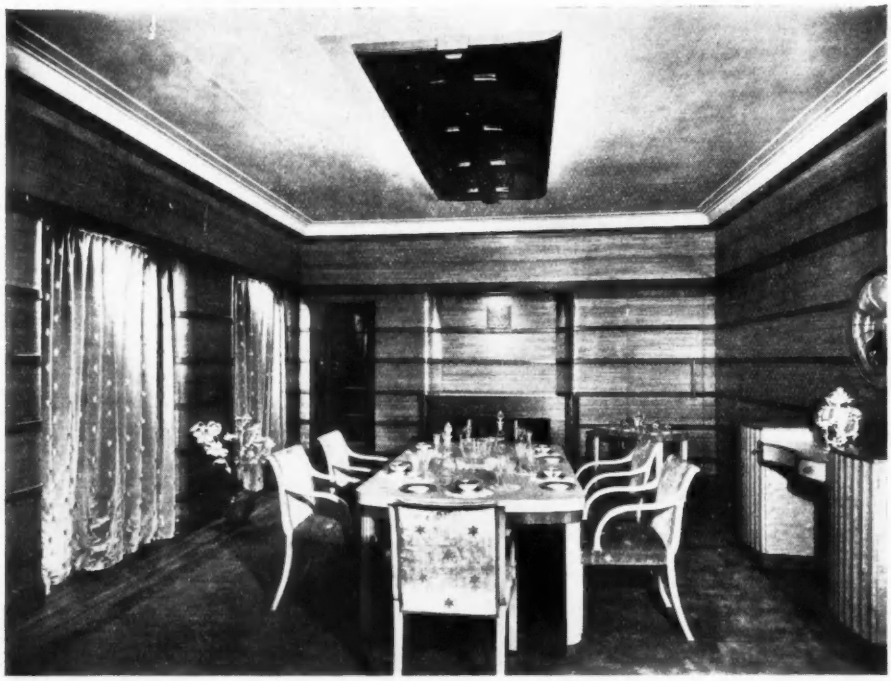
PROGRESS PHOTOGRAPH FROM BRUSSELS





THE Brussels International Exhibition opens at the end of April, and work is progressing on the British Pavilion, designed by Howard Robertson. Britain will also be represented, in the Modern Art Building, by a section illustrating the work of British architects, which is being organized by the R.I.B.A. This will be one of a group of similar exhibits contributed by the principal countries partaking in the exhibition. The photographs show a model of the British Pavilion and a recent photograph of it under construction.

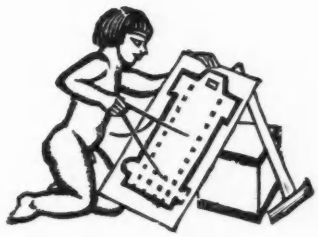




THE KING'S HOUSE AT OLYMPIA

The principal feature at the "Daily Mail" Ideal Home Exhibition, which was opened at Olympia on Tuesday last, is a full-sized replica of the Silver Jubilee Presentation House, which His Majesty has accepted from the Royal Warrant Holders' Association. It is erected at Olympia exactly as it will appear on the permanent site given by Lord Iveagh on his estate at Burhill, Surrey. The design was the subject of a limited competition, won by Mr. C. Beresford Marshall.

The photographs show: top, the drawing room; bottom, the dining room. Further illustrations are given on pages 477-479 of this issue.



B.I.N.C.: THE PROMISE OF A STATISTICAL SERVICE

IT has long been a national characteristic to prefer that even essential public services should remain in the hands of private voluntary enterprise rather than that they should be automatically provided by the state. In England many things, from life-boats to film-censors, even including a large proportion of the hospitals, are provided by voluntary organizations, aided, possibly, by official grants, but responsible only to themselves. This may be attributable to inherited feudalism or to fear of the mediocre consequences of a bureaucracy that is able to throw responsibility all too easily back on to an indefinable public ; but it has been the cause of much of our backwardness and slowness in adapting ourselves to the complex conditions of modern life. When the initiative is left to the individual, no amount of enthusiasm and application of altruism can compensate for the evils of individualism that are bound to ensue.

In recent years, however, there has shown itself a heartening tendency for business, industrial and similar corporations to take upon themselves the task of fostering wider than commercial activities. They have provided the modern counterpart of feudal patronage. To the Underground Railways we owe a large amount of the post-war improvement in advertisements, lettering and "street furniture" ; more recently Shell have had a similar influence in the field of advertising ; motoring interests maintain their own road patrols ; the combined steelwork manufacturers provide finance for housing research, and so on. These enterprises are by no means disinterested, but they are not to be condemned for that ; rather does it ensure the realism with which the various problems are faced.

Another recent example of the commercial organization that has set out to undertake some necessary tasks that in the ideal state would, perhaps, be done officially, is the Building Industries National Council. Last week we referred to the announcement of their intention to co-operate with the British Standards Institution in applying standards of dimension and specification within the building industry. The Building Industries National Council, which has always been an organization whose existence one approved of in theory, but which has not been as active as it might have been in fact, seems indeed to have taken on a new lease of life ; for it also announces another new enterprise—a far more complicated one than that of standardizing specifications but an equally important one : it announces its intention of providing for its members a statistical service, based on analysis of building industry facts and figures. This will provide an economic summary of the position and prospects of the industry, including presumably material for forecasting the demands that are likely to be made on the industry in the immediate future—a forecast that it is essential for the industry to have if it is to organize itself effectively to meet those demands.

We ourselves particularly welcome this announcement, as we have for some while and on many occasions advocated exactly such a statistical investigation. In a number of leading articles at the end of last year we put forward the suggestion that such an enterprise should be undertaken, explained the great benefits the building industry would derive from it, and outlined the possible programme of research on which it would have to be based. Actually, we went further. There seemed to be no sign at the time of any probability that this really necessary undertaking—one that, in view of the highly organized condition the building industry needs to be in to meet the demands the present housing "drive" will make on it is especially urgent—was to be attempted ; so this JOURNAL set itself the task of initiating a statistical survey, to lead up to an economic forecast, for the building industry. It appointed expert investigators to prepare material and to work out a detailed research programme. This announcement on the part of B.I.N.C., however, makes the continuation of our own work in the same field redundant. The Council is quite obviously the right organization to undertake the work—it is for such tasks, indeed, that the Council exists ; it has access through its members to much necessary material, both of fact and experience ; it has the resources and the opportunity of complete co-ordination. We have therefore done what is called in America, "the Big Thing"—what is, in other words, the obviously sensible thing. We have offered to hand over to the Building Industries National Council the results of our researches as far as they have been pursued up to date.

The progress of this enterprise will be watched with the greatest interest. The members of the Council have undertaken a task of immense difficulty ; but the degree of its difficulty is the measure of its importance. They will know that successful provision of the service they promise will constitute the greatest asset the industry could have—an ordered plan into which to resolve its present economic and organizational chaos. Henceforward, we believe, the name of the Council will be largely identified with this activity to which it is committed. By its success or failure it will stand or fall.



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NOTES & TOPICS

JUBILEE

I WONDER what were the private thoughts of their Majesties as they toured Olympia on Tuesday. It was inevitable that this year's Ideal Home Exhibition should " run " the Jubilee ; and the more hardened of us are not surprised at the *banalité* here to be observed, which compares with that which is normally visible when Great Britain contrives to express its enthusiasms over its sacraments—of which Royalty is certainly one.

*

This Jubilee, to the people of Great Britain, means far more than mere ceremonial, attractive and alluring as the pageantry may be. That is why I wonder what the King and Queen thought of Olympia.

*

But, as an exhibition, Olympia is much as one has come now to expect, except for this artificial patriot-cum-jubilee atmosphere, which does not altogether improve the architectural possibilities, but gives all too free a rein to folk who are determined to display their patriotism at their neighbour's expense.

*

It will be apparent, then, that I consider the " Ideal Home " to be a philosophical (and possibly even psychological) " wash-out "—but the emotion of this Jubilee may contradict me yet.

IDEAL HOME

As I say, I am sorry for the architect who *has* to express " Jubilee " in a mawkish way, to what he may or may not believe to be a mawkishly minded public. It is a difficult problem, and I am reluctant to blame the architect.

*

Some things do beget my resentment. One is the Fashion Theatre. It has very little to commend it, and is, frankly, a rather poor conception ; it has far too much of the " drama " and far too little of the " display " (" exhibition," if you prefer that term).

*

The Building Centre has a most interesting and well-conceived exhibit. It is desirable that modern materials and building practice should be explained to the public, and I am sorry that the stand (a composite one of Bond Street exhibitors) should be so far out of the course of casual visitors. But it is next to the Post Office's pitch, which always draws a public, and, judging from what I heard of high-tension sparks, is busy manufacturing the noises one hears on those automatic telephones. Most interesting.

*

Last, but by no means least—control yourself, Astragal!—is the Jubilee House, which I saw. As I cannot recall the date of the last Jubilee, I do not think it fair to criticize.

E. MCK. K.

It is appropriate that an exhibition of the work of our most distinguished display artist should itself be a brilliant example of the art of display.

*

At the exhibition of McKnight Kauffer's work at Lund Humphries' gallery in Bedford Square, the posters, illustrations and advertisements are neatly ranged on movable uniform panels behind sheets of plate glass, and beautifully lighted : a presentation easy to look at and, as with all good display, unobtrusive.

*

It is the same with the exhibits ; the " story," in the posters for instance, is so thoroughly a part of the design that one absorbs it quite unconsciously.

*

I suppose McKnight Kauffer has had more influence for good in matters of clean design and honest modern taste than anyone in this country—certainly more than the Royal Academy and the Royal Society of Arts put together.

*

As Roger Fry pointed out, in an article on Kauffer's work that is reprinted in the catalogue of the exhibition, the man in the street will accept the modern, even the *surréaliste* and abstract, idiom when it is presented to him in a poster, and admire it for the right reasons, whereas when he sees the same idiom used in " serious " painting he finds it shocking, even sacreligious.

CORBY

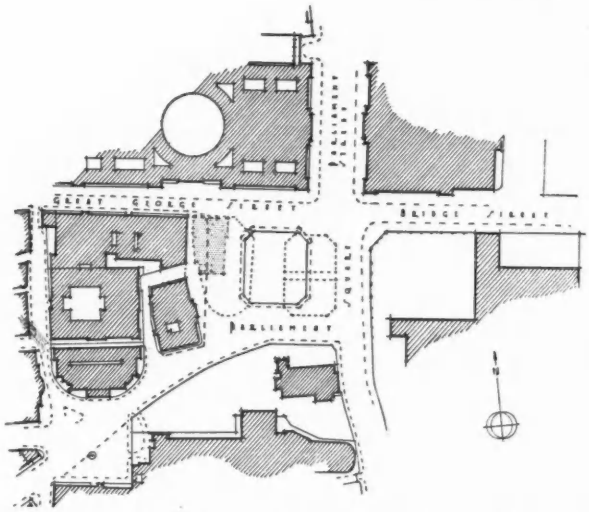
Mr. Laurence Gotch (the architect of the housing at Corby) takes me to task for some of my comments on Geoffrey Boumphrey's broadcast criticisms of the town planning and housing there. His attitude is perhaps excusable.

*

But as far as I am concerned the point I was after was to emphasize the value of public criticism of matters of public importance, such as the B.B.C. encourages in sponsoring Mr. Boumphrey's series of talks.

*

I do not want to preach to Mr. Gotch so much as to stand up for the free ventilation of controversial matters,



A proposal for the improvement of Parliament Square: the much-disputed site (dotted) on the western side becomes an open space. The broken lines show the existing pavement lay-out. See Astragal's note on this page.

and free comment when comment is knowledgeable and constructive.

*

And that is where I do join issue with Mr. Gotch. Quite apart from the rights and wrongs of the business, the kind of criticism Mr. Boumphrey gave us *was* constructive. It is only by getting down to such realities as sizes of windows, planning in large rather than small units and the privacy gained by wide spacing of dwellings, that we can turn endless theoretical arguments into visible improvement in practice.

PARLIAMENT SQUARE

And talking of built-up areas, what is going to happen in Parliament Square? Nearly all the discussion about the site on its western boundary has been based on the assumption that that must be a *building* site.

*

Except for a letter Lord Ashfield sent to *The Times* one day last month no one seems to have advocated the most dignified solution to the difficulty: that the site should not be used either as a commercial office building or as a municipal office building, but should be incorporated in Parliament Square.

*

I have made a sketch to show how greatly the additional open space would improve the whole neighbourhood. It would enable traffic ways to be lined up, make our centre of government look far more like a centre of government and open up admirable new views of Westminster Abbey.

*

It seems a fine chance for Parliament, as a little Jubilee effort, to make itself responsible for an undertaking that, while not gigantically expensive, has less ephemeral virtues than immediate expediency.

*

And if it's not worth while doing that in Parliament Square, where is it worth while?

THE COLONEL'S BIRTHDAY

May 31 is Colonel Crompton's ninetieth birthday, and a number of "Cromptonians" are arranging to celebrate the occasion by presenting the Colonel with a portrait of himself.

*

But who, the ignorant will ask, is Colonel Crompton? He is one of those anonymous benefactors of mankind whose achievements are only acknowledged in the unconscious gratitude of millions.

*

He was the pioneer of electric lighting. He installed electricity in his own house in Porchester Terrace in 1881, and that was the first use of it for domestic lighting. To the successful outcome of that enterprise we owe the convenient response that the pressing of the domestic switch elucidates today.

*

For these experiments, which he only undertook comparatively late in life after retirement from Indian service (how typical of the English way of doing things, to leave even essential scientific research to the enterprise of the "retired" enthusiast), what tangible recognition has he received? A modest C.B. and now a banquet and a presentation portrait on his ninetieth birthday.

*

However, he may be counted lucky to be granted acknowledgment at all. Many public benefactors I can think of remain permanently unknown: the inventors of scissors, for example, or grape-fruit, or the "law of diminishing returns."

*

The hon. secretary of the "Committee of Cromptonians" is inviting subscriptions (limited to one guinea) towards the presentation portrait. There are many less worthy causes.

SUPPLY AND DEMAND

Architects are said to be bad book-buyers. If this is true, the fault lies rather with publishers than with architects. About a year ago, when the *Information Book* achieved a second edition within four months of publication, I offered some advice to publishers and drew the appropriate moral: any book which *really helps the architect in his work* is sure of immediate success.

*

I have just received confirmation of this perhaps rash opinion. On buying a copy of F. R. S. Yorke's *The Modern House* to give to a layman friend of mine who is about to build himself a house, I discovered that this book, first published last June, is already in its second edition.

*

Moreover, the contents of the book supplies further evidence of the current demand for information on its subject. In the new edition the English section has been strengthened by the addition of a large number of English houses, all of them finished during the six months which have elapsed since the book's first publication. An interesting example of the two-way action of the law of supply and demand.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

A Bill to deal with ribbon building is to be introduced by the Government after Easter, and it is expected to be passed this session 474

"At present we are rehousing slum tenants at the rate of 150,000 persons a year, compared with a total of 200,000 for the last 60 years" .. 474

The Witney Case: The Town-Planning Committee's point of view 494

NEW ARCHITECT TO L.C.C.

Mr. E. P. Wheeler, F.R.I.B.A., senior divisional architect to the London County Council, has been appointed to succeed Mr. G. Topham Forrest, F.R.I.B.A., who retires at the end of this month, as architect to the Council and superintending architect of metropolitan buildings.

Mr. Wheeler, who is 60, entered the Council's service in 1899. In 1921 he was entrusted with the work in connection with buildings for public entertainments. Three years later he became head of the constructional division, to which was added the architectural work relating to mental hospitals and, in 1930, that relating to general and special hospitals.

Since 1931 he has been second officer in the department, and, when promoted in 1933 to be senior divisional architect, he continued to supervise the constructional division in addition to his duties as chief assistant to Mr. Topham Forrest.

BUILDERS' STRIKE CONDEMNED

"Strongest disapproval of the unconstitutional action taken" by 1,200 men employed by Messrs. Holland and Hannen and Cubitts Ltd. on the new Guinness building at Park Royal was expressed on Friday by the special commission, representing the employers and the building trade unions, which investigated the unofficial strike on the preceding Tuesday.

The men left work as the result of a dispute over 6s. 8d. said to be due to a bricklayer of whose presence at work there was said to be no evidence, since he had not "clocked in." The men were paid off in accordance with the Working Rule Agreement and the job was closed.

The commission decided that there was nothing to support the bricklayer's claim, and regretted that no attempt was made to invoke the machinery provided by the rules for dealing with disputes.

BILL AGAINST RIBBON BUILDING

A Bill to deal with ribbon building along new roads and in general is to be introduced by the Government after Easter, and it is expected to be passed this session. It is understood to be an enabling Bill, conferring upon highway authorities powers to prevent unsuitable development in their areas. The Government will be prepared to assist these authorities in the payment of compensation to landowners. The Bill will not be retrospective, but it is understood that an "appointed day" will be fixed to prevent ribbon building after the Bill's introduction.

THE ARCHITECTS' DIARY

Thursday, March 28

DAILY MAIL IDEAL HOME EXHIBITION. *At Olympia. Until April 18.*

HOUSING CENTRE. *At the Mansion House, E.C. "Co-ordination in Housing." By H.R.H. the Prince of Wales.* 4.30 *p.m. At 13 Suffolk Street, S.W.1. Exhibition: "A Hundred Years of Housing." Open until further notice.*

ARCHITECTURAL ASSOCIATION, 36 *Bedford Square, W.C. Exhibition illustrating London Development. Until March 30.*

INSTITUTION OF STRUCTURAL ENGINEERS, 10 *Upper Belgrave Street, S.W.1. "The Prevention of Compressed Air Sickness." By Sir Henry Japp.* 6.30 *p.m.*

SOCIETY OF ANTIQUARIES. *Burlington House, W.1. "Tintagel: the Castle and the Celtic Monastery." By C. A. Ralegh Radford.* 8.30 *p.m.*

NORTHERN POLYTECHNIC, *Holloway, N.7. Annual Speech Night and Exhibition of Work. The prizes will be distributed by Sir Giles Gilbert Scott, R.A.* 7 *p.m.*

R.I.B.A., 66 *Portland Place, W. Exhibition of the work of Smith and Brewer until April 6.* 10 *a.m. to* 8 *p.m. (Saturday, March* 30: 10 *a.m. to* 8 *p.m.).*

GEFFRYE MUSEUM, *Kingsland Road, Shoreditch, E.2. "Methods of Decorating Furniture of the 17th and 18th Centuries." By Ingleson C. Goodison.* 7.30 *p.m.*

COMPETITION FOR WORKING-MEN'S FLATS. *(Promoted by the Cement Marketing Co.) At the Imperial Institute, South Kensington, S.W. Exhibition of Designs submitted. Until March* 31.

Friday, March 29

ASSOCIATION OF ARCHITECTS, SURVEYORS AND TECHNICAL ASSISTANTS. Annual Dinner and Dance at the Rembrandt Rooms, Brompton Road, S.W. 8 *p.m.*

CEMENT MARKETING CO. *At the Imperial Institute, South Kensington. "Working-class Flats: A Solution to the Problem of Housing." By L. H. Keay.* 6.30 *p.m.*

LONDON SOCIETY. *Visit to the Mortlake Brewery.* 3 *p.m.*

Saturday, March 30

LONDON SOCIETY. *Visit to Wesley's House in the City, 47 City Road, E.C.1.* 2.30 *p.m.*

Monday, April 1

SOCIETY OF CHEMICAL INDUSTRY. *At Burlington House, W.1. "Developments in Non-ferrous Alloys." By Dr. H. Moore.* 8 *p.m.*

Wednesday, April 3

INSTITUTION OF HEATING AND VENTILATING ENGINEERS. *At the London School of Hygiene and Tropical Medicine, Cromer Street, W.C.1. "The Flow of Air and Gases in Small Area Conduits." By C. W. Ulett.* 7 *p.m.*

R.I.B.A., 66 *Portland Place, W.1. Third Informal General Meeting. The motion to be debated, "That Architects should seek representation in Local and National Government," will be supported by Mr. Henry Braddock and opposed by Mr. Thomas Mitchell, with Mr. R. A. Duncan in the Chair.* 6 *p.m.*

OPENING OF HOUSING CENTRE

The Housing Centre was opened at 13 Suffolk Street, S.W., last week by Mr. Geoffrey Shakespeare, Parliamentary Secretary to the Ministry of Health. Sir Reginald Rowe, chairman of the Centre, presided.

Mr. Shakespeare said that the nation had taken the slum crusade to its heart; in every big industrial centre the rehousing of the workers was in progress. At present they were rehousing slum tenants at the rate of 150,000 persons a year, compared with a total of 200,000 for the last 60 years. The rate was accelerating all the time, and the rehousing approvals they had given in the last two months enabled them to hope that towards the end of the year the annual rate of rehousing would be nearer 250,000 persons. The success of the slum crusade enabled them to organize a direct attack against overcrowding of the same dimensions.

The Government were fully alive to the useful part that voluntary effort could play in this massed attack on bad housing conditions. In the Bill now before Parliament they gave statutory recognition to their usefulness and the need for their co-operation with the housing authorities.

THE GARDEN CITY

Mr. Thomas Sharp, in a lecture entitled "Town and Country Planning" at a meeting of the Manchester Branch of the Design and Industries Association last week, made a strong attack on the garden city and the garden suburb. He said that the impression created by the modern housing estate was one of muddle, disorder and slovenliness. He described how successive town-planning acts had been based on the idea of the garden city, and how, since the war, all the great housing activities were carried on on garden city lines. "So to-day," he remarked, "garden city theory is quite sacrosanct; everyone, planners, architects, builders, the general public, is seduced by it." He pointed out that one would expect that to have established such a hold the theory must have a firm basis in scientific and economic fact. It had no such basis; it was largely emotional reaction, as could be seen on an examination of its principal components.

A COUNCIL ARCHITECT ARRESTED

The following paragraph appeared in the *Evening Standard* for March 21: "Charles William Smith, M.A., an architect of Cambridge, who was arrested on a warrant, was charged at Ely today. The charge against him was that being the agent, the architect of the Ely Rural Council, he did at Littleport corruptly accept from Herbert Barrett Lofts, trading as Herbert Lofts and Son, a gift or consideration of £50 as an inducement or reward for doing certain acts. Smith was remanded."

SOUTH WALES ARCHITECTS

Under the auspices of the South Wales Institute of Architects (Central Branch) and the Institute of Builders (South Wales Branch), Mr. J. G. West, O.B.E., F.R.I.B.A., Chief Architect of H.M. Office of Works, gave a lantern lecture entitled "Some Aspects of the Architectural Work of H.M. Office of Works" on Thursday last at the Engineers' Institute, Cardiff.

Mr. West described in an interesting manner the work and methods of the organization maintained by the State to deal with the erection and maintenance of buildings for those engaged in the Public Service. He touched on the origin and development of the Office of Works, and after indicating the stages through which a normal building scheme passed, he explained the design and construction of

various types of buildings erected by his Department in various parts of the world.

Mr. John Williamson, A.R.I.B.A., Chairman of the Central Branch of the South Wales Institute of Architects, presided.

THE LATE WILLIAM MILBURN

We regret to record the death, which took place last week, of William Milburn, M.B.E., F.R.I.B.A., head of the firm of Messrs. W. and T. Milburn, of Sunderland. He was seventy-seven years of age.

A son of the late Capt. William Milburn, he was trained at the School of Art, Sunderland, and had practised as an architect in the town for 56 years. Up to 1897 he and his younger brother, Mr. T. R. Milburn, carried on separate practices, but since that date they had been in partnership.

Mr. Milburn was a past president of the Northern Architectural Association; president of the Sunderland Photographic Association for forty years, and president of the Northern Photographic Federation for twelve years. He was elected a Fellow of the R.I.B.A. in 1906.

R. I. B. A.

THE SOANE MEDALLION AND THE TITE PRIZE

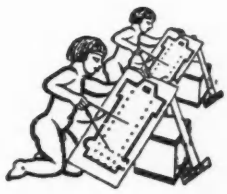
In the United Kingdom 114 students took part in the Preliminary Competition for the Soane Medallion, and 246 students took part in the Preliminary Competition for the Tite Prize. The following students have been selected to take part in the Final Competitions :—

THE SOANE MEDALLION : Messrs. T. A. L. Belton (University of Sheffield) ; Philip E. D. Hirst (Liverpool School of Architecture) ; Andrew S. Hood (Edinburgh College of Art); Joseph W. Pickering (Hull College of Arts and Crafts) ; Cecil G. Stewart (Edinburgh College of Art) ; Kenneth Warman (Leeds School of Architecture) ; Norman C. Westwood (Architectural Association, London) ; Ralph R. Wilkins (Architectural Association, London) and Miss Anne W. R. Parker (Architectural Association, London).

THE TITE PRIZE : Messrs. Vernon R. Abbott (Armstrong College School of Architecture (University of Durham), Newcastle-upon-Tyne) ; Christopher H. M. Bompas (Architectural Association, London) ; Alexander M. Graham (Edinburgh College of Art) ; R. A. B. Hitch (Architectural Association, London) ; Charles H. Hyde (Birmingham School of Architecture); A. H. H. Jenkins (Architectural Association, London) ; James T. Latheron (Armstrong College School of Architecture (University of Durham), Newcastle-upon-Tyne) ; Arthur G. Ling (Bartlett School of Architecture (University of London)) ; W. M. T. Pattrick (Architectural Association, London) ; Paul K. Pope (Royal West of England Academy School of Architecture, Bristol) ; John C. Ratcliff (Architectural Association, London) ; Donald P. Reay (Liverpool School of Architecture) ; H. E. A. Scard (Welsh School of Architecture) ; Alexander B. Wylie (Edinburgh College of Art) ; Robertson R. Young (Liverpool School of Architecture).

R.I.B.A. INTERMEDIATE EXAMINATION

The following are the dates on which the forthcoming R.I.B.A. Intermediate Examination will be held : May 24, 25, 27, 28 and 30, 1935. (Last day for applications : April 24.



THE BIRMINGHAM COMPETITION

THE CONDITIONS REVIEWED

[*By Iodos*]

June 28.—Sending-in Day. Municipal offices for the Birmingham City Council. Assessor : Sir Reginald Blomfield, R.A., PP.R.I.B.A. Premiums : £1,000, £600, £400 and £250. Conditions, etc., are obtainable from Mr. Herbert H. Humphries, M.Inst.C.E., the City Engineer and Surveyor, Council offices, Birmingham. (Deposit £3 3s.) Last day for questions, March 30. Designs must be submitted to the Town Clerk, Birmingham, not later than June 28.

IT will be remembered that some time ago a competition was held for the replanning of the centre of Birmingham. The competition was won by a Parisian architect, whose project, although it appeared well conceived, involved reconstruction on such a sweeping scale as to make it almost a foregone conclusion that it would never be translated into reality. It is inspiriting to find, however, that the City of Birmingham has not yet given up hope of evolving some sort of order in the existing chaos, though the present scheme is on a much smaller scale than was contemplated before. A lay-out has been prepared for a new Civic Centre which will take the form of a wide open square 680 ft. across and close upon 800 ft. deep. This square will be surrounded on the north, east and west sides by important municipal buildings, while the south side, following the present line of Broad Street, will include the existing Municipal Bank and the Masonic Temple.

Designs are now invited for a block of municipal offices forming part of this Civic Centre scheme but, warned by their previous experience, the authorities have taken steps to ensure that only projects of a sternly British practicability shall be submitted. The present competition, which Sir Reginald Blomfield is assessing, is limited not only to architects "practising in the British Isles," but also to "British-born" architects.

The site is on the north side of Broad Street, and the proposed offices will form just over half the block on the east side of the new square. Competitors are to submit designs for the elevational treatment of the complete block, 400 ft. long, as well as for the detailed planning of the section which it is intended to proceed with immediately. This will be purely a municipal office building, no council suite being included. The total cost of the building is not to exceed £260,000.

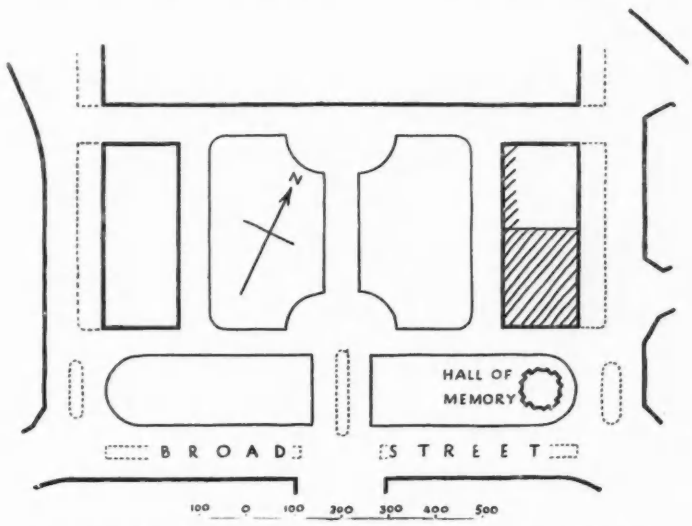
There are 10 departments and sub-departments ranging in size from 1,620 to 26,567 sq. ft. of floor area, which are "intended" to be housed on five floors with a basement under.

The following is a brief summary of the accommodation required :—

Allotments and Agricultural Department ..	1,680 sq. ft.
Mental Deficiency Act Department	1,620 sq. ft.
Parks and Cemeteries Department	3,800 sq. ft.

Public Works Department, which is subdivided into :—

Administration, 12,000 sq. ft., of which 7,000 sq. ft. is basement storage room.



Competition for Municipal Offices, Birmingham : Plan showing the site.

Accountant's sub-department, 11,545 sq. ft., including a general office of 2,950 sq. ft.

Building surveyor's sub-department, 5,050 sq. ft., including an architectural drawing office of 2,250 sq. ft. (the lighting of this and of large drawing offices in several other departments will obviously be an important consideration).

Drawing sub-department, 12,700 sq. ft., with 5,700 sq. ft. of general drawing office as well as a separate town planning drawing office of 1,800 sq. ft.

Sewers and rivers sub-department, 4,980 sq. ft., again with its own drawing office of 3,500 sq. ft.

Salvage Department .. 5,130 sq. ft.

Water Department .. 26,567 sq. ft.

It is suggested that this should be divided into three sections of 9,587 sq. ft., 8,150 sq. ft. and 8,830 sq. ft. to be located on the ground, first and second floors respectively. The first of these sections includes the collection offices with a public space of 1,160 sq. ft. and would appear to be the only department to which the public will come in any considerable numbers.

In addition to these departments provision has to be made for three committee rooms of 600 sq. ft. each, with waiting room and cloak rooms, a canteen with kitchen and common room adjoining totalling 4,550 sq. ft., two audit rooms, two rest rooms, caretaker's quarters, a telephone exchange of 1,850 sq. ft., and the usual cloak room and lavatory accommodation, cleaner's room, etc.

Drawings are to be made to the unusually large scale of 8 ft. to an inch, except the "extended" elevation, i.e., presumably, the elevation of the complete block, which *may* be to a scale of 16 ft. to an inch. This latter will be seen to be a necessary indulgence in view of the fact that a 400 ft. long elevation drawn to $\frac{1}{8}$ in. scale would be 10 in. longer than a double elephant sheet of paper, to which size drawings are limited. Incidentally, the sizes specified would seem to involve the submission of no fewer than nine separate drawings—a prospect which, together with the necessity of paying a three guinea deposit, should suffice to check any undue rush of competitors which might be caused by the generous premiums of £1,000, £600, £400 and £250.

Mention of the deposit brings to mind the somewhat unusual wording of the clause regarding its return. This clause states "The deposit will be returned after the award, or if the conditions, etc., are sent back within one month," no mention being made of any necessity to submit a "bona-fide design" in order to qualify for the repayment. Two other clauses ought to be mentioned as being hitherto unusual in this type of competition—No. 9, which states "The Committee reserves the right to use the whole or any part of any design submitted in connection with the competition upon payment of a fair and reasonable professional remuneration. Any dispute in regard to the amount of such remuneration shall be settled by the assessor."

And No. 5, which runs "In the event of no design being submitted of sufficient excellence to satisfy the assessor the committee reserve the right to withhold the premium and appointment." At first sight this clause will probably give rise to feelings of resentment as well as surprise. It is, however, a very usual provision in other types of competitions, and the matter for surprise is perhaps rather that it has not previously been insisted on by architectural competition promoters.

Finally, attention should be called to a very important omission which it is astonishing to find overlooked by a past-president of the R.I.B.A. There is no indication in these conditions that they are issued under seal.

CENTRAL OFFICES, HERTFORD

The Hertfordshire County Council invites architects to submit designs in competition for the erection of Central County Buildings at Hertford. Mr. Robert Atkinson, F.R.I.B.A., has been appointed assessor, and the following premiums will be awarded: £350, £250 and £150 for the designs placed first, second and third respectively. Designs must not be submitted later than October 1.

Particulars of the competition are obtainable from the Clerk of the County Council, Clerk of the Peace Office, Hertford. (Deposit £2 2s.)

WORKING-MEN'S FLATS

The commended designs, together with sketch plans and notes by Elizabeth Denby, in the Cement Marketing Company's competition for working-men's flats are given on pages 482-485 of this issue. The premiated designs were reproduced in our last issue.

Competitions Open

April 8.—Sending-in Day. Monument in Grey Cornish granite for the Cornish Quarry Masters' Association. Assessors: The Hon. Humphrey Pakington, F.R.I.B.A., C. Lovett Gill, F.R.I.B.A., C. H. Holden, F.R.I.B.A., Howard Robertson, F.R.I.B.A. and M. L. Wetherall. Premium: £50. Conditions are obtainable from the Secretary of the Architectural Association, 34 Bedford Square, W.C.1. Latest date for submission of designs, April 8.

April 30.—The Croydon Corporation invite the submission of designs for laying out an area in Central Croydon which is to provide an extension of the Civic Centre of the Borough and to improve central means of communication. Assessor: Dr. Thomas Adams, F.R.I.B.A., F.S.I., M.T.I. Premiums: £500 for the design placed first; £350 to be divided (in proportions to be determined by the Assessor) for not more than three designs placed next in order of merit. A copy of the conditions is obtainable on application to the Town Clerk, Town Hall, Croydon. (Deposit £1 1s.) Designs are to be submitted not later than April 30.

May 31.—Sending-in day. Police station, dwellings and hospital, Bishopsgate, for the Corporation of London. Assessor: H. Austen Hall, F.R.I.B.A. Premiums: £250, £100 and £50. Conditions, etc., are obtainable from the Town Clerk, Guildhall, E.C.2. (Deposit £1 1s.) Last date for submission of designs, May 31.

June 29.—Sending-in Day. Municipal offices, Romford, for the Romford U.D.C. (Open to architects of British nationality practising in the British Isles.) Assessor: Kenneth M. B. Cross, M.A., F.R.I.B.A. Premiums: £250, £100 and £50. Conditions, etc., obtainable from the Clerk to the Council, Arcade Chambers, South Street, Romford. (Deposit, £1 1s.) Latest date for submission of designs: June 29.

July 4.—Sending-in Day. County offices, Kendal, for the Westmorland County Council. (Open to architects of British nationality, practising in the British Isles.) Assessor: G. H. Foggitt, F.R.I.B.A. Premiums: £200, £125 and £75. Conditions, etc., obtainable from H. B. Greenwood, Clerk to the Westmorland County Council, Exchange Chambers, Kendal. (Deposit £1 1s.) The latest date for submission of designs is July 4.

July 31.—Competition for design for open fireplaces and surrounds (to be constructed in any materials the competitor deems practical or desirable) for the Coal Utilization Council. Assessors: the Directors of the Building Centre. Premiums: 50 guineas, 20 guineas and 10 guineas for designs placed first, second and third, respectively. Conditions, etc., are obtainable from the Coal Utilization Council, Columbia House, Aldwych, W.C.

THIS ARSHETECTURE

PRAYERS AS FEES

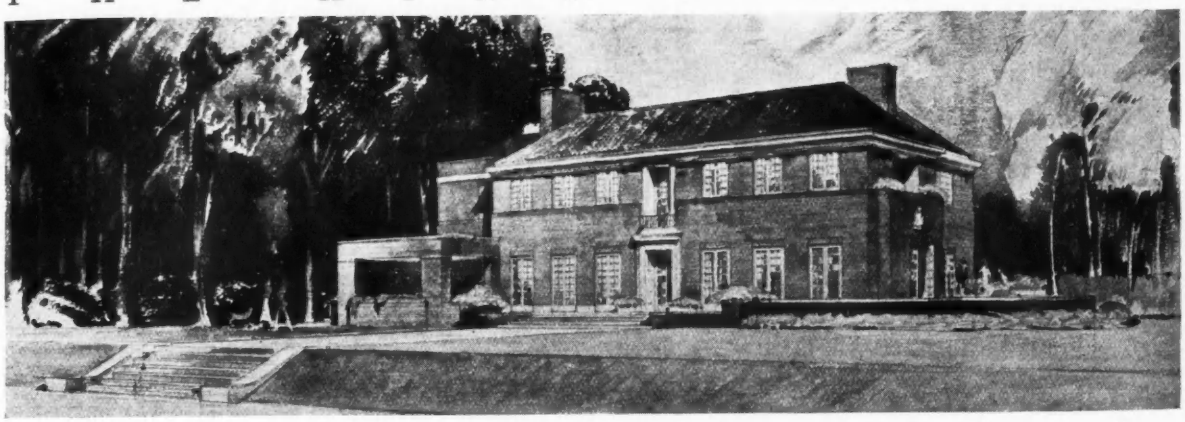
In the Court of Appeal here to-day, before Lord Justice Andrews and Lord Justice Best, there was an appeal in the action heard last November, in which an unusual defence was raised that the plaintiff had agreed to accept prayers in payment for services rendered by him as architect in the erection of a convent for the Cross and Passion Order. The trial lasted two days before the Lord Chief Justice, who, on the findings of the special jury, refused to enter judgment.

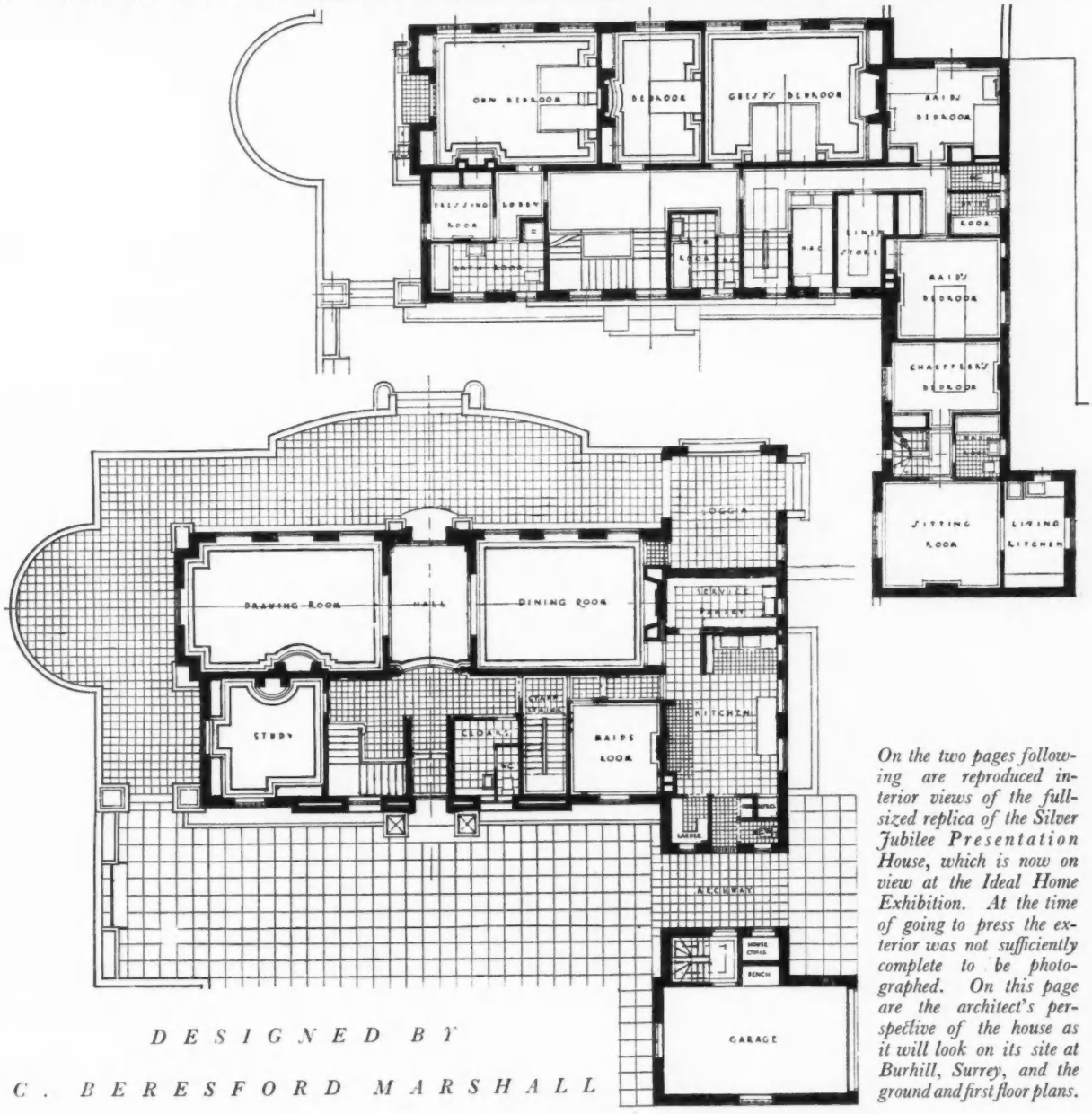
Both sides now asked for judgment, or, in the alternative, a new trial.

One of the defences was that of the moneys relating to the new convent the plaintiff received from the Rev. Canon Murphy at various dates £250, and on the conclusion of the work the plaintiff and the defendants agreed between them that the defendants, the Cross and Passion Order, should perform certain services for the benefit of the plaintiff and his family, and that the plaintiff should accept performance of those services, together with the sum of £200, in satisfaction of his claim. Those services were in a general way the offering up of prayers, and the defendants pleaded that they had performed those services. The prayers were to be continued in perpetuum.

Submitting that prayers did not constitute a consideration, counsel said that such a thing had never come before a Court in the United Kingdom. Was it really seriously to be argued that the spiritual interests of two deceased persons could be advanced as a bar to the payment of a debt admitted to be legally due? The arguments had not concluded when the Court rose. *From "The Irish Times."*

THE KING'S HOUSE





DESIGNED BY

C. BERESFORD MARSHALL

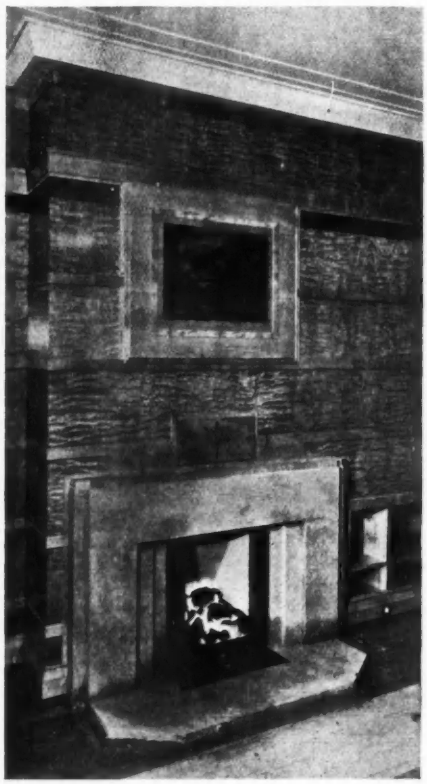
On the two pages following are reproduced interior views of the full-sized replica of the Silver Jubilee Presentation House, which is now on view at the Ideal Home Exhibition. At the time of going to press the exterior was not sufficiently complete to be photographed. On this page are the architect's perspective of the house as it will look on its site at Burhill, Surrey, and the ground and first floor plans.

THE KING'S HOUSE AT THE

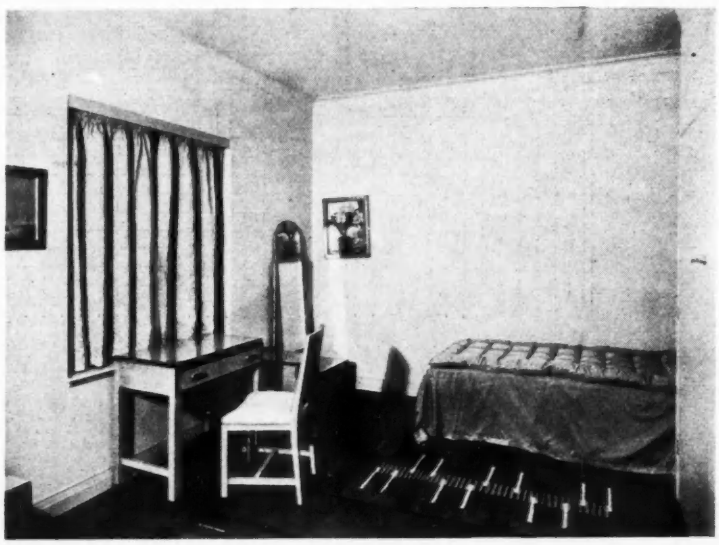


Left : A view from the main entrance hall, looking towards the staircase and the doors leading to the terrace. The floor of the inner hall is covered with ivory marble, and the walls are treated in old vellum. The staircase is in limed oak with wrought-iron balustrade surmounted by a bronze handrail.

Below : The kitchen. In order to obtain the maximum amount of light the working table is placed near the windows. Under the table are cupboards and drawers for the storage of kitchen utensils. On the opposite side are the cooker, the hot-plate and a small hardwood folding table and cupboards. Behind the camera is a double-sink, with cupboard space under. The floor is covered with tiles and the walls are lined part way with stainless steel tiles and, above, including ceiling, with coloured steel tiles.







Above : The fireplace in the study. The etching is by Frank Brangwyn ; and the clock has blue glass facet cut digits planted directly on to sycamore wood. On the right is part of the cocktail enclosure.

Right : The maid's bedroom on the principal front. The furniture is in English oak and English walnut ; and the floor is laid with cork.

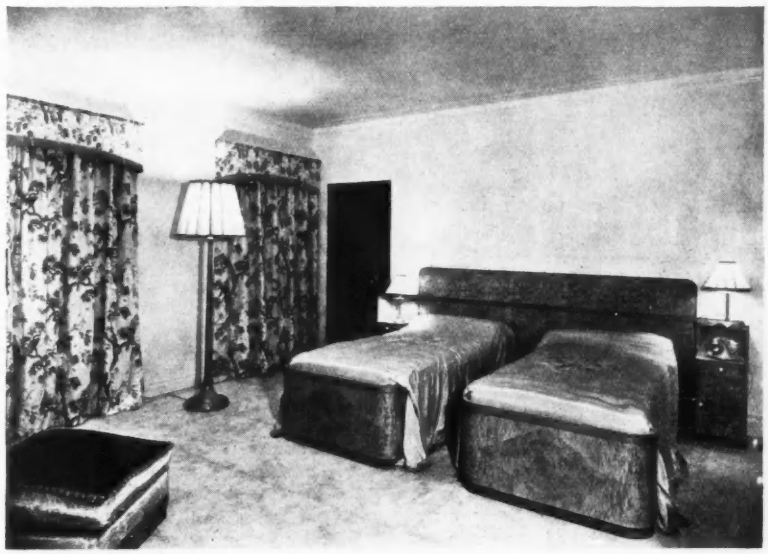
IDEAL HOME EXHIBITION

DESIGNED

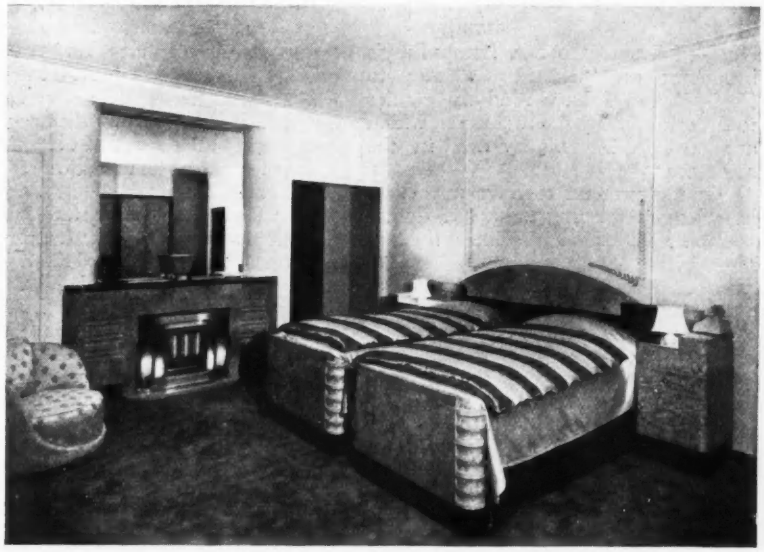
BY

C. BERESFORD

MARSHALL







The photographs show: top and centre, the principal bedroom; below, the guest's bedroom. The walls of the principal bedroom are painted in peach cream, in tone with the groundwork of the silk taffeta curtains which have a hand-block printed design in shades of jade green, mushroom and peach. A cream peach coloured carpet covers the whole room. The furniture is in figured weathered sycamore, with bands of walnut and handles of ivory. In the room are two beds with fitment and pedestal tables, a dressing-table and built-in wardrobes.

The guest's bedroom has walls painted in very pale peach colour and the curtains are in two tones of ivory with voile netting to match. The woods used are Canadian maple and English walnut, with floor of British Columbian pine and windows of Burma teak. The fireplace will be flanked by two recesses, one holding a lavatory basin and the other contrived to contain sports clothing.

All the doorways shown in the photographs on this page are temporary and have been constructed for the use of visitors inspecting the house during the exhibition.

LETTERS FROM READERS

GEOFFREY BOUMPHREY
HUGH QUIGLEY
COLIN T. PENN, A.R.I.B.A.
G. R. H. WOOD
E. L. BRALEY (Hon. Secretary, The Guild of Bricklayers)
E. M. ACKERY
DR. OSCAR FABER, O.B.E., D.Sc., Hon. A.R.I.B.A., M.I.H.V.E.
J. R. KELL, M.I.H.V.E.

Corby

SIR,—Since Mr. Gotch has so far forgotten himself as to refer in his letters to happenings at a conference which was clearly understood by all who took part in it to be strictly confidential, I may, perhaps, be allowed to emphasize one point implicit in his remarks. The "many mistakes of fact" in my first written review of Corby are his estimate—not mine. The information which was subsequently placed at my disposal was not of a kind to make me modify the main lines of my opinion. Much of it was in the nature of extenuating circumstances, and to these I tried to give due importance in my talk. I am genuinely sorry if I failed; but, after all, my job was to review Corby as I found it—and not to assess responsibilities, moral or otherwise.

Mr. Gotch would have it thought that I am alone in finding much to criticize at Corby. He is, perhaps, not unaware that critics with far greater "knowledge and authority" than I can claim have agreed in the main with my views. I cannot, of course, quote them without a breach of confidence.

May I, in conclusion, give *The Listener's* editorial comment on Mr. Gotch's letter which you reprinted: "The photographs of Corby to which Mr. Gotch refers were specially taken for *The Listener* by Mr. Edgar Ward, without any responsibility on the part of Mr. Boumphrey. The subjects were chosen, not for the purpose of reinforcing Mr. Boumphrey's criticism, but to assist our readers to assess for themselves the value of those criticisms."

G. M. BOUMPHREY
London

SIR,—I listened to Mr. Boumphrey's broadcast on "Industry Comes to Corby," and I have read the replies to his criticism by the architects, which appeared in *The Listener* and in the ARCHITECTS' JOURNAL.

I do not pretend to have any exact knowledge regarding the actual details of the houses which have been built at Corby, but I remember studying the plans of them which were exhibited at the Glasgow Housing Exhibition last autumn, and I must say that, as far as it was possible to judge at that time, the new town planning scheme proposed for Corby was not such as to merit complete confidence.

I have since had an opportunity of looking at the scheme, and it appeared to me to suffer from a number of defects very similar to those which Mr. Boumphrey has described.

The important aspect of this controversy is not, however, the disappointment which town planners have had with the building experiment, but rather the delay which intervened between the preparation of the broadcast and its actual delivery, the spirit of acute controversy which has influenced the discussion of this nationally very important subject and the unwillingness of those responsible for the building experiment to accept any outside criticism at all.

It is quite impossible to obscure the fact that the new Corby architecturally has contributed nothing new either to housing standards or to the principles or practice of town planning. It is at best a reproduction of accepted ideas, good, bad and indifferent, and even granted the improvements that have been made by the architects on the original scheme, the final product is not one which will satisfy those who, like Mr. Boumphrey, are really desirous to see the new architecture and the new industries combining harmoniously together within an enlightened and skilful town planning scheme.

One would have thought that such criticism, inspired by the highest motives, would have been welcome to the architectural profession. The cause of the profession and of town planning generally is not advanced by controversy of this type, and the layman in face of such controversy will be suspicious of anything that architects can offer him. Corby could have been one of the greatest experiments in industrial architecture and in town planning associated with a basic industry in the twentieth century. The fact that it is not so is sufficient reason for critics of the type of Mr. Boumphrey to exercise the right to criticize it.

The test of performance in a case like this is not bare adequacy but the highest standards of design and function. In the former, the architect may feel himself satisfied, but the public which desires some indication of vision and intelligence in its planning and in its architecture will scarcely support him in his complacency.

HUGH QUIGLEY
London

SIR,—Mr. Laurence M. Gotch, in his reply to Mr. Boumphrey, has completely missed all his points. His criticisms were directed against the acceptance of a number of architectural fallacies which he found expressed at Corby, and in answer to him Mr. Gotch brings out the very same fallacies—together with one or two new ones—as follows:

(1) That preconceived ideas condemn a critic. A critic without any would be one who knew nothing about the matter at all.

(2) That theories about housing estates can be demonstrated by building a pair of houses.

(3) That an architectural composition is a piece of scenery, to be looked at from a fixed position; and that the normal observer sees a "completed architectural scheme" rather than the small portion of it which he is approaching.

(4) That a block of "four or more" houses is not a small unit.

(5) That if "only 8 per cent." of the bedrooms are overlooked by other bedrooms it doesn't matter.

(6) That housewives prefer that elusive quality called "scale" to domestic convenience; or, alternatively, that housing estates are built for architects and not for housewives. To say that the difficulty of cleaning small-paned windows is "a matter of opinion" is astonishing. Surely it is a matter for test—a test which Mr. Gotch has perhaps not made.

(7) That if a house is different from the one next door that in itself is an æsthetic merit.

(8) That a detached house with a wide frontage is necessarily superior to a row house with a narrower frontage.

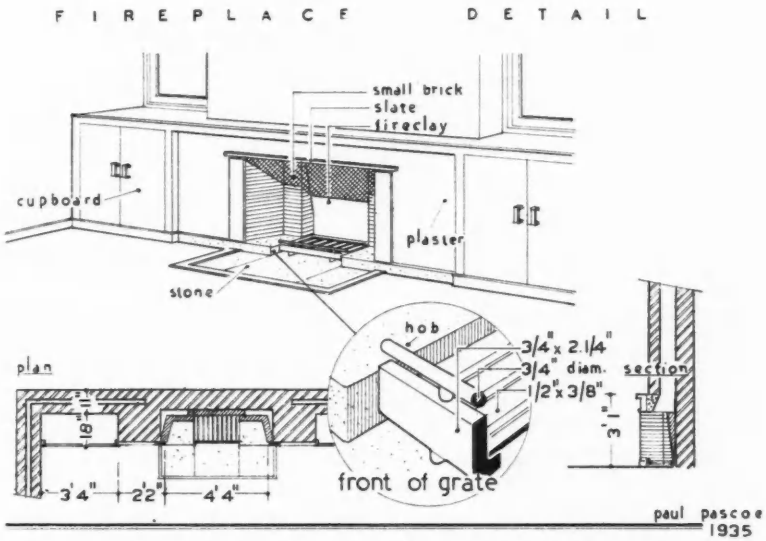
COLIN T. PENN
London

Hot Water in Council Houses

SIR,—May I say that the Council house originated through the demand for healthier dwellings and the demolition of insanitary ones, the real motive being to encourage a healthier race among the working-class people. Yet the most essential encouragement is missing, and Mr. School is quite correct when he says that the wealthier classes have less need for a hot water system than the working class.

Why did they years ago adopt public baths, which are now still in existence? Because there was not adequate accommodation in the working man's own home to have a bath. Yet in the many thousand Council houses which are being erected today that same old accommodation exists.

He certainly has one gain, that is a provided bath, but that is tucked away in a very small space, which in my opinion is hardly what you could term



From a house near Sevenoaks. Designer: Kenneth Peacock.

a fair encouragement for the working man who, after a hard and dirty day's toil, arrives home, not looking forward to a bath as he would if a real hot-water system was installed, but for more work in preparing his bath water and waste of his only spare moments which he should have for rest, if we are to see a stronger, healthier nation.

I am proud to realize that my home town has provided that working man's luxury which he deserves and is fond of.

After only six months of new experience as assistant architect and surveyor in another town, and through my personal observations, I find such Council houses still being erected under the not much improved primitive method, obviously designed by authorized architects. I think we can honestly say that for hardly any extra expense, or by the omission of a less important furnishing, a modern hot-water system could be installed. It would be an economical and appreciative ideal for both the working man and his wife, who will without further encouragement adopt the use of such for domestic purposes.

G. R. H. WOOD
Wolverton

The Guild of Bricklayers

SIR,—As the aims and objects of the Guild of Bricklayers are not generally known, a word or two about the Guild will be appreciated by those persons who are interested in brickwork.

In response to the desire expressed by a number of bricklayers, the present secretary launched the Guild of Bricklayers some three years ago. It should be understood that until the movement has the support of the majority of qualified men, the Guild cannot accomplish its full purpose, that is, to become registered. By becoming registered members do not gain immediate individual benefit, but they are doing their part in raising the quality of their work above its present level in the estimation of the public. Up to the present time, election has usually been by personal recommendation by other members. This, however, has confined the recruitment to small areas, and it is now desired to have a more open field of activities.

Let it be understood that the Guild does not in any way intend or attempt to usurp the estimable and useful functions of the appropriate Trade Union. While the Guild is intended to promote the interests of journeyman bricklayers, membership is available to those who are now employed in other capacities. For instance, the President is Mr. Thomas Howarth, J.P., F.I.O.B., of Crossfield Works, Rochdale, a gentleman who has sat on several important government committees, and is an ex-president of the Institute of Builders. Along with other members of the council, Mr. Howarth has done exceedingly good work on the Brickwork Advisory Committee of the City and Guilds of London Institute. Several members are also members or associate members of the Royal Sanitary Institute and similar bodies, having left the trade for positions of responsibility. Again, there are members who are master builders. These men are still keenly interested in the affairs and conditions of their fellow members, remaining proud of the fact that they were at one time journeymen of possibly the oldest building craft still in existence. Local branches are being set up to cover regional areas so that the local members may meet and discuss topical matters.

Therefore I would urge all bricklayers who take an intelligent interest in, and are worthy of, their calling to become members of the Guild of Bricklayers. Further information will be gladly supplied on application to the undersigned at 3, Willedstan Avenue, Great Crosby, Lancs.

E. L. BRALEY
(Hon. Secretary)

Heating Fire Dangers

SIR,—Your contributors Dr. Oscar Faber and Mr. J. R. Kell must be congratulated on introducing a little humour in a subject that is to many people very technical and rather dull.

I still smile when I remember their article in the JOURNAL for February 28, but not because a radiator is called a radiator when it is really more of a convector—that joke is just a trifle stale. It is a mental picture that amuses me, one that sprang irresistibly to my mind on reading the article.

The picture is this: your contributors are visiting a house where electric heating is installed—visiting, because one surmises that electric heating would find no place in their own homes. Mr. Kell is draping the curtains over the tubular heaters whilst Dr. Faber is endeavouring to fix the carpet over the electric panel. Mr. Kell's task is comparatively simple—he only has to rip down the curtains and wrap them over the tubes; but Dr. Faber has a more difficult job. He is struggling to get the carpet to stay put on the wall, and I do not think that he will have much success. How fortunate for him that it is not a ceiling panel!

E. M. ACKERY
London

[*We have submitted the above letter to the authors of the article referred to who send the following reply.*—ED. *A.J.*]

SIR,—We should be the last to grudge Mr. Ackery any amusement which he may derive from pictures of his own invention. We cannot compete with this kind of amusement, and do not propose to try.

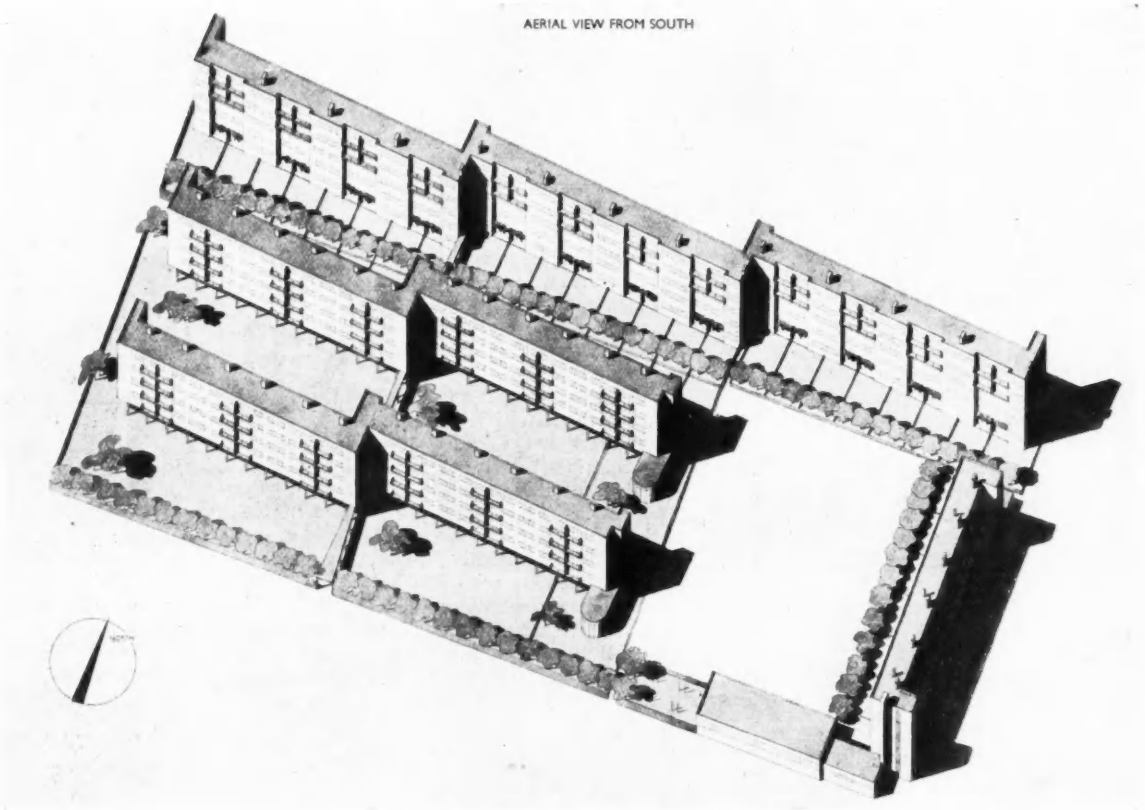
Suffice it is to say that the fact that a "radiator" convects more than it radiates is a technical fact which it is useful should be stated in any technical discussion of the matter, and that the potential fire risk in types of heating which would build up a dangerous temperature when the heat emitters are accidentally covered is one which is deserving of mention.

OSCAR FABER
J. R. KELL
London

COMPETITION FOR WORKING-MEN'S



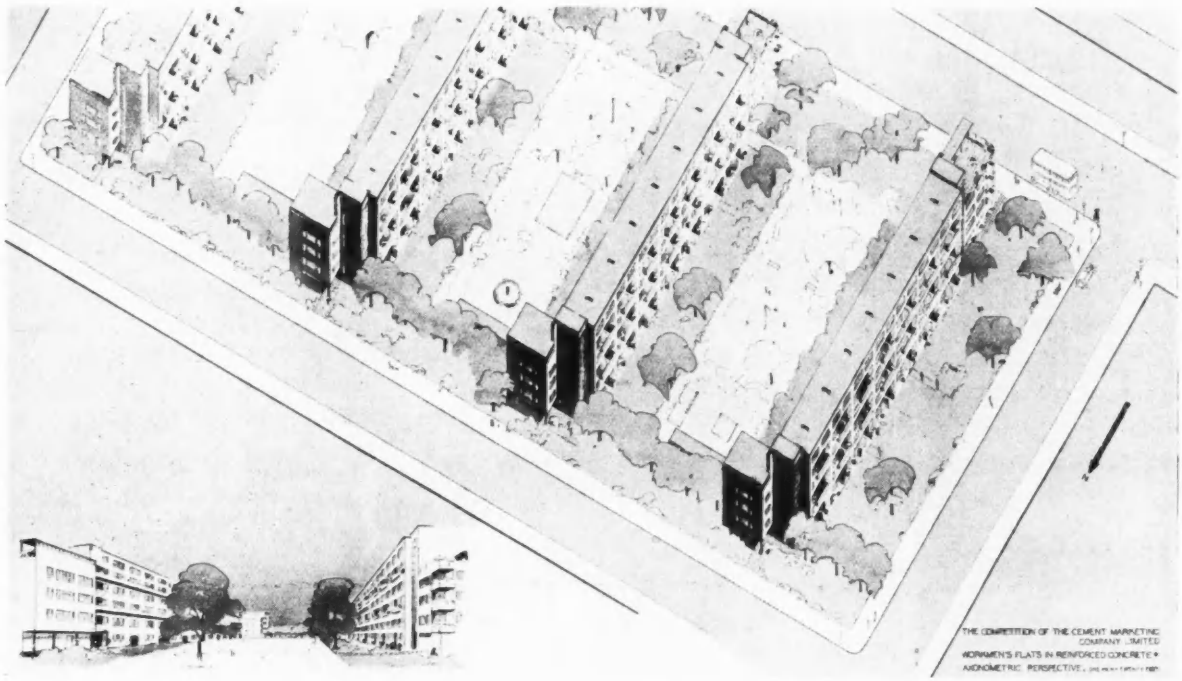
Design No. 31: By S. Chermayeff, in conjunction with Helsby & Hamann and F. Samuely, Cyril Sweett, and J. Stinton Jones.



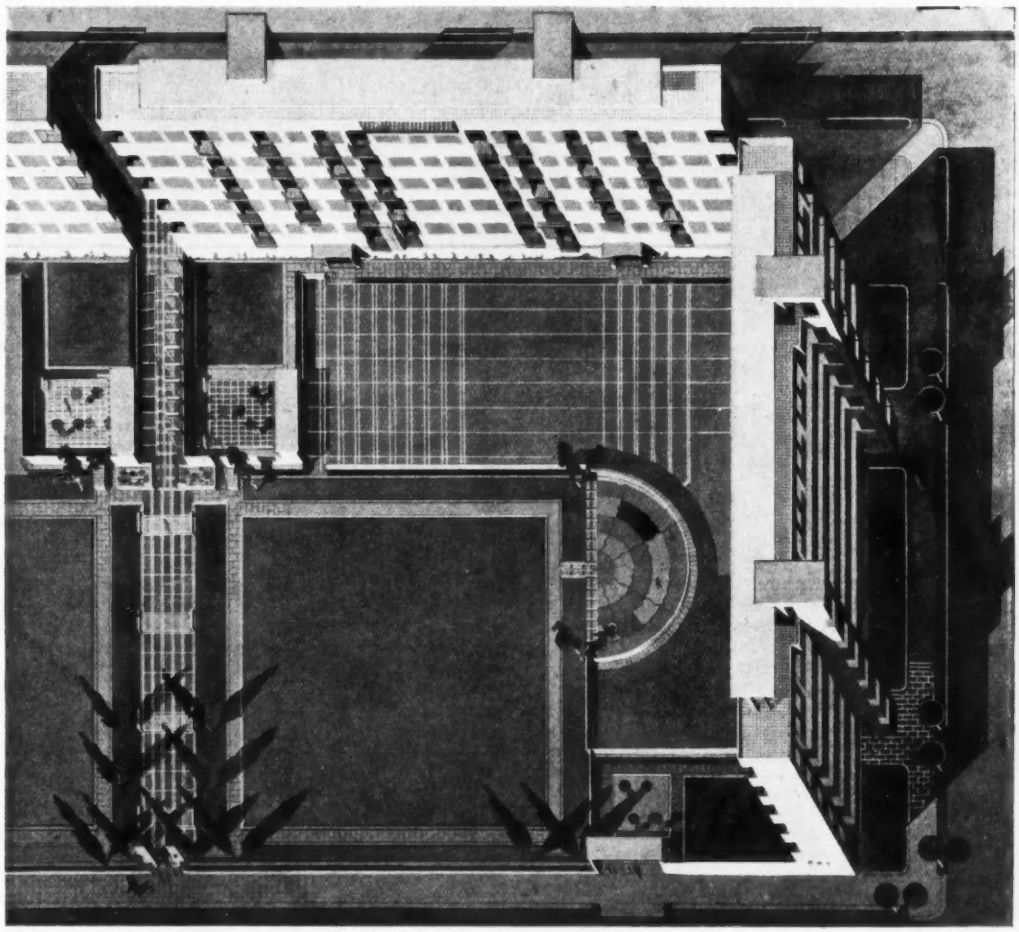
Design No. 45: By Eugen C. Kaufman and Ove Arup.

In last week's issue we reproduced illustrations of the three premiated designs in this competition (promoted by the Cement Marketing Company), together with extracts from the reports submitted by their authors and a review of the designs by Elizabeth Denby. On this and the following three pages we reproduce perspectives of the six additional designs commended by the assessors; also sketches of typical plans of a four-roomed flat with comparative comments also by Elizabeth Denby—from each of the three premiated and six commended designs. One hundred and twenty-three designs were submitted in the competition: these are now on exhibition at the Imperial Institute, South Kensington, S.W.7, until March 31.

FLATS: THE COMMENDED DESIGNS

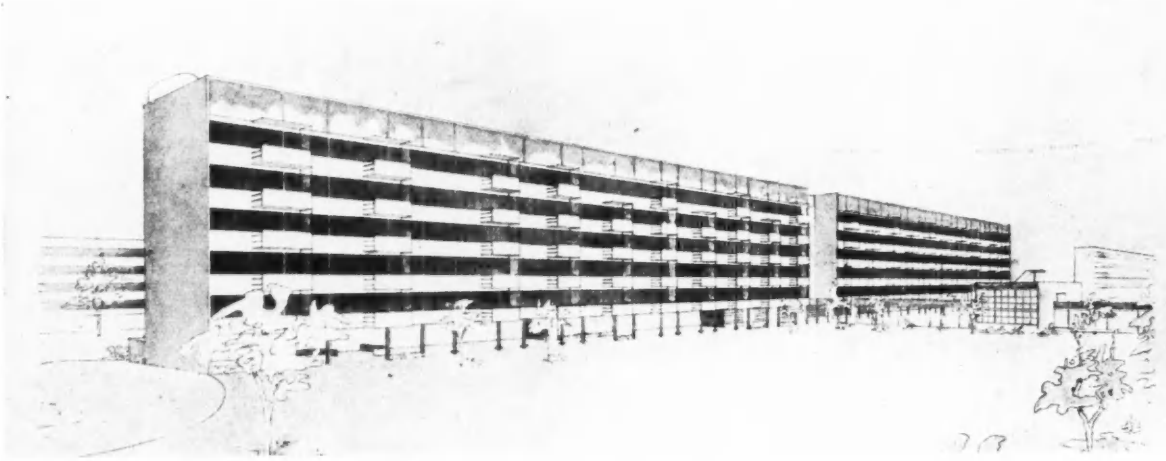


Design No. 103: By R. Vaughan, in conjunction with Clement Gilbin.

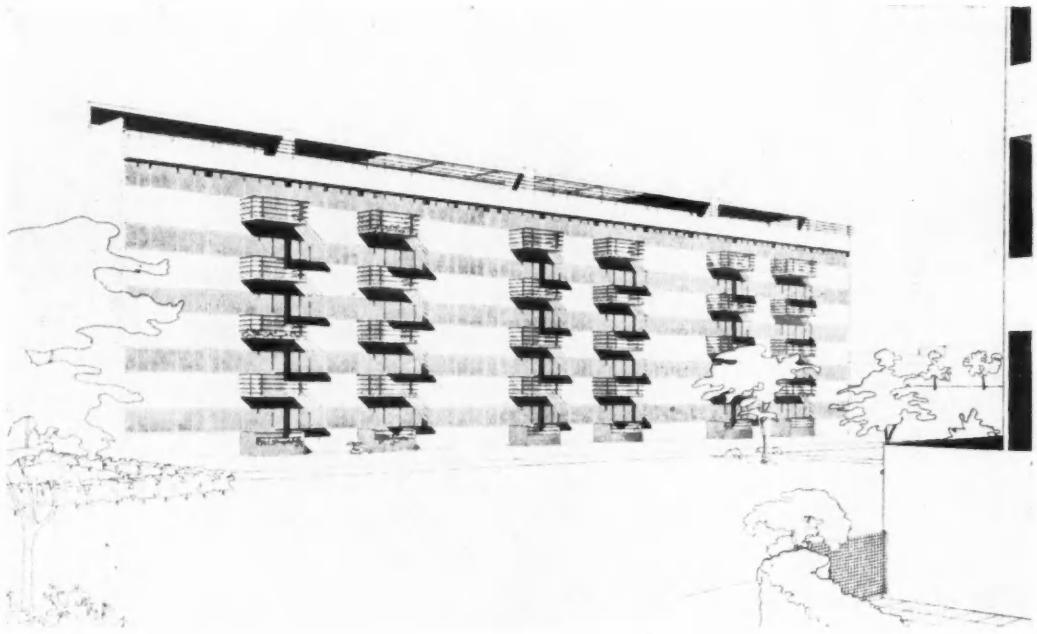


Design No. 74: By G. Grenfell Baines.

WORKING-MEN'S FLATS : THE COMMENDED



Design No. 105: By H. Spence Sales and C. R. Glover.



Design No. 68: By Connell, Ward and Lucas, in conjunction with Cyril Sweett and George Kilner.

On the facing page are reproduced sketch plans of the four-roomed flats in the premiated and commended designs, with descriptive comments by Elizabeth Denby.

1 : LUBETKIN AND TECTON.—*The comparative sizes of rooms and the relation of living room to balcony, kitchen and bathroom are exceptionally good. A back-to-back range with boiler is provided, with a gas point in the kitchen and electric fires in the bedrooms, but central heating and hot water could be substituted and the somewhat draughty position of the fireplace could then perhaps be altered. Cupboards with standardized wire mesh shelves are built in to every room, and skirtings and window boards are also of metal. The coal cupboard, which is filled from the landing and emptied from the lobby, could be improved. So could the balcony, whose solid concrete front must keep sun and air from the occupants; while the side railings would be definitely unsafe for children, would allow the balcony to be raked by north winds and would cause much friction with tenants underneath when the dust was swept overboard.*

2 : CONNELL, WARD AND LUCAS.—*Internal staircase approach, a spacious entrance hall, independent entrance to each room and ample cupboards are excellent points in this plan. The living room should however be larger (bedroom 1 could well be smaller), both coal and gas cookers are badly lighted, the fuel cupboard should not be in the living room, there is no handbasin in the bathroom, and the bedroom windows would be prohibitively expensive to curtain.*

3 : S. CHERMAYEFF.—*The large living room and the relative sizes of bedrooms with separate access to each is admirable. A back-to-back range between living room and kitchen, a gas copper and gas fires in bedrooms are provided. An alternative scheme claims that by substituting coke-fired central heating and hot water plant, additional cupboard space can be substituted for chimney stacks and a gas cooker and copper installed at a saving to the tenant of over 2s. a week and at only a fractional higher capital cost. It is essential, I think, to have one open fireplace in a dwelling, however. The large balconies, bounded by a flower box in concrete as part of the structure, are surmounted above a 6-in. gap by wire mesh in tubular surround. I have used this method myself, and I know of nothing better!*

4 : E. KAUFMAN.—*The larger dwellings are designed as maisonettes, two bedrooms and a bathroom being above the plan shown. A separate w.c. and two handbasins are provided, and are really essential in a four-roomed flat. Equipment includes an open fireplace with boiler behind, gas fires in the bedroom, a gas geyser and cooker for summer use: the design is, however, arranged with a view to future central heating and hot water supply (with consumption measured by meter) from the central laundry plant. The dustbins in the kitchens can be*

DESIGNS AND COMPARATIVE FOUR-ROOM PLANS

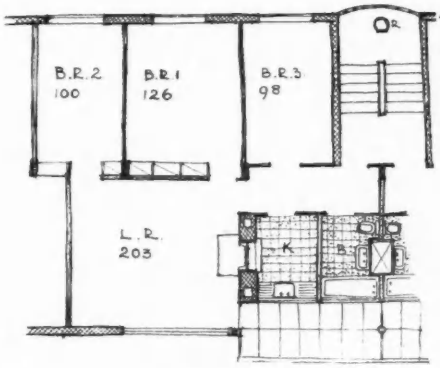


Figure 1

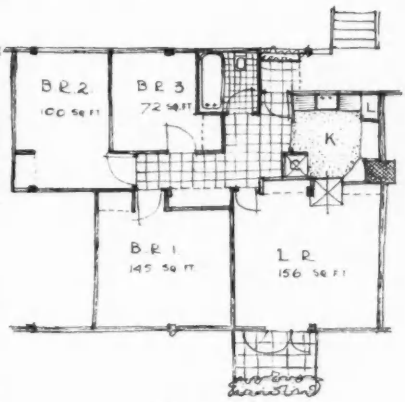


Figure 2

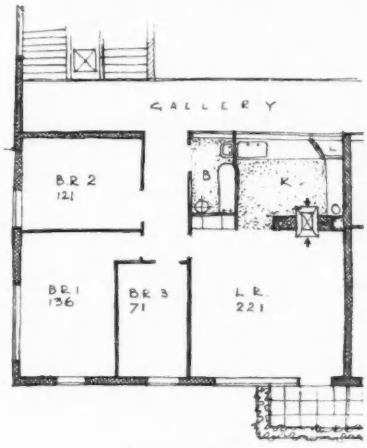


Figure 3

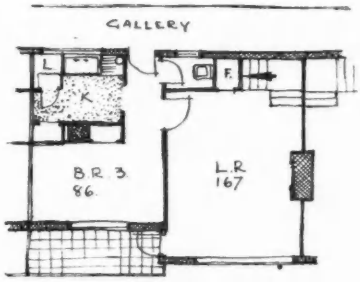


Figure 4

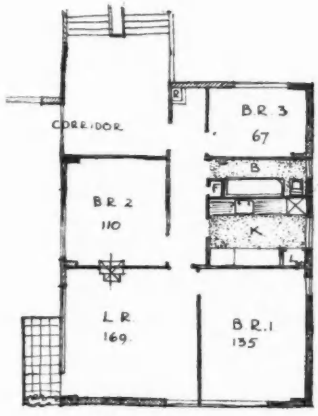


Figure 5

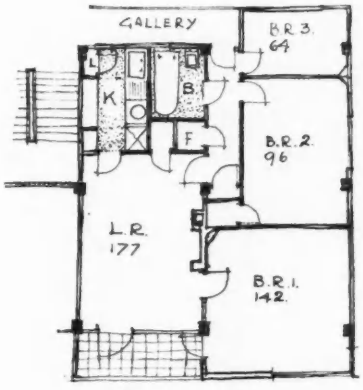


Figure 6

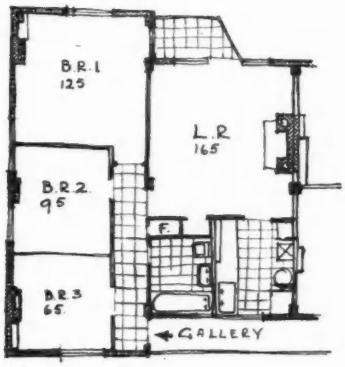


Figure 7

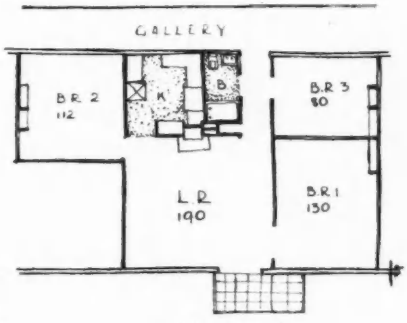


Figure 8

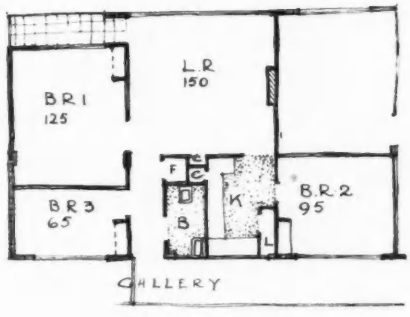


Figure 9

removed through special doors opening directly on to the gallery.

5: R. VAUGHAN.—*This is a neat plan, though no cupboards and no handbasin are provided and the living room is small. A coke fire with oven and back boiler are installed in the living room.*

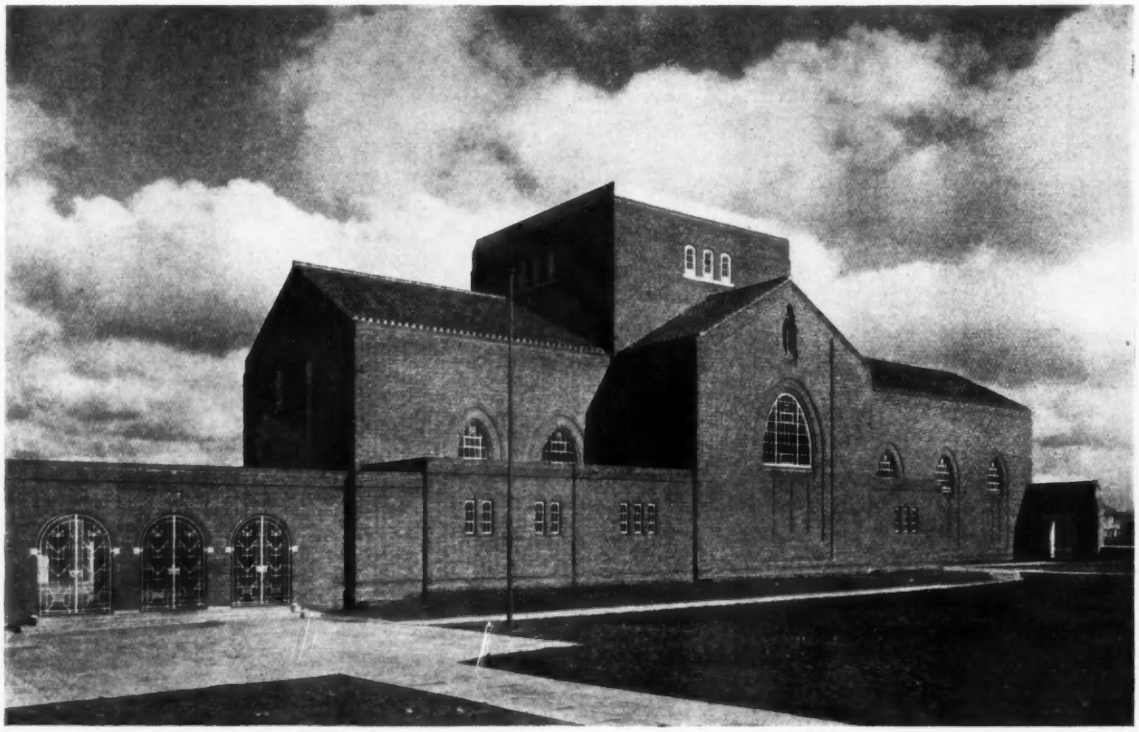
6: LLOYD AND COLLINS.—*There are five doors into this long living room, darkened by the balcony overhang, while the cooker is in the darkest corner of a kitchen already overshadowed by the gallery approach. The living room is too small, bedroom 1 too large. There is only one bedroom cupboard, and no handbasin. The entrance hall is long, dark, narrow, but could be extended to give a separate entrance to bedroom 1. Tiling behind the kitchen sink is good, but a rubber floor seems impracticable, because of grease. Equipment installed is a coal fire with boiler in the living room, a gas copper, a gas fire in one bedroom and electric fires in the other two.*

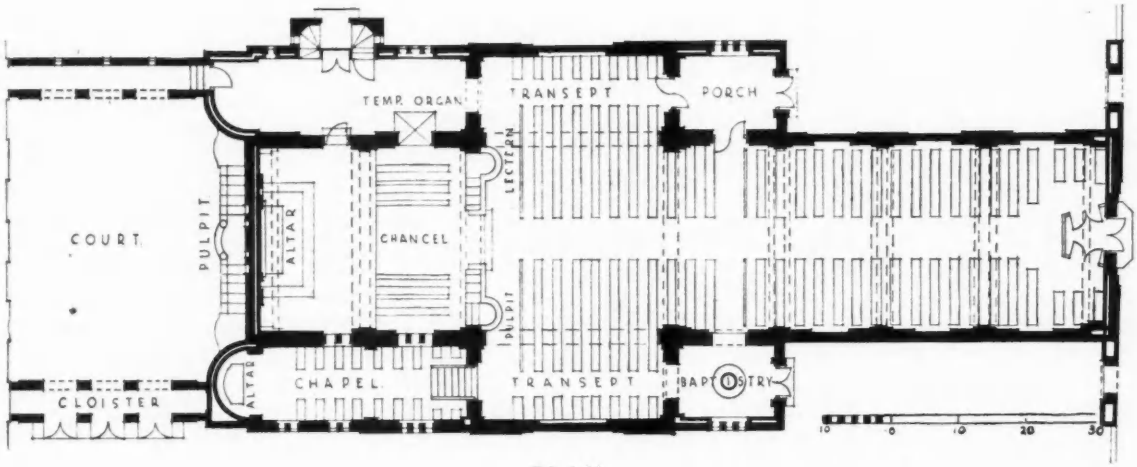
7: ASHLEY AND WINTON NEWMAN.—*A coal range with boiler is installed in the living room, a gas copper and cooker in the kitchen, gas fires in the bedrooms. The living room and third bedroom are distinctly small; there are no cupboards in the bedrooms, the cooker is badly lighted and the copper is next to the larder. Quarry tiling of passage, kitchen and bathroom floors is practical, but my own experience of varnish on distemper is distinctly discouraging. Forty feet of gas barrel for picture railing in each flat seems excessive.*

8: SPENCE SALES.—*The good living room is spoilt by five doors and by a badly placed fireplace—draughty, difficult to sit round, badly lighted for cooking. Two out of three bedrooms abut on the gallery. The gas water heater, gas cooking point in kitchen, electric heating in bedrooms and coal range in living room, are uneconomic and wasteful installations, dictated, however, by the conditions of the competition. Wooden floors, wooden coves and skirtings and plywood partitions would be impracticable because of vermin.*

9: G. G. BAINES.—*The drawings closely follow those of a recent block of workmen's flats, but the rooms are all minimum size and two out of the three bedrooms look on to the gallery. Reference is not made to heating, lighting, hot water system, laundry, refuse collection or pram sheds. The general specification and construction details, etc., are extremely amateur—even slovenly—and it is discouraging to reflect that presumably 114 competitors are beneath this standard of competence.*

CHURCH AT LIVERPOOL:





PLAN

St. Christopher's is one of the new churches built in the Liverpool Corporation housing area of Norris Green. The group at present consists of the Church and the Parish Hall (the latter was built three years ago), connected by loggias forming an open court with a pulpit for summer services. The church has a seating capacity of 530.

SITE. *A triangular plot with a fall of about 5 ft., advantage of which has been taken to plan basement vestries on the N.W. and to connect them with the side chapel on the S.W. by means of a passage underneath the sanctuary.*

FINISHES. *Exterior in multi-coloured hand-made sand-faced 2⅜ in. bricks with Portland stone dressings. Metal casements with hopper vents throughout, painted cream outside, lacquer red inside. Internally, walls are rough sand-faced cream-coloured plaster and floors are in oak blocks. The chancel floor is in cream, white, brown and black ceramic mosaic, with steps in Hopton Wood terrazzo.*

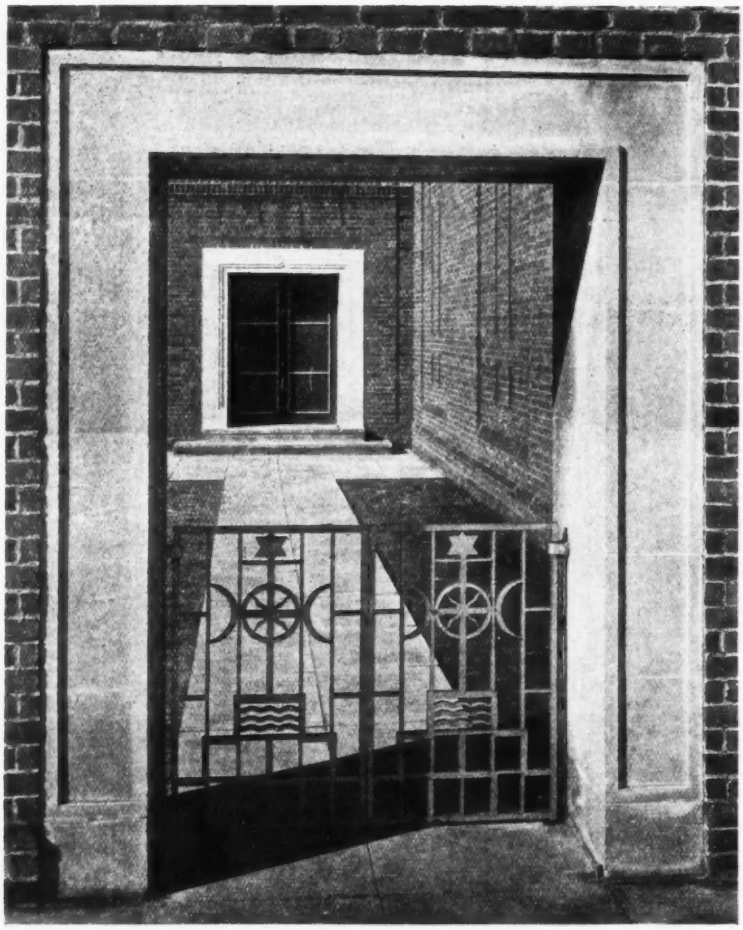
LIGHTING *is by wall fittings in the nave, with concealed floodlighting for the tower and chancel. The illustration on this page shows a view from the north-east.*

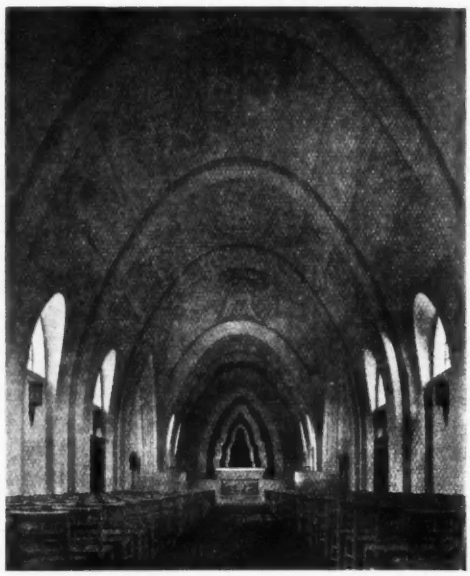
DESIGNED BY B. A. MILLER



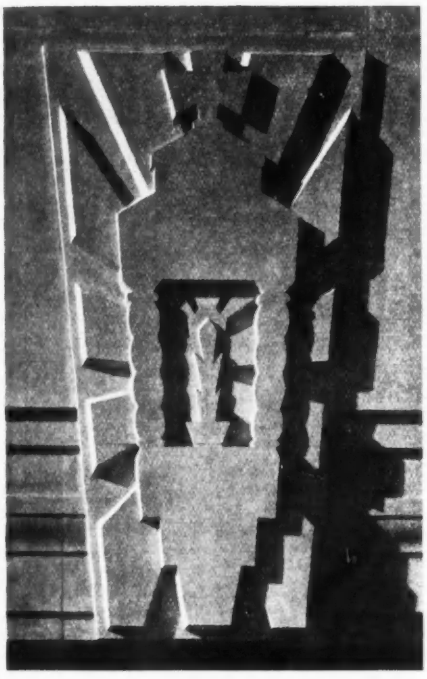
A detail of the open-air pulpit in the children's court. It is executed in Portland stone, with sculpture by Bainbridge Copnall: the paving is York stone slabs.

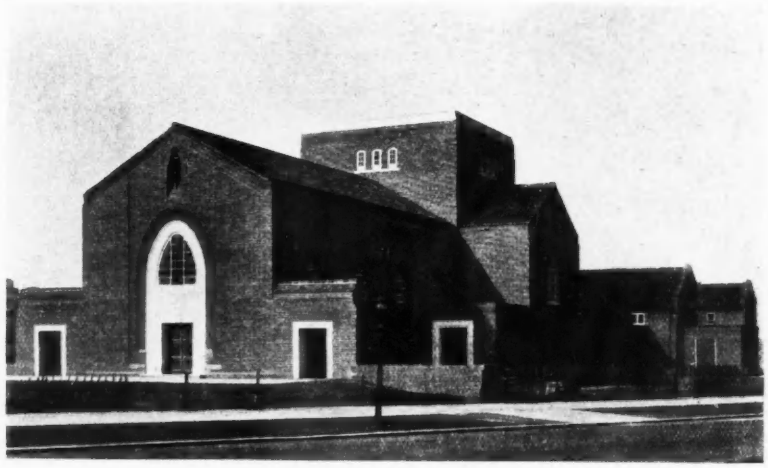
CHURCH AT LIVERPOOL





The photographs on this page show: above, the nave, looking towards the east end and showing the parabolic roof ribs; left, the gates to the wing walls at the west end: they are of wrought iron painted aluminium on face with orange reveals; below, the exterior and a main entrance keystone detail. The lamp is the symbol of St. Christopher.





DESIGNED BY B. A. MILLER

WORKING DETAILS : 231

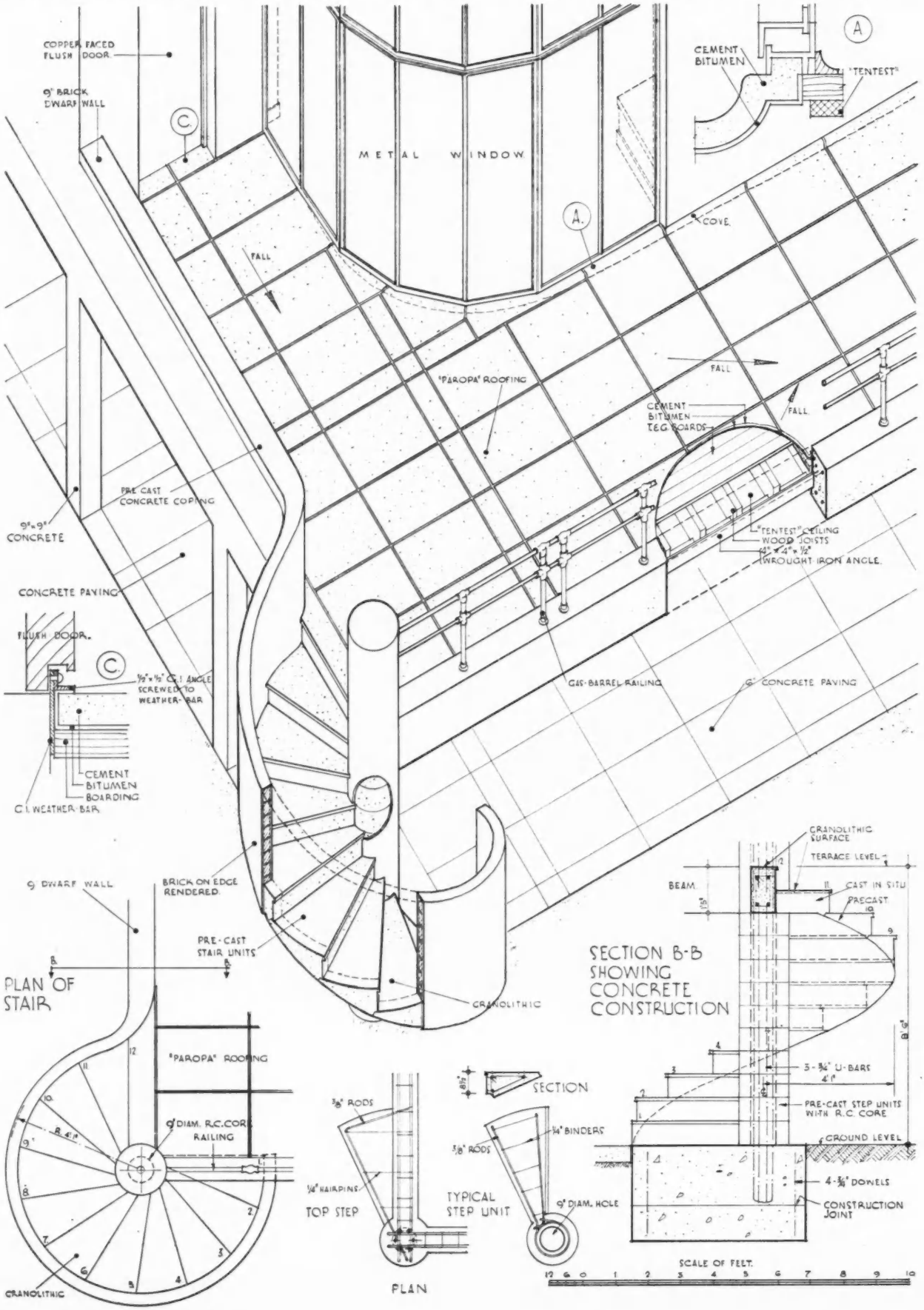
CONCRETE STAIRCASE • STUDIO AT FORDINGBRIDGE, HANTS. • CHRISTOPHER NICHOLSON



Precast units were used in the construction of the external staircase illustrated above. As shown in the drawings overleaf, each step unit, triangular in section, is cast with a ring at its inner end, this ring forming the shuttering for the central column ; the units are assembled and the column is poured after the insertion of the reinforcement.

WORKING DETAILS : 232

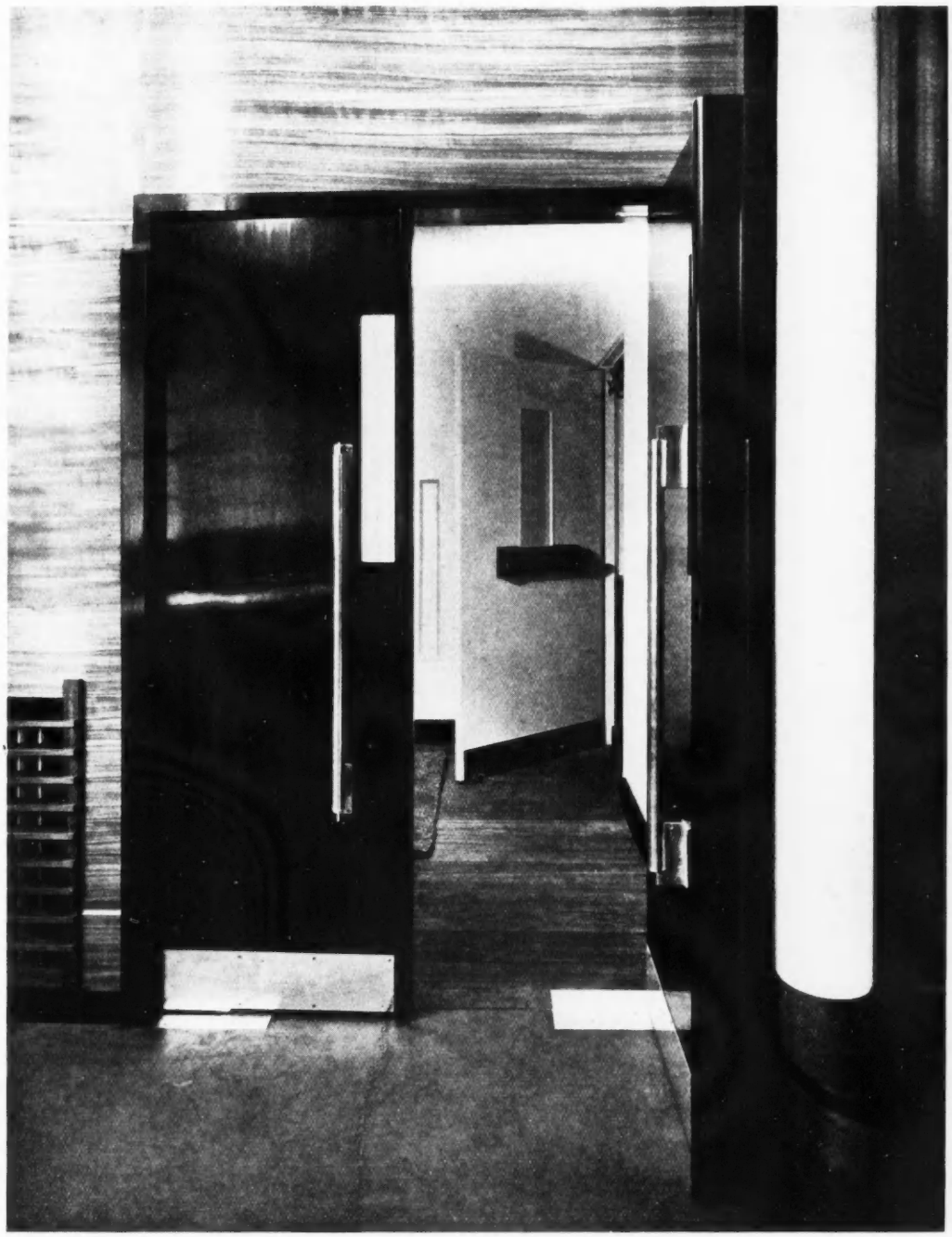
CONCRETE STAIRCASE • STUDIO AT FORDINGBRIDGE, HANTS. • CHRISTOPHER NICHOLSON



Axonometric and details of the staircase illustrated overleaf.

WORKING DETAILS : 233

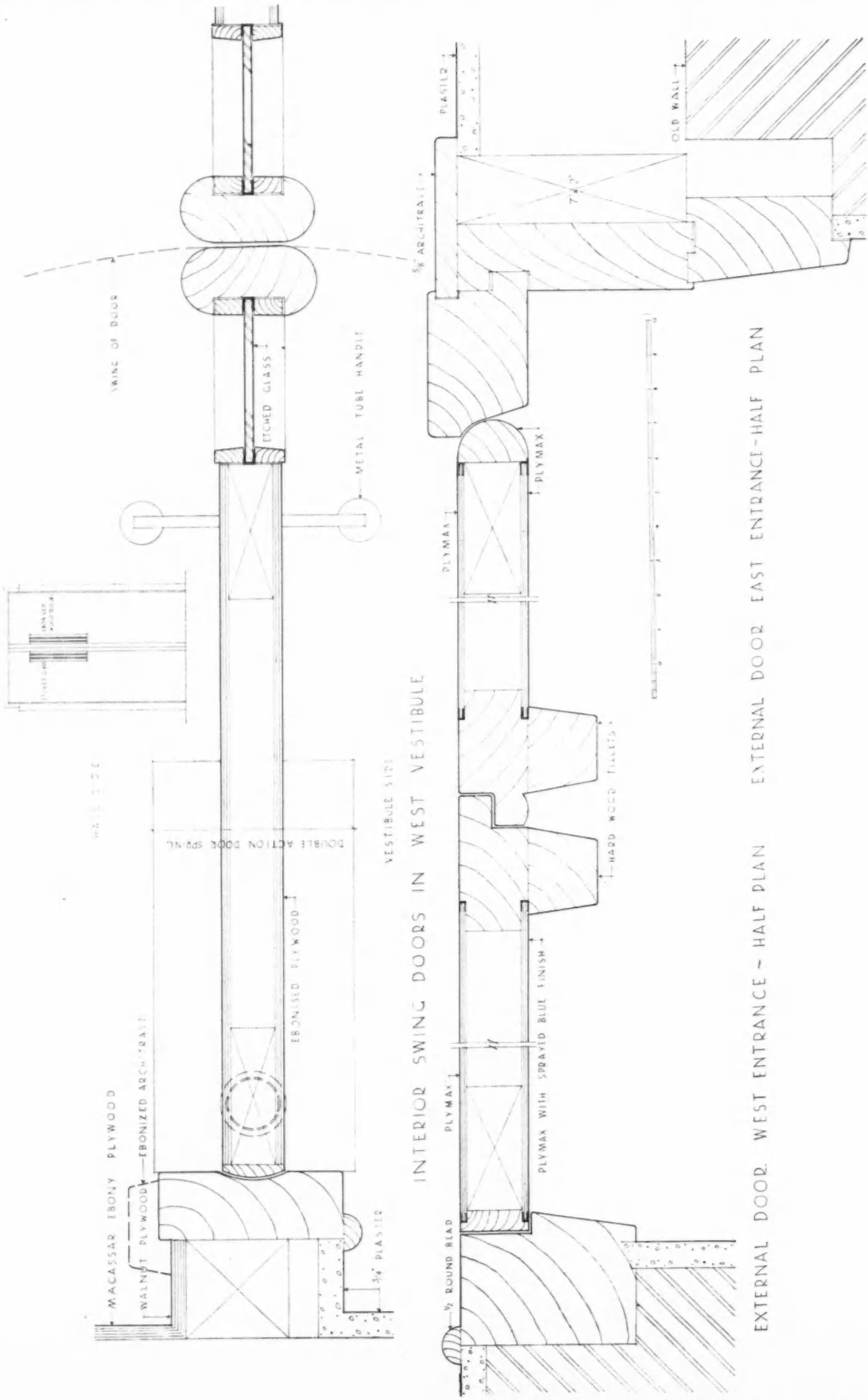
DOORS • NORTH GATE HALL, OXFORD • SIR JOHN BURNET, TAIT AND LORNE



The entrance doors to this Hall are ebonized plywood with chromium plated handles and kicking plates. Each door has a small glazed panel, and the joinery details are shown in the drawings overleaf.

WORKING DETAILS : 234

DOORS • NORTH GATE HALL, OXFORD • SIR JOHN BURNET, TAIT AND LORNE



Details and elevation of the entrance doors illustrated overleaf.

L I T E R A T U R E

HOUSING COMPENDIUM

[*By E. MAXWELL FRY*]

Town Planning and Housing Throughout the World. Edited by Bruno Schwan. Berlin: Ernest Wasmuth. London: The Architectural Press. Price £2 10s.

THIS quite monumental work is one of the after-results of the International Exhibition of Town Planning and Housing, held in Berlin in 1931. That exhibition was one of the most ambitious efforts of a thorough-going nation, and was held in a city producing at that time working class housing which, in point of both lay-out and design, has not since been surpassed. It was an education to town planners and architects.

The book is a catalogue of the world's progress towards scientific and humanised urbanism. It is evidence, presented not entirely for the general reader and without summary. It may be that a summary is out of the question or will be the subject of a further work; but it is obvious that, unless subject matter is set down in some form that makes comparison possible, the value of a bulky volume read, as it must be, at random, is considerably lessened. What I, at any rate, want to know from those who have had the chance of reviewing the efforts of mankind to achieve a balanced urban community life is whether there emerges any recognizable body of principle applicable to similar urban problems. Is all the world bogged by land values as we are? Has more than one country thought of a way out of the compensation bogey that will stand up to our conditions? Is there a definite trend in the movement towards urbanism? And so on.

Questions such as these may possibly be answered by those with time to read solidly through, and unborn books on the subject will no doubt benefit. The arrangement of the sections is alphabetical, space being allotted to countries in measure of interest largely; but not always, a few countries being brought in to record their comparative immunity from the virus.

Turning to England one finds a short and modest account of town planning and housing from which some salient facts could be extracted, but little of the spirit of the achievements, or of the frustration of good intentions, and less still of the growing movement towards urbanism.

As a picture of progress in England to-day, when this book appears, it is no longer accurate. The section devoted to France, sponsored by M. Sellier, is much more up-to-date; but who is to say how near fact it really is? Such books do not remove mountains, being too solid themselves.

MATERIALS & METHODS

[*By F. A. CORMACK*]

Resistance of Materials. By F. B. Seely, M.S. (Second Edition). London: Chapman and Hall. Price 18s. 6d. net.

SOME ten years after the issue of the first edition, Professor Seely has published a second and revised edition of his *Resistance of Materials*, a book which has enjoyed a wide popularity among students and teachers in America. The present book bears evidence of considerable revision, not only in the incorporation of new material to bring the subject matter into line with developments during the interval, but also in the rearrangement of certain sections. Taken as a whole, the greatest value of the book will be found to lie in its suitability as a textbook, though in this country there may be a little hesitation in adopting it, on account of the almost entirely different symbols used. Recently the British Standards Institution published their list (No. 560) of "British Standard Engineering Symbols and Abbreviations," which the Board of Education has recommended for use in technical institutions. Is it not possible for something of this kind to be done, not merely for a part, but for the whole of the English-speaking world? The mutual use of textbooks and other literature is most desirable and should be facilitated by standardization on a wider scale. This difficulty should not, however, be allowed to stand in the way of a full appreciation of the general merit in the book's treatment of the subject. The argument is developed logically and clearly, the definitions are notably unambiguous and the illustrations, if perhaps on a smaller scale than we are accustomed to, are particularly helpful in bringing into prominence the particular aspect of the matter under discussion. In places—as on page 60, for example—the printers have used symbols of needlessly small size so that, with their still smaller and duplicated suffixes, they impede the otherwise smooth and easy reading of the text.

The materials dealt with, principally, are iron, steel and reinforced concrete, but timber receives some treatment. The range is rather the general behaviour of the elastic materials used in construction than the special properties of individual materials. The practical engineering significance of the subject has been kept well in view.

The book is in two parts, the first being entitled "Elementary Topics" and includes Stress and Strain, Riveted and Welded Joints, Torsional Loads, Beams, Columns, Repeated Loads—in fact the usual graduation course. Space has been given to some extrinsic matter such as (at page 65) the calculation of torque from horse-power and speed, and (at pages 102, 103) the method of drawing bending moment diagrams, in the explanation of which the author is not at his best. His readers will have some difficulty in determining the scale of bending moment. This part of the book is supplied with worked examples at each stage and with numerous problems of a widely representative description.

Part II is entitled "Special Topics" and consist of nine chapters dealing with independent subjects arising out of the preceding part, and is intended to form material for study or reference by those who wish to investigate such matter as the treatment of statically determinate or indeterminate beams by the slope-deviation and conjugate-beam methods, unsymmetrical loading, curved beams and composite (reinforced concrete) beams. This part of the book will prove a very valuable addition to the material generally available in works on the strength of materials. An appendix gives tables of the strength and properties of building materials as ascertained by Professor H. F. Moore, the Research Professor of Engineering Materials at the University of Illinois, and a colleague of the author.

Shorter Notices

School Construction, 1934 (*supplements to "Education"*). London: The Proprietors of "Education." Price 7s. 6d. net.

THE publishers of *Education* include among their activities the issue of supplements to that periodical dealing with the subject of school buildings. This volume contains the collected school building supplements for 1934. Although a number of general articles are included on design and equipment, most space is given to the illustration of new school buildings, by photographs, plans and technical descriptions. The volume represents, in effect, a record of school architecture during 1934. It is hard to think why in England the school still remains the most dreary architectural category; why school architects seem to be the last to take advantage of modern technique and the free expression of it, and to cling the most tenaciously to the painstaking symmetrical plan, and the watered-down Georgian façade. With the huge advances recent years have seen in the technique of education (largely achieved by scientific disin-

tegration of prejudice) one might have expected some degree of parallel advance in the treatment of education buildings, as part of the same impetus; but (certain improvements in mechanical and other equipment and in ventilation and space-allotment excepted) this anthology might just as easily have been compiled at the end of 1904. I wonder whether much of the average citizen's apparently congenital unreasonableness about architecture cannot be traced to the influence of his scholastic surroundings. The architectural quality of the illustrations, however, is not the fault of the editors of this book, but of the material out of which it is compiled. Accepting that material, it is thorough and informative, and is a useful handbook to current school practice: but current practice makes depressing illustration.

J. M. R.

House-Building, 1934-1936. By Sir Raymond Unwin and others. The National Federation of Building Trades Employers. Price 5s. net.

IN the twenty-seven chapters of this book different experts deal with practically all aspects of the subject—town-planning and density, housing, construction, design, new materials, gas and electricity on the productive side, investment, the financial facilities available under the Housing Acts, Building Societies' practice, land registration as affecting cost of housing transfer, and financial methods of selling houses.

In a foreword, Sir Hilton Young, Minister of Health, points out that "there is powerful machinery available to help housing—financial, administrative and legislative," and that a great obstacle to progress is that those concerned in house production are often ignorant of the resources at their disposal. The main object of the book is to assist the better class contracting builders in the problems of speculative house-building, and thus to bring the weight of the industry to bear on solving the housing problem upon economic lines.

House Property as an Investment, by Sir James Walker-Smith, formerly Director of Housing at the Ministry of Health, emphasizes its advantages over other kinds of investment in regard to interest yield and security. There are several articles by successful builders dealing with methods of financing enterprises to help the sale of new properties. Trystan Edwards and W. H. Heath write on Town Planning and the density problem, and their views may be recommended to the attention of Local Authorities. The facilities for co-operation between architects and builders recently developed through the R.I.B.A. are described. Modern developments in domestic architecture are examined, and various new kinds of materials for construction finishings set forth. Electric equipment is dealt with by Sir William Ray, and gas services by Sir Francis Goodenough.

Of special interest to the occupier of houses is the paper by Sir Raymond Unwin on the Value of Good Design. It should be recognized, he remarks, that "Man is soothed and satisfied by orderly and harmonious relations, and is irritated or depressed by those which are discordant or disorderly. This runs through all phases of his life, playing a part often far more important to his comfort than the amount of his material accessories, whether he consciously realizes it or not." G. B.

THE WITNEY CASE

THE TOWN-PLANNING COMMITTEE'S POINT OF VIEW

In our issue for February 28 we reported the Ministry of Health inquiry into the Witney case, where, it will be remembered, the design for a small house was rejected by the local Town Planning Committee (on the advice of the Advisory Panel of Architects) because of the size of the window panes. In the following issue we announced the award in favour of the architect, Mr. G. T. Gardner. In the article below, sent to us by Mr. Thomas Rayson, the case is discussed from the point of view of the Town Planning Committee. Mr. Rayson is a member of this Committee and of the local Advisory Panel.

THE storm in a teacup at Witney, talked about extensively and remarked on all too shortly in the press, deserves a little careful explanation. The point at issue was one of three criticisms made by the Panel of the client's original proposal. Two of the criticisms were met, but not the third. Hence the case was fought over this third point which seemed scarcely to justify the steps taken.

Every detail which the Panel considers appears to be trivial to all but a sympathetic and knowledgeable person, but the accumulated effect of the details indeed constitutes the *raison d'être* of Section 12 of the Town and Country Planning Act, 1932.

Window divisions have been an essential part of architectural domestic buildings till modern times. It has been proved by many experiments and failures that it is impossible to design a building on traditional lines which has not some form of window division. Certain it is that the form of the early window was altered completely with the innovation of the sliding wood sash and the wooden casement, but clearly the change was not merely window treatment; it was a completely new idea of building design of which windows formed but one item. Modern times have witnessed the advent of windows with large sheets of glass, but such windows are not admitted except as part of a new conception of the general design of a building. Large panes have been used from the 'fifties. At that date they formed an accepted feature of the finest architecture then being produced, but when the Gothic Revival gave way to a return of sounder models the large pane was left in the hands of the jerry-builder. Once the absurdities of the nineteenth-century revival were realized windows did not revert to this obnoxious form in architectural building, but were maintained in the uncultured work forming the residential areas around our towns. The purpose of the Town Planning Committees is to put an end to the unconsidered, shapeless and ill-coloured dwelling, even though it be alleged there is a demand for it, and to substitute a well sited, pleasantly formed building of architectural merit.

To produce a design of traditional form in certain essentials and not in others is sure to produce an unsatisfactory result and to exhibit a paucity of idea which rightly elicits the condemnation of traditionalist and modernist alike. To have plain glass windows of proportions suitable to a division treatment embodied in a wall and roof treatment common in traditional buildings is to contribute to the standards of culture which people have whose highest aspiration is the work of speculative suburbia.

Town Planning Committees who are entrusted with the task of preserving the amenities of a traditionally architectural district must regard them as having a character produced during the course of centuries which must be (*a*) preserved in existing buildings and (*b*) produced in new buildings adjacent to them or forming a part of a definite group or area. It would be possible to put a line round this area on plan and to disallow any buildings within the circuit which would not harmonize with the general character existing. Such an admission as that sanctioned at Witney by the Ministry would be a catastrophe if the area in question were particularly architectural. The Ministry is understood to have allowed the appeal on the ground that in this case the immediate neighbourhood of the proposed house was not considered to be one of great architectural merit. The decision, apparently, is not one of principle.

The second task performed by the Town Planning Committee is to decide upon the character desirable for new or sparsely built-up areas. When a number of plans have been submitted which, if adjacent to one another, begin to produce an architectural system; and when a sufficient amount of building has been sanctioned definitely to create a harmony of adjacent forms and colours, it must be established that this harmony should not be violated by any discordant effect within the area concerned, however satisfactory the design may be in itself, or competent its designer. By this means it is possible to avoid the unpleasant and jarring idiosyncrasies of which we all are too conscious in places in which the untrammelled speculator has been superseded by the ruthless designer. This order must prevail even if the area which the Committee finds itself in charge of contains wholly the products of the speculator's imagination. The innovation of one completely discordant object, however wonderful as an individual work of art, cannot be satisfactory.

The solution of the difficulty raised by the practice of a new, urgent, and altogether admirable effort to produce order where chaos existed, an effort scorned by some and regarded by others as being impractically idealistic and almost quixotic, lies in the hands of the local Planning Committee, expertly advised by a Panel of the local Allied Society of the R.I.B.A. Witney is fortunate in having a trained architect as its Town Planning Officer, who is a sound model for emulation. By virtue of his

general task he zones the whole area under his supervision for the various kinds of building ; residential areas of various kinds, shopping and industrial areas, open land, agricultural land, etc. There is a widespread feeling which daily gains apparent justification that planning authorities should also provide one or more compartments in each locality which could contain buildings of modern character. Again, once this character is established within a definite limited circuit clearly defined, it is now generally felt that work of another type should not be admitted.

Surely this is a sane and impartial attitude, allowing for satisfaction being given to people of all views having some standard of culture, and yet providing scope for the Committee's intention to maintain and to create a sense of order and seemliness so essential to architecture, and so lamentably lacking in the work of low priced speculative building of the present day.

PERIODICALS

FEBRUARY ANTHOLOGY

AMERICA

American Architect

(Monthly, $1. 572 Madison Avenue, New York)

FEBRUARY. American standards for low-rent housing, thirty-seven type plans prepared by the P. W. A. Housing division. A reference data supplement on roofing materials.

Architectural Forum

(Monthly, $1. 220 East 42nd Street, New York)

February. The new North Dakota capitol and the R.I.B.A. building. A long article describing the U.S. Treasury Department's architectural organization, 21 design "prima donnas" and 300 draughtsmen producing contract drawings for 65 million dollars' worth of buildings in roughly four months.

Architectural Record

(Monthly, 50 cents. 115 West 40th Street, New York)

February. Slum costs : a review of some recent figures obtained in a Boston survey, and the usual portfolio of current work, this month devoted to "special building types" and containing jobs ranging from the Penguin pond to a chapel in Tokyo by Antonin Raymond.

Pencil Points

(Monthly, 35 cents. 330 West 42nd Street, New York)

February. Mr. van Buren Magonigle continues his struggle for the rehabilitation of the architectural profession, and seems to have found a good deal of support ; other regular features of the paper are much as usual.

BELGIUM

L'Emulation

(Monthly, 10 fr. 12, Rue du Grand Cerf, Brussels)

No. 10, 1934. The Swiss National Library at Berne, by Œschger, Kaufmann and Hostettler, plans and photographs.

FINLAND

Arketekten

(Monthly, 12 marks. Ainogatan 3, Helsingfors)

February. Two co-operative store buildings and two shops in Helsingfors by Yngve Lagerblad.

FRANCE

L'Architecture

(Monthly, 6 frs. 51 Rue des Ecoles, Paris 5e)

February. Competition for a Museum of Modern Art at the 1937 Paris Exhibition, won by MM. Viard, Dastugue Dondel and Aubert. Fifteen schemes are illustrated, providing widely differing plans and elevations for the same problem.

La Technique des Travaux

(Monthly, 10 fr. 54 rue de Clichy, Paris 9e)

February. Michel Roux Spitz's extensions to the National Library of France at Versailles, only one block is so far built, but two similar blocks are to follow ; a new factory at Jutphaas for the Handelskamer co-operative store.

GERMANY

Baugilde

(Fortnightly, 1 m. 50. Grünstrasse 4, Berlin, S.W.19)

No. 3. "Sculpture for Modern Buildings." an article by Adolf Abel.

No. 4. Small dwelling houses in the Saar : a working class flat block at Aachen, by Fritz Toussaint.

Baukunst und Stadtebau

(Monthly, 1m. 90. Bauwelt verlag, Berlin S.W.68)

February. Medium-sized country houses near Berlin by Wilhelm Doll and Hermann Hampe, with some interesting details. Small country shops in Sweden, mostly timber-framed co-operative stores.

Baumeister

(Monthly, 3 m. Georg D. W. Callwey, Munich)

February. Country houses by various architects, with useful constructional details: kitchens for large houses.

Bauwelt

(Weekly, 90 pf. Ullstein publishers, Berlin, S.W.68)

February 7. The technique of painting stained-glass windows.

February 14. Churches : St. Maria at Treuchtlingen, by Georg Buchner, two restorations and a pleasant small chapel in Finland by Erik Bryggman.

February 21. Middle class flat schemes, two in Cologne by Wilhelm Riphahn, one in the Grunewald and one in Nürnberg. The plans are not all that could be desired, but there is some interesting detail work.

February 28. "The Place of the Architect in Industrial Planning," an article illustrating various proposed factory schemes by different designers and some industrial buildings in the Ruhr by Fritz Schupp and Martin Kremmer.

Deutsche Bauzeitung

(Weekly, 3 m. 40 per month. Seydelstrasse 6, Berlin, S.W.19)

February 6. P.W.A. construction work in New York, and an article on the control of housing estates : particular stress is laid on the need for controlling the erection of temporary huts and outbuildings.

February 13. The roofing of industrial buildings ; various methods described with constructional drawings.

February 20. "Trees and Buildings," an article on the relationships of buildings and their surrounding trees, illustrated by several admirable photographs.

February 27. The layout of main "through-ways" in towns ; several examples from America, Germany and ancient Rome.

Innen Dekoration

(Monthly, 2 m. 50. Mecharstrasse 121, Stuttgart)

February. Contemporary interiors of varying merit, some good work in the new Central Hotel, Berlin, by Ernest Dietterle.

Moderne Bauformen

(Monthly, 2m. 25. Julius Hoffmann, Stuttgart)

February. A very well considered kindergarten school by Franz Schuster, fully illustrated with photographs, plans and drawings.

HOLLAND

Bouwkundig Weekblad Architectura

(Weekly, 15 florins per annum. Weteringshaus 102, Amsterdam)

February 2. An article on the late D. Meintema, illustrated with examples of his work.

February 9. A flat building in Rotterdam by W. van Tijen.

February 16. Zivijndrecht town hall, a traditional building by Molière, Verhagen and Kok.

February 23. Villa at Zürich, by Max Haefeli.

de 8 en opbouw

(Fortnightly, 30 cents. Amstel 22, Amsterdam C)

February 2. An article by Siegfried Giedion on the work of Le Corbusier.

ITALY

Architettura

Monthly 18 lire. Via Palermo 10. Milan 1)

February. The Olympic stadium in the Mussolini Forum's schemes submitted in a competition for the re-planning of Padua.

Rassegna di Architettura

(Monthly, 12 lire. via Podgora 9 Milan 105)

February. Two new banks in Milan, a flat in Milan and two town planning competition results.

SPAIN

A.C.

(Quarterly 3 p. 25. Paseo Gracia 99, Barcelona)

December, 1934. Two flat blocks in Barcelona, the work of Messrs. Tecton at the Zoo, and a two-family house in Switzerland.

SWEDEN

Byggmastaren

(Weekly, 15 kr. per annum. Kungsgatan 32, Stockholm)

February 6. An interesting shop in Stockholm by Ivar Tengbom.

February 13. Two nomograms for the calculation of square and circular r.c. columns.

February 22. A new planetarium in the Djurgärden, Stockholm.

Form

(Monthly. Nybrogatan 7, Stockholm 7)

February. English number containing a general article by P. Morton Shand, and a review of the British Industrial Art Exhibition, by Erik Wettergren.

SWITZERLAND

Schweizerische Bauzeitung

(Monthly, 1 fr. Dianastrasse 5, Zürich)

February 2. Results of a competition for a new church at Birmenstorf.

February 9. Hydro-electric schemes.

February 16. Mainly civil engineering projects.

Werk

(Monthly, 3 fr. 60. Muhlebachstrasse 59, Zürich)

February. A large country house near Zurich by Henauer and Witschi.

TECHNICAL SECTION: 11

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

BOILERS AND COLORIFIERS (*continued*)

SUPER Lancashire boilers are a recent development and improvement of the Lancashire, having two large flues near the top of the shell and a stack of fire tubes near the bottom, and, in addition, a further battery of tubes at each side outside the shell for preheating the air for combustion.

It has advantages over the "Economic" and a higher efficiency, due to the preheating, especially useful when a cheap fuel is being burnt with forced and induced draught, which are both necessary with this type.

Marine or Dry-back Boilers are somewhat similar to the "Economic," but larger in shell diameter. The gases are returned to the front by a single system of fire tubes and thence go straight to stack. This type is seldom used on land and therefore need not be discussed further.

Loco. Boilers have a large fire box inside the main shell and, from the back of the box, the gases pass through a large number of fire tubes to the smoke box at the further end, from which they pass straight to stack.

These are cheap and give a high capacity in a small space, because the gases emerge at a high temperature, but they are correspondingly inefficient and seldom used for heating in permanent installations.

Water Tube Boilers are exemplified by many well-known types to which we need not refer by name. These generally have a cylindrical water drum low down and a similar steam drum high up connected by a stack or stacks of water tubes (i.e., tubes with water inside and fire outside). They are chiefly used for high efficiency super-power-station work. For heating installations, their bulk, and particularly their height, is a difficulty, while their small steam capacity makes them inconvenient for institutions and other places having a greatly fluctuating load, not because the boilers would not respond quickly, but because the skilled and ready attention needed is seldom available.

Vertical Boilers vary from the simple types to the more developed ones. The former consist of a fire box contained in a vertical shell with one to six large water tubes crossing the fire box, which terminates at the top with a vertical funnel passing through the steam space at the top of the vertical shell. They are much used by contractors for steam cranes, pile-drivers, etc., but also for dairies, kitchens and other relatively small steam supplies. They are cheap, but have a low efficiency and are seldom used for water heating. Heating capacities up to 2,000,000 B.T.U.'s per hour can be obtained, but it is hardly advisable to employ this type of boiler for capacities over 1,000,000 B.T.U.'s per hour.

The more highly developed type, as in Fig. 52 (*a*), has a large number of horizontal *fire* tubes and no water tubes. The hot gases leaving the fire box go to the outside of the shell and return through the fire tubes before passing to the stack.

Much higher efficiencies are obtainable, and this type is suitable for heating capacities up to 6,000,000 B.T.U.'s per hour, at which rating the size is 19 ft. high by 9 ft. diameter.

The same design without the steam dome is produced for water heating as in Fig. 52 (*b*).

Vertical boilers of this or other types need small floor space but great height, but this is occasionally an advantage, as in a congested works yard, kitchen, or laundry.

BOILERS SPECIALLY DESIGNED FOR HEATING

Cast Iron Sectional Boilers (Fig. 53)

The term "cast iron sectional boiler" is now almost a household word; and many well-known types will at once occur to any reader. They consist essentially of a series of sections, the waterways of which are connected by cast iron nipples, generally in three places. Separate bolts running from front to back (Fig. 53*a*) or in some cases separately between the sections (Fig. 53*b*), keep the joints watertight between the sections and nipples.

Each section normally consists of two legs, forming the sides of the fire box, and a top portion bounding the sides of the flues to return the gases to the front (secondary surface) and again to the back (tertiary surface). The front and back sections differ from the intermediates in having waterways over the greater part of the area, except where openings for doors or smoke outlet occur.

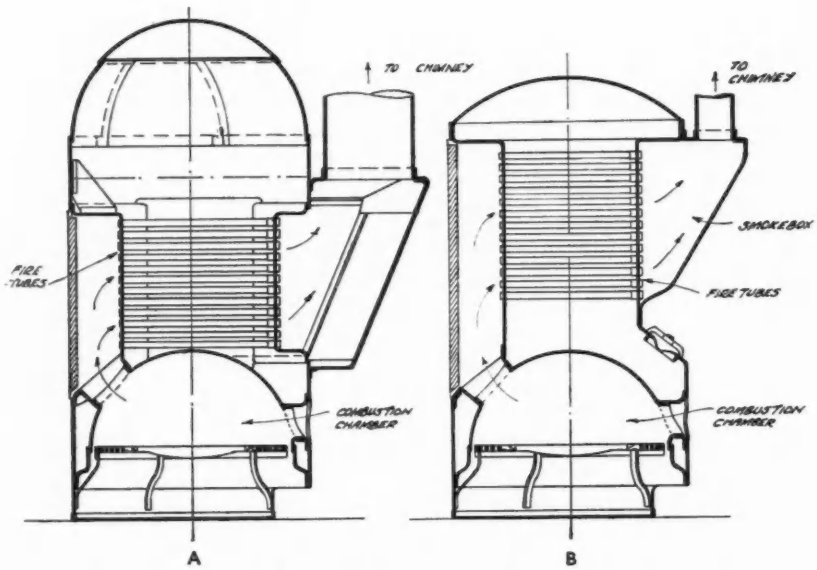


Figure 52. *Fire tube boilers, vertical type; a, for steam; b, for hot water*

In some types the sections are in halves with the return flues at the sides, and in this case each half has two nipples, making four in all.

Fire bars generally consist of loose castings laid near the bottom, but in one particular make they are water cooled, so obtaining additional heating surface, reduced clinkering and absence of burning of the bars.

Doors on the front are provided for feeding the fuel, clinkering, ash removal and for cleaning the flues.

The ash door forms the air inlet under the grate and for this reason has either a hit-and-miss regulator to be set by hand, or a hinged damper controlled by a simple direct acting thermostatic regulator in the top of the boiler. The latter is generally connected to the ashpit damper with a chain (as in Fig. 54) having an adjustment for various temperatures. This simple control can in many cases effect considerable savings in fuel, but it is not a perfect device as its effect is upset by such factors as wind, fuel bed thickness, amount of clinker, and flue temperature.

The fuel door usually has an adjustable regulator fitted for the admission of secondary air above the fuel bed to burn the carbon monoxide which would otherwise escape unburnt to the flue. This is particularly necessary with anthracite, as, without it, combustible gases may completely fill the boiler and chimney and become suddenly ignited with a small explosion when the door is next opened by the boiler attendant.

Secondary air is more effective if pre-heated before admission, as, when cold, it may only serve to cool down the gases in the fire box and retard combustion. For this reason one maker introduces this air through a passage between an inner and outer plate of the clinker door, which is adjacent to the fire and therefore always hot.

The back of this type of boiler is fitted with a smoke outlet hood, consisting of a large casting with openings to which the flue pipe is connected, either vertically or horizontally. It also contains a damper operated by a rod from the front, and a check-draught door. The latter, when opened, allows cold air to enter the flue and serves the double purpose of cooling the outlet gases and reducing the draught in the boiler.

It is necessary for economy of fuel to insulate this or in fact any type of boiler, and the more efficient the insulation the less heat is wasted in the boiler house. This insulation takes a variety of forms. One maker employs a galvanized or vitreous enamelled steel jacket without lining, the air gap serving as the insulation. Alternatively such casing may serve merely as a protection for lagging applied to the boiler in the form of magnesia, asbestos, glass silk or crinkled aluminium foil. Another method of insulation is by the application of plastic non-conducting composition in layers with wire-netting binding, finished smooth and painted. Some of these compositions are of very low efficiency and something more definite than "good quality insulation" should be specified, as this may mean almost anything.

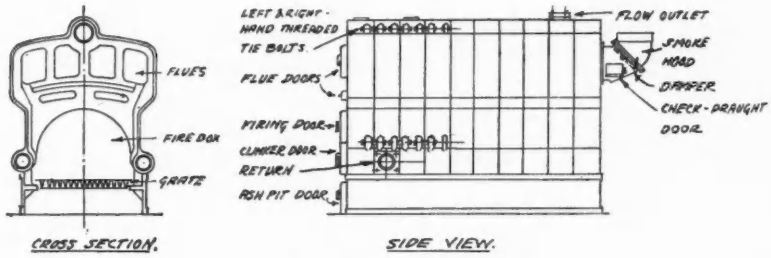


Figure 53 (B). *Cast-iron sectional boiler.*

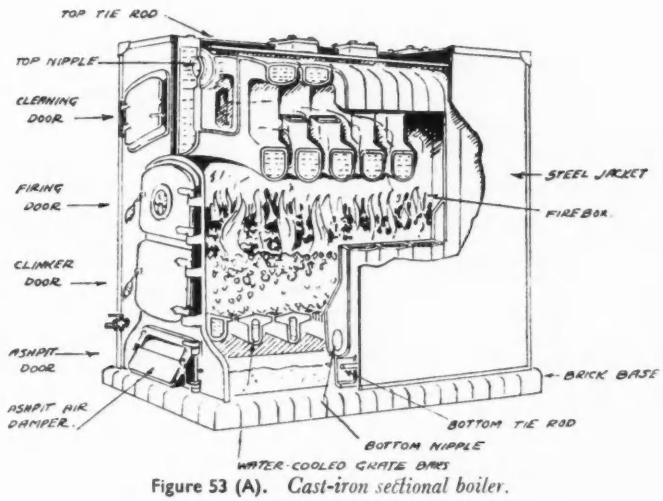


Figure 53 (A). *Cast-iron sectional boiler.*

Smaller types of cast iron sectional boiler are adapted for use in halls, kitchens, etc., when the heat radiated from the boiler surface may be useful. In this case the insulation is sometimes omitted altogether, or a vitreous enamelled unlined casing is fitted so as to preserve a clean exterior, but its efficiency as an insulator is then unimportant.

The general characteristics of the cast iron sectional boiler may be summarized as follows :

(1) Low in cost for moderate sizes.

(2) Life of 10-20 years, depending chiefly on degree of forcing, pressure, temperature variation, and whether kept clean when not in use. When forced, the metal is liable to burn in time and lose its strength.

(3) The boilers are not to be recommended for water-pressures exceeding 100 ft. head or 120 ft. as an outside maximum (including pump head) because the metal gradually yields plastically with eventual failure by cracking. Thus whilst, when new, these boilers may be satisfactorily tested to 100 lb. per sq. inch (230 ft. head) or more, in the later years of their life they may be unable to withstand half this pressure.

(4) Rapid variation in temperature of inlet water is liable to crack the sections by sudden contraction stresses, hence these boilers are not suitable for hot water supply (except when specially designed for this purpose).

(5) When not cleaned and left well ventilated through the summer season, the residual ashes and soot attract moisture, which forms sulphurous and sulphuric acid, which in turn corrodes the metal. Many boilers shorten their life much more from this cause in summer than from all the causes which operate when in use. This effect is, of course, common to all types of boiler, but its results are probably more serious

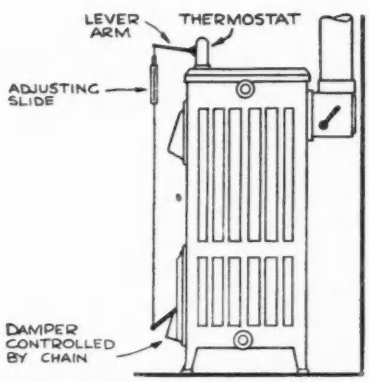


Figure 54. *Damper regulator, showing method of fitting to small heating boiler.*

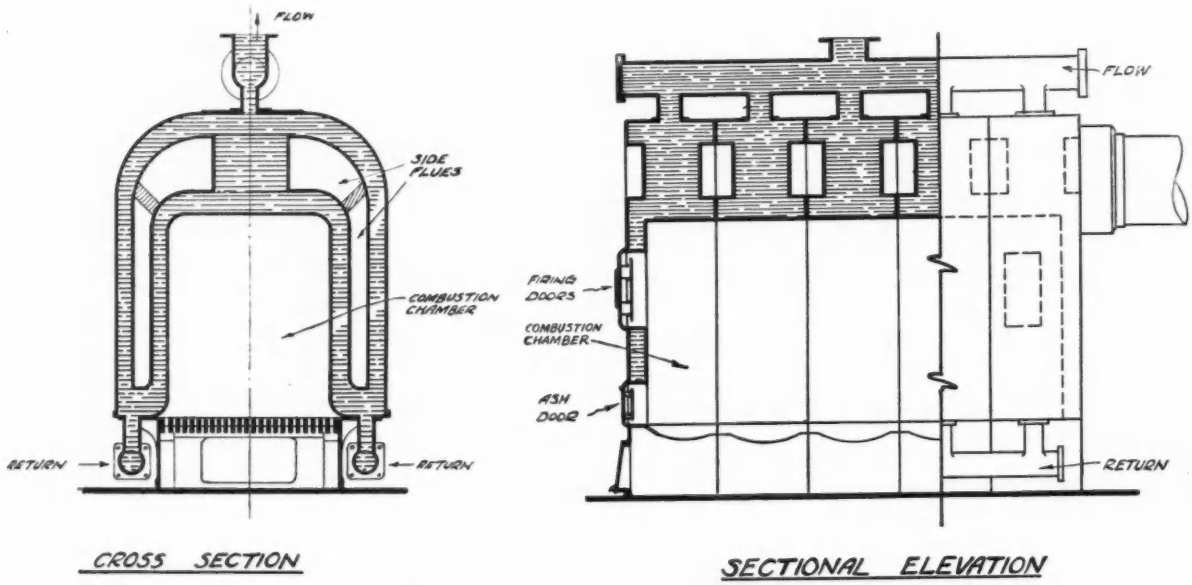


Figure 55. *Typical wrought-iron sectional boiler.*

with cast iron, since with this material the thickness of metal cannot be reduced without failure as can steel or wrought iron.

(6) More compact for a given rating than most boilers.

(7) More adaptable to meet an increase in duty by adding sections and to fit into any available space. Small boilers may have as few as four sections, and this may be increased to fourteen or more when extensions are required. As sections are added each carries its own portion of grate area, so maintaining a correct balance with the heating surface.

(8) Not so efficient as some types owing to the large cross-sectional area of the flues allowing gases to escape at high temperature when working at full rating. This is a consequence of the makers being obliged to design the boiler to work under the poorest conditions of draught, such as may apply, for instance, for greenhouse heating, where perhaps only a 10 ft. chimney may be available.

(9) Suitable for steam at low pressure (up to 10 lb. per sq. inch), provided the whole of the condensate is returned so that no incrustation occurs ; it is not possible to clean these boilers internally.

(10) The small gaps which exist between the sections should be closed with boiler stopping to prevent air leaks, and similarly the doors should fit well, otherwise air leaks will occur, reducing efficiency and preventing proper control. Machined surfaces are essential for good results.

(11) It is usual to make the volume of the fire box much larger than is in fact essential. This is to allow a fuel capacity sufficient for a run of several hours during the day time at full load, and eight to twelve hours at night on a third or quarter load without stoking. Whilst this is a desirable feature from the point of view of the frequency of attention otherwise required, it is the cause of much wasteful firing. When a large mass of black fuel is suddenly placed on a bright fire volatile gases and carbon monoxide are generated and escape up the chimney unburnt. This may go on for several hours until the top of the bed becomes incandescent, by which time as much as one-third of the heating value of the new fuel may have been lost. In the meantime the water temperature will probably have dropped seriously and the boiler then has to be forced to make this up.

It is this factor which accounts for wide variations which occur in the fuel consumption between one building and another. The skilful man will always try to keep a bright fire by giving regular attention during the day, whereas the careless man will load on the fuel whether it is necessary or not. At the same time the skilled stoker will be giving greater satisfaction to the building occupants by reason of the steady temperature maintained.

For best results, the fuel bed should be about 6 in. thick, uniform and without holes, but this involves frequent stoking, and about 12 in. thickness is more generally adopted. Any method of hand-stoking is at best a compromise, and its efficiency is largely bound up in this question of fuel bed thickness.

Boilers of the cast iron sectional type have ratings from 20,000 to 1,600,000 B.T.U.'s per hour, a very wide range. Where greater outputs are required, two or more boilers are connected together in a "battery." Indeed, for any rating over about 800,000 B.T.U.'s per hour, it is considered good practice to provide two boilers each capable of two-thirds of the full-load duty. This arrangement gives a measure of standby-capacity and makes for easier control in mild weather.

The cast iron sectional type of boiler only became possible as a result of wonderful perfection in casting and coring hollow sections with great precision and absence of blow holes, spongy patches and dangerous cooling stresses.

WROUGHT IRON SECTIONAL BOILERS

Early heating boilers were always of wrought iron, made in one piece, generally of semi-circular section, and were known as "saddle" boilers. These were built into a brickwork setting and, owing to their small heating surface and the radiation from the brickwork, were low in efficiency.

With the introduction of the cast iron sectional boiler, early in the present century, the old saddle type fell into disfavour and has now become obsolete.

The disadvantages of cast iron, namely, inability to withstand the high pressure head of lofty buildings and comparative shortness of life have caused wrought iron to come into use in a new form, the wrought iron sectional boiler. This possesses the advantages of the cast iron type as regards adaptability, efficiency, and ease of handling in confined spaces, with the permanence and strength associated with wrought metal.

The seams are jointed by electric welding, and nowadays mild steel is almost invariably used, as this is more easily welded than wrought iron, apart from which the latter is not produced in sufficient quantity nor at a price low enough to meet present needs.

A great variety of types is now pro-

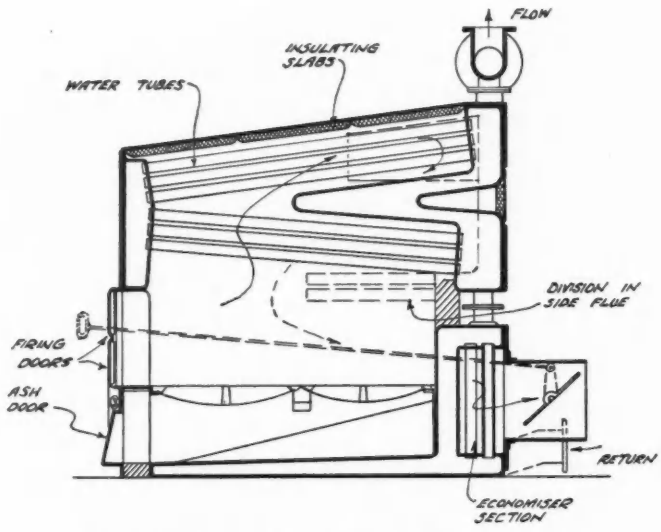


Figure 56. *Wrought-iron sectional boiler, water tube type.*

duced, of which two are illustrated. Fig. 55 shows a type which is a copy in steel of the cast iron pattern and differs chiefly in the width of the sections, which are generally about 15 in. as compared with 7 in. of the cast iron, and in having surfaces without convolutions owing to difficulties of manufacture. The size required for a given output is therefore greater.

Fig. 56 shows another type employing water tubes, and differing in form entirely from the cast iron design.

The tubular heating surface is of great efficiency and the greater portion of it is practically self-cleaning. The sections are in rather larger units than other types and do not allow of the same facility for extension.

Steel sectional boilers of either type have all the characteristics already mentioned for the cast iron sectional, but differ principally as follows :

(1) More costly.

(2) Longer life (30-50 years).

(3) Less liable to be affected by burning of plate, change of water temperature, forcing, etc., because the metal is ductile instead of brittle and is also thinner.

(4) Suitable for working pressures up to 100 lb. per sq. in. or 230 ft. head of water, and for steam pressures up to 25 lb. per sq. in.

(5) Capable of higher efficiencies as the technique of manufacture permits more flexibility in design, so that smaller flue passages can be arranged for if draught conditions permit.

(6) External headers are used for connecting the water ways of adjacent sections instead of nipples.

(7) Sizes are available from 100,000 to 5,000,000 B.T.U.'s per hour.

IN THAT CONTINGENCY

The following abstracts of inquiries represent a number of those recently submitted to the Building Research Station. The information given in the replies quoted is based on available knowledge. It has to be borne in mind that further scientific investigations may, in the course of time, indicate directions in which the replies might be supplemented or modified. Moreover, the replies relate to the specific subject of each inquiry, and are not necessarily suitable for application to all similar problems. [Crown Copyright Reserved.]

Removal of Bronze Stains from Portland Stone

¶ *A BOROUGH Surveyor desired information regarding the cleaning of bronze stains from a Portland stone memorial and methods of preventing further staining.*

The following methods for removing from masonry green stains caused by superimposed bronze work are described by D. W. Kessler on page 673 of U.S. Bureau of Standards Technologic Paper 350.

(1) Mix together in a dry form one part of ammonium chloride and 4 parts of powdered talc. Add ammonia water and stir until a paste is obtained. Place this over the stain and leave until dry. Repeat the process if necessary. Sometimes aluminium chloride is used instead of ammonium chloride.

(2) Dissolve 8 oz. of potassium cyanide in 1 gallon of water. Saturate a thick white cloth in the solution and place it over the stain. When the cloth has become dry, soak it again in the solution and repeat until the stain disappears. (Potassium cyanide is, of course, a very dangerous poison, and it should be handled with the utmost care.)

Anderegg (Purdue University Engineering Experiment Station Bulletin No. 33) says that the application of a poultice of aluminium powder mixed with sufficient aluminium chloride solution to make a paste successfully removes copper stains.

No trials have been made with these methods at the Building Research Station, but it is suggested that, whatever method is adopted, the masonry should be very thoroughly washed with water after treatment.

It may be mentioned that satisfactory results are reported to have been obtained by poulticing with rags soaked in ammonia solution, except that the stain is liable to reappear. This is, in fact, likely whatever method is adopted unless the staining compound is extracted from the stone to some depth below the surface. Experience has also shown that periodical polishing of the bronze with beeswax helps considerably to minimize the development of stains.

Insulation of Concrete Walls and Floors

¶ *A FIRM of reinforced concrete engineers desired information on the insulation afforded to 4 in. and 6 in. concrete walls, by cork slabs 1 in. or 2 in. in thickness, and a comparison of the thermal resistance of the insulated wall with walls of clay or diatomaceous earth brick. The insulated concrete walls were to be plastered over the cork in two-coat work. Data were also required on the insulation of 4 in. and 6 in. concrete floors by cork placed either on the top or on the soffits.*

Data on the thermal insulation properties of various materials and constructions are to be found in Building Research Special Report No. 11, *Heat Transmission*, published by H.M. Stationery Office, price 9d. net.

The following table is based on figures given in this report.

Construction or Material	Thickness	Thermal Resistance. (Number of hours for transmission of 1 B.Th.U. per sq. ft. per °F. difference in surface temperatures)
	in.	
Concrete (1 : 2 : 4) thoroughly dried out	6	1·0
Do.	4	0·7
Cork slabs	2	6·6
Do.	1	3·3
Wood fibre wall boards	½	1·25
Plaster	½	0·15
Clay brick wall dry	9	1·5
Clay brick wall thoroughly wet	9	0·6
Diatomaceous brick wall (e.g., Moler)—dry	9	7·0
4 in. concrete 1 in. cork ½ in. plaster	5½	4·15
4 in. concrete 2 in. cork ½ in. plaster	6½	7·45
6 in. concrete 1 in. cork ½ in. plaster	7½	4·45
6 in. concrete 2 in. cork ½ in. plaster	8½	7·75

No directly comparable figures are available for concrete in a wet condition, but the thermal resistance is likely to be greatly reduced. As is readily seen from the above table, this will not be of great importance, however, if the concrete is lined with cork.

Placing the cork above or below a concrete floor will not affect its overall resistance and the position must be decided from other considerations. Normally thermal insulation is not required in the case of internal floors since rooms are not usually kept at widely different temperatures.

Sound-proofing by Double Folding Partitions

¶ *AN architect desired advice on the construction of a partition in a projected church hall. It was intended to use the hall as one room on Sundays and as two rooms on weekdays, one for religious services and the other for secular and perhaps rather noisy purposes. A drawing was submitted showing a suggested arrangement of folding*

partitions. The hall was to be divided from the floor to underside of roof by a partition, the lower half of which consisted of folding doors. The room to be used for religious purposes would have a flat ceiling of fibre-board while in the remainder of the hall the roof trusses and timbers would be exposed. A second set of folding doors was shown within the sanctuary, running from floor to ceiling, and separated from the first set by an air space of about 2 ft. 6 in.

So far as is known, no tests have been made with partitions constructed in the manner described, but the results of experiments on the transmission of sound through other forms of double partitions and through single doors suggest that a reduction of the order of 55 to 60 decibels might be obtained, provided suitable doors were used and stringent precautions were taken to prevent leakage of sound through air-spaces or through other parts of the structure. Whether or not this will be sufficient for the purpose depends on the amount of noise likely to be created in the part of the hall used for secular purposes and also on the "masking level" of noise in the building. Building Research Bulletin No. 14 gives data on noise levels in standard rooms and localities, and of the intensities of common noises. With the assistance of these, it should be possible to arrive at an approximate estimate of the requisite degree of sound reduction.

The chief considerations affecting the transmission of noise within a building are set forth in the Bulletin mentioned above, but in the present case particular attention is drawn to the following points :—

The partitions should be rendered air-tight by suitable treatment of the joints. Tongued joints between the doors would be of some use in this respect, but, in addition, felt or rubber strips should be fixed to the stiles. The head and foot of the partitions might present some difficulty, but flexible strips could probably be arranged to close the gaps at these points.

If it is possible to provide air-tight joints throughout, further benefits may be derived from the use of specially constructed doors. These should be as massive as possible. Suggestions for sound-proof doors are given in text-books such as *Planning for Good Acoustics*, by Hope Bagenal and Alex. Wood (published by Methuen & Co., Ltd.), or *Practical Acoustics for the Constructor*, by C. W. Glover (published by Chapman and Hall, Ltd.).

The fixed partition above the folding doors should be of as sound and massive construction as possible, and if there is any doubt as to its ability to reduce the noise to the desired level, some additional insulation should be added to the ceiling of the sanctuary. This might take the form of a further layer of fibre board on top of the ceiling joists, care being taken to avoid open joints between sheets or at junctions between walls and ceiling.

Continuity of structure from one part of the hall to the other should be avoided as far as possible in order to reduce disturbance caused by structure-borne noise. In both floor and roof, there should be no great difficulty in forming a break at the partition ; and it is also desirable that the ceiling of the sanctuary shall not be rigidly fixed to the partition.

Cracking of Chimney Stack

¶ *A REPORT was received of injury to a brick chimney stack carrying the flues to a bedroom fireplace and a central heating boiler. The stack was on the outside west wall of the house, and rose eleven feet above the eaves. The house was ten years old, and about two years ago it was noticed that the pointing was falling away from the side of the stack next the boiler flue, and from time to time fragments of parging fell down the chimney. During the past winter the stack took on a decided curvature in two directions, away from the boiler flue and over towards the roof slope, indicating an expansion of the side in which the boiler flue was carried.*

On the exposed side the surfaces of the bricks had blistered and powdered, and all the pointing had fallen away. Vertical cracks had also developed, and these extended right through the brickwork.

The boiler was continuously in use from about October to April ; it was heated with anthracite during the first six years, but since then with coke.

Several similar cases have been reported to the Building Research Station. Such failures have been ascribed to the attack on the mortar by sulphur compounds in the flue gases. When stoves or boilers are damped low, the temperature of the gases may be sufficiently reduced, in passing up the flue, to cause condensation of the water vapour carried in them. The moisture so deposited contains appreciable amounts of sulphur dioxide and trioxide derived from the combustion of the fuel and the acids formed readily attack the mortar, forming sulphates. Sulphate attack on cement mortar is accompanied by a considerable expansion, owing to the formation of a compound known as calcium sulphoaluminate, whereas, with lime mortar, calcium sulphate alone is formed and expansion is not marked. Although it is not known whether lime or cement mortar had been used throughout, it appears from the expansion that has taken place that a cement mortar, or a lime mortar gauged with cement, is the more probable. The lean towards the roof slope is probably to be explained by the fact that condensation occurred preferentially in the flue on the colder exposed side of the stack and the expansion was worse on this side.

It is to be expected that parts of the lining of the flue would fall, since this being the most exposed to the gases, would be the first part to be attacked. The "blistered" and powdered condition of the bricks may be due to one of a variety of causes, or several in combination, all associated with the acid content of the moisture condensing in the flue. Probably the principal causes are attack by acid liquid and the crystallization of salts derived from the injured mortar. In such circumstances, it is evidently desirable to use an impervious, acid-resisting flue lining, such as glazed pottery.

Grouting Old Masonry

¶ *AN architect had been asked to advise on the repair of the walls of an old church. Examination showed that the interior of the walls had been filled with very poor rubble which was not coherent. He applied to the Building Research Station for information about methods available for grouting old masonry with cement, particularly with respect to grouting by gravity filling, or by pressure. Preference would be given to a method which would not require special machinery.*

In cases of this kind, repairs are frequently carried out by means of pressure grouting, but there are no simple methods whereby this can be accomplished. Apart from machinery for supplying the grout, special precautions have to be taken during the process. Cradles must be erected around piers and walls to withstand the bursting action when the grout is forced in, and the masonry must be saturated with water before grouting commences. Pressure grouting has become a highly skilled job ; certain firms specialize in this type of work, and it is usually advisable to leave such matters in hands of a reputable firm.

Gravity or "cup" grouting has been employed as a temporary measure, but it is stated not to be completely satisfactory.

In some cases where soft and absorbent lime mortar has been used, it is doubtful whether really effective repairs can be made by either method. The mortar seems to be very effective in stopping the grout from reaching the surfaces of the masonry blocks, so that fissures in the mortar are filled without binding the individual stone blocks.

In some buildings early repairs have been made with gypsum plaster. Where this has been done, care should, of course, be taken not to impregnate with Portland cement grout any areas so treated, or serious disintegration may result.

LAW REPORTS

ARBITRATION AND COMPENSATION CLAIM

The King v. *H. C. Webster—King's Bench Division. Before the Lord Chief Justice and Justices Avory and Swift.*

THIS case raised an interesting point of law arising out of the application of the Acquisition of Land (Assessment of Compensation) Act, 1919.

It appeared that the Shoreham Urban District Council desired to build a foot-bridge across the River Adur at Shoreham, and that Mr. Ravenshear had purchased a lease of the land, part of which was used by the council in connection with the erection of the bridge. That lease carried with it an assignment of any claims for compensation for the land in question. Mr. Ravenshear put forward his claim in due course, when the council replied that Mr. Ravenshear's predecessor in title had granted them an easement. Mr. Ravenshear disputed this and obtained the appointment of an arbitrator. Under these circumstances the council obtained a rule *nisi* for prohibition to prevent the arbitrator hearing Mr. Ravenshear's claim for compensation.

Mr. Montgomery, K.C., for Mr. Ravenshear, now appeared to show cause against the rule, and argued that it should be discharged as it was obtained on the grounds that the Acquisition of Land (Assessment of Compensation) Act, 1919, did not apply and that the arbitrator had no jurisdiction. Counsel argued that rule had been obtained on legal grounds which were erroneous and further that any agreement between the council and Mr. Ravenshear's predecessor was immaterial, as the Shoreham Act of 1919 gave the council power compulsorily to acquire the land.

The Court, after hearing the legal arguments, discharged the rule with costs, holding that the arbitrator had jurisdiction to decide any questions that arose.

BUILDER'S ACTION AGAINST DEVELOPMENT COMPANY

Bellis v. *Standard Estates, Ltd.—King's Bench Division. Before Mr. Justice Greaves-Lord.*

THIS was an action by Mr. Edward Mathew Bellis, a builder and contractor, of Mill Lane, Wallasey, Cheshire, against Standard Estates, Ltd., of The Highway, Harrow Weald, Middlesex, a building development company, to recover £111 2s. 8d., the balance the plaintiff alleged to be due to him from the defendant company for work done and materials supplied by him as a builder and contractor for alterations and repairs at Hill House, Harrow Weald. Alternatively the plaintiff claimed a like sum under an alleged oral agreement made between him and the company that in consideration of the plaintiff undertaking to do the work

and supply the materials at Hill House the plaintiff, in addition to the amount expended by him for labour and materials, should be entitled to be paid a sum equal to 10 per cent. of the amount so expended.

The defendants, by their defence, pleaded that the plaintiff was employed by them to do the work in question upon the terms that the cost should not exceed £750, upon which cost and subject to that condition defendants agreed to pay plaintiff 10 per cent. thereon. Defendants further pleaded that they had paid to the plaintiff, and that plaintiff had accepted, before the action was brought, a sum of £1,111 6s. 8d. in full and final settlement and discharge of all claims by the plaintiff against the defendants, in respect of the work, pursuant to letters passing between the parties in February, 1931, and whereby the plaintiff was estopped from maintaining his present claim.

The plaintiff, in reply, denied that he was precluded from recovering the sum he now claimed.

Mr. P. K. Chappell, K.C., and Mr. Boucher appeared for the plaintiff, and Mr. Charles Doughty, K.C., and Mr. Robert Fortune for the defendant company.

His lordship, after hearing the evidence, held that the plaintiff was entitled to recover the amount he claimed and gave judgment for him for £111 2s. 8d., with costs.

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OVERCROWDING AND GARDEN CITIES

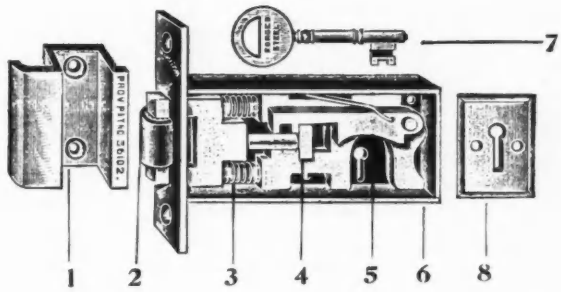
Presiding on March 15 at the annual meeting of the Garden Cities and Town-Planning Association Lord Lytton deplored the little progress the movement had made on its garden city side. He could offer many criticisms of the Housing Bill in its policy of dealing with overcrowding locally and ignoring the necessity for decentralization. It might be that the Government intended to supplement the Bill when the report of Lord Marley's Committee was published.

Criticism of local rebuilding was made also by Captain R. L. Reiss, who said it cost very much more to build a four-roomed flat in a central area than a four-roomed house on a much larger site farther away from London. For every 1,000 families rehoused in Central London the public purse was paying £250,000 more to do it in the wrong place and to secure the wrong social results.

Sir Theodore Chambers, a member of the Marley Committee, said the report would be regarded as a compromise report. It was put very strongly to the committee that industry would object to being dragooned, and great difficulties were brought forward by representatives of local authorities on the ground of administration. It had been put before the committee that the proper system was not to establish new towns but to see to the expansion and development of existing towns on garden city lines. Although it might disappoint the Association that the committee had not carried the garden city idea so far as they desired, their report contained the germs of a practical policy.

ANNOUNCEMENT

Mr. Wystan Widdows, A.I.A.A., has removed his offices to 51 Queen Street, Derby. Telephone No. : Derby 3416.



TRADE NOTES

[*BY F. R. S. YORKE, A.R.I.B.A.*]

A Locking Latch

A PATENT locking latch, called the Wilnal, which is a development of the normal ball catch, is being marketed by Messrs. Taylor Pearse & Company.*

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It is, perhaps, best described, briefly, as a locking ball catch, and is called by the manufacturers, a "patent ball-bearing adjustable roller bolt catch, to lock."

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A sectional diagram showing the operating parts is reproduced above. Key to numbers :—

1. Brass strikers—the ball-bearing roller runs smoothly over the lip into the striker. When the key is turned to lock the door, the bolt is carried forward and housed inside the striker making forcible opening of the door practically impossible.
2. Ball-bearing roller bolt—brass roller, easy action.
3. Phosphor bronze springs.
4. Screw for adjusting length of roller bolt shoot.
5. Brass mechanism.
6. Cap and case of mild steel, with brass faceplates.
7. Forged steel key.
8. Stamped brass escutcheons.

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Price ranges from 4s. 6d. to 6s., according to finish—brass or chromium plate. Size : approximately 3½ ins. by 1½ in. by ½ in

Fixing Bolts

A patent bolt, developed by Arthur L. Gibson & Co., and used for thirty years on their own jobs—fixing Kinnear rolling shutters, etc., is now being marketed as a standard product, under the name Kinex.

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The bolt is an expansion type ; it consists of a malleable iron case, loosely assembled about an easily fitting nut. The nut is prevented from revolving by the case, and is, therefore, drawn up within the case when the head of the bolt is turned, expanding the case in such a way that maximum expansion occurs at the point most distant from the bolt head (see diagram).

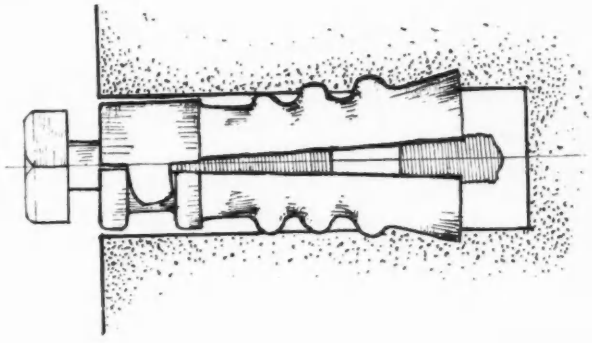
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The hole formed to take the bolt should be just large enough to admit the casing—not tapering as for Lewis bolts. Where fixing is made to very soft brickwork the hole may be made larger, and the expansion bolt grouted in. In such a case the bolt threads must be greased, so that they are not fouled by cement.

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As it expands, the case will embed itself firmly in the sides of the hole, so that nothing short of cutting out will loosen it, unless the bolt itself is unscrewed, when

* 345, Gray's Inn Road, Kings Cross, W.C.1.





Photograph and sketch of the Kinex expansion bolt. See note on this page.

the nut is easily driven back, collapsing the case, which can then be withdrawn from the hole. Such a simple means of dismantling appears to give the bolt considerable advantage over older types, that had to be cut out when it became necessary to loosen the fixing. Sizes of bolts range from 2 in. by ½ in. diam. to 8 in. by ¾ in. diam. with proportionately larger casings; prices range from 50s. to 191s. 8d. per 100.

THE HOUSING BILL

DURING the continuation of the Committee stage on the Housing Bill, Clause 33, which provides that local authorities in receipt of a State subsidy under the Bill should make a contribution from the rates towards the expenses of rehousing, was considered. Miss Ward moved an amendment to make the payment by the local authorities optional and to reduce the amount of their payments. She referred particularly to the position of the depressed areas.

Mr. Shakespeare, Parliamentary Secretary to the Ministry of Health, said that the Minister recognized the difficulties of the depressed areas, but it was impossible to regard a Housing Bill as a measure for dealing with those difficulties. If it were so regarded there would be endless trouble. Local authorities were to a certain extent partners with the State, and the Government had made substantial concessions in reducing their financial share in the partnership.

The amendment was withdrawn.

Sir F. Fremantle moved an amendment to the proviso which empowers the Minister to continue, reduce or stop the subsidy on certain dates. The object of the amendment was to make allowance for circumstances in which the local authorities could not complete their houses within the specified time.

Mr. Shakespeare said that it would be a mistake to introduce elasticity into the proviso. The Clause enabled the Minister to review the State contribution under the Housing Act, 1930, and the relevant Clauses of the Bill on October 1, 1937, and on each third succeeding year. If an element of doubt were introduced and local authorities thought it did not matter whether they cleared their slums before the specified date, administration would be paralysed. There was a possibility that local authorities in many cases would be able to complete their task in less than the prescribed period of five years, so that there would be a considerable period of latitude allowed to them for circumstances beyond their control.

The amendment was negatived.

SOCIETIES AND INSTITUTIONS

THE SOUTH WALES INSTITUTE OF ARCHITECTS

At the annual meeting of the South Wales Institute of Architects (Central Branch), held at Cardiff, the following officers and members of the Executive Committee were elected for the coming year :—

Chairman : Mr. C. F. Jones, A.R.I.B.A. ; hon. treasurer : Mr. H. Teather, F.R.I.B.A. ; hon. secretary : Mr. W. S. Purchon, M.A., F.R.I.B.A. ; Executive Committee : Messrs. H. Norman Edwards, Ivor Jones, A.R.I.B.A., T. Alwyn Lloyd, F.R.I.B.A., M.T.P.I., Percy Thomas, F.R.I.B.A., and J. Williamson, A.R.I.B.A. Representatives of Associates and Students : Messrs. F. G. Allen, A.R.I.B.A., and Trevor Hill, A.R.I.B.A.

The following were elected as the representatives of the Branch on the Council of the South Wales Institute of Architects :—

Messrs. J. H. Davies, L.R.I.B.A., H. Norman Edwards, Gordon Griffiths, L.R.I.B.A., A.M.T.P.I., J. A. Hallam, M.T.P.I., A. J. Hayes, C. F. Jones, A.R.I.B.A., T. Alwyn Lloyd, F.R.I.B.A., M.T.P.I., Edgar Smith, L.R.I.B.A., Percy Thomas, F.R.I.B.A., C. J. Ward, F.S.I., John Williamson, A.R.I.B.A. Representatives of Associates and Students : Messrs. F. G. Allen and Trevor Hill.

LIVERPOOL ARCHITECTURAL SOCIETY

Professor L. B. Budden, M.A., F.R.I.B.A., lectured last week to the Liverpool Architectural Society on "Impressions of Contemporary European Architecture," gained on recent visits to France, Germany, Switzerland, and Czechslovakia. The lecture was profusely illustrated by lantern slides, a large number showing the work of le Corbusier.

In Europe the question of the perpetuation of style, in the historic sense, was dead, said Professor Budden. It might be the subject of much argument in certain aspects, but it was no longer a living issue. But curious political associations were being attached to modern developments. French architects practised a "vertical" manner because it was held that what was called the "horizontal" manner was Teutonic. German architects claimed that they had cast off the influence of such men as le Corbusier and were designing in a style shorn of any influences from outside Germany—although it was perfectly clear that they were still deriving from le Corbusier.

In Russia, where architects had apparently accepted le Corbusier, there was now a reaction against his influence. And in Italy there was the extraordinary phenomenon of Mussolini praising le Corbusier's work and saying that it was the perfect vehicle for the expression of Fascist ideas and ideals in architecture.

But we were, in fact, passing through the third of the great modern transition periods, and were in the throes of the formation of a cosmopolitan architecture. There was, of course, nothing new in the idea of a cosmopolitan style. The Romanesque and the Gothic were cosmopolitan styles. Nor was transition a new thing.

In England we had always imported from abroad, and we had never failed to give our importations our national character. And there was no reason to believe that we would now fail to do the same again.

SCOTTISH ARCHITECTS

At the monthly meeting of the Council of the Royal Incorporation of Architects in Scotland, held at Edinburgh, a report by the Housing and Town Planning Committee, in reply to a questionnaire submitted by the Scottish Architectural Advisory Committee, was approved as to the best architectural talent available being obtained for working-class housing and other schemes in town and country.

THE BUILDINGS ILLUSTRATED

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue :—

The King's House at the Ideal Home Exhibition (pages 470, 477-479). General contractors : John Mowlem, Ltd. Among the sub-contractors are the following :—Newalls Insulation Co., asbestos ; Limmer and Trinidad Lake Asphalte Co., asphalt ; G. and T. Earle and the Cement Marketing Co., Ltd., ballast cement and sand ; Doulton and Co., Ltd., owners' bathroom ; Leeds Fireclay Co., Ltd., guests' bathroom ; George Jennings, Ltd., servants' bathroom ; The Glazed Floor Tile Manufacturers' and Richards Tiles, Ltd., tiles ; Edwin John & Co., Ltd., and Carron Company, baths and basins ; Ideal Boilers and Radiators, central heating and panel radiators ; Beeston Boiler Co., Ltd., domestic hot water boilers ; Gas Light and Coke Co., Ltd., gas storage heater ; Mackenzie and Moncur, Ltd., boiler installation ; London Brick Co. and Forders, Ltd., Yorkshire Brick Co., Ltd., and Claygate Brickfields, Ltd. bricks ; Cork Insulation Co., cork ; Mayfair Spraying and Decorating Co., John Line and Sons, Ltd., Paripan, Ltd. and A. Sanderson and Sons, Ltd., decoration and paint ; Sage & Co., Ltd., and Crittalls, Ltd., doors ; Comyn Ching, Ltd., vacuum door springs ; Edison Swan & Co., Ltd. and Duncan Watson, Ltd., electrical equipment ; Carron Company, Ltd., Bratt Colbran & Co., Ltd. and Leeds Fireclay Co., Ltd., fires and fireplaces ; Doulton & Co., Ltd., flower boxes ; Hamptons, Ltd., Harrods, Ltd., Gill and Reigate, and Compactom, Ltd., furniture ; Parkinson Stove Co., gas cooker ; Davis Stove Co., Ltd., gas hot-closet ; Alfred Goslett, Ltd., glass windows ; British Vitrolite Co., Ltd., glass mirror table ; Peerless Kitchen Cabinets, Ltd., kitchen and utensils ; John Stubbs, Ltd. marble ; William Mallinson, Ltd., panelling ; Electrolux, Ltd., refrigerators ; Colas Products, Ltd., approach roads ; Redferns Rubber Works, Ltd., rubber ; Thomas Crapper & Co., sanitary fittings ; Newall's Insulation Co., soundproofing materials ; Benham & Sons, Ltd., stainless steel sink and drainer ; Braby & Co., Ltd., stainless steel door frames ; Dent and Hellyer, Ltd., water system ; British Plaster Board Co., Ltd., wallboard.

St. Christopher's Church, Norris Green, Liverpool (pages 486-488). General contractors, George Platt and Sons, Ltd.; electrical engineer, C. E. Price. Sub-contractors : H. T. Hunt, Ltd., plumbers and decorators ; E. R. Burgess & Co., wood block flooring ; Miss Redford, textiles ; The Forge, Ltd., metal work (internal) ; John Taylor & Co., bell founders ; Rushworth and Dreaper, organ ; S. and E. Collier, Ltd., bricks ; Roberts, Adlard & Co., Ltd., roofing ; Adams Bros., plasterers ; Richard Crittall & Co., Ltd., heating ; Rowe Bros., metal casements ; Wm. Tomkinson and Sons, Ltd., masonry ; George Swift, mosaic and terrazzo.

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Manufacturers' Items

We are informed by Messrs. Adamite Co., Ltd., that the whole of the basement of the Woolwich Equitable Society's new premises (illustrated in last week's issue) was waterproofed by the incorporation of Colemanoid waterproofing liquid in the retaining walls. Redalon liquid was also used wherever it was necessary to obtain a key for bonding the plaster to the concrete. Colemanoid waterproofing liquid is supplied by The Adamite Company, Ltd., and Redalon liquid is supplied by Redalon, Ltd.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS).

ACTON. *Flats.* Messrs. Elgood and Hastie, architects, have prepared a lay-out plan for the erection of 32 flats on land between Blandford and Blenheim roads, Acton.

CLAPHAM. *Clearance Areas.* The Wandsworth B.C. has appointed Mr. H. Bailey to prepare a lay-out plan in connection with the proposed development of the White Square and Pleasant Place clearance areas.

CLAPHAM PARK. *Tenements.* The L.C.C. is to erect further blocks of tenements on the Clapham Park estate at a cost of £49,000.

COULDSON. *Libraries.* The U.D.C. is negotiating for sites in three districts for the erection of branch libraries.

EALING. *Swimming Bath.* The Corporation is considering the construction of an open-air swimming bath in Gunnersbury Park.

EALING. *Hall.* A church hall is to be erected in Federal Road for the London Diocesan Fund. The architect is Mr. J. P. Blake, Bank House, High Street, Hounslow.

EALING. *Flats and Garages.* Mr. F. Lincoln Berry, 74A Holland Road, Harlesden, N.W.10, is the architect for the proposed erection of 20 blocks, comprising 78 flats and 58 garages, at Stanley Avenue amd Lincoln Close, by Messrs. Jermey and Son, Ltd. The plans have not yet been approved.

ENFIELD. *Houses, etc.* Plans passed by the U.D.C.: 12 houses, Langham Gardens, for Mr. E. W. Palmer; café, Lincoln Way, for Mr. E. W. Rowe; shop and houses, 259 High Street, Ponders End, for Mr. G. Wood; two houses, Lancaster Avenue, Hadley Wood, for Mr. Noel Rees; four shops and houses, South Street, for Mr. G. H. Wyman; four houses, Green Street, for Messrs. Hamilton, Son and Campion; 18 houses, Elmore Road, for Mr. H. E. Tufton.

HAMPTON. *School.* The Middlesex Education Committee recommends the rebuilding of the Hampton Grammar School on the Rectory Farm site, Hampton. It is also proposed to allocate a part of the site for a new school, to accommodate 450 children, for the Lady Eleanor Halles Girls' School, now at Hackney.

HOUNSLOW. *School.* The Buildings Sub-Committee of the Borough Education Committee recommends the erection of a school for 400 children on the Chatsworth School site, subject to the consent of the Board of Education. The Board has now approved the proposed acquisition of 10,985 acres of land in Woodfield Road as a site for a new school for Cranford.

MARYLEBONE. *Maternity and Welfare Centre.* The B.C. has asked Sir Edwin Cooper, A.R.A., to prepare plans for the erection of a maternity and welfare centre and cleansing station at Grove Road.

MARYLEBONE. *Flats.* Plans passed by the B.C.: Block of flats, Finchley Road and Marlborough Road, for Messrs. C. E. Blackbourn and Partners; block of flats, Grove End Road, for Messrs. George Head & Co.; block of flats, 76-82 Maida Vale, for Messrs. Gunton and Gunton; shops and flats, Edgware Road and Earl Street, for Messrs. Hillier, Parker, May and Rowden.

MARYLEBONE. *Shop Premises.* Messrs. Gunton and Gunton, architects, have prepared plans for the erection of premises for Messrs. Debenhams Ltd. in Marylebone Lane, Marylebone.

MORDEN. *Church.* The L.C.C. has sold a site in Bishopsford Road, Morden, to the Roman Catholic Church authorities for the erection of a church.

STREATHAM. *Flats.* Plans prepared by Messrs. Toms and Partners, 115 Park Street, W.1, for the erection of a block of flats on the site of 15 and 17 Streatham High Road have now been approved, and a block of flats is to be erected by Messrs. Smeaton and Sons, Ltd., at Streatham Close, Leigham Court Road.

STEPNEY. *Tenements.* The L.C.C. is to erect tenements on the Ellen Street area, Stepney, at a cost of £30,000; and further blocks of tenements on the Limehouse Fields estate, at a cost of £18,460.

SOUTHERN COUNTIES

BOGNOR. *Church.* The West Sussex Education Committee has purchased a site in Westloats Lane, Bognor, for the erection of a senior school.

BOURNEMOUTH. *Swimming Pool, etc.* Plans passed by the Corporation: Swimming pool, Lindon Hall Hydro, Christchurch Road, for Exton Hotel Co., Ltd.; additions, Christchurch Road, for Messrs. Plummer, Roddis, Ltd.; additions, Burlington Hotel, Owls Road, for directors; alterations and additions, The Square, for Messrs. Bobby & Co., Ltd.; hall and Sunday school, Haviland Road, for trustees; block of flats, Orchard Street, for Commander Munro; 10 flats, lodge and service annexe, Manor Road, for Mrs. L. Rowley; two blocks of flats, Richmond Hill, for Mr. S. Kermode; 16 flats, Barnes Crescent, for Mr. W. Chapman; hotel, Durlestone Court, Gervis Road, for Mr. J. Hancock; 15 bungalows, Durdells Avenue, for Mr. J. Lee; cinema, Christchurch Road, for Odeon Cinemas, Ltd.; cinema, restaurant and flats, Exeter Road, for Mr. W. J. Mackeen; development, West Way estate, for Messrs. Fox and Sons; hotel, Broadway, for Messrs. Eldridge, Pope and Co.; estate development, Burnaby Road, for Messrs. W. C. E. Jones and Son.

LITTLEHAMPTON. *Hotel.* The Rustington Towers Hotel, Littlehampton, is to be rebuilt on a new site near the sea front. The hotel will contain 37 bedrooms, and is estimated to cost £15,000. The architect is Mr. Betram W. F. Breton, London.

WORTHING. *Hotel.* The Justices have now granted a licence for the proposed erection of a new hotel, in Findon Road, for the Kemp Town Brewery.

SOUTH-WESTERN COUNTIES

BRISTOL. *Cinema.* Work has been commenced on the erection of a new cinema at Filton on a corner site at the junction of the main Gloucester Road. Mr. W. H. Watkins, F.R.I.B.A., of 1, Clare Street, Bristol, is the architect.

REDRUTH. *Cinema.* The plans of the Regal Cinema, Redruth, have been approved by the various authorities and work has been commenced at the site. Mr. W. H. Watkins, F.R.I.B.A., of 1, Clare Street, Bristol, is the architect.

SWINDON. *Bungalows.* The Corporation is to erect 50 bungalows for aged persons on the Hurst estate, at an estimated cost of £12,500.

SWINDON. *Houses, etc.* Plans passed by the Corporation: Lay-out, Park Avenue, and 14 houses, Carlisle Avenue, Corby Avenue, Marlborough Road, etc., for Messrs. E. H. Bradley and Sons; factory extension, Colborne Street, for Imperial Tobacco Co., Ltd.; three shops, Corporation Street, for Messrs. Bishop and Fisher.

TRURO. *Cinema.* Plans for the Regal Cinema, Truro, have been deposited with the authorities. Demolition work has been commenced. Mr, W. H. Watkins, F.R.I.B.A., of 1, Clare Street, Bristol, is the architect.

TRURO. *Houses.* The Corporation has approved the lay-out for the erection of 244 houses at Tregolls.

WEYMOUTH. *Houses.* Plans passed by the Corporation: Two houses, Knightsdale Road, for Messrs. S. Jackson and Sons; layout of estate, Faircross, for Messrs. Andrews and Andrews; 10 houses, Lodmoor Avenue, for Messrs. Andrews and Andrews; two houses, Ullswater Crescent, for Hilton Estates; 13 houses, Hammond Avenue, for Mr. C. J. Bailey-Hinder; four houses, off Seven Acres Road, Preston, for Messrs. T. Conway.

NORTHERN COUNTIES

BLACKPOOL. *Cinema, etc.* The Corporation has approved proposals submitted by Marina (Blackpool), Ltd., for the erection of a cinema, circus, dance hall and restaurant on the Promenade at South Shore.

DEWSBURY. *Baths.* The Corporation has authorized the borough architect to prepare plans for the erection of new baths on the Wheelwright Street site, at a cost not exceeding £27,600; and is also to carry out improvements to the existing baths at a cost of £4,000.

RIPON. *Houses.* The Corporation has asked the city engineer to prepare a scheme for the erection of houses on the Quarry Moor site.

ROTHERHAM. *Houses.* Mr. D. B. Jenkinson is to erect 32 houses at Doncaster Road, Rotherham.

ROTHERHAM. *Houses.* The Corporation has instructed the borough engineer to prepare a scheme for the erection of approximately 300 houses at Herringthorpe Valley Road, and to report on the question of the erection of flats for rehousing persons displaced from clearance areas.

STRETFORD. *Branch Library, etc.* The Corporation has approved the passing by the Committees concerned of the final plans for the erection of a branch library, flat, and conveniences at the Quadrant entrance to Longford Park.

STRETFORD. *Clinic.* The Board of Education has approved in principle, subject to minor adjustments, of the proposals of Stretford Corporation to erect a new building at Trafford Park for clinic and library purposes.

STRETFORD. *Flats, Houses, etc.* Plans passed by the Corporation: Factory extension, Park Road, for Messrs. D. Anderson and Son, Ltd.; flats, 85, Cromwell Road, for Messrs. Archer and McAlpin; additions, Westinghouse Road, for Rubber Regenerating Co., Ltd.; works extension, Westinghouse Road, for Southern Oil Co., Ltd.; and 25 houses, Manor Road and Bruton Avenue, for Messrs. E. Jackson and Sons, Ltd. (amended plans).

WAKEFIELD. *School.* The Education Committee has instructed the city engineer to prepare plans for the proposed new school of arts and crafts at Newstead Road.

WAKEFIELD. *Workshops, Cinema, etc.* Plans passed by the Corporation: Workshop, Bridge Street, for Messrs. Dobson and Gighall, on behalf of Messrs. Sanderson and Clayton; workshop, Kirkgate, for Hepburn Conveyor Co., Ltd.; cinema and shops, Kirkgate and Sun Lane, for Mr. W. R. Glen, on behalf of Associated British Cinemas, Ltd.; church and Sunday schools, Thornes Road, for Mr. A. J. B. Abbott, on behalf of Wesley Hall Methodist Church Trustees.

WAKEFIELD. *Rehousing.* The Corporation Slum Clearance Committee recommends that the Housing Committee be requested to erect a total of 265 houses to rehouse persons to be displaced from clearance areas. In this connection, the Housing Committee recommends the erection of 50 further houses at Alverthorpe and 65 houses on sites to be selected and has authorised the architect to obtain tenders for the work.

WAKEFIELD. *Baths.* The Corporation has approved plans by the architect for the construction of swimming baths in Sun Lane.

WALLSEND. *Land for Housing Purposes.* The Corporation is to purchase approximately 162 acres of land north of the Coast Road (Westmoreland Cottage Farm) at a cost of £8,185 for housing purposes.

WHISTON. *Extensions.* The Lancashire C.C. is to carry out extensions at the Whiston public assistance institution, at an estimated cost of £31,000.

SCOTLAND

GLASGOW. *Houses.* The Corporation has approved the erection of 879 houses at the new estate at Househillwood.

GLASGOW. *Housing.* The Glasgow Corporation is to acquire 313 acres at the Colston and High Possil farms, Milton, for housing purposes.

GLASGOW. *School.* The Glasgow Education Committee is to prepare plans for the erection of a primary school for 1,000 on the site of the old Albert school.

WALES

CARDIFF. *Sunday School.* The Cardiff and District Baptist Board proposes to erect a

(*Continued on page xxxii.*)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_4	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_1	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_2	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_2	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON ..	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham	N.E. Coast	1 5½	1 1½
A_2	EASTBOURNE ..	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter ..	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE ..	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S. W. Counties	1 2½	11
A	GATESHEAD ..	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W. Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley ..	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_2	Kendal ..	N.W. Counties	1 4	1 0
A_2	Keswick ..	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12-15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N.E. Coast	1 5½	1 1½
A_2	Middlewich ..	N.W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton ..	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham ..	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford ..	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough ..	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_2	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKE	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	Mid. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan ..	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given

The rates for every trade in any given area will be sent on request

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality, and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger	"	1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
Genera Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10	0

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
¾" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	d.	6" s.	d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single junctions	"	3	6	5	3
Double "	"	4	9	6	6
Straight Channels	per F.R.	1	6	2	6
¼ Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead Wool	lb.		6		—
Gaskin	"		5		—

BRICKLAYER

		£	s.	d.
Flettons	Per M.	2	15	0
Grooved do.	"	2	17	0
Phorpres bricks	"	2	15	0
" Cellular bricks	"	2	15	0
Stocks, 1st quality	"	4	11	0
" 2nd "	"	4	2	6
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Brindles	"	7	0	0
" Bullnose	"	9	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	0
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midhurst White Facings	"	3	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	29	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	3	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

The following d/d F.O.R. at Nine Elms:		s.	d.
Portland stone, Whitbed	F.C.	4	4½
" " Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" " Sawn templates	"	7	6
" " Paving, 2"	F.S.	1	8
" " " 3"	"	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	"	24	10	0
20" × 10" Countesses	"	19	5	0
18" × 10" Viscountesses	"	15	10	0
18" × 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey	per 1,000 (actual)	21	11	6
" " green	"	24	7	4
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each			9½
" hand-made	"			10
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak plain American	" "	1	0
" Figured "	" "	1	3
" Plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" Britis'. Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1
Deal floorings, ¾"	Sq.	18	6
" 1"	"	1	16
" 1¼"	"	1	2
" 1½"	"	1	5
" 1¾"	"	1	10
Deal matchings ¾"	"	14	0
" 1"	"	15	6
Rough boarding ¾"	"	1	4
" 1"	"	16	0
" 1¼"	"	18	0
	"	1	6

Plywood, per ft. sup.

—Thickness	¼"			⅜"			½"			¾"		
Qualities	AA.	A.	B.	AA.	A.	B.	AA.	A.	B.	AA.	A.	B.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Birch	4	3	2	5	4	3	7½	6	4½	8½	7	6
Alder	3½	3	2	5	4	3	6½	5½	4½	8	7	6
Gaboon Mahogany	4	3	3	6½	5½	4½	9½	7½	–	1/0½	10	–
Figured Oak 1 side	8½	7	–	10	8	–	11½	–	–	1/6	–	–
Plain Oak 1 side	6½	6	–	7½	7	–	9½	–	–	1/–	–	–
Oregon Pine	5	4	–	5½	5	–	6	–	–	–	–	–

	d.
Scotch glue lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	¼"	⅜"	½"	¾"	1"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23¼" long each	10	1/1	1/11	2/8	4/9
" 3"-11¼" long "	7	9	1/3	1/8	3/–
Long screws, 12"-23¼" long "	11	1/3	2/2	2/10	5/3
" 3"M-1" long "	8	10	1/5	1/11	3/6
Bends "	8	11	1/7½	2/7½	5/2
Springs not socketed "	5	7	1/1½	1/11½	3/11
Socket unions "	2/–	3/–	5/6	6/9	10/–
Elbows, square "	10	1/1	1/6	2/2	4/3
Tees "	1/–	1/3	1/10	2/6	5/1
Crosses "	2/2	2/9	4/1	5/6	10/6
Plain Sockets and nipples "	3	4	6	8	1/3
Diminished sockets "	4	6	9	1/–	2/–
Flanges "	9	1/–	1/4	1/9	2/9
Caps "	3½	5	8	1/–	2/–
Backnuts "	2	3	5	6	1/1
Iron main cocks "	1/6	2/3	4/2	5/4	11/6
" " with brass plugs "	—	4/–	7/6	10/–	21/–

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½
FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued*

		s.	d.
Rolled steel joists cut to length	cwt.	10	9
Mild steel reinforcing rods, ⅜"	"	8	6
" " ½"	"	8	3
" " ⅝"	"	8	0
" " ¾"	"	7	6
" " ⅞"	"	7	6
" " 1"	"	7	6
" " 1¼"	"	7	6
" " 1½"	"	7	6

Cast-iron rain-water pipes of ordinary thickness metal	3" F.R.	3" s.	3" d.	4" s.	4" d.
					10
Shoes	each	2	0	3	0
Anti-splash shoes	"	4	6	8	0
Boots	"	3	0	4	0
Bends	"	2	7	3	9
" with access door	"	—		6	3
Heads	"	4	0	5	0
Swan-necks up to 9" offsets	"	3	9	6	0
Plinth bends, 4½" to 6"	"	3	9	5	
Half-round rain-water gutters of ordinary thickness metal	F.R.	5		6	
Stop ends	each	6		6	
Angles	"	1	7	1	11
Obtuse angles	"	2	0	2	6
Outlets	"	1	9	2	3

PLUMBER

		£	s.	d.
Lead, milled sheets	cwt.	18	6	
" drawn pipes	"	17	0	
" soil pipe	"	18	6	
" scrap	"	10	6	
Solder, plumbers'	lb.			9½
" fine do.	"		1	0
Copper, sheet	"			8½
" tubes	"			11

L.C.C. soil and waste pipes:	3"	4"	6"
Plain cast F.R.	1 0	1 2	2 6
Coated "	1 1	1 3	2 8
Galvanized "	2 0	2 6	4 6
Holderbats each	3 10	4 0	4 9
Bends "	3 9	5 3	10 3
Shoes "	2 10	4 4	9 6
Heads "	4 8	8 5	12 9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	5	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle Plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	9
Lath nails	lb.			3

GLAZIER

	s.	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.			s.	2½
" " 26 oz. " " "				3
Flemish, Arctic, Figured (white)*				7
Blazoned glasses			2	6
Reeded: Cross Reeded				11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite				6
Crown sheet glass (n/e 12 in. x 10 in.)				2
Flashed opals (white and coloured)	1	0 and	2	0
¼" rough cast; rolled plate				5½
¼" wired cast; wired rolled				9½
¼" Georgian wired cast				11
¼" Polished plate, n/e 1 ft.	† 10 to		‡1	1
" " 2	†1 2	"	‡1	4
" " 4	†2 3	"	‡2	6
" " 8	†2 9	"	‡3	2
" " 20	†3 7	"	‡4	2
" " 45	†3 11	"	‡4	7
" " 100	†5 0	"	‡5	7
Vita glass, sheet, n/e 1 ft.			1	0
" " " 2 ft.			1	3
" " " over 2 ft.			1	9
" " plate, n/e 1 ft.			1	6
" " " 2 ft.			3	0
" " " 5 ft.			4	0
" " " "			5	0
" " " 15 "			6	0
" " " over 15 "			7	6
"Calorex" sheet 21 oz., and 32 oz.	2	6 and	3	6
" rough cast ¼" and ⅜"			8½	1 0
Putty, linseed oil lb.				3

* *Colours*, 1d. *F.S. extra.*
†*Ordinary glazing quality.* ‡*Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	6	0
Linseed oil	gall.		2	2½
Boiled oil	"		2	4½
Turpentine	"		4	1½
Patent knotting	"		14	0
Distemper, washable	cwt.	2	0	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	grain		3	0
Copal varnish	gall.	1	5	0
Flat varnish	"		14	0
Outside varnish	"		10	0
White enamel	"	1	15	0
Ready mixed paint	"		11	6
Brunswick black	"		7	0

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR

		£ s. d.
Digging over surface n/e 12" deep and cart away	Y.S.	2 9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.	8 6
" to form basement n/e 5' 0" deep and cart away	"	9 0
" " 10' 0" deep and cart away	"	9 6
" " 15' 0" deep and cart away	"	10 0
" "	"	6
If in stiff clay	add "	4 0
If in underpinning	"	1 0
Planking and strutting to sides of excavation	F.S.	5
" " to pier holes	"	5
" " to trenches	"	3
" " extra, only if left in	"	10 0
Hardcore, filled in and rammed	Y.C.	1 6 0
Portland cement concrete in foundations (6-1)	"	1 12 6
" " (4-2-1)	"	1 16 0
" " underpinning	"	7
Finishing surface of concrete, spade face	Y.S.	

DRAINLAYER

		4" s. d.	6" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER

		£ s. d.
Brickwork, Flettons n lime mortar	Per Rod	27 10 0
" " in cement	"	28 15 0
" Stocks in cement	"	35 0 0
" Blues in cement	"	52 0 0
Extra only for circular on plan	"	2 0 0
" backing to masonry	"	1 10 0
" raising on old walls	"	2 0 0
" underpinning	"	5 10 0½
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	"	8
" " " red brick facings and pointing	"	11
" " " blue brick facing and pointing	"	1 4
" " " glazed brick facings and pointing	"	3 6
Tuck pointing	"	7½
Weather pointing in cement	"	3
Slate dampcourse	"	10
Vertical dampcourse	"	1 1

ASPHALTER

		s. d.
½" Horizontal dampcourse	Y.S.	4 6
½" Vertical dampcourse	"	6 9
½" paving or flat	"	4 0
1" paving or flat	"	5 6
1" × 6" skirting	F.R.	1 0
Angle fillet	"	2
Rounded angle	"	2
Cesspools	Each	5 0

MASON

		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	"	13 6
Artificial stone and do.	"	13 0
York stone templates, fixed complete	"	10 6
" thresholds	"	13 6
" sills	"	1 0 6

SLATER AND TILER

		£ s. d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3 10 0
Do., 18" × 9"	"	3 7 0
Do., 24" × 12"	"	3 17 0
Westmorland slating, laid with diminished courses	"	6 0 0
Tiling, best hand-made sand-faced, laid to a 4" gauge, nailed every fourth course	"	3 0 0
Do., all as last, but of machine-made tiles	"	2 16 0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	4 6 0
" " " " " (green)	"	4 15 0

CARPENTER AND JOINER

		£ s. d.
Flat boarded centering to concrete floors, ncluding all strutting	Sqr.	2 5 0
Shuttering to sides and soffits of beams	F.S.	8
" to stanchions	"	8
" to staircases	"	1 8
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	"	4 6
" " roofs	"	6 6
" " trusses	"	7 6
" " partitions	"	8 6
½" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" " " " "	"	1 17 6
1½" " " " "	"	2 3 0
1½" × 2" fir battening for Countess slating	"	9 6
Do. for 4" gauge tiling	"	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
" " " 2 "	"	2 9
" " " 3 "	"	3 3
Stout herringbone strutting to 9" joists	F.R.	10½
1" deal gutter boards and bearers	F.S.	1 2
1½" " " "	"	1 6
2" deal wrought rounded roll	F.R.	8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1½" do.	"	2 10 0
1¾" do.	"	2 17 0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1½" do.	"	1 9

CARPENTER AND JOINER—*continued*

		s. d.
1½" deal moulded sashes of average size	F.S.	1 9½
2" " " " "	"	1 11½
1½" deal cased frames double hung, of 6" × 3" oak sills. 1½" pulley stiles, 1¼" heads, 1" inside and outside linings. ½" parting beads, and with brass faced axie pulleys, etc., fixed complete	"	3 7
2" " " " "	"	3 10
Extra only for moulded horns	Each	6
1½" deal four-panel square, both sides, door	F.S.	2 0
2" " " " "	"	2 8
1½" " but moulded both sides	"	2 4
2" " " " "	"	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" " " "	"	1 4
1½" deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1½" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
1½" deal moulded wall strings	"	2 1
1½" " outer strings	"	2 4
Ends of treads and risers housed to string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1½" × 1½" " " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

SMITH AND FOUNDER

		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	15 6
Riveted plate or compound girders, and hoisting and fixing in position	"	19 6
Do. stanchions with riveted caps and bases and do.	"	19 0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	"	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER

		£ s. d.
Milled lead and labour in flats	cwt.	1 12 0
Do. in flashings	"	1 15 6
Do. in covering to turrets	"	2 3 0
Do. in soakers	"	1 7 6
Labour to welted edge	F.R.	3½
Open copper nailing	"	3
Close " "	"	4

		½" s. d.	¾" s. d.	1" s. d.	1½" s. d.	2" s. d.	4" s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks	"	—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	5 9	5 0	8 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—
4" cast-iron ½-rd. gutter and fixing	F.R.					1 0	
Extra, only stop ends	Each					1 0	
Do. angles	"					1 6	
Do. outlets	"					2 9	
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.					1 2	
Extra, on y for shoes	Each					1 3	
Do. for plain heads	"					5 6	

PLASTERER AND TILING

		s. d.
Expanded metal lathing, small mesh	Y.S	2
Do. in n/w to beams, stanchions, etc.	"	2 9
Lathing with sawn laths to ceilings	"	1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1 5
Do. vertical	"	1 7
Rough render on walls	"	1 2½
Render, float and set in lime and hair	"	1 9
Render and set in Sirapite	"	1 11
Render, backing in cement and sand, and set in Keene's cement	"	2 9
Extra, only if on lathing	"	4
Keene's cement, angle and arris	F.R.	6
Arris	"	1½
Rounded angle, small	"	3
Plain cornices in plaster, including dubbing out, per 1" girth	"	1½
1" granolithic pavings	Y.S.	3 6
1½" " "	"	4 6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17 6
9" × 3" " " " "	"	1 2 6
Extra, only for small quadrant angle	F.R.	8

GLAZIER

		s. d.
21 oz. sheet glass and glazing with putty	F.S.	7½
26 oz. do and do.	"	8½
Flemish, Arctic Figured (white) and glazing with putty	"	1
Cathedral glass and do.	"	1 2
Glazing only, British polished plate	"	7
Extra, only if in beads	"	2
Washleather	F.R.	4

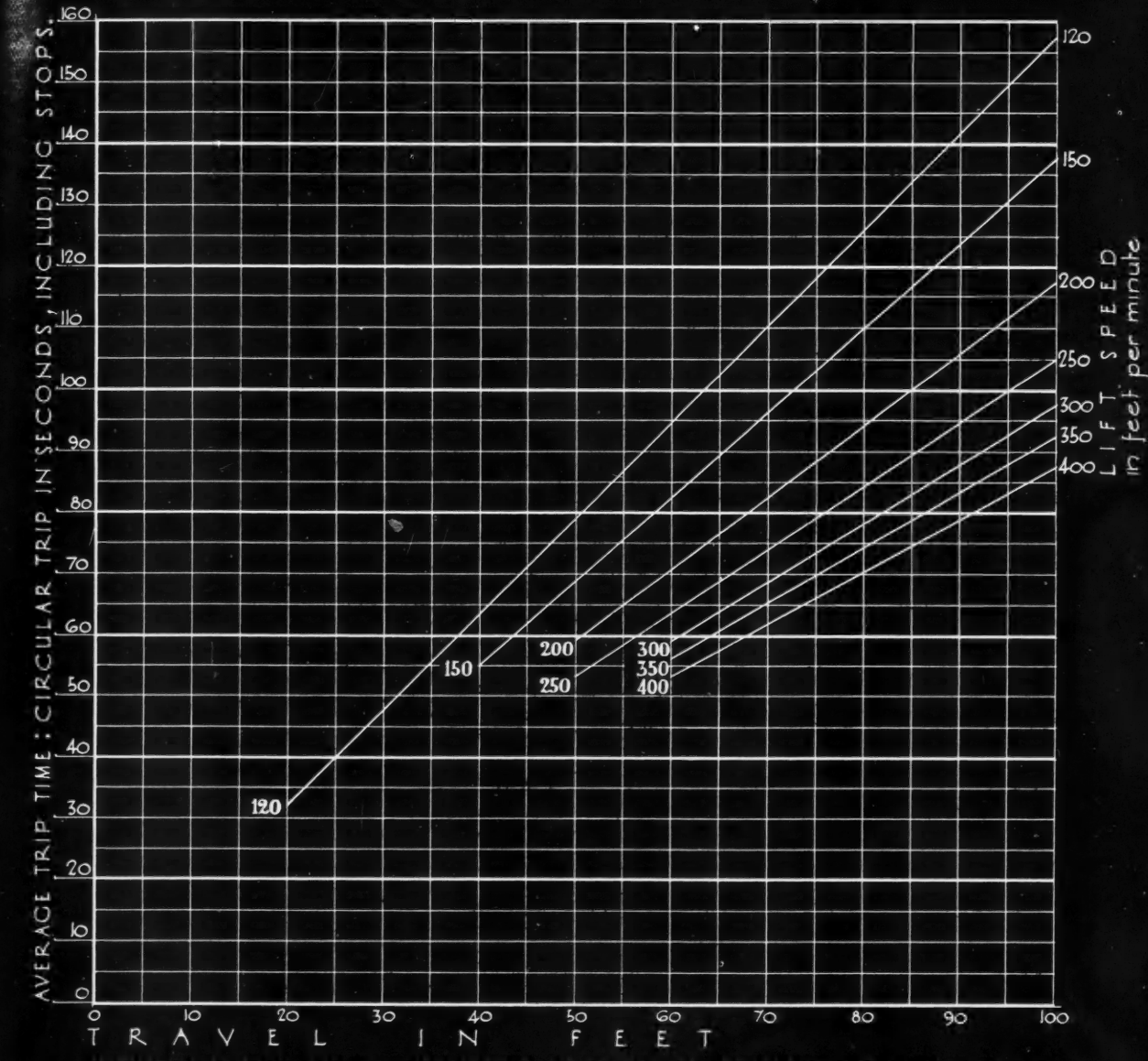
PAINTER

		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	"	9
Do. with washable distemper	"	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3 3
Do. on woodwork	"	3 6
Do. on steelwork	"	3 0
Do. and brush grain and twice varnish	"	5 6
Stain and twice varnish woodwork	"	1 11
Stain and wax-polish woodwork	"	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper	from "	2 9



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GRAPH SHOWING AVERAGE TRIP TIME IN RELATION TO TRAVEL & SPEED OF LIFTS.



POPULATION TO BE EXPECTED IN DIFFERENT TYPES OF BUILDINGS

(1) The figures given are based on working areas - corridors, etc. excluded. (2) Gross floor area above 1st flr. divided by given factor.

TYPE OF BUILDING	approx. floor area per person - Sq. Ft. Report of Building Industry Council.	New York Building Code.
dancehalls, lodgerooms, & places of assembly .	10.	10.
court rooms, restaurants, school classrooms .	25.	15.
stores, markets, lodging - houses & reading rooms.	75.	25.
workrooms .	.	32.
offices and showrooms .	.	50.
hospitals, hotels, asylums, & other residential buildings .	100.	100.
warehouses and garages.	150.	150.

FACTOR.	TYPE OF BUILDING
105 to 120	office buildings where there are many employees.
120 to 150	office buildings where arrivals are scattered.
150 to 180	trades buildings .
180 to 200	schools .
200 to 240	institutions .
240 to 270	hospitals .
230 to 365	apartments .

Information from J. & E. Hall Limited.

INFORMATION SHEET : LIFT PLANNING & EQUIPMENT DATA: 2.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1.

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 203 •

LIFTS

Details Illustrated : Planning Data

This Sheet is the second of a series dealing with Lift Planning and Equipment, and when used in conjunction with Information Sheet No. 187, the preliminary details of a suitable lift scheme for any building should be easily obtained.

The graph of trip times in relation to travel and speed is arranged to cover speeds from 120 f.p.m. to 400 f.p.m. and travels up to 100 ft. These figures cover the general requirements of this country, and express lifts at higher speeds should be treated as special, their size, speed, and number being decided by the type of service desired.

Table 1 shows the result of an analysis made by the Building Industries National Council compared with the New York Building Code, and it will be seen that the area in square feet per person is greater in this country in some cases than in America.

Table 2 gives a factor for various types of building, which, when divided into the gross floor area above first floor, will give the approximate population of the building.

The following example will make clear the method of using the data and tables :—

Assume a building having five floors above the first, each with a rentable floor space of 2,500 sq. ft., the density of population being one person per 100 sq. ft., and the total travel between terminal stop being 80 ft.

The total number of persons to be moved in one hour will be :—

$$\frac{5 \times 2{,}500}{100} = 125.$$

Assuming a speed of 200 f.p.m., the trip time obtained from the graph is 94 seconds.

Hence the number of trips per hour will be :

$$\frac{3{,}600}{94} \text{ secs.} \quad 38$$

and the number of persons per trip will be :—

$$\frac{125}{38} = \text{say } 4$$

A Lift capable of carrying four persons (if push button control) and five (allowing for attendant if car-switch control) will be adequate at the speed selected.

Name of Manufacturers : J. and E. Hall, Ltd.
Address : 10, St. Swithin's Lane, E.C.4
Telephone : Mansion House 7336
Works : Dartford
Telephone : Dartford 201



THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

SPECIFICATIONS FOR PAINTING ON METAL SURFACES :

FLAT PAINTS ON METAL SURFACES :

PRODUCT	TYPE OF SURFACE		PRIMING COAT.	SECOND COAT.	THIRD COAT.
DULUX EGGSHELL & FLAT FINISHES *for details see back of sheet N°5.* • *Owing to their rust-inhibiting properties Primers 71009 and K.M. 1334 are recommended for use wherever they are practicable.* SUPERMATT FLAT OIL PAINT. *for details see back of sheet N°5.*	Unpainted Surfaces	Interior	• Red Brown Primer 71009. for light finishing tints : White Primer 71405. For dark colours : Grey Primer 71404.	Dulux, Eggshell or Flat finish, of selected shade.	Dulux, Eggshell or Flat finish, of selected shade.
		Exterior	Not recommended for exterior finishing.		
	Previously Painted Surfaces.	Interior	Not required unless stripped to bare metal.	Dulux, Eggshell or Flat finish, of selected shade.	Dulux, Eggshell or Flat finish, of selected shade.
		Exterior	Not recommended for exterior finishing.		
	Unpainted surfaces.	Interior	• Red Brown Primer K.M. 1334. for light finishing tints : White Primer K.M. 7153. For dark colours : Grey Primer K.M. 1345.	Supermatt, of selected shade.	Supermatt, of selected shade.
		Exterior	Not recommended for exterior finishing		
	Previously painted surfaces.	Interior	Not required unless stripped to bare metal.	Supermatt, of selected shade	Supermatt, of selected shade.
		Exterior	Not recommended	for exterior finishing	

BITUMINOUS PAINTS ON METAL SURFACES :

PRODUCT	TYPE OF SURFACE.		PRIMING COAT	SECOND & THIRD COATS.
MELANOID BITUMINOUS PAINT. *for details see back of this Sheet.*	Unpainted surfaces	Interior & Exterior	Melanoid Chromate Primer	Melanoid of selected shade.
	Previously painted surfaces.	Interior & Exterior.	Not required unless stripped to bare metal.	
BLACK BITUMINOUS PAINT NB 325.	Unpainted surfaces.	Interior & Exterior.	Red Brown Primer K.M. 1334 if required.	Black Bituminous Paint NB 325.
	Previously painted surfaces.	Interior & Exterior.	Not required unless stripped to bare metal.	
QUICK DRYING BLACK VARNISH. NB. 330.	Unpainted & previously painted surfaces.	Interior & Exterior	No Primer required.	Quick Drying Black Varnish NB 330.

ALUMINIUM PAINT ON METAL SURFACES :

PRODUCT.	TYPE OF SURFACE		PRIMING COAT	SECOND COAT	SUCCEEDING COATS.
DULUX ALUMINIUM PAINT 87606 *for details see back of Sheet N°3.*	Unpainted surfaces.	Interior	• Red Brown Primer 71009. Grey Primer 71404. As above, but 71009 is to be preferred where practicable.	Dulux Aluminium	Additional coats as desired.
		Exterior			
	Previously painted surfaces.	Interior & Exterior.	Not required unless stripped to bare metal.	Dulux Aluminium	Additional coats as desired.

For note on Primers see Sheet N° 2

Information from Nobel Chemical Finishes Ltd.

INFORMATION SHEET: DATA ON PRIMERS, PAINTS, VARNISHES, ETC. N°9.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

Supplement to THE ARCHITECTS' JOURNAL for March 28, 1935

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 204 •

PAINTS

Product : Various Paints on Metal Surfaces

This is the ninth of a series of Sheets dealing comprehensively with the subject of painting and the protection of various surfaces.

"MELANOID " (BLACKS)

Ready mixed bituminous paints for the protection of metal and other surfaces against damp, acids, alkalis and other causes of corrosion. They are guaranteed free from coal tar pitch.

General :

The following are the principal grades, but other blends can be produced for special purposes. All grades are colloidal in nature.

Standard.—Soft in texture for external and internal work where the paint will not be handled after application.

Standard 3 and Special.—A paint similar in nature to Standard, but harder.

Rapid.—A full bodied glossy black for interior use only.

Extra Rapid.—Similar to Rapid, but drying in about one hour. Interior use only.

Flat and Dead Matt.—Thin-bodied blacks drying with the finish suggested by their names. Interior use only.

Furnace.—A glossy black for metal chimney stacks, etc., withstands heat up to 500° F.

New Galvanising :

Avoid painting new galvanising if possible ; if it must be painted, carry out procedure recommended on Sheet No. 202.

Weight :

Approx. 11¼ to 12½ gall. per hundredweight.

Spreading Capacity :
70 sq. yds. per gallon.

" MELANOID " (COLOURS)

These consist of ready mixed paints on a pure bitumen base, the colouring materials being the finest grades of mineral pigments. The bitumen medium is in all cases colloidal.

General :

Bitumens being essentially black, the darker the colours the higher the bitumen content, but even in the lighter colours there is sufficient bitumen incorporated to give an added resistance against sulphur compounds, acid fumes and corrosive industrial atmospheres. The colours, however, with the exception of Heavy Body Brown, are not recommended for use against *liquid* acids.

The " B " series can be used as finishing coats, but are primarily intended as intermediate or priming coats.

Grades :

Brown. Heavy Body Brown. Bitumen content 55 per cent. and 75 per cent. respectively. Gives maximum resistance against acids.

Hard Heavy Body Brown. Same as Heavy Body Brown, but harder.

Light Red. Dark Red. Bitumen content, 45 per cent. Venetian Red. Venetian Red " B." Bitumen content, 15 per cent.

Green. Bright Green. Green " B." Bitumen content, 40 per cent., 15 per cent., and 15 per cent. respectively.

Stone. Light Stone. Bitumen content, 15 per cent.

Grey " B." Light Grey. Bitumen content, 15 per cent.

Spreading Capacity :
70 sq. yds. per gallon.

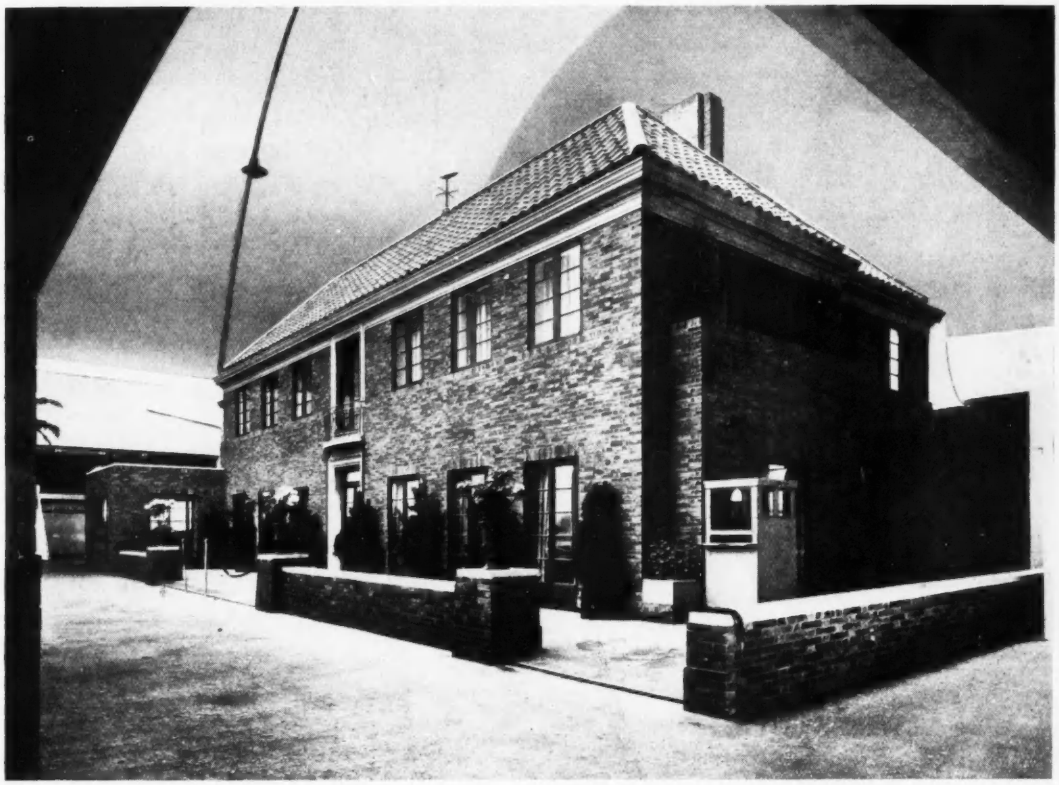
Previous Sheets in this series were Nos. 188, 190, 192, 194, 196, 198, 200 and 202.

Name of Suppliers : Nobel Chemical Finishes, Ltd.
Address : Architectural Dept., Wexham Road, Slough, Bucks
Telephone : Slough 528
London Office : Thames House, Millbank, S.W.1
Telephone : Victoria 2873-2874

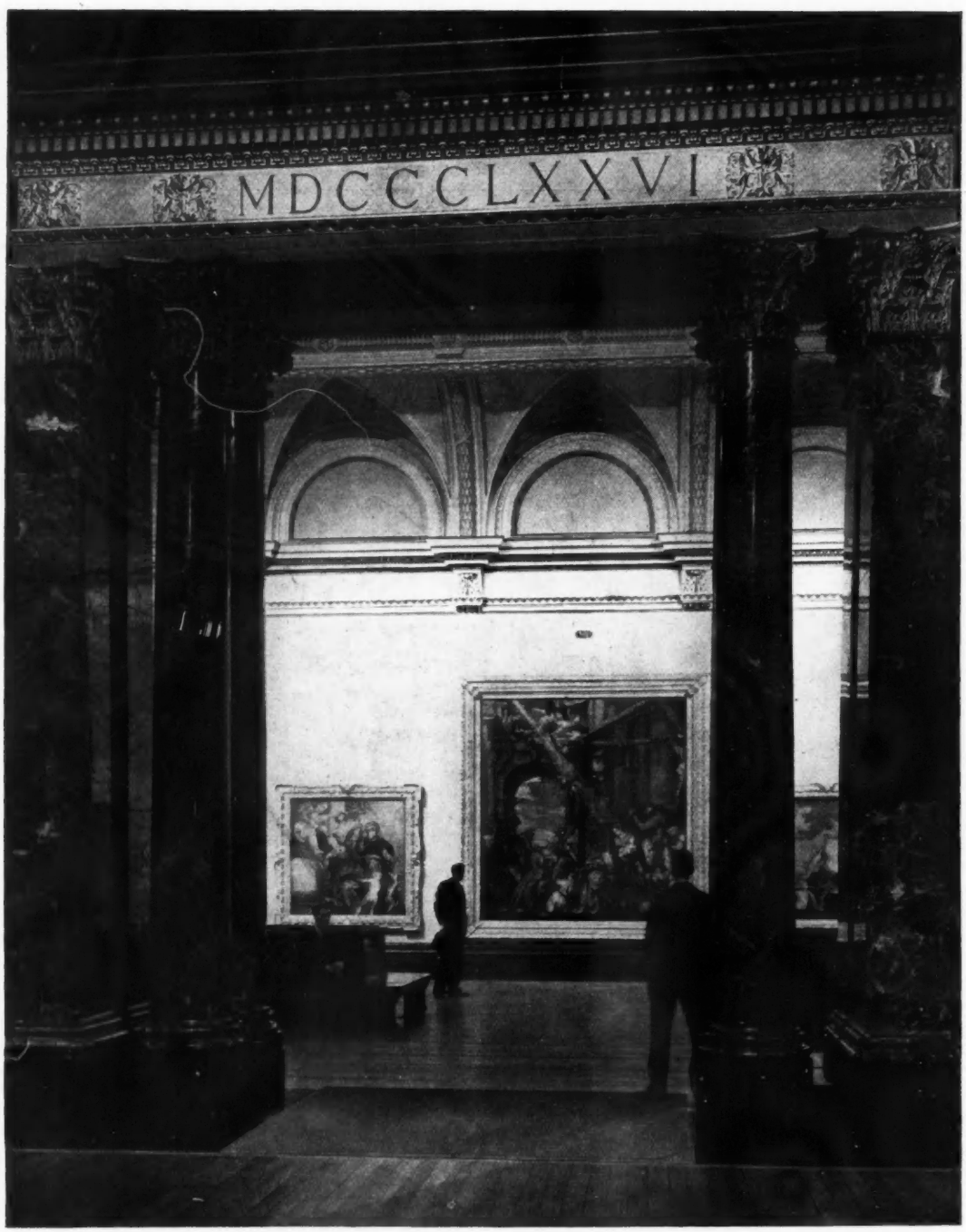
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THE KING'S HOUSE AT OLYMPIA

REPLICA OF THE ROYAL WARRANT HOLDERS' JUBILEE GIFT



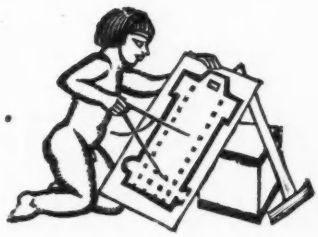
"THE days of the country mansion are past: this is not a country mansion. It is a smallish house, built, as most modern houses are, with an eye to the minimum of labour and maximum of comfort. It is, to put it briefly, a house of refined Georgian period, with what I can best describe as a feeling of modernism." This description of the King's House (the Jubilee Gift of the Royal Warrant Holders' Association to His Majesty) was made by the architect, Mr. C. Beresford Marshall, in a recent broadcast talk. A full-sized model of the house has been erected at the "Daily Mail" Ideal Home Exhibition at Olympia exactly as it will appear on the site given by Lord Iveagh on his estate at Burhill, Surrey. Above is a general view of the replica; interior photographs were reproduced in last week's issue.



EXTENSION OF HOURS

The installation of artificial lighting in the National Gallery has made possible the extension of opening hours, beginning on Monday of last week. The lighting system is the result of experiment over a long period. A committee was set up to consider the matter in 1923, and in 1932 tests were made of a number of alternative systems. The financial depression prevented immediate action, but at the end of last year the Commissioner of Works, Mr. Ormsby-Gore, and the Director of the Gallery, Mr. Kenneth Clark, decided to proceed with their plans. The chief difficulties to be overcome were the prevention of glare, the avoidance of reflection from glazed or varnished surfaces of the pictures, and the danger of artificial lighting disturbing the colour values. In certain cases the colour has been varied slightly according to the pictures to be illuminated. The photograph shows the effect of the lighting in the Venetian Room, viewed from the Dome.

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PIONEER WORK AT PECKHAM

THE days are gone when the architect can regard himself as an individual aiming at the expression in the medium of building materials of his own vision and personality ; as an artist sheltered under the wing of a patron who is responsible, in taste and expenditure, only to himself. If he is not to become a complete supernumerary, whom the progress of civilization has passed by, he must appreciate his unavoidable social entanglements and accept the responsibilities of his position as the trained planner and designer of whose services an increasingly complex society is particularly in need.

His failure in recent times to accept these social responsibilities is evident all around us. The barbarous housing conditions that a large proportion of our population has to put up with, the ugly surroundings that the whole population takes so pathetically for granted, and the gradual destruction in the name of expediency of the decent survivals from more enlightened ages are all in some measure the indirect result of the architect's failure to keep pace with the demands of democracy—or perhaps of his too great willingness to join the bureaucratic conspiracy of *laisser-faire* that hides behind democracy's coat-tails.

As a technician concerned with the concrete incarnation of all aspects of existence he must seek out and support any attempt to introduce more seemly standards ; to make it possible for lives to be planned on a more intelligent basis. There is one sociological experiment now being made that is particularly worth his attention—the Pioneer Health Centre, whose building at Peckham was opened last week.

This is important to the architect just now for two reasons : first, because it is an example of enlightened scientific enterprise that is planning for a future far finer than is ever envisaged by officialdom—an example of the technician taking his place as a pioneer of social progress ; secondly, because it has produced a building which itself reflects the function of modern architecture to express the spirit in which it is conceived and the ideas behind its conception rather than the ideas or personality of the particular technician commissioned to design it. It represents the exoteric or social as opposed to the esoteric or individual nature of modern architecture. The validity of this distinction is self-evident. It is clear from the building itself, which is illustrated and described on other pages of this issue of the JOURNAL. The importance of the Pioneer Health Centre as a social enterprise, particularly as an example of the contribution the scientific mind can make to social regeneration, merits further description.

The Pioneer Health Centre aims briefly at putting the care of health in its proper place as part of the activity of life ; it aims to rescue medical practice from its present illogical status, wherein it spends its energy treating conditions that should never have been allowed to arise. It is only when disease has reached, if not the stage of actual incapacitation, at any rate, a relatively advanced one, that the doctor is called in and his observations can begin ; he has little opportunity of studying the conditions under which disease originates or the circumstances that produce low physical or psychological standards. The way the Health Centre intends to work for the improvement of these standards is set out, and the results of a preliminary experiment of the same nature described, in a book* written by the two doctors who are responsible for the enterprise.

The Centre will provide occasion for field research by the investigating doctors, who will be able to study their human material as part of its environment, and, simultaneously it will provide the population of Peckham with a social centre where it can spend its non-working hours away from the dismal surroundings by which its opportunities of development are normally circumscribed. The Centre is a club in which the family, the natural biological unit, will be maintained instead of disintegrated. A swimming-bath, gymnasium and library will be available for physical and cultural expansion under responsible advice, a restaurant, both for meals in civilized surroundings and for the practical application of the doctors' dietetic knowledge, and a spacious social gathering-place where contacts can be developed over a glass of beer—for no sort of crankiness spoils the complete naturalness of the existence encouraged ; there are nurseries and children's playgrounds also, so that the needs of the whole family are catered for under one roof. In the medical laboratories and consulting rooms that are included in the scheme the members will have the advantage of periodic examination and advice from the doctors. In cases of disease treatment will not be given at the Centre, so it will not compete with existing medical services ; but, by early diagnosis and constant watchfulness, the probabilities of a cure can be many times magnified.

Here, perhaps for the first time in this country, the familiar gospel of " light and air " is translated into a more positive form than the limelight of architectural exhibitionism and the heated air of æsthetic controversy ; it is incarnated in a building that has light and air as the very foundation of its purpose. A vital architecture has been produced through recognition of the sociological foundation on which architectural values depend, and by realistic apprehension of the human, as opposed to the ideological, demands of the contemporary problem.

**The Case for Action.* By Innes H. Pearse, M.D., B.S. (Lond.), and G. W. Scott Williamson, M.C., M.D.(Edin.). London : Faber and Faber, Ltd. Price 1s.



The Architects' Journal
Westminster, S.W.1
Telephones: Victoria
9212-7
Telegrams:
Buildable
Parl
London

NOTES & TOPICS

THE REGISTRATION COUNCIL

PEOPLE don't seem to be as interested as they ought to be in the doings of the Registration Council. I know its existence, so far, hasn't affected architects in practice much, but potentially it is a very powerful body.

*

I have heard practically no comments, for example, on the recent elections—the results are announced this week.

*

According to the election list I have seen, the unattached architect has seven representatives on the Council, and six of these are the official nominees the Institute of Registered Architects, official nominees in the sense that they were not only nominated by, but are actually members of, that body.

*

Question: how can an architect be unattached and also a member of the I.R.A.?

*

And from a circular issued by the I.R.A. *before the result of elections was published*, I take the following two extracts: "Its growing membership . . . now includes members of every architectural society throughout the United Kingdom," and "As the result of efforts on the part of the Institute of Registered Architects, six members of the Institute have been elected by 'unattached' architects to represent their interests on the Registration Council."

*

It is all wonderfully mysterious.

FLOODLIGHTING BUILDINGS

Once again I have drawn blood. But there was much to be spared, and I am unrepentant. An electrical paper is angry with me for suggesting that the man who is qualified to build buildings is *ipso facto* best qualified to advise upon the methods of displaying them by light.

*

I am glad to admit, however, that the writer in question is good enough to prove my point beyond any measure of doubt; he even adduces purely electrical arguments to help him to do so.

*

"Astragal," he says, "is looking at the problem from one angle only." In effect, that was (with certain limitations) the manner in which I invited the floodlighters to look at the buildings upon which they proposed to throw the benefits of their beams.

*

If I may be so *banal* as to say so, there is no logic in the argument that any building should be electrically floodlit merely because, failing that, the gas industry will step in and do the same thing in its own way.

*

But then, you see, I don't care what fuel or power may be used; all I want is *good lighting*.

*

My critic talks of "rush-lights." But whereas he seems to regard them merely as inefficient in terms of "foot-candles" or what-not, I regard them as appropriate lighting—*for their day*. And indoors!

*

I am by no means anti-electric. All I want to make sure of is that, as "when the Abbey's venerable stones were laid one upon the other the possibility of artificial external illumination was never foreseen," today we have an even more onerous responsibility laid upon us to see that these new-fangled and potentially most desirable artifices do not quite spoil a very notable architectural achievement.

*

But I think that in time all will be well. As my angry critic points out, the Lighting Service Bureau has, in Mr. R. O. Sutherland, an architect of quality and perception, whose dicta appear to find some favour in electric circles. Let the electrical world, then, employ him most fully.

HOUSING'S POOR RELATIONS

Are you a Friend of Housing? You ought to be. The Prince of Wales is.

*

In case you don't know what a Friend of Housing is, it is a designation you can acquire by becoming a supporter of the Housing Centre, and a very good thing to become too—it is worthy of everybody's support. It had the Prince of Wales's at the Mansion House last Thursday.

*

But the architect, of course, should be a much closer relation to housing than a mere Friend—as the Prince of Wales told a certain learned body during its centenary celebrations. How much that learned body is doing about organizing the architect to make himself responsible for housing we still haven't heard.

*

And quite apart from his ethical responsibilities, his future livelihood to a large extent depends on his ability to undertake these responsibilities. Isn't it quite time he reclaimed his proper status not only as Housing's closest friend, but



The silver sports cup presented by the Court of the Worshipful Company of Goldsmiths to the Architectural Association, to be competed for by students of the School of Architecture. The design, by Herbert Tayler, was chosen as the result of a competition which was promoted to encourage good design in silver. The sculpture on the lid and the engravings on the cup were designed by John Burrell.

as his rightful heir? Someone must supplant Housing's illegitimate offspring, the Speculative Builder.

FRAGMENT

Speaking of learned bodies, I have been sent by a correspondent the following little verse. He explains that it was written under stress of emotion while travelling in a Green Line coach, but that " it has no reference to, or inspiration from, the council of any learned society. Indeed, it was written entirely without their knowledge."

*

" The Mandarins sit on the high top shelf
Nodding the years away,
Smilingly watching the life pass by—
' What does it matter,' they say,
' We are the Mandarins, yellow and stiff—
Made of the finest clay.' "

*

It doesn't seem to me to make sense.

JUBILEE

I make no apology for mentioning this subject again ; in fact I give warning that I shall do so several times more, I expect. The question is important, if only because there is still quite a good chance that we shall disgrace ourselves before the horde of visitors from abroad who are certain to be in London during the Jubilee celebrations.

*

But things are brewing up better than I had at first expected. To the list of intelligent streets must be added the name of Tottenham Court Road, which has chosen Mr. Ian Jeffcott to supervise its decorations. Mr. Jeffcott, with his exhibition experience, should excel at this sort of architecture-cum-theatre technique.

*

I hear, too, that Mr. Robert Jordan and Mr. Waldo Maitland are looking after Electra House, at Temple Station, as regards architectural treatment and lighting respectively. It was designed by Sir Herbert Baker. I shall watch with interest to see what they make of it.

*

There are still a good many streets and buildings worthy of sane treatment, about which I have no information. Kingsway, for instance. I think I must make a list of them. There is still time to encourage the " powers that be " to employ architects.

BED BUGS AND BUREAUCRATS

Last week, though Mr. Anthony Eden was still abroad, Whitehall came to a definite conclusion. The bed bug (or common louse) was found to be undesirable and " is to go."

*

With this most laudable purpose, the Minister of Health has set up a committee, the personnel of which was given last week in the Press ; and a formidable list it was—enough to make any bug think.

*

Doctors there were and scientists, and Dr. Stradling, representing a far more specialized outlook ; and, as secretary, Mr. McKenny Hughes, who has probably tamed more lice than most people. He has, one might say, a pronounced (if inverted) affection for the ordinary louse.

*

Bugs all over the country are discussing this epoch-making move ; and, if my information does not lead me astray, are pinning their faith to an apparently trifling oversight on the part of the Minister of Health ; they are aware that in all the galaxy of this committee *there is not an architect.*

DROWNED IN A BUTT OF MALMESBURY

The Earl of Malmesbury, speaking at a meeting of the Hampshire Branch of the C.P.R.E., recently made some rather odd remarks. He was blaming architects for the blemishes which seem to be erupting like an erysipelas in his district.

*

This, if you consider it, was inopportune at a time when nearly everybody else is deploring the fact that architects are *not* more often employed to act as a curative ointment, if nothing more. Can his Lordship, when he uses the term architect, perhaps have in mind the speculative builder? Does he, I wonder, suppose that they are one and the same?—as they undoubtedly *ought* to be, and once were.

ASTRAGAL

Owing to the inclusion in this issue of the ninth of our series of HOUSING SUPPLEMENTS *we are compelled to hold over the Technical Section. This will be resumed next week, with the twelfth of Dr. Faber's and J. R. Kell's articles on Heating, Air Conditioning and Mechanical Equipment.*

NEWS

POINTS FROM THIS ISSUE

"*If any individual has to walk about with 'safety first' engraved on his chest, it is the official of a local authority*" 512

A new series of broadcast talks on the function and application of colour in every-day life in the North 515

"*Architects and their assistants are not primarily interested in designing beautiful buildings or in improving the public taste. Their first aim is to make a living for themselves and their dependants.*" 522

"*It is estimated that the population of England and Wales in 1941 will be 41,000,000*" 536

THE HOUSING CENTRE

Support for a new body, "The Friends of Housing," which should provide the income or endowment needed to establish and enlarge the work of the Housing Centre, was urged by the Prince of Wales at a meeting held at the Mansion house last Thursday. He said every penny of subscriptions and donations would mean something done for the slum-dweller.

The meeting had been called, he added, to extend the scope of the work of the voluntary housing societies, which had concentrated on the relief of the poorest class, for whom comparatively little had been done, apart from the work of the societies. This most essential work had been hampered for them not only by a lack of cheap money but by a lack of co-ordination, to establish which the National Federation of Housing Societies had been created.

One would like to see the development of public utility societies expand into a recognized machinery for the provision of working-class housing to the extent that it had in certain other countries. If the Federation was to grow into an organization capable of carrying out, through its affiliated societies, housing on a large scale, the development of a highly technical advisory staff would be essential. No more useful purpose could be served by the Federation than to act as a permanent research organization to examine new methods of building construction, and to study and correlate the many other problems connected with working-class housing.

The creation of this Central Federation provided the means of placing the activities of public utility societies on a broader basis, and he hoped that the Federation would encourage its affiliated societies to enlist the technical help of the Town Planning Institute, the Chartered Surveyors' Institution, and the other great professional bodies, besides the R.I.B.A., to its aid in creating organizations with the full technical training to deal with the problem on a larger scale than in the past.

Sir Stephen Killick presided; and the other speakers included the Marquess of Londonderry, Sir Reginald Rowe and Sir Edward Peacock.

THE ARCHITECTS' DIARY

Thursday, April 4

DAILY MAIL IDEAL HOME EXHIBITION. *At Olympia. Until April 18.* 10 *a.m. to* 10 *p.m.*

HOUSING CENTRE, 13 *Suffolk Street, S.W.1. Exhibition: "A Hundred Years of Housing." Open until further notice.*

WEST YORKSHIRE SOCIETY OF ARCHITECTS. *At the College of Art, Leeds. Students' Union Evening.* 6.15 *p.m.*

SOCIETY OF ANTIQUARIES. *Burlington House, W.1. "Dartmouth Castle." By B. H. St. J. O'Neil.* 8.30 *p.m.*

AUCTIONEERS' AND ESTATE AGENTS' INSTITUTE, 29 *Lincoln's Inn Fields, W.C.2. "The Making of a Connoisseur." By H. Mordaunt Rogers.* 7 *p.m.*

INCORPORATED INSTITUTE OF BRITISH DECORATORS, *Painters' Hall, Little Trinity Lane, E.C.4. "Colour Scales and Standards." By R. G. Barker.* 8 *p.m.*

Friday, April 5

INSTITUTION OF STRUCTURAL ENGINEERS. *(Midland Counties Branch). At York House, Birmingham. Annual General Meeting, 6.30 p.m. Western Counties Branch: At the Merchant Venturers' Technical College, Bristol. Annual General Meeting. 7.15 p.m.*

Saturday, April 6

YORKSHIRE EDUCATIONAL ASSOCIATION FOR THE BUILDING INDUSTRY. *At the Mappin Hall, Mappin Street, Sheffield. "Craftsmanship in the Building Industry." By Sir Raymond Unwin. 2.30 p.m. "Modern Masonry." By E. G. Warland.* 6 *p.m.*

Monday, April 8

CHARTERED SURVEYORS' INSTITUTION, 12 *Great George Street, Westminster, S.W. "The State of Aviation in Great Britain with special reference to its effect on Property and questions connected therewith." By Nigel Norman.* 6.30 *p.m.*

Tuesday, April 9

ILLUMINATING ENGINEERING SOCIETY. *At the Institution of Mechanical Engineers, Storey's Gate, S.W.1. "A Works' Photo-electric Method for the Photometry of Electric Discharge Lamps." By P. D. Oakley: "A Simple System for Recording and Displaying Measurements of Illumination," by R. R. Holmes: "The Use of Scale Models in Illuminating Engineering," by H. S. Barlow: Practical Considerations in Architectural Lighting," by H. Lingard.* 7 *p.m.*

Wednesday, April 10

INSTITUTION OF CIVIL ENGINEERS, *Great George Street, Westminster, S.W. "The Economic Outlook for Engineering." By J. L. Hodgson.* 6 *p.m.*

ST. PAUL'S ECCLESIOLOGICAL SOCIETY. *At the R.I.B.A. 66 Portland Place, W.1. "Some Recent Investigations at St. Paul's Cathedral." By W. Godfrey Allen.* 8 *p.m.*

SOCIETY OF CHEMICAL INDUSTRY. "*Composition and Properties of Portland Cement*," *by F. C. Lea: "Factors Affecting Durability of Cast Stone," by F. L. Brady.*

REPLANNING CENTRAL BRIGHTON

Brighton Town Council has appointed Professor S. D. Adshead, Professor of Town Planning at London University, to supervize the replanning of the central part of the town, and in particular the area between the railway station and the sea front. He will be assisted by Mr. R. A. Hudson, surveyor to the Brighton, Hove and District Town Planning Advisory Committee, who will prepare the plan.

LIVERPOOL UNIVERSITY DEGREES

Mr. L. H. Keay, O.B.E., F.R.I.B.A., Director of Housing for Liverpool, is to receive from the University of Liverpool on July 6 the honorary degree of Master of Architecture.

The honorary degree of Doctor of Laws is to be conferred, on May 24, upon Professor Alan J. B. Wace, Lawrence Professor of Classical Archæology at Cambridge University since 1934.

CHARGE AGAINST ARCHITECT

The following paragraph appeared in *The Times* for April 1: "In the Belfast Custody Court on Saturday Mr. Castor J. Love, formerly architect to the Co. Down Regional Educational Committee, was charged before Mr. P. J. O'Donoghue, R.M., with fraudulently converting to his own use a paying order for £1,000 issued by the committee in favour of Thomas McKee and Co., Limited, builders. He was remanded on bail until April 11. Mr. H. H. Mussen, Crown solicitor, who appeared for the prosecution, said that the prosecution arose out of the facts disclosed at the recent inquiry by Mr. J. McGonigal, K.C., into the administration of the committee."

WORKING-CLASS FLATS

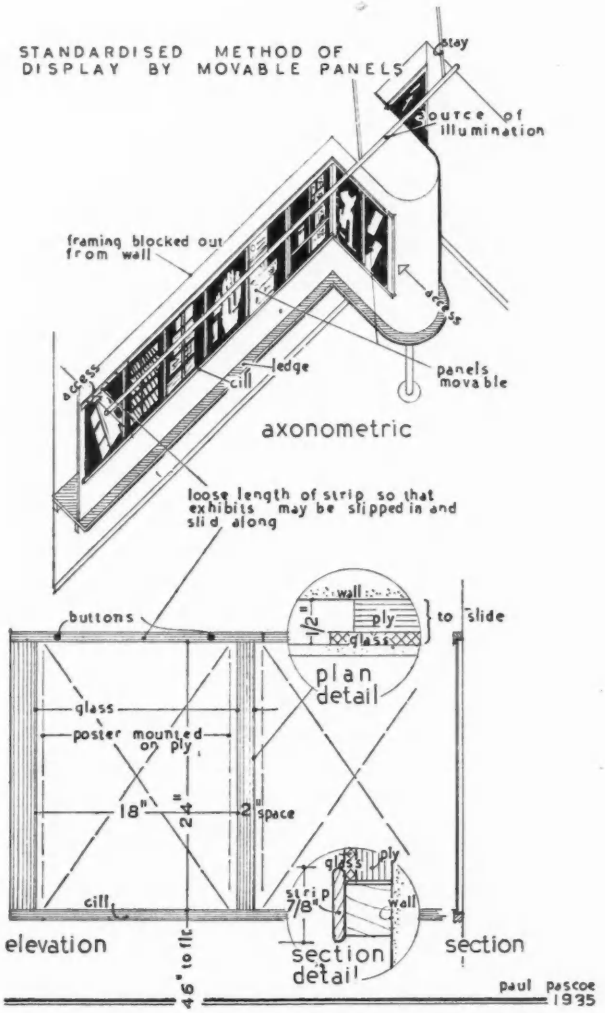
In connection with the exhibition of the designs submitted in the Cement Marketing Competition for working-class flats in reinforced concrete, a lecture entitled "Working-class Flats: A Solution of the Problem of Rehousing" was delivered by Mr. L. H. Keay, F.R.I.B.A., at the Imperial Institute, South Kensington, on Friday last.

The lecturer, who was one of the assessors in the competition, said: "I should like to compliment the winners of the competition for showing a really carefully thought out and very fine piece of work; and now, having paid a compliment, I should like to go to the other extreme and be a little rude. It seems to me that many of the competitors missed one of the essential points about reinforced concrete. It is a material which can be made to flow in this or that direction, to help and not hinder planning; yet so many of the competitors followed traditional forms of planning and even adopted type plans which have appeared from time to time in technical journals and in reports. I do see an extraordinary field for architects and engineers combined—for it must be a combined job—to utilize reinforced concrete to its uttermost. You will probably say, when you have seen the slides I am going to show, 'Why have not you done it?' The answer is that if any individual has to walk about with 'Safety First' engraved on his chest, it is the official of a local authority!

"One gets rather exasperated with people who, because they think you should build all your housing on the outskirts of the city, make use of what I consider to be unfair methods of criticism against those who favour the building of flats. There is only one thing wrong in this country with regard to the building of flats, and that is that the architects have never been given their full opportunity; we have never had a flat scheme comparable with such a scheme as Letchworth or Welwyn Garden City, and we are only in our infancy with regard to flat planning. In five or ten years' time I think there will be quite a different tale."

A TYNESIDE PUBLIC UTILITY SOCIETY

The Government is to make a grant for the establishment of a public utility society



From the exhibition of the work of E. McKnight Kauffer, at Lund Humphries's gallery in Bedford Square, W.C.: panel display designed by the artist.

to co-operate with the local authorities in the erection of houses in the Durham and Tyneside areas. At the inquiry into the conditions of the depressed areas the need for special house-building facilities on Tyneside and in Durham was emphasized, and the Commissioner for the Special Areas has been working for some time on the details of the machinery to be set up.

NATIONAL HOUSING AND TOWN PLANNING COUNCIL

The National Housing and Town Planning Council's annual conference of local authorities in London and the Home Counties is to be held at the County Hall, Westminster Bridge, S.E., on Friday, June 14. Similar conferences will be held in different towns as follows: Town Hall, Manchester, Tuesday, April 30; Council House, Bristol, Friday, May 10; Council House, Birmingham, Wednesday, May 15; City Museum, Leeds, Tuesday, May 21; Connaught Hall, Newcastle-upon-Tyne, Tuesday, May 28; Council House, Nottingham, Friday, May 31; Guildhall, Cambridge, Wednesday, June 5; City Hall, Cardiff, Tuesday, June 18; Town Hall, Plymouth, Wednesday, July 3; Town Hall, Bangor, Friday, July 12.

LIVERPOOL ARCHITECT TO DESIGN COSTUMES FOR "HAMLET"

Mr. William Holford, senior lecturer in the Liverpool School of Architecture, and his wife (Miss Marjorie Brooks), have been commissioned to design the costumes for a new production of "Hamlet," by Mr. William Armstrong, at the Liverpool Playhouse, on April 17. At the beginning of the present season Mr. Holford and Miss Brooks designed settings and costumes for "Macbeth."

THE BUCKINGHAMSHIRE SOCIETY OF ARCHITECTS

The annual general meeting of the above Society was held recently at Slough. Mr. G. Langley Taylor, F.R.I.B.A., presided.

The officers for the ensuing year were elected as follows: Chairman, Mr. W. David Hartley, F.R.I.B.A.; vice-chairman, Mr. G. Langley Taylor, F.R.I.B.A.; hon. secretary, Mr. A. R. Borrett, A.R.I.B.A.; hon. treasurer, Mr. J. C. Blair; hon. auditor, Mr. H. J. Stribling, A.R.I.B.A.; hon. librarian, Mr. A. Cooper, A.R.I.B.A.

Members of Committee: Messrs. E. A. L. Martyn, A.R.I.B.A., G. H. Williams, F.R.I.B.A., A. A. Stewart, A.R.I.B.A., C. H. Riley, L.R.I.B.A., C. S. Kimpton, A.R.I.B.A., and W. G. Percy, L.R.I.B.A.

The meeting was followed by a paper on "Carving and its place in Modern Architecture," by Mr. J. C. Blair.

PETERBOROUGH CATHEDRAL

Mr. Leslie Moore, F.R.I.B.A., made an interesting discovery the other day during the course of the work which he is directing in stabilizing the apse in Peterborough Cathedral. Several fissures in the masonry have appeared at the point where the Retro-Choir of the fifteenth-century builders joins on to the central arcade of the Apse of the Norman builders. At some unknown period large stones covered with frescoes of heraldic devices had been used. These stones are being most carefully taken out, for all are finely carved. Some of them must be centuries old. Where possible the frescoes are being examined.

A.T.O.

A general meeting of the Architects' and Technicians' Organization was held at the Friends House, Euston Road, on Thursday, March 28. There was a large attendance. The chief point on the agenda was discussion of the programme of work which had been provisionally set out by the Executive Committee. The meeting agreed a programme under five headings: research work in connection with professional organizations; research work on the relation of the architect with the building trade and the building operative; research and other work on housing; work in connection with Tenants' Defence organizations and in collaboration with the Committee against Malnutrition; and the Students' Section of the Organization. In connection with Tenants' Defence, it was decided to set up a Panel of Architects from which tenants could obtain advice on technical matters. Other business included the arrangement of a number of study groups to read papers and discuss various specialized subjects.

YORK AND EAST YORKSHIRE ARCHITECTURAL SOCIETY

Mr. John Begg, F.R.I.B.A., speaking at the annual dinner of the York and East Yorkshire Architectural Society, said "the present time is a time which is one of the most thrilling there ever has been in the history of the Institute. At our recent centenary celebrations," he continued, "one noticed that various speakers seemed to look on the function in a dual capacity of marking the close of an epoch and the beginning of another. But is there not a third epoch? We are seldom ever nearly

sufficiently alive to the overwhelming significance of the present. This is a unique time, a great time for architectural and the other arts. I do think we do not give enough attention to the present. Let us then forget the past, while clinging to all the good the past has brought us. We have this glorious present with us, a time future generations will look back on as a thing comparable with the greatest times in history, greater even than the Renaissance itself."

LANDSCAPE ARCHITECTURE

A lecture on "The Larger Aspects of Landscape Architecture" was delivered at the Municipal School of Art, Manchester, on March 22, by Mr. E. Prentice Mawson, F.R.I.B.A., M.T.P.I., President of the Institute of Landscape Architecture. The lecture was arranged in connection with the Course in Landscape Architecture which forms a section of the Municipal School of Architecture.

R. I. B. A.

COUNCIL MEETING

Following are some notes from a recent meeting of the Council of the Institute:

The Fourteenth International Housing and Town Planning Congress: Sir Raymond Unwin (Past-President) was appointed as the R.I.B.A. delegate to the above Congress.

The Forty-Sixth Health Congress and Exhibition of the Royal Sanitary Institute: Mr. C. J. Hair (A.) was appointed as the R.I.B.A. delegate to the above Congress.

The International Hospital Association: Mr. C. Ernest Elcock (F.) and Mr. Lionel G. Pearson (F.) were appointed to represent the Institute at a conference convened by the British Hospitals Association to consider the arrangements for the proposed International Hospital Congress to be held in England in 1937.

The Fellowship: The Council, by a unanimous vote, elected the following architects to the Fellowship under the powers defined in the Supplemental Charter of 1925: Mr. R. Richardson (Sydney) and Mr. Louis A. Amos (Montreal).

Reinstatement: The following ex-members were reinstated:—

As Associates: Messrs. Hugh C. Bankart and Cecil Prangnell.

As Licentiate: Mr. Kenneth J. Cooper.

Resignation: The following resignation was accepted with regret: Mr. George Manson Fisk (A.).

Transfer to the Retired Members Class: The following members were transferred to the Retired Members Class: *As Retired Fellows:* Messrs. Louis Ambler, David Aitken McCubbin and Alfred Bowman Yeates.

As Retired Associate: Mr. James William Frazer.

PRIZES AND STUDENTSHIPS

The R.I.B.A. Prizes and Studentships' Pamphlet for 1935-1936 is now obtainable from the Institute (price 1s., exclusive of postage). The pamphlet contains full information upon the various prizes and studentships, together with, where applicable, the detailed programmes for the competitions.

COMPETITION NEWS

MUNICIPAL OFFICES, SWINDON

Conditions of the competition for municipal offices, Swindon, are now obtainable from the Town Clerk, Town Hall, Swindon (deposit £1 1s.). The competition is open to architects of British nationality practising in the British Isles, and the assessor is Professor A. B. Knapp-Fisher, F.R.I.B.A. The premiums are as follows: £350, £250, and £150 for the designs placed first, second and third, respectively. May 25 is the last day for questions, and August 31 is the closing date.

COUNCIL OFFICES, SUTTON-IN-ASHFIELD

The Sutton-in-Ashfield Urban District Council has decided to promote a competition for council offices, open to architects of British nationality practising in Derbyshire, Nottinghamshire, Leicestershire, Lincolnshire and Rutlandshire. Mr. T. Cecil Howitt, F.R.I.B.A., has been appointed assessor; and the premiums to be offered are £200, £100, and £50 for the designs placed first, second, and third, respectively. Conditions are not yet available.

SCHOOL LIBRARY, PONTEFRACT

The Bursar of Ackworth School, near Pontefract, Yorks, invites competitive plans for a small school library. The competition is open to members of the Society of Friends and Old Scholars of the School. Applications must be sent to the Bursar of Ackworth School, Nr. Pontefract, Yorks., not later than April 16, 1935.

[*For Competitions Open see page 476 of last week's issue.*]

ON THE AIR

We are informed by the B.B.C. that the series of talks on housing called "Inside and Out" on Monday morning at 10.45 is being continued during this month. The following are the speakers, and the subjects of their talks: April 8, "Saving Labour in the House," by Mrs. King and Mr. G. M. Boumphrey; April 15, "Decorating Jobs." by Mr. G. M. Boumphrey; April 22, Easter Monday, no talk; April 29, "Where the House is Built," by Mr. E. Maxwell Fry, A.R.I.B.A., and Mr. G. Boumphrey.

The North Regional is also broadcasting a series of talks in the near future. The title is "A Spot of Colour" and the talks will deal with the function and application of colour in every-day life in the North. The series will be opened on April 11 at 8.10 p.m. by Mrs. Susanne Haward. She is to speak of colour as applied to domestic interiors. The next talk, on April 18, will be at 10.10 p.m., when Mr. G. H. Mathews, a Manchester painter and decorator, will speak of domestic interiors; but, whereas Mrs. Haward is to stress the purely decorative side of the question, Mr. Mathews will devote his talk to the more practical side of the picture. The third of the series, to be given on April 25 at 6.30 p.m., will be devoted to colour as applied to outdoor clothes, and the speaker will be Mrs. Grace Lovat Fraser. Further talks in the series will deal with colour as applied to decoration of public buildings and colour in advertising.

THIS ARSHETECTURE

ANCIENT AND MODERN



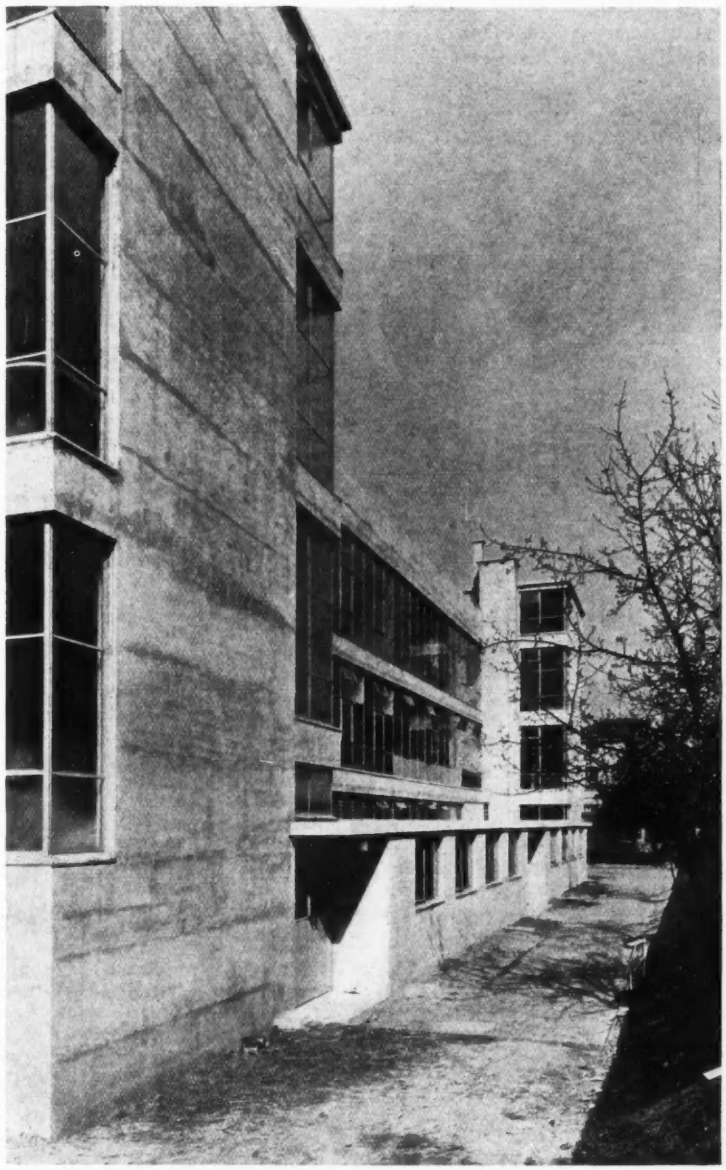
Flats being built at Kingsbury, N.W., with "castle-like" exteriors.

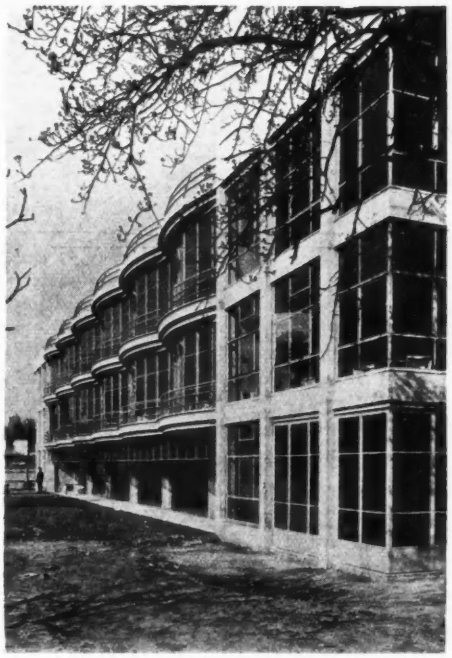
—From "The Star."

THE PIONEER HEALTH CENTRE, PECKHAM

The principles behind the foundation of the Pioneer Health Centre and their social implications are discussed in our leading article this week. It has two main functions, which are, of course, in practice inseparable. The first is that of a medical research and observation clinic. No medical treatment is given; the principles being prevention of disease and the discovery of it at an early stage, so that members can be more effectively treated by their regular doctors. The second function is that of a centre for family life. A kind of community club, giving opportunities for a healthy existence, based on the family as the unit of membership.

These combined functions have conditioned the design of the building. The swimming bath becomes, appropriately, the core of the plan and all the parts, except those for medical examination and research, are interconnected and, wherever practicable, visible one from the other, in accordance with the principle of communal recreation rather than segregation. When fully working the Centre will serve 2,000 families, and the scheme is organized so that, once the capital costs have been defrayed, it will be self-supporting on a members' subscription of only one shilling per week for each family. The building stands on a two-acre site (the unbuilt-on portion of which will contain gardens, lawns and a running track) in St. Mary's Road, Peckham.



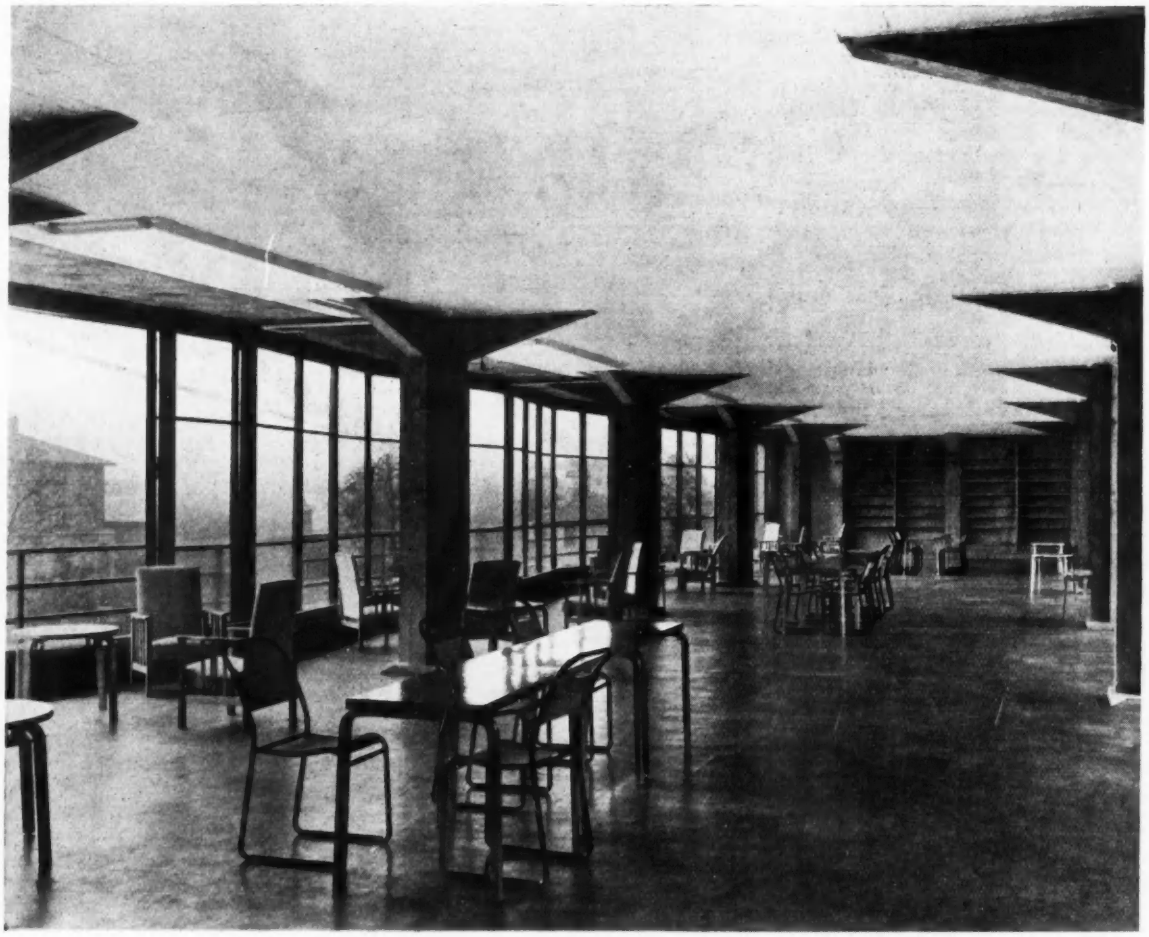


Above: a view looking along the back elevation of the building, showing the staircase towers at the two corners. Left: the front elevation. The open portion in the centre is a covered playground for children.

DESIGNED BY

SIR E. OWEN WILLIAMS, K.B.E.

THE PIONEER HEALTH CENTRE, PECKHAM:





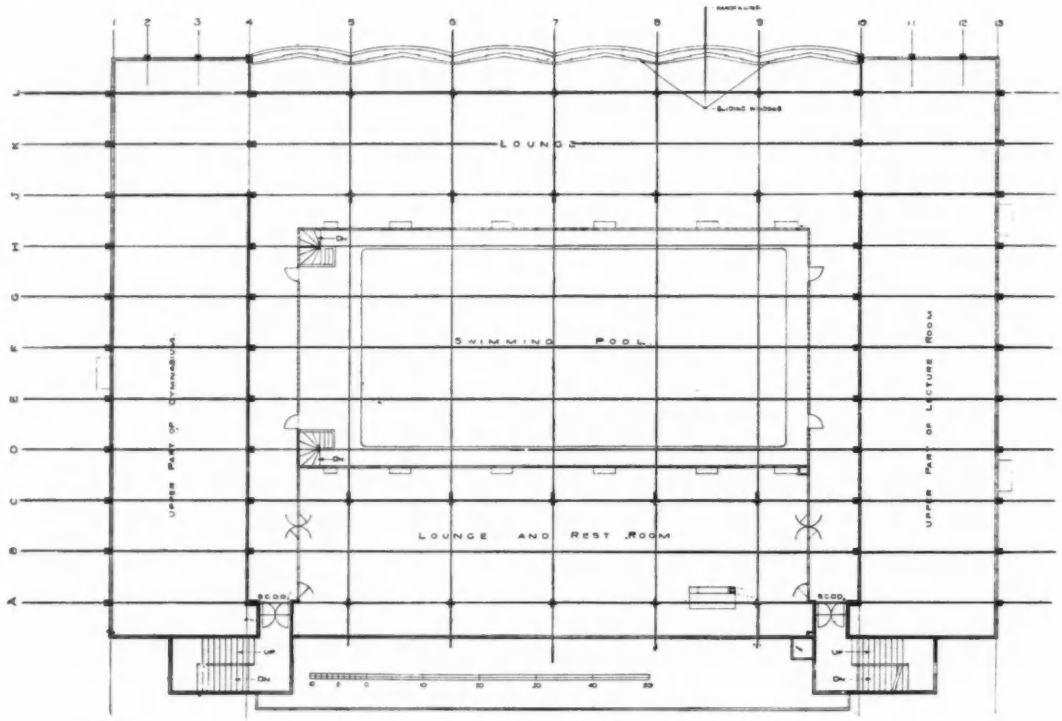
Above : the library and rest room, running across the front of the building on the second floor. There are sliding windows the whole height of the room so that the glass bays can be thrown open to the air in fine weather. Left : the swimming bath. It is of standard Olympic size with a maximum depth of 10 ft. 9 ins. The long glass panels on either side provide a view into it from the lounge and cafeteria and a view across it from one to the other.

DESIGNED BY SIR E. OWEN WILLIAMS, K.B.E.

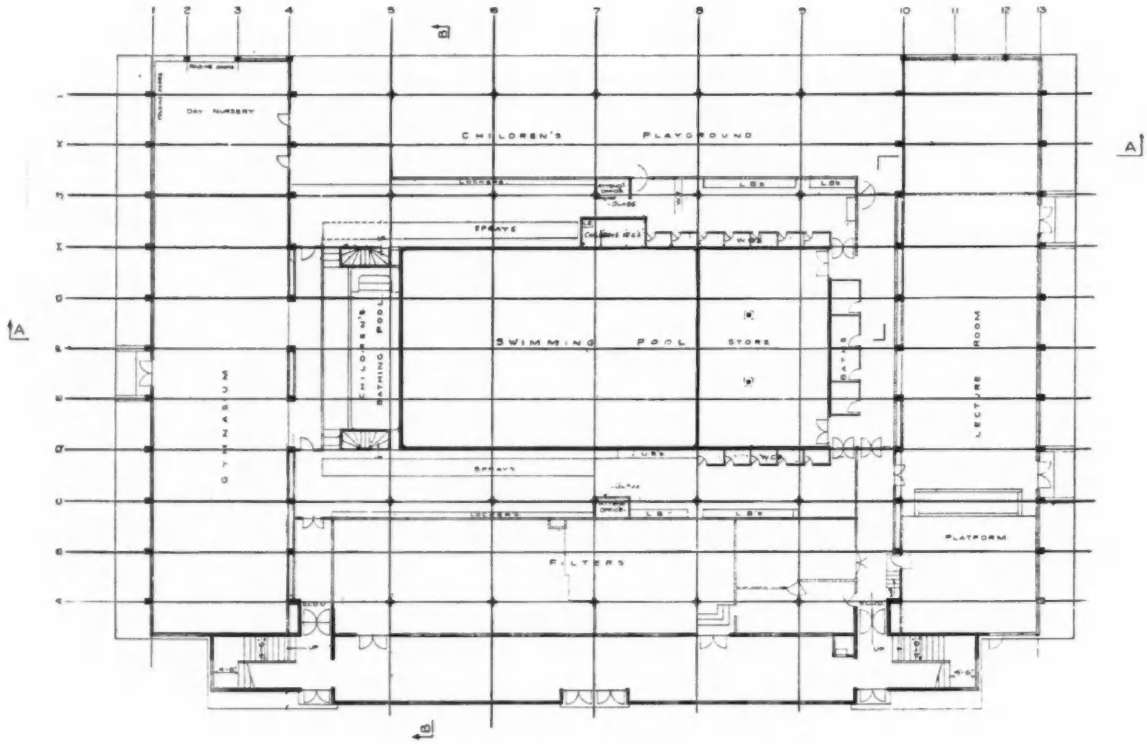


A close-up of the bay windows on the main front.

THE PIONEER HEALTH CENTRE, PECKHAM:



FIRST FLOOR PLAN



GROUND FLOOR PLAN

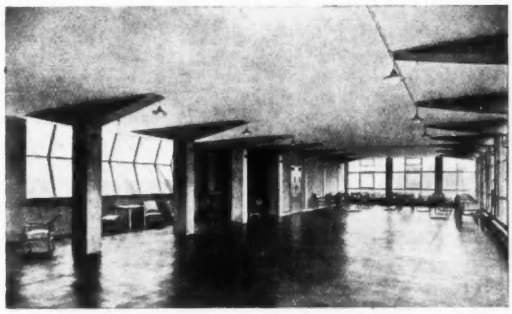
DESIGNED BY SIR E. OWEN WILLIAMS, K.B.E.

PLANNING. *The swimming pool occupies the central rectangular space. It is flanked on one side by the gymnasium, communicating directly with the garden, and on the other side, in the corresponding position on a symmetrical lay-out, by an assembly hall, which can be used for lectures, dances, dramatic entertainments, etc. It has a stage for this purpose and the regulation emergency exits. On the ground floor in the front is a covered playground for children, completely open to the garden. Communicating with this is a children's nursery and a small children's bathing pool, 29 ft. long. The changing accommodation and clothes lockers, serving both gymnasium and swimming bath, are planned on the system that compels bathers to pass through a spray before reaching the spiral staircase that takes them to the bath level on the first floor. The changing rooms and sprays are divided into men's and women's, either side of the bath, with a separate staircase for each. The entrance hall is at the end of the building away from the street and has space for the parking of perambulators. From it rise the corner staircases that serve all floors. The flat roof is accessible for open air activities. It has a railing that is curved inwards for especial safety.*

CONSTRUCTION. *The building is of flat slab construction in reinforced concrete. It is based on a span of 18 ft. with 6 ft. cantilevers along the front. The standard span in the assembly hall and gymnasium is 24 ft. The thickness of the slab is 6 ins. throughout, with a 1 in. cork covering on the underside for insulation and acoustic purposes. The structural concrete surfaces are left untreated. The panel walls are of breeze blocks covered with $\frac{1}{8}$ in. cork sheeting. Floors are also generally of cork. All windows have metal frames.*

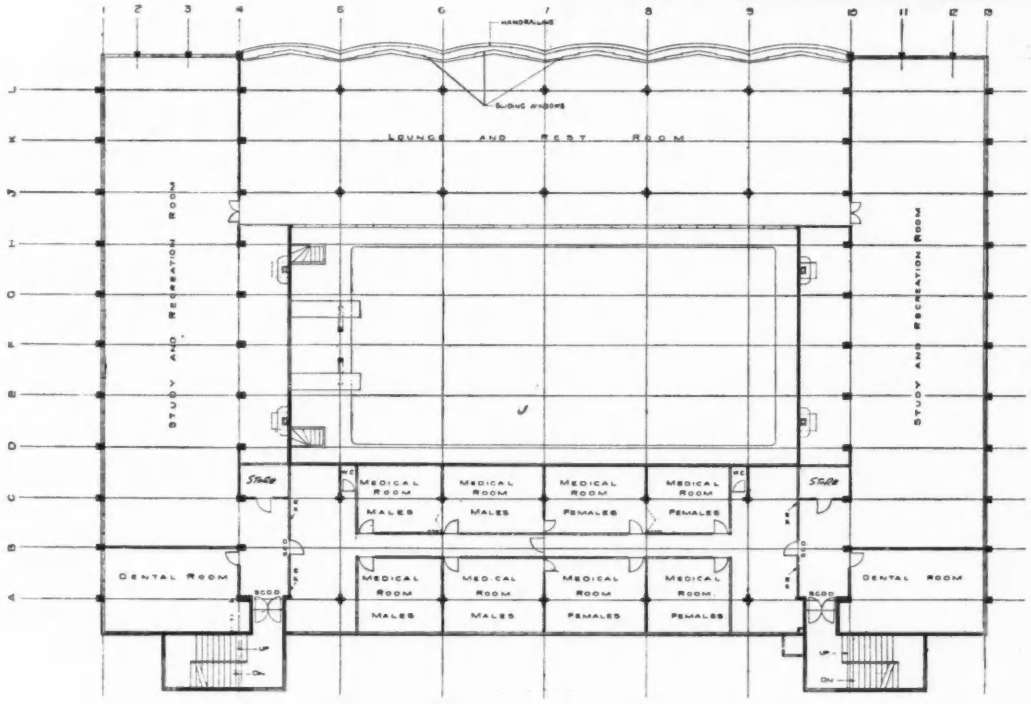
EQUIPMENT. *Heating and hot water supply is entirely by electricity. There is an automatically operated system of thermal storage. The swimming bath, the assembly hall, the gymnasium and the cafeteria have air conditioning. The swimming pool water is filtered and purified every 3½ hours.*

FURNISHING. *Furniture for the main lounge, including a table unit that can be grouped in various ways, according to requirements, and sliding equipment in the kitchen, has been designed by Christopher Nicholson.*



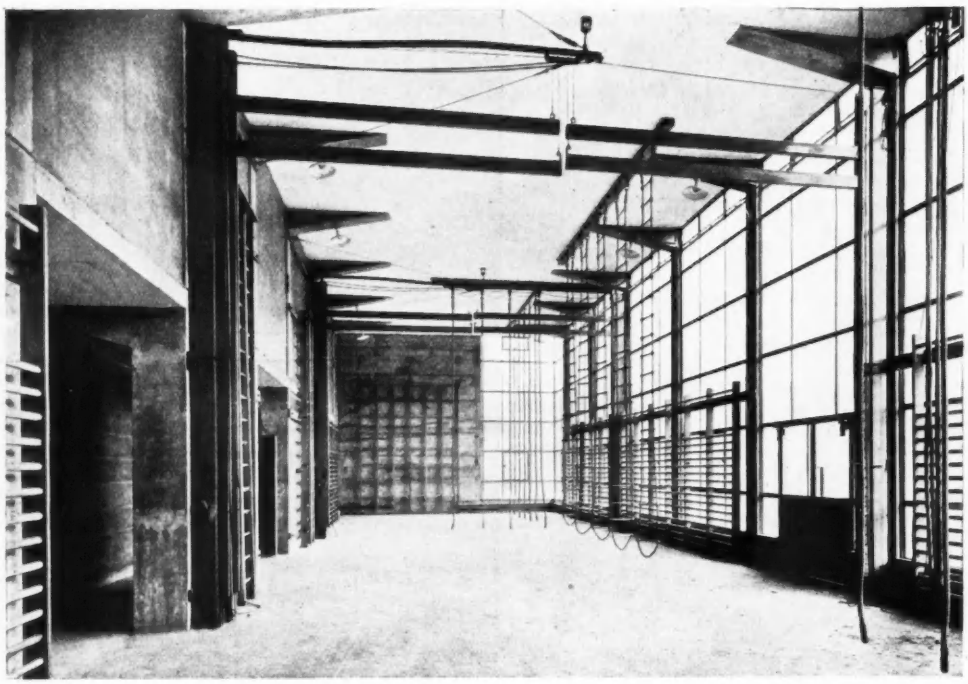


The photographs on this page show one of the second floor rest and recreation rooms, and the row of sprays through which access is obtained to the swimming bath.



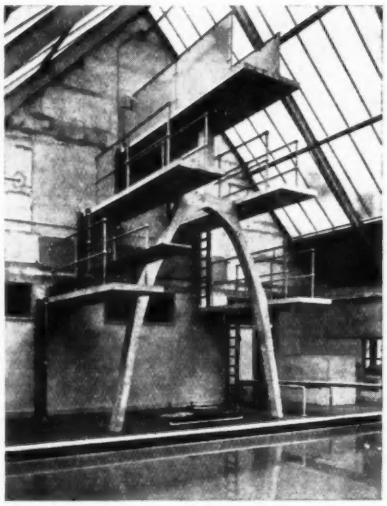
SECOND FLOOR PLAN

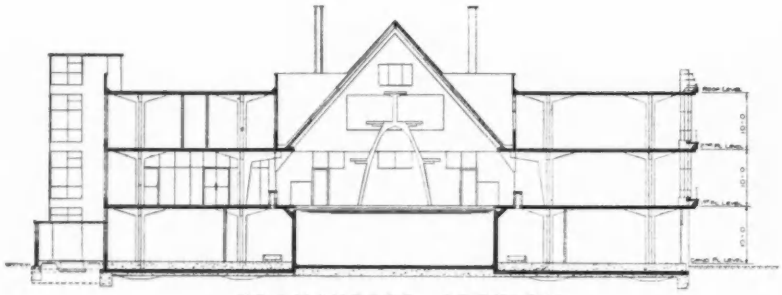
THE PIONEER HEALTH CENTRE, PECKHAM



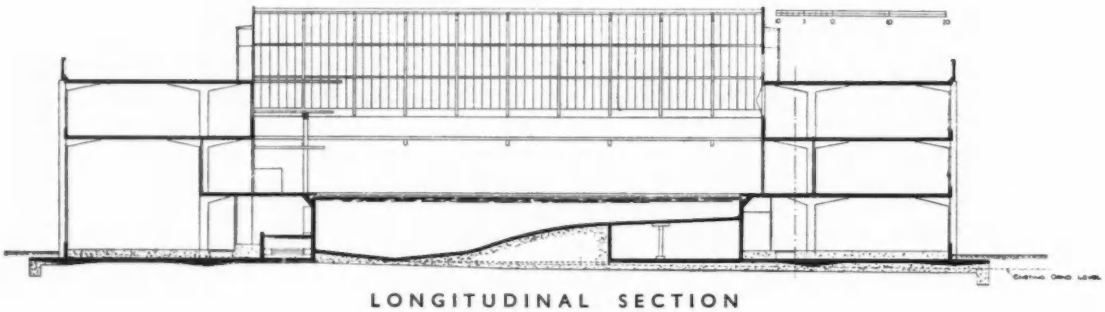
Left: the gymnasium at ground floor level. The glazed door on the right leads straight into the open air. Glass panels allow a permanent view down into the gymnasium from one end of the main lounge on the first floor. Below: the reinforced concrete diving stage at the end of the swimming pool.

DESIGNED BY SIR E. OWEN WILLIAMS, K.B.E.





TRANSVERSE SECTION



LONGITUDINAL SECTION

LETTERS FROM READERS

ERIC AMBROSE, A.R.I.B.A.
W. A. EDEN, B.Arch., A.R.I.B.A.
LAURENCE M. GOTCH, F.R.I.B.A.
SPECTATOR
G. C. RUSSELL-ROBERTS, F.I.A.A.
G. B. J. ATHOE (Secretary, Incorporated Association of Architects and Surveyors)
CAUTIOUS
RAYMOND WALKER

Seven People in Two Rooms

SIR,—I have recently taken over the management of an estate of fairly good-class property. In carrying out a survey for necessary repairs I discovered that in one of the houses two rooms had been let to a young married couple fifteen years ago. This marriage had been blessed with five children.

It seemed to me that seven people living and sleeping in two rooms was, to say the least, unhygienic. I therefore drafted a letter to the local sanitary inspector asking for his help in the matter. His reply was as follows :—

"The family to which you refer consists of husband and wife and female children, aged 14, 13, 7, 6 and 2 years. The accommodation occupied consists of two rooms of 1,781 cubic feet and 1,083 cubic feet, total 2,864 cubic feet, used for living and sleeping purposes. As the requirements of the by-laws in the case of the living and sleeping accommodation of protected tenants is 400 cubic feet for each adult and 200 cubic feet for each child (not more than 10 years), this instance is satisfied with a capacity of 2,200 cubic feet. I regret, therefore, that I am not able to lend you any assistance in this case.

I am,
Yours faithfully,
G. CLARK TROTTER
(Medical Officer of Health of the Metropolitan Borough of Islington)."

I feel some of your readers may be interested to read this.

ERIC AMBROSE
London

The A.A. School of Planning

SIR,—The announcement that the Architectural Association has inaugurated a School of National Planning and Research is of interest to me as a research worker engaged on a piece of research the subject of which—namely, the history of the English landscape—I regard as of basic importance in establishing the principles of national planning. In the prosecution of this work I have many times been led to consider the question of how the planner of the future is to be trained. My own work, undertaken from the point of view of the planner, has necessitated my being in touch with research workers in such subjects as economics, economic history, sociology, public administration, geography, geology, botany, agriculture and archæology, among others, and I have been forced to the conclusion that any school which sets out to train planners must work in close collaboration with the institutions where such work, together with the study of architecture and engineering, is carried on. The student of planning, besides listening to lectures, must have unrestricted access to the libraries of these institutions, and must have facilities for contact with their staffs, research workers, and students. I should therefore like to suggest that it might be interesting to your readers to learn what arrangements the Architectural Association is able to make for such collaboration as I have mentioned.

W. A. EDEN
(Leverhulme Research Fellow)
Heswall, Cheshire

Corby

SIR,—Mr. Boumphrey states that I have so far forgotten myself as to refer to matters which were dealt with at a meeting where all parties agreed that the proceedings should be considered confidential.

When inaccurate information is published in the daily and technical papers concerning what has transpired behind the scenes, I consider that I am entitled to break any agreement of confidence, since the information, as published, could only have come through someone connected with Mr. Boumphrey or the B.B.C.

LAURENCE M. GOTCH
London

Cottages or Flats

SIR,—May I suggest that the letter written to *The Times* by Messrs. Chambers, de Soissons, Grant, Wornum and Yerbury was inspired neither by ideas based upon sentiment nor by a confusion between the terms standardisation and collectivization. The arguments which they put forward against the tall flat block were the outcome of practical experience and actual investigation, both here and abroad. No doubt the authors are as aware of the urgency of the problem as is the Mars Group. When, however, the latter points out : "the problem can only be solved by a realistic examination of the form in which people live from the point of view of economics, social science, etc. . . ." it is unfortunate, because the letter to *The Times* indicates that this is exactly the point of view that the authors have taken. It is obvious that here, at least, exists a group of architects who are studying the needs of the people they serve rather than inflicting an architectural dictatorship upon them.

The Mars Group is perfectly right in emphasizing the merits of grouped housing in so far as it gives greater space for recreation round the buildings. But the multi-storey block of tenements usually defeats its own ends in this respect when it exceeds a certain height or density ratio. The mothers and children will only make the journey to the ground when absolutely necessary : for these less fortunate persons the ingenuous architect has introduced "sunshine balconies." These also have their uses in remedying any tendencies to monotonous façades.

What is desirable, it would seem, is a type of housing which avoids cottages on the one hand and the tall block on the other, while obtaining the advantages of each. A solution on these lines has been put forward in a pamphlet entited, *100 New Towns for Britain*, in which the author advocates houses of two storeys only laid out in quadrangular or terrace formation. This idea, being neither revolutionary nor Continental in its origins, would probably be assured of a greater measure of acceptance by the British public.

SPECTATOR
London

SIR,—It seems to me that the subject goes much deeper than the mere provision of structures in which people are to live, or the speed at which these structures can be provided. The Mars Group has made out a very good case for the erection of blocks of flats with all services, both on the ground of initial economy and that of maintenance and administration, but no thought has been given to the effect on the people so housed ; not necessarily this generation but those of two or three generations ahead. Then the problem will be a national one, not in the same sense as today (i.e., the provision of house room) but as the education of a mind to realize that the units so housed in concentrated blocks form part of a larger community with definite civil and national duties.

As an urban district councillor of over 12 years' standing, I can state

definitely that the effect of amalgamation of small districts into larger areas has been to destroy the civic responsibility of the individual. The whole unit becomes unwieldy and is too large for the average person to take an interest in. Therefore the working is placed more and more on officials, who are not the elected representatives but paid servants. The same principle will apply to large self-contained blocks of flats with inclusive rates, water, light, heat, etc. There will be nothing to interest the householder, who is perhaps better described as a tenant. He will have no responsibility to the local authority and this in turn will mean that his national responsibility will also be sapped, and he will not be interested in his larger parliamentary representation to anything like the degree he would if renting or owning his own house.

I must agree that the tendency today is to congregate into cities or large towns mainly owing to transport facilities, but this seems to point to reorganization of the transport systems to suit the development rather than development to suit the transport. The provision of large blocks of flats throws an enormous concentrated burden on transport at certain definite periods in the day, as is proved by skyscraper construction in other countries, and does not necessarily provide an efficient spread-over system.

From a national point of view alone, I consider it better that housing should be individual in the sense that each family occupies premises which are definitely its own. There cannot then be that form of " communism " which leads to general apathy in both local and national affairs. Again, mass housing in blocks produces fully fitted units reducing life to mass existence with the knowledge that one's neighbour has exactly the same things in exactly the same place and probably the same colour ; leaving the choice of decorations limited to perhaps curtains, sometimes beds and wardrobes, but more often than not only to such things as the traditional aspidistra to break the monotony. And what will happen to the amateur gardener, a man with an instinctive love of colour and creation ? No amount of public open space near the flats will compensate for the loss of his few square yards of soil on which he can pass his spare time to such advantage. Whichever aspect one takes of the whole subject one is eventually driven to conclude that mass housing in blocks on a very big and general scale, despite all its material comforts and lack of responsibility, will quickly tend to produce a race of self-contained people having few hobbies, no breadth of outlook, no imagination and no sense of local or national enthusiasm ; a conglomeration of individuals surrounded by standardized fittings of soul destroying utility. Therefore, although flats seem to solve the immediate need for a roof, the urban type of development will, I think, give far better results in the long run to the individual and the nation, and will prevent the people acquiring the herd instinct one usually associates with a flock of sheep. Our biggest danger today is one arising from the bureaucratic control of practically everything which concerns the welfare of the masses, and the concentration of these people in large blocks of flats only tends to make this control more absolute, giving them nothing to strain after, which, after all, is what makes life worth while.

G. C. RUSSELL-ROBERTS
Frinton-on-Sea

Pardon for Carpenters

SIR,—The many temporary structures —grandstands, etc.—which are being erected in connection with the Jubilee have, in accordance with a wise enactment, to be " passed " by the various District Surveyors concerned.

It was not ever thus. In fact, on one occasion in the thirteenth century, an accident had unpleasant results for the sightseers and bade fair to have still more unpleasant results for the carpenters. For a tourney in honour of Edward I and Philippa a gallery was put up, stretching, it is said, across the street, like a tower, in front of Soper Lane—Soper Lane is now gone, and Queen Street is on the site. During the festivities part of it fell down, and the wrathful King ordered the carpenters to be hanged. However, the fair young Queen interceded, doubtless on bended knee, her ladies likewise, and the carpenters lived. As a matter of fact, it was the upper part of the gallery which collapsed, and the ladies sitting there " were with some shame forced to fall down "—apparently on top of the gentlemen below, who, we may be sure, politely begged them not to mention it.

There were no District Surveyors in Edward I's reign. I shudder to think what would have happened to the one concerned if a mere hanging was to be the portion of a carpenter whose work had been " passed."

G. B. J. ATHOE
(Secretary, Incorporated Association of Architects and Surveyors)
London

Beauty in Architecture

SIR,—I read with interest Mr. Campbell Johnston's letter in your issue for March 7, as I did his previous letter which appeared on December 13 last. The argument he puts forward is very old, and is known to, and accepted by all intelligent members of the architectural profession. What Mr. Campbell Johnston has apparently lost sight of is the fact that architects and their assistants are not primarily interested in designing beautiful buildings or in improving the public taste. Their first aim is to make a living for themselves and their dependants.

Under present conditions if an architect tried to force beautiful buildings on his clients, unless he is a man who has already made a name for himself, he would soon be starving. When the general public start to demand beautiful buildings, the architectural profession will be ready to design them, but meanwhile to keep the wolf from the door we must keep churning out those " monstrosities " which catch the popular fancy.

CAUTIOUS
Cardiff

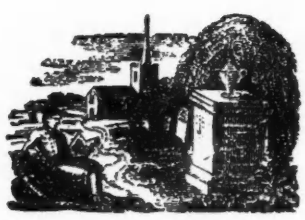
Hot Water in Council Houses

SIR,—Mr. P. F. School has raised a problem too long overlooked by housing authorities, but I do not think the architect can be held responsible for these inconvenient sanitary arrangements, the reason that the primitive hand-pump and copper continue to be installed being surely a matter of price.

On the other hand, it may interest Mr. School and be of service to housing authorities and architects to know that the Coal Utilisation Council is paying very special attention to the development of adequate hot-water systems for council houses at an economic cost for installation and maintenance, and that by co-operation with the manufacturers of heating appliances it is hoped to present in the near future several economic alternatives to the system of which Mr. School complains.

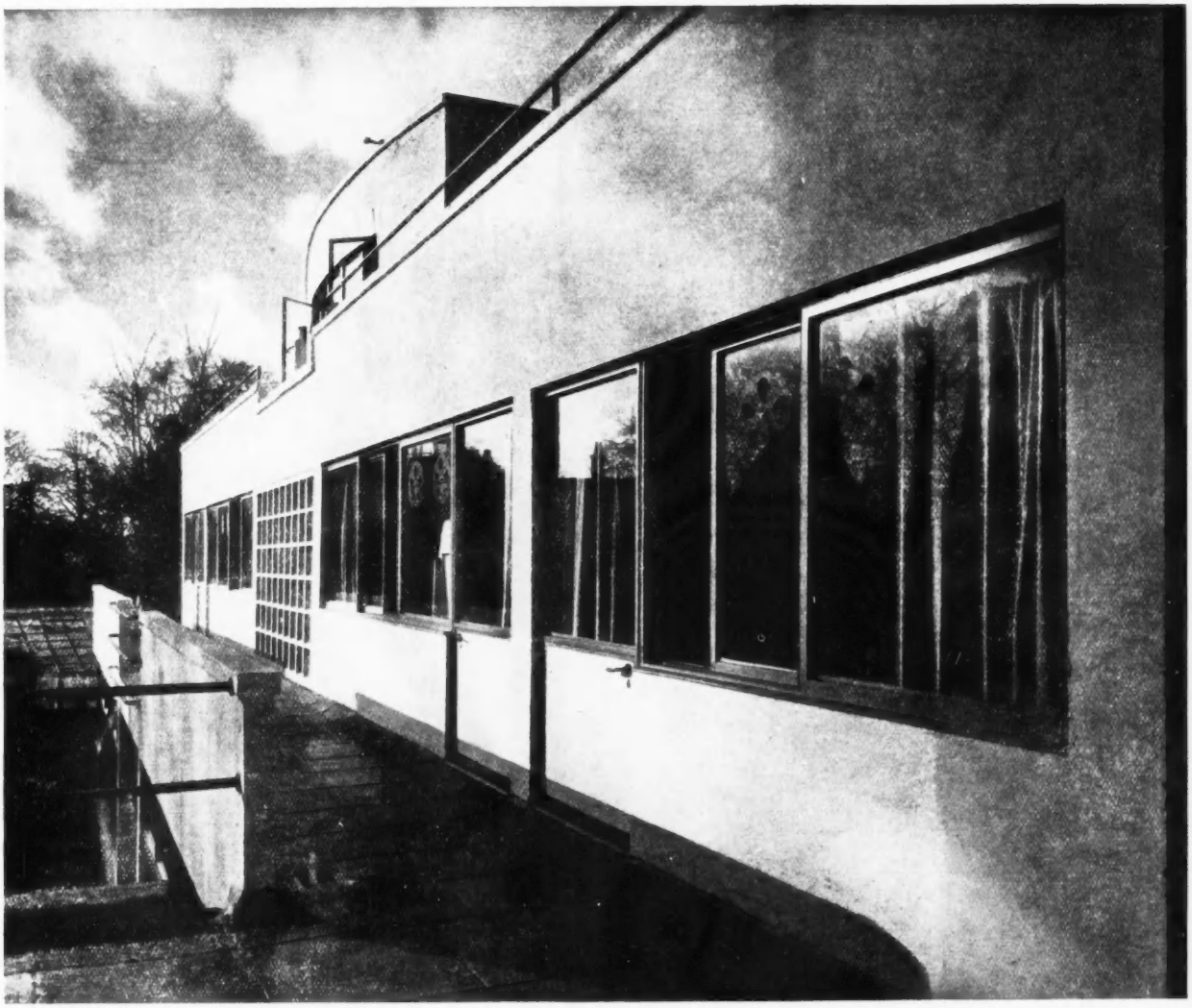
The Council is already in a position to give much assistance in similar problems, and this service is freely at the disposal of all interested parties.

RAYMOND WALKER
(Architects' Branch, Coal Utilisation Council)
London



WORKING DETAILS : 235

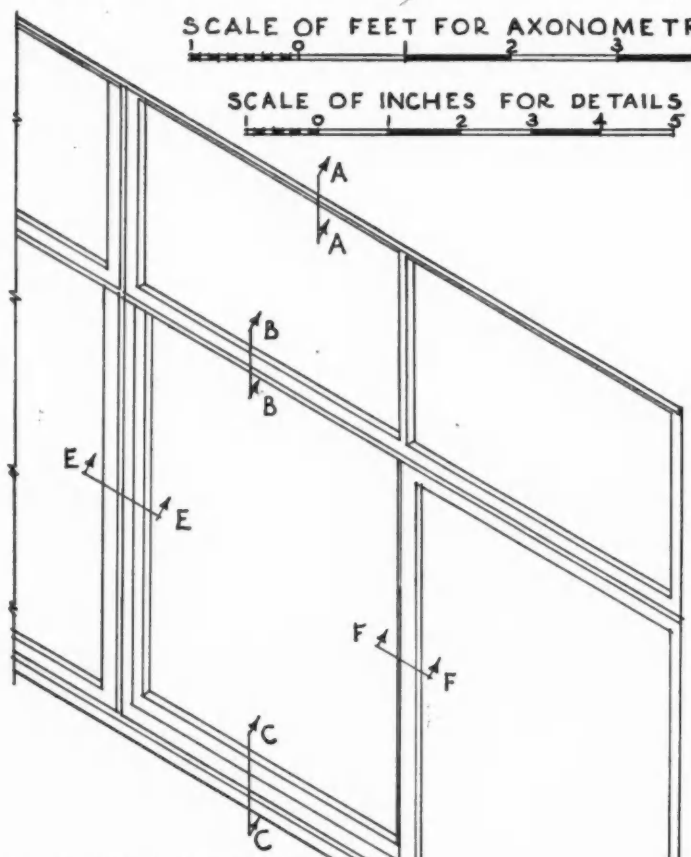
SLIDING WINDOWS • HOUSE AT SYDENHAM HILL • HARDING AND TECTON



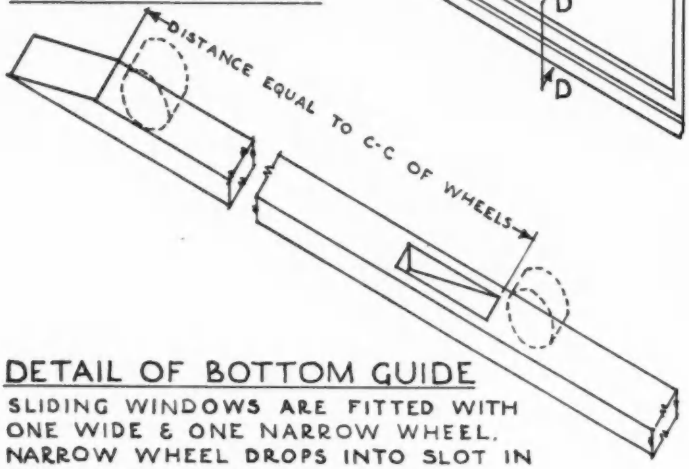
These sliding windows are carried on two fibre rollers of unequal widths ; the rollers running on a square section bar with a taper at one end and a narrow inclined slot at the other. When closed, the window is virtually hanging from the tapered bronze weather strip at the top (see section B-B overleaf) but as soon as the window is moved, the rollers run up their inclined planes and the window is thus lifted and becomes free to slide easily. It is essential for the roller at the closing edge to be made larger in order that it may pass over the slot for the smaller roller : see detail of bottom guide.

WORKING DETAILS : 236

SLIDING WINDOWS • HOUSE AT SYDENHAM HILL • HARDING AND TECTON



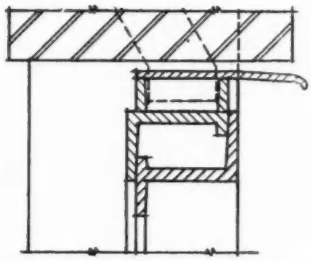
AXONOMETRIC OF PART OF WINDOW



DETAIL OF BOTTOM GUIDE

SLIDING WINDOWS ARE FITTED WITH ONE WIDE & ONE NARROW WHEEL. NARROW WHEEL DROPS INTO SLOT IN BOTTOM GUIDE WHEN WINDOW IS CLOSED.

SECTION AA

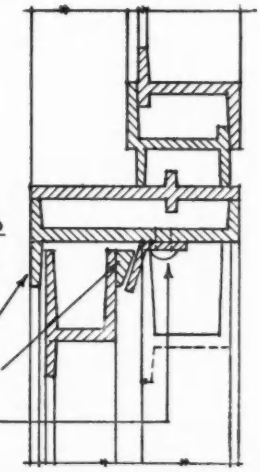


SECTION BB

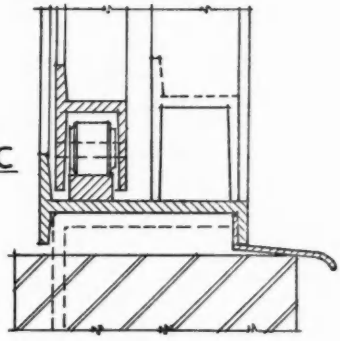
LEG MACHINED OFF BEHIND FAST PORTION

BRONZE STRIP

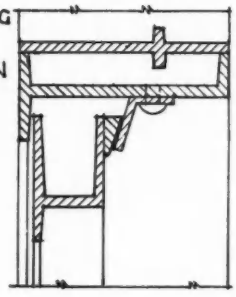
ADJUSTABLE



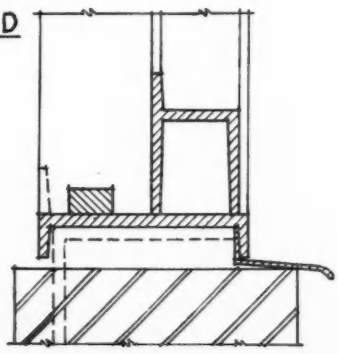
SECTION CC



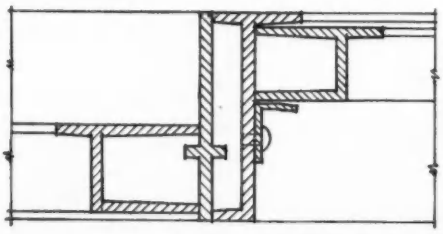
DETAIL SHOWING POSITION OF WINDOW WHEN CLOSED



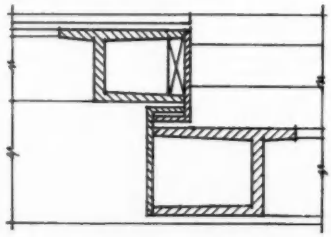
SECTION DD



SECTION EE



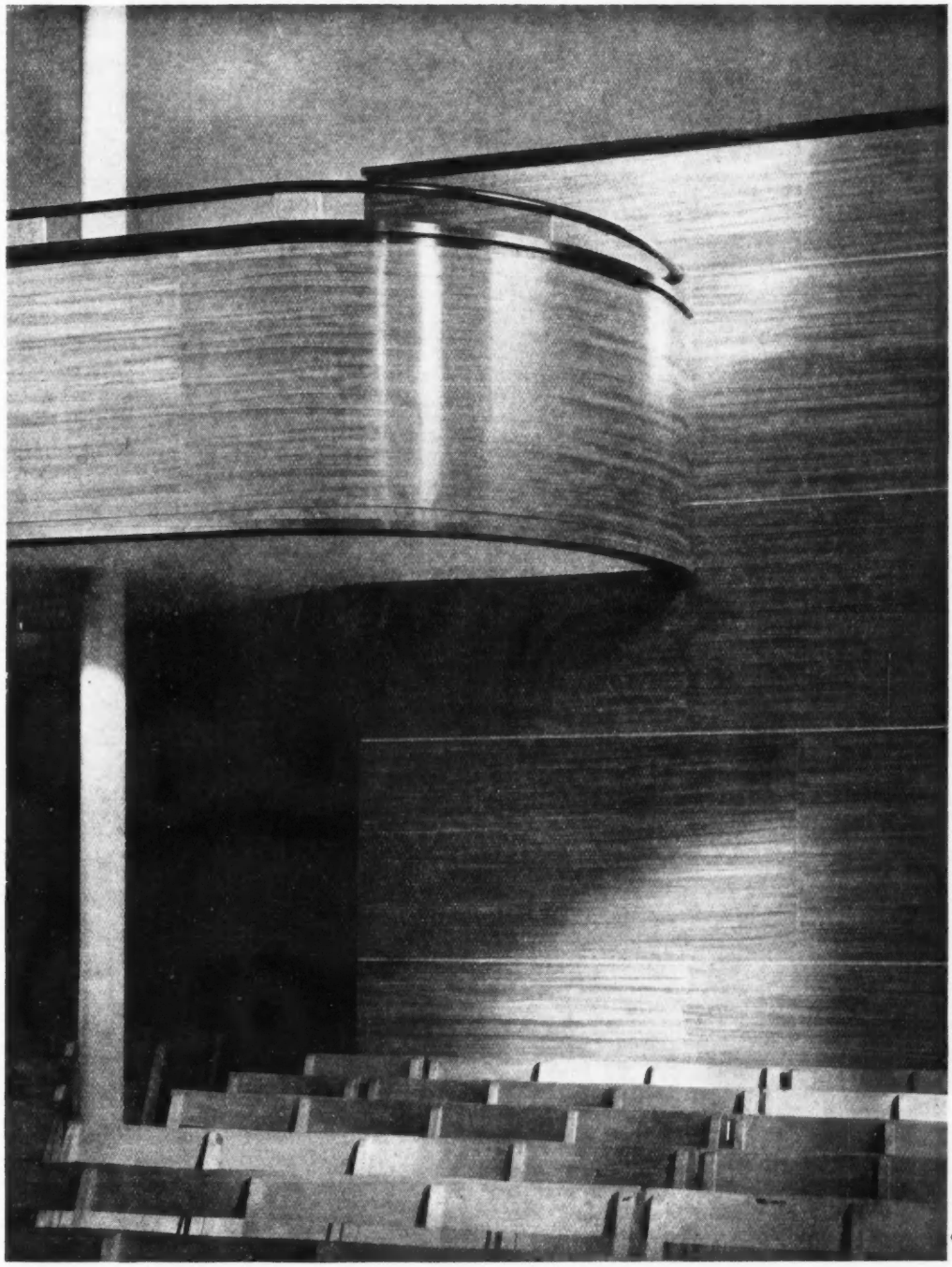
SECTION FF



Axonometric and details of the sliding windows illustrated overleaf.

WORKING DETAILS : 237

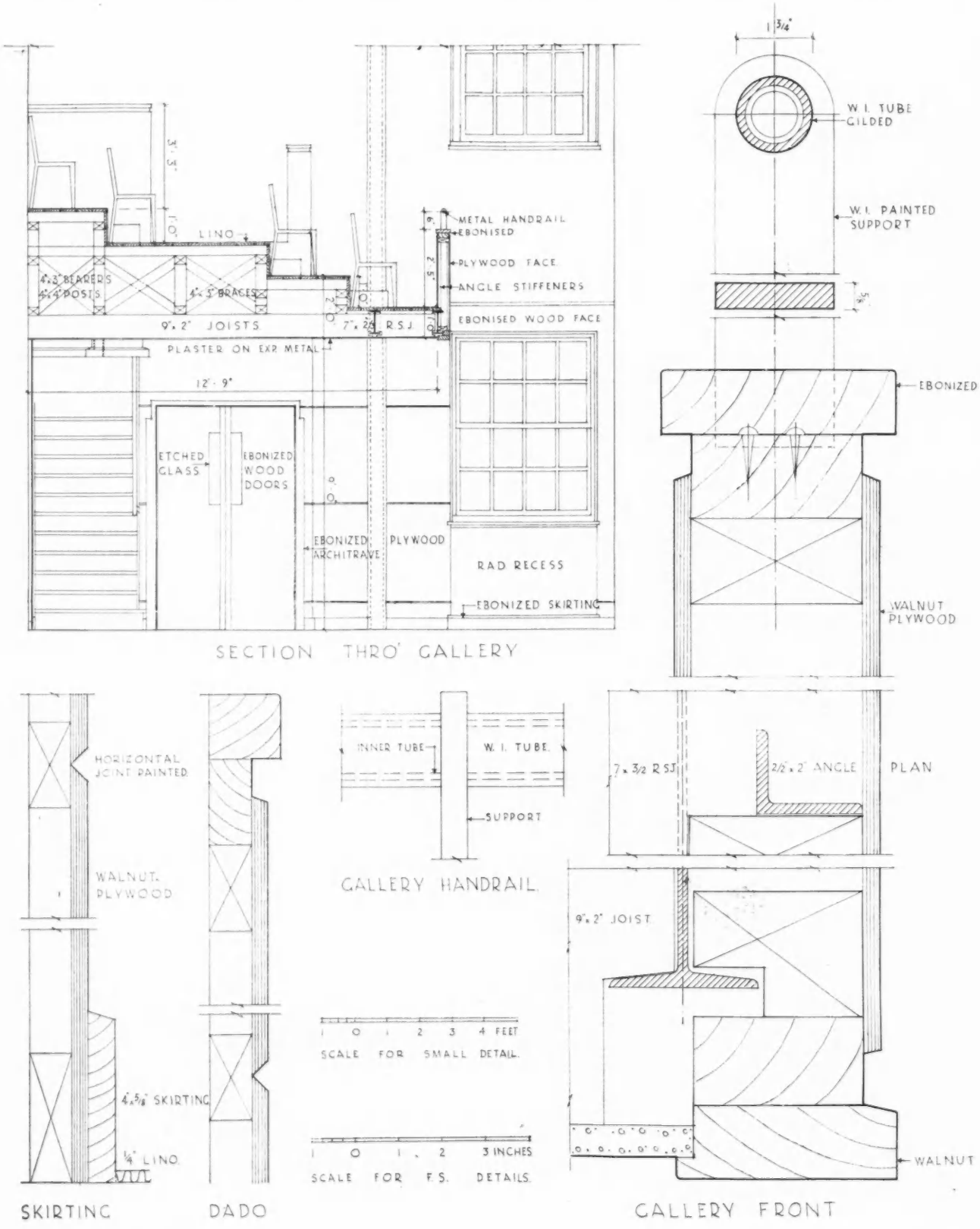
GALLERY • NORTH GATE HALL, OXFORD • SIR JOHN BURNET, TAIT AND LORNE



This gallery was adapted from an existing building, the old hollow cast-iron columns being replaced with solid steel shafts of smaller dimensions. The old front was faced with plywood veneered in Australian walnut with an ebonized capping. The drawings overleaf show a section of the gallery construction and details of the joinery work and handrail.

WORKING DETAILS : 238

GALLERY • NORTH GATE HALL, OXFORD • SIR JOHN BURNET, TAIT AND LORNE



Section and details of the gallery illustrated overleaf.

DREAMLAND CINEMA, MARGATE

DESIGNED BY

J. B. ILES

IN ASSOCIATION

WITH LEATHART

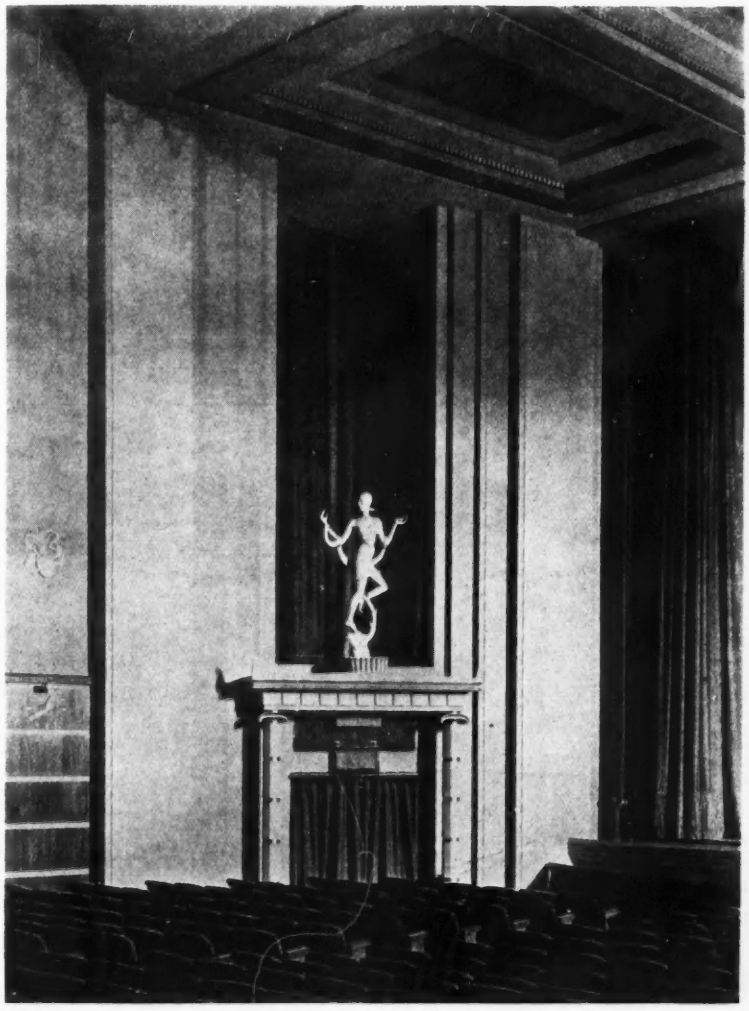
AND GRANGER

This new building, consisting of public and saloon bars, first floor café seating 300 overlooking the sea, and restaurant seating 500 with a central kitchen, still rooms and serveries connecting both and a cinema seating 2,050, replaces existing bars and restaurant and the old "Hall by the Sea." The café, bars, and restaurant were illustrated in this JOURNAL *for June 14, 1934, and the cinema here shown was opened a fortnight ago.*

The building is a steel-framed structure with 13½ in. external brick panel walls. Owing to the nature of the sub-soil the weight of the building is taken by situ-cast concrete piles, on to which the load is distributed by steel concrete-cased bressumers. Cellular bricks are used throughout to reduce steel sizes and loading on the piles, the walls being faced externally with cellular rustic bricks, laid in English bond in blue lias lime mortar.

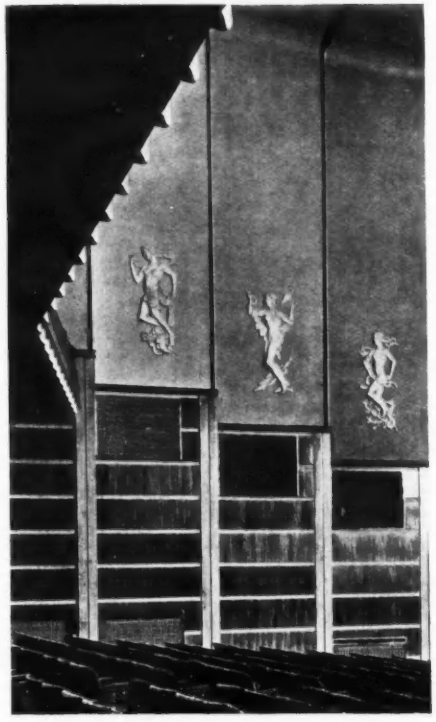
The elevations have been designed primarily as a background for permanent publicity both by day and night, and the provision of an arresting nocturnal effect has been an important factor in the disposition of the wall planes and salient lines which are floodlit from concealed sources and outlined with coloured neon tubing. The illustrations on this page show two views of the auditorium and a detail of the principal front, which contains the main entrance to the whole building.



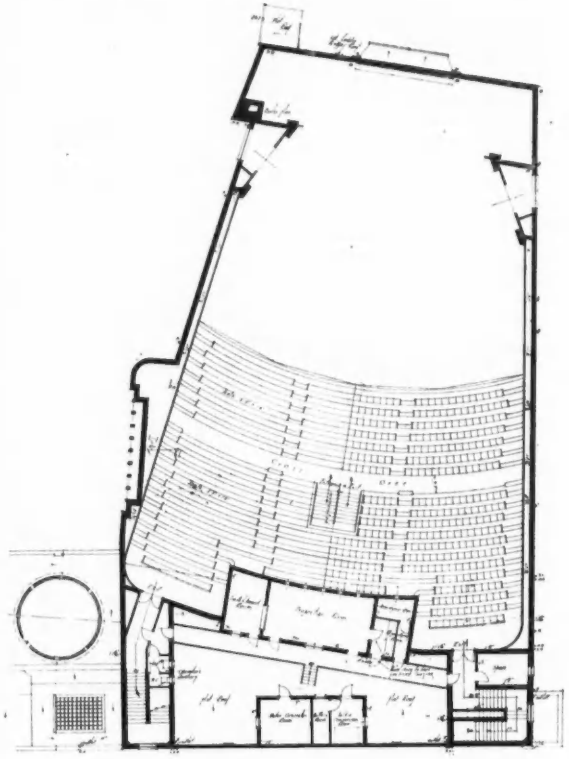




DREAMLAND CINEMA, MARGATE



On the left is a detail of one of the side walls of the auditorium: the dado is veneered in Australian walnut and silky oak, and is designed to act primarily as a sound reflector.



BALCONY FLOOR PLAN

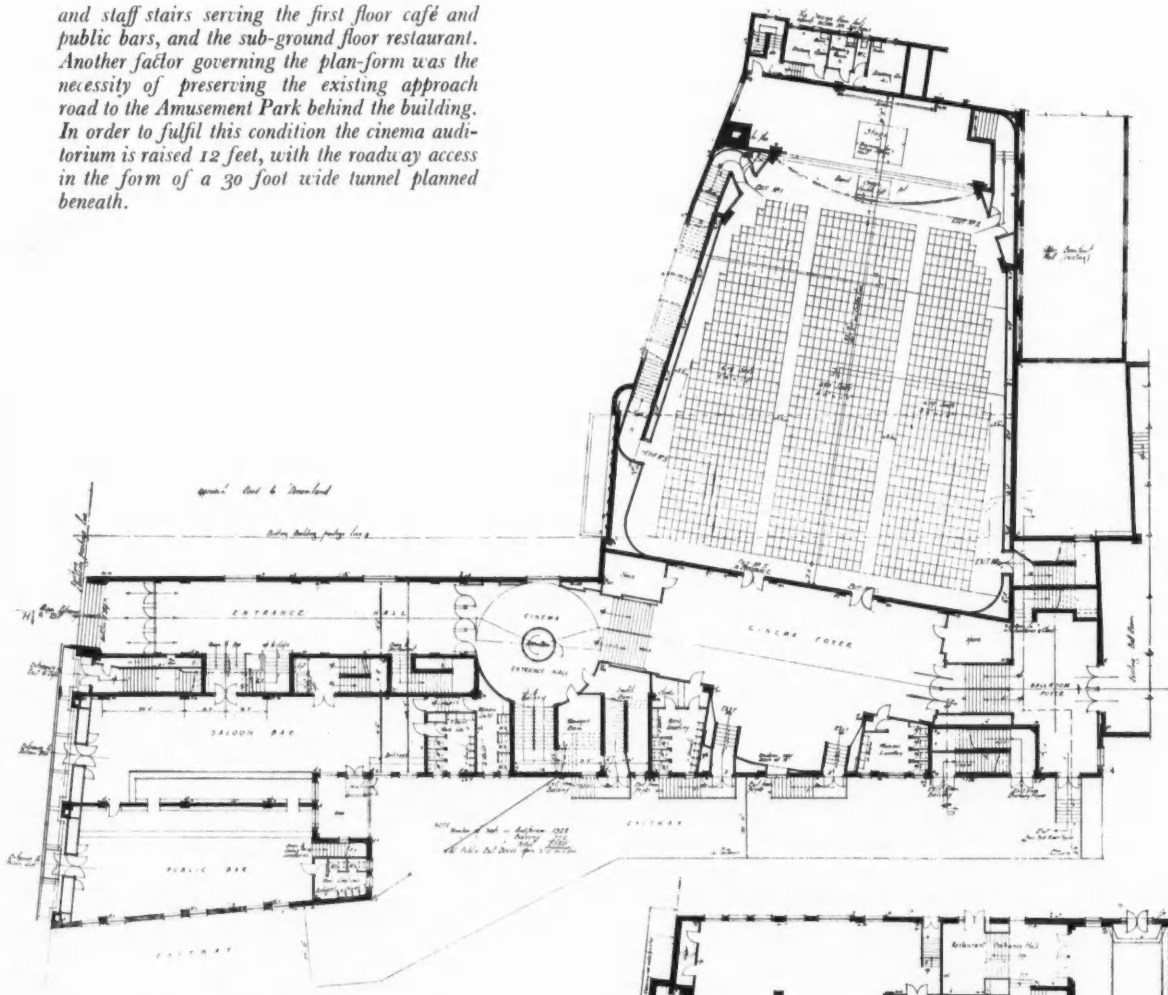
CAFÉ AND BALCONY FOYER PLAN

The replanning programme contained many inherent problems which made a workable building difficult of achievement. From one common entrance on the sea front all the departments previously enumerated had to be approached and, in addition, the existing ball-room at the rear of the new building had to be linked up with the new scheme.

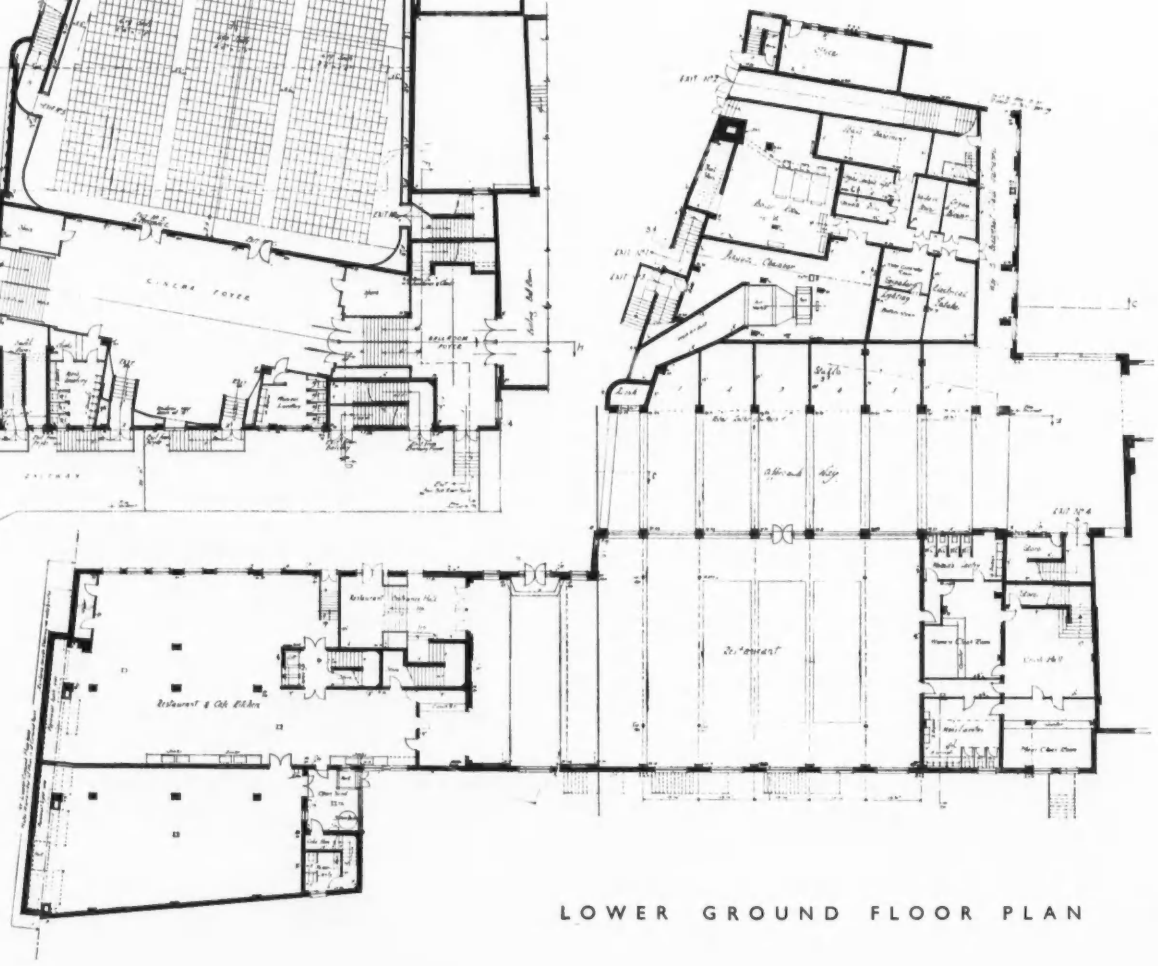
Each department is directly approached from the main entrance on the Marine Terrace front, leading to a circular entrance with which the cinema and ball-room foyers connect. The total length of the hall and foyer approaches is 250 feet. At the side of the front entrance hall, and parallel with it, are planned all the public

and parallel with it, are planned all the public

and staff stairs serving the first floor café and public bars, and the sub-ground floor restaurant. Another factor governing the plan-form was the necessity of preserving the existing approach road to the Amusement Park behind the building. In order to fulfil this condition the cinema auditorium is raised 12 feet, with the roadway access in the form of a 30 foot wide tunnel planned beneath.



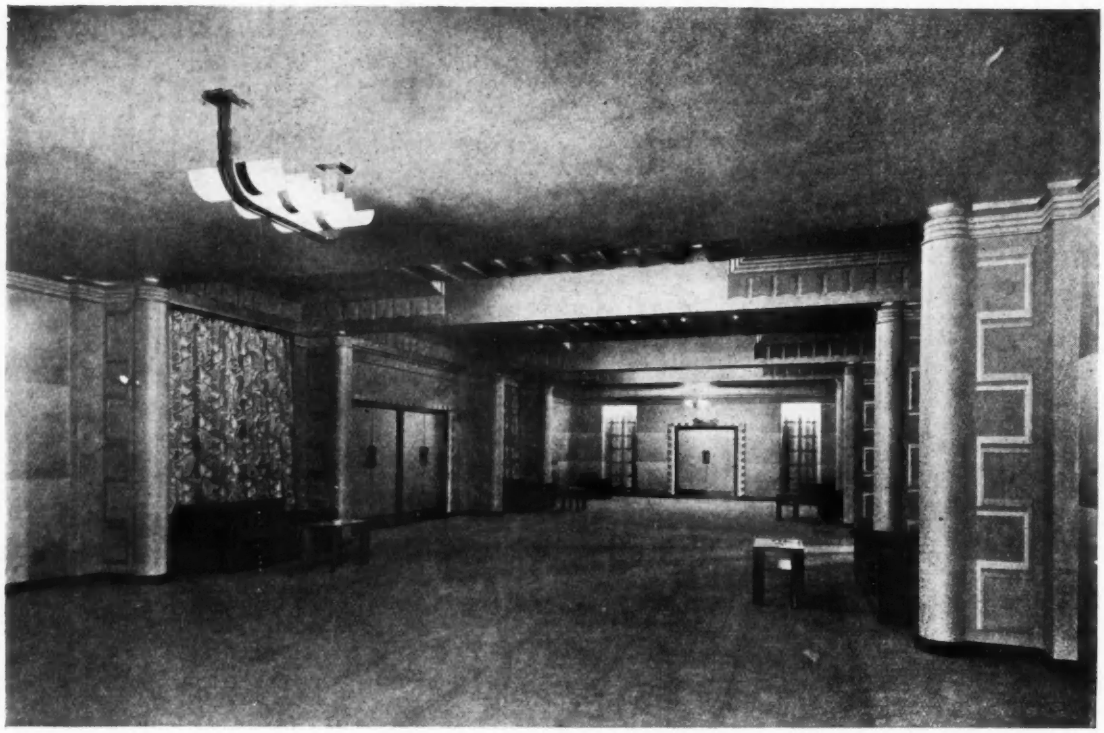
GROUND FLOOR PLAN



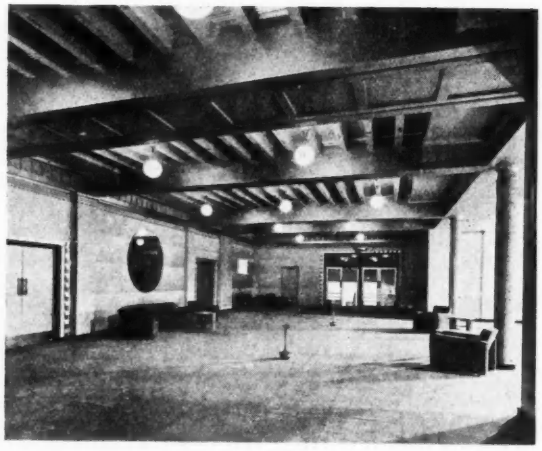
LOWER GROUND FLOOR PLAN

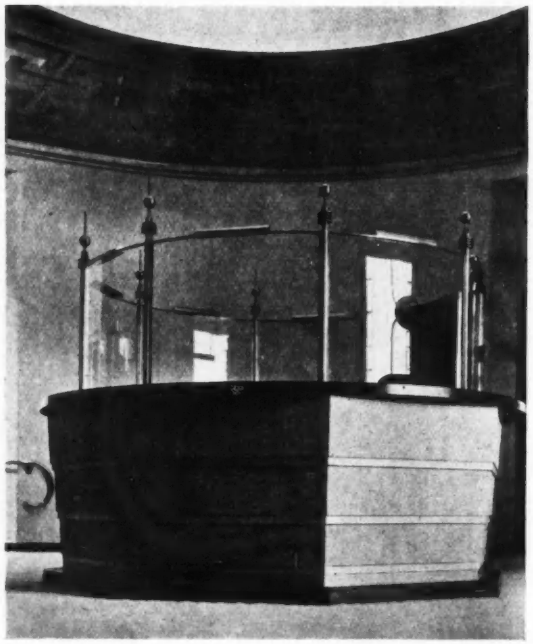
DESIGNED BY J. B. ILES IN ASSOCIATION WITH LEATHART AND GRANGER

DREAMLAND CINEMA, MARGATE



The illustrations on this page show: above, the balcony foyer, right, the stalls foyer, and below, the pay-box in the main entrance hall.





DESIGNED BY

J. B. ILES

IN ASSOCIATION

WITH LEATHART

AND GRANGER

LITERATURE

PLANNING FOR INDUSTRY

[*By PHILIP H. MASSEY*]
B.Sc.(Econ.), F.R.Econ.S.

Transport, Town Development and Territorial Planning of Industry. By F. J. Osborn. London: New Fabian Research Bureau and Victor Gollancz. Price 1s.

IT is a pity that such a great portion of this pamphlet is devoted to rather wild criticisms and such a small portion to proposals for territorial planning. The first few pages persuaded me that the author had a clear appreciation of just what post-war housing has done in this country, and of what it has failed to do. "Since the Armistice two million houses have been built," he says, "over a million of them with State assistance. Undoubtedly the latter are, on the whole, good houses; well-built, solid, permanent houses. Alas! in many cases the better they are, the worse it is; for vast numbers of them have been soundly and immovably built in the wrong places." And, continuing the argument, "Transport has come to be looked on as an end in itself, instead of an instrument for a purpose." I fear that it has, by many. So far, so good. But abuse is piled on fast; the opening generalizations, which are justifiable *as generalizations*, though not as absolutes (which is the way in which most of them are expressed), become wilder and wilder. "The housing and transport experts" are spoken of as though they had all made the same errors. "Once planning comes in," it is stated, "the entire viewpoint will change; because it is probably almost as easy to plan the right thing as the wrong thing." And again, "The public will tolerate anything so long as you canonize it as economic law." And again, "The central Londoner is now practically shut off from access to the country, but he does not mind." If this were true (of course, it is not) it would be a good argument, for a sound democrat, for doing nothing about the matter. And is it sense to talk of "in-bred" Londoners?

References to blocks of L.C.C. flats as "10-storey monstrosities" (without any explanation of why this fairly strong word is considered appropriate), the frequent abusive use of the word "Bloomsbury" (generally associated with other wild phrase-mongering) and other exaggerated denunciations tend to attract the attention and obscure from the reader the real case which Mr. Osborn wishes to put.

Mr. Osborn has some clear-cut proposals for planning machinery, but unfortunately devotes only the last quarter of his pamphlet to these. The most important thing, he urges, is the establishment of a National Industrial and Commercial Siting Board, a permanent body of full-time members with normally long-term appointments, mainly practical administrators approaching the subject from a sociological-economic angle. The board would be controlled by a Minister in matters of fundamental policy, but its particular administrative decisions should not be subjected to the danger of Parliamentary blocking. It would have its own staff and would have at its disposal information already available from Regional Planning Committees, with power to make, or cause to be made, other surveys. It would be empowered to decide where industrial and commercial development should be promoted, where it should be checked, and whence it should, if possible, be removed. The prescription of new towns would be within its scope.

Mr. Osborn suggests that in towns which are already over-centralized, the policy should be to resist re-zoning of dwelling-house areas for any other purpose, except for open spaces. Where over-centralization has begun, no central residential district, he says, returning to his bugbear, should be permitted to be re-developed with an increased average number of families to the acre; for suburban housing, at long distances if necessary, plus transport, is a lesser evil than multi-storey flats. Surely there is something to be said for planning some central areas for industrial and commercial purposes, and others purely for residential purposes, in the big cities, and particularly London?

AMERICAN DELIGHT

[*By H. FITCHEW*]

The Story of England's Architecture. By Thomas E. Tallmadge. London: J. M. Dent and Sons, Ltd. Price 12s. 6d. net.

MR. TALLMADGE (of Chicago) has again drawn his spring-steel pen and plunged it in ink of radiant colours. This English edition—a companion to the same architect's *Story of Architecture in America*—is printed in America (and in American: *mem.*, "the first story" means "the ground floor," and so forth), being addressed to a public the like of which is scarce in this country. He is enraptured with our architectural treasures. A dozen times he finds something "stunning." But "the Englishman is not really very much interested in architecture," he laments.

The serious student may not turn very hopefully to a book that covers so long a period in the compass of 320 pages. He will be pleasantly disappointed. He will find excellent entertainment, some shrewd criticisms and not a few brilliant phrases. "Bath is a sort of Pompeii of eighteenth-century architecture"; "Lichfield is a swell little cathedral" (with what glee the word "swell" is sponsored upon the Oxford Dictionary!); "the parish church is (England's) finest and most ingenuous contribution to the world's architecture"; "pure Classic architecture burst upon England with the verve and freshness of an Apollo suddenly apparent in a feast of rustics."

In the chapter, "The International Style," there is delightful running with the fox and riding with the hounds, as the author puts it. . . . "when he (the modernist) claims, as he almost always does, that the art of yesterday was not appropriate to yesterday, his absurdity weakens the entire argument." Yet "the great strength of the Internationalists is that they have a remedy at hand for every one of the ills which they attack." And again, "the experimental structures have cost, so far, more per cubic foot than the old-fashioned, hand-built, brick by brick and nail by nail building. This doesn't condemn the idea, however, because quantity production . . . has not yet been inaugurated."

The last hundred pages of the book, from "The Greek Revival" onwards, representing, increasingly, original research, give the measure of Mr. Tallmadge's ability as a historian. This is rather belied at times by a facetious style, by the "soulful" chapter headings and occasionally flighty picture captions (possibly introduced in an effort to brighten the rather dully printed half-tone illustrations).

As his book aims at instruction, the number of misprints and slight misstatements is regrettable. A preliminary count reveals well over fifty, of which half occur in the lists of architecture given by way of appendix; otherwise, with the architectural map of England, a most valuable feature. One of his English friends might surely have told him that Royal Mail House is not the Post Office, and that the appearance of Guildford Cathedral will not affect the aspect of the Metropolis.

Shorter Notices

Design and Medieval Architecture. By Helen Rosenau, Ph.D. (Hamburg). London: B. T. Batsford. Price 2s. 6d. net.

SO many who write about Gothic architecture are apt to treat the buildings they discuss almost as natural phenomena. They describe the formal appearance of a cathedral as they might that of a mountain, produced by natural forces, or as they might that of a biological specimen, conditioned by the development of functional evolution; and they compare examples only objectively with each other. They pay little regard to the selective influence of the individual—to the personal factor in design which must have been (inside a strong tradition) an extremely important one, obscured now by the anonymity of the designers.

The most interesting aspect of Dr. Rosenau's monograph is that this question of personal (as opposed to merely evolutionary or œcological) determination is recognized as a suit-

able field for research and observation. Her monograph is a scholarly production, the result of personal antiquarian research among buildings as well as documents, thoroughly reinforced with references and interestingly illustrated. Three subjects are dealt with: The Orientation of Churches; Planning and Architectural Design; and the Architect and Architecture, the last being a study of the medieval architect and what is known of his status and methods of work. J. M. R.

The Municipal Year Book, 1935. London: The Municipal Journal, Ltd. Price 30s. net.

THE practice of most architects involves dealings with municipal authorities at one time or another, and for those to whom the way about the complicated paths of local government is difficult to find, this reference book can be recommended. It is a huge and exhaustive reference work, thoroughly cross-indexed, describing the constitution, powers and legal precedents relating to local authorities, national, urban and rural. It contains 1644 pages. This year's issue has a special foreword by the Ministry of Transport to the Roads and Transport section.

Publications Received

Philip Webb. By W. R. LETHABY. Oxford: The University Press. Price 6s. net.

Laxton's and Lockwood's Builders' Price Book. Edited by P. T. WALTERS. London: Kelly's Directories, Ltd. Price 10s. 6d. net.

Architects' Specifications—How To Write Them. By GOLDWIN GOLDSMITH. New York: John Wiley and Sons, Inc. London: Chapman and Hall, Ltd. Price 12s. 6d. net.

The Slum—Its Story and Solution. By HARRY BARNES. Hampstead: The Mill Press. Price 3s. net.

Practical Designing in Reinforced Concrete. Part 3. By M. T. CANTELL. London: E. and F. N. Spon, Ltd. Price 12s. 6d. net.

Why Piccadilly. By E. STEWART FAY. London: Methuen and Co., Ltd. Price 7s. 6d. net.

Standard Tables and Formulæ for Setting Out Road Spirals. By A. THOM. London: Sir Isaac Pitman and Sons, Ltd. Price 2s. 6d. net.

The Cathedrals of Normandy. By JOCELYN PERKINS. London: Methuen and Co., Ltd. Price 8s. 6d. net.

Specifications for Building Works. By WILFRED L. EVERSHED. London: Sir Isaac Pitman and Sons, Ltd. Price 5s. net.

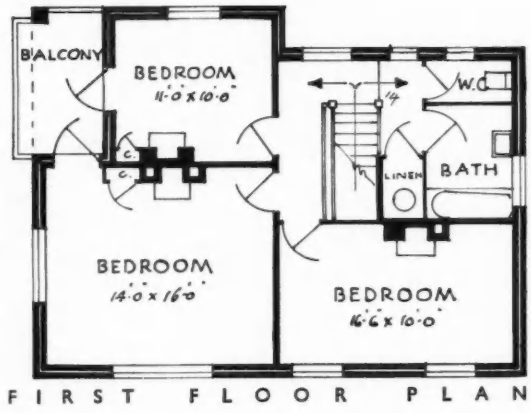
Design for Transition. By JOSEPH THORP. London: Jonathan Cape, Ltd. Price 3s. 6d. net.

HOUSE AT GILWERN

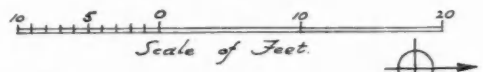


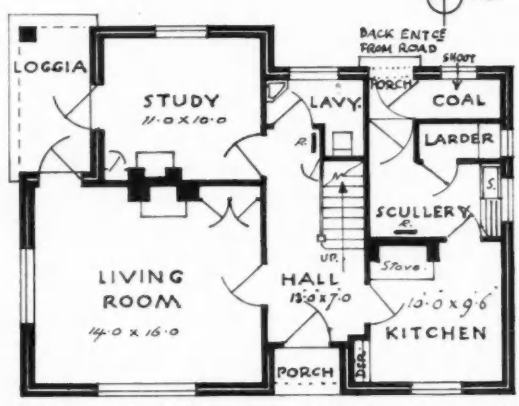
This house is built on a hillside near Abergavenny, overlooking the valley of the Usk. It is of 11 in. brickwork covered with rough-cast, colour-washed in a cream colour. The roof is of blue Welsh slates. Standard steel windows are used, in wood surrounds. Inside there are oak block floors in the living-room and study and 9 in. square quarry tiles elsewhere on the ground floor. The contract price, including a boiler in the kitchen for cooking and heating and serving two radiators, was £820.

DESIGNED BY T. ALWYN LLOYD



FIRST FLOOR PLAN





GROUND FLOOR PLAN

HOUSING SUPPLEMENT : 9

This, the ninth of our series of HOUSING SUPPLEMENTS, *is devoted to the Census volume entitled "Housing: Report and Tables," recently published by H.M. Stationery Office (price 6/6). It comprises tables and commentary which would have been distributed between the "General Tables" and "General Report" had the practice of former occasions been followed. The assembling of housing information into a special volume represents a new departure. The housing statistics presented are confined to people in "private families." "Private families" contain 95¼ per cent. of the population. The contents consist of a Report, occupying about sixty pages, and Tables, occupying about ninety. The Report itself is illustrated by a number of short tables, summarizing the more detailed statistics. A number of special points of interest, contained in the Report, are to be given attention, in the form of brief notes, in future issues of the* JOURNAL.

CENSUS OF ENGLAND AND WALES

SPECIAL VOLUME ON HOUSING

[*By PHILIP H. MASSEY*]
B.Sc. (Econ.), F.R.Econ.S.

In order that readers may not be confused by certain of the references below, it may be explained that the pages and tables in the Report are designated by Roman numerals, and the pages and tabular matter in the "Tables" by Arabic numerals. Another point that might give rise to difficulty is explained by the fact that statistics which are given in exact form in the Tables are often approximated (e.g. to the nearest thousand) in the text of the Report. In taking matter from the two respective parts of the volume and welding it into one narrative, I have used whichever figure was given in the section to which I was referring at the time. Most of the material is, in fact, from the Report.—P. H. M.

INTRODUCTION

THE first part of the Report consists of a single chapter, dealing briefly with the methods of the 1931 Census of England and Wales, and the thirteen which preceded it, and emphasizing the changes in 1931 procedure and tabulation. These were not so important as the 1921 changes, for it was in that year that the term "structurally separate dwelling" was first used, in place of the ambiguous and uncertain "house." The definitions used, and further details of instructions given to enumerators, are set out. The most important innovation of the 1931 Census was the differentiation of furnished and unfurnished vacant dwellings.

THE COMPONENT ELEMENTS—STRUCTURALLY SEPARATE DWELLINGS AND PRIVATE FAMILIES

INCREASE AND SIZE-DISTRIBUTION OF STRUCTURALLY SEPARATE DWELLINGS

A table is given showing the total number of "houses" (1801-1911) and "structurally separate dwellings" (1911-1931) in England and Wales, together with the intercensal increases. The absolute intercensal increase in the number of houses or dwellings, it appears, was far greater in 1921-31 than ever before, but the *proportional* increase not so great as in 1821-31 or 1831-41. Expressed "per 1,000 of population at beginning of intercensal period," however, 1921-31 leads.

The structurally separate dwellings enumerated in 1931 are classified for the country as a whole and for its major divisions in Table 1 and are treated in various comparative analyses in Tables 2, 3, 4 and 5.

Table 1 shows Dwellings, Rooms and Families for England and Wales, Urban and Rural Aggregates, Regions and the Administrative County of London. In England and Wales there were in 1931 9,399,535 structurally separate dwellings, of which 9,123,279 were occupied and 276,256 vacant (115,096 being furnished and 161,160 unfurnished). 10,233,139 private families lived in these dwellings.

It can be seen that the "shortage" of dwellings can be taken as either

private families less total of structurally separate dwellings, i.e. 833,604,

or private families less structurally separate dwellings occupied or furnished, i.e. 994,764,

or private families less structurally separate dwellings occupied, i.e. 1,109,860.

Leaving out of account, as we must, the question of *quality* of accommodation, it seems that investigators who have used the largest of these three figures as an absolute measurement of the deficiency of dwellings have gone astray. *The middle one is probably the best indication*, if this method, which leaves out of account overcrowding within the dwelling, is to be considered of any value at all.

Table 1 also shows, for England and Wales, the number of structurally separate occupied dwellings of one, two, three, . . . fourteen rooms and the number of fifteen rooms or more, together with the number of dwellings of each type occupied by one, two, three, . . . nine, and ten or more private families. For the various divisions above, the analysis of family occupation is less detailed, the tables showing dwellings of each type occupied by one, two, three and four or more private families.

From this table it can be seen, for example, that there were in England and Wales, at the date of the Census :—

2,321,758 four-room dwellings occupied (1 by six families, 10 by five, 721 by four, 4,020 by three, 82,977 by two, the remainder by one)

and similarly for dwellings of other sizes.

Similar figures for the regions, etc., as shown above, are also given. It can be seen, for example, that there were 66,839 eight-room dwellings occupied in the Administrative County of London, that 7,984 of these were occupied by four or more private families, 16,701 by three, 22,864 by two, and 19,290 by one ; that there were in addition 298 furnished and 889 unfurnished dwellings of this size in the area, making 68,026 dwellings of eight rooms occupied or vacant ; and that 150,164 families lived therein.

The variations in the degree of housing shortage between different regions, brought out by this table, deserve detailed study, as bringing light to bear on the degree of "dereliction" of certain areas. It is important, however, to realize that figures for a whole region, like averages for a whole country, may conceal great inequalities. An apparent small surplus of accommodation over a large area may be made up of considerable surpluses in some areas and serious deficiencies in others. As noted below, however, Tables 5 and 14 enable one to take a more detailed view of the situation.

Table 2 shows the "Comparative Distributions of Occupied and Vacant Dwellings" in England and Wales as a whole, and for the urban and rural aggregates, regions, etc., as in Table 1. We can see from this table how many occupied dwellings of different sizes (i.e. numbers of rooms) there are, per 1,000 of occupied dwellings, in each such area, and similarly how many wholly vacant dwellings there are per 1,000 occupied dwellings in each. Thus, to take one outstanding difference brought out by the table :—

the proportion of occupied dwellings of one and two rooms in North I is 166 per 1,000,

compared with 74 in the Administrative County of London, 44 for England and Wales as a whole, 30 for the South-West Region, 26 for the Midland Region, etc., etc.

Table 3 shows, in effect, for regions, etc., as above, where the excess families are located. The 1,109,860 private families in excess of structurally separate dwellings occupied are split up to show the number of private families in excess of the number of dwellings occupied, in each such region and in each type of dwelling. Thus,

there were 297,280 excess families in occupied six-room dwellings, of which 113,116 were in the Administrative County of London, and 208,221 in the South-East Region (which includes, of course, the Administrative County), etc.

Table 4 is a summary comparison of the position as to Dwellings, Rooms and Families in 1921 and 1931, by regions, etc. It shows the intercensal increase or decrease in

(*a*) the number of occupied dwellings of different sizes ;
(*b*) the proportion of dwellings of different sizes to the total of occupied dwellings ;
(*c*) rooms occupied and private families, by number and by proportion ;
(*d*) excess of private families over occupied dwellings of different sizes.

It is interesting to note that the absolute number of occupied dwellings of nine rooms or more decreased over the intercensal decade by over 30,000, and that the only region in which an increase was recorded was the Administrative County of London.

Table 5 gives information, under twenty-five heads, in respect of England and Wales, Urban and Rural Aggregates, Regions, etc., *and in respect of each Administrative County, County Borough and Metropolitan Borough.*

The information presented comprises :—

Actual number and proportion per thousand of occupied dwellings of one to three rooms, four and five rooms, six to eight rooms, nine or more rooms, and total of occupied dwellings ;
Increase or decrease, actual and per thousand, in number of occupied dwellings, 1921-31 ;
Number of wholly vacant dwellings per thousand occupied, 1921 and 1931 ;
Number of rooms occupied by private families (1931) ;
Number of private families in 1931 and the intercensal increase or decrease ;
Excess of private families over dwellings occupied, 1921 and 1931 ;
Average number of rooms (occupied and vacant) per occupied dwelling, 1921 and 1931 ;
Average number of private families, and of persons, per occupied dwelling, 1921 and 1931.

Thus in four foolscap pages is contained a conspectus of housing conditions in each chief administrative area in England and Wales.

Table II of the Report analyses the dwellings of 1931 by size (i.e., room content) and compares these with those of 1921. It can be seen that the movement has been as follows :—

95,000 additional dwellings of one, two and three rooms ;
1,055,000 additional dwellings of four and five rooms ;
300,000 additional dwellings of six, seven and eight rooms ;
29,000 *less* dwellings of nine rooms or more.

1,421,000 additional dwellings of all sizes.

Four and five-room dwellings accounted in 1931 for 52·6 per cent. of all the dwellings in the country, and dwellings of three rooms or less for 15·4 per cent.

VACANT DWELLINGS

The total number of vacant dwellings in England and Wales at the date of the 1931 Census was 276,256, of which 115,096 were furnished (and, according to the Report, "normally, therefore, in occupation on the return of a temporarily absent occupier"). 161,160 "appeared to be tenantless and available as surplus housing accommodation."

A table showing the proportion of vacant dwellings to all dwellings in each room-size category brings out the fact that the unsatisfied demand for dwellings appears to have been highest in respect of four-room and five-room dwellings, despite the fact that more than half of the dwellings in the country are either of four or of five rooms, and that more than two-thirds of the increase of the intercensal decade has been in dwellings of this size.

INCREASE AND SIZE-DISTRIBUTION OF PRIVATE FAMILIES

10,233,139 "private families" were enumerated at the Census, an increase of 1,493,942 over the number in 1921. The rate of increase in the number of private families, over the intercensal decade, was more than three times greater than the rate of population increase, and slightly greater than the number of additional dwellings.

The Report notes :—

> "The disparity between the movements in families and population is not without significance in the present study since it is the frequency and distribution of families which primarily govern housing demands ; and it is important to observe, therefore, that movement in families may be very different from movement in population and that the latter may be a wholly insufficient or even misleading criterion in regard to housing requirements."

Families are analysed, for the country as a whole and for regions, etc., in Table 6, and following tables. The most important aspects of the distribution of families by size are brought out, however, in the text of the Report itself.

It is shown that the family of *three* is the most frequent. Out of 10,233,000 families there were :—

689,000 of one person	747,000 of six
2,240,000 of two	422,000 of seven
2,460,000 of three	214,000 of eight
1,980,000 of four	112,000 of nine
1,271,000 of five	98,000 of ten and over

So much for the "typical family" of man, wife and three children. It is, perhaps, worth noting that the families of three were the largest group in 1921, and 1911, as well as 1931, though their predominance was greater at the last date than before.

The average size of the private family was 4·36 persons in 1911, 4·14 in 1921, and 3·72 in 1931. The movement in the two intercensal decades has been qualitatively similar, but has accelerated.

It is emphasized that the distribution of family-sizes is so wide that an impression produced by the mean or average may be misleading.

Some important notes follow :—

(*a*) Pointing out that since families are in a constant flux, even if all families proceeded to and from the same maximum, they would fall, in the census record, into different categories of size. (The implication of this needs to be borne in mind by anyone planning for housing sufficiency, unless it is considered that a family should remove whenever the number of persons in it changes.)

(*b*) On the question of cohesion of family groups, and the lodger.

It is pointed out that the disturbances of the War years and Old Age and Widows' Pensions, etc., have caused a considerable increase in the number of one and two person families.

ABNORMAL CHARACTER OF THE 1921 PRIVATE FAMILY SITUATION

An excellently reasoned statistical investigation gives ground for the belief, expressed in the Report, that a large proportion of the additional families recorded as having come into existence during 1921–31 actually came into existence in 1911-21. The abnormal housing conditions of 1921 brought about a situation in which a considerable number of members of existing families continued to live in the same dwellings as their relations, though they would have set up their own households if accommodation had been available. A real deficiency was thus hidden.

It is considered that there *may* have existed in 1931 some "accumulated arrears of new family growth not released by the provision of new houses."

HOUSING OF PRIVATE FAMILIES

"Structurally Separate Dwellings" and "Private Families" having been examined successively in Part II, the combination is dealt with in Part III.

HOUSING CONDITIONS AS EXPRESSED BY DENSITY STATISTICS

The main statistical analyses relevant to this section are Tables 1 and 6 ; the former, which shows how many family-occupations are structurally separate dwellings and how many are in dwellings of multiple occupation, has already been mentioned.

Table 6 analyses families of each size according to the number of rooms each family occupies. Thus, we can see the number of families consisting of one, two, three, four, etc., persons living in one room, in two rooms, three rooms, and so on, in England and Wales as a whole, and in the urban and rural aggregates, regions, etc., as previously.

Table 6 is not in a convenient form for the examination of relative housing conditions. An arrangement which classifies the families according to the number of persons to the room is therefore adopted in the Report.

Thus we see that there were in 1931

24,000 *families* living over four persons per room
32,000 living at four persons per room
56,000 living at or over four persons per room
29,000 living under four and over three persons per room
85,000 living over three persons per room
98,000 living at three persons per room
183,000 living at or over three persons per room ;

and so on.

397,000 families were living more than two persons per room, and a further 395,000 at two

persons per room ; making 792,000 families living at or over two persons per room.

A further 382,000 families were living at between one-and-a-half and two persons per room, making 1,174,000 families living over one-and-a-half persons per room.

Since a very large proportion of severely overcrowded families are large families, the above figures give a more favourable impression than statistics on similar lines relating to persons. The 56,000 families living at or over four persons to the room, for example, form only 0·5 per cent. of all families, but these 56,000 families contain 331,000 persons (0·9 per cent. of all persons). Similarly the 85,000 families living over three persons per room represent 566,000 people.

Altogether

565,869 people were living over three per room

2,074,325 at three and over two

4,446,940 at two and over one-and-a-half,

making a total of 2,640,194 living over two per room, and 7,087,134 (18·6 per cent. of all persons in private families) living over one-and-a-half per room.

It is notable that the number of families living over four persons per room increased from 15,000 in 1911 to 24,000 in 1931, and that the total of families living at and over three persons per room increased from about 163,000 in 1911 to 183,000 in 1931. In the last decade, however, the numbers in the "under four and over three" and "at three" groups have been reduced considerably. The Report notes that "the adverse feature of the returns is the persistent and unyielding continuance of the small class embracing families housed at the incredibly bad densities of four or more persons per room."

While the number of families living under conditions of the most extreme overcrowding increased slightly between 1921 and 1931, the number of families living more than two persons per room declined from 497,000 to 397,000.

DENSITY STATISTICS AS AN EXPRESSION OF OVERCROWDING PROPER

A special investigation of

(*a*) the 95 wards in the Administrative County of London in which the overall density average in 1921 exceeded 1·25 persons per room ;

(*b*) Camberwell Metropolitan Borough ;

(*c*) Sheffield County Borough,

was planned in the course of preparing the Census, and yielded extremely valuable information of a new kind.

Construction of a "Census Standard" of Overcrowding

The rules adopted for assessing housing needs were :—

(i) For the family as a whole there must be an overall average of at least one room per 2½ equivalent adults (children under ten years counting as ½). Subject to this *overall* average, any room may be required to sleep three, but not more, equivalent adults.

(ii) The number of rooms must enable sex separation for persons over ten years, other than those living as husband and wife, who are deemed to require a separate room shareable only with children. Children under ten years may sleep in any room, with or without adults.

(iii) A separate living room is to be regarded as necessary where the standard number of sleeping rooms is less than half the total *persons* (not equivalent adults) in the family. Not more than one separate living room to be allowed in any case.

The size and character of rooms could not, of course, be taken into account.

Application of "Census Standard" to London and Sheffield data

The analysis was confined to families living in less than eight rooms. In Camberwell there were 65,774 such families (population 230,250) ; in the 95 London wards selected (which included six in Camberwell) there were 334,326 such families (population 1,238,743) ; in Sheffield 125,152 (477,576).

Seven statistical tables, designated A to G, are devoted to these special surveys.

First, in Table A, the number of families of each type in Camberwell and Sheffield are stated (e.g., 10,692 Camberwell families consisted of a married couple only, 4,863 Camberwell "families" were single females of over ten years, etc., etc. Several hundred types of family, and the numbers of each type in each of these areas are thus enumerated). In the same table, the numbers of rooms occupied by families of each size, *and of each type*, are stated.

The importance of utilizing statistics such as these, where they are available, and compiling them where they are not, before embarking on rehousing plans, should need no emphasis.

Table C compares the actual occupations with the "Census Standard" occupations, and shows the number of families of each size whose accommodation is sub-standard, on the basis used.

On the basis of the details brought out in Table C (and adding in the super-standard families living each in eight or more rooms) the following summary table is compiled :—

	Camberwell	*Sheffield*	95 *London Wards*
Families above Standard	50,485	109,139	166,716
Families at Standard	13,976	14,693	118,456
Families below Standard :—			
1 room deficiency	3,340	4,698	41,274
2 room deficiency	579	797	9,218
3 room deficiency	53	68	929
4 room deficiency	2	1	35
Total Number of Families	68,435	129,396	336,628

Thus slightly less than half the families in the 95 London wards were living above the standard, and over 15 per cent. were sub-standard. Of these latter, almost one-fifth were two or more rooms deficient.

It is pointed out in the Report that the proportion of families deemed sub-standard in these three "areas" on the basis adopted is extremely close to the proportion of families in which persons were living at more than two persons per room. The importance of this correlation having been realized, it was nevertheless appreciated that the overall correlations might mask considerable discrepancies in smaller subdivisions. The 95 London wards were therefore taken individually, together with each of the 44 in Camberwell and Sheffield. *The results of this analysis are shown in Tables E and F, and these results*

> "*establish beyond question that this correspondence does exist uniformly and unexceptionally in all the areas tested . . . There is little danger in assuming that this correspondence will hold good for all practical purposes throughout Boroughs and County Districts generally.*"

Of course, the fact of this correspondence does not mean that the particular families deemed below standard on the basis used are the same as those in which persons are living over two per room.

And, moreover, if one does not consider the standard used in this special survey to be a satisfactory one, the fact of the correspondence is not of administrative utility, though it remains of statistical interest, and retains its statistical validity.

An important point brought out by the analysis is the smallness of the size of the dwellings required to house the sub-standard families in accordance with the "Census Standard" laid down.

The "London Survey" Standard

The effect of applying the London Survey Standard to the Camberwell, Sheffield and "crowded London wards" families is noted. The number of sub-standard families on this basis is approximately twice the number on the "Census Standard" basis. It is pointed out that, as noted in the Survey, the percentages of sub-standard families on the Survey standard correspond very closely with the density percentages for families containing two or more persons per room.

Thus, the number of sub-standard families on the "Census Standard" basis closely corresponds to the number of families living over two persons per room and the number of sub-standard families on the "London Survey Standard" closely corresponds to the number of families living at or over two persons per room.

The Report states :—

> "It seems highly probable from the nature of the classification that a similar correspondence would be found to hold good in respect of other standards of like character, and that, in the light of the experience now available, it might not be difficult to construct a simple density test having equivalent results to those of any particular housing standard.
>
> "If so, it would mean that when contact had once been established between formula and density by experiment upon some sample data . . . we should have in the density classifications available throughout the Census reports a ready instrument with which could be ascertained the existing amount of sub-standard housing according to the given formula for all areas in the country."

The One and a Half Persons per Room "Standard"

With respect to the one-and-a-half persons per room "standard," the Report observes :—

> "It has never been the practice in Census Reports to submit any particular density ratio for acceptance as being in itself an authoritative standard of minimum or reasonable sufficiency. Still less has it ever seemed justifiable to formulate a practical housing programme upon the sole authority of a particular ratio. But there has recently been a noteworthy example of this course in certain recom-

mendations and calculations calling for house building on a scale determined solely by the criterion that a density of 1½ persons per room shall not be exceeded."

The present writer has an idea that this passage refers to certain calculations made by himself. These calculations were *not* in fact *solely* determined by the density criterion. Every effort was made to get as precise a figure as possible for the number of unfit houses. Moreover, it was explicitly stated that the use of "more than 1½ per room" was a *pis aller*, roughly representing what were considered to be average needs of families of different sizes and types. Of course the "more than 1½" is arbitrary. So is "more than 2" or "2 or more." So would be any other standard, whether calculated solely by density or even if such factors as the size of rooms and age and sex of persons were taken into account. The point is that just as it is possible to take the two "density standards" mentioned in the Report as corresponding broadly with the "Census" and "London Survey" standards respectively, so the "more than 1½" standard roughly corresponds with a third accommodation standard. The description of the calculation of Britain's housing needs which resulted as a "plan" shows only too clearly how both the investigation and the meaning of the word "plan" must have been misunderstood. The use of conditions in Becontree, which contains a proportion of children far above the average, and which is statistically "queer" in many other respects, as evidence against the standard, is ridiculous, unworthy of any statistical publication, and *a fortiori* of a "blue book."

In any event, I do not propose to attempt to defend the standard, or any other, as having "independent validity," as being of reasonable sufficiency, or as necessarily capable of application. My task was to calculate the number of dwellings required, if all unfit dwellings were to be demolished and the whole population housed at not more than one and a half to the room. It was, that is to say, a statistical investigation based on certain facts and certain (stated and conservative) assumptions, and it led to certain results, which are not a "plan" and which may or may not be considered "reasonable."

APPLICATION OF FOREGOING RESULTS TO GENERAL CONDITIONS

The analysis of family types in Camberwell and Sheffield yields a summary of families under four main types :—

Families containing at least one married couple
(*a*) with one or more children under ten ;
(*b*) with no children under ten.
Families containing no married couple
(*a*) with one or more children under ten ;
(*b*) with no children under ten.

The proportions of these types of family in England and Wales are taken as equivalent to the mean of the proportions in Camberwell and Sheffield, and an approximation for the whole country is thus produced. According to this, some three-quarters of the total families in the country contain a married couple, and in considerably more than half of them there are no young children.

The number of sub-standard families, and the number and types of dwellings they require, on the "Census Standard" basis, in England and Wales is similarly estimated. The result arrived at is that about 382,700 families in England and Wales were sub-standard, and that they require

76,100 two-room dwellings
138,800 three-room dwellings
113,500 four-room dwellings
47,100 five-room dwellings
6,600 six-room dwellings
600 seven-room dwellings

"MULTIPLE OCCUPATIONS" AND "SHARING FAMILIES"

The full analysis of multiple occupations is summarized in convenient form in the Report, with some brief comments. It is considered that the question of how far the existence of multiple occupations is to be condemned depends on their equipment in respect of water supply, sanitary accommodation, etc., which are not recorded in the Census, and that the absence of structural separation, *in itself*, seems hardly sufficient to condemn the use of premises by more than one family.

An investigation of "sharing families" in Manchester was made. Detailed analyses of the 23,598 sharing families and the 10,100 shared dwellings in Manchester are shown in two appendix tables. Overcrowding among sharing and non-sharing families in Manchester, and overcrowding among different types of sharing-family, are summarized from the tables, in the text of the Report.

This investigation is used, like the Camberwell-Sheffield investigation, as a basis for constructing an approximation for England and Wales as a whole.

CONTROLLED POST-WAR HOUSING ESTATES

The third of the special investigations made within the scope of the Census will perhaps be of the greatest general interest. It is concerned with a selection of post-war housing estates, viz., Becontree, and certain groups of enumeration districts in Birmingham, Liverpool and Manchester which consisted predominantly of houses built since 1921.

One notable point which is shown is that the average density of persons per room experienced by families of three to five persons is considerably higher on the Becontree Estate than in the provincial estates.

The proportion of Becontree families living at a density of over two persons per room is, rather surprisingly, as high as the England and Wales average, and the proportion of lodger families, boarders, etc., etc., is as high as 107 per 1,000 families in Becontree, and 175 per 1,000 in Manchester.

These statistics seem to me to give food for thought on the part of the municipal authorities.

REGIONAL AND LOCAL CONDITIONS

The nature of the information presented in Table 5 has already been noted. Tables 12 and 13 show the incidence of overcrowding by private families and the incidence of overcrowding by persons, respectively, in the regions, etc., and chief administrative areas, while Table 14 gives information, in somewhat more summarized form, respecting every county, county borough, borough, urban district and rural district, providing an admirable summary of local housing conditions.

The main features of the information provided by these and other tables are summarized and commented on in the appropriate section of the Report, which provides a wealth of material for study. The peculiarly overcrowded conditions prevailing in London and the North East are undoubtedly the most striking points brought out.

One table is formed by arranging the Metropolitan Boroughs, County Boroughs, Administrative Counties and selected administrative areas according to their proportions of families housed over two persons per room.

Among the 83 County Boroughs the first five are Sunderland, Gateshead, South Shields, Tynemouth and Newcastle, while West Hartlepool comes seventh. The administrative counties of Durham and Northumberland, which of course exclude these county boroughs, have overcrowding proportions more than double those of any other counties, except London.

In Hebburn 56·1 per cent. of the people live over one and a half per room and 14·5 per cent. over three per room. Hebburn, Jarrow and Prudhoe are considerably more overcrowded than Sunderland and Gateshead, the leading county boroughs.

HOUSING REQUIREMENTS IN THE IMMEDIATE FUTURE

In the final section of the Report an attempt is made to estimate housing requirements in the future.

It is estimated that the population of England and Wales in 1941 will be 41,000,000, of which 39,000,000 will be in private families. A slight further decline in the death rate, a maintenance of the 1933 figure of 580,000 births a year, and a negligible migration balance have been assumed.

As compared with a 2·6 per cent. increase in population, it is estimated that the number of private families will increase by 9 per cent., to about 11,150,000.

This would involve a further decline in the average size of the private family. Assuming that the tendencies noted over the period 1911-31 in respect of the changing proportions of families of different sizes continue, an estimate is made of the size-distribution of families

in 1941. From this is deduced a forecast of the number of families sharing dwellings in 1941, "other things being equal." This forecast is 259,000 above the known 1931 figure.

To house the additional 259,000 sharing families and 658,000 other families forecast so that the population of 1941 shall be housed on a scale similar to that of 1931 would require about 771,000 dwellings.

To this figure is added :—

(1) the 300,000 dwellings contemplated in connection with slum clearance ;
(2) an allowance of 100,000 to cover necessary additions apart from slum replacements ;
(3) "a further two or three hundred thousand . . . for existing sharing families, to provide for the overcrowded amongst them and possibly others who might be expected to prefer separate dwellings were they available ;
(4) "a still further addition of similar amount to replenish the reservoir of vacants hitherto associated with a state of housing equilibrium."

This brings the total of dwellings required in 1931-41 to about 1,700,000, and since about 800,000 new houses have been erected in the first three and a half years of the intercensal decade, it is considered that "the clearance of the slums and the restoration of pre-war sufficiency in general should be accomplished well in advance of the termination of the 1931-41 decennium."

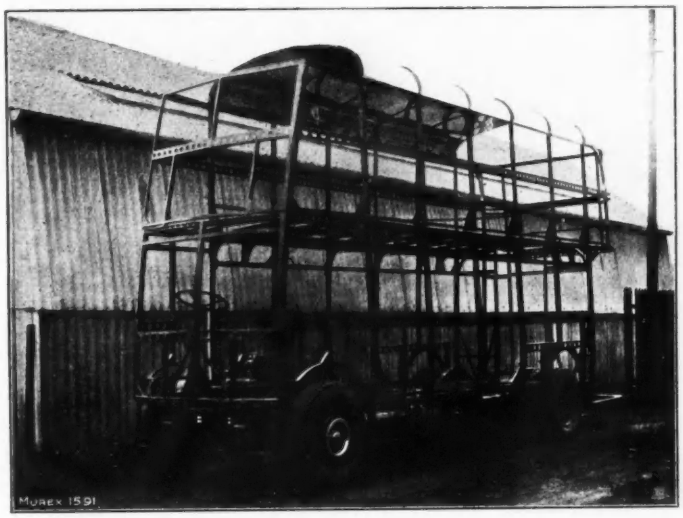
It is pointed out that no allowance has been made for any separate and express provision for the relief of overcrowded families not already covered by allowances for condemned areas and sharing families. It is considered that, with conditions of movement in regard to the increase of families and the building of dwellings, the relief of overcrowding is mainly a matter of securing redistribution, by adequate forethought and control, since "a dwelling which overcrowds a given family will still be available, other things being equal, for a family of more suitable size or constitution."

The assumptions, estimates and conclusions of this final section are of the greatest interest and will, I think, give rise to much critical discussion. This cannot be attempted here, as the purpose of the review has been, in the main, to describe the information given in the Report and Tables, and forbear comment.

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£50,000 CINEMA FOR WELSH RESORT

The Colwyn Bay Council has approved plans for a cinema to seat 1,700 and to cost £50,000. Having abandoned their own scheme for a winter garden, the Council is to approach the promoters of the cinema scheme in the hope of securing for the building a stage suitable for plays by local and touring companies.



TRADE NOTES

[BY F. R. S. YORKE, A.R.I.B.A.]

Wood Window

A PATENT sliding sash window, new to this country, but based, I believe, on a continental pattern, is being made by Messrs. Rippers under the name of "Ventilock." It appears to have many advantages over the normal sliding sash. The window was demonstrated to me at the Hospital Exhibit at British Industries House, and appears to do the things that are claimed for it smoothly and effectively.

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The fastening device allows the sashes to be drawn together in such a manner, that whilst the splayed rebated joints do not bind, they give the proper protection from weather, and when closed, the top and bottom sashes are in the same plane. The lower sash can be made to fall inwards as a hopper for night ventilation, and it can be locked in this position, so that it cannot be opened from the outside. Either sash can be made to fall inwards to a horizontal position for cleaning.

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Before the upper sash is lowered into position for cleaning, the lower sash is automatically locked at high level, so that it cannot slide downwards.

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There is no restriction in size, and owing to the nature of the guides and gear, there is no limitation of width in relation to height, as there is in the case of a normal sash window. Such windows have been made up to 16 ft. wide, and in this width were easily operated by one person from one corner.

•

Both sashes can be made to disappear below cill level to give an unobstructed opening.

•

For hospitals, the window can be made

"*This advertiser is clear in his mind as to what he is and has no hesitancy in stating it. No straddling for him, nor pretense. He doesn't hide behind the title architect. He is also a builder, and isn't ashamed to say so,*" *says H. Van Buren Majonigle in the February issue of "Pencil Points." "This is an unusually flagrant case of individual advertising, and I wonder whether the Council of Registered Architects is able or willing to discipline a Registered Architect who behaves like this.*"

House Plans for $20

To demonstrate the benefits derived by dealing with a registered architect, I will furnish, for a limited time, complete set of plans and general specifications for houses up to six rooms, made as you want them, together with three sets of blueprints, for the low cost of $20.00.

FRANCIS X. ROUSSEAU

ARCHITECT and BUILDER

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F. H. A. Information Free

in three sashes, sliding upwards from floor level, so that the space left when the two lower sashes are raised provides an opening through which patients can be wheeled from wards to balconies.

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Provision can also be made for double glazing.

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The window is obtainable in deal or teak, and, I believe, in cedar and mahogany.

Welding for Prefabrication

The illustration showing a fabricated trolley bus is taken from *The Welder* for February, 1935. New omnibuses for the Blackpool Corporation are being made with all welded framing. The underframes consist of nickel steel plates with oak packings inserted between them. Steel gussets are welded at each end of the flitch plates to provide rigid fixing for the side pillars. All pillars and framing are welded and reinforced where necessary with welded steel brackets.

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The pillars—rectangular in section—are solid drawn steel tubing. Rails fitted between the pillars are folded channel sections. The body panels are normally 16 s.w.g. sheet aluminium or steel. The several sections of the body are jig welded separately and later fitted together.

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The bus is not unlike the prefabricated parts of a two-storey house, assembled at works and ready to be despatched to a building site.

LAW REPORTS

ARBITRATOR'S AWARD TO STAND

Thornton-Smith v. *Wynne-Finch — King's Bench Divisional Court. Before Justices Talbot and Hilbery.*

THIS matter came before the Court on an application that the award of an arbitrator in favour of the respondent, Mrs. M. E. Wynne-Finch, should be set aside or sent back to the arbitrator.

Mr. M. Brereton, who appeared for the appellant, Mr. E. Thornton-Smith, said the matter arose out of some alterations his client made to the front of his house at 12 Bruton Street, Mayfair. The respondent's house adjoined and in carrying out the alterations some damage was done to her house. The matter went to arbitration and the arbitrator awarded her a sum, which it was admitted she was entitled to. The award also related to a party wall and objection was taken to so much of the award as related to the cost of rebuilding that party wall. The applicant's contention was that it was in a ruinous condition before the work at his house was carried out, and that therefore he ought not to be called on to bear the total cost of rebuilding that wall. Counsel's contention was that the arbitrator had committed an error of law.

It appeared from the award that the ruinous condition of the wall was due, it was alleged, to the act of a predecessor in title of the applicant, who in altering and raising the premises, had unduly increased the load on the wall. It was also said that the builder had not given the necessary notices under the Building Act as to the carrying out of the work.

The Court, without calling upon Mr. W. N. Stable, K.C., for the respondent, dismissed the application with costs.

Mr. Justice Talbot said in his view if the proper notices had been given to the district surveyor and the respondent, the present trouble would probably not have arisen. He did not hold the view that the arbitrator had been guilty of an error of law. On the contrary he thought that it was a misconception. The applicant carried out the work under the conditions then existing, whereas it was for him to have ascertained what he ought to have done in relation to the adjoining property, or any other person whose rights might have been affected. In his opinion all the arbitrator had done was to say that the applicant should bear the cost of such work as was found necessary by reason of his having carried out the work at applicant's house. No reason had been shown why the Court should interfere with the arbitrator's award.

Mr. Justice Hilbery concurred.

ACTION FOR ALLEGED BREACH OF STATUTORY BUILDING REGULATIONS

Dibdin v. *Prestige & Co., Ltd.—King's Bench Division. Before Mr. Justice Horridge.*

THIS was an action by Mr. George James Dibdin, of Binsdale Road, Fulham, S.W., to recover from the defendants, Messrs. Prestige & Co., Ltd., building contractors, of Grosvenor Road, S.W., damages for personal injuries sustained by him through the alleged negligence of defendants.

The plaintiff's case was that when working for the defendants on September 17 last year on the construction of some flats at King's Court, Hammersmith, a half-brick fell from above on to his head and fractured his skull. Plaintiff alleged that the defendants were responsible for the injury he had suffered by reason of having acted negligently in not having complied with regulation 31 of the Building Regulations, dated June 21, 1926, made by the Secretary of State, under section 79 of the Factory and Workshop Act, 1901. This regulation was as follows :—" Any part of the premises in which any person is habitually employed shall be covered in such a manner as to protect any person who is working in that part from being struck by any falling material or article."

The defendants denied that they were guilty of any breach of their statutory duty or of any negligence. They alleged that if there was any negligence, it was committed by their servants who were reasonably competent to carry out their duties.

His lordship, after hearing evidence and counsels' arguments, gave judgment for the plaintiff and awarded him £668 damages.

Manufacturers' Items

Messrs. Ferguson and Harvey, selling agents for Thistle Hardwall Gypsum Plaster, have moved to new premises at Thistle House, Low Hill, Liverpool. The new telephone number is Anfield 1822.

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Messrs. Johnson's Reinforced Concrete Engineering Co., Ltd., announce that their London address has been changed from Windsor House, Victoria Street, London, S.W.1, to Horseferry House, Horseferry Road, London, S.W.1. The telephone numbers remain the same, namely, Victoria 2121/2122.

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The manufacture of Dunbrik is the subject of a short feature film released by British Movietone News. The film, which was exhibited last week at the Gaumont British Movietone News Theatre, Shaftesbury Avenue, London, shows the whole process of the manufacture of Dunbrik, together with the application of Texcrete.

THE BUILDING ILLUSTRATED

Sub-Contractor's List

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue :—

Pioneer Health Centre, Peckham (pages 515-520). General contractors, Holloway Bros. Ltd. Resident Engineer, H. J. Emsden, B.Sc. Sub-contractors : Armstrong Cork Co., Ltd., cork flooring and walls ; Cork Insulation Co., Ltd., cork ceiling ; Bastian and Allen, Ltd., electrode boiler and controls ; Bell Bros. (Manchester 1927), Ltd., filtration and purification plant ; Fredk. Braby & Co., Ltd., folding and sliding doors ; James Combe and Son, Ltd., heating and ventilating ; Crittall Manufacturing Co., Ltd., window sashes ; Davis Bennett & Co., Ltd., sanitary fittings and plumbing ; Excel Asphalte Co., Ltd. asphalte ; Joseph Freeman, Sons and Co., Ltd., cementone for swimming pool ; B. French, Ltd., electrical work ; T. M. Gardiner, Ltd., swimming bath and gymnasium equipment ; Lift and Hoist Co., Ltd., service lift ; Mander Bros. Ltd., paint ; Parker, Winder and Achurch, Ltd., wire fencing ; Pilkington Bros., Ltd., glass ; Plastering, Ltd., granolithic finishings ; Vigor and Co., Ltd., painting ; Joseph Westwood & Co., Ltd., steel partitions.

Dreamland Cinema, Margate (pages 527-530). General contractors, Rice and Son, Ltd. Consulting Engineer, T. Farquharson. Designers of Electrical Installation, Wingfield Bowles and Partners. Decorative Consultant, Walpole Champneys. Sub-contractors : London Brick Co., and Forders, Ltd., bricks ; Banister Walton & Co., Ltd., steelwork ; Diespeker & Co., Ltd., patent floors and terrazzo steps ; D. Anderson and Son, Thermotile roof covering ; Berkeley Engineering Co., Ltd., electrical installation ; H. W. Dutton & Co., Ltd., heating and ventilation ; James Walker (Architectural decorations), Ltd., fibrous plasterwork ; Campbell Bros., Ltd., decorative painting ; Doulton & Co., Ltd., faience work and sanitary fittings ; James Gibbons, Ltd., casements and door furniture ; Luxfer, Ltd., cast iron bay window to café ; Fenning & Co., Ltd., marble work ; C. Harvey & Co. and Fredk. Jukes, decorative metalwork ; Troughton and Young, and C. Harvey & Co., electrical fittings ; J. and E. Hall, Ltd., lifts ; W. J. Furse & Co., Ltd., lightning conductors ; J. A. King & Co., Ltd., concrete window to café and pavement lighting ; Pearson Bros. and Campbell, concrete steps ; H. Lazarus and Son, Ltd., linoleum floor covering ; Jefferriss (Camberwell), Ltd., parquet flooring ; Gaskell and Chambers, bar fittings ; General Asphalte Co., Ltd., asphalte ; R.I.W. Protective Products, Ltd., waterproofing ; Walpamur Co., Ltd., paint and distemper ; Merryweather and Sons, Ltd., fire mains and hydrants ; G. Gerratt, Ltd., carpets ; Bird Iles, Ltd., mirrors and hangings ; Carter (Brockley), Ltd., floor and wall tiling ; Malcolm McLeod & Co., Ltd., concrete balcony steppings ; Samuel Elliott and Sons (Reading), Ltd., wood panelling ; Ruberoid Co., Ltd., steel deck roofs ; May Acoustics, Ltd., acoustic tiling, etc.

House at Gilwern, Abergavenny (page 532). General contractors, L. Pickering.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

FINCHLEY. *Flats.* Messrs. Laverick and Hill are to erect a block of 20 flats at Station Road, Finchley.

FINCHLEY. Messrs. Burnett and Eprile, architects, have prepared plans for the erection of a synagogue and ministers' house at North Circular Road, Finchley.

FINCHLEY. *Houses.* Plans passed by the Corporation: Eight houses, Greenhalgh Walk, for Mr. G. C. Swanson; six houses, Vivian Way, for Mr. H. E. Brown; laundry extension, High Road, for Advance Laundries, Ltd.; five houses, Kingsgate Avenue, for Mr. J. Norris; 48, flats, East End Road, for Mr. H. Volondo; seven houses, Long Lane, and two houses, Vines Avenue, for Mr. A. J. Hooper.

FINCHLEY. *Factory.* Messrs. Hayworth and Sons are to extend a factory at King Street, Finchley.

HAMMERSMITH. *Town Hall.* The General Purposes Committee suggests that it should renew its approval of the plans prepared by Sir Brumwell Thomas, the architect, for the erection of the new town hall, and submit the plans to the L.C.C.

HAMPTON. *School.* The Middlesex Education Committee is considering a scheme for the erection of new premises for the Hampton grammar school on a new site on the Rectory Farm estate.

HARROW. *Fire Station.* The U.D.C. is to proceed with the scheme for the provision of a main fire station and firemen's flats in Pinner Road, at a cost of £22,397.

HORNSEY. *Children's Block at Hospital.* The governors of the Hornsey Central Hospital propose to erect a new children's block.

HOUNSLOW. *Houses.* The Ministry of Health has now sanctioned the borrowing of £20,000 for the construction of roads and sewers on the Worton Road housing estate. The Council proposes to erect 131 non-parlour type houses and 52 flats on the estate, and has now accepted the tender of Messrs. H. Street & Co., of Slough, at £59,385.

KENTON. *School.* The Middlesex Education Committee is acquiring a site on the Lyon Farm estate, Kenton, for the erection of an elementary school.

LAMBETH. *Extensions to College.* The L.C.C. is to enlarge Morley College, Lambeth, at a cost of £10,800.

MIDDLESEX. *Schools.* The County Education Committee has secured sites for proposed elementary schools on Lyon Park Farm Estate, Kenton; Whitchurch Estate, Stanmore; and Ruislip Gardens Estate, Ruislip. The County Architect is Mr. W. T. Curtis, F.R.I.B.A., 10, Great George Street, S.W.1.

MIDDLESEX. *Modernization of County Hospital.* The Middlesex County Council is to prepare a scheme for the modernization of the North Middlesex county hospital, the cost being estimated at £500,000, and in view of the magnitude of the proposal it is suggested that inspection should be made of modern institutions in Germany, Austria and France.

RICHMOND. *Printing Works.* Mr. C. Ashforth, A.R.I.B.A., Dome Buildings, Richmond, has prepared plans for the proposed erection of a printing works and flat above at the junction of Lower Mortlake Road and Victoria Villas.

RUISLIP. *School.* The Middlesex Education Committee has acquired a site on the Ruislip Gardens estate, Ruislip, for the erection of an elementary school.

SOUTHGATE. *Shops.* The Heddon Court Estate Co. is to erect two terraces of shops in Cockfosters Road, Southgate.

TWICKENHAM. *Flats.* A block of 36 flats is to be erected on a site in the Chertsey Road by the Cole Park Road, by Mr. G. Whittaker (for Mr. A. Cowen). Messrs. Howis and Belcham (for Mr. J. W. Smith) are to erect 40 flats on the site of the Grove, Ranelagh Villa.

WOOLWICH. *School.* The L.C.C. is to erect another elementary school on the Middle Park estate, Woolwich, at a cost of £46,000.

SOUTHERN COUNTIES

BRIGHTON. *School.* The Cpn. has approved a proposal by Mr. A. V. Pilichowski to erect a school in Surrenden Road to be known as Whittinghame College.

BRIGHTON. *Houses, etc.* Plans passed by the Cpn.: Two shops and store, Old London Road, Patcham, for Brighton Co-operative Society, Ltd.; two houses, Ladies' Mile estate, for Ladies Mile Estate Co., Ltd.; extensions, Valley Stores, Tongbean Lane, for Messrs. Findlater, Mackie & Co., Ltd.; alterations, Gordon Hall, High Street, for trustees; additions, 122-3 Gloucester Road, for Mr. G. Gillman; grandstand to hold 4,000, Sussex Lawn Tennis Ground, Withdean, for Brighton Cpn.; 44 houses Friars Road, Patcham, for Sussex Property and Building Co., Ltd.; alterations, Edinburgh Hotel, Upper Gloucester Road, and alterations, Queen's Head Hotel, Cheapside, for Messrs. Tamplins, Ltd.; new entrance, Hotel Metropole, Cannon Place, for Gordon Hotels, Ltd.; four flats, Park Place, Rottingdean, for Mr. W. H. Ledger; four bungalows, Linchmere Avenue, for Mr. H. H. Edwards.

BRIGHTON. *Market.* The Cpn. has asked Messrs. Clayton and Black to prepare detailed plans and estimates for the construction of a market on the Carlton Hill site at an estimated cost of £75,000.

GUILDFORD. *Houses, etc.* Plans passed by the Cpn.: Three houses, Cranley Close, for Messrs. Wilton and Hiscock; two houses, Holford Road, for Messrs. R. Holford & Co.; additions to works, Martyre Road, for Messrs. Biddles, Ltd.; three houses, Holford Road, for Mr. R. G. Bowers; two houses, Boxgrove estate, for Messrs. A. E. Stanley, Son and Co.; alterations and additions, Stoughton schools, Stoughton Road, for the Cpn.

PATCHAM. *School.* The Brighton Education Committee has approved revised plans for the erection of a school in Warmdene Avenue, Patcham, at a cost of £13,000.

MIDLAND COUNTIES

CHELMSFORD. *Houses, etc.* Plans passed by the Cpn.: Four houses, Seventh Avenue, for Messrs. R. H. Currie and Sons; two houses, Fifth Avenue, for Messrs. W. and A. Pudney; fourteen houses, Waterhouse Lane, for Messrs. H. Potter, Ltd.; bakehouse, Writtle Road, for Mr. A. G. Thompson; extension to café and swimming pool, Princes Road, for Ashford Trust, Ltd.

STOKE-ON-TRENT. *Houses, etc.* Plans passed by the Cpn.: 30 houses, Hawthorns estate, Trent Vale, for Messrs. Birchenwood Brick and Tile Co., Ltd.; two houses, Wilson Road, Hanford, for Mr. J. Barker; 27 houses, off Shelton New Road, Cliff Vale, for Mr. G. H. Broad; six houses, Leadbeater Avenue, Penkhull, for Mr. N. Marsden; six houses, off Leek Road, Bucknall, for Mr. R. Moore; 88 houses, off High Street, Sandyford, for Mr. J. Smith; four houses, Blurton Road, Fenton, for Mr. H. W. Cartlidge; 32 houses, Trentham Road, Longton, for Messrs. Holloway & Co.; six houses, Heron Cross estate, for Messrs. P. Bailey & Co.; four houses, Barber Road, Chell, for Messrs. Ray and Son; four houses, Vivian Road, Fenton, for Mr. S. Mason; two houses, Stone Road, Lightwood, for Mr. W. Brammar; additions for factory, Brownhills, Tunstall, for Messrs. Richards Tiles, Ltd.; alterations and additions, 231 High Street, Longton, for Mr. T. Hales; additions, Woodland Pottery, Tunstall, for Messrs. W. H. Grindley & Co., Ltd.; alterations, 67 and 69, Well Street, Tunstall, for Mr. James Webb; warehouse, Ellgreave Street, Burslem, for Ellgreave Pottery Co., Ltd.; alterations, Lamb Street, Hanley, for Barclays Bank, Ltd.; eight houses, Birchgate, Bucknall, for Mr. H. Clowes; 78 houses, Birchgate, Bucknall, for Mr. J. Withington.

SUTTON COLDFIELD. *Houses, Shops, etc.* Plans passed by the Cpn.: Two shops, Chester Road, for Mr. H. Clegg; six houses, Chester Road, for Messrs. Hayward & Co.; four houses, Clarence Gardens, for Mr. A. Robinson; five houses, Four Oaks Common Road, for Messrs, T. Morgan and Son; five houses, Monmouth Drive, for Mr. W. J. Phillips; 22 houses, Reddicap Heath Road, for Mr. J. Salt; two houses, Tamworth Road, for Messrs. Davis and Sons; four houses, Withy Hill Road, for Messrs. E. Horton & Co.

SUTTON COLDFIELD. *Development of Land.* The Cpn. has approved a lay-out plan for the development of 17 acres of land between Maney Hill Road and Coles Lane.

NORTHERN COUNTIES

BLACKPOOL. *Houses,* etc. Plans passed by the Corporation: 218 houses, Kingscote Drive, etc., for Mr. A. Wilson; 45 houses, Cannock Avenue, Bispham, for Messrs. J. Fielding and Sons; four houses, Newton Drive, for Mr. W. H. Avery; two boarding houses, Haddon Road, for Mr. T. E. Greenwood; 12 houses, Bromsgrove Avenue, for Messrs. Andrews and Crook; four houses, Sandhills Avenue, for Mr. W. B. Snape; two houses, Devonshire Road, for Mr. T. H. Fenton; four houses, Hawes Side Lane, for Mr. T. Southworth; private hotel, Kelso Avenue, for Mr. R. W. Findlay; eight houses, Mossom Avenue, for Mr. W. Spencer.

BOOTLE. *Houses.* Mr. H. Carr is to erect 120 houses on an estate at Harris Drive, Bootle.

CARLISLE. *Houses.* The Corporation is to erect 160 160 houses on the Wigton Road and Cranbourne Road sites.

CHESTERFIELD. *Houses.* The Corporation has asked Messrs. Rollinson and Son, architects, to prepare plans for the erection of 37 houses and Mr. C. Bond, architect, to prepare plans for 40 houses on the various housing estates.

HULL. *Shops.* The Corporation has asked the city architect to prepare a scheme for the erection of a block of shops on the East Hull estate.

LANCASTER. *Swimming Baths.* The Lancaster borough engineer is preparing a scheme for swimming baths in Caton Road.

MORECAMBE. *Houses, etc.* Plans passed by the Cpn.: Two houses, Elms Lane, for Mr. J. W. Hacking; two houses, Victoria Parade, for Mrs. A. Milner; 18 houses, Lichfield Avenue, for Messrs. Russell Bros.; 10 houses, Sanders Grove, for Mr. W. Sanders; six houses, Woborrow Road, for Messrs. R. Kitchen and Sons; four houses, Lister Grove, for Mr. J. Wormwell; two houses, Bristol Street, for Mrs. Wilson; alterations, Grosvenor Hotel, Marine Parade, for Hotel Co. Plans submitted; 40 houses, Woodlands estate, for Mr. N. L. Proctor.

SOUTH SHIELDS. *Flats and Shops.* The Shields Corporation has approved plans by the borough engineer for the erection of 67 flats and three shops in Commercial Road, at a cost of £32,425.

SOUTH SHIELDS. *Houses and Flats.* Mr. F. Wills has prepared a scheme for the erection of houses and flats in the vicinity of Newcastle Road, South Shields.

SOUTH SHIELDS. *School.* The Education Committee has acquired a site at West Harton for the erection of an elementary school.

TYNEMOUTH. *Houses.* Plans passed by the Cpn.: Twelve houses, Verne Road, Balkwell estate, for Mr. J. R. Wallace; extension to laundry, Tynemouth Road, for Messrs. Dixon and Bell; 34 flats, Verne Road, for Mr. S. Pye; eight flats, Verne Road, for Mr. T. Swan; business premises, Hawkey's Lane, for Mr. W. Stockdale, on behalf of the Co-operative

(*Continued on page xxxvi*).

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_4	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_2	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_2	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_2	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Bursiem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_2	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley ..	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham ..	N E. Coast	1 5½	1 1½
A_2	EASTBOURNE	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter ..	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S. W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W. Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_3	Kendal ..	N.W. Counties	1 4	1 0
A_2	Keswick ..	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12-15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_3	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N.E. Coast	1 5½	1 1½
A_2	Middlewich ..	N.W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_3	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKE ..	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid. Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby	Yorkshire	1 4½	1 0½
A	Widnes	N.W. Counties	1 5½	1 1½
A	Wigan	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given

The rates for every trade in any given area will be sent on request

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality, and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger		1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
Genera Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
¾" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single junctions	"	3	6	5	3
Double	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¾" Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6

IRON DRAINS:

		£	s.	d.
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead Wool	lb.		6		—
Gaskin	"		5		—

BRICKLAYER

		£	s.	d.
Flettons	Per M.	2	15	0
Grooved do.	"	2	17	0
Phorpres bricks	"	2	15	0
" Cellular bricks	"	2	15	0
Stocks, 1st quality	"	4	11	0
" 2nd "	"	4	2	6
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Brindles	"	7	0	0
" Bullnose	"	9	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	0
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midhurst White Facings	"	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	29	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

The following d/d F.O.R. at Nine Elms:		s.	d.
Portland stone, Whitbed	F.C.	4	4½
" " Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" " Sawn templates	"	7	6
" " Paving, 2"	F.S.	1	8
" " " 3"	"	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	"	24	10	0
20" × 10" Countesses	"	19	5	0
18" × 10" Viscountesses	"	15	10	0
18" × 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey per 1,000 (actual)		21	11	6
" " green "	"	24	7	4
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each			9½
" hand-made	"			10
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" " 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak plain American	" "	1	0
" Figured "	" "	1	3
" Plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1
Deal floorings, ¾"	Sq.	18	6
" 1"	"	1 1	6
" 1¼"	"	1 2	0
" 1½"	"	1 5	0
" 1¾"	"	1 10	0
Deal matchings ¾"	"	14	0
" 1"	"	15	6
Rough boarding ¾"	"	1 4	0
" 1"	"	16	0
" 1¼"	"	18	0
" 1½"	"	1 6	0

Plywood, per ft. sup.

—Thickness	¼"			⅜"			½"			¾"		
Qualities	AA.	A.	B.	AA.	A.	B.	AA.	A.	B.	AA.	A.	B.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Birch	4	3	2	5	4	3	7½	6	4½	8½	7	6
Alder	3½	3	2	5	4	3	6½	5½	4½	8	7	6
Gaboon Mahogany	4	3	3	6½	5½	4½	9½	7½	–	1/0½	10	–
Figured Oak 1 side	8½	7	–	10	8	–	11½	–	–	1/6	–	–
Plain Oak 1 side	6½	6	–	7½	7	–	9½	–	–	1/–	–	–
Oregon Pine	5	4	–	5½	5	–	6	–	–	–	–	–

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	¼"	⅜"	½"	¾"	1"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23½" long each	10	1/1	1/11	2/8	4/9
" 3"-11½" long "	7	9	1/3	1/8	3/–
Long screws, 12"-23½" long "	11	1/3	2/2	2/10	5/3
" " 3"M-½" long "	8	10	1/5	1/11	3/6
Bends "	8	11	1/7½	2/7½	5/2
Springs not socketed "	5	7	1/1½	1/11½	3/11
Socket unions "	2/–	3/–	5/6	6/9	10/–
Elbows, square "	10	1/1	1/6	2/2	4/3
Tees "	1/–	1/3	1/10	2/6	5/1
Crosses "	2/2	2/9	4/1	5/6	10/6
Plain Sockets and nipples "	3	4	6	8	1/3
Diminished sockets "	4	6	9	1/–	2/–
Flanges "	9	1/–	1/4	1/9	2/9
Caps "	3½	5	8	1/–	2/–
Backnuts "	2	3	5	6	1/1
Iron main cocks "	1/6	2/3	4/2	5/4	11/6
" " with brass plugs "	—	4/–	7/6	10/–	21/–

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½
FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued*

		s.	d.
Rolled steel joists cut to length	cwt.	10	9
Mild steel reinforcing rods, ¼"	"	8	6
" " ⅜"	"	8	3
" " ½"	"	8	0
" " ¾"	"	7	6
" " ⅞"	"	7	6
" " 1"	"	7	6
" " 1¼"	"	7	6
" " 1½"	"	7	6

Cast-iron rain-water pipes of ordinary thickness metal	F.R.	3" s.	3" d.	4" s. 8	4" d. 10
Shoes	each	2	0	3	0
Anti-splash shoes	"	4	6	6	0
Boots	"	3	0	4	0
Bends	"	2	7	3	9
" with access door	"	—		6	3
Heads	"	4	0	5	0
Swan-necks up to 9" offsets	"	3	9	6	0
Plinth bends, 4½" to 6"	"	3	9	5	
Half-round rain-water gutters of ordinary thickness metal	F.R.	5		6	
Stop ends	each	6		6	
Angles	"	1	7	1	11
Obtuse angles	"	2	0	2	6
Outlets	"	1	9	2	3

PLUMBER

		£	s.	d.
Lead, milled sheets	cwt.	18	6	
" drawn pipes	"	17	0	
" soil pipe	"	18	6	
" scrap	"	10	6	
Solder, plumbers'	lb.		9½	
" fine do.	"	1	0	
Copper, sheet	"		8½	
" tubes	"		11	

L.C.C. soil and waste pipes:	F.R.	3"	4"	6"
Plain cast	F.R.	1 0	1 2	2 6
Coated	"	1 1	1 3	2 8
Galvanized	"	2 0	2 6	4 6
Holderbats	each	3 10	4 0	4 9
Bends	"	3 9	5 3	10 3
Shoes	"	2 10	4 4	9 6
Heads	"	4 8	8 5	12 9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	5	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle Plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	9
Lath nails	lb.			3

GLAZIER

	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft. F.S.		2½
" " 26 oz. " " "		3
Flemish, Arctic, Figured (white)* "		7
Blazoned glasses "	2	6
Reeded; Cross Reeded "		11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite		8
Crown sheet glass (n/e 12 in. x 10 in.) "	2	0
Flashed opals (white and coloured) "	1 0 and 2	0
⅛" rough cast; rolled plate "		5½
⅛" wired cast; wired rolled "		9½
⅛" Georgian wired cast "		11
⅛" Polished plate, n/e 1 ft. "	† 10 to ‡1	1
" " 2 "	†1 2 " ‡1	4
" " 4 "	†2 3 " ‡2	6
" " 8 "	†2 9 " ‡3	2
" " 20 "	†3 7 " ‡4	2
" " 45 "	†3 11 " ‡4	7
" " 100 "	†5 0 " ‡5	7
Vita glass, sheet, n/e 1 ft. "		1
" " " 2 ft. "		1
" " " over 2 ft. "		1
" " plate, n/e 1 ft. "		1
" " " 2 ft. "		3
" " " 5 ft. "		4
" " " 7 "		5
" " " 15 "		6
" " " over 15 "		7
"Calorex" sheet 21 oz., and 32 oz. "	2 6 and	3
" rough cast ⅛" and ¼" "	8½ "	1
Putty, linseed oil lb		3

* *Colours*, 1d. F.S. *extra.*
†*Ordinary glazing quality.* ‡*Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	6	0
Linseed oil	gall.		2	2½
Boiled oil	"		2	4½
Turpentine	"		4	1½
Patent knotting	"		14	0
Distemper, washable	cwt.	2	6	0
" ordinary	"	2	0	0
Whitening	firkin		4	0
Size, double	gall.		3	0
Copal varnish	"		13	0
Flat varnish	"		14	0
Outside varnish	"		16	0
White enamel	"	1	15	0
Ready mixed paint	"		13	6
Brunswick black			7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR

		£ s. d.
Digging over surface n/e 12" deep and cart away	Y.S.	2 9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.	8 6
" to form basement n/e 5' 0" deep and cart away	"	9 0
" " 10' 0" deep and cart away	"	9 6
" " 15' 0" deep and cart away	"	10 0
If in stiff clay	add "	6
If in underpinning	"	4 0
Planking and strutting to sides of excavation	F.S.	1 0
" " to pier holes	"	5
" " to trenches	"	5
" " extra, only if left in	"	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	"	1 6 0
" " (4-2-1)	"	1 12 6
" " underpinning	"	1 16 0
Finishing surface of concrete, spade face	Y.S.	7

DRAINLAYER

		4" s. d.	6" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER

		£ s. d.
Brickwork, Flettons n lime mortar	Per Rod	27 10 0
" " in cement	"	28 15 0
" Stocks in cement	"	35 0 0
" Blues in cement	"	52 0 0
Extra only for circular on plan	"	2 0 0
" backing to masonry	"	1 10 0
" raising on old walls	"	2 0 0
" underpinning	"	5 10 0½
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	"	8
" " " red brick facings and pointing	"	11
" " " blue brick facing and pointing	"	1 4
" " " glazed brick facings and pointing	"	3 6
Tuck pointing	"	7½
Weather pointing in cement	"	3
Slate dampcourse	"	10
Vertical dampcourse	"	1 1

ASPHALTER

		s. d.
½" Horizontal dampcourse	Y.S.	4 6
½" Vertical dampcourse	"	6 9
½" paving or flat	"	4 0
1" paving or flat	"	5 6
1" × 6" skirting	F.R.	1 0
Angle fillet	"	2
Rounded angle	"	2
Cesspools	Each	5 0

MASON

		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	"	13 6
Artificial stone and do.	"	13 0
York stone templates, fixed complete	"	10 6
" thresholds	"	13 6
" sills	"	1 0 6

SLATER AND TILER

		£ s. d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3 10 0
Do., 18" × 9"	"	3 7 0
Do., 24" × 12"	"	3 17 0
Westmorland slating, laid with diminished courses	"	6 0 0
Tiling, best hand-made sand-faced, laid to a 4" gauge, nailed every fourth course	"	3 0 0
Do., all as last, but of machine-made tiles	"	2 16 0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	4 6 0
" " " " " (green)	"	4 15 0

CARPENTER AND JOINER

		£ s. d.
Flat boarded centering to concrete floors, ncluding all strutting	Sqr.	2 5 0
Shuttering to sides and soffits of beams	F.S.	8
" to stanchions	"	8
" to staircases	"	1 8
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	"	4 6
" " roofs	"	6 6
" " trusses	"	7 6
" " partitions	"	8 6
½" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" " " " "	"	1 17 6
1½" " " " "	"	2 3 0
3" × 2" fir battening for Countess slating	"	9 6
Do. for 4" gauge tiling	"	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
" " " 2 "	"	2 9
" " " 3 "	"	3 3
Stout herringbone strutting to 9" joists	F.R.	10½
1" deal gutter boards and bearers	F.S.	1 2
1½" " " "	"	1 6
3" deal wrought rounded roll	F.R.	8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼" do.	"	2 10 0
1½" do.	"	2 17 0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1¼" do.	"	1 9

CARPENTER AND JOINER—*continued*

		s. d.
1½" deal moulded sashes of average size	F.S.	1 9½
2" " " " "	"	1 11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1½" pulley stiles, 1½" heads, 1" inside and outside linings, ½" parting beads, and with brass faced axie pulleys, etc., fixed complete	"	3 7
2" " " " "	"	3 10
Extra only for moulded horns	Each	6
1½" deal four-panel square, both sides, door	F.S.	2 0
2" " " " "	"	2 8
1½" " but moulded both sides	"	2 4
2" " " " "	"	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" " " "	"	1 4
1½" deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1½" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
1½" deal moulded wall strings	"	2 1
1½" " outer strings	"	2 4
Ends of treads and risers housed to string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1½" × 1½" " " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

SMITH AND FOUNDER

		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	15 6
Riveted plate or compound girders, and hoisting and fixing in position	"	19 6
Do. stanchions with riveted caps and bases and do.	"	19 0
Mild steel bar reinforcement, ¼" and up, bent and fixed complete	"	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER

		£ s. d.
Milled lead and labour in flats	cwt.	1 12 0
Do. in flashings	"	1 15 6
Do. in covering to turrets	"	2 3 0
Do. in soakers	"	1 7 6
Labour to welted edge	F.R.	3½
Open copper nailing	"	3
Close "	"	4

		½" s. d.	¾" s. d.	1" s. d.	1½" s. d.	2" s. d.	4" s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks	"	—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	3 9	5 0	8 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—
4" cast-iron ½-rd. gutter and fixing	F.R.						1 0
Extra, only stop ends	Each						1 0
Do. angles	"						1 6
Do. outlets	"						2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.						1 2
Extra, on y for shoes	Each						1 3
Do. for plain heads	"						5 6

PLASTERER AND TILING

		s. d.
Expanded metal lathing, small mesh	Y.S	2
Do. in n/w to beams, stanchions, etc.	"	2 9
Lathing with sawn laths to ceilings	"	1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1 5
Do. vertical	"	1 7
Rough render on walls	"	1 2½
Render, float and set in lime and hair	"	1 9
Render and set in Sirapite	"	1 11
Render, backing in cement and sand, and set in Keene's cement	"	2 9
Extra, only if on lathing	"	4
Keene's cement, angle and arris	F.R.	6
Arris	"	1½
Rounded angle, small	"	3
Plain cornices in plaster, including dubbing out, per 1" girth	"	1½
1" granolithic pavings	Y.S.	3 6
1½" " "	"	4 6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17 6
9" × 3" " " " "	"	1 2 6
Extra, only for small quadrant angle	F.R.	8

GLAZIER

	s. d.
21 oz. sheet glass and glazing with putty	F.S. 7½
26 oz. do and do.	" 8½
Flemish, Arctic Figured (white) and glazing with putty	" 1
Cathedral glass and do.	" 1 2
Glazing only, British polished plate	" 7
Extra, only if in beads	" 2
Washleather	F.R. 4

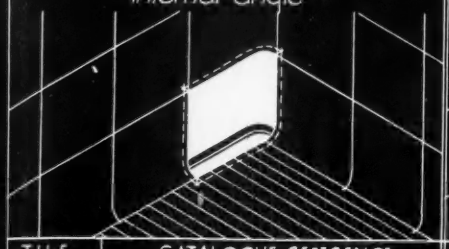
PAINTER

		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	"	9
Do. with washable distemper	"	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3 3
Do. on woodwork	"	3 6
Do. on steelwork	"	3 0
Do. and brush grain and twice varnish	"	5 6
Stain and twice varnish woodwork	"	1 11
Stain and wax-polish woodwork	"	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper	from "	3 9

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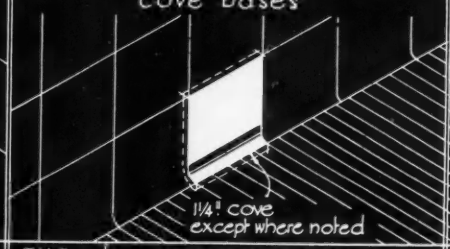
COVE BASES:

internal angle



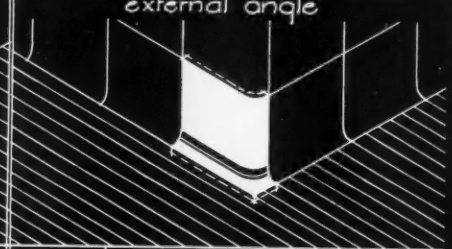
TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 6"	3031 E. 3031 L. 3031 M.
6" x 6"	3650 E. . .
6" x 6"	4045 E. . .
6" x 4"	3936 E. 3936 L. .
6" x 3"	3220 E. 3220 L. 3220 M.
6" x 2"	3932 E. 3932 L. 3932 M.
4" x 4½"	3956 E. 3956 L. .
4" x 4"	4060 B. . .

cove bases



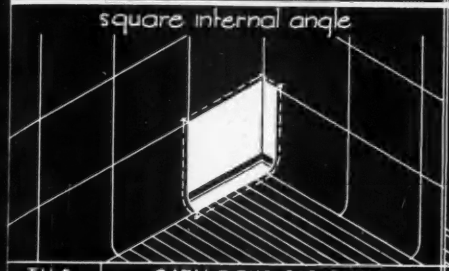
TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 6"	3031 .
6" x 6"	3650 . (2" cove)
6" x 6"	4045 . (3" cove)
6" x 4"	3936 .
6" x 3"	3220 .
6" x 2"	3932 .
4" x 4½"	3956 .
4" x 4"	4060 . (1" cove)

external angle



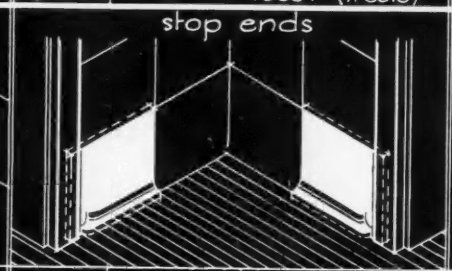
TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 6"	3031 C. 3031 G. 3031 N.
6" x 6"	3650 C. . .
6" x 6"	4045 C. . .
6" x 4"	3936 C. 3936 G. .
6" x 3"	3220 C. 3220 G. 3220 N.
6" x 2"	3932 C. 3932 G. 3932 N.
4" x 4½"	3956 C. 3956 G. .
4" x 4"	4060 A. . .

square internal angle



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 4"	3936 Z.
6" x 3"	3220 Z.
6" x 2"	3932 Z.
4" x 4½"	3956 Z.
4" x 4"	4060 Z.

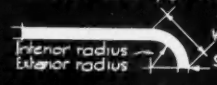
stop ends



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 6"	3031 H. 3031 J.
6" x 4"	3936 H. 3936 J.
6" x 3"	3220 H. 3220 J.
6" x 2"	3932 H. 3932 J.
4" x 4½"	3956 H. 3956 J.

KEY TABLE OF ANGLE SIZES:
for cove bases and coves

All tiles are 3/8" thick.



COVE BASES ONLY: H = left stop end. J = right stop end

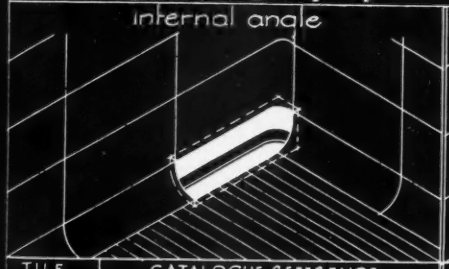
COVES ONLY { H = internal, J = external, corner. SL = left stop end. SR = right stop end

COVE BASES & COVES: Z = square internal angle.

ANGLE LETTER		WIDTH	RADIUS, Inches.	
internal	external	inches	interior	exterior
B	A	1.	3/8.	3/4.
E	C	1¼.	½.	7/8.
L	G	2.	1.	1⅜.
M	N	3.	1¾.	2⅛.

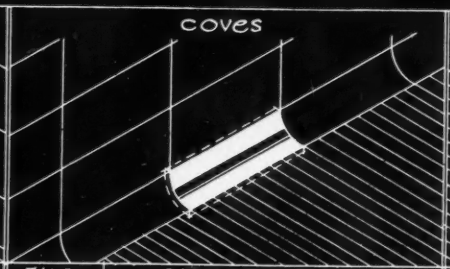
COVES:

internal angle



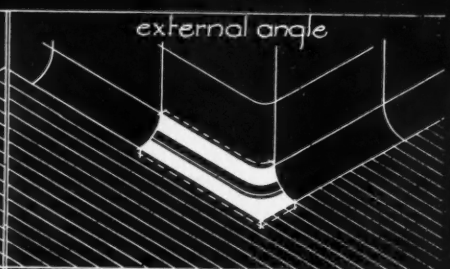
TILE SIZE	CATALOGUE REFERENCE NUMBER
.	.
6" x 2"	3060 E. 3060 L.

coves



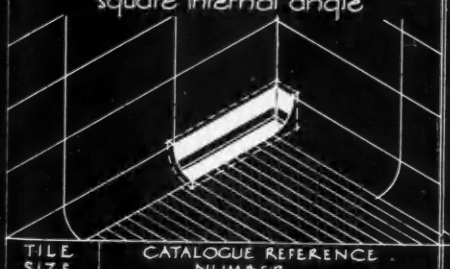
TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 3"	3058 .
6" x 2"	3060 .

external angle



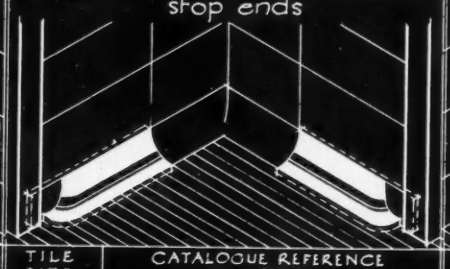
TILE SIZE	CATALOGUE REFERENCE NUMBER
.	.
6" x 2"	3060 C.

square internal angle



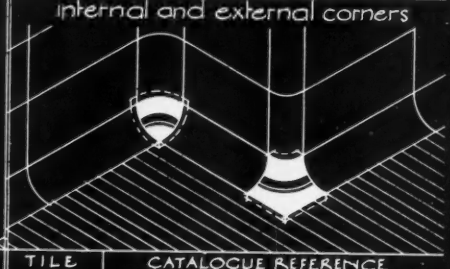
TILE SIZE	CATALOGUE REFERENCE NUMBER
.	.
6" x 2"	3060 Z.

stop ends



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 3"	3058 SL. 3058 SR.
6" x 2"	3060 SL. 3060 SR.

internal and external corners



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 3"	3058 H. 3058 J.
6" x 2"	3060 H. 3060 J.

Information from Richards Tiles Ltd.

INFORMATION SHEET: GLAZED WALL TILE FITTINGS 4: COVE BASES & COVES

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 205 •

WALL TILES

Type of Product : Glazed Wall Tile Fittings

(See also Information Sheets Nos. 92, 93, 99, 125, 127, 144 on other Tile Products of the same Manufacturers, and Sheets Nos. 180, 189 and 197 for previously illustrated Glazed Tile Fittings.)

The manufacturers' plain—or flat—tiles with which the fittings here illustrated are designed to work, are made in the following shapes and sizes :—

Squares	...	6″×6″, 4″×4″, 3″×3″, 2″×2″
Oblongs	...	6″×3″, 6″×2″, 6″×1½″, 6″×1″ 6″×½″, 4″×2″, 4″×1″, 4″×½″
Hexagons	...	(measured from side to side) 4″, 3″ and 2″, with the necessary halves.

Standard Thickness.—For all sizes of plain tiles and fittings, ⅜″. Plain tiles and Rounded Edge Tiles, in white glaze only, and in sizes 6″×6″ and 6″×3″ only, made also ¼″ thick.

Finish.—All tiles and fittings can be supplied in white glaze, and (except those ¼″ thick, as noted) in colours, both plain and mottled, of bright and eggshell finish.

Stocks.—Plain tiles and fittings are stocked by the Manufacturers in white glaze finish and in biscuit form (i.e. unglazed) ready for glazing in colour as ordered.

Special Fittings for special purposes are made to order as required.

Cove Bases and Coves.

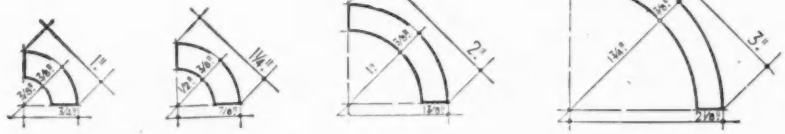
Although the terms "cove base" and "cove" are often used indiscriminately it is advisable to confine "cove base" to that tile which consists of a flat upper part with an internal sweep where it meets the floor, and "cove" to that which is an internal sweep only. The distinction is made clear in the illustrations. The advantages of the cove feature, which dispenses with the sharp dust-collecting angle where wall and floor meet, and which so greatly facilitates proper cleaning, are obvious. It is used for bathrooms, kitchens and lavatories, but more especially for hospitals, where considerations of cleanness and hygiene make it particularly important.

Measurement of Tile Angles.

The accepted angular measurement of a tile angle is not that of its radius (though the word radius is often used in this connection) but that of its *greatest width, measured in a straight line.* This applies equally to internal and external angles, the only difference between these being, of course, that the former are glazed on the inner and the latter on the outer surface. The diagrams given below, illustrating angles of different sizes, will make the matter clear.

In the case of Combination Angles and Angles to Cappings, Skirtings and Coves, the size and type of the angular part are indicated by the addition, after the reference number of the fitting itself, of a letter. The following are the letters used, with the meaning of each :

B=1″ Internal Angle. A=1″ External „ E=1¼″ Internal Angle. C=1¼″ External „ L=2″ Internal Angle. G=2″ External „ M=3″ Internal Angle N=3″ External „



1″ Angle Beads or B. & A. Angles. | 1¼″ Angle Beads or E. & C. Angles. | 2″ Angle Beads or L. & G. Angles. | 3″ Angle Beads or M. & N. Angles.

Although the manufacturers supply angles in all these sizes, their standard angle is the 1¼″, that having proved the most satisfactory for all ordinary purposes.

Name of Manufacturers :	Messrs. Richards Tiles, Ltd.
Address :	Tunstall, Stoke-on-Trent
Telephone :	Hanley 7215-8
London Office :	25 Victoria Street
Telephone :	Victoria 9218
Glasgow Office :	53 Bothwell Street Glasgow, C.2
Telephone :	Central 1768



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SPECIFICATIONS FOR PAINTING COMPOSITION BOARD SURFACES.

ENAMELS ON COMPOSITION BOARD SURFACES :

PRODUCT	TYPE OF SURFACE		PRIMING COAT.	SECOND COAT.	THIRD COAT.	FOURTH COAT.
DULUX NON-YELLOWING WHITE ENAMEL 81999 Also in tints to order. *For details see back of Sheet N° 4.*	Unpainted surfaces. Previously painted surfaces.	Interior only	Transparent Priming Liquid KZ.2078. or Best Japan Goldsize NG.402. Not required unless stripped to bare board.	Dulux Undercoat 178101	Dulux Undercoat 178101. (may be omitted if desired.)	Dulux Enamel.

IMITATION STONE PAINT ON COMPOSITION BOARD SURFACES :

PRODUCT.	TYPE OF SURFACE.		PRIMING COAT.	SECOND COAT.	THIRD COAT.	FOURTH COAT.
PETRUMITE IMITATION STONE PAINT *For details see back of Sheet N° 4.*	Unpainted surfaces Previously painted surfaces.	Interior only	Transparent Priming Liquid KZ.2078. or Best Japan Goldsize NG.402. Not required.	Petrumile Interior quality.	Petrumile Interior quality.	Additional coat of Petrumite if desired.

GLOSS PAINTS ON COMPOSITION BOARD SURFACES :

PRODUCT.	TYPE OF SURFACE.		PRIMING COAT.	SECOND COAT.	THIRD COAT.	FOURTH COAT.
DULUX *For details see back of Sheet N° 3.*	Unpainted surfaces. Previously painted surfaces.	Interior only	Transparent Priming Liquid KZ.2078. or Best Japan Goldsize NG.402. Not required unless stripped to bare board.	Dulux, selected shade, a thin coat brushed out uniformly. An undercoat can be supplied for use when white or light tints are used over a darker background.	Dulux, selected shade.	Not usually required, may be applied if desired.
S.E.G. SUPER ELASTIC GLOSS PAINT *For details see back of Sheet N° 3.*	Unpainted surfaces Previously painted surfaces.	Interior only	Transparent Priming Liquid KZ.2078 or Best Japan Goldsize NG.402. Not required unless stripped to bare board.	S.E.G. Undercoat of appropriate shade.	S.E.G. Undercoat of appropriate shade.	S.E.G. Finishing Coat, selected shade. The second coat of undercoating may be omitted except in the case of first-class work.

FLAT PAINTS ON COMPOSITION BOARD SURFACES :

PRODUCT.	TYPE OF SURFACE.		PRIMING COAT.	SECOND COAT.	THIRD COAT.
DULUX EGGSHELL & FLAT FINISHES *For details see back of Sheet N° 5.*	Unpainted surfaces. Previously painted surfaces.	Interior only.	Transparent Priming Liquid KZ.2078. or Best Japan Goldsize NG.402. Not required unless stripped to bare board.	Dulux, Eggshell or Flat finish, of selected shade.	Dulux, Eggshell or Flat finish, of selected shade.
SUPERMATT FLAT OIL PAINT. *For details see back of Sheet N° 5.*	Unpainted surfaces. Previously painted surfaces.	Interior only.	Transparent Priming Liquid KZ.2078. or Best Japan Goldsize NG.402. Not required unless stripped to bare board.	Supermatt, of selected shade.	Supermatt of selected shade.
NAYRODEC WATER PAINT. *For details see back of Sheet N° 5.*	Unpainted surfaces. Previously painted surfaces.	Interior Only.	Petrifying Liquid KZ.2059, tinted with selected shade of Nayrodec. Not required unless stripped to bare board.	Nayrodec of selected shade.	Nayrodec of selected shade.

ALUMINIUM PAINTS ON COMPOSITION BOARD SURFACES :

PRODUCT	TYPE OF SURFACE.		PRIMING COAT.	SECOND COAT.	THIRD COAT.
DULUX ALUMINIUM PAINT 87606. *For details see back of Sheet N° 3.*	Unpainted surfaces. Previously painted surfaces.	Interior only.	Dulux Aluminium or Transparent Priming Liquid KZ.2078 or Best Japan Goldsize NG.402. Not required unless stripped to bare board.	Dulux Aluminium	Dulux Aluminium if desired. Dulux Aluminium

Information from Nobel Chemical Finishes Ltd.

INFORMATION SHEET. DATA ON PRIMERS, PAINTS, VARNISHES, ETC. N°10

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INFORMATION SHEET

• 206 •

PAINTS

Product : Various Paints on Composite Board Surfaces

This is the tenth of a series of Sheets dealing comprehensively with the subject of painting and the protection of various surfaces.

PREPARATION OF COMPOSITION BOARD SURFACES, ETC., FOR PAINTING

New Work :

The surface to be painted must be free from dust, dirt, oil and grease, and must be thoroughly dry.

Old Surfaces :

All loose particles of old paint must be removed, and all grease, oil and dirt must be washed off with a suitable solvent. Care must be taken to wash off all traces of cleansing agents, as well as to see that the surface is thoroughly dried and dusted.

The Specifications given are based on experience of smooth-faced wallboards of low porosity, but on account of the variation in properties which are to be expected, due to the large number of these materials on the market, it cannot be expected that they will be completely satisfactory in every case. The company will advise on the treatment of any special wallboard upon receipt of a specimen.

"FRESTEX" is a new Decorative Plastic, and is made by a special process from a strong fireproof material.

General Characteristics :

Non-crazing.

Can be applied in varying thicknesses.

Reaches great hardness and strength, even on sharp outlines, in a very short time.

Has excellent setting qualities—a long working interval and no sharp set.

Mixing :

The material is supplied in the form of a fine powder, and may be mixed with hot or cold water. For normal working, about three parts by volume to one part of water will be found satisfactory ; but to get a thick coating for deep relief work the proportion should be increased. Should the mix become too stiff, it may be sprinkled with a little water and beaten up again.

Application :

The paste is applied by brush, the application being as thin as is consistent with the depth and effect desired. Frestex can be applied to any wall surface which is in reasonably good condition, and free from oil or grease.

Plaster Boards and Wall Boards.—Nail heads should be covered and joints should be filled in and covered over with Frestex. Embedded canvas scrim or wire gauze makes the job secure. Frestex over joints must be thoroughly dry before the surface is coated. It is well to go over the surface with a wet brush to remove dust and assist adhesion.

Bare Plaster Walls.—Generally speaking, no preparation is required, but where the surface is unduly porous it is well to apply a coat of Primer. The Special Primer, KM7604, has been found to give very satisfactory results.

Distempered Walls.—Loose or powdery distemper should be removed completely.

Painted Walls.—The Paint should be thoroughly rubbed down to provide a matt surface, and thus give a good bond. Where the paint film is cracked or loose, the wall must be scraped to remove the damaged film. Any grease or oil may be removed by the usual methods of rubbing the surface with a rag moistened with turpentine, or washing down with soap and water.

Brick and Block Walls.—Rough bricks, breeze blocks, etc., should be given a normal two-coat plastering treatment finished smooth.

Texturing :

The texturing is done immediately after application. If it is desired to make any modifications in the texture, the surface can, up till three or four hours after application, be softened by applying a wet brush.

Decoration :

A great deal must be left to the ingenuity of the craftsman. One of the most effective decorations is a "high-light" effect in two colours: a description of the method of obtaining this is as follows :

When the Frestex has become thoroughly hard (usually 24 hours is sufficient), it should be lightly rubbed over with sand-paper, where the treatment allows of this, to remove sharp edges. After the dust thus formed has been removed, the Frestex is painted with special Frestex groundcoat tinted to the desired shade. This forms the basis of the decorative scheme. When the groundcoat has been allowed to harden thoroughly (it is better to allow 16-24 hours for this) Frestex glaze, tinted to shade, is applied ; and where a high-light effect is wanted, this is obtained by wiping off the glaze, while it is still wet, from the raised portions of the surface, using a cloth or a rubber squeegee.

No sealer is required before the application of the groundcoat.

Both the groundcoat and the glaze can be sprayed. Where spraying can be done, the range of possible effects is greatly increased.

The groundcoat is white and the glaze transparent: both can be tinted to shade with colours in oil or colours in turps.

Frestex glaze, if desired, can be used as a medium for the application of metal powders.

Tints :

In addition to the neutral tint, which is a greyish colour, Frestex is supplied in the following shades :—

Cream	Pale Green	Lemon Yellow
Buff	Terra Cotta	Myosotis Blue.

Where colour is applied to the textured surface, the use of an appropriate tint of Frestex reduces to a minimum the disfigurement caused by accidental chipping.

Previous Sheets in this series were Nos. 188, 190, 192, 194, 196, 198, 200, 202 and 204.

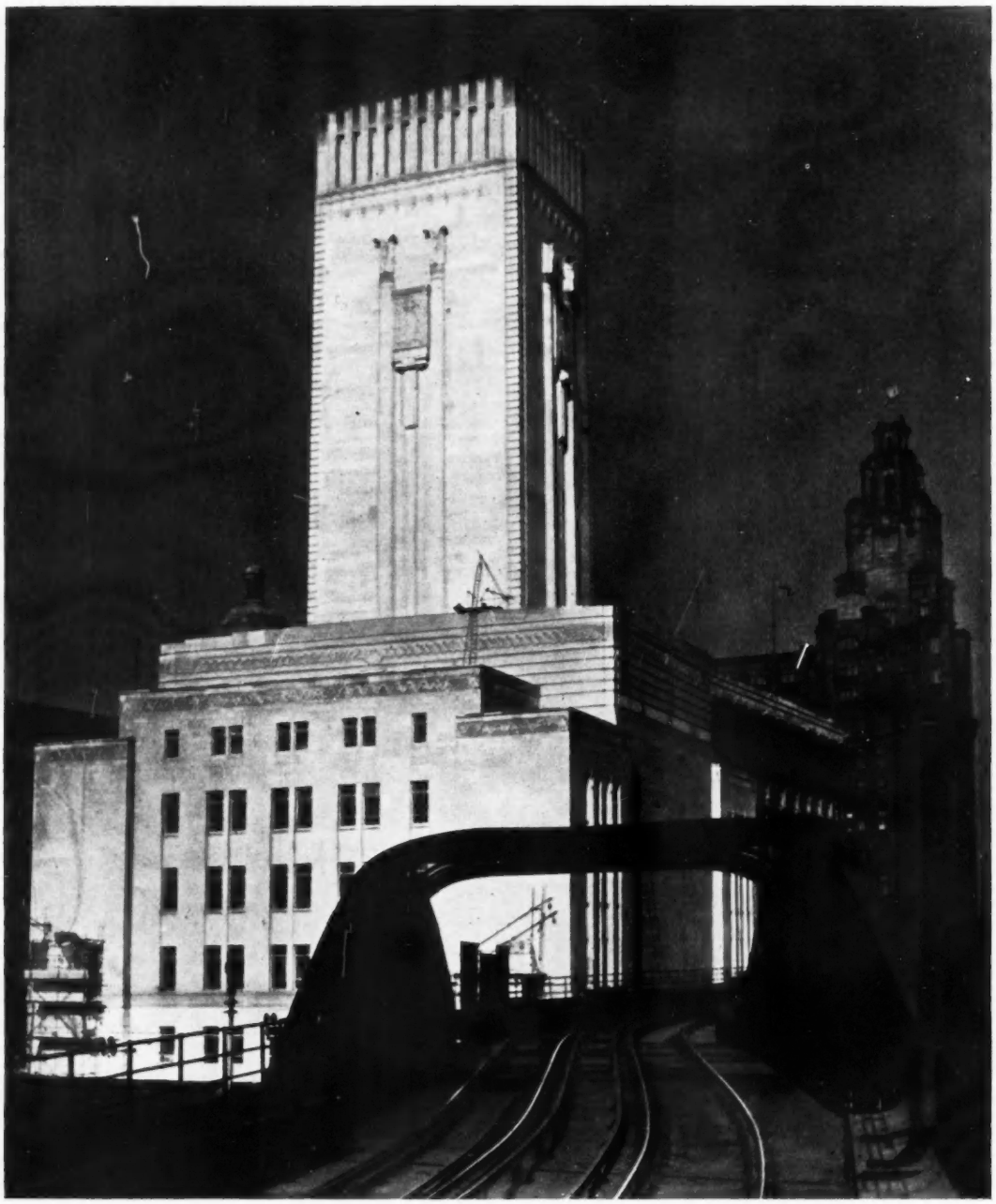
Name of Suppliers : Nobel Chemical Finishes, Ltd.
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1060 FOOT BRIDGE

NEW MOTOR HIGHWAY AT POPPELAU

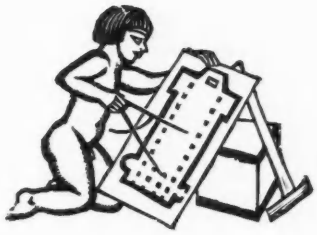


ONE of the new German motor highways is carried over the River Oder at Poppelau, Upper Silesia, by this great new bridge, recently completed. It has a total length of 325 metres, made up of two concrete approach spans at each end of 38·4 and 37·8 metres respectively, and three central steel girder spans measuring 45·2, 79·6 and 45·2 metres. Photograph by courtesy of the German State Railways.



MERSEY VENTILATING BUILDING

The main ventilation, control and administration building for the Mersey Tunnel is now on the point of completion. It contains in its central block the largest ventilation unit in the series of six ventilation buildings, and in the wings the Tunnel administration offices. The tower is 210 ft. high. The architect is Herbert J. Rowse and the sculptured decorations are by Thompson and Capstick, of Liverpool. This view of the building is taken from the Liverpool Overhead Railway, showing on the right one of the turrets of the Royal Liver Building.



R.I.B.A. JUNIOR

EVEN in this persistently schismatic age there is a great deal to be said, if only for reasons of expediency, for continuing to work within an existing tradition rather than seeking the same ends by breaking away from it. It is an experiment well worth making that the young members of the R.I.B.A. who are conscious of a certain failure on the part of the Institute to do all it might to represent the modern architect as a necessary member of organized society—a failure to be fully realistic in its approach to contemporary problems—should make an attempt to repair such an unsatisfactory state of affairs by action within the Institute itself. They have realized the extent and authority of the existing machinery for the organization of the profession possessed by the Institute, and that intelligent utilization of its authority has advantages over competitive abrogation of it.

This distinction between two methods of setting about the improvement of unsatisfactory conditions corresponds to the distinction made in the political sphere between the Reformist and the Revolutionary solutions. In the political field the supporters of the latter are apt to dismiss the former as attempting merely to compromise with the unacceptable ; to preserve the unsatisfactory system under a change of title or administrative technique ; but in the case of architectural politics it is not the system that is under criticism but the application of it. Some responsible co-ordinating body, governed by a democratically elected Council and demanding a standard of competence and behaviour as conditions of membership is obviously necessary to the profession—as it is to the public whom the profession serves ; and the Institute machinery, built up over a number of years, is, if cumbersome at times, well suited to its purpose.

The suggestion of utilization of existing machinery does not, of course, imply that a crowd of young members intends to usurp control of the Institute for its own ends ; there is no conspiracy on foot to undermine the authority of the experienced members. It is merely a question of growth in preference to stagnation and co-operation with the forces of growth in preference to schism. It is clear that the older members of the Institute (at least of the Council) realize this. They have not taken alarm at the prospect of a junior organization ; indeed, they have given every encouragement to its initiation. The Council is to be congratulated on its liberal attitude in this matter. This is shown in the announcement made at the informal meeting held on Wednesday of last week that the Council had accepted in principle the proposals for the formation of a junior committee and that a committee of four had been set up to put the proposals into concrete form.

How much value the formation of a junior committee will have it is, of course, too early to say. It can only justify itself by the work it does and the degree to which it achieves its intentions of organizing young enthusiasm for the benefit of the profession. It must be more than a debating body ; it should press for direct responsibility in discussing the affairs of the Institute by means of representation on the Council. It must not be used to side-track the younger members' otherwise inconvenient enthusiasm but to train it for participation in active administration.

This concern within the Institute for the co-operation of its younger members is clearly the result of the recent tendency towards independent activity among the younger architects. As a result of the kind of architectural *jugendbewegung* that is typical of these times and of the feeling of discontent with the unrealistic nature of Institute policy, a number of working organizations have been formed outside the Institute to enable the architect to approach those contemporary problems his conscience and observation make him aware of. The existence of these organizations, however, is not a phenomenon of which the Institute should disapprove or consider superfluous even when its own junior committee is in operation. There is much work to be done in many different ways, and we cannot be too completely organized for doing it. Each body has its own technique and its own limitations. The R.I.B.A. has its traditions, which are at the same time an asset and a handicap. Multiplicity of means is all to the good, so long as that does not imply wasteful duplication of effort or—still more wasteful—the expenditure of time and energy on unproductive antagonism. The only kind of rivalry permissible is a healthy competition—a factor which has already made itself felt in directing the attention of the Institute to the demands of its younger members. May the benefit be felt by both.



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NOTES & TOPICS

"INTERNATIONAL ARCHITECTURE" AT MANCHESTER

THE R.I.B.A. Centenary Exhibition is now at Manchester City Art Gallery, where it was opened last week by Sir Josiah Stamp.

*

Sir Josiah pointed out "how quickly even the most approved conceptions of one generation . . . may become not only obsolete but a financial nightmare." Speaking of Saint Pancras Hotel, he said: "It is a standing monument of the economic significance of fugitive taste embodied in everlasting material."

*

We can none of us carry this idea too vividly in our minds; we must not burden posterity with buildings which it can neither use nor afford to demolish.

*

I was recently talking to an architect who had been visiting a well-known architectural metal foundry. He confessed to being ashamed of himself; he had seen all the stages of the immense trouble and care which attend the production of a single casting, the careful full-sizing, the intricate joinery and elaborate wood-carving which go to the making of the "pattern"—a thing of real intrinsic beauty in itself. He had watched the hours of work and manual skill which result in the completion of the mould, and had followed the various stages in the finishing and surfacing of the metal.

*

"Now I realize," he said, "that when I go to the office and slap out any old detail in an hour or so, without very much inspiration, it means weeks of careful work for many fine craftsmen. And what upsets me is that the result is in a virtually imperishable material."

MORE WORDS FROM THE EARL

Once more the Earl of Malmesbury has delivered himself of a remark about architects. At the opening of the Knowle Mental Hospital, near Farnham, designed by A. L. Roberts, he made what was evidently intended as a "shrewd dig" at some younger architects of today. "They ought," he said, "to come along and see this beautiful building—the last word in mental hospitals. Who knows they might even be detained here for some time."

*

Well, personally, I may be thought to be a cautious—even over-cautious—man. I have not the indomitable certainty of many people that such and such a type of design is right and all others mostly wrong. Nor have I the confidence of the Earl, who is sure that what he himself fails to appreciate or understand is therefore the product of a defective mind.

THE INTELLIGENT LAYMAN

I see that the *Nottingham Evening Post* has been running a correspondence on the stupidity and ugliness of ribbon development, for which the architect has been largely blamed. But now an intelligent layman has made the surprising statement that "Architects are very often blamed for a great many blots on the landscape which they are not guilty of."

*

Of *course* they are, but I'm overjoyed that a layman should say so in print. If a building is bad enough to irritate the public, and it has to be *very* bad to do that, "these architects" are nearly always assumed to be responsible.

SANTA SOPHIA

I see that the vast discs bearing Arabic texts are being removed from the interior of Santa Sophia at Constantinople (no, I *won't* call it Istam-whatever it is), so that its superb sequence of ascending curves can be followed now, without the distraction of those pendant gauds.

*

How that gifted writer, the late Lisle March Phillipps, would have rejoiced in this new freedom for a building that he loved so deeply. I have just re-read his chapter on Santa Sophia in *The Works of Man*. Nobody can write today about architecture with such riches of scholarship or with such mellow observation.

*

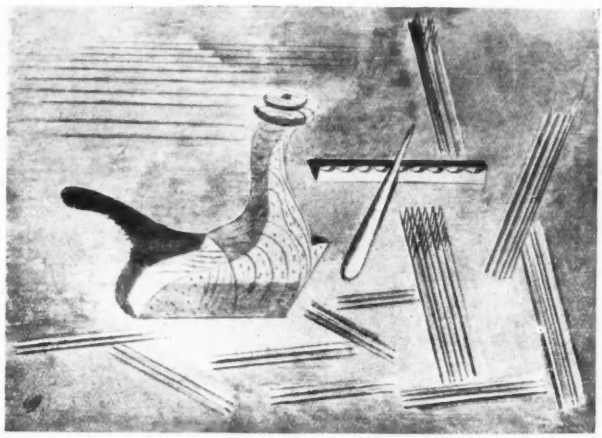
Well—two possible exceptions: Sir Reginald Blomfield and Robert Byron.

LONDON TRANSPORT'S PUBLICITY

The official announcement has just been made of Christian Barman's appointment as Publicity Officer to the London Passenger Transport Board. For some little time the fact has been getting round unofficially, and has been mentioned to me by several people, none of whom has expressed the least doubt that Christian Barman was a brilliant choice. One gets rather tired of having to hand bouquets to Frank Pick.

*

In effect the job is that of æsthetic general factotum.



Comment on Leda: water-colour drawing by Paul Nash. From the current exhibition of his water-colours at the Redfern Gallery.

Apart from control of maps, posters and advertisements in general, matters connected with the general appearance of the Board's properties and incidental equipment will come within Barman's scope.

*

Knowing London Transport as we do, it is not a matter of surprise so much as of deep satisfaction to find that good design of automatic machines and even of tickets comes under the heading of publicity; to find, in fact, that it is considered that everything which the public sees can be made to have an important propaganda value by the simple method of making it attractive to the eye.

*

CHRISTIAN BARMAN

"C.B." is, of course, an old enemy of mine; he was for some years editor of this JOURNAL, and also for a time of the *Architectural Review*.

*

He came to the JOURNAL from the Society of Architects, to which he had been assistant secretary and editor of *Architecture*, which he founded and ran most ably as a literary magazine. Only the other day I was looking at some back numbers and was struck by their very high quality, not only of the contributions but of the presentation.

*

Christian Barman's best known "job" is, I suppose, the Brompton Oratory Central Schools in Chelsea, which attracted a good deal of attention during 1930. He was also at one time art editor of the *Encyclopædia Britannica*. He was a Liverpool man under Professor Reilly and had training as well in Sir Edwin Lutyens's office.

PAUL NASH

If anyone wants to know how exciting a contemporary architectural drawing can be, he must go to the current exhibition of the work of a distinguished painter.

*

The most remarkable quality of Paul Nash's water-colour drawings, besides his peculiar sensitivity to materials, is the dignity that comes from understatement or, rather, under-emphasis of the obvious.

*

In such pictures as the one entitled "Sun Deck," simple but elegant nautical superstructure is composed into an unsentimental statement of architectural fact that is in the grand tradition of architectural draughtsmanship.

*

It puts the contemporary so-called "rendering" to shame. Paul Nash's wonderful sensitivity to materials is not limited to the accidental surface effect, but includes an intense curiosity about their structure and character; and that, I think, is where the difference lies.

DEATH OF A ROMANTIC

At 92 years of age Basil Champneys has died. He must be the last of the romantic figures of the mid-Victorian architectural world.

*

News of one of them is always apt to produce a certain nostalgia for the days when the architect had leisure to be part of the cultural activity of his time. Whatever we may think of the permanent importance of their work, we admire the contrast between the Victorian scholar and the modern business man.

*

As well as for his scholarship and his ability as a designer he will be remembered for his friendship with Robert Louis Stevenson, and as the biographer of Coventry Patmore. What architect of our day has a similar position in our own literary world?

AN OLDER NASH

Some while ago, on the occasion of John Summerson's paper on John Nash at the R.I.B.A., I made the following remark: "Its contents obviously sprang from real authority; in refreshing contrast to those *réchauffé* compilations of stale information and unsupported opinion that so often take the place of genuine scholarship."

*

Now his book on Nash, to which his paper was a kind of prelude, is out; and my remark is even more applicable. *John Nash, Architect to King George IV*, as he has pointedly called it, is the literary event of this year; an important book in the most permanent sense.

*

Mr. Summerson has placed his hero on no great pedestal. But Nash is not damned by faint praise; rather are his merits, as they were at the R.I.B.A. last December, clarified by judicious criticism.

*

The importance of Nash's own cultural and social environment is aptly emphasized, as well as the importance of parallel European development. Nash's figure is revealed, to quote myself again (why shouldn't I?), as the successful contriver, whose real achievement was the welding of autumnal classic with the romanticism of English landscape design.

THE ACTION

I see that Tuesday, May 7, has now been fixed for the hearing of the libel action against the R.I.B.A. Sir Patrick Hastings leads for the plaintiffs and Mr. Norman Birkett for the defendants.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

The immediate objective of the L.C.C. is the provision of some 10,000 flats annually to rehouse families displaced from the slums and for the relief of overcrowding 548

An increase in the wages of building operatives is expected to be recommended next week when the National Joint Council for the Building Industry meets the joint committee of employers and operatives 548

"*In its wisdom the Registration Council has decreed that 12,000 registered architects whom it represents, and by whom it is elected, must know nothing of its proceedings. And who are the 12,000 to question its decisions?*" 555

"*A street, when used as a garage, is the most expensive garage in the world.*" 558

L.C.C. AND HOUSING

The housing programme of the L.C.C. for 1935-1936 was discussed at a general meeting of the Council on Tuesday last. Following are some extracts from a report presented by the Housing Committee: "The capital estimates for 1935-36 in respect of housing amount, with provisional sums, to a total of £5,500,000. The capital estimates for 1934-35 amounted to £4,000,000, but, as the majority of the schemes in being at the commencement of the year had not advanced beyond their initial stages, the actual expenditure during the year is not expected to exceed £2,100,000.

"In order to accelerate the provision of accommodation under the housing programme, it has been decided to supplement the work of the architect's department by the employment of architects in private practice and thus to secure a greater immediate output of constructional work than would otherwise be possible. A time and progress schedule has been adopted for building operations and the time allowed to the contractors has been substantially shortened. The organization will gather increasing speed and no effort will be spared to reach the peak of production at the earliest practicable date.

"We have now had just over twelve months, since the present Council came into office, in which to make our preparations and to build up the organization required for the stupendous task which the Council is resolved to carry through. Although considerable progress has been made, we do not regard the output of houses as yet adequate to meet the real needs of the situation, and it is our intention to increase the rate of production still further by every practicable means. We anticipate the erection during the current year of a minimum of 5,000 flats in block dwellings and we shall endeavour to add to this number. Our immediate objective is the provision of some 10,000 flats annually to rehouse families displaced from the slums and for the relief of overcrowding, and, in addition, the development of suburban cottage estates in the requisite proportion to supplement this provision."

During the debate, Mr. W. H. Webbe urged the "erection of 10-storey buildings in congested areas so that a greater number of people displaced by clearance schemes can continue to live near their places of employment."

THE ARCHITECTS' DIARY

Thursday, April 11

SOCIETY OF ANTIQUARIES, *Burlington House, Piccadilly, W.1.* "*The Excavations at Colchester.*" *By C. F. C. Hawkes and M. R. Hull.* 8.30 *p.m.*

INSTITUTION OF ELECTRICAL ENGINEERS, *Savoy Place, W.C.* "*The Droitwich Broadcasting Station.*" *By N. Ashbridge, H. Bishop and B. N. MacLarty.* 6 *p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS. *At the Institution of Mechanical Engineers, Storey's Gate, S.W.1. Joint meeting with the British Section of the Société des Ingénieurs Civils de France.* "*The Bridge Across the Seine at La Roche Guyon.*" *By S. Boussiron.* 6 *p.m.*

Friday, April 12

INSTITUTION OF SANITARY ENGINEERS. *At Caxton Hall, Caxton Street, S.W.1.* "*The Manufacture of Concrete and Stoneware Pipes and their Uses.*" *By C. Poole.*

HAMPSHIRE AND ISLE OF WIGHT ARCHITECTURAL ASSOCIATION. *At Southampton. General meeting.* 6 *p.m.*

Saturday, April 13

ST. PAUL'S ECCLESIOLOGICAL SOCIETY. *Visit to St. Mary-the-Virgin Church, Langley Marish, Slough, Bucks.* 2.30 *p.m.*

Monday, April 15

R.I.B.A., 66 *Portland Place, W.1. Presentation of the Royal Gold Medal to W. M. Dudok.* 8.30 *p.m.*

ROYAL SOCIETY OF ARTS, *John Street, Adelphi, W.C.* "*The Part Played by Rubber in Transport.*" *By C. Macbeth.* 8 *p.m.*

Wednesday, April 17

INSTITUTION OF STRUCTURAL ENGINEERS, *Scottish Branch. At 129 Bath Street, Glasgow. Fourth annual general meeting.* "*Some Aspects of the Influences of the Aggregates on Concrete Strength.*" *By W. Hunter.* 7 *p.m.*

I.A.A.S. v. R.I.B.A.

May 7 is the date agreed upon for the hearing of the action for damages for alleged libel which the Incorporated Association of Architects and Surveyors is taking against the R.I.B.A.

The plaintiffs will be represented by Sir Patrick Hastings, K.C.; and the defendants by Mr. Norman Birkett, K.C. The hearing is expected to last three or four days.

R.I.B.A. EXHIBITION ON TOUR

On Friday last, Sir Josiah Stamp opened the R.I.B.A. Exhibition of International Architecture at the City Art Gallery, Manchester. He said that the much-needed reaction from the "wedding cake" architecture of the previous generation under the influence of the principles of "function" or "purpose" had gone to its extreme in starkness and so-called realism and was now, he hoped, on its way back to a more reasonable compromise. "It is not necessary to go back to fussiness to restore naturalistic or classic ornament to a reasonable place. One must sympathiae with the architect of to-day. He can no longer exercise his art of design untrammelled by extraneous considerations. The modern utilitarian building must, first of all, be a case or shell for preserving intact all those sybaritic amenities which make us merely parasitic upon our civilization." The building was a bundle of engineering gadgets. These must all be accessible for repair, extensions, or adjustment. When the architect had made a "box" which would accommodate all these, then, and not before, he could begin to exercise his artistic faculty.

BUILDING INDUSTRY AND WAGE INCREASE

An increase in the wages of building operatives is expected to be recommended next week when the National Joint Council for the building industry meets the joint committee of employers and operatives which has had under consideration the claim for an all-round increase of wages by a penny an hour.

It is learned unofficially that the recommendation will be for the increase in two instalments, the first payable in July and the second in January, except that in certain depressed areas only the first instalment shall be paid; and for the stabilization of the new rates for five years, subject only to the operation of the cost-of-living sliding scale.

A "GLASS AGE"

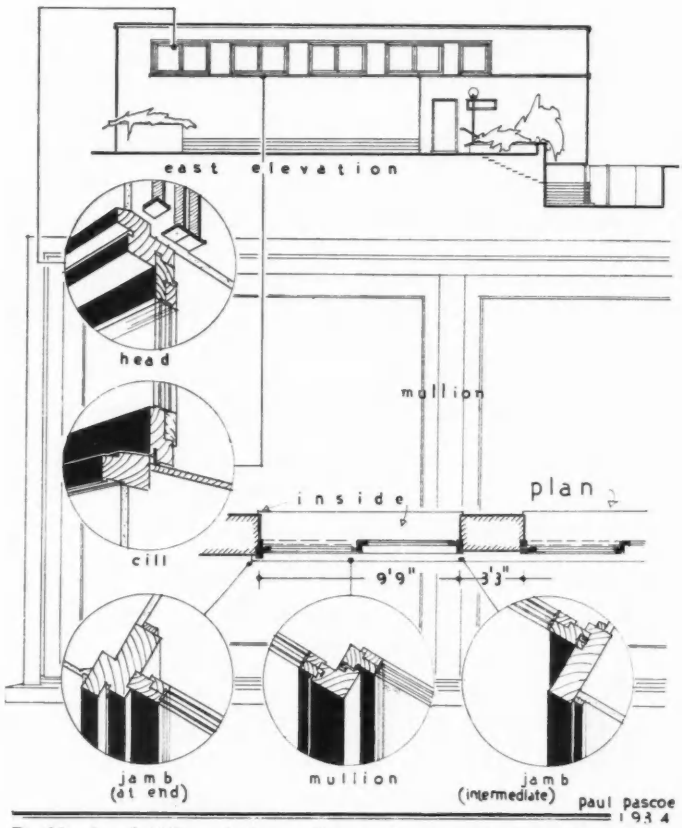
Mr. G. L. Pilkington, lecturing to the Liverpool Architectural Society last week, on the uses of glass, said that with glass as a decorative material, both internally and externally, coming more into prominence every day, a "glass age" was definitely arriving. In the Victorian era, with its richly decorative architecture as a setting, the standard of decorative glass design was distinctly weak in our present-day estimation. But with the war there came, especially on the Continent, a new era of economic building, completely purged of superfluous decoration, from which the architecture of the moment gradually evolved. We, as a nation, were slow to follow, possibly because we had less need for economy—a fact which was perhaps our misfortune. But due to a very gradual acceptance, first by the more revolutionary, or enlightened, architects, we might now be said to have broken away from the classic traditions of architecture, and what was now described as the "modern" style found acceptance by the most conservative critics and bodies in the country.

GARDEN CITIES AND SATELLITE TOWNS

The Report of the Departmental Committee on Garden Cities and Satellite Towns is now obtainable (price 6d.) from H.M. Stationery Office.

DEVON AND CORNWALL ARCHITECTURAL SOCIETY

The annual meeting of the Devon and Cornwall Architectural Society was held at Exeter on March 30 under the chairman-



Double glazed sliding windows. From a house at the Rupenhorn, Berlin. Designer: Erich Mendelsohn.

ship of Mr. W. J. Thomasson, A.R.I.B.A. The following officers were elected for the ensuing session: President, Mr. E. G. Catchpole, A.R.I.B.A. (Plymouth); vice-presidents, Messrs. E. Kemeys-Jenkin, F.R.I.B.A. (Exeter), and E. Cannon, L.R.I.B.A. (Plymouth); past-president, Mr. W. J. M. Thomasson, A.R.I.B.A. (Exeter); hon. treasurer, Mr. John Bennett, F.R.I.B.A. (Exeter); hon. auditor, Mr. L. F. Tonar, L.R.I.B.A. (Exeter); and hon. secretary, Mr. J. Challice, A.R.I.B.A. (Exeter).

TIMBER DEVELOPMENT

The Secretary of State for the Colonies has set up an organization under the Colonial Office for the development of colonial forest resources. By consent of the Department of Scientific and Industrial Research two of its technical officers have been transferred to the new organization, namely, Major F. M. Oliphant and Major J. R. Cosgrove, D.S.O., lately in charge of the Section of Utilization at the Laboratory.

The organization will be chiefly concerned with timber development, but will also interest itself in other forest products, such as wood pulp, fibres, gums and resins and the like. In both directions it will co-operate with the Imperial Institute. It will also work, of course, in close co-operation with the Forest Products Research Laboratory.

THE LATE BASIL CHAMPNEYS

Mr. Basil Champneys, whose death took place last week at his home at Hampstead, was responsible for the design of many collegiate and ecclesiastical buildings, and was also the recipient, in 1912, of the Royal Gold Medal of the R.I.B.A.

Born in 1842, Mr. Champneys was educated at Charterhouse and Trinity College, Cambridge, and received his architectural training under Mr. John Pritchard, Diocesan Architect of Llandaff. He began to practise on his own account in 1867.

He designed the Divinity and Literary schools at Cambridge, as well as Newnham College and the Archæological Museum. At Oxford he was responsible for the Indian Institute and Robinson Tower among other buildings. He was also the architect of many schools and churches in London and the provinces, including the Rylands Library at Manchester, and the Library, robing rooms and reredos for the Cathedral there.

He was the author of *A Quiet Corner of England*; *The Memoirs and Correspondence of Coventry Patmore* and other works.

THE HOUSING BILL

The Standing Committee of the House of Commons which is considering the Housing Bill is now within sight of the end of its labours.

At last week's sitting Mr. G. R. Strauss, from the Labour benches, moved to omit the sub-section of Clause 67 which provides that the maximum amount of the loan which local authorities may make to private persons for the purchase of their houses shall be reduced from £1,500, as allowed by the 1925 Act, to £800. Mr. Strauss argued that this provision had nothing to do with overcrowding, nor would it help to build a single extra house. It appeared to have been inserted in a quite irrelevant manner to do damage to a very useful service which local authorities were enabled to give, and it would prevent a certain class of people from buying their own houses as they had been able to do in the past. The effect would be that people who wished to buy houses at prices between £1,500 and £800 would now have to go to building societies, who exacted more onerous terms than the local authorities. The experience of the L.C.C. had been that in 1834, out of 484 applicants for advances, 271 were in respect of houses of which the prices were between £800 and £1,500. Therefore, 56 per cent. of the applicants would be wiped out if the sub-clause were passed. The service cost the ratepayers nothing, as the local authority took the house as security.

Sir G. Ellis, on the other hand, pointed out that the provision in the 1925 Act was intended to help working-class people who were not particularly well off. For people who were comparatively well off the building societies, who were a very valuable part of the credit system of the country, provided loans. A definite challenge was now being offered by a number of municipalities to the credit system which they wished to supplant. A very large amount of the reserves of the building societies were invested in loans of the municipal corporations, who could not have it both ways.

Mr. Selley said he hoped it would not go out from the Committee that Conservative members wished to deprive people of the facilities which they had enjoyed for many years for purchasing houses of the middle-class type.

After further debate, Mr. Shakespeare, Parliamentary Secretary to the Ministry of Health, said that the object of the provision was to enable local authorities to perform the same service which they had performed in the past when conditions were different. In fixing £800 as the limit of the loans, the Government were doing no more than making allowance for the fall in the cost of building. He suggested that the amendment should be withdrawn and stated that he would consult with the Minister of Health (who was absent from the Committee owing to illness) with reference to the limit that might be fixed.

The matter was still under discussion when the Committee adjourned.

ANNOUNCEMENT

Mr. Edgar A. D. Tanner, A.R.I.B.A., has removed his office to No. 25 Grosvenor Place, S.W.1. Telephone: Sloane 6625.

ON THE AIR

Thursday, April 11.—North Regional, 8.10 p.m. "Colour as applied to domestic interiors." By Mrs. Susanne Haward.

Monday, April 15.—10.45 a.m. National Programme. "Decorating Jobs." By Mr. G. M. Boumphrey.

Tuesday, April 16.—National Programme, 7.30 p.m. "The Village Church."

R. I. B. A.

R.I.B.A. PAMPHLET

The 1935 edition of the R.I.B.A. Pamphlet, *Membership of the R.I.B.A.*, has now been

published. Copies may be obtained from the Secretary, R.I.B.A. (price 1s. each, exclusive of postage).

The pamphlet, in addition to containing information regarding the examinations and membership of the R.I.B.A., contains full information regarding architectural training, and maps showing the local distribution of facilities available for architectural education in the British Empire are an important feature of the pamphlet. These maps are accompanied by a schedule showing the R.I.B.A. allied societies and their provinces and the educational facilities available in the province of each allied society.

COMPETITION



NEWS

BRANCH LIBRARY, LEICESTER

Mr. H. A. Gold, F.R.I.B.A., the assessor in the competition, limited to Leicester architects, for a branch library at Leicester, has made his award as follows :—

Design placed first (£70) : Messrs. Symington, Prince and Pike, F. and L.R.I.B.A.

Design placed second (£50) : Mr. George Nott, F.R.I.B.A.

Design placed third (£25) : Mr. K. W. Hamilton, L.R.I.B.A.

Hon. Mention : Mr. Malcolm Grieves.

HOUSE DESIGN, MANCHESTER BUILDING TRADES EXHIBITION

The management of the Manchester Building Trades Exhibition recently invited architects to submit designs for houses of three types. The assessors (Messrs. W. A. Johnson, F.R.I.B.A., Francis Jones, F.R.I.B.A., and Professor R. A. Cordingley, M.A., F.R.I.B.A.) have made their award as follows :—

Type A : Design placed first (£20) : Mr. Thomas Hargreaves, of Blackpool. Commended Design (£10) : Messrs. H. J. Whitfield Lewis, A.R.I.B.A., and Wallace G. Sweet, of London.

Type B : Design placed first (£30) : Messrs. H. J. Whitfield Lewis, A.R.I.B.A., and Wallace G. Sweet, of London.

Type C : Designs bracketed first (£10 each) : Mr. Reginald J. Duke, F.R.I.B.A., of London (two awards), and Mr. John D. Maidment, of Sheffield.

WORKING-CLASS FLATS

The winning and commended designs in the competition (organized by the Cement Marketing Co., Ltd.) for working-class flats will be exhibited at the Building Centre, New Bond Street, W.1, from April 16 to May 3, inclusive.

Competitions Open

April 16.—Small school library, Ackworth School, near Pontefract. The competition is open to members of the Society of Friends and Old Scholars of the School. Applications must be sent to the Bursar of Ackworth School, Nr. Pontefract, Yorks., not later than April 16.

April 30.—The Croydon Corporation invite the submission of designs for laying out an area in Central Croydon which is to provide an extension of the Civic Centre of the Borough and to improve central means of communication. Assessor : Dr. Thomas Adams, F.R.I.B.A., F.S.I., M.T.I. Premiums : £500 for the design placed first ; £350 to be divided (in proportions to be determined by the Assessor) for not more than three designs placed next in order of merit. A copy of the conditions is obtainable on application to the Town Clerk, Town Hall, Croydon. (Deposit £1 1s.) Designs are to be submitted not later than April 30.

May 31.—Sending-in day. Police station, dwellings and hospital, Bishopsgate, for the Corporation of London. Assessor : H. Austen Hall, F.R.I.B.A. Premiums : £250, £100 and £50. Conditions, etc., are obtainable from the Town Clerk, Guildhall, E.C.2. (Deposit £1 1s.) Last date for submission of designs, May 31.

June 28.—Sending-in Day. Municipal offices for the Birmingham City Council. Assessor : Sir Reginald Blomfield, R.A., PP.R.I.B.A. Premiums : £1,000, £600, £400 and £250. Conditions, etc., are obtainable from Mr. Herbert H. Humphries, M.INST.C.E., the City Engineer and Surveyor, Council offices, Birmingham. (Deposit £3 3s.) Designs must be submitted to the Town Clerk, Birmingham, not later than June 28.

June 29.—Sending-in Day. Municipal offices, Romford, for the Romford U.D.C. (Open to architects of British nationality practising in the British Isles.) Assessor : Kenneth M. B. Cross, M.A., F.R.I.B.A. Premiums : £250, £100 and £50. Conditions, etc., obtainable from the Clerk to the Council, Arcade Chambers, South Street, Romford. (Deposit, £1 1s.) Latest date for submission of designs : June 29.

July 4.—Sending-in Day. County offices, Kendal, for the Westmorland County Council. (Open to architects of British nationality, practising in the British Isles.) Assessor : G. H. Foggitt, F.R.I.B.A. Premiums : £200, £125 and £75. Conditions, etc., obtainable from H. B. Greenwood, Clerk to the Westmorland County Council, Exchange Chambers, Kendal. (Deposit £1 1s.) The latest date for submission of designs is July 4.

August 31.—Sending-in Day. Municipal offices, Swindon, for the Swindon Corporation. (Open to architects of British nationality, practising in the British Isles.) Assessor : Professor A. B. Knapp-Fisher, F.R.I.B.A. Premiums : £350, £250, and £150. May 25 is the last day for questions, and August 31 is the closing date. Conditions of the competition are obtainable from the Town Clerk, Town Hall, Swindon (deposit £1 1s.)

October 1.—Sending-in Day. Central county buildings, Hertford, for the Hertfordshire County Council. Assessor : Robert Atkinson, F.R.I.B.A. Premiums : £350, £250 and £150. Designs must not be submitted later than October 1. Particulars of the competition are obtainable from the Clerk of the County Council, Clerk of the Peace Office, Hertford. (Deposit £2 2s.)

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On page 393 of our issue for March 14 we published a photograph of a model of a Motordrome, designed by A. Bouxin and A. V. Pilichowski, and stated that the building was to be erected at the corner of the North Circular Road and Regent's Park Road, Finchley. This is incorrect. The Motordrome is proposed to be built in Hammersmith. On the site at Finchley a service station garage is being erected from the designs of Messrs. Haynes and Haynes, architects.

THIS ARSHETECTURE

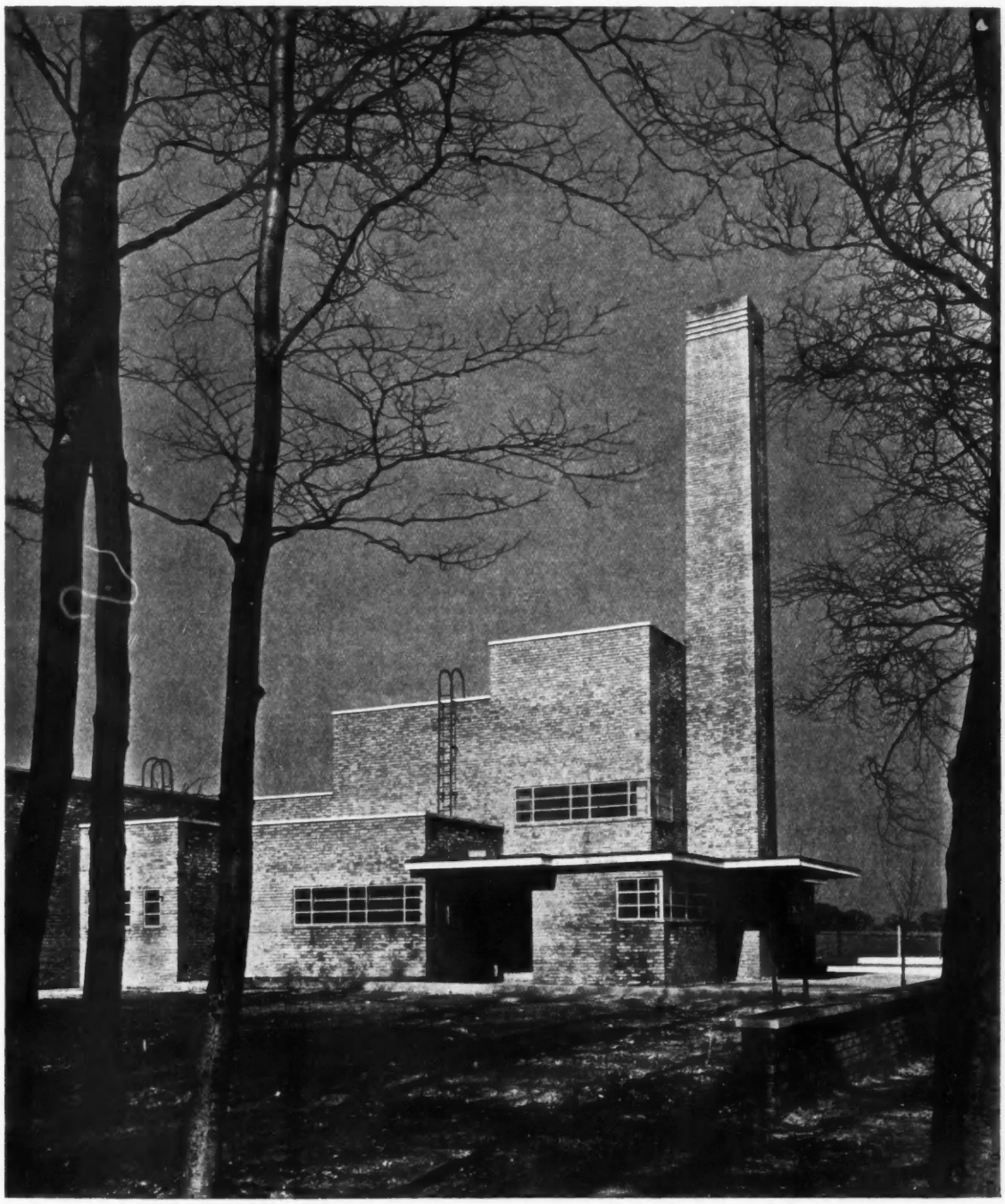
THE LORE OF THE ENGLISHMAN'S CASTLE

A city of gracious wonder, wherein every highway and byway is illumined with the love and lore of Home, came into being on Tuesday of last week when the *Daily Mail* Ideal Home Exhibition opened at Olympia, Kensington. Teeming treasuries of art and knowledge frame its miles of avenues and aisles, and every pavilion tells of the eager service of fine craftsmen in every kind of British industry. The British home has flourished in the reign of King George the Fifth. It has grown richer in antidotes for overwork ; and delights for the ear, eye and palate have become more numerous and more easily attainable.

As a spectacle, before emotions wander among the details of the picture, Jubilee City enthrals. At the end of the city's silver "broadway" between pavilions of furs, furniture and fair fitments there is a dominant vision of Windsor Castle framed in glowing splendour and filling the whole great Western Gable. Like a portico to this shining illustration of the sovereign home of homes in Britain there rise two broad fluted columns of opalescent light—a triumph of neon magic—and a grand staircase leads up to them, giving every visitor an impressive highway to broad elevated decks from which to view again the splendour of the city and its animated visitors. They look down upon a floral Union Jack made of tulips and framed in light.

Beneath and behind the Windsor Castle vista are the Gardens of the Nations. Masses of the ancient mountains each carefully selected and brought to Olympia, aged moss-painted stones and old hand-made bricks have been brought to Olympia to frame these pleasaunces that portray the opulent beauty or the graceful peace of gardens the world over. —From a preliminary announcement issued by the promoters of the Ideal Home Exhibition.

PITHEAD BATHS, SNOWDOWN, KENT



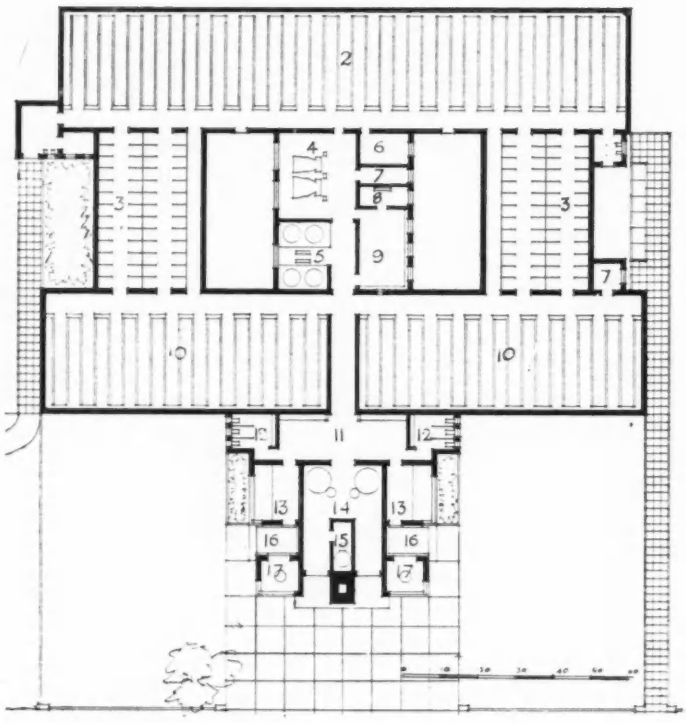
DESIGNED BY
C. G. KEMP
IN COLLABORATION
WITH
J. H. FORSHAW

This building is situated outside the colliery yard, on a site at the opposite side of the main road, adjoining a coppice consisting mainly of beech trees. Additional trees and shrubs have been planted on the site. The installation provides accommodation for 2,000 men. In addition to the locker rooms, the accommodation includes: a bath section, accommodating 104 shower cubicles, a calorifier room, boot-greasing rooms, boot cleaning rooms, bottle-filling room, lavatories, attendant's room, and first-aid room. Owing to the distance of the site from the colliery, a separate boiler plant was necessary. The scheme includes a sewage treatment plant and outfall drain. The contract price was £21,274.

PITHEAD BATHS, SNOWDOWN, KENT,



The main pit entrance to the baths: one of the boot greasing rooms is on the left and, in the centre, is the base of the chimney stack.



GROUND FLOOR PLAN

KEY TO THE ACCOMMODATION

1. Clean entrance
2. Clean locker room
3. Bath house
4. Plenum room.
5. Calorifier room
6. First-aid room
7. Store
8. Switch room
9. Attendant
10. Pit locker room
11. Bottle filling room
12. Lavatory
13. Boot cleaning room
14. Boiler room
15. Water softener
16. Pit entrance
17. Boot greasing room.

FOR THE MINERS' WELFARE COMMITTEE

DESIGNED BY

C. G. KEMP

IN COLLABORATION

WITH

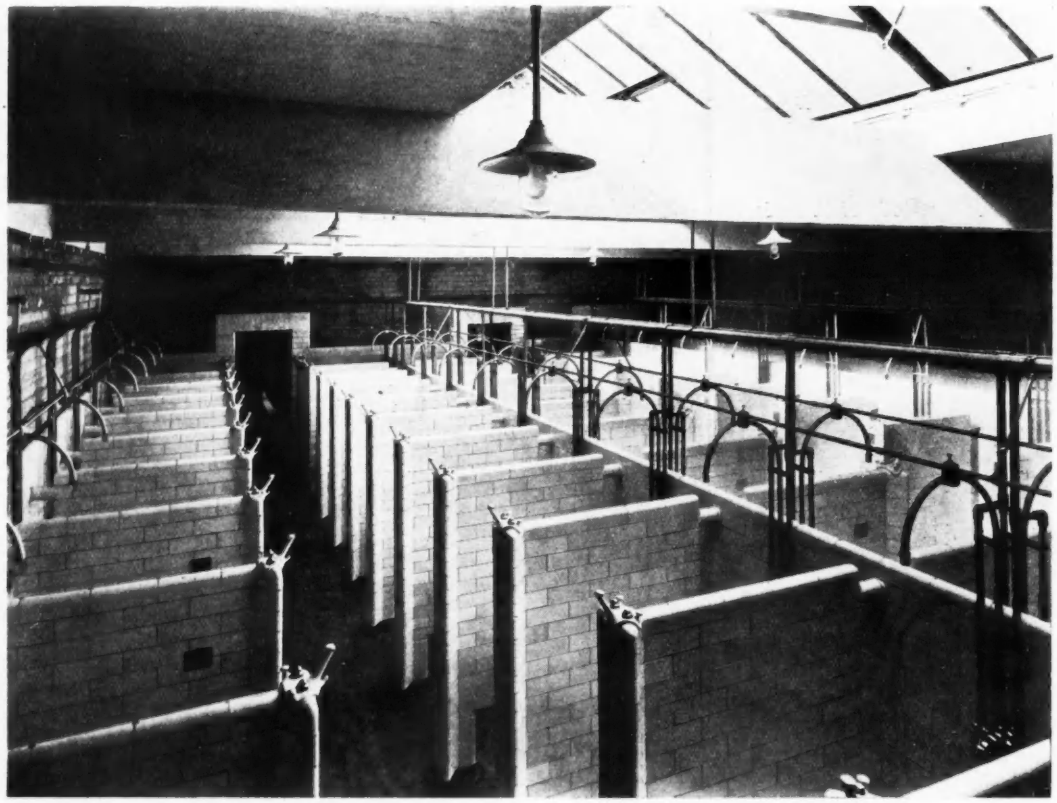
J. H. FORSHAW





CONSTRUCTION AND FINISHES. *Concrete frame, walls faced with local stock bricks, set in Flemish bond. Internal walls faced with cream bricks, bedded in white mortar, and finished fair face. The aggregate has been exposed in the finish of the ceiling of the locker rooms, and the beams are finished in white cement. Glazed tile finishes are provided in the cubicle section, boot cleaning and bottle-filling rooms and in lavatories, while in the first-aid room the finish is white enamel on hard plaster. Above is the locker room and on the left is the bottle-filling room.*

PITHEAD BATHS, SNOWDOWN, KENT





The illustrations on this page show : top, the shower room, containing 104 shower cubicles ; left, boot cleaning, and below, the boot greasing rooms.



DESIGNED BY C. G. KEMP, IN COLLABORATION WITH J. H. FORSHAW

LETTERS FROM READERS

ONE OF THE JOB SEEKERS
G. W. JACKSON, M.INST.R.A.
J. M. ALINGTON, M.A. (Oxon.), Registrar, Institute of Registered Architects.
GILBERT T. GARDNER, F.R.I.B.A.
MAJOR G. B. J. ATHOE (Secretary, Incorporated Association of Architects and Surveyors).
F. H. LESLIE

A Dearth of Assistants

SIR,—I understand from a friend of mine that Mr. Robert Atkinson recently wrote an article in one of the technical papers to the effect that there were plenty of vacancies at the present time in architectural offices, and that there was actually a dearth of experienced architectural assistants!

I did not see the article myself, but with all due respect to Mr. Atkinson, surely he is a trifle optimistic, to say the least of it? My own experience is that after applying for every possible job one hears of over a period of about six months, one is lucky to have replies from *three* advertisers, and needless to say, these are usually to state that the post is filled, or one finds that the advertiser for "an architectural assistant" really requires "an experienced quantity surveyor with about ten years' experience of bus garages" or such like. Others seem to require an experienced assistant at a salary one usually pays an office boy.

If Mr. Atkinson would inform us where some of these many jobs are to be had, he would earn our undying gratitude.

ONE OF THE JOB SEEKERS
London

The R.I.B.A. and Schismatic Bodies

SIR,—The leading article under this heading which appeared in your issue for September 14, 1933, is particularly interesting at this present moment, in view of two recent happenings, namely:

(1) The disbanding of the Amending Act Committee of the Registration Council; and

(2) The non-publication of Registration Council information.

Re the Amending Act Committee.—In the leading article under notice I read: "Within a few months of the formation of the Registration Council the R.I.B.A. proposed to it that a Registration Act Amending Committee should be formed . . ." and this was duly formed. I also read: ". . . they (the R.I.B.A.) are working as energetically as always for the good of the profession."

Many will agree that had energy been displayed in this matter some benefits, or at least the promise of some, would have resulted; but the facts are, according to records, no meeting of this Committee was held during the past year, and now the Committee has been disbanded. What or who is to take its place?

Surely Sir Edwin Lutyens was right when he invited all registered architects to join together in one Institute to press for the amendments which are necessary now as for the future. Registered architects now number over *twelve thousand*, and if these will only band themselves under energetic leadership they must achieve something in less time than three years.

Re Publicity.—I note in the same leading article, when referring to the Amendments Committee, you say, "whose existence indeed is quite unknown to many."

This lack of information, I suggest, has been the whole trouble with the past proceedings of the Registration Council. Twelve thousand registered architects have the right to know what their elected representatives are doing for them and what possibilities there are, if any, of amendments being made.

G. W. JACKSON
Bournemouth

The Registration Council

SIR,—May I be allowed to remonstrate—very gently, of course—with Astragal in regard to his comments upon the Registration Council and the Institute of Registered Architects in your issue dated April 4? He really must not be so loose in his general statements and in his questions, or some day he will be drawing—and conveying, which will be a far more serious matter—quite erroneous conclusions.

Astragal implies that because *he* has heard practically no comments on the recent Registration Council election interest therein must be slight. Astragal is perhaps a little premature. I would suggest that, if, as he states, the result was only generally announced during the week ending April 4 he had little opportunity of hearing comments before the JOURNAL went to press, or possibly that he did not travel into the right quarters to hear comments. Let me reassure Astragal as to the interest in the Council's doings—the interest is most certainly there, *and is growing.*

I agree that the Council's activities, *so far*, have not affected architects in practice much. But Astragal must really be a little more patient and give the Council a chance—it has only been in existence a mere three years, *so far*, and it has had much to do. The passing of applications for registration, the collection and acknowledgment of retention fees, the preparation of the register, the appointment of its many committees and of its officers—these are weighty matters.

It is possible, of course, that the Council has even given consideration to matters affecting the general welfare of the profession, but we may not touch upon this aspect, may we, Astragal? *Because we don't know!* In its wisdom the Registration Council has decreed that 12,000 registered architects whom it represents, and by whom it is elected, must know nothing of its proceedings. And who are the 12,000 to question its decisions?

The Council is indeed, potentially, a very powerful body, and if one is tempted to ask whether—as at present functioning—for good or bad, one must be forgiven. Incidentally, I wonder if Astragal can tell me why the Registration Council has disbanded its "Amending Act" Committee? Does the Council consider the Act such a measure of perfection that no amendments are necessary, or has the committee been disbanded because of its incompetence?

Astragal asks how an architect can be "unattached" and also a member of the I.R.A.? Astragal must really study the Act. *All* registered architects who are not members of societies specifically mentioned in the first section of the first schedule of the Act are classified as "unattached." Obviously, the Institute of *Registered* Architects could not be established until after the passage of the Act; equally obviously, it could not be included in the first schedule of the Act because it was not then in existence; those of its members, therefore, who are not also members of one or other of the societies enumerated in the first section of the first schedule are consequently labelled "unattached" for the purposes of the Act, and entitled to vote accordingly.

But Astragal makes great play with two extracts—quite unrelated to each other—taken from this Institute's recent circular, and concludes with the expression that "it is all wonderfully mysterious." What exactly is so "wonderfully mysterious"? The Act itself? I quite agree. The working of the Act? Again, I quite agree. But is there anything else which I have missed? Has Astragal unearthed a further mystery?

Astragal is at some pains to emphasize, by the use of italics, that his extracts are taken from a circular issued by the Institute of Registered Architects *before the result of the election was published.*

Actually, the result of the election was announced at the Registration Council's annual meeting held on March 28, whilst this Institute's circular was not issued until Thursday, April 4; an advance copy was, however, sent a day or two previously, in courtesy, to the editors of the technical journals in order to meet press requirements.

J. M. ALINGTON,
(Registrar, The Institute of Registered Architects, London)

The Witney Case

SIR,—In your issue for March 28, Mr. Rayson puts forward what is said to be the Town Planning Committee's point of view.

He says that "the point at issue was one of *three* criticisms, made by the Panel, of the client's original proposal." I am only concerned with the proposal put forward by myself, and it is this proposal, and this only, which was under discussion. He says "two of the *criticisms* were met, but not the third."

The three *conditions* attached to the Interim Development Certificate were:

(1) That the colour of the roof covering should be dark grey. I had already stated on the application form that stone coloured tiles were proposed, consequently there was no necessity to insert such a condition.

(2) The matter of the building line, etc., about which there was no question whatever; it only needed to be defined by the authority.

The third condition being the "battle of the panes" was a matter in which my client was intensely interested.

Mr. Rayson repeatedly refers to "the Panel" in a way to make it appear that this body consists of the *whole* panel of the Oxfordshire Society of Architects when he knows quite well that this particular case was supported only by himself and one other, the other members of the Oxfordshire Panel having, at a meeting specially called for the purpose, definitely declined to support the opposition to the appeal lodged on behalf of my client.

It is a matter for very considerable regret that the Panel of Architects has ost so much prestige in the district of Witney and, in fact, the whole of this county, consequent upon this case. It bitterly complains but appears to lack the courage publicly to disclaim its innocence.

This matter of dictation in regard to leaded glazing or small panes of glass has not been confined to "built up" areas such as Witney, but has been applied indiscriminately to isolated cases spread over the whole areas covered by the Witney and District Town Planning Committee and the Chipping Norton and Woodstock Town Planning Committee, both of which employ the same surveyor.

Mr. Rayson, at the appeal, stated that "no person of knowledge and sound judgment would ask for the mutilation of the character of an otherwise satisfactory house in the manner proposed." What right has he to charge my client with a lack of knowledge and sound judgment?

It may interest Mr. Rayson to know that the success of this appeal has been the subject of congratulations to me from all quarters, high and low. One postcard from a retired local solicitor with whom I am not acquainted, reads: "Hearty congratulations upon your bold triumph over Bureaucracy if not over 'Zummat other,' we yet live in War-ridden days and their spawn of Hell."

The house is now in course of erection, so that my client and her fiancé may in due course get married and "live happily ever after."

GILBERT T. GARDNER
Oxford

Housing's Poor Relations

SIR,—Astragal does well (and he has my thanks) for calling attention to housing and housing's illegitimate offspring, the speculative "builder." (*Vide* your issue for April 4.)

Recently I have been having a busman's holiday; that is, spending my week-ends inspecting some of the "desirable" residences advertised (and sometimes, unfortunately, boosted) in the popular press, and interviewing poor dupes who occupy them. Some building societies are to blame for subsidizing what can only be described as wicked work. It seems a truism that many of these societies appear to pay more regard to their "survey" of the prospective purchaser than they do to the survey of the property with which he is to be saddled. Incidentally, Lord Strabolgi and Mr. George Hicks, M.P., deserve the warmest praise for their public-spirited action in ventilating the just grievances of these poor dupes in the House of Lords and House of Commons respectively.

The manner in which some of the places which I have inspected are built and the materials used are in many cases nothing short of appalling. I predict that much of the housing of today will be the slums of tomorrow. Art and utility can be blended, but in none of the "houses" which I have personally seen can be found either art or stability. Whoever flattered himself that he put the ability into the stability made a mess of both—I strongly suspect the speculative "builder"—a master of craft. For definitions of this word "craft" see the nearest dictionary.

I hope that the Prince of Wales's appeal will not be in vain, but the response seems a long time coming.

G. B. J. ATHOE
London

Design of Flats

SIR,—Inspired by the competition for the design of cheap flats, perhaps you will let me, as an infuriated flat-hunter, pass on a few ideas and opinions which I have gathered in my hunting.

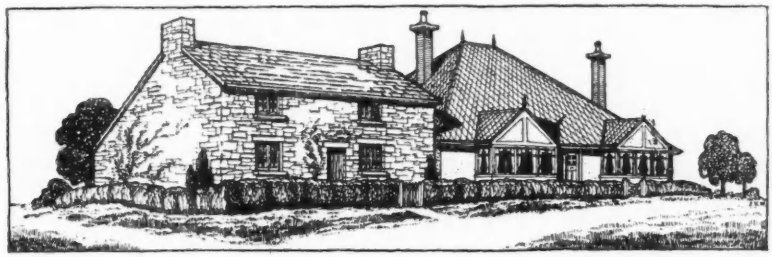
I have lately had to look for accommodation in London near Victoria Station. What can be said of the architects who were responsible for the class of house which is found in Belgravia and parts of Kensington? If they were architects at all it was of other people's destinies! God knows how many souls have been warped by having to accommodate themselves in the rooms of so-called architects. Popularly the housing problem is supposed to relate to slums. Let people restrict themselves to a rental of 25s. to 30s. a week, the average possible rent of the ordinary blackcoat, and they will find that there is also another housing problem.

These people who called themselves architects, perhaps after all were entitled to do so. Perhaps they did the best with the tools and desires of their day. Apparently it was the thing to have a basement and an attic—a convenient hideaway for people who were not members of the family, but necessary to have round the house—and as flats were not known then, I suppose it was essential to have a front-door opening on a narrow passageway. In nearly all the places I visited, I had to climb long dark narrow stairways, and when I looked out at the back, had a splendid view of boxes of brickwork, jutting out here and there. All rooms were poky, and of all shapes, except a few in the front of the house.

In looking over Chelsea, I found flats being put up which were a testimonial to the culture, skill and intelligence of the architect, and I was delighted with everything except the price. It was not one which I could pay. Then I took a quick look at various council flats, and hurried by. Whatever the price it was too dear.

Before any architect is entitled so to call himself, he should be required to serve six months as a furniture removal man. Having to shift furniture in narrow passages, awkward stairs and to negotiate with silly small windows and often, in daytime, work in the dark, would be the finest education for any architect. Could I but inflict my will, I would insist on that as a qualification before practice. He would then be an excellent architect, and people would rejoice in good interior accommodation with pleasing exteriors to their homes.

F. H. LESLIE
London



It was proposed to erect the above Bungalow in a village of old stone buildings. The design was submitted to the Panel, who considered it would be badly out of keeping with the existing houses. The Local Authority therefore rejected the plans and recommended a two-storied building more in harmony with the local style.

An illustration describing the work of the Advisory Panels. From "Housing in the Peak District."

L I T E R A T U R E

NORTHERN LIGHTS

[*BY CLOUGH WILLIAMS-ELLIS*]

Ryedale: a report on the district by the Ryedale Branch of the Council for the Preservation of Rural England. Edited by Colonel C. W. E. Duncombe. Appleton-le-Moors, York: C.P.R.E., Ryedale Branch. Price 4s. net.

Housing in the Peak District. Issued by the Peak District Advisory Panel. Sheffield: C.P.R.E., Sheffield and Peak District Committee. Price 1s. net.

EVEN if the C.P.R.E. never did anything whatever directly and on its own account and was not, in fact, the exceedingly active propagandist and interventionist body that it is, its existence would still be amply justified by the educative enterprise of its vigorous children.

Here, for instance, are two samples of the kind of thing that its provincial branches are apt to throw off, both admirable in their different ways and deserving of the widest possible circulation and attention in their respective districts.

That each is so thoroughly sound, both in its explicit doctrine and its implications, seems to show a most laudably close liaison between the parent body and its offspring, which is, however, the less surprising when one notices that Professor Patrick Abercrombie has a part in one and Mr. Guy Dawber a part in the other. In *Ryedale*, issued under the general editorship of Colonel Duncombe, Professor Abercrombie has a most lucid chapter on "Planning and Disfigurement" which should prove very helpful to those in the North Riding of Yorkshire who care what becomes of their heritage.

"Disfigurement must, indeed, be exorcized under the dual control of power exercised under bye-laws and the pressure of public opinion, and it is the object of a preservation society to press for the due (but not harsh) application of legal powers and to educate continuously public opinion, so that the legal powers will be less and less required. In order to carry out this programme, it would be well to survey the field of disfigurement and to concentrate upon the urgent and more reprehensible manifestations. It has often been said that the degree of permanency might well form a basis for a policy: to some extent this is wise, but not altogether. Urgency may suggest immediate and strong action against litter, the most ephemeral of disfigurements and the one easiest to cope with by means of opinion. In many ways the education of the public into simple habits of rural tidiness is a good beginning towards an all-round proper use of the country. At the same time it would be a pity to concentrate all effort upon clearing up paper and tins while ugly buildings were suffered to spring up unprotested.

"For a countryside like that covered by the Ryedale Branch, ugly new buildings are worse than litter or advertisements. We are told that many new buildings are shoddily built—but they will last an incredibly long time. Virginia creeper may do something to mitigate their ugliness, and the almost universal passion for gardening may distract our glances when near to: but nothing can really eliminate a building bad in form and materials. Help has been freely offered by the architectural profession, and legal powers are possessed by the local authorities (under the Town and County Planning Act 1932), so that, during this interregnum of bad building taste, control can be exercised to prevent permanent blots upon the landscape."

I wish I could feel as hopeful as the Professor as to the efficacy of any existing "control" or even of its being zealously used for what ever it may be worth by local authorities—whether existing or likely. But then, I feel that our present distresses in the matter of amenity are but a symptom of a general *malaise* that is really incurable until fundamental political changes allow the application of something more efficacious than our present timorous palliatives.

Yet, until we are adequately armed to defeat private trespass against public amenity, it may well be that the general reasonableness and moderation of Professor Abercrombie's Fabian tactics is better calculated to retard and cure the ill-doing of the thoughtless or the heartless than any denunciatory attack by more impatient patriots. Certainly he has the immense advantage of an unrivalled knowledge of his



Nunnington, a typical village of the neighbourhood. From "Ryedale."

subject, a wisdom that I suspect includes psychology.

As to the Peak District booklet, it is quite the best thing of its kind yet done and, with its coloured illustrations and admirable photographs, must obviously have cost a great deal more to produce than the shilling charged for it.

Very clearly it points out to the ordinary citizen the way to seemliness, good sense and good manners in the matter of building and lay-out, and I can think of no way in which the patriots of other parts of England (or of Wales) could better serve their own areas than by getting leave from the Peak District Advisory Panel just to crib from its little masterpiece, so far as it is applicable and, with suitable additions, publish their own local "Good Citizens Guide." As first-class propagandists for better building, I take off my hat to the Peak Panel.

Shorter Notices

Outlines of the History of Architecture, Part III: Renaissance Architecture. By Rexford Newcomb. London: Chapman and Hall, Ltd. Price 15s. net.

THIS is the third of four parts—digests of courses of lectures prepared by the Professor of History of Architecture and Dean of the College of Fine and Applied Arts of the University of Illinois. Schematic and exhaustive, it covers the Renaissance country by country, and aims at what the Professor terms "good class performance." (At the nature of a "regular quiz" we guess on reading, with awe, "One, and one only, make-up quiz will be held for those who have acceptable excuses for absence from a regular quiz.")

The student who can assimilate an appreciable percentage of the books recommended, of the characteristics of the buildings listed, should, fortified by a cast-iron constitution, be well on the way to an Honours degree. Among 18 "research topics" in the section "England," his attention is invited to "The Influence of Books, Engravings and Travel" upon our architecture; and among a further 26 suggestions is: "By means of sketches study the development of English mansion plans from the Elizabethan to the Georgian period." Go to it!

For note-taking purposes in class the back of each page is left blank; a good idea. "Robert and James Adams," on page 133, looks bad; there are other such slips. H. F.

Building Society Practice. By G. S. Riley. London: Macmillan. Price 10s. 6d. net.

THOUGH there has been a tremendous growth in the importance of building societies during the last ten years, and though there are three or four works on the law and several on the practice, management and finance respectively of such societies, there has been very little published dealing in a comprehensive way with their organization and practical working. This, Mr. Riley suggests, is because their methods of attaining their common purpose are remarkably different, and in a brief foreword Sir Enoch Hill points out the reason—out of more than a thousand societies operating in 1932-33 forty accounted for 70 per cent. of the total amount advanced on mortgages, while four were responsible for 33 per cent. of it. Accordingly, Mr. Riley has described a practice not of any particular society but of a model adapted to individual requirements. Separate chapters deal with the secretary's, cashier's, share, deposit, mortgage, accountant's and branches' departments, with law and audit, and there are appendices on the prescribed form of accounts, the special income-tax arrangement and the National Association of Building Societies. The book is clearly written and contains illustrations of specimen ledger sheets, etc.

G. B.

The Story of the Royal Society of Arts. Revised by G. K. Menzies, C.B.E., Secretary. London: John Murray. Price 3s. 6d. net.

BASED on Sir Henry Trueman Wood's official history, written while he was Secretary of the Royal Society of Arts, this book tells more shortly the tale of the Society's activities. Founded in 1754, it is the oldest of all the learned societies except two—the Royal and the Antiquaries'. The object of its founders, when they first met in a Covent Garden coffee-house, was "the Encouragement of Arts, Manufactures and Commerce in Great Britain."

The Society claims to have invented industrial exhibitions. From its earliest days it offered prizes to foster the Art of Drawing (Richard Cosway, the miniaturist-to-be, won the very first) and for mechanical inventions. The works submitted were placed on view. The idea grew until, under the energetic Presidency of the Prince Consort, the Great Exhibition of 1851 was promoted.

But before and for some time after the Society, in 1774, came into occupation of its present house in John Street, Adelphi, designed for it by the Brothers Adam, it had devoted much attention to agriculture and forestry. The swede and mangel-wurzel were introduced into this country through its agency. It was active, too, in India and the Colonies.

The Society administers several trusts. In 1929 it saved the village of High Wycombe. Its annual award of the Albert Medal is made for "distinguished merit in promoting Arts, Manufactures or Commerce"; among recent recipients have been Sir Aston Webb, Frank Brangwyn and Sir William Llewellyn.

Laxton's and Lockwood's Builders' Price Book, 1935. Edited by P. T. Walters, F.S.I. London: Kelly's Directories, Ltd. Price 10s. 6d. net.

LAXTON'S Builders' Guide and Price Book has made its one hundred and eighteenth annual appearance. It is full of information concerning prices of building work and fittings, divided into trade sections. There are tables and memoranda and scales of architects', surveyors', auctioneers' and estate agents' professional charges. A section of forty pages is devoted to legal notes.

One of the most useful lists is that giving trade names for proprietary materials and fittings, with names of manufacturers. It appears unusally comprehensive and contains some 11,000 titles. F. R. S. Y.

SOCIETIES AND INSTITUTIONS

GLASGOW INSTITUTE OF ARCHITECTS

"The relations between the profession and the public are, I think, improving considerably although gradually," said Mr. J. Maurice Arthur at the annual meeting of the Glasgow Institute of Architects.

"It is a sign for the good," he continued, "that some of the more important daily papers are devoting considerable space to the criticism and discussion of architectural matters. It is another sign for good that the other day the Corporation of Glasgow decided to promote an architectural competition for workmen's dwellings, and I think I am safe in predicting a most generous response from the profession and a result which should do something towards improving at least the æsthetic side of the housing problem."

TRAFFIC

Mr. T. P. Preist, lecturing recently to the Liverpool Engineering Society on "Traffic Control Signals," said that at some future time shops and business firms in the central areas of towns would be forced to provide parking spaces for their customers' cars off the highways. He predicted that the day would come when private vehicles would be forbidden in such areas, for, he said, two private vehicles carrying perhaps four persons required more road space than a public transport vehicle carrying sixty people.

The use of traffic control signals could not of itself solve the traffic problem. The traffic signal engineer's work should be co-operative with that of the road builder, for it was fundamental that safety and facility should be actually built into the highway if traffic problems were to be wholly solved. If average speed in congested areas, which was often as low as five to seven miles an hour, was to be increased, all avoidable delay at intersections must be reduced to a minimum. Mr. Preist stressed the value of the traffic actuated signal system by reason of its flexibility and capacity to cater for varying traffics, densities, types and speeds.

The control of road traffic was assuming more and more the aspect of a science and large cities would find in future that it would be necessary to employ a full time staff of competent traffic specialists or engineers to study and report on their traffic problems and to devise methods of control on a scientific basis.

A street when used as a garage was the most expensive garage in the world. The alternatives to clearing the streets were the costly major works which would be involved by any attempt to increase the widths of our city thoroughfares but, however achieved, it was certain that the roads must eventually be cleared for public transport.

WORKING DETAILS: 239

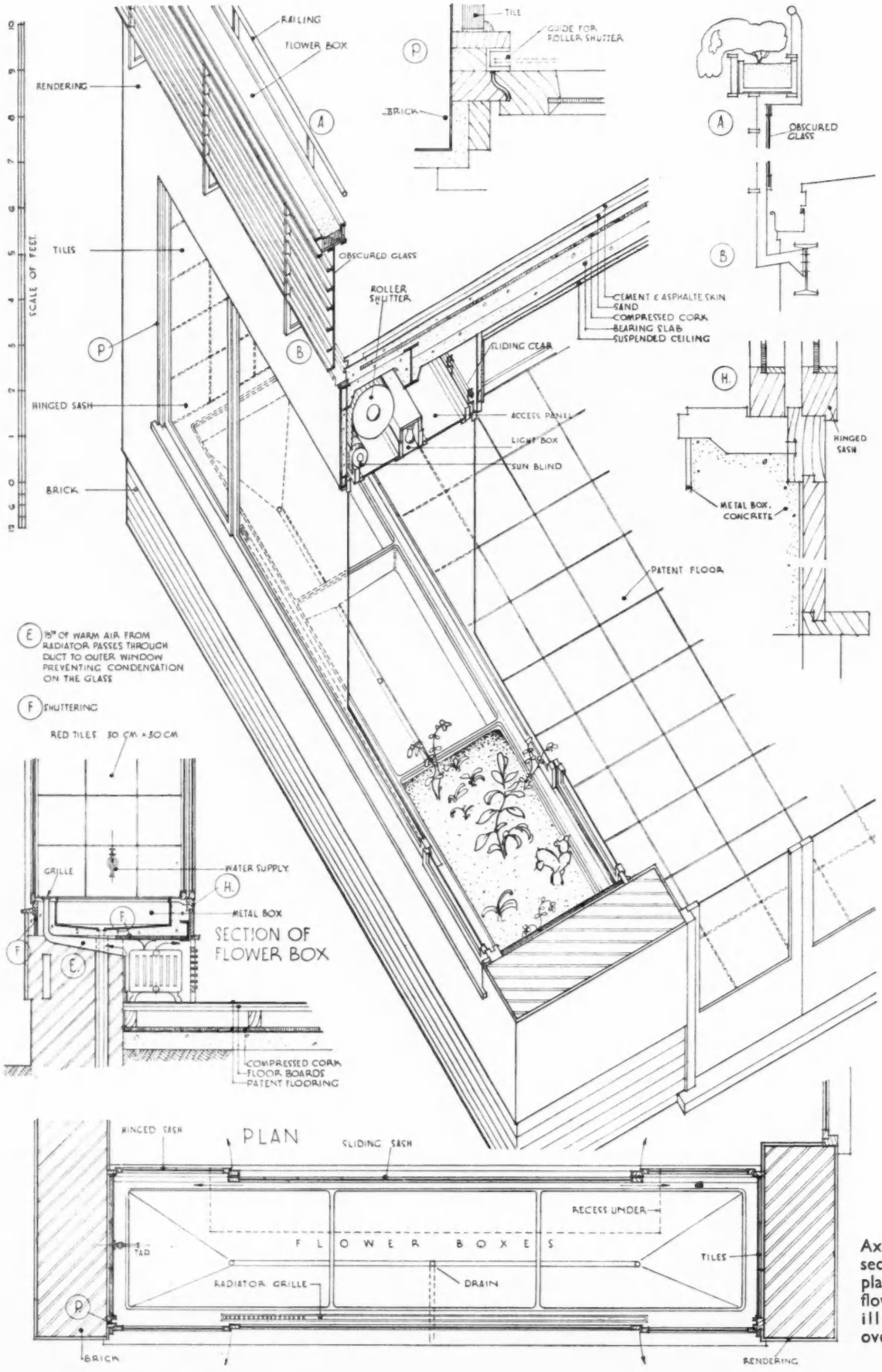
FLOWER WINDOW • HOUSE NEAR POTSDAM • WILHELM DOLL



The flower window has for many years been a normal feature of the German house, and the example illustrated above has been worked out with more than usual care for detail. Provision is made for watering the plants, and for draining the metal box in which they are planted, and above the radiator is a deflector which diverts part of the warm air through a duct and prevents condensation on the outer window (see section overleaf).

WORKING DETAILS : 240

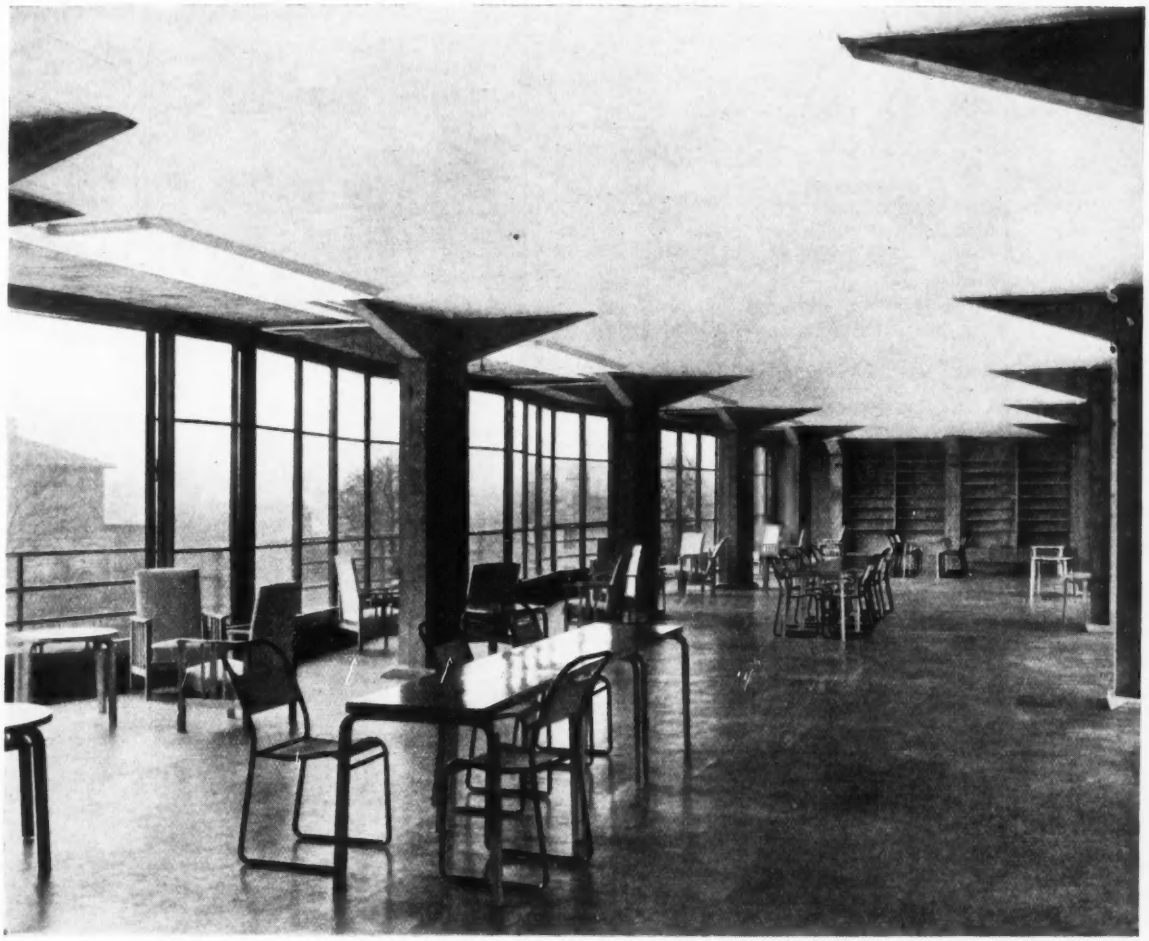
FLOWER WINDOW • HOUSE NEAR POTSDAM • WILHELM DOLL



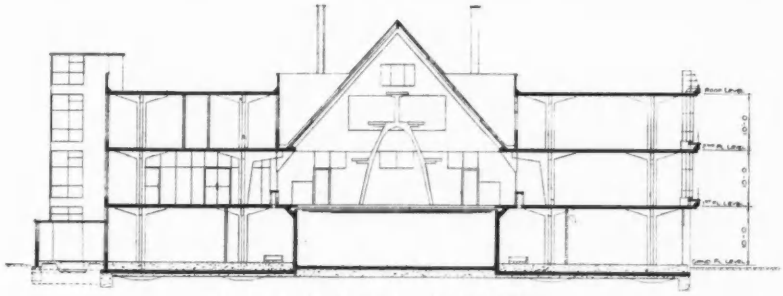
Axonometric, sections and plan of the flower box illustrated overleaf.

WORKING DETAILS : 241

FLOOR SLAB • PIONEER HEALTH CENTRE, PECKHAM • SIR E. OWEN WILLIAMS, K.B.E.



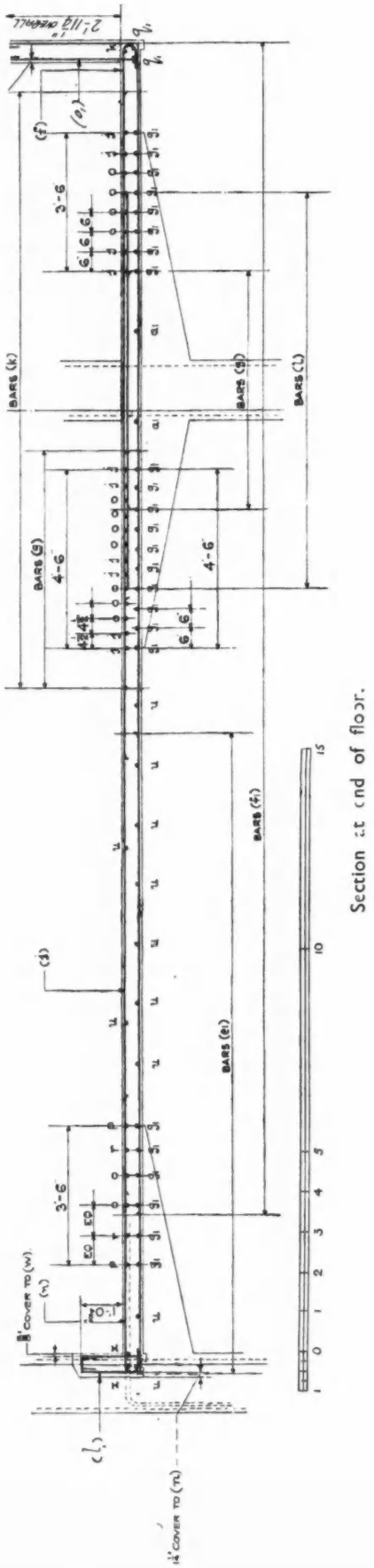
This building is of flat slab reinforced concrete construction throughout, based on a normal span of 18 ft., the standard slab thickness being 6 ins., with a 1 in. cork covering on the soffit for insulation and acoustic purposes. The drawings overleaf show sections of the floor slab reinforcement with a schedule of bar sizes. Above is a photograph of the library and rest room.

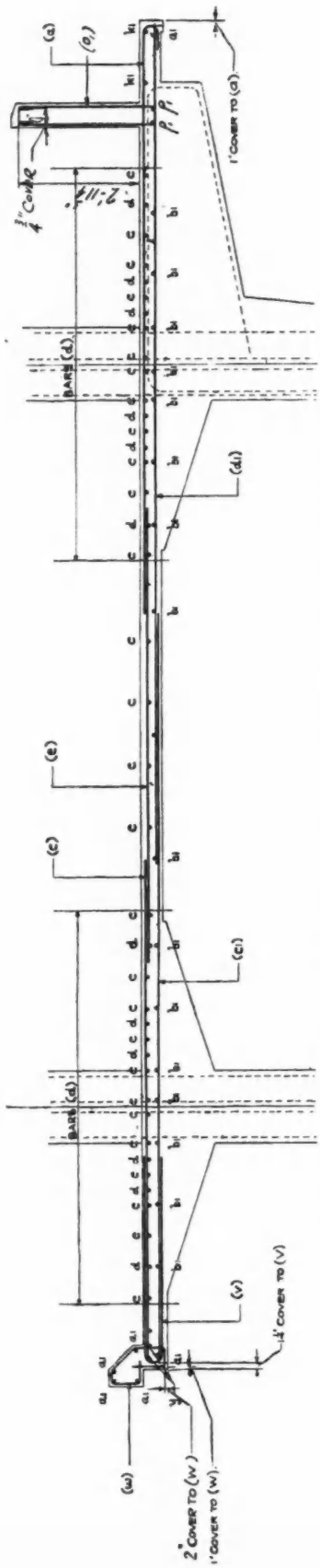


TRANSVERSE SECTION

WORKING DETAILS : 242

FLOOR SLAB • PIONEER HEALTH CENTRE, PECKHAM • SIR E. OWEN WILLIAMS, K.B.E.





SCHEDULE OF REINFORCEMENT

Mark	Size	Length	Mark	Size	Length	Mark	Size	Length
a	8"	15' 0"	o	8"	4' 6"	c_1	8"	18' 3"
c	8"	12' 0"	p	8"	19' 6"	d_1	8"	20' 3"
d	8"	9' 6"	r	8"	6' 0"	e_1	8"	16' 0"
e	8"	11' 0"	u	1"	19' 0"	f_1	8"	29' 6"
f	3"	18' 9"	v	3"	10' 6"	g_1	8"	14' 0"
g	3"	6' 0"	w	1"	4' 0"	k_1	3"	as convenient
j	8"	15' 0"	x	3"	19' 6"	l_1	8"	4' 6"
k	3"	15' 0"	y	3"	29' 0"	o_1	8"	8' 0"
l	3"	10' 0"	a_1	1"	as convenient	p_1	8"	21' 0"
n	8"	7' 9"	b_1	8"	24' 0"	q	3"	31' 0"

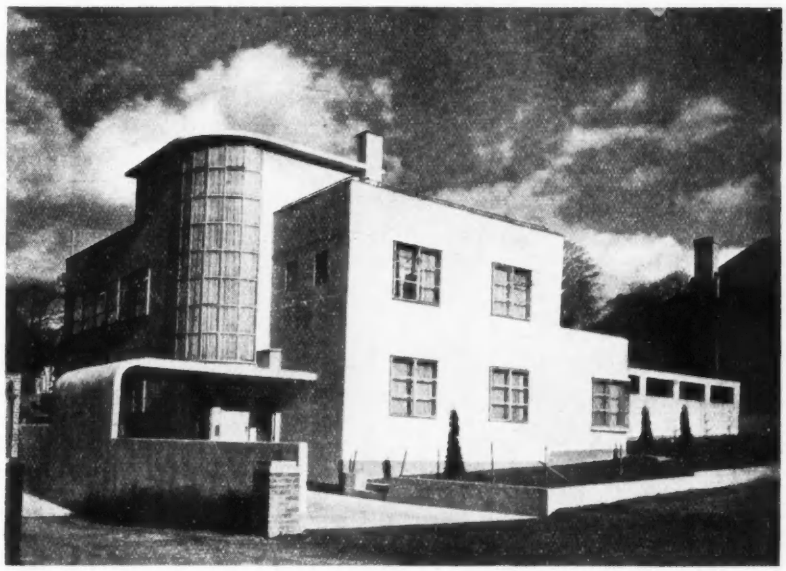
HOUSE AT HAMPSTEAD

At the special request of the client, this house was built in reinforced concrete with a flat roof, and was arranged to be as convenient to run and as labour-saving as possible.

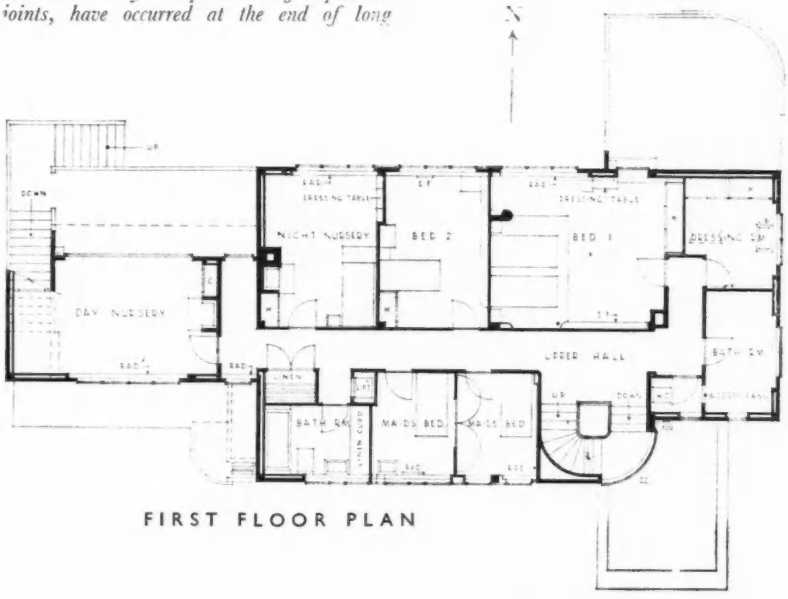
SITE. *The road frontage of the plot was 105 ft., with an average depth of 280 ft., running approximately north and south. The ground sloped sharply from north-east to south-west.*

PLAN. *The house has been designed to give privacy in the garden and to secure ample sunlight; the curtain wall at the end of the tennis court has been continued upwards and passes over the roof, securing privacy for the greater part of the roof garden and the terrace, and screening the dining and bedrooms from the road.*

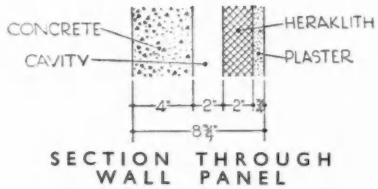
CONSTRUCTION. *The house is wholly in reinforced concrete with hollow tile floors: the main structure is of frame type, but the intermediate panels are constructed as if the building were monolithic, and are interwoven with the posts and beams. A few expansion cracks, which could have been avoided by the provision of expansion joints, have occurred at the end of long runs. The panels are composed of 4 in. of concrete, a 2 in. cavity and 2 in. of impregnated woven wood (see diagram). The external wall surface is finished with a special paint, giving a hard skin that can be cleaned down like stonework.*



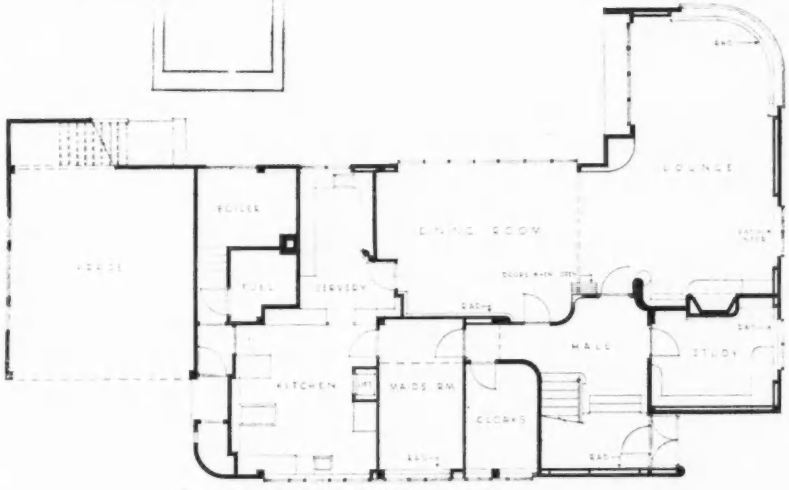
DESIGNED BY PERCY TUBBS, SON AND DUNCAN



FIRST FLOOR PLAN



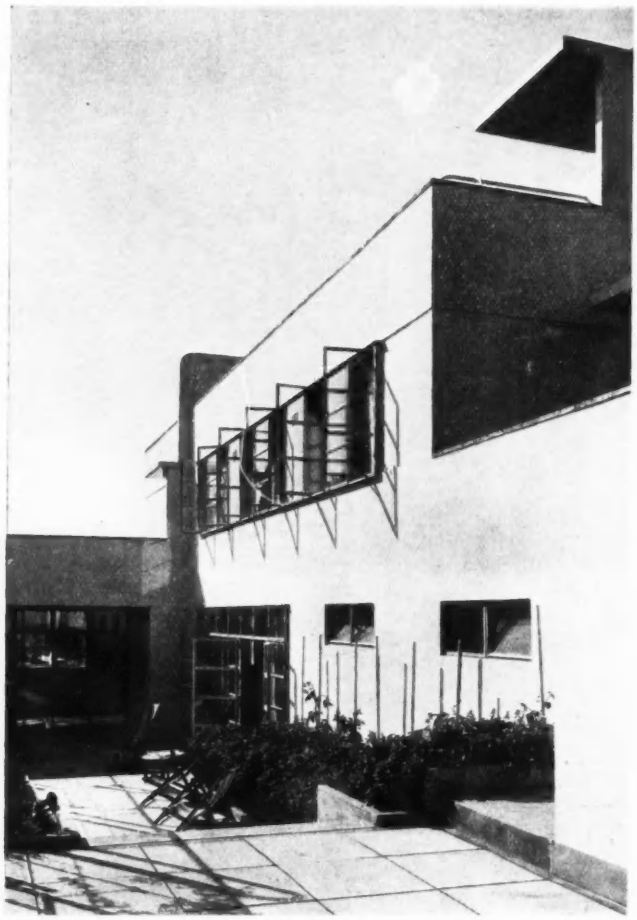
SECTION THROUGH WALL PANEL

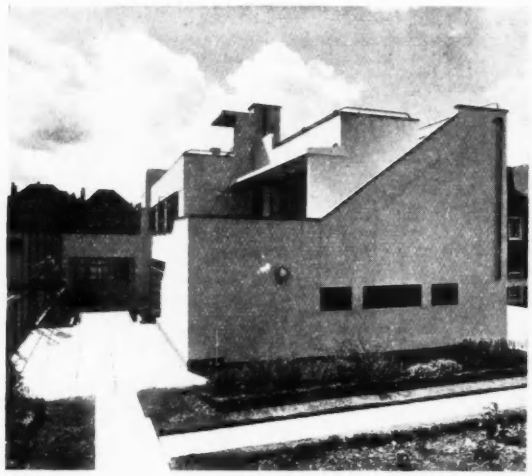


GROUND FLOOR PLAN

D

HOUSE IN HAMPSTEAD : BY PERCY

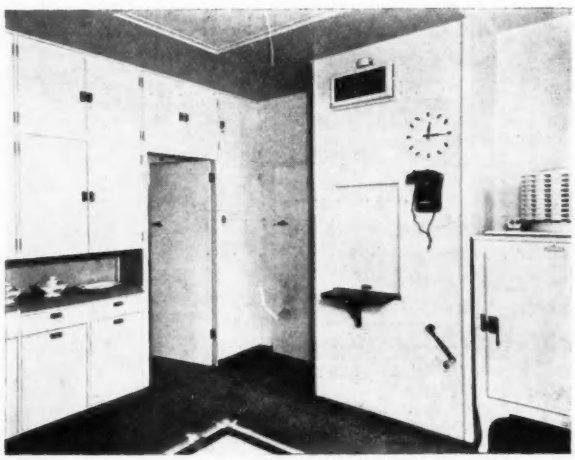




EQUIPMENT. *The heating is low-temperature hot water from an oil-fired boiler (calorifier for domestic hot water) thermostatically controlled. The heating surfaces are a mixed scheme of panel heating and "ray-rads": this avoids any undue loss of radiant heat which might be caused by obstructions between the sources of heat and the room. As the glass areas are much greater than normal, special precautions were taken to avoid draughts from the cold surfaces. The large windows and folding doors have hot pipes surrounding them, and heated panels in the floors. All the rooms have additional electric fires, the lounge has a large open-hearth fire and one bedroom has an open fire in case of illness.*

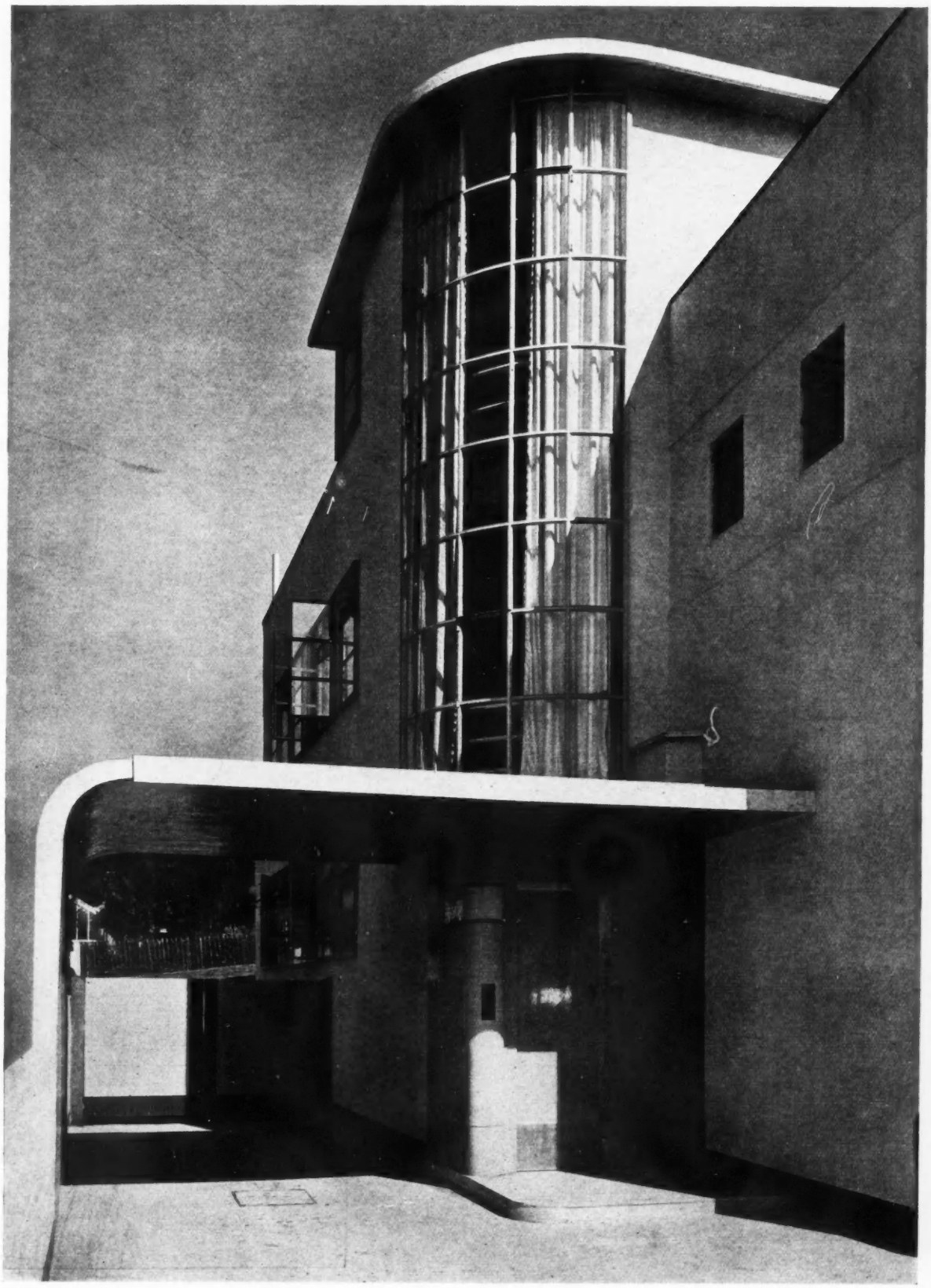
The reception rooms have an extended scheme of decorative lighting for entertaining. The total floor space for dancing on the semi-sprung Tasmanian oak floor is about 530 ft., and the terrace outside about 250 ft. The kitchen and servery is specially arranged so that while it serves the normal use of the house, it is possible to employ it effectively for entertaining or dinner parties.



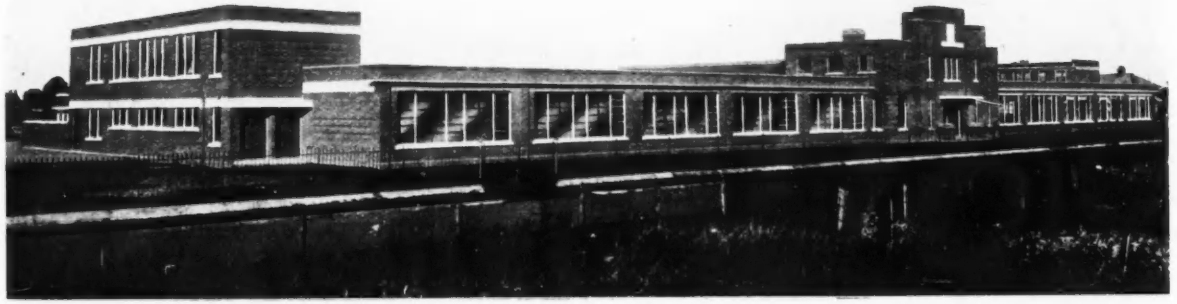


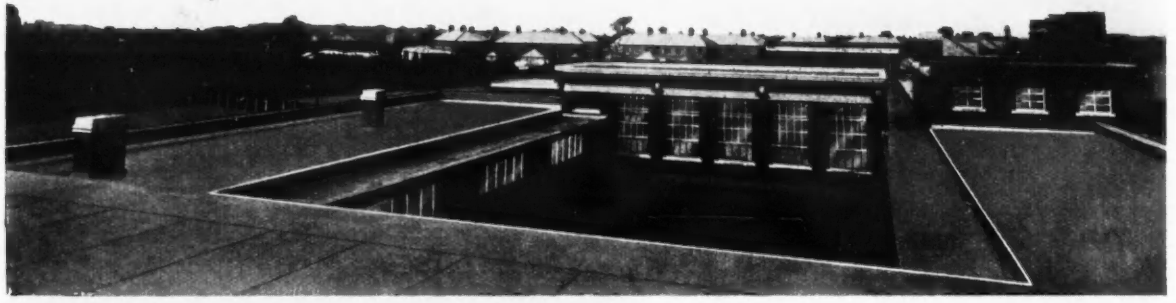
The photographs on this page show : top, two views of the house from the north-east; above, the kitchen, showing the hand-operated lift; left, the lounge, seen from the entrance door. On the opposite page is a detail of the main entrance, which has a concrete canopy to shelter cars.

TUBBS, SON AND DUNCAN

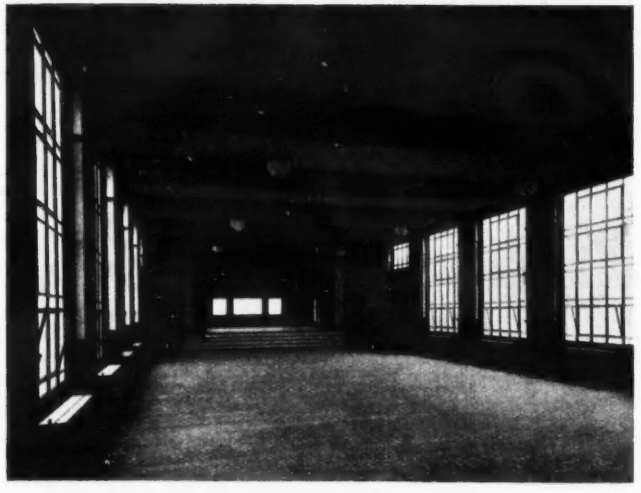


SCHOOL AT MARCH, ISLE OF ELY









This senior elementary school has been built to accommodate 640 children of eleven years of age and upwards; the cost has been kept extremely low (less than £24 per place). The site area is 5¾ acres, with a frontage of 400 ft.; about 3 acres is reserved as a playing field. The building was designed by Mr. R. D. Robson, County Architect, Isle of Ely, assisted by Mr. S. Gregson.

ACCOMMODATION. *320 boys and 320 girls. The boys' school contains five classrooms, each of 480 sq. ft.; two manual training rooms of 750 sq. ft.; a science room of 900 sq. ft. with a 48 sq. ft. annexe, and an art room of 720 sq. ft. The girls' school has the same number of classrooms; two domestic subject rooms of 750 sq. ft.; a craft room of 900 sq. ft.; and a combined craft and dining-room of 720 sq. ft., which is used as a communal dining-room by both boys and girls in relays.*

CONSTRUCTION. *Reinforced concrete foundations. Walls, 9 in. brickwork with 4½ in. by 14 in. piers; and administration block and assembly hall in 14 in. Facings are multi-coloured rustic: all other brickwork cellular. All brickwork is laid in cement mortar and reinforced.*

Roofs reinforced concrete beams and lintols with pre-cast concrete frames filled with hollow tiles and covered with fine concrete. This is finished with three layers of bitumastic roofing with copper flashings, and painted with two coats of aluminium paint to reduce heat absorption by the bitumen.

FINISHES AND EQUIPMENT. *All metal windows fixed in wood frames. Windows were designed for the building and to give proper ventilation whatever the weather might be outside, and in the majority of rooms they are capable of 100 per cent. opening. The actual area of glass per standard 480 sq. ft. classroom, after deducting all glazing bars, etc., is 109 sq. ft. of direct external light and 40 sq. ft. of borrowed light on the corridor side.*

COST. *The accepted tender was £15,281 10s., and this included £300 for contingencies.*

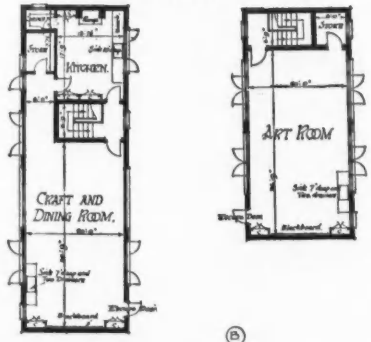
Cost per place is £23 17s. 6d., and per cubic foot is approximately 1s. 0½d., based on a cube of 292,295 cu. ft.

The photographs show: on the opposite page the exterior and a view of the assembly hall; right, the combined craft and dining room. Below, plans of the craft and dining room; and the art room which is over the cloakrooms in the north wing.

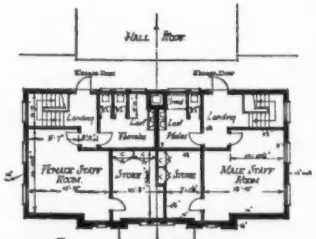
D E S I G N E D B Y

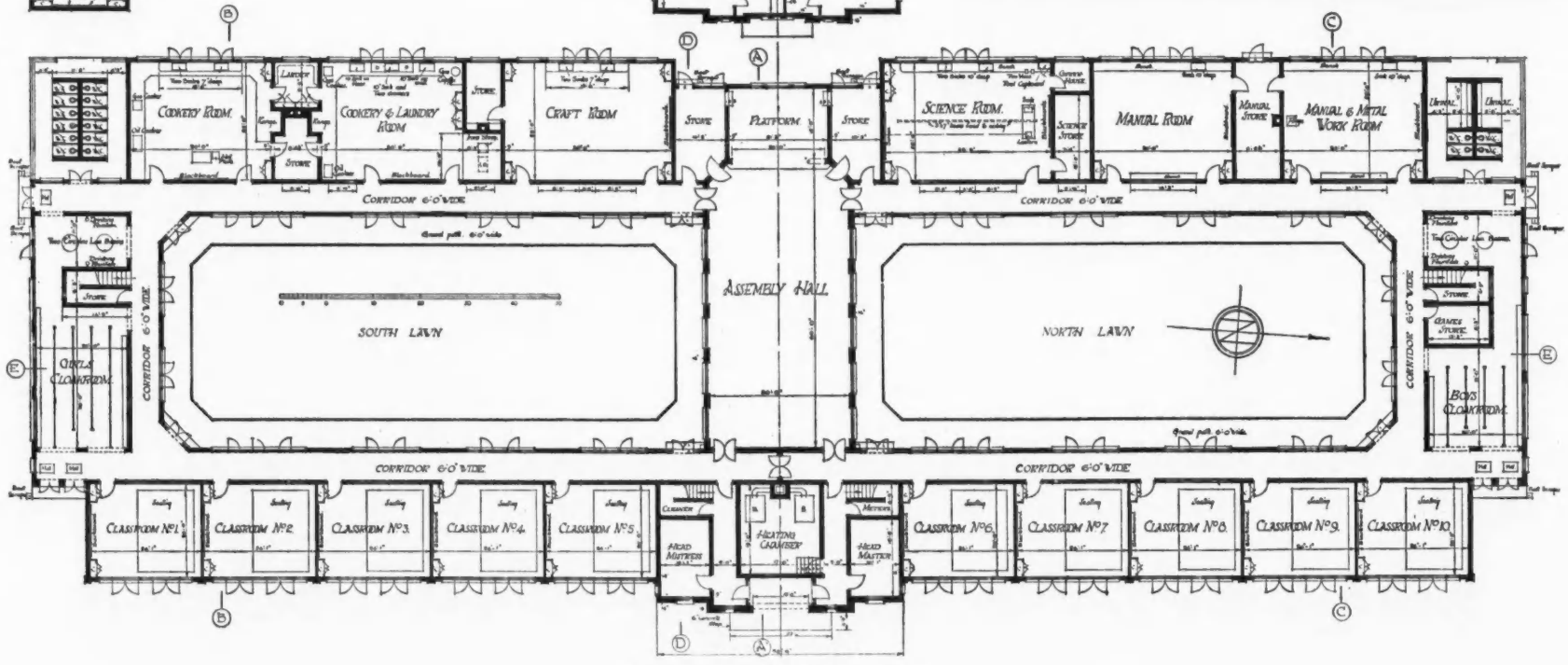
R. D. R O B S O N





FIRST FLOOR PLAN





GROUND FLOOR PLAN

TECHNICAL SECTION: 12

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

MAGAZINE BOILERS

THESE are made both in cast iron, Fig. 57, and steel, Fig. 58.

The disadvantage of all the boilers already described as specially designed for heating is that they require frequent stoking, and it was not until this defect had been remedied by Continental and American designers that magazine boilers were introduced into this country during the last two or three years. (It should perhaps be stated that one of the authors first saw boilers of this type in Athens and in Denmark.) They are now deservedly finding favour in this country.

Magazine boilers have the following advantages over all others :—

(1) Need filling once in 12 or 24 hours only, and are self-regulating under thermostatic control between fillings.

(2) Have a large grate area, thus keeping down the temperature of the hottest part of the fire so as to minimize clinkering.

(3) Provide constant thickness of fuel bed and therefore high average efficiencies.

(4) Dirt and dust can be avoided by the use of proper fuel-feeding arrangements.

By reason of these factors, magazine boilers reduce labour and attention to negligible proportions, so that even though the first cost is higher, the running cost is much less. They give most of the advantages which can be secured with oil, and, in addition, use fuel of a lower cost and one that is British in origin. The cast iron type is cheaper than the steel, but has a shorter life, and is not suitable for higher pressures.

Magazine boilers can and should be so arranged that fuel is filled straight into the top without any intermediate labour. A simple method of accomplishing this is to place the boilers under the pavement with a coalplate feeding into a hopper over each, as in Figs. 59 (a) and (b).

Where this is impossible, a simple system of hopper and conveyor is desirable to effect the same purpose with a minimum of handling. This arrangement is shown in Fig. 60.

Ash removal is only needed once daily, and generally occurs at the time of fuel filling.

At the moment, the rated capacities vary from 150,000 B.T.U.'s per hour to 1,000,000 in cast iron and from 250,000 to 2,000,000 in the mild steel type.

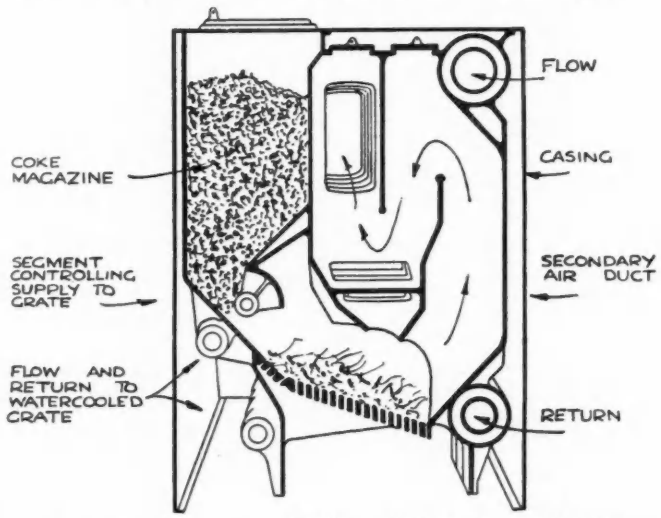


Figure 57. *Cast-iron magazine type boiler.*

Problems of Combustion and Efficiency

Before the various methods of firing boilers are discussed, it is necessary that the principles of combustion should be understood.

The combustion of fuel is a chemical

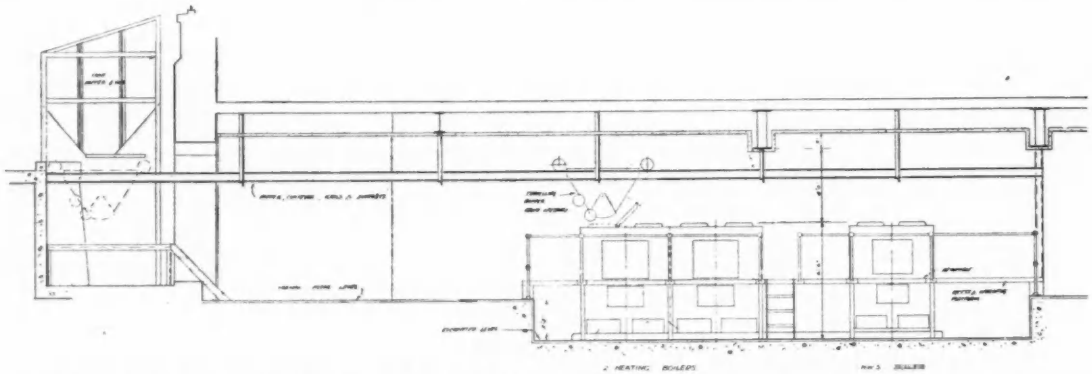


Figure 60. *Typical longitudinal section of a boiler house, showing magazine type boiler fed by travelling skip from hopper at side.*

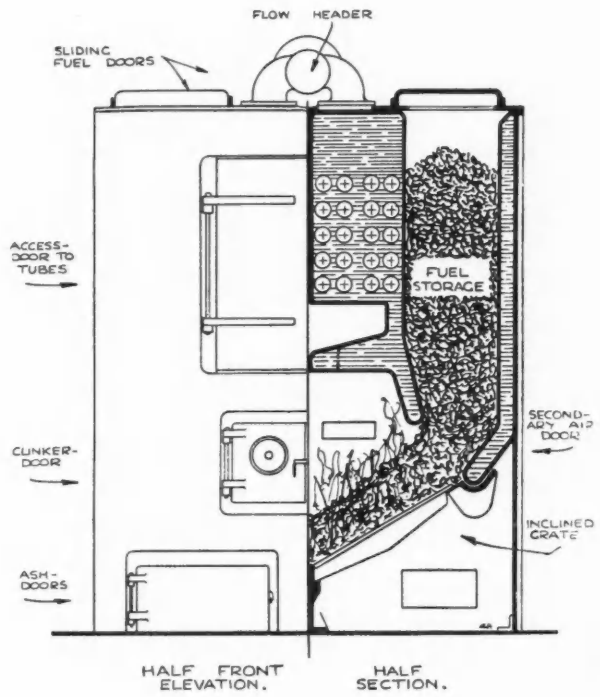


Figure 58. *Steel magazine type boiler.*

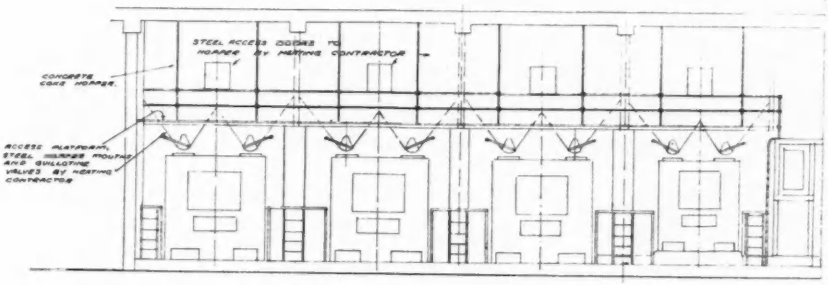


Figure 59a. *Front View.*

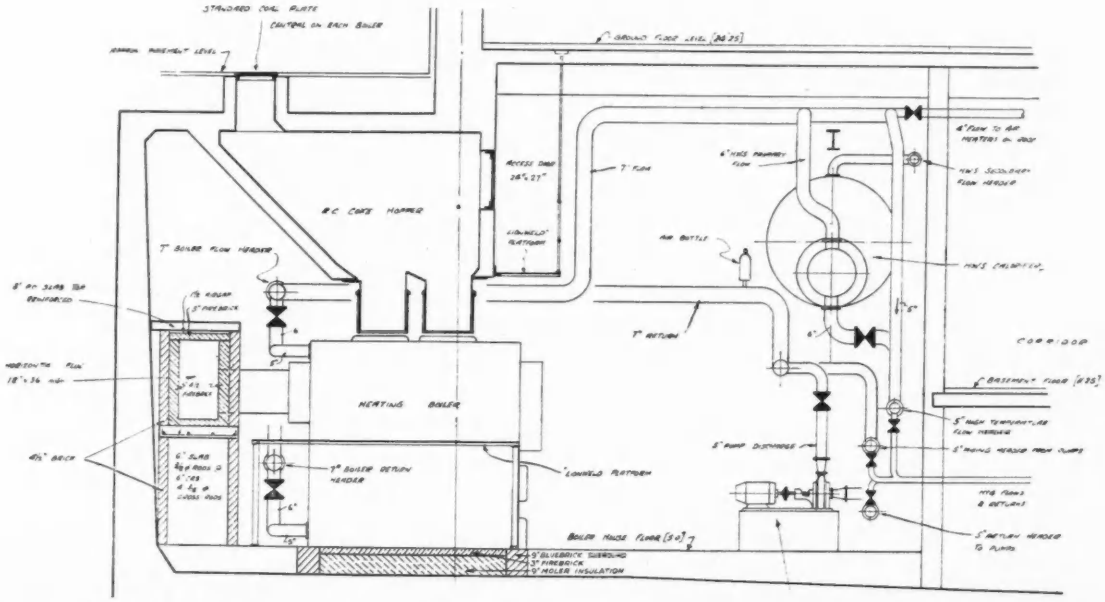


Figure 59b. *Cross Section.* **Figures 59a and b :** *details of boiler house, showing magazine-type boilers fed from hoppers overhead.*

process which is accompanied by the liberation of heat.

The principal constituent of all fuels is carbon (C) which, in the process of burning, is oxidized to carbon dioxide (CO_2) or carbon monoxide (CO).

When carbon burns to form CO_2, 14,600 B.T.U.'s are liberated per pound of carbon, and the oxygen required is in proportion to the atomic weights C=12, O_2=32, i.e., $2\frac{2}{3}$ lbs. Air contains 23·15 per cent. oxygen by weight, so that for the complete combustion of one pound of carbon 11·5 lbs. of air are theoretically necessary. If the combustion is not complete, CO is formed and only 4,450 B.T.U.'s are liberated per lb. of carbon ; $1\frac{1}{3}$ lbs. of oxygen are consumed, equivalent to 5·75 lbs. air.

A second constituent of many fuels, particularly oil and gas, is hydrogen (H_2) which, when burnt, forms H_2O or water in the form of superheated steam. This reaction is accompanied by the release of 62,000 B.T.U.'s per lb. of hydrogen and requires 8 lbs. of oxygen or 34·5 lbs. of air.

Combustion reactions can take place only when the fuel is at a high temperature. This is commonly called the *ignition temperature*, and has to be established by a flame or spark before combustion can begin.

Oxygen must diffuse into the glowing carbon before chemical combination can take place, and it is the freedom or otherwise of this physical intermingling which eventually determines the completeness of combustion.

When all combustible matter in the fuel has been completely burnt with no excess of oxygen in the residual gases, the combustion is 100 per cent. efficient.

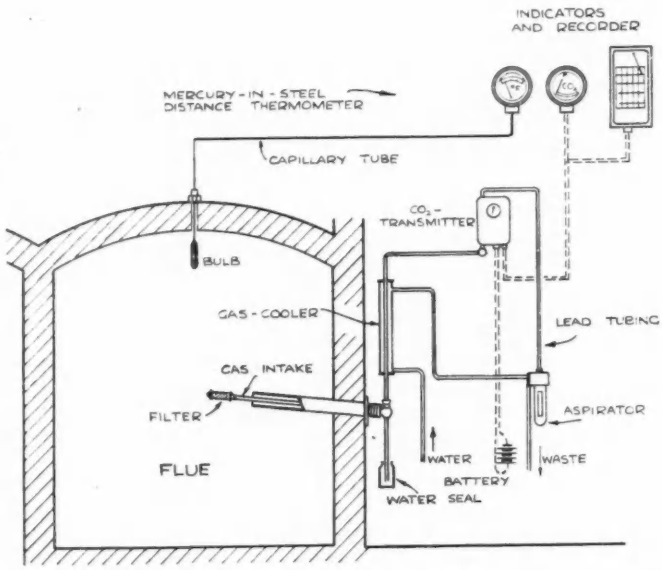


Figure 61. *Diagram of electrical CO_2-recorder and high temperature thermometer fitted to boiler flue.*

Any matter unburnt, or any excess of oxygen will obviously give an efficiency below this figure.

This efficiency is the *Efficiency of Combustion* and must not be confused with the boiler efficiency.

If the heat of combustion is to be transmitted through the medium of water or steam to a distance, it must be absorbed by the surfaces of a boiler at a lower temperature, disposed so as to extract as much of the heat as possible. Thus strictly the boiler efficiency is the heat absorbed by the water in the boiler, divided by the heat of combustion supplied to the boiler. It is, however, more common to combine efficiency of combustion and boiler efficiency into one expression, since, for practical purposes it is unnecessary to separate them.

By *boiler efficiency*, therefore, is meant the ratio of total heat absorbed (in raising the temperature of water or steam or of evaporating water) divided by the heat contained in the fuel.

The difference between the two constitutes the *losses*, which include—

(*a*) losses up chimney,
(*b*) fuel not completely consumed.
(*c*) radiation and convection.

Of these, the first contains the heat lost by discharging warm gases to atmosphere carrying with them the moisture in the fuel and in the air, and the latent heat of the steam produced by the burning of hydrogen in the fuel.

This loss also includes any carbon monoxide which should have been burnt into carbon dioxide with further evolution of heat, similarly any carbon escaping as soot or unburnt volatile gases.

Item (*b*), fuel not completely consumed, includes solid fuel particles which have dropped through the grate before being completely burnt.

Item (*c*) radiation and convection from boiler surfaces needs no explanation.

Losses, under (*a*), due to heat and combustible materials escaping into the chimney are by far the most important. The greater the quantity of excess air used (above what is theoretically necessary for complete combustion), the more air is discharged hot, and therefore the greater the loss as sensible heat, but the combustible materials escaping are then a minimum.

On the other hand, when the excess air is kept down very near the theoretical minimum, the loss due to hot gases is minimized, but incomplete combustion is increased due to smoke and unburnt gases escaping. The smoke formation, besides being a loss, is also a nuisance and an offence.

Between these two extremes lies a middle course which gives the best results.

To estimate to what extent this middle course is being maintained, the percentage of CO_2 in the discharge gases is a useful guide and therefore a CO_2 indicator and recorder is a usual and desirable fitting in every important boiler installation. It serves as a check on boiler air leakages, and bad stoking, and helps a good stoker to get the best results.

In round figures, the maximum theoretical percentage of CO_2 (by volume) if all the fuel is carbon, is 20 per cent., since one-fifth of the air is oxygen.

As, however, part of the fuel is often hydrogen which oxidizes to produce water, and sulphur which produces SO_2 and SO_3, the maximum theoretical value for coal must be under 20 per cent. by an amount which increases as the carbon content of the fuel becomes less than 100 per cent. As the carbon content is generally between 85 per cent. and 90 per cent., the theoretical maximum CO_2 percentage should be between 17 per cent. and 18 per cent.

In practice, some excess air is necessary to avoid incomplete combustion, and a CO_2 content between 12 per cent. and 14 per cent. is generally considered a safe compromise.

The CO_2 content can be determined by the Orsat apparatus, which consists essentially of three glass vessels containing glass tubes or beads for increasing the surface of liquid in contact with the gases.

A volume of flue gas is drawn into a measuring burette, and then exposed to the solutions in turn. The first is a caustic soda solution which absorbs the CO_2. The unabsorbed portion is then returned to the burette and measured again, when the loss in volume gives the CO_2 content.

A second glass vessel contains an alkaline solution of pyrogallol for absorbing and thus determining the residual oxygen, and the third an acid solution of cuprous chloride for determining the carbon monoxide.

CO_2 indicators and recorders are, however, now made entirely automatic by several instrument makers, some depending on caustic soda absorption, some on thermal conductivity (see Fig. 61), some on weight, and some on osmotic pressure.

A low CO_2 content means a large excess of air. It does not necessarily follow that the overall efficiency will be low, because if the gases are discharged at a very low temperature, most of the heat given up to the excess air has been recovered by the boiler heating surface.

Hence, to determine the boiler efficiency, the temperature of discharge as well as the CO_2 content must be known. This temperature is measured with a pyrometer or high-temperature thermometer, which may be of the mercury-in-steel type, nitrogen filled mercury in glass, or one of the many types of electrical distance thermometers.

The CO_2 contents of flue gases only correctly indicate the amount of excess air in the case of fuels consisting chiefly of carbon if a proper correction is made in the theoretical value. Hydrogen produces water on burning, and pure hydrogen would give a CO_2 content of zero whether there were no excess or infinite excess of air.

Oil often contains about 15 per cent. of hydrogen and town's gas often about about 20 per cent. (by weight).

It is interesting to consider the maximum theoretical efficiency of a boiler with various flue gas discharge temperatures and excess air contents. Some people do not appear to realize that there is a maximum theoretical

efficiency, but it can be demonstrated and calculated as follows :—

Example 1.

Coal (about 90 per cent. carbon).

Calorific value, 14,000 B.T.U.'s per lb.

Theoretical air needed for complete combustion = 11·7 lbs. per lb.

The products will leave the boiler at an enhanced temperature and waste an amount of heat equal to the weight × specific heat × rise of temperature.

	B.T.U.
11·7 lbs. of air × specific heat of ·24 × 1 deg.	= 2·8
1 lb. of coal × specific heat. of ·27	= ·27
	3·07

Hence loss $= \frac{3{\cdot}07 \times 100}{14{,}000} = {\cdot}0218$ per cent. per degree.

For 100 deg. this is 2·18 per cent.

For any other temperature it is

$$2{\cdot}18 \times \frac{t}{100} \text{ per cent.}$$

where t is the difference between boiler house temperature and flue gas discharge temperature.

If the air admitted exceeds that theoretically required for complete combustion then (approximately)

$$\text{Per cent. losses} = 2{\cdot}18 \times \frac{t}{100} \times \frac{\text{Theoretical air}}{\text{Actual air.}}$$

This is a most useful formula, which the authors have not previously seen.

It might be thought that it will vary considerably for different fuels, but this is not so, since fuels of lower calorific value also require proportionately less air to burn them and so the percentage losses remain practically constant.* This is exemplified in the three following examples.

Example 2.

Coke.—Calorific value 12,000 B.T.U.'s per lb.

Theoretic air for complete combustion = 10 lb. per lb.

	B.T.U.
10 lbs. air × ·24	= 2·4
1 ,, coke × ·20	= ·2
	2·6

$$\text{Per cent. loss for 100 deg. rise} = \frac{2{\cdot}6 \times 100 \times 100}{12{,}000} = 2{\cdot}16 \text{ per cent.}$$

Example 3.

Oil.—Net calorific value 18,000 B.T.U.'s per lb.

Theoretic air for complete combustion = 14·3 lb. per lb.

	B.T.U.
14·3 lbs. air × ·24 =	3·44
1 ,, oil × ·5 =	·5
	3·94

$$\text{Per cent. loss for 100 deg. rise} = \frac{394 \times 100}{18{,}000} = 2{\cdot}17 \text{ per cent.}$$

Example 4.

Town Gas.—·0354 lb. per cu. ft.

Therefore 1 lb. contains 29·5 cu. ft.

Net calorific value 29·5 × 500 = 14,750 B.T.U.'s per lb.

Theoretic air per lb. of gas = 10·9 lbs.

	B.T.U. per degree
10·9 lbs. air × ·24	= 2·61
1 ,, gas × ·59	·59
	3·2

$$\text{Per cent. loss for 100 deg. rise} = \frac{320 \times 100}{14{,}750} = 2{\cdot}17 \text{ per cent.}$$

Hence taking an average constant of 2·17

$$\text{Chimney loss} = 2{\cdot}17 \times \frac{t}{100} \times \frac{\text{Theoretical air}}{\text{Actual air.}}$$

for almost any practical dry fuel. It should be borne in mind that this does not take into account any unburnt gases in the flue discharge.

This formula is expressed graphically in Fig. 62.

It will be seen that with flue gases raised 500 deg. F., which is quite common, the losses are 10·85 per cent. if only the theoretical air is used and 21·7 per cent. when, as is more usual, double the theoretical air is used.

This 22 per cent. loss does not take into account the other losses, such as radiation, unburnt fuel, gases discharged as CO and volatile gases, etc.

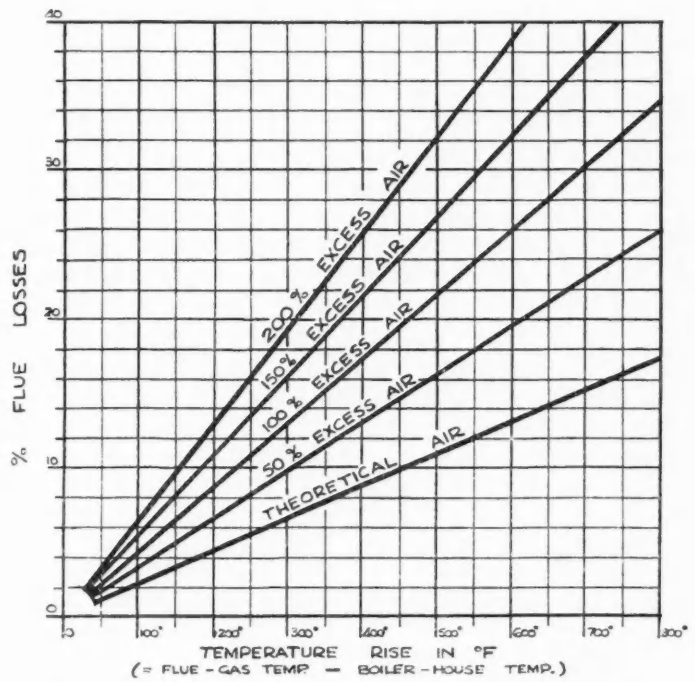


Figure 62. *Graph connecting flue-losses and temperature rise for various percentages of excess air.*

It is therefore understandable why efficiencies of 70 to 80 per cent. are generally the maximum obtainable with commercial boilers working at their rated output, and it also enables us to see clearly how these efficiencies may be increased.

If the flue gas temperature can be kept down to say 200 deg., instead of 500 deg., the theoretical efficiency possible becomes 95·66 per cent. with no excess air, and to 91·32 per cent. with 100 per cent. excess air.

From what has been said, it is clear that the best overall boiler efficiencies are to be obtained by

(*a*) Low water temperatures in boiler.

(*b*) Sufficient heating surface to ensure that the flue gases leave as little above boiler temperature as possible.

(*c*) Keeping excess air as low as possible above theoretical requirements consistent with complete combustion.

One way of achieving (*b*) is to extract further heat from the flue gases, after leaving the boiler in one or both of two ways—

(*a*) With *economizers*, which are generally used for raising the feed water temperature of steam boilers. These are not normally used in hot water heating systems. In any case, the economizer becomes virtually a boiler extension.

(*b*) With *inlet air preheaters.* In this case the discharge temperature of the flue gases may even be brought below boiler temperature, and it is clear

* In the two cases of pure carbon and pure hydrogen, the figures corresponding to 2·18 become 2·1 and 1·9 respectively. As most actual fuels have a carbon content from 70 per cent. to 99 per cent. of the combustibles (carbon plus hydrogen) it can be seen why the figure corresponding to 2·18 will vary very little from 2·10. The effect of dilutants such as ash is to raise it, and, as will be seen, 2·17 is a good average value.

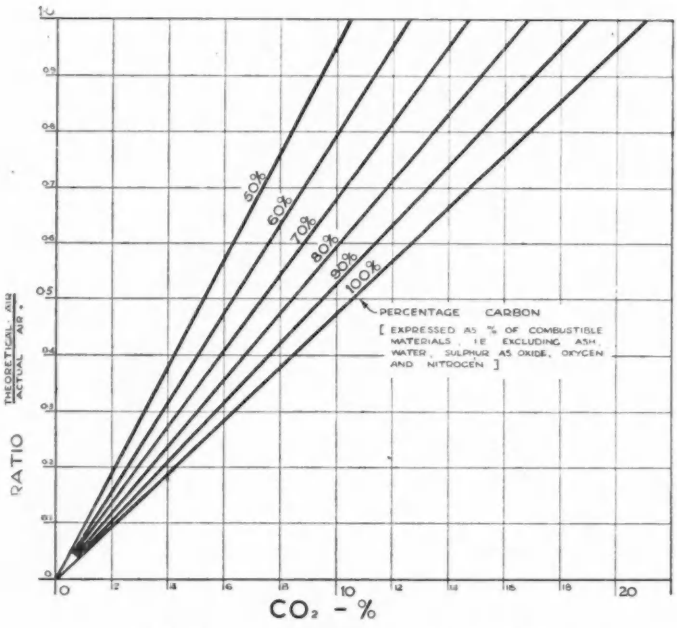


Figure 63. *Graph connecting air-ratio and CO_2 in flue gases, for fuels of varying carbon-content.*

from what has been said, and from Fig. 62, that very high efficiencies are possible when this system is adopted.

The Super-Lancashire boiler already described contains provision for inlet air preheating, but there are also separate inlet air preheaters applicable to any commercial boiler. Preheating the air entails forced draught and its use has so far been confined to larger plants.

The estimation of $\frac{\text{theoretical air}}{\text{actual air}}$ may be made from the curves in Fig. 63 when the CO_2 content and the percentage of carbon in the fuel are known. The latter is, however, to be measured as a percentage on the combustible materials after deducting ash, water, sulphur as oxide, nitrogen, etc.

Thus for a coal which on analysis gave

Carbon	76
Hydrogen	4
Oxygen	8
Nitrogen	1
Sulphur	4
Water	1
Ash	6
	100 per cent.

the percentage of carbon on the combustible materials would be

$$\frac{76 \times 100}{80} = 95 \text{ per cent.}$$

The non-combustible materials consume no air and therefore do not affect the CO_2 content. Usually carbon and hydrogen are the only important combustible materials, and the figure we are concerned with is the proportion of carbon expressed as a percentage of the total of carbon plus hydrogen.

Good anthracite and coke generally lie between the 95 per cent. and 100 per cent. line, and bituminous coals generally near the 90 per cent. to 95 per cent. line.

Oils generally contain about 85 per cent. carbon and town gas round about 60-70 per cent. by weight of the total combustibles carbon plus hydrogen. (This percentage is not to be confused with the percentage of carbon by weight of the total gas, because the latter includes some incombustibles such as nitrogen and carbon dioxide and some already partly burnt carbon as CO, of which the oxygen counts as a non-combustible).

Calorific Values are often expressed as *net* and *gross*. Gross means the total heat recoverable in burning, assuming that the water vapour is condensed and the latent heat of condensation recovered. The net figure applies when this is not the case. The difference depends on the amount of hydrogen. In the case of oils the difference may be about 1,200 out of 19,600 (gross) equal to 6 per cent. In the case of gas, the difference may be about 60 out of about 560 (gross) equal to 11 per cent. In the case of coals and cokes there is little difference.

LAW REPORT

QUANTITY SURVEYOR'S FEES

Westmoreland v. *Hammond—King's Bench Division. Before Mr. Justice Greaves Lord.*

THIS was an action by Mr. Walter Westmoreland, a quantity surveyor of Sandell Mansions, West End Lane, N.W.1, against Mr. Benjamin T. A. Hammond, of Bath House, Spring Gardens, Trafalgar Square, to recover damages of alleged wrongful dismissal and for a declaration that the defendant was liable within a reasonable time to pay plaintiff such sum by way of bonus as was fair and reasonable in accordance with the terms of an alleged agreement of September, 1933.

Plaintiff's case was that on September 4, 1933, defendant agreed to employ him in connection with the erection of certain blocks of flats, for a year certain, at £7 10s. a week, with such bonus to be paid at the end of the year's working as should be fair and reasonable. On this understanding plaintiff said he entered the defendant's employ. Plaintiff complained that in breach of their agreement the defendant purported to terminate plaintiff's employment by a week's notice by letter of April 4, 1934. Plaintiff further pleaded that defendant's solicitors had repudiated liability in respect of the bonus.

Defendant by his defence pleaded that he was entitled to dismiss plaintiff. Defendant denied that the letter of September 4, 1933, constituted any agreement to employ plaintiff for a year certain or to pay plaintiff any bonus at all. Any bonus to be paid was to be left to the judgment of the defendant. Defendant further said, under the circumstances no bonus was due or payable to the plaintiff. In the alternative, defendant pleaded that plaintiff had already received from him a sum of £157 10s.

There was a second action by the plaintiff against the defendant for an account. Plaintiff's case was that he was to have one-half per cent. upon the value of the extra work or schemes done up to the time the account was taken. Plaintiff disputed that the amount due to him was £112. Plaintiff claimed the sum of £415.

Defendant, in reply, denied that plaintiff had done any extra work at all. If plaintiff had done any extra work, defendant pleaded that the sum claimed was not fair or reasonable, and further, that the sum of £157 he had paid satisfied all plaintiff was entitled to.

Mr. Chappell, K.C., appeared for the plaintiff and Mr. Robert Fortune for the defendant.

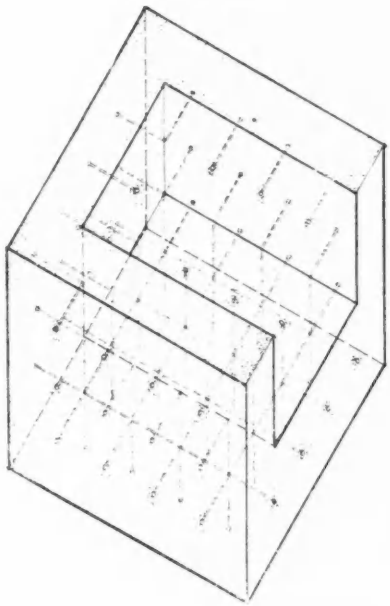
Replying to his lordship, Mr. Fortune said the £157 paid plaintiff by defendant was really more than plaintiff was entitled to as bonus or extra work. As a matter of fact defendant maintained that there was no extra work at all, but if there was, it was included in the £157 paid.

Mr. Fortune, for defendant, said his case was that the plaintiff had already had more than he was entitled both as regards bonus and account. He contended that there was no extra work here at all. Defendant made no suggestion against the plaintiff's competence and, as a matter of fact, he was a very experienced man in his business.

His lordship, after hearing the evidence, gave judgment. He said he could see no conceivable ground on which the action could be justified. His lordship found that the defendant was justified in the ultimate dismissal of the plaintiff. So far as the agreement of extra work was concerned, everything that was due to the plaintiff had been paid and there was nothing on which an account could be taken, and the question of bonus was in the absolute discretion of the defendant. There would be judgment for the defendant in both cases, with costs.

Announcement

Mr. Godfrey Samuel, A.R.I.B.A., has moved his office to 23 Haymarket, London, S.W.1. Telephone: Whitehall 2248.



TRADE NOTES

[BY F. R. S. YORKE, A.R.I.B.A.]

Chair

I HAVE received from Lawrence Kocher and Albert Frey drawings of a chair that has no structural frame. It consists of a rubberized fabric envelope with ties to retain shape. It can be made in a variety of forms and has very little weight.

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The same architects send from New York drawings for a dressing-table mirror. with light reflected from a concave pan that encircles the mirror in the centre. It is designed to provide light from the correct source for dressing and shaving. The side mirrors are adjustable. The mirrors are placed in front of a window, and arranged to slide on a rod that extends from cill to ceiling, so that daylight and artificial light are from the same direction.

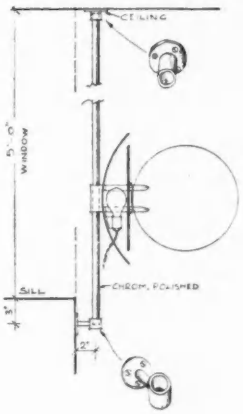
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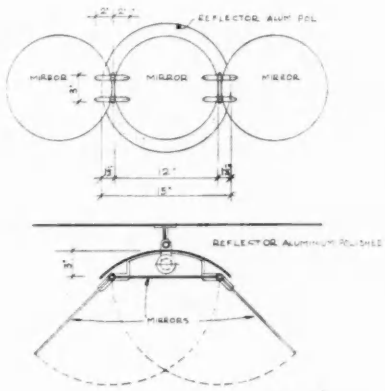
Similar mirrors were, I believe, used by Kocher and Frey above lavatory basins in their aluminium house at the Architectural League Show in New York.

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Window

Last week I wrote a note about Messrs. Ripper's patent ventilock sliding sash window. There was no illustration because the photograph did not arrive in time





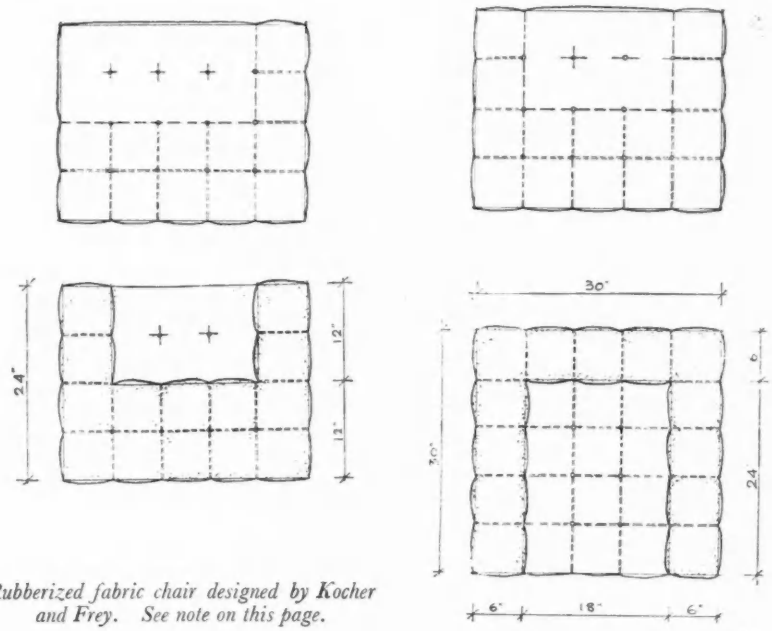
A dressing mirror designed by Kocher and Frey.

to be included. A photograph showing an application of the window is reproduced in this issue.

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Copper Tubes

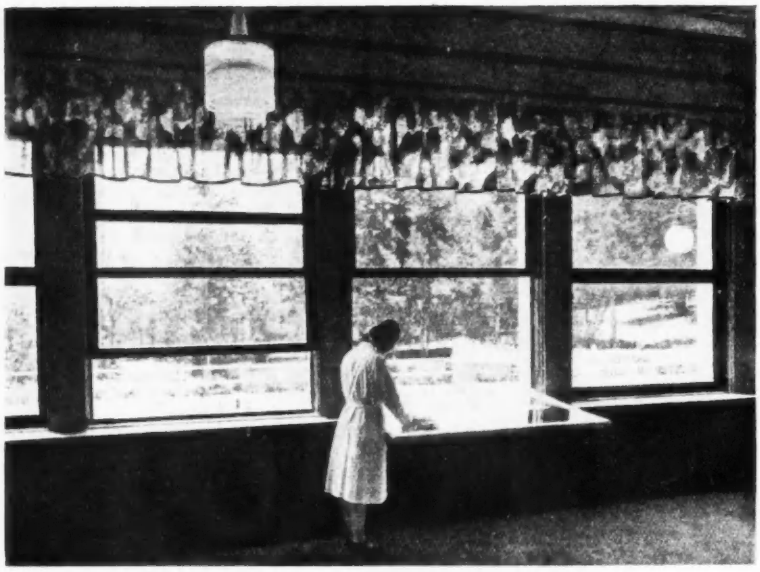
A new copper tube called Acuro, that is specially made to fine limits of accuracy, has been put on the market by I.C.I. Metals, Ltd. It is for use when joints are to be soldered. The manufacturers say the capillary type of soldered joint depends for its efficiency upon the clearance between the copper tube and the fitting employed. If this clearance is excessive the joint is unreliable. Copper tubes of the type ordinarily supplied to the trade for compression joints are not sufficiently accurate to ensure success in making a soldered joint. The special temper of the metal is said to permit easy bending whilst it remains rigid between supports.



Rubberized fabric chair designed by Kocher and Frey. See note on this page.

Manufacturers' Items

We regret that in list of sub-contractors for the Dreamland Cinema, Margate, published



The Ventilock sliding sash window, which was described in Trade Notes in last week's issue.

in our last issue, we omitted to give the name of Messrs. Arthur L. Gibson & Co., Ltd. They supplied and erected eleven of their Kinnear patent steel rolling shutters; one on the staircase from the entrance foyer to the sunshine café, and ten on the shop-fronts in the arcade below the cinema giving access to the amusement park.

*

In connection with the King's House at Olympia, we have received the following letter from Messrs. Mackenzie and Moncur, Ltd.: "The central heating installation for the King's House is to be carried out by ourselves, and we are also to instal the boilers for central heating and for hot water supply. Messrs. Ideal Boilers and Radiators are supplying the boiler and some of the panel radiators for the central heating, and The Beeston Boiler Company are supplying the boiler for the hot water supply and some other radiators for the central heating."

*

The annual report of Messrs. Drytone Joinery, Ltd., records steady progress and increasing sales. It is announced that it is proposed to extend the works; and that Mr. Hugh Gibbins has joined the board of directors. Among the contracts obtained by the firm during 1934 were the following: Flush doors for the Runwell Mental Asylum (Elcock and Sutcliffe, FF.R.I.B.A.); teak panelling and doors for the Dudley and Staffordshire Technical College; Austrian oak panelling for the Municipal Council Chamber at Oxted; and mahogany panelling, doors, lockers and fittings for Norwich Fire Station (S. G. Livock, F.R.I.B.A.)

*

Mr. M. G. Luntz and Mr. W. H. Vickers have been appointed additional directors of Messrs. Moreland, Hayne & Co., Ltd.

*

Mr. J. Maclachlan has resigned his appointment with The Horseley Bridge and Thomas Piggott Co., Ltd., and has joined the board of the British Steel Construction (Wednesbury), Ltd.

*

An interesting event took place at a recent meeting of the Board of Directors of Parker, Winder and Achurch, Ltd., when the chairman, Mr. G. Philip Achurch, presented, on behalf of the directors, a silver salver to Mr. H. L. Jones, who has represented the company in the Midlands and the South of England for the past forty years.

*

We have received from Messrs. W. T. Henley Telegraph Works Co., Ltd., a copy of the ninth of their series of "How to Joint" booklets. This 36-page booklet deals completely and informatively with the correct method of jointing and connecting up Henley box type units, each progressive stage in the preparation of the cable and the assembling of the units being fully described and illustrated.

*

Mr. F. H. Farthing, who has been attached to the Marine Department of the General Electric Company for many years, has been appointed showroom manager in London.

*

We are informed by the Cork Insulation Company that were responsible for the Eldorado cork tile flooring and Eldorado cork tile staircase finishing in the King's House at the *Daily Mail* Ideal Home Exhibition, illustrated in our issue for March 28.

*

We regret that in the list of sub-contractors for the King's House (March 28 issue) the name of Messrs. Edward Johns & Co., Ltd., was mis-spelt.

THE BUILDINGS ILLUSTRATED

Sub-Contractor's List

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue:—

Snowdown Pithead Baths (pages 551-554). General contractors, Welwyn Builders, Ltd. Sub-contractors: Johnson's Reinforced Concrete Engineering Co., Ltd., steel reinforcement; Henry Hope and Sons, Ltd., steel windows; James Gibbons, Ltd., service hatch to attendant's room; Gummers, Ltd., swilling down valves; Charles Winn & Co., Ltd., swilling hoses and fittings; Constructors, Ltd., stainless steel mirrors; Steelways, Ltd., scraper mats; Drake and Gorham, Ltd., electrical installation; Bell and Smart, Ltd., boot cleaning equipment; W. H. Heywood & Co., Ltd., patent roof glazing; The Lion Foundry Co., Ltd., shirt and towel hooks for cubicles, and rainwater heads; G. N. Haden and Sons, Ltd., plenum heating and hot and cold water installations; United Water Softeners, Ltd., water softening apparatus; Alfred Olby, sanitary fittings; Long Humphreys & Co., Ltd., fittings for sewage treatment and disposal plant; Henry Hope and Sons, Ltd., ironmongery and hardware; Troughton and Young, Ltd., Best and Lloyd, Ltd., Ascog, Ltd., and General Electric Co., Ltd., electric light fittings; James Farquharson and Sons, attendant's equipment, and bottle valves; Bell and Smart, Ltd., boot cleaning apparatus; Pyrene Co., Ltd., fire extinguishers; Mander Bros., Ltd., paints; Eric Munday, Ltd., directional signs and commemorative plaque; Lion Foundry Co., Ltd., rain-water heads; E. W. Walters, clerk of works.

No. 7, West Heath Close, Hampstead (pages 563-565). General contractors, G. E. Wallis and Sons, Ltd., who were also responsible for the kitchen fitments. Sub-contractors: Helical Bar and Engineering Co., Ltd., engineers; Bath Cabinet Makers' Co., Ltd., fitted furniture; "Ray-Heet "ing Co., Ltd., heating; Fred L. McGhee & Co., electrical engineers; A. Beanes & Co., Ltd., metal windows and doors; John Elbo, cork flooring; James Latham, Ltd., oak flooring; North British Rubber Co., kitchen floor; W. N. Froy and Sons, Ltd., sanitary fittings; Automatic Gate Co., drive gates; Frazzi, Ltd., Paropa roofing tiles; Gas Light and Coke Co., special gas cooker; F. G. Vosper & Co., metal work, electric fires, etc.; Art Pavements and Decorations, Ltd., floor and wall tiling and marble work; London Corner Bead and Lathing Co., metal architraves and Hercules corner beads; John Legg and Chittenden and Simmons, Ltd., tennis court; T. W. Palmer & Co., tennis court fencing; Imperial Chemical Industries, Dulux paint and Pioneer plaster; Rollo Products, Ltd., exterior waterproof finish to concrete; Venesta, Ltd., Plymax garage doors; British Trolley Track Co., Ltd., sliding door gear; Haywards, Ltd., concrete pavement lights; James Gibbons, Ltd., door furniture handrail; T. and W. Ide, mirrors and glass; Pilkington Bros., Ltd., Vita-glass.

Hereward School, March (pages 566-567). General contractors, Jellings, Ltd. Sub-contractors: London Brick Company and Forders, Ltd., bricks; Windsor Floors, Ltd., concrete roofs; D. Anderson and Sons, Ltd., bitumastic roofing; Tidnams, Ltd., artificial stonework; Henry Hope and Sons, Ltd., metal windows; W. Palmer and Son, electric installation; S. Booth Horrocks and Sons, Ltd., heating; Winkworth Quarries, Ltd., tar paving; Adamsez, Ltd., sanitary fittings; Lockerbie and Wilkinson, Ltd., front fencing; Mattozene, blackboards; Boulton and Paul, Ltd., doors; Travis and Arnold, Ltd., cupboards; F. P. Waltho, Ltd., cloakroom fittings; James Gibbons, Ltd., cycle racks and ironmongery; North of England School Furnishing Co., Ltd., dual locker table desks and tables; Walpamur Co., Ltd., Duradio paint and Walpamur distemper; Ideal Boilers and Radiators, Ltd., boilers and radiators; Watkins and Stafford, craft and dining tables and cookery tables; J. D. Bennet, Ltd., combined single locker tables and art desks; J. C. Gilbert, science tables and science demonstration bench; Wake and Dean, dual woodwork benches and single woodwork demonstration benches; A. and F. Howland, Ltd., scholars' chairs, head teachers' chairs and teachers' chairs, and stools for domestic subjects rooms and for science room; Mann Egerton & Co., Ltd., assembly hall seating.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

BARKING. *Baths.* Barking Corporation has now selected a site at Porters Avenue, Becontree, for the erection of swimming baths.

BARKING. *Town Hall.* The Corporation has approved a scheme by Mr. H. V. Lanchester for the new town hall, but has asked him to report as to other sites more suited for the purpose.

BATTERSEA. *Flats.* The B.C. is to clear a site in Stewarts Lane for the erection of two further blocks of tenements.

BERMONDSEY. *Flats.* The L.C.C. has purchased a factory in Minto Street, Bermondsey, for demolition and the erection of flats on the site.

BERMONDSEY. *Slum Clearance.* The B.C. has made arrangements for a slum clearance programme involving the erection of 1,147 new dwellings. The proposals for this year will displace 550 families.

GRAYS. *School.* The Essex Education Committee recommends the approval of revised sketch plans for the third portion of the alterations and adaptations at Palmer's Endowed School for Boys, which is estimated to cost £15,108. The architect is Mr. John Stuart, F.R.I.B.A.

HACKNEY. *Development.* The L.C.C. is to clear and re-develop the Pembury Street area of Hackney, at a cost of £250,000.

KINGSTON. *Baths.* The T.C. has approved a modified scheme prepared by Mr. Victor Bain, architect, for new baths proposed to be erected at Denmark Road, at an estimated cost of £46,500.

MAUDSLEY. *Extensions.* The L.C.C. has prepared a scheme for extensions at the Maudsley mental hospital, at a cost of £120,700.

ROTHERHITHE. *Warehouses.* Messrs. Charles Pace and Co. are to erect a warehouse at Shad Thames, Rotherhithe.

SOUTHWARK. *Health Centre.* The B.C. has abandoned its scheme for a new town hall, but has decided to proceed with the erection of premises for the health department in Walworth Road and Larcombe Street at an estimated cost of £50,000.

STAINES. *Houses.* The London and Provincial Corporation, Ltd., Shortwood Estate, London Road, Staines, are to erect 39 houses at Worple Road, Staines.

STONELEIGH. *Church.* A Baptist Church is to be erected on the Stoneleigh Estate, for the London Baptist Association. It is hoped to commence work very shortly.

TOTTENHAM. *Extensions, etc.* Plans passed by the Corporation: Extensions, Tower Works, Dunloe Avenue, for Messrs. Rowley Bros., Ltd.; factory extension, The Hale, for Messrs. A. W. Flatau & Co., Ltd.; extensions, 461-3, High Road, for Messrs. I. and R. Lacey; 78 flats, Green Lanes, for Messrs. Symonds and Harris; extensions, 448-454, High Road, for Messrs. Montague Burton, Ltd.; four flats, Northumberland Park, for Mr. J. Bridgeman; factory, Garman Road, for Commercial Structures, Ltd.; works extensions, Fawley Road, for Messrs. D. Gesterner, Ltd.; substation, Garman Road, for N. Met. Elec. Power Supply Co., Ltd.

TWICKENHAM. *Flats.* Permission has now been granted Mr. Boyd Scott to erect 200 flats and 57 garages on the north side of Ravensbourne Road. Plans for the erection of 75 of the flats and 57 garages have already been approved.

TWICKENHAM. *Flats.* Mr. G. Whittaker has prepared plans, on behalf of Mr. A. Cowen, for the erection of a block of 36 flats at Chertsey Road.

WOOD GREEN. *Houses.* Messrs. Hilbery Chaplin, Ltd., are to erect 160 houses in the vicinity of Norfolk Avenue, Wood Green.

SOUTHERN COUNTIES

EASTBOURNE. *Flats, etc.* Plans passed by the Corporation: 24 flats, Ringwood Road, for Mr. B. Stevens; alterations Hydro Hotel, Mount Road, for Messrs. G. Bainbridge and Son, Ltd.: annexe, Clifton Hotel, South Street, for Mr. T. M. Burrows; meat storage depot, Railway goods yard, for Swift Beef Co.; extensions, Star Brewery, Star Road, for Mr. A. Ford.

OXFORD. *Houses, etc.* Plans passed by the Corporation: 67 houses, Iffley Turn estate, for Mr. F. A. Sutton; additions, Binsey Lane, for the Alden Press, Ltd.; 14 houses, York Road, for Mr. F. Wooton: house, Staunton Road, Headington, for Mr. R. Hedges; hall and classrooms, St. Mary's Road, for The Brethren; conversion of Old Central School into offices, Gloucester Green, for the City of Oxford Motor Services, Ltd.; alterations and additions, Park End Street, for Messrs. Hartwells, Ltd.; four houses, King's Cross Road, for Mr. D. Mealing; two houses, Staunton Road, Headington, for Mr. A. W. Lee.

OXFORD. *Bath.* The Corporation Baths Committee has approved plans for the construction of a gala bath at Hinksey, at a cost of £40,000.

PORTSMOUTH. *Goods Yard.* Work has just commenced on the construction of a goods yard on the Southern Railway at Fratton, and is estimated to cost £70,000.

SOUTH-WESTERN COUNTIES

PLYMOUTH. *Houses, etc.* Plans passed by the Corporation: Development, Lipstone estate, for Major R. M. Coles; six houses, Branckner Road, for Messrs. T. Doney and Son; six houses, Saltram View estate, for Mr. H. Cann; four houses, Crest Hill, for Mr. F. Westcott; eight houses, Sturdee Road, for Mr. A. C. Jones; 15 houses, Norton Avenue, for Mr. J. Rendle; four houses, Sefton Avenue, for Mr. G. Sleeman; four houses, Elms Estate, Stoke, for Mr. B. C. Brien; development, land at St. Budeaux, for Sutton Dwellings Trust; 27 houses, Norfolk Road, Laira, for Mr. J. Neal; sports pavilion, Mannanmead Road, for Seymour Park, Ltd.

TORQUAY. *Band Shelter.* The Corporation has asked the borough engineer to prepare plans for a band enclosure to seat 1,000, with an outside shelter to accommodate a further 400 to 500 people in the vicinity of Princess Pier.

MIDLAND COUNTIES

BIRMINGHAM. *Houses.* The Corporation is to prepare a scheme for the erection of 1,500 houses.

BIRMINGHAM. *Civic Aerodrome.* The Corporation proposes to proceed with the development of 291 acres at Elmdon as a civic aerodrome, at a cost of £47,457.

BIRMINGHAM. *Reconstruction of Baths.* The Corporation is to reconstruct the Monument Road baths, at a cost of £32,000.

BIRMINGHAM. *Baths.* The Corporation has acquired a site in Highters Heath Lane for the erection of public baths.

NORTHAMPTON. *Houses, etc.* Plans passed by the Corporation: Two houses, White Hills estate, Boughton, for Mr. C. H. Payne; 12 houses, Booth Lane estate, Weston Favell, for Messrs. A. Glenn and Sons, Ltd.; six houses, Boothville estate, Weston Favell, for Messrs. Jordans; two houses, Millway, Duston, for Mr. J. Nobles; seven houses, Naseby Street, for Messrs. T. Wilson and Son, Ltd.

STOKE-ON-TRENT. *Police Station.* The Corporation is to negotiate for the purchase of a site at Burslem for the proposed new police station.

STOKE-ON-TRENT. *School.* The Education Committee has obtained a site at Thistley Hough for the erection of a secondary school.

NORTHERN COUNTIES

DUDLEY. *Houses.* Plans passed by the Corporation: Eight houses, Birmingham Road, for Mr. S. Brookes; four houses, Cradley Road, for Messrs. T. Smith and Sons; reconstruction, workshops, New Mill Street, for Mr. Herman Smith; five houses, Priory Close, for Messrs. A. J. Crump and Sons; 34 houses, Birmingham New Road, for Mr. W. Whittingham.

ECCLES. *Schools.* The Education Committee is to submit plans to the Board of Education for the proposed senior school at Winton.

ECCLES. *Bus Shelters.* The Corporation has asked the borough engineer to prepare plans and estimates for the contsruction of combined 'bus shelters and conveniences at four centres.

ILKESTON. *School.* The Education Committee is to prepare plans for the reconstruction of Kensington school as a junior school, and the erection of a new infants' school of 300 places (including a nursery class) on a site near Cavendish school.

LEEDS. *Houses.* The Corporation is seeking sanction to borrow £549,900 for the erection of 1,786 houses on various estates. The Corporation has also authorized the housing director to arrange for the erection of 250 houses for persons displaced by street widenings.

LEEDS. *Houses.* The Corporation has authorized the housing director to arrange for the erection of 250 houses for persons being displaced by street widenings.

LEEDS. *School.* The Education Committee has acquired a site at the Gipton housing estate for the erection of an elementary school.

LEEDS. *Library.* The Corporation is to consider the provision of a branch library at Moortown.

LEEDS. *Temporary Hall.* Pending the erection of a church, the Leeds Church Extension Society is to erect a temporary hall on the Gipton housing estate, Leeds.

MANCHESTER. *Houses.* The Corporation has approved proposals submitted by the housing director for the erection of a further 496 houses on the Wythenshawe estate.

MANCHESTER. *Schools.* The Education Committee reports that the Board of Education has approved sketch plans for Sharston municipal school, Wythenshawe, and sketch plans for the proposed municipal school at Brownley Green.

ROTHERHAM. *School.* The managers of the St. Bede's Roman Catholic School are to provide a new public elementary school for about 250 children at the Eastdene Housing Estate Rotherham.

ROTHERHAM. *Houses, etc.* Plans passed by the Corporation: Six houses, Grange Mill Lane and Blackburn Lane, for Messrs. Clifton and Wheeldon; 22 houses, Wortley Road, Droppingwell, for Mr. H. Fenn; four houses, Herringthorpe Valley Road, for Mr. M. F. Moncaster; warehouse, North Pitt Street, for Mr. D. Ward; six houses, Beechwood Road, for Messrs. G. Bilton and Son.

SALFORD. *School.* The Education Committee is to erect an elementary school for 900 children at Lancaster Road, Pendleton.

SHIPLEY. *Schools.* The U.D.C. has obtained sanction to proceed with the erection of two new schools, one for 300 and another for 250 children.

SOUTHPORT. *School.* The Corporation has passed plans, submitted by the Rev. J. Francis, for the erection of a Roman Catholic school at Grantham Road.

WAKEFIELD. *Baths.* The Corporation proposes to erect swimming baths in the Pincheon Street area.

WAKEFIELD. *Cinema, etc.* Plans passed by the Corporation: Cinema, Kirkgate, for Mr. W. H. Glen on behalf of Associated British Cinemas, Ltd.; additions, model dairy, Dewsbury Road, for Mr. J. Percy Firth; four houses, Cliff Park Avenue, for Mr. H. Bastow; works extensions, Southgate, for Messrs. Simpson and Moxon; warehouse, Albion Mills, Ings Road, for Messrs. Moore and Crabtree.

WAKEFIELD. *Houses.* The Corporation is applying to the Ministry of Health for permission to erect 150 houses without subsidy.

WARRINGTON. *Extensions, etc.* Plans passed by the Corporation: Office and storerooms, 22,

(Continued on page xl.)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_4	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie ..	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_1	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley	N.W. Counties	1 5½	1 1½
A	Burslem	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
A_1	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham ..	N E. Coast	1 5½	1 1½
A_2	EASTBOURNE	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire. Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter ..	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S. W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W. Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_3	Kendal ..	N.W. Counties	1 4	1 0
A_3	Keswick ..	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12-15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough ..	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock	Mid. Counties	1 4	1 0
A_1	Merthyr	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N.E. Coast	1 5½	1 1½
A_2	Middlewich ..	N.W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate	S. Counties	1 3½	11½
A	Retford	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_2	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton	Yorkshire	1 4½	1 0½
A_2	Slough	S. Counties	1 4½	1 0½
A_1	Solihull	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_1	Southend - on - Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford	Mid. Counties	1 5	1 0½
A	Stirling	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea	S. Wales & M.	1 5½	1 1½
A	Swindon	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton	S.W. Counties	1 3½	11½
A	Teesside Dist ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_2	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKE ..	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby	Yorkshire	1 4½	1 0½
A	Widnes	N.W. Counties	1 5½	1 1½
A	Wigan	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality, and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

	s.	d.
Bricklayer . . . . per hour	1	7
Carpenter . . . . "	1	7
Joiner . . . . "	1	7
Machinist . . . . "	1	8
Mason (Banker) . . . . "	1	7
" (Fixer) . . . . "	1	8
Plumber . . . . "	1	7
Painter . . . . "	1	6
Paperhanger . . . . "	1	6
Glazier . . . . "	1	7
Slater . . . . "	1	7
Scaffolder . . . . "	1	3
Timberman . . . . "	1	3
Navvy . . . . "	1	2½
Genera Labourer . . . . "	1	2½
Lorryman . . . . "	1	5
Crane Driver . . . . "	1	6
Watchman . . . . per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

	£	s.	d.
Grey Stone Lime . . . . per ton	2	2	0
Blue Lias Lime . . . . "	1	16	6
Hydrated Lime . . . . "	3	0	9
Portland Cement, in 4 ton lots (d/d site, including Paper Bags) . "	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags) . "	2	6	0
White Portland Cement, in 1-ton lots "	8	15	0
Thames Ballast . . . . per Y.C.		6	3
¾" Crushed Ballast . . . . "		6	9
Building Sand . . . . "		7	3
Washed Sand . . . . "		8	3
2" Broken Brick		8	0
¾" " " . . . . "		10	3
Pan Breeze . . . . "		6	6
Coke Breeze . . . . "		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

	4" s.	4" d.	6" s.	6" d.
Straight Pipes . . per F.R.	0	9	1	1
Bends . . . each	1	9	2	6
Taper Bends . . "	3	6	5	3
Rest Bends . . "	4	3	6	3
Single junctions . . "	3	6	5	3
Double . . "	4	9	6	6
Straight channels . . per F.R.	1	6	2	6
¾" Channel bends . . each	2	9	4	0
Channel junctions . "	4	6	6	6
Channel tapers . . "	2	9	4	0
Yard gullies . . "	6	9	8	9
Interceptors . . "	16	0	19	6
IRON DRAINS:				
Iron drain pipe . . per F.R.	1	6	2	6
Bends . . . each	5	0	10	6
Inspection bends . "	9	0	15	0
Single junctions . "	8	9	18	0
Double junctions . "	13	6	30	0
Lead Wool . . lb.		6		—
Gaskin . . . "		5		—

BRICKLAYER

	£	s.	d.
Flettons . . . . Per M.	2	15	0
Grooved do. . . . "	2	17	0
Phorpres bricks . . . "	2	15	0
" Cellular bricks . . "	2	15	0
Stocks, 1st quality . . "	4	11	0
" 2nd " . . "	4	2	6
Blue Bricks, Pressed . "	8	17	6
" Wirecuts . "	7	17	6
" Brindles . "	7	0	0
" Bullnose . "	9	0	0
Red Sand-faced Facings . "	6	18	6
Red Rubbers for Arches . "	12	0	0
Multicoloured Facings . "	7	10	0
Luton Facings . . . "	7	10	0
Phorpres White Facings . "	3	17	3
" Rustic Facings "	3	12	3
Midhurst White Facings . "	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:			
Stretchers . . . . "	21	0	0
Headers . . . . "	20	10	0
Bullnose . . . . "	27	10	0
Double Stretchers . . "	29	10	0
Double Headers . . "	26	10	0
Glazed Second Quality, *Less* .	1	0	0
" Buffs and Creams, *Add* . "	2	0	0
" Other Colours . . "	5	10	0
2" Breeze Partition Blocks . per Y.S.		1	7
2½" " " " . . "		1	10
3" " " " . . "		2	1
4" " " " . . "		2	6

MASON

The following d/d F.O.R. at Nine Elms:	s.	d.
Portland stone, Whitbed . . F.C.	4	4½
" " Basebed . . "	4	7½
Bath stone . . . . "	2	10
York stone . . . . "	0	6
" " Sawn templates . "	7	6
" " Roving, 2" . . F.S.	1	8
" " " 3" . . "	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

	£	s.	d.
24" × 12" Duchesses . . per M.	28	17	6
22" × 12" Marchionesses . "	24	10	0
20" × 10" Countesses . "	19	5	0
18" × 10" Viscountesses . "	15	10	0
18" × 9" Ladies . . "	13	17	6
Westmorland green (random sizes) . per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:			
20" × 10" medium grey per 1,000 (actual)	21	11	6
" " green " "	24	7	4
Best machine roofing tiles . "	4	10	0
Best hand-made do. . . . "	5	0	0
Hips and valleys . . . each			9½
" hand-made . . . "			10
Nails, compo . . . . lb.		1	4
" copper . . . . "		1	6

CARPENTER AND JOINER

	s.	d.
Good carcassing timber . . F.C.	2	2
Birch . . . . as 1" F.S.		9
Deal, Joiner's . . . " "		5
" " 2nds . . " "		4
Mahogany, Honduras . . " "	1	3
" African . . " "	1	1
" Cuban . . " "	2	6
Oak plain American . . " "	1	0
" Figured " . " "	1	3
" Plain Japanese . " "	1	2
" Figured " . " "	1	5
" Austrian wainscot . " "	1	6
" English . . " "	1	11
Pine, Yellow . . " "	1	0
" Oregon . . " "		4
" British Columbian . " "		4
Teak, Moulmein . . " "	1	3
" Burma . . " "	1	2
Walnut, American . . " "	2	3
" French . . " "	2	3
Whitewood, American . " "	1	1

Deal floorings,	¾"	1"	1¼"	1½"	2"
	s. d.	s. d.	s. d.	s. d.	s. d.
"	8	1	1 6	1 10	2 6
"	1"		1 2	1 5	2 0
"	1¼"		1 5	1 10	2 6
"	1½"		1 10	2 0	2 9
Deal matchings	¾"		14	0	
"	1"		15	6	
"	1¼"		1 4	0	
Rough boarding	¾"		16	0	
"	1"		18	0	
"	1¼"		1 6	0	

Plywood, per ft. sup. —Thickness	⅛"	¼"	⅜"	½"
Qualities	AA. A. B.	AA. A. B.	AA. A. B.	AA. A. B.
	d. d. d.	d. d. d.	d. d. d.	d. d. d.
Birch .	4 3 2	5 4 3	7½ 6 4½	8½ 7 6
Alder .	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6
Gaboon Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –
Figured Oak 1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –
Plain Oak 1 side	6½ 6 –	7½ 7 –	9½ – –	1/- – –
Oregon Pine	5 4 –	5½ 5 –	6 – –	– – –

	d.
Scotch glue . . . . lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	¾"	1"	1¼"	1½"	2"
	d.	d.	d.	d.	d.
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23½" long each	10	1/1	1/11	2/8	4/9
" 3"-11½" long "	7	9	1/3	1/8	3/-
Long screws, 12"-23½" long "	11	1/3	2/2	2/10	5/3
" " 3"M-½" long "	8	10	1/5	1/11	3/6
Bends . . . . "	8	11	1/7½	2/7½	5/2
Springs not socketed . "	5	7	1/1½	1/11½	3/11
Socket unions . . "	2/-	3/-	5/6	6/9	10/-
Elbows, square . . "	10	1/1	1/6	2/2	4/3
Tees . . . . "	1/-	1/3	1/10	2/6	5/1
Crosses . . . . "	2/2	2/9	4/1	5/6	10/6
Plain Sockets and nipples "	3	4	6	8	1/3
Diminished sockets . "	4	6	9	1/-	2/-
Flanges . . . . "	9	1/-	1/4	1/9	2/9
Caps . . . . "	3½	5	8	1/-	2/-
Backnuts . . . . "	2	3	5	6	1/1
Iron main cocks . . "	1/6	2/3	4/2	5/4	11/6
" " with brass plugs "	—	4/-	7/6	10/-	21/-

Discounts:

TUBES.	Per cent.		Per cent.
Gas . . .	65	Galvanized gas .	52½
Water . . .	61½	" water	47½
Steam . . .	57½	" steam	42½
FITTINGS.			
Gas . . .	57½	Galvanized gas	47½
Water . . .	52½	water	42½
Steam . . .	47½	steam	37½

SMITH AND FOUNDER—*continued*

	s.	d.
Rolled steel joists cut to length . . cwt.	10	0
Mild steel reinforcing rods, ¾" . . "	8	5
" " ⅞" . . "	8	5
" " 1" . . "	8	0
" " 1" . . "	7	6
" " 1" . . "	7	6
" " 1¼" . . "	7	6
" " 1¼" . . "	7	6
" " 1½" . . "	7	6

Cast-iron rain-water pipes of ordinary thickness metal . . F.R.	3" s. d. 8	4" s. d. 10
Shoes . . . . each	2 0	3 0
Anti-splash shoes . . "	4 6	8 0
Boots . . . . "	3 0	4 0
Bends . . . . "	2 7	3 9
" with access door . . "	—	6 9
Heads . . . . "	4 0	5 0
Swan-necks up to 9" offsets . "	3 9	6 0
Plinth bends, 4½" to 6" . "	3 9	5

Half-round rain-water gutters of ordinary thickness metal . . F.R.	5	6
Stop ends . . . . each	6	6
Angles . . . . "	1 7	1 11
Obtuse angles . . . "	2 0	2 6
Outlets . . . . "	1 9	2 3

PLUMBER

	£	s.	d.
Lead, milled sheets . . . cwt.	18	6	
" drawn pipes . . . "	17	0	
" soil pipe . . . "	18	6	
" scrap . . . "	10	6	
Solder, plumbers' . . . lb.			9½
" fine do. . . . "		1	0
Copper, sheet . . . "			8½
" tubes . . . "			11

L.C.C. soil and waste pipes:	3"	4"	6"
Plain cast . . F.R.	1 0	1 2	2 6
Coated . . "	1 1	1 3	2 8
Galvanized . . "	2 0	2 6	4 6
Holderbats . . each	3 10	4 0	4 9
Bends . . . "	3 9	5 3	10 3
Shoes . . . "	2 10	4 4	9 6
Heads . . . "	4 8	8 5	12 9

PLASTERER

	£	s.	d.
Lime, chalk . . . per ton	2	5	0
Plaster, coarse . . . "	2	10	0
" fine . . . "	4	15	0
Hydrated lime . . . "	3	0	9
Sirapite . . . "	3	6	0
Keene's cement . . . "	5	0	0
Gothite Plaster . . . "	3	6	0
Pioneer Plaster . . . "	3	3	0
Thistle Plaster . . . "	3	6	0
Sand, washed . . . Y.C.		11	6
Hair . . . . lb.			6
Laths, sawn . . . bundle		2	4
" rent . . . "		3	9
Lath nails . . . lb.			3

GLAZIER

	s.	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft. s. F.S.				2½
" 26 oz. " " " "				3
Flemish, Arctic, Figured (white)* "				7
Blazoned glasses . . . "			2	6
Reeded; Cross Reeded "				11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite				6
Crown sheet glass (n/e 12 in. × 10 in.) "				2 0
Flashed opals (white and coloured) "	1	0 and	2	0
¾" rough cast; rolled plate . . "				5½
¾" wired cast; wired rolled . . "				9
¾" Georgian wired cast. . . "				11
¾" Polished plate, n/e 1 ft. . . "	† 10 to		‡1	1
" " 2 . . "	†1	2 "	‡1	4
" " 4 . . "	†2	3 "	‡2	6
" " 8 . . "	†2	9 "	‡3	2
" " 20 . . "	†3	7 "	‡4	2
" " 45 . . "	†3	11 "	‡4	7
" " 100 . . "	†5	0 "	‡5	7
Vita glass, sheet, n/e 1 ft. . . "			1	0
" " " 2 ft. . . "			1	3
" " " over 2 ft. . . "			1	9
" " plate, n/e 1 ft. . . "			1	6
" " " 2 ft. . . "			3	0
" " " 5 ft. . . "			4	0
" " " 7 " . . "			5	0
" " " 15 " . . "			6	0
" " " over 15 " . . "			7	6
"Calorex" sheet 21 oz., and 32 oz. "	2	6 and	3	6
" rough cast ¾" and 1" "			8½ "	1 0
Putty, linseed oil . . lb.				3

* *Colours*, id. *F.S. extra.*
†*Ordinary glazing quality.* ‡*Selected glazing quality.*

PAINTER

	£	s.	d.
White lead in 1 cwt. casks . . . cwt.	2	6	0
Linseed oil . . . . gall.		2	2½
Boiled oil . . . . "		2	4½
Turpentine		4	1½
Patent knotting . . . . "		14	0
Distemper, washable . . . cwt.	2	6	0
" ordinary . . . "	2	0	0
Whitening . . . . "		4	0
Size, double . . . . firkin		3	0
Copal varnish . . . . gall.		13	0
Flat varnish . . . . "		14	0
Outside varnish . . . "		16	0
White enamel . . . . "	1	15	0
Ready mixed paint . . . "		13	6
Brunswick black . . . "		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR		£ s. d.
Digging over surface n/e 12" deep and cart away	Y.S.	2 9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.	8 6
" to form basement n/e 5' 0" deep and cart away	"	9 0
" " 10' 0" deep and cart away	"	9 6
" " 15' 0" deep and cart away	"	10 0
If in stiff clay	add "	6
If in underpinning	"	4 0
Planking and strutting to sides of excavation	F.S.	1 0
" " to pier holes	"	5
" " to trenches	"	5
" " extra, only if left in	"	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	"	1 6 0
" " (4-2-1)	"	1 12 6
" " underpinning	"	1 16 0
Finishing surface of concrete, spade face	Y.S.	7

DRAINLAYER		4" s. d.	6" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER		£ s. d.
Brickwork, Flettons in lime mortar	Per Rod	27 10 0
" " in cement	"	28 15 0
" Stocks in cement	"	35 0 0
" Blues in cement	"	52 0 0
Extra only for circular on plan	"	2 0 0
" backing to masonry	"	1 10 0
" raising on old walls	"	2 0 0
" underpinning	"	5 10 0½
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	"	8
" " " red brick facings and pointing	"	11
" " " blue brick facing and pointing	"	1 4
" " " glazed brick facings and pointing	"	3 6
Tuck pointing	"	7½
Weather pointing in cement	"	3
Slate dampcourse	"	10
Vertical dampcourse	"	1 1

ASPHALTER		s. d.
½" Horizontal dampcourse	Y.S.	4 6
½" Vertical dampcourse	"	6 9
½" paving or flat	"	4 0
1" paving or flat	"	5 6
1" × 6" skirting	F.R.	1 0
Angle fillet	"	4
Rounded angle	"	2
Cesspools	Each	5 0

MASON		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	"	13 6
Artificial stone and do.	"	13 0
York stone templates, fixed complete	"	10 6
" thresholds	"	13 6
" sills	"	1 0 6

SLATER AND TILER		£ s. d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3 10 0
Do., 18" × 9"	"	3 7 0
Do., 24" × 12"	"	3 17 0
Westmorland slating, laid with diminished courses	"	6 0 0
Tiling, best hand-made sand-faced, laid to a 4" gauge, nailed every fourth course	"	3 0 0
Do., all as last, but of machine-made tiles	"	2 16 0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	4 6 0
" " " " " (green)	"	4 15 0

CARPENTER AND JOINER		£ s. d.
Flat boarded centering to concrete floors, ncluding all strutting	Sqr.	2 5 0
Shuttering to sides and soffits of beams	F.S.	8
" to stanchions	"	8
" to staircases	"	1 8
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	"	4 6
" " roofs	"	6 6
" " trusses	"	7 6
" " partitions	"	8 6
½" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" " " " "	"	1 17 6
1½" " " " "	"	2 3 0
4" × 2" fir battening for Countess slating	"	9 6
Do. for 4" gauge tiling	"	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
" " " 2 "	"	2 9
" " " 3 "	"	3 3
Stout herringbone strutting to 9" joists	F.R.	10½
1" deal gutter boards and bearers	F.S.	1 2
1½" " " "	"	1 6
2" deal wrought rounded roll	F.R.	8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼" do.	"	2 10 0
1½" do.	"	2 17 0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1¼" do.	"	1 9

CARPENTER AND JOINER—*continued*		s. d.
1½" deal moulded sashes of average size	F.S.	1 9½
2" " " "	"	1 11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1½" pulley stiles, 1¼" heads, 1" inside and outside linings, ⅝" parting beads, and with brass faced axle pulleys, etc., fixed complete	"	3 7
2" " " " "	"	3 10
Extra only for moulded horns	Each	6
1½" deal four-panel square, both sides, door	F.S.	2 0
2" " " " "	"	2 8
1½" " but moulded both sides	"	2 4
2" " " " "	"	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" " " "	"	1 4
1½" deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1½" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
1½" deal moulded wall strings	"	2 1
1½" " outer strings	"	2 4
Ends of treads and risers housed to string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1½" × 1½" " " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

SMITH AND FOUNDER		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	15 6
Riveted plate or compound girders, and hoisting and fixing in position	"	19 6
Do. stanchions with riveted caps and bases and do.	"	19 0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	"	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER		£ s. d.
Milled lead and labour in flats	cwt.	1 12 0
Do. in flashings	"	1 15 6
Do. in covering to turrets	"	2 3 0
Do. in soakers	"	1 7 6
Labour to welted edge	F.R.	3½
Open copper nailing	"	3
Close "	"	4

Lead service pipe and fixing with pipe hooks	F.R.	½" s. d. 10	¾" s. d. 1 0	1" s. d. 1 3	1½" s. d. 2 0	2" s. d. 2 10	4" s. d. —
Do. soil pipe and fixing with cast lead tacks		—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	3 9	5 0	8 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—

		s. d.
4" cast-iron ½-rd. gutter and fixing	F.R.	1 0
Extra, only stop ends	Each	1 0
Do. angles	"	1 6
Do. outlets	"	2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1 2
Extra, on y for shoes	Each	1 3
Do. for plain heads	"	5 6

PLASTERER AND TILING		s. d.
Expanded metal lathing, small mesh	Y.S	2
Do. in n/w to beams, stanchions, etc.	"	2 9
Lathing with sawn laths to ceilings	"	1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1 5
Do. vertical	"	1 7
Rough render on walls	"	1 2½
Render, float and set in lime and hair	"	1 9
Render and set in Sirapite	"	1 11
Render, backing in cement and sand, and set in Keene's cement	"	2 9
Extra, only if on lathing	"	4
Keene's cement, angle and arris	F.R.	6
Arris	"	1½
Rounded angle, small	"	3
Plain cornices in plaster, including dubbing out, per 1" girth	"	1½
1" granolithic pavings	Y.S.	3 6
1½" " "	"	4 6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17 6
9" × 3" " " " "	"	1 2 6
Extra, only for small quadrant angle	F.R.	8

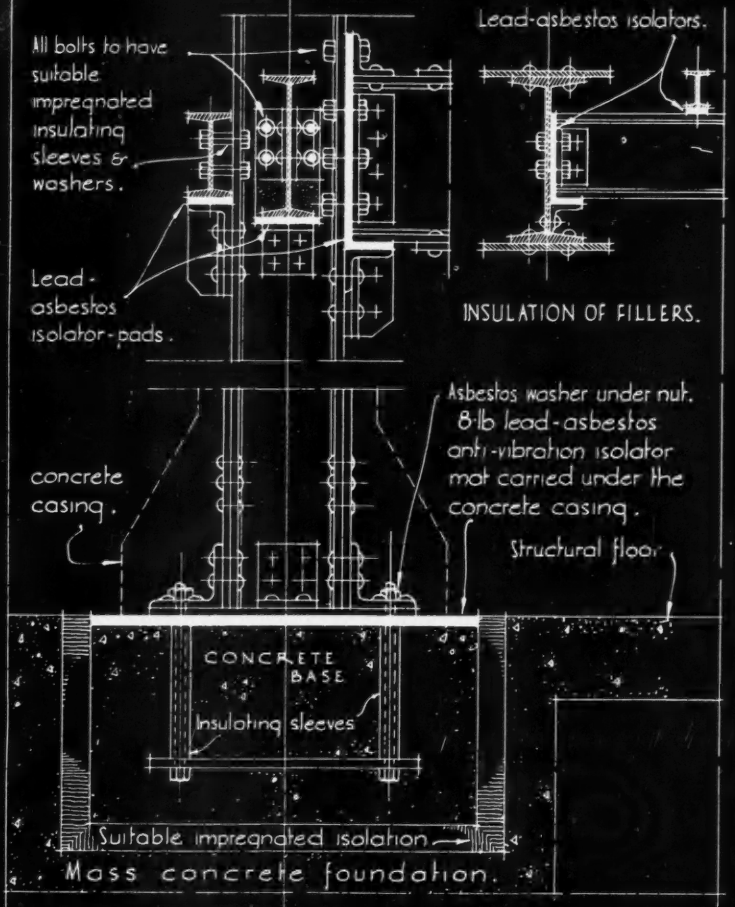
GLAZIER		s. d.
21 oz. sheet glass and glazing with putty	F.S.	7½
26 oz. do and do.	"	8½
Flemish, Arctic Figured (white) and glazing with putty	"	1
Cathedral glass and do.	"	1 2
Glazing only, British polished plate	"	7
Extra, only if in beads	"	2
Washleather	F.R.	4

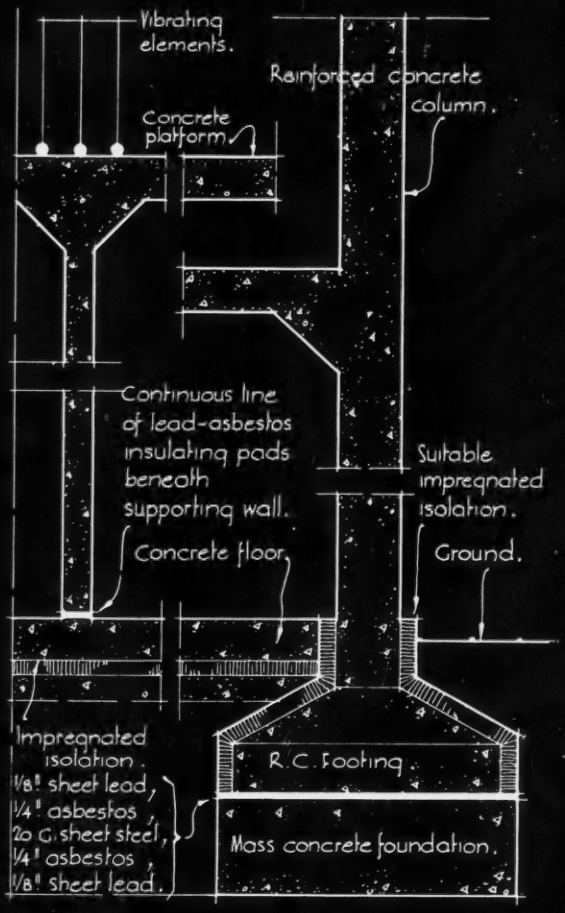
PAINTER		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	"	9
Do. with washable distemper	"	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3 3
Do. on woodwork	"	3 6
Do. on steelwork	"	3 0
Do. and brush grain and twice varnish	"	5 6
Stain and twice varnish woodwork	"	1 11
Stain and wax-polish woodwork	"	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper	from "	2 9

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INSULATION AGAINST SOUND AND STRUCTURAL VIBRATION :—

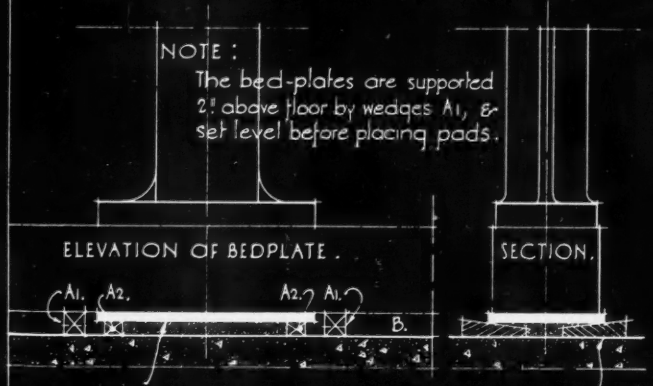
1, Insulation in steel framed structures. 2, Insulation of concrete structures.



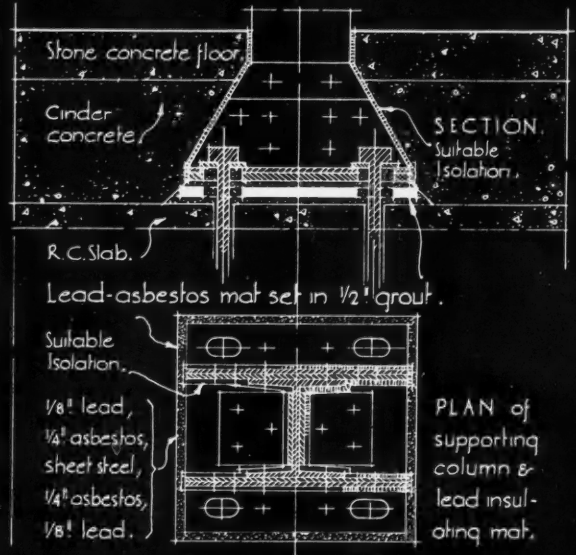


INSULATION AGAINST THE VIBRATION OF MACHINERY :

1, Surface insulating pads. 2, Structural insulating pads.



Two to one stiff cement mortar is driven under the lead pad with a hammer. When this has set, all the wedges are removed and pads are installed under bedplate at B in a similar manner.



Information from the Lead Sheet & Pipe Development Council.

INFORMATION SHEET • THE USES OF LEAD IN BUILDING CONSTRUCTION, 8

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

Supplement to THE ARCHITECTS' JOURNAL for April 11, 1935

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 207 •

LEAD

This is the eighth of a series of Information Sheets dealing with the uses of lead in building construction ; it shows various methods of insulating structures from vibration and against sound transmission.

Vibrations.

The insulation of buildings against vibration falls into two sections :

a. Insulation against vibration caused within the building.
b. Insulation against vibration from external causes.

Insulation against vibration caused within the building may be provided locally in some cases, and, in others, precautions must be taken comprehensively throughout the building. Heavy machines, such as printing presses, are usually bedded on absorbent pads to provide local insulation, but in addition, either the frame construction carrying them is kept entirely separate from the frame of the building itself, or the beams carrying them are insulated where they connect with the frame of the building.

The placing of isolation pads varies according to the type of construction used, and the problems presented by steel frame construction are entirely different from those of reinforced concrete or brick.

The properties required of the isolating material are, however, always the same, namely, elasticity and deflection. In general the area of the pads should be as small as possible, within the limits of the material used. Isolating materials vary in the load per square inch at which they are most efficient, but it has been found that when either underloaded or overloaded, an isolator may be quite inefficient, or may even cause the vibrations transmitted to be accentuated.

Isolation pads carrying heavy loads are almost universally built up in lead and asbestos.

Since the object of the pads is not only to absorb as far as possible the vibrations, but also to break the continuity in the solid material of the structure, it is important that in connections between members of steel framing, and in anchor bolts for machines, the bolts themselves should be isolated by washers and sheathing in asbestos impregnated with bitumen.

Previous Sheets in this issue were Nos. 148, 149, 157, 161, 167, 182 and 195.

Issued by : The Lead Sheet and Pipe Development Council
Address : Golden Cross House, Duncannon Street, W.C.2
Telephone : Whitehall 7265

Sup

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SPECIFICATIONS FOR PAINTING ON CONCRETE · CEMENT · PLASTER · STONE & BRICK SURFACES

ENAMEL ON CONCRETE ETC. SURFACES :

A concrete stopper K.Z. 7012 may be used for concrete or cement surfaces.

PRODUCT.	TYPE OF SURFACE.		PRIMING COAT	SECOND COAT.	THIRD COAT.	FOURTH COAT.
DULUX NON-YELLOWING WHITE ENAMEL 81999. Also available in tints to order. *For details see back of sheet N.º 4.*	Unpainted surfaces.	Interior	Primer K.L. 1795. Primer K.M. 1376. Primer K.M. 1339.	Dulux under-coat 178101.	Dulux under-coat, 178101. may be omitted if desired.	Dulux Enamel
		Exterior	Not recommended for exterior finishing.			
	Previously painted surfaces.	Interior	Not required unless stripped bare.	Dulux under-coat, 178101	Dulux under-coat, 178101. may be omitted if desired.	Dulux Enamel.
		Exterior	Not recommended for exterior finishing.			

IMITATION STONE PAINT ON CONCRETE ETC. SURFACES :

PRODUCT.	TYPE OF SURFACE.		PRIMING COAT.	SECOND COAT.	THIRD COAT.
PETRUMITE IMITATION STONE PAINT. *For details see back of sheet N.º 4.*	Unpainted surfaces.	Interior	Primer K.L. 1795. Primer K.M. 1376. Primer K.M. 1339. Primer K.L. 7485.	Petrumite Interior or Exterior quality, as required.	Petrumite Interior or Exterior quality, as required.
		Exterior	For extremely porous surfaces, Primer K.M. 1376, otherwise no primer.		
	Previously painted surfaces.	Interior & Exterior.	Not required unless stripped bare.	Petrumite Interior or Exterior quality as required.	Petrumite Interior or Exterior quality as required.

GLOSS PAINTS ON CONCRETE ETC. SURFACES :

PRODUCT.	TYPE OF SURFACE.		PRIMING COAT.	SECOND COAT.	THIRD COAT.	FOURTH COAT.
DULUX GLOSSY. *For details see back of sheet N.º 3.*	Unpainted surfaces.	Interior	Primer K.L. 1795. Primer K.M. 1376. Primer K.M. 1339. Primer K.L. 7485.	Dulux selected shade, a thin coat brushed out uniformly†	Dulux, selected shade.	Not usually required but an additional coat may be applied if desired.
		Exterior	Primer K.M. 1376.			
	Previously painted surfaces.	Interior & Exterior	Not required unless stripped bare.	As above. †	As above.	
			† An undercoat can be supplied for use when white or light tints are used over a darker background.			
S.E.G. SUPER ELASTIC GLOSS PAINT. *For details see back of sheet N.º 3.*	Unpainted surfaces.	Interior	Primer K.L. 1795. Primer K.M. 1376. Primer K.M. 1339. Primer K.L. 7485.	S.E.G. Under-coat of appropriate shade.	•S.E.G. Under-coat of appropriate shade.	S.E.G. Finishing coat of selected shade.
		Exterior	Primer K.M. 1376.			
	Previously painted surfaces.	Interior & Exterior	Not required unless stripped bare.	Omit undercoat if surface is in good condition.	Omit undercoat if surface is in good condition.	
			• The second coat of undercoat may be omitted except in case of first-class work.			

For note on Primers see sheet N.º 2.

Information from Nobel Chemical Finishes Ltd.

INFORMATION SHEET: DATA ON PRIMERS, PAINTS, VARNISHES, ETC. N.º 11.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 208 •

PAINTS

Product : Various Paints on Concrete Surfaces, etc.

This is the eleventh of a series of Sheets dealing comprehensively with the subject of painting and the protection of various surfaces.

Primers.—The list of Primers given below includes those published in the list on Sheet No. 2, and in addition includes :

White Primer K.L. 7485—for Pioneer or other medium suction plasters, and
Aluminium Primer for Columbian Pine K.Z. 8191.

Metal Primers for use under Dulux.—Three special primers have been produced for use under the Dulux synthetic finishes. The Brown Dulux Primer 71009 is particularly recommended as it possesses outstanding rust-inhibiting properties and it should therefore be used whenever possible. Dulux White Primer 71405 is available for use under white and cream shades when cost does not allow the additional coat of undercoating or finishing Dulux that might be necessary to obtain complete obliteration if the Brown Dulux Primer 71009 were used. Dulux Grey Primer 71404 is also available for use under suitable colours.

Primers.—For use on surfaces which have not previously been painted.

FOR PLASTER, CEMENT, CONCRETE AND BRICKWORK

† White—for new smooth and low suction plaster or for "following the trowel"	K.L. 1795
† White—for Pioneer and other medium suction plasters	K.L. 7485
† Cream—for old, perished and high suction plasters. Also for cement, concrete and brickwork on exterior work or under severe conditions of humidity, etc.	K.M. 1376
† White—for dry cement, concrete and brickwork on interior work where conditions are normal	K.M. 1339

PRIMERS FOR WOOD

†* White	K.M. 1342
* Pink	K.M. 1267
Aluminium for Columbian Pine	K.Z. 8191

PRIMERS FOR METAL

†* Dulux Brown Metal Primer	71009
† Dulux Grey Metal Primer	71404
† Dulux White Metal Primer	71405
* Red-Brown	K.M. 1334
* Grey	K.M. 1345
* White	K.M. 7153
†* Dark Brown (galvanised iron)	K.A.P.4347

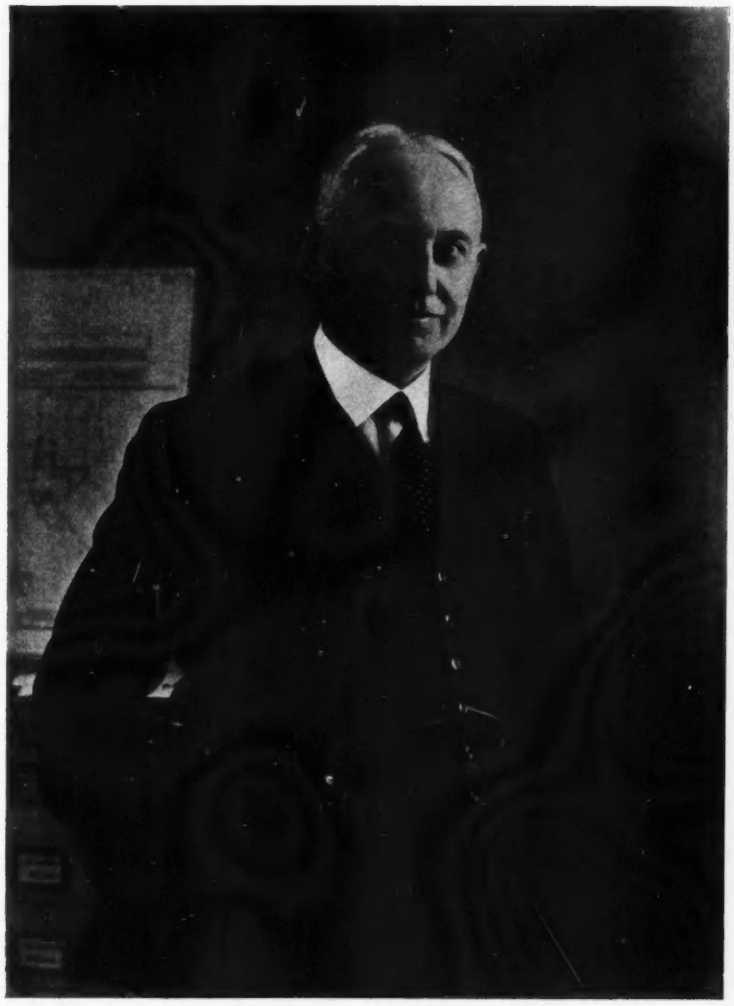
† Suitable for use under Dulux.
* Contain lead.

Previous Sheets in this series were Nos. 188, 190, 192, 194, 196, 198, 200, 202, 204 and 206.

Name of Manufacturers : Nobel Chemical Finishes, Ltd.
Address : Architectural Dept., Wexham Road, Slough, Bucks
Telephone : Slough 528
London Office : Thames House, Millbank, S.W.1
Telephone : Victoria 2873-2874

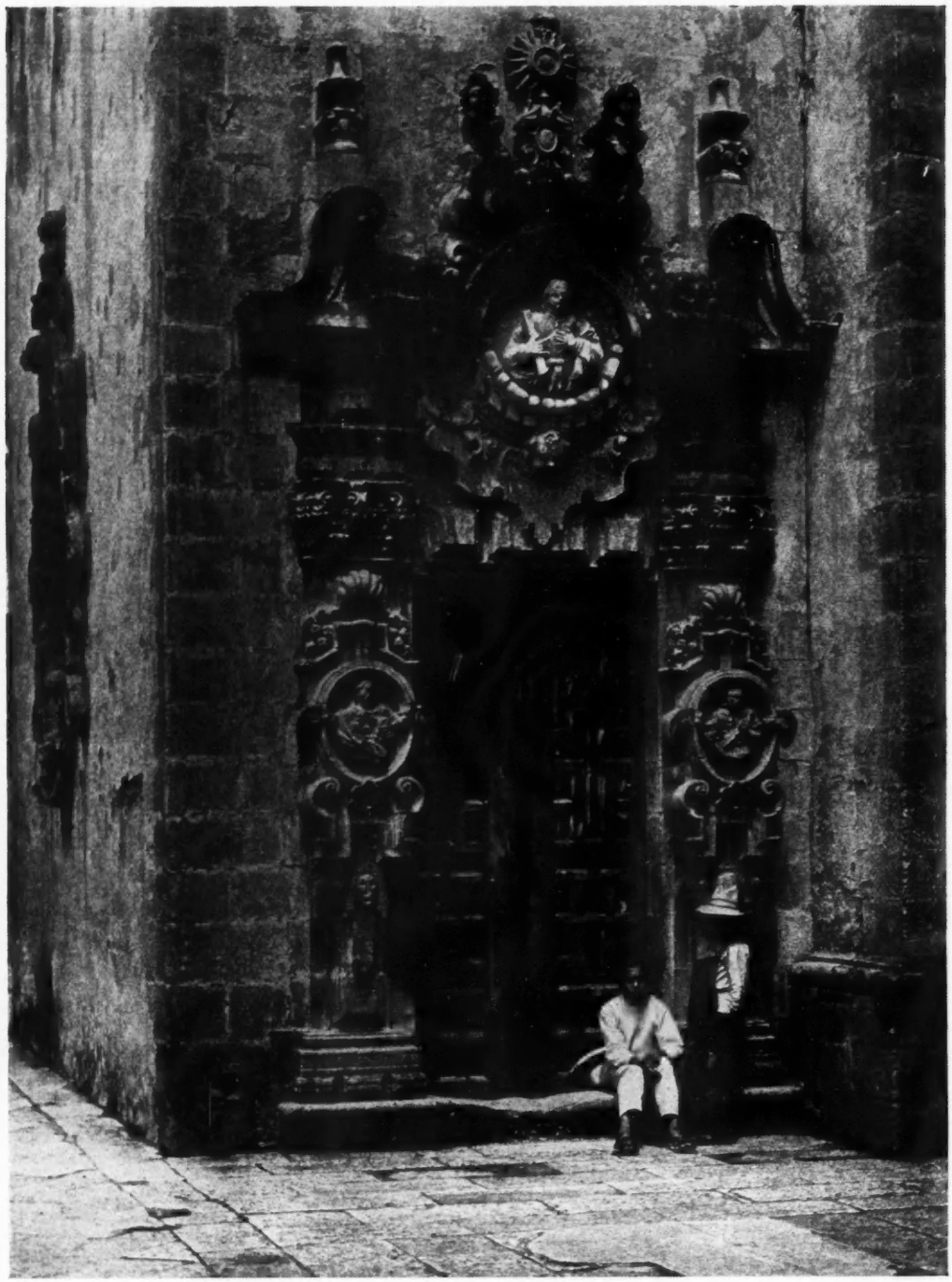
"FOR THE PROMOTION OF ARCHITECTURE"

ROYAL GOLD MEDAL FOR W. M. DUDOK



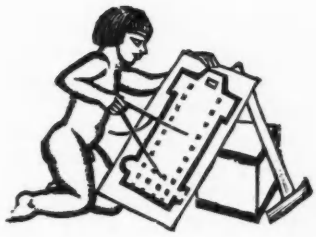
LAST Monday at the R.I.B.A. Sir Giles Gilbert Scott, the President, presented the 1935 Royal Gold Medal for the Promotion of Architecture to W. M. Dudok, the distinguished Dutch architect.

Willem Marinus Dudok was born in 1884. He is probably best known as a designer of schools, notably in Hilversum, where he is Director of Public Works; also as the designer of Hilversum Town Hall. The medal has previously been awarded to Dutch architects on two occasions: to Cuypers, in 1897, and to H. P. Berlage, in 1932.



B A R O Q U E

The richest development of the Baroque was probably in Spanish Mexico, where the catholic tradition of the country's conquerors flowered under sub-tropical sunshine and feudal patronage to a degree of almost organic freedom and fertility unknown even in the continent of its origin. This photograph (taken by Alexander Paiget) shows the side door of the parochial church at Taxco, Guevrero. [By courtesy of "The American Architect."]



ANALYSIS

THE greatest advance in medical practice of recent years has been in the application of the principles of psycho-analysis ; of the knowledge that the first step towards the cure of almost any ill is the complete realization of its origin. The same principle applies to architecture. The difference between truly modern architecture and stylistic design is much more fundamental than the use of a flat roof, large windows and synthetic materials in the former in the place of traditional forms and materials in the latter ; it is one of unprejudiced analysis of needs and means instead of acceptance of a preconceived solution. And the more successful a modern building is, the more absolute will the basic analysis be found to have been. The characteristic of the modern architect, in fact, is that he regards each building not as an *ad hoc* object, moulded to the shape the designer's particular preferences have given it, but as a solution to a problem.

For this reason, the customary way of presenting a completed building to the public in the press, by photographs and plans of the building as it is, is inadequate to the student of architecture. Further explanation is desirable of how it acquired its completed form. That is not to say that the merits of a building as architecture cannot be appreciated without an explanation of the reasons behind its appearance. A work of art is either self-sufficient in its own medium or it is incompletely a work of art. But the usefulness of it as an example or precedent to those practising or studying the same profession is limited by purely objective presentation ; so is its usefulness as an aid to those, professional or lay, who are still in the position of discovering an intellectual basis on which they can appreciate modern architecture as the natural expression of contemporary existence. For in this matter of architectural appreciation we come back again to a parallel to the method of pyscho-analysis. Take "modern" architecture as an example. Dislike of modern architecture on æsthetic grounds is not really æsthetic in origin, but springs from a sense of instability, due to modern architecture's strangeness and the fact that it has discarded certain conventions of design that used to be considered indispensable. The method by which readjustment can be achieved is analysis of architectural function, and progressive appreciation of the realistic character of modern design—by an intellectual process of sublimating exterior æsthetic preference into astylistic satisfaction in a service artistically performed. The next step will naturally be acceptance of the results of the æsthetic based on this intellectual analysis. Appreciation of architecture of whatever kind must depend on knowledge of its method of function.

The presentation of a building in the press in terms of the solution to a problem can best be done graphically and diagrammatically ; that is the way the architect normally works. In this JOURNAL we are attempting to present some buildings in this manner, realizing its instructional potentialities. The possibilities of it were demonstrated to us (there is no reason why we should not acknowledge it) when, some months ago, a well-known firm of architects made a complete analysis of one of their buildings for the purpose of elucidating the design for the benefit of students, a party of whom were to be taken on a visit to the site. These explanatory drawings were reproduced in this JOURNAL, and it at once became apparent that a valuable method of presentation had been evolved. Ideally, all buildings might be presented in the form of a sequence of explanatory diagrams, only supplemented by photographs to serve as a check, as it were, on the practical efficacy of the theoretical arguments. In practice, for reasons of time, money and opportunity, such an ambitious ideal is not possible. We must continue to rely on photography and s mple record of fact for our week-to-week presentation of buildings completed ; but we are planning to publish a complete explanatory analysis of a building, projected or actual, at regular intervals —say, once every month. The first appears in this issue.

All architects, consciously or unconsciously, work on a system of trial and error. From the instructional point of view a record of the errors, usually only filed away among the architect's sketch plans or at the back of his memory, are as important as the ultimate achievement. Publication of them, together with details of other selective processes the design of a building has necessitated, are not a criticism of it, but a record of the tremendous consideration the production of good architecture demands.



The Architects' Journal
Westminster, S.W.1
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NOTES & TOPICS

RIBBON DEVELOPMENT

QUITE a number of years ago somebody wisely remarked that no notice would ever be taken of ribbon development by the local authorities and the Government until it had passed beyond the stage of being regarded as an æsthetic scourge and become a purely practical nuisance. (As a matter of fact I believe I said it myself.)

*

Now something is apparently to be done to stop it, because it has been found to be a cause of motor accidents. Motorists are up in arms, and Lord Howe last week protested during the House of Lords' debate that motorists had built the roads and were now restricted in their use of them.

*

Well, I suppose one reason is as good as another, and we must be thankful that at last the authorities are to do by compulsion what they failed to do in wisdom long ago. Perhaps this little incident may serve to drum into the world at large the fact that architects are not cranks ; that they, too, have their practical reasons for what they say and do. Because a dozen years ago architects cried warning after warning that ultimately ribbon development would prove to be a scourge.

*

Perhaps we all made the mistake of even admitting that æsthetics had any bearing on the subject. Had we kept silent on that and talked only of more practical considerations we might have done better. So many people distrust æsthetics.

*

It is a lesson for the future.

THE LORD MARLEY REPORT

"The estimated gross cost of the preparation of this Report of the Committee (including the expenses of the Committee) is £483 16s. 11d., of which £19 15s. represents the gross cost of the printing and publishing of the Report." So runs a note on the flyleaf of the recently issued Report of the Departmental Committee on Garden Cities and Satellite Towns ; chairman, Lord Marley.

*

That doesn't seem a great deal of money as Government Commissions go ; but was even this expenditure worth while ? The Committee has been sitting since July, 1931 (with a delay of nearly a year on the advent of the National Government) ; and its recommendations are almost as vague as they could be—general opinions why the satellite town can be considered a GOOD THING, and simple advocacy of regional planning of suburban growth in place of uncontrolled development, such as the most unprogressive Ministry of Health could not but be familiar with.

*

The absurd thing about these Commissions is that they always seem to be composed of people who have already made up their minds on the main issues. To appoint as members of a committee to consider the merits of the Garden City mode of development convinced Garden City enthusiasts is like having teetotal judges on the licensing bench.

*

They will call as their expert witnesses chiefly such interested organizations as Welwyn Garden City, Ltd., The Garden Cities and Town Planning Association and the National Federation of House Builders—which is exactly what this Commission did.

*

An inevitable result is, for example, the perfunctory way real urban planning is dismissed in one paragraph, which refers to the "rival merits of high buildings in the form of tenements as a temporary remedial measure at the present juncture, and the more far-sighted policy involving the decentralization of industry and the opportunity to provide individual cottage homes."

*

That is really an astonishing statement. Why only "temporary remedial measure" ? and why are individual cottages "more far-sighted" ? That appears to be evidence of preconceived opinion if ever there was.

*

With the Commission's general opinion that their subject should only be considered as part of wider planning issues everyone must be in complete agreement. Their other definite recommendation, that Garden Cities, etc , should be the responsibility of a permanent Planning Board, specially set up for that purpose, is more questionable.

*

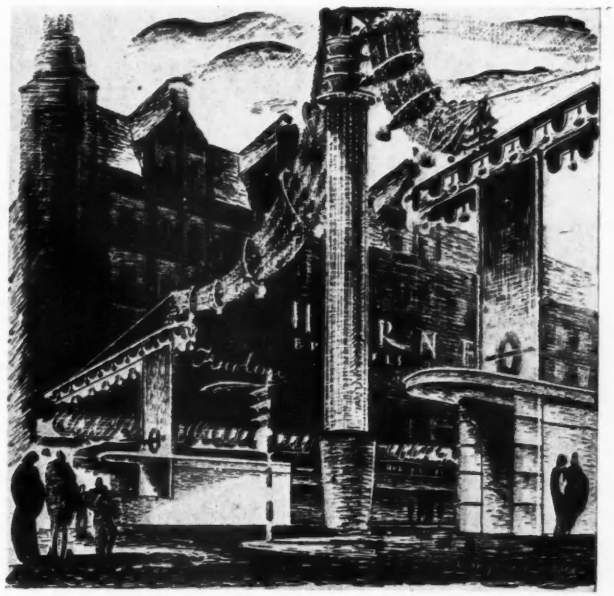
Extension of the present powers of the Ministry ought to be sufficient, as a minority opinion at the end of the Report suggests.

SIR RAYMOND UNWIN AT SHEFFIELD

I have the greatest admiration for Sir Raymond Unwin (who was, incidentally, the architect-member of the Lord Marley Commission), but there are times when I find myself in most emphatic disagreement with him.

*

He has just been speaking on "Craftsmanship in the Building Industry" at Sheffield University ; and there defining his horror of mass production. He is reported as



Jubilee decorations. The most recent sketch of Ian Jeffcott's scheme for the ornamentation of Tottenham Court Road.

saying that should the industry fall a victim to mass production they might expect that the spate of speculative building which had adorned so many miles of our highways with decorated ribbons of discordant villas would be followed by a deluge far worse.

*

This appears to me the most absolute *non sequitur*.

*

Again he said, " It will take thought and effort to preserve craftsmanship, because the times are not favourable to the cultivation of traditional crafts." Isn't that a complete misinterpretation of the term " traditional "?

R.I.B.A. JUNIOR

From the remarks of a large number of fellow architects, I gather that the suggestion of a Junior Organization within the Royal Institute has excited general sympathy and accord. There are a host of ways in which the younger members in London can help—are obviously anxious to help—the R.I.B.A.

*

But what of the Provinces? What of the 60-odd Allied Societies and Chapters? Will not they be ready to give enlightened help? I trust that the committee of four appointed to work out details of the scheme will aim at a nation-wide, even an Empire-wide organization.

*

And, for that matter, why not some connections with junior architectural organizations in all counties—I rather like the sound of " Honorary Corresponding Junior Member."

WORKS—MAJOR PUBLIC

There was a distinguished gathering last week at the dinner of the Royal Society of British Sculptors, and a general raising of no less distinguished eyebrows when Mr. Ormsby-Gore asserted that two of the very worst public buildings in London were the two erected by the Government during the last century as a result of open competition—the Natural History Museum, South Kensington, and the Admiralty extension.

*

I am inclined to accept a statement of the First Commissioner of Works as strictly truthful, but this one is none the less unfortunate and misleading, especially as it was followed by the naïve suggestion that competitions do not produce the best things in major public works.

*

I know a delightful piece of greensward, where the sun shines in sheltered calm, where pelicans preen themselves incessantly, where one can take an after luncheon nap and dream of the noble results of well assessed public competitions, and awaken to gaze upon a galaxy of government buildings; the best in view the result of a nineteenth-century competition, the worst the sad result of no competition at all.

THE STANDING OF THE ARCHITECT

It is no matter for surprise that the Glasgow Institute of Architects is upset by the Corporation's wish to appoint a City Architect who shall be under the City Engineer. It is felt, very rightly, that the two should enjoy an equal status, as, in fact, is the case in Edinburgh and other large towns.

*

Incidentally, the situation is rather an interesting comment upon the Glasgow Corporation, in that its proposed appointment of a city architect " under the City Engineer " suggests that in the past it has been content to do without an architect of any sort. So that the appointment, even in its rather undignified state, is at least an improvement.

*

Moreover I believe that, as the Glasgow Institute points out, the Corporation will get a better man on the equality basis.

REGISTRATION

I suppose I ought to reply to Mr. Alington's letter on behalf of the Institute of Registered Architects, which was published in this JOURNAL last week.

*

Mr. Alington, in commenting on my notes, makes exactly the points I made, adds one or two more which appear to me to complicate the business a bit further, and then takes me to task for calling it all wonderfully mysterious.

*

All I can say is that I'm very sorry.

SPEED LIMITS

Ink manufacturers must have been prospering by the amount which has been written about accidents and speed limits. Now Lord Lothian has pointed out that, if the first two weeks' figures are any guide, the 30 M.P.H. idea has been no remedy.

*

Meanwhile, it is coming to be tolerated with that good nature which this country seems always to accord to makeshifts and evasions. A car was recently observed to carry in its back window a label bearing the message " Cyclists please ring bell and overtake."

*

For cyclists (and, according to a recent magisterial decision, boys on roller skates) are not " covered by the Act " as they say. ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

"*In a scheme for the erection of 10-storey buildings containing 144 flats of the 'A' type, the cost per room is £148, against £113 in the five-storey building.*".... 584

Two competition results..... 585

"*Two sad commentaries on our modern life are the diminutive luxury flat, in which family life is impossible, and ribbon development, in which community life is impossible*"..... 586

PETROL STATION IN PARK LANE

The Westminster City Council has approved a scheme for a new block of flats in Park Lane which will incorporate a petrol-filling station with a sub-basement garage.

L.C.C. AND TEN-STOREY FLATS

The London County Council at its last meeting rejected a proposal by Mr. W. H. Webbe, leader of the Municipal Reform party that the Council should examine a proposal to erect, on suitable sites in the most congested areas, buildings up to ten storeys in height, to enable a greater number of the persons displaced from those areas to continue living near their work.

Mr. Webbe said he would admit that ten-storey buildings were likely to be more expensive in both capital and maintenance costs, but he believed the extra capital cost had been much exaggerated and that it was possible to construct ten-storey flats at a figure not very considerably above that which now obtained for five-storey flats.

Mr. Herbert Morrison, leader of the Council, said that in principle his party was not in love with ten-storey flats, but it did not say it would refuse in any circumstances to consider going higher. He was advised that, instead of obtaining a 100 per cent. increase of accommodation by building up to ten storeys, the actual increase was only between 25 and 30 per cent. As to cost he was told that in a scheme for the erection of ten-storey buildings containing 144 flats of the "A" type the cost per room was £148, against £113 in the five-storey building. The number of rooms was only 440 against 335, and the additional building cost for the extra 105 rooms was £27,000. He said that the Labour party could not commit themselves to a general policy of ten-storey flats, but they were prepared to consider their erection on particular sites.

WEST YORKSHIRE SOCIETY OF ARCHITECTS

Mr. J. S. Allen, F.R.I.B.A., presided at a meeting of the Students' Union of the above Society, held at Leeds, when an address on "The Housing Policy of the City of Leeds" was given by the Rev. Charles Jenkinson.

The lecturer said that the main reasons for building block flats in Leeds were not economic reasons. They had decided that 2,500 families were to be rehoused in block flats. The primary cause was that the Roman Catholic population of the city was very large, highly concentrated in certain districts, and was determined that the schools they had built at their own expense, and without State aid, should not be de-populated by the removal of Roman Catholics.

It must not be supposed that, although they were building these flats, they were doing so because they believed the block flat building was as good a dwelling for the average working-class family as was a cottage.

He had no doubt that for the average English family, especially with children, a cottage was immeasurably a better dwelling than the block flat. Since the block flat was the best accommodation to meet the purpose, however, the flats should be of the best possible construction and design.

THE ARCHITECTS' DIARY

Thursday, April 18

"DAILY MAIL" IDEAL HOME EXHIBITION. *Olympia, W. Last day.* 10 *a.m. to* 10 *p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS. *(Yorkshire Branch.) At the Hotel Metropole, Leeds. Annual General Meeting. "Piling Foundations." By Gower B. R. Pimm.* 7 *p.m.*

Monday, April 22

BANK HOLIDAY.

FIRST ALL-UNION CONGRESS OF SOVIET ARCHITECTS

The importance now given in Soviet Russia to architecture and town-planning is indicated by the fact that the Russian architects will shortly meet in Moscow for their first All-Union Congress.

A number of architects from abroad are being invited to attend, and give reports on architectural and town-planning developments in their own countries.

The Congress agenda embraces every aspect of architecture—its significance in the general plan of economic development; industrial architecture; housing and workers' settlements; the construction of cultural centres such as workers' clubs and theatres; schools; sports stadiums; building materials; and the training of architects. On the town-planning side, besides the principles of planning new industrial residential areas, special consideration will be given to the planning of health resorts and of the collective farm villages which are rapidly developing owing to the change from individual to collective farming.

NORTHERN POLYTECHNIC

The annual speech night of the Northern Polytechnic was held on March 28, when Sir Giles Gilbert Scott, R.A., P.R.I.B.A., distributed the prizes. Mr. R. L. Roberts, M.A., presided.

In addressing the students, Sir Giles particularly impressed upon students that they should guard against being carried away by extreme modernistic movements. They lived, he said, in a very interesting age with greater opportunities, supported by a public interest in architecture. Public taste was improving, and many people were looking to architects to contribute something for the benefit of the people in their every-day surroundings. Architects must understand the practical requirements of their problem, and make them the basis of their plan.

ZURICH BATH EXHIBITION

The International Bath Exhibition, organized by the Kunstgewerbemuseum of Zurich, under the title of "The Bath Today and Yesterday," opened on Friday last, April 12. English contributions are included in both the historical and technical sections, from material collected for the exhibition by the MARS Group. The exhibition will remain open till May 24.

EXHIBITION AT THE R.I.B.A.

On Monday, April 29, at 12 noon, Mr Geoffrey Shakespeare, M.P. (Parliamentary Secretary to the Ministry of Health), will open an exhibition, in the R.I.B.A. Building, of work executed during the past three years by architects trained in the Architectural Association Schools, and members of the school staff. The exhibition will remain open until May 17 (10 a.m. until 8 p.m. (Saturdays, 10 a.m. until 5 p.m.).

EDINBURGH ARCHITECTS

At the monthly meeting of the Council of the Edinburgh Architectural Association, held at 15 Rutland Square—Mr. W. J. Walker Todd, A.R.S.A., vice-president, in the chair—the following members were elected: Mr. J. P. Goodsir, L.R.I.B.A., as Fellow; Mr. Jas. Robertson as Associate, and Mr. J. S. Macdonald as Affiliate.

SOUTH WALES INSTITUTE OF ARCHITECTS

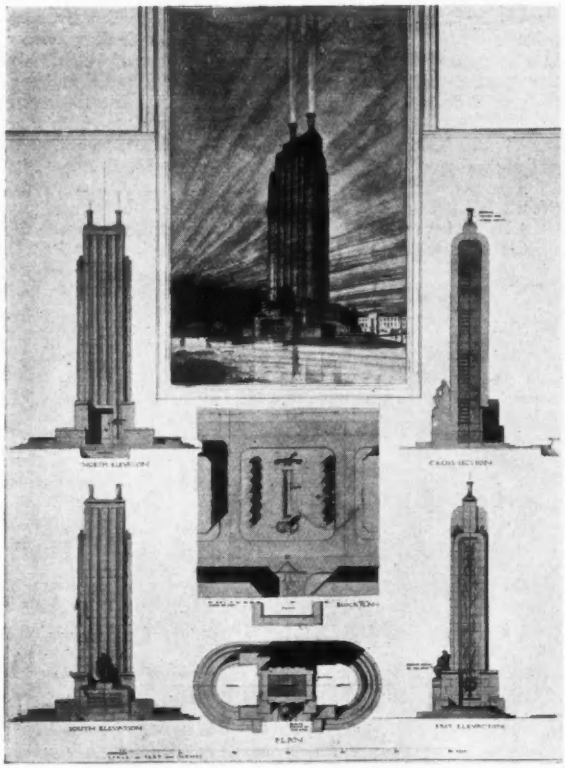
At the annual general meeting of the South Wales Institute of Architects, held at Cardiff on April 4, the following officers were appointed for the year 1935-36:—President: Mr. W. S. Purchon, M.A., F.R.I.B.A.; vice-presidents: Lt.-Col. E. H. Fawckner, T.D., A.R.I.B.A. and Mr. O. S. Portsmouth, A.R.I.B.A.; hon. treasurer: Mr. H. Teather, F.R.I.B.A.; hon. auditor Mr. A. C. Lynham, F.R.I.B.A.; hon. librarian: Mr. Lewis John, M.A., A.R.I.B.A.; and hon. secretary: Mr. Ivor P. Jones, A.R.I.B.A.

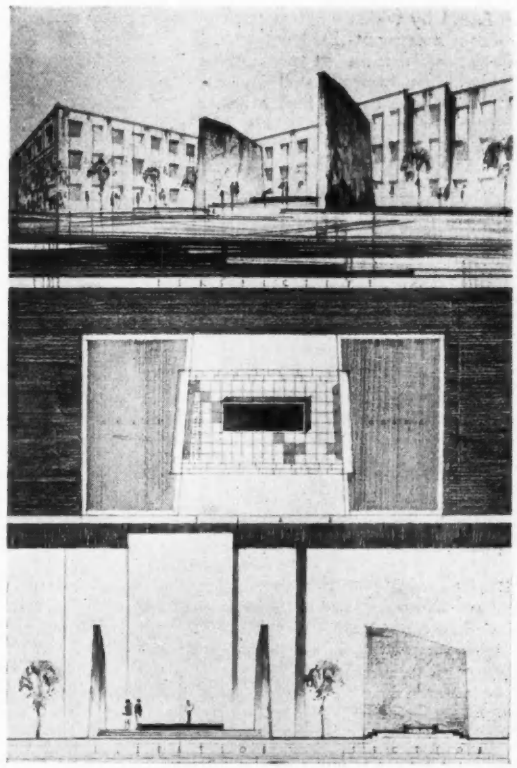
BRITISH ARCHÆOLOGICAL ASSOCIATION

The British Archæological Association announces that a prize of £5 5s. and a medal will be awarded annually for the best essay on an antiquarian or historical subject submitted during the year. Competitors are invited to submit essays on one of the following subjects: (a) The Art of British Mediæval Tiles; (b) The Postal Services in England in the Eighteenth Century; (c) any other subject falling within the period A.D. 500 to A.D. 1800. The latest date for submission of essays is December 31 next. Full particulars are obtainable from Mr. H. B. Bolus, 21 Eaton Mansions, London, S.W.1.

BIRMINGHAM ARCHITECTURAL ASSOCIATION

The following have been elected officers and members of the Council of the Birming-





The designs bracketed first in the A.A. Competition for "a monument to commemorate the twenty-fifth year of the reign of His Majesty the King." Left, by Thomas Braddock. Right, by A. S. Morris. See Competition News on this page.

ham and Five Counties' Architectural Association for 1935-36: President, Mr. A Hale, A.R.I.B.A.; vice-presidents, Messrs. N. Cooke, F.R.I.B.A., and C. F. Martin, F.R.I.B.A.; honorary secretaries, Messrs. A. S. Edwards, A.R.I.B.A., and A. M. McKewan, A.R.I.B.A.; honorary treasurer. Mr. G. S. Frazier; honorary librarian, Mr. S. L. Whitehouse, L.R.I.B.A.; Members of the Council: Fellows—Messrs. E. C. Bewlay, F.R.I.B.A.; H. T. Buckland, F.R.I.B.A.; A. C. Bunch, F.R.I.B.A.; A. T. Butler, F.R.I.B.A.; W. A. Harvey, F.R.I.B.A.; A. E. McKewan, A.R.I.B.A; C. S. Madeley, A.R.I.B.A.; J. B. Surman, F.R.I.B.A.; W. T. Benslyn, F.R.I.B.A. Associates: Messrs. R. M. Butler, A.R.I.B.A.; R. G. Madeley, A.R.I.B.A.; G. H. While, A.R.I.B.A., and E. J. Whitwell.

ANNOUNCEMENTS

Messrs. Elcock and Sutcliffe, FF.R.I.B.A., have taken into partnership their chief assistant, Mr. E. H. Allsford, A.R.I.B.A. The firm will continue to be known as Elcock and Sutcliffe.

Mr. J. R. Leathart, F.R.I.B.A., and Mr. W. F. Granger, F.R.I.B.A., have dissolved partnership. They will each continue in practice independently from offices, the addresses of which will be announced later.

COMPETITION NEWS

A.A. COMPETITION

As we go to press we learn that the assessors in the competition (organized by the Architectural Association for the Cornish Quarry Masters' Association) for "a monument, in granite, to commemorate the twenty-fifth year of the reign of His Majesty the King" have decided to award two prizes of £20 and one prize of £10, instead of awarding a prize of £50. The joint winners of the competition are: Mr. Thomas Braddock, of 18 Homefield Road, Wimbledon, S.W.19; and Mr. A. S. Morris, of Romney House, Marsham Street, S.W.1. Each will be awarded a prize of £20. Design placed second: Mr. D. E. Harrington, A.R.I.B.A., of 3 Brunswick Mansions, Handel Street, W.C.1. Hon. Mention: Messrs. J. V. Worsnip, A.R.I.B.A., of Lydgate Hall, Crosspool, Sheffield, 10; Stanley H. Smith, A.R.I.B.A., of 71 Meadway, Southgate, N.14; Vine and Vine, AA.R.I.B.A., of Tudor Chambers, Station Road, Wood Green, N.22; and A. H. H. Jenkins, of 22 Clanricarde Gardens, W.2.

CIVIC CENTRE, DARLINGTON

Mr. H. V. Lanchester, F.R.I.B.A., the assessor in the limited competition for a proposed civic centre, Darlington, has made his award as follows:—

Design placed first: Mr. E. Berry Webber, A.R.I.B.A., of 42 Gordon Square, W.C.1.

Design placed second: Messrs. Adshead and Ramsey, FF.R.I.B.A., of 46 Great Russell Street, W.C.1.

Design placed third: Mr. Louis de Soissons, F.R.I.B.A., of Blue Ball Yard, St. James's Street, S.W.1.

NEW BLOCK, GLENLOMOND SANATORIUM

Mr. James Lockhead, F.R.I.B.A., the assessor in the limited competition for a children's block at Glenlomond Sanatorium (for the Fife and Kinross Joint Sanatorium Board), has made his award as follows:

Design placed first (£80): Mr. William M. Guild, of Cupar.

Design placed second (£40): Mr. Alexander Stevenson, of Kirkcaldy.

Design placed third (£20): Mr. W. S. Smith, of Kinghorn. The building is estimated to cost £5,700.

IN PARLIAMENT

Ribbon Development

AN interesting debate on ribbon development took place in the House of Lords on Wednesday. It was raised by the Marquess of Lothian, who asked on what date His Majesty's Government would introduce the Bill dealing with the urgent problem of ribbon development, and moved: "That in the opinion of this House it is essential that the protection against ribbon development in rural areas given by the Bill should include within its scope the greatest possible number of roads."

He said that his object was to try to bring home to the Government that there was a very strong demand that the legislation on this subject should be introduced at once and passed into law this Session. No fewer than three out of four motor-car accidents took place in built-up areas. It was too early to form a judgment as to the 30-mile-an-hour limit, but the results in the first two weeks suggested that it was not a remedy. The evil of ribbon building was defeating the very purpose for which immense expenditure had been made on the roads of this country.

The number of houses going up on the small by-ways was appalling. They were extremely dangerous and extremely ugly. The main remedy for this process was what had been called "planning." The root of the problem lay in the cost of making by-roads for residential purposes. They would only be able to obtain housing in groups off the main arteries when they dealt with the question of providing the cost of those services, such as sewers, footpaths, gas, water, and electricity, without which group housing could not take place. Some way

should be found by which some portion of that immense increment in land values arising from roads built at the public expense should be appropriated by the community and used in the first instance for building the secondary roads and by-roads. without which private enterprise would not undertake the building of houses in groups off the main roads.

The problem of rapid transit would not be solved until the Government undertook a much more ambitious programme of road building than it had yet contemplated. The increase in the number of people owning cars would, in his view, continue until most families had some form of motor vehicle. Existing roads would then be inadequate, and it would be necessary not only to curb ribbon development but to make national roads for rapid transit throughout the country, passing through the centres of built-up areas, and if possible avoiding the restricted areas which now covered great distances. The matter was one of real urgency. and unless it was tackled quickly it would get very much worse.

Lord Bayford said that the County Councils Association supported the motion strongly and would welcome legislation. Ribbon development made the roads not only ugly but dangerous. There was general agreement that when legislation was brought in it should be prohibitive legislation. It should effect that, at a specified distance from certain roads, houses should not be built until the consent of the highway authority was obtained. The onus should be on the builder to obtain permission, and not on the authority to object. It was of great importance that it should be positive and not negative legislation. Time was the essence of the matter, and this measure was long overdue.

Lord Elton said that he regarded the ugliness of ribbon development as in the last resort more sinister even than the threat to human life and the economic waste of which it was admittedly the occasion. There was the immense moral ugliness of these thinly strung dwellings in which no community life would be possible. Two sad commentaries on our modern life were the diminutive luxury flat, in which family life was impossible, and ribbon development, in which community life was impossible. If there was not immediate drastic legislation the Government would itself be extending to the speculative builder an invitation to do his worst as rapidly as possible. The danger of purely permissive legislation was that certain local authorities still suffered from the chronic illusion that an increase in population was the overriding interest of the entire population.

Viscount Esher said that delay was proving fatal : it was hurrying up the building of houses along main roads. Was it possible for the Government by administrative order to anticipate their measure and stop this building ?

The Earl of Crawford said that the Government and its predecessors had year by year been spending tens of millions of money on the roads, and today it was wasting these roads. It was a singular and sinister fact that if one wanted to see the scenery of England one must travel by railway rather than road. We were making Western Avenue the meanest road in the Empire. Ribbon development was an offence against the social system of our country, and the Government was throwing away millions of pounds by its senseless and unjustifiable delay.

Lord Howe supported the motion from the point of view of motorists and said that what the country really needed was an entirely new road system.

Lord Munster, replying for the Government, said that it was fully alive to the urgent need for legislation to enable authorities to deal effectively with this growing evil. In 1925 the Road Improvement Act and the Public Health Act laid down a building line and an improvement line, to the latter of which the roads were ultimately to be extended. Out of 177,000 miles of roads in this country only about 2,500 miles had so far been prescribed under those Acts. Later, there had been the Town and Country Planning Act of 1932, which they all had hoped would relieve the monotony of ribbon development and save something from the continual destruction of the countryside. The underlying question in matters of this character was compensation, and it was the underlying principle of any Bill that could be introduced. All these Acts had to some extent frightened local authorities in the execution of the duties entrusted to them by Parliament. However, there had been co-operation between the planning authority and the far-sighted public-spirited landowner. They had met together and reached useful conclusions, and although progress had been slow they had realized that careful group planning was far more beneficial to everyone than haphazard ribbon development There had also been one or two private Bills which had received the assent of Parliament in recent years in an effort to stop this development. Powers had been obtained by the Surrey, Essex and Middlesex County Councils, and Hertfordshire County Council had a Bill now on its journey through Parliament. There was no doubt that genuinely good work had been done by what was known as the Surrey clause, and owners of property had been endeavouring to get together to develop the district on a sound and proper basis with success.

The Government was well aware that a further Bill was necessary if the whole country was to act in uniformity. He would remind their lordships of some of the difficulties with which the Government had to contend in drawing up such a Bill. The final effect of the Bill must be seriously taken into consideration before its introduction. Great care must be taken to insure that it would not seriously hamper the proper development of any land bordering on main roads or roads in rural areas. The interest of the Central Government was greatest, of course, in the classified roads, but they were fully alive to the danger that if restrictions were enacted to deal with the classified roads speculative development might be pushed on to other roads in rural areas that were uncontrolled. It must be recognized that for any remedy to be effective it must deal equitably with the many interests involved. The machinery which would be brought into use must be carefully understood not only by those authorities called on to work such a measure. but equally on others whose activities were brought under review in the Bill. Any such measure of control as might be necessary must not be burdensome to the landowner nor involve any unnecessary or heavy expenditure to the authority.

Although it was hoped very shortly to introduce a measure dealing with ribbon development—the date of which, unhappily, he was not yet in a position to give—it would have to deal with these questions simply, effectively and speedily and with due regard and concern to the many and numerous interests involved. On behalf of the Government he was happy to accept the motion.

Lord Mottistone moved to add the following words to the motion : " And that the necessary legislation be introduced this Session." He said that in the course of his 30 years' Parliamentary experience he had never heard unanimous agreement on every side with what had been said, and that delay meant all sorts of evil consequences, and in addition a certain definite loss of life. He had always supported this Government as much as he could, but it was trying his patience too hard. This creeping paralysis which prevented the Government ever doing anything about it was intolerable.

The Marquess of Londonderry, Secretary of State for Air, said that there was no difficulty in accepting the amendment. What influence he had would be used in hurrying on this measure as fast as it could possibly be done.

The motion, as amended, was agreed to.

The Housing Bill

When the Standing Committee of the House of Commons which is considering the Housing Bill met again last week discussion was resumed on the provision to reduce to £800 the amount which local authorities may advance to a person for house purchase.

Mr. G. Shakespeare, Under Secretary to the Ministry of Health, said that the main point which actuated the Government in fixing the figure at £800 was the cost of building. In pre-war days the amount of the advance that could be given by a local authority was £400. After the war, when the cost of building was inflated, the figure was raised to £800, and in 1923 it was raised to £1,200. By fixing the figure at £800, local authorities would be able to satisfy the same class of persons who were satisfied with an advance of £400 in pre-war times. It was a mistake to utilize public credit to compete with other agencies provided those agencies could offer the necessary facilities. He did not think it was fair to private enterprise that taxation should be imposed to enable local authorities to offer better credit facilities and thus cut out competitors.

Mr. Greenwood, for the Labour Party, objected to the anti-municipal attitude, which he said lay behind the provision in the Bill.

Eventually, the figure of £800 was agreed to.

Rehousing

At question-time Miss Cazalet asked the Minister of Health if he could state the estimated number of people in this country who had been rehoused in new accommodation since the war by local authorities and by private enterprise, respectively.

Mr. Shakespeare said that no exact information was available, but a conservative estimate of four persons to a house would suggest that 3,200,000 persons occupied new houses erected by local authorities and 6,800,000 occupied new houses erected by private enterprise since the war.

ANALYSIS OF A BUILDING : I

Constructive criticism of any building is only possible when the critic is in full possession of the conditions laid down in the original programme, and the factors which have influenced the designer in his search for the final solution. In order, therefore, that architects may have some idea of the standards demanded in offices other than their own, THE ARCHITECTS' JOURNAL *is publishing a series of analyses of buildings of general interest. The authors of these analyses will explain not only what they have done, but why they have done it, illustrating their arguments with drawings of progressively improving schemes.*

PROPOSED SANATORIUM, BY WILLIAM TATTON BROWN

For the purpose of exhibition, the design has been considerably modified, since it would be impossible in a small area to illustrate the many different aspects of the sanatorium. If the model had been made to a small enough scale to show the complete lay-out, a great deal of the detail would have been lost. Alternatively, a larger scale could have given no conception of the whole. It was therefore decided to modify the design of the model in such a way that it would show the principal details, and, at the same time, give a general idea of the sanatorium. As it appears in the photographs therefore, the ward wings have been considerably shortened. The accompanying drawings are an analysis of the complete conception.

ANALYSIS

The programme consisted of a sanatorium with accommodation for 60 patients suffering from tuberculosis. The site was open, overlooking a large lake on the south side.

The accommodation must meet the requirements of three different categories :—

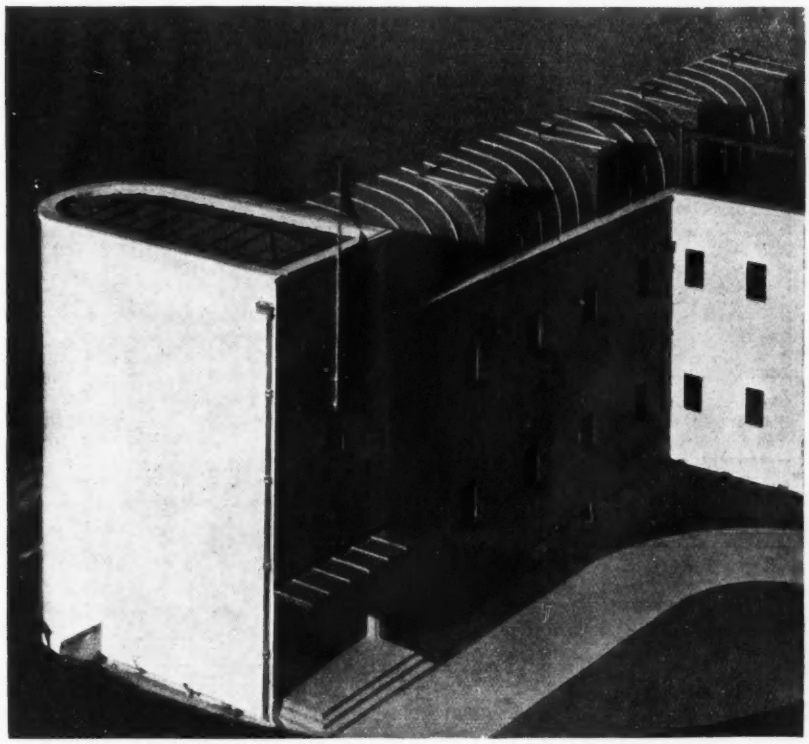
(1) The Patients
(2) The work of the Medical Staff.
(3) The Household Services.

The Patients' wards are considered first and the lay-out is determined by the orientation. Access, Staff and Services are to the north—the wards to the south.

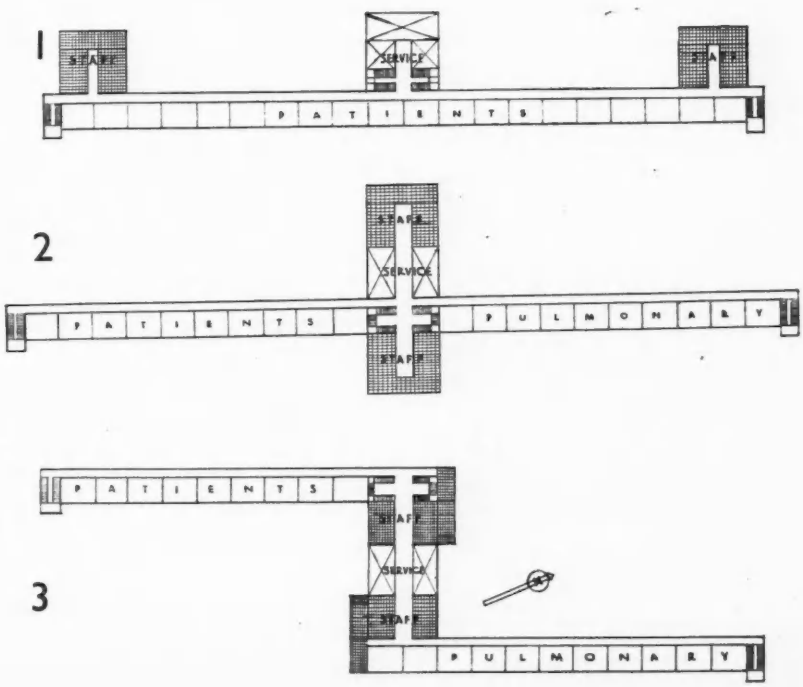
1 THE first solution. There is no organic separation in the plan of the wards for patients suffering from pulmonary tuberculosis, which should be kept apart from the wards for the other patients. The staff are too far separated from the services and from one another.

2 CENTRALIZATION. The staff are now grouped, and the wards separated. There is, however, congestion of the circulation, which would lead to noise and disorganization. The outlook from the dining-room and library and the other elements of the communal services is not good, and they have no sun. Part of the wards would also be shaded by the projecting staff block.

3 FINAL solution. This plan allows adequate insolation and at the same time gives the maximum protection from the winds coming from the north and east. Those communal services which require sunlight are not shaded by the rest of the building, and have a view across the South court. The staff are grouped at the ends of each battery of wards, and form a buffer between them and the noise of the services. By projecting them slightly they have a larger area of external wall and consequently are better lit. The organic separation of one set of wards from the other gives an opportunity for a more intimate and less institutional plan.

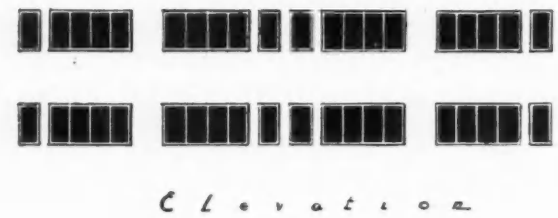


The North Court.

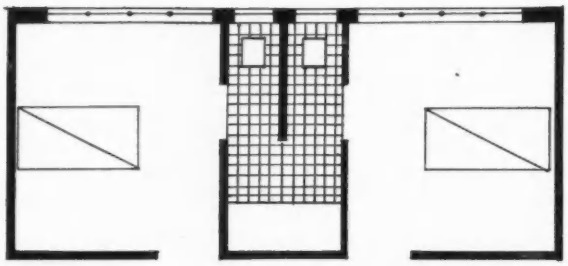


ANALYSIS OF A BUILDING : I. PROPOSED

The next stage is the design of the unit which, in this sanatorium, is the single ward. The ideal single ward is composed of three elements: bedroom, lavatory and balcony, which must be combined in plan and also in elevation.

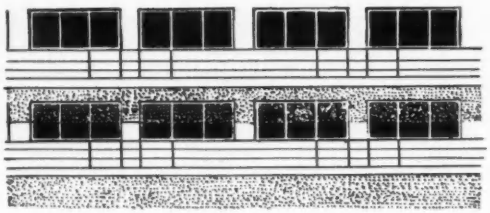


Elevation

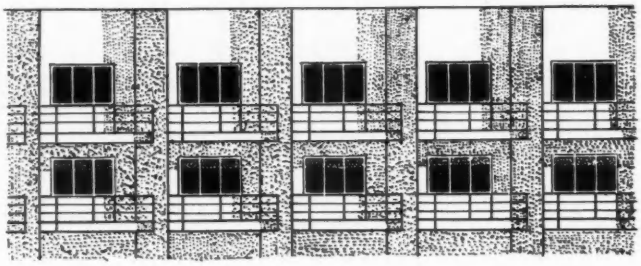


Corridor

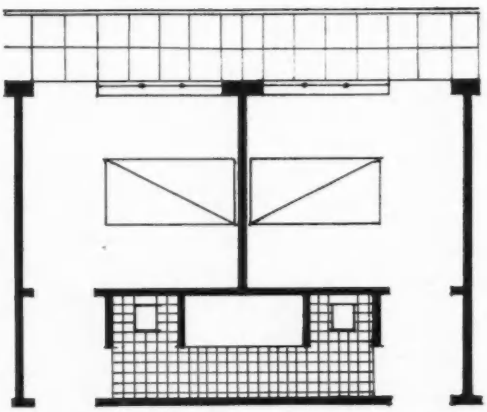
1 THE simplest solution, rudimentary and minimum. No balcony is provided, and the units are neither insulated from the corridor nor from one another.



Elevation

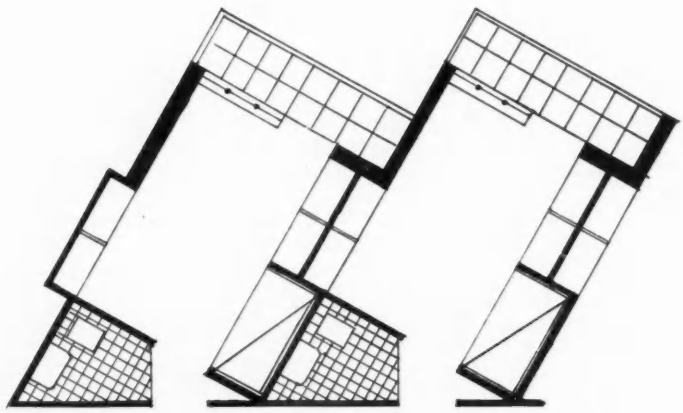


Elevation



Corridor

2 A BALCONY and insulation from the corridor. The disadvantages of "back to back" planning are emphasized in the elevation in which the real defect of the design—lack of privacy—is underlined.

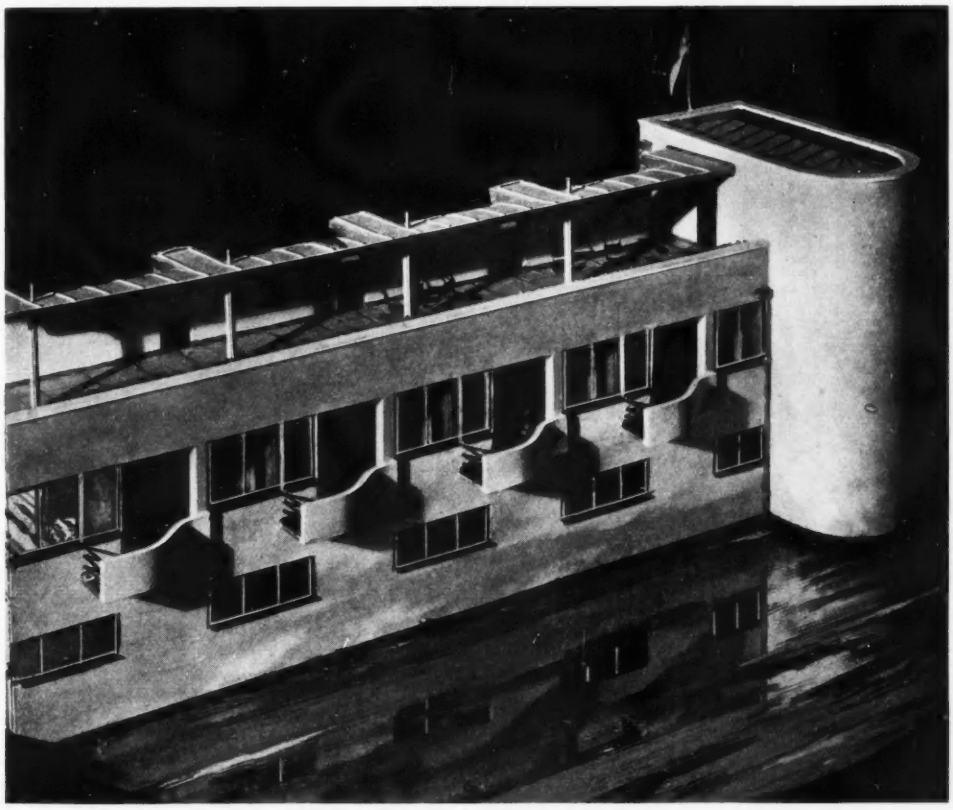


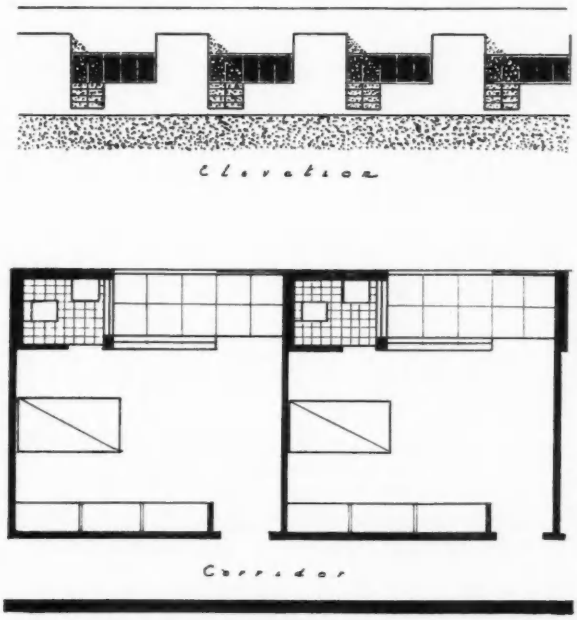
Corridor

3 PRIVACY, and insulation from noise. The ward is now a unit and not half a duality. But the elevation is restless, brutalized by the jig-saw planning of the interior.

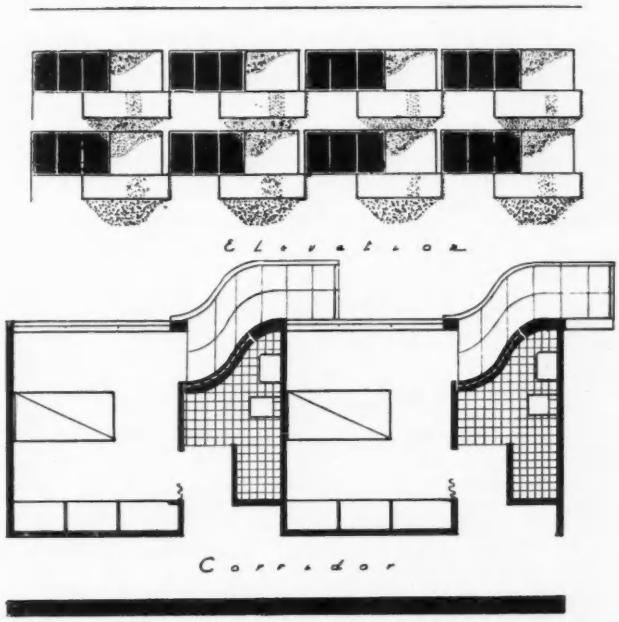
SANATORIUM, BY WILLIAM TATTON BROWN

A view of the model, showing the wards as planned in the final solution, No. 5.



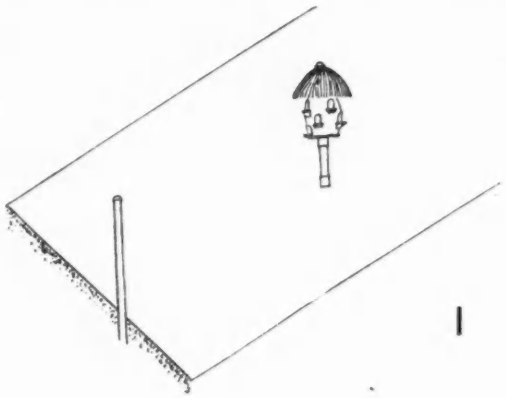


4 A CLEAN solution. The ward is well insulated from the rest of the sanatorium. The lavatory acts as a buffer between one unit and another and prevents the balcony from being overlooked. It would not be possible, however, to repeat the same unit on the floor above, as the windows would be over-shadowed. This design is somewhat reminiscent of André Lurcat's hotel in Corsica, where the programme only required accommodation on one floor.

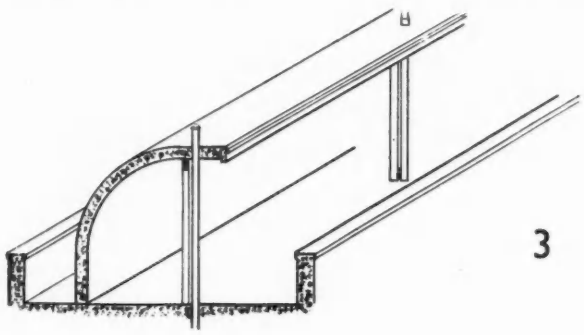


5 A UNIT PLAN capable of unlimited repetition. The entrance is set back from the corridor, and the balcony, while being partially protected, does not shade the bedroom. The windows of the lavatory are above the level of the lintel and therefore not visible in elevation. The patient can sit at the door of his balcony, under cover, facing due south, without being overlooked. The end window of the adjoining ward over the balcony is glazed with a translucent but non-transparent glass.

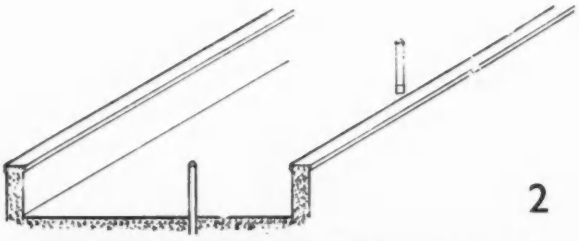
ANALYSIS OF A BUILDING: I. PROPOSED



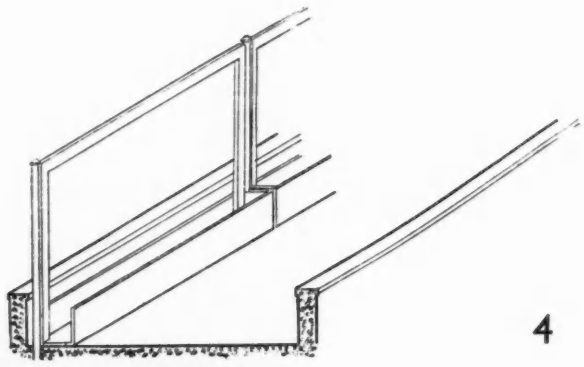
1



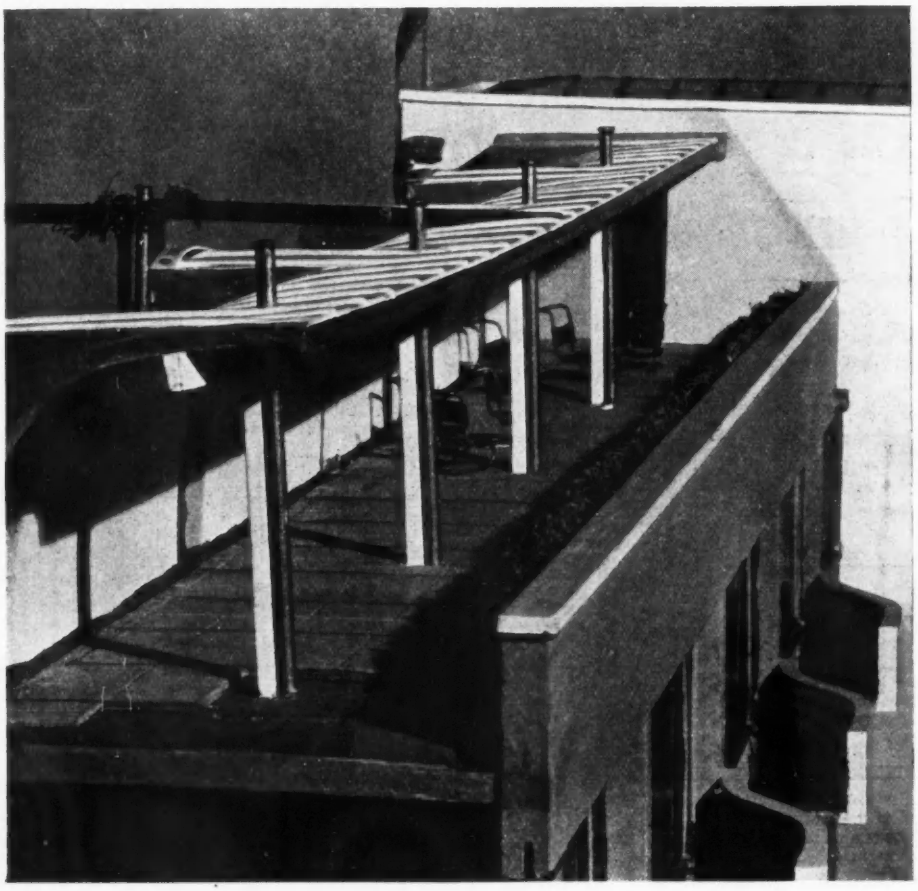
3



2



4



The multiplicity of lavatory units in a sanatorium makes the treatment of vent pipes an important question. Unless the plan is to be radically altered, they will be apparent in the elevation, and must therefore be given some definite expression.

1 THE CUCKOO'S NEST SOLUTION. In the past the offending vent pipes could be artfully disguised as a dove-cot—a device well in keeping with the romantic tradition of pitched roofs.

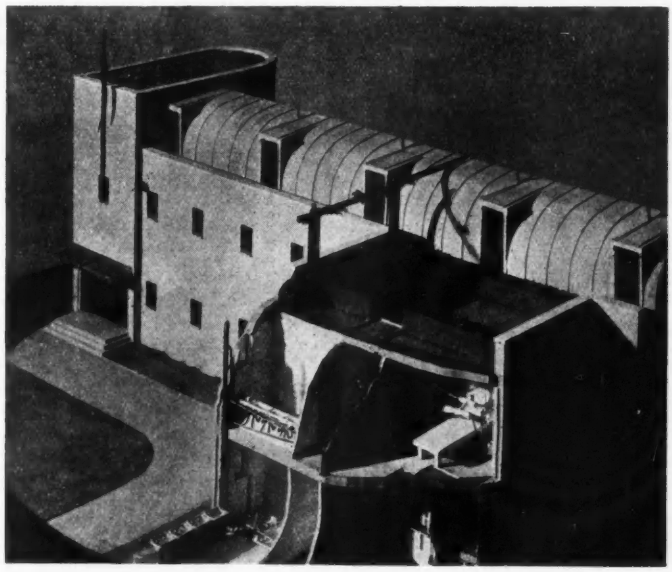
2 WITH a flat roof the vent pipes can be concealed behind the parapet. The roof, however, would be impossible for the use of the patients and all this accommodation becomes a dead loss.

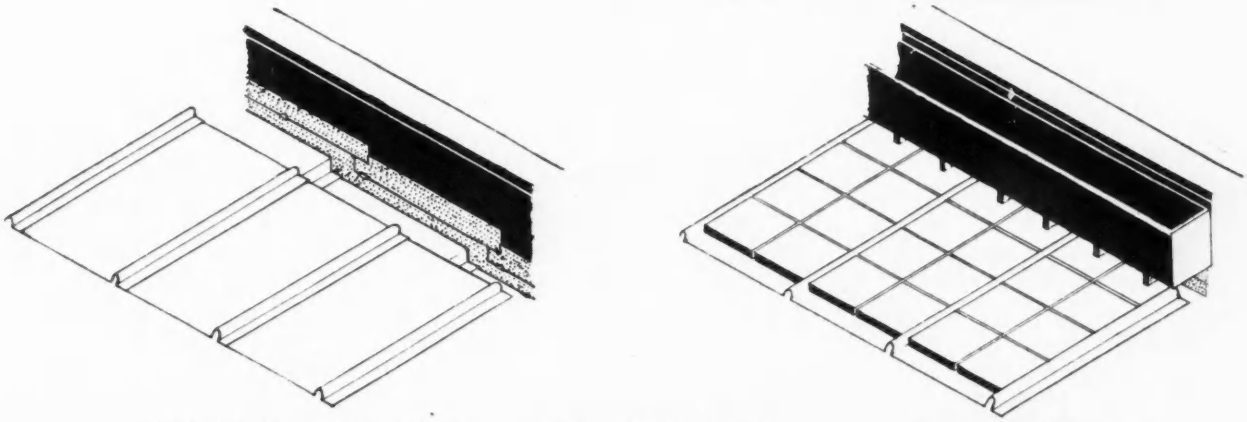
3 THE vent pipes are carried up straight through the shelter and are kept rigid by the timber posts behind them.

4 ANOTHER solution. In this case they are attached to the two posts of the pergola on either side.

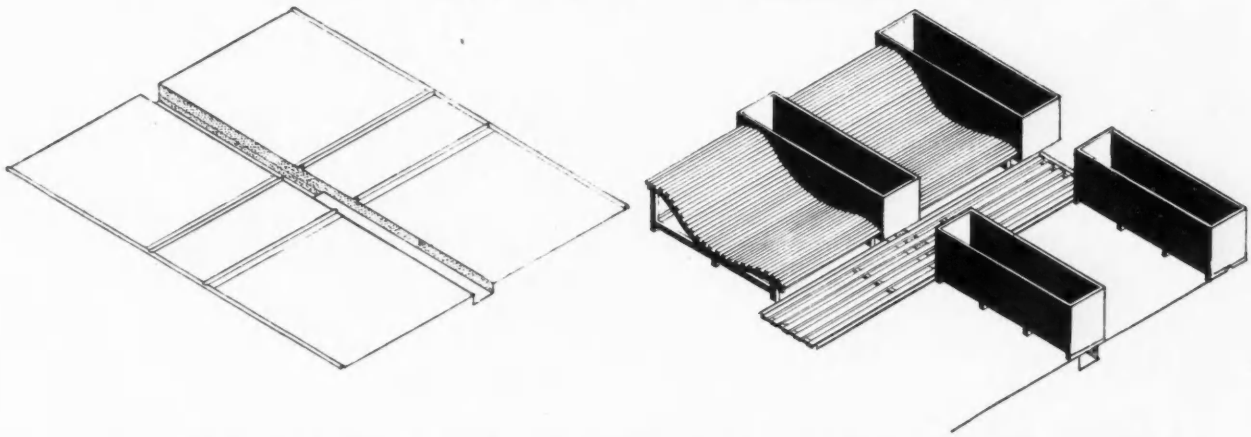
SANATORIUM, BY WILLIAM TATTON BROWN

View of the North Court and Service Block. The covered shelter for the patients is in the background, the sun bathing roof-garden is in front, over the service wing.





1 THE roof of the sanatorium had to be covered with a lead flat. The frequent occurrence of 2 in. rolls and the necessity for deep gutters makes the ordinary lead flat impracticable for traffic. A flush surface is obtained at the suggestion of J. K. Winser by laying 2 ft. square Solcheck tiles, butt-jointed between the rolls.



2 AN alternative method makes use of the superior strength of Tellurium lead sheet, which is stuck down on bitumenized fabric with emulsion, a system devised by A. P. Morris. The joints occur at 10 ft. to 15 ft. intervals, and can easily be concealed by flower boxes. Teak duck-boarding makes an adequate sun-bathing couch, and supplies a raised surface for walking.

HOUSE AT NORTHAM, DEVONSHIRE

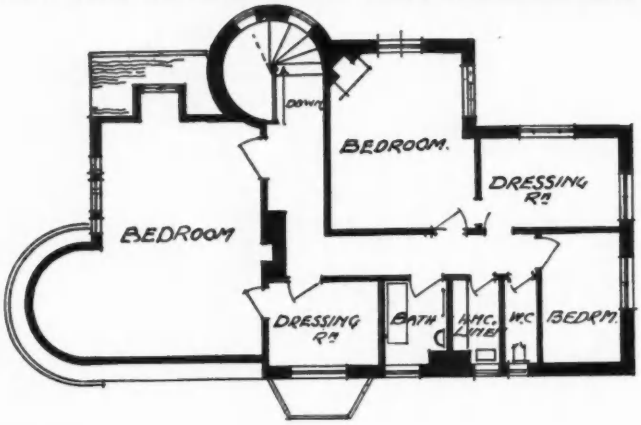
DESIGNED BY ORPHOOT, WHITING AND LINDSAY



This house is on the site of an old lime kiln on the foreshore of the Torridge Estuary. The site consisted solely of the old lime kiln; indeed not even the whole of this, as part of it had been cut away to form a boat-builder's shed. It was of the usual design with two ovens, a sloping way up to the top for loading limestone and arched recesses below for drawing the lime.

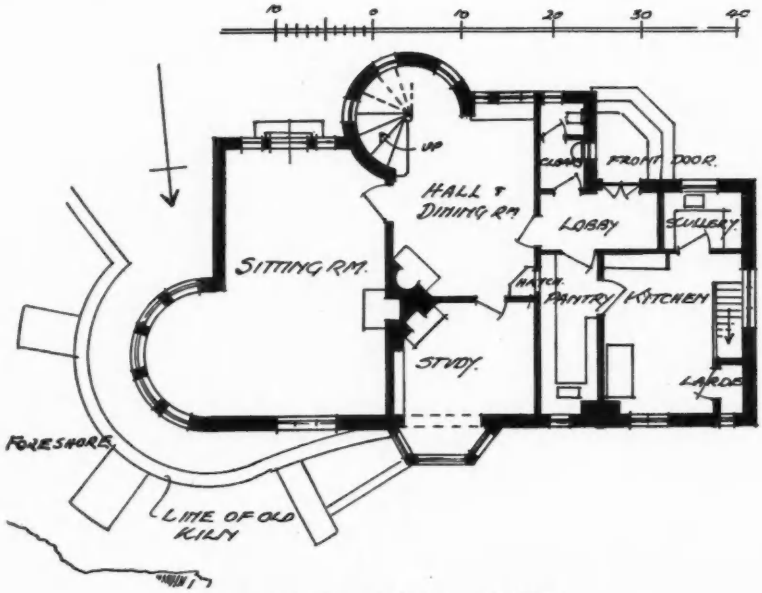
The whole plan had to be compressed as much as possible so as to allow for access path and small garden. The sitting room bay overlooking the river with a fine view came in conveniently over one kiln, leaving the old parapet wall to form a small paved terrace. The staircase is of pre-cast artificial stone built on the principal of old wheeler stone stairs, the butts of the steps forming a central column. Walls are of brick, plastered outside, exposed and distempered inside. The roof is of Delabole slates, and doors and gates are of English elm.

The old arched opening where lime was drawn from the kilns has been closed in with doors to form a garage and the part under the kitchen, etc., has been excavated to form workshops, back entrance, fuel, heating, etc.



FIRST FLOOR PLAN





GROUND FLOOR PLAN

LETTERS FROM READERS

LOVER OF THE COUNTRY
FRANK JONES
HAROLD FALKNER, F.R.I.B.A.
F. R. JELLEY, A.R.I.B.A.
UNINITIATES

Housing and the Countryside

SIR,—Astragal, in his references to Mandarins, etc., implies something of "an I would I could." What are his definite suggestions? Or is he waiting for suggestions to emanate from the Mandarins, so that he can say, "How feeble, how tardy, and how utterly futile"?

In the meantime can he help me to solve this little problem? Being engaged as hon. sec. of a panel of architects, I find that the economic plan for a house has a road frontage of about 20 ft. and a depth of about 30 ft.; i.e., the shape is oblong with the narrow side facing the road. This plan is universal and is varied by having a bay or a "double bay." To this the speculating builder must adhere if he wishes to make money. Does Astragal wish architects to become speculative builders with this handicap to good design? I have studied plans till I am dizzy. It is impossible to make a good-looking elevation out of this shape—as Astragal remarked when the A.A. had its competition a few years ago.

The speculating builder knows his job. He is quite willing to make little alterations to his design to please the committee receiving the advice of the panel, but he cannot afford:

1. To set his house further back from the road;
2. To use more road frontage, and
3. To forego certain features demanded by his clients.

He must make his houses with the long side at right angles to the road. I am quite tired of hearing him abused for doing a job really quite extraordinarily well.

My own considered opinion is that architectural criticism is sometimes a little helpful, but not often. *Nothing short of legislation to prohibit ribbon development is of the slightest use. Please press for legislation, because in the meantime the approaches to all our beautiful villages are being ruined.* Houses will then perhaps cost more, but not much. The secondary roads could possibly be paid for out of the road fund.

As a preliminary I make the definite suggestion that all houses should be set back 100 ft. on *any* road where there is any traffic. This would leave room for 40-ft. gardens with trees on the border, 30 ft. for a new secondary road and 30 ft. for cyclists, pedestrians and wayside trees. This may not be an ideal lay-out, but by the simple remedy of a deeper building line the path would be laid for better planning, and if the law were universal there would be no question of compensation. In the interregnum, the milkman, etc., and the callers and house-owners would have to walk 100 ft. from the road to the front door, surely not a very great hardship. Where road widening was contemplated the 100 ft. would be increased accordingly.

LOVER OF THE COUNTRY
Woodbridge

Cottages or Flats

SIR,—May I advance a few points in reply to "Spectator" and Mr. G. C. Russell-Roberts, whose letters criticizing flats were published in your issue for April 4.

"Spectator" states that mothers and babies living in flats will take less exercise than if they were in cottages. I live in a cottage on a housing scheme, and I know that the mothers do not take exercise purely for exercise; it is only incidental to shopping and taking the baby to the clinic. Also they do not sit out or exercise in the garden; it would take some moral courage to withstand the amazed stares of the neighbours. They would lose nothing of their freedom to exercise on top of a block of flats.

Mr. Russell-Roberts suggests that morale would be lowered if we were housed in standardized flats. A sense of civic responsibility is the result of education, not environment, and we do not suffer because our administrators all wear the same standard suit of clothes. The people in Vienna who submitted most tamely to bureaucratic control were certainly not those living in the Karl Marx Hof.

He refers to the amateur gardeners. It would not be impossible to extend the present allotment schemes to suit them, and there are not quite so many enthusiastic gardeners as you might think from the front gardens of cottages. It is as well to examine the backs.

I notice that Mr. Russell-Roberts speaks of flats "as all right for a roof" (over one's head presumably) *to solve immediate need.* I may be altogether wrong, but don't you think it about time somebody got up and shouted to heaven that the term mass housing is not synonymous with temporary? We ought to be *housing*, not temporarily housing. Housing authorities evidently think that if they call it temporary housing they need not town-plan, delicately conveying the impression that it is all going to be pulled down in the near future. It is obvious that we haven't time to pull down and re-do our own work; we have hardly time to correct the mistakes of the last centuries let alone build to accommodate our population.

FRANK JONES
Liverpool

SIR,—The writer of your leader of March 14 falls into the weakness he warns housing authorities against—"a compromise." Five-storey flats are a compromise if ever there was one; they are neither here nor there; they fall between two stools—cottages or blocks; in other words, rural or urban housing.

The five-storey block necessitates lifts (otherwise it is an abomination), but, for rehousing, can seldom afford them. It occupies a large amount of ground, and provides very little accommodation to the acre. If adopted throughout it would require the whole of the Metropolitan Boroughs to accommodate the present population at 80 yd. intervals. If development is to be urban why not go the whole hog and build twenty-storey flats? This, with single depth flats, would give *320* yds. between—an angle of less than 7 deg.; but if the blocks are to range north to south (bean-row) the flats might just as well be double, one each side of a central corridor giving *640* yds. between—half the length of The Mall, an angle of 3¼ deg. If we are going out to this distance why not have blocks all round a quadrangle? This quadrangle would contain 84.6 acres, about the size of Green Park, and yet leave a margin of 120 ft. outside, so that with 100 ft. roads the houses would be 340 ft. apart.

This sort of spacing would certainly make London a model city. Probably quadrangles of one quarter this size would be more than sufficient; this would give four full-size football grounds or 160 tennis courts per quadrangle.

The present population per acre of some of the most crowded areas, Lambeth, Southwark, Bermondsey, averages 150 to the acre. The recent five-storey flat competition averaged about 215 (with a miserable 137 ft. between blocks). The large squares suggested, with twenty-storey flats, give 457 per acre, and smaller squares 540.

The reason of the anomaly of the present crowding in existing areas is the enormous waste of space in innumerable roads and insanitary backyards. The construction of twenty-storey flats

with central corridors and self-contained tenements on each side is an economical proposition, as the height-base ratio is not unreasonable; with single depth tenements it is not economical. The very large number of inhabitants in one block make escalators a practicable proposition (both to provide and to use).

The central corridors would take the place of streets, and would have to be subject to police and highway control as such; the dwellings would be cut completely off by entrance halls; light and ventilation wells would be essential, and the lower corridors would be more economically lighted artificially; sanitation, of course, on internal ducts.

The inhabitants of London have got used to the Underground being entirely artificially lighted and it goes unnoticed; shops on the corridors would brighten them up as they have the stations of the Underground.

The "Englishman's Castle" idea is still quite sound. The outer door of his flat is his Barbican and Portcullis; the only new idea he has to be accustomed to is walking home down the corridor instead of down the street.

The real difficulty in working-class flats is that they are confined to working classes; throw them open to all comers and the public will soon assert its rights.

HAROLD FALKNER
Farnham, Surrey

Manufacturers and their Products

SIR,—Of late it would seem that the pages of your JOURNAL have become somewhat congested with glad tidings from contributors possessing exclusive information concerning the state of our England of the year 2000. I am no expert in such matters, for my personal connections with England date back and not forward, but I venture to suggest that as we have only arrived at the year 1935 an interval might now be allowed to all architectural necromancers, in order that they may withdraw for a time and consult their oracles before reappearing with any further blood-curdling announcements.

During such a pause, whilst the well-trained wood-wind orchestra of the wizards retires for rest and refreshment, the safety curtain might reasonably be lowered to separate players from payers, and the audience permitted to resume normal conversation. If such traditional procedure in stage craft is still permissible in this England of ours, I would like to join in the general chatter of the architectural auditorium by recalling that in a recent issue Mr. C. E. T. Cridland administered a terrific rebuke to me because you had dared to publish one or two fragments of my autobiography. He seemed to be extremely depressed because I had modestly refrained from telling manufacturers how to run their businesses, and even hinted that if I did not mend my ways very quickly I should certainly be out of a job.

Mr. Cridland's attempt to make my flesh creep has been quite unsuccessful, and I am convinced that he is, in reality, a very broad-minded man because he states that his address (which is Birmingham) is very close to mine (which is Surrey). One of these fine spring mornings when I feel exceptionally virile and robust I shall rise before dawn and catch an early train for Birmingham. On arrival I shall proceed immediately to Mr. Cridland's place of business and, if he is not there (it will still be early in the morning), I shall push my way past his staff, shouting loudly that I am his long-lost friend and neighbour, F. R. Jelley. The staff, impressed by my old-world courtesy and restraint of manner, will usher me into his private office and discreetly close the door.

I shall await the advent of Mr. Cridland by opening his letters, his safe and his windows, cleaning out my favourite pipe with his paper-knife and brushing my bowler hat with his magnificent mahogany-backed clothes-brush. On his arrival Mr. Cridland will, of course, endeavour to throw me out. During the struggle I shall tear off my false beard, reveal my identity, and, by sheer mesmerism, sell him 500,000 of my patent door knobs. Arm in arm we shall then adjourn to partake of the excellent "lunch" at which he hints in his letter to you.

All this is dependent on the existence of early morning connections between Birmingham and Surrey. There may, of course, be no such trains, and, in that event, I must rely on Mr. Cridland's influence, as a manufacturer, with railway companies to rectify the omission. As a mere architect with a suburban season ticket, any representation I dared to make to a railway company would be greeted with ironic laughter.

F. R. JELLEY
Cheam, Surrey

Flats Competition

SIR,—Having spent several interesting hours studying the winning designs of the recent competition for workingmen's flats, both in your columns and at South Kensington, we began to find ourselves troubled firstly by a number of queries of a more or less general nature relating to current practice in public competitions of this type, and secondly by several details of design which found no solution, worry as we might, in our own experience.

We should be interested to know, starting with the general queries, to what extent the conditions of a competition of this nature are binding, and by what comparative standards are those designs judged which adhere exactly to the conditions as laid down. Becoming more specific, the following room sizes were called for in the conditions: living room, 150 sq. ft.; bedroom, 1,125 sq. ft.; bedroom, 295 sq. ft.; bedroom, 365 sq. ft. Although these sizes are generally accepted as minimums, yet such was by no means stated in the conditions as issued. The total floor area accorded by the winning design was approximately 92 sq. ft. in excess of these figures, i.e., nearly 25 per cent. more than was required. No mention of sun balconies whatsoever was made in the conditions, though they were provided in all the premiated and commended designs. Possibly the assessors could enlighten us as to the comparative methods adopted.

In the requirements five drawings only were called for, and were submitted by about 95 per cent. of the competitors. In the case of the winning design, however, in addition to models and a sprinkling of photographs, more than twice that number of drawings was submitted, several of them dealing with matters which, though doubtless of great intrinsic interest, were entirely extraneous to the purposes of the competition, as clearly laid down in the opening paragraph of the conditions issued to competitors. These many unusual features clearly placed the winning design in a street by itself and made a fair comparison with the other designs submitted an impossible task.

Proceeding now to more specific queries on which we should appreciate any enlightenment which the designers may have to offer:—

1. The reason for the (apparently uneconomical) change from rectangular to round columns between ground and first floor level.

2. The sequence of operations which permits the floors to be constructed monolithic with the walls and the approximate setting times suggested.

3. The manner of construction of sun balconies (not clear from drawings).

4. Was the cost based on a complete bill of quantities?

5. The total amount and cost of the patent shuttering (including royalties) for the fifty weeks' programme.

6: The cost of the finished service tunnel per foot run.

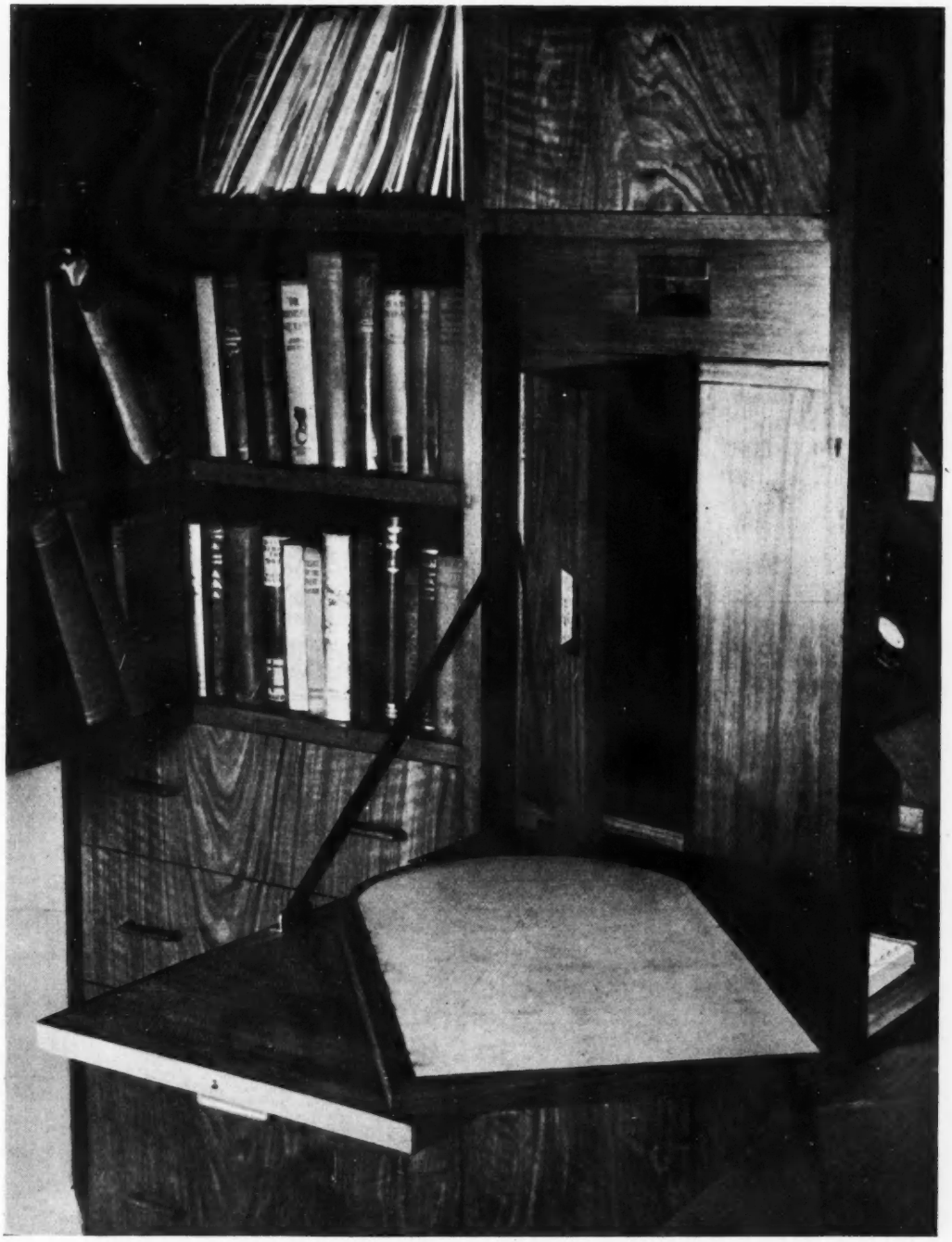
7. The cost, per foot super finished, of the floors and roof.

And by thus casting out the mote from our mind's eye enable us better to appreciate their very praiseworthy effort.

UNINITIATES
London

WORKING DETAILS : 243

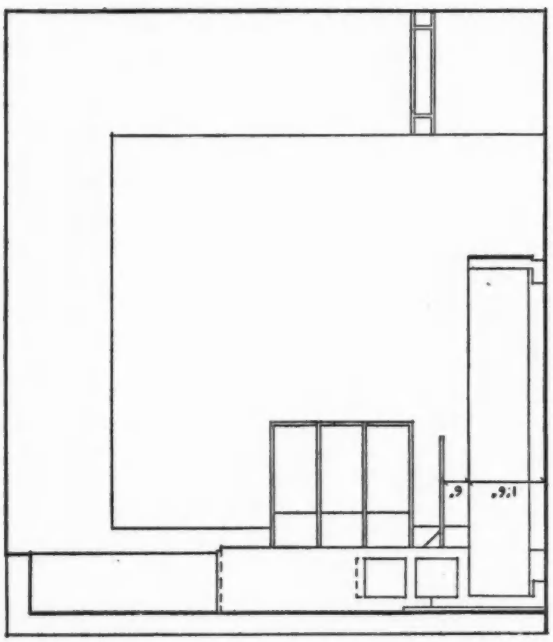
BEDSIDE FITTING • HOUSE IN NOTTING HILL GATE • MISHA BLACK



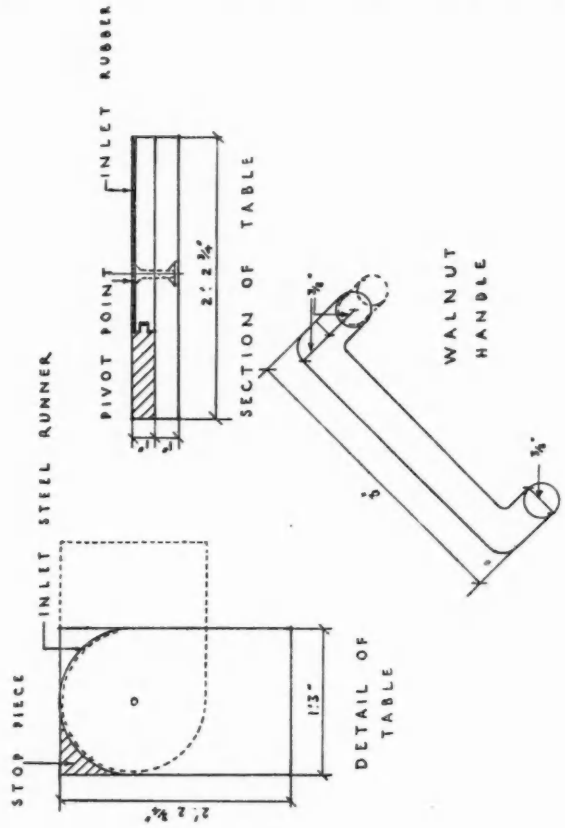
This bedside cupboard is fitted with a flap door which hinges down and carries a pivoted rubber-topped table unit which can be swung over the bed. All framing and shelves are $\frac{7}{8}$ in. thick, veneered in English walnut. Detail drawings are shown overleaf.

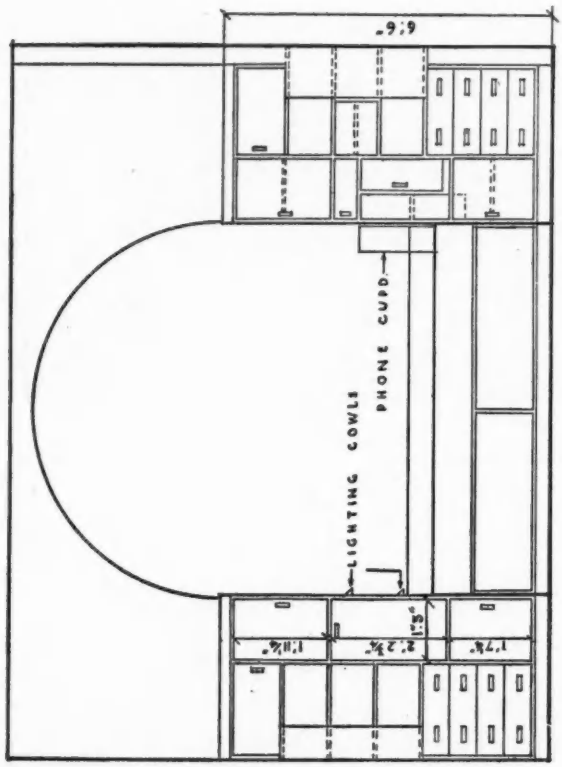
WORKING DETAILS : 244

BEDSIDE FITTING • HOUSE IN NOTTING HILL GATE • MISHA BLACK

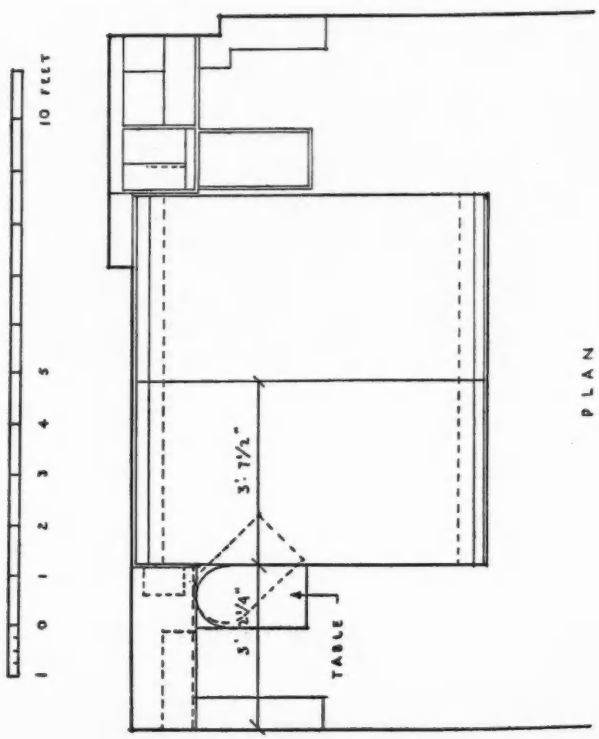


SECTION





FRONT ELEVATION

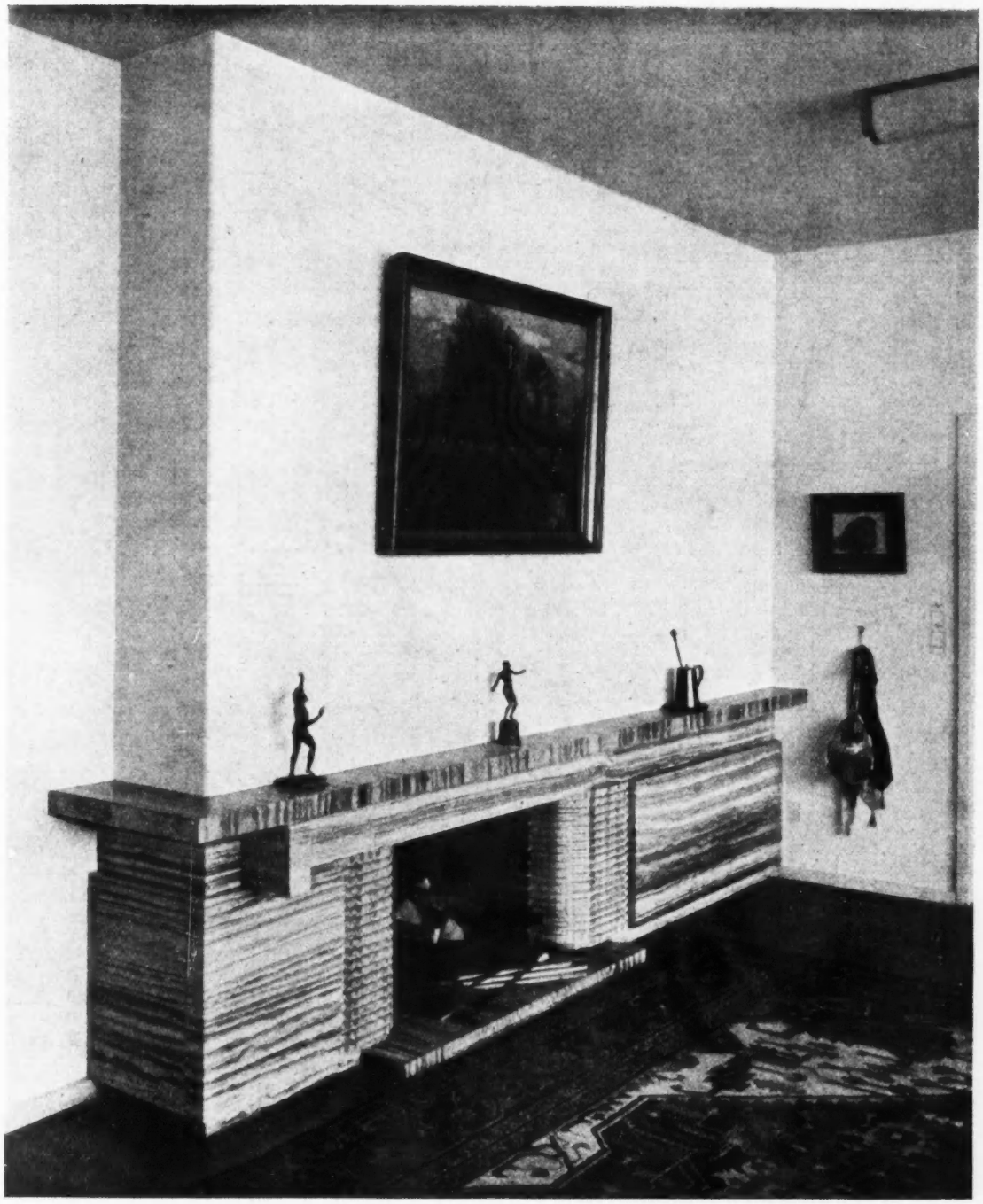


PLAN

Details of the bedside fitting illustrated overleaf.

WORKING DETAILS : 245

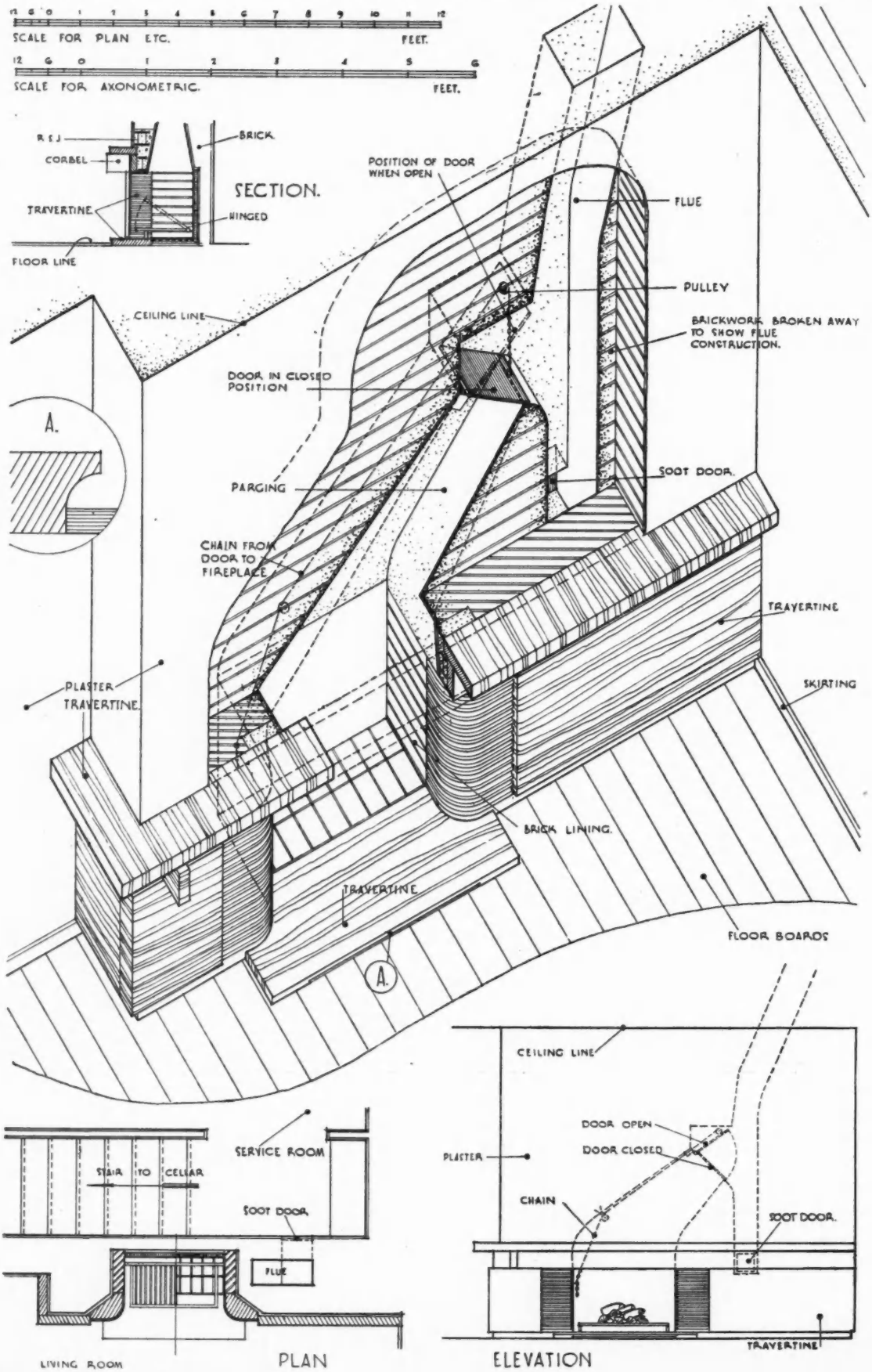
TRAPPED FLUE • HOUSE NEAR POTSDAM • WILHELM DOLL



In the flue of the fireplace illustrated above is a chain-controlled flap which prevents soot falling into the room while the chimney is being swept. As the drawings overleaf show, the flue has a secondary arm into which the soot falls when the flap is closed, and a trap door through which the soot is withdrawn, via the kitchen lobby. The mantelpiece is in Cannstatt travertine, and the grate is hinged for ash removal.

WORKING DETAILS : 246

TRAPPED FLUE • HOUSE NEAR POTSDAM • WILHELM DOLL



Axonometric and sections of the fireplace and flue illustrated overleaf.

L I T E R A T U R E

GOTHICK INTERLUDE

[*BY J. M. RICHARDS*]

Architecture in English Fiction. By Warren Hunting Smith. New Haven : Yale University Press. London : Humphrey Milford, the Oxford University Press. Price, 11s. 6d. net.

THIS book has a misleading title ; the subject is more specialized and more worth the labour expended on it than the title implies. It might, particularly as it comes from America, the home of elaborate scholarship with little other end but the assembly of learning, have been the most irrelevant compilation of literary oddments about architecture ; actually, it is an exhaustive study of one specialized historical phenomenon. It could more exactly have been called The Influence of Contemporary Fiction on the First Gothic Revival. It is an examination of that remarkable period of romantic escapade in terms of the Gothic school of fiction that accompanied it—and, in many senses, actually conditioned it ; at least the two were the result of the same social impulses. It is a most exhaustive examination ; perhaps too exhaustive, for it does show some tendency to the fault already remarked upon, to include all material relevant to the subject, whether or not it is helpful to the argument. If half the hundreds of quotations from obscure romantic novelists in which the mention of a Gothic castle happens to occur in a descriptive passage had been omitted, it would have been a far more readable book. However, the subject is such an ideal one for the research student, that we must not grudge him his pleasure in the multiplication of examples. It is only surprising that no work of this nature has been attempted before.

The first Gothic revival was indeed a remarkable phase in cultural evolution ; or, rather, if the Spenglerian distinction between a culture and a civilization be insisted upon, in the decay of vital search for expression into mere eclectic curiosity. As the author explains in his introduction, the Gothic revival was a purely literary phase ; " atmosphere " was the most valued architectural quality. By subjecting the art of building to the caprices of fashion, the period denied itself permanent architectural importance—its most apparently vital qualities were actually its most ephemeral, as Geoffrey Scott demonstrated in *The Romantic Fallacy*—but its local and sociological importance is increased by its unfunctional origins.

" The literature of pure action," the author remarks, " does not pause to observe scenery ; it is the literature of introspection, of subjectivity, or of psychological analysis that considers such things. Obviously, such literature is the product of intense civilization ; it need not be sought among ancient bards and mediæval troubadours." And he goes on to contrast the interest of the eighteenth-century writers in the Gothic setting as itself a contributor to romance with the perfunctory reference to setting found in the Elizabethans. He notes the eighteenth-century sensitiveness to environment that results also in a love of Nature—at that time quite a new phenomenon ; the two interdependent, so that an ancient building was almost regarded as a natural product.

The development of the Gothic revival can be attributed to three influences, all of which are reflected in romantic literature. First, the genealogical : " The Victorian house is a symbol of family background and conservatism. Even more so was the Gothic castle in the eighteenth century, when tradition and conservatism were more highly regarded than they are now. Upstarts might have mansions by Vanbrugh or Chambers ; they might even indulge in imitation Gothic styles, but the old castles of the nation were still in the hands of the nobility, who were proud of them, not because of their architecture, but because they testified to the importance and antiquity of the family. Gothic architecture was cherished as a symbol of family pride even before it was found to have charms of its own. Its heraldic emblems, carved in stone or painted in glass, were interesting to people for no other reasons than that they were emblems of family history." And the fact is noted that Horace Walpole, writer of the first Gothic romance, as well as builder of the most famous Gothic revival construction, was led into his taste for architecture largely through his genealogical and heraldic interests. The second factor in the genesis of neo-Gothic was a new interest (greatly encouraged by literary activities) in pictorial effect — in the Picturesque, a typical eighteenth-century quality : " Classical buildings were picturesque only when in ruins, but Gothic architecture was always picturesque." Here must be added to the literary influence that of the painters, Claude Lorrain and Salvator Rosa, whose influence on English taste, particularly on English landscape design, was prodigious ; and it is the use of the Gothic ruin in landscape gardening that is most typical of this phase—the sham ruin or the castle, used not as a work of architecture, but as an ornament to Nature. The last of the three influences enumerated is largely an emotional one, though again on the sophisticated plane : the romantic ambition to heighten the Picturesque by the Sublime—an appreciation of the psychological effect of height : " A revulsion in taste from the horizontal to the vertical line in architecture."

The two buildings most fully discussed are, inevitably, Strawberry Hill and that even stranger monument to eccentric genius, Fonthill Abbey. The author gives detailed evidence for his opinion why the former is not, as has been maintained, the Castle of Otranto itself ; but factual comparison in every detail is, of course, not really relevant. The spirit of one inhabited the spirit of the other, with such aggrandisements as the literary medium allowed. In the same way, to Beckford the great hall at Fonthill *was* the Hall of Eblis out of *Vathek*, or as near to it as Wyatt could approach to his patron's nightmarish vision.

Mr. Smith records in tremendous detail and with thorough annotation the progress of the Gothic revival as reflected (and inspired) in the pages of the Gothic romance ; an enchanting fairy story with, after Walpole, Walter Scott as the dominant personality. The end of the story finds its spirit petrified in mid-nineteenth realism, and the aspiring Gothic disintegrated by ridicule of itself. Thomas Love Peacock really marks the end : the Gothic setting now serves for gentle satire on the escapist mind. The Romantic Fallacy is exploded. Today finds the Gothic dying a lingering death in the sordid Collegiate of the author's own country.

Publications Received

John Nash, Architect to George IV. By John Summerson. London : George Allen and Unwin, Ltd. Price 10s. 6d. net.

Symposium on Illumination. Edited by C. J. W. Grieveson. London : Chapman and Hall. Price 13s. 6d. net.

Incorporated Accountants' Hall : Its History and Architecture. By J. R. Willis Alexander. London : The Society of Incorporated Accountants and Auditors.

The Parish Churches of England. By C. J. Cox and C. B. Ford. London : B. T. Batsford. Price 4s. net.

TWO BLOCKS OF WORKING-CLASS

1: at Herman Triers Plads and Kleinsgade.

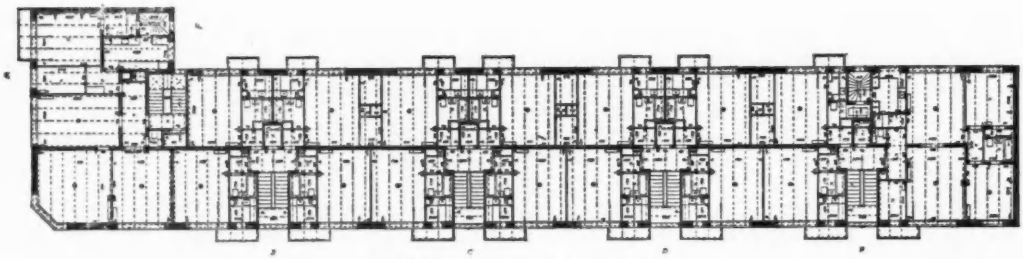


The authorities in this case stipulated that the building material and the profile of the building must correspond to those of the neighbouring houses, which regulation largely governed the appearance of the exterior. Above is the elevation to the street, faced with red stone and having a partly pitched roof of grey tile, the flat portion of the roof being covered with zinc.

The two blocks of flats illustrated on this and the three following pages were designed by the same architects, Kay Fisker and C. F. Moller, with the advice of the same engineer, Peder Bruun, for different suburbs of Copenhagen.

The one illustrated first is a six-storey building, containing 84 one-room flats, two two-room flats and 11 four-room flats. All the flats are provided with central heating, bathroom with built-in bath, washstand and w.c., electric kitchen, built-in wardrobe, and lift. The bathrooms and w.c. have tiled walls, the kitchen walls being covered with hard plaster. The lobbies, bathrooms, w.c., and cooling chambers have terrazzo floors. There is a balcony for each flat, and on the landing a built-in cupboard for keeping bread, milk, etc. The storey height is 3·04 metres from floor to floor. The construction is steel-framed faced with stone.

The windows of the living rooms consist of a fixed pane of 1·50 by 2·00 mm. by 6 mm. special glass at the side with a door to the balcony, and a small ventilation pane on top.



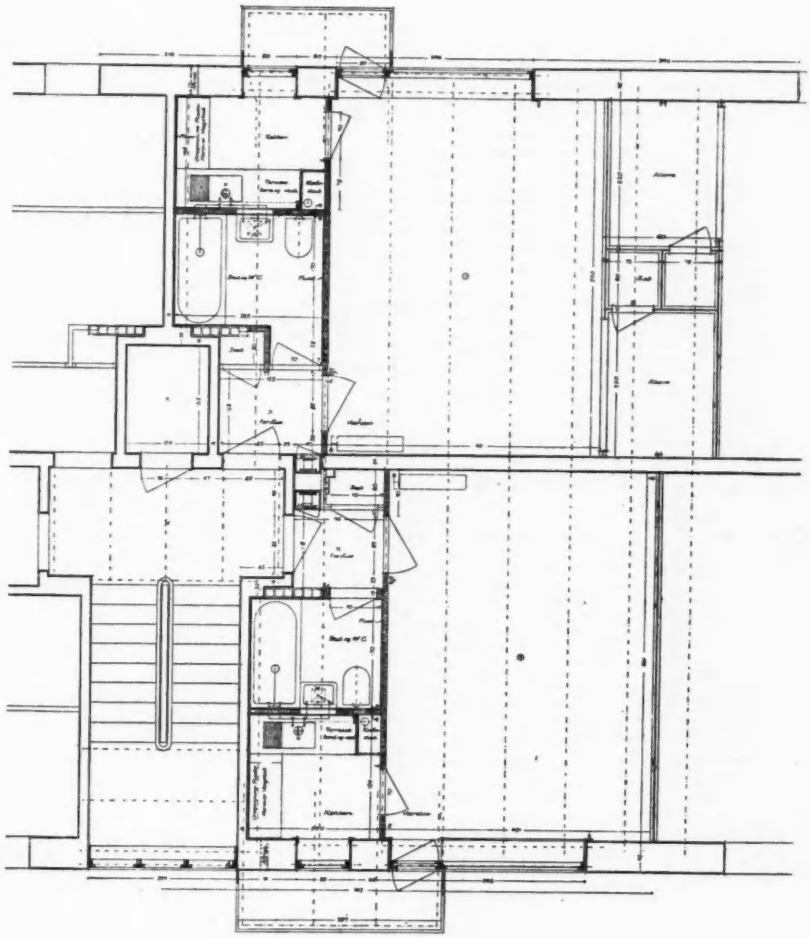
TYPICAL FLOOR PLAN

F L A T S I N C O P E N H A G E N

The work took nine months to complete. The total cost was 801,982 Kroner, divided among trades as follows :—

	% of total.
Masonry (main staircases, sewer, pile foundations, stucco, terrazzo, and paving work)	45.0
Carpentery	16.5
Joinery	11.4
Plumbing (cold water, hot water, gas for the large flats, pipe and sanitary work, covering roof with zinc), including pipes for taps	9.4
Painting (including wall-paper and oil-painted staircases)	3.7
Glazier's work (including 1·5 by 2·0 m. special glass panes)	1.1
Electrical installation ..	3.3
Smith's work (balcony, staircase, railings and balustrades)	1.2
Central heating (including boilers and tanks) ..	4.5
Central heating meters ..	.1
Lifts (7 stops)	3.8

The yard and garden lay-out, excluding constructional work, cost 832 kr. per square metre extra.





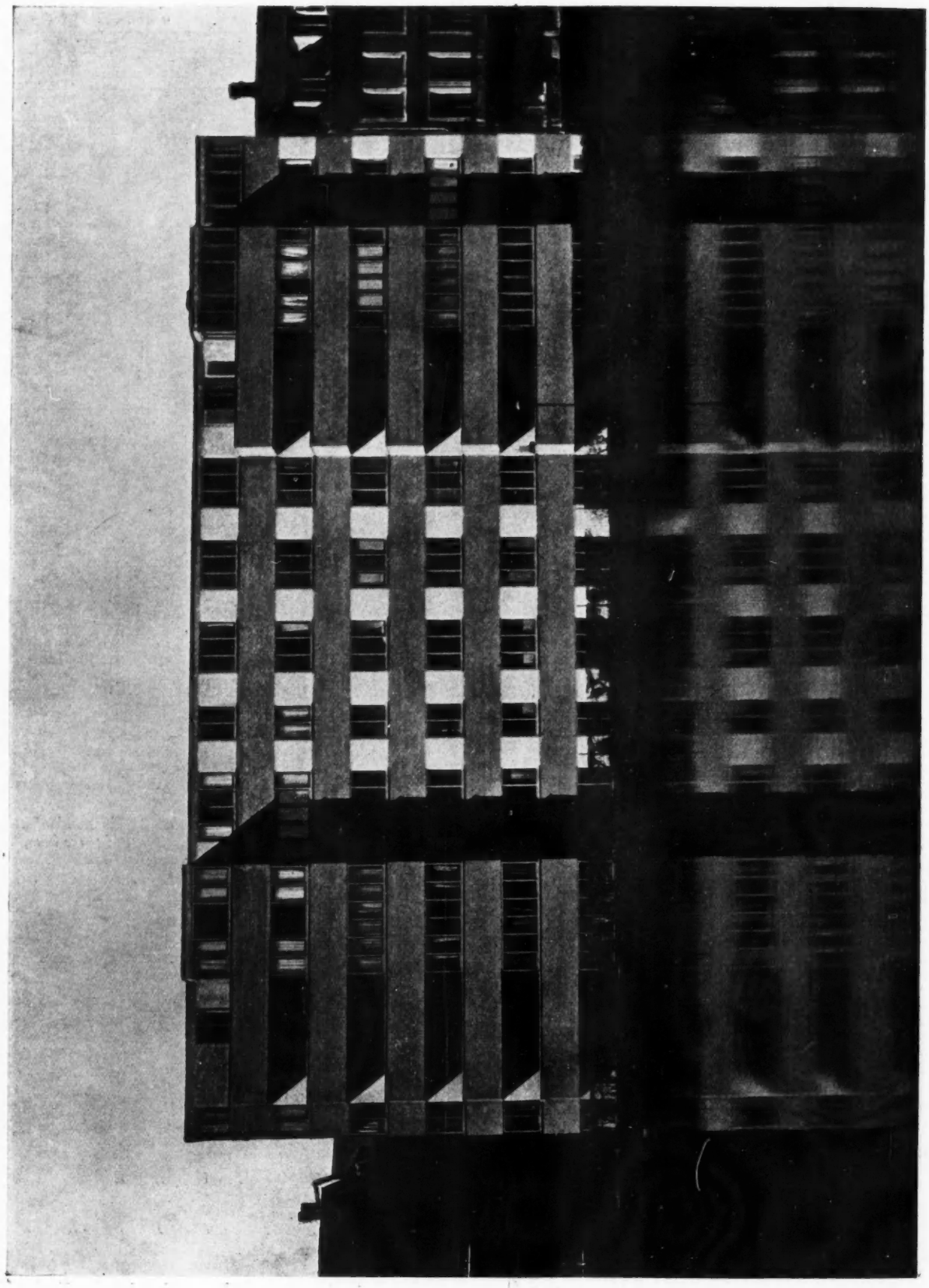
Above : A detailed plan showing the standard units in which the one-room plans are planned ; the living-rooms on the side opposite the staircase having alcoves and those on the staircase side without. Left : An exterior view from the garden side.

D E S I G N E D B Y

K A Y F I S K E R

A N D C . F . M O L L E R

WORKING-CLASS FLATS IN COPENHAGEN

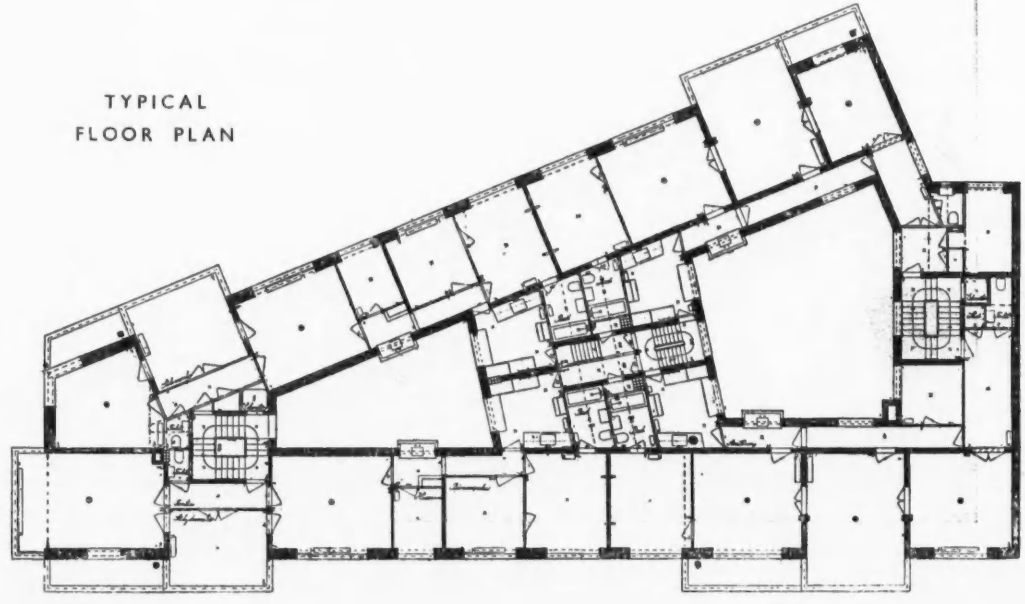


2. At Sct. Jorgens So.



This block, the second of the two schemes illustrated, situated at the corner of Vodroffsvej and Gl. Kongevej, contains nine five-room and nine four-room flats, and seven shops. All the flats have central heating, bathroom, hot water, and cooling chamber. The kitchens and bathrooms are tiled. The dining rooms have parquet floors, and the stairs and the main doors are of oak. The building is equipped with three passenger lifts. The building faces a lake, and in order to raise the rooms on that side above the embankment the floor level is raised several feet. The front is constructed of yellow and red stone in belts, so that the breast walls and balconies facing the lake are red, and the window stonework is yellow. The stonework is arranged in a converse manner towards the Vodroffsvej, on account of the shifting of the floor. The windows are one pane in height, and open inwards. One frame of each window is provided with a small ventilation pane. On the left is a view approximately from the south, and on the facing page a view from across the lake.

TYPICAL
FLOOR PLAN



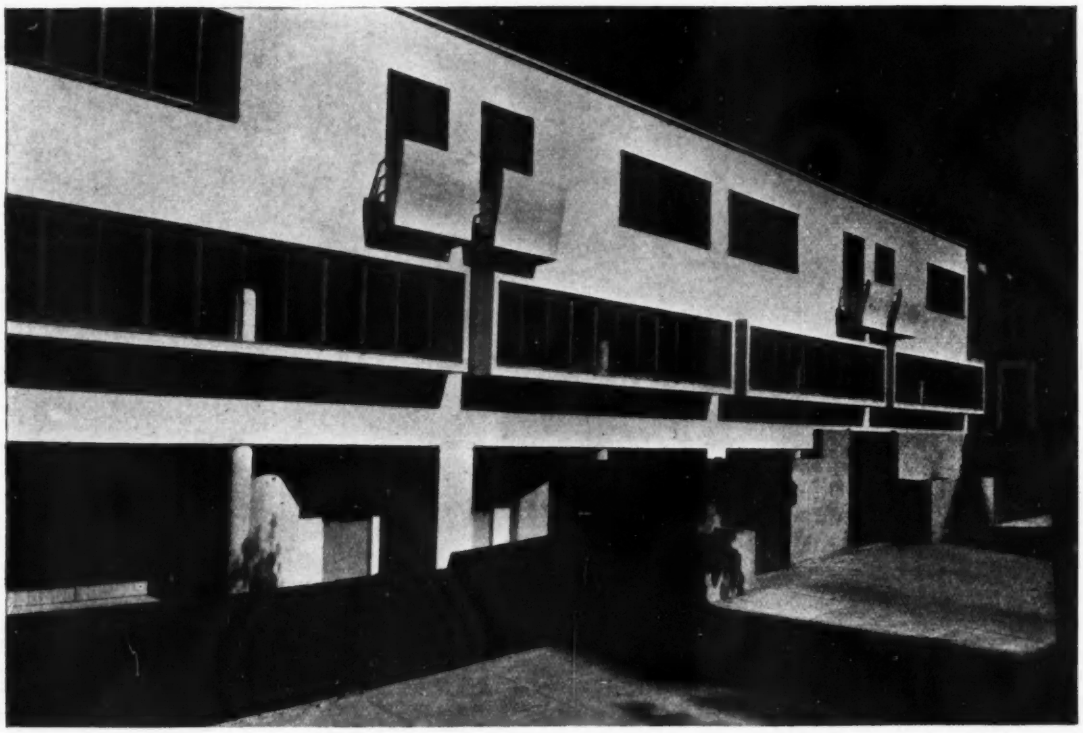
DESIGNED BY

KAY FISKER

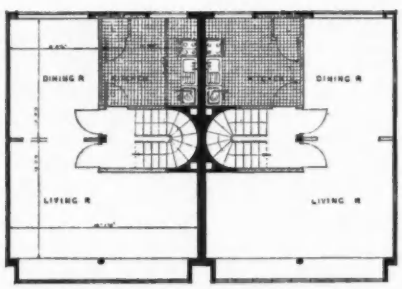
AND

C. F. MOLLER

FOUR HOUSES AT PLUMSTEAD:

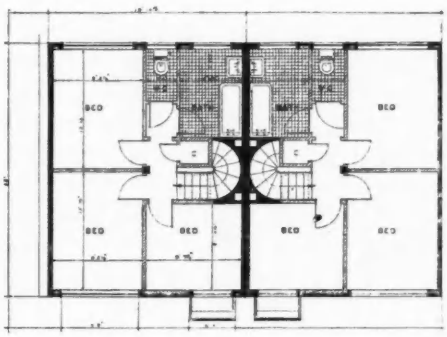


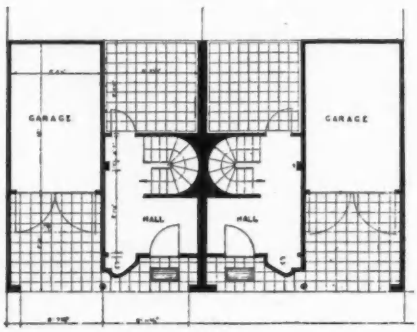
This row of small houses represents 'an attempt to establish a type of urban or street housing that will at the same time provide an answer to the popular demand for individual dwellings and avoid the usual faults of the speculative builder, who breaks up the line of the street by a lot of competitive and irrelevant centres of interest.



FIRST FLOOR PLAN

RIGHT: SECOND FLOOR PLAN





GROUND FLOOR PLAN

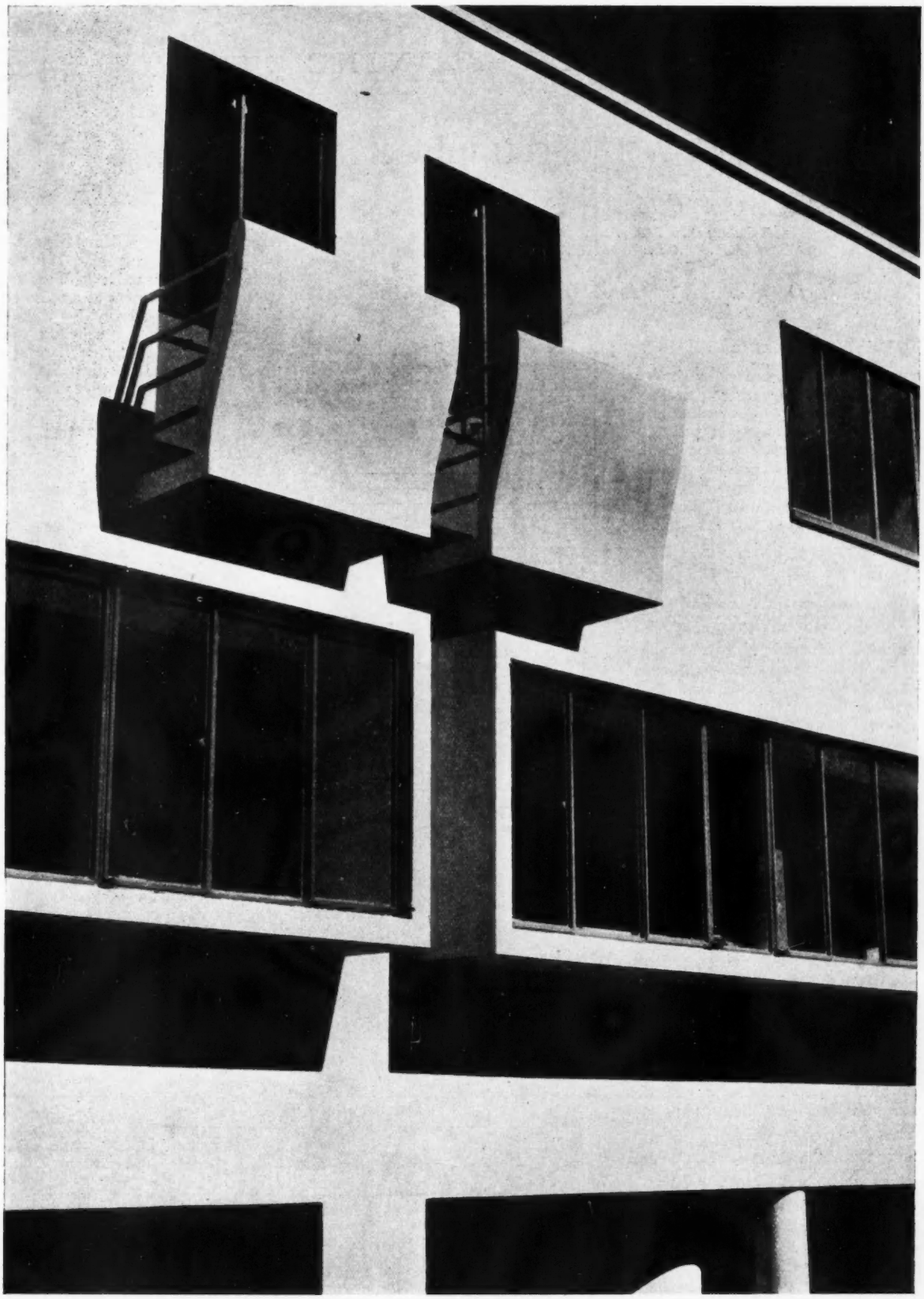
PLANNING. *Ground floor given over to garage and entrance, the former with entrance recessed to provide small yard. Living rooms on first floor; three bedrooms, bathroom and w.c. over.*

CONSTRUCTION. *Walls are of 4 in. reinforced concrete, cast in situ. Floors and roof are of hollow tile and concrete. Windows are steel casement.*

FINISHES. *Exterior: waterproof paint surfacing. Interior: plaster, distempered. Floors: polished cork.*

The photographs show a general view of the four houses looking along the street front and (on the facing page) a close-up of the first and second floor windows.

BY LUBETKIN AND PILICHOWSKI



TECHNICAL SECTION: 13

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

COMBUSTION TEMPERATURE

FROM our formula for boiler losses, an interesting corollory follows giving (approximately) the theoretical flame temperature.

If we put the losses at 100 per cent. we clearly have lost nothing to the boiler, and the whole heat has gone to raise the temperature of the products of combustion to the flame temperature.

$$\text{Thus } 2{\cdot}17 \times \frac{t}{100} \times \frac{\text{Theoretic air}}{\text{Actual air.}} = 100\%$$

$$\text{Whence } t = \frac{10{,}000}{2{\cdot}18} \times \frac{\text{Actual air}}{\text{Theoretic air.}}$$

When the latter ratio is unity, the flame temperature comes to 4,600 deg. F.

With pure carbon, the figure 2·17 is 2·1 and the flame temperature is 4,760 deg. F. and with hydrogen, the figure 2·17 becomes 1·9 and the flame temperature 5,260 deg. F.

This agrees approximately with the generally accepted figures, which, however, appear to differ considerably between various authorities. Some tabulated figures are given below.*

It must not be imagined that these theoretical flame temperatures are obtainable in practice, since excess air is seldom less than 50 per cent. and the combustion space is generally surrounded with water jacketed walls at low temperature. Thus the normal combustion temperature of fuel in boilers is generally of the order of 2,500 deg. F.

Table XVIII gives the theoretical air required per pound for various fuels, and Table XIX the calorific values and theoretical flame temperatures.

BOILERS : RATING OF HEATING SURFACE

Taking the above-mentioned practical combustion temperature as the highest temperature in the boiler, and with exit flue gases at, say, 400 deg. F., it is possible to draw a curve somewhat as in Fig. 64, showing the fall in temperature as the products of combustion pass through. Below this is given the proportion of heating surface generally provided with a three-pass boiler. In this, the primary surface, i.e., that directly exposed to the radiant heat of the fire or flame, often constitutes 50 per cent. of the total, the secondary about 25 per cent., and the tertiary 25 per cent.

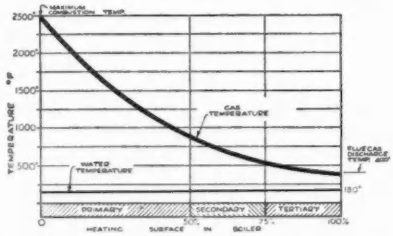


Figure 64. *Diagram showing temperature variation through heating boiler.*

From this it will be apparent that fully two-thirds of the heat absorption of the boiler generally takes place in the primary or direct surface, the secondary and tertiary supplying the remainder between them.

This proportion varies with every type and design of boiler, and the whole question of heat transfer in boilers is too vast to be dealt with here. Reference to a recent treatise on heat transmission† is advised for those who wish to embark on a study of this subject. It must suffice here to say that commercial heating boiler designers are now generally more or less in agreement on the following approximate transmission rates :—

Primary heating surface — 6,000 B.T.U's per sq. ft.
Secondary heating surface — 3,000 B.T.U's per sq. ft.
Tertiary heating surface — 1,500 B.T.U.'s per sq. ft.
Average for all surfaces — 4,400 B.T.U's per sq. ft.

The average figure is for cast iron sectional boilers of the conventional type. Other boilers with more or less primary surface in proportion to the total have higher or lower average values.

RATING OF GRATE AREA

On the rating of grate area, boiler makers are by no means so much in agreement. Reference to catalogues will show that one type of boiler may have a grate 50 per cent. larger than another with the same output. These variations simply mean that one maker assumes that about 6 lb. coal will be burnt per sq. ft. of grate per hour, whereas another assumes 9 lb. The boiler rated at 6 lb. per sq. ft. will require less frequent attention, will not clinker so badly and will be much easier to control, being steadier in its

TABLE XVIII

THEORETICAL AIR REQUIRED PER LB. OF VARIOUS FUELS

Fuel	Theoretical Air Required	
	in lb.	in cub. ft. at 60° F.
Carbon	11·5	150
Hydrogen ..	34·5	452
Anthracite coal	11·7	153
Bituminous coal	11·6	151½
Coke	10·0	131
Oil	14·3	187
Gas	10·9	142

TABLE XIX

CALORIFIC VALUE AND MAXIMUM FLAME-TEMPERATURE OF VARIOUS FUELS

Fuel	Calorific Values in B.T.U.'s per lb.			Theoretical Flame-Temperature above boiler-room Temperature. Fuel burning in air with no excess
	Gross	Difference	Net	
Carbon ..	14,600	Nil	14,600	4,760° F.*
Hydrogen ..	62,000	10,000	52,000	5,260° F.
Anthracite coal	14,000—14,400	500 approx.	13,500—13,900	
Bituminous coal	12,500—14,000	11	12,000—13,500	
Coke	10,500—12,500	Negligible	10,400—12,400	4,600° F. approx.
Oil	19,000—19,700	1,200	17,800—18,500	
Town gas .. (per cub. ft.)	16,520 (560)	1,770 (60)	14,750 (500)	

* Flame Temperatures

	Hydrogen	Carbon
Low's Pocket Book of Mechanical Engineering ..	4,933	4,891
Kemp's Engineers' Year Book	4,813	4,812
Barker on Heating ..	5,910	5,060

† Dr. Margaret Fishenden, *Calculation of Heat Transmission.*

output, but the boiler rated at 9 lb. will be cheaper.

In selecting a boiler it is therefore always wise to check the grate area, and for this purpose Table XX will be found to be of assistance.

For example, a boiler output of 1,000,000 B.T.U.'s per hour (including margin) at 6 lb. per sq. ft. per hour with fuel 12,000 B.T.U's per lb. requires $\frac{1,000,000}{50,400}$=20 sq. ft. grate surface, and at 10 lb. per sq. ft. = 12 sq. ft.

TABLE XX

HEATING BOILER. BOILER RATINGS PER SQ. FT. OF GRATE AREA.

lb. of solid fuel per sq. ft. of grate per hour	B.T.U.'s per hour per sq. ft. of grate-area, transmitted to boiler at 70% efficiency, using fuel of calorific value :—			
	11,000	12,000	13,000	14,000
		B.T.H.U.s	per lb.	
4	30,800	33,600	36,400	39,200
5	38,500	42,000	45,500	49,000
6	46,200	50,400	54,600	58,800
7	53,900	58,800	63,700	68,600
8	61,600	67,200	72,800	78,400
9	69,300	15,600	81,900	88,200
10	77,000	84,000	91,000	98,000
11	84,700	92,400	100,100	107,800
12	92,400	100,800	109,200	117,600
15	115,500	126,000	136,500	147,000
20	154,000	168,000	182,000	196,000

For magazine boilers, ratings of 5 to 6 lb. per sq. ft. of grate are desirable so as to avoid clinkering. Such a rating is, in fact, desirable for any boiler, but it will generally be found to result in an unduly large size with other types, and this may have disadvantages in other directions. Thus for ordinary hand-fired boilers ratings of 6 to 8 lb. per sq. ft. are normal and practical. Figures of 10 lb. per sq. ft. and over are high, and should only be worked to for heating boilers when fairly constant attention is available. Steam boilers work at heavier ratings because continuous stoking is assumed from the start, but heating boilers are generally required to operate for four or six hours at least without attention, and this calls for a large fire box, possible only with a large grate.

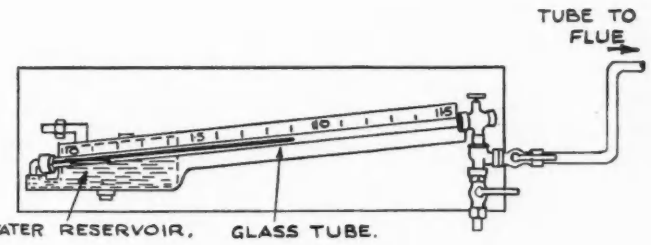


Figure 65. *Inclined draught gauge.*

Taking a few typical cases of boilers for various purposes we see from Table XXI the ratings at which these are catalogued.

DRAUGHT

Draught may be
(*a*) natural.
(*b*) induced.
(*c*) forced.

plants. Natural draught is produced by the difference in weight between the rising column of hot gases in the flue and the corresponding cold falling column at the temperature of the outside air. Draught created artificially, i.e., forced or induced, is produced by a fan worked mechanically (or occasionally by steam blast).

Whether natural or artificial, it is

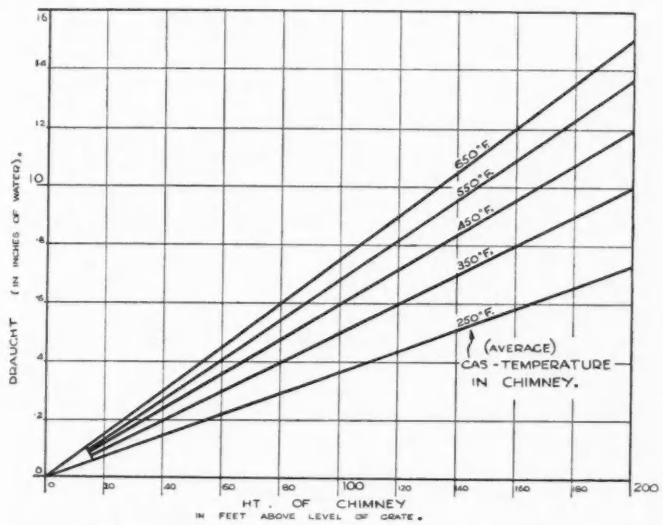


Figure 66. *Total theoretical draught produced in a chimney (at sea-level).*

and is commonly measured by a draught gauge in inches of water column (see Fig. 65) ; such a gauge is a common fitment to all large boiler

important to remember that the draught so produced is completely balanced by the frictional resistance to the flow of gases through the air door, fuel bed, boiler passages, flue and chimney, plus the kinetic energy of the moving mass of air and gas. Thus the variation of any one of these factors will affect all the rest.

Natural draught is generally limited to a suction of $\frac{3}{4}$ in. in accordance with the curve in Fig. 66.

In practice deduction has to be made
(*a*) for stack temperature being below temperature of flue gas discharged from boiler.
(*b*) loss of head from friction.

If the area of stack (in sq. ft.) is proportioned to

$$\text{Area of stack} = \frac{\text{grate area (sq. ft.)} \times \cdot 75}{\sqrt{\text{height of chimney in ft.}}}$$

then the actual draught will generally be over one-half the theoretical suction, after allowing for (*a*) and (*b*).

The limitations of natural draught control the size of fuel permissible

TABLE XXI

COMPARISON OF RATINGS OF VARIOUS BOILERS IN COMMON USE.

Type of Boiler	Makers' Rating in B.T.U.'s per hour	Grate Area in Sq. ft.	Heating Surface in Sq. ft.	Lb. Fuel (at 12,000 B.T.U.'s per lb.) per hour per sq. foot of grate area	B.T.U.'s per hour per sq. ft. of Heating Surface
Cast-Iron Sectional (Fig. 53A)	100,000	1·9	22·6	6½	4,430
	250,000	4·2	56·5	7	4,430
	500,000	8·5	113	7	4,430
	1,000,000	15·9	226	7½	4,430
Wrought Iron Sectional (Fig. 56)	500,000	5·1	120	11½	4,160
	1,000,000	11·0	240	11	4,160
	1,500,000	16·0	340	11	4,420
	2,000,000	20·0	448	12	4,460
Cast Iron Magazine (Fig. 57)	250,000	5·0	83·5	6	3,000
	500,000	10·0	166	6	3,000
	1,000,000	20·0	334	6	3,000
Mild-Steel Magazine (Fig. 58)	1,000,000	24·0	225	5	4,450
	1,500,000	34·0	330	5¼	4,550
	2,000,000	44·0	440	5½	4,550

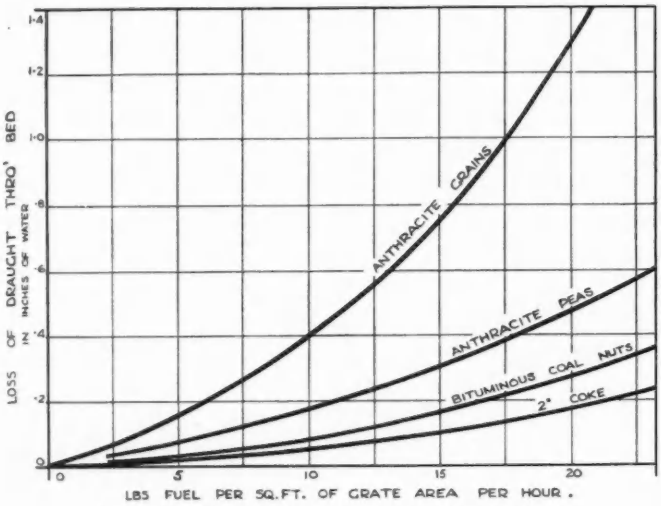


Figure 67. *Draught loss through beds of various fuels.*

the quality of fuel, and the rate of burning per sq. ft. of grate area, the resistance to the flow of gases through the boiler, and the boiler efficiency.

Fig. 67 shows how draught requirements vary for different fuels at varying combustion rates. It will be seen from this how natural draught limits the possible range of operation.

Natural draught, it must be remembered, is largely self-balancing. When, for example, the fire in a boiler is low, the air required for combustion is low, and at the same time the flue gas temperature is low, so that there is little draught to pull this air through the fuel bed. Assume then the air inlet damper to be opened up, the air flow combustion rate will increase and the flue gas temperature will rise. This latter effect is cumulative since, when the flue gases become hotter, the draught becomes greater, following which the air inlet and combustion rate increase, and the flue gas temperature then rises still further. Eventually a balance is struck when, due to the enhanced temperature of the gases, the boiler heating surface is able to take out sufficient heat to prevent any further rise of flue gas temperature.

A boiler with a good draught will quickly reach this state, often in less than half an hour from a banked state to full duty, and is therefore said to be very responsive. A poor draught such as results from a low chimney serving a large boiler is conducive to sluggish operation, and the state of balance mentioned above may not be reached for two or three hours.

Natural draught is much affected by wind when the chimney is low, and this sometimes accounts for a fire burning out during the night, when the dampers may possibly have been set too wide open. The draught check on the back of the boiler is a useful safeguard through which any excess air called for by the flue due to wind can enter instead of through the boiler.

A better and more uniform control of draught can be achieved at all times by the fitting of a draught stabiliser to the base of the flue, as in Fig. 68. This consists of a hinged aluminium flap,

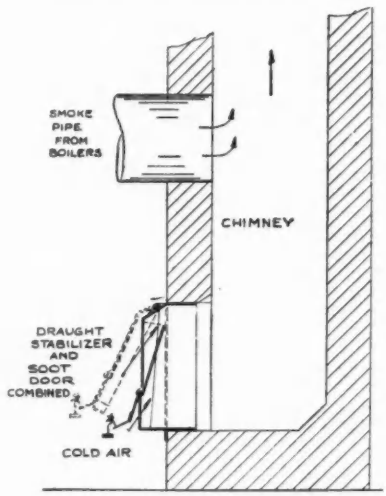


Figure 68. *Draught stabilizer.*

normally out of balance, but kept shut by a small adjustable lever and weight. This weight can be set to keep the flap shut, up to any predetermined water gauge, but as soon as the draught exceeds this amount, due to the temperature of the flue, or to the wind, the flap opens and air is admitted, so "killing" the draught by the desired amount. This device may be combined with a soot door and explosion door.

In some applications, as with oil firing, this fitment is used to cool the flue, thus preventing undue warmth on upper floors, which is sometimes a disadvantage.

MECHANICAL DRAUGHT

With power boilers it has for a considerable number of years been common practice to install induced draught or forced draught fans, or both.

The *induced draught* fan draws the gases from the boiler and discharges them into the stack as in Fig. 69A. The fan has to be capable of withstanding high temperatures and consequently has water cooled bearings.

Alternatively an ejector nozzle in the stack is used to produce the same effect, as in Fig. 69B.

In either of the above cases the draught over the fuel bed may be up to 3 in. to 4 in. water gauge, and the air is admitted under the fire naturally.

The forced draught system shown in Fig. 70 delivers air under pressure under the fuel bed, or through hollow grate bars.

The positive impingement of the air on to the glowing fuel obviously assists the penetration of the oxygen into the fuel and, as might be expected, greatly increases the rate of combustion for a given grate area.

The combination of forced and induced draught on a boiler or range of boilers provides the most flexible arrangement possible. By this means, a balanced draught is obtainable, whereby the space above the fuel bed is practically at atmospheric pressure, and no excessive air leaks inward or outward are produced.

The application of mechanical draught to small boilers, such as are used for heating, has only come about in recent years. The firing of oil necessitated the use of a forced draught fan for the atomization of the fuel, and it was the advantages accruing from this arrange-

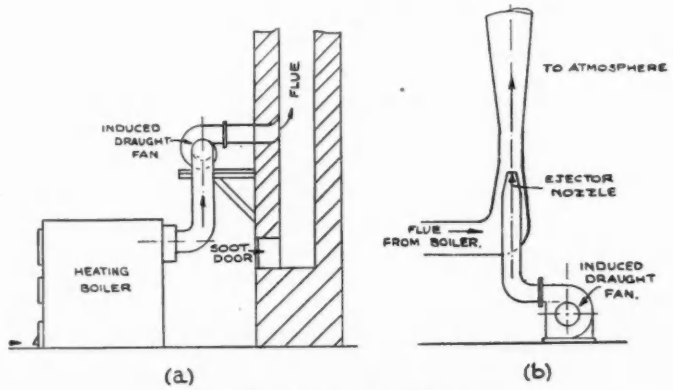


Figure 69. *Induced draught systems.*

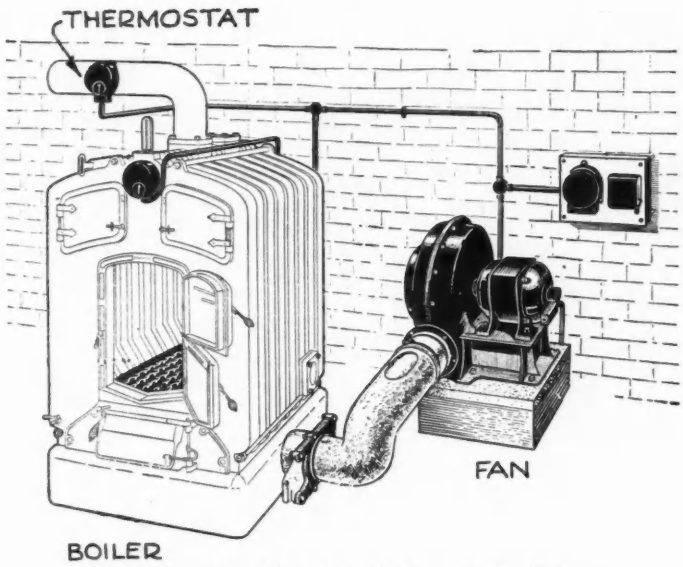


Figure 70. *Forced draught applied to a heating boiler.*

ment which no doubt accounted for the development of the same system for solid fuel, and much attention is being paid to this subject at the present time. It is found that when forced draught is applied to heating boilers fired with coal, the following benefits are obtained.

(*a*) A small grade of coal may be used, and this is generally cheap in price (often 23s. as compared with 40s.).

(*b*) control by thermostat is easily accomplished by the mere switching on and off of the fan.

(*c*) quick heating up first thing in the morning is possible, owing to the immediate response of the fire to the air blast.

(*d*) the fire is kept incandescent, which means absence of unburnt gaseous products, soot and smoke, and a high rate of absorption of heat by the direct heating surface in the boiler.

It has been found that considerable economies in running cost may be achieved with such a system, over a natural draught hand controlled apparatus.

The disadvantages associated with forced draught are :—

(*a*) Formation of clinker tends to be heavy, and a coal of high ash fusion point is desirable.

(*b*) Fire bars tend to burn away quickly, due to the blow-pipe effect of the flame on the metal. Often a special alloy is used for the bars to avoid this trouble.

(*c*) There is a danger of giving a great excess of air to keep a bright fire, and this should be checked with a CO_2 recorder.

The above disadvantages are largely bound up with the rate of combustion, and a number of systems employing what is called "controlled draught" have been produced to overcome them. These are simply forced draught systems which limit the pressure of air supplied to a very low figure, just enough, in fact, to permit of a small grade of coal to be used, while chimney draught is relied upon to do the rest. The advantages of control and increased efficiency are, of course, still obtainable.

Induced draught has not so far been applied to heating boilers to obtain the benefits of control and economy obtainable with forced draught, though it has often been used in the past for improving conditions with a poor chimney. The difficulties are cooling the bearings of the fan and preventing excessive air leaks into the boiler. No doubt developments in the future will use this system to advantage.

LAW REPORT

HEAVY DAMAGES AGAINST A BUILDER

Smith v. *Midland Housing Corporation, Ltd.*—*Chancery Division. Before Mr. Justice Clauson.*

THIS was an action by Mr. Enoch John Smith, a builder, of World's End, Solihull, Birmingham, against the Midland Housing Corporation, Ltd., of Pall Mall, London, for specific performance of an agreement dated May 2, 1934, by which the defendants agreed to purchase from the plaintiff a large number of freehold and leasehold properties in the suburbs of Birmingham.

The purchase price for the property was £273,000, a deposit of £5,000 being paid. In the alternative, plaintiff claimed damages for breach of the agreement.

The defendant company counter-claimed for a rescission of the agreement, repayment of the deposit and for damages on the ground that it was induced to enter into the agreement through the misrepresentations of the plaintiff.

The onus being on the defendants, Sir Patrick Hastings, K.C., for the company, said that the plaintiff was a speculative builder and the defendant company was formed on May 2, 1934, for the sole purpose of buying 500 houses in the suburbs of Birmingham. Some of the houses were built partly by the plaintiff, partly by his son, partly by his daughter, and partly by his wife. Some were not completely built.

According to the defendants' case the contract was induced by the misrepresentations of the plaintiff, one being that each of the properties was let upon rack rental tenancies, whereas the defendants' case was that, of the 500 houses, 214 were not let at all and that some were not finished.

The transaction appeared to have been carried through by the plaintiff and his family in the following way—they entered into what was known as a block tenancy agreement, partly verbal, but confirmed by a memorandum in writing, under which plaintiff let all or any of the houses, which were unlet, to his son for a term of three months. The plaintiff as lessor entered into a subsidiary agreement with his son, or with somebody, to guarantee payment of the rent of the unoccupied houses for three months. The object of the defendants in the action was to get rid of the liability to the plaintiff, to return the money subscribed by the shareholders and to get back the deposit. The capital of the company consisted of £300,000, half in shares and half in debentures, and the plaintiff was to have received £273,000 of the issued capital. The draft prospectus stated that a satisfactory feature was that the properties were let at what might be regarded as minimum rentals payable in advance and the company therefore began with immediate revenue and "in view of the well established demand for houses to rent in the Birmingham area this revenue should be well maintained."

The defendants alleged that almost all those statements were untrue. Two hundred and fourteen houses were empty and the allegation that they were all let was without foundation, unless the agreement by which plaintiff let them to his son was taken into account. Another statement which was inaccurate was a report that the property produced a gross rental of £22,063 and an annual income of £20,000.

Replying to his lordship, Sir Patrick Hastings said that the plaintiff had represented that the houses were let. That was not true. There was, he contended, no defence to the counter-claim.

Mr. Harold Christie, K.C., for the plaintiff: "I say there was no misrepresentation at all at any time. Mr. Smith's arrangement was that he should be responsible for the rents of the properties until they were let."

Continuing, Mr. Christie said that the plaintiff now asked for damages, and not for specific performance of the contract. There were reasons why the plaintiff did not think an order for specific performance would be advantageous. There had been a charge of fraud, which plaintiff strenuously denied, and now desired to clear his reputation in that respect.

Evidence was then given for the defendants.

His lordship, in giving judgment, said he came to the conclusion that there had been misrepresentation by the plaintiff which entitled the defendant company to succeed on both the claim and counter-claim. He accordingly dismissed the plaintiff's action, with costs, and on the counter-claim he held that the defendants were entitled to rescission of the agreement, to the return of the deposit and to damages, which he assessed at £17,742 10s. 6d.

Judgment was accordingly entered for the defendants on the counter-claim, with costs.

SOCIETIES AND INSTITUTIONS

LEICESTER AND LEICESTERSHIRE SOCIETY OF ARCHITECTS

Sir Giles Gilbert Scott, R.A., P.R.I.B.A., speaking at the annual dinner of the above Society, held at Leicester, referred to the great significance of the growing public interest in architecture. It was, he said, an undoubted fact that in the last 15 years they had seen a remarkable change in the public attitude towards architecture. It was a reaction to the attitude of the period when architecture was the cinderella of the arts.

The growth of public taste in architecture was a great encouragement to the Institute to leave its mark on the civilization of its time.

During the evening the bronze medal of the R.I.B.A. for the design of a building of outstanding merit in the district was presented to Mr. Pike, of Messrs. Symington, Prince and Pike, for the Kay Bee House in Charles Street.

CAMBRIDGE ARCHITECTS' ANNUAL MEETING

At the annual meeting of the Cambridge Chapter of the Essex, Cambridgeshire and Hertfordshire Society of Architects, held recently at Cambridgeshire House, Cambridge, under the chairmanship of Mr. Norman T. Myers, F.R.I.B.A., the following officers were elected for the ensuing session: Chairman: Mr. Norman T. Myers, F.R.I.B.A.; vice-chairman, Major C. F. Skipper, F.R.SAN.I., F.R.I.B.A.; honorary secretary, Mr. H. H. Parker, L.R.I.B.A.; honorary treasurer, Mr. I. T. Sifton, A.R.I.B.A.; honorary librarian, Mr. C. W. Craske. Executive Committee: Messrs. G. P. Banyard, L.R.I.B.A., J. D. Bland, A.R.I.B.A., H. H. Dunn, F.R.I.B.A.; H. C. Hughes, M.A., F.R.I.B.A., and S. E. Urwin, A.R.I.B.A.

Activity in the Building Trades

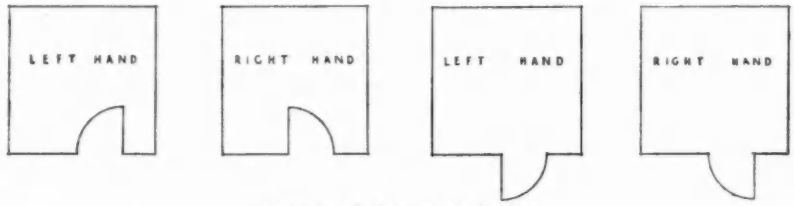
Further evidence of present activity in the building trades is provided by the statement by London Brick Company and Forders, Ltd., that their deliveries of bricks during March have exceeded all previous records. During the twenty-three-and-a-half working days they despatched no fewer than one hundred and forty-one millions, or three hundred and twenty thousand tons of bricks.

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Mr. H. H. Parker, L.R.I.B.A., is practising on his own account at No. 14 Saint John's Street, Cambridge. Telephone: Cambridge 2010.

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The general contractors and sub-contractors for the house at Northam, Devon, are as follows: General contractors, Boon Bros. Sub-contractors: A. Harley, central heating and plumbing; Bath and Portland Stone Firms, stone chimneypieces; Hollis Bros., oak floors (laid by the general contractors); Delabole Slate Co., roofing; M. Grant, electrical work.



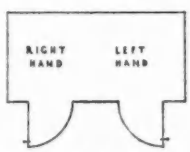
MORTICE LOCKS

TRADE NOTES

[*BY F. R. S. YORKE, A.R.I.B.A.*]

Locks

I WAS talking a day or two ago to Mr. K. Wainwright Kaye, of Joseph Kaye & Sons, lockmakers, and the conversation turned to the right and wrong way of specifying the "hand" of a lock. It seems to me that the confusion that exists is understandable because it is not easy to remember whether a mortice or rim or cupboard lock for a door hung on the left- or right-hand side and opening inwards or outwards, should be called left-hand or right-hand. Mr. Kaye promised to send diagrams that would make the position quite clear. He sent them and they are



CUPBOARD LOCKS

reproduced on this page. They illustrate typical cases.

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In every instance the lock is described from *inside the room*, and for lockmaking purposes the "hands" should always be taken from this position.

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The diagrams show alternative arrangements for *mortice*, *rim* and *cupboard* locks, and the "hand" for specification purposes is given in every case. *Mortice deadlocks* are suitable for either left- or right-hand doors, unless the doors are half or full rebated, in which case the "hands" must be stated and dimensions of rebates must be given.

•

For full or half-rebated mortice locks and upright mortice locks it is desirable to give, in addition to other particulars, the width of the stile, in order that spindle holes and keyholes shall be in a proper position for working with either lever handle and knobs or a pair of lever handles. Where the rebate is splayed the angle of the splay should be specified diagramatically.

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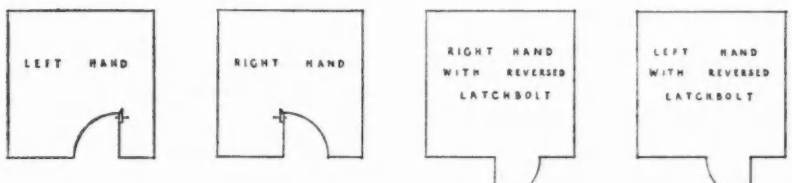
If the thickness of the door is given, the lockmaker can supply the correct length of key for any type of lock required.

•

If, in the case of a cupboard, the door is hung by hinges on the right-hand side, facing the outside of the cupboard, the lock is *left*-hand, whether the door opens inwards or outwards. This refers particularly to the type of cupboard lock known as cut lock. The rim—or straight—cupboard lock is suitable for either hand.

Paint for Concrete

Readers are constantly asking me to recommend a decorative waterproofing wash, paint, or rendering, for application on green concrete, or they ask for particulars concerning a specific product. My file now contains information concerning a number of proprietary paints, etc., for this purpose, but there are probably many of which I have no record, and I shall be grateful if architects and manufacturers will let me know of any such material with which they have had experience, in order that my file devoted to this subject shall be complete and up to date.



RIM LOCKS—2 BOLT AND DEAD. ALSO NIGHT LATCHES

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

BLACKHEATH. *Flats.* Mr. A Mather is to erect flats upon a site in Lee Terrace, Blackheath.

EALING. *Shops, Dance Hall, etc.* Messrs. Harris and Belcham are the architects in connection with the proposed erection of shops and a dance hall on a site in the Uxbridge Road. Detailed plans have not yet been submitted to the Council.

EALING. *Shops and Flats.* The Morris Estates, Ltd., Dorland House, 14 Regent Street, W.1, propose to erect 17 shops, with flats over, in Ruislip Road.

EALING. *Houses.* The New Ideal Homesteads, Ltd., Ideal House, Carlton Road, Erith, Kent, are to erect 80 houses and bungalows in Farndale Crescent and 27 houses and bungalows in Barnham Road.

EALING. *Flats.* Twenty-two blocks of flats are to be erected in Birkbeck Avenue, Stanley Avenue and Lincoln Close by Messrs. Jermey and Son, Ltd. The architect is Mr. F. Lincoln Berry.

EALING. *Licensed Premises.* The Town Council has approved plans by Messrs. F. J. Fisher and Son, 35 John Street, Bedford Row, W.C.1, for the rebuilding of the "Queen Victoria," for Messrs. Watney Coombe Reid & Co.

EALING. *Houses.* Messrs. Swannell and Sly, architects, High Street, Rickmansworth, have prepared plans for the proposed erection of 52 houses in the Fairway, for the Hillingdon Estates Company.

EALING. *Flats.* Lay-out plans for the proposed erection of three blocks, comprising 24 flats, at "White Lodge," Castlebar Park, have been approved by the T.C. The plans were prepared by Messrs. W. H. Read & Co., Ltd.

EAST HAM. *Baths.* The East Ham Corporation has approved in principle a scheme for erection of swimming and slipper baths in Manor Park.

HACKNEY. *Rehousing.* The L.C.C. is to clear the Warburton Square area of Hackney and provide rehousing accommodation at a cost of £108,500.

HANWELL. *Schools.* In connection with the proposed development of the Cuckoo Hill Estate by the London County Council the Ealing Town Council is to seek sanction from the Board of Education to acquire two sites for school purposes.

HONOR OAK. *Tenements.* The L.C.C. is to complete the development of the Honor Oak estate by the erection of 14 blocks of tenements, comprising 471 dwellings, at a cost of £195,000.

ILFORD. *Houses, etc.* Plans passed by the Corporation: Six houses, Laurel Gardens, for Mr. J. T. Perrin; nine shops and houses, Whitehall Parade, for Mr. W. Bullen; factory extensions, Roden Street, for Messrs. J. Ismay and Sons, Ltd.; pavilion, Grove Road, for Ship Carbon Co., Ltd.; 17 shops, Seven Ways Parade, for Mr. J. Aldridge; 20 houses, Stradbroke Grove, for Messrs. Hurstwell & Co.; 13 bungalows, Somerville Road, for Messrs. Heath and Philby, Ltd.; store, Vicarage Lane, for Plessey Co., Ltd.; six houses, Worcester Gardens, for Mr. A. P Griggs; eight houses, Percival Gardens, for Messrs. P. G. Ashton and Sons; four houses, Lakeside Avenue, for Mr. W. M. Edwards; 12 bungalows, Queenborough Gardens, for Mr. C. J. Manning; five houses, Roy Gardens, for Mr. G. J. Seigerts; 34 houses, Staines Road, for Messrs. E. Glenny and Son, Ltd.; 28 houses, Percival Gardens, for Mr. E. Meredith.

LAMBETH. *Tenements.* The L.C.C. is to undertake the clearance of the Pearson's Place area of Lambeth and erect tenements at a cost of £18,000.

LEWISHAM. *Houses, Flats, etc.* Plans passed by the B.C.: 41 houses Selworthy Road, for New Ideal Homesteads, Ltd.; block of flats and swimming pool, Taymouth Court, Queen's Road, for Messrs. Ford and Walton; 111 houses, Manor estate, Brockley Road, for Manor Estates, Ltd.

LEWISHAM. *Lay-out of Land.* The B.C. has prepared a scheme for the lay-out of Chinbrook Meadows recreation ground, at a cost of £11,770.

MORDEN. *Mission Hall.* The Shaftesbury Society and Ragged School Union is to erect a mission hall in Farm Road, on the St. Helier Estate, Morden.

PARK ROYAL. *Station, Shops and Flats.* The London Passenger Transport Boad has submitted plans for the erection of the Park Royal Station, 6 shops, 16 flats and 6 garages in Western Avenue. The architects are Messrs. Welch, Cachemaille-Day and Lander.

PERIVALE. *Factory.* Messrs. Percy Bilton (Properties), Ltd., 113 Park Street, W.1, have submitted plans to the Council, on behalf of Messrs. Evan Williams & Co., Ltd., for a factory proposed to be erected in Aintree Road and Wadsworth Road. Plans approved. Messrs. Bilton have also submitted plans for a factory in Wadsworth Road for Messrs. H. P. Bulmer & Co., Ltd., which were also approved.

PERIVALE. *Factory.* Mr. A. W. Young, of 1 Emery Hill Street, S.W.1, is the architect for the factory proposed to be erected in Brumwill Road for Messrs. Buss and Elston, Ltd.

SOUTHWARK. *Tenements.* The L.C.C. is to clear the Ayliffe Street area of Southwark and erect tenements at a cost of £136,000.

ST. PANCRAS. *Rehousing Scheme.* The L.C.C. has approved a clearance and rehousing scheme for the Chalton Street area of St. Pancras at a cost of £46,500.

STEPNEY. *Rehousing.* The L.C.C. has prepared a scheme for dealing with the Shadwell Place area of Stepney and the provision of rehousing at a cost of £170,000.

SOUTHERN COUNTIES

GUILDFORD. *Fire Station.* The Corporation has approved an estimate, by the borough engineer, for the erection of a new fire station, at a cost of £12,670.

GUILDFORD. *Church Premises.* The Corporation has leased land in Foxburrows Avenue for the erection of church premises to the priest in charge of the Mission of the Good Shepherd, Westborough.

MILLBROOK. *School.* The Hampshire Education Committee is to erect a school for 1,100 children in the parish of Millbrook.

WORTHING. *Church.* The Corporation has granted sanction to the Secretary of Worthing Congregational Church to erect a church and schoolroom in George V Avenue.

WORTHING. *Church.* The Corporation has granted permission to Messrs. Warmington & Co., London, to erect a Methodist church on the Goring Hall Estate.

SOUTH-WESTERN COUNTIES

BRISTOL. *Branch Library.* The Corporation has obtained a site in Redcatch Road, Knowle, for the erection of a branch library.

BRISTOL. *Houses.* The Corporation has leased land at Portway to Messrs. E. A. W. Poole and Son, Ltd., for the erection of 36 houses.

TORQUAY. *Houses, etc.* Plans passed by the Corporation: Eight houses, Pine View Gardens, for Mr. H. Cruse; three houses, Henwyn Road, for Mr. W. H. Seaward; two houses, Teignmouth Road, for Mr. H. J. Breyley; additions, Torbay Inn, South Street, for Plymouth Breweries, Ltd.; alterations, Strand, for Messrs. Bobby & Co.; additions, St. Raphaels Home, Higher Lincombe Road, for St. John the Baptist Community; two houses, Burridge Road, for Chelston Building Co.; two houses, Lymington Road, for Messrs. S. Blatchford and Sons; two shops, Barton Hill Road, for Messrs. H. Lloyd and Son; additions, Convent, Church Road, St. Marychurch, for Rev. Mother; Roman Catholic church, Hale Road, for Rev. Father Myles MacSweeney; two houses, Teignmouth Road, for Mr. R. J. Yeo.

EASTERN COUNTIES

CHELMSFORD. *Extensions.* Essex Education Committee is to acquire "Chelmer Lodge," for purposes of extensions at the School of Art and Technology, Chelmsford.

COLCHESTER. *Houses, etc.* Plans passed by the Corporation: Two houses, Straight Road, Shrub End, for Mr. M. S. James; 24 houses, New Road, off Old Heath Road (Whitehall Estate), for Mr. E. Baillie; hall for headquarters, Compton Road, for Mr. F. Taylor; four houses, Pownall Crescent, for Mr. Rolf Hellberg; printing works at Balkerne Gardens, and four houses at Artillery Folley, for Messrs. Baker and Burton.

COLCHESTER. *School.* The Education Committee has appointed Messrs. Duncan, Clark and Beckett as architects for the erection of the senior school at Sheepen Farm.

MIDLAND COUNTIES

HANLEY. *Development of Land.* Messrs. Ball and Robinson are to develop an estate in Leek Road and Austin Street, Hanley.

SNEYD GREEN. *Houses.* Mr. B. S. Phillips is to erect 20 houses off Milton Road, Sneyd Green, Staffs.

STOKE-ON-TRENT. *Houses.* The Corporation has accepted an offer submitted by Messrs. Cotton, Son and Hulme, architects, Tunstall, on behalf of their clients, Messrs. C. Cornes and Son, Hanley, to erect 262 houses on a site situate at Townsend, Bucknall, for sale to the Corporation as follows, viz.: 234 three-bedroomed non-parlour type at £297 7s. 6d. per house, 28 four-bedroomed non-parlour type at £322 7s. 6d. per house, plus land £10 10s. per house, roads £40 17s. 6d. per house, sewers £6 15s. per house.

STOKE-ON-TRENT. *Lay-out of Land.* The Corporation has approved plans by Mr. C. W. Ball for the lay-out of land at Blurton Green Farm, Longton.

WOLVERHAMPTON. *Houses, etc.* Plans passed by the Corporation: 28 shops, Fallings Park, for Mr. M. A. Boswell; 10 houses, Mount Street, for Mr. W. Winsper; four houses, Ribbesford Avenue, for B. and E. Estates; six houses, Beech Road, The Moors Estate, Oxley, for Messrs. A. H. and H. S. Pidgeon; 71 houses, Linton Road, and Mason Crescent, Woodland Estate, for Mr. A. N. Bloxham; six shops and three detached shops, Linton Road, Woodland Estate, for Mr. A. N. Bloxham.

NORTHERN COUNTIES

BIRKENHEAD. *Branch Library.* The Corporation has acquired a site at Ford Road, Upton, for the erection of a branch library.

BIRKENHEAD. *Development of Land.* The Corporation has approved plans, submitted by Messrs. W. M. and M. W. Shennan, for the development of land in Overchurch Road.

BIRKENHEAD. *School.* The Education Committee is to acquire a site in Moreton Road, Upton, for the erection of an elementary school.

CARLISLE. *Garage, Houses, etc.* Plans passed by the Corporation: Garage and stores, Shaddongate, for Lonton's Cumberland Homespuns, Ltd.; workshop, St. Joseph's Home, Botcherby, for Mr. S. W. B. Jack; shop and house, Cumwhinton Road, for Border Engineering Contractors, Ltd.; 26 houses and shops, Orton Road, and 38 houses, Percy Road, for Messrs. J. Laing and Son, Ltd.; house and shop, Upperby, for Mr. H. Irving Graham; two houses, Wigton Road, for Messrs. Benwell and Slack; six houses, Knowefield Estate, for Messrs. A. Blakeley and Sons.

CHESHIRE. *School.* The Cheshire Education Committee is to erect a school for 400 at Meadway, Ashton-on-Mersey.

CHESTERFIELD. *Houses.* Plans passed by the Corporation: Three houses, Somersall Lane for Mr. W. Hollis; six houses, Nelson Street, for Messrs. Clarke Bros.; four houses, Upper Newbold, for Mr. W. Bargh; extension to Chatsworth Wagon Works, for Wagon Repairs, Ltd.; extensions to premises, Sheffield Road, for Messrs. Lamp Caps, Ltd.; extension *Derbyshire Times* Works, Station Road, for Messrs. W. Edmunds, Ltd.; three houses,

(*Continued on page xxviii*)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_2	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_2	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_2	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_2	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A_1	Bolton	N.W. Counties	1 5½	1 1½
A	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_2	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A_2	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Bursiem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
A_1	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley ..	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham ..	N E. Coast	1 5½	1 1½
A_2	EASTBOURNE	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter ..	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S. W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W. Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley ..	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heyaham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_2	Kendal ..	N.W. Counties	1 4	1 0
A_2	Keswick ..	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12–15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N.E. Coast	1 5½	1 1½
A_2	Middlewich ..	N.W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham ..	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford ..	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough ..	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud ..	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_2	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKE	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan ..	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil ..	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality, and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

	s.	d.
Bricklayer . . . . per hour	1	7
Carpenter . . . . ,,	1	7
Joiner . . . . ,,	1	7
Machinist . . . . ,,	1	8
Mason (Banker) . . . . ,,	1	7
,, (Fixer) . . . . ,,	1	8
Plumber . . . . ,,	1	7
Painter . . . . ,,	1	6
Paperhanger . . . . ,,	1	6
Glazier . . . . ,,	1	7
Slater . . . . ,,	1	7
Scaffolder . . . . ,,	1	3
Timberman . . . . ,,	1	3
Navvy . . . . ,,	1	2½
Genera Labourer . . . . ,,	1	2½
Lorryman . . . . ,,	1	5
Crane Driver . . . . ,,	1	6
Watchman . . . . per week	2 10	0

MATERIALS

EXCAVATOR AND CONCRETOR

	£	s.	d.
Grey Stone Lime . . . . per ton	2	2	0
Blue Lias Lime . . . . ,,	1	16	6
Hydrated Lime . . . . ,,	3	0	9
Portland Cement, in 4-ton lots (d/d site, including Paper Bags) . ,,	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags) . ,,	2	6	0
White Portland Cement, in 1-ton lots ,,	8	15	0
Thames Ballast . . . per Y.C.		6	3
¾" Crushed Ballast . . . ,,		6	9
Building Sand . . . . ,,		7	3
Washed Sand . . . . ,,		8	3
2" Broken Brick . . . ,,		8	0
¾" ,, ,, ... ,,		10	3
Pan Breeze . . . . ,,		6	6
Coke Breeze . . . . ,,		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

	4" s.	d.	6" s.	d.
Straight Pipes . . per F.R.	0	9	1	1
Bends . . . each	1	9	2	6
Taper Bends . . ,,	3	6	5	3
Rest Bends . . ,,	4	3	6	3
Single junctions . . ,,	3	6	5	3
Double . . ,,	4	9	6	6
Straight channels . . per F.R.	1	6	2	6
¼" Channel bends . . each	2	9	4	0
Channel junctions . ,,	4	6	6	6
Channel tapers . . ,,	2	9	4	0
Yard gullies . . ,,	6	9	8	9
Interceptors . . ,,	16	0	19	6
IRON DRAINS:				
Iron drain pipe . . per F.R.	1	6	2	6
Bends . . . each	5	0	10	6
Inspection bends . ,,	9	0	15	0
Single junctions . ,,	8	9	18	0
Double junctions . ,,	13	6	30	0
Lead Wool . . lb.		6		—
Gaskin . . . ,,		5		—

BRICKLAYER

	£	s.	d.
Flettons . . . . Per M.	2	15	0
Grooved do. . . . ,,	2	17	0
Phorpres bricks . . . ,,	2	15	0
,, Cellular bricks . ,,	2	15	0
Stocks, 1st quality . . ,,	4	11	0
,, 2nd ,, . . ,,	4	2	6
Blue Bricks, Pressed . ,,	8	17	6
,, Wirecuts . ,,	7	17	6
,, Brindles . ,,	7	0	0
,, Bullnose . ,,	9	0	0
Red Sand-faced Facings . ,,	6	18	6
Red Rubbers for Arches . ,,	12	0	0
Multicoloured Facings . ,,	7	10	0
Luton Facings . . . ,,	7	10	0
Phorpres White Facings . ,,	3	17	3
,, Rustic Facings . ,,	3	12	3
Midhurst White Facings . ,,	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:			
Stretchers . . . . ,,	21	0	0
Headers . . . . ,,	20	10	0
Bullnose . . . . ,,	27	10	0
Double Stretchers . . ,,	29	10	0
Double Headers . . . ,,	26	10	0
Glazed Second Quality, *Less* . ,,	1	0	0
,, Buffs and Creams, *Add* ,,	2	0	0
,, Other Colours . ,,	5	10	0
2" Breeze Partition Blocks . per Y.S.		1	7
2½" ,, ,, ,, . . ,,		1	10
3" ,, ,, ,, . . ,,		2	1
4" ,, ,, ,, . . ,,		2	6

MASON

The following d/d F.O.R. at Nine Elms:	s.	d.
Portland stone, Whitbed . . F.C.	4	4½
,, ,, Basebed . . ,,	4	7½
Bath stone . . . . ,,	2	10
York stone . . . . ,,	6	6
,, ,, Sawn templates . ,,	7	6
,, ,, Paving, 2" . . F.S.	1	8
,, ,, 3" . . ,,	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

	£	s.	d.
24" × 12" Duchesses . . per M.	28	17	6
22" × 12" Marchionesses . ,,	24	10	0
20" × 10" Countesses . . ,,	19	5	0
18" × 10" Viscountesses . ,,	15	10	0
18" × 9" Ladies . . . ,,	13	17	6
Westmorland green (random sizes) . per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:			
20" × 10" medium grey per 1,000 (actual)	21	11	6
,, ,, green ,, ,,	24	7	4
Best machine roofing tiles . ,,	4	10	0
Best hand-made do. . . ,,	5	0	0
Hips and valleys . . . each			9½
,, hand-made . . . ,,			10
Nails, compo . . . lb.		1	4
,, copper . . . ,,		1	6

CARPENTER AND JOINER

	s.	d.
Good carcassing timber . . F.C.	2	2
Birch . . . . as 1" F.S.		9
Deal, Joiner's . . . ,, ,,		5
,, ,, 2nds ,, ,,		4
Mahogany, Honduras . ,, ,,	1	3
,, African . . ,, ,,	1	1
,, Cuban. . . ,, ,,	2	6
Oak plain American . ,, ,,	1	0
,, Figured ,, . . ,, ,,	1	3
,, Plain Japanese . ,, ,,	1	2
,, Figured ,, . . ,, ,,	1	5
,, Austrian wainscot . ,, ,,	1	6
,, English . . . ,, ,,	1	11
Pine, Yellow . . . ,, ,,	1	0
,, Oregon . . . ,, ,,		4
,, British Columbian . ,, ,,		4
Teak, Moulmein . . ,, ,,	1	3
,, Burma . . . ,, ,,	1	2
Walnut, American . . ,, ,,	2	3
,, French . . . ,, ,,	2	3
Whitewood, American . ,, ,,	1	1
Deal floorings, ¾" . . Sq.	18	6
,, 1" . . ,,	1 1	6
,, 1¼" . . ,,	1 2	0
,, 1½" . . ,,	1 5	0
,, 1¾" . . ,,	1 10	0
Deal matchings ¾" . . ,,	14	0
,, 1" . . ,,	15	6
,, 1¼" . . ,,	1 4	0
Rough boarding ¾" . . ,,	16	0
,, 1" . . ,,	18	0
,, 1½" . . ,,	1 6	0

Plywood, per ft. sup.

—Thickness	¼"			½"			¾"			1"		
Qualities	AA.	A.	B.	AA.	A.	B.	AA.	A.	B.	AA.	A.	B.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Birch.	4	3	2	5	4	3	7½	6	4½	8½	7	6
Alder.	3½	3	2	5	4	3	6½	5½	4½	8	7	6
Gaboon Mahogany	4	3	3	6½	5½	4½	9½	7½	–	1/0½	10	–
Figured Oak 1 side	8½	7	–	10	8	–	11½	–	–	1/6	–	–
Plain Oak . 1 side	6½	6	–	7½	7	–	9½	–	–	1/–	–	–
Oregon Pine	5	4	–	5½	5	–	6	–	–	–	–	–

	d.
Scotch glue . . . . lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	¼"	½"	1"	1½"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23½" long each	10	1/1	1/11	2/8	4/9
,, 3"-11½" long ,,	7	9	1/3	1/8	3/–
Long screws, 12"-23½" long ,,	11	1/3	2/2	2/10	5/3
,, 3"M-1½" long ,,	8	10	1/5	1/11	3/6
Bends . . . . ,,	8	11	1/7½	2/7½	5/2
Springs not socketed . ,,	5	7	1/1½	1/11½	3/11
Socket unions . . ,,	2/–	3/–	5/6	6/9	10/–
Elbows, square . . ,,	10	1/1	1/6	2/2	4/3
Tees . . . . ,,	1/–	1/3	1/10	2/6	5/1
Crosses . . . ,,	2/2	2/9	4/1	5/6	10/6
Plain Sockets and nipples ,,	3	4	6	8	1/3
Diminished sockets . ,,	4	6	9	1/–	2/–
Flanges . . . ,,	9	1/–	1/4	1/9	2/9
Caps . . . . ,,	3½	5	8	1/–	2/–
Backnuts . . . ,,	2	3	5	6	1/1
Iron main cocks . ,,	1/6	2/3	4/2	5/4	11/6
,, ,, with brass plugs ,,	—	4/–	7/6	10/–	21/–

Discounts:

TUBES.

	Per cent.		Per cent.
Gas . . .	65	Galvanized gas .	52½
Water . . .	61½	,, water	47½
Steam . . .	57½	,, steam	42½

FITTINGS.

Gas . . .	57½	Galvanized gas	47½
Water . . .	52½	water	42½
Steam . . .	47½	steam	37½

SMITH AND FOUNDER—*continued*

	s.	d.
Rolled steel joists cut to length . . cwt.	10	9
Mild steel reinforcing rods, ¼" . . ,,	8	6
,, ,, ½" . . ,,	8	3
,, ,, ¾" . . ,,	8	0
,, ,, ⅞" . . ,,	7	6
,, ,, 1" . . ,,	7	6
,, ,, 1¼" . . ,,	7	6
,, ,, 1½" . . ,,	7	6
,, ,, 1¾" . . ,,	7	6
,, ,, 2" . . ,,	7	6

Cast-iron rain-water pipes of ordinary thickness metal	3" s.	d.	4" s.	d.
	. F.R.	8		10
Shoes	each	2 0		3 0
Anti-splash shoes . . ,,	4	6		8 0
Boots . . . . ,,	3	0		4 0
Bends . . . . ,,	2	7		3 9
,, with access door . ,,	—			6 3
Heads . . . . ,,	4	0		5 0
Swan-necks up to 9" offsets ,,	3	9		6 0
Plinth bends, 4½" to 6" ,,	3	9		5 3
Half-round rain-water gutters of ordinary thickness metal	. F.R.	5		6
Stop ends	each	6		6
Angles . . . . ,,	1	7		1 11
Obtuse angles . . . ,,	2	0		2 6
Outlets . . . . ,,	1	9		2 3

PLUMBER

	£	s.	d.
Lead, milled sheets . . . cwt.	18	6	
,, drawn pipes . . . ,,	17	0	
,, soil pipe . . . ,,	18	6	
,, scrap . . . ,,	10	6	
Solder, plumbers' . . . lb.			9½
,, fine do. . . . ,,		1	0
Copper, sheet . . . ,,			8½
,, tubes . . . ,,			11

L.C.C. soil and waste pipes:	3"	4"	6"
Plain cast . .	F.R. 1 0	1 2	2 6
Coated . .	,, 1 1	1 3	2 8
Galvanized . .	,, 2 0	2 6	4 6
Holderbats . .	each 3 10	4 0	4 9
Bends . . .	,, 3 9	5 3	10 3
Shoes . . .	,, 2 10	4 4	9 6
Heads . . .	,, 4 8	8 5	12 9

PLASTERER

	£	s.	d.
Lime, chalk . . . per ton	2	5	0
Plaster, coarse . . . ,,	2	10	0
,, fine . . . ,,	4	15	0
Hydrated lime . . . ,,	3	0	9
Sirapite . . . ,,	3	6	0
Keene's cement . . . ,,	5	0	0
Gothite Plaster . . . ,,	3	6	0
Pioneer Plaster . . . ,,	3	3	0
Thistle Plaster . . . ,,	3	6	0
Sand, washed . . . Y.C.		11	6
Hair . . . . lb.			6
Laths, sawn . . . bundle		2	4
,, rent . . . ,,		3	9
Lath nails . . . lb.			3

GLAZIER

	s.	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.	s. F.S.			2½
,, ,, 26 oz. ,, ,, ,, ,,				3
Flemish, Arctic, Figured (white)* ,,				7
Blazoned glasses . . . ,,			2	6
Reeded; Cross Reeded ,,				11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite				6
Crown sheet glass (n/e 12 in. x 10 in.) ,,				2 0
Flashed opals (white and coloured) ,,	1 0	and	2	0
¼" rough cast; rolled plate . . ,,				5½
¼" wired cast; wired rolled . . ,,				9*
¼" Georgian wired cast. . . ,,				11
¼" Polished plate, n/e 1 ft. . . ,,	† 10 to		‡1	1
,, ,, 2 . . ,,	†1 2	,,	‡1	4
,, ,, 4 . . ,,	†2 3	,,	‡2	6
,, ,, 8 . . ,,	†2 9	,,	‡3	2
,, ,, 20 . . ,,	†3 7	,,	‡4	2
,, ,, 45 . . ,,	†3 11	,,	‡4	7
,, ,, 100 . . ,,	†5 0	,,	‡5	7
Vita glass, sheet, n/e 1 ft. . . ,,				1 0
,, ,, ,, 2 ft. . . ,,				1 3
,, ,, ,, over 2 ft. . . ,,				1 9
,, ,, plate, n/e 1 ft. . . ,,				1 6
,, ,, ,, 2 ft. . . ,,				3 0
,, ,, ,, 5 ft. . . ,,				4 0
,, ,, ,, 7 . . ,,				5 0
,, ,, ,, 15 . . ,,				6 0
,, ,, ,, over 15 . . ,,				7 6
"Calorex" sheet 21 oz., and 32 oz. ,,	2 6	and	3	6
,, rough cast ¼" and ½" ,,	8½	,,	1	0
Putty, linseed oil . . . lb.				3

* *Colours*, 1d. *F.S. extra.*
†*Ordinary glazing quality.* ‡*Selected glazing quality.*

PAINTER

	£	s.	d.
White lead in 1 cwt. casks . . . cwt.	2	6	0
Linseed oil . . . . gall.	2	2½	
Boiled oil . . . . ,,	2	4½	
Turpentine . . . . ,,	4	1½	
Patent knotting . . . ,,	14	0	
Distemper, washable . . cwt.	2	6	0
,, ordinary . . ,,	2	0	0
Whitening . . . . ,,	4	0	
Size, double . . . firkin	3	0	
Copal varnish . . . gall.	13	0	
Flat varnish . . . ,,	14	0	
Outside varnish . . ,,	16	0	
White enamel . . . ,,	1	15	0
Ready mixed paint . ,,	13	6	
Brunswick black . . ,,	7	6	

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR		£	s.	d.
Digging over surface n/e 12" deep and cart away	Y.S.		2	9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.		8	6
" to form basement n/e 5' 0" deep and cart away	"		9	0
" " 10' 0" deep and cart away	"		9	6
" " 15' 0" deep and cart away	"		10	0
If in stiff clay	add "			6
If in underpinning	"		4	0
Planking and strutting to sides of excavation	F.S.		1	0
" " to pier holes	"			5
" " to trenches	"			5
" " extra, only if left in	"			3
Hardcore, filled in and rammed	Y.C.		10	0
Portland cement concrete in foundations (6-1)	"	1	6	0
(4-2-1)	"	1	12	6
" " underpinning	"	1	16	0
Finishing surface of concrete, spade face	Y.S.			7

DRAINLAYER		4" s.	d.	6" s.	d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1	6	2	3
Extra, only for bends	Each	2	8	3	9
" junctions	"	3	9	4	6
Gullies and gratings	"	16	6	18	0
Cast iron drains, and laying and jointing	F.R.	4	9	6	9
Extra, only for bends	Each	10	6	15	6

BRICKLAYER		£	s.	d.
Brickwork, Flettons n lime mortar	Per Rod	27	10	0
" " in cement	"	28	15	0
" Stocks in cement	"	35	0	0
" Blues in cement	"	52	0	0
Extra only for circular on plan	"	2	0	0
" backing to masonry	"	1	10	0
" raising on old walls	"	2	0	0
" underpinning	"	5	10	0½
Fair Face and pointing internally	F.S.			1½
Extra over fletton brickwork for picked stock facings and pointing	"			8
" " " red brick facings and pointing	"			11
" " " blue brick facing and pointing	"		1	4
" " " glazed brick facings and pointing	"		3	6
Tuck pointing	"			7½
Weather pointing in cement	"			3
Slate dampcourse	"			10
Vertical dampcourse	"		1	1

ASPHALTER		s.	d.
½" Horizontal dampcourse	Y.S.	4	6
½" Vertical dampcourse	"	6	9
½" paving or flat	"	4	0
1" paving or flat	"	5	6
1" × 6" skirting	F.R.	1	0
Angle fillet	"		2
Rounded angle	"		2
Cesspools	Each	5	0

MASON		s.	d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17	9
Bath stone and do., all as last	"	13	6
Artificial stone and do.	"	13	0
York stone templates, fixed complete	"	10	6
" thresholds	"	13	6
" sills	"	1	0	6

SLATER AND TILER		£	s.	d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3	10	0
Do., 18" × 9"	"	3	7	0
Do., 24" × 12"	"	3	17	0
Westmorland slating, laid with diminished courses	"	6	0	0
Tiling, best hand-made sand-faced, laid to a 4" gauge, nailed every fourth course	"	3	0	0
Do., all as last, but of machine-made tiles	"	2	16	0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	4	6	0
" " " " " (green)	"	4	15	0

CARPENTER AND JOINER		£	s.	d.
Flat boarded centering to concrete floors, ncluding all strutting	Sqr.	2	5	0
Shuttering to sides and soffits of beams	F.S.			8
" to stanchions	"			8
" to staircases	"		1	8
Fir and fixing in wall plates, lintols, etc.	F.C.		3	9
Fir framed in floors	"		4	6
" " roofs	"		6	6
" " trusses	"		7	6
" " partitions	"		8	6
1" deal sawn boarding and fixing to joists	Sqr.	1	14	6
1" " " " "	"	1	17	6
1½" " " " "	"	2	3	0
1" × 2" fir battening for Countess slating	"		9	6
Do. for 4" gauge tiling	"		12	0
Stout feather-edged tilting fillet	F.R.			4½
Patent inodorous felt, 1 ply	Y.S.		2	3
" " " 2 "	"		2	9
" " " 3 "	"		3	3
Stout herringbone strutting to 9" joists	F.R.			10½
1" deal gutter boards and bearers	F.S.		1	2
1½" " " "	"		1	6
2" deal wrought rounded roll	F.R.			8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2	1	0
1¼" do.	"	2	10	0
1½" do.	"	2	17	0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.		1	6
1½" do.	"		1	9

CARPENTER AND JOINER—*continued*		s.	d.
1½" deal moulded sashes of average size	F.S	1	9½
2" " " " "	"	1	11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1½" pulley stiles, 1½" heads, 1" inside and outside linings, ½" parting beads, and with brass faced axle pulleys, etc., fixed complete	"	3	7
2" " " " "	"	3	10
Extra only for moulded horns	Each		6
1½" deal four-panel square, both sides, door	F.S.	2	0
2" " " " "	"	2	8
1½" " but moulded both sides	"	2	4
2" " " " "	"	3	0
4" × 3" deal, rebated and moulded frames	F.R.	1	0
4½" × 3½" " " "	"	1	4
1¼" deal tongued and moulded window board, on and including deal bearers	F.S.	1	9
1¼" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2	6
1½" deal moulded wall strings	"	2	1
1½" " outer strings	"	2	4
Ends of treads and risers housed to string	Each	1	9
3" × 2" deal moulded handrail	F.R.	1	3
1" × 1" deal balusters and housing each end	Each	2	0
1½" × 1½" " "	"	2	9
3" × 3" deal wrought framed newels	F.R.	1	3
Extra only for newel caps	Each	6	0
Do., pendants	"	6	0

SMITH AND FOUNDER		£	s.	d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.		15	6
Riveted plate or compound girders, and hoisting and fixing in position	"		19	6
Do. stanchions with riveted caps and bases and do.	"		19	0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	"		17	6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.			11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1	10	0

PLUMBER		£	s.	d.
Milled lead and labour in flats	cwt.	1	12	0
Do. in flashings	"	1	15	6
Do. in covering to turrets	"	2	3	0
Do. in soakers	"	1	7	6
Labour to welted edge	F.R.			3½
Open copper nailing	"			3
Close "	"			4

		½" s.	d.	¾" s.	d.	1" s.	d.	1½" s.	d.	2" s.	d.	4" s.	d.
Lead service pipe and fixing with pipe hooks	F.R.	10		1	0	1	3	2	0	2	10	—	
Do. soil pipe and fixing with cast lead tacks	"	—		—		—		—		—		5	0
Extra, only to bends	Each	—		—		—		—		2	0	6	9
Do. to stop ends	"	6½		8		9		11		1	0	—	
Boiler screws and unions	"	3	3	3	9	5	0	8	0	—		—	
Lead traps	"	—		—		—		6	3	8	9	—	
Screw down bib valves	"	6	9	9	6	11	0	—		—		—	
Do. stop cocks	"	7	0	9	6	12	6	—		—		—	

		s.	d.
4" cast-iron ½-rd. gutter and fixing	F.R.	1	0
Extra, only stop ends	Each	1	0
Do. angles	"	1	6
Do. outlets	"	2	9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1	2
Extra, on y for shoes	Each	1	3
Do. for plain heads	"	5	6

PLASTERER AND TILING		s.	d.
Expanded metal lathing, small mesh	Y.S	2	
Do. in n/w to beams, stanchions, etc.	"	2	9
Lathing with sawn laths to ceilings	"	1	3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1	5
Do. vertical	"	1	7
Rough render on walls	"	1	2½
Render, float and set in lime and hair	"	1	9
Render and set in Sirapite	"	1	11
Render, backing in cement and sand, and set in Keene's cement	"	2	9
Extra, only if on lathing	"		4
Keene's cement, angle and arris	F.R.		6
Arris	"		1½
Rounded angle, small	"		3
Plain cornices in plaster, including dubbing out, per 1" girth	"		1½
1" granolithic pavings	Y.S.	3	6
1½" " "	"	4	6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17	6
9" × 3" " " " "	"	1	2	6
Extra, only for small quadrant angle	F.R.			8

GLAZIER		s.	d.
21 oz. sheet glass and glazing with putty	F.S.		7½
26 oz. do and do.	"		8½
Flemish, Arctic Figured (white) and glazing with putty	"	1	
Cathedral glass and do.	"	1	2
Glazing only, British polished plate	"		7
Extra, only if in beads	"		2
Washleather	F.R.		4

PAINTER		s.	d.
Clearcolle and whiten ceilings	Y.S.		6
Do. and distemper walls	"		9
Do. with washable distemper	"	1	1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3	3
Do. on woodwork	"	3	6
Do. on steelwork	"	3	0
Do. and brush grain and twice varnish	"	5	6
Stain and twice varnish woodwork	"	1	11
Stain and wax-polish woodwork	"	4	6
French polishing	F.S.	1	2
Stripping off old paper	Piece	2	0
Hanging ordinary paper from	"	2	9

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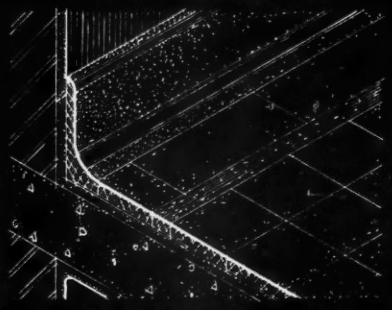
ELDORADO CORK TILES, FOR APPLICATION TO WALLS AND FLOORS:

SIZES:
36" x 12"; 18" x 12"; 12" x 12"; 9" x 9"; 8" x 8"; 6" x 6"; 4" x 4"; 18" x 3"; 12" x 6"; 12" x 4"; & suitable Borders.

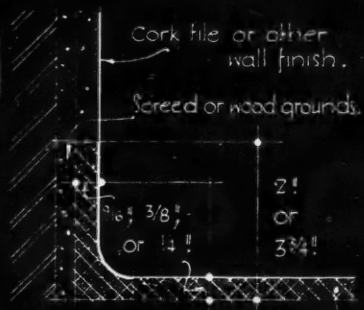
THICKNESSES:
Std.: 9/16"; 3/8"; and 1/4"
Note:
Greater thicknesses made to order.

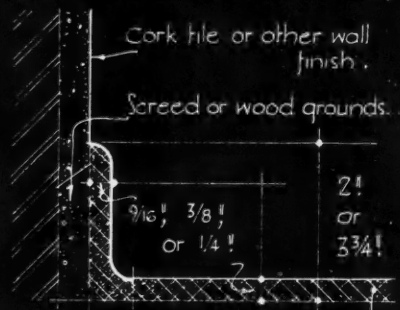
SHADES:
Light, Medium, Dark-medium, and Dark } Brown mottled shade. (Heavy density tile is made in Medium shade only.)

COVED ANGLE SKIRTING TILES: (Internal and external angles are made to correspond with Rounded Wall Finishes.)

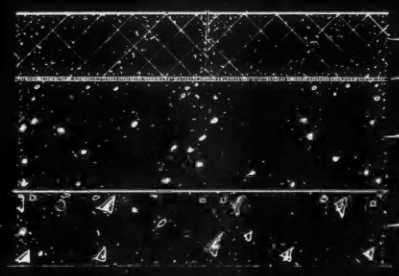


Isometric sketch of coved angle.





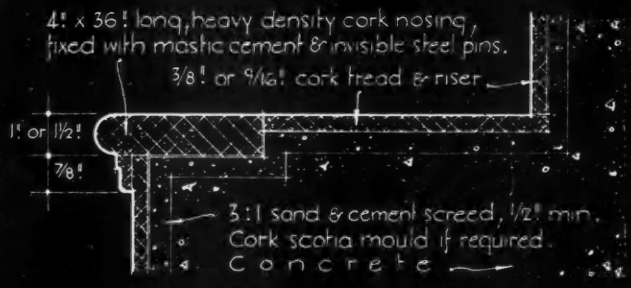
TYPICAL FIXING DETAILS FOR WALL & FLOOR TILING ON BRICK & CONCRETE



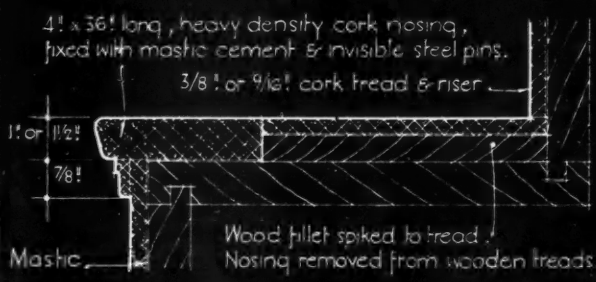
FIXING SPECIFICATIONS
For typical specifications for fixing cork tiling to New concrete floors, Existing concrete floors, New wooden floors, Existing wooden floors, Other types of floor, and Floors in direct contact with earth, see notes on the reverse side hereof.

CORK TILE STAIRCASE FINISHING: (In heavy density cork tiling)
(patent applied for)

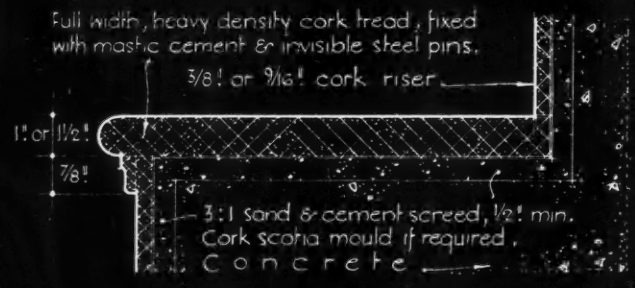
METHOD·A· ① Concrete stair.



② Wooden stair.



METHOD·B· ① Concrete stair.



② Wooden stair.



Information from the Cork Insulation Company Limited.

INFORMATION SHEET: CORK WALL & FLOOR TILING & STAIR TREADS.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS 6 & 7 MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1.

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CORK

Type of Product : Cork Wall and Floor Tiling and Staircase Finishing

MANUFACTURE :

"ELDORADO" CORK TILES are composed of 100 per cent. pure cork from selected grade cork wood, are homogeneous from face to back and entirely free from foreign substances. The tiles are thoroughly and evenly baked, and are guaranteed not to warp, disintegrate or become loose. Being heavily compressed and of medium-sized granules, the tiles contain no "soft spots."

HEAVY DENSITY CORK TILE :

A special heavy density cork tile is manufactured in medium shade only for use in factories, warehouses, laboratories, etc.

THICKNESS AND SIZES :

Floor and Wall tiling—$\frac{9}{16}$ in., $\frac{3}{8}$ in., $\frac{1}{4}$ in., and of any size cut from stock pieces, 36 in. by 12 in. Coved Angle Skirtings—$\frac{9}{16}$ in., $\frac{3}{8}$ in., $\frac{1}{4}$ in. in thickness, and 2 in. or $3\frac{3}{4}$ in. high, in 36 in. maximum length pieces.

Heavy Density Cork Staircase Treads.—In 1 in. or $1\frac{1}{2}$ in. thickness in maximum size of 36 in. by 12 in. Risers are formed in $\frac{9}{16}$ in. or $\frac{3}{8}$ in. heavy density cork tile.

ABRASION TESTS :

Report of the National Physical Laboratory on comparative tests of cylinders of oak and Eldorado cork tile flooring :

Two cylinders of each material, 2 in. diameter by 2 in. long, were supplied and have been tested by the Dorry machine. In this machine the ends of the cylinders are pressed on a horizontal cast steel disc revolving at a speed of 31 r.p.m. and fed with sand (30 to 40 mesh). The load on the test pieces is 3·55 lbs./sq. in. The wear caused by 1,000 revolutions of the disc is recorded. The following table gives the mean results from each pair of test cylinders.

Results of Abrasion Tests.

N.P.L. Test Mark	EUY 1	EUY 2
Material	Oak	Cork
Density, in lbs./cu. ft. ..	38·0	37·7
Wear in inches per 1,000 revolutions of disc :		
1st test	0·130	0·074
2nd test	0·128	0·085
Average ..	0·13	0·08

Remarks :

All the cylinders wore evenly without breaking away at the edges.

PREPARATION OF SURFACES :

Concrete Floors.—Concrete sub-floors should be screeded with a sand and cement mix composed of three parts of clean, sharp sand to one part English Portland cement to a minimum thickness of $\frac{1}{2}$ in. and trowelled to a smooth even surface, completed at least 14 days before laying of cork tiles.

Existing Concrete Floors should be hacked, and cracks or low places thoroughly repaired, filled and screeded to a level surface.

Concrete Floors in Contact with Earth.—Where cork tiles are to be laid on concrete in contact with earth, the dampcourse to walls should be below the level of the base concrete and the screed should be made waterproof. In basement or ground concrete floors a special bituminous mastic is used for fixing cork tiles.

Wooden Floors.—New wooden floors should be tongued and grooved or of seasoned boarding properly nailed, and the surface free from exposed edges. Existing wooden and loose boards made sound. An uneven or worn existing board floor may be covered with $\frac{3}{16}$ in. Plywood.

Felt Underlay.—On all wooden sub-floors a suitable felt underlay is provided and fixed by the company before tiling.

For Dados and Coved Angle Skirting.—Walls should be screeded uniformly, or cork may be fixed to suitable wooden grounds.

For Cork Staircase Finishing : Concrete.—Concrete steps should be screeded at least $\frac{1}{2}$ in. thick and trowelled to a smooth uniform surface, and all edges and corners left perfectly square and clean. For Method "A" a recess should be formed to receive the nosing. The size of this recess will depend upon the thickness of nosing and of the floor finish, and should be :—

For 1 in. nosings with $\frac{3}{8}$ in. treads and risers—
$2\frac{3}{4}$ in. × $\frac{5}{8}$ in. deep.
For 1 in. nosings with $\frac{9}{16}$ in. treads and risers—
$2\frac{1}{2}$ in. × $\frac{7}{16}$ in. deep.
For $1\frac{1}{2}$ in. nosings with $\frac{3}{8}$ in. treads and risers—
$2\frac{5}{8}$ in. × $1\frac{1}{8}$ in. deep.
For $1\frac{1}{2}$ in. nosings with $\frac{9}{16}$ in. treads and risers—
$2\frac{1}{2}$ in. × $\frac{15}{16}$ in. deep.

The projection of the nosing in all cases allows for the $\frac{3}{8}$ in. scotia mould shown.

For Method "B," treads and risers should be screeded as before, but no recess is required, except at landing levels.

Wooden Staircases.—Should be of well-seasoned timber, and all arrises should be true and even to receive cork finish. Existing wooden staircases must be made good.

Moulded Bull-noses, returned ends, spandrel brackets, etc., can be made to special designs.

Preparation—General.—Preparation of surfaces is not undertaken by the company except in special circumstances.

Designs.—The company has a large range of designs and is always prepared to submit layouts for approval, or to carry out special requirements.

Laying and Fixing.—The company or its agents undertakes the laying or fixing complete, as well as the supply of the materials.

Guarantee.—The company agrees to make good any defects which appear within a period of three years after completion in Eldorado cork tile flooring installed by them, subject to such defects being caused by fair wear and tear, and the tiles being maintained in accordance with the company's instructions.

Prices.—The cost of any particular job depends on a variety of circumstances such as the size of the job, locality, nature of sub-floor, etc., and ranges from 10/- to 20/- per square yard, supplied, fixed and polished.

Name of Manufacturers : Cork Insulation Co., Ltd.
Address : 14, West Smithfield, E.C.1
Telephone : City 1212

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

SPECIFICATIONS FOR PAINTING ON CONCRETE · CEMENT · PLASTER · STONE & BRICK SURFACES.

FLAT PAINTS ON CONCRETE ETC. SURFACES:

A concrete stopper K.Z.7012 may be used for cement or concrete surfaces.

PRODUCT.	TYPE OF SURFACE.		PRIMING COAT.	SECOND COAT.	THIRD COAT.
DULUX EGGSHELL & FLAT FINISHES. *For details see back of Sheet N.° 5.*	Unpainted surfaces.	Interior.	Primer K.L.1795. Primer K.M.1376. Primer K.M.1339. Primer K.L.7485.	Dulux selected shade, Eggshell or flat finish as desired.	Dulux selected shade, Eggshell or flat finish as desired.
		Exterior.	Not recommended for exterior finishing.		
	Previously painted surfaces.	Interior.	Not required unless stripped bare.	Dulux selected shade, Eggshell or flat finish as desired.	Dulux selected shade, Eggshell or flat finish as desired.
		Exterior.	Not recommended for exterior finishing.		
SUPERMATT FLAT OIL PAINT. *For details see back of sheet N.° 5.*	Unpainted surfaces.	Interior.	Primer K.L.1795. Primer K.M.1376. Primer K.M.1339. Primer K.L.7485.	Supermatt selected shade.	Supermatt selected shade.
		Exterior.	Not recommended for exterior finishing.		
	Previously painted surfaces.	Interior.	Not required unless stripped bare.	Supermatt selected shade.	Supermatt selected shade.
		Exterior.	Not recommended for exterior finishing.		
NAYRODEC WATER PAINT. *For details see back of sheet N.° 5.*	Unpainted surfaces.	Interior.	Petrifying Liquid K.Z.2059 tinted with shades of Nayrodec selected. Primer K.L.1795 or a sharp paint primer can also be used if desired.	Nayrodec of selected shade, thinned with clean water.	Nayrodec of selected shade, thinned with clean water.
		Exterior.	As above.	Nayrodec of selected shade, thinned with Petrifying Liquid K.Z.2059 only.	Nayrodec of selected shade, thinned with Petrifying Liquid K.Z.2059 only.
	Previously painted surfaces.	Interior.	First coat may be omitted if surface is in good condition.	Nayrodec of selected shade, thinned with Petrifying Liquid K.Z.2059, or clean water.	Nayrodec of selected shade, thinned with Petrifying Liquid K.Z.2059, or clean water.
		Exterior.	First coat may be omitted if surface is in good condition.	Nayrodec of selected shade, thinned with Petrifying Liquid K.Z.2059 only.	Nayrodec of selected shade, thinned with Petrifying Liquid K.Z.2059 only.

• *Where suction is unduly high and variable a first coat of Gloss Dulux for Eggshell finish, and Eggshell Dulux for flat finish is to be preferred.*

FLOOR PAINT ON CONCRETE FLOOR SURFACES:

PRODUCT.	TYPE OF SURFACE.		FIRST AND SECOND COATS.
CONCRETE FLOOR PAINT. GREEN, K.M.1311. RED, K.M.1312.	Unpainted & previously painted surfaces.	Interior.	One or two coats as necessary.
		Exterior.	Not recommended for exterior use.
NAYLORITE CEMENT HARDENER.	Unpainted surfaces only.	Interior.	Where a floor hardener only is required, one or two coats as necessary.
		Exterior.	Where a floor hardener only is required, one or two coats as necessary.

For note on Primers see Sheet N.° 2.

Information from Nobel Chemical Finishes Ltd.

INFORMATION SHEET: DATA ON PRIMERS, PAINTS, VARNISHES, ETC. N.° 12.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 210 •

PAINTS

Product : Various Paints on Concrete Surfaces, etc., and Plastic Paint

This is the twelfth of a series of Sheets dealing comprehensively with the subject of painting and the protection of various surfaces.

SUCCESSFUL DECORATION

Successful decoration should be the aim of every architect, since it is usually the last process to be carried out in a new building but is the first to attract the attention of the client or the visitor.

Unfortunately paintwork often suffers from the shortcomings of the work which has preceded it, and it too frequently happens that, when building work is behind schedule, decoration has to be carried out under rushed conditions before adequate time, which would normally be allowed in good building practice, has elapsed.

In this series of Sheets an attempt has been made to indicate as precisely as possible the precautions and processes to be adopted in order to obtain satisfactory painting results, but it must be remembered that many factors are operative under working conditions which, unless recognised and dealt with, may result in a lower standard of finish than should be expected with the best materials. As instances may be given :

(1) Presence of dampness and excessive resin in timber, which may give rise to blistering.

(2) Ineffective preparation and priming of rusty ironwork, which may easily lead to premature breakdown of subsequent paint applications.

(3) Dampness and chemical action in plaster work. Apparent dryness is often misleading, and, since building conditions vary so much both locally and seasonally, the contractor or specifier who is in direct touch with the work is usually the only person in possession of full information of the conditions to be met, and able to assume responsibility for results. Given reputable painting materials, defects in decoration are usually attributable to activity, in the presence of moisture, of chemical substances present in the main structure of the building, or introduced in backings or facing coats by the incorrect use of certain raw materials such as lime or unsuitable waterproofing agents.

As suppliers of painting materials the company makes every effort to ensure that the products offered and the recommendations given for their use are suitable for the particular purpose required, but the company cannot hold itself in any way responsible for defects in the performance of the products due to abnormal conditions, inadequacy of treatment, lack of craftsmanship or to other circumstances beyond its direct control.

Previous Sheets in this series were Nos. 188, 190, 192, 194, 196, 198, 200, 202, 204, 206 and 208.

Name of Manufacturers : Nobel Chemical Finishes, Ltd.

Address : Architectural Dept., Wexham Road, Slough, Bucks

Telephone : Slough 528

London Office : Thames House, Millbank, S.W.1

Telephone : Victoria 2873-2874

PRIMERS

Since the publication of Sheet No. 190, new Primers have been introduced.

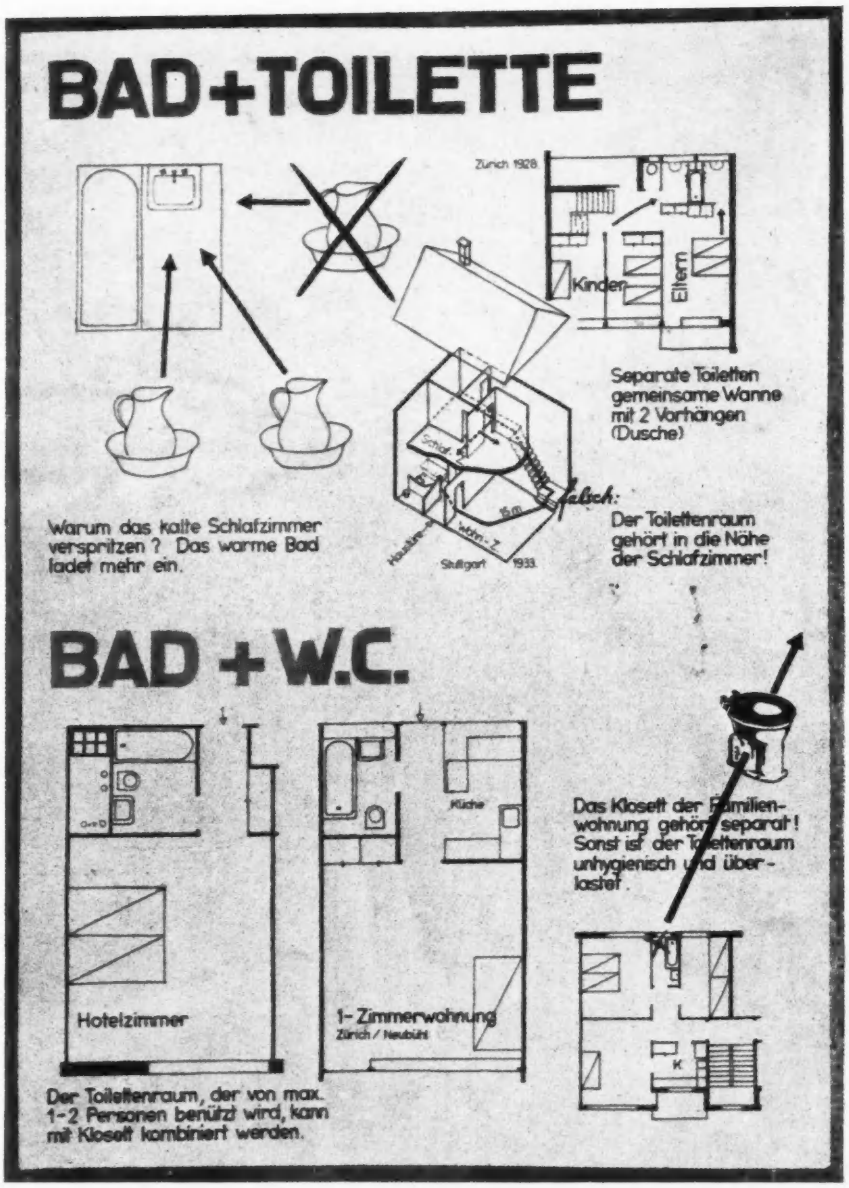
The White Primer K.L. 7485 should now be specified for application over Pioneer and other medium suction plasters, whilst the White Primer K.L. 1795 is for use on new, smooth and low suction plasters or for "following the trowel."

A special Aluminium Primer has been introduced for Columbian pine.

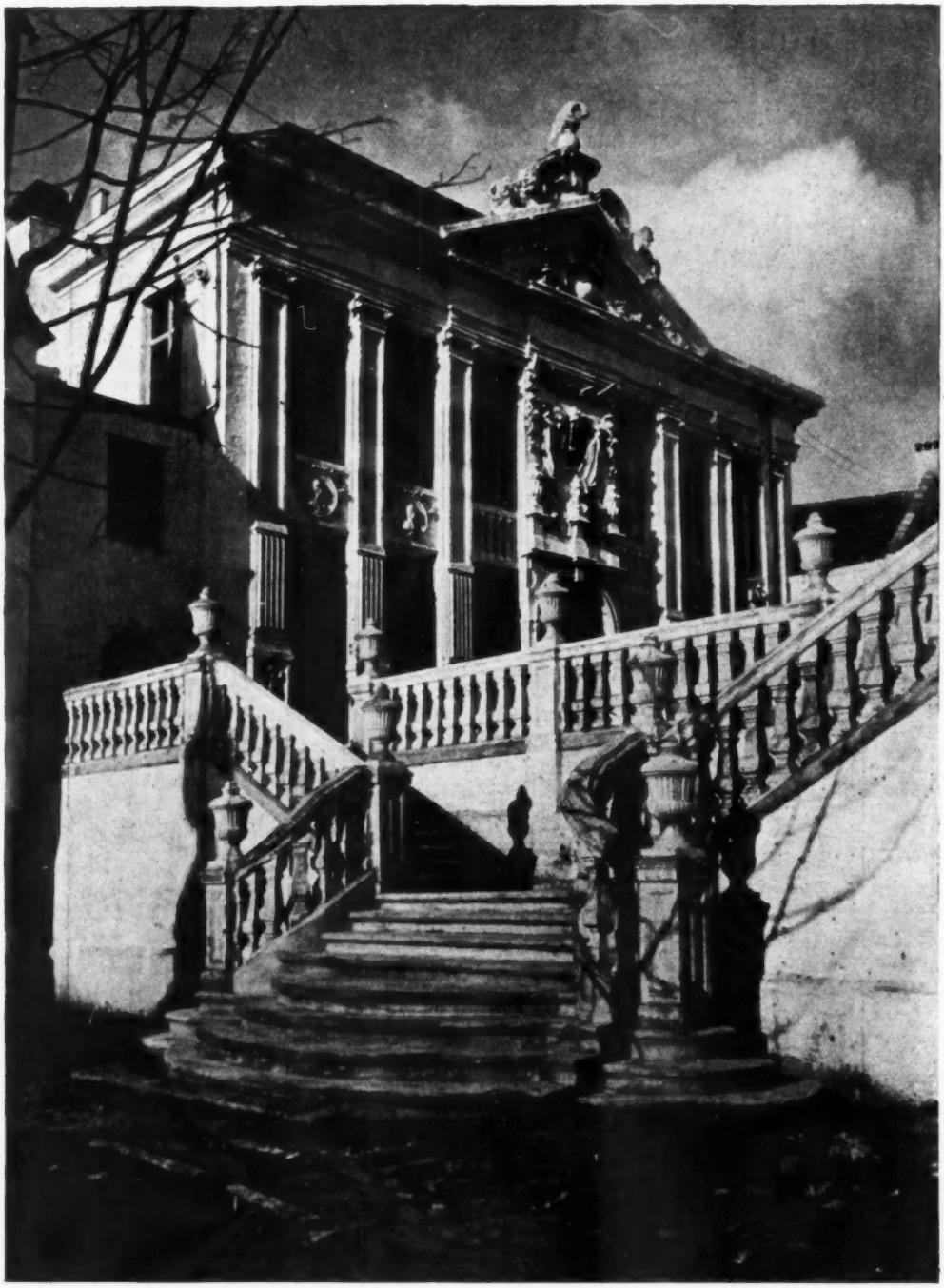
Sheet No. 190 should be altered accordingly. The amended list of primers is as given in full on back of Sheet No. 208.

THE BATH TODAY AND YESTERDAY

THE EXHIBITION AT ZURICH



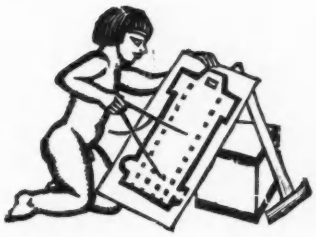
THE International Bath Exhibition, at the Kunstgewerbemuseum at Zurich, treats of baths and bathing, domestic, public and medicinal, from the historical, evolutionary and the technical points of view. The above is one of the exhibits, a diagram demonstrating: above, the advantages of a properly equipped bathroom over washing facilities in a bedroom and convenient planning of bath and lavatory together, particularly the necessity of the lavatory being close to the bedrooms; below, the planning of the bathroom and w.c. together—left, the hotel room, where the two can be combined, because the w.c. will only be used by one or two people; right, the family dwelling, where the two should be kept separate. The Exhibition contains material from this country (where so much of the pioneer work in bathing and sanitation was done) collected by the MARS Group. It will remain open till May 24.



[Photo l'Epi

BRUSSELS RECONSTRUCTED

A reproduction of the city of Brussels as it was in the eighteenth century is one of the most ambitious features of the Brussels International Exhibition, which opens on April 27. Round the Place des Bailles (now the Place Royale) are grouped the Palace of the Dukes of Brabant, the old church of St. Jacques de Coudenberg, the Mansions of Nassau, of Rübempré, or Arschot-Croy, of Maldeghem, and also the Silversmiths' House, the "Veerhuis" and the fountain to Charles-Quint. The work has been carried out by two Belgian architects, MM. Blocks and Delange.



HOSTEL ACCOMMODATION

A VAST amount of breath has been used up during the past few years in what is commonly known as the " flats versus cottages controversy." Some of the disputants in this controversy have appeared, at one time or another, to lose their sense of proportion ; they have used magnificent, but meaningless, substantives and adjectives to decry the works, if not the persons, of their " opponents " ; they have, in short, exhibited all the crudities of a man seeking to win an argument and crush his opponent rather than to examine a problem and try to find its solution.

We say " solution " rather than " answer " because there is, here and today, no single, simple answer to the question : " which shall we build—flats or cottages ? " We have never urged that either type of dwelling was inherently superior to the other, neither have we urged that a combination of the two would cover every need.

The Department of Health for Scotland has recently issued a three-page memorandum* on the provision of hostel accommodation for single persons. Single persons, young, middle-aged, and old, have received insufficient attention in the sixteen years of varying, but on the whole quantitatively intensive, housing activity of the post-war period. Unmarried workers of both sexes, and old-age pensioners, have not shown a great deal of interest either in flats of the normal municipal sizes or in cottages, in places where the rents of either are something between fifty per cent. and one hundred and fifty per cent. of their incomes. And many such persons have no desire, in any case, to become householders—or " flat-holders."

Under Section 23 (5) of the Housing (Scotland) Act, 1930, the Department of Health for Scotland is authorized to pay grant in respect of approved proposals for the provision by local authorities of hostels for the accommodation of single persons displaced from unfit houses. The Department announces itself as prepared to consider applications for approval of the provision of hostels where local authorities can satisfy it that there is a demand for such accommodation.

It is advised that a hostel, in the sense of the 1930 Act, must be an organized and controlled unit, in which the occupants live as lodgers or boarders, not as householders. It must not be merely an aggregation of single-room dwellings. While congratulating our legislators on having made the Act sufficiently clear for it to be possible to obtain advice as to their intention on this point, we consider it unfortunate that they explicitly limited the operation of this sub-section of the Act to single persons.

The Department states that there should be at least a sitting-room and a dining-room available for common use, and these, together with accommodation for the persons to be responsible for the management of the hostel, and kitchen accommodation, etc., are provided for in the model plan for such hostels which has been prepared for the use of local authorities. The Department appreciates that it may be considered desirable in some cases to provide further common accommodation such as a reading-room or recreation room ; it also notes the desirability of providing an open space for the use of the occupants. It does not, however, appear to appreciate the necessity for providing facilities for the washing of clothes.

On the financial aspect the Department does not commit itself beyond stating approximate figures for the capital cost of the model hostel itself and for the amount of State Grant that would be payable on such a building. Since stress is laid, in another connection, on the likelihood of many of the occupants of such hostels being aged people, we on our part would like to stress that the maximum old-age pension for single persons amounts to ten shillings a week, and that while this income figure remains rents of dwellings for the aged must be conceived in terms of it.

There are in Great Britain something like three-quarters of a million " families " consisting of one person. At present it may be presumed that the 25 per cent. of such persons who live in single rooms do so from necessity. The provision of proper hostels, together, we suggest, with a suitable publicity campaign for the purpose of instilling into the public mind the idea that these hostels are intended to serve as a combined home and club, not a kind of institution, might well cause at least as high an additional proportion to do so from choice. There is no means of estimating the demand for such accommodation, but it would seem reasonable to assume that at least a hundred thousand single persons would be prepared to pay not a subsidized but an economic rent for it, while this number might be trebled or quadrupled if the rents could be brought into line with their incomes.

*Housing (Scotland) Act, 1930. Memorandum by the Department of Health for Scotland with respect to the provision of Hostel Accommodation for Single Persons. Edinburgh : H.M. Stationery Office. Price One Penny.



The Architects' Journal
Westminster, S.W.1
Telephones: Victoria
0212-7
Telegrams:
Buildable
Parl
London

NOTES & TOPICS

"OF NATIONAL IMPORTANCE"

SECRETED in the middle of a column of *The Times*, one day last week, was an announcement that I consider of tremendous moment. The column described the contents of the revised list, which has just been issued, of those ancient monuments that have been scheduled by the Commissioners of Works as being "monuments the preservation of which is of national importance."

*

Since last year 434 monuments have been added to the list, and it is one of these I am so excited by—namely, the Iron Bridge, Shropshire, built by Abraham Darby and John Wilkinson in 1779 and reputed to be the earliest iron bridge in the world.

*

I am not very interested in whether it actually is or is not the first bridge to be built of iron; nor do I know much about its æsthetic merits compared with others of the period. The point is the period and kind to which it belongs. I am hoping that this is a sign that the Commissioners (and others) are beginning to take an interest in the intrinsic architectural and historical value of things instead of the merely sentimental and antiquarian.

*

The eighteenth and early nineteenth centuries saw, after all, this country's completest development as a civilized whole, and the buildings of those periods represent our grandest contribution to architecture; yet the monuments of this period are pulled down in increasing numbers with no attempt to save them, while any oddment of mediæval or Saxon antiquity is sedulously preserved.

*

And which is really most worth preserving: the noble Regency terrace, the lovely works of pioneer construction (to which class this bridge belongs) and the box-pews of a Georgian church, or a prehistoric barrow and a fragment of ecclesiastical masonry that happened to escape the Great Fire of London—and was thereby, as is the usual practice, sanctified?

DUDOK

Never before have I seen the Royal Gold Medal received with such modest charm and grace as that evinced by W. M. Dudok last week. Even the medal itself, hanging from its bright blue ribbon, sensed the unostentatious character of the function, and did its best to hide beneath the lapels of Mr. Dudok's waistcoat.

*

Encouraged by Sir Giles in no stiff and formal manner, several speakers paid tribute to Dudok's popularity—the older generation hailed him as their only sheet anchor against the modernists, while the younger men gave thanks that the Royal Gold Medal hangs at last around a really contemporary neck.

*

It is seldom that so weighty an award pleases everybody—I was seated near a very, very young architect and saw her distinctly shudder when Dudok explained that he designed for "efficiency tempered by high thoughts for beauty." Efficiency, I gathered from her subsequent remarks, should be case-hardened rather than tempered.

GLASGOW

My remarks last week about the appointment of a Glasgow City architect and about the R.I.B.A. Junior Organization remind me that not nearly enough has been heard this end of England of the Students' Congress that was held last month in Glasgow.

*

Eighty delegates attended from eight participating centres, of which the Junior Architectural Society of Sheffield University seems to have been the most active.

*

One of the chief subjects discussed was the "group" system of architectural practice, and the interesting suggestion was put forward that this system should be applied to public architectural work in Glasgow; that a Committee of Architects be appointed instead of a single City Architect, thereby distributing official work through a number of offices in the City.

*

I am glad to see from the report of the Congress that a resolution was passed that the organization be placed on a national footing by inviting the architectural schools of the south to participate in the next congress.

THE ZURICH EXHIBITION

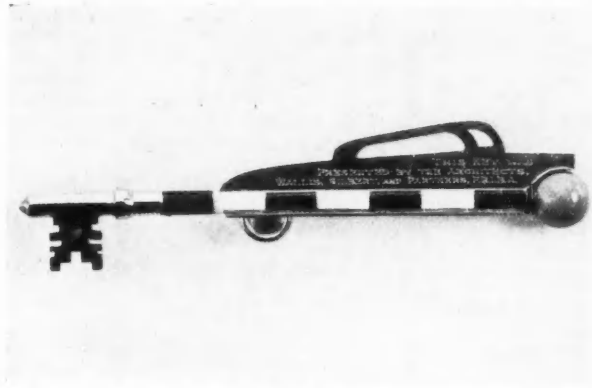
I have been looking at the catalogue (which is more than a catalogue—a fair-sized pamphlet on the subject) of the International Bath Exhibition, now in progress at Zurich; and what a fascinating subject baths and bathing is.

*

It ties up with all sorts of aspects of sociological and technical development, and offers the opportunity for all sorts of quaint period comparisons. Progress in bathing since a hundred years ago is typical, both technically and in the use made of technique, of far wider fields of evolution.

*

Besides that, England probably performed a greater share of the pioneer work in this particular sphere of development than in any other. However ubiquitously the organizers of the Exhibition pursue (in their



It is none too easy to get away from the conventional type of ceremonial key, but Mr. Thomas Wallis succeeded when he designed this. It was presented to Lord Ebbisham at the opening recently of a new garage at Epsom, designed by Messrs. Wallis, Gilbert and Partners.

serious Teutonic way) the origins of the " urge to bathe," it all comes back to English improvements in sanitation.

*

I would like to see the Zurich Exhibition. The English material for it, providing evidence of England's contribution to the subject, was collected, I notice from the catalogue, by the MARS Group. I think, in some ways, it is in that sort of activity that the MARS Group's greatest value lies. Before the group was formed this country's traditional isolation was particularly apparent in architecture—to our inestimable loss : now MARS serves as an automatic means of contact between English architecture and Continental architectural enterprise.

*

However much or however little research work MARS achieves, its existence is justified as a modern architectural liaison.

DRAMATICS

At the Centenary Conference in Portland Place, the R.I.B.A. Dramatic Society earned our deep respect.

*

I shall look forward to seeing the Society's performance of three plays on April 29, especially as I see that Mr. King, who gave us so elegant and vigorous a portrayal of the Vanbrugh gentleman last November, is producing some of the show.

*

I am interested, too, in this now established dramatic venture, for I see that its personnel is recruited from the past students of at least three of the London schools.

*

It is another good thing that Headquarters should encourage histrionic accord among friendly rivals.

ODDS ON

I have long had a certain admiration for the Office of Works ; albeit, they work within somewhat narrow design limitations. But their buildings are always superlatively sound structurally—everything is so well worked out, nothing left to chance.

*

With what delight, therefore, do I read that they are about to take a sporting chance concerning the permanent floodlighting of St. Paul's, sharing with Siemens and the G.E.C. the risk of collecting the odd £400 still required.

*

This sort of spirit needs encouragement.

PLUTONIC ROCK

Of all the solid building materials, granite is one of the most difficult to handle. Yet its natural properties demand a simple treatment well within the purview of the student architect of today.

*

My disappointment with most of the schemes submitted for the A.A. Granite Competition this year cannot, I think, be attributed to the general misuse of the granite. The subject, then ? Have our younger men lost the art of rising to heights of regal monumentality ?

*

Or are their waking thoughts concerned alone with hollow, rather than stolid, simplicity ?

SHELL AGAIN

The two new Shell Guides, to Kent and to Wiltshire, which now adorn my bookcase, are worthy followers after the first one on Cornwall which appeared some months ago.

*

I find in these guides a quality which no other series seems to possess—they are quite convincing and authoritative ; they appear to be the work of people who *know* the country and have not merely made a study of it.

*

And I like their wire bindings, though one of my bookshelves will soon look like a bird-cage.

ASTRAGAL STANDARDIZED ?

I see that the promised British Standard Specification for wooden windows (casement and D.H. Sash) is still under consideration.

*

What British Standard window would be acceptable without its astragal to smooth those rough and angular corners, without those mellow curves which promise a ripe old age undamaged by scraping knife or painters' carelessness ; what better shape to enframe the passing scene, to catch the subtler intensities of light ; what better form to promote a pride of craftsmanship, and robust joints ?

*

But a friend assures me that thought and care and much time is to be expended upon this detail—which gives me exceeding relief.

THE SENSE OF THE APPROPRIATE

Maxwell Fry, the other day, told me a story which I had not heard about the local council and his house at Chipperfield.

*

Mr. Fry, to fall in with the desires of the local critics, had to agree to have a little bargeboarding ! (That is not the joke.)

*

He dutifully drew in the boarding and once more submitted it ; the design was now ever so much prettier, but not *just* " so." The council decided that the one little touch necessary to make it really nice was waney edges. So waney edges Mr. Fry drew. ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

There are in Great Britain something like three-quarters of a million "families" consisting of one person. At present it may be presumed that the 25 per cent. of such persons who live in single rooms do so from necessity 617

Wages are to be increased throughout the building industry..... 620

"The further you decentralize a city—and that is bound to happen when unit detached houses are the only type built—the more difficult it is for those who live in the centre to spend time in the country" 627

ANGLO-BATAVIAN SOCIETY

A dinner in honour of Mr. W. M. Dudok, the Royal Gold Medallist for 1935, was given by the Anglo-Batavian Society at the May Fair Hotel last week. Sir Giles Gilbert Scott, R.A., P.R.I.B.A., who presided, said that the Gold Medal was awarded, on the recommendation of the R.I.B.A., to some distinguished architect, and it was customary every third year to select a gold medallist from abroad. It was remarkable that in the last two foreign elections the recipients had been Dutchmen—Mr. Dudok this year and Dr. Petrus Berlage in 1932. This was a great achievement for such a small country as Holland. Art had no boundaries, and artists like Mr. Dudok did much to bring countries together on a common basis of understanding and sympathy.

LIVERPOOL ARCHITECTURAL SOCIETY

Lt.-Col. Ernest Gee, F.R.I.B.A., was elected president of the Liverpool Atchitectural Society for the second year in succession at the annual meeting last week. He is also the Society's representative on the Council of the R.I.B.A. The vice-presidents, who also serve a second year, are Mr. Herbert J. Rowse, F.R.I.B.A., and Professor L. B. Budden, M.A., F.R.I.B.A. Mr. W. Dougill, M.A., B.ARCH, A.R.I.B.A., A.M.T.P.I., honorary secretary, Mr. E. J. Dod, A.R.I.B.A., honorary treasurer, and Mr. E. H. Honeyburne, A.R.I.B.A., honorary librarian, also continue in office.

BUILDING INDUSTRY AND WAGE INCREASE

A settlement on the wage question affecting some 800,000 operatives in the building trades throughout England and Wales was reached at a meeting of the National Joint Council for the building industry in London last week.

From July 1 the cost of living datum figure of 78 is to be substituted by 65.

The effect will be an increase in wages of a penny an hour for craftsmen, but in two stages—a halfpenny advance on July 1, and a further halfpenny on January 1 next year. Labourers will have the proportionate increase.

THE ARCHITECTS' DIARY

Thursday, April 25

WEST YORKSHIRE SOCIETY OF ARCHITECTS. *At the College of Arts, Leeds. Annual General Meeting.* 6.15 *p.m.*

LONDON SOCIETY. *Visit to the London Chamber of Commerce Building, E.C.4.* 5.30 *p.m.*

ARCHITECTURAL ASSOCIATION, 36, *Bedford Square, W.C. Exhibition of the designs submitted in the competition for "a monument to commemorate the twenty-fifth year of the reign of His Majesty the King." Also April 26.* 10 *a.m. until 7 p.m.*

Friday, April 26

TOWN PLANNING INSTITUTE. *At Caxton Hall, Caxton Street, S.W.1. "Regulation of the External Appearance of Building." By G. H. Jack. Also presentation to G. L. Pepler commemorating his twenty-one years' service as honorary secretary of the Institute.* 6 *p.m.*

Monday, April 29

CHARTERED SURVEYORS' INSTITUTION, 12, *Great George Street, E.C.4. "Working-class Housing in Europe." By Louis de Soissons and Holroyd F. Chambers.* 6.30 *p.m.*

R.I.B.A., 66, *Portland Place, W.1. Social Evening. Performance of three short plays by the R.I.B.A. Dramatic Society.* 8 *p.m.*

R.I.B.A., 66, *Portland Place, W.1. Exhibition of work executed during the past three years by architects trained in the Architectural Association Schools and members of the school staff. The exhibition will be opened at 12 noon by Mr. Geoffrey Shakespeare, M.P., and will remain open until May 17. 10 a.m. until 8 p.m. (Saturdays, 10 a.m. until 5 p.m.).*

Tuesday, April 30

ARCHITECTURAL ASSOCIATION, 36, *Bedford Square, W.C. "The History and Work of the R.I.B.A." By Sir Ian MacAlister.* 8 *p.m.*

Wednesday, May 1

ARTISTS' GENERAL BENEVOLENT INSTITUTION. *At Savoy Hotel, W.C.1. Annual Dinner.* 7.15 *p.m.*

ROYAL SOCIETY OF ARTS. *John Street, Adelphi, W.C.2. "Miniatures." By Basil L. Long.* 8 *p.m.*

WEST YORKSHIRE SOCIETY OF ARCHITECTS

Mr. Victor Bain, F.R.I.B.A., presided at a meeting of the above Society, held recently at Leeds, when Mr. J. R. Tolson, a winner of the Sir William Nicholson travelling scholarship, lectured on his impressions of a recent visit to Denmark and Sweden.

The modernist buildings of those countries, he said, were not isolated achievements, completely new in idea and outlook, but the natural development of national traditions.

In Denmark Mr. Tolson found a certain coldness and classic simplicity, along with refined detail and quality of craftsmanship; in Sweden he found evidences of a more adventurous spirit, though the modern functional architecture of Germany, Austria and France was making inroads upon the national style.

SOUTH YORKSHIRE ARCHITECTS

At the annual meeting of the Sheffield, South Yorkshire and District Society of Architects, held at Sheffield, the following officers were elected for Session 1935/36:—President, Mr. J. Mansell Jenkinson, F.R.I.B.A.; vice-president, Mr. Amory Teather, F.R.I.B.A.; hon. treasurer, Mr. J. R. Wigfull, M.A., F.S.A., F.R.I.B.A.; hon. secretary, Mr. H. B. S. Gibbs, F.R.I.B.A.; Council: Messrs. F. M. Gibbs, F.R.I.B.A.; W. C. Fenton, F.R.I.B.A.; C. B. Flockton, F.R.I.B.A.; F. E. Pearce Edwards, F.S.A., F.R.I.B.A.; C. M. Hadfield, F.R.I.B.A.; J. Lancashire, F.R.I.B.A.; R. Cawkwell, A.R.I.B.A.; W. G. Davies, F.R.I.B.A.; H. I. Potter, A.R.I.B.A.; H. de B. Archer, P.A.S.I.; J. C. P. Toothill, A.R.I.B.A.; S. Welsh, M.A., B.ARCH., F.R.I.B.A.; H. Phayre, A.R.I.B.A.; E. H. Ashburner, A.R.I.B.A.; H. W. Inott, L.R.I.B.A.; D. B. Jenkinson, A.R.I.B.A.; C. F. Moxon; E. H. Walker, F.R.I.B.A.; and C. B. Wagstaff, F.R.I.B.A.

EXTENSIONS AT LIVERPOOL UNIVERSITY

Lord Derby opened yesterday (April 24) the extension to the Students' Union of the University of Liverpool. The architects are Emeritus-Professor C. H. Reilly and Professors Budden and Marshall.

R.A. EXHIBITION

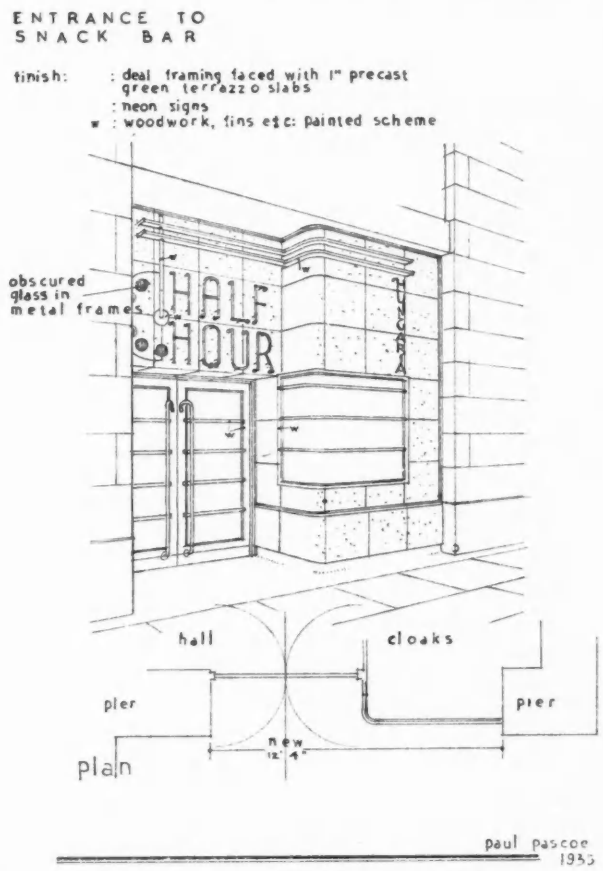
The Royal Academy Exhibition, Burlington House, W.1, will open to the public on Monday, May 6, at 2 p.m.

A.A.S.T.A.

The principal guest at the annual dinner of the Association of Architects, Surveyors and Technical Assistants, held recently at the Rembrandt Rooms, S.W., was Mr. H. V. Lanchester, who gave an interesting account of the early days of his career. "I came to London," he said, "and worked in several offices until I got a job at Peckham in a 'pub. office.' That meant surveying public-houses with a view to reconstructing them, and 'diddling' magistrates into the belief that a smaller and nicer place was being provided, whereas in reality it was a larger and busier one. Later, I worked as an assistant in two offices and conducted my own practice at the same time."

Mr. R. Wynn Owen, F.R.I.B.A. (President), referred to the aims and aspirations of the Association. He pointed out that the Association had come into being because of a change that had taken place in the relationship of the employing public and the architectural profession. So recently as thirty-five years ago anyone requiring the services of an architect would employ a man in private practice; and the profession had organised itself for that state of things by propounding rules of professional practice and setting up scales of charges. But since the time mentioned there had come a very great change of mind on the question of how the public should employ the architectural profession. The result was that today while there was still scope for the private practitioner, a great many public bodies had found it necessary repeatedly to call in the services of an architect, and had adopted the method of employing architects on a salary basis, and not on a commission basis. The A.A.S.T.A. had come into being to induce the architectural profession to adjust itself to that new arrangement, and to see that the section of the profession which served at a salary was adequately protected and worked under conditions comparable with the status of the profession.

Other speakers included Messrs. T. P. Bennett, F.R.I.B.A., V. L. Nash, C. McArthur Butler and Charles McLachlan. During the evening, Mr. McLachlan, who has been connected with the Association since its



Recent addition to the Hungaria Restaurant in Market Street, W.1. Designer: W. Wylton Todd.

inception in 1919, was presented with an illuminated address and a tea and coffee service.

LE PLAY SOCIETY

Under the auspices of the Le Play Society, a series of visits abroad has been arranged for the summer. Bulgaria (Black Sea, Sofia, Rhodope Mountains, etc.), will be visited in August, and an economic and social survey made under the leadership of Dr. Herman Finer. Dr. L. Dudley Stamp will lead a party which is to go to the Caucasus; this visit is to fit in with a series of studies of Russia which is being made with Sir E. John Russell.

Another group is to make an economic and geographical survey of Andorra, under the guidance of Mr. J. H. Lebon, B.Sc., and others. Housing and other social problems will be the special study of a party going to Denmark and Sweden with Mr. Stanley Ramsey, F.R.I.B.A., and Miss Elizabeth Denby.

Full details of the visits are obtainable on application to Miss Margaret Tatton, F.R.G.S., Director, The Le Play Society, 58 Gordon Square, W.C.1.

FACULTY OF ARCHITECTS AND SURVEYORS

The annual dinner of the Lancashire and North-Western Branch of the Faculty of Architects and Surveyors was held recently at Manchester, under the chairmanship of Major C. H. Heathcote, L.R.I.B.A. (chairman of the Branch).

Sir Charles Allom (President of the Association) said that such places as Edinburgh, Liverpool and Manchester had shown extraordinary energy and wisdom in the training of their students and in arranging art exhibitions, which helped to keep up the standard of taste in the country. It was to be hoped that in these days, when they saw such retrogression in artistic taste, that everything would be done to bring before the public works of beauty. He hoped that the Association would help him to organize an exhibition of things of beauty which could be shown in various centres.

R. I. B. A.

COUNCIL MEETING

At a recent meeting of the Council of the Institute, the following members were elected:

As FELLOWS (5): Messrs. K. Kinna, E. A. Martyn, L. M. Shattock, J. C. Shepherd, and H. J. Stribling.

As ASSOCIATES (20): Messrs. H. B. Allsopp, F. G. Angus, A. J. Baxter, W. H. Beesley, L. A. Clarke, H. N. Dallas, (Miss) C. Dickinson, C. P. Dickinson, T. K. Donner, C. Gingell, T. P. Hamlin, M. Hayton, O. M. Massie, L. Page, A. H. Ridout, C. Sanderson, J. Simms, A. B. Stamford, R. Thomson, and W. Walker.

As LICENTIATES (6): Messrs. G. B. Booth, W. F. Brown, V. Burr, W. G. Goodwin, E. Lassetter, and M. Trotter.

Announcements

On page 546 of our issue for April 11 we stated that Mr. A. L. Roberts was the architect for the Knowle Mental Hospital, near Fareham. This is incorrect. The architects are Messrs. J. M. Sheppard and Partners.

Messrs. Ewart G. Culpin and R. S. Bowers, FF.R.I.B.A., have dissolved partnership. Mr. Culpin will practise with his son, Mr. C. E. Culpin, A.R.I.B.A., as Culpin and Son, F. AND A.R.I.B.A., at 3, Portsmouth Street, Lincoln's Inn, W.C.2 (Telephone No.: Holborn 1896), and Mr. Bowers will practise as R. S. Bowers, F.R.I.B.A., at Gwydir Chambers, 104, High Holborn, W.C.1 (Telephone No.: Holborn 8618).

On the Air

Monday, April 29. National Programme. The last of a series of talks dealing with "the care and decoration and fitting of houses inside and out": "Where the House is Built," by Messrs. Geoffrey Boumphrey and E. Maxwell Fry, A.R.I.B.A.

COMPETITION NEWS

MUNICIPAL BUILDINGS, HARTLEPOOL

The West Hartlepool Town Council proposes to hold a competition for designs for new municipal buildings on the Victoria Road site, which was acquired for this purpose some years ago. Prizes of 100 guineas and 50 guineas are to be offered for the designs placed first and second, respectively.

PROPOSED LIBRARY, COLCHESTER

The Colchester Corporation proposes to hold an architectural competition in connection with the proposed new library, which is estimated to cost £20,000. The competition will be limited to members of the Essex, Cambridge and Hertfordshire Society of Architects.

GRAMMAR SCHOOLS, DONCASTER

Mr. W. G. Newton, F.R.I.B.A., has been appointed assessor in the competition for a new grammar school for the Education Committee of the Doncaster Corporation.

Competitions Open

April 30.—The Croydon Corporation invite the submission of designs for laying out an area in Central Croydon which is to provide an extension of the Civic Centre of the Borough and to improve central means of communication. Assessor: Dr. Thomas Adams, F.R.I.B.A., F.S.I.,

M.T.I. Premiums: £500 for the design placed first; £350 to be divided (in proportions to be determined by the Assessor) for not more than three designs placed next in order of merit. A copy of the conditions is obtainable on application to the Town Clerk, Town Hall, Croydon. (Deposit £1 1s.). Designs are to be submitted not later than April 30.

May 31.—Sending-in day. Police station, dwellings and hospital, Bishopsgate, for the Corporation of London. Assessor: H. Austen Hall, F.R.I.B.A. Premiums: £250, £100 and £50. Conditions, etc., are obtainable from the Town Clerk, Guildhall, E.C.2. (Deposit £1 1s.) Last date for submission of designs, May 31.

June 28.—Sending-in Day. Municipal offices for the Birmingham City Council. Assessor: Sir Reginald Blomfield, R.A., P.P.R.I.B.A. Premiums: £1,000, £600, £400 and £250. Conditions, etc., are obtainable from Mr. Herbert H. Humphries, M.INST.C.E., the City Engineer and Surveyor, Council offices, Birmingham. (Deposit £3 3s.) Designs must be submitted to the Town Clerk, Birmingham, not later than June 28.

June 29.—Sending-in Day. Municipal offices, Romford, for the Romford U.D.C. (Open to architects of British nationality practising in the British Isles.) Assessor: Kenneth M. B. Cross, M.A., F.R.I.B.A. Premiums: £250, £100 and £50. Conditions, etc., obtainable from the Clerk to the Council, Arcade Chambers, South Street, Romford. (Deposit, £1 1s.) Latest date for submission of designs: June 29.

July 4.—Sending-in Day. County offices, Kendal, for the Westmorland County Council. (Open to architects of British nationality, practising in the British Isles.) Assessor: G. H. Foggitt, F.R.I.B.A. Premiums: £200, £125 and £75. Conditions, etc., obtainable from H. B. Greenwood, Clerk to the Westmorland County Council, Exchange Chambers, Kendal. (Deposit £1 1s.) The latest date for submission of designs is July 4.

July 31.—Competition for design for open fireplaces and surrounds (to be constructed in any materials the competitor deems practical or desirable) for the Coal Utilization Council. Assessors: the Directors of the Building Centre. Premiums: 50 guineas, 20 guineas and 10 guineas for designs placed first, second and third, respectively. Conditions, etc., are obtainable from the Coal Utilization Council, Columbia House, Aldwych, W.C.

August 31.—Sending-in Day. Municipal offices, Swindon, for the Swindon Corporation. (Open to architects of British nationality, practising in the British Isles.) Assessor: Professor A. B. Knapp-Fisher, F.R.I.B.A. Premiums: £350, £250, and £150. May 25 is the last day for questions, and August 31 is the closing date. Conditions of the competition are obtainable from the Town Clerk, Town Hall, Swindon (deposit £1 1s.)

October 1.—Sending-in Day. Central county buildings, Hertford, for the Hertfordshire County Council. Assessor: Robert Atkinson, F.R.I.B.A. Premiums: £350, £250 and £150. Designs must not be submitted later than October 1. Particulars of the competiton are obtainable from the Clerk of the County Council, Clerk of the Peace Office, Hertford. (Deposit £2 2s.)

THIS ARSHETECTURE

Noble Blackpool Building Over Triumphal Arch?



The sketch is designed to illustrate how the free site could be utilised.

What is the ideal site for Blackpool's new Town Hall? A novel and revolutionary proposal was outlined to a *Gazette and Herald* reporter this week by a well-known resident who occupies a prominent position in the town, but who wishes to be anonymous. He has given much study to the question, in the course of which he has consulted eminent professional opinion in regard to the engineering and architectural practicability of the scheme. He desires it to be understood that no attempt is made to offer suggestion as to the architectural features of the new Town Hall building.

He outlines his suggestion as follows: the choice of a site would appear to be governed by four main factors. The factors are:—

(1) *The site must be central*—not necessarily in the geographical centre, but, rather, convenient to the business centre and main arteries of traffic.

(2) *The site must be in a Prominent Position.* The new Town Hall should be in full view of the millions of visitors to the town; a Town Hall which would be an arresting feature and a permanent advertisement to the Town; a building which, once seen, would never be forgotten. Therefore—

(3) *The Town Hall should be Unique in Site and Architecture.* Blackpool is a town of great enterprise, and it would be in keeping with its great reputation if the Town Hall could be made unique; a distinct departure from the stereotyped form of municipal building to be seen everywhere; something outstanding; something "Blackpool."

(4) *Cost of Site.* Equally important to the points mentioned above is the question of cost of site. Extravagance must be avoided.

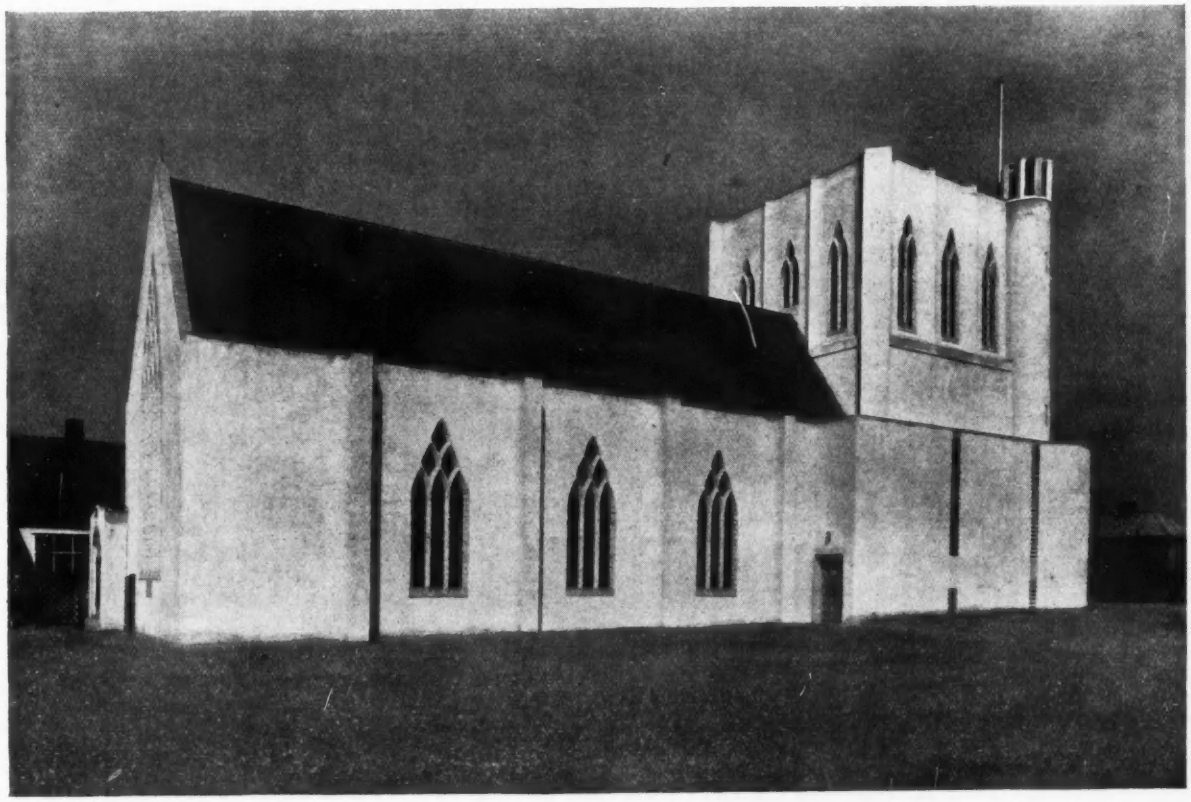
No site hitherto suggested can be said fully to comply with these conditions. Here a unique site is proposed. Spanning Talbot Square there would be a triumphal arch, over which a new Town Hall of noble design and architecture would be erected. The existing Town Hall building, adapted, could be included in the edifice, and it might be desirable to acquire property on the other side of Talbot Square. The scheme presents no engineering or architectural difficulty.

Every town has its "centre." In Blackpool that centre is Talbot Square—not only for the resident population but also for visitors. Depart from the natural centre, developed by years of wise policy, and the smooth-working of the town will be shaken. The plan suggested maintains the use of the natural site for the Town Hall—central, prominent and unique—and business activities would be not only undisturbed but improved.

The Blackpool Corporation occupies a lofty position in the realm of municipalities. It is fitting that it should be housed in a unique building, worthy of its great reputation. A Town Hall set high upon an imposing "Gateway to the Sea" would provide an architectural feature which would become celebrated not only in this country but throughout the world. *And the cost of the site would be nil!*

From *The Blackpool Gazette and Herald, Fylde News and Advertiser.*

CHURCH OF ST. MARY, BECONTREE



This church was consecrated on April 13. It seats four hundred persons, and is designed for a strict form of Evangelical worship.

CONSTRUCTION. *The walls are of brick, carried on reinforced concrete foundation beams, supported on mass concrete piers, carried down to an average depth of 5 ft. below the main floor level of the church. A reinforced concrete gallery, 33 ft. above chancel floor level and projecting 2 ft., extends round the chancel walls. It has a coffered underside, with removable panels for access to the floodlights illuminating the Holy Table.*

A spiral staircase leading to the belfry is of reinforced concrete. The belfry is constructed of 9 in. reinforced concrete columns arranged octagonally, and capped with a concrete roof slab of star-shaped formation spanning between the 9 in. columns.

There are reinforced concrete roof slabs to the passages and the chancel. The beams to the chancel roof project over the slab to obtain a flat ceiling.

The illustrations on this page show the church from the south-west, and a view looking up the south-east corner of the tower towards the belfry.

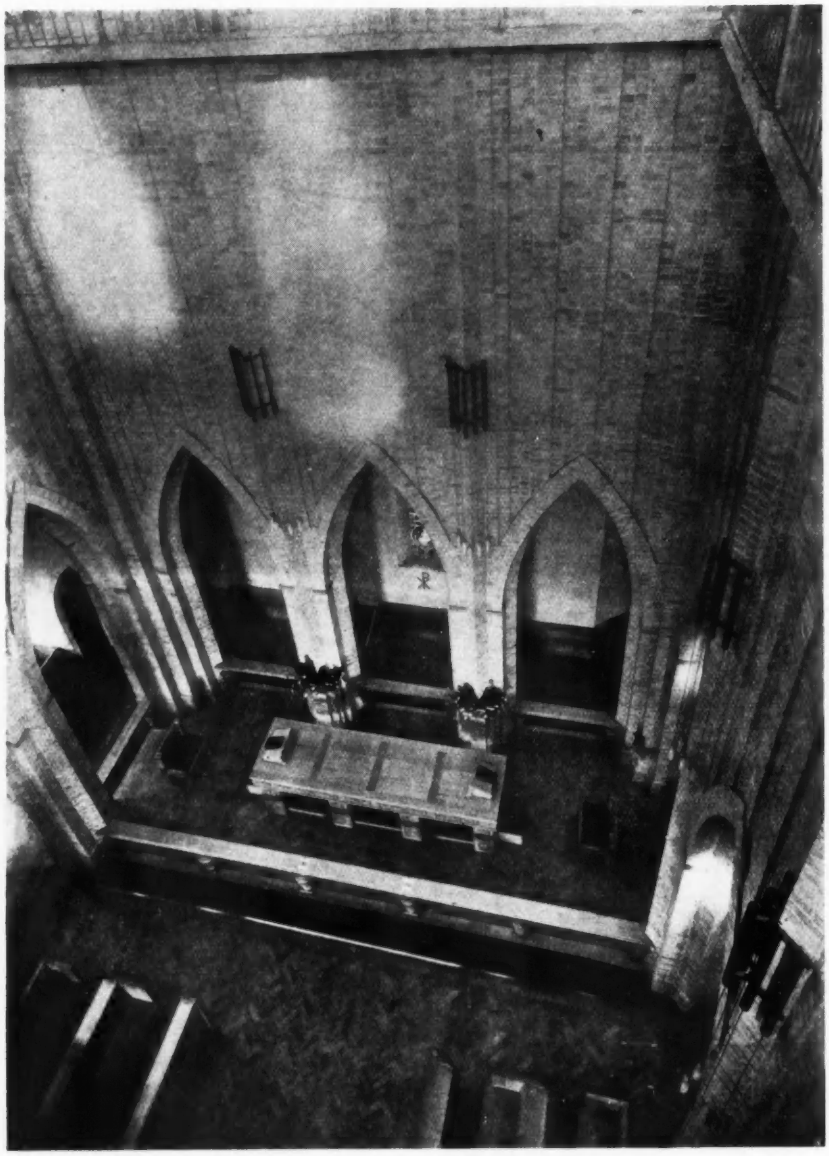


DESIGNED BY

WELCH, CACHEMAILLE-DAY

AND LANDER

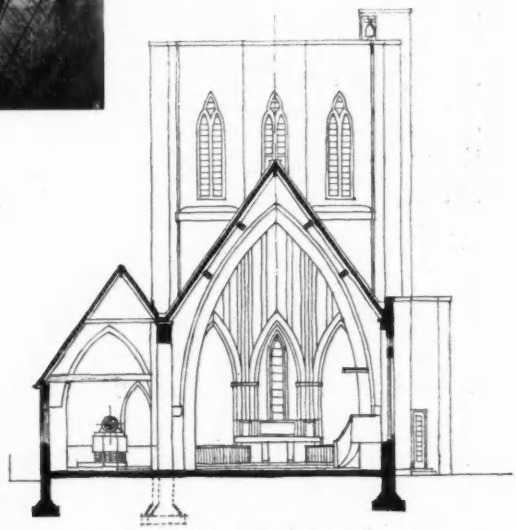
CHURCH OF ST. MARY,



PLANNING. *Two outstanding features of the special type of plan adopted are the position of the font, and the arrangement of the communion rails, which surround the Holy Table. The chancel is placed beneath the tower; with the baptistry on the north side, in the position where a chapel would ordinarily have been planned. The vestry is built with a lintol in such a position that the south wall can be pulled down and a chapel, if desired, erected at the east end, together with more vestry accommodation. Over the vestry is a chamber for a future organ, the sound therefrom being conveyed to the church through grilles in the east wall.*

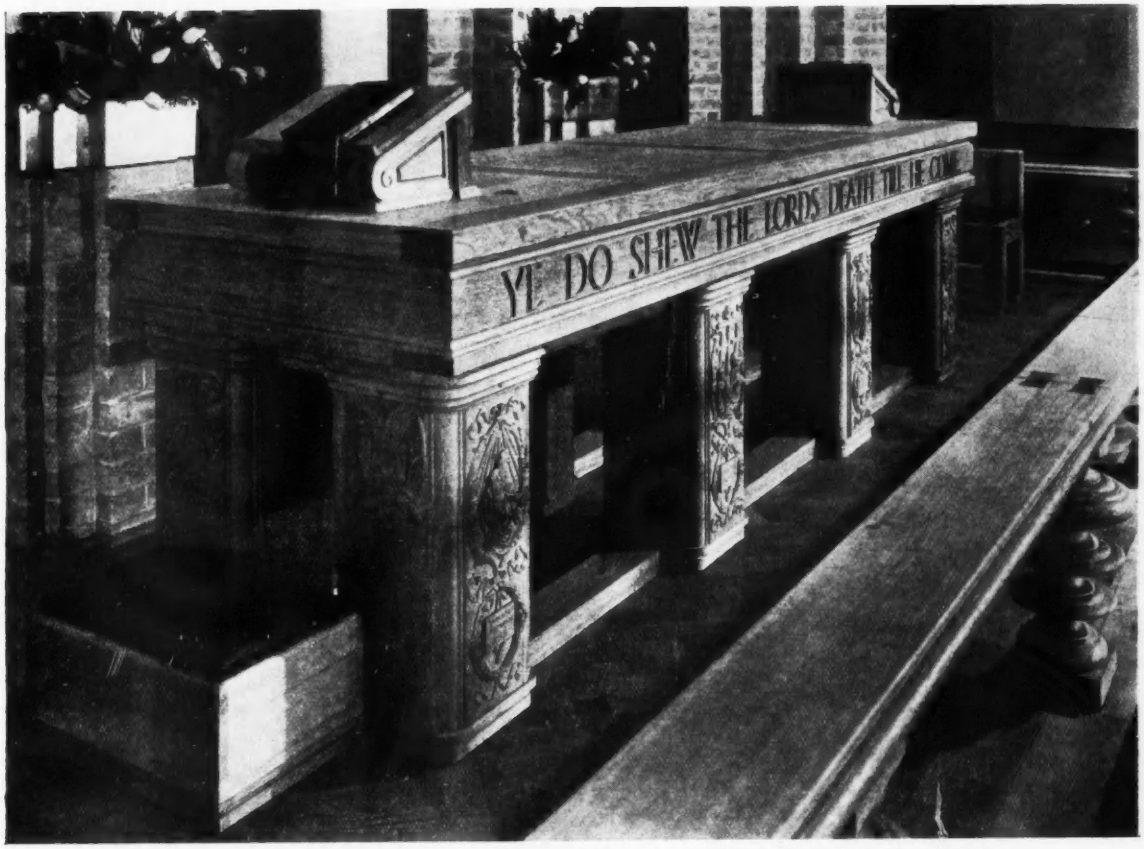
A hall will eventually be built and the toothings for this are seen in the illustration of the south wall of the tower. The final plan of the church and hall will be L shaped, with the intervening space laid out as a formal garden.

Above is a photograph taken from the balcony in the tower looking down into the chancel, showing the arrangement of the communion rails, which surround the Holy Table.

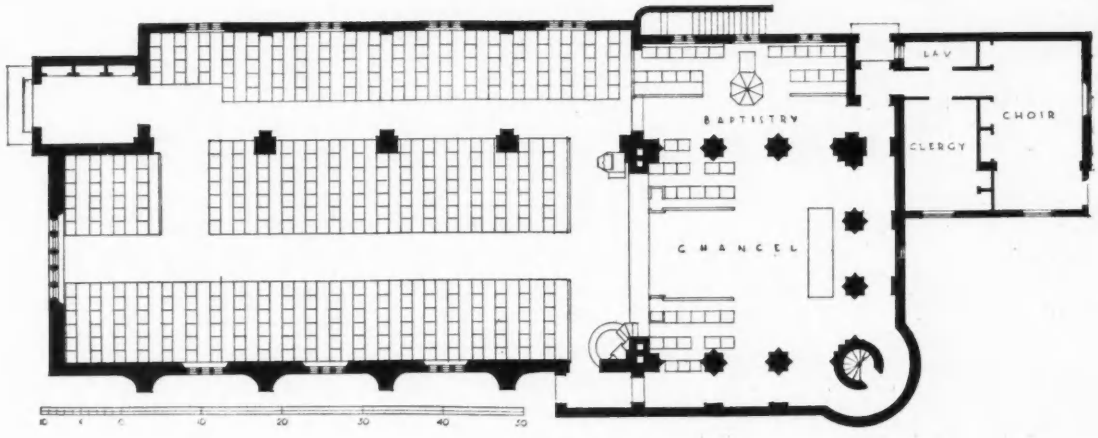


CROSS SECTION

B E C O N T R E E , E S S E X



The Holy Table. It is of Austrian oak, left untouched, as also are the other furnishings in the chancel.



PLAN

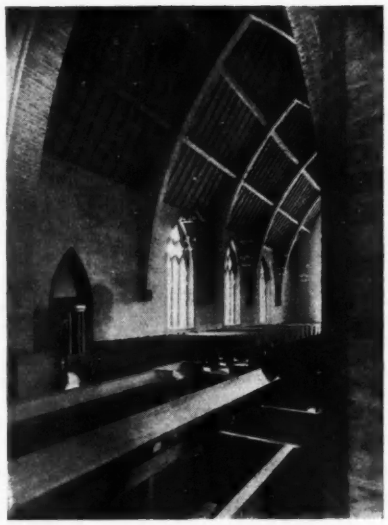
DESIGNED BY WELCH, CACHEMAILLE-DAY AND LANDER

CHURCH OF ST. MARY, BECONTREE

DESIGNED BY WELCH, CACHEMAILLE-DAY AND LANDER







FURNISHING AND FINISHES. *The furnishings in the chancel and the baptistry are in Austrian oak, left untouched; and the pews in the nave are in Austrian beech, treated to approximately the colour of oak. There is a certain amount of wood carving, a little decoration on the font cover, and an east window, by Christopher Webb, representing the Risen Christ, but generally all ornaments of a ritualistic character are omitted.*

Internally the walls of the church are finished with a special plaster, and the west wall and the ceiling to the tower are treated with an asbestos spray. An acoustical boarding, painted a grey colour, is used for the underside of the roof. Roof timbers and trusses are limed. An oak wood block floor is laid throughout the church and porch; a deal block floor in the vestries. The porch at the west end is fitted with book cupboards.

Externally the church is cement rendered with a stippled finishing coat of hydrolized hydraulic lime and sand. Window jambs, arches and tracery are in light buff facing bricks, which also form the internal finish to the tower walls.

COST. *The church was built, complete with tower but without furnishings, for considerably under £7,000.*

The photographs on this page show the pulpit, the chancel, and a view of the nave from the baptistry.

LETTERS FROM READERS

D. M. CRAIK, F.R.I.B.A.
DIPL. ING. HANS SCHOSZBERGER
A. L. GWYNNE
A. E. V. NEWNHAM, M.INST.R.A.
C. BIRDWOOD WILLCOCKS, F.R.I.B.A., A.M.T.P.I.
F. JOHN ROE
M. J. ADAMSON

Cottages or Flats?

SIR,—I was surprised to read such a passionate letter from Mr. Russell-Roberts with such definite conclusions but so few logical reasons.

Surely the education of the people to realize their collective authority will be easier if they are already housed in blocks of flats which will, in fact, become social centres, and will give them a better chance of knowing each other and deciding on their representative member. The effects of amalgamating small districts into larger ones seems to have little bearing on the issue of his letter, as presumably there is no reason why the representational preparation of the people should be diminished when flats are built.

He seems perturbed by imagining that, when the housewife has inclusive rates, there will be nothing to interest her. I can see no reason. And also that it would be depressing for her to know that the neighbouring flats had identical cupboards and baths. I expect that most of us have many standard fittings which seem satisfactory as long as they are efficient.

The transport system is one of the most vital problems of town-planning. Conveyance from the homes to the work centre should be quick—so efficient that the workman can return for his lunch and spend more time with his family in the evening. This would be a sound basis for the development of an A1 nation. The family would take as much pride in their flat as the country dwellers do in their houses, and there is no reason why individual allotments as well as gardens should not be incorporated in the development.

One pictures the city of tomorrow with low blocks of residential flats laid in parks, with social centres where the people, care-free, can enjoy themselves along any lines they wish. For those who wish to live further from their work there will be efficient transport services. But providing conditions are ideal I think the vast majority of people will prefer to live near their work, thus avoiding the strain of travelling, and offering themselves more time for leisure. The further you decentralize a city—and that is bound to happen when unit detached houses are the only type built—the more difficult it is for those who live in the centre to spend time in the country.

These schemes are for large industrial towns. That in the case of smaller towns the house is preferable I think is undeniable. But there is no more depressing sight than the satellite growth of many houses that are covering the land round our cities that was recently countryside.

D. M. CRAIK
London

Architecture and Air Defence

SIR,—The review of my book, *Bautechnischer Luftschutz*, by Mr. Baird Dennison, has been comforting to me in a way. As architectural air protection has become my speciality, I can assure you that hours of exhilaration are rather scarce. If in the course of my interesting, though not altogether amusing, investigations, I wanted to get something in the nature of an entertaining change, I only needed to go to the Patent Office and have a look into the applications made for patents in the various European countries within the last few months in the field of inventions to secure air protection. There were such things as water fountains to prevent the spreading of poisonous gases, glass covers for the deletion of microbes, fireside tongs to destroy fire-bombs, etc. All this rubbish filling the pages of the patent files has cheered me up again.

But, believe me, Mr. Baird Dennison's ideas are of quite another nature. He is not merely a highly experienced expert, but has also studied my book very carefully, and is well aware what architectural air protection implies. He would certainly not even dream of applying for a patent—e.g., for a "rubber cabin against explosives." Nevertheless, it might occur that someone reading his comment on my book would imagine its author to be a most warlike and bloodthirsty monster. This opinion, I frankly confess, would not be very agreeable to me What does an architect's going in for air protection imply? It means that in following his plans it will become a necessity to make town-planning airier, to do away with the horrid barracklike stone piles that are frequently used in Germany as dwellings, and to provide for bright stretches of grassy plots instead. Now cannot my English colleagues realize that such plans devised for air protection may be used also to this end? I do not think it very difficult to understand that by emphasizing the danger of air raids it will be easier to reach the aim of getting more hygienic conditions when mapping out new quarters. It was for this very purpose that I wrote my book. It was written with the will to show that the invention of bombproof patent roofs is not what air protection is aiming at, but that the modern architects of all countries should use air protection as a means to carry their point. It was conceived also with a view to proving that such proposals as were propagated from Paris—e.g., regarding the construction of a gigantic tower of concrete—must be considered as mere humbug that no expert can take seriously. We are indebted to Mr. Baird Dennison for his detailed comment, as it was, to my knowledge, the first treatise that was published in the English press on this subject. While the technical papers in France, Germany, Italy and Russia are filled with essays of varying quality in the field of architectural air protection, England is keeping aloof although, according to the common opinion expressed by the experts of all countries, England is the very country that would be particularly exposed to the danger of air raids.

HANS SCHOSZBERGER
Berlin

Colour for Exteriors

SIR,—The writer trusts he is not trespassing unduly on your forbearance in putting a proposition before you which may be of some general interest. The subject is that of using colour for the exteriors of buildings in this country; and, in particular, the use of colour on concrete.

Hitherto in this country, there seems very little tendency to depart from the conventional cream or white for reinforced concrete, although Mr. Wells Coates's block of flats at Lawn Road is finished in a distinct shade of pink and, in the case of the new Amusements Hall at Bexhill, that is being finished in a shade with a certain amount of red added to it. Quite recently, in the case of the studio designed by Mr. Christopher Nicholson for Augustus John, the finish was in a distinct shade of pink, selected by the artist, but, generally speaking, colour is seldom used for outside work.

One wonders whether this is because architects and owners have a dislike of

colour, or whether it is because the architect believes that he cannot obtain a satisfactory material in suitable colours. It seems not very useful for the manufacturer to proceed in an attempt to force colour upon the attention of architects, unless it is likely to appeal; but, as a layman, may the writer put forward his own point of view?

The Kingston by-pass, along which he is forced to make his way to London every day, is becoming lined with factories, mostly rendered in cement, some of which are left to craze and become more and more drab-looking, with no decorative treatment on their surfaces. Others are treated with inexpensive and obviously non-durable material in white or possibly in cream. The writer feels he would like his journey more, or dislike it less, if these factories presented a colourful appearance. The writer feels quite sure that the architectural world approves of the final treatment of concrete and cement rendering with some material or other, but does it hold that such material be provided in colour? An answer to this question would be of very great interest.

A. L. GWYNNE
London

The Registration Council

SIR,—May I, through the medium of your JOURNAL, inform the unelected candidates of the recent Registration Council Election, that, should they wish to know the results of this election, the Registrar will condescend to inform them if they apply to him for the result.

Despite the fact that (to quote a sentence from the letter from Mr. J. M. Allington, published in your issue for April 11) "in its wisdom the Registration Council has decreed," etc., etc., the Acting Registrar forwarded me the result in a reply to a request for same. This was after allowing him 12 days from the date of the last Council Meeting, when the results were made known, to write and inform me, which I consider was my due as a candidate.

ARTHUR E. V. NEWNHAM
Chatham

The Witney Case

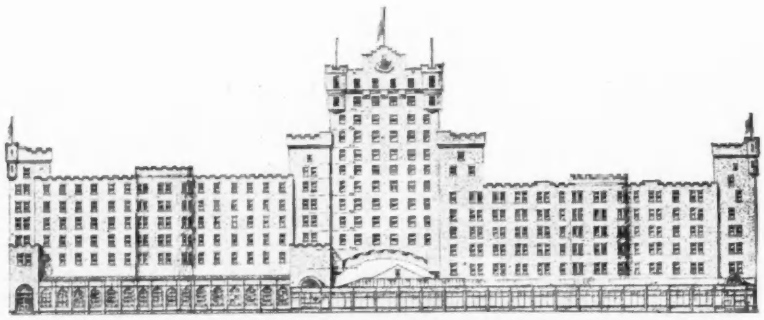
SIR,—I have been interested in the references to this case in your JOURNAL. Possibly some of your readers are not aware that the Witney Advisory Architectural Panel was one of the first to be formed, and, under the able guidance of its architectural members, including Mr. Rayson, who has probably had a longer experience of the working of these panels than any other architect in the country, it has rendered invaluable services in its district.

Obviously neither the Witney nor any other properly organized Panel would suggest small panes in windows in which they were not desirable.

In the case in question, as both the Town Planning Committee and the Panel architects concerned were satisfied that small panes were advisable, the result of the appeal appears unfortunate. Letters such as Mr. Gardner mentions that he has received are only to be expected under the circumstances.

The Witney and District Town Planning Committee and their Panel architects have, however, the satisfaction of knowing that their successful efforts to preserve the amenities of the district have earned the gratitude of many people, in their own and adjacent areas, who are genuinely interested in preventing the spoliation of the country by the erection of unsuitable buildings.

C. BIRDWOOD WILLCOCKS
Reading



FURTHER EXTENSIONS PROPOSED FOR BLACKPOOL'S FAMOUS LANDMARK NORBRECK HYDRO.

The twin castles which mark the skyline on all roads approaching Blackpool are likely to be joined by an imposing tower of ten stories, thus completing the scheme of extensions. Mr. A. E. Lancashire, M.I., Struct. Engineer, the Preston Architect, designed and built the twin castle which was opened last year and is at the moment completing the new entrance hall. His design, reproduced herewith, would bring the prophetic dream of the founder, Mr. James H. Shorrocks, of a recreative hydro for one thousand guests, to a pleasant reality.

See Mr. F. J. Roe's letter on this page.

Castellated Enterprise

SIR,—The enclosed is an example of British enterprise which I trust you will agree merits a little space. Thirty-seven years ago, the original Hydro contained sixteen bedrooms and stood at the end of a cart track in a cliff wilderness. Today, Blackpool has crept up to its doors and passed it, and one day Norbreck Hydro will be somewhere near the central point of a grand promenade drive of 15 miles between Lytham and Fleetwood. Norbreck has grown with Blackpool, and it is probably the largest recreative seaside hydro in Europe.

The proposed new tower will be the natural outcome of four increasingly prosperous years, due in large measure to advertising in the press. You are at liberty to give full credit to the press for this large increase in business.

One hears so much about Continental and American enterprises that I feel sure there would be some interest shown in what Mr. James H. Shorrocks (a Lancashire lad), and the founder, has accomplished from zero.

F. JOHN ROE
Manchester

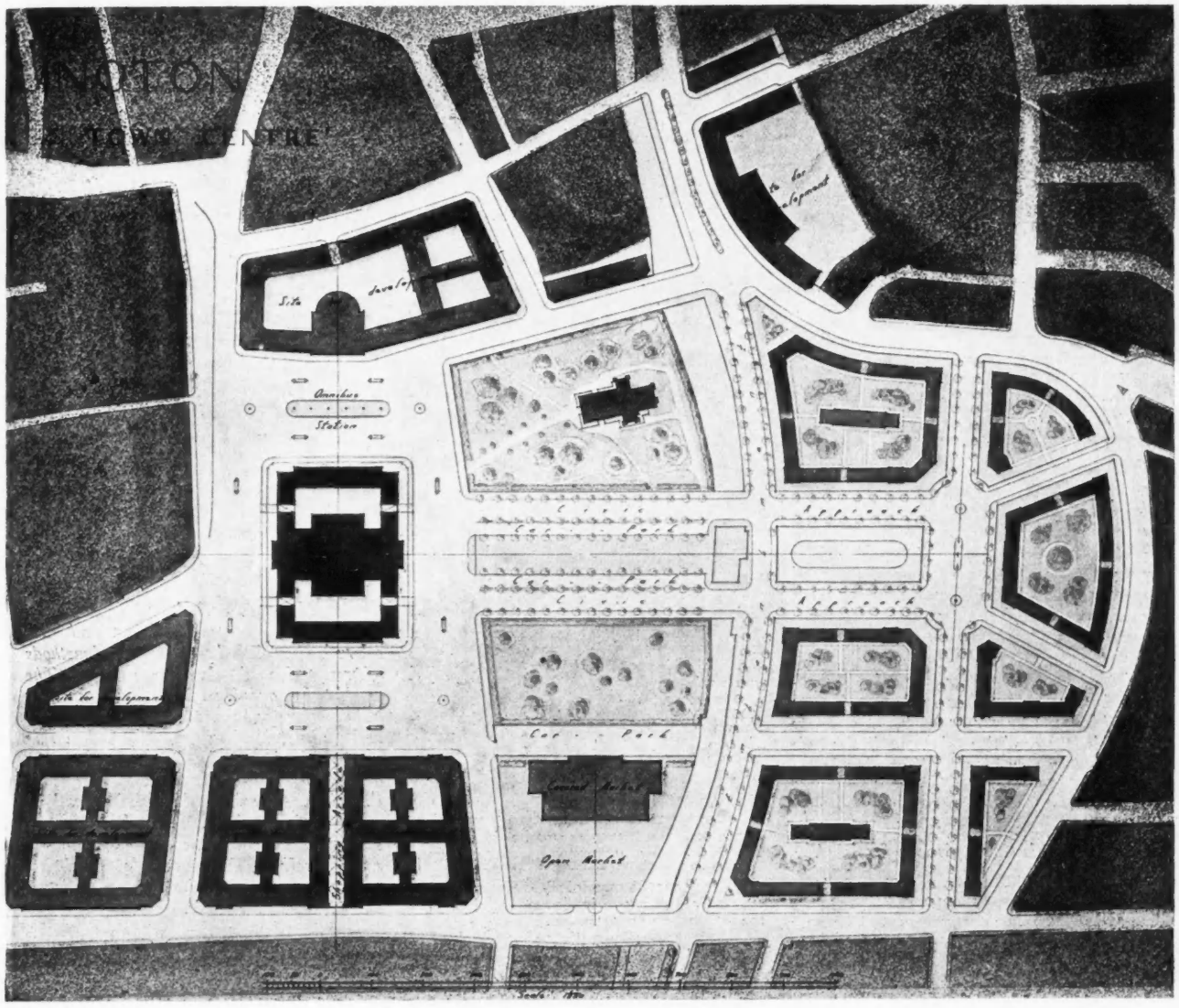
Pardon for Carpenters

SIR,—The last sentence in Major Athoe's interesting letter in your issue for April 4, would be amusing if it were not apparently based on a false argument. Having mentioned that in the thirteenth century the carpenters of a gallery, part of which collapsed, were ordered to be hanged, he writes that he shudders to think what would have happened to the district surveyor concerned, had there been any in those days, if a mere hanging was to be the portion of a carpenter whose work had been "passed."

Given the fact that a district surveyor did not exist, we cannot say that the punishment for a carpenter whose work had been "passed" by him existed either. Actually, one has been told that in that age carpenters were responsible workmen and not just "hands," and it would follow that each carpenter was, in effect, his own district surveyor—therefore the question as to what would have happened to the latter is already answered.

M. J. ADAMSON
London

COMPETITION FOR CIVIC CENTRE, DARLINGTON



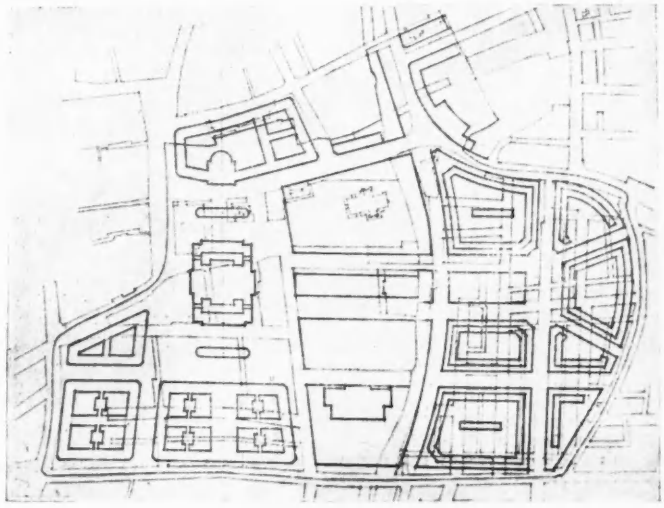
As announced in our last issue, Mr. H. V. Lanchester, F.R.I.B.A., the assessor in the limited competition for a proposed civic centre, Darlington, has made his award as follows:

Design placed first (£100): Mr. E. Berry Webber, F.R.I.B.A.

Design placed second (£75): Messrs. Adshead and Ramsey, FF.R.I.B.A.

Design placed third (£50): Mr. Louis de Soissons, F.R.I.B.A.

On this page are reproduced the lay-out plan of the winning design and, in the smaller illustration, the winning design superimposed on the site as now existing.



WINNING DESIGN: BY E. BERRY WEBBER

IN THAT CONTINGENCY

The following abstracts of inquiries represent a number of those recently submitted to the Building Research Station. The information given in the replies quoted is based on available knowledge. It has to be borne in mind that further scientific investigations may in the course of time indicate directions in which the replies might be supplemented or modified. Moreover, the replies relate to the specific subject of each inquiry, and are not necessarily suitable for application to all similar problems. Crown Copyright Reserved.

Moisture Penetration Through Cavity Wall

¶ *A REQUEST was received from a brick manufacturer for an inspection of a new building in a south-coast town in which severe penetration of water through a cavity wall had been experienced. The request came towards the end of one of the periods of heavy and continuous rainfall which characterized the autumn and winter of 1934-5. Excessive permeability of the bricks had been blamed for the trouble.*

The wall in question was in 11-in. work, the outer leaf being in hand-made kiln-burnt stocks and the inner leaf in semi-dry pressed bricks. The wall faced almost due south, was about 300 yards from the sea and had practically no shelter from sea gales. The greater part of the inner leaf of the wall was wet and the distemper on it was flaking and peeling. The outer leaf and cavity were so wet that, at the time when the inspection was made, water was still dripping from weep holes over a lead damp-proof course at first floor level, though there had been no rain for 24 hours. As far as possible, the condition of the wall ties was examined by way of a small opening in the inner leaf of the wall in the roof space.

After consideration of the details revealed by the inspection and an examination of the bricks, the following reply was furnished.

The failure of the cavity wall to provide protection against the weather is due to a combination of unfavourable circumstances. These are enumerated below. While it is not possible to assess the relative contribution of the various factors to the trouble which has occurred, it is possible that had any of them been absent or minimized the penetration would also have been prevented or reduced.

The factors which appear to have been operative are :—

1. Permeability of bricks,
2. Design of wall ties,
3. Workmanship,

in conjunction with

4. Unusually severe weather conditions, and
5. Exposed position of the building.

These factors may now be considered in some detail.

Weather conditions.—The heavy rainfall of the last two months of 1934 undoubtedly revealed weaknesses that under more normal conditions would not have been manifested. A considerable number of inquiries with respect to penetration of damp was received by the Building Research Station during and shortly after this period. The proportion of such inquiries which relate to new buildings is rather higher than might be expected, suggesting that a certain degree of normal weathering may improve the resistance of brick walls and clay tile roofs to penetration of moisture. It is, however, not possible to speak dogmatically on this point.

Exposed position of the building.—Comment on this factor is perhaps not necessary beyond remarking that the degree of exposure is rather severe, though not exceptional. Apparently trivial differences in exposure can, to judge from previous observations, make quite a marked difference to the weather-proofness of walls.

Design of wall ties.—The wall ties were not of a particularly good design, providing an unnecessarily great catchment area for mortar droppings. The presence of droppings on the ties in the upper part of the cavity was noticed and it is a reasonable surmise that the conditions lower down were worse.

Permeability of Bricks.—A simplified permeability test which was carried out suggested that the permeability of the bricks was considerable. The workmanship, so far as the bedding of the bricks was concerned, was reasonably good and it was not possible to ascribe any great proportion of the penetration of water, to percolation through the joints of the bricks.

Workmanship.—This factor must be considered in conjunction with the remarks on wall ties above. One patch of dampness in the upper part of the cavity was definitely associated with the presence of an obstruction, bridging the cavity. The wall ties in the upper part were certainly not clean, though it was stated that a board was used to catch mortar droppings.

Remedial Measures.—The remedial measures which might be taken, in descending order of effectiveness are :—

(i) Rebuilding outer leaf, using a less permeable brick and cleaning the ties or partly rebuilding and partly tile-hanging.

(ii) Rendering.

(iii) Treatment with colourless waterproofer.

The last mentioned method cannot provide permanent immunity from damp penetration. Such treatments require to be renewed at intervals. It is understood that colourless waterproofers have provided at any rate a temporary cure in cases of slight dampness, but they may well prove inadequate to deal with the present gross penetration.

A danger connected with the use of colourless waterproofers in the present case is that they may give a false sense of security. An application might be made at a time when the weather was becoming more favourable and an exaggerated idea of its effectiveness might be formed, only to be dispelled later when conditions of heavy precipitation recur.

No case of the failure of a properly constructed cavity wall to prevent penetration of moisture has come to the notice of the Building Research Station. Proper construction involves keeping the wall ties and the bottom of the cavity free from mortar droppings, otherwise the principle of the cavity wall—namely a complete break in the capillary path for moisture travel—is violated.

Use of Mesh Reinforcement in Jointless Oxychloride Floors

¶ *A FIRM of contractors specializing in the laying of magnesium oxychloride floors asked for an expression of the views of the Building Research Station on the desirability of using steel mesh reinforcement when the composition is laid on timber sub-floors.*

Our experience and observations suggest that when magnesite composition floors are laid over wooden sub-floor, they should be laid in two coats, and the bottom coat should always be reinforced by wire mesh or light expanded metal. The reinforcement should be secured to the sub-floor and should be completely embedded in the bottom coat of the composition.

Similar reinforcement should be employed when the composition is laid over a filler joist floor, the reinforcement to pass over each joist and extend for a distance of at least 1 foot on either side.

In the case of other types of sub-floor the use of reinforcement is optional, but in no case is it objectionable.

Wire mesh reinforcement has been included for many years in the standard practice of the best class of magnesite flooring work, and it is generally agreed that it makes for the better efficiency of the flooring. It is a matter of experience that the reinforcement is not liable to become seriously corroded, provided it is properly embedded in a well-compacted layer of the composition. We have heard of no case in which a composition floor has failed primarily through the use of reinforcement.

The above remarks, however, should not be taken as minimizing the danger of corrosion of other metalwork in the neighbourhood of magnesite floors, and every care should be taken to protect all iron and steelwork which passes through or immediately beneath the composition.

Deterioration of Interior Marble Panelling

¶ *AN architect asked for information as to the cause of pitting and discoloration of polished red marble and methods of preservation suitable for such work. The marble in question formed the interior panelling on the lower portion of the external walls of certain churches. The red marble was obtained from local quarries in slabs about two feet wide, six feet high and ¾ inch thick and these were bedded in Portland cement. Some of the slabs had become discoloured and pitted, the surface crumbling away locally. The inquirer's description suggested that a certain amount of moisture was present in the walls.*

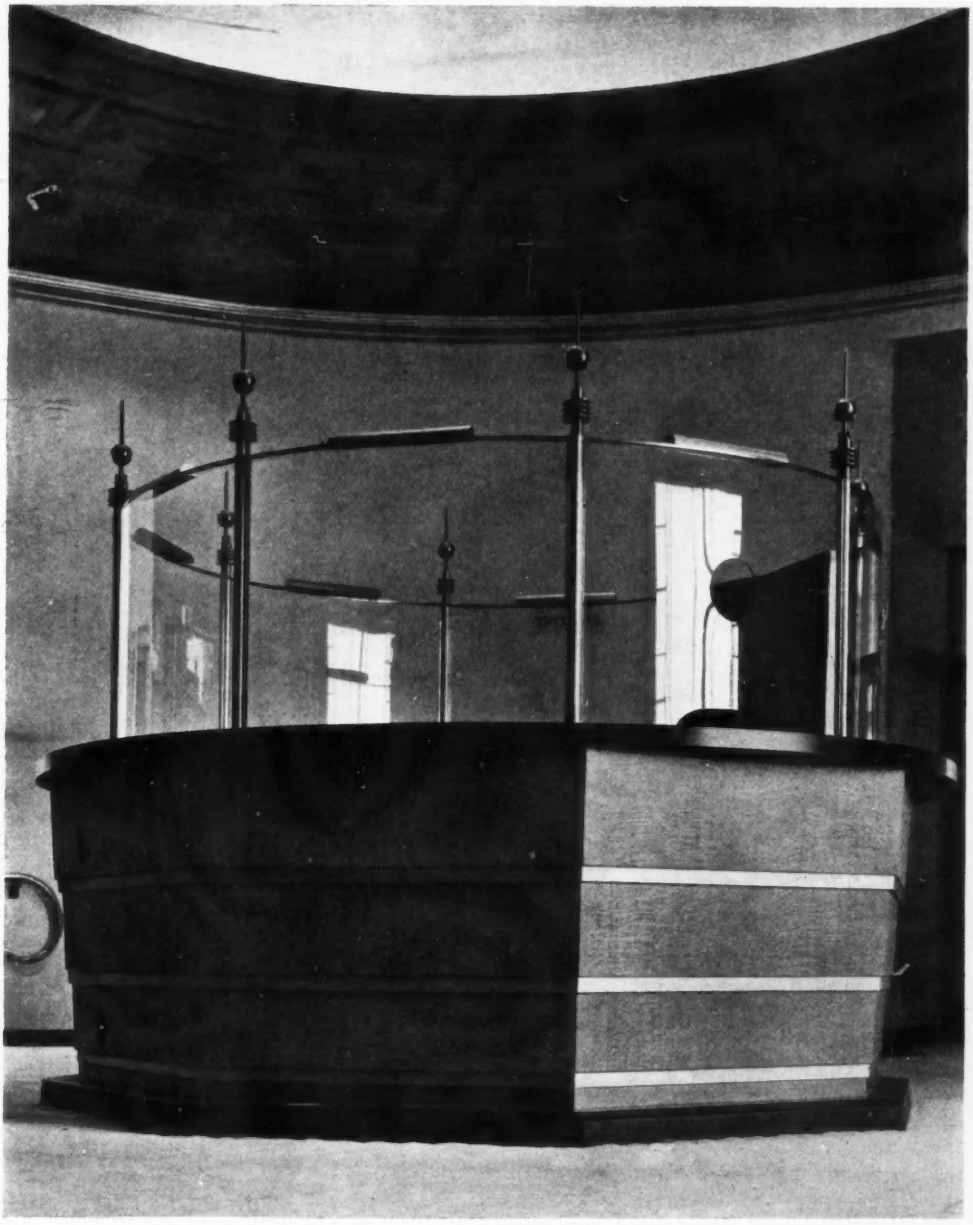
Pitting and discoloration of marble linings is of rather common occurrence. It is due to the absorption of moisture carrying soluble salts derived either from the cement used in fixing or from the backing materials. To prevent its occurrence it is customary to treat the back and the joint surfaces of the marble with shellac, but often dowel holes are subsequently cut in the marble and the shellac coating then becomes ineffective. It is, therefore, important that the fixers should be supplied with a solution of shellac and should be instructed to apply it liberally wherever they have had occasion to cut the shellac-treated surfaces.

As a further precaution, fixing with Portland cement or with a plaster of the Keene's cement type should be avoided. A suitable material is a calcium sulphate (hemihydrate) plaster retarded with an organic retarder such as glue. A suitable grade could be supplied by any of the well-known plaster manufacturers.

To preserve polished marble the best method is to repolish at regular intervals with beeswax, but it must be realized that this treatment will not prevent deterioration due to access of deleterious materials from the backing. With respect to the general question of the use of stone preservative liquids, reference may be made to Building Research Special Report No. 18, "The Weathering of Natural Building Stones," price 4s. 6d., obtainable through any bookseller or from H.M. Stationery Office.

WORKING DETAILS : 247

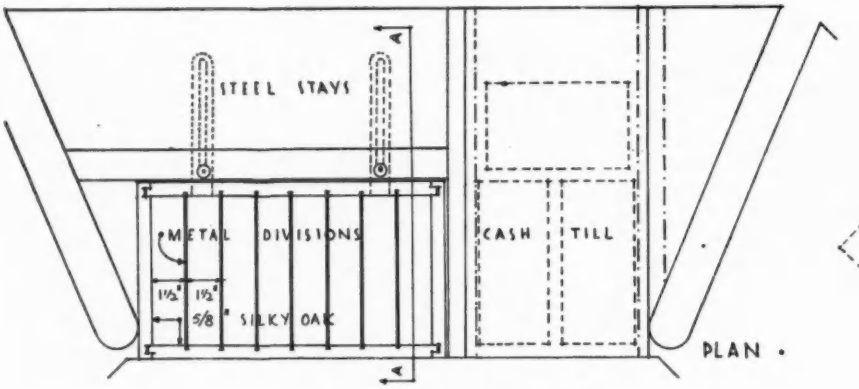
PAY BOX • DREAMLAND CINEMA, MARGATE • J. B. ILES, LEATHART AND GRANGER



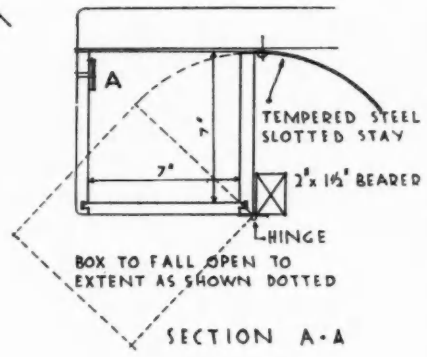
This pay box is in silky oak with narrow lacewood bands, and has an ebonized base. The glass between the bronze standards is bent to a radius of 3 ft. 9 ins, and carries straight striplights at the upper edge. Details and an axonometric are given overleaf.

WORKING DETAILS : 248

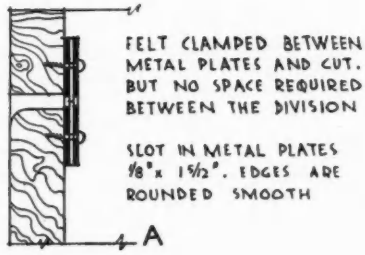
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PLAN •



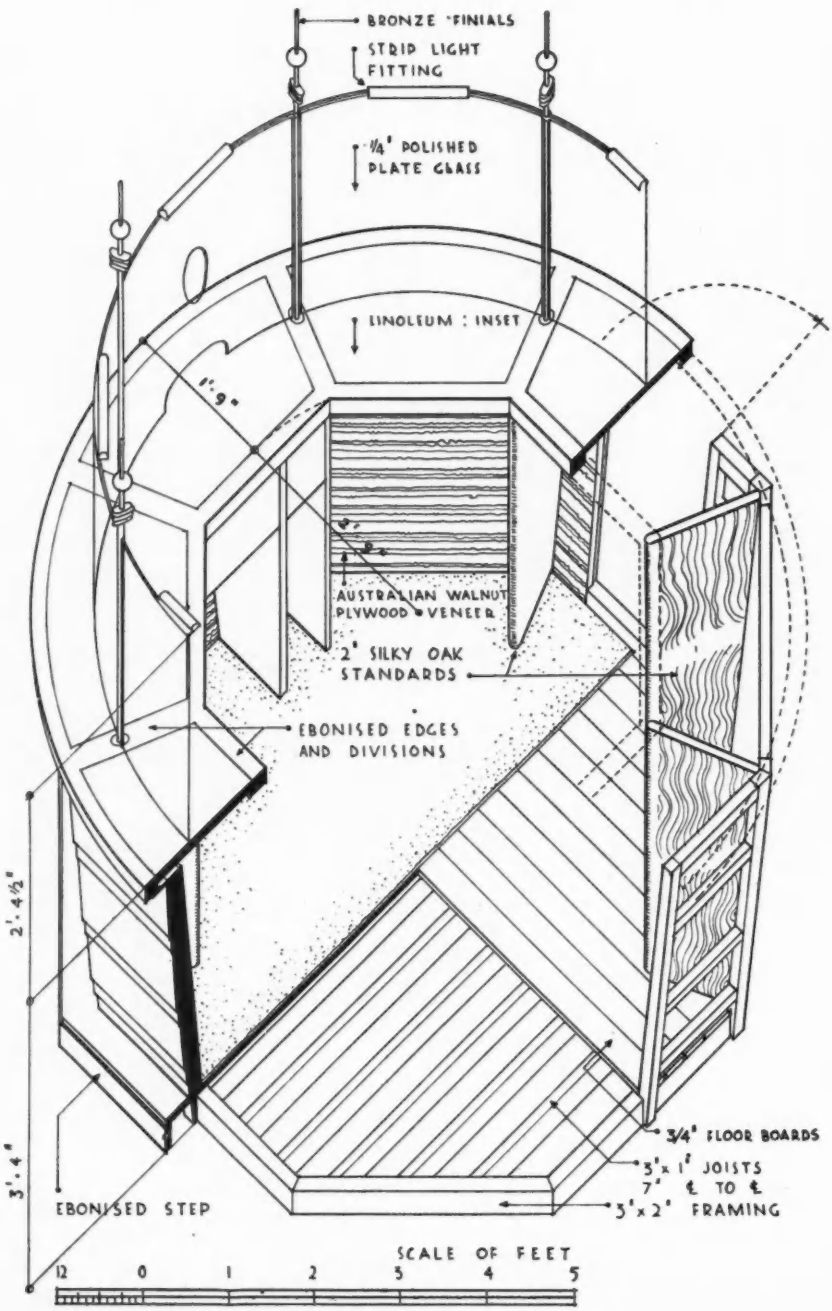
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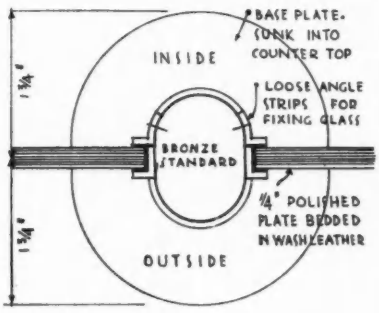


• DETAILS OF TICKET RECEPTACLE



• TREATMENT OF EXTERIOR



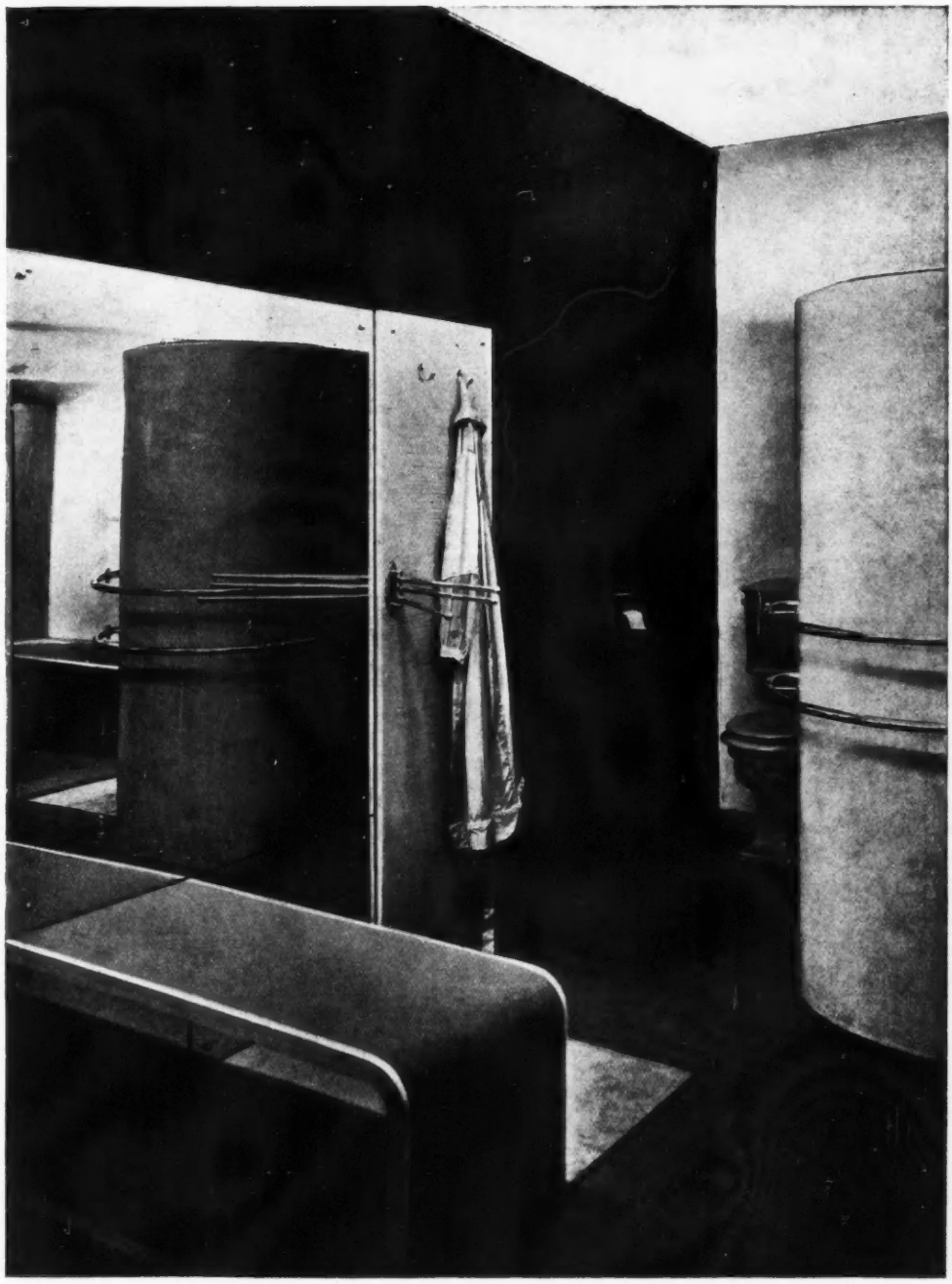


• DETAIL OF GLAZING

Details and axonometric of the pay box illustrated overleaf.

WORKING DETAILS : 249

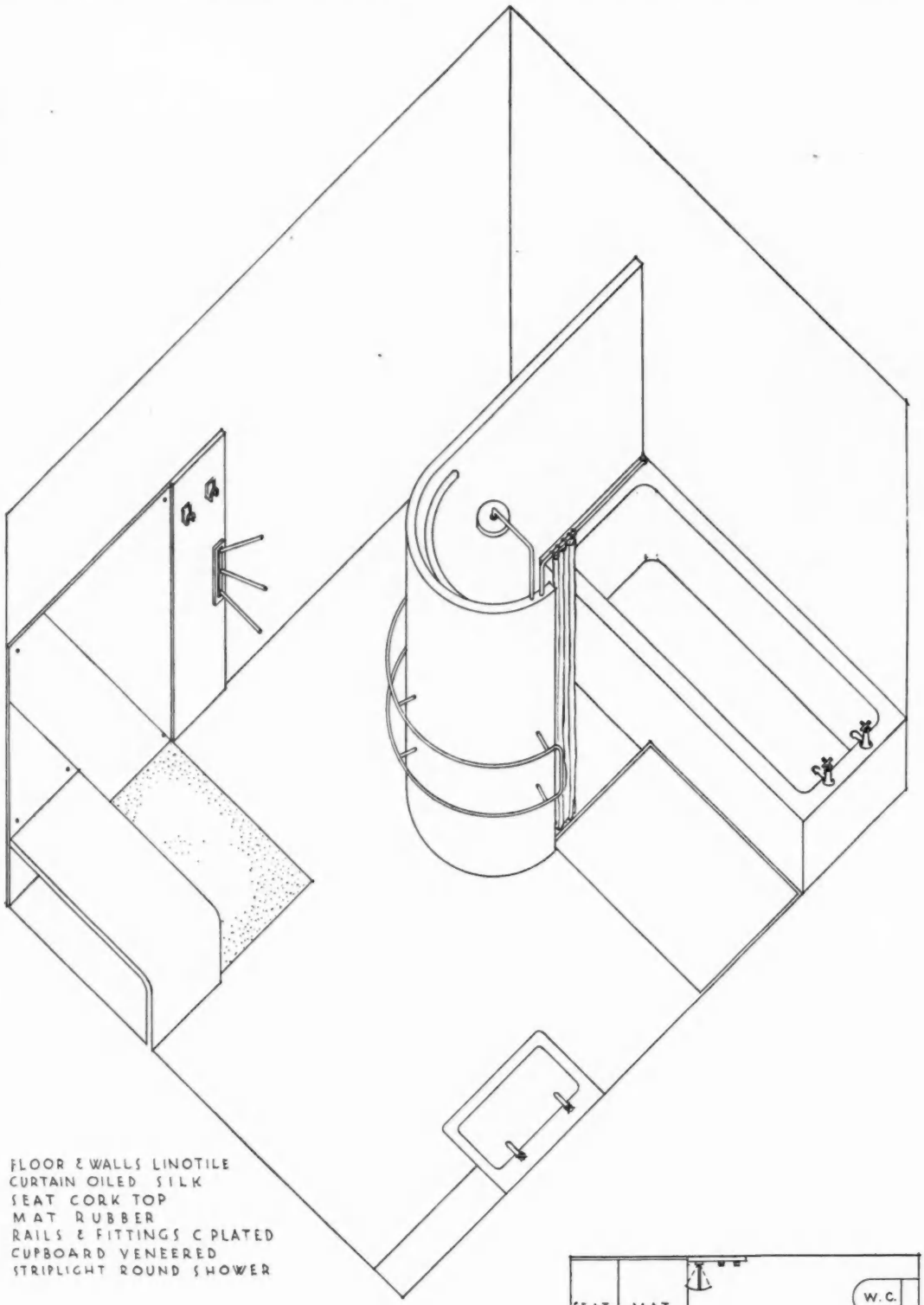
BATHROOM • CONTEMPORARY INDUSTRIAL DESIGN EXHIBITION • CONNELL, WARD AND LUCAS

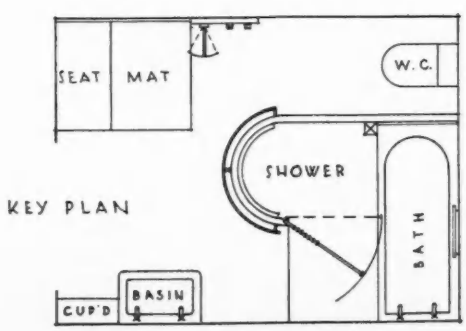


Floor and walls of this bathroom are covered with a plastic wall finish which gives a smooth and warm surface. The curved partition round the shower is made up on a framework of metal lathing finished in the same material, and conceals the piping to the towel rail and shower. An axonometric and plan are shown overleaf.

WORKING DETAILS : 250

BATHROOM • CONTEMPORARY INDUSTRIAL DESIGN EXHIBITION • CONNELL, WARD AND LUCAS





KEY PLAN

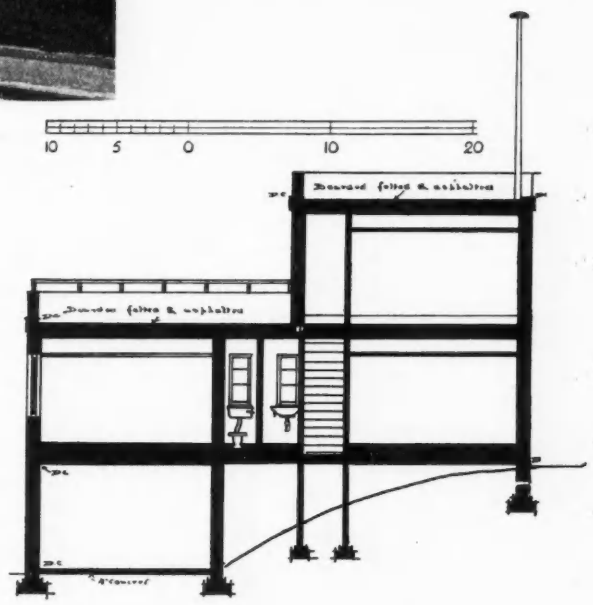
Axonometric and plan of the bathroom illustrated overleaf.

HOUSE AT SANDBANKS, DORSET

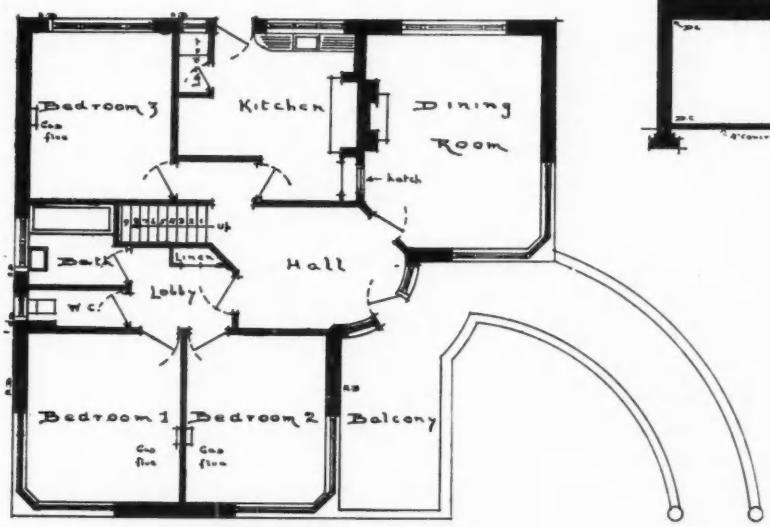


This house is built on the side of a sand hill, facing south-west and overlooking Poole Harbour and Brownsea Island. It has a concrete retaining wall on two sides to keep back the sand. The house is of brick construction with cavity walls on reinforced concrete foundations. The walls are rendered externally with white cement. The dark bands are of Staffordshire Blue bricks laid on end. The only two chimneys, that from the kitchen boiler and that from the dining-room, are carried up on the outside wall and connected to the corner of the lounge by a 9 in. wall which serves as a screen from the east. Windows throughout are of metal.

DESIGNED BY R. THORNE

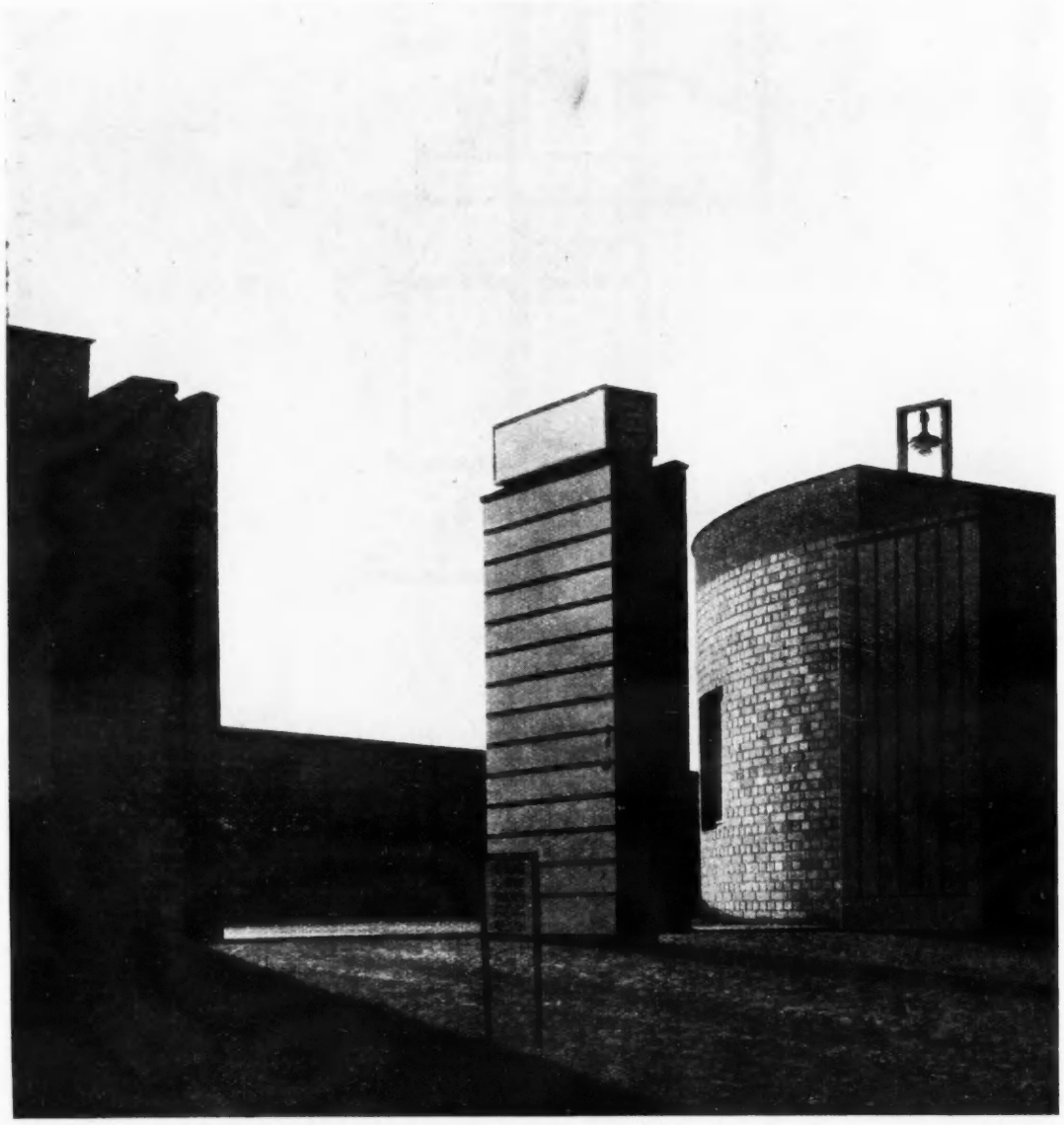


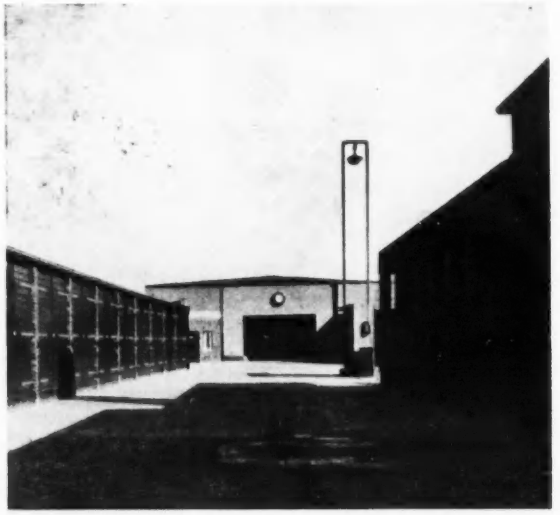
CROSS SECTION



MAIN FLOOR PLAN

ONE-STOREY GARAGE IN BERLIN



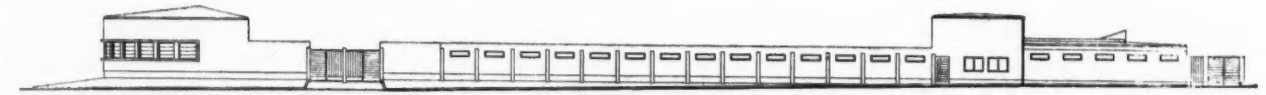


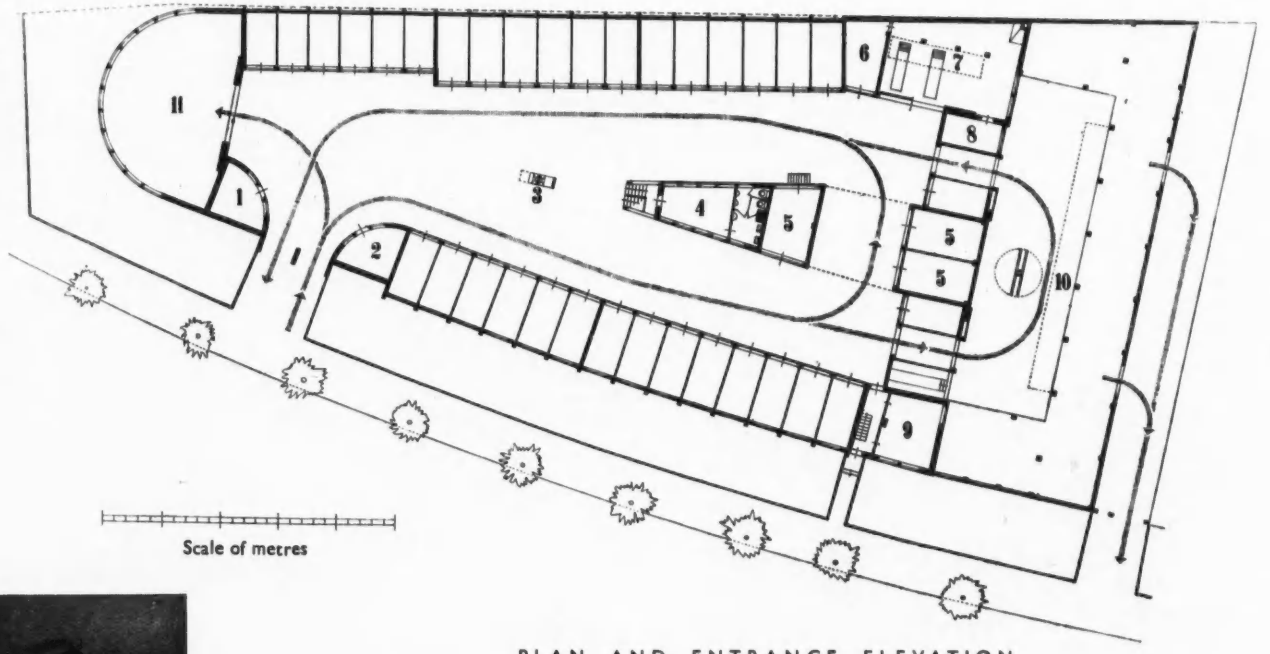
This garage (near the Botanical Gardens, Lichterfelde, Berlin) occupies a thin wedge-shaped site between a main road and a railway line. The site is 95 metres long and varies from 40 to 14 metres in depth. The building is planned as a hollow triangle having a single entrance placed opposite a street junction. The two longer sides consist of rows of lock-ups, 26 for large and 6 for smaller cars; the shorter third side being formed by repair shops, offices, etc. The total present capacity is 50 cars, which can be considerably increased by the incorporation of a further strip at one end (10 on plan) and the addition of extra storeys over the rounded corner at the other (11 on plan). The latter, originally used as a motor showroom but now converted into a service station as a result of the dwindling demand for private lock-ups in Berlin, has a simple but ingenious system of top-lighting. The roof is supported by a framework of latticed timber girders on the Sommerfeld system springing from a square rigid stay, and resting on a main beam of oak with a clear span of 11·5 metres.

The private lock-ups have red clinker-brick walls and steel door-frames and doors, their flat hollow-tile roofs being covered with bituminous felt. The other parts of the building are finished with a dark grey stucco rendering. The window frames are painted white or orange, the doors dark grey with blue-grey bands, and the rest of the metalwork in various shades of grey.

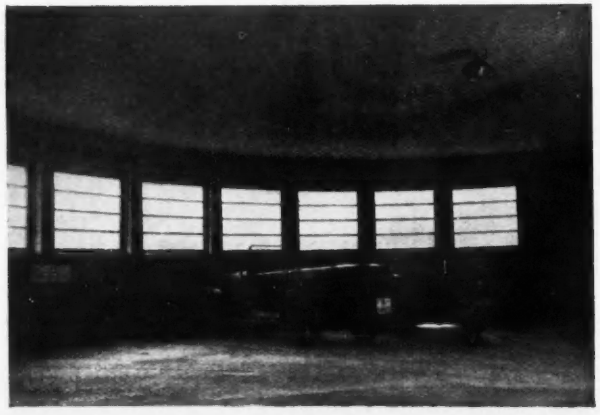
In the middle of the yard is the chauffeurs' rest room (4 on plan), surmounted by a double steel mast 8 metres high carrying a 1000 watt lamp, which serves to light the yard, and as a conspicuous illuminated sign visible from far down the road. Under the rest room is an 11,000 litre petrol tank in three compartments, slabbed over with an insulating concrete raft, the low-pressure heating plant and a coal cellar fed by a tipping-shute from the yard. Alongside stands a washing-down area roofed over to enable it to be used in conjunction with two others in the middle of the third side of the yard. There is a special sound-proof room (6 on plan) for testing motors and recharging accumulators. Above the office (9 on plan), is a small dwelling, with kitchen and bathroom, for the chief mechanic. Otherwise the building is single-storeyed throughout.

The photographs show: on the facing page, the entrance, which is divided by a pylon for in and out traffic, and the interior of the yard, showing the lighting mast; below, the interior of the curved corner building (11 on plan).





PLAN AND ENTRANCE ELEVATION



KEY TO PLAN

1. Porter's Lodge.
2. Sale-rooms for parts and fittings.
3. Petrol pumps.
4. Chauffeurs' rest room.
5. Washing-down areas.
6. Sound-proof motor testing room.
7. Repairing shop.
8. Control room.
9. Office.
10. Owner-drivers' waiting room.
11. General garage.

DESIGNED BY FRED FORBAT



The Salvation Army building, Paris, 1929; the street elevation. From "Le Corbusier et Pierre Jeanneret. Oeuvre complète de 1929-1934."

L I T E R A T U R E

THE PREACHER IN PRACTICE

[*BY ROBERT TOWNSEND*]

Le Corbusier et Pierre Jeanneret. Oeuvre complète de 1929-34. Edited by Willy Bœsiger. Zurich: Editions H. Ginsberger. Price (in England): paper, 35/-; cloth £2 2s.

THIS continuation of the "works" of Le Corbusier and Pierre Jeanneret must have caused consternation in the ranks of those reactionaries who assured the general public that modern architecture was a chimera, a swollen bubble that would burst after a very short time. The individual contribution of these two men alone shows that the effort to produce a contemporary architecture cannot be stopped even by all the academies and professors.

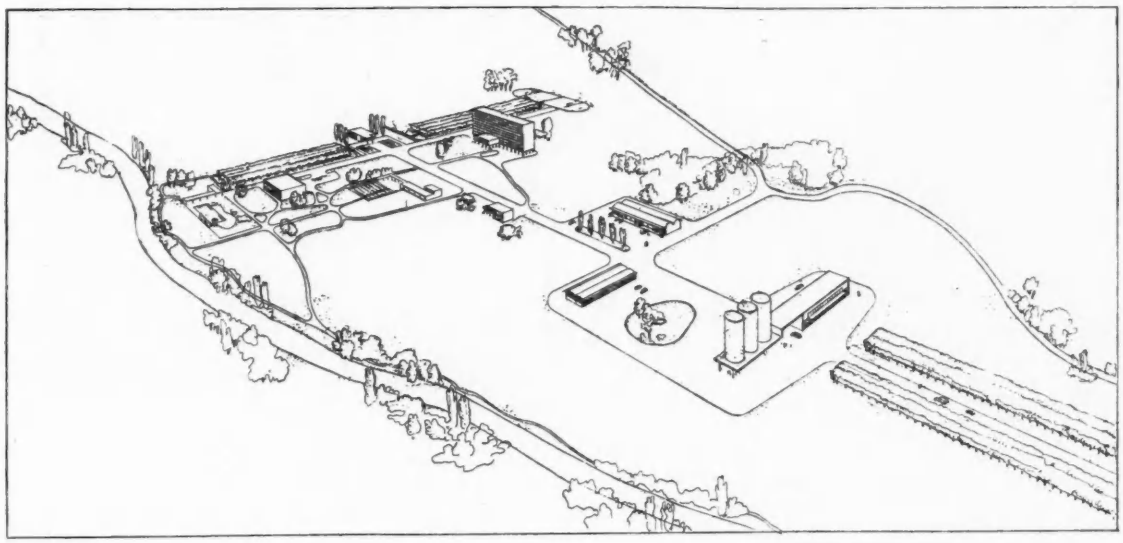
Le Corbusier remains the most vital, and therefore the most stimulating, force in modern architecture. In his introduction to this volume he says, quoting from *Précisions*, that the revolution in the theory of architecture is accomplished—that is to say, ideas such as he propounded in *Towards a New Architecture* have now been accepted by the growing section of the architectural profession. The next step is the construction of buildings according to the new principle and a close study of the theoretical and technical principles underlying town planning. This he wrote in 1929, and the new volume of his work since that date covers both sides of this programme.

No one looking through this book can help admiring the vigour and courage with which Le Corbusier and Pierre Jeanneret put their theories into action. It is here that their work is so valuable, particularly to young architects not already blinded by prejudice. Their buildings are all manifestos. Frank Lloyd Wright's lectures and articles in the first decade of the twentieth century were encouraging to those who at that time were seeking guidance through the architectural chaos; but his work is bitterly disappointing. In the case of Le Corbusier you read in his books of a contemporary view of architecture arising from, and made possible by, vast technical possibilities, and in his buildings you see these technical possibilities used to the full to prove his points.

The "wall of glass" in the Pavilion Suisse, the Salvation Army building, the building for the Commisariat of Light Industry (Centrosoyus) in Moscow and the "Clarte" at Geneva all provide examples of his theories put into practice: the columns set back from the wall face to give a "free façade" in the Salvation Army building and the Centrosoyus; the "free plan" and the "free façade" in nearly all his small houses and villas; "Montage à sec"—dry assemblage of units—at the Pavilion Suisse; ramps at the Centrosoyus—the building without stairs (except for escape)—and in the villa at Poissy, and roof terraces everywhere. The book, in fact, proves that Le Corbusier's writings, instead of being so much "hot air" are living and vital. It is just this that enables him to influence contemporary architecture so greatly. He means what he says, and is prepared to stand by what he says when it comes to a question of action. He takes advantage of every job to try out for himself and to demonstrate to the doubters and scoffers the truth of his statements.

The series of photographs—it is a pity that better ones of the Centrosoyus could not be obtained—shows very clearly the quality of the architectural achievement of the two men. The introduction, and the short note entitled "A new classification of town building, a new dwelling unity," however, raise some serious doubts in our minds; doubts as to whether Le Corbusier's interest in his profession has not prevented him from understanding perfectly the social bases of our contemporary existence. The present crisis is, at bottom, an architectural one, he says, but is it not truer to say that the present architectural crisis is a part of the socio-economic crisis? In his introduction he considers that the opposition, the good or bad will, of building trade operatives to modern building technique comes from a failure on their part to see the significance of modern architecture. He does not consider the question of building rationalization from the operatives' point of view. To an architect it is something exciting—new vistas of structural methods, new possibilities of an architectural millennium. The building employees' case is that to them, rationalization spells unemployment, speeded-up conditions of work, and the substitution of unskilled for skilled labour. They regard it as part of a great social injustice. The opposition of certain industrialists—stone-pit owners, slate and tile manufacturers, etc.—on the grounds that modern architecture and its theory is "denying the fatherland, the family, art and Nature," is only to be expected. It would indeed be *naif* to expect big vested interests to welcome with open arms a technique that is destined to destroy their business. Whatever excuse is made the reason for this opposition is bitter economic struggle. Among the many other enemies an attempt to create a really contemporary architecture has provoked is that arch-enemy of all progress—mysticism. The quotation from the *Gazette de Lausanne* is particularly interesting. You are allowed to do anything you like except think and understand clearly. This would be too dangerous for those who see the world moving on beyond them.

The short article on town planning shows most clearly where Le Corbusier—with his intense preoccupation with architectural questions—overestimates the power of architecture to determine social problems. He sees in disgraceful housing conditions, wasteful domestic



Sketch of a co-operative village and communal farm: part of Le Corbusier's proposals for agricultural reorganization. From "Le Corbusier et Pierre Jeanneret. Oeuvre complète de 1929-1934."

organization and impossible towns the cause of all our social evils. True it is that bad housing causes disease and degradation, but bad housing is a result of poverty, and until the question of poverty can be solved there can be no hope of completely solving the question of housing.

The suggestion put forward after an enthusiastic restatement of modern architectural theses that, if industry took charge of building, the same miraculous change that has taken place in machine construction — towards economy, rationalization, and minimal standardization—could take place in house construction, is a somewhat dangerous one. Experience shows that wherever a minimum standard is laid down it has at once become the maximum. Our technical resources are so great there should be no need to consider minimum standards.

While Le Corbusier is very generous in offering his own services and those of other modern architects to industry, it remains to be seen whether industry is prepared to carry through the necessary fundamental reorganization.

Shorter Notices

The Thrifty Three Millions: A Study of the Building Society Movement and the Story of the Abbey Road Building Society. By Sir Harold Bellman. London: The Abbey Road Building Society. Price 2s. 6d. (stiff covers); 5s. 6d. (cloth boards).

THIS book has been written by the managing director of the Abbey Road Building Society to mark the Diamond Jubilee of the Society. The author points out that "this book does not make any claim—as indeed no review of the building society movement can make any claim—to completeness. The movement is a continously developing organism, not only in point of resources, but in the perfection of a technique of domestic relationships." The author is too modest. Actually, the book is one of the best pieces of literature on this subject yet published, and should prove of great value to all connected with building societies. It traces the history of the Abbey Road Society against that of the movement at large, and also surveys the procedure, achievements and problems of the movement. Thus the book, although inspired by an institutional anniversary, is mainly written from the broadest standpoint. It should prove most useful for reference purposes, since the appendix in particular contains comprehensive statistics relating to the building society movement and its economic environment.

W. P. K.

Structural Design in Steel. By Thomas Clark Shedd. London: Chapman and Hall. Price 25s. net.

WHILE there are surprisingly few English text-books bridging the gap between the theory of structures and the actual design of structural steelwork, there is a steady output of such works from America. The present volume by Professor Shedd is one of the best (if not the best in its particular field) so far produced, chiefly because it tackles many of the problems, frequently met with in practice, which the usual text-book slurs over or ignores completely and on which most "codes of practice" are silent. Many of these problems cannot be solved by theory alone, but Professor Shedd has a happy knack of suggesting commonsense semi-theoretical methods of approach which give confidence to the beginner in established rules of design.

One subject in particular which he deals with thoroughly is that of the design of joints in which the rivets connecting the members are in tension. Such joints must often occur, for example, in a steel frame designed to resist wind pressure, but the only advice given by the majority of text-books is that the "use of rivets in tension should be avoided wherever possible." In this connection those who have not studied the problem before will find much food for thought in the conclusion put forward that it is sufficiently accurate for practical purposes to say that the addition of an external pull to a rivet already stressed in tension due to its desire to contract on cooling does not increase the tensile stress until the external load exceeds the initial tension.

The book, assuming a knowledge on the part of the reader of the theory of structures, covers fairly completely the design of steelwork for buildings and bridges and includes the latest American standard specifications corresponding to our "Code of Practice." The concluding chapters deal with welded construction, and here again it is refreshing to see the subject of welded design (generally so badly served by its advocates) dealt with on lines which are theoretically sound. The book cannot be too thoroughly recommended to all interested in the design of structural steelwork.

W. E. J. B.

Symbols for Designers. By Arnold Whittick. London: Crosby Lockwood and Son, Ltd. Price, 12s. 6d. net.

EVERY architect is in some degree a symbolist. He may not embrace symbolism with complete abandon, fathering buildings that express in their actual forms their purposes and functions, but he often has recourse to symbols. In either event he will find this handbook very serviceable. Introduced by Sir Herbert Baker in a foreword, it contains a survey of both the theory (or rather, theories, for there are several conceptions of symbolism) and practice of the subject.

As to theory, the author's metaphysical discussion of the nature of symbolism is fairly hard reading, because not every sentence is lucidly framed. Neither is it easy

to follow his classification of symbols into five types ; nevertheless, out of this classification arises a stimulating section on the subject of " architectural symbolism " aforementioned. " The rows of columns designed for the portico and peristyle of a Greek temple," he considers, " are meaningless when transplanted . . . and perched high up on the façade of a modern bank." Again, " architecture is a symbolic expression of life ; and if a new style is to evolve from the denuded (does he mean unembellished?) building of to-day, it must consequently evolve as symbolism."

As to practice, he lists upwards of a hundred symbols, arranged in alphabetical order, with notes on their meanings and history that represent a mass of closely documented research. Here we come down to earth—indeed, to mortality and tombstones ; for he writes with the funerary artist in mind. He is sententious, too : " for sepulchral purposes the symbol (sun) is most appropriate as a sunset " ; " the skull, with the hour-glass and scythe, is obviously intended as a reminder—often a necessary one—that death fast approaches," etc.

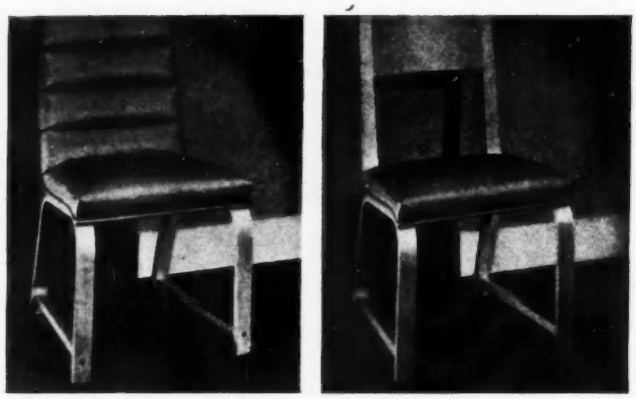
Allowance being made for this and other idiosyncrasies (he is particularly fond of the word " depicture,") and about eight or ten misprints and slips—the singular of " stelae " is " stela " or " stele "—his work retains real value. The book is profusely illustrated. H. F.

Famous London Churches. By C. B. Mortlock and Donald Maxwell. London : Skeffington and Son. Price 10s. 6d. net.

THIS is a collection of sketches of twenty-three assorted Protestant churches, including Westminster Abbey, St. Paul's and Southwark cathedrals, and about an equal number of Renaissance and Victorian parish churches, each accompanied by three or four pages of text. The latter, written by Mr. C. B. Mortlock, takes the form of historical notes which, though a little pedestrian, are unexceptionable. He leaves description of the buildings and architectural definition to the artist, Mr. Donald Maxwell. It is, therefore, unfortunate that the drawings are so particularly insensitive architecturally ; not only from the point of view of accurate delineation of detail, but from the point of view of rendering character and architectural effect. The woolliness of the drawings denies them any sense of the material—all the churches, whether brick or stone, might equally well be of soap or plaster of Paris. The artist indicates none of the immense difference in architectural feeling between, say, the live Gothic at Westminster, the sophisticated classic of All Souls, Langham Place, and the academic rectitude of Pearson's church of St. Augustine at Kilburn. Some of the exterior views have a certain compositional competence, notably that of St. Mary's, Graham Street. J. M. R.

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The publishers (Architectural Press) will pay the published price for copies of the ARCHITECTS' JOURNAL for January 17.



PERIODICALS

MARCH ANTHOLOGY

AMERICA

American Architect

(Monthly $1, 572 Madison Avenue, New York)

MARCH. The second of the " Material in Design " series of articles deals this month with glass, mainly from the decorative point of view, illustrations of current work and an article on the town planning of Helsingfors, a city which has had a municipal town planning office since 1908.

Architectural Forum

(Monthly $1, 220 East 42nd Street, New York)

March. A house in Pennsylvania, built of local stone and brick by George Howe : the Los Angeles County General Hospital, a typical example of American vertical planning on a sloping site, designed by the Allied Architects Association of Los Angeles. The international section is this month devoted to Poland, and contains, amongst other things, some perspectives of the interior of a new Polish transatlantic liner, the *Pilsudski*.

Architectural Record

(Monthly, 50 cents. 115 West 40th Street, New York)

March. An article on the work of the P.W.A. Housing division, with 11 pages of sample plans : good notes on the plan requirements of the apartment house, a good deal of which is equally applicable to this country. A portfolio of small houses with interesting but occasionally extravagant plans.

Pencil Points

(Monthly, 35 cents. 330 West 42nd Street, New York)

March. Mr. H. van Buren Magonigle demolishes Neutra Schindler & Co., by quoting them regardless of contest. " Architectural Stamps," by Charles Corwin and an article by George Nelson on the work of the Brothers Luckhardt : all the usual features of interest to draughtsmen.

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ARGENTINE

Revista de Arquitectura

(Monthly, $1. Lavalle 310, Buenos Aires)

February. The convent of the Sacred Heart, by Jorge Fourcade, plans and



Top and right, a mass produced chair designed by Gilbert Rhode. [From the "Architectural Forum."]

photographs. Work of the Buenos Aires school of architecture.

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CZECHOSLOVAKIA

Styl

(Monthly, 10 copeks. Bredovská Císto 3, Prague)

Nos. 7-9. Six schemes submitted in competition for a new Academy school in Prague, by Bohuslav Fuchs, Havlíček and Honzik and others. An article by the editor, Max Urban, on Dynamic Architecture.

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FRANCE

L'Architecté

(Monthly, 12 fr. 2 rue de l'Echelle, Paris)

January. Extensions to the National Library of France, by Michel Roux-Spitz, flats at Saint Cloud by Ali Tur, and Ludwig Kozma's villa near Budapest.

L'Architecture

(Monthly, 6 fr. 51 rue des Ecoles, Paris 5e)

March. Schemes submitted by various architects in competition for various subdivisions of the 1937 exposition, and an illustrated article on the work of Albert Besnard.

L'Architecture d'aujourd'hui

(Monthly, 25 fr. 5 rue Bartholdi, Boulogne sur Seine, Paris)

March. Recent work in France, and some notes by Jules Posener on the contemporary style in England, illustrated by the work of Messrs. Tecton, Checkley Burnet Tait and Lorne, Sir Owen Williams, and Howe and Lescaze.

La Technique des Travaux

(Monthly, 10 fr. 54, rue de Clichy, Paris, 9)

March. A hospital at Clichy by Walter and Carson and an open-air school at Aalsmeer, by I. G. Wiebenga. Further notes on aerodromes give details of hangar construction, with particular reference to roofs.

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GERMANY

Baugilde

(Fortnightly. 1 m. 50. Grünstrasse 4, Berlin, S.W.19)

No. 5. A review of country housing conditions in Poland and a long illustrated article on old doors and doorways in Berlin and the neighbourhood.

No. 6. New country post-office buildings in Bavaria, apparently constructed under the new régime.

Baukunst und Städtebau

(Monthly, 1 m. 90. Bauwelt Verlag, Berlin, S.W.68)

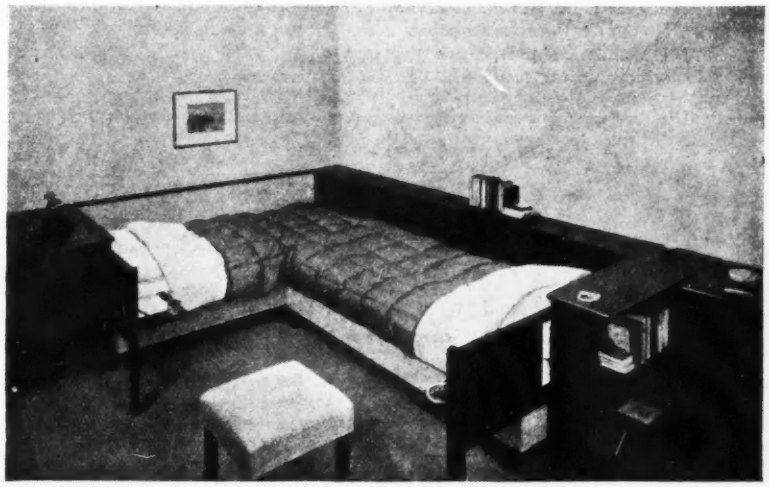
March. Some excellent industrial buildings in the Ruhr by Fritz Schupp and Martin Kremmer, other industrial buildings, and notes on the technique of stained-glass windows.

Baumeister

(Monthly, 3 m. Georg D. W. Callwey, Munich)

March. An excellent new school at Seebach, near Zurich, by Roland Rohn, good illustrations and adequate plans. A well-considered bakery by Karl Elsässer, arranged with good circulations and process lines. The Opel baths at Wiesbaden, photographs already familiar from several other periodicals. The usual good working details.





By day and by night: the settee is converted into two beds, and two small bedside tables are concealed at the head. Designer, Paul Bry. [From "L'Architecture d'aujourd'hui."]

Bauwelt

(Weekly, 90 pf. Ullstein publishers, Berlin, S.W.68)

March 7. Detached small houses for workers; orthodox plans with a rather uninspired lay-out.

March 14. Competition notes, and an article on the planning of the house in conjunction with the garden.

March 21. Last week's article continued.

March 28. Semi-detached country houses and contemporary Berlin interiors.

Deutsche Bauzeitung

(Weekly, 3 m. 40 per month. Seydelstrasse 6, Berlin, S.W.19)

March 6. German church architecture, good photographs.

March 13. Recent post-office buildings.

March 20. The design of gas-proof shelters, with notes on necessary equipment. Mannheim technical school competition result.

March 27. Housing in the traditional Aryan manner: some good simple furniture for the working class.

Innen Dekoration

(Monthly, 2m. 50. Mecharstrasse 121, Stuttgart)

March. Interiors in Sweden and Germany, some simple traditional designs, the moderne not always so good.

Moderne Bauformen

(Monthly, 2 m. 25. Julius Hoffmann, Stuttgart)

March. Three new schools at Cologne, Vienna and Zürich: three middle-class country houses on Lake Constance.

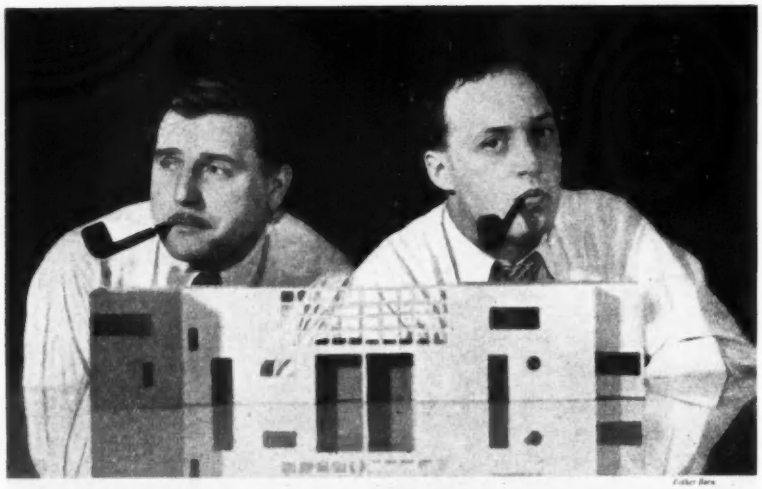
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HOLLAND

Bouwkundig Weekblad Architectura

(Weekly, 15 florins per annum. Weteringshaus 102, Amsterdam)

March 2. Swimming baths at Amsterdam by Eibink and Snellebrand.



Men of the Month KASTNER & STONOROV (see Page 992)

" Together Kastner and Stonorov form one of the most curious architectural combinations in the U.S. With no social backing, no friends on important directorates to turn jobs their way, they have captured two of the prize jobs of the day by cultivating Labor. Which is strange practice indeed in a profession that has in the past thrived on capitalistic good will." [*From the " Architectural Record."*]



A school in Cologne by Stadtbaurat Mehrteus, in conjunction with A Brähler. [*From " Moderne Bauformen."*]

March 9. Illustrations of the work of the late J. Duiker.
March 16. A good studio block at Amsterdam by Zanstra, Giesen and Sijmons, well illustrated and with useful drawings.
March 23. The town planning of Amsterdam.
March 30. The new R.I.B.A. building.

de 8 en opbouw

(Fortnightly, 30 cents. Amstel 22, Amsterdam, C.)
March 2. Studio block by Zanstra, Giesen and Sijmons, with some useful sections.
March 16. Various jobs, including two good hotel projects.
March 30. An article on contemporary fashions and their " efficiency," amusing line drawings.

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HUNGARY

Tér és forma

(Monthly, 4 pengös. Teréz-Körút 56, Budapesth, VI)
March. An issue devoted mainly to small country houses; some photographs of the Apollo tennis courts at Amsterdam.

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ITALY

Rassegna di Architettura

(Monthly, 12 lire. via Podgora 9, Milan 105)
March. Two villas in Tripoli, the municipal garage at Venice and two competition results.

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SWEDEN

Byggmästaren

(Weekly, 15 kr. per annum. Kungsgatan 32, Stockholm)
March 6. A shop by E. G. Asplund in Stockholm, full plans and illustrations: an article: " Are modern architects international? "
March 27. Air conditioning number.

Form

(Monthly. Nybrogatan 7, Stockholm, 7)
March. Textiles from an exhibition at the National Museum in Stockholm.

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SWITZERLAND

Schweizerische Bauzeitung

(Weekly, 1 fr. Dianastrasse 6, Zurich)
March 2. Market hall at Chur, by the brothers Sulzer.
March 9. Mainly civil engineering.
March 16. Competition for a school at Solothurn, won by Karl v Büren: the three premiated designs reviewed.
March 23. Schemes for the replanning of the Casinoplatz at Berne.
March 30. Mainly electrical engineering.

Werk

(Monthly, 3 fr. 60. Muhlebachstrasse 59, Zürich)
March. Competition for a new cantonal and university hospital near Zürich; various types of lay-out analysed.

TECHNICAL SECTION: 14

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

MECHANICAL DRAUGHT AND BOILER DESIGN

MUCH of the energy that is expended in producing improved methods of firing is confined to the application of such systems to existing types of boiler. The fullest advantages cannot be obtained in this way, since boilers designed for natural draught have large flue spaces and short gas travel. Given mechanical draught, the flue areas may be much reduced, with consequent increase of gas velocity and rate of heat transfer. Further the gas travel may be longer, and the exit temperature lower, since the combustion does not rely on a high flue temperature to produce draught. Air may be pre-heated so as to increase efficiency still further.

Figs. 71a and 71b illustrate two types of recently introduced boiler which make use of all or some of the above-mentioned possibilities, and combine them with a magazine feed to allow of long periods of running without attention.

It would appear that this is a field of development which is just being opened up seriously and much headway should be made in the near future with a view to utilizing coal and coke to better advantage and obtaining with it efficiencies in heating boilers hitherto considered impossible.

METHODS OF FEEDING BOILERS

Solid fuel is fed into boilers in one of three ways :—

(*a*) by hand.
(*b*) by gravity from a magazine.
(*c*) by automatic stoker.

Hand Feeding

The vagaries of hand feeding have already been mentioned briefly. Hand feeding can be as good as any method if the stoker uses intelligence and forethought. Intelligence in keeping his fire uniform in depth, and incandescent, yet without a great excess of air; forethought in anticipating changes in heat output necessary at different times during the day and adjusting the controls in advance so as to be producing just the right amount of heat at the right time, thus avoiding waste.

One cannot expect an unlimited supply of intelligence and forethought at 50s. a week, and without these attributes, hand feeding can be extravagant and wasteful. Consider the case of a heating boiler for a house fired by the maid, or in a small block of offices or flats where it is fired by the caretaker. These people may know nothing of combustion and may even care less; their main object is to keep the inhabitants satisfied with a minimum of effort to themselves. They are therefore liable to err on the side of having plenty of heat by keeping the dampers well open, and a thick bed of fuel heaped nearly up to the crown of the combustion chamber. Under these conditions, carbon monoxide is generated in abundance. At the same time the firebox is full, and there is no room for the free mixture of air and gases necessary for proper combustion, with the result that the gases are rapidly cooled below their ignition point by the adjacent boiler surfaces, and are carried off to the flue unburnt.

Thus, whilst on test, hand-fired heating boilers may be shown to have efficiencies of 70 per cent. to 75 per cent. under working conditions (during daytime) they may be expected to average about 65 per cent. with good stoking

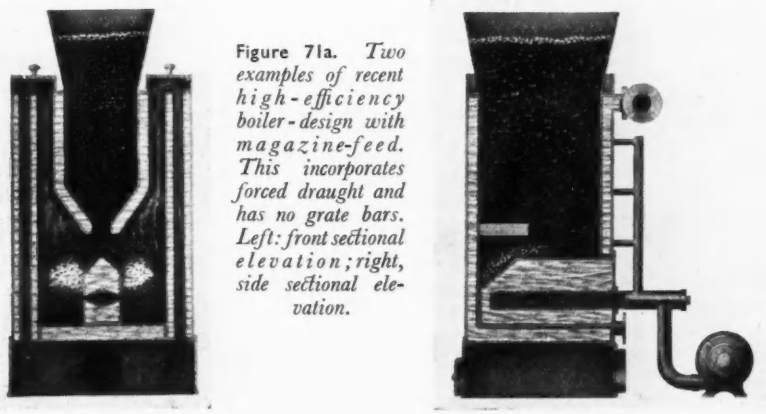


Figure 71a. *Two examples of recent high-efficiency boiler-design with magazine-feed. This incorporates forced draught and has no grate bars. Left: front sectional elevation; right, side sectional elevation.*

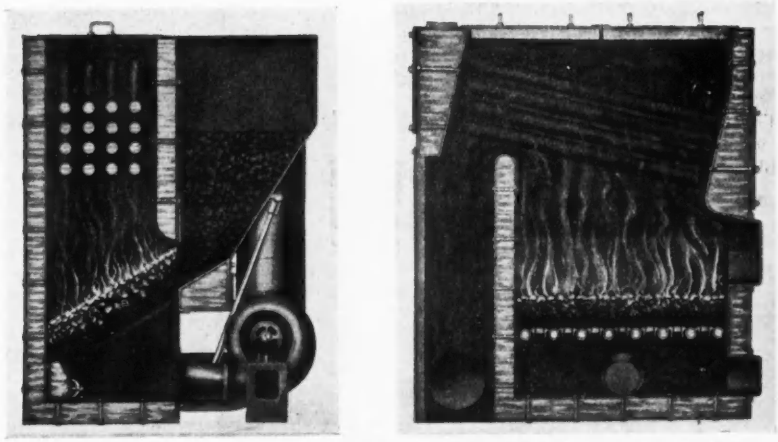


Figure 71b. *This type has controlled draught and pre-heated steam-charged air. Left: cross section; right, longitudinal section.*

and probably not more than 50 per cent. with bad.

Small fire-pot type heating boilers, (such as are used in houses) having little or no secondary heating surface at all, on test are stated to be about 70 per cent. efficient, but under working conditions, with unskilled attention, may be as low as 40 per cent.

Gravity Feed

The use of the principle of gravity for feeding, as with the magazine type boiler already described (see Figs. 57 and 58), is so simple as to require no explanation. The complete absence of moving parts reduces maintenance costs to nil, and attendance to daily charging of the magazine with coal or coke and the removal of ashes.

The fuel falls on to a sloping grate inclined at the natural angle of repose. Thus, as the lower layers are consumed and drop, more fuel falls down from the magazine, at the same time tending to clear the ash through the bars.

A constant fuel bed depth is therefore maintained, which accounts for the high efficiencies obtainable over considerable periods once the dampers and controls have been set. 75 per cent. to 80 per cent. efficiency are said to be obtainable with this type of boiler. Probably 75 per cent. is a safe figure for continuous running.

Automatic Stokers

With one or two exceptions, automatic stokers for heating boilers operate on one principle. Fuel is fed into a hopper, at the bottom of which is situated a worm or screw, rotated at a slow speed through reduction gearing from a motor drive. The worm is enclosed in a tube beyond the hopper, and serves to convey the fuel into the firepot, which is built into fire brick inside the boiler (see Fig. 72). The fuel must be coal or anthracite of small size. Coke cannot be conveyed by worm.

A second tube delivers air into the firepot from a fan driven from the same motor that operates the worm. This air is discharged through a series of slots or openings in the firepot, so disposed as not to be closed up by ash or coal.

Thus, forced draught is provided, and a very high combustion rate is possible. So high is this, in fact, that a grate is unnecessary. The fuel is burnt as it passes over the edge of the firepot, and all the ash is reduced to clinker in the process. This, however, does not impede the combustion, as the fresh coal brought in by the worm pushes the waste material to one side, and daily removal is all that is necessary.

Safeguards are generally provided to prevent jamming of the worm from damaging the mechanism, also to prevent the fire going out if the machine is shut off for lengthy periods by its thermostat. The former is accomplished by a shearing pin, or slipping clutch. The latter, by arranging the motor to start up every hour or so for a few minutes, whether required by the thermostat or not.

Thermostatic control is applied either as stated above, by the stop and start method, or by a variation in the rate of the fuel feed. The latter method should, of course, vary the air supply at the same time, or considerable excess will result when operating at low outputs.

The efficiency of a suitable boiler is stated to be 70 per cent. to 75 per cent. fitted with automatic stoker, and this should be obtainable continuously even with a cheap fuel, subject to clinker removal.

The advantages of automatic stokers may be summarized as follows :—

(*a*) Make use of cheap small coal costing 20s. to 25s per ton.
(*b*) Free from dirt associated with hand firing (depends on arrangement).
(*c*) Labour costs reduced, as the attendant can carry out other duties during the day.
(*d*) Higher average efficiency than hand firing, and avoidance of cooling fires by leaving doors open.
(*e*) Absence of smoke.

The disadvantages are cost of current for operation, and maintenance and depreciation cost. These items must be properly evaluated and allowed for in making any comparisons.

Another form of automatic stoker employing the principle of the producer gas furnace by the admission of steam to the primary air, is illustrated in Fig. 73. It will be noted that this type employs a chain grate for feeding, and it is capable of burning very low grade fuels such as coke breeze with a high degree of efficiency. Yet another type of stoker employs rocking grate bars operated by pneumatic pistons from an air compressor, and has no forced draught. This allows coke or coal to be used.

New types of automatic stoker are being introduced in great profusion at the present time, but the main advantages claimed are the same for all in principle, but differ in degree.

CONTROL

Control of combustion is highly important if a high degree of efficiency is to be obtained. At the same time, control of output is desirable and necessary in order to limit the heat input to that necessary to maintain the requisite temperature in the building.

Control may be by

(*a*) hand regulation of air doors and dampers ;
(*b*) a simple direct-acting thermostat operating ashpit air door ;
(*c*) indirect thermostat (electrically operated), controlling primary and secondary air doors, main flue damper and check draught door, see Fig. 74.
(*d*) fan control.

Hand control (*a*) need not be further

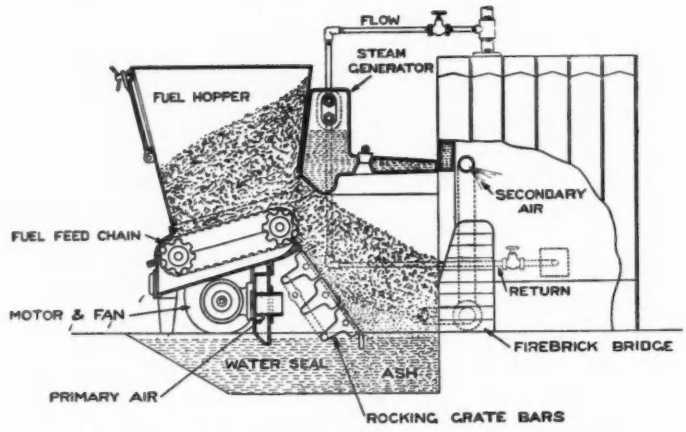


Figure 73. *Automatic stoker utilizing gas producer principle.*

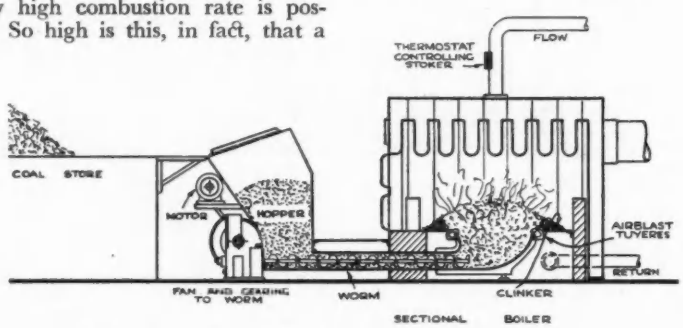


Figure 72. *Typical installation of automatic coal stoker.*

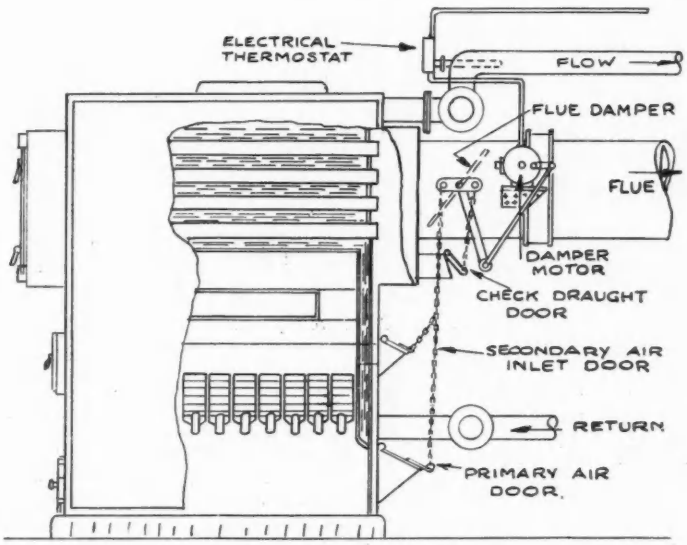


Figure 74. *Electrical thermostatic control applied to magazine boiler.*

discussed. It is difficult to expect any individual, unless very intelligent, to obtain consistently high efficiency and steadiness of output, with so many variables constantly coming into play, unless the plant is sufficiently big to warrant a complete set of instruments giving him the necessary information, and these cost money.

Simple direct thermostatic control (*b*) has been mentioned before (see Fig. 54), and is useful on small boilers.

Method (*c*) (Fig. 74) using electricity as the operating agent, permits a very sensitive thermostat to be used, as it has little work to perform. This is generally of mercury tube or bimetallic type, operating, in effect, as a two-way switch. The movement of the dampers is by means of an electric motor, arranged with reduction gear to move half a revolution in some thirty seconds. The motor is controlled with limit switches so arranged that having completed one half revolution, the circuit is set for the motor to start on the next half revolution. Thus successive movements of the thermostat give regular opening and shutting of the dampers.

Primary and secondary air doors, main damper and draught check door are linked together so that the former opens and the latter shuts when a rise of temperature is required, and vice versa for a fall of temperature.

Provided the boiler is one that maintains a constant fuel depth, i.e., constant resistance, and that the draught is limited by a stabilizer, it is obvious that there must be one position for the various dampers and air doors that gives the highest efficiency. This can be checked by flue gas analysis and temperature and the doors adjusted once and for all at the start. After this the thermostat will cause them to be opened to the same position, and the combustion should remain at a high average efficiency. The thermostat can be operated by water flow temperature (in the case of a water heating system), steam pressure (with a steam system) or by room temperature, or both.

A further control system is available taking into account the outside temperature, and varying the flow temperature setting to suit the conditions.

Still further controls operate with a time clock, giving different temperatures day and night.

It is possible to go to almost any lengths with automatic controls, but this is a separate subject. It must be borne in mind that the more complicated they become the more maintenance they are likely to require, and so ultimately they may defeat their object, and regular skilled supervision of all such systems is desirable if they are to be kept up to a high state of perfection.

Fan control, method (*d*), is the same in principle as (*c*), already described, except that the thermostat stops and starts the fan of a forced draught or automatic stoker system, and once the fan damper has been set, the air-fuel ratio should remain the same.

Any form of thermostatic control is found to effect a saving of fuel in practice amounting from 10 per cent. to 20 per cent. of the annual bill, and whether this will justify its installation depends on the merits of any individual case.

Complete electrical control with a magazine boiler or automatic stoker of high efficiency might be expected to effect a saving of as much as 25 per cent. of the fuel taken by a hand-fired and hand-controlled boiler.

SOCIETIES AND INSTITUTIONS

LIVERPOOL ARCHITECTURAL SOCIETY

Professor L. B. Budden, M.A., F.R.I.B.A., proposing "The City of Liverpool" at the annual dinner of the Liverpool Architectural Society, held recently in the Adelphi Hotel, when Sir Giles Gilbert Scott, R.A., F.R.I.B.A., was the principal guest, said that the suggestion had arisen that Liverpool, seeing her pre-eminence as a port threatened, had decided with characteristic enterprise to become a cathedral city.

That prophecy, in so far as it implied a decline in vigour, was unjustified. The city had a robust constitution which had survived the diversion of American luxury traffic to Southampton, the decline of the Lancashire cotton trade, the removal of the West African trade to London, the introduction of tariffs, the general shrinkage of international trade, the effects of the dispute with the Irish Free State, and an especially heavy burden of unemployment. She was surviving also the persistent pull of London, which was threatening to do for England what Paris had done for France.

But the time had arrived when the city should take stock of its assets. In the first place, the size of the city was not so vast that it could not be apprehended as a whole. Its problems of planning, transport, administration, and so on, however complex, were realizable. London, to take an example on the other hand, had astronomical figures of population and there was a monstrous concentration and congestion in the centre, with excessive diffusion in the suburbs.

Liverpool offered something much simpler to "bite upon." The city was definitely a community, and a community of a coherent and relatively intimate kind. If was easy for those who lived in it to establish close contacts with a great variety of different activities, so that their experience was enriched. In London there was a tendency for different professions to herd—which made them morbid. But in such a place as Liverpool, official, educational and business relationships could be developed directly and on a comparatively permanent basis, with consequent gains in stability and continuity of policy.

There remained much to be accomplished as conditions improved. The Corporation was fortunate in possessing considerable estates in the city—and especially in the "Bloomsbury area"—which were developed at a time when sound architectural traditions were observed. And, though it had lately allowed them to lapse, it still possessed powers in respect of its own leasehold property which would make it easy if these powers were revived, as they could be, to determine what colour it should be painted and how often. We saw at present the consequences of an unfortunate indulgence of anti-social individualism. The position might be retrieved by a long-term policy.

Any adequate programme of social betterment must involve comprehensive planning—not merely the planning of the suburban periphery, nor even the pro-

vision of better housing on estates casually available here and there throughout the city, but the systematic zoning and co-ordination of housing and other types of property at the core of the city, the provision of large open spaces in these reconstructed housing areas, and the simultaneous solution of existing traffic and other problems.

Sir Giles Gilbert Scott recalled that some thirty years ago he read a paper to the Society on the cathedral he had designed. Finding recently some pages of the notes prepared for that occasion he had been impressed with his early wisdom. He asked then the question whether the adoption of a Gothic style of architecture for the cathedral would help that style to carry on a little longer or whether it was going to be "the last bust-up." "I can answer that question now," said Sir Giles. "It is the last bust-up."

Lt.-Col. Ernest Gee, F.R.I.B.A., president, noted the great architectural opportunity presented to Liverpool with her present need of new municipal offices, and said that the area around the entrance to Queensway, the Mersey Tunnel, offered a chance to provide a new civic centre worthy of that principal entrance to the city.

INSTITUTE OF STRUCTURAL ENGINEERS

The annual dinner of the above Institution is to be held at the Dorchester Hotel, W.1, on Friday, May 10 at 7.30 p.m.

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Mr. Donald J. Cameron, L.R.I.B.A., architect and surveyor, has removed his offices from Glasgow to Creagorry, Benbecula, Inverness-shire, where he will be pleased to receive trade catalogues.

THE BUILDINGS ILLUSTRATED

Church of St. Mary, Becontree (pages 623-626). General contractors, Pitchers, Ltd. Sub-contractors: Brick Makers and Factors, Ltd., special bricks; Hall & Co. (Romford), stock bricks; Eric Munday, Ltd., foundation stone; Trussed Concrete Steel Co., Ltd., Reinforced Concrete Engineers, reinforcement for concrete, etc.; Carter and Youlton, Ltd., tiling; Salter Edwards & Co., Ltd., asphalting; Jos. F. Ebner, Ltd., wood block flooring; Morris Singer Co., metal windows and leaded lights; Alpha Manufacturing and Electrical Co., Ltd., electric lighting and fittings; J. W. Gray and Sons, Ltd., lightning conductor; J. A. King & Co., Ltd., roof lights; Nettlefold and Sons, Ltd., ironmongery; John Bolding & Co., sanitary fittings; Newalls Insulation Co., asbestos spray; Speirs & Co., rainwater heads; J. Wippell & Co., Ltd., W.I. balustrade; Mears and Stainbank, bell; Bratt Colbran, Ltd., gas fires and surrounds; London Pipeless Heating Ltd., heating. *Furnishings:* A. Robinson, holy table, communion rails, lectern, choir stalls, baptistery pews and chancel chair and desk; Betty Joel, Ltd., pews; Arthur Sayer & Co., chairs; Pitchers, Ltd., font and font cover, flower vases and credence shelf; Cashmore Art Workers, pulpit and book rest; J. Wippell & Co., Ltd., hymn boards, kneelers and alms chests. The stained glass window and the cartoons for holy table and the lectern carvings were executed by Christopher Webb.

House at Sandbanks, Dorset (page 635). General contractor, R. C. Webber. Sub-contractors: J. and A. Stene, metal windows.



TRADE NOTES

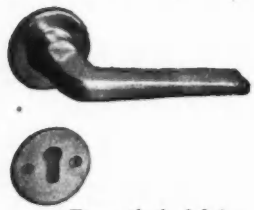
[*BY F. R. S. YORKE, A.R.I.B.A.*]

Lever Handles

THE lever handles illustrated here are made by the Dryad Metal Works at Leicester.

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The lever on the 1¾ in. diameter rose, with separate escutcheons, is fixed by



For method of fixing, see diagram on right.



means of a ⅛ in. pin, driven through the collar of one handle into a lead-filled slotted spindle (see diagram). This spindle is fixed to the other lever, so the fixing pin head shows on only one side of the door.

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The roses are prevented from turning by projecting spikes.

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The levers, chromium plated, cost 5s. 6d. per pair, and the escutcheons 9d.

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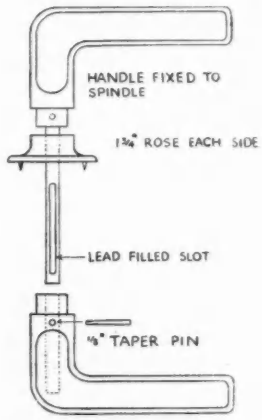
The lever on the 5½ in. by 1½ in. plate



has a three-coil tempered steel spring, enclosed in the cylindrical box between the plate and the handle. A segmental stop device, inside, controls the "hand," and the play of the spring which can be removed only by unscrewing the threaded fixing collar at the back of the plate.

Coat Hanger

The Dryad H 64 coat hanger, on the right-hand side of the picture, is a simplification



Details of the lever handle shown on left (top).

of the normal type, shown alongside it. Its overall projection is 6 ins. and its greatest width 1 in. It costs 9d. in painted iron or gunmetal and 2s. 6d. in polished or dull chromium plate. This is 6d. less than the old pattern in similar material.

Information

The diagram at the head of these notes is reproduced from a Danish publication, *Haandboy for Bygnigs-Industrien*, which contains a series of data sheets, giving overall sizes of objects for which accommodation may have to be provided in a building.

Draught Excluder

I understand that Messrs. Neilson and Barclay intend to standardize a cill guard and draught excluder of the type shown in the diagram (reproduced overleaf) to replace their present Sikkar No. 4 type.

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The fitting is made in solid brass. The cill plate, which is held by screws on one side

only, provides a neat cover to joints between different flooring materials, provided the joint lies 1 in. to 1½ in. in front of the door face.

Manufacturers' Items

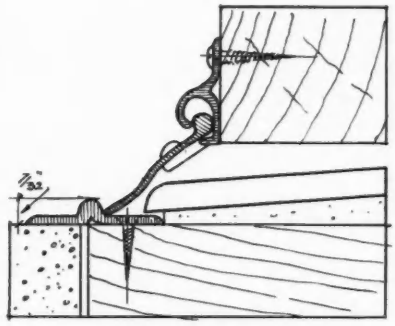
Mr. N. E. Thompson, who recently resigned from the position of rubber flooring representative to the India Rubber Gutta Percha Company (Silvertown Company) has accepted an appointment with Messrs. Honeywill and Stein, Ltd., 3, New London Street, E.C.3, to act as their technical representative. Mr. Thompson will be responsible for increasing the interest of the company's building products amongst London architects.

Honeywill and Stein, Ltd., are the selling organization of Gyproc Products, Ltd., which produces Gyproc Wall and Ceiling Board, Gyproc lath and Rocbord lath, at their new works at Rochester, Kent. Honeywill and Stein, Ltd., are also acoustic and sound insulation engineers and supply gratis to architects an acoustic and insulation serivce, and a large range of speciality products for this class of work.

*

British Insulated Cables, Ltd., of Prescot, Lancashire, have received from the Metropolitan-Vickers Electrical Co., Ltd., an order for the overhead equipment required in connection with the contract recently secured by that company for the electrification of the Central Railway of Brazil.

The order is for the equipment of approximately 112 single track miles of track within the suburban section of the Central Railway of Brazil at Rio de Janeiro, and includes the overhead equipment of the track, with transmission lines to sub-stations and signal power supply, carried on track structures, together with all rail bonding.



The Sikkar draught excluder.

*

Messrs. Metropolitan-Vickers Electrical Co., Ltd., have sent us a copy of their new decoration lamp booklet, S.P. 7102/13. This publication presents in a handy form particulars of all lamps suitable for electrical illuminations. Helpful in planning special displays such as those for the forthcoming Jubilee Celebrations, or standard schemes for seaside resorts, pleasure parks, etc., this booklet provides details and prices of a most useful selection of lamps and fittings.

Standard colour-sprayed lamps, special sign lamps and sets of miniature coloured lamps, together with suitable holders ready mounted and wired; Decora architectural tubular lamps; high-power gasfilled lamps and special projector lamps for floodlighting; electric discharge lamps with special floodlighting lanterns; all these are compactly listed in this new publication which also gives addresses of district offices where advice will be given on the planning of decoration schemes.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

HAMPTON. *Factory.* The U.D.C. has received an application for consent to the erection of a factory at the rear of No. 1 High Street, Hampton Hill, for Messrs. Norrish Strode and Searle, for the manufacture of pigeon rings. Approval has been given subject to the consent of the Office of Works.

MARYLEBONE. *Flats, etc.* Plans passed by the B.C.: Block of flats, Finchley Road, Marlborough Road, and Finchley Place, for Messrs. C. E. Blackbourn and Partners; block of flats, with basement garage, Nos. 13-18 St. Edmund's Terrace, and 17-22 St. James's Mews, for Mr. A. Blomfield.

NORTHOLT. *Shops.* The Minister of Health has allowed the appeal of Mr. W. J. C. Morgan against the Ealing Council's refusal of permission for the conversion of the Wood End Stores at Northolt Park into shops.

NORTHOLT. *Shops, etc.* Mr. William J. R. Ross, Surveyor, Brent Station, Golders Green, N.W.11, has prepared a layout of shops, garages and land at rear of Church Road.

PERIVALE. *Flats.* Messrs. W. H. Read & Co., Ltd., have prepared a lay-out, on behalf of Messrs. W. P. Hughes & Co., Ltd., for the proposed erection of a block of 30 flats on the Perivale Grange Estate.

ST. HELIER. *Hospital.* The Surrey Public Assistance Committee has decided to ask the County Council to erect a general hospital on the L.C.C. housing estate at St. Helier, Carshalton. The estimated cost of the building alone is £500,000, and will provide accommodation for 862 beds.

TEDDINGTON. *Houses.* The Surveyor has been instructed to report upon the suggested development of sites in Park Lane, Middle Lane and Sydney Road, for housing purposes.

SOUTHERN COUNTIES

HASTINGS. *Drainage.* The Corporation has prepared a scheme for the re-drainage of the town at a cost of £294,707.

HASTINGS. *Houses, etc.* Plans passed by the Corporation: 14 houses, Park Drive, for Mr. A. Radcliffe; four houses, Sedlescombe Road, for Messrs. Jeffery and Wyatt; alterations, 11 Queen's Road, for Messrs. Freeman, Hardy and Willis, Ltd.; 26 houses, Parker Road, for Mr. R. E. Relfe; alterations, 399 London Road, for Mr. D. Newton Padgham.

HYTHE. *Houses.* The Town Council has requested the Building Committee to provide for 24 new houses. Twelve to be of the three-bedroom type and twelve of the two-bedroom type.

FALMOUTH. *Hospital.* The Town Council has requested the Borough Surveyor (Mr. H. Tresidder) to prepare a plan for a new hospital. A sufficient portion is to be constructed to provide for the accommodation now required.

EASTERN COUNTIES

NORWICH. *School.* The Education Committee is to erect a school for 450 children on the Earlham North Estate.

NORWICH. *Slum Clearance.* The Corporation is to undertake the clearance of the St. Stephen Street and St. Peter Street areas.

YARMOUTH. *Café, etc.* Plans passed by the Corporation: Café, two shops and seven houses, Crow Hall estate, for Mr. W. West; showroom, Southtown Road, for Mr. F. Bateley; four houses, Victoria Road, for Messrs. E. Moore and Son, Ltd.

YARMOUTH. *Building Sites.* The Corporation has leased six building sites in Lawn Avenue to Messrs. J. Balls and Sons.

YARMOUTH. *Development.* The Corporation has appointed a Special Committee to consider the proposed schemes with regard to the development of the east side of the Central Parade, and the construction of a swimming pool in the Wellington Gardens.

NORTHERN COUNTIES

BLACKPOOL. *Development of Land.* The Corporation has approved the sketch lay-out submitted by Mr. S. A. Howard, for the development of land in Bloomfield Road.

BLACKPOOL. *Reconstruction.* Messrs. Catterall and Swarbrick's Brewery, Ltd., propose to reconstruct the Manchester Hotel, at the corner of the Promenade and Lytham Road, Blackpool.

BLACKPOOL. *Development.* Messrs. D. H. and R. Siddall are to develop the Hollywood estate, Collingwood Avenue, Blackpool.

BLACKPOOL. *Houses.* The Corporation has sold land in Park Drive East to Mr. Halstead Best, surveyor to Mr. Edward Saville, for the erection of 20 houses.

BLACKPOOL. *Houses.* Messrs. R. Fielding and Son have prepared a scheme for the erection of 73 houses at Eaton Avenue, Blackpool.

BLACKPOOL. *Houses, etc.* Plans passed by the Corporation: 14 houses, Toronto Avenue, for Mr. V. Hague; four houses and four garages, Harrington Avenue, for Mr. A. Turner; 10 houses and six garages, Kingscote Drive, for Mr. H. Grimbledeston; two houses and two garages, Lytham Road, for Messrs. J. Birtwistle, Ltd.; seven houses and garages, Delpene Avenue, for Mr. R. Jackson; four houses, Brun Grove, for Mr. T. Wright; 14 boarding houses, Promenade S., for Sir L. Parkinson & Co., Ltd.; 10 houses and three garages, Ayrton Avenue, for Mrs. J. B. Ayrton; two houses and two garages, Devonshire Road, for Mr. J. W. Lee; ice cream store and freezing room, Bispham Road, Carleton, for Mrs. Balderstone; 10 houses and 10 garages, Devonshire Road, for Messrs. W. Halsham and Son; nine houses and nine garages, Shaftesbury Avenue, and 18 houses and 17 garages, Devonshire Road, for Messrs. R. Fielding and Son; two houses and shops, Fleetwood Road, for Messrs. S. Brookes, Ltd.; four houses, Deneway Avenue, for Mr. A. Wilson; four houses and four garages, Cornwall Avenue, for Messrs. T. Bannister and Sons; three houses and two garages, Glastonbury Avenue, for Messrs. J. Gregson and Son.

MANCHESTER. *Power Station.* The Corporation is to transfer land at the Carrington Estate to the Electricity Committee, for the erection of a super power station.

SCARBOROUGH. *School.* The Education Committee has asked the borough engineer to prepare plans for the erection of an elementary school at Northstead.

SCARBOROUGH. *Cinema, etc.* Plans passed by the Corporation: Cinema, Westborough, for Mr. H. W. Weedon, on behalf of Odeon Theatres, Ltd.; reconstruction, 95, Filey Road, for Mr. G. H. Fawcett; three houses, Filey Road, for Mr. F. Vaux; alterations, Crown Hotel, Esplanade, for Messrs. Jones and Rickaby; alterations, New Inn, Falsgrove Road, for Mr. F. Baker; alterations, Pier Hotel, Foreshore Road, for Mr. R. Jowsey; alterations, the Brewery, North Street, for Mr. F. Baker; shop premises, Castle Road and Aberdeen Walk, for Messrs. Wilkinson and Smith; four houses, Manor Gardens, for Mr. C. J. Wilson; three houses, Filey Road, for Mr. E. C. Tasker.

SOUTH SHIELDS. *Houses, etc.* Plans passed by the Corporation: 168 houses, Mowbray Crescent, for Messrs. T. A. Page, Son and Bradbury, on behalf of Messrs. R. Brown and Son, Ltd.; alterations, 166-170 South Palmerston Street, for Mr. Howard Hill; reconstruction, premises corner of Victoria Road and

(*Continued on page xxviii.*)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie ..	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under Lyne	N.W. Counties	1 5½	1 1½
B_2	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on-Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton ..	N.W. Counties	1 5½	1 1½
A	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_2	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M.	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester ..	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley ..	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham ..	N.E. Coast	1 5½	1 1½
A_2	EASTBOURNE	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome ..	S.W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W.Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley ..	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B_1	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_3	Kendal ..	N.W. Counties	1 4	1 0
A_3	Keswick ..	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12-15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough ..	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N. E. Coast	1 5½	1 1½
A_2	Middlewich ..	N. W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson ..	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid. Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham ..	N.W. Counties	1 5½	1 1½
A_3	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford ..	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_3	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby ..	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough ..	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_1	Southampton ..	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_3	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid. Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A_2	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan ..	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_3	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil ..	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	,,	1	7
Joiner	,,	1	7
Machinist	,,	1	8
Mason (Banker)	,,	1	7
,, (Fixer)	,,	1	8
Plumber	,,	1	7
Painter	,,	1	6
Paperhanger	,,	1	6
Glazier	,,	1	7
Slater	,,	1	7
Scaffolder	,,	1	3
Timberman	,,	1	3
Navvy	,,	1	2½
General Labourer	,,	1	2½
Lorryman	,,	1	5
Crane Driver	,,	1	6
Watchman	per week	2	10	0

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	,,	1	16	6
Hydrated Lime	,,	3	0	9
Portland Cement, in 4 ton lots (d/d site, including Paper Bags)	,,	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	,,	2	6	0
White Portland Cement, in 1-ton lots	,,	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	,,		6	9
Building Sand	,,		7	3
Washed Sand	,,		8	3
2" Broken Brick	,,		8	0
¾" ,, ,,	,,		10	3
Pan Breeze	,,		6	6
Coke Breeze	,,		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	,,	3	6	5	3
Rest Bends	,,	4	3	6	3
Single Junctions	,,	3	6	5	3
Double	,,	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¾" Channel bends	each	2	9	4	0
Channel junctions	,,	4	6	6	6
Channel tapers	,,	2	9	4	0
Yard gullies	,,	6	9	8	9
Interceptors	,,	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	,,	9	0	15	0
Single junctions	,,	8	9	18	0
Double junctions	,,	13	6	30	0
Lead Wool	lb.		6		—
Gaskin	,,		5		—

BRICKLAYER

		£	s.	d.
Flettons	per M.	2	15	0
Grooved do.	,,	2	17	6
Phorpres bricks	,,	2	15	0
,, Cellular bricks	,,	2	15	0
Stocks, 1st quality	,,	4	11	0
,, 2nd ,,	,,	4	2	6
Blue Bricks, Pressed	,,	8	17	6
,, Wirecuts	,,	7	17	6
,, Brindles	,,	7	0	0
,, Bullnose	,,	9	0	0
Red Sand-faced Facings	,,	6	18	6
Red Rubbers for Arches	,,	12	0	0
Multicoloured Facings	,,	7	10	0
Luton Facings	,,	7	10	0
Phorpres White Facings	,,	3	17	3
,, Rustic Facings	,,	3	12	3
Midhurst White Facings	,,	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	,,	21	0	0
Headers	,,	20	10	0
Bullnose	,,	27	10	0
Double Stretchers	,,	29	10	0
Double Headers	,,	26	10	0
Glazed Second Quality, *Less*	,,	1	0	0
,, Buffs and Creams, *Add*	,,	2	0	0
,, Other Colours	,,	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" ,, ,, ,,	,,		1	10
3" ,, ,, ,,	,,		2	1
4" ,, ,, ,,	,,		2	6

MASON

The following d/d F.O.R. at Nine Elms:

		s.	d.
Portland stone, Whitbed	F.C.	4	4½
,, ,, Basebed	,,	4	7½
Bath stone	,,	2	10
York stone	,,	6	6
,, ,, Sawn templates	,,	7	6
,, ,, Paving, 2"	F.S.	1	8
,, ,, ,, 3"	,,	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates, d/d F.O.R. London station

		£	s.	d.
24"×12" Duchesses	per M.	28	17	6
22"×12" Marchionesses	,,	24	10	0
20"×10" Countesses	,,	19	5	0
18"×10" Viscountesses	,,	15	10	0
18"×9" Ladies	,,	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20"×10" medium grey per 1,000 (actual)		21	11	6
,, ,, green ,,	,,	24	7	4
Best machine roofing tiles	,,	4	10	0
Best hand-made do.	,,	5	0	0
Hips and valleys	each			9½
,, hand-made	,,			10
Nails, compo	lb.		1	4
,, copper	,,		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	,, ,,		5
,, ,, 2nds	,, ,,		4
Mahogany, Honduras	,, ,,	1	3
,, African	,, ,,	1	1
,, Cuban	,, ,,	2	6
Oak, plain American	,, ,,	1	0
,, Figured ,,	,, ,,	1	3
,, plain Japanese	,, ,,	1	2
,, Figured ,,	,, ,,	1	5
,, Austrian wainscot	,, ,,	1	6
,, English	,, ,,	1	11
Pine, Yellow	,, ,,	1	0
,, Oregon	,, ,,		4
,, British Columbian	,, ,,		4
Teak, Moulmein	,, ,,	1	3
,, Burma	,, ,,	1	2
Walnut, American	,, ,,	2	3
,, French	,, ,,	2	3
Whitewood, American	,, ,,	1	1
Deal floorings, ¾"	Sq.	18	6
,, 1"	,,	1	1	6
,, 1¼"	,,	1	2	0
,, 1½"	,,	1	5	0
,, 1¾"	,,	1	10	0
Deal matchings ¾"	,,		14	0
,, 1"	,,		15	6
,, 1¼"	,,	1	4	0
Rough boarding ¾"	,,		16	0
,, 1"	,,		18	6
,, 1½"	,,	1	6	0

Plywood, per ft. sup.

Thickness	⅛" d.	¼" AA. d.	¼" A. d.	¼" B. d.	⅜" AA. d.	⅜" A. d.	⅜" B. d.	½" AA. d.	½" A. d.	½" B. d.
Qualities										
Birch	4	3	2	5	4	3	7½	6	4½	8½ 7 6
Alder	3½	3	2	5	4	3	6½	5½	4½	8 7 6
Gaboon Mahogany	4	3	3	6½	5½	4½	9½	7½	–	1/0½ 10 –
Figured Oak 1 side	8½	7	–	10	8	–	11½	–	–	1/6 – –
Plain Oak 1 side	6½	6	–	7½	7	–	9½	–	–	1/– – –
Oregon Pine	5	4	–	5½	5	–	6	–	–	– – –

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

		¼"	⅜"	½"	¾"	1"
Tubes, 2'-14' long, per ft. run		4	5½	9½	1/1	1/10
Pieces, 12"-23" long	each	10	1/1	1/11	2/8	4/9
,, 3"-11½" long	,,	7	9	1/3	1/8	3/–
Long screws, 12"-23¼" long	,,	11	1/3	2/2	2/10	5/3
,, ,, 3"M-1½" long	,,	8	10	1/5	1/11	3/6
Bends	,,	8	11	1/7½	2/7½	5/2
Springs not socketed	,,	5	7	1/1½	1/11½	3/11
Socket unions	,,	2/–	3/–	5/6	6/9	10/–
Elbows, square	,,	10	1/1	1/6	2/2	4/3
Tees	,,	1/–	1/3	1/10	2/6	5/1
Crosses	,,	2/2	2/9	4/1	5/6	10/6
Plain sockets and nipples	,,	3	4	6	8	1/3
Diminished sockets	,,	4	6	9	1/–	2/–
Flanges	,,	9	1/–	1/4	1/9	2/9
Caps	,,	3½	5	8	1/–	2/–
Backnuts	,,	2	3	5	6	1/1
Iron main cocks	,,	1/6	2/3	4/2	5/4	11/6
,, with brass plugs	,,	—	4/–	7/6	10/–	21/–

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	,, water	47½
Steam	57½	,, steam	42½

FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	,, water	42½
Steam	47½	,, steam	37½

SMITH AND FOUNDER—*continued.*

		s.	d.
Rolled steel joists cut to length	cwt.	10	0
Mild steel reinforcing rods, ⅜"	,,	8	6
,, ,, ½"	,,	8	3
,, ,, ⅝"	,,	8	0
,, ,, ¾"	,,	7	6
,, ,, ⅞"	,,	7	6
,, ,, 1"	,,	7	6
,, ,, 1¼"	,,	7	6
,, ,, 1½"	,,	7	6

		4" s.	4" d.	6" s.	6" d.
Cast-iron rain-water pipes of ordinary thickness metal	F.R.	8			10
Shoes	each	2	0	3	0
Anti-splash shoes	,,	4	6	8	0
Boots	,,	3	0	4	0
Bends	,,	2	7	3	9
,, with access door	,,	—		6	3
Heads	,,	4	0	5	0
Swan-necks up to 9" offsets	,,	3	9	6	0
Plinth bends, 4½" to 6"	,,	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal	F.R.	5			6
Stop ends	each	6			6
Angles	,,	1	7	1	11
Obtuse angles	,,	2	0	2	6
Outlets	,,	1	9	2	3

PLUMBER

		s.	d.
Lead, milled sheets	cwt.	18	6
,, drawn pipes	,,	17	0
,, soil pipe	,,	18	6
,, scrap	,,	10	6
Solder, plumbers'	lb.		9½
,, fine do.	,,	1	0
Copper, sheet	,,		8½
,, tubes	,,		11

L.C.C. soil and waste pipes:		3" s.	3" d.	4" s.	4" d.	6" s.	6" d.
Plain cast	F.R.	1	0	1	2	2	6
Coated	,,	1	1	1	3	2	8
Galvanized	,,	2	0	2	6	4	6
Holderbats	each	3	10	4	0	4	9
Bends	,,	3	9	5	3	10	3
Shoes	,,	2	10	4	4	9	6
Heads	,,	4	8	8	5	12	9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	,,	2	10	0
,, fine	,,	4	15	0
Hydrated lime	,,	3	0	9
Sirapite	,,	3	6	0
Keene's cement	,,	5	0	0
Gothite Plaster	,,	3	6	0
Pioneer Plaster	,,	3	3	0
Thistle plaster	,,	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
,, rent	,,		3	9
Lath nails	lb.			3

GLAZIER

		s	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.	F.S.				2¼
,, ,, 26 oz.	,,				3
Flemish, Arctic, Figures (white)*	,,				7
Blazoned glasses	,,			2	6
Reeded; Cross Reeded	,,				11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite	,,				6
Crown sheet glass (n/e 12 in. x 10 in.)	,,			2	0
Flashed opals (white and coloured)	,,	1	0 and	2	0
¼" rough cast; rolled plate	,,				5½
¼" wired cast; wired rolled	,,				9½
¼" Georgian wired cast	,,				11
¼" Polished plate, n/e 1 ft.	,,	†10	to ‡1	1	
,, ,, 2 ,,	,,	†1	2 ,, ‡1	4	
,, ,, 4 ,,	,,	†2	3 ,, ‡2	6	
,, ,, 8 ,,	,,	†2	9 ,, ‡3	2	
,, ,, 20 ,,	,,	†3	7 ,, ‡4	2	
,, ,, 45 ,,	,,	†3	11 ,, ‡4	7	
,, ,, 100 ,,	,,	†5	0 ,, ‡5	7	
Vita glass, sheet, n/e 1 ft.	,,			1	0
,, ,, 2 ft.	,,			1	3
,, ,, over 2 ft.	,,			1	9
,, ,, plate, n/e 1 ft.	,,			1	6
,, ,, 2 ft.	,,			3	0
,, ,, 5 ft.	,,			4	0
,, ,, 7 ft.	,,			5	0
,, ,, 15 ft.	,,			6	0
,, ,, over 15 ft.	,,			7	6
"Calorex" sheet 21 oz., and 32 oz.	,,	2	6 and	3	6
,, rough cast ⅛" and ¼"	,,		8½ ,,	1	0
Putty, linseed oil	lb.				1

* *Colours, 1d. F.S. extra.*
† *Ordinary glazing quality.* ‡ *Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	6	0
Linseed oil	gall.		2	2½
Boiled oil	,,		2	4½
Turpentine	,,		1	1½
Patent knotting	,,		14	0
Distemper, washable	cwt.	2	6	0
,, ordinary	,,	2	0	0
Whitening	,,		4	0
Size, double	firkin		3	0
Copal varnish	gall.		13	0
Flat varnish	,,		14	0
Outside varnish	,,		16	0
White enamel	,,	1	15	0
Ready mixed paint	,,		13	6
Brunswick black	,,		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR

		£	s.	d.
Digging over surface n/e 12″ deep and cart away	Y.S.		2	9
,, to reduce levels n/e 5′ 0″ deep and cart away	Y.C.		8	6
,, to form basement n/e 5′ 0″ and cart away	,,		9	0
,, ,, 10′ 0″ deep and cart away	,,		9	6
,, ,, 15′ 0″ deep and cart away	,,		10	0
If in stiff clay	add ,,			6
If in underpinning	,, ,,		4	0
Planking and strutting to sides of excavation	F.S.		1	0
,, ,, to pier holes	,,			5
,, ,, to trenches	,,			5
,, ,, extra, only if left in	,,			3
Hardcore, filled in and rammed	Y.C.		10	0
Portland cement concrete in foundations (6-1)	,,	1	6	0
,, ,, (4-2-1)	,,	1	12	6
,, ,, underpinning	,,	1	16	0
Finishing surface of concrete, space face	Y.S.			7

DRAINLAYER

		4″ s.	d.	6″ s.	d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1	6	2	3
Extra, only for bends	Each	2	8	3	9
,, junctions	,,	3	9	4	6
Gullies and gratings	,,	16	6	18	0
Cast iron drains, and laying and jointing	F.R.	4	9	6	9
Extra, only for bends	Each	10	6	15	6

BRICKLAYER

		£	s.	d.
Brickwork, Flettons in lime mortar	Per Rod	27	10	0
,, ,, in cement	,,	28	15	0
,, Stocks in cement	,,	35	0	0
,, Blues in cement	,,	52	0	0
Extra only for circular on plan	,,	2	0	0
,, backing to masonry	,,	1	10	0
,, raising on old walls	,,	2	0	0
,, underpinning	,,	5	10	0
Fair Face and pointing internally	F.S.			1½
Extra over fletton brickwork for picked stock facings and pointing	,,			8
,, ,, ,, red brick facings and pointing	,,			11
,, ,, ,, blue brick facings and pointing	,,		1	4
,, ,, ,, glazed brick facings and pointing	,,		3	6
Tuck pointing	,,			7½
Weather pointing in cement	,,			3
Slate dampcourse	,,			10
Vertical dampcourse	,,		1	1

ASPHALTER

		s.	d.
½″ Horizontal dampcourse	Y.S.	4	6
½″ Vertical dampcourse	,,	6	9
½″ paving or flat	,,	4	0
1″ paving or flat	,,	5	6
1″ × 6″ skirting	F.R.	1	0
Angle fillet	,,		2
Rounded angle	,,		2
Cesspools	Each	5	0

MASON

		s.	d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17	9
Bath stone and do., all as last	,,	13	6
Artificial stone and do	,,	13	0
York stone templates, fixed complete	,,	10	6
,, thresholds	,,	13	6
,, sills	,,	1	0	6

SLATER AND TILER

		£	s.	d.
Slating, Bangor or equal, laid to a 3″ lap, and fixing with compo nails, 20″ × 10″	Sqr.	3	10	0
Do., 18″ × 9″	,,	3	7	0
Do., 24″ × 12″	,,	3	17	0
Westmorland slating, laid with diminished courses	,,	6	0	0
Tiling, best hand-made sand-faced la,id to a 4″ gauge, nailed every fourth course	,,	3	0	0
Do., all as last, but of machine-made tiles	,,	2	16	0
20″ × 10″ medium Old Delabole slating, laid to a 3″ lap (grey)	,,	2	16	0
,, ,, ,, ,, ,, (green)	,,	4	15	0

CARPENTER AND JOINER

		£	s.	d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2	5	0
Shuttering to sides and soffits of beams	F.S.			8
,, to stanchions	,,			8
,, to staircases	,,		1	8
Fir and fixing in wall plates, l[illegible]ntols, etc.	F.C.		3	9
Fir framed in floors	,,		4	6
,, ,, roofs	,,		6	6
,, ,, trusses	,,		7	6
,, ,, partitions	,,		8	6
⅞″ deal sawn boarding and fixing to joists	Sqr.	1	14	6
1″ ,, ,, ,, ,,	,,	1	17	6
1½″ ,, ,, ,, ,,	,,	2	3	0
2″ × 2″ fir battening for Countess slating	,,		9	6
Do. for 4″ gauge tiling	,,		12	0
Stout feather-edged tilting fillet	F.R.			4½
Patent inodorous felt, 1 ply	Y.S.		2	3
,, ,, ,, 2 ,,	,,		2	9
,, ,, ,, 3 ,,	,,		3	3
Stout herringbone strutting to 9″ joists	F.R.			10½
1″ deal gutter boards and bearers	F.S.		1	2
1½″ ,, ,, ,, ,,	,,		1	6
2″ deal wrought rounded roll	F.R.			8
1″ deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2	1	0
1¼″ do.	,,	2	10	0
1½″ do.	,,	2	17	0
1″ deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.		1	6
1¼″ do.	,,		1	9

CARPENTER AND JOINER—*continued*

		s.	d.
1½″ deal moulded sashes of average size	F.S.	1	9½
2″ ,, ,, ,, ,,	,,	1	11½
1½″ deal cased frames double hung, of 6″ × 3″ oak sills, 1¼″ pulley stiles, 1¼″ heads, 1″ inside and outside linings, ⅞″ parting beads, and with brass faced axle pulleys, etc., fixed complete	,,	3	7
2″ ,, ,, ,, ,,	,,	3	10
Extra only for moulded horns	Each		6
1½″ deal four-panel square, both sides, door	F.S.	2	0
2″ ,, ,, ,, ,,	,,	2	8
1½″ ,, but moulded both sides	,,	2	4
2″ ,, ,, ,, ,,	,,	3	0
4″ × 3″ deal, rebated and moulded frames	F.R.	1	0
4½″ × 3½″ ,, ,, ,,	,,	1	4
1¼″ deal tongued and moulded windo board, on and including deal bearers	F.S.	1	9
1¼″ deal treads, 1″ risers in staircases, and tongued and grooved together on and including strong fir carriages	,,	2	6
1½″ deal moulded wall strings	,,	2	1
1½″ ,, outer strings	,,	2	4
Ends of treads and risers housed to string	Each	1	9
3″ × 2″ deal moulded handrail	F.R.	1	3
1″ × 1″ deal balusters and housing each end	Each	2	0
1½″ × 1½″ ,, ,, ,,	,,	2	9
3″ × 3″ deal wrought framed newels	F.R.	1	3
Extra only for newel caps	Each	6	0
Do., pendants	,,	6	0

SMITH AND FOUNDER

		£	s.	d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	15	6	
Riveted plate or compound girders, and hoisting and fixing in position	,,	19	0	
Do., stanchions with riveted caps and bases and do.	,,	19	0	
Mild steel bar reinforcement, ½″ and up, bent and fixed complete	,,	17	6	
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.			11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1	10	0

PLUMBER

		£	s.	d.
Milled lead and labour in flats	cwt.	1	12	0
Do. in flashings	,,	1	15	6
Do. in covering to turrets	,,	2	3	0
Do. in soakers	,,	1	7	6
Labour to welted edge	F.R.			3½
Open copper nailing	,,			3
Close ,, ,,	,,			4

		½″ s.	d.	¾″ s.	d.	1″ s.	d.	1¼″ s.	d.	2″ s.	d.	4″ s.	d.
Lead service pipe and fixing with pipe hooks	F.R.	10		1	0	1	3	2	0	2	10	—	
Do. soil pipe and fixing with cast lead tacks	,,	—		—		—		—		—		5	6
Extra, only to bends	Each	—		—		—		—		2	0	6	9
Do. to stop ends	,,	6½		8		9		11		1	0	—	
Boiler screws and unions	,,	3	3	3	9	5	0	8	0	—		—	
Lead traps	,,	—		—		—		6	3	8	9	—	
Screw down bib valves	,,	6	9	9	6	11	0	—		—		—	
Do. stop cocks	,,	7	0	9	6	12	6	—		—		—	

		s.	d.
4″ cast-iron ½-rd. gutter and fixing	F.R.	1	0
Extra, only stop ends	Each	1	0
Do. angles	,,	1	6
Do. outlets	,,	2	9
4″ dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1	2
Extra, only for shoes	Each	1	3
Do. for plain heads	,,	5	6

PLASTERER AND TILING

		s.	d.
Expanded metal lathing, small mesh	Y.S.	2	0
Do. in n/w to beams, stanchions, etc.	,,	2	9
Lathing with sawn laths to ceilings	,,	1	3
½″ screeding in Portland cement and sand or tiling, wood block floor, etc.	,,	1	5
Do. vertical	,,	1	7
Rough render on walls	,,	1	2½
Render, float and set in lime and hair	,,	1	9
Render and set in Sirapite	,,	1	11
Render, backing in cement and sand, and set in Keene's cement	,,	2	9
Extra, only if on lathing	,,		4
Keene's cement, angle and arris	F.R.		6
Arris	,,		1¾
Rounded angle, small	,,		3
Plain cornices in plaster, including dubbing out, per 1″ girth	,,		1½
1″ granolithic pavings	Y.S.	3	6
1½″ ,, ,,	,,	4	6
6″ × 6″ white glazed wall tiling and fixing on prepared screed	,,	17	6
9″ × 3″ ,, ,, ,, ,,	,,	1	2	6
Extra, only for small quadrant angle	F.R.			8

GLAZIER

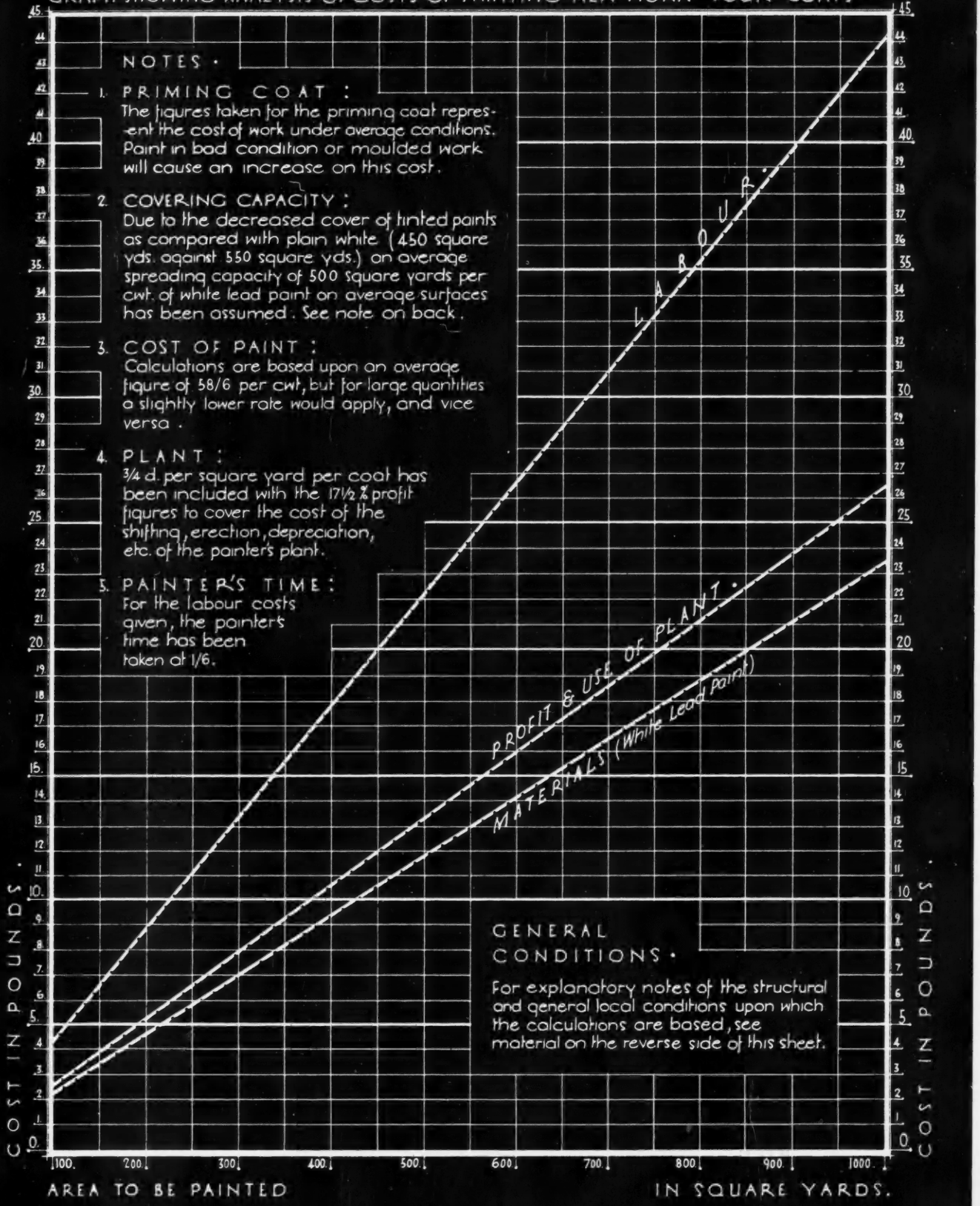
		s.	d.
21 oz. sheet glass and glazing with putty	F.S.		7½
26 oz. do. and do.	,,		8¾
Flemish, Arctic Figured (white) and glazing with putty	,,	1	1
Cathedral glass and do.	,,	1	2
Glazing only, British polished plate	,,		7
Extra, only if in beads	,,		2
Washleather	F.R.		4

PAINTER

		s.	d
Clearcolle and whiten ceilings	Y.S.		6
Do. and distemper walls	,,		9
Do. with washable distemper	,,	1	1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	,,	3	3
Do. on woodwork	,,	3	6
Do. on steelwork	,,	3	0
Do. and brush grain and twice varnish	,,	5	6
Stain and twice varnish woodwork	,,	1	11
Stain and wax-polish woodwork	,,	4	6
French polishing	F.S.	1	2
Stripping off old paper	Piece	2	0
Hanging ordinary paper	from ,,	2	9

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

GRAPH SHOWING ANALYSIS OF COSTS OF PAINTING NEW WORK · FOUR COATS ·



Information from The White Lead Publicity Bureau.

INFORMATION SHEET · COST ANALYSIS OF PAINTING. NO. 1 · NEW WORK ·

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 · Oscar A Bayne.

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 211 •

PAINTING COSTS

Product : White Lead Paints

General :

The graph given on this Sheet is the first of two such showing the cost analysis of painting small buildings and deals with *new* work painted four coats under average conditions.

Extent of Works :

The extent of the work to be painted, both as regards area, height above ground, etc., and relative labour and plant cost, has been estimated upon competitive suburban tendering for painting one two-storied house only.

The covering capacities given on this Sheet are average for general painting on plain surfaces, e.g., plaster, woodwork, ironwork, etc. Where paint is applied to more porous surfaces these capacities will be reduced.

Plant :

The use of step ladders, trestles, and boards only has been assumed, for which ¾d. per sq. yd. per coat has been allowed to cover getting the plant to the job, shifting it into the various required positions, depreciation, etc.

Progress of work :

The time required for covering 100 sq. yds. has been assumed as 16 hours for the priming coat, 15 hours for the first coat, and 14 hours each for the second and third coats.

Cost of White Lead Paint :

Priming coat at 58s. 6d. per cwt. covering 400 sq. yds. under average conditions. First coat at 58s. 6d. a cwt. covering an average of 500 sq. yds. Second and third coats at 58s. 6d. a cwt., each covering 10 per cent. more area than the first coat. (58s. 6d. a cwt. is approximately 14s. 7d. a gallon.)

Builders' and Decorators' Profits :

A combined profit of 17½ per cent. has been allocated to the builder and decorator (not including any cash discounts they may obtain by payments to builders' merchants) made up as follows :

(*a*) 10 per cent. profit on nett cost of materials and labour. In larger contracts this figure would also include profit on water, cartage, fire and workmen's insurance, district surveyor's and quantity surveyor's fee, scaffolding on hire, etc.

(*b*) 5 per cent. for establishment charges, which include expenses in connection with builders' offices and workshops.

(*c*) 2½ per cent. to cover depreciation of plant.

Source of Information : The White Lead Publicity Bureau

Address : Rex House, 38 King William Street, London, E.C.4

Telephone : Mansion House 2856. 2857

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

GLAZEMENT CEMENT COLD GLAZE •

DESCRIPTION • Glazement consists of a coating of white or coloured pure portland cement gauged with a special patented liquid and sealed with a sprayed cellulose paint after being allowed to dry out. The surface will not stain or craze, and the material hardens with age, is non-inflammable, impervious to the action of steam, moderate heat, moisture, dilute acid and alkali fumes, and is not easily marked.

APPLICATION •

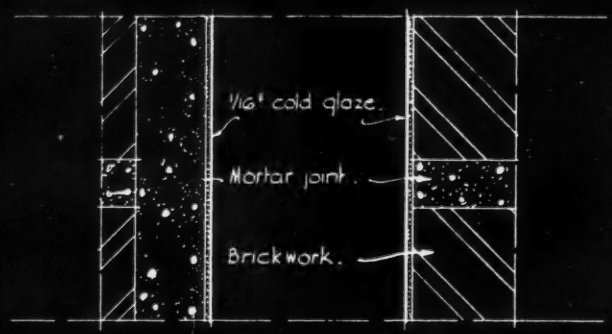
The material is applied by means of a knife, trowel or spray to suit different finishes. The thickness of the cold glaze is approximately 1/16" overall, and all work is performed in situ on :—

Rendered walls, shuttered concrete, cement rendered brickwork, plastered wall boards, walls and ceilings, etc. of expanded metal & cement plaster or directly on to flush-pointed brickwork. A smooth wood float finish only is required to rendered surfaces. For rendering specification and notes on application of glazement, see the reverse side of this sheet.

FINISHES •

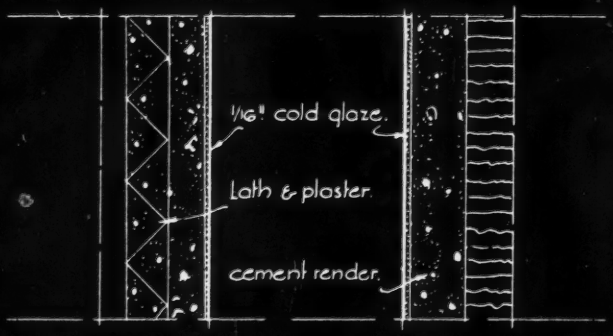
Smooth or stippled, in black, white, and a variety of colours. Glazement may also be finished with a silver, bronze or mottled effect if desired. A stippled surface is the most economical.

APPLICATION TO VARIOUS SURFACES



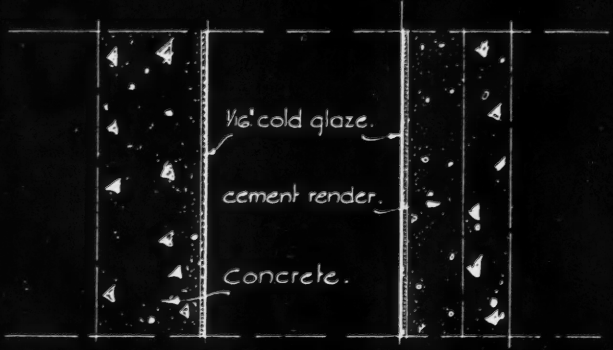
GLAZEMENT APPLIED TO ORDINARY CEMENT-RENDERED BRICKWORK.

GLAZEMENT APPLIED DIRECT TO FLUSH-POINTED BRICKWORK.



GLAZEMENT APPLIED TO EXPANDED METAL & CEMENT PLASTER.

GLAZEMENT APPLIED TO CEMENT RENDERED BLOCK PARTITIONS.



GLAZEMENT APPLIED DIRECT TO SHUTTERED CONCRETE.

GLAZEMENT APPLIED TO CEMENT RENDERED CONCRETE.

Information from Hoyle, Robson, Barnett & Co. Ltd.

INFORMATION SHEET • CEMENT GLAZE • GLAZEMENT COLD GLAZE •

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 212 •

WALL FINISHES

Product : Glazement Cement Glaze

Colours :

Glazement is produced in a standard range of 23 colours, as set out below ; these colours may be intermixed to obtain intermediate shades, and additional variations of these may be obtained by a spotted effect, or acccording to the surface finish, smooth or stippled.

Standard Colour Range :

1. Light Olive	11. Red
2. Egg Green	12. Pale Rose
3. Egg Green	13. Light Blue
4. Billiard Green	14. Middle Blue
5. Billiard Green	15. Buff
6. Cream	16. Dark Brown
7. Primrose	17. Light Brown
8. Sunshine	18. Beige
9. Chrome	19. Light Grey
10. Grey	20. Red Oxide

and White and Broken White, and Black.

The following is the specification for the rendering required :—

$\frac{1}{2}$ in. scratch coat, followed by $\frac{1}{4}$ in. skim coat, Blue Circle Portland cement and fine, washed, sharp sand 1-3. Finish with a wood float to as smooth a surface as possible.

For a smooth finish, a steel trowel should be run over the surface before it goes off to remove larger aggregate. A glazed steel trowel finish is not, however, required or recommended.

Sand Required :

A clean, fine *sharp* sand is required (Ham River Grit Co.'s fine *washed* sharp sand is the approved standard).

Appearance of Finished Rendering :

Generally the rendering should be the smoothest obtainable with the use of a wood float. It should be "trued up" and there must not be more than minor inequalities in the surface.

Thickness of Glazement Finish :

The thickness of Glazement is about $\frac{1}{16}$ in. It is essential, therefore, to have a uniform rendering to give the best results.

Time Required for the Process :

Glazement is done in four parts :—

(a) The Rendering, which may be generally left to the plasterers on the job.
(*b*) The Priming Coats.
(*c*) The Glaze Coat.
(*d*) The Sealing Coats.

The following intervals are necessary between the different parts of the process :

Between Rendering and Priming coat, two weeks.
Between Glaze coat and sealing coats, seven days.

A medium size job, therefore, can be finished, including Rendering, in about five weeks, the minimum being four weeks. For a smooth finish at least an extra week is required.

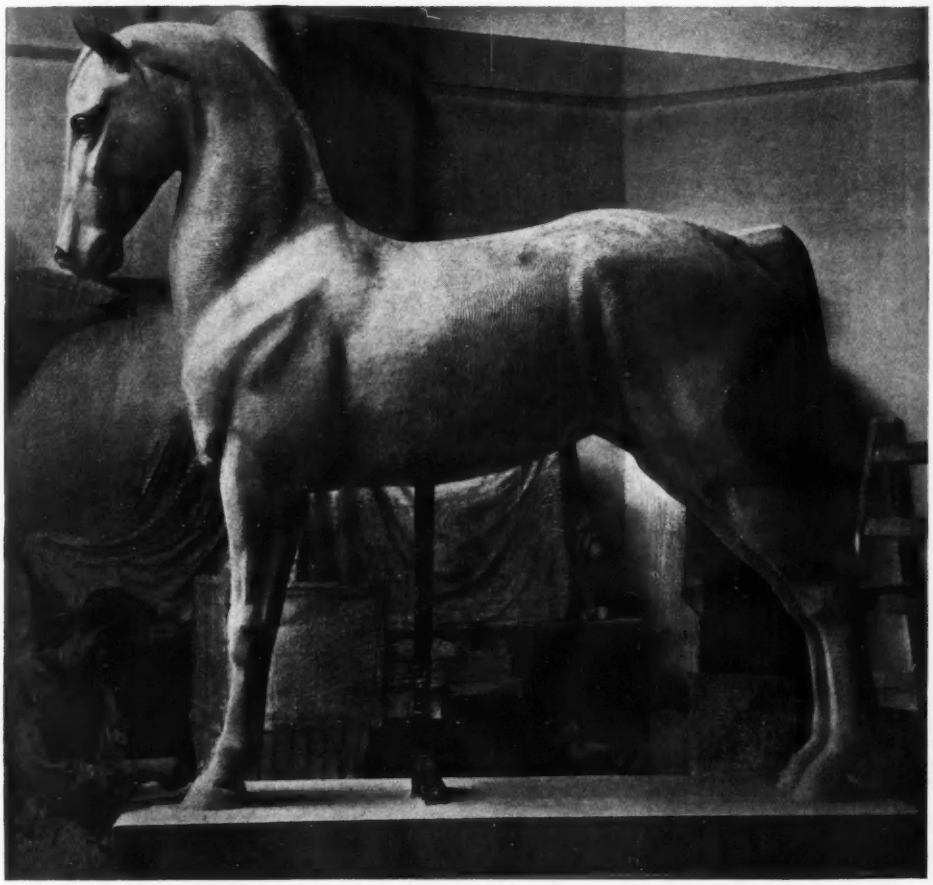
Cost :

The cost of Glazement varies according to the size of the job, the type of wall, etc., but, as a general estimate figure, it may be taken that the cement rendering (preferably applied by the general contractor) costs approximately 1s. 9d. per sq. yard ; Glazement smooth finish costs approximately 9s. per sq. yard, and Glazement stippled finish costs approximately 6s. per sq. yard.

Name of Manufacturers : Hoyle, Robson, Barnett and Co., Ltd.
Address : Regis House, King William Street, E.C.4
Telephone : Mansion House 7781

HORSE TO FULL SIZE

FOR THE BRUSSELS EXHIBITION

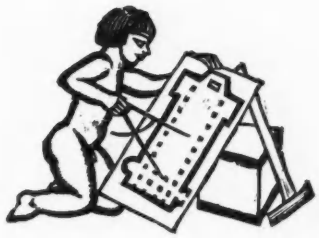


IN the Royal Court of the British Pavilion at the Brussels International Exhibition (which opened on Saturday), will be found four full-size mounted figures, two of them in the uniform of the Life Guards and two in mediæval armour. Each is mounted on a charger, 16·2 hands high, modelled by Donald Gilbert, the sculptor. The photograph shows him in his studio at work on the clay model. A plaster cast was made of this, which was shipped over to Belgium in sections last week, and there the four replicas were cast.



BUILT-UP AREA

A community is defined as " a number of persons living together for their common advantage." A town should be a community in this fullest sense, or else it might just as well not be a town : it becomes country reduced to the minimum degree of pleasantness. Proximity of dwellings should be utilized to provide communal services. Further, if the living accommodation is concentrated on the smallest ground area the rest of the ground can become real open space, of a size that is of some use. A contrast is shown in this photograph of typical " individual " development, which has denied itself all the advantages of multi-storey building. It is an air-view of part of Brooklyn, New York, reproduced by courtesy of the " Architectural Record."



THE FLAT: PRIDE AND PREJUDICE

PRIDE in individual ownership and prejudice against departure from the tradition of previous generations may be said to be at the core of this country's reluctance to adopt the multi-storey co-operative solution to the problem of housing. The extremely interesting questionnaire compiled by *The Listener* in an attempt to discover how well informed the average wireless-set-owner is about current affairs includes one question which reads: "Would you rather live in a house or a flat, and why?" Answers to the questionnaire from a varied number of representative people, chosen at random, provide a revealing guide to the sort of reasons people have for preferring one to the other, and the sort of mental associations the words house and flat have for most people. On the whole the majority of opinion is for houses and against flats, but not so much on grounds that are generally applicable as on grounds of personal prejudice and assumptive experience.

The reply of the blacksmith: "House—more private. I've never been in a flat, and I shouldn't like to"; of the colonel's wife: "House, because you have more comfort and a garden, and you feel a bit more of a bloated capitalist"; of the assistant storekeeper: "House—more select and conservative;" and of the smallholder: "House all the time, I like to keep myself to myself," are all typical of our national blend of independence and conservatism. Others of the replies show more practical reasoning, but based on experience not always of the best or even most representative examples. The comparison, that is to say, was not on an equal basis. Thus the tailor: "In a house. More roomy"; the Scottish shepherd: "A house. Always smell of soapsuds in a flat"; the guardsman: "In a house, because you've generally got your own garden, and no one else to worry you by trampling on the stairs an' all;" and the stonemason: "House: more private and healthier. Foul air rises up staircase in flat." On the other side of the same picture is the charwoman: "I'd sooner have a flat because I'd have a nice bathroom which we haven't got in our house."

Custom and prejudice then (reasonable or unreasonable) determine the opinion on this subject for the average person—not the cold arguments of logic; but progress in most things consists in the process of logic and expediency overcoming instinctive antagonism. The issue, before progress can be made, must be examined on grounds of expediency and practicability—not on grounds of whether one or another prejudice is a good thing or a bad thing. Whichever of these two alternative solutions can best meet the demands of contemporary conditions, that is the solution our energies should be spent on.

The arguments in favour of flats and separate houses for urban building can be summarized as follows. In favour of houses: the garden—the average householder enjoys the ownership of a piece of property for which he is responsible solely to himself, also for children to play in; privacy—he is afraid that living in a flat will mean living in public. As the smallholder said: "I like to keep myself to myself"; noise—the activities within each flat disturbing the occupants of the others and the noise of children playing around the block; similarly, smells; stairs to climb; views and light—associations with the dingy courts of early tenements. In favour of flats: open space—the large unbuilt-on area of the site, the amalgamated areas of numerous little gardens provides an open space for fresh air and exercise of a size that can have real country character—that can only be found after long-distance travel under conditions of small-house development. It can include individual garden-plots and playing-fields; privacy—there is true privacy in a flat where the windows, if it is properly planned, have as their nearest building the next block, many yards away, instead of an adjacent villa. There are no small gardens overlooked by half a dozen others; noise and smell—that is purely a technical problem of insulation with which modern science is well able to deal. With adequate and well-planned children's playgrounds the problem of noisy children solves itself; lifts can be provided to obviate the tedium of stairs; cheapness—large-scale construction lowers costs and rents are reduced; central services—such collective amenities as central heating and hot water, refuse disposal, laundries and nurseries are much more easily provided in multi-storey block development, and the housewife's task is immeasurably lightened.

The issue must be judged on practical grounds. Compare the accommodation provided in the flats illustrated in this issue of the JOURNAL, which is entirely devoted to flats for those incomes which lie between the working-class level on the one side and the luxury level on the other, with what similar expenditure on individual dwellings would have allowed. They point to only one conclusion.



The Architects' Journal
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NOTES & TOPICS

PERCY THOMAS

THERE have been few provincial Presidents of the R.I.B.A. in its long history and not a single Welshman. These are only two of the reasons why I welcome the nomination of Mr. Percy Edward Thomas as the next President. I can think of no architect practising outside London more fitted for the office.

*

Mr. Thomas has on many occasions given the Royal Institute glimpses of his jovial character and human outlook. I shall long remember, too, the generous way in which he gave away to us the experiences of half a lifetime in his paper on the planning of Municipal Buildings.

*

I think many members will respect him the more for having beaten them soundly in numerous open competitions.

THE BRUSSELS EXHIBITION

I was over on the opening day of the Brussels Exhibition and wandered about it during the week-end. It is all rather old fashioned; wholly unrelated to the modern movement in design; largely unfinished, and afflicted with a spurious gaiety that is a trifle too mechanical to be anything but unpleasing.

*

The British Pavilion is guarded by lions that look as though they were wearing Gladstonian collars, and having upon their faces the expression of severe disapproval which must have adorned the features of Mr. Gladstone if anybody ventured to laugh in his presence. It is difficult not to laugh when you get inside the pavilion, so maybe it's just as well the lions aren't there.

*

A huge, coloured glass globe, with the British Empire cloudily sprawling over it in red, is revolving with slow majesty. There are a few sideshows, mostly unready; one concerned with expensive silver, another with luxurious typography.

*

Sweden, Finland, Norway, Denmark and Switzerland all have pavilions that are well designed, and which represent how far some countries have travelled since the dear old decorative days of Paris, 1925. But this minute example of the modern spirit at work hardly suffices as an excuse for visiting the exhibition, which is one of the most disappointing and uninspired shows Europe has ever produced.

*

I'm told by a critic who has been there, that it is just a little better than the Chicago World Fair. I gather that such a comparison is pretty poor praise.

HISTORY ABOUT TO REPEAT ITSELF

If somebody does not do something very quickly there is going to be another Massacre of Glencoe, and one which will cast as much opprobrium on the perpetrators as the last one did. It is announced that the famous glen has been sold for building purposes.

*

Apart altogether from its romantic historical interest, the rugged grandeur of Glencoe makes it one of the most majestic and beautiful valleys in all Scotland—the very place, in fact, for the speculative builder to spoil.

*

The new road has not improved things, although the æsthetic side of the problem was not ignored by its constructors; it does take account of the beauties of the glen, and to a great extent plays up to them; when time has healed the newness it may be quite a fine road.

*

But it would be disgraceful if indiscriminate building were allowed and I hope that some action will be taken very quickly to restrict, if not to forbid, any such thing; it is no use appealing to the owners; there must be something far more certain and more permanent than that.

ERJUB

My reaction to the design of the Jubilee stamp is, on the whole, one of being thankful for small mercies. It was an admirable decision to ask for competitive designs from a number of artists—not just to leave the matter in the hands of an official engraver.

*

The result has the merit of simplicity and, in most senses, of good taste; but it has little of the dignity the occasion demands. Its fault is triteness: I think it was a pity to use the rather overworked trick of dark lettering on a light ground shaded into light lettering on a dark ground when that trick's commercial associations were obviously



Percy E. Thomas, O.B.E., F.R.I.B.A. (of Ivor Jones and Percy Thomas), who has been nominated for the Presidency of the R.I.B.A.

not wanted—quite apart from the unfortunate result that, in the chief legend, the last letters of the word "silver" and the first letters of the word "jubilee" stand out alone to produce as the most prominent feature of the stamp the somewhat mystifying word ERJUB.

*

However, it might have been much worse—you have only to look at our present pound and ten-shilling notes. It is a great deal that amongst the things the artist omitted are the conventional motifs that make those look like the inflated currency of a minor South American Republic.

*

On the other hand it might have been better — you have only to look at the present five-pound note.

CAT AMONG THE PIGEONS

The Academy simply can't keep out of hot water just now. I have every sympathy with Mr. Stanley Spencer in his irritation about two of his pictures being rejected. I must confess that I had no idea that membership of the Royal Academy didn't excuse a painter from the ordeal of the selection committee.

*

It doesn't, apparently; so the Academy is within the letter of the law in criticizing an A.R.A.'s work as they have Mr. Spencer's. But is that the way to make the painters that matter take an interest in the Academy's doings?

*

A quite legitimate answer that is often made to the painter who criticizes the Academy's deadness and its absurd detachment from all that is vital in art is "Why don't you try to improve this deplorable state of affairs yourself? Don't ignore the Academy as no longer important but help to make it more important by contributing to it."

*

Well Stanley Spencer did (as Augustus John did and Sickert did, though not at the time they were doing their best work). He became an A.R.A., I understand, as much as for any other reason from a sense of duty; but if his pictures are still to be accepted or rejected on present Academy standards that seems to destroy this method, the method of peaceful penetration, of revitalizing Academy painting.

*

Of course it is possible that that is exactly what the Academy itself wishes to do.

DRAMATICS AGAIN

On Monday night I went to see the plays of John Drinkwater, Sir James Barrie and N. K. Smith, which were given by the R.I.B.A. Dramatic Society—a new but very promising activity. The new portable proscenium in the Henry Jarvis room looked good, and with simple sets and effective lighting I thought the production triumphed over amazing difficulties.

*

Some of the players were a little nervous, but the rich deliveries of Halliburton Smith, Edyth Meikle and John Perrett warmed my heart. And I take off my hat to N. K. Smith, who wrote the after-interval play, a light and naughty dig at our old friend, St. John Ervine.

*

If you did not go on Monday night you can still enjoy these plays at the repeat performance on Friday.

EPSTEIN

The Rhodesian Government has taken over the Strand building which used to be the home of the British Medical Association, and once again Epstein's figures are in the limelight.

*

I remember the controversy they caused when the building was put up; they were "grotesque, ugly and indecent."

*

Now they are to be removed and offered "to anyone interested who might be in a position to place them more worthily." The High Commissioner feels that they are too high to be appreciated and that it is too bad that they should be exposed to the vagaries of the weather. "Lastly it was thought that they were not perhaps suited to the austerity that usually characterised Government Buildings."

*

Very prettily expressed!

LORD MALMESBURY'S LETTER

A letter from the Earl of Malmesbury is printed elsewhere in this issue. I have seen it. I am glad this time to be in agreement with him, entirely.

*

I, too, enjoy local materials (intelligently used). His lordship has all my sympathy about the compo.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

"*Epstein's statues. . . .are not, perhaps, suited to the austerity that usually characterizes Government buildings!*" 655

"*Cottage schemes carried out abroad have derived practically all their quality of design from this country*" 656

The R.I.B.A. has accepted the invitation of the Hampshire and Isle of Wight Architectural Association to hold its conference at Southampton in June, 1936..... 657

It was to carpenters that the early civic authorities looked for advice..... 659

ST. GEORGE'S CHOIR SCHOOL, WINDSOR

Their Majesties the King and Queen made an informal inspection of St. George's Choir School, Windsor, which adjoins Windsor Castle, on Monday, April 29. The school has recently been entirely re-planned and reconstructed from the designs of Professor A. B. Knapp-Fisher, of Messrs. Knapp-Fisher, Powell and Russell. Their Majesties spent a considerable time in the building and were conducted round by Mr. F. A. Minter, C.V.O. (whose gift made reconstruction possible), Professor Knapp-Fisher, Canon Anthony Deane and the Headmaster. The Dean of Windsor, who originated the scheme, was unfortunately prevented from being present. Mr. Adamson, the builder, was present, and was presented to their Majesties.

A.A. EXHIBITION

On Monday last Mr. Geoffrey Shakespeare, Parliamentary Secretary to the Ministry of Health, opened, in the new R.I.B.A. building, the exhibition of photographs and models of work executed by architects trained in the Architectural Association School. The exhibition will remain open until May 17.

Mr. Shakespeare said: "It is very significant that this exhibition represents work done during the last three years, a period of depression. To a certain extent I suppose this work is influenced by the depression, by the need for economy which in architecture has taken the form of simplicity, which to my mind is the essence of power. But we have had depressions, setbacks and defeats before, and defeat need not be bitter unless we swallow it; and, as the Chancellor said, we had got back to eighty per cent. of our former prosperity."

Mr. Shakespeare, discussing London's lack of beautiful railway termini, said: "Coming back from my Easter Holiday and arriving at one of the London termini, I thought what a tragedy it was that here in the greatest capital city of the world there is not a railway terminus which can be called a work of architecture or indeed anything resembling it; and, greatly daring, I should like to make the suggestion that perhaps some of the enterprising boards of our railway companies might celebrate this Jubilee year by employing a first-class architect, or a number of architects, to provide a railway terminus which should express the feelings of joy at return and sorrow at departure and give a harmonious feeling to those visitors who travel by train. I do not think there is a railway station in England which is worthy of the name, though I am told that there are one or two in Scotland which are really works of architecture as well as railway stations. I know of several in Germany and on the Continent generally, and I think it is time that in this capital city we had a worthy architectural building for a terminus."

THE ARCHITECTS' DIARY

Thursday, May 2

INSTITUTION OF STRUCTURAL ENGINEERS, 10 *Upper Belgrave Street, S.W.1. General Meeting.* 6.30 *p.m.*

ARCHITECTURAL ASSOCIATION. *At the R.I.B.A. Building, 66 Portland Place, W.1. Exhibition of work executed during the past three years by architects trained in the A.A. Schools and members of the school staff. Until May 17.* 10 *a.m. until* 8 *p.m. (Saturdays,* 10 *a.m. until* 5 *p.m.).*

ARCHITECTS' BENEVOLENT SOCIETY. *At 66 Portland Place, W.1. Annual General Meeting.* 5 *p.m.*

Friday, May 3

INSTITUTION OF STRUCTURAL ENGINEERS. *Western Counties Branch. At the Merchant Venturers' Technical College, Bristol. "The Value of the Contract and Joint Industrial Agreements." By W. H. Orram.* 7.15 *p.m.*

Monday, May 6

ROYAL ACADEMY EXHIBITION, *Burlington House, W.1. Open until further notice.*

Tuesday, May 7

INSTITUTION OF CIVIL ENGINEERS, *Great George Street, S.W.1. Presentation of the Kelvin Medal for* 1935 *to Sir John A. Fleming by the Rt. Hon. Sir Kingsley Wood. M.P.* 5 *p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS. *South Wales and Monmouthshire Branch. At the Engineers' Institute, Park Place, Cardiff. Annual General Meeting.* 7 *p.m.*

Wednesday, May 8

ROYAL SOCIETY OF ARTS, *John Street. Adelphi, W.C.2. "Canals." By Wilfred H. Curtis.* 8 *p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS, 10 *Upper Belgrave Street, S.W.1. Conference. Until May* 11. (*For programme, see page* 657.)

L.C.C. AND TOWN PLANNING

Major Harry Barnes, F.R.I.B.A. Chairman of the L.C.C. Town Planning Committee, discussed the L.C.C.'s town planning scheme (which is at present under consideration by the Minister of Health) at a luncheon of the British Works Management Committee on Monday last. He said the scheme contained provisions for the completion of a road encircling London, forming the "outer rim" of a wheel, with new "spokes" to relieve congestion at certain focal points, notably the Elephant and Castle and Vauxhall; the building of two or three new "inner circle" roads to link up the radial exits from London; an extension of the control of traffic, in the form of canalising the flow, and the construction of new channels; a survey of the whole of the County of London to determine which districts are suitable for commercial operations and which for dwellings; the regulation of the height of buildings and the preservation of trees and open spaces; and new buildings to conform with the L.C.C. idea of beauty.

£1,750,000 BLOCK OF FLATS FOR WESTMINSTER

We understand that Messrs. Richard Costain, Ltd., builders, have acquired the freehold of the 7½-acres site formerly occupied by the Royal Army Clothing Factory in Grosvenor Road, Westminster, S.W.1. Messrs. Costain's propose to erect on this site a block of high-class flats at an estimated cost of £1,750,000.

INTERNATIONAL CONGRESS OF ARCHITECTS

The thirteenth International Congress of Architects is to be held in Rome from September 22 to September 28. Full particulars are obtainable from Lt.-Col. H.P. L. Cart de Lafontaine, F.R.I.B.A.

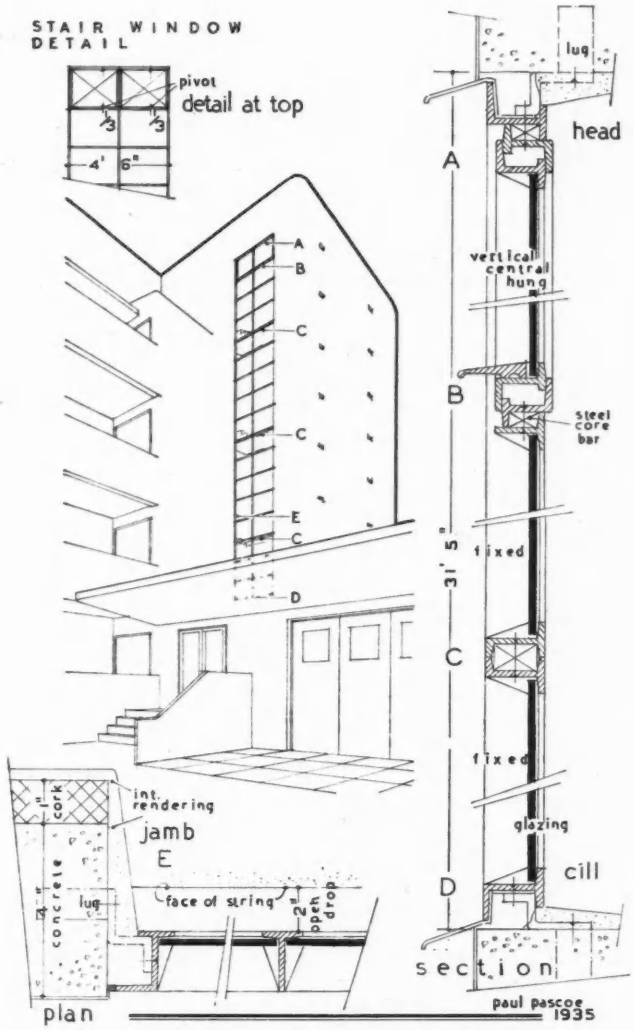
HOUSING

"Working-Class Housing in Europe" was the subject of a paper read by Mr. Holroyd F. Chambers, Chartered Surveyor, and Mr. Louis de Soissons, O.B.E., F.R.I.B.A., at a meeting of the Chartered Surveyors' Institution on Monday, April 29. Mr. Louis de Soissons, who read the second part of the paper, said that the cottage schemes carried out abroad had derived practically all their quality of design from this country, and that there were no examples which we could not see done as well or better here.

The flat schemes in general gained by comparison with our own in architectural quality owing to their size and, in some cases, extravagance, and not from any intrinsic quality of design and arrangement. Often the sheer size and monotony of a great number of flats in one scheme and the standardisation of type plan had produced almost forbidding architectural masses, while the features, such as tower, swept semi-circular ends and others, failed to give the quality desirable in a place of residence.

An important factor in the results obtained in the flat schemes was the respect for property which was strikingly shown by the condition of the buildings and the gardens. The courtyards and surrounding gardens were all designed on the open system. The omission of high fences and hedges with the inclusion of a number of window-boxes, wonderfully filled with flowers, were a constant source of delight to the eye.

From a practical point of view the lay-outs varied a good deal in the distance between buildings and spaces reserved for games and play. Differences of climate and intensity of light certainly contributed to these variations in lay-out, but few really systematic organised playgrounds for children were found. This, a matter of town planning, was best seen in Amsterdam, where the big playgrounds, with proper supervision, equipment and organized games, were admirable. Vienna was perhaps the city where the lay-outs were least satisfying from the point of view of light and air. There were a number of schemes, such as



Stair window detail. Flats in Lawn Road, Hampstead. Designer: Wells Coates.

the Fuchsenfeldhof, where the courts were small and narrow. Even in vast schemes, such as the Washingtonhof, there was little evidence of organization for children's play space. This referred of course, to the purely flat schemes and not to the cottage or satellite village schemes.

In Rome, where the children were very numerous, they were allowed to play in the open spaces between the buildings, with no special provision for organization or apparatus. The noise was indescribable, and could be likened to that of some of our own schemes in London, where for that reason the children were chased away and played in the streets. This they often preferred, owing to the lack of apparatus and organization in the paved spaces between the buildings, although these were generally supposed to be useable as playgrounds.

LEICESTER AND LEICESTERSHIRE SOCIETY OF ARCHITECTS

At the annual meeting of the Leicester and Leicestershire Society of Architects, Mr. T. Trevor Sawday, F.R.I.B.A., after two years' service, retired from the presidency of the society, and was succeeded by Mr. Clement Stretton, F.R.I.B.A.

The hon. treasurer (Mr. A. F. Bryan, A.R.I.B.A.), the hon. secretary (Mr. G. A. Cope, A.R.I.B.A.) and the hon. librarian (Mr. A. E. Smith, A.R.I.B.A.) were re-elected. Messrs E. T. Allcock, F.R.I.B.A., T. W. Haird, A.R.I.B.A., G. Nott, F.R.I.B.A., E. J. Williams, F.R.I.B.A., A. Herbert, F.R.I.B.A., and A. E. Smith, were elected to serve on the Council.

LIVERPOOL ARCHITECTURAL SOCIETY

Mr. W. G. Newton, M.A., F.R.I.B.A., in a paper on "Schools," read at the annual meeting of the above Society, reviewed the changing designs of such buildings, and referred to the early monastic type, built to a certain extent round cloisters or the surviving idea of cloisters. Towards the end of the eighteenth century or the beginning of the nineteenth schools tended to be more of the "penitentiary" type. The next stage was the private house type, and now schools resembled hospitals. Whether for day or for boarding schools, architects had to plan with the same considerations as for a hospital, with provision for light and sunshine.

Illustrations to the lecture included a detailed description of the new Merchant Taylors' School in Middlesex and new science buildings for Marlborough College, of which Mr. Newton is the architect.

WEST YORKSHIRE SOCIETY OF ARCHITECTS

At the annual meeting of the above Society, held at Leeds on April 25, the following members were elected officers for the session 1935-1936: President (second year), Mr. Victor Bain, F.R.I.B.A.; vice-presidents, Alderman W. Illingworth, F.R.I.B.A., and Mr. R. A. Easdale, A.R.I.B.A.; joint hon. secretaries, Messrs. Norval Paxton, A.R.I.B.A., and Harold Conolly, A.R.I.B.A.; hon. treasurer, Mr. F. L. Charlton, F.R.I.B.A.

INSTITUTION OF STRUCTURAL ENGINEERS

The programme of the annual conference of the Institution of Structural Engineers is as follows:—

Wednesday, May 8, 3.30 p.m.—Reception in the Westminster Palace Rooms, 44 Victoria Street, S.W.1. 8.30 p.m.—A performance by The Blue Circle Players of "Loyalties," by John Galsworthy, at The Arts Theatre Club, 6 and 7 Great Newport Street, London, W.C.2.

Thursday, May 9. (At the Institution of Mechanical Engineers, Storey's Gate, S.W.1.) 10.30 a.m.—Annual general meeting. 10.45 a.m.—Special General Meeting to declare the result of the election of the Council for the session 1935-1936. 10.50 a.m.—Ordinary meeting: A paper on "Modern Methods of Flat Construction," by Mr. F. S. Snow, 12 noon.—A paper on "Vibrations in Bridges," by Professor C. E. Inglis, O.B.E. 10.30 a.m. to 5.30 p.m.—Seven alternative visits.

Friday, May 10. 10 a.m. to 4.30 p.m. Seven alternative visits. 7.30 p.m. Banquet, at the Dorchester Hotel, Park Lane, W.1.

Saturday, May 11. 10.30 a.m. to 5 p.m. Visit to the Whipsnade Zoo.

SOCIETY OF CHEMICAL INDUSTRY

The fifty-fourth annual meeting and conference of the above Society is to be held in Glasgow from July 1 to July 6.

R. I. B. A.

The programme of the R.I.B.A. Conference, to be held at Glasgow from June 19 to June 22, is now available.

The Council of the Institute has endorsed the recommendation of the Allied Societies' Council to accept the invitation of the Hampshire and Isle of Wight Architectural Association to hold the conference at Southampton in June, 1936.

COMPETITION NEWS

MUNICIPAL BUILDINGS, FALKIRK

The Property Committee of Falkirk Town Council has decided not to fix any definite site for the erection of new municipal buildings, but is recommending the Town Council to promote a competition

for designs in connection with the proposal to extend the existing building.

TOWN HALL, WEMBLEY

We understand that Mr. Stanley Hamp, F.R.I.B.A., is now adjudicating the 100 designs submitted in the competition for a proposed town hall at Wembley. When his decision is made a special meeting of the Wembley Council will be called at which the name of the author of the design placed first will be made known. Arrangements have been made for the whole of the designs to be on view to the public at the Majestic Ballroom, Wembley, from May 20 to 24 between the hours of 10 a.m. and 8 p.m.

Competitions Open

May 31.—Sending-in Day. Police station, dwellings and hospital, Bishopsgate, for the Corporation of London. Assessor: H. Austen Hall, F.R.I.B.A. Premiums: £250, £100 and £50. Conditions, etc., are obtainable from the Town Clerk, Guildhall, E.C.2. (Deposit £1 1s.) Last date for submission of designs, May 31.
June 28.—Sending-in Day. Municipal offices for the Birmingham City Council. Assessor: Sir Reginald Blomfield, R.A., PP.R.I.B.A. Premiums: £1,000, £600, £400 and £250. Conditions, etc., are obtainable from Mr. Herbert H. Humphries, M.INST.C.E., the City Engineer and Surveyor, Council offices, Birmingham. (Deposit £3 3s.) Designs must be submitted to the Town Clerk, Birmingham, not later than June 28.
June 29.—Sending-in Day. Municipal offices, Romford, for the Romford U.D.C. (Open to architects of British nationality practising in the British Isles.) Assessor: Kenneth M. B. Cross, M.A., F.R.I.B.A. Premiums: £250, £100 and £50. Conditions, etc., obtainable from the Clerk to the Council, Arcade Chambers, South Street, Romford. (Deposit, £1 1s.) Latest date for submission of designs: June 29.
July 4.—Sending-in Day. County offices, Kendal, for the Westmorland County Council. (Open to architects of British nationality, practising in the British Isles.) Assessor: G. H. Foggitt, F.R.I.B.A. Premiums: £200, £125 and £75. Conditions, etc., obtainable from H. B. Greenwood, Clerk to the Westmorland County Council, Exchange Chambers, Kendal. (Deposit £1 1s.) The latest date for submission of designs is July 4.
August 31.—Sending-in Day. Municipal offices, Swindon, for the Swindon Corporation. (Open to architects of British nationality, practising in the British Isles.) Assessor: Professor A. B. Knapp-Fisher, F.R.I.B.A. Premiums: £350, £250, and £150. May 25 is the last day for questions, and August 31 is the closing date. Conditions of the competition are obtainable from the Town Clerk, Town Hall, Swindon (deposit £1 1s.)
October 1.—Sending-in Day. Central county buildings, Hertford, for the Hertfordshire County Council. Assessor: Robert Atkinson, F.R.I.B.A. Premiums: £350, £250 and £150. Designs must not be submitted later than October 1. Particulars of the competition are obtainable from the Clerk of the County Council, Clerk of the Peace Office, Hertford. (Deposit £2 2s.)

LETTERS FROM READERS

TECTON

THE RT. HON. THE EARL OF MALMESBURY

R. L. PALMER, A.R.I.B.A.

JOHN BRANDON-JONES

K. R. STARKEY (Secretary, the Institute of British Executives)

Flats Competition

SIR,—Although the criticism by your correspondents "Uninitiates" of the recent competition for working men's flats appears to be levelled at both the assessors and the authors of the winning designs, the observations which they make are, in fact, confined to the scheme submitted by us. We trust, therefore, that we will be forgiven for the presumption of answering one or two of their criticisms ourselves.

We would begin by drawing their attention to an inaccuracy in their letter. They say, after giving the dimensions of the various rooms—"Although these sizes are generally accepted as minimums, yet such was by no means stated in the conditions as issued." Page 2 of the conditions as issued, however, states that "The rooms *should have the following minimum* dimensions:—" and in this connection we would like to point out our reasons for taking advantage of the latitude allowed by the assessors to give a liberal interpretation of the conditions. The system of construction which we had adopted and the principles underlying the plan both possess considerable economic possibilities. We were, therefore, enabled without increasing the cost of the scheme to add to the amenities required by the programme. The total result proves that we were in a position to build bigger flats for the same amount of money, and no assessor would have been justified in considering the solution which we submitted as a mis-interpretation of the programme.

Turning to the second criticism, "Uninitiates" take exception to the number of drawings of ours which they saw exhibited at South Kensington. We have ascertained that a large number of competitors also submitted more drawings than were specifically asked for in the programme, one competitor sending as many as thirteen. For their information we should like to add that our drawings were numbered 1 to 5. The remaining sheets were labelled "Supplementary drawings, Hors de Concours, intended to accompany the explanatory report." It will readily be appreciated that our project, which relies entirely on a new system of construction, would not properly be understood without a number of technical drawings. Further, several devices, which we illustrated, had to be explained, as they form an integral part of the scheme. For instance, if the dust shoot had not been capable of being hermetically sealed, we would not have put it on the staircase. Without showing details, the functioning of the coal-shoot would not have been clear from an $\frac{1}{8}$ in. scale drawing. The absence of overshadowing of the blocks could not have been demonstrated on the drawings required by the programme. These are the essential characteristics on which a design of this nature should be judged, and we venture to suggest that more satisfactory results would be obtained from future competitions if more attention were paid to these considerations and less to the incidentals of presentation and rendering.

"Uninitiates" themselves appreciate the utility of such drawings, although from their queries they would appear to consider them not sufficiently complete. With regard to question 1, "The reason for the (apparently uneconomical) change from rectangular to round columns between ground and first floor level": if they will refer to the drawing of the Time and Progress Schedule they will observe that special separate shuttering is made for the building up to first floor level which is subsequently re-used for the ground floors of the other blocks. Such shuttering would indeed involve a slight extra cost. We have attempted, however, not to lose sight of the fact that our flats are designed for human beings, and that they should be both a pleasure to live in and a pleasure to look at. Aesthetic considerations and not those of rigid economy have dominated our conception, and nowhere have we sacrificed them in order to obtain the cheapest possible solution.

Referring to question 4: the cost was based on firm quotations by the different contractors taken from working drawings—with the exception of small fittings such as door furniture, the cost of which was based on our own experience of current prices. The other points which are raised are of a more technical and less general interest and we are unwilling to usurp any further your valuable space. If, however, your correspondents would really like to have more information on any points

they should discard their anonymity and call at this office, when we would be delighted to give them all the particulars they may require.

TECTON
London

Comments on Building

SIR,—I have received amongst some Press cuttings some extracts from the ARCHITECTS' JOURNAL dated April 4 and 11 containing criticisms of my remarks on modern architecture. Of course, you are quite entitled to criticize me, but I feel quite sure that if any of your members were with me when I complained they would often be in agreement with me.

I am very fond of architecture, and I was delighted to see some charming small modern houses only yesterday, between Portsmouth and Southampton. After all, I was praising a particular building (Knowle Mental Hospital extension) built by Mr. Sheppard.

What I have said, and I am sure you must agree, is that when people live in a stone country let them build as much as possible with stone and, when they live in a brick country, let them build as much as possible in brick and try and encourage the making of beautiful brick. I love good red brick myself. I do, however, most seriously criticize these shapeless, designless buildings smeared all over with a horrible sort of cement or compo. I have quite close to my home here a building designed by an architect which, to my mind, will ever be an eyesore as it is covered over with this dreadful sort of composition ; also I am afraid that one of my lodges, which I allowed to be built many years ago, has the upper part covered with a sort of compo which one is always having to renew.

Anyhow, I hope and believe that taste is changing.

MALMESBURY
Christchurch

P.S.—I am very fond of architecture.

Pardon for Carpenters

SIR,—In your issue for April 4 there was a letter from Major G. B. J. Athoe commenting on an incident described by Stow, the collapse of a stand put up for a mediæval tourney in Chepe—" In fact," to use your correspondent's words, this occurred not in the thirteenth century, as he says, but in the fourteenth, 1331, and the stand was put up not for " Edward I and Philippa," but for Edward the Third and Philippa.

While there were no district surveyors in the present sense of the term at that time, there had long been officials appointed by the City authorities to help them in the control of building and in disputes arising out of buildings and lands. The " Assize of Building," convened in 1189 by Henry Fitz Aylwin may be considered as the earliest forerunner of our present Building Acts ; and at this time carpenters—then the most important members of the building trade—are mentioned in connection with the provisions of the Assize towards the settlement of disputes : " ad contentiones pacificandas." It was to the carpenters that the early civic authorities looked for advice, and in the thirteenth century we find them helping in the organization of a system of supervision of buildings and workers.

These overseers, known as " viewers," were the professional forebears of the district surveyor. As an early example of the office and its duties may be cited the two carpenters sworn as " viewers " in 1271. The exact terms of the oath are given in the appointment in 1301 of Robert Osekyn and John de Britele, who (translation) " were sworn to give true judgment in all matters of boundaries of lands, of decayed partition walls, partitions and gutters, and in all other questions touching their office, both in the City of London and in the Suburbs thereof as required." (Liber Cust., II, pt. ii, p. 100.) There is much material in the records dealing with the activities of the old building overseers.

R. L. PALMER
Bridport

Analysis

SIR,—It was with great delight that I studied Mr. Tatton-Brown's brilliant burlesque of the pseudo-scientific approach adopted by certain of our " Modern " architects.

A magnificent thought was the subtle distinction between a Dove-cote (no solution) and a Pergola (the solution). Then the Balcony problem—privacy at last by means of an obscured window pane, a simple device favoured by our Victorian forbears. Finally, by ventilating and lighting (?) the lavatory by windows above the balcony lintol we abandon functional expression and with the triumphal return of the Cyma in the balcony front hail the Baroque Revival.

Following so closely upon your excellent leading article " Analysis," is there not a danger that your more innocent readers may mistake this delightful fooling for the real thing ?

JOHN BRANDON-JONES
London

[*Our correspondent's criticisms are not specific enough to allow of a defence of the analysis to be offered ; but we are pleased to know that he approves of the idea behind analyses generally. We would point out that the ventilation of controversy—the encouragement of the dialectical method—is one of the functions of an analysis, so in this sense the subject of our correspondent's criticism has justified itself as far as he is concerned.*—ED., *A. J.*]

British Commercial Representation

SIR,—The presence of Overseas Buyers in this country for the British Industries Fair has impressed the Institute of British Executives with the need for British representation of the highest quality in Continental and Overseas markets.

The Department of Overseas Trade has performed an invaluable service to British Commerce and Industry by laying the foundations for the development of a new technique in commercial relations. The basis of this technique is personal touch through the medium of representatives who must be, in all respects, of the highest quality. In this connection we cannot do better than quote from the official report of Sir Francis Goodenough's Committee on Education for Salesmanship, which said :—

" The ideal representative in a foreign market is one who has the standing of a principal in the firm which he represents, and as this is not always possible, then a representative of the calibre and attainments corresponding to a principal is desirable if British trade oversea is to make progress in the face of modern competition."

It has been the express purpose of this Institute, with the encouragement of H.R.H. the Prince of Wales and the support of the leading banks and business houses, to mobilize the large amount of talent of this sort which has been released by displacements caused by the prolongation of the world economic crisis. The Institute has a completely classified list of men who are qualified technically and commercially, by language, and by experience of practically every market in the world.

It will welcome inquiries from Principals who wish to take advantage of the opportunity which now presents itself further to develop their overseas trade. The Institute neither charges nor accepts any fee from employers or members for any service rendered.

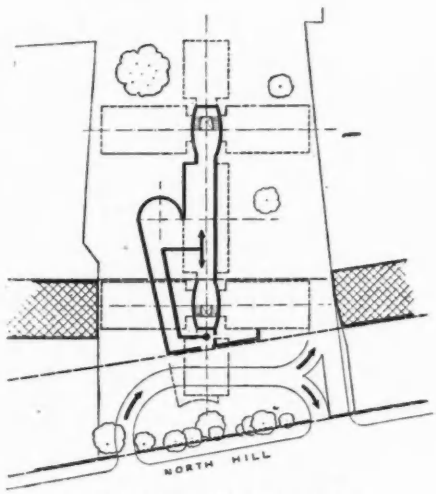
K. D. STARKEY
(Secretary, The Institute of British Executives)
London



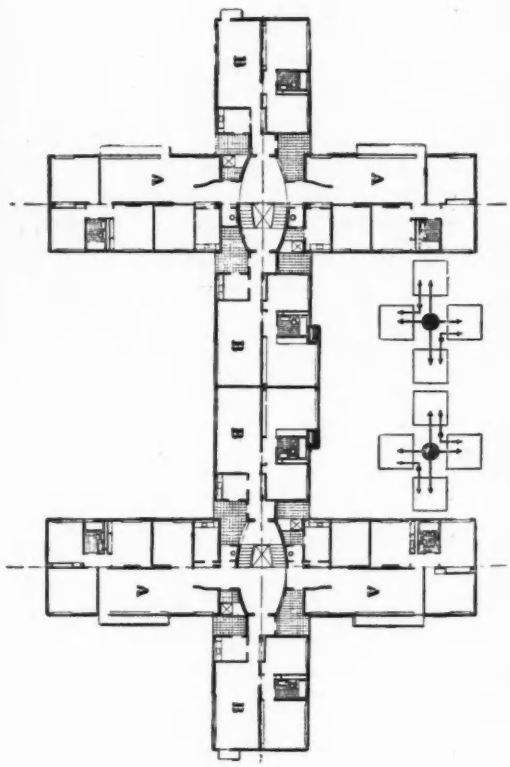
HIGHPOINT, HIGHGATE: DESIGNED



Left, a view looking up one wing of the west front ; on the opposite page a general view of the same front. The building offers extensive views over Ken Wood and Hampstead Heath.



GROUND FLOOR AND CIRCULATIONS

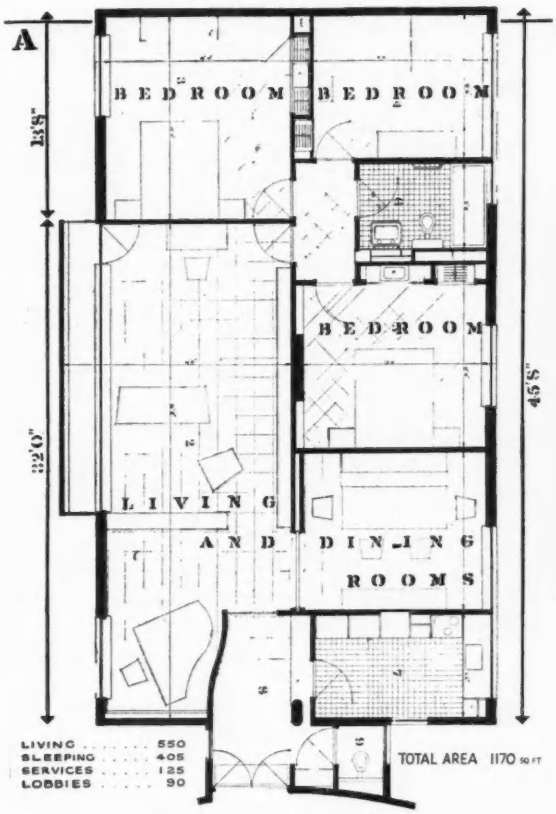


TYPICAL FLOOR LAY-OUT

The site is at the top of Highgate Hill, N.W, 417 ft. above sea level, and two acres in extent.

PLANNING. *There are two main types of flat. The larger (type A) has three bedrooms, a large living-room 31 ft. long, a dining-room opening into the living-room (through a sliding door which disappears into the wall), a bathroom, an extra w.c. off the entrance lobby, and a kitchen. The type B flats are smaller, with two bedrooms, and a living-room 23 ft. in length. All flats have balconies, and a special kind of harmonica window which folds back against the wall, leaving a perfectly clear space with no posts or other obstructions. There are 4 big and 4 small flats, completely standardized, per floor. All flats have open view in two directions and complete cross ventilation ; sun on two elevations in most flats. The plans allow the concentration of vertical circulation at centre of crosses, complete standardization of all bathrooms and kitchens, and vertical grouping of services.*

BY LUBETKIN AND TECTON



TYPE A £150—£225



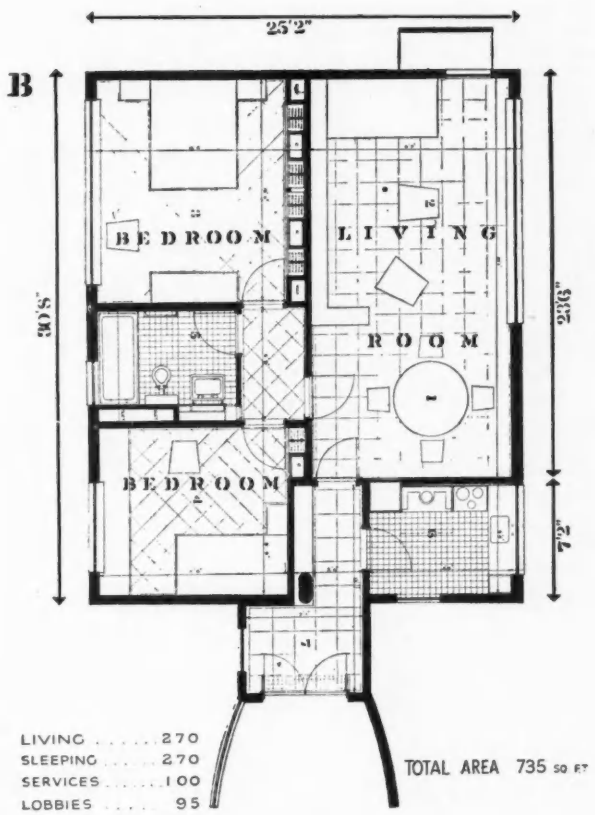
CONSTRUCTION. *Exterior walls are treated as monolithically combined stanchions and beams.*

The thickness of walls and floors is reduced by their continuity with each other. All the walls are statically alive, and are comparatively heavily reinforced, which reduces the possibility of structural cracks and shrinkage; quick and cheap for shuttering; floor area almost unobstructed, giving ease in planning. The exterior walls are of reinforced concrete lined with 1 in. compressed bituminous cork which is used as interior shuttering for the concrete.

This gives a good coefficient of heat insulation, being the equivalent against heat losses of a brick wall 38 in. thick, and also provides a certain amount of sound insulation.

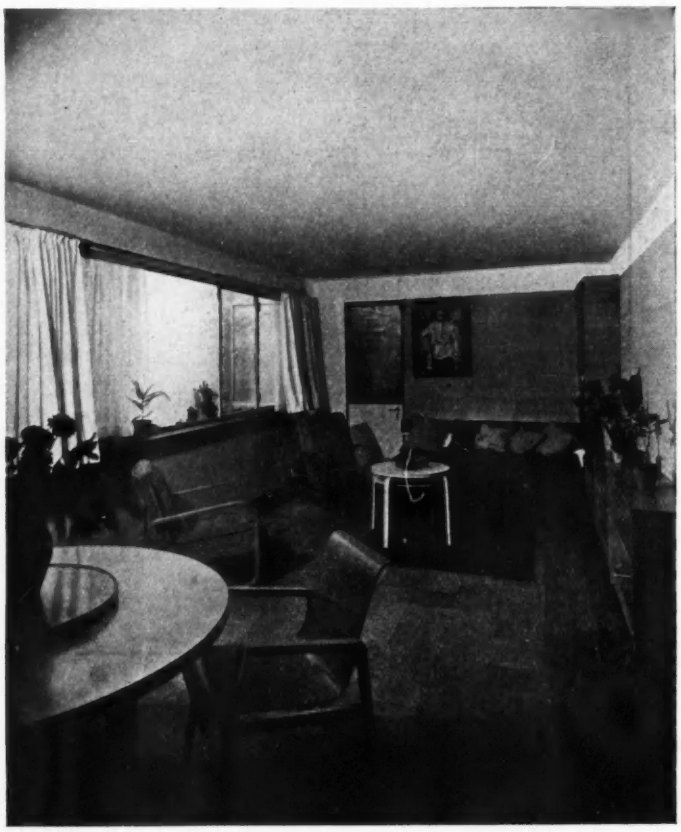
The floors are constructed of successive layers as follows: 3/8 in. cork tiles (moderately elastic), 1 in. reinforced screed (hard), 1 in. bituminous cork (very elastic) and concrete slab with special plaster. Both layers of cork are fixed in bituminous mastic.

This construction provides sufficient vertical sound insulation through the slab. The screed is isolated from the walls by cork, which prevents transmission of vibration to walls. All partitions are on felt bases to isolate them from floor shocks.



TYPE B £145—£175

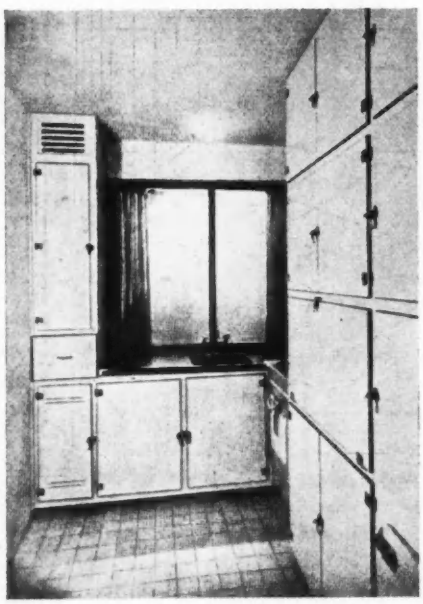
HIGHPOINT, HIGHGATE: DESIGNED



RENTS. *Type A flats, £150 to £225 per annum; type B, £145 to £175; including central heating and constant hot water.*

COST ANALYSIS

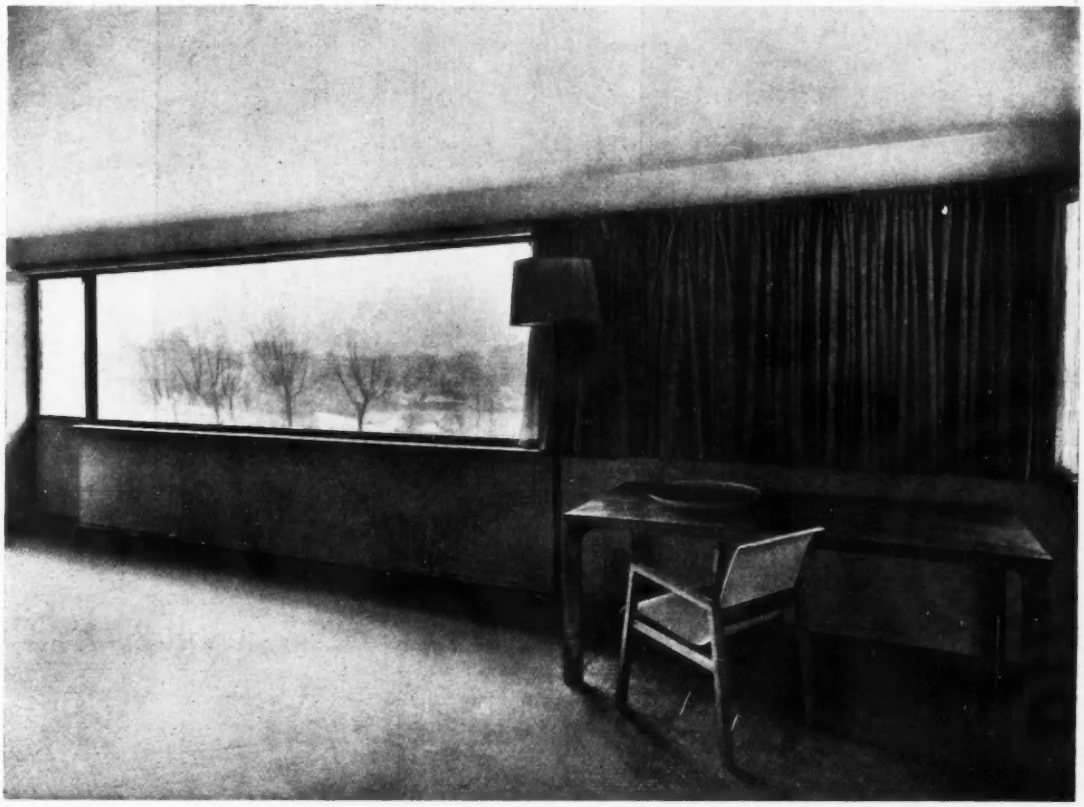
Excavations, 1·3%
Reinforced Concrete, 31·0%
Bricks, 1·8%
Drains, 0·9%
Asphalt and Roofing, 1·1%
Partitions, 1·5%
Windows and Fixing, 6·1%
Internal Plumbing (water, soil, rainwater), 5·8%
Heating and Hot Water (inc. mech. stokers) 7·2%
Sanitary Fittings, 3·2%
Electricity, 5·0%
Lifts (2 passenger and 4 service), 4·8%
Lift Enclosures, 2·0%
Refrigeration, 2·4%
Ironmongery, (railings, etc.), 1·0%
Door Frames and Cills, 0·9%
Sound Insulation to Floors, 1·7%
Plaster, 4·0%
Wall Tiles, 0·6%
Terrazzo, 1·1%
Cork Flooring and Skirting, 4·4%
Lino and Floor Tiles, 0·5%
Doors, 2·2%
Glass Bricks, 0·9%
Cupboards, 1·6%
Glass, 0·7%
Kitchen Fittings, 1·7%
Painting and Decoration, 2·8%
External Finish, 1·8%

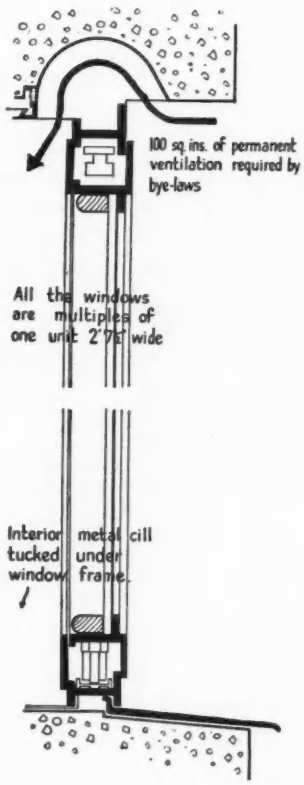


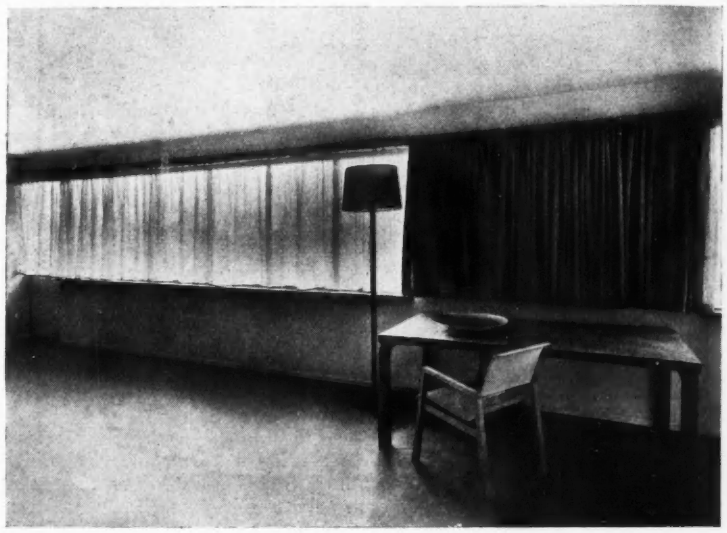


Three interior views of a type B flat; top, a living room; below, a kitchen; and right, the principal bedroom.

BY LUBETKIN AND TECTON







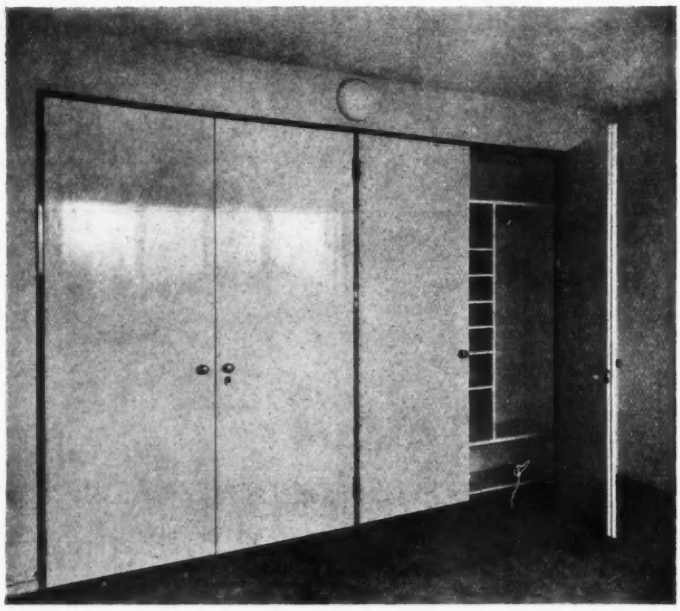
Two photographs in a living room, type A, taken from the same standpoint, showing: above, the harmonica-shaped windows opened to give a clear unobstructed view; and below, the same windows closed. On the left is a section showing the permanent ventilation above the windows.

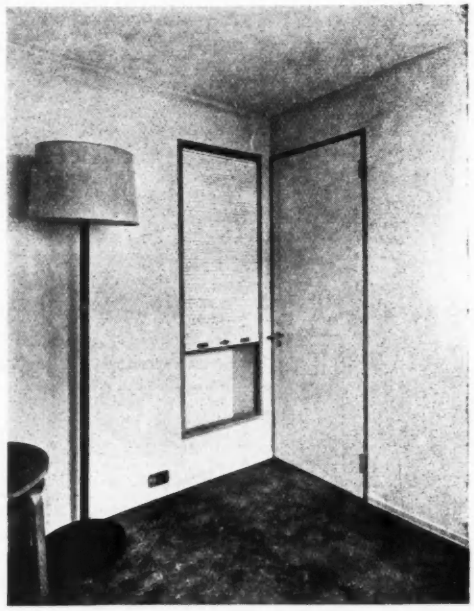
HIGHPOINT, HIGHGATE

DESIGNED BY LUBETKIN AND TECTON









EQUIPMENT. *All bedrooms have built-in cupboards, complete with drawers and fittings, the cupboard doors being 2 in. thick to prevent warping. Electric lights switch on as the cupboard doors are opened. In type A flats No. 2 bedroom has a wash basin recessed into the wall and hidden by curtains. In every bedroom there is a special ventilation system over the windows, which changes the air completely one-and-a-half times every hour without causing draughts.* *(See section on page 663.)*

All kitchens have built-in refrigerators of four cubic feet capacity, the current and upkeep of which is paid for by the landlord. There are large cabinets, stainless metal sinks and draining boards.

All doors, including cupboard doors, are 2 in. thick, set flush in specially designed metal frames, with rubber buffers which make them noiseless. The electric light switches are installed in the door frames and are in the same relative position in every room.

Invisible radiant heating is used; a continuous run of pipes, circulating hot water, passes through all the ceilings, keeping the rooms at a constant temperature, without altering the quality or the moisture-content of the air. To give additional local heat, as well as for the sake of the effect, each living-room has an electric fire, built-in and surrounded by bookshelves, recessed into the walls. The same invisible radiant heating is used in the staircases, entrance halls, etc.

Illustrations: Above, a bedroom window shown open, and closed. The exterior is easy to clean, there being room for a person's arm between the open window and the frame. The handle is fitted into the width of the mullion, and a simple friction pivot holds the window in position. The bottom left photograph shows a wardrobe, and that on the right a corner of a bedroom, showing cupboard, with rolling shutter and a connection for a transportable gas fire, ring or iron heater.

THE FINANCIAL ASPECT OF FLAT DEVELOPMENT

[BY WALTER E. A. BULL, P.A.S.I.]

THE constantly increasing demand for flats in the big cities is satisfied almost entirely by private enterprise. To the man in the street, the financial aspect of the extensive development he sees on all sides is of little interest, but to all those intimately concerned, and particularly to the architect, it is of primary importance. The function of the architect in any building operation is to see that the best and most suitable building is erected upon the chosen site. In many buildings architectural considerations come first, and to these perhaps even the question of cost may be subordinated. In flat development schemes, however, the best and most suitable building, other things being equal, is that which will produce the highest income for the lowest cost.

When the architect has produced preliminary sketch plans for a site, it is then properly the work of a chartered surveyor to prepare the financial statement, which will be discussed in detail later. This statement will estimate the net income on the one hand and the total capital expenditure on the other, and the interest yield so disclosed will determine whether the scheme does or does not proceed. It obviously follows that the architect and the surveyor should work in close collaboration throughout. The architect's aim will be to get the maximum number of flats upon the site consistent with adequate light and air space, to keep the ratio of lettable area to the staircase and corridor area high and, in the flats themselves, to see that the amount of space taken up by passages is as small as possible. Each separate item of capital expenditure beyond the absolute necessary minimum must be considered in the light of the increased yield in income to be expected therefrom.

At the present time a completed and fully let freehold flat building can be sold on approximately a 6½ per cent. basis. The yield which the preliminary financial statement will be expected to disclose must be considerably higher, since it will have to cover the developer's risks and profit. It can be taken as a fair generalization that unless the estimates forecast a yield of at least 9 per cent. the scheme will not be considered a satisfactory one. Many developers, in spite of the present cheapness of money, continue to require an estimated yield of 10 per cent.

As has already been said, one of the objects of the financial statement is to estimate the net rent that will be obtainable. Since flat rentals almost invariably include payments to the landlord for many items in addition to true rent (such, for instance, as rates, water rate and central heating) the statement will be divided into some or all of the following headings and subheadings :—

(1) THE CAPITAL INVOLVED
- (*a*) Building cost.
- (*b*) Land cost (if freehold).
- (*c*) Architect's and quantity surveyor's fees.
- (*d*) Valuer's fees.
- (*e*) Law costs.
- (*f*) Commissions on first lettings.
- (*g*) Finance.
- (*h*) Gardens.
- (*i*) Incidental expenses peculiar to the site.

(2) INCOME ANTICIPATED
- (*a*) Gross income.
- (*b*) Outgoings.

The outgoings should be estimated in detail and will generally be found in the case of flats to be from 37½ per cent. to 45 per cent. of the gross income. The following items must be considered :—

- (i) Ground rent, if any.
- (ii) Rates and taxes.
- (iii) Water rate.
- (iv) Fuel for constant hot water and central heating.
- (v) Insurance—building, fire, lift, boiler, employer's liability.
- (vi) Lighting of staircases and corridors.
- (vii) Lifts—maintenance and power.
- (viii) Upkeep of gardens, if any.
- (ix) Wages of porters, etc.
- (x) Cost of management.
- (xi) Allowance for unlet flats.
- (xii) Maintenance and repair of building.
- (xiii) Sundries, such as porters' uniforms, cleaning and cleaning materials, etc.
- (xiv) Sinking fund, if leasehold.

The following financial statement is based upon an actual scheme. The most convenient course will be first to set out the statement in full and subsequently to consider each item separately :—

SCHEME RELATING TO PROPOSED FLAT DEVELOPMENT

Site area, 43,000 sq. ft.
Building : 70 flats with 20 garages.

(1) CAPITAL INVOLVED

Building cost, 1,222,560 cu. ft. at 1s. 8d.	£91,684
Land cost	65,000
Architect's fees	5,000
Law costs	1,750
Commissions on first lettings	2,785
Interest	6,475
Gardens	1,000
	£173,694

(2) INCOME AND OUTGOINGS

Gross Income

20 Type A Flats at £475		£9,500
6 Type B Flats at £450		2,700
16 Type C Flats at £375		6,000
18 Type D Flats at £325		5,850
10 Type E Flats at £275		2,750
		£26,800
20 Garages at £55		1,100
		27,900

Outgoings

Rates at 9s. in the £, rateable value £13,740	£6,183	
Water, 6 per cent. on R.V.	824	
	7,007	
Less 4 per cent.	280	
	6,727	
Fuel for constant hot water and central heating	800	
Insurances for fire, boilers and employer's liability	150	
Staircase and corridor lighting	250	
8 lifts at £40 per lift for maintenance, insurance and power	320	
Porters' wages, 8 porters	1,000	
Cost of management, say 2½ per cent.	700	
Allowances for loss of rent and contingencies	1,100	
Maintenance and repair of exterior of building, corridors and staircases	500	
Cleaning materials and porters' uniforms	125	
		11,672
Net income		£16,228

Total cost	£173,694
Net income	£16,228

Showing a yield of nearly 9½ per cent.

This scheme should be regarded as a very satisfactory one, having regard to the class of property indicated by the rents to be obtained.

Dealing now with the items in detail :

(1) CAPITAL INVOLVED

BUILDING COST

When taking out approximate estimates for flat schemes, figures of from about 1s. 3d. to 1s. 11d., to include quantity surveyors' fees, according to the class of work involved, are current at the present time. The lowest rate would be for a building without lifts, constant hot water or central heating, in which case a cost of even slightly below 1s. 3d. per foot cube might be possible ; at the other end of the scale would be the large elaborate luxury block with every possible modern convenience.

LAND COST

These figures will vary enormously, both with the position and with the shape and size of the site. Figures of from 1s. per sq. ft. up to £3 per sq. ft., or more, from suburban to West End positions, are quite usual. Many West End sites, of course, are worth figures far in excess of £3 per sq. ft., but generally, flat schemes without shops begin to become difficult for commercial development when the land cost exceeds £3 per sq. ft., and exceedingly difficult should it exceed £5 per sq. ft.

In preparing the financial statement, the land is taken at the price for which it is known that it can be acquired. If, when the statement is completed, it appears that a sufficient yield cannot be obtained, then the statement itself can be used as a very potent argument in negotiating with the landowner for a reduction in price. The value of land of this character depends entirely upon the value of the building to be erected on it. If this is the best possible one for the site, then the value of the land is the value of the completed development, land and buildings, less the cost of the development and an adequate allowance for profit and risks.

It is particularly important to ascertain how the site is affected by the provisions of the town planning scheme, if there is one. More and more schemes are being formulated and very material differences to the value of the site can be made by the provisions of the scheme, particularly those with regard to density and the proportion of the site which can be covered.

LAW COSTS

In estimating the capital cost of the scheme, provision should be made for legal fees and duties, both on the purchase of the site and on the granting of leases to the tenants.

The purchaser of a property has to pay his own solicitor's fees and also the stamp duty, which, in the case of a freehold involving a purchase consideration of over £500, is 1 per cent. on the amount of the purchase consideration. With regard to the leases, the developer will have to pay his own solicitor's fees for the preparation of the leases, but the tenants will pay the stamp duty on the lease and their own solicitor's fees.

COMMISSIONS ON FIRST LETTINGS

There should be included in the capital cost of the scheme a sum to cover agents' commissions on the first lettings, and this will normally be 10 per cent. upon the amount of the gross rents. If considered necessary, additional provision should be made for cost of advertising.

Commissions in respect of subsequent lettings will be a charge upon the revenue, to be considered in outgoings.

INTEREST

Allowance in the capital cost must be made for interest upon the capital involved during the period in which it is unproductive—whether the scheme is being financed by the developer himself or whether borrowed funds are used. In the first case, it is true, there will be no actual payments of interest, but the capital employed would presumably have been earning interest elsewhere had it not been used for the scheme.

The method of arriving at the sum included under this heading is to take the capital involved in the building and land and allow interest on it at the full rate for half the total estimated period between the commencement of the scheme and the time when the building is completed and fully let ; this method gives a sufficiently close approximation. In the particular case being considered, the capital involved in the building and land is approximately £157,000, and it was estimated that the building would take 12 months to build and six months to let ; interest in this particular case was charged at 5½ per cent. per annum, and 5½ per cent. per annum on £157,000 for nine months is £6,475.

INCIDENTAL EXPENSES

When inspecting the site, care should be taken to see whether the proposed building would involve any payments of an unusual kind. The most common of such payments is in respect of an infringement of the rights of light possessed by adjoining buildings. Other items which may involve expense are rights of way, or easements of drainage, and the like.

(2) (*a*) GROSS INCOME

Whatever the nature of the property, the estimation of gross income is a matter for a valuer with special experience of the district concerned. With many types of property, rental values are estimated per square foot of lettable floor space, the price per unit of area being based upon the experience of the valuer in the rents obtained for similar accommodation in the neighbourhood. This method is not one commonly applied to flats, but if the correct data is available it can be exceedingly useful. As a rough indication it may be said that flats, in the central areas of London, of about 1,000 to 1,200 sq. ft. area within the main boundary walls, will let at totally inclusive rents of from 4s. to 7s. 6d. per square foot. In the same block the price per square foot will normally decrease progressively as the flat increases in accommodation, since the ratio of amenity space (kitchen, bathroom, lavatory, etc.) to living room space is highest in the smallest flat.

(2) (*b*) OUTGOINGS

RATES

The rates constitute the largest outgoing in the statement, and are therefore the most important. When the flats are let, the local authority, being the rating authority for the area, will assess the gross and rateable values of each flat, and the amount due in respect of that flat will be arrived at by the application to the rateable value of the amount in the £ at which rates are levied from time to time. Rates are not payable in respect of unoccupied flats.

The gross value is the rent at which the property might be expected to let from year to year if the tenant undertook to pay all usual tenant's rates and taxes and tithe rent charge, if any, necessary to maintain the property in a state to command the rent.

The rateable value is obtained by deducting from the gross value the cost of the repairs and insurance already mentioned.

The best guide to rateable value is the rent at which the property is let, if this rent is a recent one and fairly represents the annual value. If, therefore, the property is let at such a rent and it is proposed to use this as the basis for the assessment of gross value, but the terms on which that rent is paid to the landlord differ from the terms propounded by the definition, it will be necessary to adjust the rent until it does conform to the definition. To do this it will be necessary (*a*) to deduct any payments by the tenant to the landlord for services included in the rent ; (*b*) to deduct any sum paid by the landlord and included in the rent in respect of outgoings which the definition assumes to be paid by the tenant, and (*c*) to add any sum paid by the tenant

Class No.	Class of Hereditaments	Limits in Gross Value		Deductions	
		Exceeding	Not Exceeding	Outside the London area amount	Within the London area max. amount
		£	£		
1	Houses and buildings without land other than gardens ..	—	15	40 per cent. of the gross value.	
2	Ditto ..	15	20	£6 plus 30 per cent. of the excess over £15, i.e., of the amount by which the gross value exceeds £15.	
3	Ditto ..	20	40	£7 or an amount equal to 25 per cent. of the gross value, whichever is the greater	£7 plus 25 per cent of the excess over £20, i.e., of the amount by which the gross value exceeds £20
4	Ditto ..	40	100	£10, or an amount equal to 20 per cent. of the gross value, whichever is the greater	£12 plus 20 per cent. of the excess over £40, i.e., of the amount by which the gross value exceeds £40
5	Ditto ..	100	—	£20 plus 16⅔ per cent. of the excess over £100, i.e., of the amount by which the gross value exceeds £100	Either £24 or £20 plus 16⅔ per cent. of the excess over £100, i.e., of the amount by which the gross value exceeds £100, whichever is the greater

Table 1.

in respect of outgoings, which the definition assumes will be paid by the landlord. Having thus arrived at the gross value, the rateable value will be found by deducting the annual cost of the repairs and insurance. In this case, however, the actual amount of these expenses is not deducted, since Parliament has prescribed a scale of deductions to be applied according to the amount of the gross value, irrespective of the actual sums expended on repairs and insurance.

These deductions from the gross value to rateable value are known as statutable deductions, and the permitted amounts vary slightly according to whether the property is or is not within the County of London. Table 1 reproduced above sets out the rates current at the present time for those classes of property with which this article is concerned.

Applying these principles to the example under consideration, it will be seen that the gross rents which it is estimated the landlord will receive will amount to £27,900 per annum, but out of these rents he will have to pay the cost of the services (heating, cleaning, porters, etc.), and also the rates and water rate, which latter the definition of gross value assumes will be paid by the tenant. In order to arrive at gross value therefore, there must be deducted from £27,900 the estimated cost of the services and of the rates and water rate. A difficulty arises here in that the amount of the latter are not known until the rateable value is known, yet it is the rateable value which we are ultimately seeking to estimate. The difficulty can be surmounted by a simple algebraical formula, thus :—

Let £x equal rateable value.

The rates are 9s. in the pound, and are therefore

$\frac{£9x}{20}$, or, in decimals £$\cdot 45x$.

The water rate is 6 per cent. of £x, or, in decimals, £$\cdot 06x$.

Therefore rates and water rate together are £$\cdot 51x$.

Gross value, minus statutables = rateable value.

Now gross rents, minus services, minus rates = gross value.

The statutable deduction from gross to rateable for property in class 5 is £20 plus one-sixth of the excess of the gross value over £100.

For the purposes of an approximate estimate such as this it will be sufficiently close to take the statutable deduction as one-sixth of the gross value.

Now, if gross value − 1/6th G.V. = R.V.

Then R.V. + 1/5th R.V. = G.V.

If we deduct the amount of the services from the gross rents we shall be left with the gross value plus the rates.

Now, by the terms of our data :

Rateable value = £x

Rates and water rate = £$\cdot 51x$

Statutable deductions = £$\cdot 2x$

Therefore $x + \cdot 51x + \cdot 2x$

= Gross value plus rates

= Gross rents minus services, other than rates.

Hence $1 \cdot 71x = £27,900 - £3,295$

$$x = \frac{24,605}{1 \cdot 71}$$

$x = £14,388.$

The figure of £3,295 is the total estimated cost of the services, excluding the repairs and fire insurance on the building (these are allowed for by the statutable deduction from gross to rateable) and also excluding the allowance for loss of rent. This latter is not included because there will be a separate assessment for each flat, and no rates will be payable for a flat that is not occupied.

In practice, however, a shorter method than the above can be adopted. Rating authorities generally will allow a certain percentage deduction from gross rents to give gross value, this deduction including services and rates. In the present case it was known that for a block of this character an allowance of 40 per cent. would be permitted, and the rateable value was therefore calculated thus :—

Gross rents		£27,900
Less 40 per cent. for rates and services		11,160
Gross value		£16,740
Less statutables—one-sixth of £16,740	£2,790	
Plus £3 for each flat in respect of the first £100 of G.V. 70 × £3	210	3,000
		£13,740

The rates calculated on this rateable value amount to £6,183, but since an allowance of 4 per cent. of the gross rents has later been made to cover loss of rent from unlet flats, and since no rates are payable in respect of such flats, 4 per cent. has been deducted

from the estimated amount of the rates and of the water rate.

WATER RATE

The charge for water made by the Metropolitan Water Board for domestic supply is 6 per cent. upon the rateable value. It should here be considered whether the capital cost of artesian wells would be justified by the saving in water rate.

HEATING

The cost of fuel for heating will be arrived at from the estimate of the consumption of the particular boilers to be installed.

Two main systems are in use in flat buildings—namely, oil burning and coke burning boilers; the former are cleaner and normally do not require so much attention as the latter, but with the provision of satisfactory automatic feeds for coke boilers, the disparity is not nearly so great as hitherto. At the present time, owing to the difference in the cost of the fuel, there is no doubt that after taking everything into consideration oil is the more expensive method.

INSURANCE

Allowance must be made for insuring the replacement value of the building against fire, for insuring one year's income from the building, architect's fees on the reconstruction after the fire, the boilers against explosion, the lifts against failure and third party claims, and for insurance in respect of men employed on the property.

So far as fire is concerned, unless the property is in the City danger zone—a very unlikely contingency in the case of flats—the ordinary domestic rate of 1s. 6d. per cent. would apply. The amount of the other insurances would depend upon the circumstances of the particular case.

LIGHTING AND POWER

Enquiry should be made of the local electric supply company for details of the cost of current for lighting and power. These vary considerably in different districts, and in some areas can amount to quite a substantial sum.

LIFTS

The cost of the current consumed will be considered at the time of the enquiry referred to in the previous paragraph. In addition to this there will be the cost of insurance for maintenance and third party risks. Enquiries should be made of the insurance company to ascertain the probable premium for a policy covering these risks, and in addition some amount should be allowed for repairs due to mechanical breakdown not recoverable under the ordinary form of policy.

PORTERS

The number of porters required will naturally vary with the class of the property. Generally, the better the class the more porters necessary; not only because the tenants will require greater and more individual attention, but also because there will have to be a man on duty to a late hour. The head porter will be provided with living accommodation in the building, and rates will have to be paid upon this, although no rent will be received. Generally, porters' wages will be from £2 to £3 per week, plus free living accommodation in the case of the head porter.

INCOME TAX

When the building is let the owner will, of course, have to pay income tax upon the amount of the net assessments of the property under Schedule "A." It will, however, be observed that no allowance has been made in the outgoings for Schedule "A" tax, and this is because it is only the same tax as is applied to all incomes in the United Kingdom, and must not therefore be deducted when arriving at the net income for the purposes of a valuation upon property, any more than it would be deducted for valuation purposes from income arising from any other source.

DEVELOPER'S PROFIT

When the buildings have been completed and let the developer will be able to sell the property and realize his profit. This he can do either by selling the freehold as it stands or, alternatively, by creating a ground rent and selling the freehold and leasehold interests separately. At the present time he will almost certainly choose the latter method, as, owing to the great demand for good class ground rents as investments, he will be able to realize a larger profit.

FIRST METHOD

Net income, say		£16,000
Y.P. freehold	15	
	240,000	
Less cost of scheme, say	174,000	
Profit, subject to costs of realisation		£66,000

The costs of realization will probably include an agent's commission for selling and law costs; in the present case they would amount to approximately £4,000.

SECOND METHOD

In the case of a block of this class with a net income of £16,000 a ground rent of £4,000 could be created. The developer would grant himself a lease for 99 years at a ground rent of £4,000, and he would then sell the freehold and leasehold interests separately, thus :—

Freehold interest—		
Freehold ground rent	£4,000	
Y.P., say	24½	
		£98,000
Leasehold interest—		
Net income from flats	16,000	
Less ground rent	4,000	
	12,000	
Y.P. 99 years at 7 per cent. and 3 per cent., say	14	
		168,000
		266,000
Less cost of scheme, say		174,000
Profit, subject to costs of realization		£92,000

In this method the costs of realization would be rather higher and would probably amount to between £5,000 and £6,000.

It should be realized that the profit shown in this particular scheme is large and would, in many instances, be considerably less in proportion to the original capital.

LEASEHOLD SCHEMES

The example dealt with in detail was that of a freehold scheme. Had the scheme been leasehold, practically the same figures would have applied, except that under "Building Cost" there would have been no item for the purchase price of land, and the costs of the granting of the lease and the fees of the freeholder's surveyor for approval of plans would have been rather higher than the £1,750 allowed for law costs; the item of interest would have been lower, assuming a peppercorn ground rent to have been arranged. The gross income would not have been affected, but under outgoings there would have been included the amount of the ground rent plus a sinking fund to replace the cost of the building over a period of, say, 90 years. It is always advisable to estimate the sinking fund for a slightly shorter period than the term of the lease, which, in this instance, it is assumed would be for 99 years.

The amount of ground rent the freeholder would have required would probably have been somewhere in the neighbourhood of 5 per cent. upon the land value, namely, about £2,650, with the result that the scheme would have showed a higher percentage return upon the capital involved, but a rather lower percentage profit, since there would not have been the possibility of creating a ground rent.

IN SEARCH OF THE
TABLOID HOME

[*BY E. A. A. ROWSE, A.R.I.B.A., A.M.I.Struct.E., A.M.T.P.I.*]

PERHAPS not without truth has it been tersely said by those whose tastes lean towards a cottage and roses, that "a flat is no place for a child or dog." Obviously there are occasions when the behaviour, or rather misbehaviour, of such important members of the community is likely to cause trouble in a restricted space. But with our towns year by year increasingly composed of buildings planned on cellular principles, either for work or dwelling, the flat, even when it masquerades as a "pseudo-home," has come to stay.

In the population of all the leading industrial countries there can now be recognized three main types, which are broadly the result of occupational development. Two, the rural and semi-rural (or mitigated urban) are common to previous periods. Their mode of life, and, therefore, their needs, are not so widely divergent from those of their predecessors that they cannot be met along established lines. To such methods—largely a matter of re-apportionment and re-settlement of land—the solution of their special problems may be left.

It is the failure of so many to recognize the distinct characteristics of the third type which has now emerged, that leads to useless controversies, both in England and abroad, on the subject of the suitability of the cottage or the flat to house human beings of no matter what class.

Though they have been repeatedly emphasized, almost *ad nauseam*, the significance has not yet been fully realized, as more particularly related to Great Britain, of two world-wide changes, one sociological, the other economic, which have come to their most complete manifestation in the twenty years following the war.

Sociologically the enormous increase in total world population has finally dammed the possibility of emigration from this country. In 1750 there were in England 6,000,000 inhabitants, more than four-fifths of whom were engaged in some form of agricultural or allied occupation. In the succeeding period, in spite of the steady drain to the colonies, immigration and a reduced infantile death rate has raised that figure to 37,000,000 to whom the doors of opportunity abroad are largely shut, by the much more even distribution of manufacturing plant throughout the world, and the application of mass production to agriculture. These are the economic factors which stabilize population, since each national unit is now more self-sufficient.

The total population does not alone constitute the problem; much more significant is its redistribution. This has resulted in a complete reversal of eighteenth-century conditions, in that now four-fifths of this enormously increased total live in towns and follow highly industrialized pursuits. Thus the population of London increased, largely at the expense of the rural areas, from 959,000 in 1801 to 4,397,000 in 1931; Birmingham in 1770 had only 30,806, while in 1921 it had swollen to 919,438.

The increased population densities, which are a natural outcome of an attempt to house a greater population on areas not correspondingly increased, brought about the basic difficulties for which the flat is, up to the present at least, our only answer. It is perhaps because we accept it unwillingly that it has remained an unsatisfactory habitable standard unable, as yet, to meet reasonably many of the primary requirements of human existence.

As in the past century, there now still operate the same causes which lead to greater population densities. The need or wish to live near the centre of a city is either the result of an unavoidable necessity to reside near one's place of work, and so reduce a monetary or time loss in excessive transportation; or it is prompted by a wish to enjoy to the fullest those amenities of social intercourse which a great city offers in their most developed form. Such conditions created a demand for land which immediately set values soaring, and resulted in the necessity for housing more people on a given area to increase the rent return.

The first indications of such a demand for a form of accommodation, not based on the then current mode of life, first appeared in 1850. Among the English middle class, the one dwelling per family had previously been considered the satisfactory normal. A solution of the new problem could not, therefore, be found in this country. But abroad, other conditions had operated to produce a mode of life which was considered to accord more satisfactorily with intense urban life than the still semi-agricultural standard of dwelling distribution of even the late Georgian period.

In France, particularly in Paris, as well as in Scotland, in Edinburgh, conditions of insecurity attendant on the constant fear of invasion, served to curtail that excessive peace-time expansion of towns, which in this country has allowed their tentacles to sprawl over the countryside. The line of fortifications either trimmed up the edges of the town or served to divorce the clinging suburb sufficiently to keep the *glacis* or fields of fire clear. Cooped within the limits so defined, there remained no other direction for extension but the vertical. Thus was first developed the technique of the superposition or compression of dwelling units into that form of cellular or hive relationship which is the forcing ground of the highly developed urban type.

In England certain existing standards of living made the introduction of the flat more possible. The chambers of the Temple and the Universities, established in the minds of many who later became "young men about town," a conception of a compromise between a home and a hostelry, which might combine some, if not all the advantages of both.

Thus in 1851 we find a Scotsman undertaking at Westminster, as a speculation, the erection of the first block of flats in London. The choice of position was happy, as it lay reasonably accessible to both the great centres of commerce and government which compose the heart of London.

The early conception of this form of dwelling was that of a house expanded and flattened to one level, on much the same lines as the bungalow, a later importation from the Orient, grafted to the hunting lodge. Such horizontal extension resulted in a severe loss of compactness. The large areas of all rooms necessitated a high proportion of the site being built on. Light and air, not to mention outlook, suffered since the area or well was the only means of planning for lighting and ventilating the innermost portions of the building. Thus the characteristics of the late nineteenth-century flat plan evolved along lines which are a half-hearted compromise with the requirements of a race, who, lacking the centuries of preparation for flat life, found existence under such suddenly imposed standards irksome in the extreme.

The problem was made the more difficult, in that the family included an ample staff of servants, and required

five to six bedrooms with two large reception rooms, more accommodation than can perhaps rightfully be given in a flat. The provision of proper circulation through such plans demanded great ingenuity. In spite of the absence of the discipline which good steel construction and plumbing lay-out impose, early plans such as Fig. 1 show considerable ability in the disposition of parts.

Such standards were maintained through the first decade of the twentieth century, but with a fairly general tendency towards some economy in space provided. But it was not till after the war brought the full effects of the industrial era, coupled with a fairly general impoverishment, to a head, that the search for the "maison minimum" was undertaken with some clearer realization of the characteristic demands of the urban life.

The family unit had shrunk under purely personal as well as economic pressure. Maids, hard to find, no longer required two bedrooms, but more often came in as daily helps. The kitchen, scullery and pantry tended to coalesce into one increasingly compact working space. The two reception rooms, by way of folding connecting doors as an intermediate stage, were united into a large airy living room with a recess for meals, serving the dual function once allocated to drawing and dining room.

The refining and clarifying process has been carried vigorously forward in such examples as Rivermead Court, by Messrs. Joseph (Fig. 2), or Eresby Court, by T. P. Bennett and Son (Fig. 3). Both cases are sound renderings of post-war requirements, upon which the full blast of the economic crisis has not made itself felt. A home for the "minimum family" is provided, possessing adequate accommodation to allow some individual life to each member. The average bedroom provision is sufficient for owner and guest, or owner, one child and guest. In the room sizes, however, can be seen the modern tendency to condensation. The careful thought in the placing of staircases still shows the dominance over the lift, given, in British planning, to this form of vertical circulation. The use of external wall space to provide natural ventilation to sanitary units, expresses the prejudice which still exists in all our minds against internal placing of any such provision.

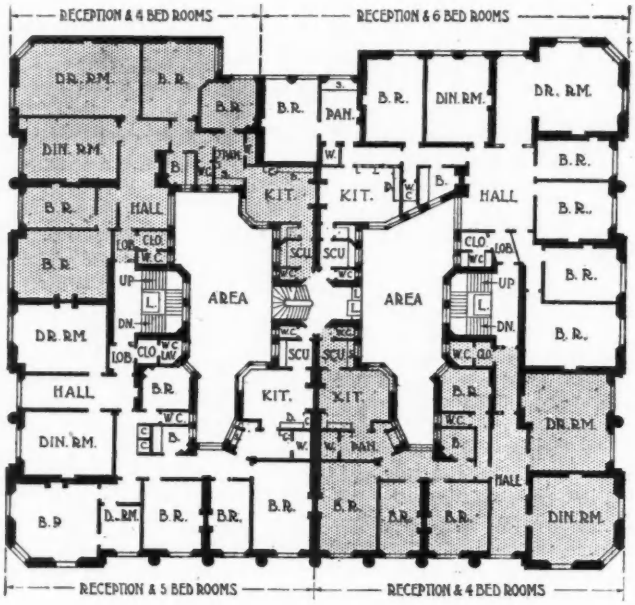


Figure 1. *Typical plan of a block of high-class flats having a frontage to three streets (circa 1900).*

The "house" characteristic still demands the strict maintenance of an individuality for each flat, so that staircases can only serve from two to four units. In the latter case this almost invariably results in a grouping round an internal area, if there is not to be an excessive redundancy in service staircases. The retention of such an undesirable feature in British planning as the "area," must before long be abandoned. The effect of the revolt, which is slowly gathering head against such methods, is instanced by the size of what are really quadrangles in Messrs. Gordon Jeeves' Latymer Court (Fig. 4). Though the numerical strength of the family unit to be accommodated still remains too large, and as a consequence the planner finds his problem unhandy, the steady increase in internal as well as external amenity is a most encouraging sign.

But the amplification of the web of adequate road and rail transport will yet, in most cases, allow the larger family to find suitable accommodation in the more distant suburbs, leaving as the typical urban type, the unmarried, the childless, or one child couple; or those elderly people who still find that a great city exercises over them an overwhelming attraction.

Though France, by way of Scotland, imparted the initial impulse in the intermediate stages of development, it is to America that we have more lately

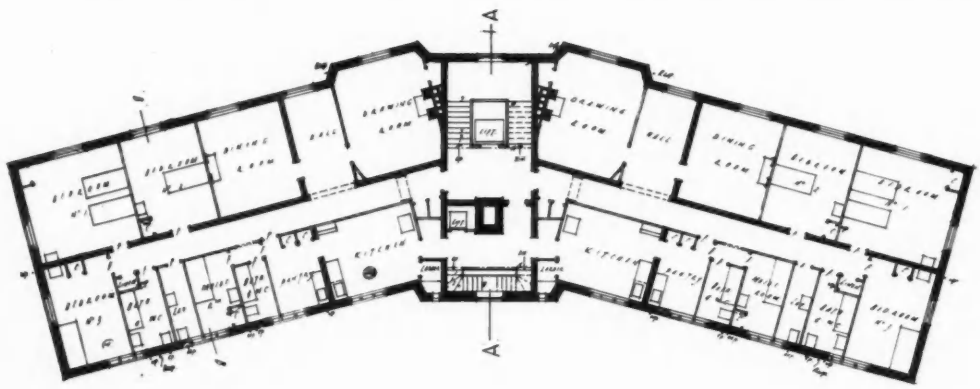


Figure 2. *Rivermead Court, Ranelagh Gardens, Hurlingham. By Messrs. Joseph. Typical floor plan.*

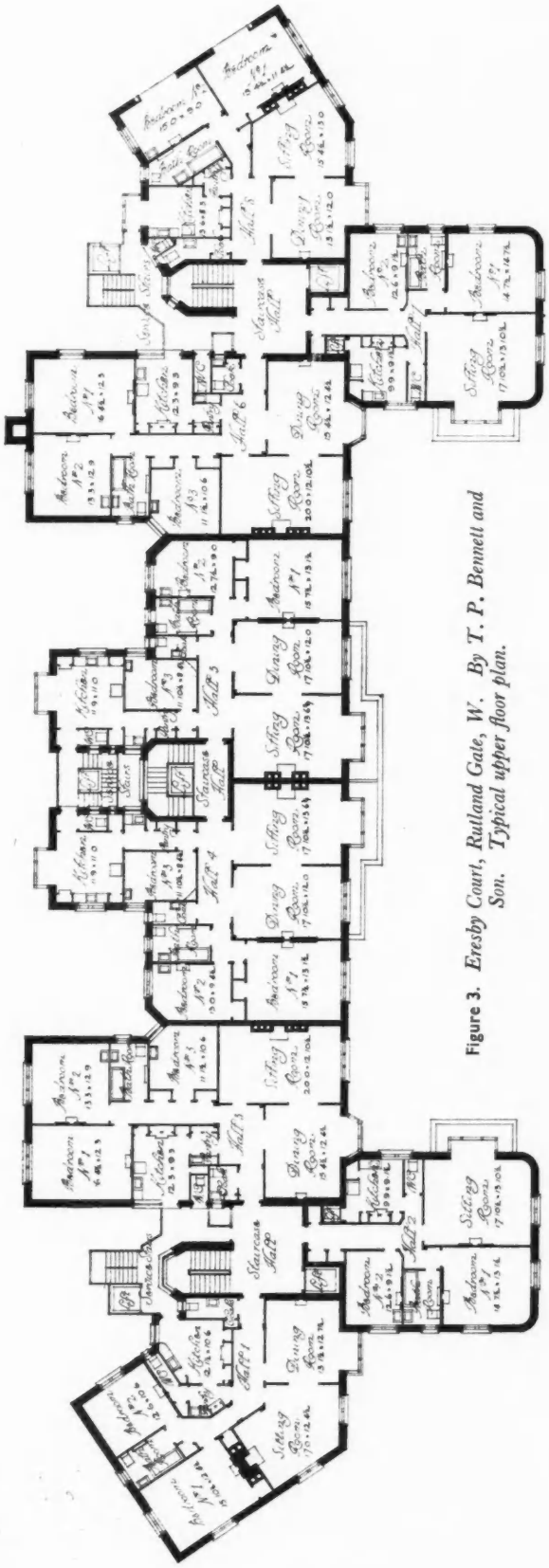


Figure 3. *Eresby Court, Rutland Gate, W. By T. P. Bennett and Son. Typical upper floor plan.*

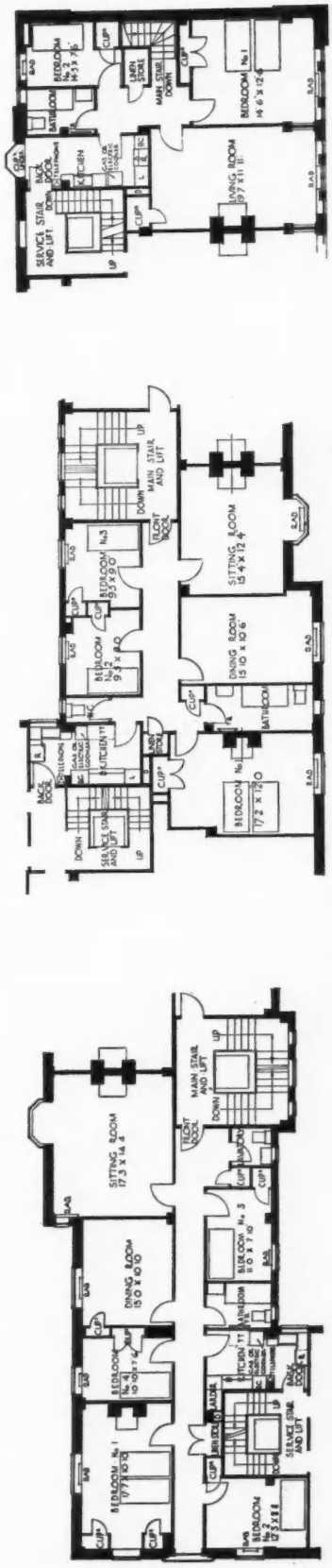


Figure 4. *Lalymer Court, Hammersmith, W. By Gordon Jeeves. Typical flat plans.*

looked for stimulation. Plans such as Fig. 5 have influenced architectural thought very materially, particularly in the direction of equipment and economy of space, by further combination of uses even to that ultimate minimization, the service flat with its "in the door beds," dinette, and kitchenette, sometimes cum-bathroom (Figs. 6 and 7.)

It is in this direction that we catch a glimpse of the forces which have led Sir John Burnet, Tait and Lorne to design Mount Royal's (Fig. 12) tabloid homes, with all that one or two "urbanites" can require in the space of 22 ft. by 17 ft. The same tendency is seen in Mr. G. Kay Green's Sloane Avenue Mansions (Fig. 8), and Mr. Maurice Webb's Abbey Road Flats (Fig. 10), though in a slightly more ample form.

In all these examples, individuality and cross ventilation of the unit have given place to economy in vertical circulation and the greater freedom of general access afforded by a corridor. The home element is giving way to the hotel. In the train of the latter come naturally the central restaurants, lounges, dance hall, shops, and recreation centres which make up the life of those whom the ritual of the fireside has ceased to attract. Life becomes easier from the proximity of a valet or a maid, and the irksome tasks of really sincere cooking fade delightfully away when a first-class meal comes direct from a fully equipped service room on each floor. While refuse disappears with little or no disturbance by even such incomplete means as the chute and incinerator.

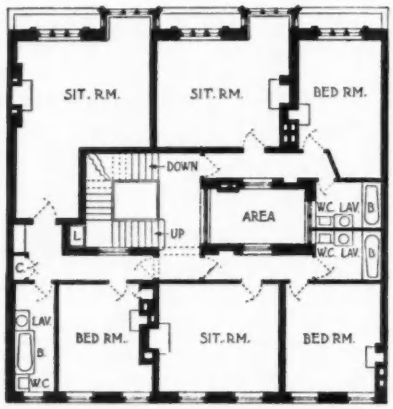


Figure 5. *Typical plan of a small block of bachelors' flats. (From "Architectural Design" 1900.)*

Here, we may, perhaps, feel, is the true application of the flat, an unforced and natural provision for those who ask no more than freedom to follow the wider mode of life which a modern environment has thrown open to them.

Since twinges of liver or conscience may arise from over-eating and over-lounging, our "urbanite" may be forced to seek fresh air and exercise. Here, perhaps, we have the incentive which may give the architect the key to the next move in the future. We may see it emerging even now in the broad sun balconies and more ample surrounding spaces in Mr. Wells Coates (Fig. 11) and Messrs. Tecton's Hampstead schemes. In the former, a compromise between cross ventilation and the corridor has been obtained by the substitution of an open access balcony, while the recognition of the need

Figure 6. *Hotel Edmond Meany, Seattle, Washington. By R. C. Reamer. Typical floor plan.*

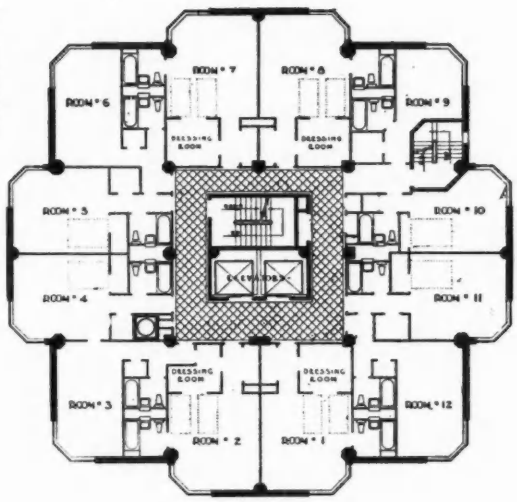




Figure 7. *Phelps apartments, Cincinnati, Ohio. By Garber and Woodward. Part of typical floor plan.*

for fast connection to the place of work is shown in the planning of the garage directly though perhaps not quite sufficiently so to avoid the rain—at the foot of the main stairs.

This is accommodation for those who sleep and bath in one place, but whose whole life and interests must almost certainly be outside their constricted quarters; since even the heaviest smoker must find the atmosphere troublesome after an evening party in his bed-sitting-room.

Besides more intellectual pursuits, the formal pattern of modern games is the setting in which is passed much of the leisure of those who will, in the future, occupy these and similar buildings. It is one of the not least difficult problems of the "archiplanner" to secure a satisfactory contact between these various parts of the diverse life of today.

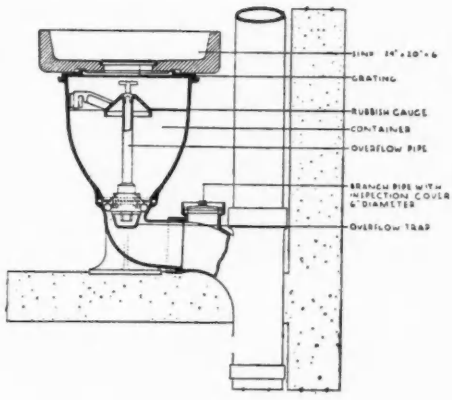
An obsession with the interior accommodation, or external appearance, is one of our present fatal mistakes. We see but a small portion of the picture, and blindly pursue that to the exclusion of that fullness of experience which is ours if we would but recognize it.

Here it is not the prompting voice of America we hear, but that of Germany, unhappy in the knowledge of the terrors of vitamin starvation and neurosis, groping toward a solution which shall allow human beings to live in health in surroundings for which they were never in physique or temperament intended.

Perhaps this may be our guiding principle in the future. If we cannot avoid flats, let us escape from them into more congenial surroundings as often and as long as possible; but when we return to sleep, read, even to think, let us have the boon of good service, maximum comfort and, above all, silence. In this last lies the condemnation of all but the most expensive types of flat. Neither by day nor by night does the wretched occupant escape from those irritating air-or-contact-borne noises which his equally unhappy fellow dwellers cannot avoid making. If a high percentage of neurasthenic and under-developed people are not to be the result of the present expansion of flat life, every means, by clever planning and construction, must be sought to solve this acute difficulty, within the economic limits natural to the problem, which must probably be a rental of £80 to £175 per annum. The most adequate equipment in the minimum kitchen, the ample provision of excellent bathrooms, the inclusion of swimming baths and tennis and squash courts, or even automatic clocks and radio in the rent, are not sufficient advantages to make up for the constant loss of sleep due to the



Above: **Figure 8.** *Sloane Avenue Mansions, Chelsea, S.W. By G. Kay Green. Ground floor plan.*



Left: **Figure 9.** *Detail of the Garchey system of refuse disposal.*

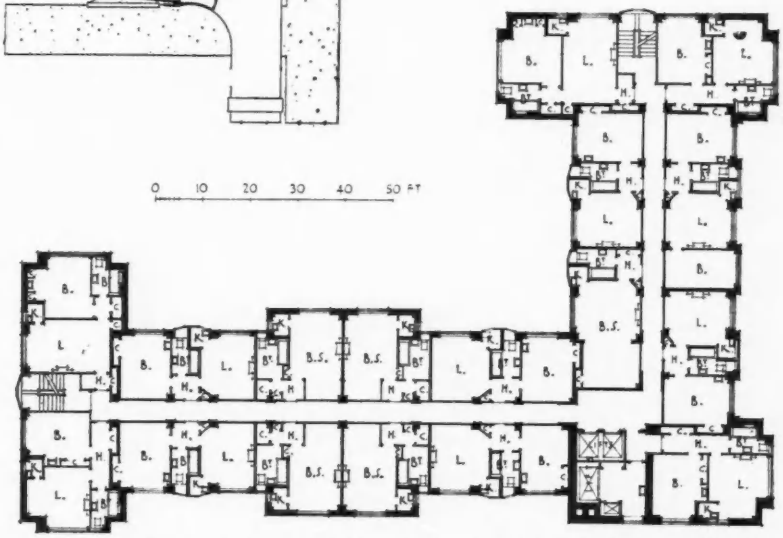


Figure 10. *Flats in Abbey Road, St. John's Wood, N.W. By Maurice E. Webb. Typical floor plan.*

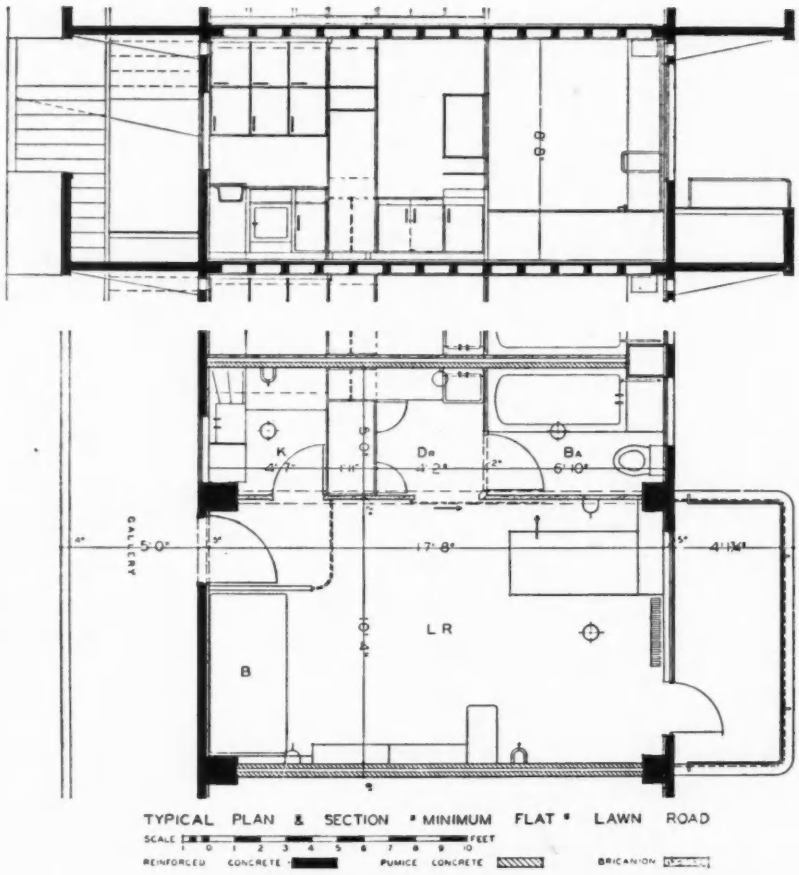
whine of the lift at the end of the corridor.

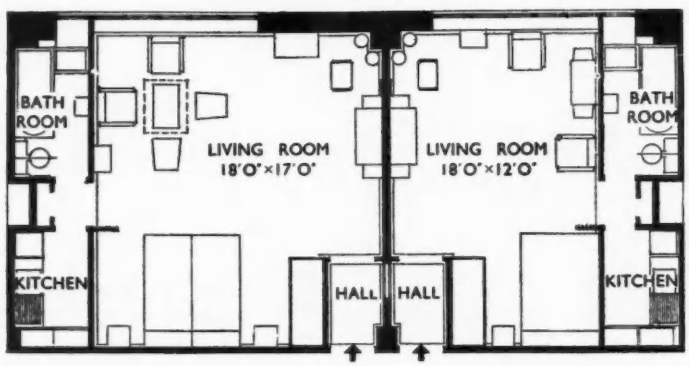
The American "duplex" plan, or even an alternate inversion of the maisonette form more common in this country, may be a possible solution. But, since the experts still insist that weight in construction is essential to sound exclusion, there remains open an immense field of research into the insulating properties of various forms of light, as well as cheap construction.

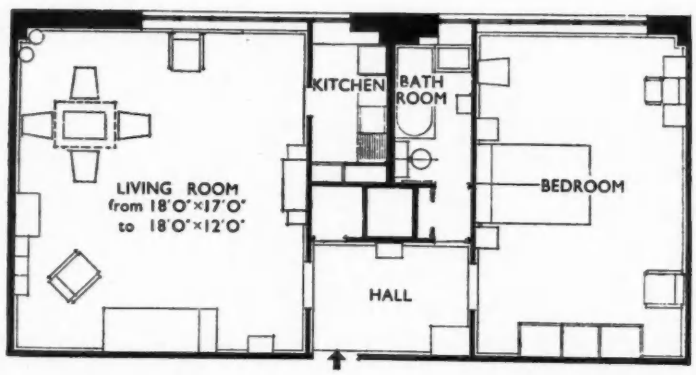
Other fields for research and experiment are roofs which shall cease to be soot traps, thus ultimately providing an inviting space for relaxation or exercise for those who live high above the ground levels. For each year sees the permanent homes of thousands rise storey by storey upward. Height is stealthily creeping on us while we protest we will have none of it. We shall wake up one day to find the residential centres of our great cities, built evenly to the limit of eighty feet and two in the roof, which we are now pleased to term low building. It will be then that the flat will exert its direst influence ; for it will be divorced completely from those counteractions which have been already indicated as vital to the well-being of the flat dweller.

To elaborate on the present inadequacies of central heating systems, to hint at the possibility of a food lift from the main kitchen to each flat, to suggest that a sink to sewer method of refuse disposal, such as already exists in the Garchey system in France, is an essential in flat design, would but be a further intrusion into the province of the equipment expert.

Finally, to return to the first of our troubles, the future still lies with the architect, who can allow the advent of one baby in a flat of his design without the fear of rickets coming in with it. For it is not hard to satisfy those who prefer hotels ; but it is at the moment impossible, with certainty, to provide in a flat for even the most simple primary needs of a baby, and it is with the babies, not ourselves, that our future lies.







Above: Figure 11. *"Minimum Flat," Lawn Road, Hampstead. By Wells Coates. Typical plan and section.*

Right : Figure 12. *Mount Royal Flats, Oxford Street, W. By Sir John Burnet, Tait and Lorne. Typical plans : single-room flat ; and two-room flat.*

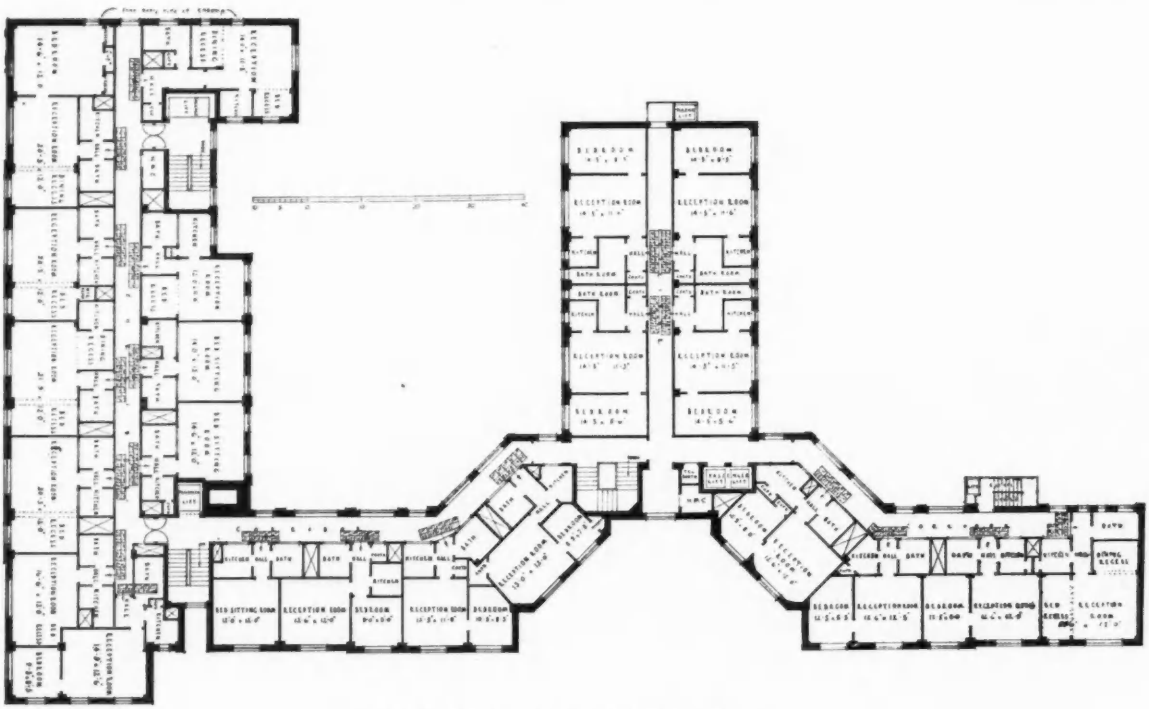
KING'S COURT, RAVENSCOURT PARK



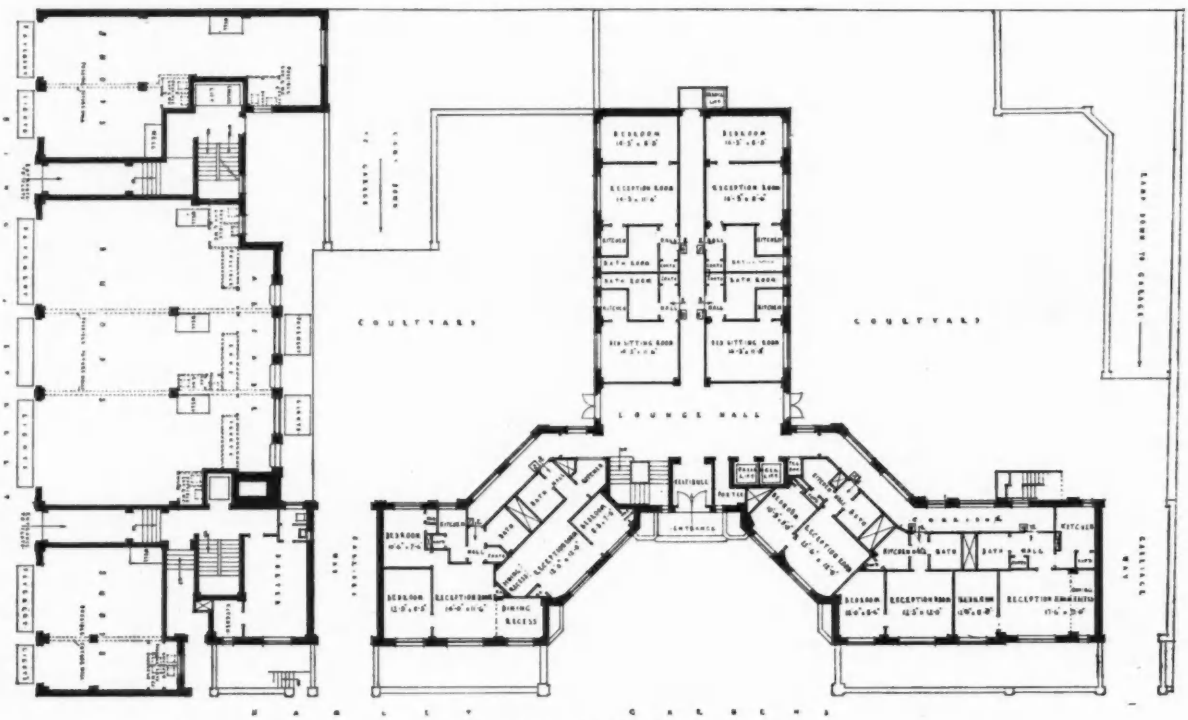
DESIGNED BY R. J. HUGH MINTY

This block of flats is an attempt to provide economical accommodation for a type of tenant for whom little has been done in the past. There are in London quite a number of people, married or single, who demand a certain standard of comfort and reasonable amenities, with easy means of getting away in the evenings or at week-ends. To the needs of this particular class of tenant, King's Court provides an efficient compromise: in all the flats the living space dominates the plan, and kitchens and bathrooms are adequate without being wasteful of space: the roof is arranged as a garden for the use of tenants, and there is a large garage in the basement immediately beneath the courtyards, which can be reached direct by lift from inside the building, while the Great West Road is only a short distance away and provides a convenient means of exit from London. The illustration on this page shows the exterior to King Street, with the return elevation to Hamlet Gardens. The elevations are in brick with artificial stone dressings.

KING'S COURT, RAVENSCOURT PARK:

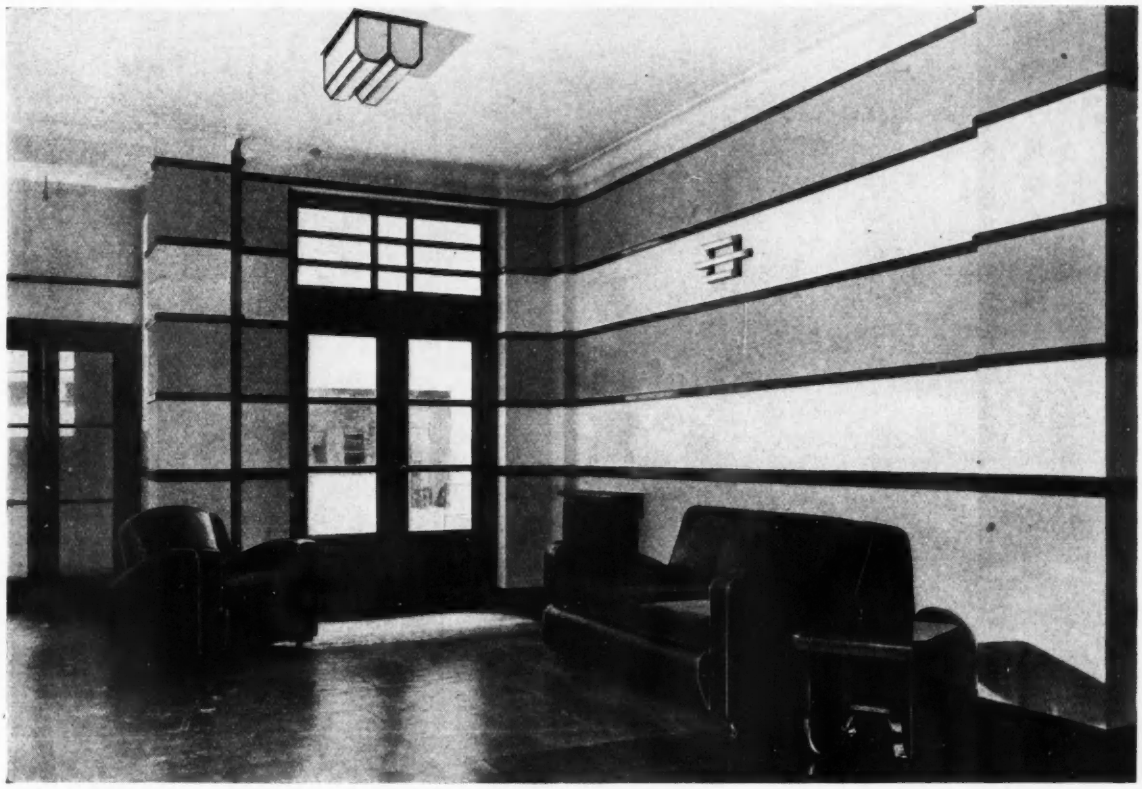


TYPICAL UPPER FLOOR PLAN

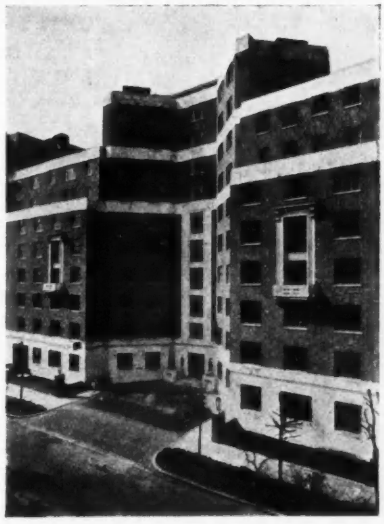


GROUND FLOOR PLAN

DESIGNED BY R. J. HUGH MINTY



Above, the main lounge hall on the ground floor; right, the main entrance front. Below and on the opposite page are typical upper and ground floor plans.

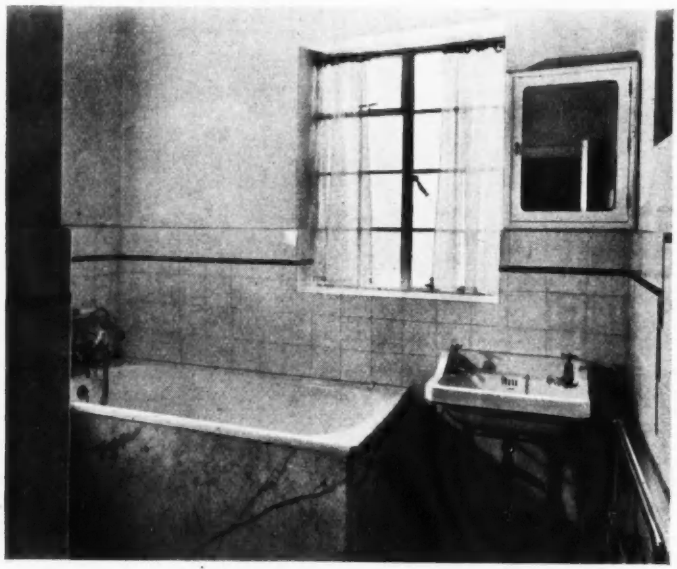


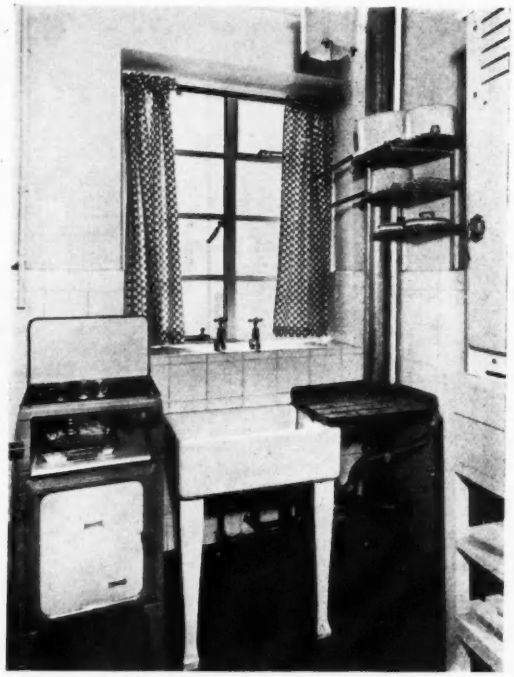
EIGHTH AND NINTH FLOOR PLANS

KING'S COURT, RAVENSCOURT PARK









ACCOMMODATION. *One-room flats with kitchen and bathroom; one-room flats with one or two recesses for beds or dining; two- and three-room flats. There is a garage for cars in the basement and storage for tenants' luggage in private lock-ups.*

RENTS. *£65 to £125, including central heating and constant hot water: the whole of the water supply is softened by a central plant.*

FINISHES. *Living and bedroom floors in wood block, bathrooms and kitchens have jointless floors and tiled dadoes.*

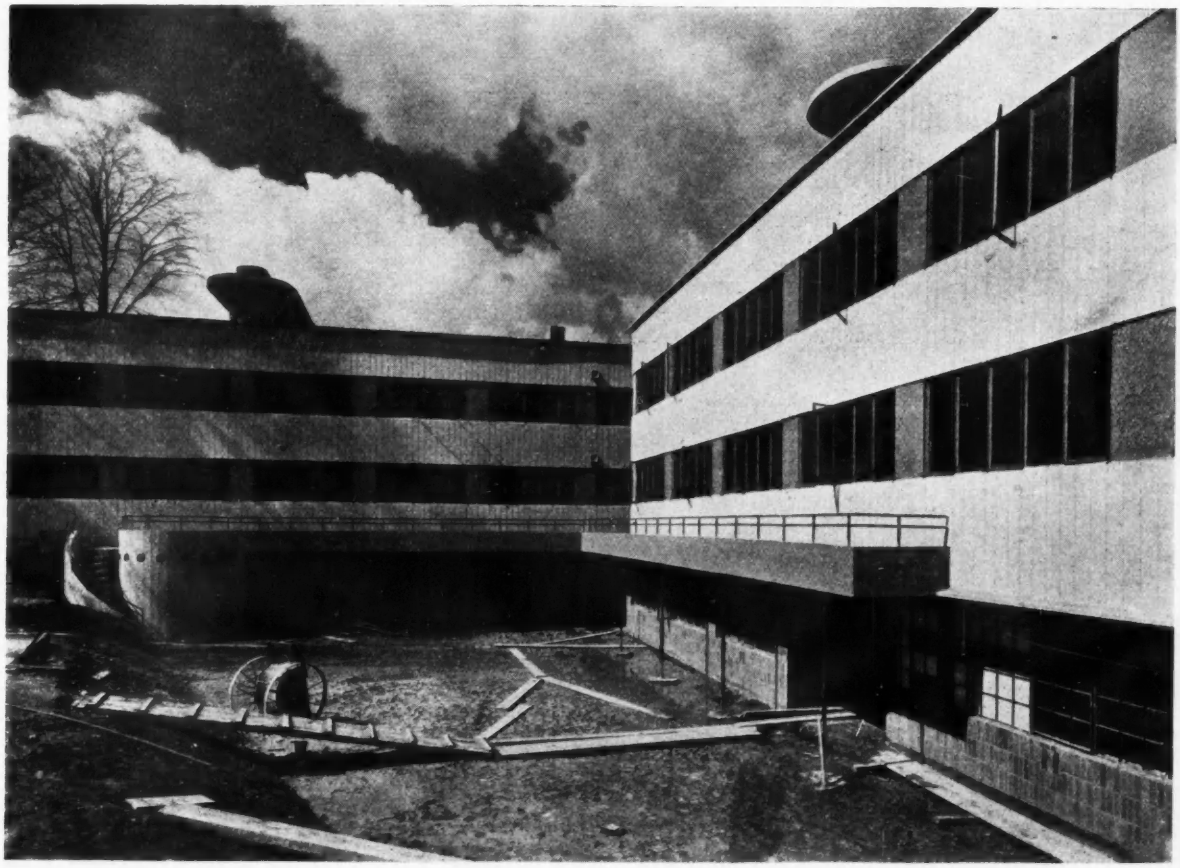
EQUIPMENT. *Gas or electric cookers, refrigerators heated towel rails, medicine cabinets, etc., in all bathrooms.*

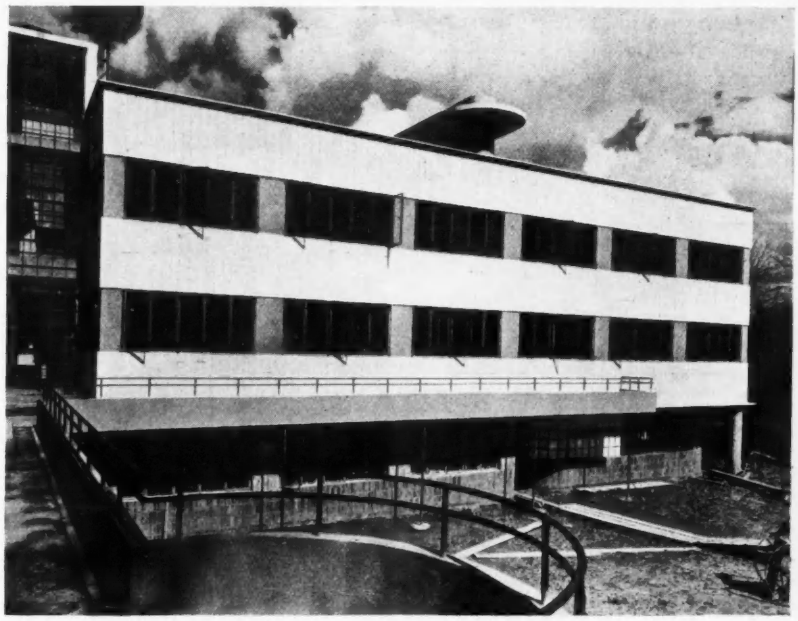
SERVICES. *Passenger lifts with a day and night service of attendants; luggage and service lifts: telephone booths on each floor.*

The photographs on this page show, above, a detail of one of the kitchens; top left, a living room; centre, a typical bed recess; and, below, a bathroom.

DESIGNED BY R. J. HUGH MINTY

HIGHFIELD COURT, GOLDERS GREEN





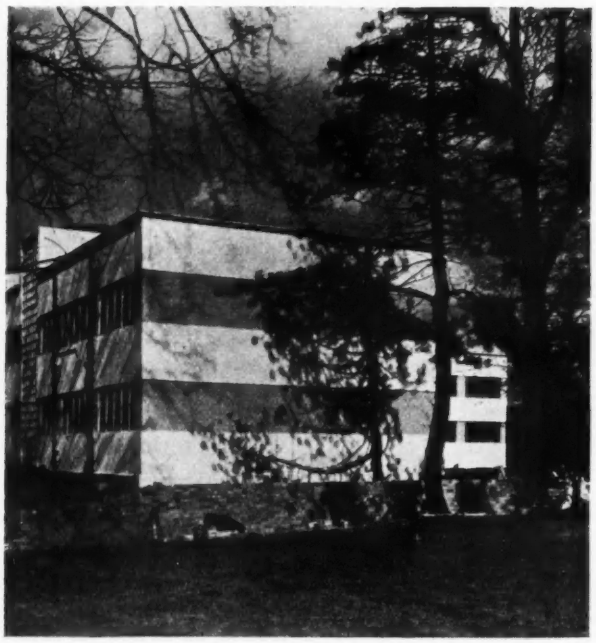
These flats have been designed on a regular "factory" unit 33 ft. by 30 ft., access being by staircases serving two flats on each floor, the main staircase serving as a link between the two units of the building.

CONSTRUCTION. *The building is in reinforced concrete throughout, with hollow tile floors. Walls are 5 in. thick and act as beams spanning 33 ft. and carrying the floors, which span 30 ft. across the building and are continuous over the central beam; 8 in. columns at 11 ft. centres carry the central beam only. The photographs on this page show two views in the main courtyard; the semi-circular hoods on the roof form part of the roof access units. These units are illustrated in the working details on pages 683 and 684 of this issue.*

DESIGNED BY

A. V. PILICHOWSKI

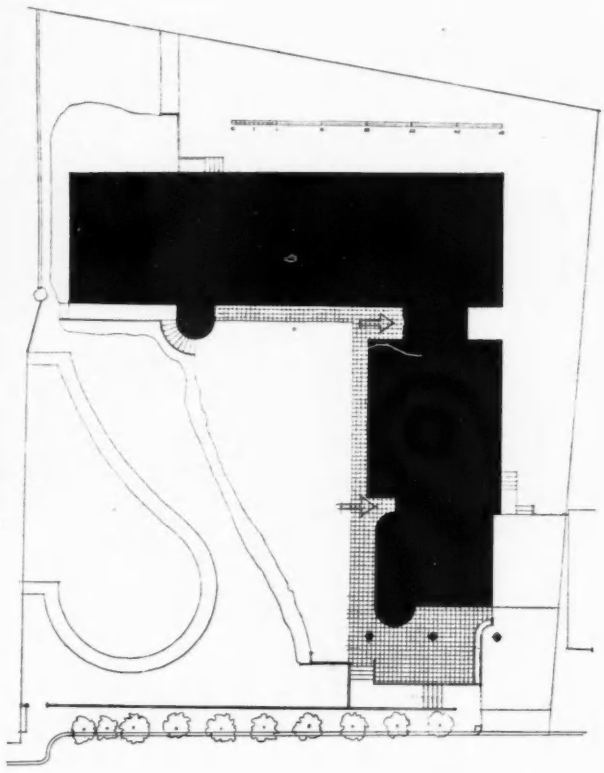
HIGHFIELD COURT, GOLDERS GREEN:



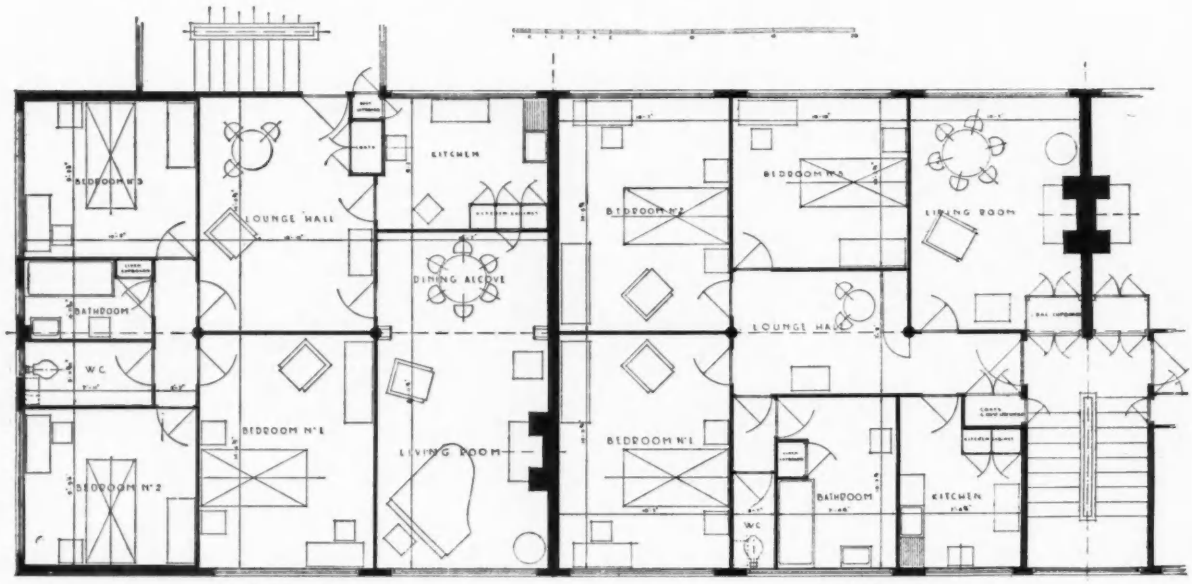
ACCOMMODATION. *Ten flats type A, three flats type B, and a flat for the caretaker. Some of the type A flats are arranged with folding doors between the living-room and bedroom No. 3.*

RENTS.	*Type A.*		*Type B.*	
Ground floor	..	£130	*Ground floor*	.. £145
First ,,	..	£135	*First* ,,	.. £145
Second ,,	..	£130	*Second* ,,	.. £140

The photograph on this page shows the rear elevation; on the facing page is a view in the courtyard, looking towards the main staircase.

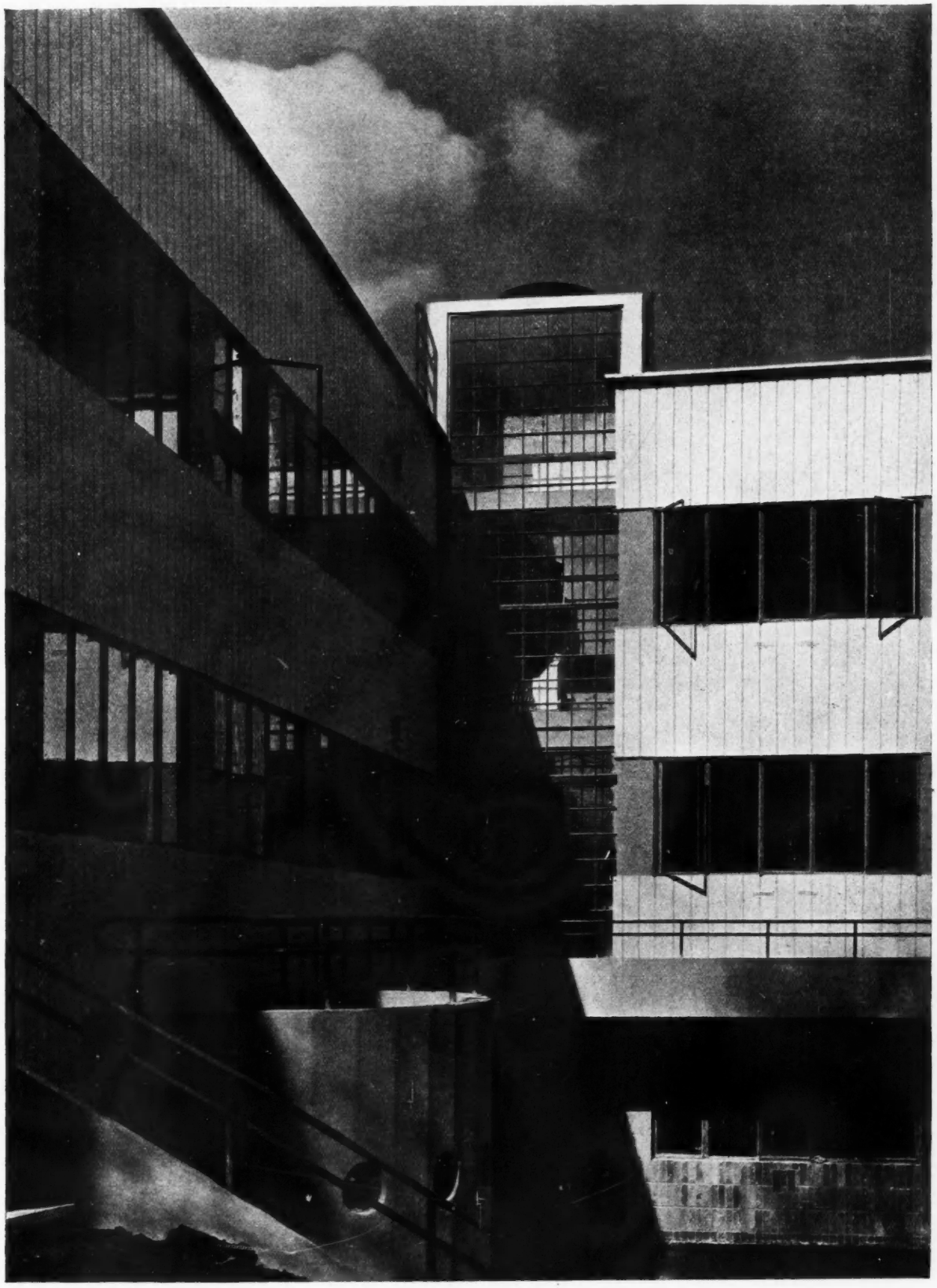


LAY-OUT PLAN

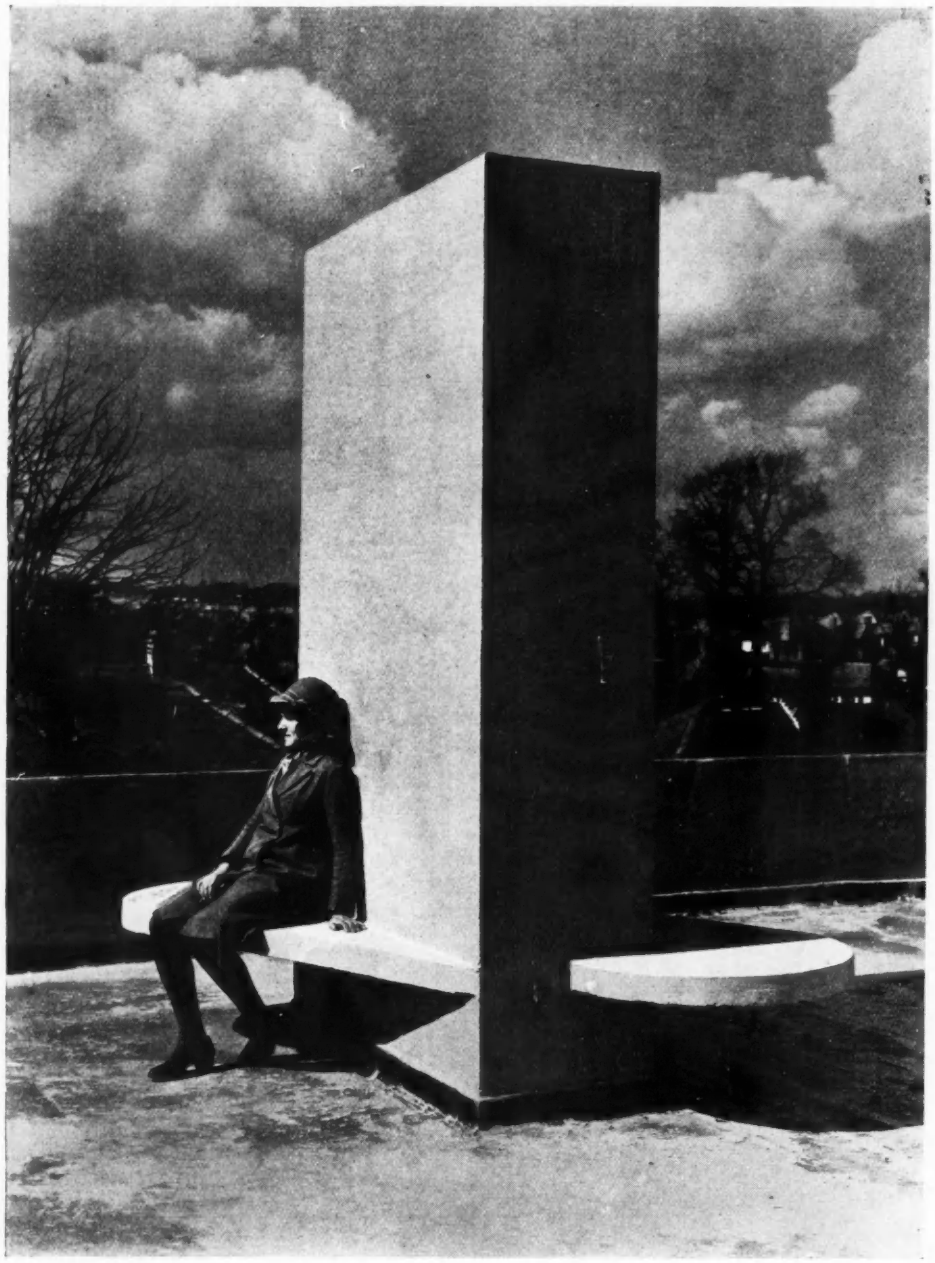


TYPE B TYPE A

DESIGNED BY A. V. PILICHOWSKI



HIGHFIELD COURT, GOLDERS GREEN



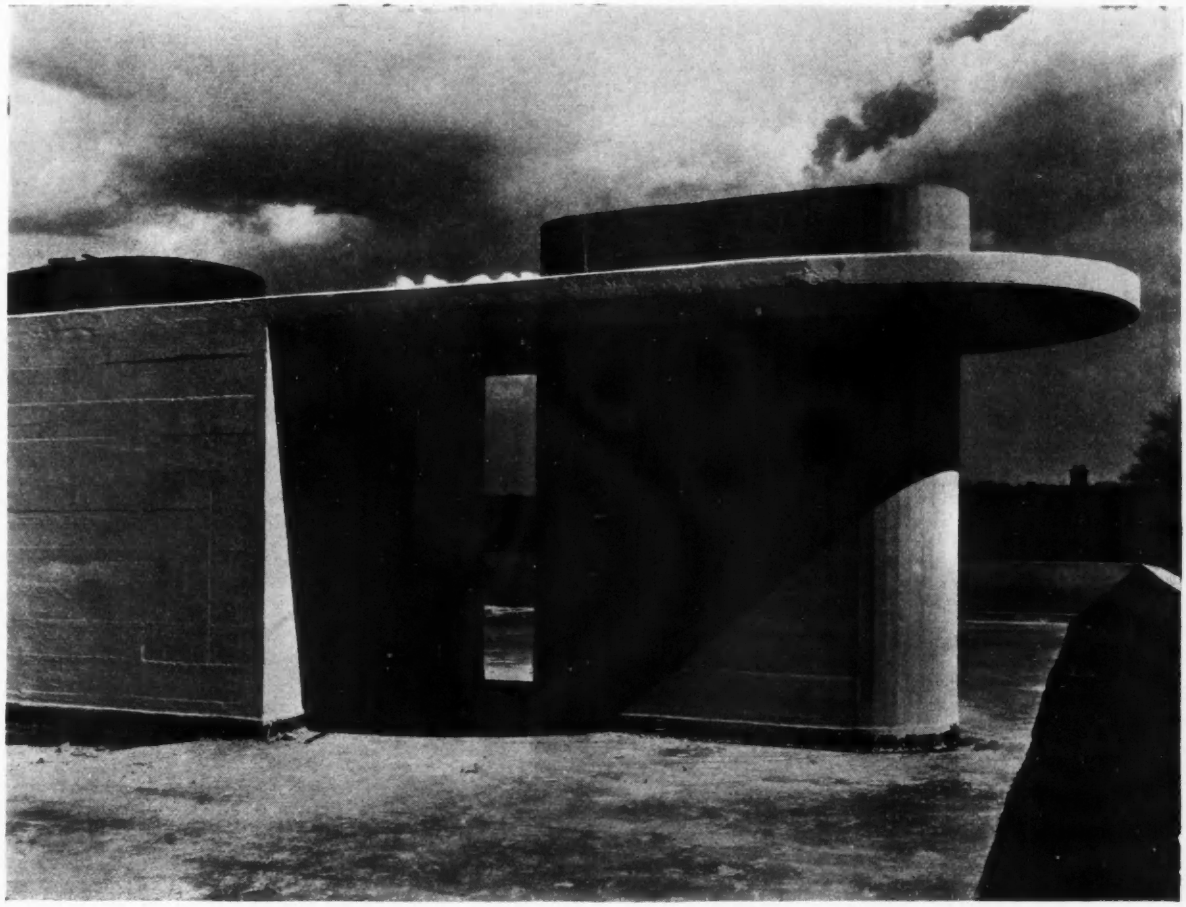
FINISHES. *External, imitation stone paint; the roof is covered with asphalt without screeding, the whole slab being laid to falls. Internally, the walls are lined with 1 in. of bitumenized cork for insulation, over which is a layer of hard plaster. Floors in living and bedrooms are compressed cork tile, bathrooms, kitchens and w.c.'s have floors and dadoes in jointless composition.*

EQUIPMENT. *Central heating by a gas-fired boiler in the basement; hot water supply to bathrooms and kitchens from an instantaneous gas heater. All kitchens have a refrigerator, and there is also a dustbin cupboard which can be emptied by the porter from outside the flat. Lockers for tenants' luggage are provided in the basement. The photograph shows a chimney, fitted with seats.*

DESIGNED BY A. V. PILICHOWSKI

WORKING DETAILS : 251

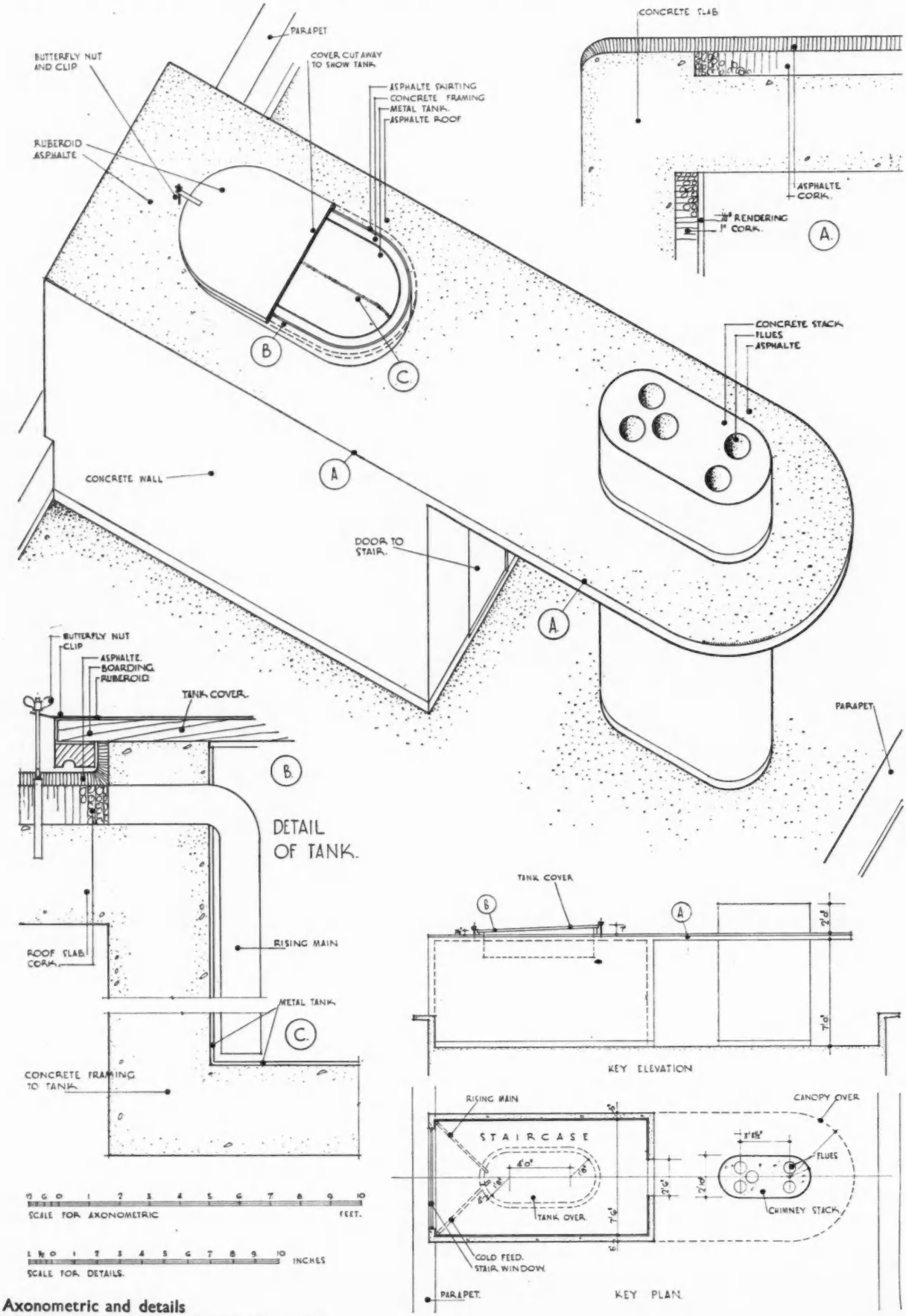
ROOF ACCESS AND TANKS • FLATS IN GOLDERS GREEN • A. V. PILICHOWSKI



The roof shelter illustrated above contains the access stairs, and the hood is supported by the chimney stack; in the roof of the staircase is a 200 gallon water tank. Overleaf is an axonometric and details of the tank construction.

WORKING DETAILS : 252

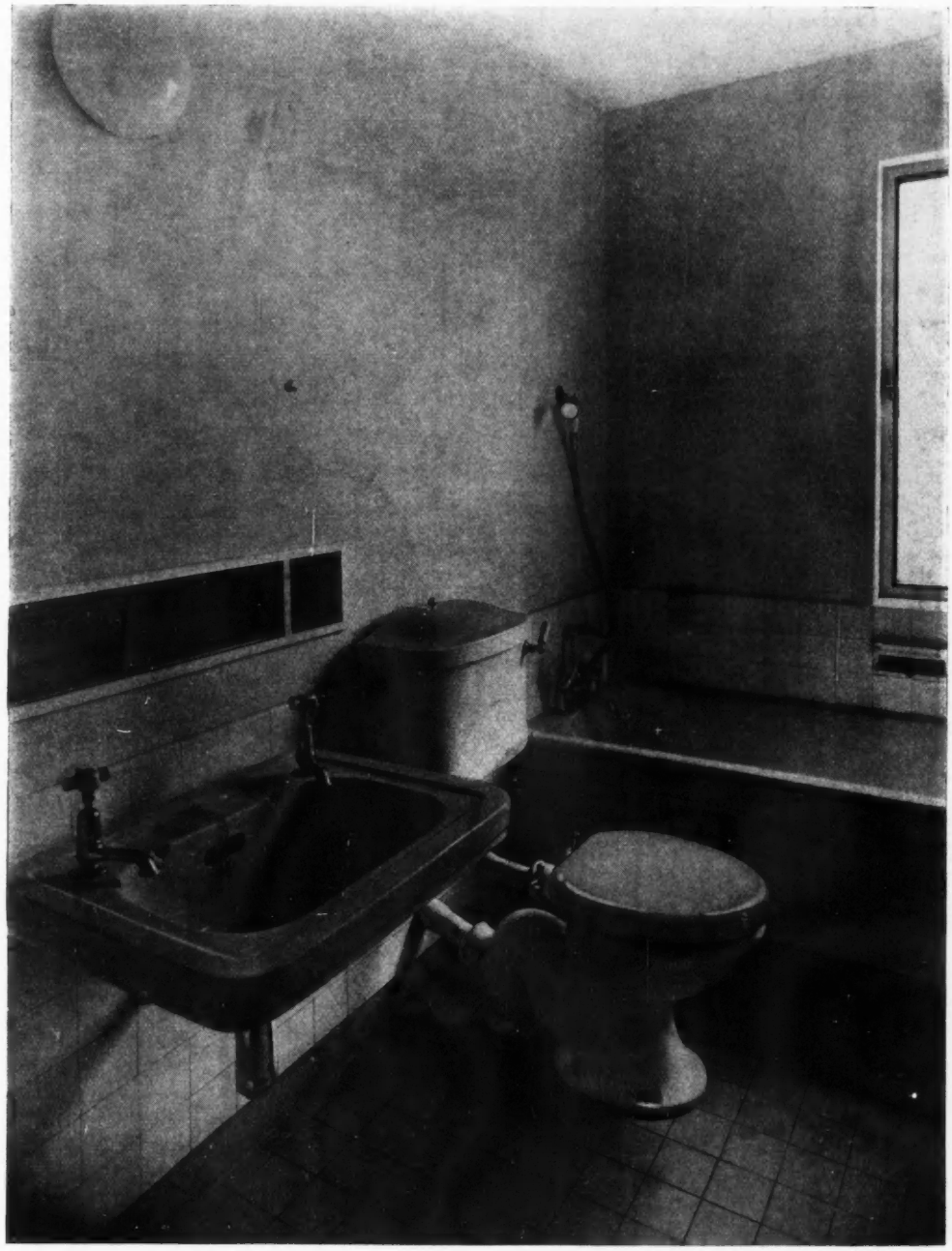
ROOF ACCESS AND TANKS • FLATS IN GOLDERS GREEN • A. V. PILICHOWSKI



Axonometric and details of the tank construction illustrated overleaf.

WORKING DETAILS : 253

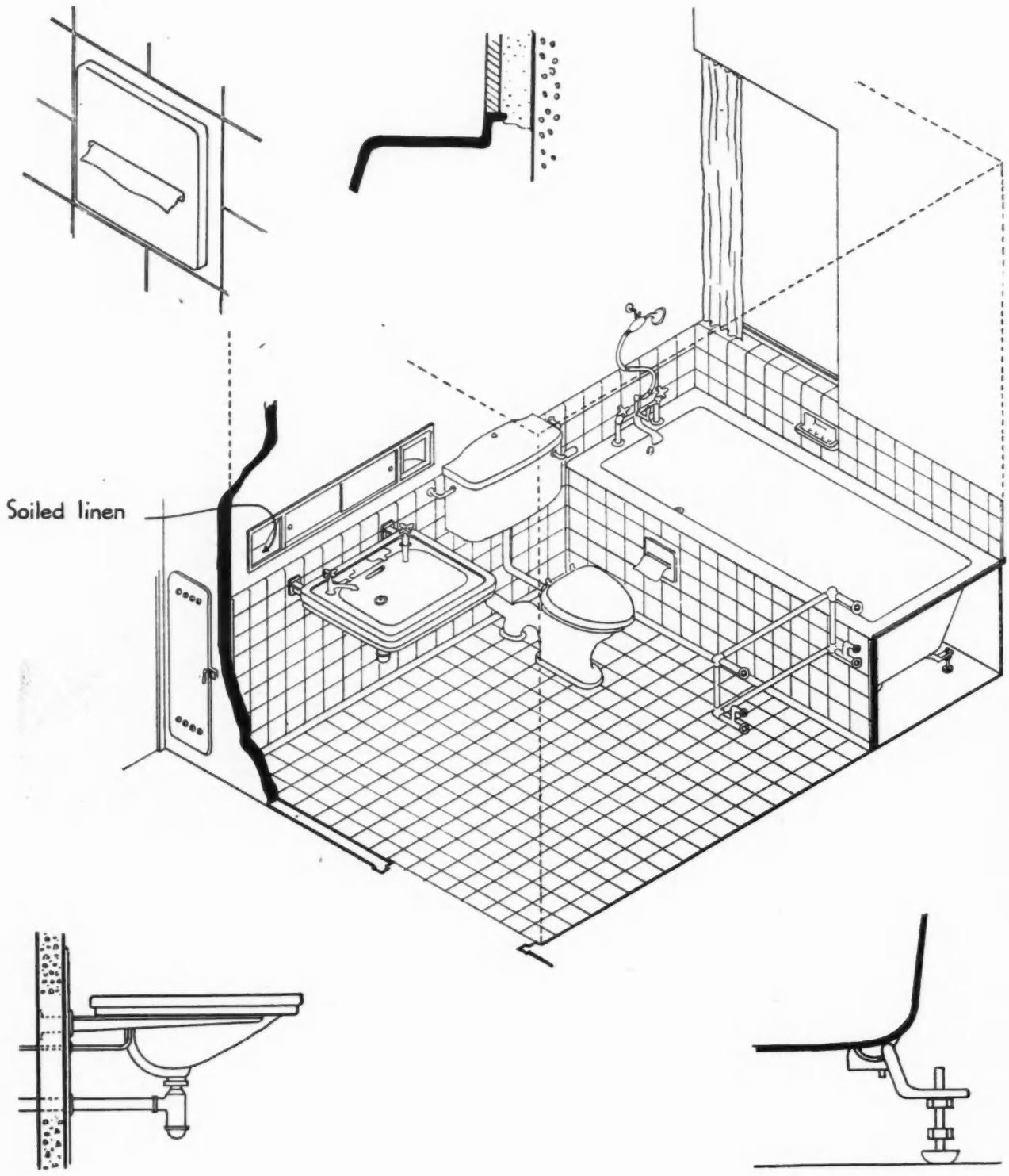
BATHROOM • FLATS AT HIGHGATE • LUBETKIN AND TECTON



This bathroom has been designed so that only a minimum of pipes are exposed to view and the usual dirt-trapping corners are eliminated. The axonometric overleaf gives the general arrangement, and the details show the adjustable leg of the bath, a section through the roll of the bath, and the method of supporting the lavatory basin clear of the wall.

WORKING DETAILS : 254

BATHROOM • FLATS AT HIGHGATE • LUBETKIN AND TECTON



Axonometric and details of the bathroom illustrated overleaf.

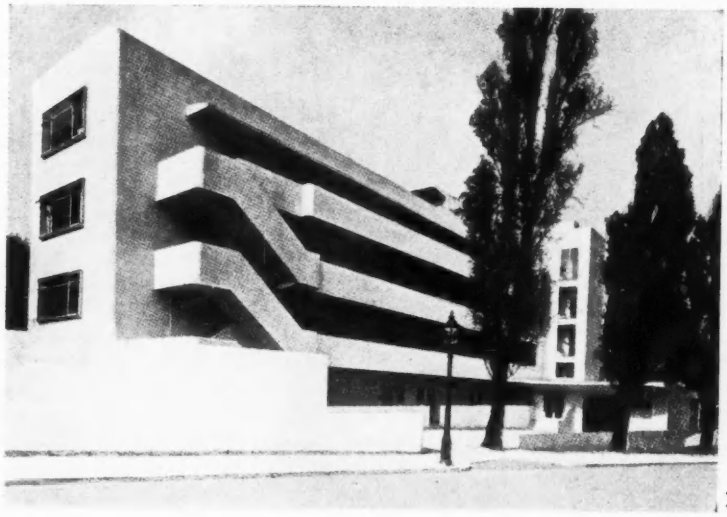
FLATS: SOME TYPICAL ELEVATIONS



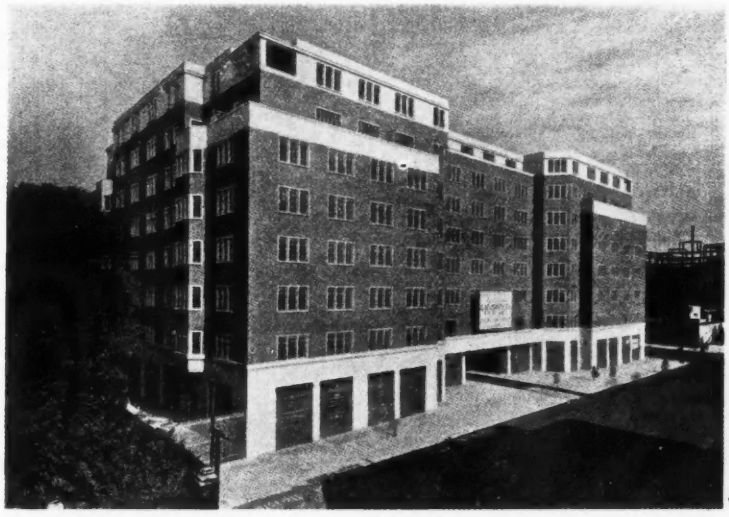
1



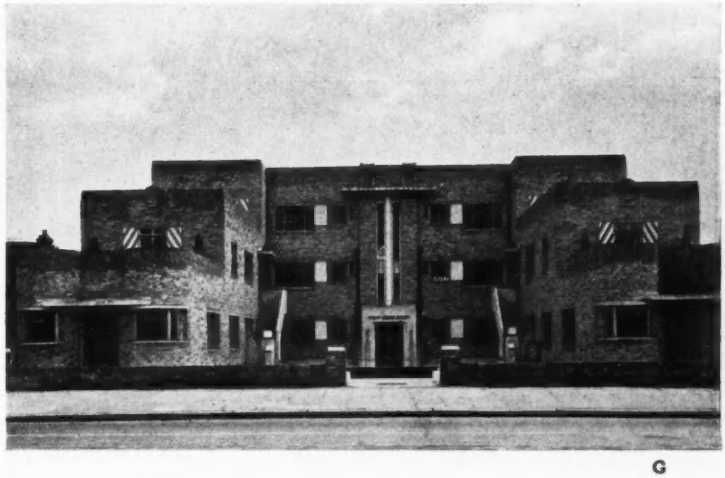
2



3



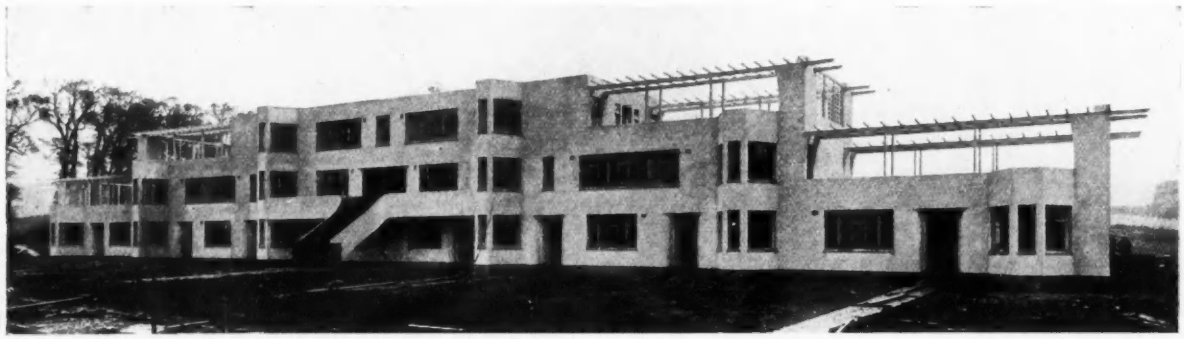
4



5

Although all the buildings illustrated on this and the two pages following do not come within the province of the middle-class flat, they serve to show the type of elevation now being designed by architects for this work. The photographs show : 1, Cropthorne Court, Maida Vale, by Sir Giles Gilbert Scott, R.A.; 2, Swan Court, Chelsea, by Buckland and Haywood ; 3, Flats in Lawn Road, Hampstead, by Wells Coates ; 4, Troy Court, High Street, Kensington, by Michael Rosenaeur ; 5, Flats at Acton, by R. G. Cox.

FLATS: SOME TYPICAL ELEVATIONS: IN BRICK



1



2



3



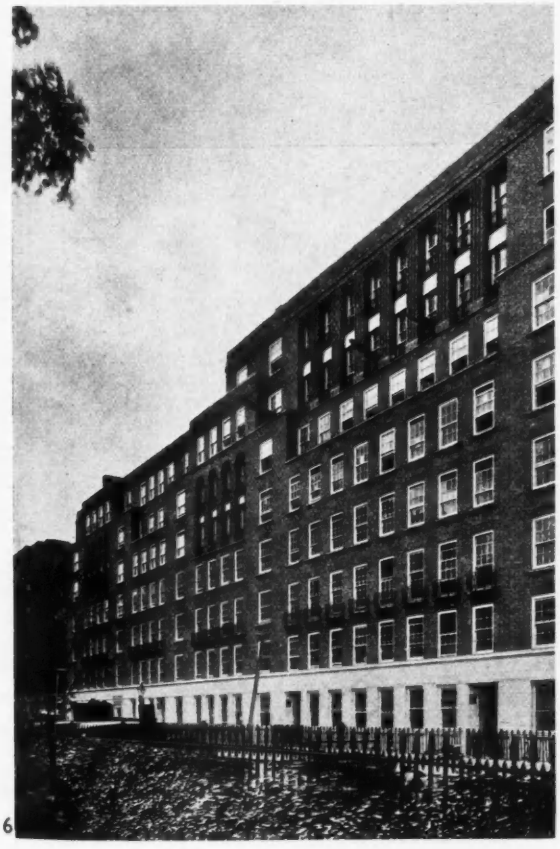
4

1, Barnhill Estate, Wembley, by Herbert A. Welch (Welch, Cachemaille-Day and Lander); 2, Sloane Avenue Mansions, Chelsea, by G. Kay Green; 3, Rossmore Court, Park Road, N.W., by T. B. Bennett and Son; 4, Endsleigh Court, Upper Woburn Place, W.C., by Richardson and Gill; 5, Mount Royal Flats, Oxford Street, W., by Sir John Burnet, Tait and Lorne; 6, Flats in Lowndes Square, W., by Messrs. Joseph; 7, Latymer Court, Hammersmith, by Gordon Jeeves; 8, Pinegrange, Bournemouth, by B. C. Rhoads.

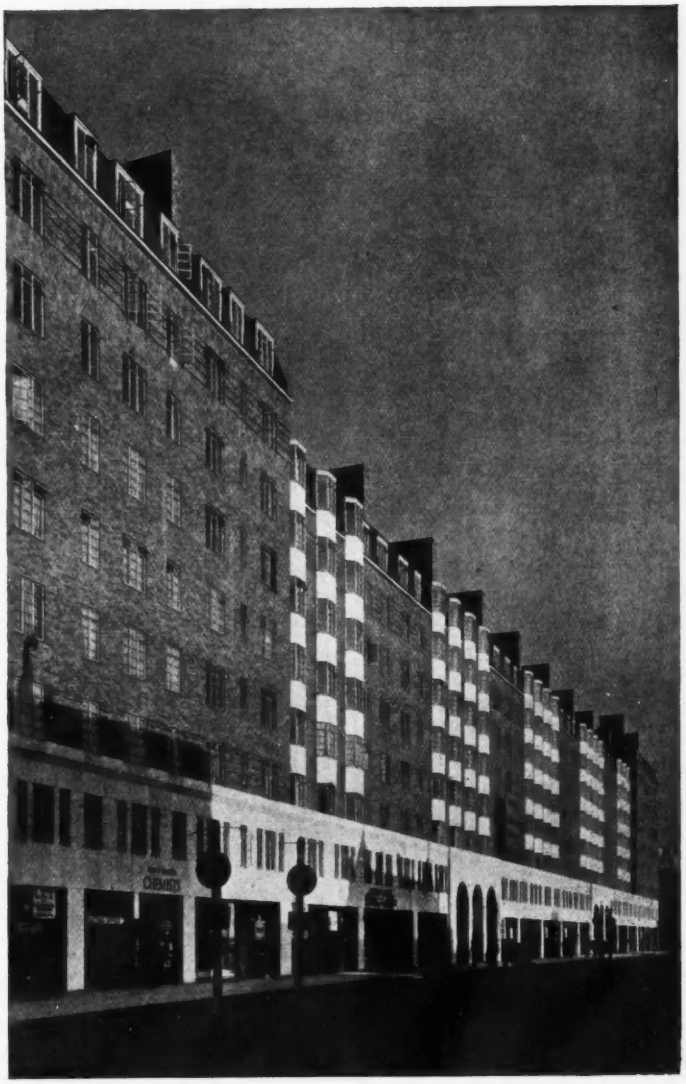
AND STONE AND REINFORCED CONCRETE



5



6



7



8

FLAT EQUIPMENT:

A PICTORIAL SUMMARY

[*BY FREDERICK GIBBERD, A.I.A.A.*]

1: LIVING AND SLEEPING

RADIATORS. *Four column, hospital, wall and "rayrad" are the most common types. The simpler the design the more expensive the radiator. Column radiators give convected heat, plane surface on ceiling, radiant. Invisible panel warming ideal system, but expensive to instal.*

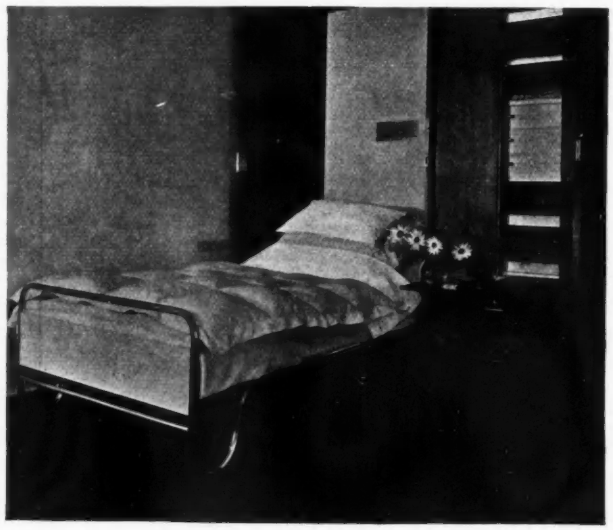
ELECTRIC TUBULAR HEATER. *In place of central heating for small flat schemes. Tenant pays running costs; simple to instal.*

ELECTRIC FIRE. *Approximately 70% radiating efficiency; balance convection. Two kilowatt most popular size. Absence of flue simplifies planning. Portable electric fires for bedrooms usually supplied by tenant.*

GAS FIRE. *Approximately 50% radiating efficiency, 10% convection. Seven and nine radiants most popular sizes. Special models can be obtained to fix flush with wall. Gas fires in bedrooms in conjunction with central heating are expensive, owing to cost of flue construction.*

LIGHT FITTINGS. *Swivel brackets or pendants for living rooms, 100 watt. Brackets over beds, 60 watt. Simple and efficient designs in chromium steel with flashed opal glass or spun aluminium shades.*

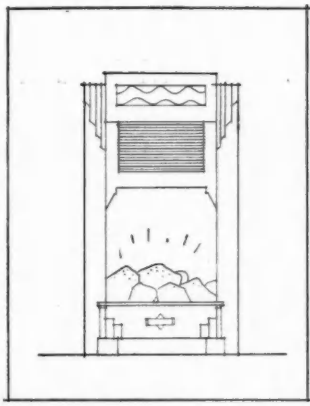
CLOCKS. *Synchronous electric clocks operating from A.C. mains. Cup can be sunk in wall or furniture and clock face clipped in.*



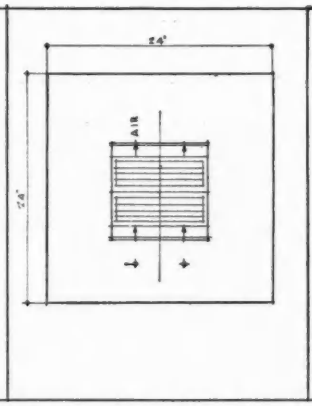


Above, a bedroom by Erich Mendelsohn; left, a bed-sitting room by Wells Coates.

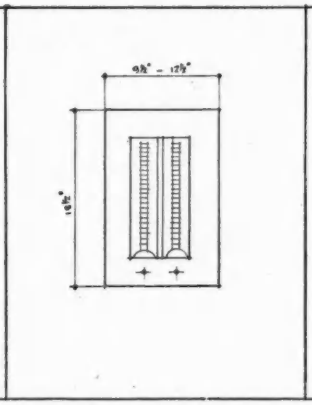
FIRES



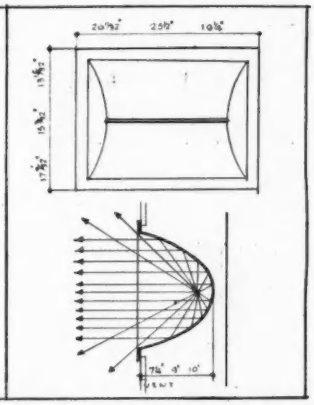
Typical electric fire ; dummy coal, cold and sentimental; modernistic and futile decoration



Electric ; curved firebars, 1 kw. per bar ; cast iron frame ; sheet steel surround

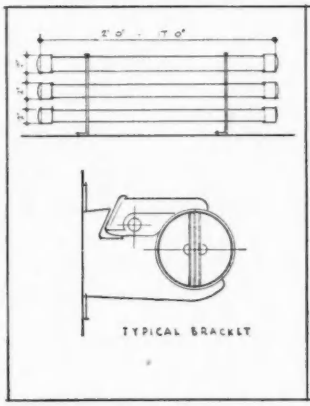


Electric ; parabolic reflectors ; 1 kw. per bar ; cast iron frame ; separate switches

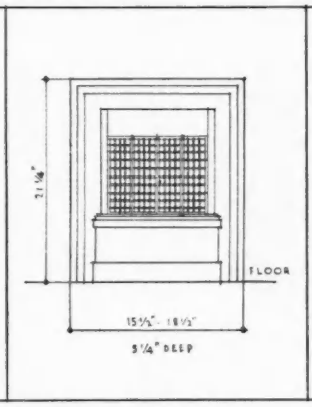


Electric ; parabolic reflector ; 2,500 and 1,250 watt ; sheet steel ; chromium finish

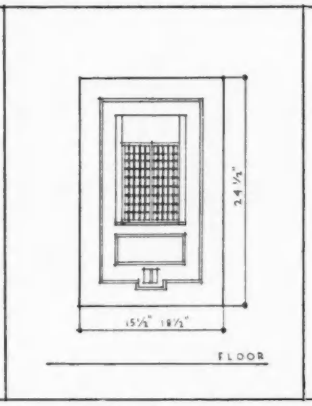
FIRES



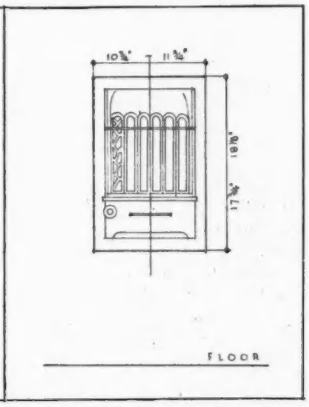
Electric tubular heater ; 60 watts per foot ; steel tube in place of central system



Gas ; Portcullis ; 3 or 4 units= 8¼ or 11 radiants ; projecting hob ; cast iron

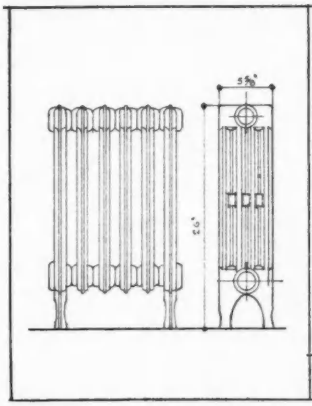


Gas ; Portello ; 2 or 3 units= 5½ or 8¼ radiants ; flush face ; fixed at any height

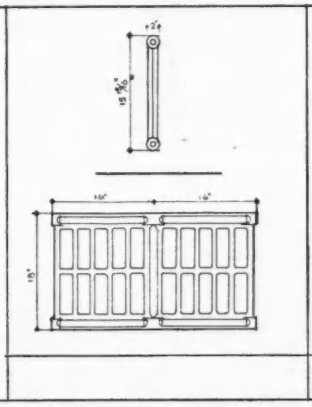


Gas ; Panella ; 5 or 6 radiants ; flush face ; fixed at any height

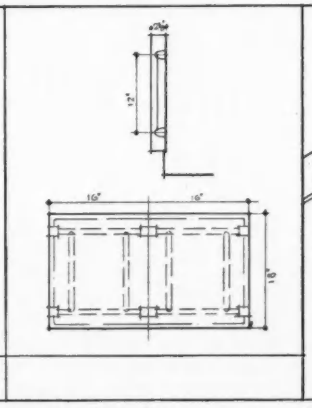
RADIATORS



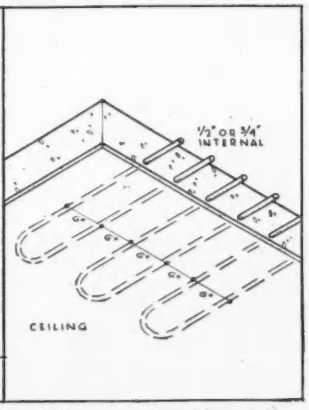
Typical four column ; difficult to clean ; about 20% radiation ; low cost



Wall radiator ; less obtrusive ; about 60% radiation with wall fixing

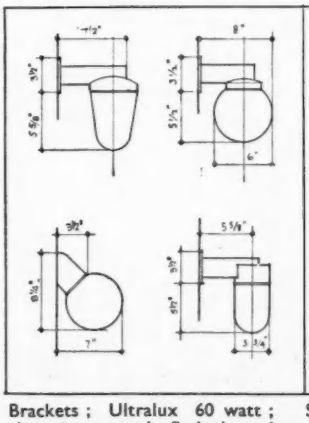


Rayrad ; flush face ; easy to decorate and clean; expensive ; good appearance

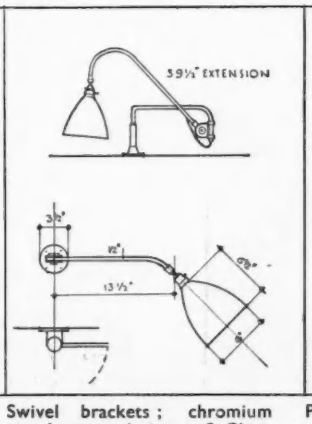


Panel heating ; invisible steel tubes ; radiant heat ; expensive ; low running costs

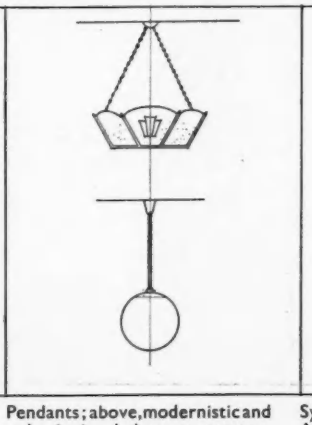
LIGHTING



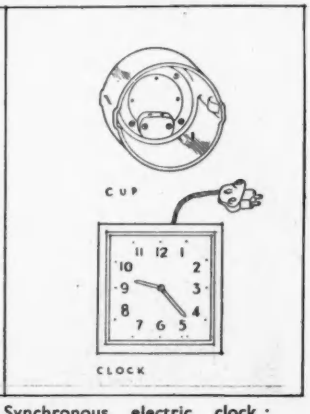
Brackets ; Ultralux 60 watt ; chromium metal, flashed opal glass



Swivel brackets ; chromium metal ; top, designer, S. Chermayeff ; bottom by F. Gibberd



Pendants; above, modernistic and unhygienic ; below, contemporary (bulb totally enclosed)



Synchronous electric clock ; A.C. mains, fixed to cup by two bayonet clips

FLAT EQUIPMENT: A PICTORIAL SUMMARY

2: LIVING AND SLEEPING

EQUIPMENT

WINDOWS. *Living room, one window opening to floor level will give maximum air circulation. Bedroom, hopper lights for night ventilation. Easy clean hinges for casements. View uninterrupted by glazing bars. Steel sections are light and easy to operate.*

DOORS. *Flush, 2 ft. 6 ins. by 6 ft. 6 ins. to 6 ft. 4 ins. by 1⅜ in. to 1¾ in. Entrance doors 1¾ in. solid. Frames wrot deal or hardwood. Steel, complete with welded hinges and striking plate. Furniture: Lever handles or knobs; mortise latches; or tubular mortise lock and bar handles.*

STORAGE. *Hall, cloak cupboard, trades hatch. Living room, bookshelves and cupboards. Bedrooms, at least one fitted wardrobe per person.*

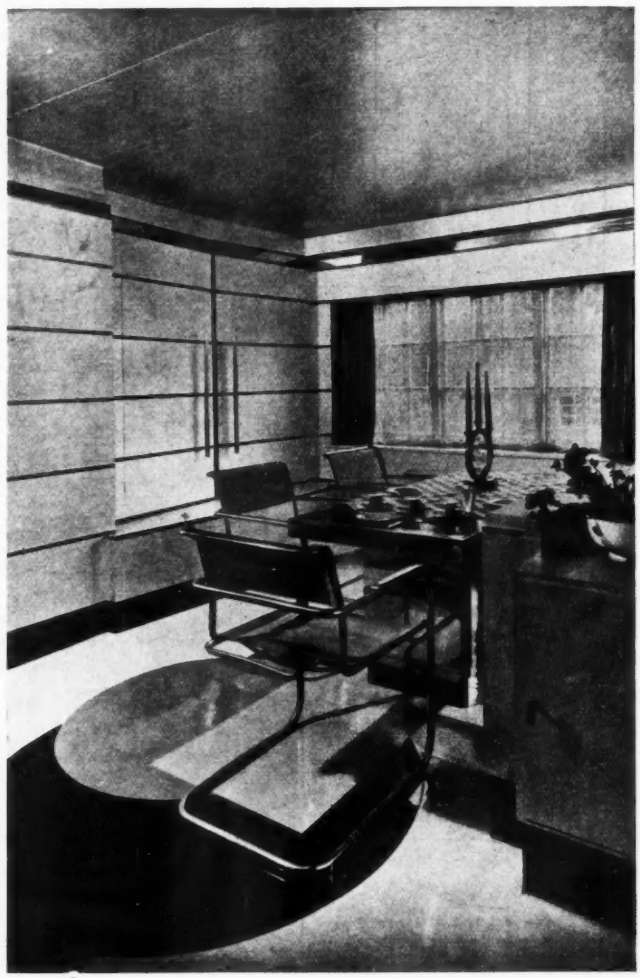
FINISHES

FLOORS. *Deal board, noisy, unattractive; popular, owing to low cost. Tenant put to the expense of close carpeting or carpeting and staining borders. Wood block, noisy; most hardwoods have warm and attractive colour and are popular with tenants. Cork, laid in tiles, soft, quiet, hygienic; only disadvantage expense. Cork lino, at least 2.2 mm. thick. Soft, quiet; only reputable makes wear well. Must be stuck down. Cellulin, 2.2 and 3.3 mm.; linoleum with cellulose base. Fairly soft and quiet; a particular advantage is that it gives continuous floor surface, joints closing up with wear.*

WALLS AND CEILING. *Plaster and distemper two coats.*

SKIRTINGS, ARCHITRAVES, WINDOWS. *Painted three coats. Cork floors will have cork tile cove skirting.*

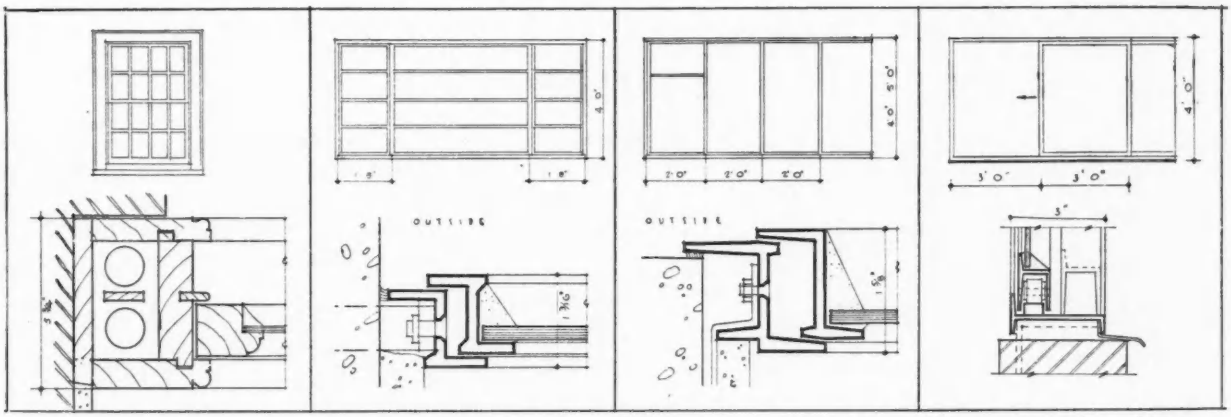
DOORS. *Painted three coats, or faced with decorative wood veneer.*





Above, a dining room by T. S. Tait; left, bed sitting room by Sir John Burnet, Tait and Lorne.

WINDOWS



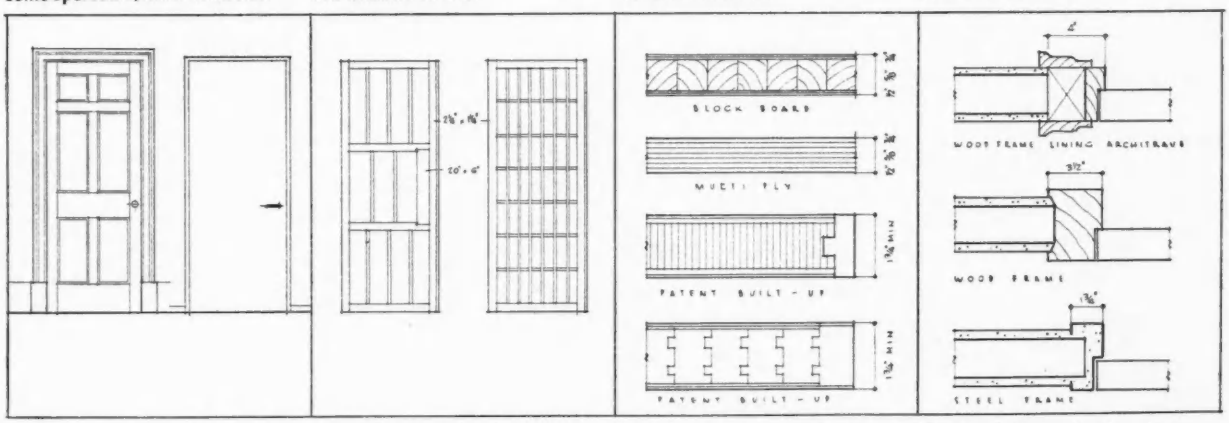
Sash. 18th-century design, used for aesthetic reasons; cumbersome operation; obstructed view

Standard. Modernistic horizontal bars disturb view; cheap and efficient section

Medium universal, clipping over concrete opening; designer, Frederick Gibberd

Sliding; carried on fibre rollers; designers, Williams and Williams

DOORS



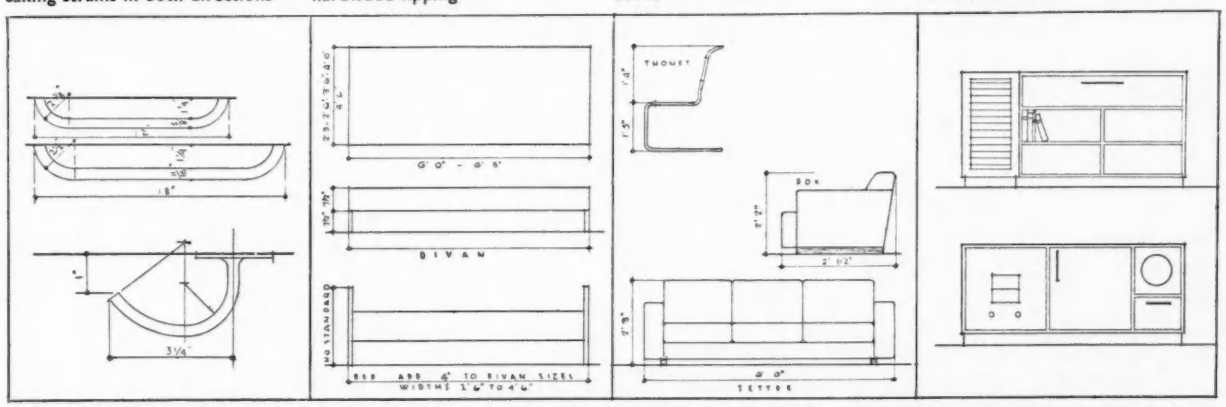
Panel superseded by flush through invention of plywood taking strains in both directions

Typical framing of hollow flush; alder or figured $\frac{1}{4}$ in. ply face; hardwood lipping

Solid flush; top, cupboards; bottom, fireproof entrance doors

The evolution of the door frame from built-up architrave to metal trim

FURNITURE



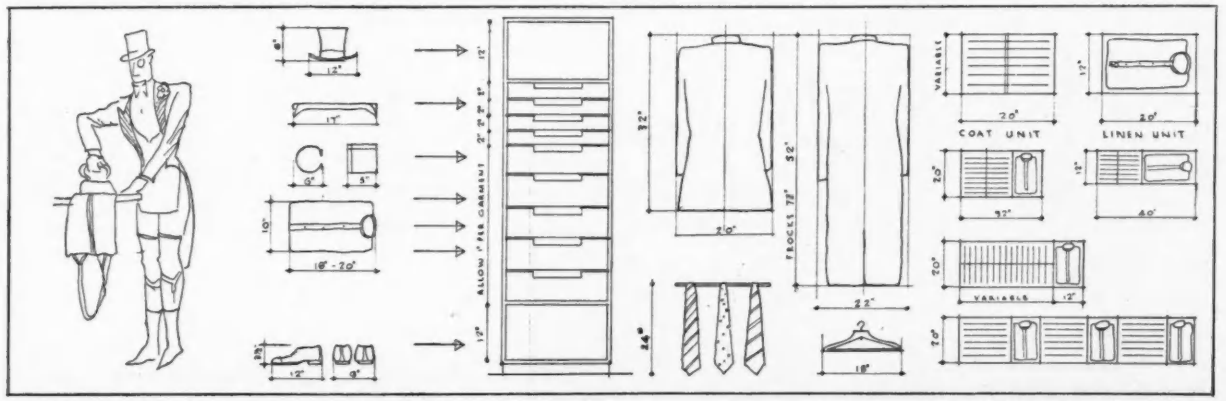
Tayleroid bow handles; designer, Wells Coates. Chromium lever handle; designer, Fredk Gibberd

Standard divan and bed sizes; Bed widths from 2 ft. 6 in. to 4 ft. 6 in.; no standard height

Dining and easy chairs; no standard sizes, but average figures are given

Typical living room units: electric fire, books, cupboards and wireless

WARDROBES



Articles of clothing stored at approximately the heights at which they are worn. The sizes of storage units are determined by the minimum space required for wearing apparel. Shirt sizes determine space for lesser garments. Doors in all cases open full width of cupboard

FLAT EQUIPMENT: A PICTORIAL SUMMARY

3: BATHROOM

EQUIPMENT

W.C. *Low level, 2 gallon, vitreous enamelled cast iron water waste preventor, white glazed earthenware pan. Seat and flap in mahogany, or covered with synthetic resin. High level type, unless cistern is placed in duct, only used in lowest rental types. Earthenware water waste preventors in high rentals.*

BATH. *Rectangular white porcelain enamel, cast iron; 5 ft. and 5 ft. 6 ins. inside most common sizes. Hot and cold easy-clean pillar cocks. Mixer cocks and hand showers a good letting factor.*

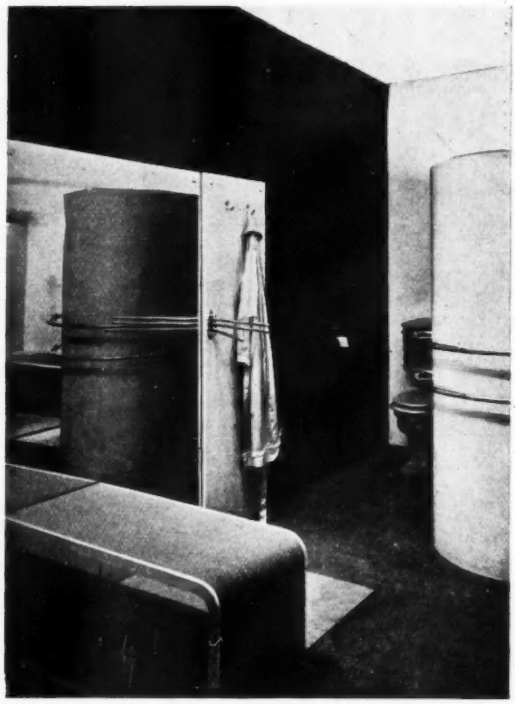
LAVATORY BASIN. *22 in. by 16 in. white porcelain enamel earthenware, supported on towel rail or plain brackets. Hot and cold easy-clean pillar cocks. Hospital and pedestal types for more expensive job.*

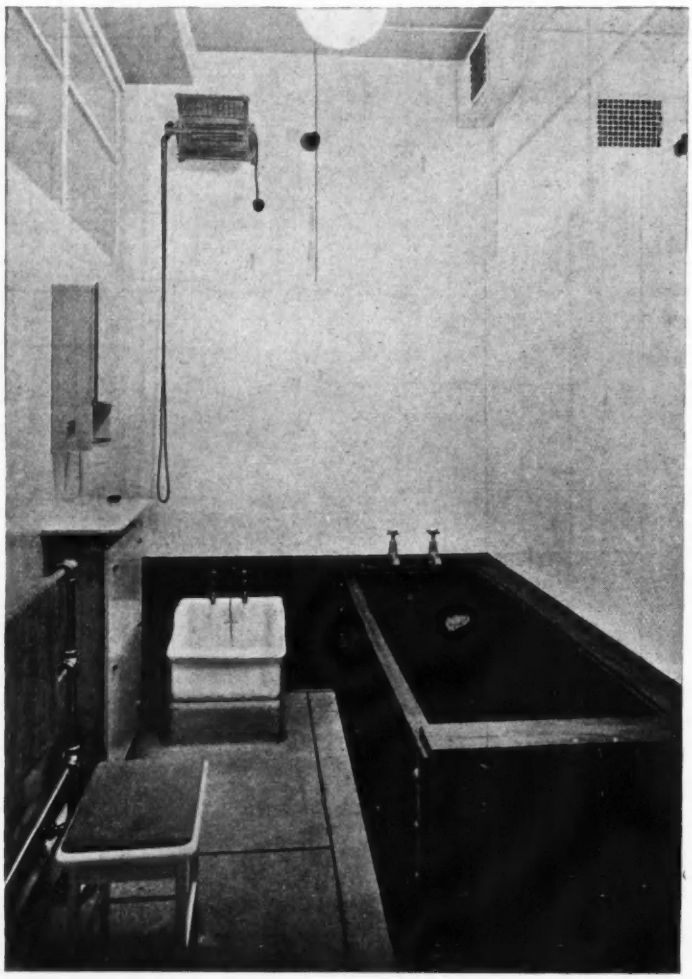
MISCELLANEOUS EQUIPMENT. *At least 2 ft. of hot towel rail, and one plain rail if plain brackets under lavatory basin. Robe hooks. Soiled linen cupboard. Medicine and toilet requisite cupboard. Glass shelf. Holders for toilet roll, soap, tumbler, and tooth brushes, if not in cupboard. Mirror.*

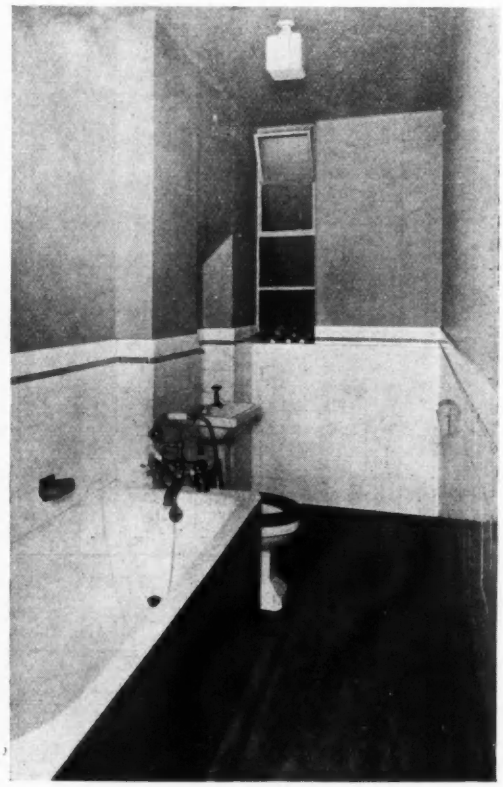
DOOR. *2 ft. to 2 ft. 4 ins. wide by 6 ft. 4 ins. to 6 ft. 6 ins. high, with ball catch, bow handles and slide bolt, or bow handles and tubular mortise lock, or mortise lock and lever handles.*

FINISHES

Problem similar to kitchen; bathroom is a big letting factor, therefore more expensive materials such as green marmorene glass, black glass or vitrolite for walls, and coloured tiles for floor are often specified.

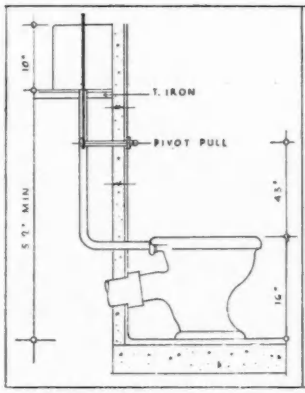




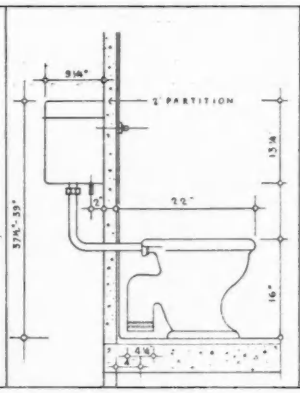


Three bathrooms: top, by Connell, Ward and Lucas; above, by G. Kay Green; left, by Joseph Emberton.

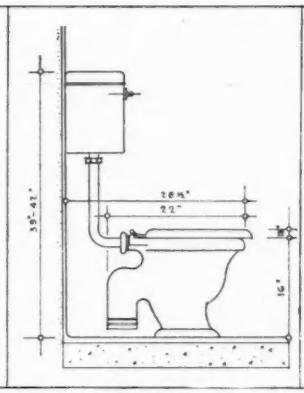
W.C. FITTINGS



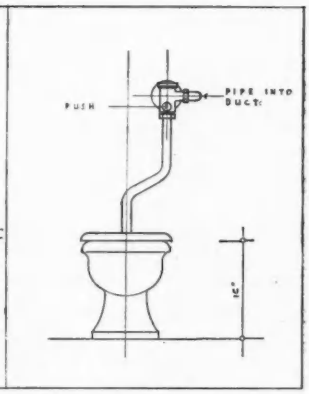
2 gallon high level W.W.P. in duct ; 4 in. drop on pull ; earthenware pan ; P trap



2 gallon low level cast iron W.W.P. in duct ; white glazed earthenware pan ; S trap

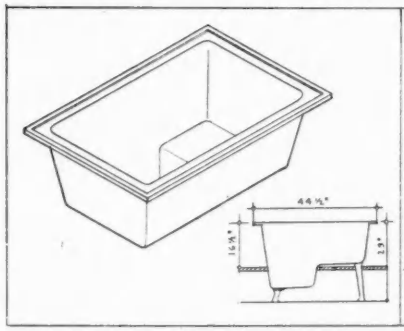


2 gallon low level earthenware W.W.P. ; earthenware pan ; 1¼ in. mahogany seat

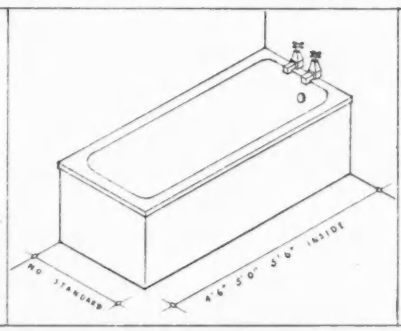


Quantum flush valve for use with artesian well water supply, if within M.W.B. area

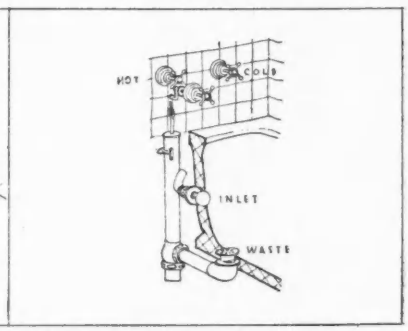
BATHS



Situ bath ; cast iron porcelain enamel ; 1½ in. waste ; 1½ in. overflow ; for use in minimum flats only

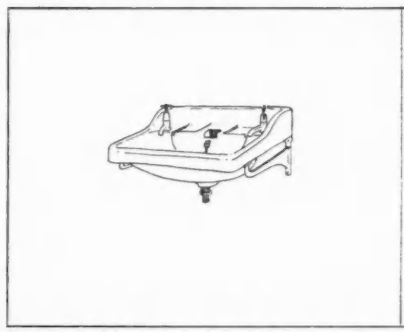


Rectangular cast iron porcelain enamel ; 1½ in. waste ; 1¼ in. H. & C. easy-clean valves ; I.R. plug

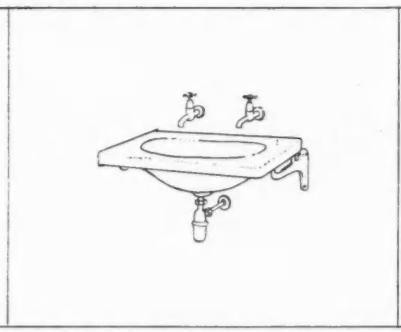


Twyfords supply and waste fitting ; ¾ in. H. & C. taps ; low inlet waste overflow ; all pipes concealed in duct

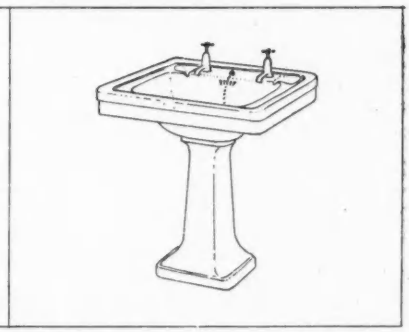
WASH BASINS



22 in. × 16 in. white glazed fireclay ; weir overflow ; 1¼ in. washer ; I.R. plug ; chain stay and union ; ½ in. H. & C. easy-clean pillars

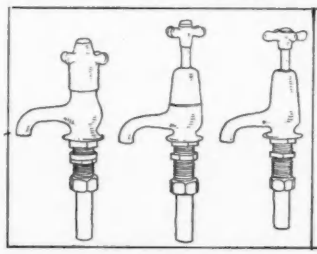


Hospital pattern ; white earthenware ; porcelain enamel brackets ; expensive, but highly efficient and easy to clean

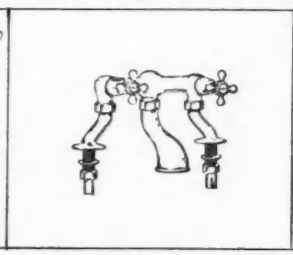


Typical pedestal basin ; 30 in. high ; bowl various sizes ; earthenware, various finishes

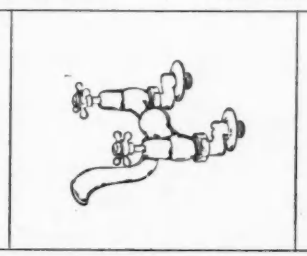
TAPS



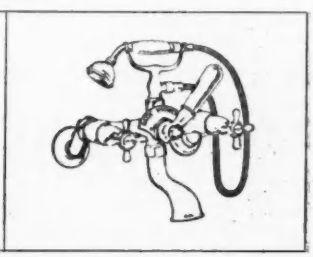
Evolution of bath and basin taps ; ½ in. and ¾ in. chromium-plated



Bath mixer ; for roll of bath ; ¾ in. country and M.O.H. ; chromium-plated

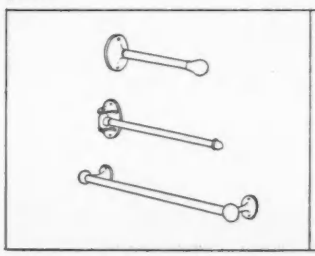


Bath mixer for tap holes inside the bath ; ¾ in. chromium-plated

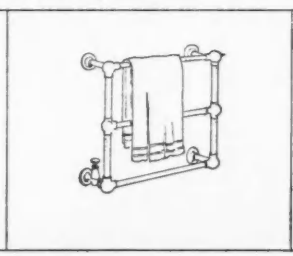


Bath mixer and shower for tap holes inside bath ; ¾ in. chromium-plated

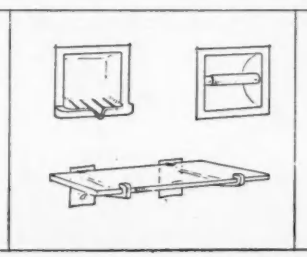
MISCELLANEOUS



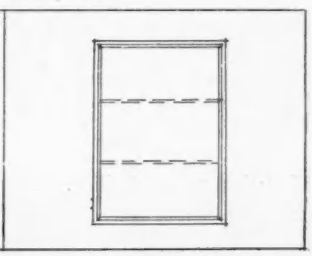
Typical cold towel rails ; ½ in., ¾ in. and 1 in. diameter ; chromium-plated



Typical hot towel rail, 1½ in. ; 1½ in. brass nickel-plated tube ; ¾ in. inlet



Recessed soap and toilet roll holders ; porcelain enamel ; typical glass shelf



Typical wall cabinet, 4½ in. deep ; solid nickel chromium-plated rim

FLAT EQUIPMENT: A PICTORIAL SUMMARY

4: KITCHEN

EQUIPMENT

COOKER. *Tenants are usually given choice of hire of gas or electric cookers, the landlord providing 30 amp. electric point and control unit and ½ in. gas point.*

SINK. *London pattern without overflow where cost is every consideration. Belfast pattern with weir overflow generally installed. Although more expensive, a combined draining board and sink in stainless steel will prove a letting factor.*

REFRIGERATOR. *Refrigerators should be standard kitchen equipment. 1 cu. ft. model for one room flats, 3 cu. ft. generally installed in two and three room flats. Where refrigerators are not supplied, provide a larder ventilated from the open air.*

ELECTRIC PLUGS. *5 amp. iron plug, 5 amp. refrigerator plug, or one single plug with two-way adaptor.*

COOK'S TABLE. *Cooking cabinet, or cook's table with porcelain enamel or hardwood top.*

STORAGE. *Cupboards and racks for dry goods. Drawers and cupboards for cooking utensils. Cupboards and plate rack for crockery, dining and tea services. Cupboard for vacuum cleaner, broom and similar cleaning equipment. Metal bin for refuse.*

LIGHT FITTINGS. *Watertight fitting with bulb totally enclosed in double flashed opal glass.*

DOORS. *2 ft., 2 ft. 4 in. wide by 6 ft. 4 in. 6 ft. 6 in. high, hollow flush type; ball catch and bow handles, or mortise latch and lever handles.*

FINISHES

FLOOR. *Rubber: hygienic, soft and quiet; laid and guaranteed by maker.*

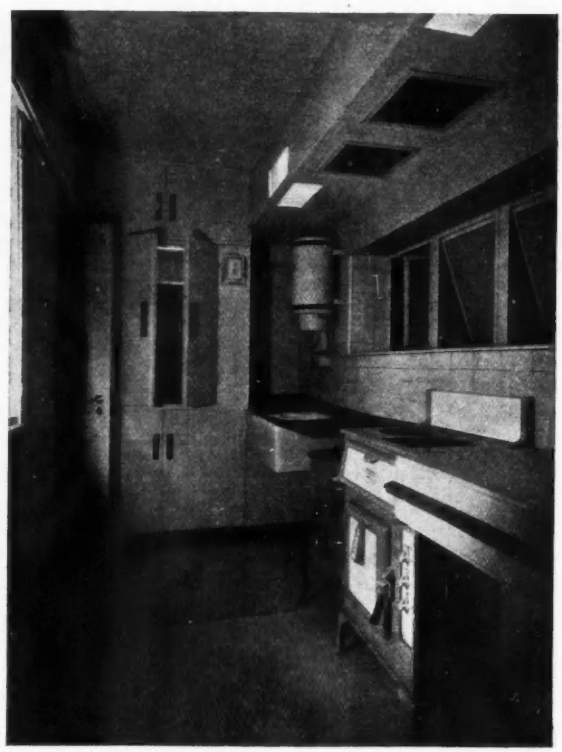
Linoleum: good cheap continuous floor; at least 2.2 mm.; stuck down with mastic to cement screed.

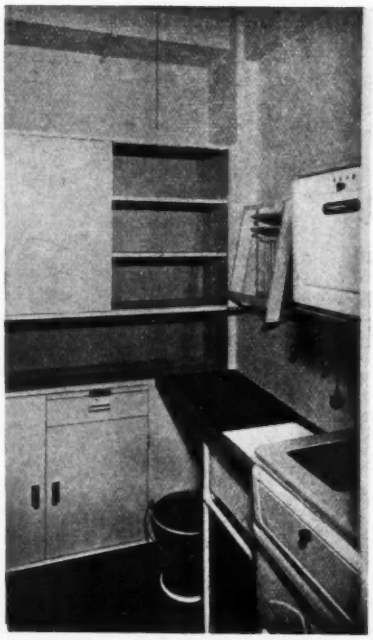
Composition: Magnesite and sawdust, wood flour or a similar filler. Splendid easygoing floor. Only reputable makes should be used, to ensure that filler and magnesium oxychloride are laid in their correct proportions.

Cork. See "living and sleeping."

WALLS AND CEILING. *Three coats high gloss or flat enamel, high gloss or flat paint. Zinc undercoating for enamel and makers' sealing coat under paint.*

TILES. *Glazed tiles for window cill and as splash back behind cooker and sink.*

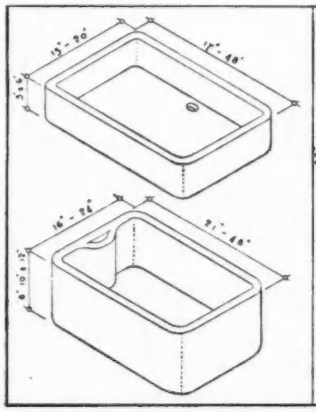




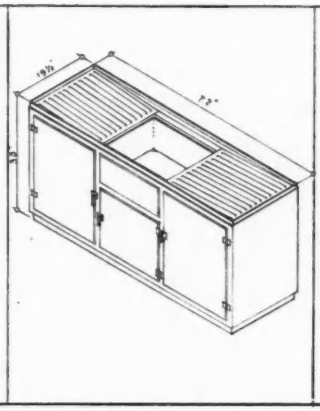


Three kitchens: top, by A. L. Osborne; left, by Sir John Burnet, Tait and Lorne; right, by G. Kay Green.

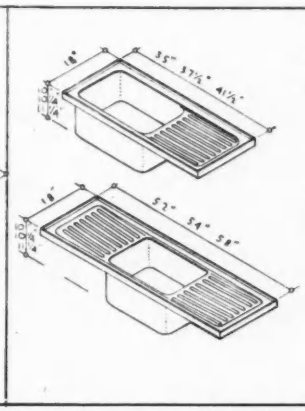
SINKS



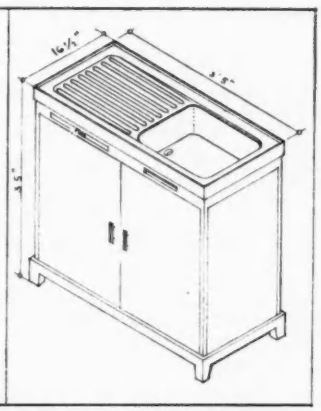
Buff and white or all white, with 1½ in. waste ; grated washer or Belfast plug, chain and overflow



Kandya unit. White wood, cellulosed white, with a teak top

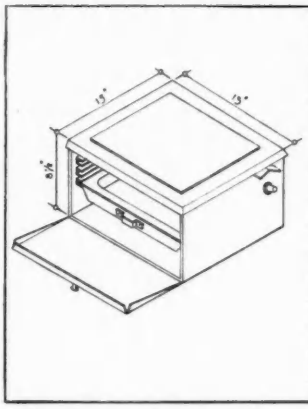


Nevastane. Stainless steel, with 1½ in. waste overflow, plug and chain ; draining board sound deadened

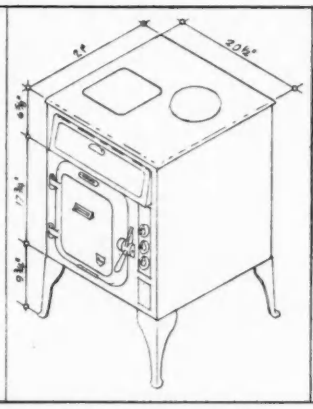


Synkunit. Stainless steel, with 1½ in. overflow, plug and chain ; deal framing, with cupboards under

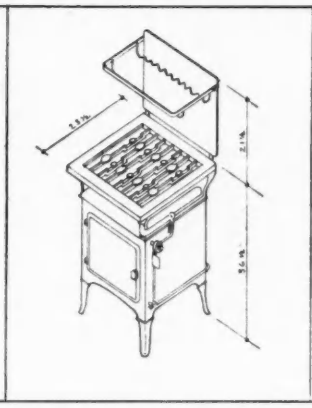
COOKERS



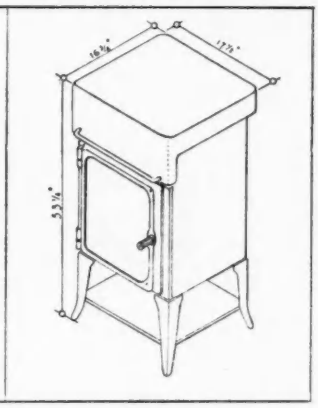
Belling Junior. Cast iron hob ; sheet steel body ; grill chamber, 10 in. × 10 in. × 6½ in.



Revo 10. Grill boiler ; boiling plate oven ; hot cupboard ; 5.5 kw.

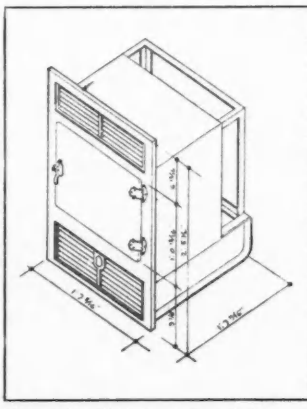


Alpine gas automatic heat controller ; low temperature oven

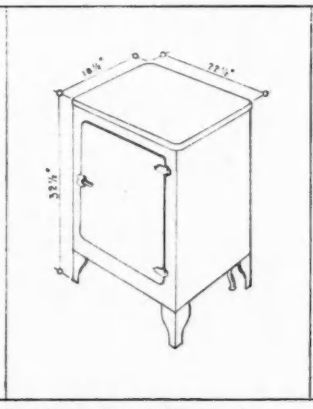


Minette gas boiler and grill burners ; splash back encloses hot-plate

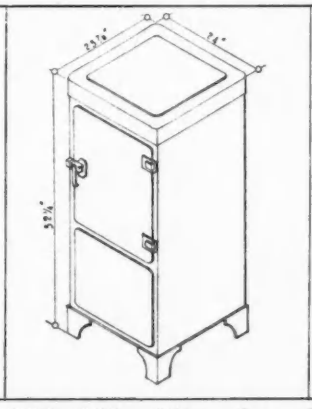
REFRIGERATORS



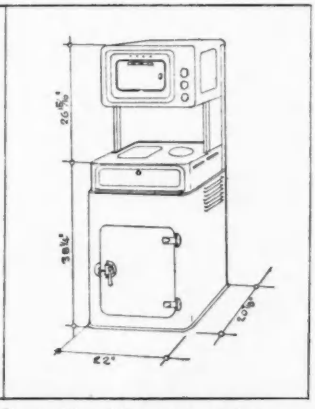
Electrolux H.1, 1 cu. ft. ; ⅜ in. gas point ; 5-amp electric point ; no moving parts



Frigidaire G.1, 3.25 cu. ft. ; central type installation with compressor in basement

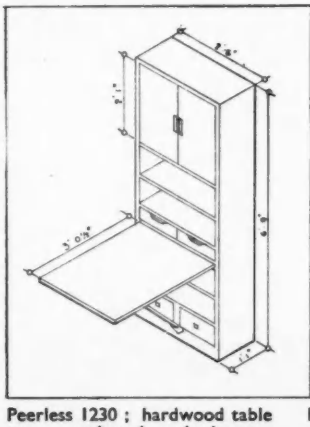


H.M.V. E.425. 4.25 cu. ft. ; electric motor ; thermostatic control

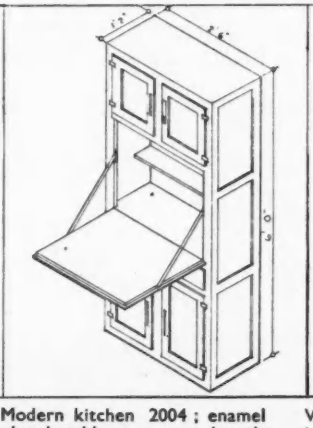


Prestcold refrigerator - cooker. 3.5 cu. ft. refrigerator ; oven, hob and warming cupboard

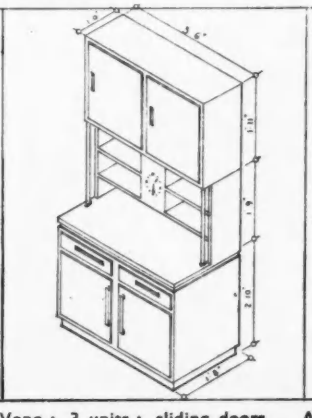
CUPBOARDS



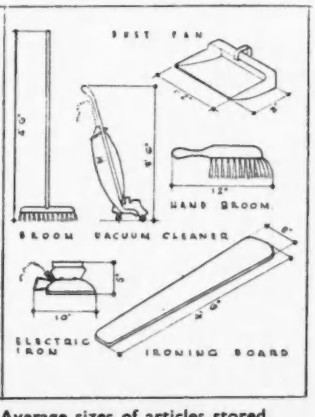
Peerless 1230 ; hardwood table top ; cupboard and drawers and cutlery drawers



Modern kitchen 2004 ; enamel plated table top ; cupboards and cutlery drawers



Vono ; 3 units ; sliding doors in top cupboards ; trays in bottom cupboards



Average sizes of articles stored in cleaning cupboard ; dimensions given are average

FLAT EQUIPMENT: A PICTORIAL SUMMARY

5: LANDLORD

EQUIPMENT

LIFTS. *Passenger lifts to buildings over three storeys; may be omitted to four storeys when top two floors are maisonettes. Position and number of lifts decided by general planning and rental of flats. Maximum number of flats with gallery or corridor access to one lift is 100. Automatic push button control, saving wages of attendant, usually installed. Down collective calling saves time and running costs on tall buildings.*

Lift motor is usually wound rotor slip ring pattern, controlled by rotor control. Motor runs from alternating current; noise of controller and brake control reduced by conversion to direct current with an all-metal rectifier.

REFUSE REMOVAL. *Refuse chutes at convenient positions discharging into metal trucks in brick or concrete containers; chutes usually of glazed stoneware pipes 12 in. diam., with inlets at floor levels sealed with metal hoppers.*

HEATING. *Central heating usually on accelerated low pressure hot water system. Automatic oil firing responds quickly to varying weather temperatures, and can be instantly switched on and off. Mechanical stokers coming into favour owing to tax on oil fuel. Electric heat at off-peak periods is at the moment too expensive for low rental flats.*

ELECTRICAL SUPPLY. *If supply is direct current change to alternating current in sub-station; all equipment supplied by Local Authority.*

Main switchboard usually situated adjacent to entrance hall or boiler house. Size normally about 4 ft. by 3 ft.

Landlords' and tenants' meters in entrance hall of each flat.

Central radio should be installed by reputable firms only.

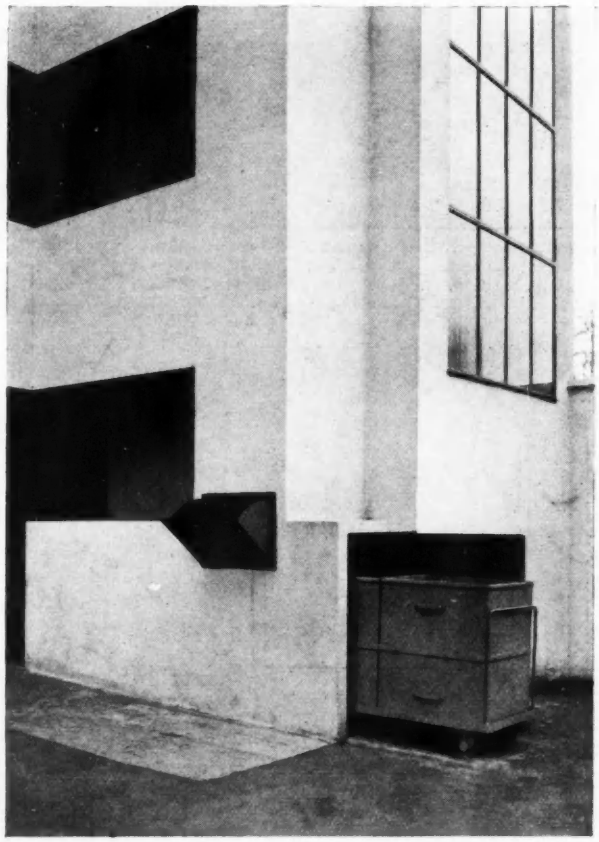
PLUMBING. *Bathrooms and lavatories grouped together will allow internal pipe ducts; access to ducts at each floor level. A greater simplification and saving in cost can be effected by the use of one pipe plumbing if branch wastes are short. One pipe plumbing requires deep seal bath and low traps, and accurate proportioning for anti-siphonage branches. Anti-siphonage pipes may be replaced by "anti-vac" traps.*

FINISHES

The selection of materials for the finish of halls, staircases, and landings depends entirely on the architectural effect desired. Entrance halls of most flat schemes are either in the Tudor, Georgian, or Modernistical style, although there seems no evidence that tenants prefer these to architecture.

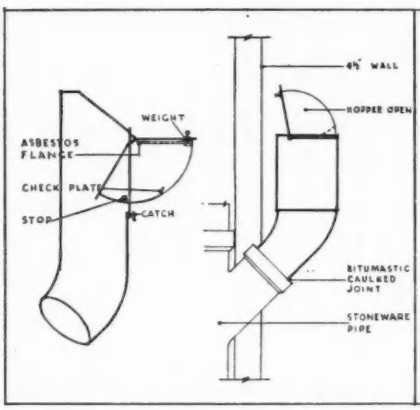
The materials selected will be subject to considerable wear and must, therefore, be of the most durable nature.



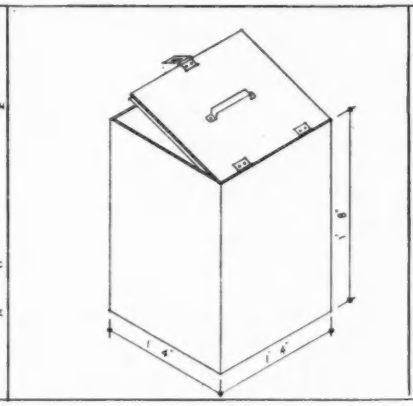


Left, an entrance hall by Richardson and Gill; above, refuse disposal chute by Adams, Thompson and Fry.

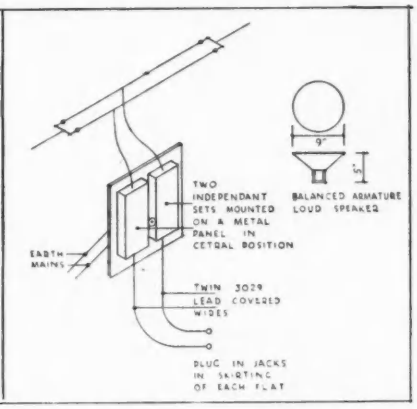
REFUSE AND WIRELESS



Refuse hoppers by Morgan Brown, Ltd.; left, refuse in paper bag; right, refuse tipped in

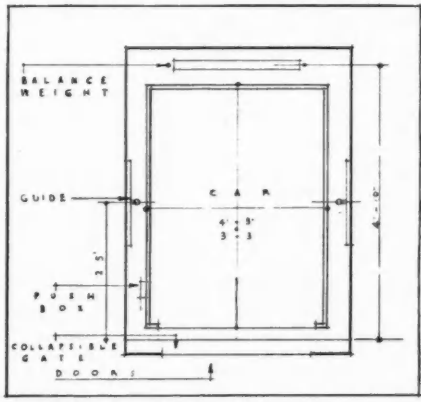


Typical metal refuse bin; collected from hatch in flat by porter every night

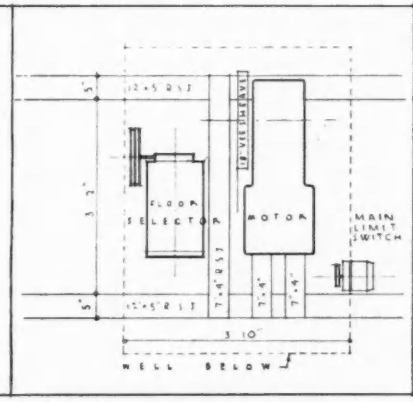


Radio dissemination. Two programmes picked up on central unit and distributed to individual flats

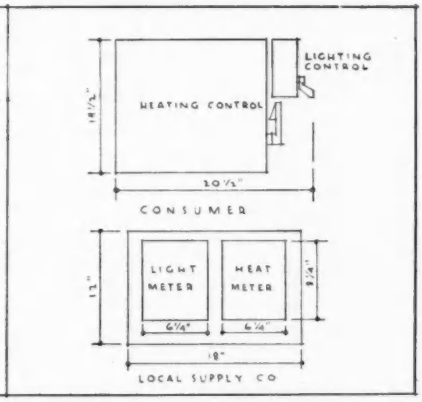
LIFTS



Typical lift car; allow approximately 3 sq. ft. per person; minimum size, 3 ft. × 3 ft.; self closing doors or gates

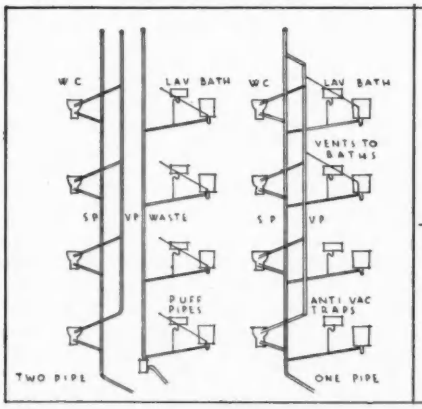


Typical lift motor room; motor runs from alternating current; brake control from direct

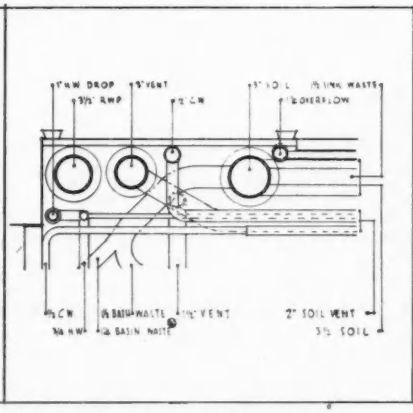


Typical electric gear usually accommodated in cloak cupboard of each flat

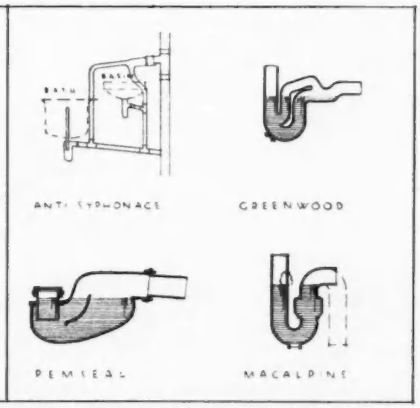
WASTE PIPES



Where branch wastes are short, plumbing may be simplified by the adoption of the one-pipe system



Typical pipe duct; service pipes grouped together in duct with access panels at each floor level



Anti-vac traps will eliminate the intricacy of anti-siphonage pipes; various types by different makers

HEATING

SYSTEMS: TABLE

- ONE PIPE DROP
- ONE PIPE LADDER
- TWO PIPE DROP
- TWO PIPE RISER

FUELS: TABLE

- COKE: HAND FIRED
- COKE: GRAVITY FEED HOPPERS
- COAL: MECHANICAL STOKERS
- OIL BURNERS: DOMESTIC GRADE FUEL
- OIL BURNERS: HEAVY GRADE FUEL
- GAS BURNERS
- ELECTRIC THERMAL STORAGE

TEMPERATURE TABLE

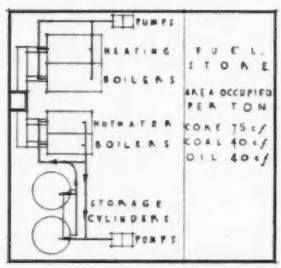
	TEMPERATURE	AIR CHANGE
LIVING ROOM	60°-65°	1 to 2
BED ROOM	55°	1 to 2
ENTRANCE HALL	55°	1 to 2
STAIRCASE & CORRIDOR	55°	2

COMPARATIVE FUEL COST BLOCK OF 200 FLATS

	COAL HAND	OIL FIRED	COAL MECH STOKERS
AMOUNT FUEL P.A	400 TNS	217 TNS	300 TNS
COST PER TON	32/-	77/6	24/6
FUEL COSTS P.A	£736	£841	£612 10/-
LABOUR COSTS P.A	£260	£40	£175
TOTAL COST P.A	£996	£881	£786 10/-

AREA HORIZONTAL FLUE 20% GREATER THAN UPTAKE

PROVIDE DOUBLE FRAME SOOT DOOR FOR CLEANING



Central heating on accelerated low pressure hot water system, with radiators, hot water points to bath, lavatory towel rail, sink and linen cupboard coil

Typical boiler house for hand independent system; this lay-out allows for 20 ft. in front of boilers for mechanical stokers or oil burners

C O N V E R S I O N

[*BY FELIX GOLDSMITH, A.R.I.B.A.*]

MANY features, desirable in any and every flat, but sometimes not found in a new building, are the usual characteristics of flats in converted houses.

These are the æsthetic interest of the existing building, perhaps an historic one; the individuality resulting from the exploitation of the difficulties of the work; the domestic atmosphere so often lacking in a modern block of flats but seemingly surviving the most drastic conversion; and the lack of similarity between the flats. All these advantages are likely to make a strong appeal to the tenant of a properly converted building. More concrete advantages of conversion, when compared with rebuilding, are the early start which can be made where no party wall awards, easement negotiations, or frontage line decisions have to be made; and the fact that prospective tenants can be given a good idea of the accommodation that will be available on the site from the first moment the work is contemplated. This latter advantage is all the more valuable if coloured perspectives are prepared showing the final effect of the various rooms.

There is much to be said for conversion as the means of ensuring the survival of apparently obsolete buildings, particularly in London. There are many houses and streets having a sense of civic obligation that is lacking in much contemporary rebuilding, and it would not be unfair to say that in many such cases a financially successful re-development would probably be disastrous æsthetically. It is to be hoped that before our rejuvenated buildings are pulled down order and civic planning will once more be the rule rather than the exception. Finally, conversion has saved many country houses, and has proved a great benefit to their neighbourhoods in preserving the grounds for the enjoyment of the tenants, when the alternative would probably have been to cut up the grounds into small plots and build a number of houses.

Where a building stands on the site of a proposed re-development scheme it may be found that, by a reasonable amount of conversion, the old building can be put to good use, and a more favourable financial scheme prepared than by demolition and rebuilding. Considerations of lease and the various advantages mentioned above may affect the decision, but in most cases the fact that the building counts as a definite asset in the financial calculations is the deciding factor. This is, of course, more generally so where site values are not high, and it is not necessary to cover the site to its maximum capacity by rebuilding.

Such conditions may under special circumstances be met with in more densely populated areas of high site values. The existing building is an asset which has to be carefully guarded, otherwise it may be found that as a result of careless conversion a new building might have been put up for the cost of the alterations. Economy, therefore, in the sense of using the old building to the best advantage is of particular importance in most work of this nature. Carried to excess it results in some of the worst features met with in contemporary flats.

WHAT TO AVOID

Most of us know the three flights of steps up to the front door and the bathroom on the half-landing below it, the corridors designed for stilt-walkers, the w.c.'s where the chain hangs from an immeasurable height, and the rooms where the cornices and proportions, and sometimes the half-window in the corner, carry our consciousness but not our eye across the partition, making it a barrier rather than a wall.

These disadvantages can be avoided first by converting two or more adjoining houses to form one or more flats on each floor (should one house not have sufficient area for one flat per floor); secondly, by correcting the proportions of the rooms with cupboards or false ceilings; and thirdly, by attending to details such as cornices, windows and fireplaces, so that every room after alteration is well proportioned and a satisfying entity. These three considerations are of the first importance, and if economy has to be taken to such lengths that any one of them has to be abandoned the building will cease to be interesting from the architectural point of view.

It is a peculiarity of alterations that several solutions giving these essentials can be found within the limitations of the existing structure, but when the better solutions involve more alterations and greater expense a limit has to be fixed beyond which further alteration is not economical.

Additional alterations, or a more expensive scheme, may be justified in some districts up to a point. Various schemes are often found to be possible with the same building, and a laborious system of trial and error has to be adopted before a final decision is made, or it will be found that, where so much of the building is already in existence, the best lay-out may fail in detail. This is particularly the case where two or three houses are being combined, and one of the staircases is demolished, the space being used for other purposes, and the remaining one developed as the main staircase and lift shaft. Each scheme will probably have its advantages and disadvantages, but the cost will probably be excessive for what would be the logical arrangement in a new building.

The extent to which it is economical to alter the building depends on the district and the extent to which rents may be increased by improvements. In some cases there is a definite limit to the rentals obtainable, and it is barely possible to provide the essentials previously mentioned. In other cases every improvement or opening up of the building may mean an increase in rent, and be justified up to a point. This limit, or the proportion between the value of the original building and the cost of the alterations, is variable, and the factors influencing it are complex.

The cost of a similar new building should be used as a measure to fix the limit of cost, the cost of the old building, plus the cost of the alterations not exceeding the cost of a new building of the same cube. It might be argued that the advantages of conversion mentioned at the beginning of this article have a bearing on the financial aspect of the scheme, but they are of a kind that cannot easily be stated in actual values. However, the advantage of the relatively small amount of capital required in the case of a person already holding the property is obvious.

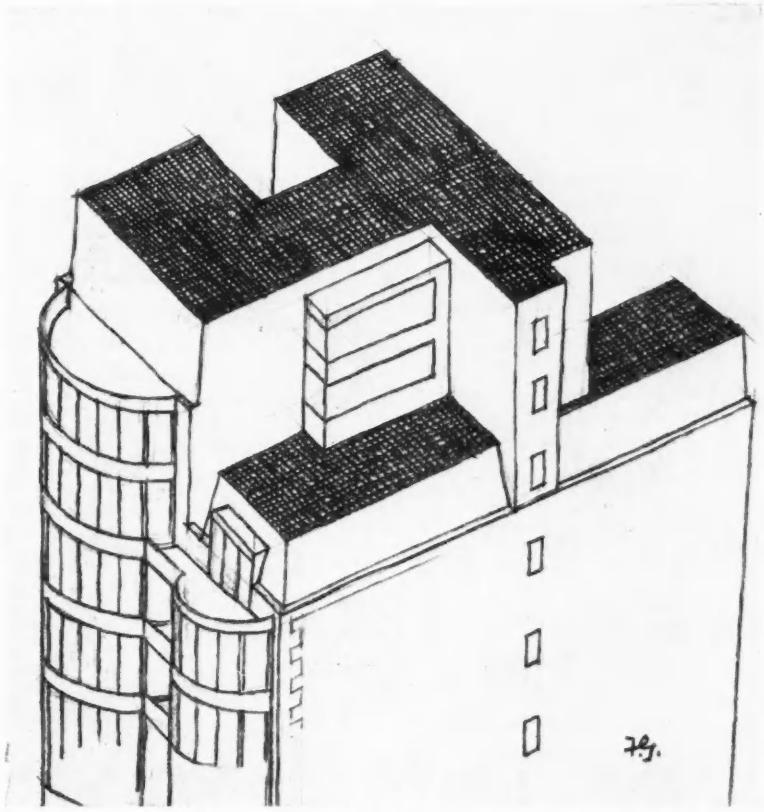
Advantages in favour of rebuilding which are not taken account of in the cost comparison are the additional buildings that can be put on the site, not only in relation to ground rents and site values but also the saving in landlord's services. On the other hand additional expenses may be expected in party wall matters and compensation. These are questions that would generally apply to sites in London, and

their value would have to be estimated from particulars obtainable on the site.

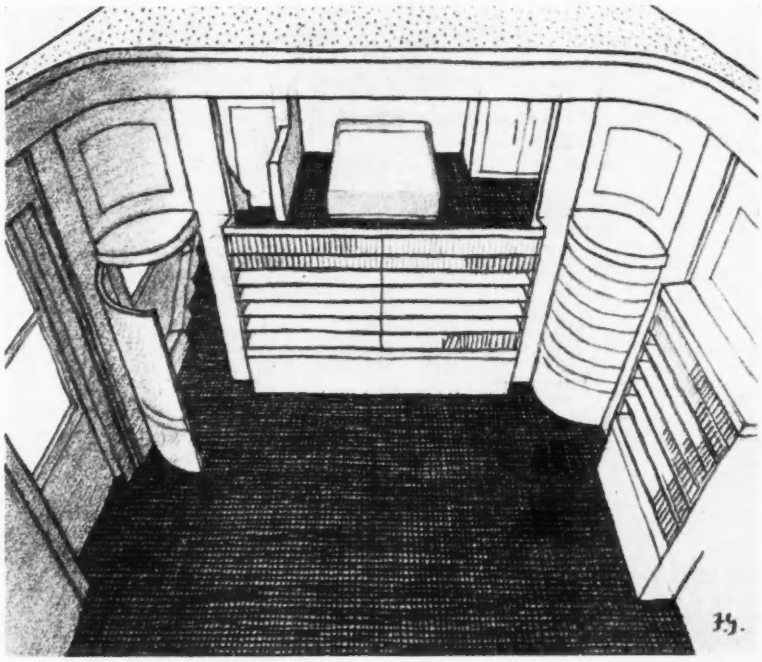
Having offset the advantages and disadvantages of rebuilding compared with conversion we can obtain a true impression of the value of the scheme from each point of view, and so ascertain the sum available for the cost of the existing buildings, plus cost of alterations. From this has to be deducted the cost or estimated value of the building. The result is the limiting value of the cost of the alterations, and it is clear that in many cases only a small proportion of this can be afforded.

To make these calculations of any value the cost of the existing building has to be separated carefully from any land values: this is difficult in the case of country houses in large grounds, or leasehold properties. A valuation of the site without the house, for ordinary development purposes, with any necessary allowance for demolition, will give the figure by deduction from the purchase price. Sometimes the house may be worth practically nothing as it stands, and it is in these cases that some of the most interesting work is to be done. With the present demand for many diverse types of accommodation, not only flats but maisonettes, offices, shops, garages, squash courts, sun roofs, etc., it is a fascinating problem to decide from the size, shape and position of some derelict part of a building what it is best suited for in modern conditions.

Probably the most interesting aspects of conversion are the finishings. They offer problems peculiar to this type of work, and frequently result in a reversal of ordinary practice.



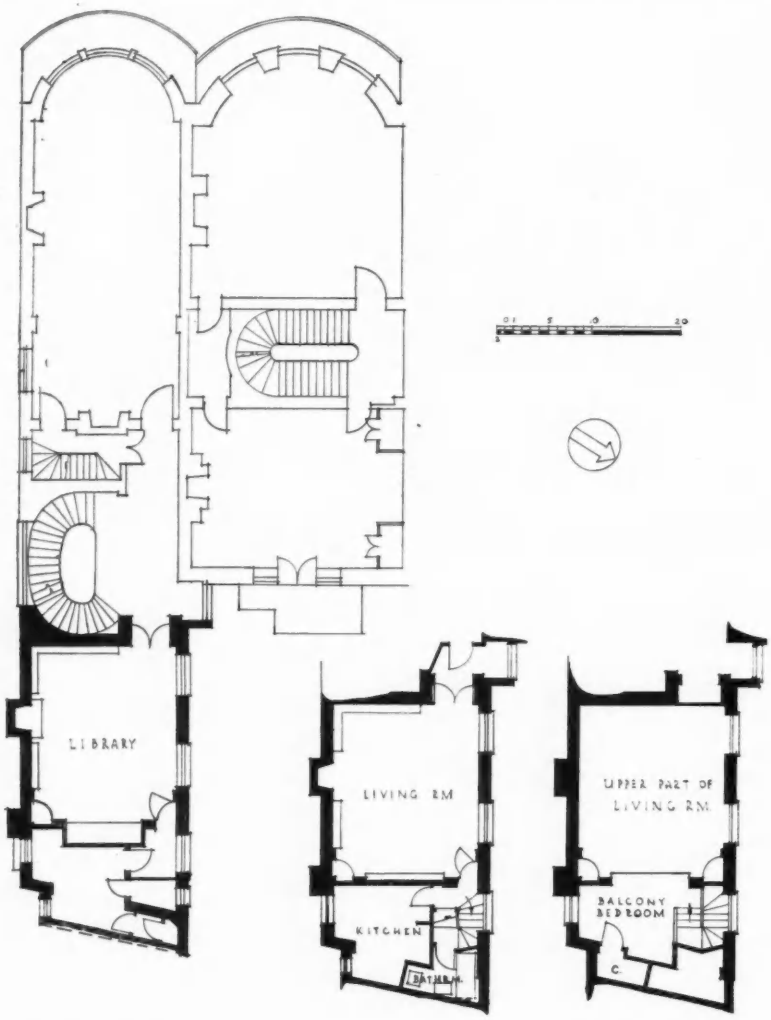
Sun roofs in place of a tangle of mansards, fantastic chimney cowls, and escape ladders; and spacious bay windows instead of the old stucco front. Two houses in Seamore Place, overlooking Hyde Park, after conversion, by Potter and Goldsmith, architects.



The preservation of large rooms of good proportions by horizontal instead of vertical division. A diagram showing the old library in the premises illustrated above, with a bedroom-balcony at the far end. The plans are reproduced on page 702.

WALLS AND WINDOWS

In many London houses of the stucco period the whole weight of the external walls is carried at each floor level on bresummers, bearing on the party walls, as also do the floors joists. The front wall, therefore, can be removed almost completely, and very large windows substituted. This results in an improvement that would otherwise probably be prohibited on the grounds of cost. If the nature of the site permits of wide balconies they should be built wherever possible, but should be carried independently. This applies in the case of buildings of more than two or three storeys to all additional loads, such as extensions of staircases or new lifts and lift shafts, as there is very little old brickwork that one can confidently assume will carry an increased load. Party walls are generally more reliable, and, provided



Plans showing the library (page 701) with a bedroom balcony, kitchen and bathroom fitted into the height of the old room, leaving the library intact. The plan on the left shows the premises before conversion, with the main floor, and mezzanine plans on the right.

the loads are properly spread, and the flues bricked up where necessary, will often take extra weight. They can also be raised with safety provided they are sufficiently thick. In most other cases, however, additional weight should be carried by steel stanchions taken down to separate foundations, and well braced and tied into the existing brickwork.

FLOORS

One is inclined to assume that there is some quality about an old floor which renders it more sound-resisting than a similar new one. The fact is that in a dwelling house the living room and the bedroom are rarely occupied at the same time; as very rarely are two living rooms, one over the other as is the case in flats.

The floors to be dealt with are generally ordinary joisted floors, and to make them soundproof is one of the most difficult problems. In the first place, they will probably have been cut about to such an extent for services that they will not stand heavy pugging, and even if they will, it may result in a loss of stiffness which defeats the object of the pugging, stiffness being one of the essentials in preventing sound transmission. Where a good stiff floor is found, and there are few inches to spare in the height of the rooms, a new floor should be provided on fillets, insulated from the original floor on rubber pads. This expense can be justified in another direction. The cost of cutting away floors and making them good for services is one of the big items in conversion work, especially where an effort is made to save valuable parquet. In the end it will be found far more economical, where a considerable amount of heating, hot water, and electric light services have to be taken in the floor, to lay them on the old floor, and to cover them with a new floor of the type suggested. Where there is not sufficient height the floors should be pugged if strong enough, and the lease should contain a clause to the effect that floors must be carpeted.

PARTITIONS AND WALL FINISHES

New partitions have to be built to form corridors and smaller rooms out of the original rooms. Their weight is often taken on the existing floor joists. For this reason the partitions have to be as light as possible, but at the same time reasonably soundproof. A stud partition is the most satisfactory, covered with a soundproofing material on either side. It is most important that the floor boarding should be cut away under any new partitions, as a continuous floor board will act as an excellent sound conductor. The floor plate should, if possible, be insulated from the joists. Plaster should be avoided wherever possible for new partitions, as some movement in the floor is almost inevitable under the new load, which may not adjust itself for many months after the work is completed. This results in an ugly crack at the ceiling which is difficult to make good satisfactorily. The logical solution of this problem seems to be the use of wood panelling, which is light and stiff. With all the veneers now available, and the use of a good laminated board, suitable panelling can be designed for any type of room, and even with modern flush panelling, careful design will disguise any movement at the joists. The joint with the ceiling should be finished with a moulding fixed to the ceiling, so that any slight floor settlement will be taken up.

A further advantage of partitions built up with laminated board is that they can be constructed as an integral part of the cupboards which are such an important part of a modern flat. Not only is this an economy of space, avoiding the redundancy of the partition when there is already a cupboard back, but the cupboard provides an additional soundproofing medium, especially when filled with clothes. A polished hardwood veneer also helps in the matter of soundproofing, being a good reflector of sound. In many cases, it will be found that two walls of a

room are formed by new partitions, while the remaining two are existing plaster, good enough for repainting. The result, properly worked out, can be very attractive. However, if all walls have to be painted, laminated boarding should be avoided on new partitions unless moulded in the traditional way to allow movement at the joints.

One of the difficulties of conversion with a good type of flats is to provide a plaster surface good enough to take the paint finishes, stippled or eggshell glazed, which are so often asked for, and which show every inequality in the surface. Walls have to be cut about a lot for conduits, and the making good after this or any other work shows up very badly. It may very often be found that, where a first class finish has to be provided, it would have been cheaper to re-plaster the whole wall.

DOORS

All the old doors should be scheduled before work is started, and marked on the plans in their new positions. Old doors are very valuable as a well-seasoned framing, and flush doors are easily made by fixing plywood to either side. In most cases the plywood should be kept back $\frac{1}{2}$ in. from the edge of the door, or the thickness will be too great for an ordinary sized frame.

SERVICES

As a general principle, services should be cased rather than chased into the

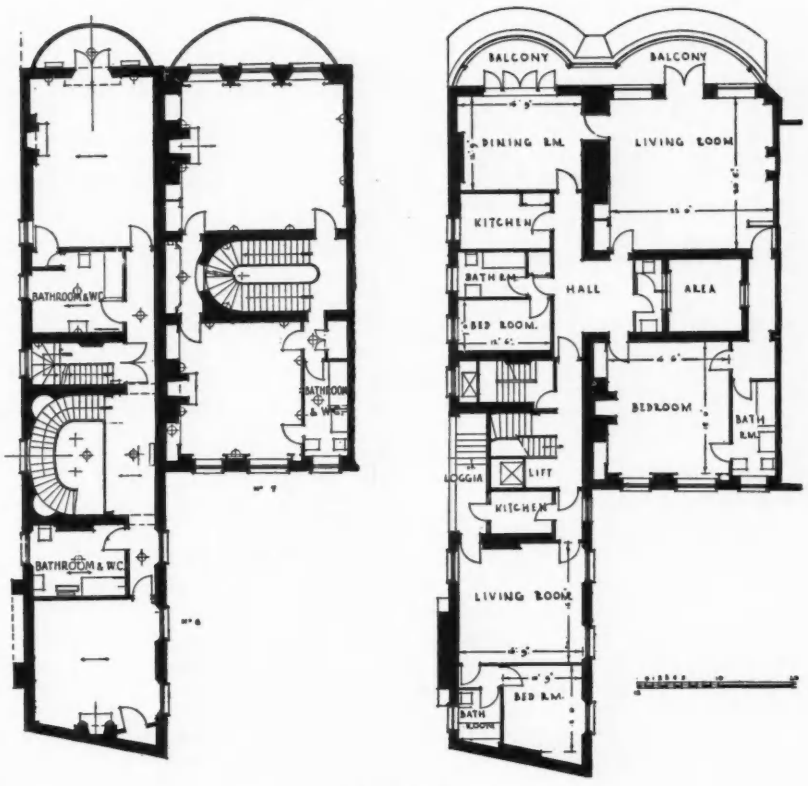


FIGURE 1.

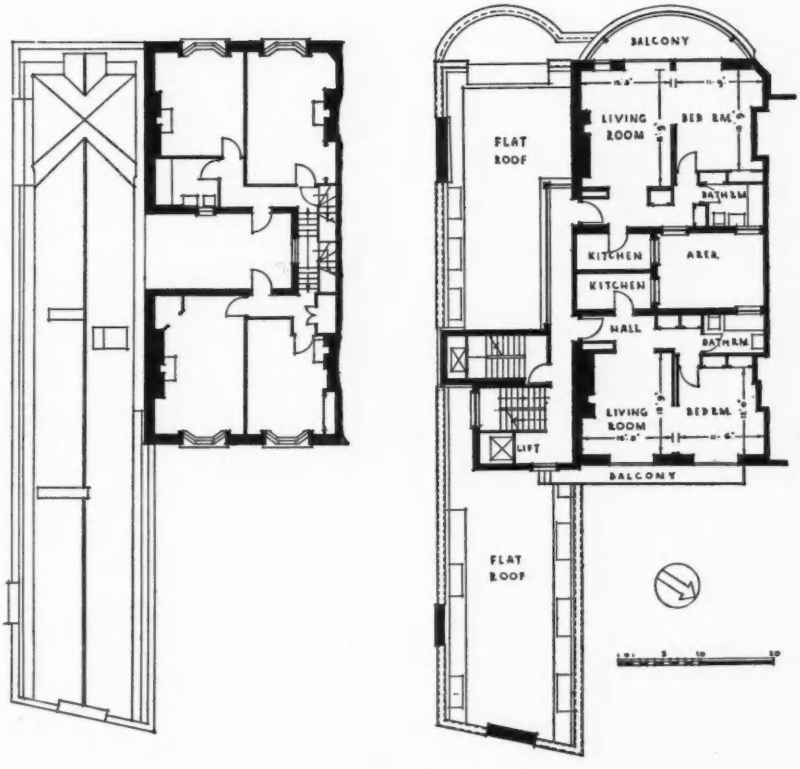
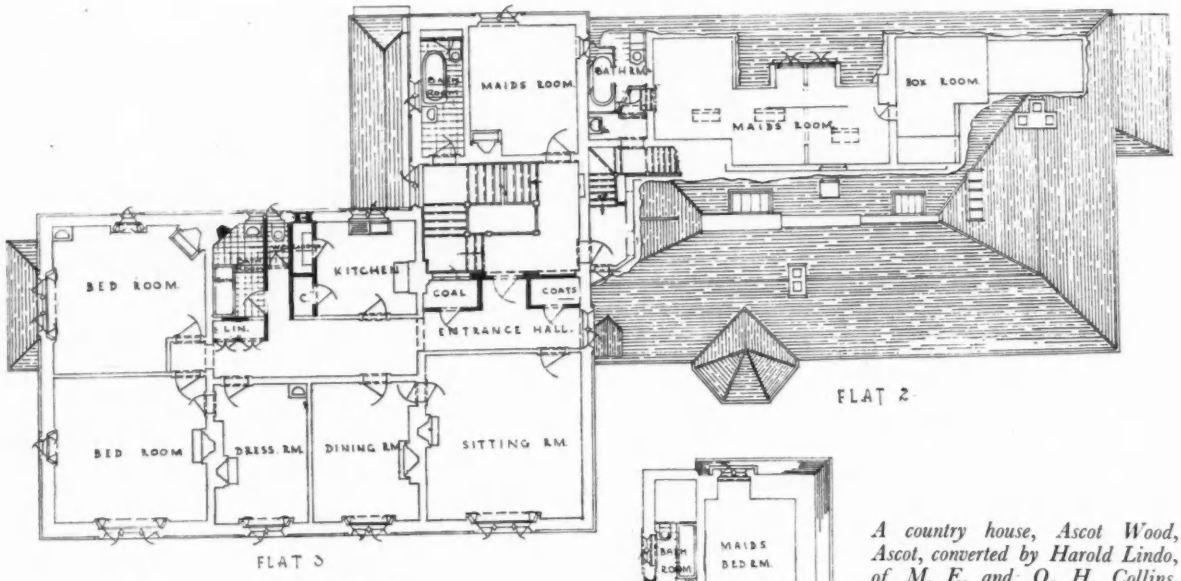


FIGURE 2.

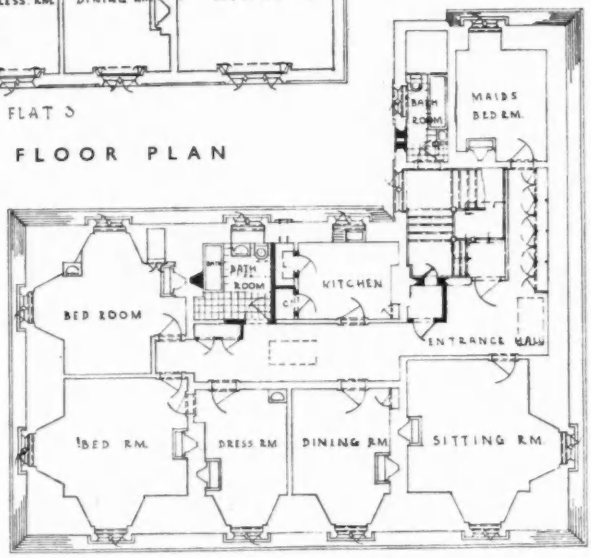
Figure 1. *Plans of the second floor of Nos. 7 and 8 Seamore Place, Park Lane, converted by Potter and Goldsmith, architects, before and after conversion. This shows two flats, one large and one small, on one floor of the two old houses. The staircase of No. 7 has been scrapped and used as an area. The loggia of the small flat, which involved some difficulties in construction, is an example of an item of alteration which is justified by special circumstances, in this case, by the fact that it gives this flat a view of the park.*

Figure 2. *The fourth floor of the same premises before and after conversion. No. 8 Seamore Place does not extend above third floor level, and by altering the old mansards, a flat roof is provided for each of the small flats.* *(See drawing on page 701.)* *The lift shaft and extra flights of stairs, taken through the roof of No. 8, are supported on steel taken down to new concrete foundations.*

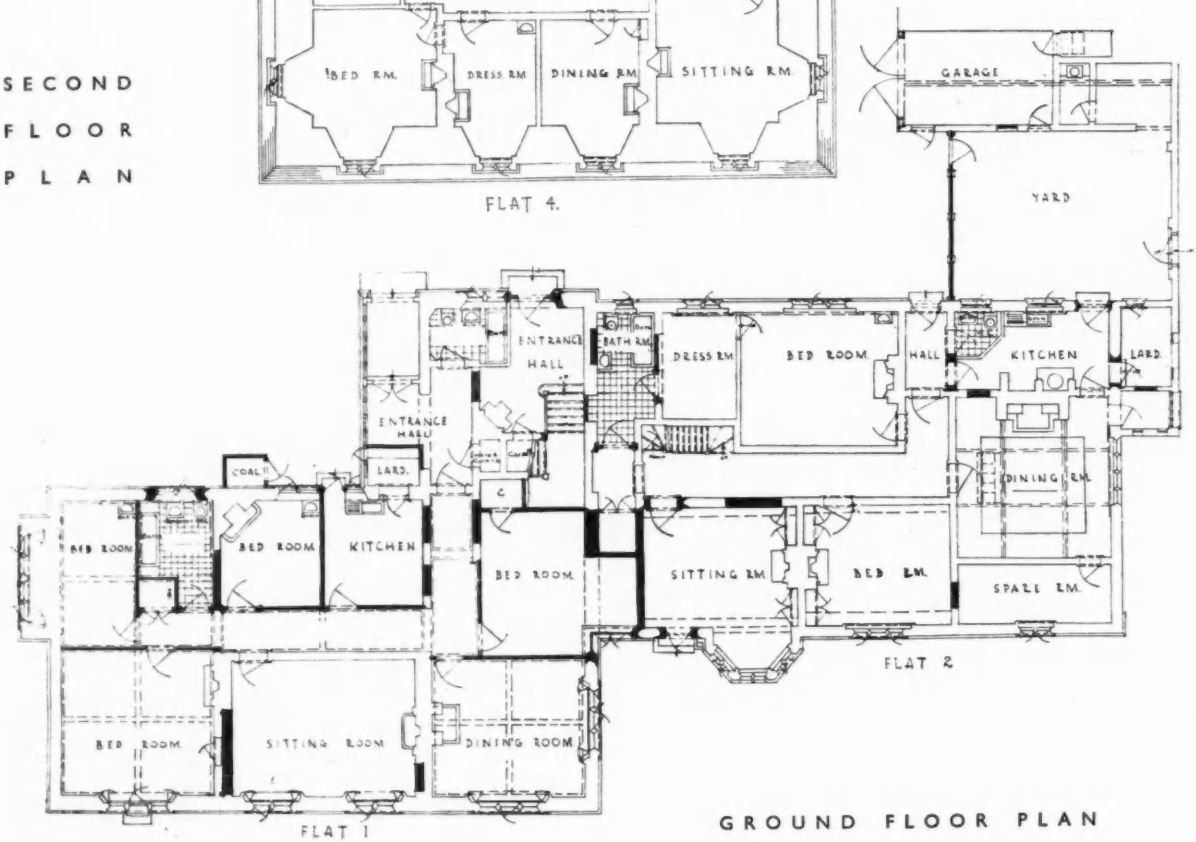


FIRST FLOOR PLAN

A country house, Ascot Wood, Ascot, converted by Harold Lindo, of M. E. and O. H. Collins, architects. The house stands in grounds of 15-16 acres, which are preserved in their original state for the use of tenants. The house itself provides four flats of different sizes. New walls are shown black.



SECOND FLOOR PLAN



GROUND FLOOR PLAN

brickwork, or cut into the floors. This avoids weakening the structure, the cost of chasing and making good, and when properly done and in the right position, is often preferable to the visible effects of making good in old plaster. If possible, cupboards should be placed so as to conceal them, and in bathrooms, the wall finish, whether tiles or glass, should be taken around the casing.

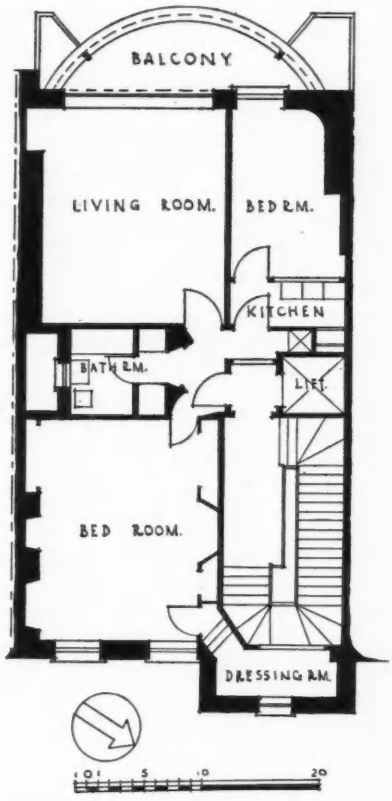
OLD ROOFS

The rooms in a mansard roof can generally be made into the most attractive flat in the building, owing to the ease with which large windows can be formed in the roof slopes.

By a judicious use of steel, the loads being properly spread over the old walls, the upper part of the mansard can be removed, thus providing a very good flat roof. New joists should be fixed, supported on the steelwork, and finished with asphalt over boarding and good temperature insulation. This is one of those improvements that should only be attempted in cases where the financial calculations show that a considerable expenditure is justified, as the apparently simple operation of removing part of the roof is liable to involve unforeseen expense. It may be found necessary to cut away brickwork and build in spreaders below the plate of the old roof, and chimney-stacks will probably have to be raised.

NEW STOREYS

It is only in exceptional cases that one can afford to raise on an existing building, and then it can be only to a very limited extent. Anything involving the carrying of the new storeys on steelwork through several existing storeys is prohibitive in cost, and where raising is concerned it is rarely possible to add more than one storey other than those in the roof. But in cases where financial considerations permit a valuable and interesting addition can be made to the building by forming two storeys in a 75 deg. mansard roof. In the case of the normal terrace house the party walls have to be raised, forming gable ends to the roof, and this involves a very careful survey of the thickness and condition of the walls. Party walls can frequently be strengthened considerably by cutting away disused flues or chimney-breasts, and rebuilding solid in new brickwork down to a good bearing. The new roof should be of hollow tile construction, and by forming large dormers in the roof slopes several very fine flats, or maisonettes, can be built over the old



A house with one flat on each floor, converted by Potter and Goldsmith, architects. In this case very little structural alteration was necessary.

house, with large rooms and windows, balconies and sun roofs.

FIREPLACES AND FLUES

Flats should be designed so that existing fireplaces are in good positions in the new rooms, as they are an important asset. Wherever possible, and where the expense can be afforded, small fireplace openings with grates should be altered and widened to take an open fire. Where there is central heating the fire will be mainly for effect, and a dog grate in an open fireplace is the most attractive kind and looks better than the ordinary fireplace when not in use. It can also be easily adapted as an electric fire by standing it in the fireplace opening.

A survey of flues should be made before starting the work, and where rooms on lower storeys, used for offices or shops, no longer require them, they can be connected up to new fireplaces on upper storeys. Building new flues is expensive work, but by careful planning the existing stack can generally be made to do all that is required in the converted building.

The most important flue, where there is central heating and hot water, is from the boilers, and the most substantial one that can conveniently be used should be selected for this purpose. Generally, the flue from the old kitchen in large houses is of sufficient size, but the brickwork and insulation is rarely good enough for two large boilers. There is, therefore, every chance of the walls adjoining the flue becoming hot, unless special precautions are taken to avoid this.

WHAT SHALL BE REUSED?

One of the special problems of conversion work is to decide what shall be reused. Where a minimum amount of work is being done this question hardly arises, but with considerable internal alterations, and new heating and lighting, much money can be wasted by trying to save work which has eventually to be scrapped. Doors and windows, if suitable, can generally be reused with their frames and fastenings. Baths and lavatory basins can be reused in cheaper flats, provided a careful examination is made for defects. But in better class flats old-fashioned fittings look very shabby in a modern bathroom, and the large square baths so often found in old houses will be very extravagant with the landlord's hot water.

One cannot count on reusing any electric light wiring or tubing, although the work may have been done recently. Each room has to be wired to a new meter in the flat, additional points are sure to be required in each flat, and alterations in the position of the doors means new switch positions. Occasionally the main riser of the old central heating system can be reused, but frequently it will not be sufficient to take the extra load of the many new radiators that will be required. In this case it will probably be cheaper to have new piping throughout rather than to supplement the old riser with a new pipe. Old radiators should be regarded with suspicion, as they are frequently cracked, and the defect is possibly not discovered until the radiator has been connected up and tested, causing expense and delay, and possibly damage. As previously mentioned, flues should be saved wherever possible, as fireplaces are a great advantage, but they may have to be cut away and built up in order to strengthen a party wall for raising should additional storeys be a greater advantage.

It is of the utmost importance in alterations that every detail of the work should be settled before a start is made. It is almost more important with alterations than with new work. Much time and money can be wasted by keeping old materials on the job in the hope that they will be useful and by trying to save parts of the old building which eventually have to be renewed.

CONSTRUCTION

[BY L. S. SLAUGHTER, A.R.I.B.A.]

CONSTRUCTION, says Mr. Chambers in his dictionary, means anything piled together. Bye-laws and Acts of Parliament, the ruling of this local authority and that department of the appropriate council, are in their turn so piled together that much deliberation is required by the architect before he can marshal his thoughts on construction; and then the nature of the site, the character of the building and the value of the land, all play their part in determining which of the more general types of construction he shall adopt.

STEEL FRAME

Broadly speaking, the more usual form, though not necessarily the most suitable, is a steel frame with panels of brick or stone; and on a congested site for a building of more than five storeys there is much to be said in its favour, particularly if there are garages or shops on the lower floors. But there is no doubt that when compared with a brick frame it is likely to add at least a penny to the foot cube cost, and that the dangers of noise and vibration are increased. Once the positions of the stanchions and beams are settled there can be little change in planning. Every pipe must be plotted, every service must be settled, before the frame is assembled. But speed of erection is there, and speed is sometimes all important.

BRICK FRAME

A self-supporting brick frame, on the other hand, may have its advantages where space and time are not so restricted. Often the central "spine" is of steel, though in some cases brick again may be used. Cost will be reduced, there will be few awkward projections in rooms due to a plethora and stanchions, services may be chased, but glass area is restricted, and care is necessary when the stresses on individual piers are calculated.

REINFORCED CONCRETE

In those parts of the continent where structural steelwork is not obtainable with such ease as it is in the British Isles, and where the cost of import is almost prohibitive, reinforced concrete is nearly essential for buildings of several storeys in height; but here it is still in its experimental stages, and much remains to be done before the traditional English attitude of suspicion towards new forms and materials can be overcome. While there is no doubt that it is essentially fluid in form and expression, it has yet to be proved that reinforced concrete can always compete on equal terms with either of its chief rivals in construction where cost and rapidity of erection are involved. It has been found in practice that careful supervision is necessary, whilst its dependence on suitable weather conditions is obvious.

There are various methods of infilling to the panels between vertical and horizontal supports; in some cases this becomes a part of the structural frame itself, and a skin of reinforced concrete protected on its inner and outer surfaces is the method often adopted.

Although tests have proved that a 4-in. skin of concrete with an inner lining of cork has the equivalent heat resisting properties of a 14-in. brick wall, special means must be taken to enable its outer covering to resist the smoky atmosphere of our towns

Alternatively lintols and cills to openings are cast in concrete, and the panels thus formed are filled in with a skin of impervious material such as brick or stone.

FLOORS

Floors may be of several types, the most important properties being their resistance to fire, economy of depth consistent with strength, and proof against the transmission of sound. In a steel or brick framed building the more usual form is the hollow tile block, in the concrete topping of which patent metal clips are cast. To these fillets are subsequently fixed to support the wood flooring, the void thus formed being used to accommodate electric and other horizontal services. Screeding for solid floor finishes can be laid in place of fillets, and is usual in bathrooms, kitchens, public corridors, and other places where such materials as rubber, cork or wood block flooring are used. Experiments with some success have been made whereby the clips are omitted and 4-in. squares of fibre board are placed at intervals beneath the floor fillets, the ends of these being held in position by skirting grounds around the perimeter of the room. An expensive but efficient form of sound deadening has been adopted in a recent block which consists of 2 in. of cork laid direct on the structural floor with cork or rubber tiles bedded on screeding above it.

ROOFS

The battle of the pitched versus flat roof is not yet won, depending as it must partly on æsthetics, partly on local restrictions of height and partly on practical considerations of cost and floor space. A pitched roof will act as an insulating medium, it will house the tank rooms, lift motor rooms or overruns, the plumbing and other services, and, if necessary, trunk stores, cleaners and maids' rooms. On the other hand, the formation of flats with partially sloping external walls, attractive as it may seem on paper in the financial scheme, will prove a snare and a delusion. Tenants dislike them intensely, and the loss of floor space and cost of ashlaring to overcome this dislike are considerable.

If a flat roof is chosen, cork or some similar insulating material must be provided beneath the asphalt; hot and cold water pipes must be well lagged and supported, and excrescences must be as controlled and orderly as possible. Should it be expected to provide a children's playground or a so-called roof garden the only satisfactory solution is a false floor, which will be found expensive.

BALCONIES

Balconies, reverting to the practice of our Early Edwardian mentors, are now almost *de rigueur*. Not only has care to be exercised that they are structurally capable of bearing an unexpected influx of Jubilee spectators, but that they are also of sufficient projection to be of some practical use. When asphalted, well drained and at least five feet in width they can add very appreciably not only to the appearance of the building but also to the amenities of the flat dweller. They are usually formed of reinforced concrete well cantilevered back to the main floor structure, with the parapet

of brickwork, stone or concrete reinforced both vertically and horizontally.

PARTY WALLS

Party walls separating flats from their neighbours and from the public corridors have an important part to play in the reduction of extraneous noises, and experience has proved that solid brick is the most efficient medium—the more solid the better. This type is usually only practicable in a brick frame, and in steel and concrete frames it is more usual to form these divisions with two thicknesses of material preferably differing in composition and without any form of tie or bond between them. In some recent examples the buffer between the corridor and the flat has been formed by a range of cupboards with one thickness of partition only; but this is miserly and not to be commended. The counsel of perfection may well be to hang some kind of acoustic quilting between the two skins, but questions of cost will probably take precedence.

PARTITIONS

An important item in the structure is the material to be used for partitions between the various units, and the relative merits of many different types now on the markets must be carefully weighed with a judicious eye on expense. The most common form of slab partition is probably a good quality breeze concrete, two and a half inches in thickness for short lengths up to six feet and three inches for greater spans.

The formation of door openings is always a problem, for if the door frames are carried up to the ceiling and covered with expanded metal—a common practice—there is every possibility of cracks occurring at the door head. A rough Welsh arch, though slightly more expensive, is one method used to overcome this and is probably the most effective. If the partition is built to a height of 5 ft., and allowed to stand for a few days before completion there is more chance of avoiding the cracks which are later on so alarming to the tenant.

Unless hollow metal architraves are used it will be necessary to form chases for conduit to electric switches, and breeze will lend itself more readily to this practice than certain other kinds of partition. But pumice blocks, moler, hollow terra-cotta all have their advantages, particularly where sound-proofing qualities are more than usually necessary; where bathrooms and water closets adjoin living or bed rooms special precautions must be taken, and where space is available it is wiser to provide a double thickness of partition to act as a buffer. Around lift shafts solid brickwork is preferable to any material such as breeze, for the noise of a lift may sometimes be a serious cause of complaint.

DUCTS

Services should naturally be planned so as to be concentrated as far as possible, and the ducts formed of similar materials to the partitions. Here again is a potential source of sound transmission, and some form of precaution must be taken so as to prevent it travelling from one floor to another. To line the inner face of the duct with absorbent material is hardly practicable on the score of cost (though this is the counsel of perfection), and a more inexpensive method is to fix expanded metal at ceiling level, rendered in cement and sand and packed with slag wool. An alternative method is to lay 3 in. of solid concrete, in each case the heating and hot water pipes being provided with sleeve pieces. Each alternative will serve to break up the sound passing from the ducts, and will also have the advantage of preventing vermin from travelling vertically, which surprisingly has been known to happen. In the case of ventilating ducts it is probably worth while to line all bends with absorbent material as a safeguard, and to take similar precautions at the intake and extract if they adjoin habitable rooms.

FLUES

The flue to the boiler installation is preferably formed on an external wall, and in the case of a steel-framed building the outer skin of 9-in. brickwork is usually carried on the framework while the flue itself stands self-supporting within it. This flue, of 4½ in. firebrick, may be circular or oval, with insulating distance pieces at each floor, the void thus formed around its perimeter being used at the base to supply air for combustion purposes. If this method is for some reason impracticable the lining may be formed of firebrick which is bonded every 3 ft. or so into the surrounding brickwork for a height of about 30 ft.; but great care must be taken lest the heat rising above this may penetrate the adjoining structure, particularly in the case of an oil-fired installation. A third type of flue is sometimes used. It consists of a 9-in. skin of brickwork to which is bonded a lining of solid moler brick, which may be reduced in its upper length to 4½ in. This has the advantage of reducing the total area occupied where space is really limited.

It is still the rule rather than the exception to provide at least one coal fire in each flat, though the large amount of floor space which is lost on the upper floors is a point to be remembered. In a building of six or more storeys it is unusual to allow a greater width of opening than 22 in. Tenants, however, have been known to express mortification on learning that a Louis XVI grate some 4 ft. wide would not be a simple thing to fit after the completion of the building.

The problem of the flue on the top floor with a flat roof above is always present, and many an unsightly cowl can be seen sprouting from a building for this reason. The tendency is rather towards the omission of the gas flue, though a number of tenants prefer this form of subsidiary heating unless the cost of electricity is really low; in any case it affords an excellent secondary means of ventilation to a room, particularly if a hit and miss ventilator is provided in the absence of a gas fire.

Cases have been known where a tenant will carefully block up all access to a flue constructed at some expense and difficulty, and after complaints of stuffiness will demand from the landlord an electric fan at no expense to himself.

ELECTRIC SUPPLY

The supply of electricity is a matter of negotiation with each individual company serving the district, and as each has its own policy it is difficult to give much guidance as to what may be required. It frequently happens that the company will prefer to run a high tension cable into the basement, where the supply will be transformed in a room especially set apart for the purpose, which virtually becomes the property of the company, though why this should be considered as a right without the company providing a *quid pro quo* it is difficult to understand. Thence the more progressive will connect to the landlord's meter rooms in the basement or ground floor free of charge, and some will subsidise the cost of rising mains by means of ducts to each floor.

The rates will be found to vary enormously, from a small annual charge per kilowatt to a heavy rate based on the floor area of each flat (somewhat arbitrarily calculated by the company and described as a two-part tariff), with a relatively low price per unit for lighting and power. It does not often pay the landlord to adopt this latter method for his own electricity, particularly if care has been exercised in the lay-out of his lighting so as to avoid an excessive number of points necessarily burning during the night. In the corridor type of planning the tenant's meter is sometimes placed so that it can be read by the company's inspector without entering the flat,

while the tenant's main switch, fuses and distribution board are so arranged as to be available from the hall or kitchen. In passing, it may be noted that tenants very rarely approve the positions of lighting points and plugs when renting a flat, however liberal their provision seems to have been.

Aerial masts are now sometimes provided with an aerial amplifier on the roof, whence wiring is taken down to each flat, terminating in a two-pin plug ; this is particularly advisable in a steel-framed structure, especially as there is likely to be disturbance from lifts, refrigerators and other electrical appliances.

HEATING SERVICES

Of the different types of heating fuels and their methods of stoking prominence must be given to the two which have been evolved in comparatively recent years. Designed to limit the expenditure of human energy, the more popular at the moment is the automatic stoker, feeding by means of an electrically operated worm gear, a cast-iron boiler from a hopper, which may contain as much as eighteen hours' supply of slack coal. The only attention this normally needs is clinkering and stoking twice a day ; otherwise it will run comparatively noiselessly without any trouble. If the plant is of considerable size some form of automatic conveyor may become necessary from the bunker to the hopper, though this is apt to add to the inevitable noise in the boiler room.

An alternative method which has many advantages is the gravity coke-fed wrought-iron boiler, but this entails sinking the latter some 18 ft. below the intake to accommodate a reasonable supply of fuel in the hopper. This is silent in operation and very slightly more expensive in running cost than the automatic stoker, though labour charges are less, since it needs declinkering only once a day. Other kinds of operating fuels are gas, oil, and hand-fed coke ; electrical thermal storage is as yet too costly to contemplate on a scale of any magnitude.

In better-class flats ceiling panel heating is often used, the panels being cast in simultaneously with the floors and subsequently floated with special plaster on scrim ; care has to be taken that the working temperature of the panel is not too high or trouble may be caused by an excess of heat passing through to the floor above. This system is slightly more expensive to instal than radiators, but less so in maintenance. Each panel should be controlled by a valve usually placed in the skirting. It is impossible to satisfy every tenant in the building so far as the temperature of his flat is concerned, the most difficult type being the man who flings all his windows open on a frosty day while demanding not less than 70 deg. in his drawing-room. It is usual to calculate a temperature of 55 deg. to 60 deg. for bedrooms and living rooms in the cheaper types, and 60 deg. to 65 deg. in the more expensive.

SOUND TRANSMISSION

The problem of noise will be more acutely found in a boiler house than in any other part of the building, and although there are experts who confess that the greater experience they have the less they know about it, there are certain elementary precautions which must be taken. Where it is impossible to avoid the construction of the boiler house immediately beneath or next to a flat, the ideal solution is to isolate the floor so that no vibrations can be transmitted to the walls, and similarly a false ceiling should be formed with supports independent of the floor above and isolated on pads from the surrounding structure.

All burners, stokers and pumps should be mounted on concrete resting on a thick pad of insulating material, and all pipes protected at their supports. Although the ideal material has yet to be found, some kind of flexible coupling should be formed between the accelerator pumps and the main circulating pipes since, of course, water is one of the best conductors of sound and the hum of a pump can easily be heard all over a building unless the greatest care is taken. Particularly in the case of a boiler house approached directly from an area it is preferable to omit all windows completely and to rely solely on artificial lighting and ventilation, rather than to court almost inevitable disaster due to sound travelling up the well.

Although mechanically a lift motor is better placed at the top of the building, less noise is transmitted if it is at the base, and similar precautions should be taken as for boiler equipment so far as the motor is concerned. Other measures which will assist the silent running of a lift are isolation of the guides at each point of support, rubber buffers to the gates with a bakelite track, and efficient self-closing springs to the doors on each landing. The more usual form of control is by means of a passenger-operated push button, and a speed of at least 200 ft. per minute is advisable for passenger lifts. Now that the construction of lift motors is so much improved it is no longer so necessary as formerly to instal a rectifier in the case of alternating current.

WATER SUPPLY

Anything that will ultimately reduce the running cost of a block of flats is well worth consideration, so that the chances of obtaining an abundant supply of water by means of an artesian well should certainly be investigated. One point (at least in the London area) must, however, be borne in mind ; it is wise to form a connection with the public main supply in case of an involuntary breakdown in the pump or the sudden cessation of the well water, but once the seal on the connection is broken, the owner will become liable for the quarterly rate—even though he only uses a day's supply. But, if after obtaining expert advice, duplicate wells are sunk and prove satisfactory, the interest on the capital sum involved is very considerably less than the cost of the water rate, usually calculated at 6 per cent. of the net rateable value.

Opinions differ as to the amount of water which should be stored, but it will usually be found that an allowance of forty gallons per head daily is sufficient in the case of a main supply. It is best to arrange for a ring main serving each cistern separately, so that each may be disconnected for cleaning purposes. The water pressure in the Metropolitan area is never guaranteed, and in certain districts, if the building is of considerable height, it may be necessary to include an accelerator pump and standby. This, of course, is another source of sound transmission, and the greatest precautions must be taken to insulate the machinery and piping from their surroundings.

It is essential in the case of well supplies, and preferable in mains water, to include some kind of water softening plant ; it occupies very little space, and is neither expensive to instal nor to maintain. It will be necessary to provide storage space for the stocks of salt, and a point worth bearing in mind is that the greater the amount bought at one time, the cheaper its rate per ton. The hardness of London water is proverbial, and not only will the tenants approve of its treatment, but the life of all galvanized pipes will be prolonged ; a maximum hardness of seven degrees is advisable.

RUBBISH DISPOSAL

In this country rubbish disposal usually entails a large expenditure of time and labour. It has been calculated that five minutes will be occupied by a man collecting and disposing of the garbage of each individual flat, cleansing the receptacle and returning it to its appropriate kitchen, so that in a block of one hundred units, it will take three porters working continuously for three hours to carry out the work daily.

If the flats are of the "corridor" type, a constant procession of garbage cans will be met by the tenant as he leaves for work between the hours

of 7 and 10 a.m. It is therefore almost inevitable that some method based on the "Garchey" system of refuse disposal will ultimately be generally adopted in flats and working-class tenements. Already the London County Council has studied its operation in France, and it is understood will sanction its use in the area under its control with certain modifications. Briefly speaking, a special hopper type of sink is fitted in each kitchen with a grid and waste in the centre: thence a six inch waste pipe (which will need to be properly trapped in this country) is carried vertically downwards and suitably ventilated, and ultimately connected to a central container in the basement. Every form of refuse can then be deposited in the hopper, provided it does not exceed the limiting diameter of the 6-in. gauge, the system is flushed by water and carried by gravity and the force of the flow to a hydro-extractor at the bottom of the system. After being mechanically rotated and the superficial water extracted from the refuse by centrifugal force, it is drawn up to a container by vacuum, and an attendant then causes it to fall by means of an operating arm into the incinerator below. Alternatively, after being dried, it can be collected from the container by the municipal authority and removed in the usual way.

It is possible that the housewife will at first be inclined to boggle at boldly depositing a sardine tin down a waste pipe connected to the sink, her probable first reaction being one of fear lest the entire system may become clogged; but its success in France is proof enough of its ultimate practical use in this country.

BUILD SOUNDLY

Much might be written of the lesser details which play their part in making a particular block of flats rather more habitable than its neighbour, but within the limits of a brief article it is impossible to do more than to emphasize the need not only of building soundly of materials which will reduce the already heavy costs of upkeep, but which also by intelligent foresight, will go a long way towards retaining the value of the building when it is considered as an investment, and not merely as a speculation to be disposed of as rapidly as possible.

LEEDS ROADS AND BRIDGES PLAN

The Leeds Corporation Town Planning and Improvements Committee has approved a five-year plan for the construction of new roads and bridges at a cost of £500,000. The proposals include a four-mile road, 100 feet wide, through one of the city's worst slum areas, and another through the centre of the city starting from the Town Hall.

LAW REPORTS

LONDON BUILDING ACT—IMPORTANT DECISION

London County Council v. *Owners of Nos. 11, 13, 15, 17 and 19 Harling Street, Camberwell.—King's Bench Divisional Court. Before Justices Avory, Hawke and Lawrence.*

THIS case raised a point of considerable importance under section 141 (subsection 1) of the London Building Act, 1930. It came before the Court on a special case stated by the stipendiary of Clerkenwell Police Court, by way of appeal by the London County Council from the magistrate's decision on a summons issued by the Council against the owners of Nos. 11, 13, 15, 17 and 19 Harling Street, Camberwell.

Mr. C. M. Picciotto appeared for the Council and Mr. W. E. P. Done for the respondents, the owners.

Mr. Picciotto said the summons was issued for the purpose of recovering from the owners £119, the expenses of carting away the debris and material which resulted from the work of the demolition and reconstruction of the houses that had been carried out under the supervision of Messrs. Holland and Hannen and Cubitts Ltd., the building contractors. The magistrate had issued orders on all the owners for amounts varying from £16 to £108, but he made certain reductions in some of the claims. He arrived at his decision by taking two matters into consideration. He took the view that had the Council engaged a firm of demolition contractors for the purpose of that work or had Holland, Hannen and Cubitts taken in such a firm, the expense of the cartage would have been avoided. In addition, he said that a further sum of £75 should have come off the claim, because the evidence showed that there was material such as joists, pipes, etc., amongst the debris which could have been sorted and sold *in situ*, which would have realized that sum. He said there was a duty on the Council to see that was done. The contention on behalf of the Council was that the language of the section did not justify the magistrate taking such matters into consideration. In deciding as he had, the magistrate, it was said, had travelled outside his jurisdiction.

Mr. Done, for the respondents, supported the decision of the magistrate. He said the respondents were merely the owners of the ground rents of the houses in question as trustees under a marriage settlement, and had not been brought into the matter until after the work of demolition and reconstruction had taken place. He submitted that whether or no the expenses had been reasonably incurred by the L.C.C. was a question of fact for the magistrate, who had properly gone into the matter and fixed the charges upon the property.

At the conclusion of the arguments the Court dismissed the appeal.

Mr. Justice Avory, in giving judgment, said the question in the case was whether the magistrate had power to reduce the amount of the claim of the Council or whether he was bound to allow the full amount. The owners not having paid the expenses, the matter came before the magistrate. The contention on behalf of the respondents was that the L.C.C. could only recover the amount of expenses reasonably incurred and that the amount of expenses they sought to recover had not been reasonably incurred. He came to the conclusion that the magistrate was right and that he had jurisdiction to decide as he had done, and could make an order fixing the amount of the expenses. In his opinion there was evidence to support the magistrate's decision that the £119 and £75 should be allowed as credits to the property owners and that the appeal failed and should be dismissed with costs.

The other members of the Court concurred and the appeal was accordingly dismissed with costs.

Mr. Picciotto asked for leave to appeal, but the Court refused the application.

TOWN PLANNING ACT

Cockburn v. *Thol—Chancery Division. Before Mr. Justice Bennett.*

THIS was an action arising out of an alleged agreement between two ladies to join in making an application to the Wimbledon Borough Council, as required by the Council's town planning scheme, for the purpose of enabling the plaintiff, Miss Violet F. C. Cockburn, of Lingfield Road, Wimbledon, to erect a dwelling house on certain land. The defendant in the action was Mrs. L. L. Thol, of Peek Crescent, Wimbledon, and in the action Miss Cockburn claimed specific performance of an implied agreement to make the application to the Council.

Sir Herbert Cunliffe, K.C., appeared for the plaintiff, and stated that his client sold to the defendant the house in which she now lived, Redcourt, Peek Crescent, Wimbledon. The transaction took place in July last, Mrs. Thol paying £3,250 for the house and one rood, 28 perches of land. Miss Cockburn retained some 30 perches of land, upon which it was her intention to erect another house, and his instructions were that Mrs. Thol was well aware of this, and that the intention was reflected in the price which Mrs. Thol paid for the property. The Wimbledon Borough Council had a town planning scheme for this particular area, and under it the number of houses that could be erected was limited to four to the acre. His client's case was that it was part of the bargain with Mrs. Thol that Miss Cockburn should erect a house on the remaining land, and, as she had retained less than a quarter of an acre, she now desired to get Mrs. Thol's concurrence in her application to the Council to treat the two plots as one land unit, so that she might be able to erect her house. Unfortunately Mrs. Thol had refused to do this, though she had obtained her house and land at a lower figure than Miss Cockburn would have accepted if she had known that there would have been this refusal.

Mr. Harold Christie, K.C., for Mrs. Thol, said it was not disputed that his client knew that plaintiff contemplated erecting a house on the land, but Mrs. Thol denied that she ever agreed to assist her in the matter.

Evidence was given by the Wimbledon Borough Surveyor, Mr. T. Weston, that

the plans submitted by Miss Cockburn were disapproved because the area was less than a quarter of an acre, and was therefore contrary to the provisions of the Council's town planning scheme, which stipulated for four houses to the acre.

His lordship, after hearing legal argument, held that the action failed, and he dismissed it with costs. In his judgment, his lordship said, the only question he had to determine was whether there was an implied obligation upon Mrs. Thol to concur and join Miss Cockburn in her application to the Council for the purpose of erecting under the scheme a house on the land she had reserved. Having heard the evidence he came to the conclusion that there was no such implied obligation. He proposed to follow the decision laid down by the late Lord Justice James that people should look after their own interests and frame their contracts so as to expressly stipulate what they really meant. The action therefore in his opinion failed.

IN THAT CONTINGENCY

The following query with regard to failure of "black mortar" to harden was recently submitted to the Building Research Station :

¶ *A FIRM of builders' merchants reported a complaint about the quality of black mortar which they had supplied to a customer. The mortar had been used during the past year, and had proved quite satisfactory until the frosts in the winter of 1934–5, when in some of the houses, especially those built since October, 1934, it began to flake and was found on examination not to have hardened. Where the mortar had set the frost had no effect. A sample was submitted for inspection.*

The Building Research Station sent the following reply :

The use of cinders in lime mortars often leads to the development of higher strength than would be obtained by using sand. This is due to the fact that certain constituents of the cinders often show pozzolanic properties (i.e., have the property of combining with lime to form a cementing material). If, however, these pozzolanic properties are absent, the strength of the cinder mortar may fall below that of a sand mortar since the cinder itself, owing to its mechanical properties, may not produce a mortar of such good quality as sand. It seems probable, therefore, that in the present case these pozzolanic properties were absent in the cinders and this appears the more likely when it is considered that the moist conditions necessary for the development of the pozzolanic properties have prevailed during the past months.

It must be realized, however, that the value of the cinders, even assuming that the pozzolanic properties exist, will be entirely lost if the material is unsound, i.e. if it contains a proportion of unburnt coal which on exposure will expand slowly, causing disintegration of the mortar. The presence of unburnt coal is a well-known cause of the failure not only of lime mortars but of concrete products made with aggregates of this type.

Consideration should also be given to the possibility of unsoundness in the lime, the effects of which would be very similar to those due to unburnt coal. A marked excess of fine material in the cinders is also undesirable.

The failure of a mortar to develop strength owing to one or several of these causes and lack of opportunity for the mortar to dry out somewhat renders it more liable to disintegration by frost action.

The addition of a gauging of Portland cement is often to be recommended in such cases although, when used, particular care should be taken to ensure soundness of both lime and cinders. By this means the mortar will develop a good early strength and will then be more resistant to frost. It must be emphasized, however, that a mortar carrying a gauging of Portland cement should be used within two hours of mixing and must not be retempered.

In a further letter the inquirer stated that so far as was known there was no unburnt coal in the ashes and that the same source of supply had been used for a considerable time without any trouble arising. In reply to the statement that moist conditions promoted pozzolanic action, the firm stated that in their experience, when bricks were wet and the weather bad the mortar would not set, as though excessive moisture retarded the set. In dry weather the mortar behaved quite well.

In reply it was pointed out that the actual quantity of unburnt coal necessary to cause unsoundness in mortar need only be quite small and after grinding may not be capable of detection by visual means. A simple test has been devised for this purpose which will be found in Building Research Bulletin No. 5, "The Properties of Breeze and Clinker Aggregates and the Methods of Testing Their Soundness," obtainable from H.M. Stationery Office, price 6d. Although intended originally for aggregates used for concrete, the "pat test" described in this Bulletin may equally well be applied in cases such as the present.

The remark that under damp conditions the mortar does not set bears out the suggestion that, in the cinders used, the pozzolanic properties were absent. In that case the development of strength will depend entirely on drying out and on the process of carbonation, which is slow or absent in very wet conditions such as have prevailed since October, 1934. The mortar has, therefore, developed no strength and is susceptible to attack by frost.

THE BUILDINGS ILLUSTRATED

Sub-Contractors' List

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue :—

Highpoint, Highgate (pages 660-664). General contractors, J. L. Kier & Co., Ltd., who were also responsible for the demolition, excavation, foundations, reinforced concrete and fireproof construction. Sub-contractors : Permanite, Ltd., asphalte and special roofings ; Accrington Brick and Tile Co., bricks ; A. Goldstein & Co. (Glass Merchants), Ltd., glass ; Lenscrete, Ltd., concrete framed windows ; John Elbo, Ltd., cork flooring ; G. N. Haden and Sons, Ltd., central heating, boilers, ventilation and plumbing ; Duncan Watson (Electrical Engineers), Ltd., electric wiring and electric light fixtures ; Shanks & Co., Ltd., sanitary fittings ; Joseph Sankey and Sons, Ltd., steel frames ; Nettlefold and Sons, Ltd., and Oscar Kanter, door furniture ; Williams and Williams, Ltd., casements and window furniture ; Frigidere, Ltd., refrigerators ; Gliksten Doors, Ltd., doors ; P. C. Henderson, Ltd., sliding door gear ; Thomas and Wilson, Ltd., plaster ; A. Bagnall and Sons, Ltd., decorative plaster ; Sharp Bros. and Knight, Ltd., joinery ; Fairways, Ltd., floor tiling ; Minton, Hollins & Co., Ltd., wall tiling ; Easiwork, Ltd., kitchen equipment ; Hammond Bros. and Champness (1933), Ltd., lifts.

King's Court, Ravenscourt Park, W.6 (pages 675-678). General contractors, Prestige & Co., Ltd. Sub-contractors : Caxton Floors, Ltd., floors (fire-resisting) ; Emerson and Norris, Ltd., artificial stone ; V. Ramsden, jointless flooring and wall tiling ; North of England School Furnishing Co., Ltd., internal doors ; Hitchins Flush Woodwork, Ltd., flat entrance doors ; Walter Cassey, Ltd., ironmongery ; Dorman Long & Co., Ltd., steelwork ; Williams, Gamon & Co., Ltd., roof lights ; George Wright (London), Ltd., pavement lights, fire-escape stairs and balustrading to internal stairs ; Marco Refrigerators, Ltd., refrigerators ; Aldous and Campbell, Ltd., lifts ; Haywards, Ltd., gates to luggage lift ; Matthew Hall & Co., Ltd., sanitary plumbing, rainwater plumbing and mechanical ventilation ; Hope's Heating and Lighting, Ltd., central heating and domestic hot water ; Bower Engineering Works, Ltd., electric installation ; Metropolitan Gas Co., gas installation ; Alfred Goslett & Co., Ltd., sanitary fittings and electric fires ; Tett Brothers, Ltd., water softeners ; Cellulin Flooring Co., Ltd., cork flooring ; Stevens and Adams, Ltd., wood block flooring ; Independent Sprinklers, Ltd., sprinkler installation : Lawford Asphalte Co., Ltd., asphalte ; Cement Marketing Co., Ltd., bricks ; Drytone Joinery, Ltd., doors to passenger lifts ; Bucks Domestic Co., kitchen equipment.

Highfield Court, Golders Green (pages 679-682). General contractors, J. L. Kier and Sons, who were also responsible for the reinforced concrete. Sub-contractors : North Middlesex Gas Co., central heating and hot water ; Davis Myer & Co., electrical contractors ; O'Brien, Thomas & Co., Ltd., sanitary fittings ; Mellowes & Co., Ltd., steel windows ; Rayner and Meadows, Ltd., sanitary engineers ; The North of England School Furnishing Co., Ltd., flush doors ; Joseph Sankey and Sons, Ltd., steel door and window linings ; Electrolux, Ltd., refrigerators ; Garton and Thorne, Ltd., Doveroid handrails ; Hendon Joinery Co., joinery ; Ascot Gas Water Heaters, Ltd., multi-point water heaters ; John Elbo, Ltd., cork floors and insulation ; Marbolith Flooring Co., Ltd., composition floors ; Stuarts Granolithic Co., granolithic ; Permanite, Ltd., roofing ; Silexine, Ltd., all exterior concrete finished in Silexine: Light Steelwork (1925), Ltd., railings ; Eaton, Parr and Gibson, Ltd., decorative glasswork.

*

In the advertisement of Messrs. Lewis, Morris & Co., which appears on another page of this issue, there is printed a testimonial from a well-known housing architect which speaks in high terms of the paint they have supplied for housing work over a period of years. For obvious reasons, the name of the architect is not printed, but Messrs. Lewis, Morris & Co. have submitted the original testimonial to us, and we can vouch for its authenticity.

*

In the list of sub-contractors for the Pithead Baths, Snowdown, Kent, published in our issue for April 4, we omitted to state that the Stourbridge Glazed Brick and Fire Clay Co., Ltd., were responsible for the glazed work in the form of tiling and partitions.

*

Messrs. Neilson and Barclay inform us that the cill guard and draught excluder illustrated on page 647 of our issue for April 25 is their Sikrex No. 4 fitting, and not Sikkar, as stated in the letterpress. Sikrex is a development of their original and better-known Sikkar of which it is only about half-size in section. Sikkar is composed of cold die-pressed sections and can be supplied in Dalzo weather-resisting steel, priming painted ; zinc ; aluminium ; nickel silver and stainless steel. Sikrex is composed of extruded sections and is made only in brass.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

ACTON. *Development.* Messrs. Howis and Belcham have submitted plans to the Acton Corporation for the development of the Oldfields estate.

ACTON. *Development.* Messrs. Elgood and Hastie have prepared amended plans for the development of land between Blandford Road and Blenheim Road, Acton.

BALHAM. *Flats.* Mr. A. A. Whyatt, 9, Terrapin Road, S.W.17, propose to erect a block of flats on a site in Trinity Road. The plans have been approved.

BARKING. *Licensed Premises.* Messrs. Watney, Coombe, Reid & Co. are to erect new premises at the corner of Lodge Avenue. The estimated cost of the work is £20,000.

BATTERSEA. *Flats.* The B.C. has approved plans for the erection of the third and fourth blocks of flats on the Stewarts Lane site.

BERMONDSEY. *Development.* The B.C. has approved plans for the development of the Adams Garden area. The scheme includes the erection of two shops and 150 flats.

BURNT OAK. *Stores.* Work has been commenced by the works department of the London Co-operative Society upon the erection of large departmental stores at Stag Lane.

EALING. *Flats.* Plans have been prepared by Messrs. James and Bywaters and Rowland Pierce, architects, for the development of the site of St. Catherine's School, by the erection of a block of 26 three-bedroom flats on the ground and first floors; six three-bedroom maisonettes and 20 two-bedroom maisonettes on the second and third floors.

FELTHAM. *Shops.* The Urban Council has approved plans for the erection of shops and flats in the High Street. The architects are Messrs. Marshall and Tweedy.

FULHAM. *Sub-station.* With the inauguration of the new electricity power scheme, the Borough Council purchased the old can factory adjoining the site as a part of the site for the new power station. It has now been decided to convert this building into the main sub-station, and plans have been prepared by the Electrical Engineer for its conversion. The cost is estimated at £77,000, made up as follows: Alterations to buildings, £22,000; switchgear, cable work and diversion of cables, £55,000.

FULHAM. *Home and Clinic.* The Borough Surveyor has prepared plans for the proposed erection of a maternity home and clinic, at a total estimated cost of £41,450.

HAMMERSMITH. *Development.* The London Co-operative Society has acquired 13/22, Bradmore Grove for development at an early date.

HANWORTH. *Factory.* A new factory is to be erected at Hampton Road. The architect is Mr. W. H. Smith.

ROMFORD. *Stores.* Land has been purchased at Eastern Avenue by the London Co-operative Society for the erection of stores.

ST. PANCRAS. *Flats.* The B.C. is to prepare plans for the erection of another two blocks of tenements on the Ferdinand Place area.

STREATHAM. *Flats and Shops.* The Wandsworth Borough Council has decided to proceed with the development of the Greyhound Square and Barrow Road area by the erection of 42 flats and eight shops. The estimated cost of the buildings is £31,297.

TOOTING. *Flats.* Mr. G. Leonard Elkington, F.R.I.B.A., has prepared plans for the Wandsworth Borough Council for the erection at Tooting Grove, of three-storeyed blocks of flats. Messrs. L. A. Francis and Sons have been appointed as quantity surveyors.

TOTTENHAM. *Swimming Bath.* The Corporation is to obtain possession of the site at Broadwater Farm required for the construction of an open-air bath.

TOTTENHAM. *Cinema and Shops.* Mr. W. J. King has submitted plans to the Tottenham Corporation for the erection of a cinema and five shops in Green Lanes.

TWICKENHAM. *Showroom and Garage.* Messrs. Brewer, Smith and Brewer, Richmond, have prepared plans for the erection, on a site in Heath Road, of a sales showroom and garage on the ground floor, and a showroom and offices above, for John Knowles & Co., Ltd.

UPPER TOOTING. *Shops.* Mr. C. Swain propose to erect a block of shops with flats over at the junction of Topsham Road and Brudenell Road, Upper Tooting Road.

WEST HAM. *Development.* A site has been acquired by the London Co-operative Society at 52/52A Church Street, for future development.

SOUTHERN COUNTIES

ASHFORD (KENT). *Factory.* A factory is to be erected on a site in Beaver Road, for Messrs. Norman Bros., cycle manufacturers.

BRIGHTON. *Houses, etc.* Plans passed by the Corporation: Six houses, Saltdean estate, for Saltdean Estate Co., Ltd.; nine flats, Windlesham Gardens, for Mr. Ernest Davis; offices and flat, North Street, for Messrs. Brabons, Ltd.; 40 houses, Ladies Mile estate, Patcham, for Ladies Mile Estate, Ltd.; two houses, Wilmington Way, for Mr. C. W. Parkes; alterations, Cranbourne Arms, Cranbourne Street, for Tamplins Brewery, Ltd.; block of shops, offices and flats, 144-156, Western Road, for International Tea Stores Development Co., Ltd.; shop, London Road, for Messrs. Marks and Spencer, Ltd.; four bungalows, Linchmere Avenue, for Mr. Hubert H. Edwards; extensions, Tudor Close Hotel, Dean Court Road, Rottingdean, for Saltdean Estate Co., Ltd.; two cottages, Woodingdean, for Mr. William A. Cowley; six houses, Beacon Hill, Ovingdean, for Mr. M. E. Millarship.

BRIGHTON. *Houses.* The Ministry of Health has approved the scheme of the Brighton Corporation for the erection of 354 houses on the Manor Farm estate.

BRIGHTON. *Buildings.* The Corporation is to erect a block of buildings at the corner of St. George's Road and College Road. Tenders are now to be obtained.

BOURNEMOUTH. *Buildings.* The Corporation has approved a site at Charminster for the erection of new buildings, at a cost of £50,000, for the Bournemouth School.

BOURNEMOUTH. *Fire Station.* The Corporation Fire Brigade Committee recommends the completion of the central fire station in Holdenhurst Road, at a cost of £10,000.

BOURNEMOUTH. *Lay-out of Pier Approach.* The Corporation has obtained sanction to borrow £8,000 for the lay-out of the pier approach.

BOURNEMOUTH. *Extensions to School.* The Education Committee has obtained sanction for a loan of £13,650 for the erection of a new senior department at the East Howe school.

BOURNEMOUTH. *Developments, etc.* Plans passed by the Corporation: Estate development, Branksome Hill Road, for Messrs. Hankinson and Son; six flats, Wilson Road, for Mr. F. Hall; three bungalows, Hillview Road, for Mr. J. C. Jones; eight houses, Solent Road, for Messrs. Rosser and Sturman; 24 houses, Carlyle Road, for Messrs. Garrett and Sons; three houses, Redhill Drive, for Messrs. F. C. White, Ltd.; four houses, Muscliff Lane, for Mr. H. H. Dyer; three houses, Rushmere Road, for Mr. S. E. Richards; 32 houses, Broughton Avenue, for Davis Estates, Ltd.

FRINTON. *Hotel.* Final approval has now been granted Mr. Gerald Bradley for the erection of a hotel, between Frinton and Walton-on-the-Naze. The hotel, which is to cost between £70,000 and £80,000, will contain 103 bedrooms. In addition, the L.N.E.R. has agreed to erect a railway station on the estate, which has already been developed.

LITTLEHAMPTON. *Houses, etc.* Plans passed by Littlehampton U.D.C.: Six houses, Rustington Towers estate, for Messrs. H. Parker & Co.; 26 houses, Milton Avenue, for Mr. C. Swain; three shops and houses, Wick Street, for Mr. C. W. Alliston; two bungalows, Lansdowne Road, for Messrs. W. J. White and Sons, Ltd.

NORTHERN COUNTIES

STRETFORD. *Extensions, etc.* Plans passed by the Corporation: Warehouse extension, Ayres Road, for Messrs. Switchgear and Cowans, Ltd.; stand and refreshment bar, County Cricket Ground, for Lancs. County Club; car park and pavilion, Trafford Hotel, Chester Road, for Messrs. Walker and Homfray, Ltd.; works dining-room, Blackburn Street, for Messrs. J. Lyons & Co., Ltd.

WALLSEND. *Housing Scheme.* The Corporation has purchased 16 acres in the east end of the town for a housing scheme.

WALLSEND. *Welfare Centre, etc.* The Corporation is in negotiation for a site near Wallsend Hall Grounds, for the erection of a maternity, child welfare centre and school clinic.

WALLSEND. *Houses.* The Corporation has asked the borough engineer to prepare plans for the erection of houses at the junction of Coast Road and Station Road.

WALLSEND. *Church Institute, etc.* Plans passed by the Corporation: Church institute, Station Road, for Methodist church trustees; business premises, Coach Open, for Mr. W. R. Brayley; club extension, High Street East, for British Legion; centre and clinic, Willington Quay, for Northumberland County Nursing Association; houses, Westfield Estate, for Mr. J. H. James; houses, High Howden Estate, for Mr. Geo. Telford. Plans submitted: 70 houses, Rosehill Estate, for Northern Homes and Estates, Ltd.

SCOTLAND

GLASGOW. *Church.* The Rev. W. H. Harrowes, on behalf of the Presbytery of Glasgow, has acquired a site from the Glasgow Corporation at Seres Road, Williamwood, for the erection of a church.

GLASGOW. *Branch Library.* The Corporation is to schedule a site on the Househillwood estate for the erection of a branch library.

GLASGOW. *Church.* The Home Mission Committee of the Church of Scotland has obtained a site from the Glasgow Corporation on the Househillwood estate for the erection of a church.

GLASGOW. *Extensions.* The Education Committee is to prepare a scheme for improvements at Maryhill school.

GLASGOW. *Shops, Factories, etc.* Plans passed by the Corporation: Shop, Sunnylaw Street, for Mr. Felix M'Court; workshop, Fauldhouse Street, for Robert Reid trustees; buildings, Cumbernauld Road, for Scottish Milk Marketing Board; factory, Anniesland, for Messrs. Farquharson Bros.; garage extension, Knightswood Avenue, for Knightswood Motors, Ltd.; workmen's hostel, Gallowgate, for Mr. Thomas Roger; factory, Copland Road, for Messrs. R. A. Peacock and Son, Ltd.; alterations, Gaiety Theatre Anderston Cross, for Anderson Picture House and Variety Theatres, Ltd.

GLASGOW. *Extensions to Library.* The Corporation recommends proceeding with the scheme for extensions at the Mitchell Library and asked the Libraries Committee to consider the question of the appointment of an architect.

WALES

SWANSEA. *Development.* Mr. W. G. Christians is to develop the Bryn estate, Derwen Fawr, Swansea.

SWANSEA. *Bathing Pool.* The Corporation is considering a scheme prepared by Messrs. L. G. Mouchel and Partners, Ltd., for the construction of a bathing pool on the foreshore.

SWANSEA. *Houses, etc.* Plans passed by the Corporation: Eight houses, Gower Road, for Mr. A. Williams; bakehouse, Fabian Street, for Mr. Wm. Ackland; nine houses, Carmarthen Road, for Mr. J. C. Oliver; two houses, Carmarthen Road, for Mr. W. Evans; 12 houses, Pentregethin Road, for Messrs. Wendells, Ltd.; two houses, Pembroke Street, for Messrs. J. Jewell and Sons; six houses, Heol-y-gors, for Mr. C. Tyler; four houses, Lon Cadog, for Mr. Dan Griffiths; two houses, Overland Road, for Mr. J. O. Watkins; stores, Cockett New Road, for Messrs. R. P. Culley and Co.; 12 houses, Gower Road, for Messrs. T. and G. Spragg; shop, Main Road, The Dunns, for Messrs. W. and T. Benyon; rebuilding premises, Waterloo Street and Park Street, for Messrs. A. Chidzoy and Co.

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on-Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B_1	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_2	Bovey Tracey ..	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M.	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A_2	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett	N.E. Coast	1 5	1 0½
A_1	Conway	N.W. Counties	1 4½	1 0½
A_2	Coventry	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON ..	N.E. Coast	1 5½	1 1½
A	Darwen	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot	S. Counties	1 3½	11
A	Doncaster ..	Yorkshire	1 5½	1 1
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee	Scotland	1 5½	1 1½
A	Durham ..	N.E. Coast	1 5½	1 1½
A_2	EASTBOURNE ..	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorgan-shire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE ..	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S.W. Counties	1 2½	11
A	GATESHEAD ..	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W.Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich	E. Counties	1 3½	11½
B_1	Hastings	S. Counties	1 3	11½
A_2	Hatfield	S. Counties	1 4½	1 0½
B	Hereford	S.W. Counties	1 3½	11½
A_2	Hertford	E. Counties	1 4½	1 0½
A	Heysham	N.W. Counties	1 5½	1 1½
A	Howden	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_2	Kendal	N.W. Counties	1 4	1 0
A_2	Keswick	N.W. Counties	1 4	1 0
A_1	Kettering	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12-15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N. E. Coast	1 5½	1 1½
A_2	Middlewich ..	N. W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid. Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_3	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_2	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD ..	Yorkshire	1 5½	1 1½
A	Walsall	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid. Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby	Yorkshire	1 4½	1 0½
A	Widnes	N.W. Counties	1 5½	1 1½
A	Wigan	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	,,	1	7
Joiner	,,	1	7
Machinist	,,	1	8
Mason (Banker)	,,	1	7
,, (Fixer)	,,	1	8
Plumber	,,	1	7
Painter	,,	1	6
Paperhanger	,,	1	6
Glazier	,,	1	7
Slater	,,	1	7
Scaffolder	,,	1	3
Timberman	,,	1	3
Navvy	,,	1	2½
General Labourer	,,	1	2½
Lorryman	,,	1	5
Crane Driver	,,	1	6
Watchman	per week	2	10	0

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	,,	1	16	6
Hydrated Lime	,,	3	0	9
Portland Cement, in 4 ton lots (d/d site, including Paper Bags)	,,	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	,,	2	6	0
White Portland Cement, in 1-ton lots	,,	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	,,		6	9
Building Sand	,,		7	3
Washed Sand	,,		8	3
2" Broken Brick	,,		8	0
¾" ,, ,,	,,		10	3
Pan Breeze	,,		6	6
Coke Breeze	,,		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	,,	3	6	5	3
Rest Bends	,,	4	3	6	3
Single Junctions	,,	3	6	5	3
Double ,,	,,	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¾" Channel bends	each	2	9	4	0
Channel junctions	,,	4	6	6	6
Channel tapers	,,	2	9	4	0
Yard gullies	,,	6	9	8	9
Interceptors	,,	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	,,	9	0	15	0
Single junctions	,,	8	9	18	0
Double junctions	,,	13	6	30	0
Lead Wool	lb.		6		—
Gaskin	,,		5		—

BRICKLAYER

		£	s.	d.
Flettons	per M.	2	15	0
Grooved do.	,,	2	17	0
Phorpres bricks	,,	2	15	0
,, Cellular bricks	,,	2	15	0
Stocks, 1st quality	,,	4	11	0
,, 2nd ,,	,,	4	2	6
Blue Bricks, Pressed	,,	8	17	6
,, Wirecuts	,,	7	17	6
,, Brindles	,,	7	0	0
,, Bullnose	,,	9	0	0
Red Sand-faced Facings	,,	6	18	6
Red Rubbers for Arches	,,	12	0	0
Multicoloured Facings	,,	7	10	0
Luton Facings	,,	7	10	0
Phorpres White Facings	,,	3	17	3
,, Rustic Facings	,,	3	12	3
Midhurst White Facings	,,	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	,,	21	0	0
Headers	,,	20	10	0
Bullnose	,,	27	10	0
Double Stretchers	,,	29	10	0
Double Headers	,,	26	10	0
Glazed Second Quality, *Less*	,,	1	0	0
,, Buffs and Creams, *Add*	,,	2	0	0
,, Other Colours	,,	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" ,, ,, ,,	,,		1	10
3" ,, ,, ,,	,,		2	1
4" ,, ,, ,,	,,		2	6

MASON

The following d/d F.O.R. at Nine Elms:		s.	d.
Portland stone, Whitbed	F.C.	4	4½
,, ,, Basebed	,,	4	7½
Bath stone	,,	2	10
York stone	,,	6	6
,, ,, Sawn templates	,,	7	6
,, ,, Paving, 2"	F.S.	1	8
,, ,, ,, 3"	,,	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24"×12" Duchesses	per M.	28	17	6
22"×12" Marchionesses	,,	24	10	0
20"×10" Countesses	,,	19	5	0
18"×10" Viscountesses	,,	15	10	0
18"×9" Ladies	,,	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20"×10" medium grey	per 1,000 (actual)	21	11	6
,, ,, green ,,	,,	24	7	4
Best machine roofing tiles	,,	4	10	0
Best hand-made do.	,,	5	0	0
Hips and valleys	each			9½
,, hand-made	,,			10
Nails, compo	lb.		1	4
,, copper	,,		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	,, ,,		5
,, ,, 2nds	,, ,,		4
Mahogany, Honduras	,, ,,	1	3
,, African	,, ,,	1	1
,, Cuban	,, ,,	2	6
Oak, plain American	,, ,,	1	0
,, Figured ,,	,, ,,	1	3
,, plain Japanese	,, ,,	1	2
,, Figured ,,	,, ,,	1	5
,, Austrian wainscot	,, ,,	1	6
,, English	,, ,,	1	11
Pine, Yellow	,, ,,	1	0
,, Oregon	,, ,,		4
,, British Columbian	,, ,,		4
Teak, Moulmein	,, ,,	1	3
,, Burma	,, ,,	1	2
Walnut, American	,, ,,	2	3
,, French	,, ,,	2	3
Whitewood, American	,, ,,	1	1
Deal floorings, ⅞"	Sq.	18	6
,, 1"	,,	1	6
,, 1¼"	,,	1	2
,, 1½"	,,	1	5
,, 2"	,,	1	10
Deal matchings ⅞"	,,	14	0
,, 1¼"	,,	15	6
,, 1"	,,	1	4
Rough boarding ¾"	,,	16	0
,, 1"	,,	18	0
,, 1¼"	,,	1	6

Plywood, per ft. sup.

Thickness	⅜" d.	½" d.	¾" d.	¼" d.
Qualities	AA.A.B.	AA.A.B.	AA.A.B.	AA.A.B.
Birch	4 3 2	5 4 3	7½ 6 4½	8½ 7 6
Alder	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6
Gaboon Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –
Figured Oak 1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –
Plain Oak 1 side	6½ 6 –	7½ 7 –	9½ – –	1/– – –
Oregon Pine	5 4 –	5½ 5 –	6 – –	– – –

	d.
Scotch glue	lb. 8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	½"	¾"	1"	1½"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23" long each	10	1/1	1/11	2/8	4/9
,, 3"-11½" long ,,	7	9	1/3	1/8	3/–
Long screws, 12"-23½" long ,,	11	1/3	2/2	2/10	5/3
,, ,, 3"M-½" long ,,	8	10	1/5	1/11	3/6
Bends ,,	8	11	1/7½	2/7½	5/2
Springs not socketed ,,	5	7	1/1½	1/11½	3/11
Socket unions ,,	2/–	3/–	5/6	6/9	10/–
Elbows, square ,,	10	1/1	1/6	2/2	4/3
Tees ,,	1/–	1/3	1/10	2/6	5/1
Crosses ,,	2/2	2/9	4/1	5/6	10/6
Plain sockets and nipples ,,	3	4	6	8	1/3
Diminished sockets ,,	4	6	9	1/–	2/–
Flanges ,,	9	1/–	1/4	1/9	2/9
Caps ,,	3½	5	8	1/–	2/–
Backnuts ,,	2	3	5	6	1/1
Iron main cocks ,,	1/6	2/3	4/2	5/4	11/6
,, with brass plugs ,,	—	4/–	7/6	10/–	21/–

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	,, water	47½
Steam	57½	,, steam	42½

FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	,, water	42½
Steam	47½	,, steam	37½

SMITH AND FOUNDER—*continued.*

		s.	d.
Rolled steel joists cut to length	cwt.	10	0
Mild steel reinforcing rods, ⅜"	,,	8	6
,, ,, ½"	,,	8	3
,, ,, ⅝"	,,	8	0
,, ,, ¾"	,,	7	6
,, ,, ⅞"	,,	7	6
,, ,, 1"	,,	7	6
,, ,, 1¼"	,,	7	6
,, ,, 1½"	,,	7	6

		3" s.	3" d.	4" s.	4" d.
Cast-iron rain-water pipes of ordinary thickness metal	F.R.		8		10
Shoes	each	2	0	3	0
Anti-splash shoes	,,	4	6	8	0
Boots	,,	3	0	4	0
Bends	,,	2	7	3	9
,, with access door	,,		—	6	3
Heads	,,	4	0	5	0
Swan-necks up to 9" offsets	,,	3	9	6	0
Plinth bends, 4½" to 6"	,,	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal	F.R.		5		6
Stop ends	each		6		6
Angles	,,	1	7	1	11
Obtuse angles	,,	2	0	2	6
Outlets	,,	1	9	2	3

PLUMBER

		s.	d.
Lead, milled sheets	cwt.	18	6
,, drawn pipes	,,	17	0
,, soil pipe	,,	18	6
,, scrap	,,	10	6
Solder, plumbers'	lb.		9½
,, fine do.	,,	1	0
Copper, sheet	,,		8½
,, tubes	,,		11

L.C.C. soil and waste pipes:	3"	4"	6"
Plain cast F.R.	1 0	1 2	2 6
Coated ,,	1 1	1 3	2 8
Galvanized ,,	2 0	2 6	4 6
Holderbats each	3 10	4 0	4 9
Bends ,,	3 9	5 3	10 3
Shoes ,,	2 10	4 4	9 6
Heads ,,	4 8	8 5	12 9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	,,	2	10	0
,, fine	,,	4	15	0
Hydrated lime	,,	3	0	9
Sirapite	,,	3	6	0
Keene's cement	,,	5	0	0
Gothite Plaster	,,	3	6	0
Pioneer Plaster	,,	3	3	0
Thistle plaster	,,	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
,, rent	,,		3	9
Lath nails	lb.			3

GLAZIER

	s.	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.			s. F.S.	2½
,, ,, 26 oz. ,, ,,			,,	3
Flemish, Arctic, Figures (white)*			,,	7
Blazoned glasses			,,	2 6
Reeded; Cross Reeded			,,	11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite			,,	6
Crown sheet glass (n/e 12 in. x 10 in.)			,,	2 0
Flashed opals (white and coloured)	,, 1 0 and		,,	2 0
⅛" rough cast; rolled plate			,,	5½
⅛" wired cast; wired rolled			,,	9½
⅛" Georgian wired cast			,,	11
¼" Polished plate, n/e 1 ft.			†10 to	‡1 1
,, ,, 2 ,,			†1 2 ,,	‡1 4
,, ,, 4 ,,			†2 3 ,,	‡2 6
,, ,, 8 ,,			†2 9 ,,	‡3 2
,, ,, 20 ,,			†3 7 ,,	‡4 2
,, ,, 45 ,,			†3 11 ,,	‡4 7
,, ,, 100 ,,			†5 0 ,,	‡5 7
Vita glass, sheet, n/e 1 ft.			,,	1 0
,, ,, ,, 2 ft.			,,	1 3
,, ,, ,, over 2 ft.			,,	1 9
,, ,, plate, n/e 1 ft.			,,	1 6
,, ,, ,, 2 ft.			,,	3 0
,, ,, ,, 5 ft.			,,	4 0
,, ,, ,, 7 ft.			,,	5 0
,, ,, ,, 15 ft.			,,	6 0
,, ,, ,, over 15 ft.			,,	7 6
"Calorex" sheet 21 oz., and 32 oz.			,, 2 6 and	3 6
,, rough cast ⅛" and ¼"			,, 8½ ,,	1 0
Putty, linseed oil			lb.	3

* *Colours, 1d. F.S. extra.*
† *Ordinary glazing quality.* ‡ *Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	6	0
Linseed oil	gall.		2	2½
Boiled oil	,,		2	4½
Turpentine	,,		4	1½
Patent knotting	,,		14	0
Distemper, washable	cwt.	2	6	0
,, ordinary	,,	2	0	0
Whitening	,,		4	0
Size, double	firkin		3	0
Copal varnish	gall.		13	0
Flat varnish	,,		14	0
Outside varnish	,,		16	0
White enamel	,,	1	15	0
Ready mixed paint	,,		13	6
Brunswick black	,,		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR		£ s. d.
Digging over surface n/e 12" deep and cart away	Y.S.	2 9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.	8 6
" to form basement n/e 5' 0" and cart away	"	9 0
" " 10' 0" deep and cart away	"	9 6
" " 15' 0" deep and cart away	"	10 0
If in stiff clay	add "	6
If in underpinning	"	4 0
Planking and strutting to sides of excavation	F.S.	1 0
" " to pier holes	"	5
" " to trenches	"	5
" " extra, only if left in	"	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	"	1 6 0
" " (4-2-1)	"	1 12 6
" " underpinning	"	1 16 0
Finishing surface of concrete, space face	Y.S.	7

DRAINLAYER		4" s. d.	6" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER		£ s. d.
Brickwork, Flettons in lime mortar	Per Rod	27 10 0
" " in cement	"	28 15 0
" Stocks in cement	"	35 0 0
" Blues in cement	"	52 0 0
Extra only for circular on plan	"	2 0 0
" backing to masonry	"	1 10 0
" raising on old walls	"	2 0 0
" underpinning	"	5 10 0½
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	"	8
" " " red brick facings and pointing	"	11
" " " blue brick facings and pointing	"	1 4
" " " glazed brick facings and pointing	"	3 6
Tuck pointing	"	7½
Weather pointing in cement	"	3
Slate dampcourse	"	10
Vertical dampcourse	"	1 1

ASPHALTER		s. d.
½" Horizontal dampcourse	Y.S.	4 6
½" Vertical dampcourse	"	6 9
¾" paving or flat	"	4 0
1" paving or flat	"	5 6
1" × 6" skirting	F.R.	1 0
Angle fillet	"	2
Rounded angle	"	2
Cesspools	Each	5 0

MASON		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	"	13 6
Artificial stone and do	"	13 0
York stone templates, fixed complete	"	10 6
" thresholds	"	13 6
" sills	"	1 0 6

SLATER AND TILER		£ s. d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3 10 0
Do., 18" × 9"	"	3 7 0
Do., 24" × 12"	"	3 17 0
Westmorland slating, laid with diminished courses	"	6 0 0
Tiling, best hand-made sand-faced la,id to a 4" gauge, nailed every fourth course	"	3 0 0
Do., all as last, but of machine-made tiles	"	2 16 0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	2 16 0
" " " " " (green)	"	4 15 0

CARPENTER AND JOINER		£ s. d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2 5 0
Shuttering to sides and soffits of beams	F.S.	8
" to stanchions	"	8
" to staircases	"	1 8
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	"	4 6
" " roofs	"	6 6
" " trusses	"	7 6
" " partitions	"	8 6
¾" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" " " " "	"	1 17 6
1¼" " " " "	"	2 3 0
¾" × 2" fir battening for Countess slating	"	9 6
Do. for 4" gauge tiling	"	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
" " " 2 "	"	2 9
" " " 3 "	"	3 3
Stout herringbone strutting to 9" joists	F.R.	10½
1" deal gutter boards and bearers	F.S.	1 2
1¼" " " "	"	1 6
2" deal wrought rounded roll	F.R.	8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼" do.	"	2 10 0
1½" do.	"	2 17 0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1¼" do.	"	1 9

CARPENTER AND JOINER—*continued*		s. d.
1¼" deal moulded sashes of average size	F.S.	1 9½
2" " " "	"	1 11½
1¼" deal cased frames double hung, of 6" × 3" oak sills, 1¼" pulley stiles, 1¼" heads, 1" inside and outside linings, ⅝" parting beads, and with brass faced axle pulleys, etc., fixed complete	"	3 7
2" " " " "	"	3 10
Extra only for moulded horns	Each	6
1¼" deal four-panel square, both sides, door	F.S.	2 0
2" " " " "	"	2 8
1½" " but moulded both sides	"	2 4
2" " " " "	"	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" " " "	"	1 4
1¼" deal tongued and moulded windo board, on and including deal bearers	F.S.	1 9
1¼" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
1¼" deal moulded wall strings	"	2 1
1¼" " outer strings	"	2 4
Ends of treads and risers housed to string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1¼" × 1¼" " " " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

SMITH AND FOUNDER		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	15 6
Riveted plate or compound girders, and hoisting and fixing in position	"	19 6
Do., stanchions with riveted caps and bases and do.	"	19 0
Mild steel bar reinforcement, ¼" and up, bent and fixed complete	"	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER		£ s. d.
Milled lead and labour in flats	cwt.	1 12 0
Do. in flashings	"	1 15 6
Do. in covering to turrets	"	2 3 0
Do. in soakers	"	1 7 6
Labour to welted edge	F.R.	3½
Open copper nailing	"	3
Close " "	"	4

		½" s. d.	¾" s. d.	1" s. d.	1¼" s. d.	2" s. d.	4" s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks		—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	3 9	5 0	8 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—

		s. d.
4" cast-iron ½-rd. gutter and fixing	F.R.	1 0
Extra, only stop ends	Each	1 0
Do. angles	"	1 6
Do. outlets	"	2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1 2
Extra, only for shoes	Each	1 3
Do. for plain heads	"	5 6

PLASTERER AND TILING		s. d.
Expanded metal lathing, small mesh	Y.S.	2 0
Do. in n/w to beams, stanchions, etc.	"	2 9
Lathing with sawn laths to ceilings	"	1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1 5
Do. vertical	"	1 7
Rough render on walls	"	1 2½
Render, float and set in lime and hair	"	1 9
Render and set in Sirapite	"	1 11
Render, backing in cement and sand, and set in Keene's cement	"	2 9
Extra, only if on lathing	"	4
Keene's cement, angle and arris	F.R.	6
Arris	"	1½
Rounded angle, small	"	3
Plain cornices in plaster, including dubbing out, per 1" girth	"	1½
1" granolithic pavings	Y.S.	3 6
1½" " "	"	4 6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17 6
9" × 3" " " " "	"	1 2 6
Extra, only for small quadrant angle	F.R.	8

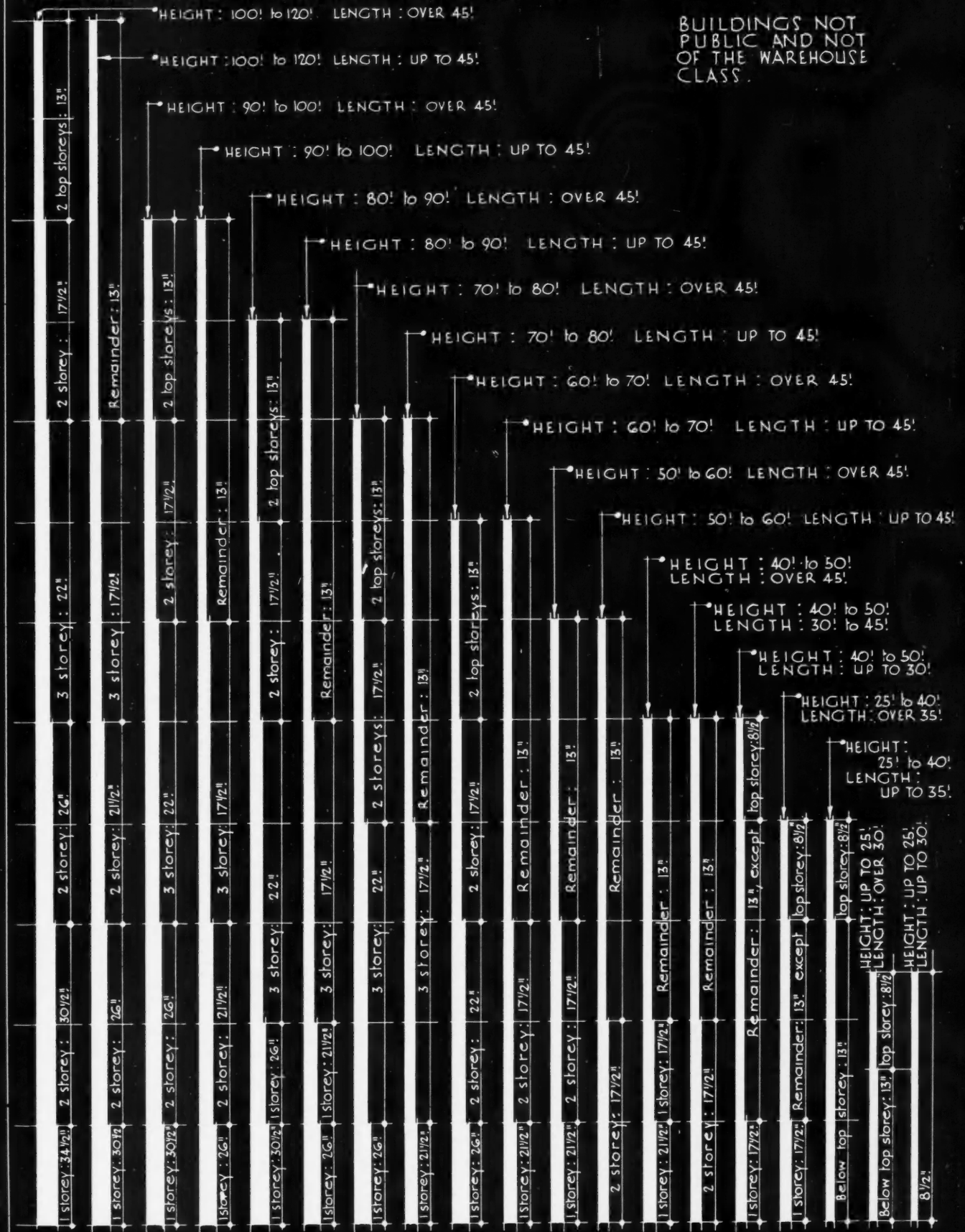
GLAZIER		s. d.
21 oz. sheet glass and glazing with putty	F.S.	7½
26 oz. do. and do.	"	8½
Flemish, Arctic Figured (white) and glazing with putty	"	1 1
Cathedral glass and do.	"	1 2
Glazing only, British polished plate	"	7
Extra, only if in beads	"	2
Washleather	F.R.	4

PAINTER		s. d
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	"	9
Do. with washable distemper	"	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3 3
Do. on woodwork	"	3 6
Do. on steelwork	"	3 0
Do. and brush grain and twice varnish	"	5 6
Stain and twice varnish woodwork	"	1 11
Stain and wax-polish woodwork	"	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper from	"	2 9

14.

24.11.34

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INFORMATION SHEET : PERMISSIBLE THICKNESSES OF EXTERNAL & PARTY WALLS.

24 II 34. SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1.

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INFORMATION SHEET
• 213 •
BRICKWORK

This Sheet sets out diagrammatically the maximum heights and lengths of Brick walls of various thicknesses, as permitted under the London Building Act, 1930, for Buildings not Public and not of the Warehouse class. The following paragraphs are relevant extracts from the Act.

THE SECOND SCHEDULE.
PART I. GENERAL.

Interpretation.

1. In this schedule the expression " the prescribed material " means bricks not less than eight and a half inches long or stone or other blocks of hard and incombustible substance.

Construction of Walls of Brick Stone, etc.

2 (1) Every wall constructed of brick stone or other similar substance shall be properly bonded and solidly put together with mortar or cement and no part of any such wall shall overhang any part underneath it except to the extent of six inches and except on condition that the projection is well and solidly corbelled out and that the side of the wall opposite to the corbelling is carried up vertically in continuation of the inner face thereof.

(2) All return walls shall be properly bonded together.

Footings of Walls.

3. Every wall other than a wall carried on a bressummer shall unless the Council otherwise allow have footings and the following provisions shall have effect with respect to such footings (that is to say) :—

(a) the footings shall rest on the solid ground or on concrete or on other solid sub-structure ;

(b) the projection of the bottom of the footing of every wall on each side thereof shall be at least equal to one-half of the thickness of the wall at its base so however that where an adjoining wall interferes the projection may be omitted where that wall adjoins ;

(c) the diminution of the footing of every wall shall be formed in regular offsets ;

(d) the height from the bottom of the footing to the base of the wall shall be at least equal to two-thirds of the thickness of the wall at its base :

Provided that where an external wall is built against another external wall or against a party wall it shall be lawful for the district surveyor to allow the footing of the side of the first-mentioned external wall next to the other external wall or to the party wall to be omitted.

Underpinning.

4. The underpinning of walls and chimneys shall be built with brick or stone bedded in cement to the full thickness of the old wall or work and with proper footings or to an additional thickness if the increased height of the wall so requires and shall rest on the solid ground or on concrete or on other solid sub-structure as a foundation and the whole shall be executed to the satisfaction of the district surveyor.

Thickness of External and Party Walls.

5 (1) Every external or party wall being a wall constructed of the prescribed material laid in horizontal beds or courses shall be of the thickness required by Part II or Part III of this schedule as the case may be.

(2) Every external or party wall not being a wall constructed of the prescribed material laid in horizontal beds or courses shall be of a thickness greater by one-third than the thickness so required as aforesaid.

(3) Any external or party wall of any dwelling-house or building of the warehouse class not being a wall constructed of the prescribed material shall be deemed to be of sufficient thickness if it is of the thickness required by Part II or Part III of this schedule or of such thickness as may be approved by the Council.

Thickness of Cross-walls.

6. The thickness of every cross-wall shall be two-thirds of the thickness hereinbefore required for an external or party wall of the same dimensions and belonging to the same class of buildings but never less than eight and a half inches :

Provided that—

(1) no wall sub-dividing any building shall be deemed to be a cross-wall unless it is carried up to the floor of the topmost storey and unless in each storey the aggregate extent of the vertical faces or elevations of all the recesses and of all the openings therein taken together does not exceed one-half of the whole extent of the vertical face or elevation of the wall ; and

(2) wherever a cross-wall becomes in any part an external wall such cross-wall shall be of the thickness hereinbefore required for an external wall of the same height and length and belonging to the same class of buildings.

Thickness of Hollow Walls.

7. When hollow walls are constructed there shall be a wall on one side of the hollow space of the full thickness prescribed by this Act.

Increased Thickness may be Confined to Piers in Certain Cases.

8. Where an increase of thickness is by any rule of Part II or Part III of this schedule required in case of a wall exceeding sixty feet in height and forty-five feet in length or in case of a storey exceeding in height sixteen times or fourteen times (as the case may be) the thickness prescribed for its walls or in case of a wall below such storey the increased thickness may be confined to piers properly distributed of which the collective widths amount to one-fourth part of the length of the wall.

Thickening of Walls.

9. A wall shall not be thickened except after notice served on the district surveyor of the intention to thicken and the thickening shall be executed with brick or stone work in cement properly bonded to the old work to the satisfaction of the district surveyor.

Height of External and Party Walls.

10. For the purpose of determining the thickness of a wall the height of such wall shall be measured from the base of the wall to the top of the topmost storey whether such wall is carried to the full height or not or in case of a gable when there are no storeys in the roof to half the height of the gable.

Length of Walls.

11. Walls shall be deemed to be divided into distinct lengths by return walls and the length of every wall shall be measured from the centre of one return wall to the centre of another. For the purposes of this paragraph the expression " return walls " means such return walls as are external party or cross-walls of the thickness required by this schedule and are bonded into the walls the lengths whereof they divide.

Height of Storeys.

12. The height of storeys shall be measured as follows :—

(a) the height of a topmost storey shall be measured from the level of the underside of its floor joists up to the level of the undersurface of the tie of the roof or other covering or if there is no tie then up to the level of half the vertical height of the rafters or other support of the roof ;

(b) the height of every storey other than a topmost storey shall be measured from the level of the underside of the floor joists of the storey up to the level of the underside of the floor joists of the storey next above it.

PART II.
BUILDINGS NOT BEING PUBLIC BUILDINGS OR BUILDINGS OF THE WAREHOUSE CLASS

Condition in Respect of Storeys Exceeding Certain Height.

3. If any storey exceeds in height sixteen times the thickness prescribed under this schedule for the walls of such storey the thickness of each external and party wall throughout such storey shall be increased to one-sixteenth part of the height of the storey and the thickness of each external and party wall below that storey shall be increased to a like extent.

Restriction of Height of Certain Storeys.

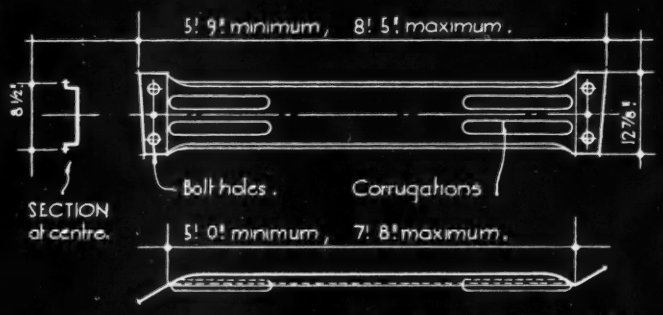
4. No storey enclosed with walls less than thirteen inches in thickness shall be more than ten feet in height measured from the floor to the ceiling thereof or from the floor to the tie of the roof.

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THE LAMELLA SYSTEM OF ARCHED ROOF CONSTRUCTION.

DETAILS OF THE 12' STANDARD PRESSED STEEL UNIT.



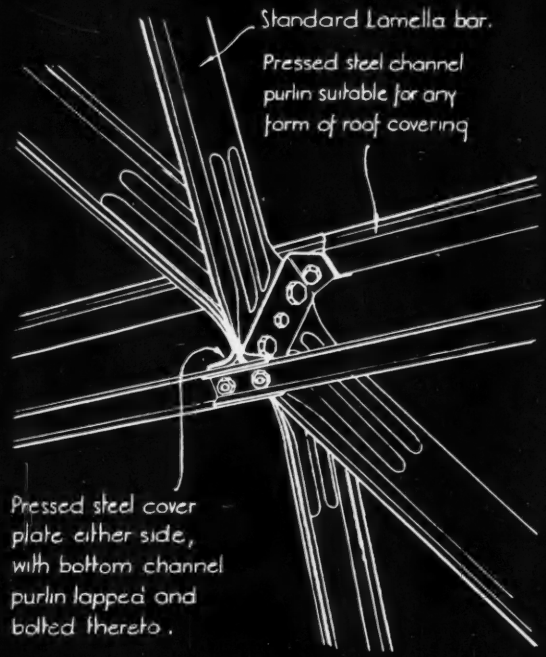
PLAN OF BAR (as erected).

THE UNIT consists of four main parts: the Lamella bar, top & bottom pressed steel channel purlins, and a pair of pressed steel cover plates for each intersection of the bars.

SIZES: Lamella bars are made in three depths, namely, 9 7/8", 12 7/8", & 18 1/2". Details are given above of a typical 13' bar. The max. & min. lengths are 6'8" & 4'0" for 9 7/8", & 10'10" & 5'6" for 18 1/2".

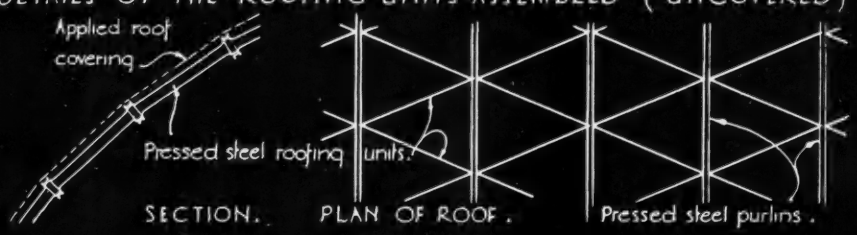
PURLINS: for 6'0" length of bar approx. purlin spacing would be 5'6" and the top & bottom purlin lengths approx. 4'6", lapped & bolted to cover plates at bar intersections.

ISOMETRIC SKETCH OF TYPICAL INTERSECTION



TYPICAL DIAGRAMMATIC DETAILS OF THE ROOFING UNITS ASSEMBLED (UNCOVERED)

The standard units are assembled by bolting together in a series of diamond forms as shown, upon which any type of standard or patent roofing with or without patent glazing, ventilation, etc., may be applied.

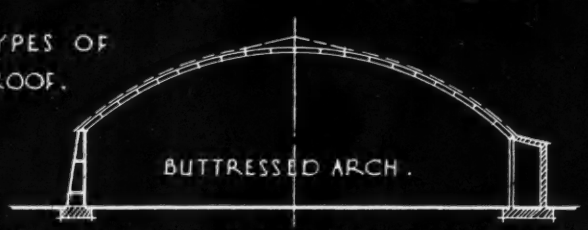


SECTION. PLAN OF ROOF.

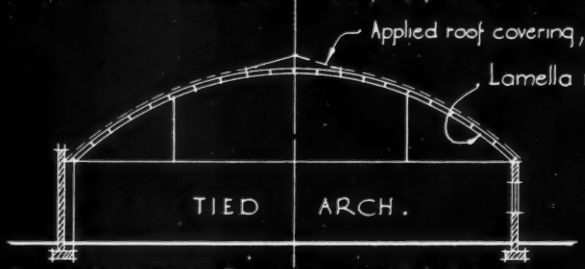
PRINCIPAL TYPES OF LAMELLA ROOF.



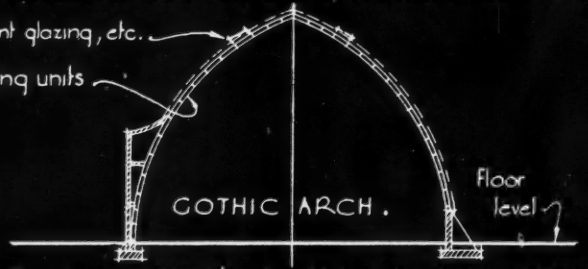
Rise 1/5 to 1/2 span. Simplest and most economical roof. Arch thrust is taken directly by foundations.



Rise 1/8 to 1/5 span. Unobstructed space and good acoustics. Arch thrust taken by buttresses or side walls.



Rise 1/8 to 1/5 span. Tie rods provided to take the thrust. Roof supported by stanchions or light walls.



Rise 1/2 span or greater. Suitable for churches and lofty halls, etc. Arch thrust taken directly by foundations.

Information from Horseley Bridge & Thomas Piggott Ltd.

INFORMATION SHEET: STANDARD PRESSED STEEL ROOFING UNITS.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1. Olive A. Bayne.

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 214 •

ROOF CONSTRUCTION

Name of Product : Pressed Steel Roofing Units

Type Illustrated : The Lamella System

The Steel Lamella system of roof construction consists of building up the standardised steel units into a series of diamond forms, to produce a continuous arched roof, tied longitudinally by steel purlins connecting the intersections formed by the diamond shapes.

The Unit.

In such a type of construction, the unit from which the entire roof is built up is of primary importance. A typical unit is shown in this Sheet ; three different sizes have been standardised to meet the varying conditions of normal practice. For unusually big spans (over 200 ft.) a special unit would be produced to suit the particular case.

The Standard units are formed of steel pressed to the required shape with flanges, corrugations and flat ends. The shape of the unit has been evolved to give maximum strength as a strut with minimum weight and economy of material.

Erection.

The interlocking system in which Lamella roofs are built up permits erection without centering, one or two stays only being required, and these in the final stages of the work, when the two sides are approaching completion at the centre of the span. At all stages of the work the portion erected is rigid in itself and practically self-supporting.

Connections.

As shown in the isometric sketch on this Sheet, the ends of the four units which meet at each intersection are bolted together with cover plates on each side. The top and bottom ends of these cover plates receive the ends of the purlins, which tie in between each intersection. These purlins are lapped over one another and bolted to the cover plate.

Fire Resistance.

This type of construction, depending as it does on a network of small members, can be subjected to local damage in any part without endangering the structure as a whole.

Roofing.

Any normal type of roofing may be used to cover Lamella construction. In the case of large sheet materials, U-shaped bolts are used for fixing the sheets direct to the upper steel purlin. In other types, wood joists or rafters are used over the purlins.

Roof Lights.

Roof lights may be placed over any part of the structure, the glazing being run above, without interruption to the Lamella system.

Principal Types.

As shown diagramatically in this Sheet, there are four main types of arch in Lamella construction :

1. Segmental.
2. Buttressed.
3. Tied.
4. Gothic.

The clear span in each case may be from 30 ft. up to 250 ft.

Manufacturers : Horseley Bridge and Thomas Piggott, Ltd.

Address : Horseley Works, Tipton, Staffs

Telephone : Tipton 1104

London Office : 22 Carlisle Place, S.W.1

Telephone : Victoria 3836-3837

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REINFORCED CONCRETE SLAB FLOOR CONSTRUCTION:

SUPER LOAD IN LBS. PER SQUARE FOOT.

SPANS IN FEET AND DEPTH OF FLOOR SLAB IN INCHES:

			30.	40.	50.	70. (50+)	80.	100. (80+)	200.
6.	F.S.	O.	3.	3½.	3½.	3½.	4.	4½.	5.
		H.	3.	3.	3.	3.	3½.	4.	4½.
	C.S.	O.	3.	3.	3.	3.	3½.	4.	4½.
		H.	3.	3.	3.	3.	3.	3½.	4.
8.	F.S.	O.	3½.	4.	4.	4.	4½.	5.	6.
		H.	3.	3½.	3½.	3½.	4.	4.	5.
	C.S.	O.	3.	3½.	3½.	3½.	4.	4.	5.
		H	3.	3½.	3½.	3½.	3½.	4.	4½.
10.	F.S.	O	4.	4½.	4½.	5.	5.	6.	6½.
		H.	3½.	4.	4.	4.	4½.	5.	5½.
	C.S.	O.	3½.	4.	4.	4.	4½.	5.	5½.
		H.	3½.	4.	4.	4.	4.	4½.	5.
12.	F.S.	O	5.	5.	5½.	5½.	5½.	6½.	7½.
		H	4.	4.	4½.	4½.	5.	6.	6½.
	C.S.	O.	4.	4.	4½.	4½.	5.	6.	6½.
		H.	4.	4.	4.	4.	4½.	5.	6.
14.	F.S.	O	6.	6.	6½.	6½.	7.	7½.	9.
		H.	4½.	4½.	4½.	5.	5½.	6.	7½.
	C.S.	O	4½.	4½.	4½.	5.	5½.	6.	7½.
		H.	4½.	4½.	4½.	4½.	5.	5½.	6½.
16.	F.S.	O.	7.	7.	7½.	7½.	8.	8½.	10½.
		H.	5.	5½.	6.	6.	6½.	7.	8½.
	C.S.	O.	5.	5½.	6.	6.	6½.	7.	8½.
		H.	5.	5.	5½.	5½.	6.	6½.	7½.
18.	F.S.	O.	8.	8.	8½.	8½.	9.	10.	11½.
		H.	6.	6½.	7.	7½.	7½.	8.	9½.
	C.S.	O.	6.	6½.	7.	7½.	7½.	8.	9½.
		H.	6.	6.	6½.	7.	7.	7½.	8½.
20.	F.S.	O.	8½.	8½.	9½.	9½.	10.	11.	13.
		H.	7.	7.	7½.	8.	8.	9.	10½.
	C.S.	O.	7.	7.	7½.	8.	8.	9.	10½.
		H.	7.	7.	7.	7½.	7½.	8.	9.
22.	F.S.	O	9½.	9½.	9½.	10.	11½.	12.	14.
		H	7½.	7½.	8.	8½.	8½.	9½.	11½.
	C.S.	O.	7½.	7½.	8.	8½.	8½.	9½.	11½.
		H.	7½.	7½.	7½.	8.	8.	9.	10.
24.	F.S.	O.	10½.	10½.	10½.	11.	12.	13.	16.
		H.	8.	8.	8½.	9.	9½.	10½.	13.
	C.S.	O.	8.	8.	8½.	9.	9½.	10½.	12½.
		H.	8.	8.	8.	8½.	9.	9½.	11.
26.	F.S.	O	11½.	11½.	11½.	12½.	13.	14.	17½.
		H.	9.	9.	10.	10½.	11.	12½.	14.
	C.S.	O.	9.	9.	10.	10½.	11.	12.	13½.
		H.	9.	9.	9.	9½.	10.	11.	12.

TABLE Nº 1. gives the thickness of the concrete slab for various loads & spans calculated under the R.C. Code of Practice, 1933.

NOTES.

LOADING: Where marked +, a partition allowance of 20 lbs per square foot has been made.

Floors are designed to take superimposed loads, self-weight and dead weight of finishes, (20 lbs per square foot) with the structural concrete in the proportion of 1:2:4, by volume.

REINFORCEMENT: Both tables give values for slabs that are reinforced in one direction only.

ABBREVIATIONS:
F.S. = free span, C.S. = continuous span.
O. = ordinary grade concrete } See notes on the reverse
H. = high grade concrete } side of this sheet.

Hollow block floors are to be preferred for all spans except lightly loaded continuous spans, or those carrying heavy concentrated loads.

SUPER LOAD IN LBS. PER SQUARE FOOT.

SPANS IN FEET AND DEPTH OF FLOOR SLAB IN INCHES:

		30.	40.	50.	70. (50+)	80.	100. (80+)	200.
6.	F.S.	3½.	4.	4.	4½.	5.	5½.	6.
	C.S.	3½.	3½.	3½.	4.	4½.	5.	5½.
8.	F.S.	4.	5.	5.	5.	5½.	6.	7.
	C.S.	3½.	4½.	4½.	4½.	5.	5½.	6.
10.	F.S.	5.	5½.	5½.	6.	6.	7.	8.
	C.S.	4½.	5.	5.	5.	5½.	6½.	7.
12.	F.S.	6.	6½.	6½.	6½.	6½.	7½.	9.
	C.S.	5.	5½.	5½.	6½.	6½.	7.	8.
14.	F.S.	7.	7.	7½.	7½.	7½.	8½.	10.
	C.S.	6½.	6½.	7.	7.	7½.	8.	9½.
16.	F.S.	8.	8.	8½.	8½.	9.	9½.	12.
	C.S.	7.	7½.	7½.	8.	8½.	9.	10½.
18.	F.S.	9.	9.	9½.	10.	10½.	11½.	13½.
	C.S.	8½.	8½.	8½.	9.	9½.	10½.	11½.
20.	F.S.	9½.	9½.	10.	11.	11½.	12½.	15.
	C.S.	9.	9.	9½.	10.	10½.	11½.	13½.
22.	F.S.	11.	11.	11½.	12.	13.	14.	16.
	C.S.	9½.	10.	10.	10½.	11½.	12.	14.
24.	F.S.	12.	12.	12.	12½.	13½.	14½.	18.
	C.S.	11.	11.	11.	11½.	12½.	13½.	16.
26.	F.S.	13.	13.	13½.	14.	15.	16.	20.
	C.S.	11½.	11½.	12½.	13.	13½.	14½.	18.

TABLE Nº 2. gives the thickness of the concrete slab for various loads and spans calculated under the L.C.C. Act, 1909.

Information from Frazzi Limited. (Figures compiled by C.W. Hamann, A.M.I.Struct.E., M.I.W.E.)

INFORMATION SHEET: VARIOUS TYPES OF FIREPROOF FLOOR CONSTRUCTION ①

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 • Oliver A. Bayne

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INFORMATION SHEET • 215 • FLOOR CONSTRUCTION

Type of Product : Reinforced Concrete Slab

General :

The tables given on this Sheet set out the thickness of reinforced concrete slabs for various spans and loads, and apply to slabs reinforced in one direction only. Table No. 1 is calculated under the Building Research Board Code of Practice, and Table No. 2 under the L.C.C. Act of 1909.

Code of Practice :

The following are extracts from the 1933 Code of Practice ; Section 3, Strength requirements and Permissible Stresses.

Reinforcement :

(a) General :

The stresses in the steel reinforcement shall not exceed the values given in Table 3.

Where the stresses given in column (2) are used, only steel complying with the requirements stated in the heading shall be used throughout the job.

(b) High Yield Point Steel :

In solid slabs, other than flat slabs, subject to bending, the permissible stress in steel complying with B.S.S. No. 165 for Hard Drawn Steel Wire or other Specification for high yield point steel approved by the competent Building Authority may be increased up to a value equal to 0.45 of the yield point stress, but not exceeding 25,000 lb. per sq. in., providing that the area of steel in tension does not exceed 1 per cent. of the effective area of the slab.

Selection of Type of Floor :

The selection of the most suitable floor for any particular job calls for full consideration of all the factors involved, including spacing of columns or bearing walls, spans, type of general construction, load capacity required, sound insulation required, type of floor finish, speed of erection and cost. The company is prepared to investigate the special conditions relative to any particular job, and to recommend the most suitable floor for the purpose.

See also Information Sheet No. 181 for further details of Floor Construction.

Manufacturers : Frazzi, Ltd.
Address : Lennox House, Norfolk Street, W.C.2
Telephone : Temple Bar 5371-5372

*TABLE 1.—ORDINARY GRADE CONCRETE.

Mix Reference	Nominal Mix	Proportions, Cub. ft. of Aggregate per 112 lb. bag of cement		Minimum Cube Strength Requirements at 28 Days. (Optional Tests ; See Cl. 301 (b) (i)). Lb. per sq. in.		Modular Ratio	Permissible Concrete Stresses. Lb. per sq. in.			
		Fine	Coarse	Preliminary Tests	Works Tests		Bending	Direct	Shear	Bond
				$4.5x$	$3x$	$\frac{40,000}{3x}$	x	$0.8x$	$0.1x$	$0.1x+25$
I	1 : 1 : 2	1¼	2½	4,388	2,925	14	975	780	98	123
II	1 : 1.2 : 2.4	1½	3	4,163	2,775	14	925	740	93	118
III	1 : 1.5 : 3	1⅞	3¾	3,825	2,550	16	850	680	85	110
IV	1 : 2 : 4	2½	5	3,375	2,250	18	750	600	75	100

*TABLE 2.—HIGH GRADE CONCRETE.

Mix Reference	Nominal Mix	Proportions, Cub. ft. of Aggregate per 112 lb. bag of cement		Minimum Cube Strength Requirements at 28 Days. Lb. per sq. in.		Modular Ratio	Permissible Concrete Stresses. Lb. per sq. in.			
		Fine	Coarse	Preliminary Tests	Works Tests		Bending	Direct	Shear	Bond
				$4.5x$	$3x$	$\frac{40,000}{3x}$	x	$0.8x$	$0.1x$	$0.1x+25$
I	1 : 1 : 2	1¼	2½	5,625	3,750	11	1,250	1,000	125	150
II	1 : 1.2 : 2.4	1½	3	5,400	3,600	11	1,200	960	120	145
III	1 : 1.5 : 3	1⅞	3¾	4,950	3,300	12	1,100	880	110	135
IV	1 : 2 : 4	2½	5	4,275	2,850	14	950	760	95	120

*Where other proportions of fine to coarse aggregate are used the requirements shall be based on the ratio of the sum of the volumes of the fine and coarse aggregates, each measured separately, to the quantity of cement, and shall be obtained by proportion from the two nearest defined mixes.

The tabulated values of the modular ratios are given to the nearest whole number ; nevertheless, more exact values, calculated from the formula $40,000/3x$, may be used.

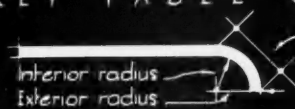
TABLE 3.—PERMISSIBLE STRESSES IN REINFORCEMENT.

	Permissible Stress. Lb. per sq. in.	
	(1) Mild Steel Complying with B.S.S. No. 15	(2) As (1) but with a Yield Point of not less than 44,000 lb. per sq. in.
Bending :		
Tension in longitudinal steel in beams, slabs or columns subject to bending	18,000	20,000
Compression in longitudinal steel in beams, slabs or columns subject to bending where the compressive resistance of the concrete is taken into account	The compression stress in the surrounding concrete multiplied by the modular ratio.	
Compression in longitudinal steel in beams where the compressive resistance of the concrete is not taken into account	18,000	20,000
Direct Compression :		
Compression in longitudinal steel in axially loaded columns ...	13,500	15,000
Tension in spiral reinforcement	13,500	15,000
Shear :		
Tension in web reinforcement	18,000	18,000

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COMBINATION ANGLES:

KEY TABLE OF ANGLE SIZES:

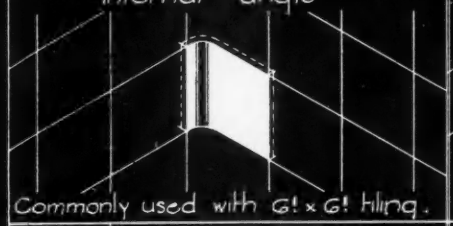


See note on back

All tiles are 3/8" thick.
T = round reveal corner.
V = square reveal corner.

ANGLE LETTER internal	external	WIDTH inches	RADIUS inches. interior	exterior
B	A	1	3/8	3/4
E	C	1¼	1/2	7/8
L	G	2	1	1⅜
M	N	3	1¾	2⅛

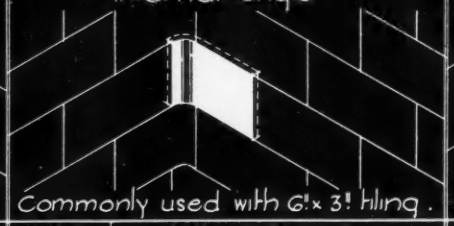
internal angle



Commonly used with 6" x 6" tiling.

TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 6"	3975 E
6" x (3" + width of angle)	3353 E, 3353 L, 3353 M.

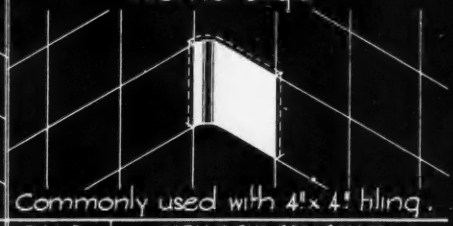
internal angle



Commonly used with 6" x 3" tiling.

TILE SIZE	CATALOGUE REFERENCE NUMBER
.	.
3" x (3" + width of angle)	3072 E, 3072 L, 3072 M.

internal angle



Commonly used with 4" x 4" tiling.

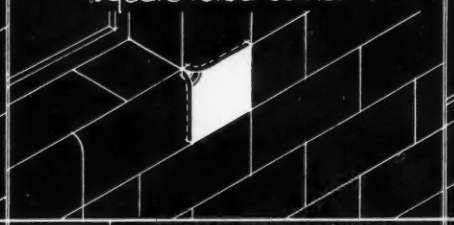
TILE SIZE	CATALOGUE REFERENCE NUMBER
4" x 4¼"	3981 E.
4" x 4"	4061 B.

external angle



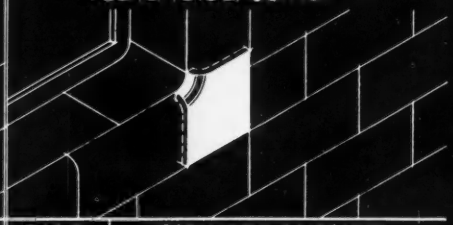
TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 6"	3975 C. Illustrated.
6" x (3" + width of angle)	3353 C, 3353 G, 3353 N.
3" x (3" + width of angle)	3072 C, 3072 G, 3072 N.
4" x 4¼"	3981 C.
4" x 4"	4061 A.

square reveal corner



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 6"	3975 V.
4¼" x 4¼"	3353 V, to work with 3353 C.
4¼" x 4¼"	3072 V. (illustrated), to work with 3072 C.
4" x 4¼"	3981 V.
4" x 4"	4061 V.

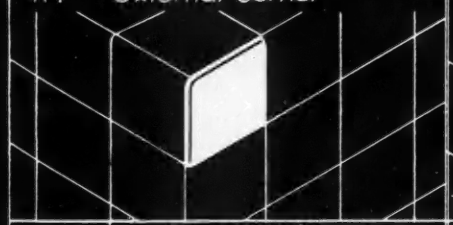
round reveal corner



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 6"	3975 T.
4¼" x 4¼"	3353 T, to work with 3353 C.
4¼" x 4¼"	3072 T. (illustrated), to work with 3072 C.
4" x 4¼"	3981 T.
.	.

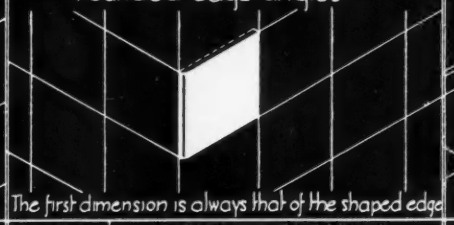
ROUNDED EDGE ANGLES:

R: external corner



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 6"	3604 R.
6" x 3"	3560 R.
6" x 2"	3937 R.
4" x 4"	4013 R.

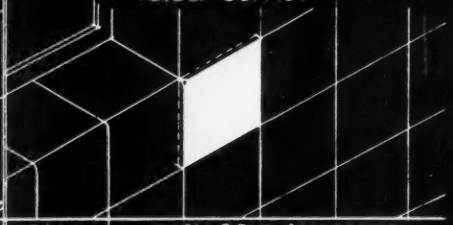
rounded edge angles



The first dimension is always that of the shaped edge

TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 6"	3604.
6" x 3"	3560.
6" x 2"	3937.
4" x 4"	4013.

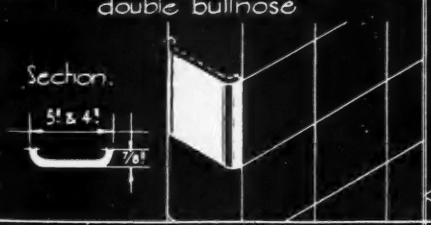
reveal corner



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 6"	3604 V.
6" x 3"	3560 V.
6" x 2"	3937 V.
4" x 4"	4013 V.

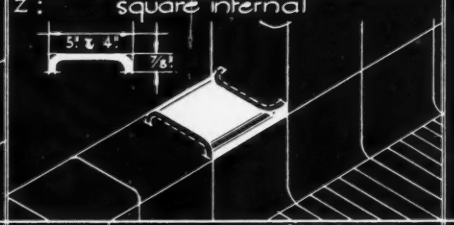
DOUBLE ANGLE TILES:

double bullnose



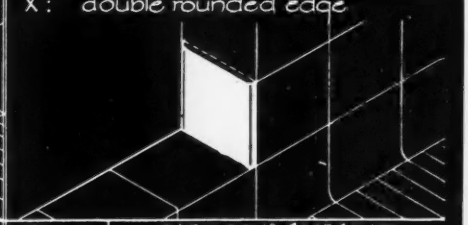
TILE SIZE	CATALOGUE REFERENCE NUMBER
5" x 4"	4022.
4" x 4"	4003.

Z: square internal



TILE SIZE	CATALOGUE REFERENCE NUMBER
5" x 4"	4022 Z.
4" x 4"	4003 Z.

X: double rounded edge



TILE SIZE	CATALOGUE REFERENCE NUMBER
.	.
4" x 4"	4013 X.

Information from Richards Tiles Ltd.

INFORMATION SHEET: GLAZED WALL TILE FITTINGS 5: ANGLE TILES

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 216 •

WALL TILES

Type of Product : Glazed Wall Tile Fittings

(See also Information Sheets Nos. 92, 93, 99, 125, 127, 144 on other Tile Products of the same Manufacturers, and Sheets Nos. 180, 189, 197 and 205 for previously illustrated Glazed Tile Fittings.)

The manufacturers' plain—or flat—tiles with which the fittings here illustrated are designed to work, are made in the following shapes and sizes :—

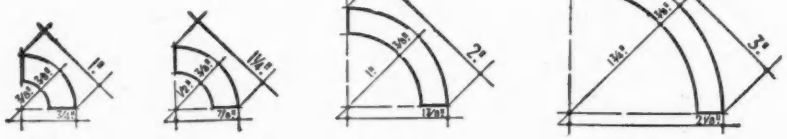
Squares	...	6″×6″, 4″×4″, 3″×3″, 2″×2″
Oblongs	...	6″×3″, 6″×2″, 6″×1½″, 6″×1″ 6″×½″, 4″×2″, 4″×1″, 4″×½″
Hexagons	...	(measured from side to side) 4″, 3″ and 2″, with the necessary halves.

Standard Thickness.—For all sizes of plain tiles and fittings, ⅜″. Plain tiles and Rounded Edge Tiles, in white glaze only, and in sizes 6″×6″ and 6″×3″ only, made also ¼″ thick.

Finish.—All tiles and fittings can be supplied in white glaze, and (except those ¼″ thick, as noted) in colours, both plain and mottled, of bright and eggshell finish.

Stocks.—Plain tiles and fittings are stocked by the Manufacturers in white glaze finish and in biscuit form (i.e. unglazed) ready for glazing in colour as ordered.

B=1″ Internal Angle. A=1″ External ,, E=1½″ Internal Angle. C=1½″ External ,, L=2″ Internal Angle. G=2″ External ,, M=3″ Internal Angle N=3″ External ,,



1″ Angle Beads or B. & A. Angles. | 1½″ Angle Beads or E. & C. Angles. | 2″ Angle Beads or L. & G. Angles. | 3″ Angle Beads or M. & N. Angles.

Special Fittings for special purposes are made to order as required.

Angle Tiles

By an " Angle Tile " is meant any tile fitting intended for turning wall corners and consisting of a flat tile plus an angle part on the side. It is distinguished from an Angle Bead, which is an angle only.

Angle Tiles are of two classes—Beaded and Round-Edged. In the former the angular part consists of an extension, in the form of an angle bead, of the straight tile ; in the latter it is formed by a rounding-off of the edge of the straight tile itself.

Beaded Angle Tiles with an angle on only one side are commonly known as Combination Angles, and may be either internal or external. They are used for all internal and external wall angles, window reveal and sill angles, door jamb angles, etc.

Beaded Angle Tiles with angles on two opposite sides are known as Double-Bullnosed Tiles. They are used to span the free end of a partition wall, or to form the top of a kerb —e.g., at the entrance to a bath shower.

Round-Edged, like Beaded, Angle Tiles, may be rounded either on a single edge or on two opposite edges. In either case their use is similar to that of the corresponding Beaded Angle Tile ; but since the angle is formed on the tile's thickness (⅜ in. or, in certain cases, ¼ in.) and is, therefore, somewhat sharp, rounded-edge angles have not so satisfactory an appearance as have the bolder beaded angles—than which, however, they are slightly cheaper.

Measurement of Tile Angles.

The accepted angular measurement of a tile angle is not that of its radius (though the word radius is often used in this connection) but that of its *greatest width, measured in a straight line.* This applies equally to internal and external angles, the only difference between these being, of course, that the former are glazed on the inner and the latter on the outer surface. The diagrams given below, illustrating angles of different sizes, will make the matter clear.

In the case of Combination Angles and Angles to Cappings, Skirtings and Coves, the size and type of the angular part are indicated by the addition, after the reference number of the fitting itself, of a letter. The following are the letters used, with the meaning of each :

Although the manufacturers supply angles in all these sizes, their standard angle is the 1¼″, that having proved the most satisfactory for all ordinary purposes.

Name of Manufacturers :	Messrs. Richards Tiles, Ltd.
Address :	Tunstall, Stoke-on-Trent
Telephone :	Hanley 7215-8
London Office :	25 Victoria Street
Telephone :	Victoria 9218
Glasgow Office :	53 Bothwell Street Glasgow, C.2
Telephone :	Central 1768

TEXTILE DISPLAY

BY L. MOHOLY-NAGY



PROFESSOR L. MOHOLY-NAGY was responsible for the design of the current exhibition at Utrecht of the Dutch Artificial Silk Industry. Some 7-800 dress fabrics were chosen out of as many thousands, and displayed in four different ways :—

1 : On a large screen faced with three-ply curving in and out of the far end of the hall. Here the materials were shown in small frames, like an enlarged book of patterns with sheets of glass painted with fashion-plates between them to give a through vista to the other end of the room. Alternating with these were full-sized photographic enlargements.

2 : A main feature on the opposite wall in the form of twin cascades of materials in carefully harmonized and contrasted colourings.

3 : Two stands covered with nickelled plating fitted with vertical sheets of glass between which expanses of fabrics were billowed out lengthways by an arrangement of bent tubing. In the same partition were five life-sized fashion-plate figures to which fabrics were glued.

4 : A corner in which five table-cloths were suspended from the wall at a falling angle on dummy table-tops.

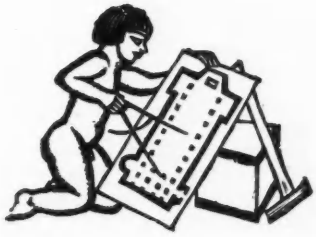
Raw material was represented by a loom-shaped arrangement of rayon bobbins hung on wires, and a glass case filled with pigments used in dyeing. The walls were covered with thin, and the floor rather stouter, bleached rayon flock strong enough to last out a ten-days' exhibition.





ACADEMY ARCHITECTURE 1935

The summer exhibition at the Royal Academy was opened to the public last Monday. Above is reproduced an exhibit (No. 1432) from the architectural room: a perspective, by J. D. M. Harvey, of the new Westminster Hospital, to be erected in Page Street, Westminster. The architects are Messrs. Adams, Holden and Pearson. Illustrations of other architectural exhibits and a review of the exhibition appear on pages 723-728 of this issue.



INTERNATIONAL HOUSING AND TOWN PLANNING CONGRESS

THE International Federation for Housing and Town Planning is this year holding its Fourteenth Congress. The Congress is to be held in London for the first time since 1922 ; four years have elapsed since the Thirteenth Congress was held, in Berlin. During the thirteen years, and particularly during the last four, things have happened in this country which deserve the attention of such a Congress. Over the longer period, well over a thousand million pounds of capital expenditure have been devoted to housing, and during the shorter period alone, nearly a million new houses have been erected. Delegates from other countries, many of whom will no doubt be examining our housing conditions on the spot for the first time, may be able, more easily than ourselves, to estimate whether the nation has got its money's worth, and to aid us in drawing from the experience of the past a volume of guidance for the future.

The Congress has as patron H.R.H. the Prince of Wales, as President the Minister of Health, and as Vice-Presidents two former Ministers of Health, the Lord Mayor of London and the Chairman of the London County Council. It has the support of the Government, the City Corporation, the L.C.C. and other leading municipalities, and the national associations concerned with housing and town planning.

Congress meetings will be held at the R.I.B.A. headquarters in Portland Place, where a small hall will be devoted to an exhibition of the latest British housing, town planning and architectural work.

The Congress subjects announced are " Rehousing the People," " Postive Planning," and " Planned Rural Development and the Preservation of the Countryside." In the official invitation folder already issued, an outline of the questions to be discussed under these heads, which we understand is to be regarded as provisional, gives a clear idea of the purpose of the Congress, and the preliminary list of authors of papers shows the weight of knowledge that will be behind the material to be presented.

The line that is to be taken in regard to " Positive Planning " is of the greatest importance. It is recognized that much of the " planning " of today is tentative, that is to say negative. Where so-called plans exist, the procedure has generally been to zone areas " on the basis that if and when development occurs it shall be in accordance with the main lines of a plan prepared years in advance." Now this is not really planning at all. A plan, surely, implies a scheme of arrangement and a time-table. The Congress will discuss the question of the desirability of devoting more attention to the preparation of plans that are intended to be carried out in a given time, and will examine the powers with which planning authorities are at present endowed in this respect.

The same argument appears in the syllabus of the third subject—" Planned Rural Development and the Preservation of the Countryside." It is pointed out that the preservation of the countryside has largely been looked at in similar negative fashion ; this is certainly true, both as regards the general public and as regards a considerable number of those from whom a wider vision might be expected. Rural England is not a garden for Urban England. It contains living persons, who are part of the nation, and it is neither a playground nor a museum. The Congress therefore asks itself : " Should it not be viewed from a different standpoint, i.e., the conscious development of the countryside with due regard to the changing needs of agriculture and rural industries, having regard also to plans for urban expansion ? "

Congress meetings will be held on July 16, 17, 19 and 20, while July 18 will be devoted to an all-day visit to Letchworth and Welwyn. Following the Congress, a provincial tour covering a number of northern cities is to take place. Delegates are to be received by the city corporations and given every facility for inspection of recent housing activities, town planning and public works. It is perhaps rather a pity that they will not have the opportunity to see first and talk afterwards—the opposite arrangement seems to be a tradition of Congresses the world over. Where the tours are merely of a sight-seeing nature, and the subject of the Conference one that has little or no connection with inspection of the countryside, this obviously does not matter in the least. But for a Housing and Town Planning Congress, the advantage of reversing the conventional procedure would be considerable.



The Architects' Journal
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NOTES & TOPICS

THE R.I.B.A. AT THE A.A.

SIR IAN MACALISTER'S address to the A.A. on "The Life and Work of the R.I.B.A." was one of the best written and delivered that I have heard for a long time. Apart from being all that he is known to be by the body of members whom he serves Sir Ian is a scholar, and that fact shone in his command of fine English.

*

Of necessity a large part of the address was taken up by figures, and, expecting this, I confess to a certain nervousness over the chance of a dull evening. But in the hands of Sir Ian statistics became living things, and figures and facts which almost *ought* to be poor fare turned out to be vitally interesting.

*

Another remarkable quality of the address was the deft way in which Sir Ian contrived, in exactly forty minutes, to paint a vivid picture of one hundred years of the Institute's life and vigour. I believe that few of the most knowledgeable and best informed older members had any idea how great has been the force of the R.I.B.A., or how many of the reforms which have been made in one branch or another of political administration recently have been the direct outcome of years of thoughtful and patient nursing of ideas at Conduit Street.

KING GEORGIAN ARCHITECTURE

The Times, as part of their Special Jubilee Number (the Crown and the People, Twenty-five Momentous Years), published last Friday, included a full-page article on the buildings of the last twenty-five years. It was entitled "Economy in Architecture."

*

That was a good title, and the article went much further than the usual catalogue of recent works by eminent Academicians. Within the limitations of the reserve the august pages of *The Times* demand it had a point of view to put forward.

*

The terminal summing-up is worth quoting: "Briefly, the architectural gains of the period are the discovery, by compulsion, that architectural beauty does not depend upon costliness, and the recognition that the essential thing in architecture is order. If there is a gain over the eighteenth century it is in the substitution of order for 'the Orders' as the meaning of architecture"—though surely nineteenth century is meant.

*

The list of important works (mostly public works) included remains rather discouraging, but then it is no longer public works that are architecturally important. A show of lavish expenditure still seems to survive as an essential quality of the Cathedral, Town Hall or City Bank.

*

One reference—at the beginning of the article—surprised me a little. The author says that in the second half of the nineteenth century, "thanks to the example of men like Philip Webb, C. F. Annesley Voysey, Charles Rennie Mackintosh, and Richard Norman Shaw, and the writings of W. R. Lethaby, a movement had already begun to bring back architecture to its fundamentals in planning, order, and proportion."

*

Very true, except, can he really mean Norman Shaw?

OF NATIONAL IMPORTANCE

As a sequel to my remarks a fortnight ago on the destruction of monuments of the Georgian and early Victorian periods and the sedulous preservation of any valueless mediæval oddment I would like to endorse, as a specific example of what should be done, a recent plea of Mr. Summerson's.

*

Along the north side of Suffolk Street, off the Haymarket, is still standing a row of Nash's stucco buildings such as once adorned the whole of this area. Mr. Summerson pleads for their preservation; if steps are not taken these last remnants of their kind will also disappear.

*

What better deserves the title Historic Monument?

H. B. CRESWELL

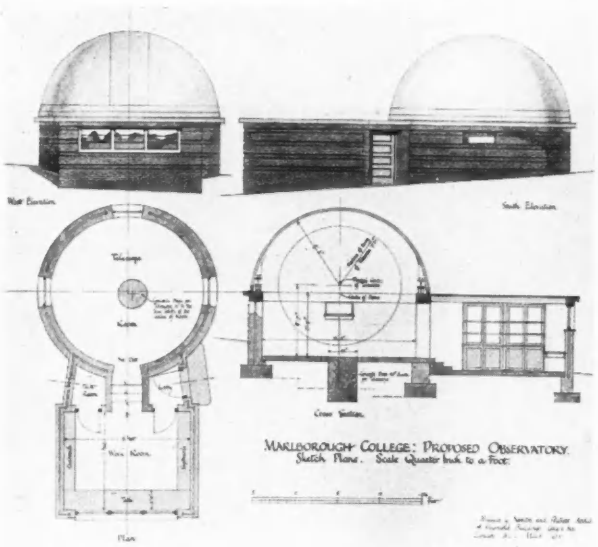
I always read what H. B. Creswell writes because it is infallibly worth reading. I have just finished his latest book, *Diary from a Dustbin*, which certainly comes up to standard; in fact, I am not sure that there is not too much fun in it; anyway I laughed nearly all the time.

*

Creswell has that enviable gift of being able to write what is really an instructive treatise in a light, witty vein which compels the attention of every reader. Probably he is better known to readers of this JOURNAL as "Karshish," under which name he has contributed many articles and serials. I suppose the best remembered are *The Honeywood File* and *The Honeywood Settlement*, which were published in book form and are, to my mind, books which every architect ought to read and, further, ought to make every client read too.

*

Tribulations of Early Practice was an admirable admonition to well-established men as well as to those for whom it was



From the Royal Academy Exhibition: proposed Observatory, Marlborough College, by W. G. Newton and Partners (No. 1415).

particularly intended, and I always wish that it had been published as a book. Arbitration does not show any obvious opportunity for humour, but " Karshish " managed to put plenty of it into *Jago v. Swillerton and Toomer*, which I still take out of my bookcase now and again.

PRIZES

I received my copy of the R.I.B.A. Prizes and Scholarships pamphlet last week and was about to cast it aside when curiosity overcame me. I opened it.

*

By chance I read the Owen Jones prize conditions and found them new. There is to be an *en loge* colour *esquisse* for the final round . . . a superb chance for any student who is not frightened of colour, as most students (and architects for that matter) seem to be.

*

I read on. The Bossom student is asked this year to tackle a vital problem, the Tite student is to study Italian Architecture, but no mention is now made of Palladio and the restricted renaissance . . . interested, I continued to read every page.

THE " SAUCY SLUM " CAPSIZES

Some years ago I visited Hull and came away with memories of an unusually clean place, with one of the simplest plans of any provincial city, floating on an even keel between the Humber and the river Hull.

*

Re-visiting Humberside last week-end I was astonished to find the place performing the alarming feat of listing heavily both to port and starboard, leaving a widening gap amidships.

*

The leviathan *Ferensway* ploughs its 100-foot beam from the station to an enormous but derelict factory; the Queen's Dock, which once brought the port's activities to the very feet of the City Square, is filled in, its warehouses demolished; that nebulous area between Paradise Row and Wincolmlee and Witham, resounds with the slum-breaker's hammer.

*

A local lad, of rich and generous heart, took me through the further suburbs, once a characterful countryside—we gazed in silence upon acres and acres of jerry-built houses which had not among them as much character as the meanest dinghy floating in the river, not as much rugged sincerity as the dug-out canoe hanging in the local museum.

*

An occasional housing or rehousing scheme by the City Architect's Department relieved our gloom, but the people seemed not a little bewildered to be some four miles from the centre of the city and the river which gave it birth.

*

And now Alderman Wokes is urging the City Corporation to rehouse on some of the cleared sites. Hull would gain immensely by such reparations amidships, and her architecture and her rehoused people would surely be happier in closer contact with the graceful lines of her river and sea-going craft.

LOVE THY NEIGHBOUR

Several writers to *The Times* appear to be very worried over neighbour values. One writes that in their district not only are £850 houses being built up against £1,500 houses, but also £500 next to £1,000 houses, and even £300 houses next the £500 ones.

*

We must do something about this—it seems very hard that if you prefer to inhabit £500's worth of quiet dignity you should be bullied by some £1,500 bay-windowed bounder on the next plot.

ASTRAGAL

I.A.A.S. versus R.I.B.A

As we go to press we are informed that the action for alleged libel brought by the I.A.A.S. against the R.I.B.A., and down for hearing on Tuesday, has been settled out of court. The following statement was made by Sir Patrick Hastings, K.C., Counsel for the I.A.A.S.:

" This was an action for libel between the Incorporated Association of Architects and Surveyors and the Royal Institute of British Architects in respect of a letter written as long ago as 1933.

" Mr. Birkett and I have each advised our clients that in the interests of the profession it was obviously desirable to settle this litigation if possible and we have urged it upon them.

"I am glad to say that that advice has been followed and mutual explanations having been made and accepted, this litigation is at an end and the action is withdrawn. No order will be necessary as the terms are endorsed on Counsels' briefs."

NEWS

POINTS FROM THIS ISSUE

The design and lay-out of tenements on central and suburban sites in Scotland should follow the style of modern blocks of working-class flats, rather than perpetuate the existing style of Scottish tenemental development 720

The Council of the R.I.B.A. has approved proposals submitted by the Exhibition Sub-Committee with regard to the policy to be followed in arranging future exhibitions 721

"Those in private practice more often than not owe their good fortune to financial support not possessed by everyone, while few official architects adopt their career from choice" 722

RIBBON DEVELOPMENT

The Archbishop of Canterbury, speaking at the annual meeting of the Council for the Preservation of Rural England last week said that the Government had proclaimed the absolute necessity for legislation to deal with ribbon development, and then occurred months of inexplicable delay that gave a period of hectic activity to the speculative builders to do their best, or their worst, before it was too late. He was thankful that at last the Government had announced its intention immediately of introducing a Bill to deal with the evil.

Those who, like himself, desired to preserve the beauty of the countryside, were aware of the urgent need to build more homes to carry people into the country, but their plea was that that need should not be gratified only by long, dreary, monotonous houses placed along the frontages of our country roads. Their plea was for planned grouping of buildings. It might be impossible now to reproduce old English villages, which, next to the cathedrals, were the most beautiful things in England.

SCOTTISH WORKING-CLASS HOUSES

The Scottish Architectural Advisory Committee, appointed by Sir Godfrey Collins last autumn to advise the Department of Health for Scotland on Scottish working-class houses, has just issued its report.

It is pointed out that greater attention should be paid to other than utilitarian considerations in the lay-out, planning, and external treatment of schemes.

Provision of re-housing accommodation in central city areas, the report states, had become an urgent problem, and the building of high flats in these areas was the only reasonable and satisfactory solution. The design and lay-out of tenements on central and suburban sites should follow the style of modern blocks of working-class flats rather than perpetuate the existing style of Scottish tenemental development.

The importance of adequate amenities and open spaces in all new schemes is urged. The committee recommends that a special section of the Department of Health be formed to guide and control the lay-out, design and amenity of Scottish State-aided housing schemes, and also suggests that a special panel of architects should be set up by the Royal Incorporation of Architects in Scotland to assist local authorities in the preparation of housing plans.

THE ARCHITECTS' DIARY

Thursday, May 9

ROYAL ACADEMY EXHIBITION, *Burlington House, Piccadilly, W.1. Open until further notice.*

ARCHITECTURAL ASSOCIATION. *At the R.I.B.A. Building, 66 Portland Place, W.1. Exhibition of work executed during the past three years by architects trained in the A.A. schools and members of the school staff. Until May 17.* 10 *a.m. until* 8 *p.m. (Saturday, May 11: 10 a.m. until 5 p.m.).*

INSTITUTION OF STRUCTURAL ENGINEERS. *Annual Conference. At the Institution of Mechanical Engineers, Storey's Gate, S.W. 1. 10.30 a.m.—Annual General Meeting. 10.45 a.m.—Special General Meeting to declare the result of the election of the Council for the next session. 10.50 a.m.—Ordinary meeting: "Modern Methods of Flat Construction," by P. S. Snow; "Vibrations in Bridges," by C. E. Inglis. Alternative visits. 10.30 a.m. to 5.30 p.m.*

SOCIETY OF ANTIQUARIES, *Burlington House, W.1 "The Use of Continental Woodcuts by the Ripon School of Carvers in the Sixteenth Century." By Rev. J. S. Purvis. 8.30 p.m.*

DESIGN AND INDUSTRIES ASSOCIATION AND THE SOCIETY OF INDUSTRIAL ARTISTS. *At the London School of Hygiene and Tropical Medicine, Gower Street, W.C.1. Discussion on "The Retailer and Design," to be opened by J. Spedan Lewis. 8.15 p.m.*

Friday, May 10

INSTITUTION OF STRUCTURAL ENGINEERS. *Annual Conference. 10 a.m. to 4.30 p.m. Seven alternative visits. 7.30 p.m.: Banquet at the Dorchester Hotel, Park Lane, W.1.*

Saturday, May 11

LONDON SOCIETY. *Visit to the Duchy of Cornwall Estates, Kennington, S.E. 2.30 p.m.*

HAMPSHIRE AND ISLE OF WIGHT ARCHITECTURAL ASSOCIATION. *Visit to the Building Centre and other buildings in London.*

Monday, May 13

R.I.B.A., *66 Portland Place, W.1. Annual General Meeting. 8 p.m.*

SOCIETY OF CHEMICAL INDUSTRY, *Burlington House, W.1. Annual General Meeting. 8 p.m.*

INSTITUTION OF CIVIL ENGINEERS, *Gt. George Street, S.W.1. Annual General Meeting. 6 p.m.*

ILLUMINATING ENGINEERING SOCIETY. *At the Institution of Mechanical Engineers, Storey's Gate, S.W.1. Annual General Meeting. 6.30 p.m.*

Wednesday, May 15

LONDON SOCIETY. *Visit to the works of George Kemp, Ltd., North Circular Road, N.W.2. 2.45 p.m.*

ROYAL SOCIETY OF ARTS, *John Street, Adelphi, W.C.2. "Window Displays." By Katharine Pearce. 8 p.m.*

A.A.S.T.A.

The annual general meeting of the Association of Architects, Surveyors and Technical Assistants was held recently at Caxton Hall, S.W. The President, Mr. R. Wynn Owen, F.R.I.B.A., delivered an address, in which he spoke of the important problems which the Association had to face and the need for all architects and surveyors to give united support in order to gain due attention to their interests. The following were elected as Officers and Council for the Session 1935-36:—President, Mr. Ivor D. Newton; Vice-Presidents, Messrs. C. H. Rattenberry, A. R. Hassell, L.R.I.B.A., E. S. Brown and P. Whitehead, A.R.I.B.A.; Hon. Editor *The Keystone*, Mr. E. S. Brown; Council, Messrs. R. Braybrook, R. E. Cooper, G. A. Ensor, R. G. Forbes, A.R.I.B.A., F. P. Harrison, L. A. F. Ireland, L.R.I.B.A., W. H. Laithwaite, H. S. King, Z. Jacobson, G. C. Manly, V. L. Nash, A.R.I.B.A., R. Wynn Owen, F.R.I.B.A., L. H. B. Roberts, A.R.I.B.A., J. H. C. Shatford, F. J. Maynard, A.R.I.B.A., R. L. Townsend, A.R.I.B.A., W. L. Vinycomb, A.R.I.B.A., E. O. Wilson, G. G. Wolfe, W. E. Woolley, L.R.I.B.A., and Miss D. Rouse.

ROYAL EMPIRE SOCIETY'S NEW BUILDING

The foundation stone of the Royal Empire Society's new building in Northumberland Avenue, W.C., is to be laid by the Prince of Wales on June 3. The architects are Sir Herbert Baker, R.A., and Messrs. Hart and Waterhouse.

THE HOUSING BILL

The Standing Committee of the House of Commons which is considering the Housing Bill is now getting to the end of its task.

At the sitting last week, an important amendment was moved by Mr. A. C. Bossom, in the form of a new clause, which requires local authorities to employ registered architects to design and superintend the construction of houses and blocks of flats erected by the authorities. He explained that it was estimated that between 500,000 and 1,000,000 houses would be erected under the new legislation, and it was desirable that some attention should be given to the design of the houses. It was of no use to say that the Town Planning Act would help in this regard; dreary rows of houses were being erected by many local authorities, and if they were not given some guidance from the Ministry of Health they would continue to erect such houses.

Sir Hilton Young said that it was fully recognised by the Ministry of Health that it was desirable that, over as wide a field as possible, the professional architect should be employed in designing the buildings contemplated under the Bill. That was certainly the policy of the Ministry in administration. But, when it was sought to impose a legal obligation that a specified category of architects were to be employed in all cases, it was going too far and too fast. Local authorities had strong objections to the proposal because it would knock out the services of a substantial number of officials whose qualifications from the architectural point of view no one would doubt, but who would be excluded from the category mentioned in the new clause.

Sir Percy Harris pointed out that the Minister of Health was encouraging the employment of unqualified men who were good surveyors, but were not qualified as architects, and he (Sir P. Harris) hoped that the Minister would not stand by the speech which he had made.

The proposed new clause was negatived, but it will be possible to raise the matter again in the Report stage, if necessary.

ANNOUNCEMENTS

Messrs. Knapp-Fisher, Powell and Russell have removed their offices to 6 Bryanston Street, W.1. Telephone No.: Welbeck 6095.

The partnership between Messrs. P. B. Rigg, F.R.I.B.A., and R. W. H. Vallis, B.Arch. (Liverpool), A.R.I.B.A., has been dissolved. Mr. Rigg will practise at 6 South

Parade, Weston-super-Mare, and Mr. Vallis at Monmouth House, Frome, each in his own name.

Mr. Rigg has also retired from the practice of Rigg, Vallis and Butler at Salisbury, and that practice will continue under the title of Vallis and Butler.

R. I. B. A.

COUNCIL MEETING

Following are some notes from a recent meeting of the Council of the R.I.B.A. :—

New Library Catalogue : The Council accepted the offer of Sir Banister Fletcher (Past-President) to give £500 for printing a new catalogue of the R.I.B.A. Library.

The Board of Architectural Education : The officers of the Board for the year ending March 31, 1936, were appointed as follows : Chairman : Mr. T. A. Darcy Braddell ; Vice-chairmen : Mr. Hubert Lidbetter (Chairman of the Examinations Committee); Professor L. B. Budden (Chairman of the Schools Committee) ; and Mr. Stephen Welsh (Chairman of the Prizes and Scholarships Committee). Hon. Secretary : Mr. A. B. Knapp-Fisher. The R.I.B.A. members of the Board and its various Committees were appointed.

Policy for Future Exhibitions : On the recommendation of the Art Standing Committee and the Public Relations Committee the Council approved the proposals outlined in a memorandum prepared by Mr. R. A. Duncan (A.) submitted by the Exhibition Sub-Committee with regard to the policy to be followed in arranging future exhibitions. The first of the large exhibitions to be organized in accordance with these proposals will be held in the early Spring of 1936 and the title will be "The Architect's Influence in Industry."

Suggestions for Improving the Usefulness of the R.I.B.A. : A small *ad hoc* committee has been appointed to consider and report upon the suggestion that a Junior Members Committee should be set up.

Advisory Committee of the Department of Architecture, Surveying and Building of the Northern Polytechnic : Mr. Hubert Lidbetter (F.) has been appointed to represent the R.I.B.A. on the Advisory Committee of the Department of Architecture, Surveying and Building of the Northern Polytechnic.

The Elmes Testimonial Fund : Mr. Duncan A. Campbell (F). has been reappointed as the R.I.B.A. representative on the Trustees of the Elmes Testimonial Fund.

Seventh International Congress for Art Education, Drawing and Art Applied to Industry : Lt.-Col. H. P. Cart de Lafontaine (F.) has been appointed as the R.I.B.A. representative on the British Committee for this Congress.

Sixth International Congress for Scientific Management : The Council have made a donation of £5 5s. towards the funds of the above Congress.

The Anti-Noise League : The Council have made a grant of £2 2s. to the Anti-Noise League for the year 1935.

The Noise Abatement Exhibition : The Council have authorized the Science Standing Committee to arrange an exhibit at the Noise Abatement Exhibition in June.

Reinstatement : The following ex-members were reinstated : As Fellows : Sir Reginald Blomfield (Retired Fellow) and Mr. C. F. Ward. As Associate : Mr. S. S. Careless. As Licentiates : Messrs. J. F. Chambers and D. H. Richards.

Resignations : The following resignations were accepted with regret : Messrs. M. A. Bazeley (F.), W. C. Walker (A.), L. F. Bagnall (L.), E. C. Beaumont (L.), A. Jenkins (L.), and Mrs. B. P. Köllerström (A.).

Transfer to the Retired Members Class : The following members were transferred to the Retired Members Class : As Retired Fellows : Messrs. H. L. Goddard, C. H. B. Quennell and W. E. Riley.

COMPETITION NEWS

CEMETERY CHAPEL, GLOUCESTER

Mr. Edward Maufe, M.A., F.R.I.B.A., the assessor in the competition for a cemetery chapel and auxiliary buildings at Coney Island, Gloucester, has made his award as follows :—

Design placed first (125 guineas) : Messrs. Petter and Warren, FF.R.I.B.A., of Yeovil.

Design placed second (100 guineas) : Messrs. C. S. Frith and R. J. Potter, of Salisbury.

Highly commended : Mr. J. Ralph Edwards, F.R.I.B.A., of Bristol ; Mr. H. E. Todd, A.R.I.B.A., of Bristol ; Mr. W. J. Stenner, F.R.I.B.A., of Bristol ; and Messrs. Ball and Pope, AA.R.I.B.A., of Weston-super-Mare.

The competition was limited to architects practising in the area of the Wessex Society of Architects.

COMPETITION FOR SCOTS ARCHITECTS

The Glasgow Corporation, in connection with the Housing and Health Exhibition to be held in the Kelvin Hall in October, has decided to invite architects in Scotland to submit designs for a four-apartment (semi-detached) cottage. Mr. G. Gardner M'Lean, vice-president of the Glasgow Institute of Architects, Mr. W. B. M'Nab, Director of Housing, and Mr. J. H. Ferrie, Principal architect of the Corporation Housing Department, have been appointed assessors. Awards of £100, £75, £50, and £25 are offered for the designs placed first, second, third and fourth, respectively.

The conditions of the competition provide that the maximum cost, assuming a contract for 300 houses, shall not exceed £290 per house, exclusive of land, roads, sewers, services, fees and all outside ground work. Competitors are left free as to architectural style, and choice of materials is not restricted.

Conditions, etc., are obtainable from the Manager, Kelvin Hall, Glasgow. The latest date for submission of designs is June 14.

PUBLIC HALL, HARPENDEN

Mr. Robert Lowry, F.R.I.B.A., has been appointed assessor in the open competition for a proposed new public hall, Harpenden, for the Harpenden Town Council.

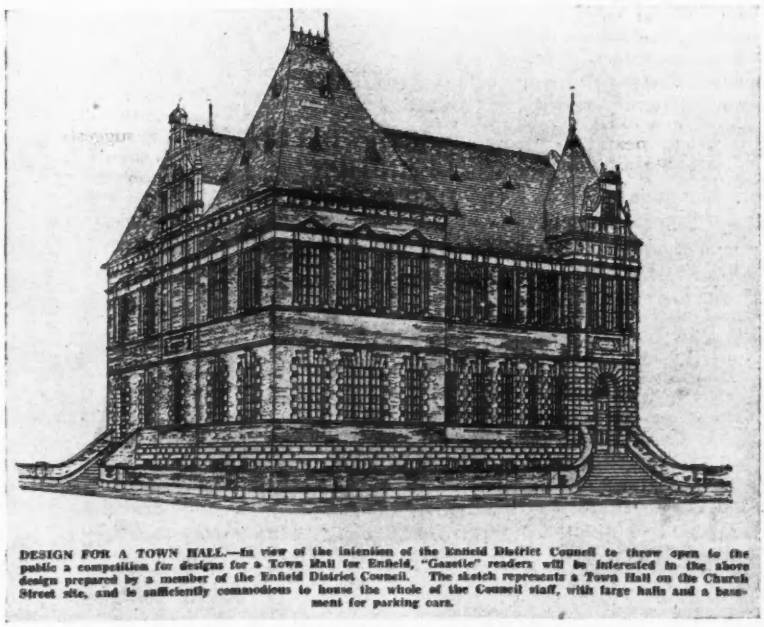
[*For Competitions Open, see page 658 of last week's issue.*]

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Messrs. Sydney Flavel and Co., Ltd., of Eagle Foundry, Leamington, write :

"No doubt it will be reported to you that a fairly serious fire took place here on Sunday morning last. We would like to give publicity to the fact that in no way are the works affected—production and deliveries can start immediately after re-opening after the Jubilee holiday. The damage was confined to part of the office buildings and until the debris has been cleared it is impossible to say how far our records have been destroyed, and therefore if all customers who have outstanding orders would send us copies of them it would greatly assist us, as we have transformed our Club House into temporary offices, pending rebuilding."

THIS ARSHETECTURE



DESIGN FOR A TOWN HALL.—In view of the intention of the Enfield District Council to throw open to the public a competition for designs for a Town Hall for Enfield, "Gazette" readers will be interested in the above design prepared by a member of the Enfield District Council. The sketch represents a Town Hall on the Church Street site, and is sufficiently commodious to house the whole of the Council staff, with large halls and a basement for parking cars.

From the "Enfield Gazette and Observer."

LETTERS FROM READERS

IAN MacALISTER (Secretary, R.I.B.A.)

G. C. RUSSELL-ROBERTS, F.I.A.A.

DOUGLAS SMITH

R.I.B.A. Elections

SIR,—As there appears to be some misunderstanding regarding the procedure for nominating members to serve on the R.I.B.A. Council and Standing Committees, the Council have directed me to give a brief statement explaining the precise procedure laid down in the Bye-laws.

The Bye-laws provide that two weeks prior to the annual general meeting in May, the Council shall issue to every member in the United Kingdom or Irish Free State entitled to vote a list of members whom they nominate to fill the vacancies which will exist on the Council and Standing Committees on the last day of June following. The Bye-laws further prescribe that in the case of Ordinary Members of Council, Associate Members of Council and Licentiate Members of Council more candidates shall be nominated than are required to fill the vacancies, thus ensuring that there shall be an election in each of these classes. The Bye-laws also give power for additional nominations to the Council and Standing Committees to be made by any seven or more members, and these may be received up to the close of the annual general meeting. It is required that such nominations shall be accompanied by a written undertaking by the nominee agreeing to serve if elected.

This information is printed on the Nomination List which is sent to every member entitled to vote. It is also provided that the name of every candidate, whether nominated by the Council or by any seven or more members, shall be printed on the voting list in the same type in alphabetical order. The voting list is issued not less than ten days after the publication in the R.I.B.A. Journal of the report of the proceedings at the annual general meeting.

IAN MACALISTER
(Secretary, R.I.B.A.)

Cottages or Flats

SIR,—My letter with regard to the above seems to have provoked many adverse remarks, mostly, I think, through misunderstanding of what was necessarily a very brief outline of my opinions on the matter. With your indulgence I should like to reply to the letters from Messrs. F. Jones and D. F. Craik.

Dealing with Mr. Jones's letter first. One must realize that the buildings referred to *re* "Cottages and Flats" are for habitation by the working classes who normally are equipped with the standard State education. Mr. Jones states that environment has no influence upon the outlook of people, but that civic and national responsibility is the result of education. I can only say that apparently he has had no experience of mass living among the working classes, otherwise he would be aware that the usual tendency is for the best standard to be reduced towards the lowest, thus producing a mean which is neither good nor thoroughly bad. Imagine, for instance, the impression upon a flat dweller on say the third floor having constantly to pass two other floors where the tenants take no real pride in their surroundings. This demoralizing effect goes on for years and cannot but have an adverse effect on the better tenant. Moreover, communal gardens, washhouses, playgrounds or anything of that nature, deadens the feeling of freedom and responsibility which is so important to obtain virile people thinking and doing things for themselves. The individual becomes only a small unit in a large organization having a common viewpoint on practically everything. It may also be interesting for him to know that Continental countries which started the vogue of large self-contained blocks of flats are reverting to the smaller units, and this very rapidly.

Broadly speaking, the letter from Mr. D. F. Craik adopts the same argument as that of Mr. Jones, and the answer to it, in the main, is the same. I do, however, agree with him that there is no more depressing sight than the satellite growth of many houses round the big towns which are erected with very little considered thought either from the town planning point of view or that of elevations. That is a problem on which architects could give great assistance if asked by the local authorities.

My letter has been misunderstood probably because I did not make it sufficiently clear that my remarks referred to the present craze of erecting large blocks of flats of a standardized plan where there is no real reason to have them. It is admitted that in densely populated areas the clearance of slums allows of, and demands this type of rebuilding, but in towns which are growing from comparatively small communities to a larger type, I am still of the opinion than an urban development is better for the people both now and in the future than mass housing creating a heavy density where none need exist.

G. C. RUSSELL-ROBERTS
Frinton-on-Sea

Private and Public Practice

SIR,—On April 5 the R.I.B.A. issued a pamphlet to 2,250 local authorities with the following doubtless good intentions :

(a) To prevent the execution of private work by whole-time officials of the authorities.

(b) To prevent the execution of public architectural work by officials of local authorities who have no qualification for such work.

(c) The execution of public architectural work by qualified subordinates of unqualified officials who take the credit for such work.

Those of your readers who care to examine this document will see that the first is made an excuse for a sweeping statement regarding the conditions of execution of such work that is very likely to lower the status, incidentally, of salaried members of the Institute itself, so far as the public is concerned.

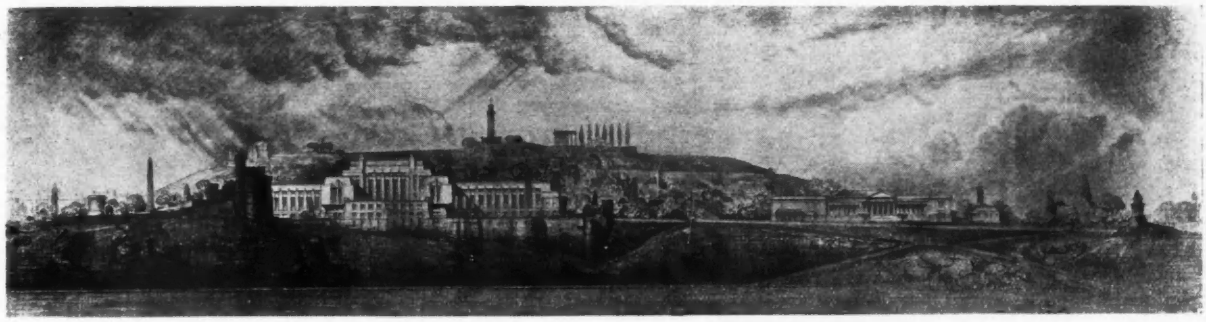
In any case, why should not qualified men supplement their often all-too-meagre incomes by such means, and welcome the opportunity to practice their art in other than a subordinate capacity?—such actions do not necessarily interfere with official duties, and it would be a selfish policy indeed that sought to penalize honest officials on account of those who are unscrupulous in the exercise of their privileges.

Those in private practice more often than not owe their good fortune to financial support not possessed by everyone, while few official architects adopt their career from choice.

While (b) appears at first sight very laudable, it is surely too loosely worded to do other than mislead any laymen into whose hands it may fall?

(c) can hardly be criticized; but it has to be remembered that the abuses therein described occur at least as often in the offices—of private architects—who are, as a group, perhaps unintentionally contrasted too favourably with their official brethren. The former have NOT, like the latter, generally of necessity attained their positions by virtue of their own efforts.

DOUGLAS SMITH
West Molesey



Government Buildings, Edinburgh. By Thomas S. Tait. Perspective by J. D. M. Harvey. (No. 1396.)

ARCHITECTURE AT THE ROYAL ACADEMY

[*REVIEWED BY L. W. THORNTON-WHITE*]

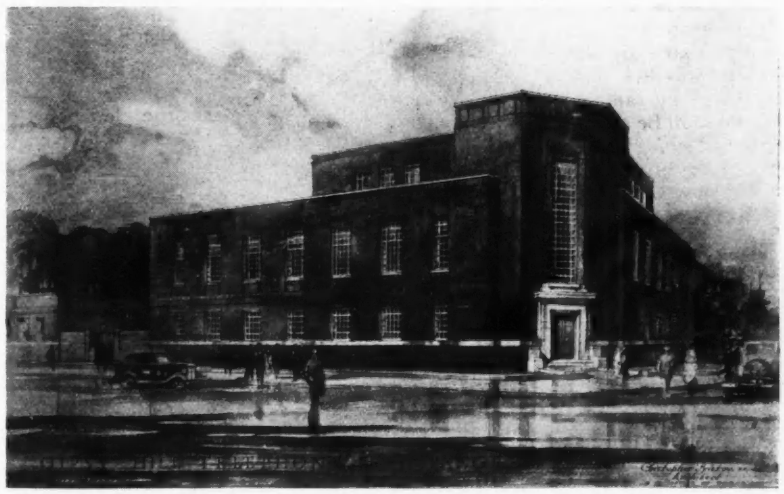
AFTER the excited glitter of the Industrial Bazaar it was a relief once again to ascend the sombre staircase and to sit amid the mellow gloom of Burlington House. The colourless stair carpet of the last exhibition still remains, to look singularly inappropriate between the rich balustrades and marbled columns, and the catalogue desks of *l'art moderne* stay to roll their restless eyes around the nicer turnstiles.

This Academic greyness is not at all a bad thing ; it does allow one to see the exhibits, to contemplate those which have a personal appeal and appreciate the pattern and the colour without unnecessary disturbance. And throughout this one hundred and sixty-seventh Royal Academy there is more colour than usual, except in the architecture room, where, misfortune, there is distinctly less. Through every section of the Exhibition, too (except perhaps in sculpture) the works are smaller, and on the whole a little better.

At first glance, the architecture room looks timid, though one's eye is immediately caught by the deep green rendering of Gatton Park with a bird's-eye view of the new House by Sir Edwin Cooper in the centre of it—this is the boldest drawing in the room, but I could not find the name of the draughtsman. There seems to me to be far too much white paper about in the room, too much geometry and deceitful presentation, and far too little vision or honest will to express the truth. Some of the drawings are petty to extremities and can only encourage the public to believe that their authors are a precious lot, following some obscure theory of technique, and quite insensitive to the human emotions with which the very exercise of their profession should bring them into observant contact.

On the other hand, there is some really first-class work judged both as architecture and as draughtsmanship, so that one is led to ask by what standards these works are judged and selected for exhibition. It is extremely difficult to understand how this room is compiled ; why some Christmas card cottages without even pictorial interest hang alongside equally romantic but infinitely more characterful examples of English brickwork ; why a sensitive and scholarly essay in contemporary building form should neighbour the clever rendering of a pathetic compilation of numerous but totally misunderstood *moderne* motifs ; why a piece of really creative work should be in the same exhibition as a measured drawing which, no matter how excellently it is presented, cannot by its nature be an original contribution.

The architectural Academicians exhibit modestly this year. Sir Edwin Lutyens shows one ephemeral drawing, of Middleton Park, an architectural work in the manner in which Sir Edwin is supreme—a quality of brick and stone and steeply pitched roofs which none but he can catch. The firm of Sir John Burnet, too, collectively exhibits only one work, a perspective of the German Hospital, London. This is a strong building, firmly and honestly presented by Mr. Myerscough-Walker, in its setting of trees and railings and little houses without any special or artificial emphasis on the hospital itself. Sir Edwin Cooper, besides his work at Gatton Park, gives us the Library at St. Hilda's College, a Cold Store at Deptford, and some

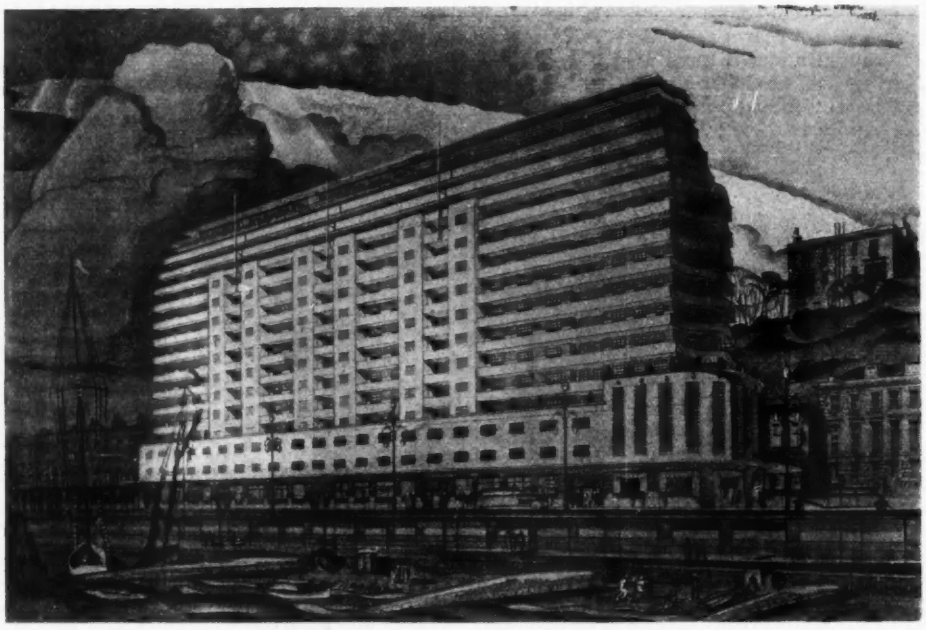


Telephone Exchange, Gypsy Hill. By Christopher Bristow. Perspective by C. Terry Pledge. (No. 1423.)

ARCHITECTURE AT THE



Queen's Hotel, Leeds. By W. Curtis Green, R.A., and partners and W. H. Hamlyn. Perspective by P. D. Hepworth. (No. 1456.)



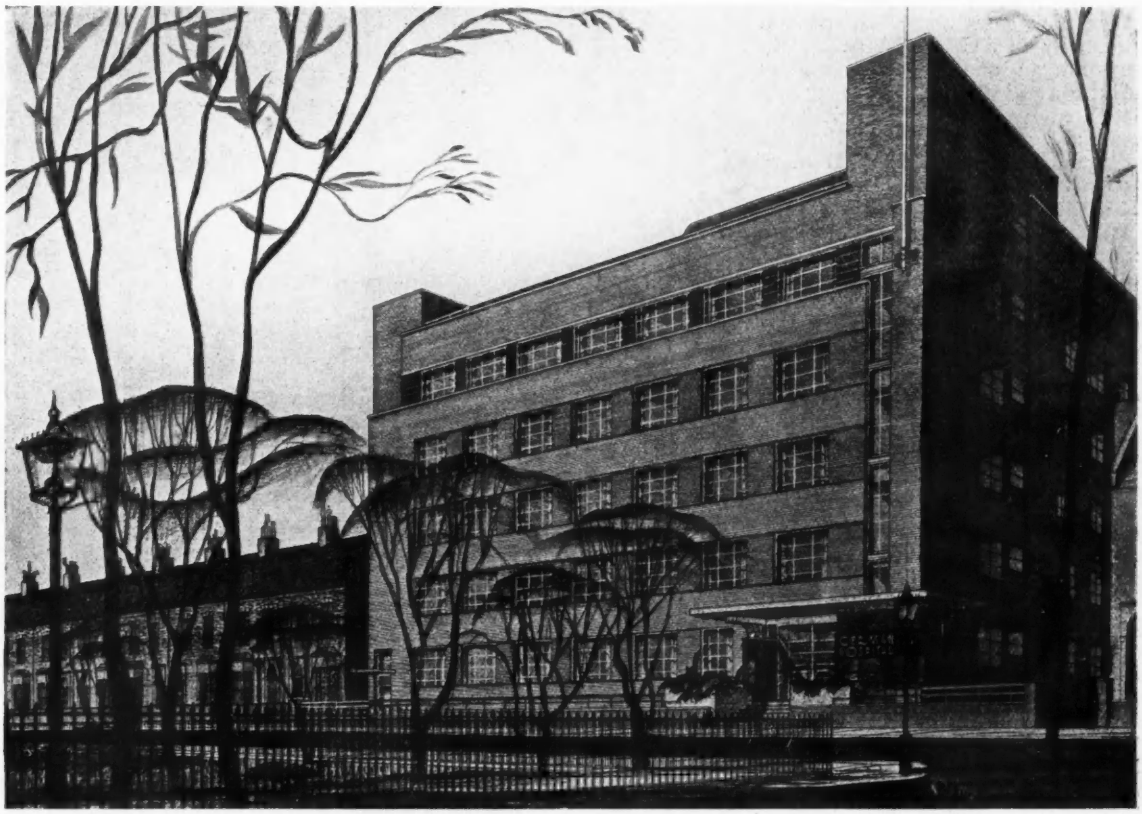
Marina Flats, St. Leonards-on-Sea. By Kenneth Dalgleish and R. K. Pullen. Perspective by R. Myerscough-Walker. (No. 1443.)

details of the Medmenham Ferry Memorial, which I frankly do not understand. Both Mr. Guy Dawber and Sir Reginald Blomfield have this year deserted the architecture room in favour of the water-colours and black-and-white rooms, where they exhibit with enviable skill. Mr. Curtis Green shows two drawings of the Queen's Hotel, Leeds, a scholarly building of simple dignity; though it has on it one or two of those diamond-shaped ornaments which form the decoration motif of the quite dissimilar Dorchester Hotel.

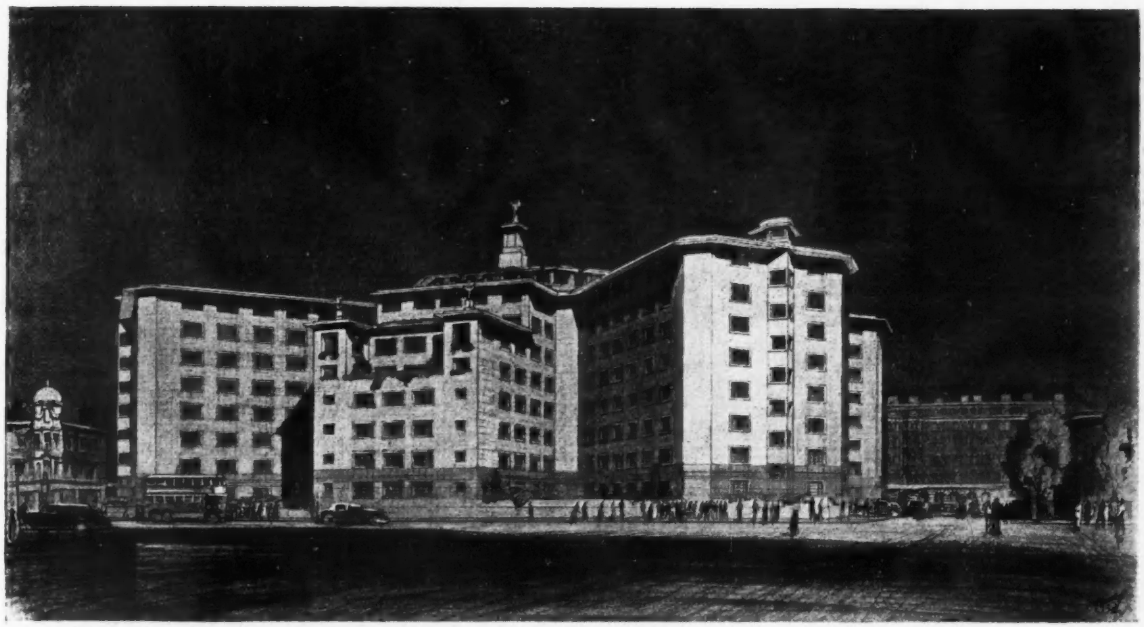
Mr. Walter Tapper deposits as his diploma work a characteristic perspective of the Church of the Annunciation in Old Quebec Street, a building which remains an extremely fine composition, however much the younger architects may quarrel with some of its details. There are no examples of work from Sir Giles Scott, Mr. A. J. Davis or Sir Herbert Baker.

Of work of national importance, the Government Buildings, Edinburgh, by Mr. Thomas S. Tait, take first place. They are beautifully shown in their extensive surroundings by a drawing by Mr. J. D. M. Harvey. Looking at this drawing I felt it a pity that the programme did not call for an asymmetric solution on this rugged, unbalanced site. There is a vigorous perspective of Mr. H. M. Robertson's British Pavilion at the Brussels Exhibition, with colourful flags, but no colour on the crowning Royal Arms. Of other Government buildings hung, there are several telephone exchanges, of which that at Gipsy Hill, by Mr. Christopher Bristow, seems best to express its purpose. It

ROYAL ACADEMY EXHIBITION



German Hospital, London. By Sir John Burnet, R.A., Tait and Lorne. Perspective by R. Myerscough-Walker. (No. 1370.)



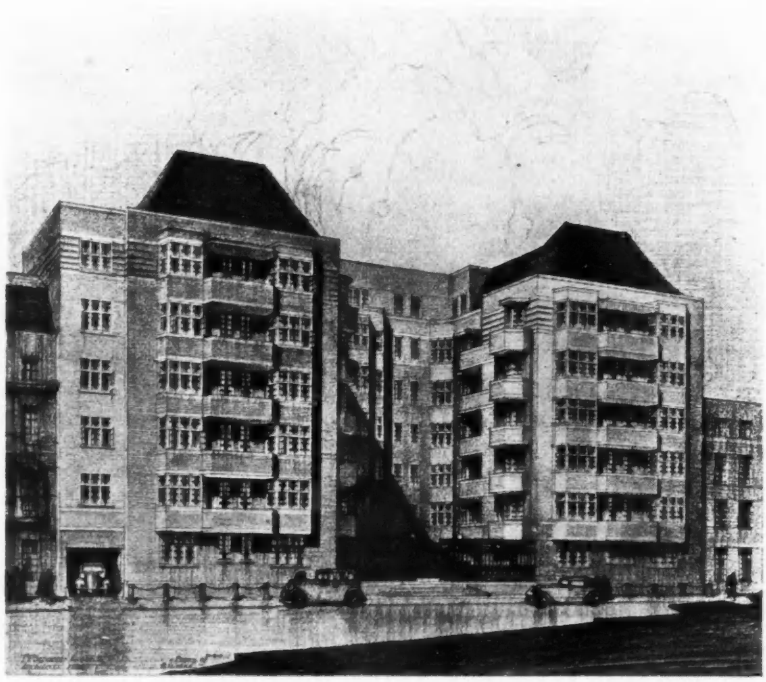
Albany Court Flats, Regent's Park. By Robert Atkinson. Perspective by J. D. M. Harvey. (No. 1422.)

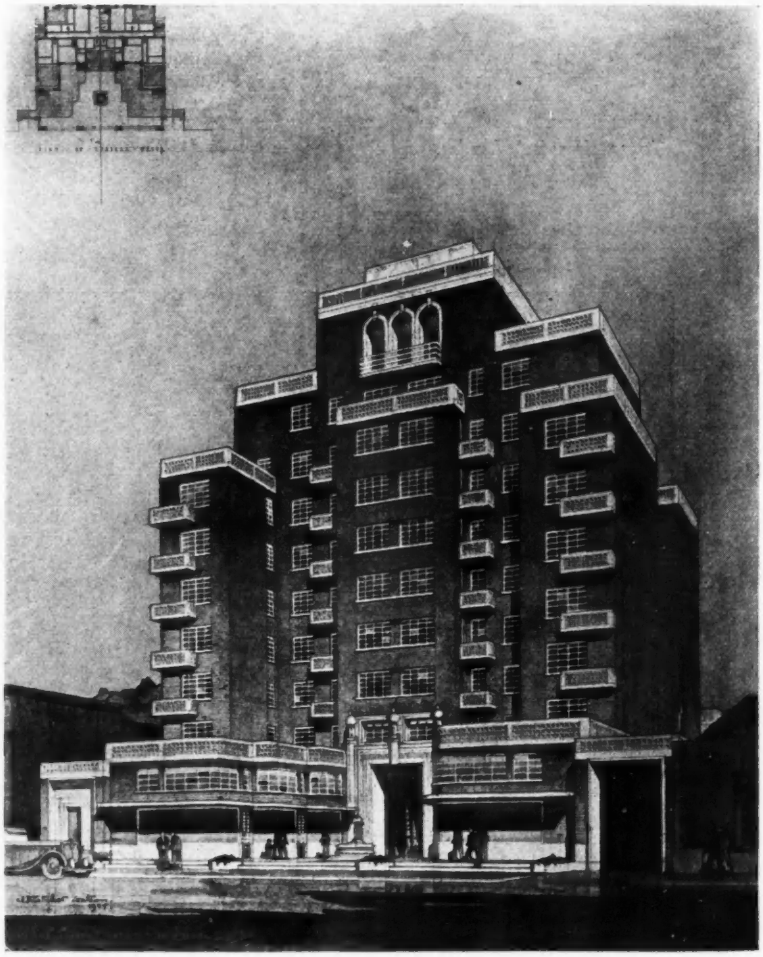
ARCHITECTURE AT

is one of the few brick telephone exchanges which, using a bold corner treatment, does not look like an overgrown Georgian house. A Section House, by Mr. G. M. Trench, looks very human and seems successfully to have avoided the grimness usually associated with police buildings—a result also achieved in a small police cottage at Weyhill by Mr. A. Leonard Roberts.

Residential flats are numerous at the Academy, Mr. Robert Atkinson alone exhibiting several examples. His Albany Court, Regent's Park, is particularly interesting for its plan grouped round a central turret (somewhat reminiscent of a Greek monument) and sheltered roof garden or terrace. The building seems to be in reinforced concrete, with an outside face of rectangular slabs. Quite exciting in the sincerity of its treatment, the Marina flats at St. Leonards, by K. Dalgleish and R. K. Pullen, are shown by a skilful perspective, a drawing which catches the breezes of the foreshore and sends the building careering into the sky like some enormous mainsail. Clare Court, Judd Street, raises its cliff-like brickwork and considered rhythm of balconies to the consistently high and liveable standard which one has come to take for granted in the work of Mr. T. P. Bennett. At Shepherd's Bush Mr. Maurice Webb and Mr. Stanley Hamp work in collaboration on a large block, in brickwork. It has crowning enrichments also in brickwork as a change from the parapet bands of cast stone work which, for a year or two, have been fashionable in this class of building. Mr. Stanley Ramsey submits some small but charming flats at Richmond. Among the many other schemes for flats exhibited few can claim a first-rate architectural solution to the difficult problem of avoiding a monotonous fenestration.

In spite of the numerous competitions of the past year there is not the usual crop of competition perspectives. The Slough Municipal Offices I thought disappointingly shown, and certainly not so pleasing as the other works exhibited by Messrs. C. H. James and Rowland Pierce. The Wolverhampton Halls and the Welwyn Offices are both well presented, though both make a humble bow to the more mature, scholarly and essentially personal work of Mr. V. O. Rees in the Swansea Library. Messrs. Knapp-Fisher, Powell and Russell show elevational drawings of a scheme for the new John

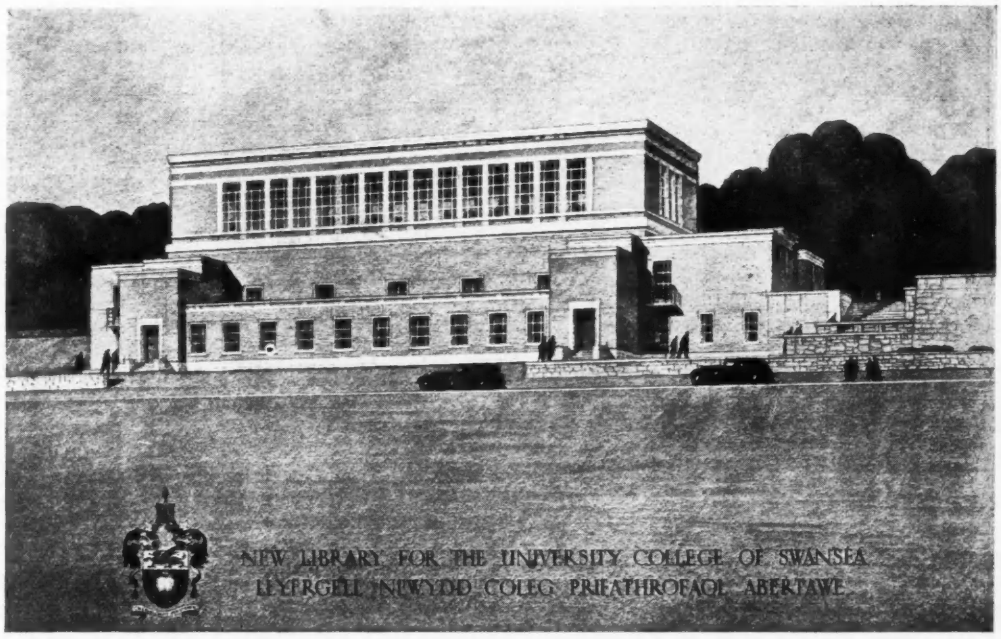




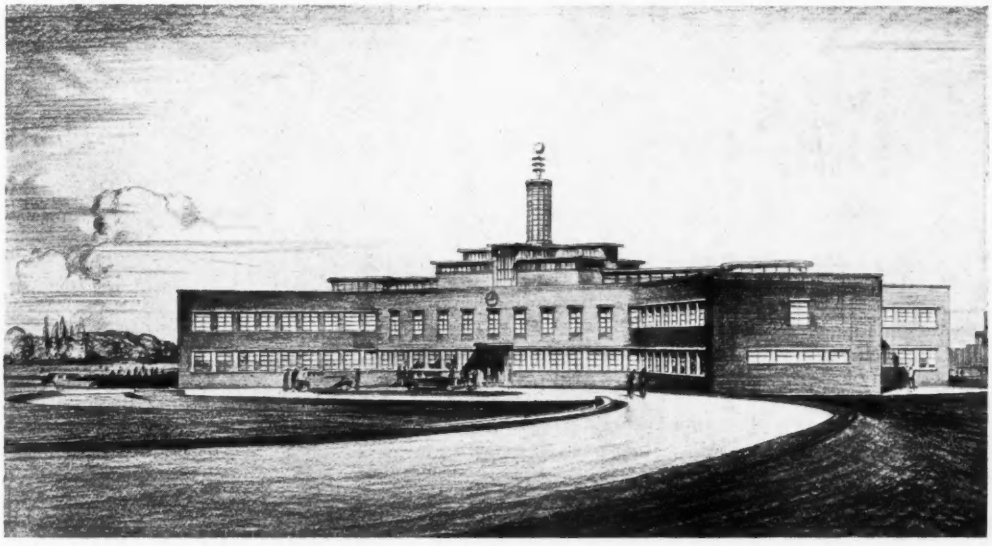
Top: Clare Court Flats, Judd Street, W. By T. P. Bennett and Son. Perspective by R. S. Cocknill. (No. 1378.)

Right: Flats at Shepherd's Bush. By Maurice E. Webb and Stanley Hamp. Perspective by J. Fletcher Watson. (No. 1388.)

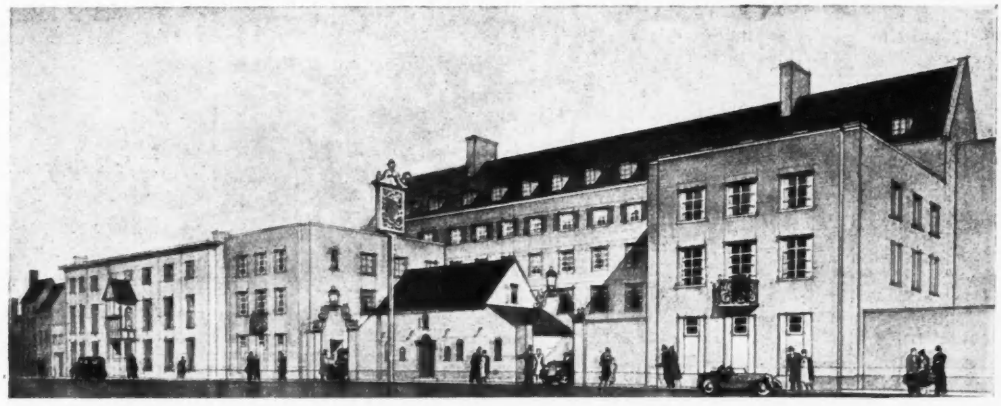
THE ROYAL ACADEMY EXHIBITION



Swansea University Library. By Verner O. Rees. Perspective by Cyril A. Farey. (*No. 1472.*)

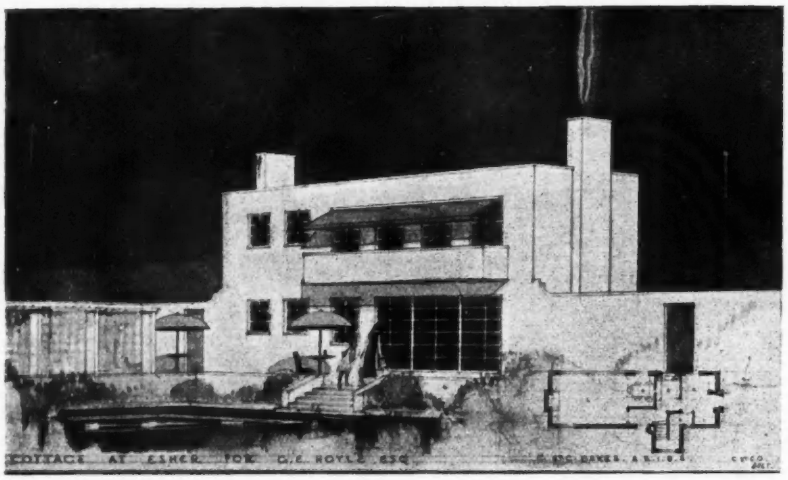


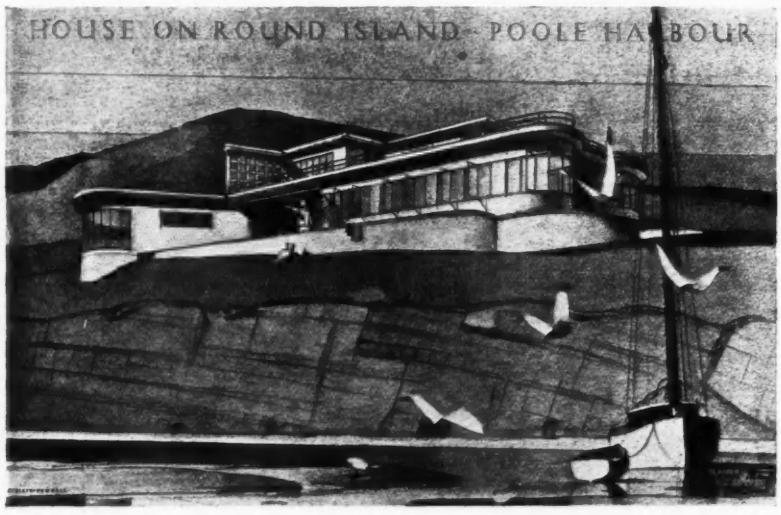
Offices at Slough. By A. B. Llewellyn Roberts. Perspective by J. D. M. Harvey. (*No. 1374.*)

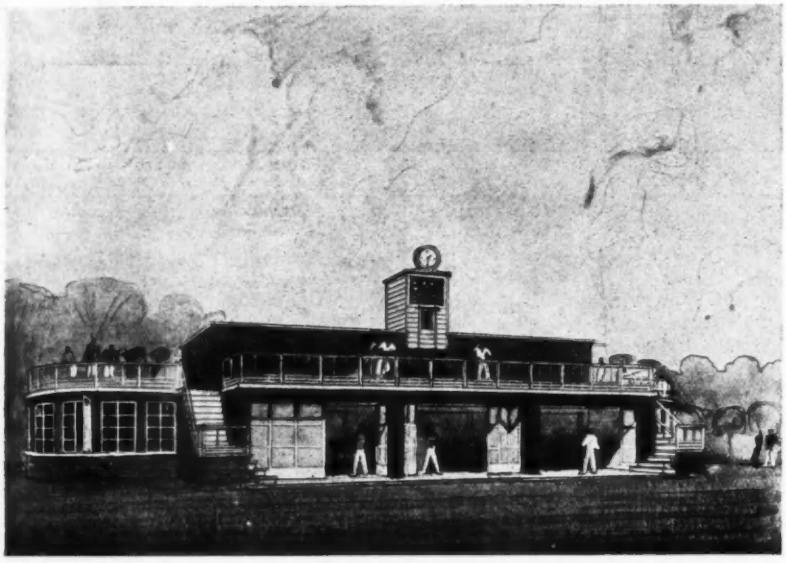


Norbury House Hotel, Droitwich. By E. Stanley Hall. Perspective by S. E. T. Cusdin. (*No. 1406.*)

AT THE R.A. EXHIBITION







Keble Church, though I searched in vain for the vital and more contemporary scheme by Mr. Martin-Smith.

There are not many commercial buildings exhibited which can claim any architectural merit, but there is a very pleasant little office building for Messrs. Nobel Chemical Finishes at Slough, the work of Mr. A. B. Llewellyn Roberts. The building relies chiefly upon its interesting plan disposition and simple detail, though it shows more than one point of similarity with the best of the new Underground stations. In the design for the Norbury House Hotel, Droitwich, Mr. E. Stanley Hall gives us a delightful essay in that use of careful brickwork combined with sturdy window proportions which is a characteristically English architectural contribution. In a similar design manner Messrs. Adams, Holden and Pearson show a portion of their new Westminster Hospital. In a cricket pavilion at Acton Mr. John Grey and Mr. G. A. Jellicoe combine to give us a really well worked-out composition, with a lean and delicate clock balancing precariously on top.

Among the smaller works there is a fascinating water-colour by Mr. Beaty-Pownall of a house near Poole Harbour, designed by Mr. Edward Maufe, and a firm and graceful cottage at Esher, by Mr. St. Clair Oakes. Observatories are always intriguing buildings, and the small one which Mr. W. G. Newton has designed for Marlborough College is no exception to the interesting rule. Mr. Brian O'Rorke, in a design for a house at Ashcombe, Devon, shows us that really sensitive design can be remarkably attractive when carried out in local materials.

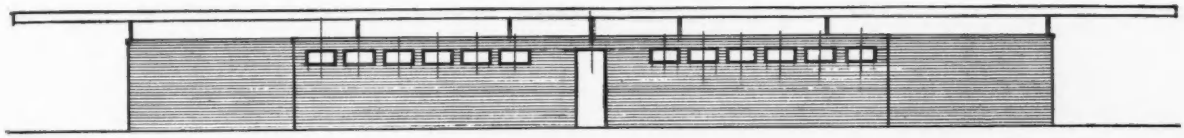
The model of the newer Liverpool Cathedral in last year's Academy set so high a standard of model making that further masterpieces seem shy of entering the architectural room this year. The very few models exhibited are small, and call for no particular mention. This is regrettable, for models show architecture intelligibly to the general public much more successfully than any other medium. The best is for a circular house, in concrete; though it looks shy and self-conscious in these more colourful surroundings.

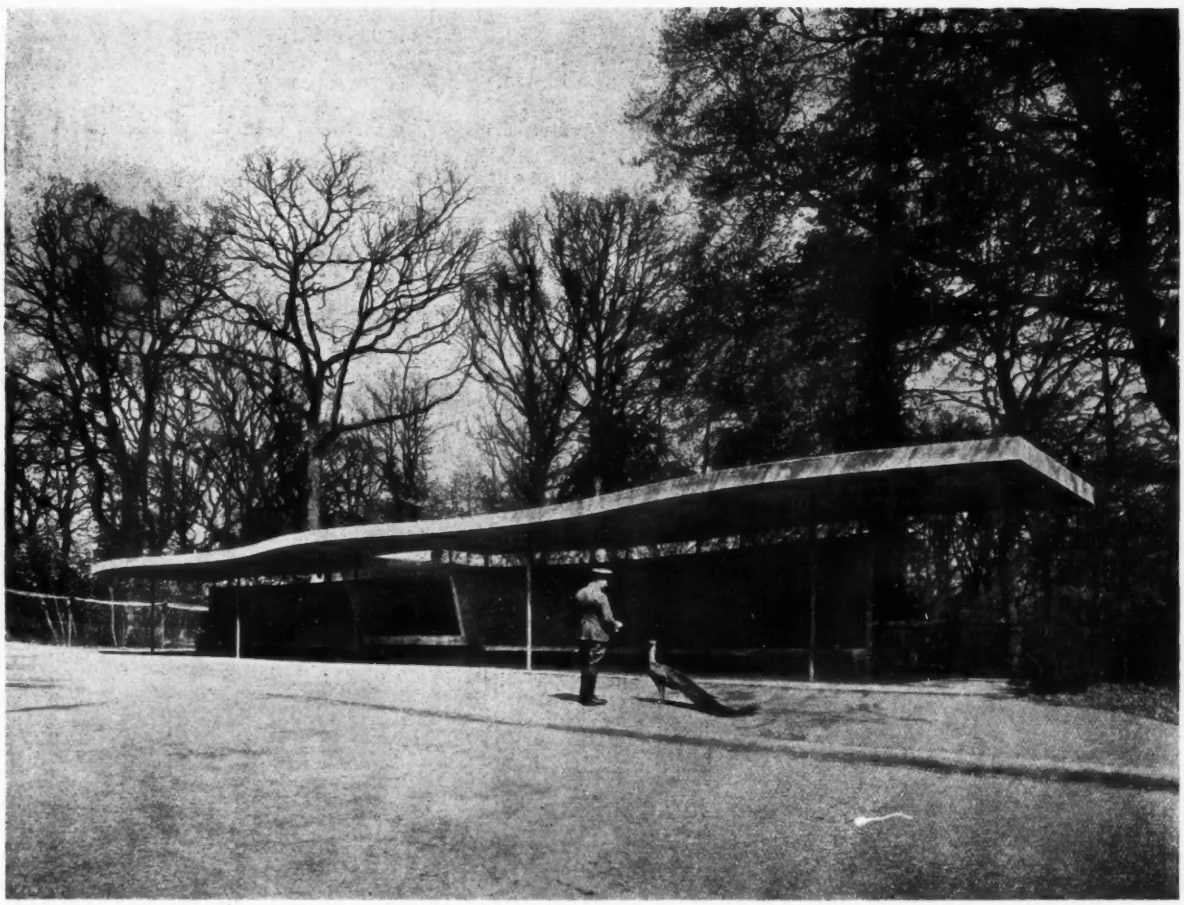
Top: Cottage at Esher. By C. St. Clair Oakes. Perspective by the architect. (No. 1362.)

Centre: House on Round Island, Poole Harbour. By Edward Maufe. Perspective by D. H. Beaty-Pownall. (No. 1495.)

Left: Cricket Pavilion, Acton. By John Grey and G. A. Jellicoe. Perspective by D. F. Martin-Smith. (No. 1426.)

SHELTER AT WHIPSNADE ZOO





DESIGNED BY

LUBETKIN

AND TECTON

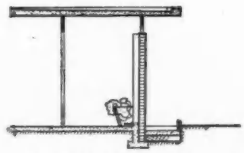
This shelter in the zoological park at Whipsnade is one unit in the new architectural development of the main avenue, of which it is the termination. The entrance gates at the other end of the avenue are to be replaced by an entrance of the same character as the shelter; similarly the bird sanctuary in the middle. The height of the flat roof of the shelter is designed to be consistent with the elephant house, now under construction, that adjoins it.

The shelter consists of a concrete canopy 95 ft. long, supported on slender steel columns. A central wall of brick, following in plan the undulating shape of the roof, has a seat (in concrete) along one side, terminating in concrete flower boxes and with the opening of a tobacconist's kiosk in the centre. On the other side a block of lavatories for men and women, with walls of brick (to harmonize with the restaurant) and a concrete slab roof, flanks the kiosk on either side. The brick wall serves to screen the lavatory entrances from the shelter. Glass discs for additional light are set into the concrete of the canopy.

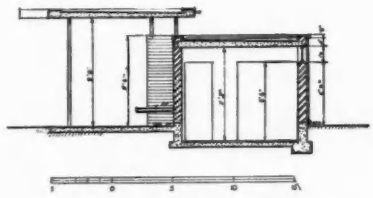
On this page are shown the back elevation, with the lavatory blocks, and a view of the front.

SHELTER AT WHIPSNADE ZOO





SECTION AT A

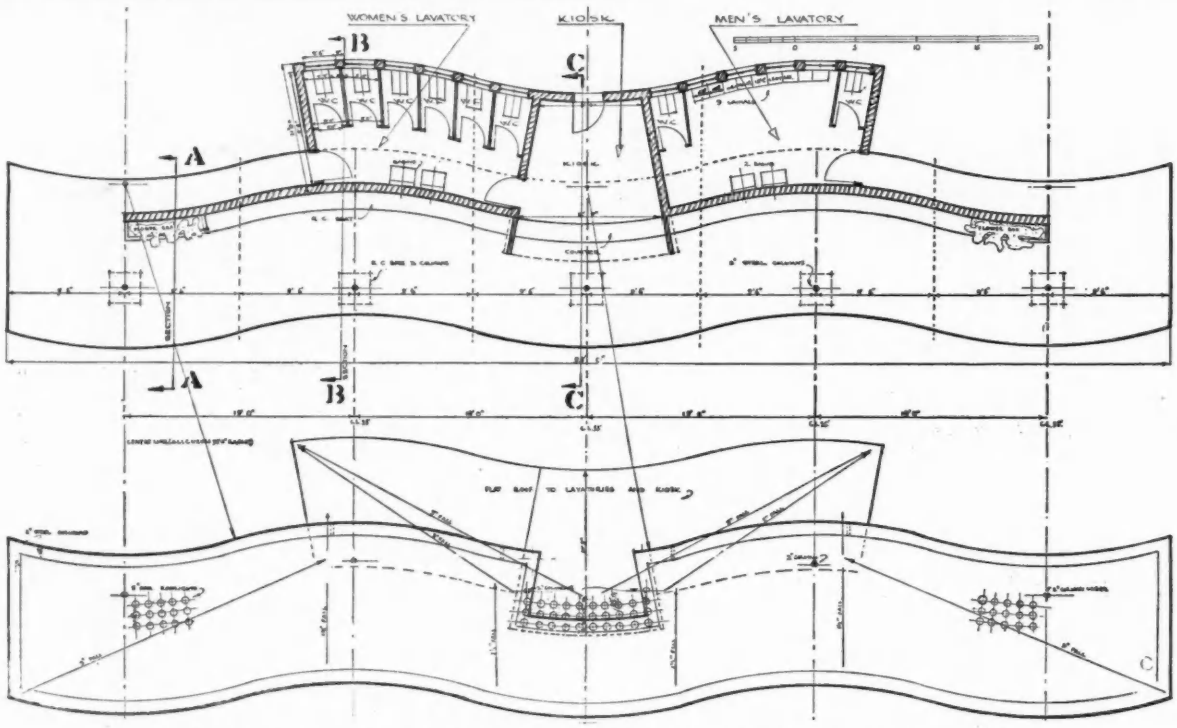


SECTION AT B

DESIGNED BY

LUBETKIN

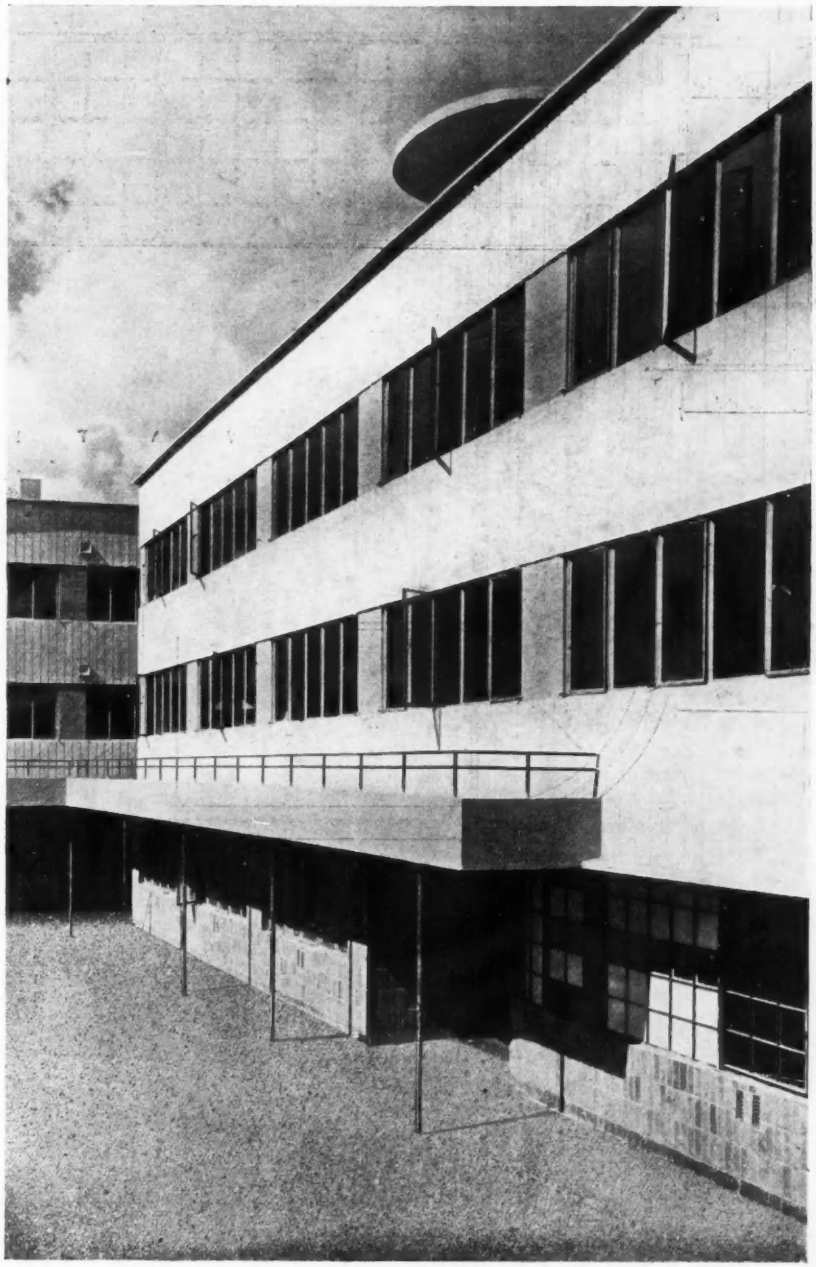
AND TECTON



GROUND FLOOR PLAN AND PLAN AT LEVEL OF ROOF SLABS

WORKING DETAILS : 255

ENTRANCE DOOR & WINDOWS • FLATS IN GOLDERS GREEN • A. V. PILICHOWSKI

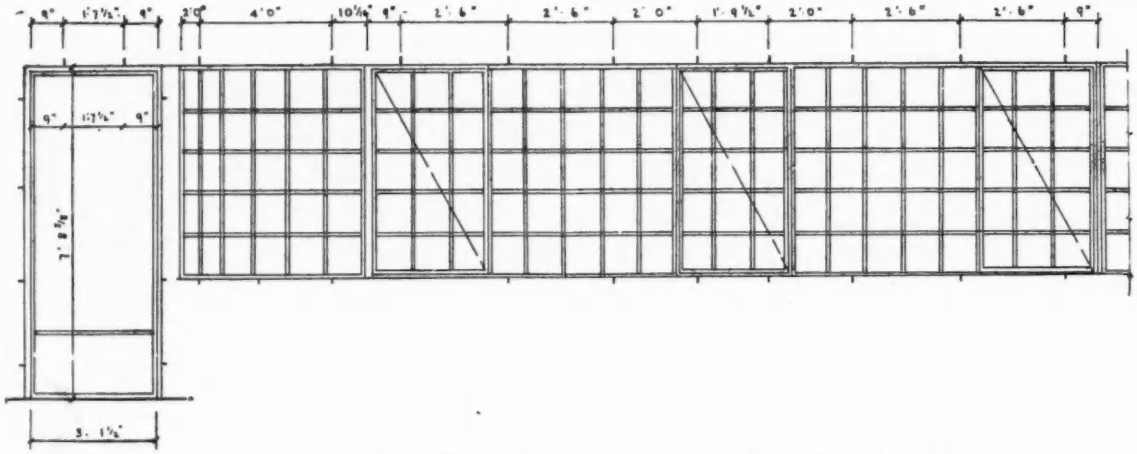


The windows illustrated above run past the end of a 2-in. partition, the narrow gap between the frames being filled in with a polished steel strip, as shown in the section overleaf. The door lock is fixed to the pressed steel door frame in order to avoid the usual square panel in the door itself.

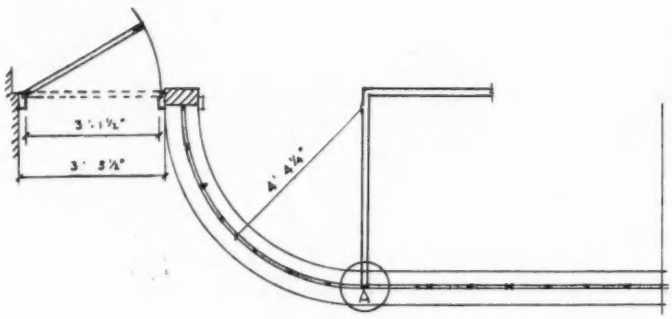
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WORKING DETAILS : 256

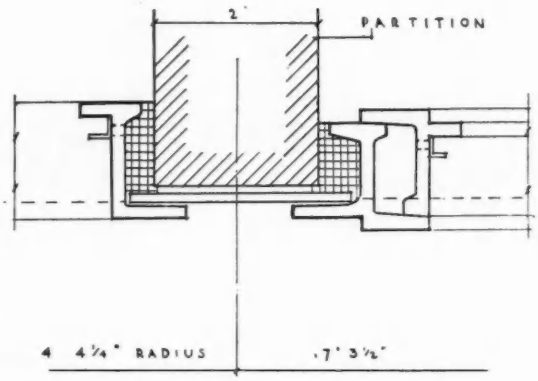
ENTRANCE DOOR & WINDOWS • FLATS IN GOLDERS GREEN • A. V. PILICHOWSKI



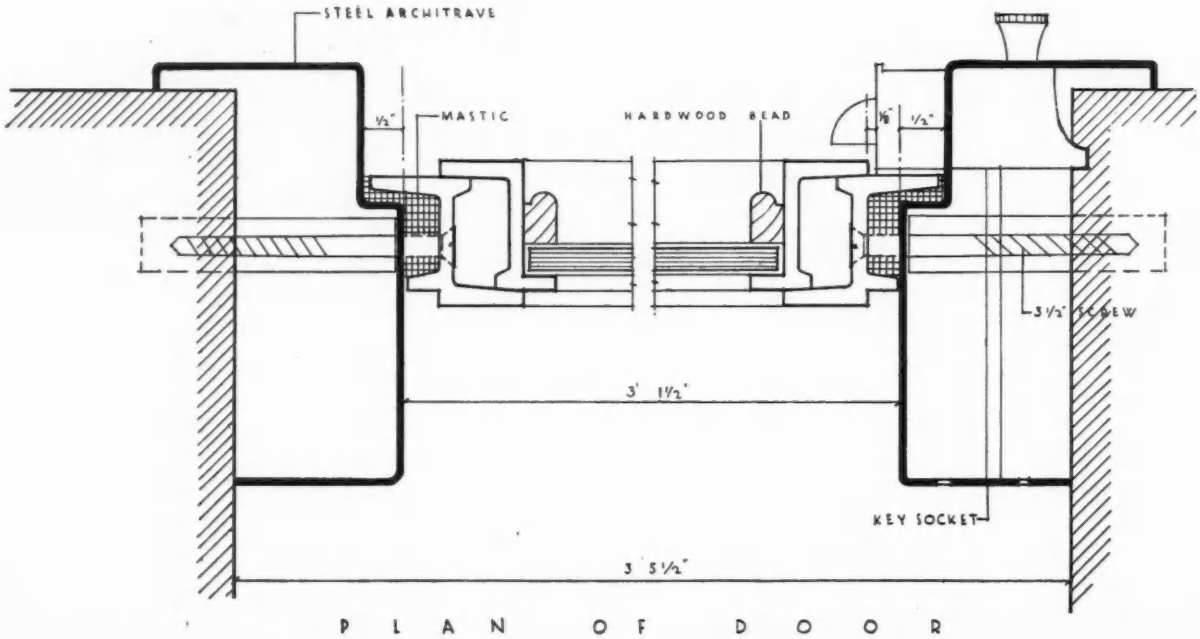
ELEVATION



PART PLAN



PLAN AT A



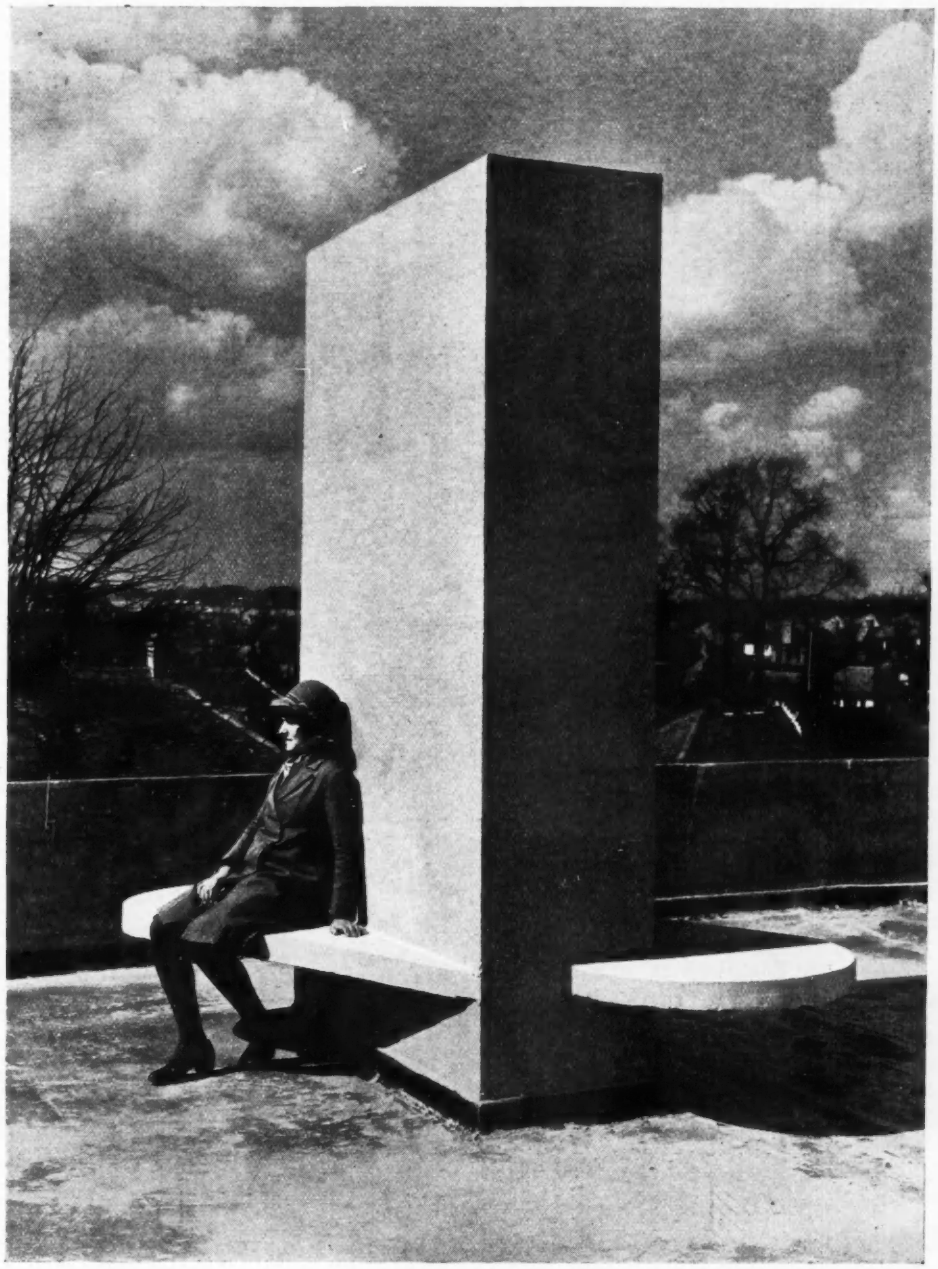
PLAN OF DOOR



Details of the windows illustrated overleaf.

WORKING DETAILS : 257

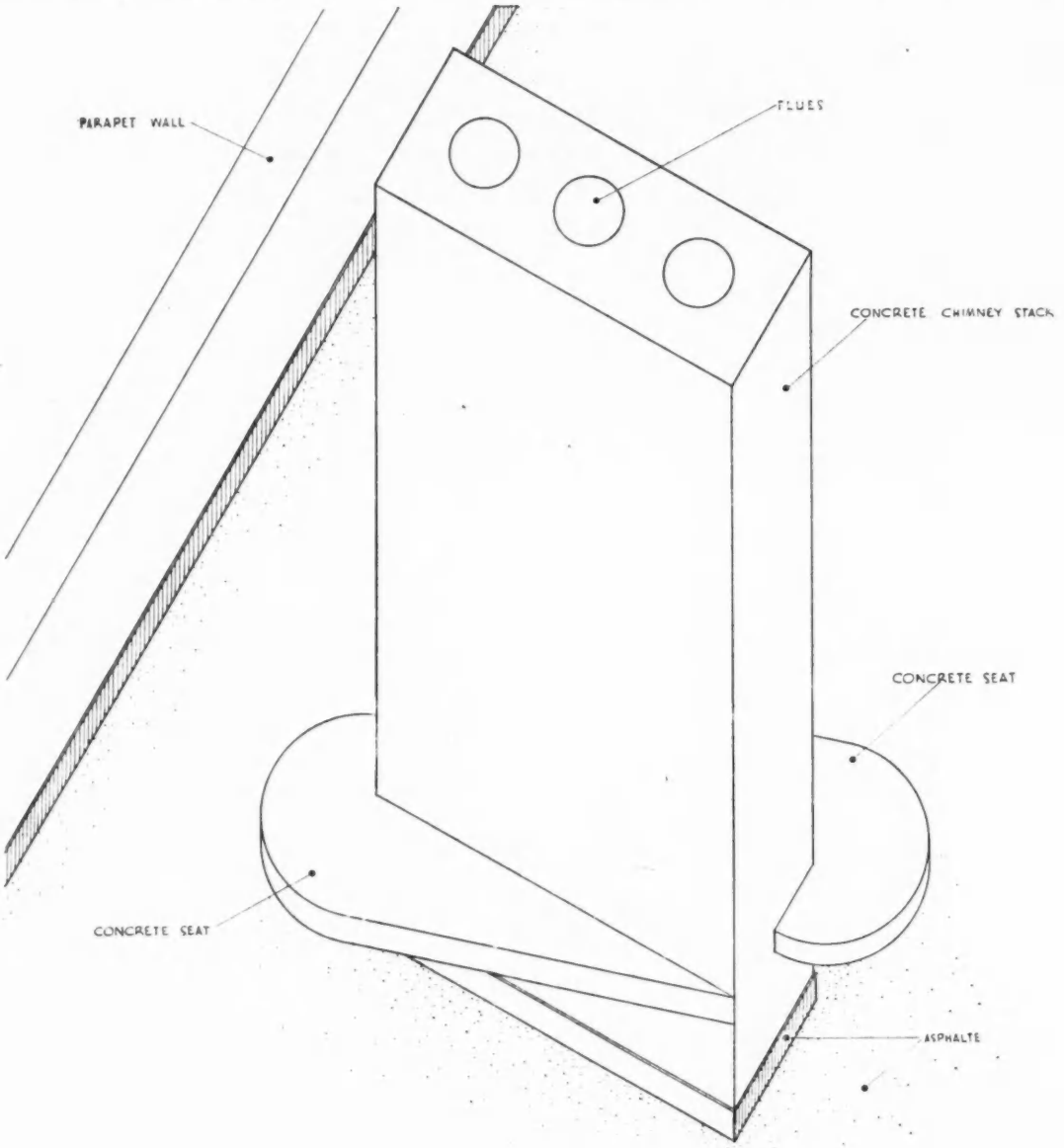
CHIMNEY TREATMENT • FLATS IN GOLDERS GREEN • A. V. PILICHOWSKI

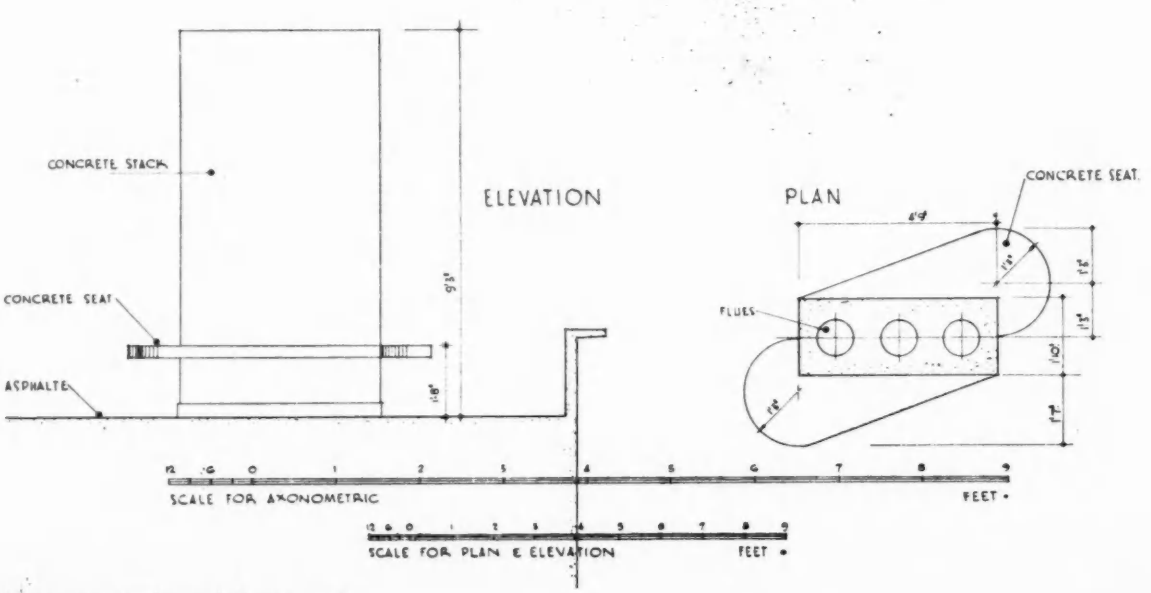


The concrete chimney stack illustrated above contains three flues and has two reinforced concrete seats built in near its base. The roof finish is asphalt, without screeding, the whole slab being laid to falls. An axonometric and the essential dimensions are illustrated overleaf.

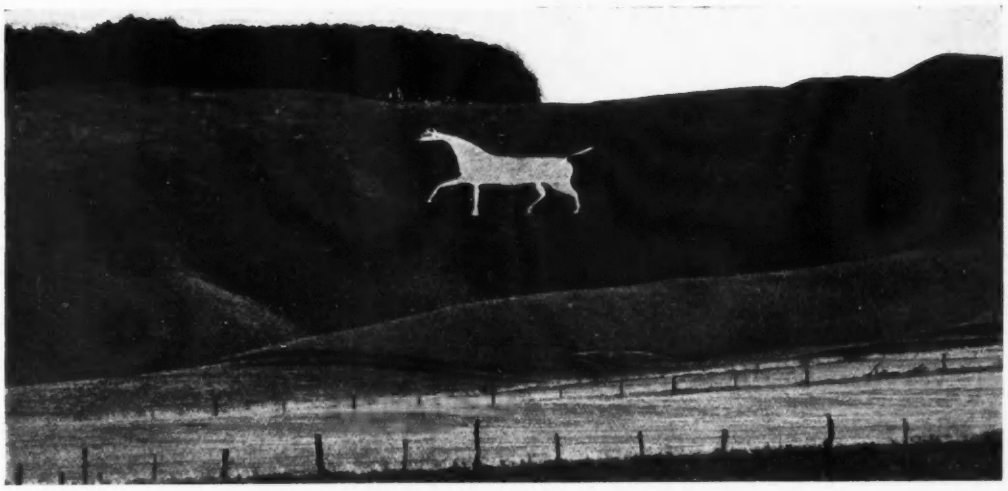
WORKING DETAILS : 258

CHIMNEY TREATMENT • FLATS IN GOLDERS GREEN • A. V. PILICHOWSKI





Axonometric, plan and elevation of the chimney illustrated overleaf.



The Cherhill Horse, from "Wiltshire."

L I T E R A T U R E

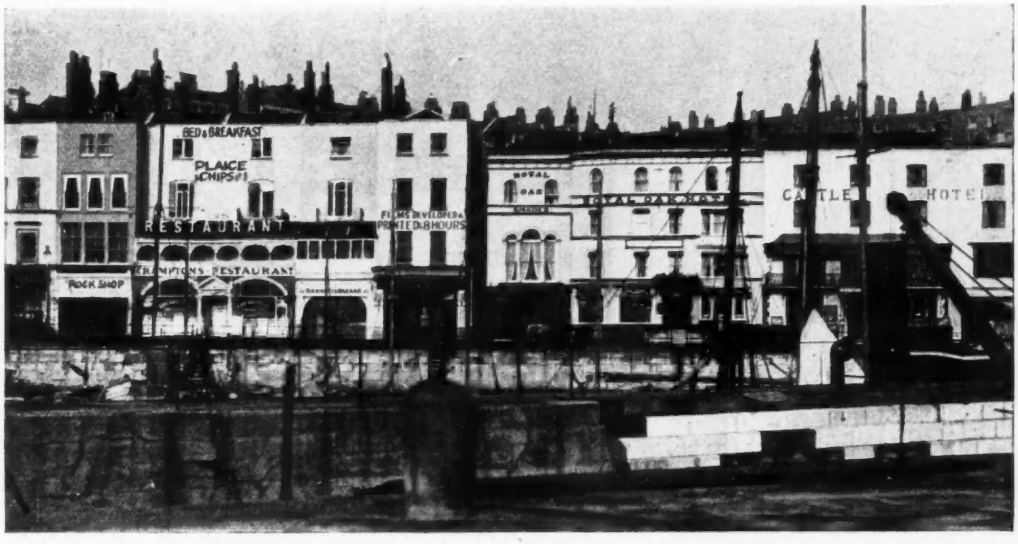
COUNTIES WELL AND LITTLE KNOWN

[*BY R. P. ROSS WILLIAMSON*]

Shell Guide to Kent. Edited by Lord Clonmore. *Shell Guide to Wiltshire.* Edited by Robert Byron. London: The Architectural Press. Price 2s. 6d. net, each.

LAST summer, it will be remembered, Mr. John Betjeman inaugurated his general editorship of the Shell Guides to the counties of England by his own excellent guide to Cornwall. And we don't think it would be unfair to say that quite a lot of people enjoyed Cornwall all the more because of it. Now Kent is probably the best known county in England, and Wiltshire the least known. This fine impartiality in the choice of the next two counties to be re-examined and re-estimated is typical of the attitude of this series. It will not allow itself to be influenced by former guides either in manner or format. Thus it is refreshing to find the "close-ups" of five young pigs stretching across two pages, emphasizing the importance of the bacon industry in modern Wiltshire, and invigorating to hear that the Roman pavement at Littlecote in the eighteenth century was discovered "evidently by someone of taste, as it was promptly destroyed," in an entirely unsentimental survey of the artistic achievements of the county, from Stonehenge to the carpets of Wilton designed by McKnight Kauffer.

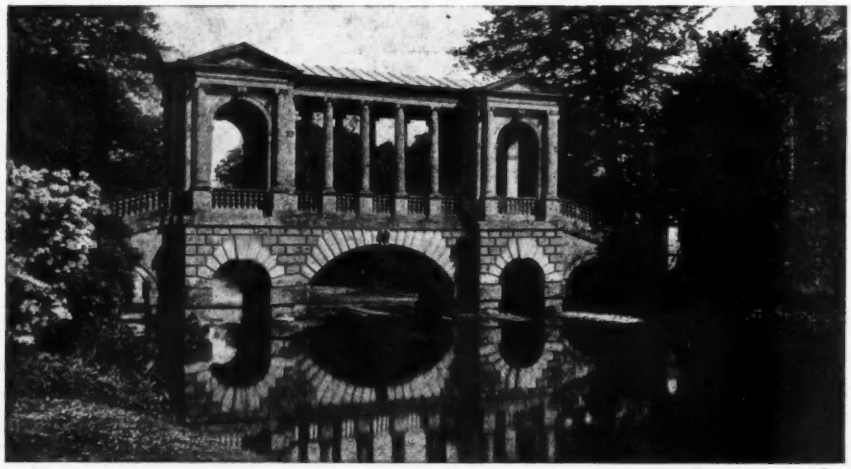
Lord Clonmore, in "Kent," had the harder task. Preconceived ideas about Kent, its hops, its orchards, its very Englishness, make it very difficult to say anything new without upsetting the loyalties of those who have never even set foot within its borders, yet insist on regarding the "Gateway of England" or "the Garden of England" with an awe that is almost religious. But it is impossible that the Editor can have offended anybody's susceptibilities. He has got Miss Sheila Kaye-Smith to write about the Marsh country along the Sussex



Ramsgate Harbour, from "Kent."



The eighteenth-century Gothic façade of Lacock Abbey, from "Wiltshire."



The Palladian Bridge at Wilton, from "Wiltshire."

border, the Dean of Rochester on his little-known Cathedral and Mr. Arthur Waugh on the associations of Charles Dickens with the county. A very excellent account of Kent's annual invasion by the hop-pickers is contributed by Mr. Miles Sargent.

Mr. Byron, obviously inspired by the free and open terrain of which happily so much of Wiltshire still consists, has planned his book on a much more expansive scale. His story begins with the Avebury of Neolithic Man and ends with the arrival of the Westinghouse Brake Company at Chippenham in 1932, claiming that historical continuity, with its savour of contrast is Wiltshire's chief delight, and that to disdain the monuments of the nineteenth century and to ignore those of the twentieth is to fall into the same trap as the guide-book writers, antiquarians and other professional sentimentalists. The story is reinforced with illustrations which, in number and aptness, are beyond praise. His account of pre-historic Wiltshire is admirable, and he has, moreover, taken the trouble to make it up to date. The temptation to "run on" in describing the most archæologically important county in England has proved too much for many men, but this book contains only one slip—and that, curiously enough, much later on in the chapter devoted to "War." He talks of the Bronze Age man slaying his hundreds on Salisbury Plain. We still don't know much about Bronze Age Man, but one thing we do know is that he never appears to have slain anybody in anger. This era was probably the most peaceable that this country has ever known. A small point, perhaps, and we should not have trespassed on one of the author's more natural periods, had not the general accuracy of everything else been so very praiseworthy.

Miss Edith Olivier's Gazetteer is about as good a thing of its difficult sort as one could hope for. With its preoccupation with the architectural features of the countryside, especially with "gentlemen's seats," one is reminded of the great road-books or coaching guides of a hundred years ago. And even the suggestion that our generation, "road-conscious" again after a century's dormancy, should show that it is in a fair way to producing a series comparable to those most perfect of guide-books, is the highest praise we can give.

●

A Symposium on Illumination. Edited by C. J. Webber Grieveson. London: Chapman and Hall, Ltd. Price 13s. 6d. net.

THIS book is a reprint of a series of lectures that were given in the spring of 1933 under the joint auspices of the National Illumination Committee of Great Britain and the Illuminating Engineering Society. The information contained in them is, of course, extremely technical. Each subject is dealt with by one of the leading experts on that subject, whose approach to it is strictly scientific. The lectures that are likely to be of most interest to architects are the less theoretical ones, notably that by Mr. A. B. Read on "Lighting for Decoration and Entertainment" (in which the subordination of the lighting to the architectural design rather than the "featuring" of lighting as an end in itself is sensibly suggested as the reasonable method of treatment), that by Mr. H. C. Weston on "Lighting for Safety, Health and Welfare," which deals briefly with such subjects as lighting and the cause of factory accidents, fatigue and glare, and that by J. F. Colquhoun on "Public Lighting." Other titles include "Photometic Standards, Lamp



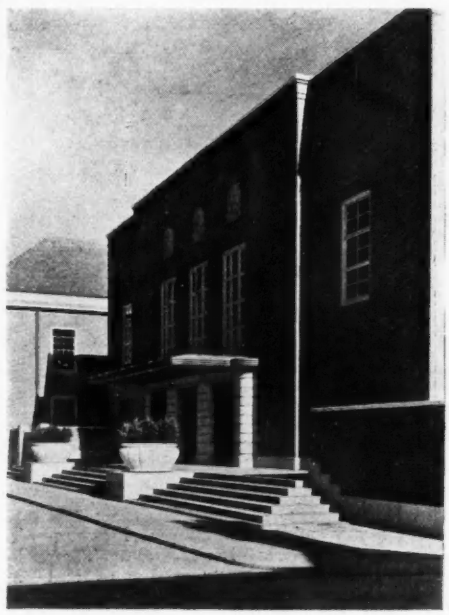
A mill on the river Stour, from "Kent."

Photometry and Illumination Measurements," "Electric Lamps and Their Characteristics" and "Gas Lamps and Their Characteristics." The introductory lecture, by Clifford C. Paterson: "Lighting in the Service of Mankind," contains a now topical appeal for the permanent flood-lighting of public buildings. The book is well printed and illustrated.

MUNICIPAL ASSEMBLY HALL, WORTHING:



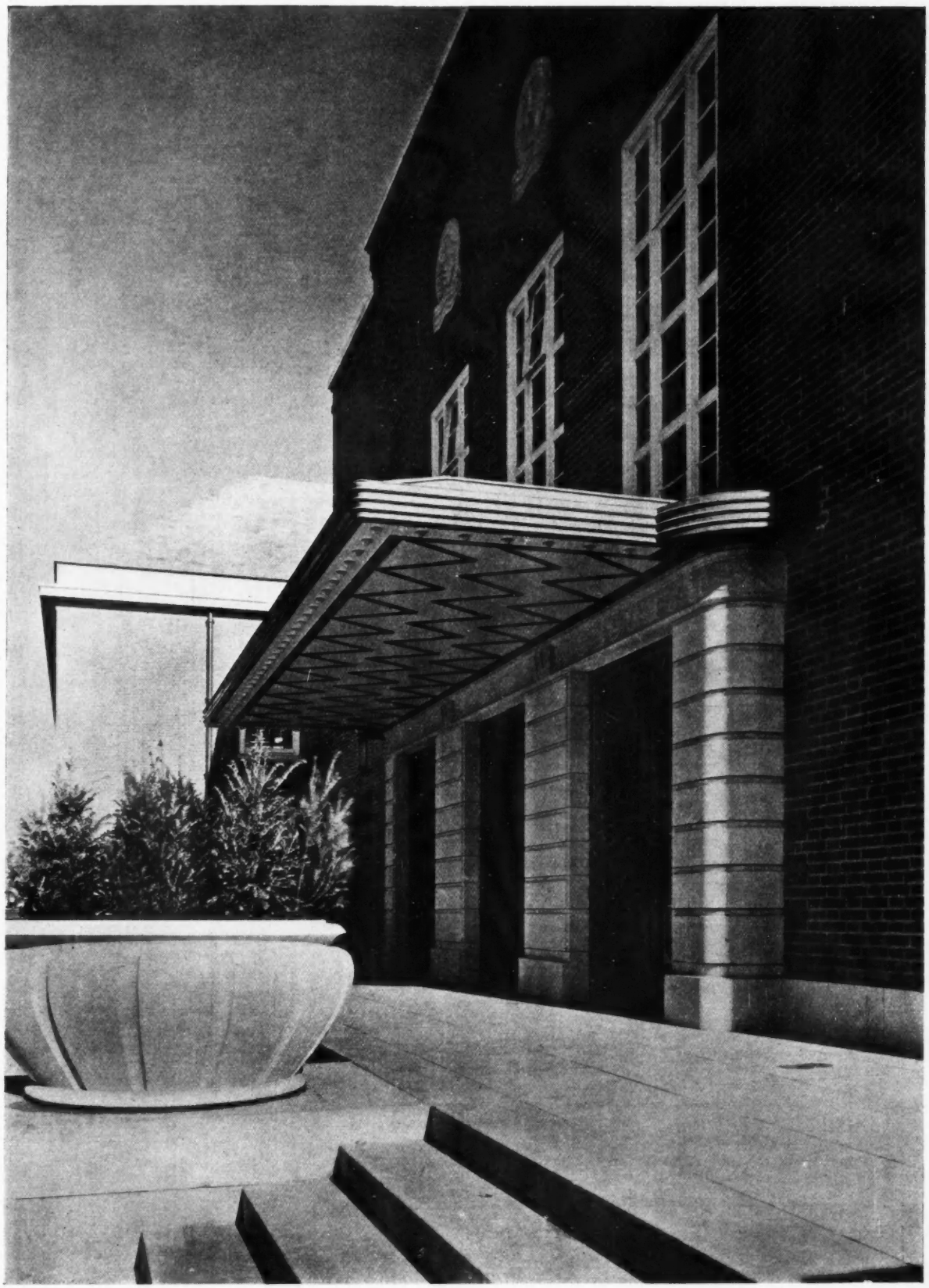
The photographs show: left, a side view of the hall, taken approximately from the south; below, the main entrance on the north-west; on the facing page, a detail of the main entrance showing the marquise and one of the two vases that flank the doorways.



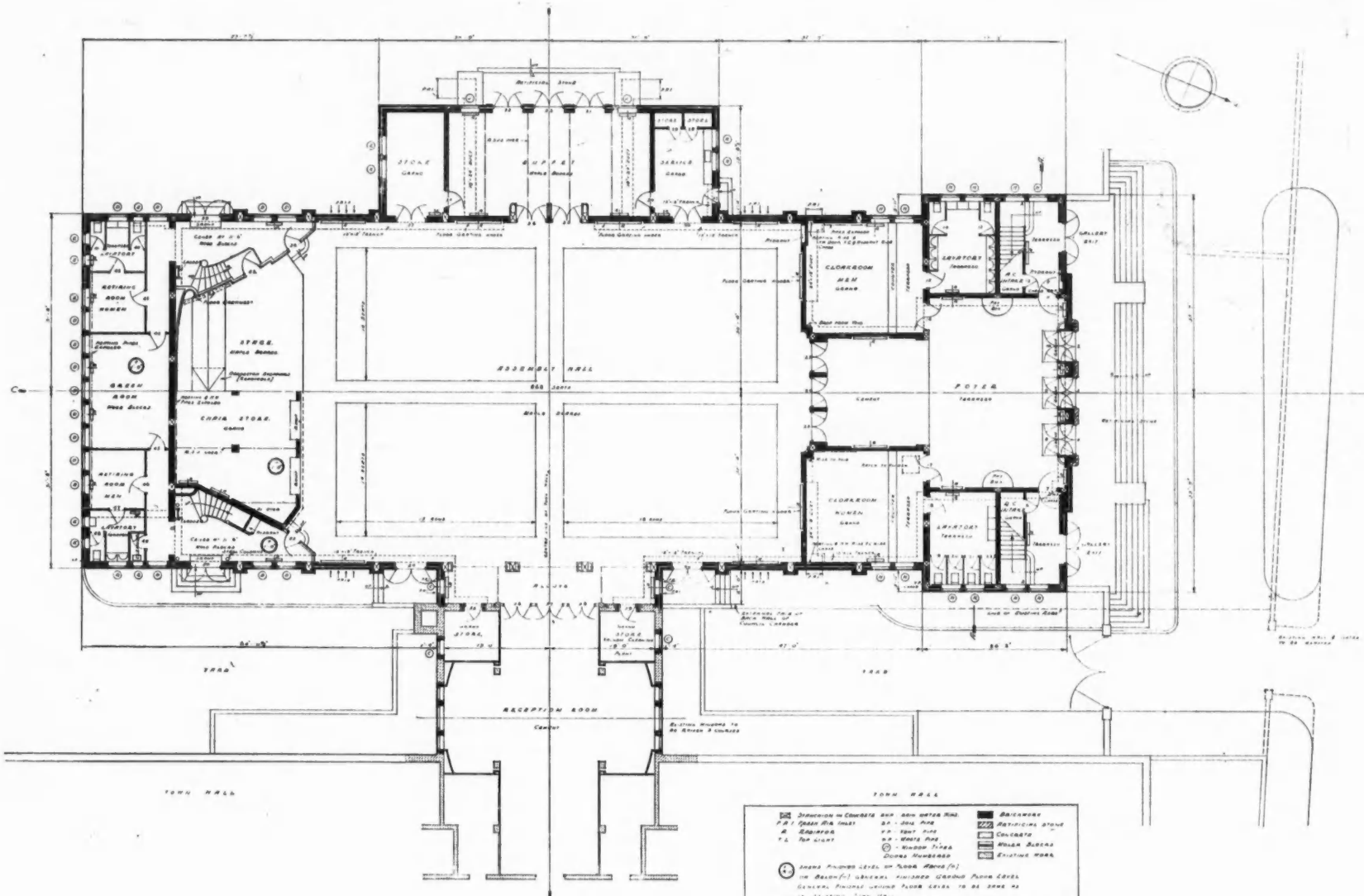
This assembly hall, which has recently been opened, completes the group of municipal buildings commenced some four or five years ago, and won by the architect in competition. It has been designed as a multi-purpose hall, but is not equipped for stage plays. It is intended to be used for meetings, lectures, chamber music and dancing. It has a seating capacity of 868 on the ground floor and 224 in an end gallery.

PLANNING. *The hall is approached from the municipal offices through a reception room, but the public approach is from a separate entrance in a side road. There is a small buffet with service room where light refreshments only will be provided. Cloakroom and lavatory accommodation has been reduced to a minimum, there being additional provision in an adjoining block which could be used when required. Cinematograph rooms have been incorporated. The hall is lighted from side windows and a large top-light. The main source of artificial light being from above this lay-light.*

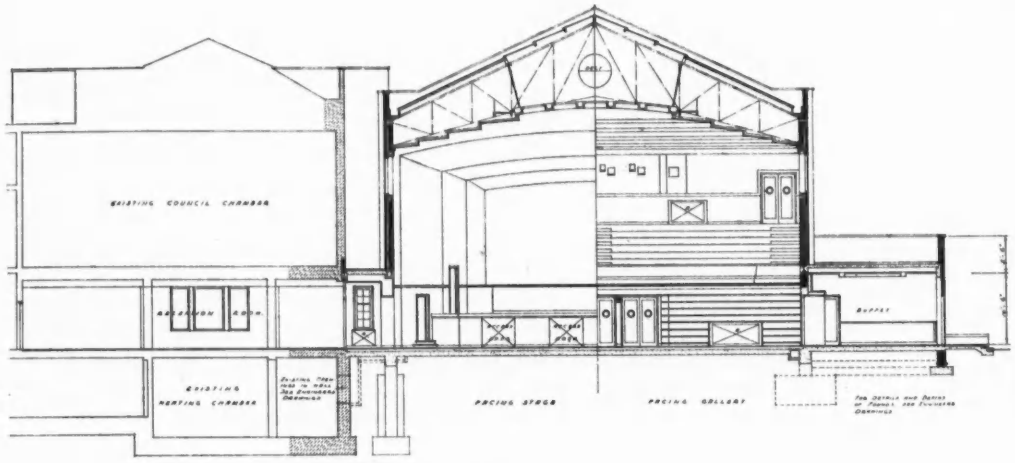
DESIGNED BY C. COWLES-VOYSEY



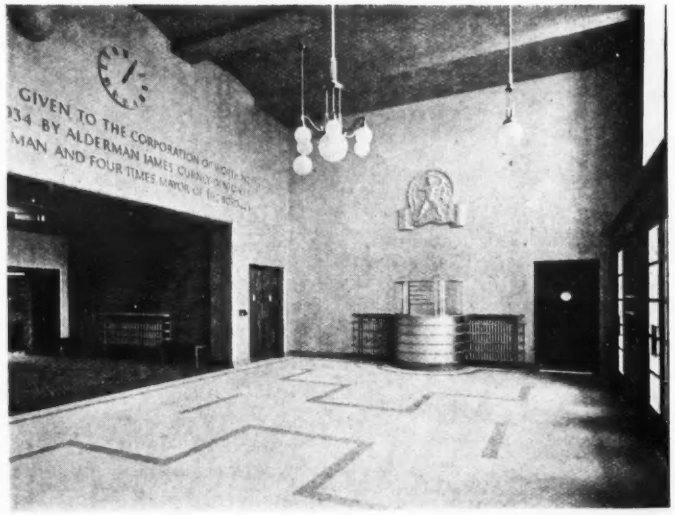
MUNICIPAL ASSEMBLY HALL, WORTHING

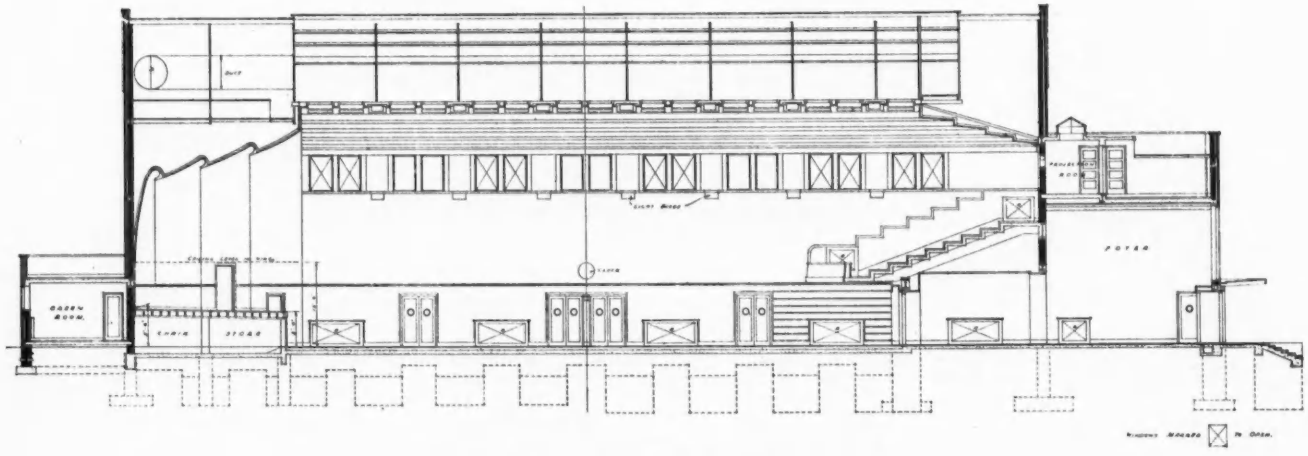


GROUND FLOOR PLAN



CROSS SECTION C-C





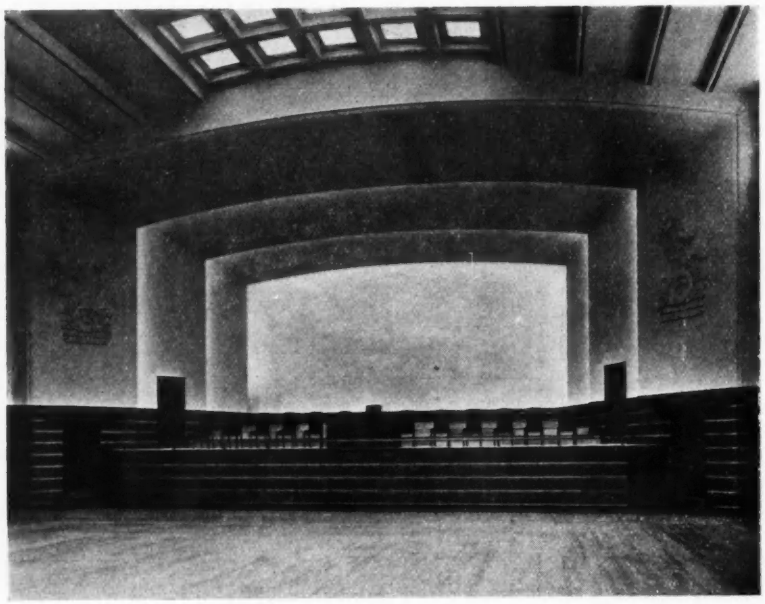
LONGITUDINAL SECTION B-B

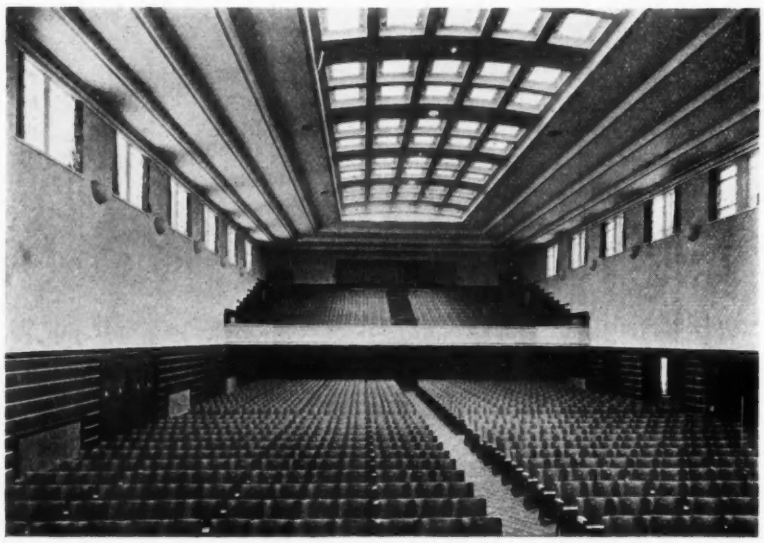
The photograph shows the public entrance foyer, with the pay-box against the back wall.

DESIGNED BY C. COWLES-VOYSEY

MUNICIPAL ASSEMBLY HALL, WORTHING:

DESIGNED BY C. COWLES-VOYSEY









CONSTRUCTION. *The building has a steel frame and roof trusses with cavity brick walls. The facing bricks are hand-made sand-faced multi-grey, 2 ins. in depth.*

FINISHES. *The main rooms are finished with hardwood panelling, acoustic and fibrous plaster. The walls of the buffet are decorated with incised and painted line drawings, designed by Laurence Bradshaw, on polished hard plaster. The walls and ceilings of the foyer and staircase are finished in stuc painted a bronze colour. The main hall has a level floor of oak boards in narrow widths. The floors of the foyer, lavatories and cloaks are in terrazzo. The retiring rooms have teak blocks and the remainder of the building a pile carpet and underfelt.*

The photographs on this page show: above, the interior, looking towards the stage and towards the gallery; right, a view across the hall from the reception room and the doors of the buffet.

TECHNICAL SECTION: 15

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

BOILERS (*continued*)

FUEL BED THICKNESS

TOO thick a fuel bed impedes draught, sends volatile gases and unburnt CO to the flue, and so causes reduced efficiency.

Too thin a fuel bed quickly burns into holes which allow excess air to pass, resulting in reduced efficiency, and a tendency to local clinkering.

Between these two extremes lies the perfect bed thickness (*medium tenueri beati*) which is generally about six inches for average sized fuel, but more for large fuel, such as 2 in. coke, whose resistance to air passage is less.

Clinkering depends chiefly on the temperature of the fire and the fusion temperature of ash, and this in turn depends on its composition. Ash fusion temperatures vary between 1,800 deg. and 3,000 deg. F. Thus some coals and cokes will clinker at a higher temperature than others, and are more valuable for this reason. Clinkering is specially objectionable in magazine boilers, as it prevents them from operating for long periods without attention, which is their *raison d'être*.

Hence the need for large grate areas and low fire temperatures in this type of boiler.

A mixture of small coal and coke breeze will often produce less clinker than if either fuel were used alone. Similarly, a mixture of coals of different composition may be beneficial. This is a subject having a bibliography of its own, which space prevents us from following here.

COSTS OF BOILERS AND AUXILIARIES

Costs of boilers of various types, and automatic stokers, may be taken for approximate purposes from Table XXII.

CONDENSATION

The hydrogen in the fuel produces water vapour when it burns, and this water vapour may condense into water under certain conditions.

Boilers of high efficiency have a low flue gas temperature at the discharge. If the boiler temperature (i.e., water temperature) is also low (as with panel heating) the dew point of the gases in contact with the boiler plates may be reached, when condensation will occur. This condensate becomes saturated with SO_2 and SO_3 from the flue gases, producing sulphurous and sulphuric acids, and so is liable to corrode boiler surfaces and especially boiler tubes. At one important installation, oil fired, bad condensation was experienced at boiler temperatures of 100 deg. to 120 deg. F., but ceased at temperatures of 160 deg. to 180 deg. F. Though water at the lower temperature was required, it was obtained by a mixing device whereby a small proportion of hot boiler water (at 180 deg. F.) was mixed with the return water (at 100 deg. F.) to give the desired flow temperature (120 deg. F).

Anthracite and coke contain less hydrogen than oil, and oil less than gas; hence liability to condensation is in the following order:

Most liable	Gas
	Oil
	Bituminous coal
Least liable	Anthracite and coke

There is, also, however, the free water contained in the fuel. This of course depends on whether it has been washed at the pit or delivered wet after standing in the rain. Free moisture may sometimes amount to 7 to 10 per cent. of the weight of fuel purchased; it is an expensive way of buying water.

Boiler Mountings (Hot Water)

Boiler mountings for a hot water heating boiler comprise:

(*a*) Safety valve.
(*b*) Thermometer.
(*c*) Altitude gauge.
(*d*) Draw-off cock.
(*e*) Damper regulator or thermostatic control equipment.

In addition the following items, though not actually mountings, are often necessary accessories:

(*f*) Smoke pipe connection to flue.
(*g*) Open vent pipe.
(*h*) Stoking tools for hand firing.

(*a*) *Safety Valve.*—If we consider the case of a simple hot water boiler installation, as in Fig. 75, we see that the pressure in the boiler is that due to the head of water "h." Whilst the feed tank remains open to the atmosphere it is clear that this cannot be increased. The fitting of a safety valve would therefore appear to be unnecessary, since the boiler must be strong enough to withstand this pressure with an adequate margin of safety, and, similarly, the safety valve must be loaded to the same head pressure, again with a suitable margin, or it will continually leak.

If, however, the water in the feed tank and vent pipe became frozen and the boiler were lighted, the pressure would rise in the boiler to dangerous limits, and it is to safeguard such an occurrence that a safety valve is required.

A similar condition would, of course,

TABLE XXII

(*a*) COST OF BOILERS, INCLUDING FIXING

Makers' Rating in B.T.U./hour	Type of Boiler: Cast-Iron Sectional (Fig. 53a)	Wrought Iron Sectional (Fig. 56)	Cast-Iron Magazine (Fig. 57)	Mild Steel Magazine (Fig. 58)	Mild Steel High-efficiency gravity-feed type with forced draught (Fig. 71A)
100,000	£21	—	—	—	£60
250,000	£37	—	£79	—	£100
500,000	£61	£173	£147	£296	£175
1,000,000	£115	£286	£236	£376	£280
1,500,000	£176	£401	—	£468	—
2,000,000	—	£552	—	£655	—

(*b*) COST OF AUTOMATIC COAL-STOKERS, INCLUDING FIXING

For boiler of Capacity :—	Cost	For Boiler of Capacity :—	Cost
250,000 B.T.U./hour ..	£132	1,000,000 B.T.U./hour ..	£234
500,000 ,, ..	£186	2,000,000 ,, ..	£329

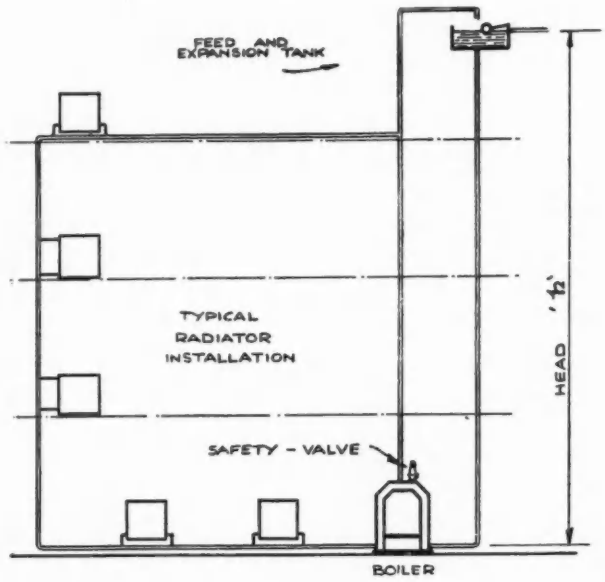


Figure 75.—*Simple hot water installation.*

arise if the feed pipe and vent pipe became stopped up with fur or scale. Again, when a boiler is fitted with stop valves on flow and return it may at some time happen that the fire is lighted with these shut.

The fitting of a safety valve to hot-water boilers is therefore common practice, and is called for by all boiler

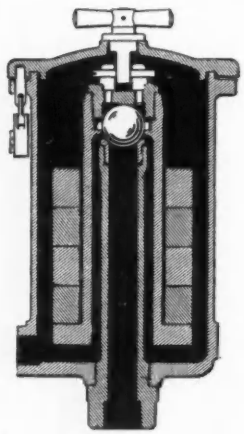


Figure 76. *Section of dead-weight safety-valve.*

insurance companies, though probably less than one in a thousand is ever called upon to act, and this is fortunate, as probably very few would act if called upon to do so.

The safety valve may be of deadweight pattern as in Fig. 76 or spring loaded as in Fig. 77. The latter are to be preferred, as they do not suffer from the tendency to dribble with vibration, which the deadweight type sometimes has.

The loading and sizes recommended by the Safety Devices Committee of the Institution of Heating and Ventilating Engineers is given in Table XXIII.

Safety valves, owing to their infrequent operation, tend to become clogged with fur or scale on the seating, and a turn knob is desirable on the top so that the valve may be revolved periodically and kept free. A padlock

TABLE XXIII

SAFETY-VALVE SIZES FOR HOT-WATER HEATING BOILERS

(Recommendations of a Committee of the I.H.V.E.)

(*a*) Loading in lbs./sq. in.

$$= \frac{\text{head of water in feet}}{2} + 10$$

(min. 35 lbs./sq. in.)

(*b*) Rating in B.T.U./hour (coal or coke-fired)†

	Safety-valve Size
Up to 900,000	¾ in.
900,000-1,200,000 ..	1 in.
1,200,000-1,500,000 ..	1¼ in.
1,500,000-1,800,000 ..	1½ in.
1,800,000-3,000,000 ..	* 2 at 1½ in.
Over 3,000,000	* 3 in.

* Not given in I.H.V.E. Report.

† For oil-fired boiler use safety-valve one size larger than given in table.

on the casing is also advisable, to prevent tampering with the adjustment.

Various boiler insurance companies have safety-valve designs of their own, two of which are illustrated here, and these are excellent.

The lever type of safety valve (Fig. 78) is not now in favour, as, amongst other disadvantages, the arm forms a very tempting coat hook, and the weight can sometimes be moved.

The outlet from a safety valve should be carried down near the floor with a pipe having a visible discharge.

(*b*) *Thermometer.*—The thermometer is a most important accessory to the boiler. It ranges from a plain mercury type in a brass case, costing 5s., to a large dial pattern costing £3 to £4. The latter is desirable where the boiler is large or high, but for normal and small installations the glass tube type has the merit of cheapness. Types filled with red or black spirit, especially of the magnifying type, are more easily read than mercury, and an open scale about 10 in. long, ranging from 50-250 degrees, generally gives a sufficiently clear indication.

In order that the thermometer (of whatever type) may be removed for repair, a "mercury well" is always provided (see Fig. 1(b)). This is screwed into the boiler and forms a water-retaining joint. More often than not no mercury is put into these wells, but the only effect of omitting it appears to be to make the instrument slightly more sluggish. A few drops of oil are a good substitute, but this evaporates in time. If mercury is used (as it should be), the cup should not be of brass, as



Figure 77. *Typical spring-loaded safety-valve.*

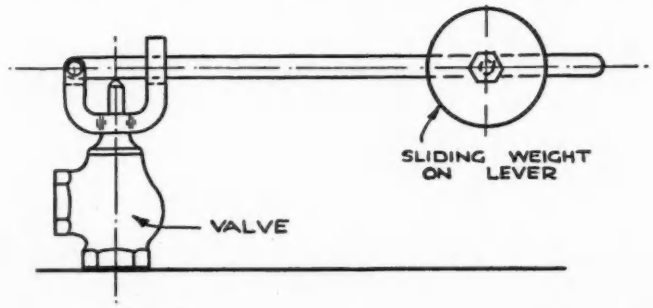


Figure 78. *Lever-type safety-valve.*

an amalgam will be formed, leading to possible leakage. Steel or special white metal is suitable.

(*c*) *Altitude Gauge.*—An altitude gauge is simply a pressure gauge, and is generally marked in feet-head of water,



Figure 79. *Altitude gauge.*

as in Fig. 79. The red index hand is set to the normal pressure in the system, and any variation from this up or down will at once indicate trouble which requires immediate investigation. If upward, the system is sealed by frost or encrustation, and the fire should be drawn at once. If downward, the feed tank is not being replenished and the ball-cock requires attention.

It should be borne in mind that when any circulating pump is running the altitude gauge reading will be affected within definite limits, either upward or downward, depending on the method of connection.

It is best to fit a cock so that the gauge can be removed for attention without emptying the system. A syphon of $\frac{1}{4}$ in. or $\frac{3}{8}$ in. pipe is also desirable for connecting the gauge so as to keep it filled with cold air or water only. High temperature water or steam is liable to soften the Bourdon tube, with a consequent error or ageing effect.

Combined thermometers and altitude gauges, as in Fig. 80, are a neat fitment, but suffer from the disadvantage that the gauge portion must always be subjected to the hottest water.

(*d*) *Draw-off Cock.*—This item needs little comment, except that a packed gland type of plug cock is the best, as, when opened, a piece of wire can be poked through the opening to free any sludge which may have collected. Being at the bottom of the boiler, this all too frequently is found to be troublesome. A union is desirable for emptying by hose, or alternatively the cock may be coupled with a pipe direct to a sump or drain. If the latter, all bends and tees should consist of crosses plugged at the unused outlets so that mud and scale can be cleared with a wire as already mentioned.

Sizes of emptying cocks are generally :
$\frac{3}{4}$ in. up to about 1,000,000 B.T.U.'s.
1 in. or $1\frac{1}{4}$ in. up to about 2,000,000 B.T.U.'s.
2 in. up to about 4,000,000 B.T.U.'s.
3 in. for sizes over 4,000,000 B.T.U.'s.

Fig. 81 illustrates *a*, *b*, and *c* in a typical installation. It will be observed from this that the thermometers are of distant reading type, and these, together with the altitude gauges, are mounted on panels over the fronts of the boilers in a very readable position.

(*e*) *Damper Regulator and Thermostatic Control Equipment.*—These have already been dealt with at some length, and are only mentioned here to make the list complete.

(*f*) *Smoke-pipe.*—From the boiler outlet to the flue a smoke-pipe is necessary. Every endeavour should be made to keep this as short as possible, either by the disposition of the boilers or by the construction of a horizontal brick flue, which is more permanent.

Iron flues tend to burn away in winter or corrode in summer with the soot and condensation which collect in them. For this reason cast iron is desirable, owing to its greater resistance to these influences than steel or sheet iron. Standard straight pipe and bends in sizes from 4 in. to 14 in. are available, and can generally be fitted in. Above this size and for awkward and difficult runs steel is cheaper and, therefore, more usual. This is conveniently welded to suit almost any conditions, and should not be less than $\frac{1}{8}$ in. thick, but $\frac{5}{16}$ in. plate is to be preferred, and has a much longer life.

Whether of cast iron or steel, all bends should have doors for cleaning and all flues should be swept out at least once



Figure 82. *Cross-section of a small smoke pipe (not recommended).*

in a heating season, preferably at the end.

The authors, in demolishing an old installation which shall be nameless, found a smoke pipe, 10 in. diam., of which less than one-third of the sectional area was free, the remainder filled solid with soot as in Fig. 82.

The smoke pipe should not be insulated, as this prevents cooling and adds to the risk of burning away. If the heat from it is a nuisance this can be reduced by enclosing the flue in an outer casing of thinner metal with a 1 in. or $1\frac{1}{2}$ in. air gap between. The lower end of the annular space should be open and the upper be connected to a duct carried outside the boiler house. This allows the free circulation of air over the pipe without excessive heat emission where it is not wanted.

(*g*) *Open Vent Pipe.*—The fitting of an open vent pipe direct from the boiler to above the feed tank is the most positive safety device that can be conceived, provided, of course, it is not exposed in such a way as to become frozen in cold weather. It is particularly desirable when valves are fitted to a boiler, as is usually the case when two or more boilers are connected

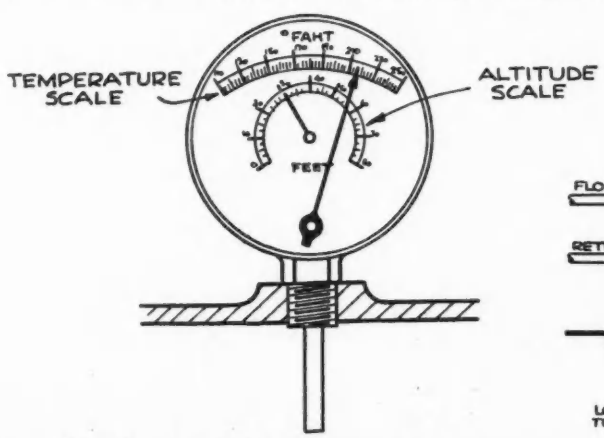


Figure 80. *Combined altitude gauge and thermometer.*

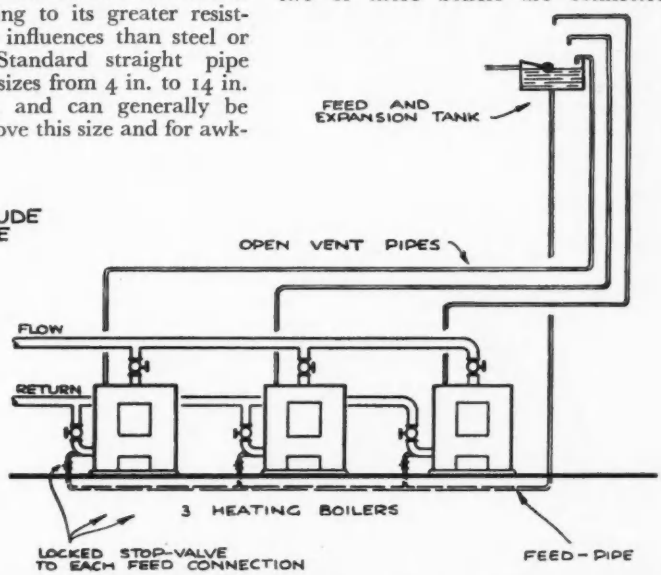


Figure 83. *Open vent-pipes for battery of heating boilers.*

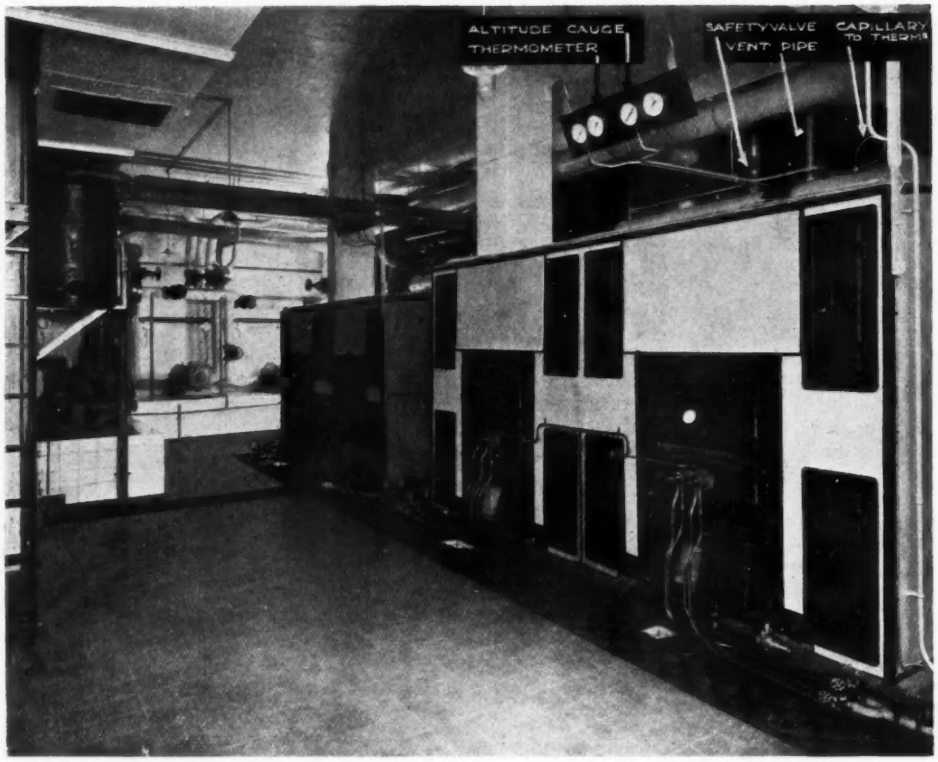


Figure 81. *Typical oil-fired boiler installation showing various instruments mounted on panels.*

together in a "battery." Such a vent pipe should be large, as it may in an extreme case have to pass steam, and 1½ in. is the minimum up to 1,000,000 B.T.U.'s per hour, 2 in. for sizes above.

To complete the arrangement, a separate feed pipe to each boiler is really necessary, or, alternatively, a common feed pipe with a stop cock on each branch, locked with a padlock and key.

Such a system would appear as in Fig. 83.

The worst that could happen should both valves on a boiler be shut and the fire alight would be that water and steam would be discharged out of the vent pipe, and this would be replaced by fresh from the tank. If the vents are turned over the tank the same water would be returned, and, apart from noise and hammering, probably no trouble would occur.

In order to avoid the expense of two, three, or more separate vent pipes, all carried to the roof for a corresponding number of boilers, use may be made of a three-way cock as in Fig. 84, one part of which is connected to a single common vent, the second to the boiler, and the third terminates with an open end in the boiler house. Thus each boiler is open to atmosphere either through the vent or through the open end, the latter, of course, only being possible when the flow and return valves are shut. In either case the boiler is relieved from any excessive pressure. This arrangement is not quite as foolproof as Fig. 83. The vent-pipe is seen in Fig. 81 above.

(*h*) *Stoking Tools.*—For hand firing these comprise: shovel, slice bar, scraper, clinker tongs, poker and wire flue brush. The latter is essential, even if hand firing is not adopted.

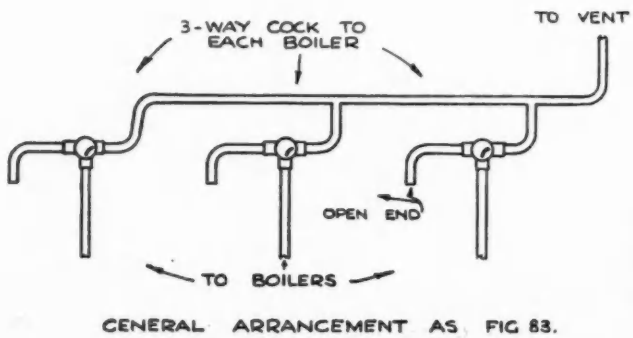


Figure 84. *Arrangement of three-way cocks on vent-pipes of boilers shown in Fig. 83.*

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

ISLINGTON. *Flats.* The B.C. has purchased a site at Warltersville Road for the erection of 115 flats and proposes to engage Mr. E. C. P. Monson as architect.

MIDDLESEX. *Extensions to Mental Hospital.* The Middlesex C.C. has submitted an amended scheme to the Board of Control for the erection of the second section of the Shenley mental colony, at a cost of about £370,000.

SOUTHGATE. *Flats.* Messrs. M. E. and O. H. Collins are to erect 24 flats in Sutton Road and Colney Hatch Lane, Southgate.

SOUTHGATE. *School.* The Middlesex Education Committee has purchased a site in Wilmer Way, Southgate, for the erection of an elementary school.

WOOD GREEN. *Flats.* Mrs. K. Blackman is to erect 32 flats on the site of 593-9 Lordship Lane, Wood Green.

SOUTH-WESTERN COUNTIES

EXETER. *Houses.* The Corporation is to obtain tenders for the erection of 154 houses at Tollards Farm and 142 at St. Loyes estate.

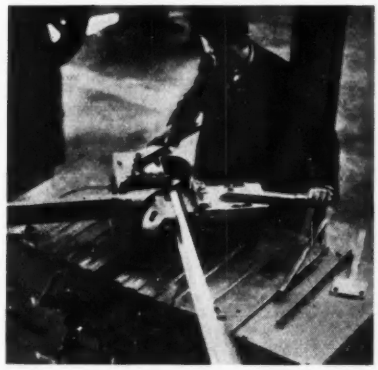
EXETER. *Cattle Market and Abattoir.* The Corporation Markets Committee now recommends a scheme for the erection of a new cattle market and abattoir on the Marsh Barton site at a cost of £80,000.

WEYMOUTH. *Houses.* The Corporation has asked the borough engineer to prepare a scheme for the erection of 120 houses on the golf links land.

EASTERN COUNTIES

CHELMSFORD. *Houses.* Plans passed by the Corporation: 12 houses, Oaklands Crescent, for Messrs. W. and A. Pudney; five houses, Seventh Avenue, for Mr. G. M. Everard; 20 houses, Moulsham Drive, for Mr. W. J. Aldred; shops, Van Diemens Lane, and two houses, Moulsham Drive, for Mr. W. Campen; 10 houses, Highfield Road, for Messrs. Tyler and Dobie; five houses, Galleywood Road, for

(*Continued on page xxx.*)



TRADE NOTES

[BY F. R. S. YORKE, A.R.I.B.A.]

Pressed Steel Trim

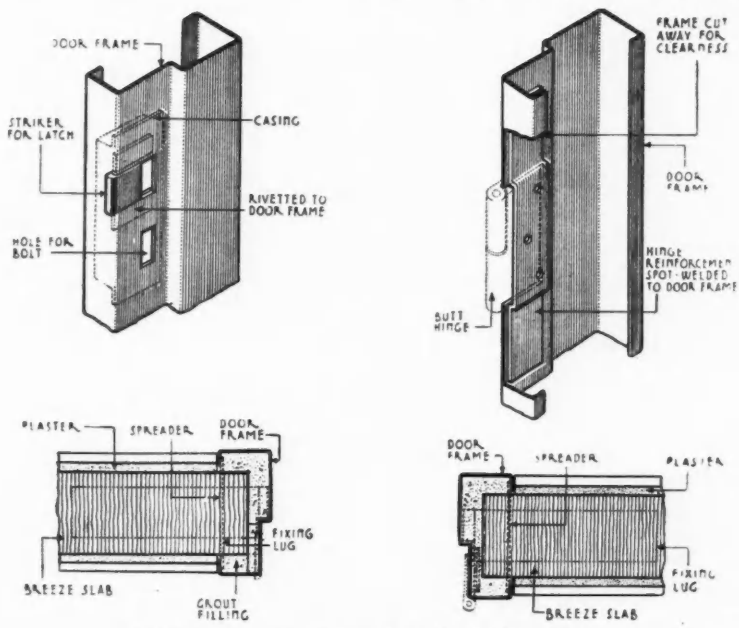
I WENT last week to Martyn's works at Cheltenham to see the recently opened Marsteel pressed steel door frame department, where frames for Mendelsohn and Chermayeff's Concert Pavilion at Bexhill were being made.

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The sections are standardized in 16 s.w.g. mild steel to take 1¾ in. doors in walls of several thicknesses. Sections are cut to lengths for jambs and heads, and mitred by machine. The lower ends of the jambs are slotted to take the ends of a light channel spreader cill piece, which stiffens the frame in transit and erection. The mitred ends of head and one jamb are then placed together and held at an exact right angle in an electric resistance welding machine. The current is switched on for three seconds; there are a lot of sparks, and the two lengths of section are fused together and are moved into position for the second jamb to be welded to the head.

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In the next operation holes are punched in the section to provide housings for 4 in. hinges at top and bottom of one jamb. Holes for lock and latch are punched from the opposite jamb by a similar operation. Then steel plates of stouter gauge than the frames are bent to shape and drilled in jigs to take the screws that hold the hinges. These plates are spot welded to the frames, behind the openings for the hinges, and copies of the jigs are sent to the hingemaker so that screw holes in the hinges shall coincide exactly with those in the fixing plate. The manufacturers supply the hinges fixed to the frames, but they are charged as an extra, as is the custom in the case of wood frames. Hinges may be of ordinary butt, rising butt, or lift-off type.



Details of pressed steel door frame described on this page.

The frames are now ready for finishing. Superfluous metal at the welded joints is removed by filing and polishing with corborundum, and the complete frames are dipped in paint, dried slowly, and stacked for dispatch.

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Standardization of height and width of frame, and rebate for door, is relatively easy, since door sizes are already to some extent standardized, but the manufacturers find the mass production and stocking of standard size frames is made difficult because so many different wall thicknesses must be provided for. In present day practice the thickness may vary from about 2½ in. to 10 in., or more according to the thickness of the walling material and its finish, which may vary from a 2 in. partition slab with skim coat of plaster, to a 4 in. wall of concrete with or without insulation and plaster, or a 4½ in. or 9 in. wall of brick with almost any type of finish. It seems the only hope for standardization for mass production in the near future must depend upon the manufacturer discovering from actual orders the half dozen types that are most often required, and standardizing these. Although, even so, type and position of hinge and lock create individual requirements, and in this direction too, standard practice is desirable.

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Alteration in the "handing" of doors will, even when all other conditions are the same, add another slight manufacturing complication. It is clearly essential that on any job the number of types of frame must be kept down to a minimum, and the manufacturers must be provided with a detailed and accurate schedule.

THE BUILDINGS ILLUSTRATED

Following are the names of the general contractors and some of the sub-contractors of the buildings illustrated in this issue :—

Municipal Assembly Hall, Worthing (pages 738-742). General contractors, James Longley & Co., Ltd.; steelwork engineer: Burnard Geen, M.INST.C.E.; heating engineer, Dr. Oscar Faber, O.B.E.; quantity surveyor, H. J. Venning, F.S.I.; sculptor, Laurence Bradshaw; clerk of works, A. W. Howard. Sub-contractors: Redpath Brown & Co., Ltd., steelwork; Rosser and Russell, Ltd., heating; Grierson, Ltd., electrical installation; Empire Stone Co., artificial stone; F. de Jong & Co., plaster; Art Pavements and Decorations, Ltd., terrazzo; Asserati & Co., asphalt; May Acoustics, Ltd., acoustic engineering; C. E. Welstead, Ltd., metal laylights and casements; Bainbridge Reynolds, Ltd., metalwork; Comyn Ching & Co., miscellaneous metalwork; Garton and Thorne, Ltd., canopy and entrance doors; Stevens and Adams, wood block flooring; G. H. Turner, light fittings; sanitary fittings: supplied by Bunce & Co., manufactured by H. Pontifex and Sons, Ltd.; Gillett and Johnston, Ltd., clocks; Mather and Platt, Ltd., hydrant installation; Haywards, Ltd., roof glazing; John P. White and Sons, Ltd., joinery and fittings; Hampton and Sons, Ltd., and Heal and Son, Ltd., furniture; ironmongery: supplied by Bunce & Co., manufactured by Yannedis & Co.; Mander Bros., paint; Sturtevant Engineering Co., vacuum cleaning installation; R. M. Radio, Ltd., public address equipment; R. Grant and Son, w.i. cat ladders; Eric Munday, Ltd., sign writing.

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie ..	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on-Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton ..	N.W. Counties	1 5½	1 1½
A	Boston ..	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_2	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M.	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol ..	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff ..	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Cliftheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett	N.E. Coast	1 5	1 0½
A_2	Conway	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON ..	N.E. Coast	1 5½	1 1½
A	Darwen	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham	N.E. Coast	1 5½	1 1½
A_2	EASTBOURNE ..	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_3	FELIXSTOWE ..	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S.W. Counties	1 2½	11
A	GATESHEAD ..	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W.Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport	S. Counties	1 4½	1 0½
A_3	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_3	Kendal	N.W. Counties	1 4	1 0
A_3	Keswick	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12-15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough ..	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_3	Maidstone ..	S. Counties	1 4	1 0
A_3	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N. E. Coast	1 5½	1 1½
A_2	Middlewich ..	N. W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid. Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham	N.W. Counties	1 5½	1 1½
A_3	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford ..	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_3	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough ..	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_3	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid. Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan ..	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger	"	1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
General Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4 ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
½" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single Junctions	"	3	6	5	3
Double "	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¼" Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	8	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead Wool	lb.		6		—
Gaskin	"		5		—

BRICKLAYER

		£	s.	d.
Flettons	per M.	2	15	0
Grooved do.	"	2	17	0
Phorpres bricks	"	2	15	0
" Cellular bricks	"	2	15	0
Stocks, 1st quality	"	4	11	0
" 2nd "	"	4	2	6
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Brindles	"	7	0	0
" Bullnose	"	9	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	0
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midhurst White Facings	"	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	29	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

The following d/d F.O.R. at Nine Elms:		s.	d.
Portland stone, Whitbed	F.C.	4	4½
" " Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" " Sawn templates	"	7	6
" " Paving, 2"	F.S.	1	8
" " " 3"	"	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	"	24	10	0
20" × 10" Countesses	"	19	5	0
18" × 10" Viscountesses	"	15	10	0
18" × 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey per 1,000 (actual)		21	11	6
" " green "	"	24	7	4
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each		9½	
" hand-made	"		10	
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak, plain American	" "	1	0
" Figured "	" "	1	3
" plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1

Deal floorings,	Sq.	s.	d.
¾"	"	18	6
⅞"	"	1	1	6
1"	"	1	2	0
1¼"	"	1	5	0
1½"	"	1	10	0
Deal matchings ¾"	"		14	0
" 1"	"		15	6
Rough boarding ¾"	"	1	4	0
" 1"	"		16	0
" 1⅛"	"		18	0
" 1½"	"	1	6	0

Plywood, per ft. sup.

Thickness	¼"			½"			⅝"			¾"		
Qualities	AA.	A.	B.	AA.	A.	B.	AA.	A.	B.	AA.	A.	B.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Birch	4	3	2	5	4	3	7½	6	4½	8½	7	6
Alder	3½	3	2	5	4	3	6½	5½	4½	8	7	6
Gaboon Mahogany	4	3	3	6½	5½	4½	9½	7½	–	1/0½	10	–
Figured Oak 1 side	8½	7	–	10	8	–	11½	–	–	1/6	–	–
Plain Oak 1 side	6½	6	–	7½	7	–	9½	–	–	1/–	–	–
Oregon Pine	5	4	–	5½	5	–	6	–	–	–	–	–

	d.
Scotch glue lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	¼"	⅜"	½"	¾"	1"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23" long each	10	1/1	1/11	2/8	4/9
" 3"-11½" long "	7	9	1/3	1/8	3/–
Long screws, 12"-23½" long "	11	1/3	2/2	2/10	5/3
" " 3"M-½" long "	8	10	1/5	1/11	3/6
Bends "	8	11	1/7½	2/7½	5/2
Springs not socketed "	5	7	1/1½	1/11½	3/11
Socket unions "	2/–	3/–	5/6	6/9	10/–
Elbows, square "	10	1/1	1/6	2/2	4/3
Tees "	1/–	1/3	1/10	2/6	5/1
Crosses "	2/2	2/9	4/1	5/6	10/6
Plain sockets and nipples "	3	4	6	8	1/3
Diminished sockets "	4	6	9	1/–	2/–
Flanges "	9	1/–	1/4	1/9	2/9
Caps "	3½	5	8	1/–	2/–
Backnuts "	2	3	5	6	1/1
Iron main cocks "	1/6	2/3	4/2	5/4	11/6
" with brass plugs "	—	4/–	7/6	10/–	21/–

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½

FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued.*

		s.	d.
Rolled steel joists cut to length	cwt.	12	9
Mild steel reinforcing rods, ⅜"	"	9	6
" " ½"	"	9	3
" " ⅝"	"	9	0
" " ¾"	"	8	6
" " ⅞"	"	8	6
" " 1"	"	8	6
" " 1¼"	"	8	6
" " 1½"	"	8	6

Cast-iron rain-water pipes of ordinary thickness metal	F.R.	4" s.	4" d.	6" s.	6" d.
		8		10	
Shoes	each	2	0	3	0
Anti-splash shoes	"	4	6	8	0
Boots	"	3	0	4	0
Bends	"	2	7	3	9
" with access door	"	—		6	3
Heads	"	4	0	5	0
Swan-necks up to 9" offsets	"	3	9	6	0
Plinth bends, 4½" to 6"	"	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal	F.R.	5		6	
Stop ends	each	6		6	
Angles	"	1	7	1	11
Obtuse angles	"	2	0	2	6
Outlets	"	1	9	2	3

PLUMBER

		s	d.
Lead, milled sheets	cwt.	19	6
" drawn pipes	"	19	0
" soil pipe	"	19	6
" scrap	"	11	6
Solder, plumbers'	lb.		9½
" fine do.	"	1	0
Copper, sheet	"		8½
" tubes	"		11

L.C.C. soil and waste pipes:	F.R.	3"	4"	6"
Plain cast	F.R.	1 0	1 2	2 6
Coated	"	1 1	1 3	3 8
Galvanized	"	2 0	2 6	4 6
Holderbats	each	3 10	4 0	4 9
Bends	"	3 9	5 3	10 3
Shoes	"	2 10	4 4	9 6
Heads	"	4 8	8 5	12 9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	5	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	9
Lath nails	lb.			3

GLAZIER

		s	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.	F.S.				2½
" " 26 oz.	"				3
Flemish, Arctic, Figures (white)*	"				7
Blazoned glasses	"			2	6
Reeded; Cross Reeded	"				11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite	"				6
Crown sheet glass (n/e 12 in. x 10 in.)	"			2	0
Flashed opals (white and coloured)	"	1	0 and	2	0
¼" rough cast; rolled plate	"				5½
¼" wired cast; wired rolled	"				9½
¼" Georgian wired cast	"				11
¼" Polished plate, n/e 1 ft.	"	†10 to		‡1	1
" " 2	"	†1	2 "	‡1	4
" " 4	"	†2	3 "	‡2	6
" " 8	"	†2	9 "	‡3	2
" " 20	"	†3	7 "	‡4	2
" " 45	"	†3	11 "	‡4	7
" " 100	"	†5	0 "	‡5	7
Vita glass, sheet, n/e 1 ft.	"			1	0
" " 2 ft.	"			1	3
" " over 2 ft.	"			1	9
" " plate, n/e 1 ft.	"			1	6
" " 2 ft.	"			3	0
" " 5 ft.	"			4	0
" " 7 ft.	"			5	0
" " 15 ft.	"			6	0
" " over 15 ft.	"			7	6
"Calorex" sheet 21 oz., and 32 oz.	"	2	6 and	3	6
" rough cast ⅛" and ¼"	"		8½ "	1	0
Putty, linseed oil	lb.				3

* *Colours, id. F.S. extra.*

† *Ordinary glazing quality.* ‡ *Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	8	6
Linseed oil	gall.		2	3
Boiled oil	"		2	9
Turpentine	"		4	1½
Patent knotting	"		14	0
Distemper, washable	cwt.	2	6	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	firkin		3	0
Copal varnish	gall.		13	0
Flat varnish	"		14	0
Outside varnish	"		16	0
White enamel	"	1	15	0
Ready mixed paint	"		13	6
Brunswick black	"		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR

		£ s. d.
Digging over surface n/e 12" deep and cart away	Y.S.	2 9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.	8 6
" to form basement n/e 5' 0" and cart away	"	9 0
" " 10' 0" deep and cart away	"	9 6
" " 15' 0" deep and cart away	"	10 0
If in stiff clay	add "	6
If in underpinning	" "	4 0
Planking and strutting to sides of excavation	F.S.	1 0
" " to pier holes	"	5
" " to trenches	"	5
" " extra, only if left in	"	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	"	1 6 0
" " (4-2-1)	"	1 12 6
" " underpinning	"	1 16 0
Finishing surface of concrete, space face	Y.S.	7

DRAINLAYER

		4" s. d.	6" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER

		£ s. d.
Brickwork, Flettons in lime mortar	Per Rod	26 10 0
" " in cement	"	27 12 6
" Stocks in cement	"	34 0 0
" Blues in cement	"	50 0 0
Extra only for circular on plan	"	2 0 0
" backing to masonry	"	1 10 0
" raising on old walls	"	2 0 0
" underpinning	"	5 10 0
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	"	8
" " " red brick facings and pointing	"	11
" " " blue brick facings and pointing	"	1 4
" " " glazed brick facings and pointing	"	3 6
Tuck pointing	"	7½
Weather pointing in cement	"	3
Slate dampcourse	"	10
Vertical dampcourse	"	1 1

ASPHALTER

		s. d.
½" Horizontal dampcourse	Y.S.	4 6
½" Vertical dampcourse	"	6 9
½" paving or flat	"	4 0
1" paving or flat	"	5 6
1" × 6" skirting	F.R.	1 0
Angle fillet	"	2
Rounded angle	"	2
Cesspools	Each	5 0

MASON

		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	"	13 6
Artificial stone and do	"	13 0
York stone templates, fixed complete	"	10 6
" thresholds	"	13 6
" sills	"	1 0 6

SLATER AND TILER

		£ s. d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3 10 0
Do., 18" × 9"	"	3 7 0
Do., 24" × 12"	"	3 17 0
Westmorland slating, laid with diminished courses	"	6 0 0
Tiling, best hand-made sand-faced la,id to a 4" gauge, nailed every fourth course	"	3 0 0
Do., all as last, but of machine-made tiles	"	2 16 0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	2 16 0
" " " " " (green)	"	4 15 0

CARPENTER AND JOINER

		£ s. d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2 2 6
Shuttering to sides and soffits of beams	F.S.	7
" to stanchions	"	7
" to staircases	"	1 6
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	"	4 6
" " roofs	"	6 6
" " trusses	"	7 6
" " partitions	"	8 6
¾" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" " " " "	"	1 17 6
1½" " " " "	"	2 3 0
1" × 2" fir battening for Countess slating	"	9 6
Do. for 4" gauge tiling	"	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
" " " 2 "	"	2 9
" " " 3 "	"	3 3
Stout herringbone strutting to 9" joists	F.R.	10½
1" deal gutter boards and bearers	F.S.	1 2
1½" " " "	"	1 6
2" deal wrought rounded roll	F.R.	8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼" do.	"	2 10 0
1½" do.	"	2 17 0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1½" do.	"	1 9

CARPENTER AND JOINER—*continued*

		s. d.
1½" deal moulded sashes of average size	F.S.	1 9½
2" " " "	"	1 11½
1¼" deal cased frames double hung, of 6" × 3" oak sills, 1¼" pulley stiles, 1¼" heads, 1" inside and outside linings, ¾" parting beads, and with brass faced axle pulleys, etc., fixed complete	"	3 7
2" " " "	"	3 10
Extra only for moulded horns	Each	6
1¼" deal four-panel square, both sides, door	F.S.	2 0
2" " " " "	"	2 8
1¼" , but moulded both sides	"	2 4
2" " " " "	"	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" " "	"	1 4
1¼" deal tongued and moulded windo board, on and including deal bearers	F.S.	1 9
1¼" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
1¼" deal moulded wall strings	"	2 1
1¼" " outer strings	"	2 4
Ends of treads and risers housed to string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1¼" × 1¼" " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

SMITH AND FOUNDER

		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	16 6
Riveted plate or compound girders, and hoisting and fixing in position	"	1 0 6
Do., stanchions with riveted caps and bases and do.	"	19 0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	"	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER

		£ s. d.
Milled lead and labour in flats	cwt.	1 13 0
Do. in flashings	"	1 16 6
Do. in covering to turrets	"	2 4 0
Do. in soakers	"	1 8 6
Labour to welted edge	F.R.	3½
Open copper nailing	"	3
Close " "	"	4

		½" s. d.	¾" s. d.	1" s. d.	1½" s. d.	2" s. d.	4" s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks	"	—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	3 9	5 0	8 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—

		£ s. d.
4" cast-iron ¼-rd. gutter and fixing	F.R.	1 0
Extra, only stop ends	Each	1 0
Do. angles	"	1 6
Do. outlets	"	2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1 2
Extra, only for shoes	Each	1 3
Do. for plain heads	"	5 6

PLASTERER AND TILING

		s. d.
Expanded metal lathing, small mesh	Y.S.	2 0
Do. in n/w to beams, stanchions, etc.	"	2 9
Lathing with sawn laths to ceilings	"	1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1 5
Do. vertical	"	1 7
Rough render on walls	"	1 3½
Render, float and set in lime and hair	"	1 9
Render and set in Sirapite	"	1 11
Render, backing in cement and sand, and set in Keene's cement	"	2 9
Extra, only if on lathing	"	4
Keene's cement, angle and arris	F.R.	6
Arris	"	
Rounded angle, small	"	3
Plain cornices in plaster, including dubbing out, per 1" girth	"	1½
1" granolithic pavings	Y.S.	3 6
1½" "	"	4 6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17 6
9" × 3" " " " "	"	1 2 6
Extra, only for small quadrant angle	F.R.	8

GLAZIER

		s. d.
21 oz. sheet glass and glazing with putty	F.S.	6½
26 oz. do. and do.	"	7½
Flemish, Arctic Figured (white) and glazing with putty	"	1 1
Cathedral glass and do.	"	1 2
Glazing only, British polished plate	"	7
Extra, only if in beads	"	2
Washleather	F.R.	4

PAINTER

		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	"	9
Do. with washable distemper	"	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3 3
Do. on woodwork	"	3 6
Do. on steelwork	"	3 0
Do. and brush grain and twice varnish	"	5 6
Stain and twice varnish woodwork	"	1 11
Stain and wax-polish woodwork	"	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper from	"	2 9

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HOLLOW BLOCK FLOOR CONSTRUCTION:

SUPER LOAD IN LBS. PER SQUARE FOOT.

SPANS IN FEET AND DEPTH OF BLOCK PLUS STRUCTURAL CONCRETE, IN INCHES.

			30.	40.	50.	70. (50+)	80.	100. (80+)	200.
6.	F.S.	O.	4¼.	4¼.	4¼.	4¼.	4¼.	4¼.	4¼.
		H.	4¼.	4¼.	4¼.	4¼.	4¼.	4¼.	4¼.
	C.S.	O.	4¼.	4¼.	4¼.	4¼.	4¼.	4¼.	4¼.
		H.	4¼.	4¼.	4¼.	4¼.	4¼.	4¼.	4¼.
8.	F.S.	O.	4¼.	4¼.	4¼.	4¼.	4¼.	4¾.	5¼.
		H.	4¼.	4¼.	4¼.	4¼.	4¼.	4¼.	4¾.
	C.S.	O.	4¼.	4¼.	4¼.	4¼.	4¼.	4¼.	4¾.
		H.	4¼.	4¼.	4¼.	4¼.	4¼.	4¼.	4¼.
10.	F.S.	O.	4¼.	4¼.	4¼.	4¾.	4¾.	5¼.	6¼.
		H.	4¼.	4¼.	4¼.	4¼.	4¼.	4¾.	5¾.
	C.S.	O.	4¼.	4¼.	4¼.	4¼.	4¼.	4¾.	5¾.
		H.	4¼.	4¼.	4¼.	4¼.	4¼.	4¼.	4¾.
12.	F.S.	O.	4¾.	5¼.	5¼.	5¾.	5¾.	5¾.	7¼.
		H.	4¾.	4¾.	4¾.	5¼.	5¼.	5¼.	6¼.
	C.S.	O.	4¾.	4¾.	4¾.	5¼.	5¼.	5¼.	6¼.
		H.	4¾.	4¾.	4¾.	4¾.	4¾.	4¾.	5¾.
14.	F.S.	O.	5¼.	5¼.	5¾.	6¼.	6¼.	6¾.	8⅛.
		H.	5¼.	5¼.	5¼.	5¼.	5¼.	5¾.	7¼.
	C.S.	O.	5¼.	5¼.	5¼.	5¼.	5¼.	5¾.	7¼.
		H.	5¼.	5¼.	5¼.	5¼.	5¼.	5¼.	6¼.
16.	F.S.	O.	5¾.	6¼.	6¼.	6¼.	6¾.	7¼.	9¼.
		H.	5¼.	5¼.	5¼.	5¾.	6¼.	6¼.	8¼.
	C.S.	O.	5¼.	5¼.	5¼.	5¾.	6¼.	6¼.	8¼.
		H.	5¼.	5¼.	5¼.	5¼.	5¼.	5¼.	6¾.
18.	F.S.	O.	6¼.	6¾.	6¾.	7¼.	7¾.	8¼.	10¼.
		H.	6¼.	6¼.	6¼.	6¼.	6¾.	6¾.	9¾.
	C.S.	O.	6¼.	6¼.	6¼.	6¼.	6¾.	6¾.	9¾.
		H.	6¼.	6¼.	6¼.	6¼.	6¼.	6¼.	7¾.
20.	F.S.	O.	6¾.	7¼.	7¼.	8¼.	8¼.	9¼.	11¼.
		H.	6¾.	6¾.	6¾.	6¾.	7¼.	7¼.	9¾.
	C.S.	O.	6¾.	6¾.	6¾.	6¾.	7¼.	7¼.	9¾.
		H.	6¾.	6¾.	6¾.	6¾.	6¾.	6¾.	8¼.
22.	F.S.	O.	7¼.	8¼.	8¼.	8¾.	9¼.	9¾.	12¼.
		H.	7¼.	7¼.	7¼.	7¼.	8¼.	8¼.	10¾.
	C.S.	O.	7¼.	7¼.	7¼.	7¼.	8¼.	8¼.	10¾.
		H.	7¼.	7¼.	7¼.	7¼.	7¼.	7¼.	9¼.
24.	F.S.	O.	8¼.	8¾.	8¾.	9¾.	9¾.	10¾.	13.
		H.	8¼.	8¼.	8¼.	8¼.	8¾.	8¾.	11¾.
	C.S.	O.	8¼.	8¼.	8¼.	8¼.	8¾.	8¾.	11¾.
		H.	8¼.	8¼.	8¼.	8¼.	8¼.	8¼.	9¾.
26.	F.S.	O.	8¾.	9¼.	9¼.	10¼.	10¾.	11¼.	14.
		H.	8¾.	8¾.	8¾.	8¾.	9¼.	9¼.	12¼.
	C.S.	O.	8¾.	8¾.	8¾.	8¾.	9¼.	9¼.	12¼.
		H.	8¾.	8¾.	8¾.	8¾.	8¾.	8¾.	10¾.

NOTE · For each span in the above table the figures ABOVE the zigzag lines are determined by the bending moments, and the figures BELOW by the deflections. The slabs are in no case less than 1/36 span.

NOTES ·

LOADING. Where marked +, a partition allowance of 20 lbs per square foot has been made.

Floors are designed to take superimposed loads, self-weight & dead weight of finishes (20 lbs/□′), with the structural concrete in the proportion of 1·2·4 by volume.

Both tables give values for slabs that are reinforced in one direction only.

F.S. = free span. C.S. = continuous span.
O. = ordinary grade concrete } See notes on the reverse
H. = high grade concrete } side of sheet No. 1.

For those cases in which the deflections are not the governing factor, these overall thicknesses may be decreased, but the depths given are for the most economical arrangements.

TABLE No. 1 (AT LEFT) gives the overall thickness of the hollow block plus the structural concrete for various loads and spans, calculated under the Reinforced Concrete Code of Practice, 1933.

SUPER LOAD IN LBS PER SQUARE FOOT.

SPANS IN FEET & OVERALL DEPTH OF FLOOR IN INCHES.

		30.	40.	50.	70. (50+)	80.	100. (80+)	200.
6.	F.S.	4¾.	4¾.	4¾.	4¾.	4¾.	4¾.	4¾.
	C.S.	4¾.	4¾.	4¾.	4¾.	4¾.	4¾.	4¾.
8.	F.S.	4¾.	4¾.	5¼.	5¼.	5¼.	5¼.	6¼.
	C.S.	4¾.	4¾.	4¾.	4¾.	5¼.	5¼.	5¾.
10.	F.S.	5¼.	5¼.	5¾.	5¾.	5¾.	5¾.	7¼.
	C.S.	4¾.	4¾.	5¼.	5¼.	5¼.	5¼.	6¼.
12.	F.S.	5¾.	6¼.	6¼.	6¾.	6¾.	6¾.	8¼.
	C.S.	5¼.	5¼.	5¾.	5¾.	6¼.	6¼.	7¼.
14.	F.S.	6¼.	7¼.	7¼.	8¼.	8¼.	8¾.	9¾.
	C.S.	5¾.	6¼.	6¾.	7¼.	7¼.	7¾.	8¼.
16.	F.S.	7¼.	7¾.	8¼.	8¾.	8¾.	9¼.	10¾.
	C.S.	6¼.	6¾.	7¼.	7¾.	7¾.	8¼.	9¾.
18.	F.S.	7¾.	8¼.	8¾.	9¾.	9¾.	10¼.	11¾.
	C.S.	6¾.	7¼.	7¾.	8¾.	9¼.	9¼.	10¼.
20.	F.S.	8¼.	9¼.	9¾.	10¼.	10¼.	10¾.	13.
	C.S.	7¼.	8¼.	8¾.	9¼.	9¾.	10¼.	11¾.
22.	F.S.	8¾.	9¾.	10¼.	11¼.	11¼.	11¾.	14.
	C.S.	7¾.	8¾.	9¼.	10¼.	10¼.	11¼.	12¾.
24.	F.S.	9¾.	10¾.	11¼.	12¼.	12¼.	12¾.	15.
	C.S.	9¼.	10¼.	10¾.	11¼.	11¼.	11¾.	13.
26.	F.S.	10¾.	11¾.	12¼.	13¼.	13¼.	13¼.	16.
	C.S.	9¾.	10¾.	11¼.	12¼.	12¼.	12¼.	14.

TABLE No. 2. gives the overall thicknesses of the hollow block plus the structural concrete, calculated under the L.C.C. Act, 1909.

Information from Frazzi Limited. (Figures compiled by C.W. Hamann, A.M.I.Struct.E., M.I.W.E.)

INFORMATION SHEET: VARIOUS TYPES OF FIREPROOF FLOOR CONSTRUCTION, ②

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 · Olive A. Bayne.

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INFORMATION SHEET
• 217 •
FLOOR CONSTRUCTION

Type of Product : Hollow Block Floor

General :

The tables given on this Sheet set out the thickness of Hollow Block floors (the overall depth of the block plus the structural concrete) for various loads and spans, and apply to slabs that are reinforced in one direction only. Table No. 1 is calculated under the Building Research Board Code of Practice, 1933, and Table No. 2 under the L.C.C. Act of 1909.

Code of Practice :

For extracts from the 1933 Code of Practice relating to Strength Requirements and Permissible Stresses, see notes on the reverse Side of Sheet No. 215.

Superimposed Floor Loads :

The table below gives, in pounds per square foot of floor area, a comparison of the minimum superimposed floor loads allowable for various types of building by the Reinforced Concrete Code of Practice, 1933, the Code of Practice for Steel Structures, 1931, the London Building Act Structural Steel Code of Practice, 1930, and the London County Council Regulations for Reinforced Concrete, 1909.

Selection of Type of Floor :

The selection of the most suitable type of floor for any particular job calls for full consideration of all the factors involved, including the spacing of columns or bearing walls, spans, type of general construction, load capacity required, sound insulation required, type of floor finish, speed of erection and cost. The company is prepared to investigate the special conditions relative to any particular job, and to recommend the most suitable floor for the purpose.

See also Information Sheets No. 181 and No. 215 for further details of floor construction.

Manufacturers : Frazzi, Ltd.

Address : Lennox House, Norfolk Street, W.C.2

Telephone : Temple Bar 5371-5372

Type of Building	Reinforced Concrete Code of Practice, 1933		Code of Practice for Steel Structures, 1931	L.B.A. Structural Steel Code, 1930	L.C.C. regulations for Reinforced Concrete, 1909
	Slabs	Beams			
Rooms used for domestic purposes	50	40	40	40	70
Hotel Bedrooms, Hospital rooms and Wards	50	40	40	40	84
Offices, Floors above entrance floor	80	50	50	50	100
Offices, entrance floor and floors below entrance floor	80	80	80	80	100
Churches, schools, reading rooms, art galleries, etc. ...	80	70	70	70	112
Retail Shops ...	80	80	80	80	112
Assembly Halls, Theatres, Cinemas	100	100	100	100	112
Drill Halls, Dance Halls	—	—	120	—	150
Warehouses, Book Stores, Stationery Stores, and similar uses, not less than	200	200	200	200	224
Flat Roofs at an angle not greater than 20° (lbs. per sq. foot of covered area)	50	30	30	30	56

3.

3.

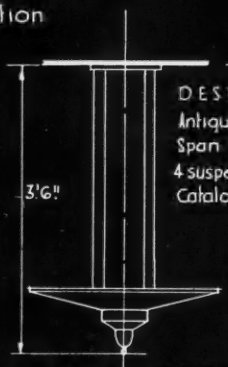
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(A) MAINLY INDIRECT : Shadowlite system. Pendants with opal glass panels transmitting a small amount of direct light, for use with Opal lamps only and effective with indirect cornice lighting or direct laylighting if desired.

MOUNTING DIAGRAM : Ideal installation

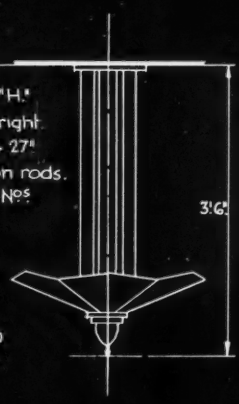


NOTE : For dance halls, etc. 2·8. is measured from floor level.



DESIGN "S."	DESIGN "H."
Antique bronze.	Armour Bright.
Span 21" & 27"	Span 21" & 27"
4 suspension rods	6 suspension rods.
Catalogue Nos	Catalogue Nos
5712	5702.
5713	5703.
5714	5704.
5716	5706.

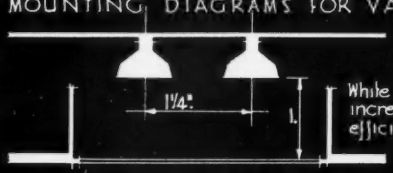
to take lamps of 150, 150, 200, & 300/500 watts, respectively.



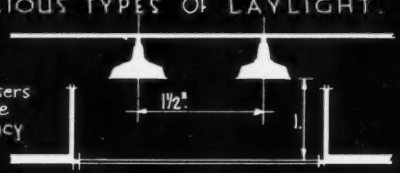
for table of mounting dimensions for Shadowlite fittings see back of this sheet.

(B) DIRECT : Laylighting system : in wall panels, door architraves etc., to obscure position of fittings 60 % transmission flashed opal glass is recommended, for tinted laylights use flashed opal on pot yellow etc. and increase the wattage. If more life is desired use small pin-head morocco or dewdrop glass of 75% transmission, but sources then will be slightly apparent. Avoid more transparent glasses such as Cathedral or Flemish. With opal laylight and average conditions one watt per square foot of floor area will give an illumination of 2½ foot-candles.

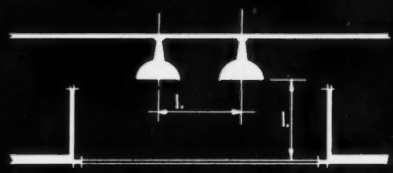
MOUNTING DIAGRAMS FOR VARIOUS TYPES OF LAYLIGHT.



1. To avoid positions of fittings being apparent when glass less diffusing than opal is used, use GLASSTEEL DIFFUSERS.



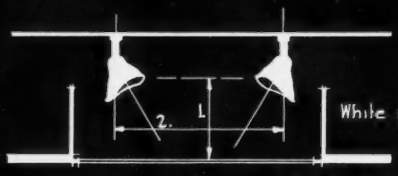
2. R.L.M. REFLECTORS are used when laylight is of flashed Opal and with sufficient head-room above.



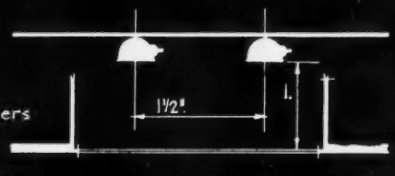
3. CONCENTRATING REFLECTORS are used for Opal glazed laylights if head-room is considerable.



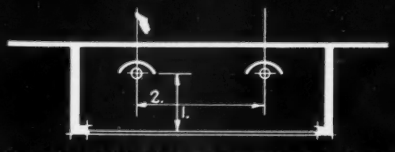
4. PROJECTOLUX REFLECTORS for mounting at sides of wide laylights of limited headroom Horizontal beam width - 80°.



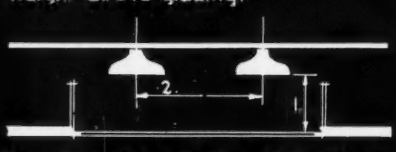
5. ELLIPTICAL ANGLE REFLECTORS for side mounting when centre mounting is impossible. Spacing of adjacent fittings should equal the height above glazing.



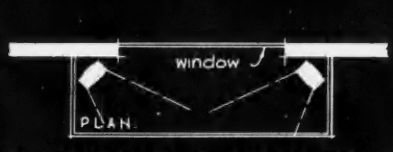
6. LOCAL HORIZONTAL REFLECTORS for flashed Opal laylights of limited depth, or for wall panels etc. Overall depth of fitting - 4 3/8".



7. SHOWCASE TROUGHS for glazed dummy laylights of limited head-room. Trough permits lighting of side panels. Spacing longitudinally - = = 2 × distance from glass.



8. CLUSTER REFLECTORS for 3 or 4 colour circuits in each reflector Spacing - twice height of filament above glazing.



9. CORNICE & SHOWCASE troughs for stained glass windows etc. Indirect lighting by reflectors.

Information from Benjamin Electric Limited.

INFORMATION SHEET : ELECTRIC LIGHTING : SEMI-INDIRECT & DIRECT SYSTEMS.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1

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INFORMATION SHEET • 218 • LIGHTING SYSTEMS

Types Illustrated : Mainly Indirect and Laylights

THE SHADOWLITE SYSTEM.

The Shadowlite fittings shown on this Sheet are designed to provide the uniform and shadow-free result of general lighting by the indirect method—the flat effect, however, being relieved by the translucent panels of which the fittings are formed.

Since the ceiling is called upon to play a part in reflecting the upward component of the light, it follows that the colour of the ceiling is an important factor. For maximum efficiency both ceilings and walls should be finished matt-white or ivory ; if other colours are used they should be light in tone, and of matt finish. Opal lamps should always be used in Shadowlite fittings.

Suspension : the standard length suspension rods (as shown) are recommended, but they are supplied either longer or shorter if required. Wiring is carried down one of the suspension rods in all models.

Finish : the standard finish for the "H" type is Armour Bright, and for the type "S" Antique Bronze—but other metal finishes can be supplied.

SHADOWLITE FITTINGS.

Ref. No. Design H.	For Lamps.	Lampholder Included.	Span.
5702	150 w.	B.C.	27 in.
5703	150 w.	E.S.	27 in.
5704	200 w.	E.S.	27 in.
5706	300/500 w.	G.E.S.	32 in.
Design S.			
5712	150 w.	B.C.	21 in.
5713	150 w.	E.S.	21 in.
5714	200 w.	E.S.	21 in.
5716	300/500 w.	G.E.S.	27 in.

SHADOWLITE MOUNTING DATA :

The foot-candle values given in the table below are based upon the assumption of a matt-white, ivory or other light finish for the walls and ceiling.

LAYLIGHTS :

There are two main factors to be considered in the design of a laylight, *a*, the glass to be used in the laylight itself, and *b*, the reflector to be placed behind the laylight.

Flashed opal glass is recommended wherever even lighting and good diffusion is required. If, however, no objection is taken to the positions of the light sources being slightly apparent, small pin-head Morocco or dew-drop glass laid smooth side up may be used. The use of more transparent glasses such as Cathedral or Flemish is undesirable. If slightly tinted glass is required, flashed opal on pot yellow, blue, green, etc., is recommended. Coloured glass requires an increase in wattage.

The diagrams given on this Sheet set out the various types of laylight and show the correct use of the appropriate fitting for each problem. The fittings used and the sizes in which they are obtainable are shown in the tables on the right.

Previous Sheets in this series were Nos. 87 and 130.

GLASSTEEL DIFFUSERS.

Ref. No.	For Lamps.	Holder Included.	Diameter.	Height.
5031	100 w.	B.C.	18 in.	11⅜ in.
5032	150 w.	B.C.	18 in.	11⅜ in.
5033	150 w.	E.S.	18 in.	11⅜ in.
5043	200 w.	E.S.	18 in.	11⅜ in.
5084	300 w.	G.E.S.	20 in.	14 in.
5085	500 w.	G.E.S.	20 in.	14 in.
SAAFLUX R.L.M. REFLECTORS (See also Sheet No. 87)				
***2006**	60/75 w.	B.C.	12 in.	11 in.
***2008**	100 w.	B.C.	14 in.	11⅜ in.
***2009**	150 w.	B.C.	14 in.	12⅛ in.
***2010**	150 w.	E.S.	14 in.	12⅛ in.
***2012**	200 w.	E.S.	16 in.	13⅜ in.
***2014**	300 w.	G.E.S.	18 in.	16⅛ in.
***2015**	500 w.	G.E.S.	18 in.	16⅛ in.
2017	750/1000 w.	G.E.S.	20 in.	18⅜ in.
2018	1500 w.	G.E.S.	20 in.	18¾ in.
*Denotes that these Reflectors can be fitted with dustproof visor screens.				
SAAFLUX CONCENTRATING REFLECTORS :				
***2046**	60/75 w.	B.C.	9 in.	10¾ in.
***2048**	100 w.	B.C.	12 in.	12 in.
***2049**	150 w.	B.C.	12 in.	12¾ in.
***2050**	150 w.	E.S.	12 in.	12¾ in.
***2052**	200 w.	E.S.	15 in.	17 in.
***2054**	300 w.	G.E.S.	15 in.	17 in.
***2055**	500 w.	G.E.S.	18 in.	16½ in.
2057	750/1000 w.	G.E.S.	18 in.	18½ in.
2058	1500 w.	G.E.S.	18 in.	18¼ in.
*Denotes that these Reflectors can be fitted with dustproof visor screens.				

PROJECTOLUX REFLECTORS

Reference No.	For Lamps.	Diameter.	Height.
5080	300 w.	12¾ in.	12¾ in.

SAAFLUX ELLIPTICAL ANGLE REFLECTORS.

Ref. No.	For Lamps.	Holder Included.	Approx. Dimensions.	Height.
2086	60/75 w.	B.C.	13 × 9¾ in.	15 in.
2088	100 w.	B.C.	13 × 9¾ in.	15⅛ in.
2089	150 w.	B.C.	13 × 9¾ in.	16⅛ in.
2090	150 w.	E.S.	13 × 9¾ in.	16⅛ in.
2092	200 w.	E.S.	16½ × 12 in.	18 in.
2094	300 w.	G.E.S.	20 × 15½ in.	21¾ in.
2095	500 w.	G.E.S.	20 × 15½ in.	21¾ in.

CLUSTER REFLECTORS.

Ref. No.	For Lamps.	Diameter.	Height.
4227	3–100 w.	18 in.	8¾ in.
4228	4–100 w.	18 in.	8¾ in.

Can be supplied with Visor fronts to order.

LOCAL HORIZONTAL REFLECTORS.

With 1½-in. Hole.

8329	15–75 w.	6½ in.	7 in.

With Skirted B.C. Bakelite Lampholder.

8129	15–75 w.	6½ in.	8¾ in.

SHOWCASE TROUGHS

Reference No.	For Lamps.	Length.	Width.	Depth.
3130	15/60 w.	13 in.	3½ in.	1½ in.

Spacing apart in Feet.	Area per Point in Square Feet.	Height from Working Plane to Ceiling. Ft.	In.	Drop from Ceiling. Ft.	In.	Height Above Working Plane. Ft.	In.	150 Watt. Foot-Candles.	150 Watt. Watts per Sq. Ft.	200 Watt. Foot-Candles.	200 Watt. Watts per Sq. Ft.	300 Watt. Foot-Candles.	300 Watt. Watts per Sq. Ft.	500 Watt. Foot-Candles.	500 Watt. Watts per Sq. Ft.
10×10	100	8	6	2	10	5	8	6·4	1·5	9·0	2	14·2	3	25·8	5
11×11	121	9	6	3	2	6	4	5·3	1·24	7·3	1·65	11·7	2·48	21·3	4·1
12×12	144	10	6	3	6	7	0	4·5	1·04	6·2	1·39	10	2·08	17·9	3·5
13×13	169	11	3	3	9	7	6	3·8	0·89	5·25	1·17	8·3	1·77	15·2	2·96
14×14	196	12	0	4	0	8	0	—	—	4·5	1·02	7·25	1·53	13	2·55
15×15	225	13	0	4	4	8	8	—	—	4	0·89	6·25	1·33	11·3	2·22
16×16	256	13	9	4	7	9	2	—	—	3·5	0·78	5·5	1·17	10	1·95
17×17	289	14	6	4	10	9	8	—	—	—	—	5	1·04	8·9	1·73
18×18	324	15	6	5	2	10	4	—	—	—	—	4·4	0·93	7·9	1·54
19×19	361	16	3	5	5	10	10	—	—	—	—	3·9	0·83	7·1	1·38
20×20	400	17	3	5	9	11	6	—	—	—	—	—	—	6·4	1·25
22×22	484	18	9	6	3	12	6	—	—	—	—	—	—	5·25	1·03
24×24	576	20	6	6	10	13	4	—	—	—	—	—	—	4·5	0·87
26×26	676	22	6	7	6	15	0	—	—	—	—	—	—	3·8	0·74
28×28	784	24	0	8	0	16	0	—	—	—	—	—	—	3·25	0·63

Manufacturers :

The Benjamin Electric, Ltd.

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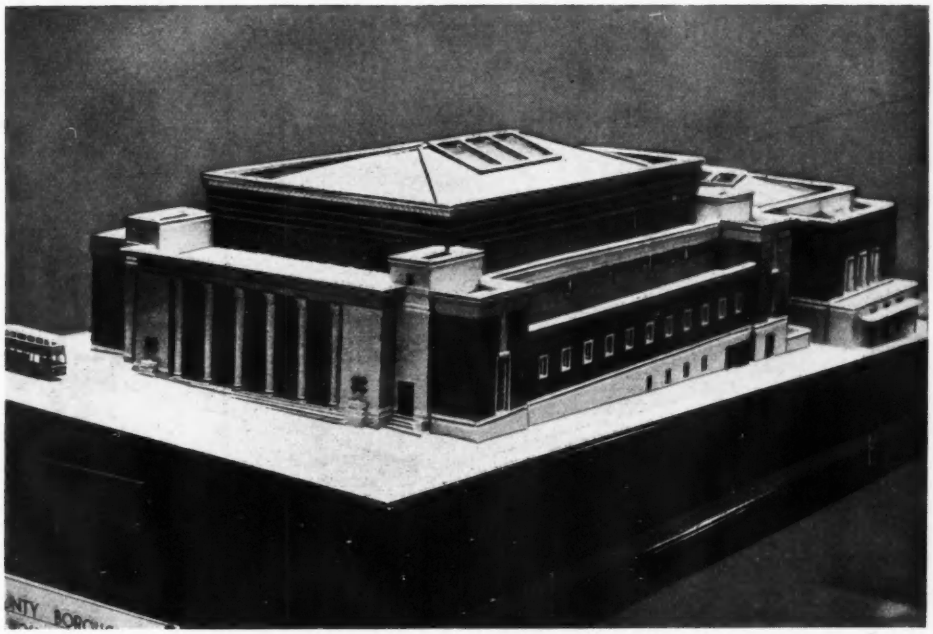
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NEW CIVIC ARCHITECTURE

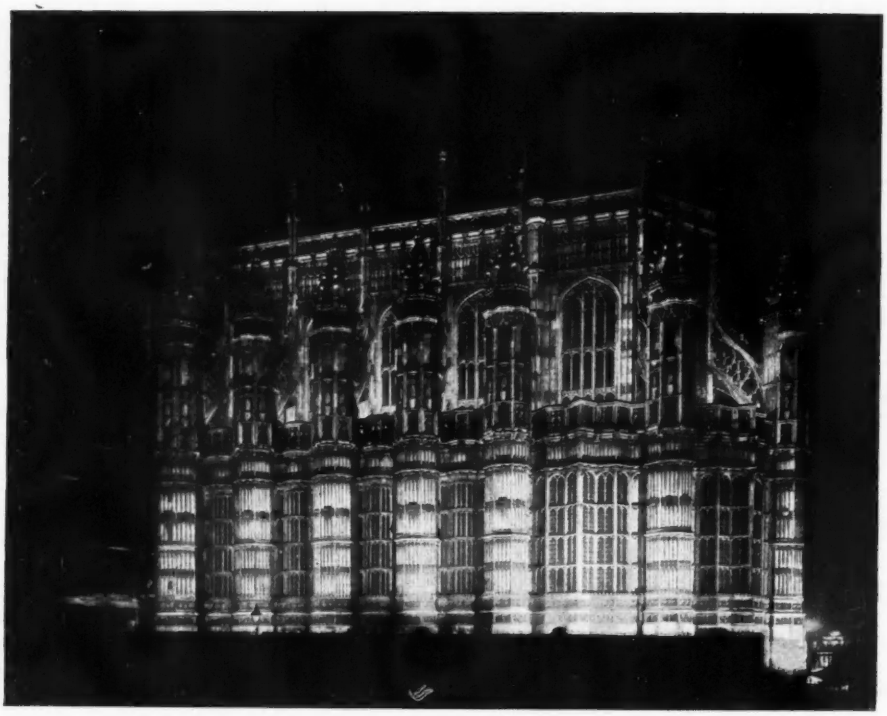
WOLVERHAMPTON'S ASSEMBLY HALL



THE Minister of Health has given general approval of the scheme for the provision of new municipal assembly halls at Wolverhampton. The photograph shows a model of the new building, which will contain two halls, with accommodation for 2,000 and 800 people respectively, and which is estimated to cost £150,000.

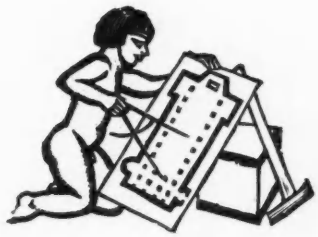
The architects are Messrs. E. D. Lyons and L. Israel, whose design was placed first in an open competition held last year. A perspective of the design is among the exhibits in the Architecture Room at this year's Academy.





FLOODLIT LONDON

One of the most popular free entertainments of the jubilee week has been a tour of London's floodlighted buildings. Experiments have been made in lighting in this way a number of buildings of greatly varying character, on the whole with remarkable success. Even the most superficially academic buildings seem to acquire, under illumination, a rather entertaining toy-like quality, which enhances their pictorial value through complete acceptance (in fact, through emphasis) of the arbitrary nature of their design. Considering the limited degree to which London's architecture lends itself to façade illumination—the charm of London scenery being essentially one of silhouette rather than surface—some agreeable effects have been achieved, particularly when proper consideration has been given to contrasts of light and shade. A notable success is the National Gallery, where Wilkins's insipid elevation is given unaccustomed boldness by lighting the centre behind the strong, dark outline of the portico. The two photographs show the effect of Buckingham Palace (by courtesy of G. E. C.), lighted by 134 floodlights, consuming 132 kW, and the Henry VII Chapel, Westminster Abbey, taken from Dean's Yard (by courtesy of Holophane). A total of 85 kW is used to floodlight the Abbey. A view of St. Paul's Cathedral appears on page 757.



THE BOROUGH SURVEYOR

THE practising architect of today is in frequent touch with surveyors and engineers to borough and district councils ; and generally speaking he receives at least his due measure of courtesy as a ratepayer ; sometimes really friendly help and advice. The architect and the official have each their task to fulfil. An official adviser to a council is an obvious necessity : the more so in a municipal state where the voluntary system brings all and sundry into the administrative chair. Bye-laws are framed in technical language, and the aim of the bye-laws is wrapped up in technical operations. It is probably no exaggeration to say that a training in building construction is a necessary preliminary to an understanding of the building bye-laws. Thus we have one important function of the surveyor to a council, and one at which no party can reasonably cavil. His job is to administer the law in a sphere outside the lawyer's province.

Of recent years the scope of his activities has been widely extended, and this is the cause of a circular memorandum recently issued by the R.I.B.A. This memorandum, which was referred to in our correspondence columns last week, deplores that local authorities are not always properly equipped with qualified architectural advice, and emphasizes the readiness of the profession to accept its responsibilities if it is allowed to.

The housing campaign of recent months, probably unwisely handled by the architects in all but a purely architectural sense, opened up a new field of action for the official. The housing problem may, however, be taken as an exceptional emergency. There is something to be said for an argument which assumed this exception as being justified by the urgency of the problem, though the case that showed that the urgency is better met from the bureau than from the private office would tax the talents of a capable barrister to make good.

But when we find the surveyor or engineer to a council creating a permanent drawing office staff to undertake architectural works of an ambitious nature, such as municipal buildings, schools, hospitals, etc., the insidious development stands self-revealed. Under properly qualified architectural direction such departments are tolerable, and may in some way adjust themselves within the architectural state. Without that qualified direction they are not only unjust to the profession most nearly interested, but against the welfare of the public, which has a right to full value for the public money collected and spent. This is the rock upon which harmony between the architect and the borough surveyor must always split until justice is served.

The Town and Country Planning Act has given each district or borough council the right to adopt powers to approve or disapprove elevations, and the amazing claim was made some while ago that the adviser to the council in these purely æsthetic matters should be the engineer or surveyor. It seems hardly necessary to raise arguments against such a Gilbertian proposition ; but, knowing the easy shrug of the shoulders with which social habit is sometimes created, the points, however obvious, must be clearly set down.

The surveyor is appointed to advise a council, representing many heterogeneous trades and professions, whether drains are likely to smell, joists to break, or mortar to crumble. He is at hand with scale rule to show whether prescribed air space is provided, whether walls are thick enough for their height, and so forth. His function is quite clearly defined and eminently necessary, and he has a clearly defined schedule of rule and regulation within which to operate. But when it comes to judging whether planning has been properly considered, whether proportion is good, fenestration reasonable and materials harmonious, a subject is entered upon in which there is no book of rules, and for the judgment of which the official has had no training. He stands on the level of the men he is appointed to advise, and the Mayor, who may be a linen draper, may have just as good ideas in his head. That is surely self evident.

Again, is it reasonable that the technical official, who becomes for this purpose an ordinary layman, should be required to judge the work of architects with a life training behind them? Yet there have been actual cases where a borough surveyor has advised his council to reject the designs of eminent architects on alleged æsthetic grounds. Imagine a sanitary inspector directing a surgical operation! Surely, also, the public will not need telling that it is wrong to put this responsibility of judging between good and bad design (a problem which baffles most of us at some time or another) upon one pair of shoulders. The architects themselves do not suggest this in their Panel System but require several individuals to pool their ideas and senses of judgment. If this is wisdom among men skilled in their job surely it is much more so applied to the architecturally unqualified individual.

There is a growing feeling in the profession that the architect has been for long enough mulcted in rates to subsidize his official competitors, and the memorandum of the R.I.B.A. is a timely analysis of a most unsatisfactory state of affairs.



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NOTES & TOPICS

THE BUILDING ACT REPORT

THE Advisory Committee appointed in 1931 to consider amendments to the London Building Act 1930 has this week issued its Report. This is a document of vital importance, for the adoption of its recommendations would clarify the official requirements and give London more confidence in the reasonableness of its building regulations.

*

The Report, in recommending that the present 80 ft. height of building be increased to 100 ft., is merely accepting the position which, through special applications, has been normal for some time, but it goes further afield than that. It does much to overthrow the fire bogey and calls the statistics and evidence of the fire brigades to its support. It makes recommendations regarding garages both under buildings and under public spaces. It advises the simplification of the L.C.C. machinery controlling building, district surveyors and their decisions.

*

The Report contains innumerable smaller recommendations but never loses sight of the necessity to promote an entirely new Act instead of risking more confusion still by attempting amendments to the present one. That is the wisest recommendation of them all.

R.I.B.A. ELECTIONS

The elections for new members of Council and Standing Committees will soon be upon us, and I believe that more than the usual amount of interest is being taken in the election lists this year.

*

We have it on no less authority than that of Sir Ian MacAlister that less than 20 per cent. of the possible voters have in the past taken the trouble to return their election papers, and that in the Associate class alone the percentage has been even smaller. This is a disgraceful state of affairs. May the good sense of every member of the Royal Institute see to it that another record be broken in this Jubilee Year.

THE CHURCH AT LOURTIER

From being the cause of a grave architectural scandal the humble little church which is illustrated elsewhere in this issue has come to enjoy another, and almost equally invidious, form of notoriety. Tourists jaded with picture post-card scenery are now taken by motor-coach to see "the only functional fane in the whole chain of the Alps."

*

No sooner had the Bishop of Sion approved its design than the most violent opposition to "this Bolshevism" was fomented by "the cultivated circles" and romantic archæolaters of French-speaking Switzerland. In fact, but for the staunch support which the peasants and priest of this desperately poor parish gave their architect, the—or rather a—church would probably never have been built. But built it was; and as the *curé* of Lourtier remarked to a reporter, "Well, if they call a church like ours Bolshevik, all I can say is I *like* Bolshevism."

*

That was over two years ago, and the campaign of cultural execration is still being kept alive by artificial respiration. But the taunt of Bolshevism has had to be abandoned now that the U.S.S.R. has gone "bourgeois classic." In a recent article invoking "the good old times" and "the God of our Fathers" the *Gazette de Lausanne* described Sartoris's church as "a slaughter-house for pigs."

*

To which the Swiss poet Paul Budry tellingly retorted: "Such a church reminds us that the architectural genius of Christianity did not speak its last word in the great mediæval cathedrals, that God is just as much modern as ancient, and that now as ever true religion keeps in step with the march of the times."

THIS RIBBON DEVELOPMENT

I can't understand the Government's failure to push forward its Restriction of Ribbon Development Bill until months after it had announced its intention of dealing with ribbon development.

*

The delay has been an open invitation to land speculators to accelerate their evil work, and there has indeed, or so I understand, been increased activity of this sort in the last few months—of people hurrying to conclude contracts that will render them immune from inconvenience when the Act becomes law; quite apart from the increased number of gentlemen who will be found to have claims to compensation.

*

As for the terms of the Bill itself, the traffic issues, though most important, must not be allowed to overshadow the preservation of amenities and the encouragement of orderly planning.

*

The 60 ft. or 80 ft. distance from the centre of the road (or 220 ft. in the case of a "classified" road) within which development can be forbidden, doesn't seem nearly enough. There is a suggestion that speculators will still be able to build ribbon estates by turning their backs on the main



Jubilee presentation : a glass bowl presented to H.M. the King by the Worshipful Company of Glass Sellers. It is in a pale blue glass, standing 13 ins. high, with the Royal Arms engraved on one side and those of the Glass Sellers Company on the other. The bowl was designed by James Hogan and made at their Whitefriars works by James Powell and Sons.

road and fronting them to a service road beyond the forbidden area ; only turning ribbon development inside out, not improving fundamental conditions at all.

*

Another thing is that all this Bill only appears to give local authorities power to stop ribbon development, not compelling them to do so. After our experience with the Town and Country Planning Act we know how apathetic local authorities can be.

*

There is a great deal to be said for the suggestion Lord Bayford made in the House of Lords that the Bill ought to put the onus on the builder to get leave to build, not on the highway authority to stop him.

*

Whatever steps are taken they should be taken quickly and without compromise. There is no excuse for delay. Preventing ribbon development is the one question on which the Government will have absolutely no opposition, except from the land speculators themselves.

GENEVA

One of our most respected dailies recently expended several columns in describing the new Palace for the League of Nations.

*

The Palace, we are told, is a building " devoid of needless embellishment." That I quite understand, but when I read, " . . . The lines are on the classical model, blended with the modern conception of creating effects, not by decorative art, but by the grouping of surfaces. The architects have renounced pillars and architraves in order to subordinate and conceal the mechanics of construction," I confess that Fleet Street has me completely beaten.

B.R.S. VISIT

I have the greatest respect for the work being done for our mutual benefit by the Building Research Station at Watford. Every architect gains in one way or another by the work the Station is doing to formulate a real Science of Building to take the place of the superstitions and personal prejudices of generations of craftsmen, who of necessity prepared their own building materials before using them.

*

An afternoon visit to Watford has been arranged by the R.I.B.A. for May 23 (2.5 p.m. from Euston) to enable architects to see at first hand the research work going on. I see that the visit is to be in two sections, one making a general tour of the station and the other a limited tour to study "Some problems concerned with the exclusion of rain."

*

This is an important occasion and I commend it to all architects who have encountered building difficulties. . . . I have, and shall certainly join the party.

THE STRUCTURAL ENGINEERS' PRESIDENT-ELECT

I can think of few people better fitted to be President of the Institution of Structural Engineers than Dr. Oscar Faber. Quite apart from his technical abilities, which it would be an impertinence for me to talk about, he is one of the few engineers who can lecture on the theory of structures to architectural students and still be understood, without giving the impression that it is all much too easy.

*

I suppose his work at the Bank of England is as good as anything he has yet done. I was shown round the Bank's power and heating plant some months ago, and it seemed to me that each unfortunate therm was forced to do at least four different jobs before it could get away up the chimney.

*

Dr. Faber, by the way, is a more than competent musician, and used to be full of useful ideas for A.A. pantomimes, technical and otherwise.

CIVIC PRIDE

There are several sorts of civic pride, but the palm for the honest-to-goodness variety must be given to a certain town councillor, a Lancashire lad. He attended a meeting to consider the specification which a friend of mine had prepared for the new Town Hall.

*

" Dost know that £2 apiece is included for t' door knobs ? " he cried. My friend humbly pointed out that this furniture was for the Council suite, where a little extravagance was perhaps warranted. " But," continued the stalwart lad, " I know that Leeds had £2 5s. apiece for their council knobs—dost think we a'nt as much brass as Leeds ? "

*

The inclusion of a p.c. sum of £2 10s. apiece for t' knobs eventually satisfied everyone. ASTRAGAL.

NEWS

POINTS FROM THIS ISSUE

Imagine a sanitary inspector directing a surgical operation 753

"The architects have renounced pillars and architraves in order to subordinate and conceal the mechanics of construction" 755

"I want to know if the Square is to be sacrificed to make an architect's holiday 757

A concrete church for £1,300 .. 760

BRITISH PAVILION, BRUSSELS

The official inauguration of the British Pavilion at the Universal and International Exhibition, now being held in Brussels, took place on Friday last, May 10. The ceremony of opening the Pavilion was performed by His Majesty's Ambassador in Brussels, Sir Esmond Ovey. The Earl of Lytton (Chairman of the Committee of Honour for British participation in the Exhibition), Lieutenant-Colonel John Colville, M.P. (Secretary of the Department of Overseas Trade), Sir Edward Crowe (Comptroller-General of that Department), and Mr. Claude Taylor (the British Commissioner-General) were present.

LONDON BUILDING ACT, 1930

The Report of the Advisory Committee on the Amendment of the London Building Act, 1930, was laid before the London County Council at its meeting on Tuesday, by Mr. H. Berry, Chairman of the Building Acts Committee of the Council. The following motion was moved by Mr. Berry:

"(i) That the Report, dated April 11, 1935, of the Advisory Committee on the Amendment of the London Building Act, 1930, be referred for consideration and report to the Building Acts Committee as regards those matters in the report which are within the order of reference to that committee only, and to the General Purposes Committee, after consultation with any other committee concerned, as regards other matters in the Report.

"(ii) That the thanks of the Council be accorded to the members of the Advisory Committee on the Amendment of the London Building Act, 1930, for their services, and to the Metropolitan Boroughs' Standing Joint Committee, the Royal Institute of British Architects, the Chartered Surveyors' Institution, the Institution of Civil Engineers, the Town Planning Institute, the London Master Builders' Association, the National Federation of Building Trades Operatives and the London Employers' Association, Limited, who have assisted in the production of the Report by nominating members to serve on the Advisory Committee."

Copies of the report (price 4s.) are obtainable from P. S. King and Co., Ltd., 14, Great Smith Street, Westminster, S.W.1.

THE ARCHITECTS' DIARY

Thursday, May 16

ROYAL ACADEMY EXHIBITION, *Burlington House, Piccadilly, W.1. Open until further notice.*

ARCHITECTURAL ASSOCIATION, 36 *Bedford Square, W.C.1. Annual Reception by the President, the Hon. Humphrey Pakington.* 8.30 *p.m.*

Also, at the R.I.B.A. Building, 66 Portland Place, W.1. Exhibition of work executed during the past three years by architects trained in the A.A. schools and members of the school staff. Until May 17. 10 *a.m. until* 8 *p.m.*

SOCIETY OF ANTIQUARIES, *Burlington House, Piccadilly, W.1. "The Study of the Great Seal." By Hilary Jenkinson.* 8.30 *p.m.*

INSTITUTION OF ELECTRICAL ENGINEERS, *Savoy Place, W.C.2. Annual General Meeting.* 6 *p.m.*

FOURTH BRITISH GLASS CONVENTION. *At Folkestone. Until May 18. For details of the programme see page 773.*

ROYAL SOCIETY OF ARTS, *John Street, Adelphi, W.C.2. "The Evolution of the Industrial System in the Far East." By Professor Alfred F. Barker.* 8 *p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS, *Yorkshire Branch. Annual General Meeting.*

Monday, May 20

R.I.B.A. EXHIBITION OF INTERNATIONAL ARCHITECTURE. *At the Walker Art Gallery, Liverpool. Until June 20.*

Tuesday, May 21

INSTITUTE OF FUEL. *At the Institution of Electrical Engineers, Savoy Place, W.C.2. "The History and Construction of the Iraq Pipe Line." By Sir John Cadman.* 6 *p.m.*

Wednesday, May 22

ARCHITECTURE CLUB. *Dinner to be held at the Savoy Hotel, W.C.2. Topic for discussion, "Large-Scale Redevelopment."* 7.45 *p.m.*

ROYAL SOCIETY OF ARTS, *John Street, Adelphi, W.C.2. "The Parish Churches of the City of London." By Miss E. Jeffries Davis.* 8 *p.m.*

COMMONS, OPEN SPACES AND FOOTPATHS SOCIETY, 71 *Eccleston Square, Westminster, S.W.1. Annual General Meeting.* 3 *p.m.*

POST-GRADUATE SCHOOL, HAMMERSMITH

On Monday last His Majesty the King opened the British Post-graduate Medical School in Ducane Road, Hammersmith, W. The architect is Mr. Edwin Bax, F.R.I.B.A., working under the chief architect of the London County Council.

REPORT ON ECONOMIC REFORM PROGRAMMES

The First Interim Report of the Engineers' Study Group, on schemes and proposals for economic and social reforms, will be presented at a meeting of the British Science Guild to-day, May 16, at 5.30 p.m., in the Lecture Theatre of the Institution of Civil Engineers, Great George Street, Westminster. The report will be presented in brief by Lt.-Col. J. V. Delahaye, D.S.O., M.C., and will be followed by a discussion.

NOTTINGHAM, DERBY AND LINCOLN ARCHITECTURAL SOCIETY

At the annual meeting of the above Society, held last week, the following officers were elected for the ensuing session: President, Mr. Claude E. Howitt, A.R.I.B.A.; vice-president, Mr. W. G. Watkins, F.R.I.B.A.; secretary and treasurer, Mr. W. L. Dunn.

EDINBURGH ARCHITECTS AND THE GLASGOW CORPORATION

At the monthly meeting of the Council of the Edinburgh Architectural Association, held at 15 Rutland Square, (Mr. A. F. Balfour Paul, F.R.I.B.A., president, in the chair) it was resolved to draw the attention of Edinburgh Corporation to the fact that the greatest municipal body in Britain, the London County Council, had recently decided to employ architects in private practice to supplement the work of the Council's own architectural department in the production of block dwellings.

The following were nominated for election as members: Mr. James C. Letham, as Fellow; Messrs. G. D. White, James Ferguson, and James Galletly, A.R.I.B.A., as Associates; and Mr. R. Macdonald, Burntisland, as student. Messrs. Wm. Knox and Wm. F. Wilson were elected as affiliates.

INSTITUTION OF STRUCTURAL ENGINEERS

The annual dinner of the Institution of Structural Engineers was held at the Dorchester Hotel, Park Lane, W., on Friday last, under the chairmanship of the President, Mr. Ewart S. Andrews, B.Sc., M.Inst.C.E.

Sir Thomas Inskip, the Attorney-General, proposing the toast of "The Institution," said that engineers were the professional advisers of the Ministry of Health in the rebuilding of our cities, and were therefore responsible for seeing that the houses of the future were not only convenient, not only healthy, but beautiful—a task that would take them all their time to accomplish. He said that he was not sure that he appreciated the æsthetic advantages of concrete, judging from some of the buildings now being erected in this country. When he thought of what the builders of 500 years ago produced in the way of church towers in Somerset and of the glories of Henry VI buildings at Eton, he wondered whether concrete and cement today could be made to provide buildings comparable with those produced by the architects and craftsmen of those days. He wondered whether the Institution, with its vast technical equipment and astonishing ability in harnessing



Floodlighting the dome of St. Paul's Cathedral. Batteries of 1,000 watt floods are placed between and behind the columns of the colonnade and behind the balustrade of the stone gallery. The Ball and Cross and the tower supporting them are illuminated with narrow beam floodlights placed on the east and west corners of the roof. Altogether, 93 floodlights have been employed, 69 on the colonnade and stone gallery and 24 lighting up the Ball and Cross. (Photograph by courtesy of G.E.C.)
See also page 752.

the secrets of Nature for the use of mankind, would be able to prove to people 500 years hence that they, too, were not unaware of the duty, not only to make useful and permanent structures, but to produce something which had æsthetic qualities satisfying to the soul as well as to the body.

Mr. Andrews, responding to the toast, said that, fortunately, the responsibility for concrete and æsthetic qualities did not rest upon the shoulders of structural engineers, but upon the architects. He thought that the work of the present generation could only be judged fairly after the passage of centuries when, in all probability, the critic would be telling the builders and engineers of his age that they could produce nothing so good as did their predecessors 500 years before.

Professor F. Campus, of Liége University, responding to the toast "The Guests" (proposed by Major A. H. S. Waters, V.C.), said that he believed that nothing done by the engineers of this country could be without importance to the engineers of the world, and they, like himself, followed with unfailing attention the great efforts towards progress of British engineers, who were worthy of their great predecessors and pioneers of the past century. Other speakers included Sir Richard Redmayne, President of the Institute of Civil Engineers, and Mr. Geoffrey Shakespeare, Parliamentary Secretary to the Ministry of Health. The latter pointed out that the Government was seeking to erect an edifice through slum clearance which would be a permanent memorial. They were trying to re-house in the space of five years a slum population equal to a quarter of the whole population of London.

B.I.N.C.

At the annual meeting of the Building Industries National Council, Mr. Sydney Tatchell, F.R.I.B.A., was elected President for the ensuing year, in succession to Sir Raymond Unwin, PP.R.I.B.A.

Mr. J. M. Theobald, F.S.I., was elected senior vice-president and Messrs. J. H. Barker, A.I.O.B., H. J. C. Johnston, T. Barron, J.P., Maurice E. Webb, D.S.O., M.C., F.R.I.B.A., were re-elected vice-presidents. Mr. Oswald Healing, F.S.I., A.M.I.C.E., was re-elected honorary treasurer and Mr. I. Ernest Jones, M.A., B.SC., honorary secretary.

The Council approved the Reports of the constituent Committees on their work during the year.

Among the subjects dealt with in the Reports were the investigations by the General Purposes Committee, in connection with which a deputation waited upon the Ministry of Health with regard to housing policy, into the causes of fluctuations in activity. These investigations will be continued by the Special Committee for Public Relations which has expanded its statistical and economic research work in order to deal with this matter and has inaugurated a new monthly publication entitled *The Building Industries Survey*. It has also issued and submitted to the Cabinet and local authorities a report on "Long-Term Public Works Policy."

Among the subjects to be considered by the Council are the technical education and the training of apprentices and other new entrants to the industry; the causes and extent of inferior house building; the effects and proposals for reform of the present system of rating buildings; and the need for a national code of building regulations.

FATE OF A LONDON SQUARE

The Holborn Borough Council last week passed by 14 votes to three a recommendation to approve the revised lay-out of the site of London University. This shows seven green areas, totalling 1·08 acres, as against 1·06 acres of Torrington Square garden which they are to replace.

Opposing, Councillor Humberstone said that unfortunately Torrington Square was not one of the London squares that were by Act of Parliament preserved for ever, but no one ever imagined the University would completely build over it. He wanted to know whether the square was to be sacrificed to make an architects' holiday. He thought the University should have the square included in the site but should keep it as an open space.

Alderman Hill, chairman of the Works and General Purposes Committee, said the Borough Council had no jurisdiction over the lay-out of the site.

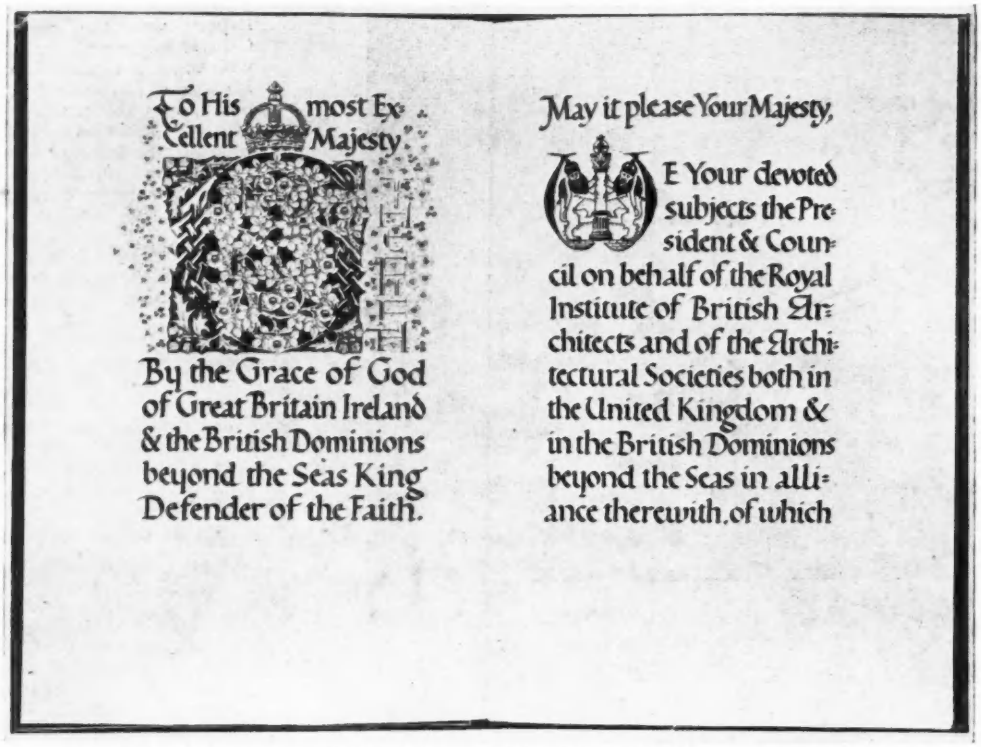
SOUTH-EASTERN SOCIETY OF ARCHITECTS

The annual meeting of the above Society was held at Croydon yesterday (Wednesday), under the chairmanship of Major F. W. Rees, L.R.I.B.A., when a paper, "The Architects' Contribution in Modern Life," was read by Mr. E. R. Jarrett, A.R.I.B.A.

LIVERPOOL SCHOOL OF ARCHITECTURE

The mass production of standardized units should be regarded as one of the blessings of a properly organized community, said Mr. Raymond McGrath, A.R.I.B.A., in a lecture on "Mass Produced Houses," which he delivered to the Students' Architectural Society of the Liverpool School of Architecture last week.

To-day, he said, we were not vitally concerned with the patient, independent labours of the craftsman. What was needed most was organization and large-scale planning in architecture and the building industry. We could not possibly preserve the old character of the whole of our towns and countryside, and modern expression of contemporary needs could not be denied indefinitely. Preservation must be planned, not opportunist. The



The Jubilee Address presented by the R.I.B.A. to His Majesty the King. See note on this page.

Cotswolds, the Lake District—these choice parts of our inheritance—should be zoned with full regard for their future preservation as well as development. Obviously, if they were good in design and rightly placed, and if there were a zoning plan in operation, modern houses would be perfectly right in the Cotswolds.

Advocating that there was a useful lesson to be learned from the motor-car—the best example of mass production in modern industry—Mr. McGrath said that the building industry was "still a long, long way from over-production." Until houses were produced, complete with modern equipment, which everyone could afford, production had not even been begun—much less over-production.

R. I. B. A.

JUBILEE ADDRESS

On this page we reproduce (by courtesy of the *R.I.B.A. Journal*) two pages from the Jubilee Address presented by the R.I.B.A. to His Majesty the King. The address was inscribed by Mr. Graily Hewett on vellum and bound in morocco. The full text is as follows :—

"To His Most Excellent Majesty, By the Grace of God of Great Britain, Ireland, and the British Dominions beyond the Seas, King Defender of the Faith.

"May it please Your Majesty.

"We, your devoted subjects, the President and Council, on behalf of the Royal Institute of British Architects and of the Architectural Societies both in the United Kingdom and in the British Dominions beyond the seas in alliance therewith, of which Royal Institute Your Majesty is the gracious and generous patron, beg leave respectfully to approach Your Majesty with the expression of our loyal congratulations on the happy occasion of the twenty-fifth year of Your Majesty's Reign and to tender our most devoted and dutiful homage. We earnestly pray that Almighty God will grant alike to Yourself and to Her Gracious Majesty Queen Mary many more years of peaceful and glorious reign wherein Architecture may flourish, the Arts and Sciences extend their dominion and Civilization be ever more widely spread among a loyal and loving people.

"Given under our hands and seal this fifteenth day of April One thousand nine hundred and thirty-five. Giles Gilbert Scott, *President;* W. H. Ansell, *Vice-President;* John Begg, *Vice-President;* H. S. Goodhart-Rendel, *Vice-President;* Maurice E. Webb, *Vice-President;* P. J. Hopkins, *Hon. Treasurer;* Henry M. Fletcher, *Hon. Secretary;* Ian MacAlister, *Secretary.*"

VOLUME CATALOGUE OF THE LIBRARY

The R.I.B.A. has received a gift of £500 from Sir Banister (Flight) Fletcher, F.S.A., Past-President, towards the publication of a volume catalogue of the library. The gift will enable the Literature Standing Committee of the Institute to start at once on the work of preparing the catalogue.

When the new card index for the Portland Place library was started three years ago the Committee decided to print all the entries and to hold the type so that the work done then would be available if and when the opportunity should turn up of publishing a volume. The Committee's foresight has been amply justified by Sir Banister's generous gift, which has made an immediate realization of these hopes possible.

The volume catalogue, which, as the result of this gift, can be sold at a price certainly under half its production cost, will vastly increase the value of the library to members outside London.

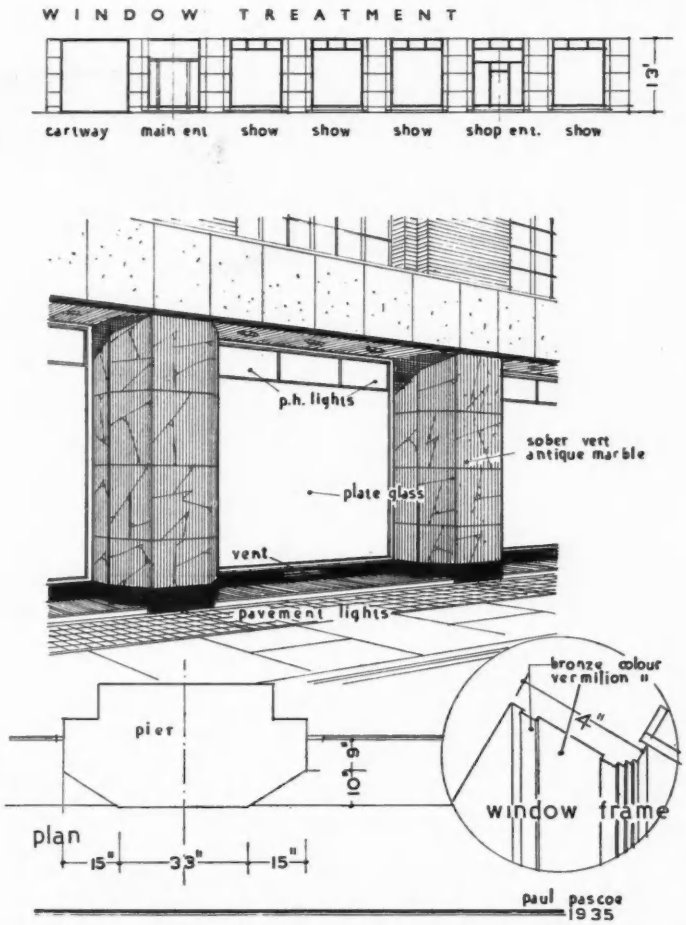
MAINTENANCE SCHOLARSHIPS IN ARCHITECTURE

The R.I.B.A. offers for award in July 1935, the following Maintenance Scholarships in Architecture tenable from October 1, 1935 :—

(*a*) An R.I.B.A. Maintenance Scholarship of a maximum value of £100 per annum.

(*b*) Two Houston Maintenance Scholarships of a maximum value of £100 per annum each.

The Scholarships will be tenable in the first instance for one year and renewable for two further periods of one year each. They are intended to enable promising students, whose parents or guardians have



From St. Margaret's House, Wells Street, W.1. Designers: Richardson and Gill.

not the necessary means, to attend approved courses at the Schools of Architecture recognized for exemption from the R.I.B.A. examinations. Students who are already taking such a course are also eligible to apply for a Scholarship. The Scholarships are available for students residing in England and Wales.

The value of the Scholarships, up to the limit of £100 per annum, will depend upon the financial circumstances of the parents or guardians of the candidates. The parents or guardians will be required to furnish particulars, on the proper form, of their financial position.

Particulars and forms of application may be obtained, free, on application to the Secretary to the Board of Architectural Education, R.I.B.A., 66 Portland Place, London, W.1. The closing date for the receipt of applications, duly completed, is June 17, 1935.

COMPETITION NEWS

TOWN HALL, WEMBLEY

As we go to press we learn that the result of the competition for a proposed town hall at Wembley will be announced today, May 16. The designs will be on exhibition at the Majestic Ballroom, Wembley, from May 20 to 24, between the hours of 10 a.m. and 8 p.m.

UNIVERSITY EXTENSIONS, SHEFFIELD

Mr. W. C. Fenton, F.R.I.B.A., the assessor in the limited competition for extensions at the University Buildings, Western Bank, Sheffield, has made his award as follows:—

Design placed first (£150): Mr. T. A. Lodge, F.R.I.B.A., of 19 Bedford Square, W.C.1.

The second and third premiums of £100 and £75 respectively to be pooled and shared equally by Mr. R. Fielding Dodd, F.R.I.B.A., of 21 Turl Street, Oxford; and Messrs. Gibbs and Gibbs, A.R.I.B.A., of 15 St. James's Row, Sheffield.

GRAMMAR SCHOOL, DONCASTER

At a recent meeting of the Doncaster Town Council a letter was read signed by three local architects asking that the competition in connection with the proposed new Grammar School should be limited to those in the district. It was recommended by the sub-committee that a reply be forwarded stating that it was on the advice of members of their profession that this course was not adopted, and that it was decided to appoint an assessor and throw open the competition.

Mr. W. G. Newton, of London, the assessor, was received at another meeting, and, having discussed with him points arising in connection with the suggested competition for designs, and also questions relating to accommodation, etc., the committee recommended: "(*a*) That the suggestion of the assessor to limit the competition to local architects and to six architects to be nominated by the President of the R.I.B.A. be adopted (the definition of 'local architects' to be outlined by the assessor); (*b*) That the conditions be placed under Corporation seal, in addition to the agreement with the appointed architect or architects; (*c*) That the assessor visit the site and submit to the committee the proposed conditions for the competition; (*d*) That the prizes to be offered in connection with the competition be, first prize, £200, second, £100, third, £75."

Competitions Open

May 31.—Sending-in Day. Police station, dwellings and hospital, Bishopsgate, for the Corporation of London. Assessor: H. Austen Hall, F.R.I.B.A. Premiums:

THIS ARSHETECTURE



Telephone boxes at Eastbourne.

£250, £100 and £50. Conditions, etc., are obtainable from the Town Clerk, Guildhall, E.C.2. (Deposit £1 1s.) Last date for submission of designs, May 31.

June 14. Sending-in Day. The Glasgow Corporation, in connection with the Housing and Health Exhibition to be held in the Kelvin Hall in October, invites architects in Scotland to submit designs for a four-apartment (semi-detached) cottage. Assessors: G. Gardner M'Lean, F.R.I.B.A., W. B. M'Nab, F.R.I.B.A., and J. H. Ferrie, F.R.I.B.A. Premiums: £100, £75, £50 and £25. Conditions, etc., are obtainable from the Manager, Kelvin Hall, Glasgow. The latest date for submission of designs is June 14.

June 28.—Sending-in Day. Municipal offices for the Birmingham City Council. Assessor: Sir Reginald Blomfield, R.A., PP.R.I.B.A. Premiums: £1,000, £600, £400 and £250. Conditions, etc., are obtainable from Mr. Herbert H. Humphries, M.INST.C.E., the City Engineer and Surveyor, Council offices, Birmingham. (Deposit £3 3s.) Designs must be submitted to the Town Clerk, Birmingham, not later than June 28.

June 29.—Sending-in Day. Municipal offices, Romford, for the Romford U.D.C. (Open to architects of British nationality practising in the British Isles.) Assessor: Kenneth M. B. Cross, M.A., F.R.I.B.A. Premiums: £250, £100 and £50. Conditions, etc., obtainable from the Clerk to the Council, Arcade Chambers, South Street, Romford. (Deposit, £1 1s.) Latest date for submission of designs: June 29.

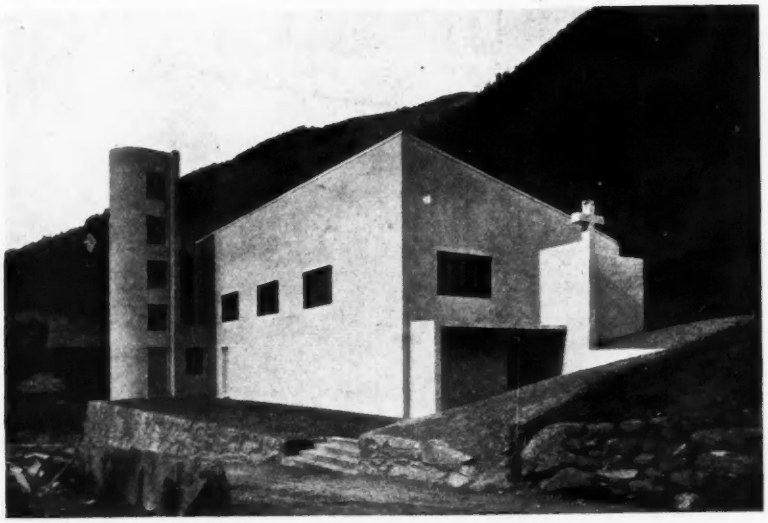
July 4.—Sending-in Day. County offices, Kendal, for the Westmorland County Council. (Open to architects of British nationality, practising in the British Isles.) Assessor: G. H. Foggitt, F.R.I.B.A. Premiums: £200, £125 and £75. Conditions, etc., obtainable from H. B. Greenwood, Clerk to the Westmorland County Council, Exchange Chambers, Kendal. (Deposit £1 1s.) The latest date for submission of designs is July 4.

July 31.—Competition for design for open fireplaces and surrounds (to be constructed in any materials the competitor deems practical or desirable) for the Coal Utilization Council. Assessors: the Directors of the Building Centre. Premiums: 50 guineas, 20 guineas and 10 guineas for designs placed first, second and third, respectively. Conditions, etc., are obtainable from the Coal Utilization Council, Columbia House, Aldwych, W.C.

August 31.—Sending-in Day. Municipal offices, Swindon, for the Swindon Corporation. (Open to architects of British nationality, practising in the British Isles.) Assessor: Professor A. B. Knapp-Fisher, F.R.I.B.A. Premiums: £350, £250, and £150. May 25 is the last day for questions, and August 31 is the closing date. Conditions of the competition are obtainable from the Town Clerk, Town Hall, Swindon (deposit £1 1s.)

October 1.—Sending-in Day. Central county buildings, Hertford, for the Hertfordshire County Council. Assessor: Robert Atkinson, F.R.I.B.A. Premiums: £350, £250 and £150. Designs must not be submitted later than October 1. Particulars of the competition are obtainable from the Clerk of the County Council, Clerk of the Peace Office, Hertford. (Deposit £2 2s.)

CATHOLIC CHURCH



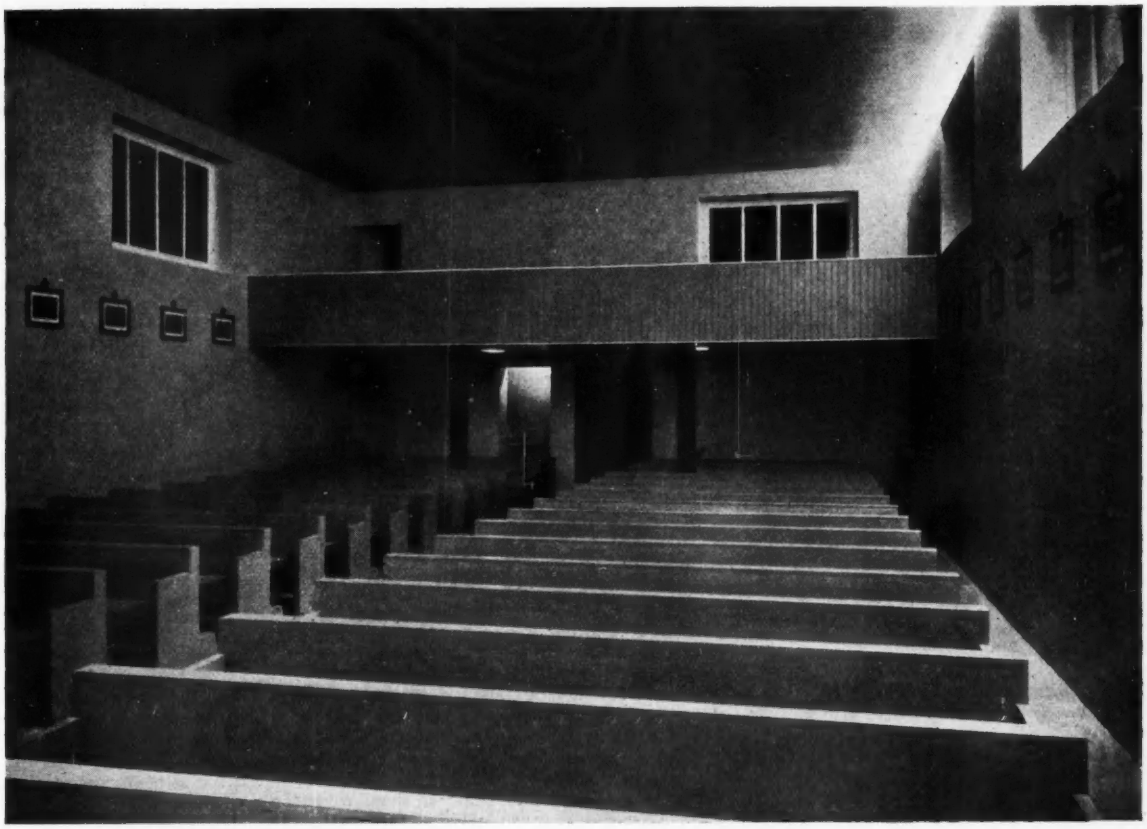


This small parish church stands at an altitude of 4,000 ft. on the mountain slope of the Val de Bagnes (where snow lies 6 ft. deep in winter), parallel to the Alpine road from Martigny to the Great Saint Bernard Pass. Begun on April 16, 1932, it was consecrated on September 18 of the same year. Owing to the relative inaccessibility of the site and the severely limited funds available—the total cost was 20,000 Swiss francs, or about £1,300 at the present rate of exchange—local materials had to be used as far as possible. The whole of the work was carried out by semi-skilled peasant labour.

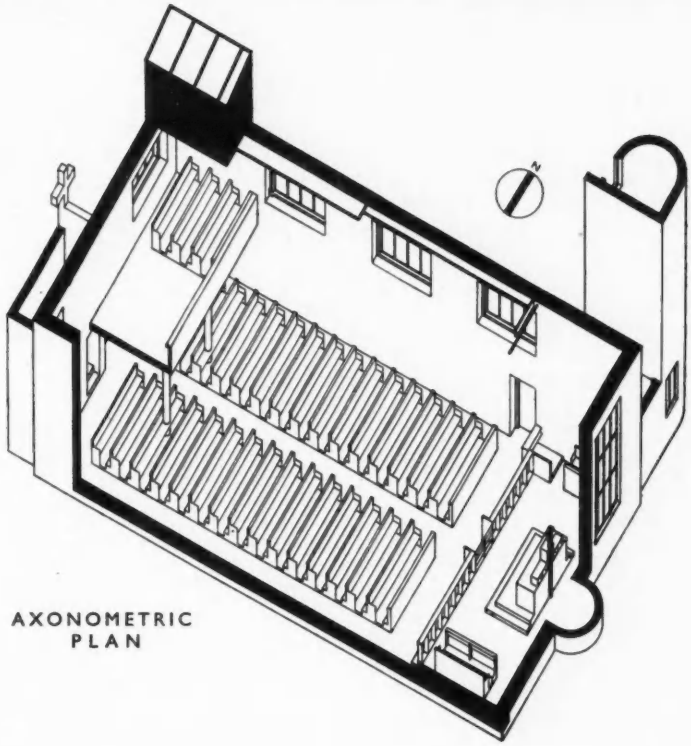
PLANNING AND CONSTRUCTION. *The nave, which seats 350, measures 82 ft. 8 ins. by 36 ft. 7 ins. Its foundations are of stone and mass concrete, the framework and window-surrounds being of reinforced concrete and the infilling of rubble. As timber of sufficient size for raftering could not be obtained locally, steel beams were used. The roof, which is covered with copper-coated zinc sheeting, slopes towards the mountain, to prevent snow falling from it obstructing the road. The turret-like campanile, which the sacristy links to the nave, is 43 ft. 6 ins. high and built of reinforced concrete.*

The photographs show the church from the south-east (or road) side, the interior looking towards the altar, and (on the facing page) the interior looking towards the gallery.

AT LOURTIER, SWITZERLAND



MATERIALS AND FINISHES. *Externally the church is rendered in the same yellowish-white tint of Jurasite cement as the road in front: a finish that has proved impervious to frost, snow and rain. Each side wall is pierced by three larchwood-framed horizontal windows placed immediately under the ceiling. Flanking the altar are two deep vertical windows protected by plain metal grilles. The entrance, at the opposite end, has a single horizontal window surmounting a rectangular concrete porch. The door is of the sliding type, because gales are frequent. The height of the interior is 19 ft. 8 ins. It is simply finished in dull oil paint. The side walls and the entrance end are pale rose, the match-boarded roof dead white, and the choir a vivid blue as a background to the dark-grey pews, pearl-grey woodwork of the (steel-framed) gallery and black finish of the twin circular columns supporting it. The concrete holy-water stoops are lined in blue. The furniture of the choir and sacristy are of natural oak. The floor is of cement. Indirect coved lighting is used for the choir, the nave having tubular lights along the crown of the south wall to obviate false shadows. The heating is electric.*



AXONOMETRIC PLAN

DESIGNED BY ALBERTO SARTORIS

DANGEROUS STRUCTURES

UNDER THE LONDON BUILDING ACT, 1930

[*BY A BARRISTER-AT-LAW*]

[*The following article was written before the publication, on Monday, of the Report of the Advisory Committee on the Amendment of the London Building Act, 1930. The Report will be dealt with in a subsequent issue of the* JOURNAL.]

THE incidence of the liability to put dangerous structures into a proper condition of repair appears to be a question of some complexity, especially where there is a succession of interests in the property which has been condemned.

The matter is, of course, governed as regards London by the London Building Act, 1930, but the statutory provisions of that Act are far from clear.

The chief difficulties raised are as to the person who is to be considered as the "owner," and as to the right of contribution between occupiers and owners.

As in any event the provisions of the Act can be brought into operation, only if there is a "structure" and if it is in a "dangerous state," it may be as well at the outset to refer briefly to the meaning of these expressions.

A "structure" is defined by the Act as "any building wall or other structure and anything affixed to or projecting from any building, wall or other structure," but there is no definition of "dangerous." Some light, however, is thrown on the meaning of "dangerous" by the case of L.C.C. *v.* Jones, 1912, 2 K.B. 504, where a structure was held to be dangerous, notwithstanding that it had been shored up and had thus been rendered safe for the time being. That case determined that a structure will be dangerous if there is any reasonable apprehension of danger or injury, even to adjoining houses or to their inmates, or even to persons trespassing on or near the structure, and the structure may thus be none the less dangerous, even though there is no danger to the inmates of the structure, nor to persons passing by in the ordinary way without trespassing.

Now the above statutory definition of structure is of importance, since an owner or occupier of *part* of a building cannot be proceeded against, unless the part of the building itself can be regarded as a "structure." On this point, reference may be made to Trotter *v.* Louth, 47 T.L.R. 335, where Mr. Justice Horridge took the view that as the dangerous structure notice was served in respect of the whole of the building, no liability was thereby imposed on the owner or occupier of a portion of the premises, if only for the reason that such persons could not possibly be in a position to comply with its requirements. It was accordingly held in that case that tenants of certain floors of the premises in question, were entitled to damages from the landlord who entered for the purpose of complying with the notice, on the ground of breach of covenant for quiet enjoyment, the landlord having previously omitted to serve the statutory notice under S. 214 of the Act, which would have conferred on him the requisite statutory authority to enter the premises for the purpose of executing the work.

While under S. 132 of the Act, the dangerous structure notice may be served either on the occupier or the owner, the council, in the event of its executing the work itself, has not a similar choice, with regard to the person against whom proceedings may be taken for the recovery of the expenses incurred by it.

This matter is governed by S. 135, which provides that the expenses "shall be paid by the *owner* of the structure, but without prejudice to his right to recover the amount of the said expenses from any person liable to pay the expenses of the repairs." But, as the Courts have held recently in the case of L.C.C. *v.* Stilgoe, 1932, 1 K.B. 303, this section is governed by S. 194 of the Act, and both sections must be read together.

Now S. 194 (a) provides that "where it is by any provision of the Act declared that expenses are to be borne by or may be recovered from the *owner* of any premises—

"(*a*) the *owner immediately entitled in possession to the premises* or the *occupier* thereof shall in the first instance pay the expenses:

"Provided that an occupier shall not be liable to pay any sum exceeding in amount the rent due or that will thereafter accrue due from him in respect of the premises during the period of his occupation."

The council therefore can only take proceedings against either (*a*) the occupier, or (*b*) the owner immediately entitled in possession.

It is necessary now to refer to the definitions in S. 5 of the Act of the expressions "occupier" and "owner."

"Occupier" is merely defined as not including a lodger; "owner" is defined as including "every person in possession or receipt either of the whole or of any part of the rents or profits of any land or tenement otherwise than as a tenant from year to year or "for any less term or as a tenant at will."

A tenant from year to year or for any less term would not accordingly be an owner, and unless such a tenant was himself in occupation, no proceedings could be taken against him."

So, again, an "owner" unless he was "immediately entitled in possession," would be immune.

The effect of S.194 (a) of the Act is accordingly in cases where there is a succession of interests, to exclude from liability the freeholder and all mesne (i.e., intermediate) landlords, notwithstanding that they are owners. Such a construction of the Act may undoubtedly place the council in a somewhat invidious position, since dilapidated property is generally occupied by weekly tenants, of small means, against whom accordingly the council would be bound to proceed in the first instance.

Quite apart from this difficulty, there is the question of contribution where there are successive interests in the premises.

Under paragraph (e) of S. 194, the occupier, who has paid the expenses of the council may deduct the amount thereof from his rent, and a similar right of deduction is given to every "owner" who has paid more than his just proportion.

Where, however, there are successive "owners" (i.e., by reason of the creation of various subtenancies) the amount of the contribution to be paid by each of the successive "owners" is to be determined, in default of agreement, by arbitration, in proportion to the interest of each owner.

Now at least three points arise under these paragraphs. First, the right of deduction from rent is conferred only on an occupier or an "owner." Suppose, therefore, that the intermediate landlord is a yearly tenant and not therefore an "owner," can he deduct from the rent payable *by* him to his own landlord, the amount deducted from the rent payable *to* him by his own subtenant, the occupier? Secondly, the Act provides for the determination of the proportion of the contributions payable by successive "owners." Suppose that an intermediate landlord is a yearly tenant, and not accordingly an "owner," does he thereby escape the liability to contribute?

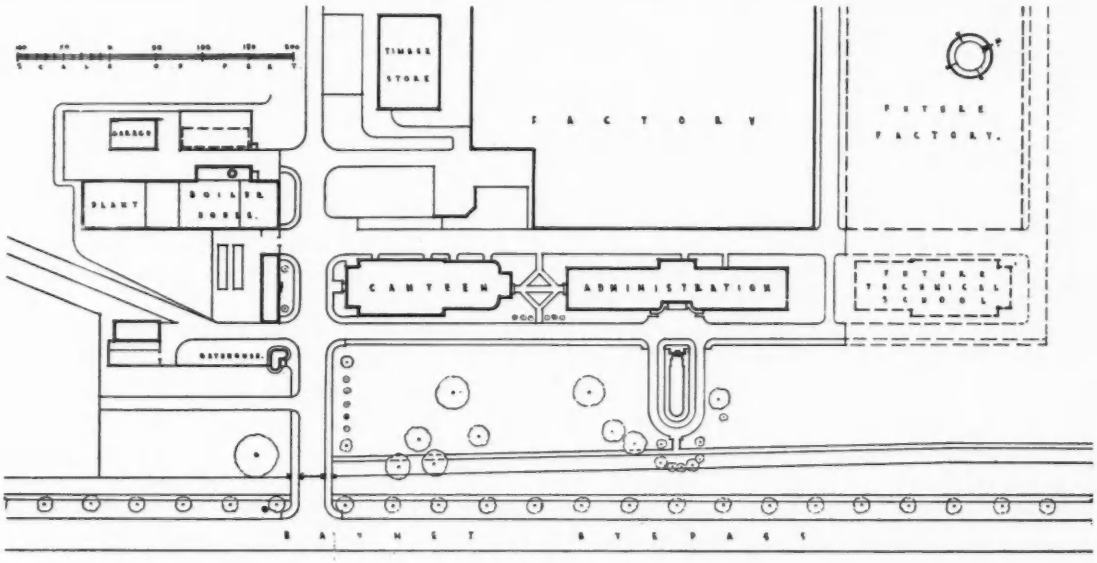
An examination of the Act fails to disclose any provision, which deals with either of the above contingencies.

Thirdly and lastly, is the direction in the Act as to contributions as between successive "owners," an absolute statutory direction with regard to the apportionment of expenses as between successive "owners," and does it free the occupier entirely from liability? Or must the Act be read subject to the contractual obligations as to repair which have been undertaken by the various parties concerned? In other words, for example, can an occupier who has entered into a covenant to keep the premises in repair, say that he is not liable for the expenses, notwithstanding the covenant to repair, since the Act says that he is to be entitled to deduct the expenses from his rent?

In the view of the writer, the Act does not in any way override the contractual obligations of the parties concerned, whether they be "occupiers" or "owners," or neither occupiers nor owners for the purposes of the Act, and the ultimate incidence of liability must be determined according to the nature and extent of the repairing obligations entered into by the parties *inter se*.

AIRCRAFT FACTORY AT HATFIELD





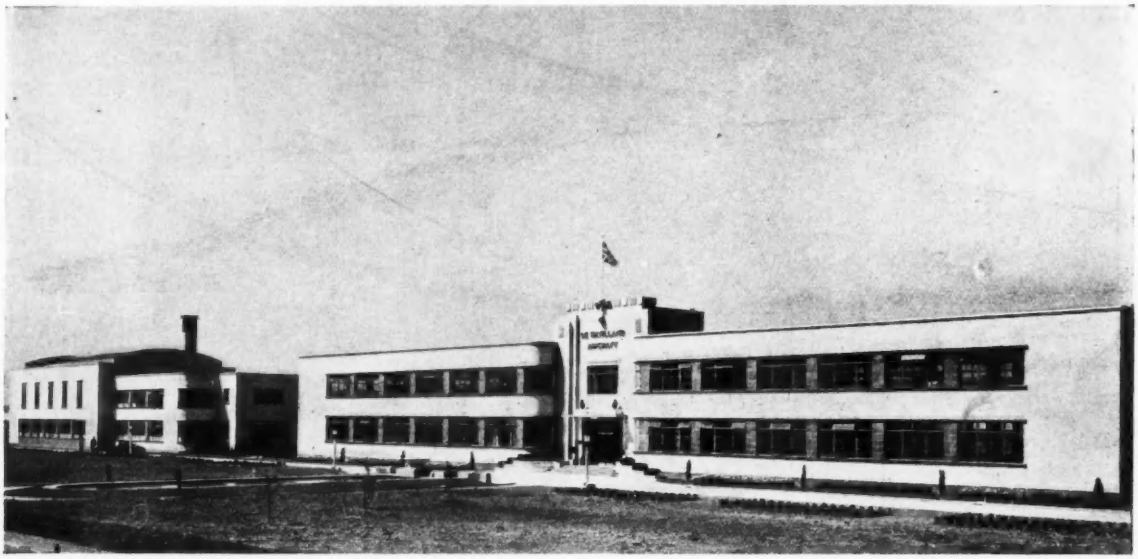
DESIGNED BY

JAMES MONRO

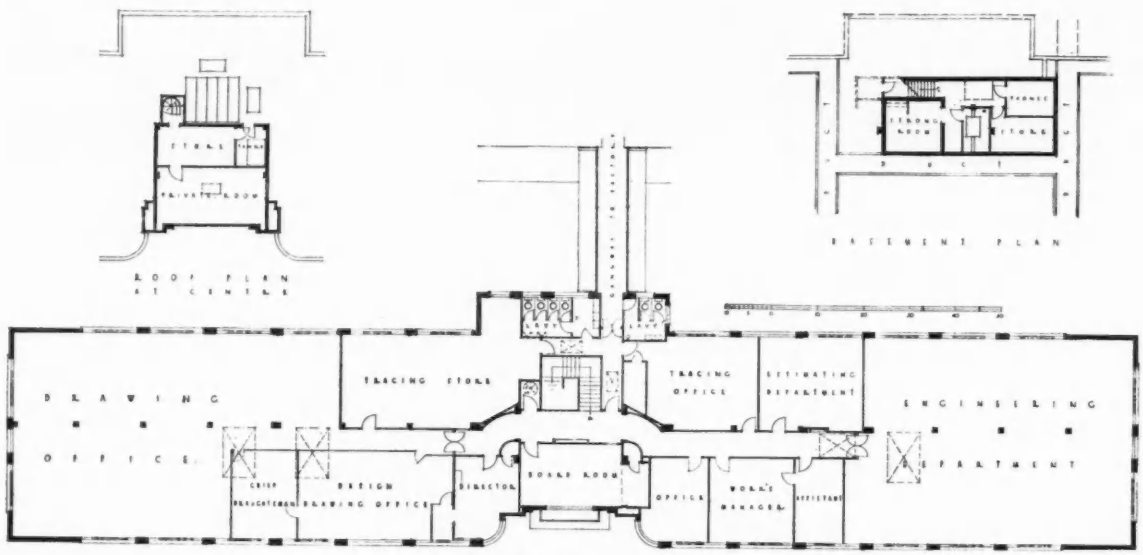
AND SON

This factory is situated to the west of the Barnet By-pass, immediately adjoining Hatfield aerodrome. The aerial photograph on this page is taken from the east, and shows how the buildings are set back from the road behind a broad garden; a technical school is to be added to the north, completing the administration group and screening the factory buildings from the road.

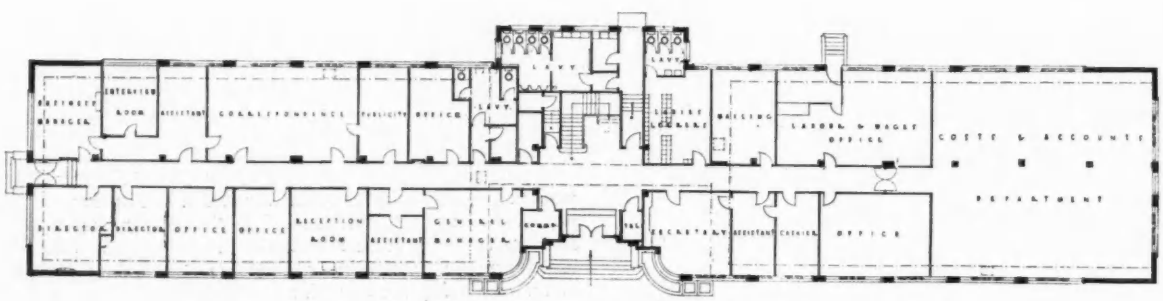
AIRCRAFT FACTORY AT HATFIELD:



A general view of the administration building. On the left is the canteen block. The photographs on the facing page show: top, the main entrance to the administration block; bottom, the gatehouse.



FIRST FLOOR PLAN



ADMINISTRATION BLOCK: GROUND FLOOR PLAN

BY JAMES MONRO AND SON

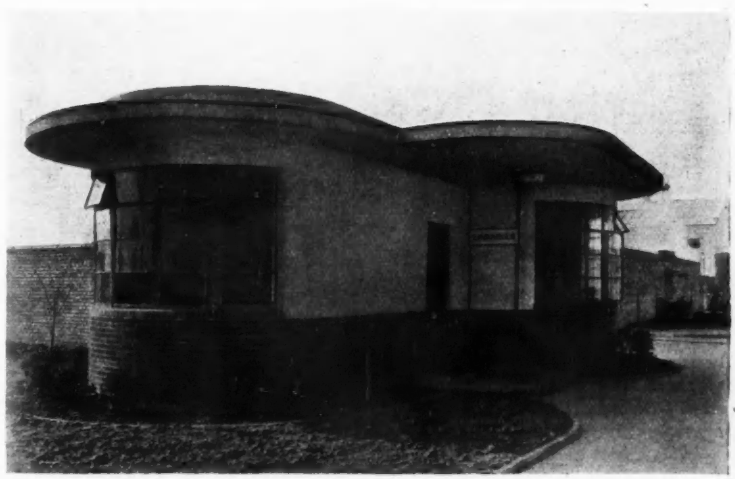
LAY-OUT. *A gatehouse, with weighbridge, controls the single entrance road, and also the service road from the aerodrome. The factory is capable of extension in two directions and there is space for a further components factory to the north.*

FACTORY. *The factory is of steel construction with girders contained in the depth of the north-light roof, spanning up to 150 ft. Panelled R.C. floors with a specially hardened surface are used generally, with the exception of certain large areas of maple block. External walls are of yellow facing brick. The roof has grey-green slate chips rolled into the outer covering, and is finished in aluminium throughout the inside, including the steelwork. Sectional steel partitions are used generally, except where brick is required for fire insulation Nine parallel workers' entrances beneath a canopy open direct on to heated cloak racks. Congestion is avoided and workers have immediate access to the lavatories and main corridors in the factory.*

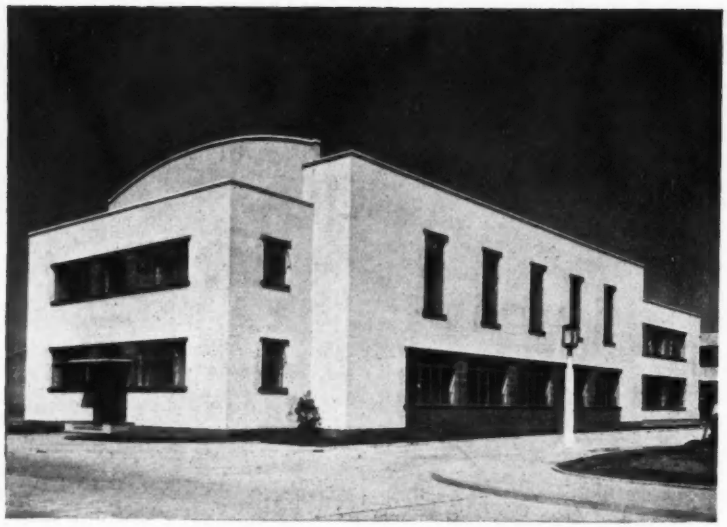
ADMINISTRATION. *This building is of monolithic R.C. with flush suspended ceilings to permit flexibility of partitioning. Oak block flooring is used with the exception of the entrance hall which is in terrazzo patterned with bright aluminium strips. The main stair is likewise in terrazzo with rubber treads. The principal offices are panelled and carpeted, and general offices have a dado of compressed fibre board, wax-polished natural colour. Externally, the finish is a slurry of white cement and sand rubbed on immediately after striking shuttering. Dressings to windows and piers are in two shades of green glazed terra-cotta; the base is of grey-green bricks.*

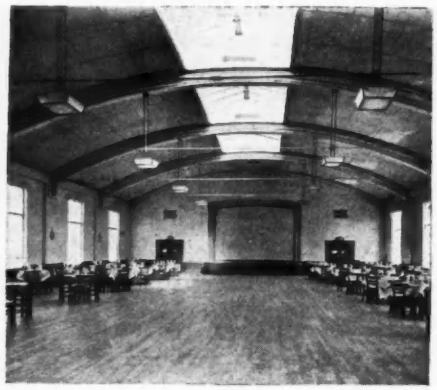
SERVICES. *Heating is by automatically stoked Lancashire boilers supplying steam to unit heaters in the factory and radiators in the offices. Cooking apparatus, hot water calorifiers and a number of processes are supplied from the same source. Beneath the concrete roads, large ducts, branching from the boiler house and turbo-generator switch-board, serve to distribute all services.*



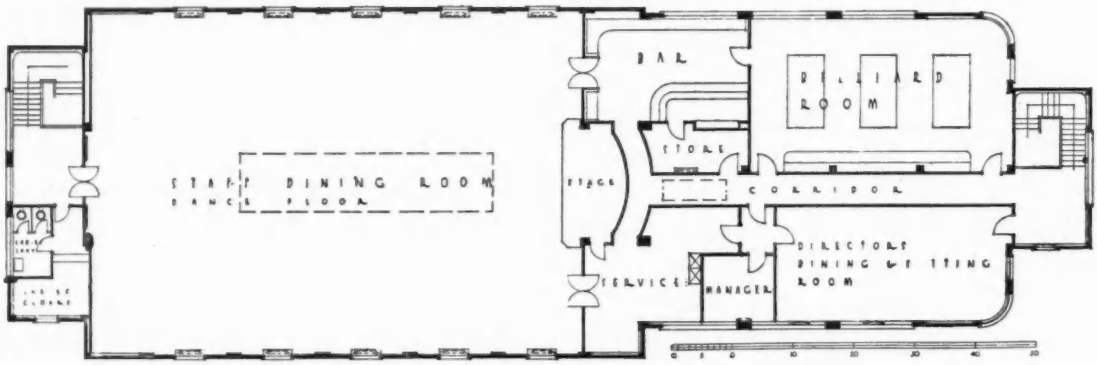


AIRCRAFT FACTORY AT HATFIELD

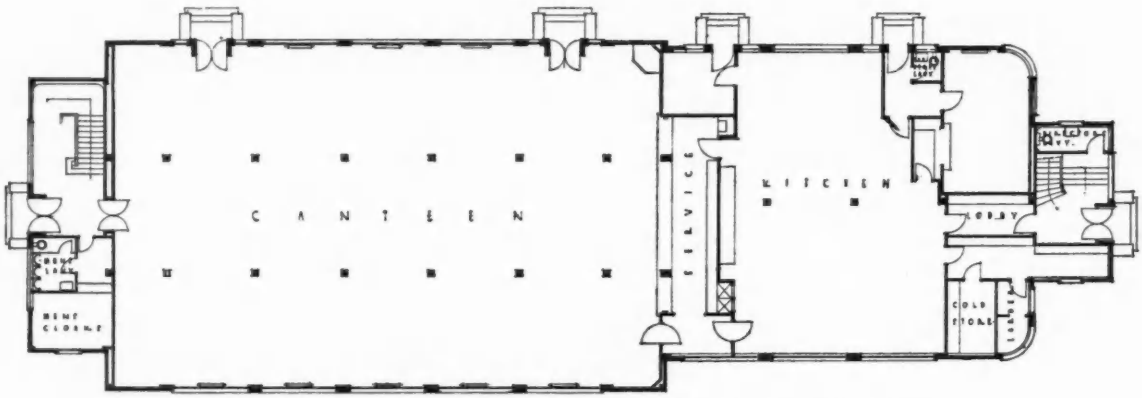




A general view of the canteen, and the staff dining room on the first floor.



FIRST FLOOR PLAN



CANTEEN BLOCK: GROUND FLOOR PLAN

The canteen is similar to the administration building except that tiles are used in the kitchen, and teak blocks in the works canteen. The staff dining hall, over the latter, has a dance floor of red birch in narrow widths and is sprung on rubber. • The roof of the hall is of very light steel construction and includes two layers of insulating board, the inner lining providing acoustical correction.

DESIGNED BY

JAMES MONRO

AND SON

WORKING DETAILS : 259

WALL STRUCTURE • ZOOLOGICAL LABORATORIES, CAMBRIDGE • STANLEY HALL & EASTON & ROBERTSON

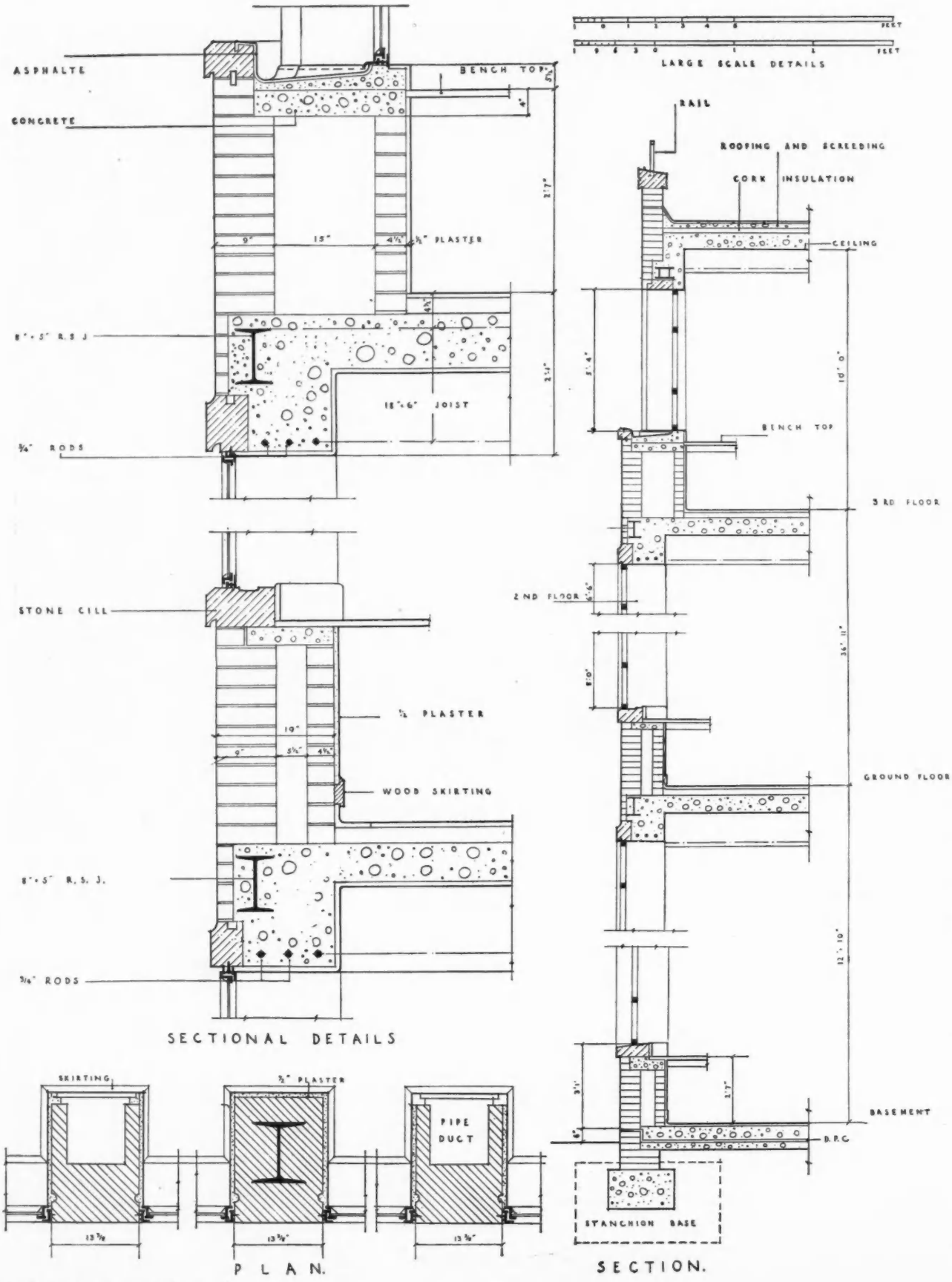


The building illustrated is faced with yellow Stamford bricks and reconstructed Ancaster stone dressings. The building is steel framed with stanchions spaced at 12 ft. 9 in.; each bay is divided by a pier, similar in appearance to the piers housing the stanchions, but housing the necessary laboratory drainage services. Constructional details are shown overleaf.

FILING REFERENCE :

WORKING DETAILS : 260

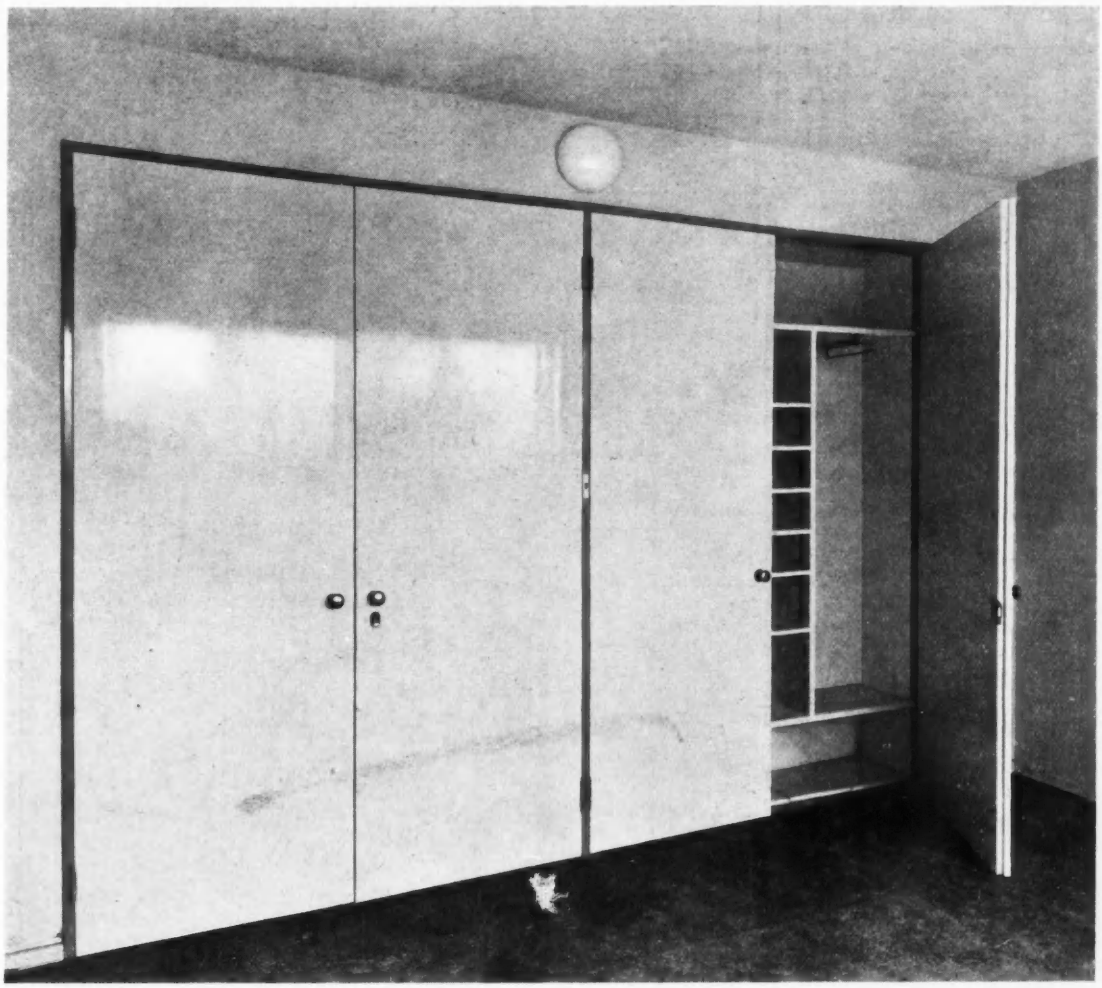
WALL STRUCTURE • ZOOLOGICAL LABORATORIES, CAMBRIDGE • STANLEY HALL & EASTON & ROBERTSON



Sections and plan of the wall structure illustrated overleaf.

WORKING DETAILS : 261

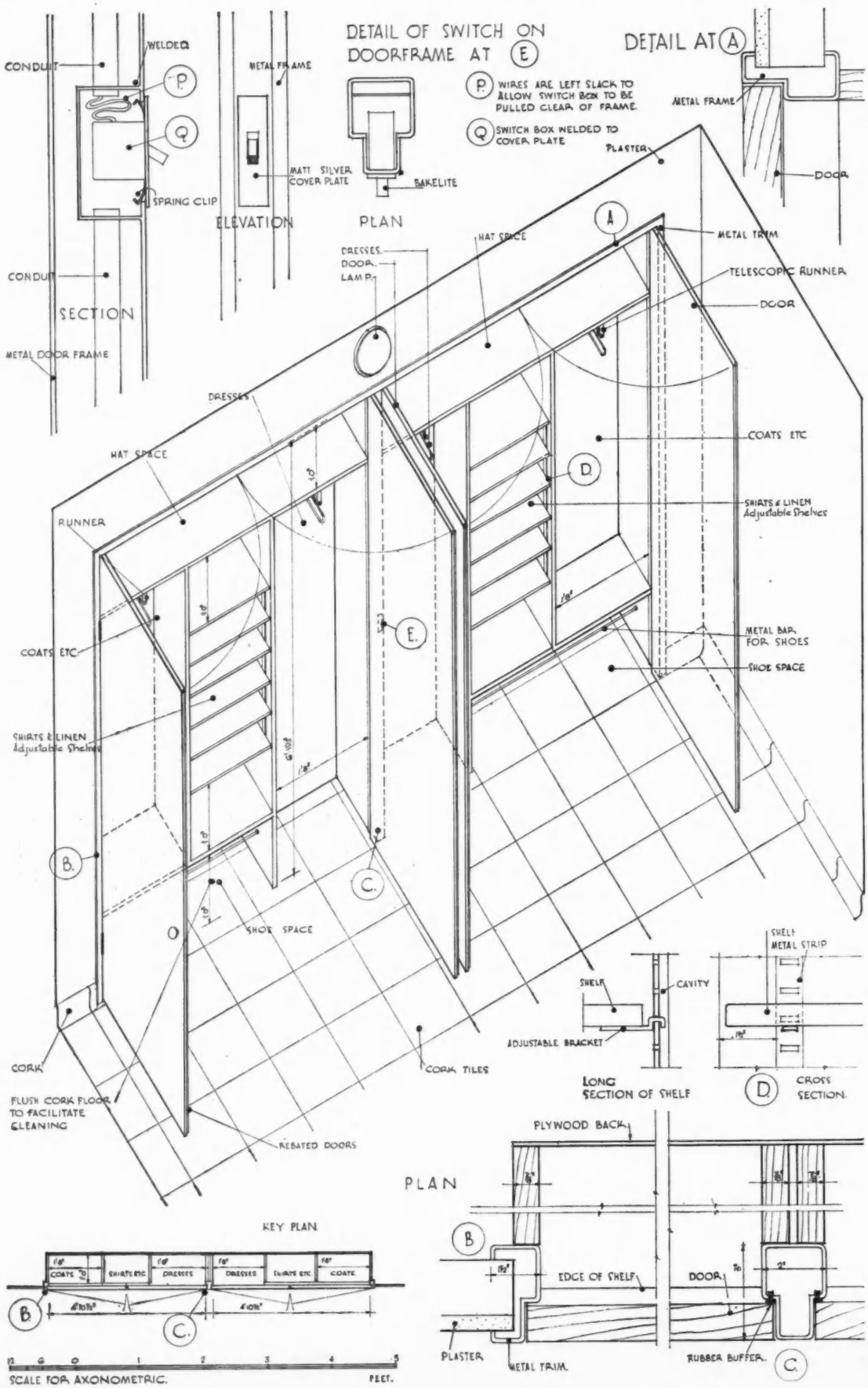
FITTED WARDROBES • FLATS AT HIGHGATE • LUBETKIN AND TECTON



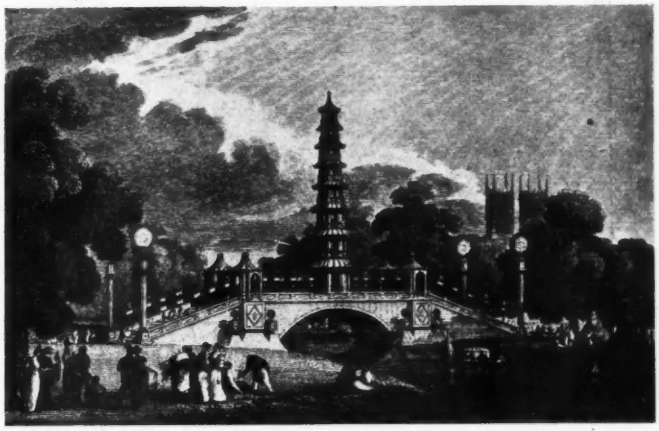
Each of the pair of wardrobes illustrated above contains a central range of adjustable shelving for shirts and linen, with full length hanging space on each side, and a space for hats at the top. All architraves are in pressed metal with rubber buffers to reduce noise. Overleaf is an axonometric and constructional details.

WORKING DETAILS : 262

FITTED WARDROBES • FLATS AT HIGHGATE • LUBETKIN AND TECTON



Axonometric and details of the wardrobes illustrated overleaf.



The Bridge and Pagoda in St. James's Park. From "John Nash," by John Summerson.

LITERATURE

THE REGENT'S ARCHITECT

[*BY J. M. RICHARDS*]

John Nash, Architect to King George IV. By John Summerson. London: George Allen and Unwin. Price 10s. 6d. net.

CAN it be taken as a general rule that one hundred years is the time that must elapse before a great man's reputation, after the inevitable reaction which is the penalty of greatness, becomes finally and permanently re-established? Only during the past few years has William Blake been fully appreciated. Rowlandson is now admired again, and the English water-colourists of the school of Girtin. Coleridge is being discovered as a metaphysician. The early engineering works of such pioneers as Telford are found to have strange affinities with the modern æsthetic. In architecture, are we to expect belated recognition in the next few years of the perverse genius of Soane? And in twenty years' time will Pugin be wearing the Mackintosh mantle of the father of modernism?

John Nash died a hundred years ago, and his reputation today, after decades of unjust obloquy, has climbed to heights it hardly reached even in his own lifetime — and appropriately, just now, when our need for planning on a large scale makes Nash the model for modern architectural enterprise.

The reasons for the deep decline of Nash's reputation were various, and none of them altogether architectural. First, the moral one: Nash was too closely connected with the shocking excesses of the Regency for Victorian eyes to look at his work dispassionately. Æsthetic judgments somehow became ethical ones. The Prince Regent's extravagance remained personified in the work Nash did for him. Secondly, the question of material: Nash's successors had a horror of stucco. It was considered for some reason to be sham, and reviled as such by Morris and his crew. Thirdly, there was his detail: when interest in buildings is antiquarian rather than architectural—a difference that persists to this day—inaccurate scholarship is more than sufficient condemnation. Lastly, the personal factor: apart from his association with a disreputable prince, he had none of the solemnity and dignity of the great men our grandfathers admired. Instead of dignity, he had impudence. He must have appeared to them the type of the materially minded opportunist—as, indeed, he was; and again, æsthetic judgments became ethical ones.

We have destroyed Nash's most celebrated works, and in doing so we seem in a large measure to have cured ourselves of our inhibitions about him. Now we can appreciate him as an architect; though a few of us, perhaps subconsciously aware that our replacements are not improvements, are forced to continue for similar psychological reasons to decry those works of his we have left standing. It is strange also that much of the renewed appreciation of Nash is not due to his merits as an architect, but to a sentimental "period" affection for anything that reminds us of a more leisured age.

It is most emphatically not, however, as the incarnation of Regency elegance and urbanity that Nash remains great, but as the forerunner of the modern town-planner. Not urbanity but urbanism is his legacy, and in this distinction lies the importance of Mr. Summerson's book. His book is much more than a timely piece of centenary biography; it is a comprehensive, analytical record of the career of the first urban-minded architect England produced. Now, a hundred years after his death, so in accordance with contemporary conditions are the precedents he established that it is to him more than to any other architect in our history that the present-day planner owes allegiance; but what in Nash's time was merely metropolitan improvement in ours is the urgent salvation without which metropolitan disorder will become uncontrollable.

Nash, before he was an architect, was an opportunist. Architecture provided for him an outlet for his social and business ambitions, and, above all, for his genius in handling large projects, in which the parts were always kept subordinate to the whole. This was his greatest quality, that he saw architecture not as the designing of buildings, but in terms of an ordered setting for urban activities. His "façadism," therefore, for which he is so often condemned, is the expression of his scenic conception of architecture, not the evidence of interest in façades rather than buildings; though as a precedent it remains a little dangerous.

Nash's early association with Repton, the landscape architect, was probably the best formative influence the future town-planner could have come under. He retained all his life a sense of architecture as a totally humanized landscape. The romantic sensitivity to landscape and settings, apparent in its deliberate search after the Picturesque and the Sublime, that typified the first Gothic revival, might have died with that phase of purely literary, ephemeral importance; but the same spirit was incarnated by Nash, who succeeded in transforming a purely eclectic movement into a permanent and original English contribution to urbanism.

Mr. Summerson's biography cannot be too highly commended. Out of material that was meagre and not easily accessible, after a huge amount of personal research, he has built up a portrait of a man and of a social and architectural epoch as fair and convincing as any in the history of architectural literature; and he has made it readable and understandable to a far wider than architectural public. His lucidity, meticulous scholarship and perceptive architectural criticism will set a standard for similar work in the future. His exacting scholarship, indeed, perhaps causes him, while recognizing Nash's merits as a planner,

to be a little too hard on his failings as a designer. Observations on the design of All Souls Church, some parts of Regent Street, Buckingham Palace and even Carlton House Terrace, damn him with praise even fainter than he can have deserved ; but even that condemnation, that would have permanently obscured the fame of a lesser man, and of many reputed to be greater, Nash's genius triumphantly survives.

CONCRETE DESIGN

Practical Designing in Reinforced Concrete, Part 3. By M. T. Cantell. London : E. and F. N. Spon, Ltd. Price 12s. 6d. net.

THE author deals with the design of various types of structures not included in his previous volumes. These include reinforced concrete chimneys, dams, bridges (including arch bridges) rigid frames, domes, etc. In view of this somewhat formidable list it is surprising to read in the preface that he has made the " formulas as simple as possible, so that they can be understood by the practical man . . ." and by students who have " difficulty in transposing algebraic equations."

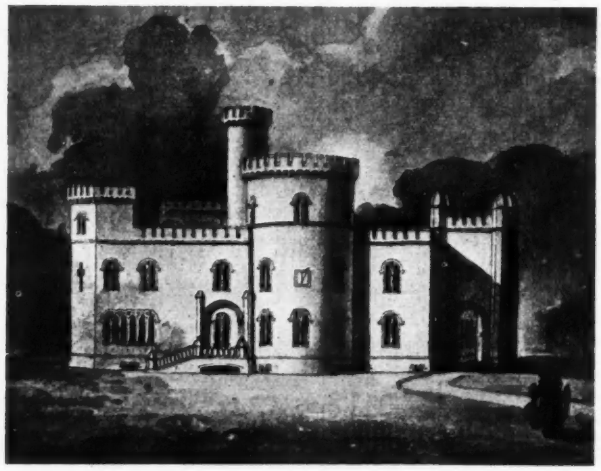
Now reinforced concrete design consists of two parts, the analysis of the forces in the structure and the proportioning of the members to resist these forces, and, while admittedly the second stage is largely empirical, the first cannot be carried out, except for elementary structures, by those whose mathematical knowledge does not extend beyond the rearrangement of simple equations. Further, any so-called designer who carries out the second stage by applying formulæ derived blindly from a book will either risk a collapse or, alternatively, produce a very uneconomical structure.

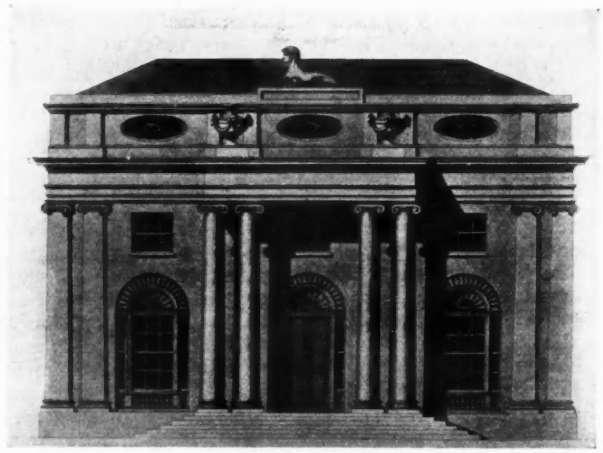
The reviewer is therefore definitely out of sympathy with a book, such as this, which encourages this type of " design " particularly of such ambitious subjects as arch bridges.

It is possibly unfortunate that in the only two examples checked through in detail there appeared to be several important omissions. In the first—the design of a reinforced concrete chimney—the author makes the statement that " the foundations should consist of an entire slab . . . and when under wind pressure the resultant of the wind and the dead load should fall within the middle third of the base," whereas one important advantage of a reinforced concrete chimney is that, provided the maximum pressure does not exceed the safe pressure on the ground, the resultant can fall anywhere in the base. It is also mentioned that " temperature " steel is required but no advice is given as to the amount.

In the second—a girder bridge with the girders as parapets above deck level—no warning is given that the ratio of span to width of compression flange should be limited to less than that given in the example or, alternatively, that for such a large ratio, the compression stress should be decreased. The width of range given is







Three illustrations from " John Nash," by John Summerson. Top : Park Crescent (drawing from " Metropolitan Improvements," 1827). Centre: Killy Moon Castle, Cookstown, Co. Tyrone (from a water-colour in George Repton's notebook), designed by Nash in 1803. Bottom : Southgate Grove, Middlesex ; north elevation (drawing from G. Richardson's " New Vitruvius Britannicus "), designed by Nash in 1797.

apparently 7.4 in. for a span of 30 ft., and it is suggested that this can further be reduced by using sufficient "compressive reinforcement . . . to take almost, or quite all the stress, thus allowing the greater part of the concrete to be removed. or reduced in thickness leaving only sufficient to enclose the shear members or to form panelling." W. E. J. B.

Publications Received

The Roman Theatre at Verulamium : a Reconstruction. By A. W. G. LOWTHER. London : The Marchand Press. Price 2s. 6d. net.

Shell Guide to Derbyshire. Edited by Christopher Hobhouse. London : The Architectural Press. Price 2s. 6d. net.

The Beauty of Britain : a Pictorial Survey. London : B. T. Batsford. Price 5s. net.

Books reviewed in these columns may be ordered through The Architectural Press, 9 Queen Anne's Gate, S.W.1

Royal Opening of Hospital Extension

On May 16 the Duke and Duchess of York will open the new King George V. Extension of the Royal London Ophthalmic Hospital. The extension has cost £113,000 and covers three-quarters of an acre. It includes a new out-patients' department, four surgeons' clinics, pathological and bacteriological departments.

SOCIETIES AND INSTITUTIONS

D.I.A. VISIT TO BRUSSELS

The Design and Industries Association has arranged a week-end visit to the Brussels Exhibition from Friday, May 17, to Tuesday, May 21. Cost : £7 15s.

ARCHITECTS' REGISTRATION COUNCIL : SCHOLARSHIPS

The Architects' Registration Council of the United Kingdom offers for award in July 1935 two Maintenance Scholarships in Architecture. The Scholarships will consist of a grant for the payment, in whole or in part, of the school fees and necessary subscriptions, instruments, books, etc., and, when necessary, a maintenance allowance not to exceed as a rule £100 a year. The Scholarships will be renewable from year to year until the student has finished his or her School training. They will be available for students of British nationality who could not otherwise afford such training to enable them to attend Architectural Schools approved by the Council. The Scholarships will be available both for students who have already begun their training and for students wishing to begin their training. They would not normally be granted to students under 17 years of age.

Particulars and forms of application may be obtained from the Secretary to the Board of Architectural Education. Architects' Registration Council of the United Kingdom, 18 Abingdon Street, Westminster, London, S.W.1.

The closing date for the receipt of applications, duly completed, is June 7.

BRITISH GLASS CONVENTION

The fourth British Glass Convention is to be held at Folkestone from May 16 to May 18. Mr. Geoffrey Pilkington, President of the Convention, will deliver a paper on "The Machine Age," and addresses will include : "Design and the Glass Industry," by Mr. E. Maxwell Fry, A.R.I.B.A. ; "Uniformity and Quality of Products—Some Technical and Commercial Considerations," by Mr. B. P. Dudding, M.B.E. ; "Planning in Industry," by Mr. Oliver W. Roskill ; and "The Commercial Importance of Furnace Design," by Professor W. E. S. Turner, O.B.E.

BERKS, BUCKS AND OXON ARCHITECTURAL ASSOCIATION

At the annual general meeting of the above Association, held at Oxford on May 4, the following were elected officers for the ensuing year : President, Mr. Alfred Saxon Snell, F.R.I.B.A. ; hon. secretary, Mr. A. Buller West, F.R.I.B.A. ; hon. auditor, Mr. T. T. Cumming ; hon. treasurer, Mr. C. Birdwood Willcocks, F.R.I.B.A.

The following elections to the Council were announced as having been made by the branches of the Association :—

Berks.—Mr. F. E. Wapshott, L.R.I.B.A., vice-president ; Members of the Council : Messrs. S. E. Burrett, W. R. Morris, F.R.I.B.A., J. T. Saunders, F.R.I.B.A., E. S. Smith, F.R.I.B.A., J. E. B. Robson, L.R.I.B.A., F. Wood, F.R.I.B.A., W. J. Freeman, A.R.I.B.A., and H. Maurice Hutt, A.R.I.B.A.

Bucks.—Mr. W. D. Hartley, F.R.I.B.A., vice-president ; Members of the Council : Messrs. G. Langley Taylor, F.R.I.B.A., H. J. Stringling, F.R.I.B.A., C. S. Kimpton, A.R.I.B.A., W. G. Percy, L.R.I.B.A., and A. R. Borrett, A.R.I.B.A.

Oxon.—Mr. W. A. Daft, A.R.I.B.A., vice-president ; Members of the Council : Messrs. T. L. Dale, F.R.I.B.A., R. F. Dodd, F.R.I.B.A., G. Hastwell Grayson, F.R.I.B.A. (Ret.), H. F. Hurcombe, L.R.I.B.A., N. W. Harrison, F.R.I.B.A., and T. Rayson, F.R.I.B.A.

After the meeting the party visited the chapel and new buildings at Lady Margaret Hall, designed by Sir Giles Gilbert Scott, Rhodes House, designed by Sir Herbert Baker ; the new Science Library, designed by Professor Hubert Worthington.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND

A general meeting of the Royal Institute of the Architects of Ireland was held in the Council Chamber at 8 Merrion Square, Dublin, on April 25. The President, Mr. H. Allberry, F.R.I.A.I., occupied the chair.

The minutes of the last general meeting having been read and signed, the Code of Professional Conduct as recommended by the Council was fully discussed and with some minor amendments was approved.

It was decided that the hours for general meetings, except for the statutory meeting in June, should in future be 8 p.m.

The President, welcoming Mr. F. McArdle, M.R.I.A.I., Belfast, stated that the Council had under consideration the various matters discussed by representatives of the Institute and of the Royal Society of Ulster Architects last year and hoped that before long many of the suggestions would be mutually adopted.

ARCHITECTS' BENEVOLENT SOCIETY

At the annual meeting of the Architects' Benevolent Society, held at 66 Portland Place, W.1, the Council was elected as follows : President : the President of the R.I.B.A. ; vice-presidents, Sir Banister Fletcher, PP.R.I.B.A., and Messrs. H. S. E. Vanderpant and Walter Tapper, R.A., F.R.I.B.A. Ordinary members : Messrs. Charles Woodward, A.R.I.B.A., Maxwell Ayrton, F.R.I.B.A., J. Alan Slater, F.R.I.B.A., E. Stanley Hall, F.R.I.B.A., A. H. Moberley, F.R.I.B.A., Sydney D. Kitson, F.R.I.B.A., Michael Tapper, A.R.I.B.A., R. E. Enthoven, F.R.I.B.A., Arthur Keen, F.R.I.B.A., W. Curtis Green, R.A., F.R.I.B.A., F. R. Hiorns F.R.I.B.A., A. Hunter Crawford, F.R.I.B.A., H. Chalton Bradshaw, F.R.I.B.A., L. S. Sullivan, F.R.I.B.A., G. E. S. Streatfield, F.R.I.B.A., S. Philips Dales, F.R.I.B.A., Michael T. Waterhouse, F.R.I.B.A., F. R. Yerbury, Francis Jones, F.R.I.B.A. (representing the Manchester Society of Architects), Percival C. Blow, F.R.I.B.A. (representing the Essex, Cambridge and Hertfordshire Society of Architects), Arthur Crow (representing the London Society), E. Hadden Parkes (representing the Mount Pleasant Artists' Rest Home), and the Hon. Humphrey Parkington (representing the Architecture Association). Hon treasurer, Mr. Maurice E. Webb, F.R.I.B.A. ; hon. secretary, Sir Charles Nicholson, F.R.I.B.A. ; hon. auditors, Messrs. Charles Woodward and H. S. E. Vanderpant.

MUNICIPAL COLLEGE OF TECHNOLOGY MANCHESTER

The Manchester Education Committee offers a limited number of Scholarships and Exhibitions tenable in any one of the three years' full-time day courses leading to the degree of Bachelor of Technical Science (B.Sc.Tech.) at the Municipal College of Technology (Faculty of Technology in the University of Manchester).

Candidates for Scholarships must have passed, or hold exemption from, the Matriculation Examination of the Joint Matriculation Board of the Northern Universities and must also be qualified to enter upon a Higher Course. The scholarships will be open to part-time day or evening students in the College and others whose parents are ratepayers of the city. In the event of there not being sufficient Manchester students qualified to enter upon a Higher Course, and only in that case, the Committee may offer the scholarships to suitably qualified students who have no ratepayer qualification.

Candidates for exhibitions must have passed, or hold exemption from, the Matriculation Examination of the Joint Matriculation Board of the Northern

Universities and be qualified to enter upon an Ordinary Course. Candidates for these exhibitions must be ratepayers, or children or wards of ratepayers of the city of Manchester.

Forms of application and all information may be obtained by written application to the Registrar, College of Technology, Manchester, 1. Completed forms of application must be submitted on or before June 20, 1935.

IN PARLIAMENT

Ribbon Development

In the House of Lords last week Lord Londonderry, Secretary of State for Air, introduced the Restriction on Ribbon Development Bill. The object of the Bill is to provide for the imposition of restrictions on development along the frontages of roads; to enable highway authorities to acquire land for the construction or improvement of roads; to extend the powers of local authorities as to the provision of accommodation for the parking of vehicles and as to the prevention of interference with traffic, and for purposes connected with the matters aforesaid.

The Bill was read a first time.

Housing

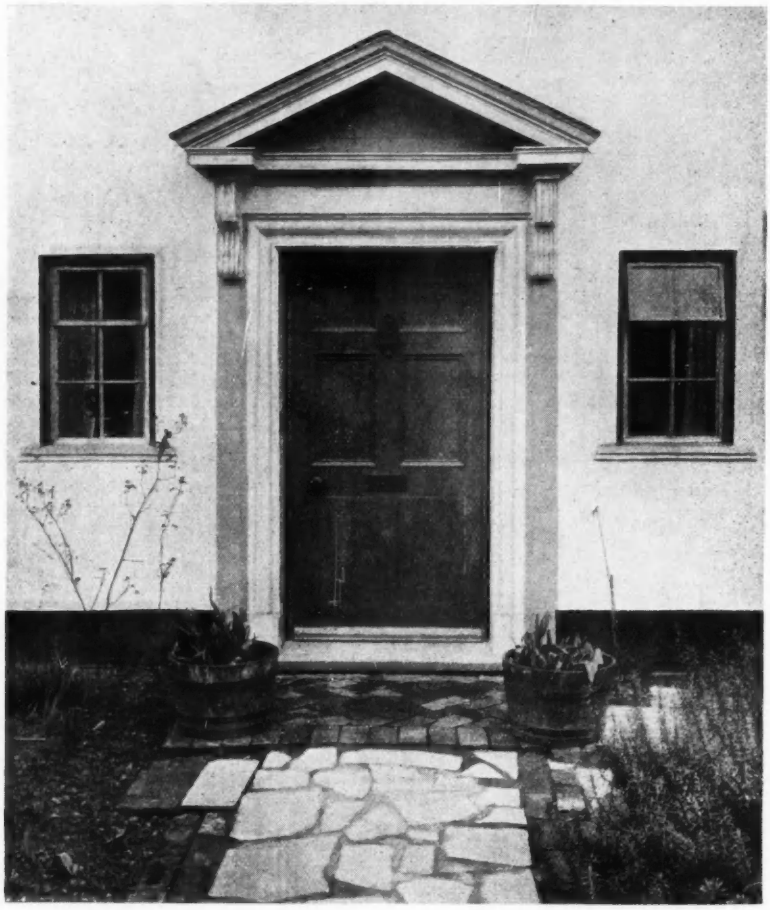
Standing Committee "A" of the House of Commons has now finished consideration of the Housing Bill.

At the final sitting, on the first schedule, which lays down the number of persons permitted to use a house for sleeping, Sir P. Harris moved an amendment to vary the proposed standard of accommodation of the houses caused by the Bill with the object of providing adequate living room distinct from sleeping room. He said that the standard which he was proposing had been approved by a number of distinguished architects and housing reformers. The Bill was setting up a standard of what should be proper housing accommodation. It would be to some extent a housing charter throughout the world, because it was to our credit that this country was setting a standard of how public health in relation to housing should be adminstered. Therefore it was important that a proper standard should be defined by the Bill and that provision should be made in houses for rooms in which people could read and work.

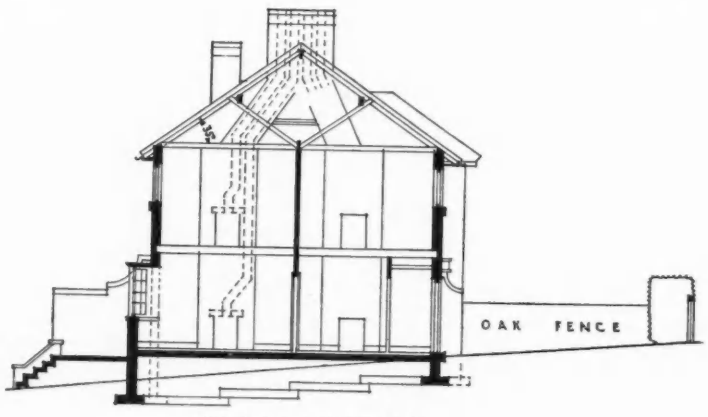
Sir Hilton Young said that the standard proposed in the amendment was inferior to the standard proposed by the Government in respect to one or two rooms, but in other respects it was superior. If the committee were engaged in laying down an ideal standard of accommodation, well and good. But they were doing nothing of the kind; they were laying down a penal standard below which the accommodation would be intolerable, and people ought to be punished for it. That standard must be below the ideal standard, which they would all desire. The standard in the Bill was, he believed, as high as it could safely be laid; if it were made higher, it would become unworkable.

The amendment was rejected by 25 votes to 7.

HOUSES IN HIGHGATE:



This semi-detached pair of houses occupies a narrow sloping site in Holly Park, Crouch Hill. The houses are planned with the principal rooms along the south side, the side away from the road, looking on to the garden. The unusually large entrance hall was one of the client's specific requirements. Owing to the narrowness of the site access to the garden is through the garage at the side.



CROSS SECTION

BY J. CRUIKSHANK ROSE AND D. GRANT-COLLIE

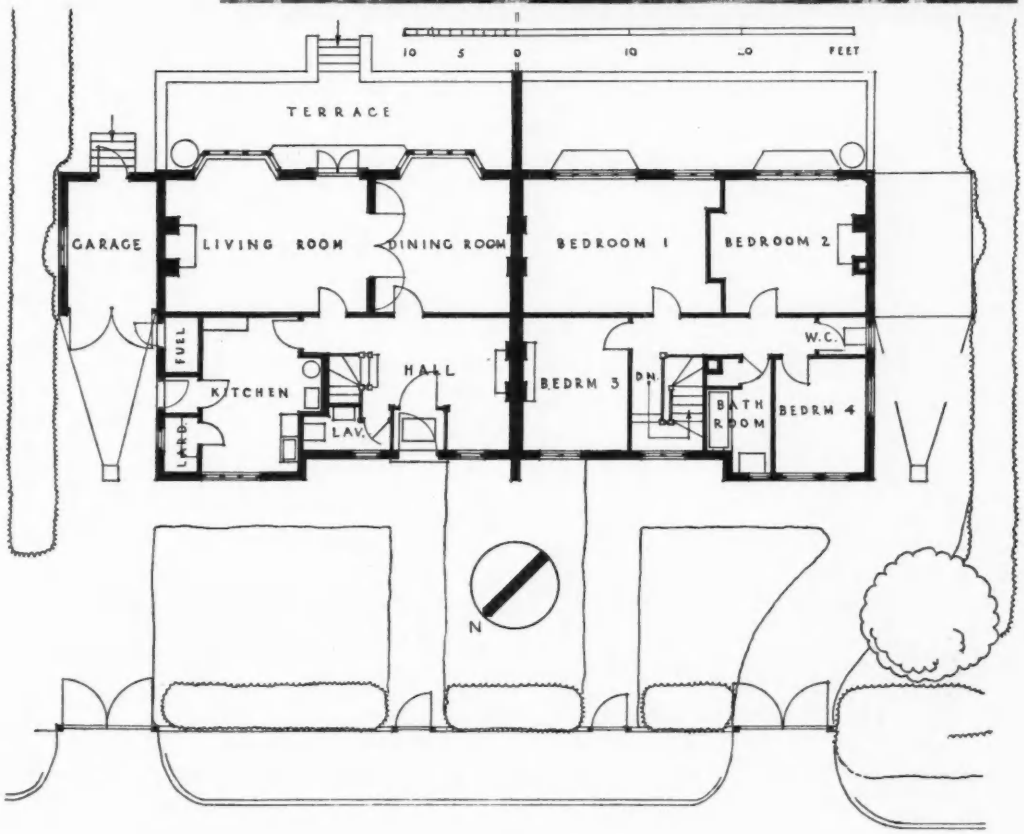
STRUCTURE AND MATERIALS. *The walls are in flettons, 9 ins. thick, cement rendered externally, on foundations of Arlesly bricks and concrete. The chimneys are in red facing bricks. The main roof is laid with double-Roman sand-faced Bridgewater tiles, in a russet-brown colour ; the garage roof is in asphalt. The garden terraces on the south side have a concrete retaining wall and a low brick parapet with cast concrete coping. Windows throughout are standard metal in wood frames. Partitions are 4½ in. brick and breeze block.*

FINISHES. *The external rendering is in colour-washed cream. There is a tarred plinth and yellow soffit to eaves. The rooms are plastered internally and distempered. The kitchen floor has red quarry tiles ; otherwise the floors are oak throughout the ground floor and deal above. The bathroom and kitchen have white tile dadoes.*

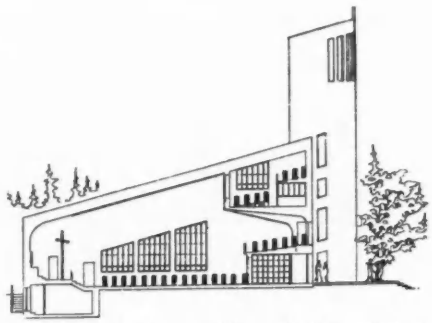
COST. *The contract price for the two houses was £2,810.*

The photographs show : right, the elevation to the garden ; on the facing page, a detail of the front door.





GROUND AND FIRST FLOOR PLANS



Proposed church at Kannonkoski, Finland, designed by P. A. Blomstedt.
[From "Arkitekten."]

PERIODICALS

APRIL ANTHOLOGY

AMERICA

Architectural Forum
(Monthly, $1 ; 220 East 42nd Street, New York)

April. Awards in the G.E.C. small house competition : 2,040 designs submitted for a competition in which the assessors' names were not disclosed until after the closing date, over 100 pages are devoted to a full presentation of the whole competition. Results of the "Better Homes in America" competition, confined to jobs actually built : this in four different groups has been largely won by Richard Neutra. The "Building Money" section contains an account of some experimental floodlighting of the light wells in a New York tenement, as a cure for complaints against badly lit rooms.

Architectural Record
(Monthly, 50 c. ; 115 West 40th Street, New York)

April. Frank Lloyd Wright's "Broadacre City"—a new community plan co-ordinating small farms, factories, houses, schools, etc. ; a sensible and well-reasoned article by W. R. B. Willcox on the perils of pure draughtsmanship as the essential of architectural practice ; portfolio of current architecture ; technical notes on paint in relation to lighting problems.

Pencil Points
(Monthly, 35 cents ; 330 West 42nd Street, New York)

April. Concluding article in the series on the design of wrought ironwork ; early American architecture in Rhode Island.

ARGENTINA

Revista de Arquitectura
(Monthly, $1. Lavalle 310, Buenos Aires)

March. The Penguin pond at the Zoo, two flat blocks in Buenos Aires and various students' schemes.

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CZECHOSLAVAKIA

Stavitel
(Monthly, 8 copeks. Jindrisská 16, Prague II)

No. 1. An office block for the State Railways by Josef Gocár, a symmetrical plan with a large central courtyard ; Le Corbusier's Salvation Army building in Paris.

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FINLAND

Arkitekten
(Monthly, 15 marks. Ainogatan 3, Helsingfors)

No. 3 A church number ; recent work in Helsingfors and elsewhere.

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FRANCE

L'Architecte
(Monthly, 12 fr. 2 rue de l'Echelle, Paris)

February. Two blocks of flats for middle-class rentals in Paris ; a girls' school at Vizille by R. Fournez and L. Sainsaulieu, an interesting symmetrical plan.

L' Architecture
(Monthly, 6 fr. 51 rue des Ecoles, Paris 5e)

April. A second instalment of schemes by different architects for various sections of the 1936 Paris exposition. Two schools, one in the rue Kuss by Roger Expert, another in the rue Saint-Martin by A. Berry.

La Technique des Travaux
(Monthly, 10 fr. 54 rue de Clichy, Paris 9e)

April. A block of four maisonnettes at Brussels by S. Jasinski ; a municipal housing group at Maisons Alfort by Dubreuil and Hummel ; the Cinéac news theatre in Amsterdam by the late J. Duiker. Various civil engineering projects.

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GERMANY

Baugilde
(Fortnightly, 1 m. 50. Grünstrasse 4, Berlin, S.W.19)

No. 7. Traditional wooden furniture at the recent "Kultur im Heim" exhibition in Berlin.

No. 8. Town planning in Copenhagen.

Baukunst und Städtebau
(Monthly, 1 m. 90. Bauwelt Verlag, Berlin S.W.68)

April. "Houses and Gardens," several medium-sized private houses illustrated with photographs, plans and garden lay-outs ; several small blocks of flats, and some semi-detached houses for workers.

Baumeister
(Monthly, 3 m. Georg D. W. Callwey, Munich)

April. Numerous housing estates containing detached and semi-detached houses, fully illustrated with photographs, plans, layouts and constructional details.

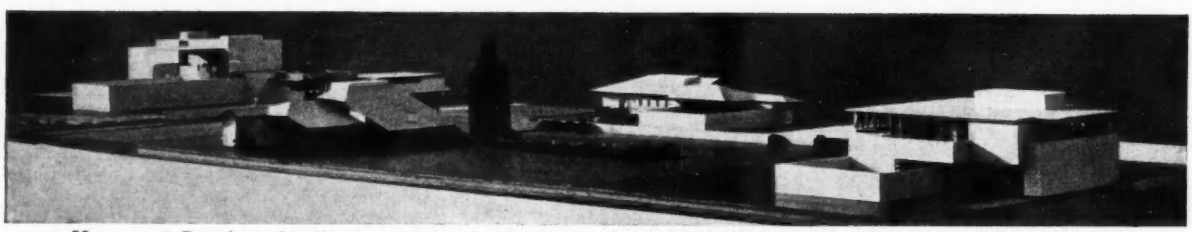
Bauwelt
(Weekly, 90 pf. Ullstein Verlag, Berlin, S.W.68)

April 4. A wooden chapel in Frankfurt by Martin Weber, already illustrated in this JOURNAL, and a wooden church at Breslau by Alfred Trumpke—good constructional photographs.

April 11. People—the dimensions of the human figure standing, walking, sitting, lounging—useful for furniture, bar or counter design. Some good minimum bathroom plans and bedroom arrangements.

April 18. Office furniture sizes ; Aarhus university by Kay Fisker, C. P. Moller and Poul Stigmann.

April 25. Office desk lay-outs and a scheme for a German national theatre.



Houses at "Broadacre City," a community unit, designed by Frank Lloyd Wright. [From the "Architectural Record."]

Deutsche Bauzeitung
(Weekly, 3m. 40 per month. Seydelstrasse 6, Berlin, S.W.9)

April 3. Various churches.
April 10. Results of a competition for a park layout.
April 17. National pageantry : esquisses showing street decorations with eagles, swastikas, banners, etc. ; all very large.
April 24. Film sets, temporary buildings and interiors for film work discussed by Herbert Tjadens.

Moderne Bauformen
(Monthly, 2 m. 25. Julius Hoffmann, Stuttgart)

April. St. Joseph's Church in Hindenburg by Dominikus Böhm, illustrated with photographs, plans and constructional details : the rest of the issue contains medium-sized houses on town and country sites.

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HOLLAND

Bouwkundig Weekblad Architectura
(Weekly, 15 florins per annum. Weteringshaus 102, Amsterdam)

April 6. Prague, a review of recent buildings, including the Pensions Offices of Havlicek and Honzik.
April 13. Villeurbanne, a long article with useful cost details.
April 20. "De Pol" at Zutphen, rural housing by W. Van Tijen.
April 27. Brussels exhibition pavilions.

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HUNGARY

Tér és forma
(Monthly, 4 pengös. Teréz-Körút 56, Budapesth VI)

April. Work by students of the Architectural Polytechnic in Budapesth ; some new shop fronts.

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ITALY

Architettura
(Monthly, 18 lire. via Palermo 10, Milan)

March. A marble fountain in the Foro Mussolini, by Mario Paniconi and Giulio Pediconi ; town planning competition results.

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SPAIN

Viviendas
(Monthly, 2 pesetas. Abascal 35, Madrid)

February. Two houses near Budapesth by Arkay Bertalan ; mass-produced furniture designs by Paul Griesser ; new Viennese glass.

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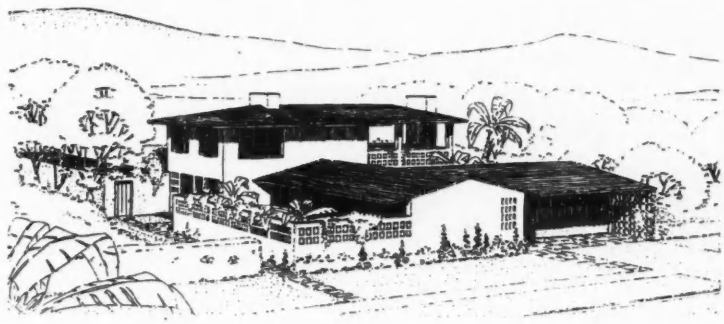
SWEDEN

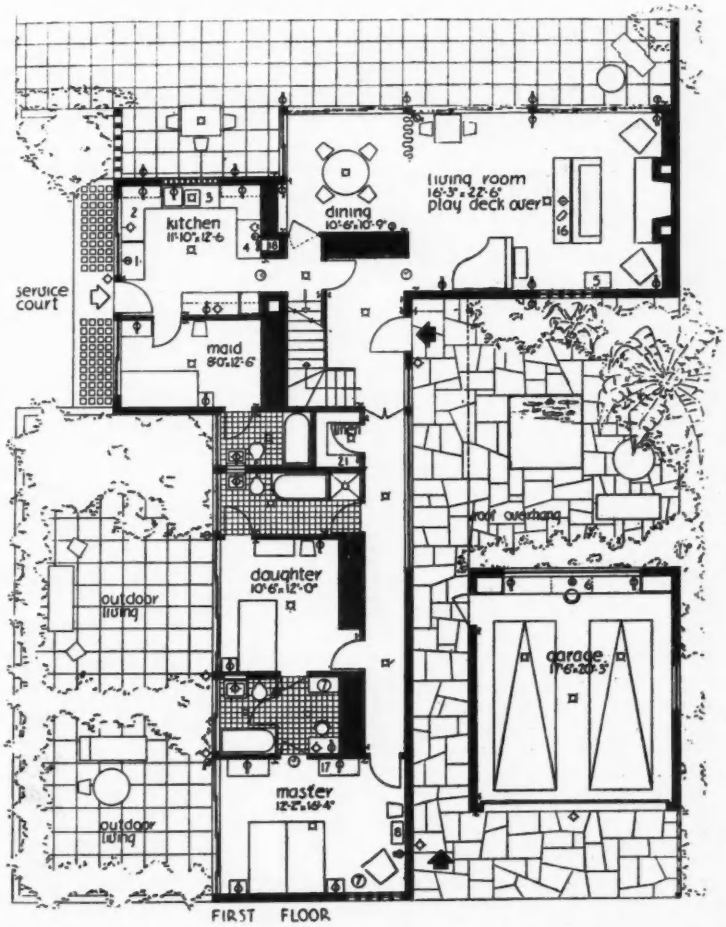
Boet
(Monthly, 1 kr. 50. Kristinelundsgatan 11, Gothenburg)

March. Current interior decoration and furniture.

Byggmästaren
(Fortnightly, 15 kr. per annum. Kungsgatan, 32, Stockholm)

No. 12. A new plywood factory at Kristinehamn.
No. 13. A sports palace in Stockholm by Sven Nycander.





Winning design by Paul Schweikher and T. Warren Lamb for a 30,000 c. ft. house in the recent G.E.C. competition. [*From the "Architectural Forum."*]

SWITZERLAND

Schweizerische Bauzeitung
(Weekly, 1 fr. Dianastrasse 6, Zurich)

April 6. A block of shops, restaurant and flats in Zurich, by Moser and Kopp.
April 13. Water-turbine blade design.
April 20. The layout of church organs.
April 27. The San Francisco Golden Gate suspension bridge ; a double-decked structure with tramways, a road for heavy lorries and another for private cars.

Werk
(Monthly, 3 fr. 60. Muhlebachstrasse 59, Zurich)

April. Mural paintings by R. Th. Bossard, a recent church at Wunnewill and a cemetery layout at Lausanne.

TECHNICAL SECTION: 16

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

BOILER MOUNTINGS (STEAM)

FOR low pressure steam boilers, such as are used in heating systems, the necessary mountings are as follows :—

(*a*) Safety valve.
(*b*) Pressure gauge.
(*c*) Water level gauges.
(*d*) Blow down cock.
(*e*) Automatic boiler feeder.

(*a*) Safety valve : the safety devices report already mentioned gives the sizes of safety valves for steam heating boilers, as in Table XXIV.

Items (*b*), (*c*), (*d*) and (*e*) do not call for comment, except possibly the latter (automatic boiler feeder). This consists of a ball float enclosed in a casing connected top and bottom to the boiler, and so arranged that the ball valve closes the supply when the correct level is reached. It is a reliable device and removes the fear of a steam boiler running dry.

Mountings for high pressure steam boilers will not be discussed here, as they are a subject in themselves, and adequate literature on the subject is readily available in mechanical engineers' textbooks.

TABLE XXIV

SAFETY-VALVE SIZES FOR STEAM-HEATING BOILERS

(Recommendations of a Committee of the I.H.V.E.)

Rating in B.T.U./hour	Min. Clear Bore of Valve (W.P. = 10 lb./sq. in.)
Up to 80,000	¾ in.
80,000-150,000	1 in.
150,000-250,000	1¼ in.
250,000-350,000	1½ in.
350,000-800,000	2 in.
800,000-950,000	2½ in.
950,000-1,500,000	2 at 2 in.

CHIMNEYS

For power plants and large installations these need to be scientifically designed with regard to type of boiler, nature of fuel, method of stoking, elimination of nuisance, etc. There is not space here for discussing these highly technical questions. For ordinary heating installations a common rule for flue areas is

$$A = \frac{\frac{3}{4}g}{\sqrt{h}}$$

where A = area in sq. ft.
g = grate area in sq. ft.
h = height of chimney in feet.

It would be more rational to proportion it to B.T.U. of maximum rating, and this can be done by assuming a normal combustion rate per sq. ft. of grate area, thus :—

$$A = \frac{R}{80{,}000\sqrt{h}}$$

where R = Rating in B.T.U. per hour.

The height h should not be less than 30 ft. and the size never less than 9 in. by 9 in. for the smallest boilers. With oil fired boilers and forced draught installations a smaller flue area should suffice, but it is generally wise to conform to the formula area, as a change-over may be desired later.

As regards construction, chimney flues may be *external* or *formed as part of a building*.

In the former case unlined or brick-lined steel with guys is the cheapest for factory work, and self-supporting steel, brick lined, next in order of cheapness. Brick and reinforced concrete are more satisfactory in appearance and permanence.

Reinforced concrete is light, occupies little space and does not require large foundations. Chimneys of this type

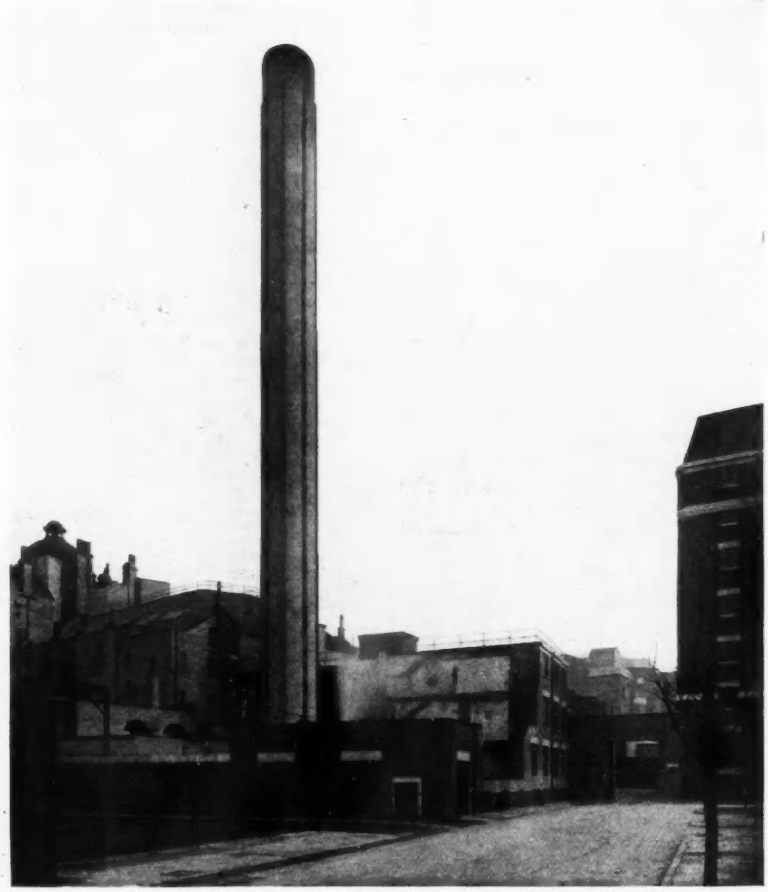


Figure 85. *A reinforced concrete chimney to a modern heating installation.*

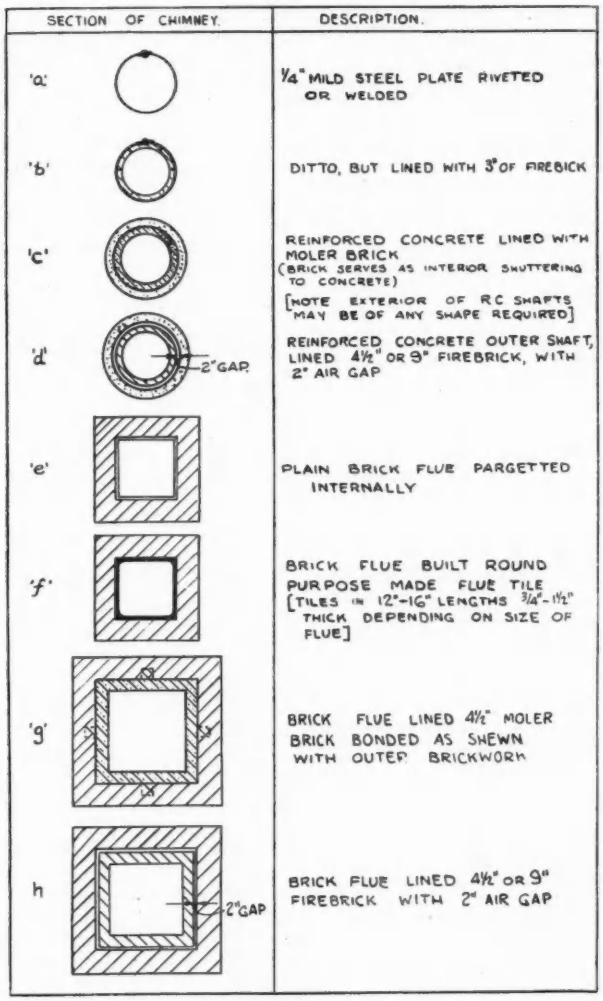


Figure 86. *Various methods of chimney construction in order of cost.*

usually have an outer thickness of 5 to 6 in. of reinforced concrete, an air space of about 2 in., and 4½ in. firebrick lining, which must be free to expand and contract. The lining ought always to be carried to the top, as when this is not done cracks often occur where the lining ceases.

Fig. 85 shows a typical reinforced concrete chimney.

Chimney flues constructed as part of a building must have a well-insulated lining, both to prevent undue heating of the building and to prevent cracking due to expansion. They should either be lined with firebrick and an air space, leaving the firebrick complete freedom for expansion, or with a lining of highly insulating bricks, such as those made from moler or diatomaceous earth, set in mortar containing similar material. These bricks are so highly insulating that they may be bonded with the flue.

Types of flue construction are shown in Fig. 86.

Horizontal flues should have a flue area not less than that of the chimney, but practical considerations of cleaning, access, etc., often require them to be larger.

In general, the length of horizontal flues should not exceed one-third of the vertical chimney height, but there are exceptions to this which function.

Proportions of Flues.—Friction increases out of reason in flues which depart violently from square or circular section. A rectangle with a ratio of sides exceeding three to one should not be considered. Only the area of the ellipse which can be drawn inside a rectangle should be considered as effective area. In a square flue this becomes the inscribed circle; this proves the superiority of the circular form.

FLUES NOT TOO BIG

It must be remembered that a flue depends for its draught on the difference in temperature between the gases inside and the air outside. A flue much too large is not warmed adequately by the gases and may not work. Hence a flue much in excess of the area given by formula is as much to be avoided as one that is too small.

This problem is sometimes met when a battery of heating boilers and a domestic boiler connect to a large common flue, which may work quite well in winter when all are on, but not at all in summer, when the domestic only is at work on the large flue.

Hence it is better to have heating and domestic boilers on separate flues.

This difficulty (of giving draught in the summer to the domestic boiler) is intensified after a sudden rise of external temperature, when the outer air may be warmer than the flue, and a downward draught result.

EXPLOSION DOORS

Explosion doors in horizontal flues are essential with oil and gas fuels and may in certain cases be desirable with coal. Their function is to blow open and relieve the pressure if an explosion occurs.

This can happen with oil fuel, for example, when the supply ceases for a short time owing to a blockage or a failure of plant, and a few minutes later the supply is resumed. The oil is delivered on to red-hot brick and is gasified. This gas may fill the boiler and flues without becoming ignited until the attendant opens the door, when a violent explosion may occur. A similar result would follow if another boiler connected to the same flue were started up.

Explosions have also resulted from faulty or intermittent electric ignition. Similar risks exist with gas firing, and there are safety devices which go far to eliminate these risks, both with oil and gas, but the provision of explosion doors is still desirable. They can conveniently be combined with ordinary access doors, and they must, of course, open fully, immediately and without restraint.

With coal, explosions due to CO and volatile gases can occur, but generally take place in the boiler itself at the moment of stoking, slicing, or opening of doors to admit air.

Fig. 87 illustrates a usual type of explosion door.

INSULATION OF BOILERS

The necessity for boiler insulation has already been referred to (see page 205

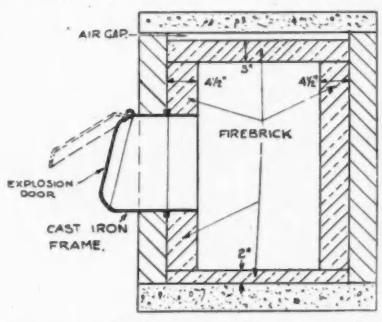


Figure 87. *Section through horizontal flue showing explosion door.*

and Table XIII). Materials commonly used for the lagging of boilers include plastic fossil meal composition, plastic magnesia finished with a hard-setting material, glass silk and aluminium foil.

Efficiencies and approximate costs for various thicknesses of insulation are given in Table XXIX. Fossil meal has a lower insulating value than magnesia, and, owing to the small difference in price, is not to be recommended.

The plastic insulations may be painted direct, but, owing to the surface cracking which invariably occurs, a much better finish is obtained by covering the surface with canvas, pasted on and secured with metal bands. This is painted as required.

Plastic covering should generally be put on in three layers and a reinforcement of wire netting on top of the first layer is necessary to act as a binding over large curved or flat surfaces.

Glass silk is frequently secured with a wire netting binding. Over this is placed, stout paper followed by canvas, a skimming of plaster, then paint as before. Alternatively, the plaster may be placed direct on the wire netting.

All coverings to boilers become damaged in time and portions fall off as a result. Thus metallic casings enclosing the boiler and lagging are to be preferred, since they give protection and at the same time present a clean and permanent finish. Several makers have standardized these, finished in vitreous enamel for the smaller boilers and galvanized steel for the larger. Sometimes they are left unlined, but are then of doubtful efficiency.

TABLE XXIX

BOILER INSULATION

Insulation	Total Thickness	Efficiency, per cent.	Approx. cost per sq. ft. fixed (in London)
Fossil meal plastic composition (not recommended)	1 in. 1½ in. 2 in.	60 65 70	9½d* 10½d.* 1/-*
Plastic magnesia finished with ½ in. hard-setting material, painted.	1 in. 1½ in. 2 in.	80 85 89	10d.* 1/-* 1/2*
Glass-silk, wire netting and hard-setting finish, painted	¾ in. 1 in. 1½ in.	85 89 91	1/8 1/10 2/-
Crinkled aluminium foil. (This must be cased in metal)	1 in.	78	1/6 *Canvas covering 2d. per sq. ft. extra.

For a really high finish the metallic casing may take the form of polished aluminium as illustrated in the frontispiece (page 90).

The low radiating properties of the polished surface in itself assists materially in improving the efficiency of the insulation.

It should be remembered that when pipes are insulated their heat transmitting surface is increased due to the greater resulting diameter, and there is in consequence an optimum thickness beyond which the heat emission may actually be increased (this will be discussed in a later chapter). In the case of boilers this does not apply, since surfaces are large and flat, so that the thicker the insulation the greater the heat saved. For hot water, however, thicknesses need not generally be more than 2 in. of an efficient material.

LAW REPORT

ANCIENT LIGHT DISPUTE—WEST-END AMENITIES

Fishenden v. *Higgs and Hill, Ltd.—Chancery Division. Before Mr. Justice Crossman.*

THIS was an action by Mr. Reginald Charles Fishenden, of 8 Chesterfield Gardens, London, W., against Messrs. Higgs and Hill, Ltd., builders and contractors, of Crown Works, South Lambeth Road, London, S.W., for an injunction to restrain the defendants from erecting or continuing to erect any buildings in Chesterfield Gardens so as to cause a nuisance or illegal obstruction to the plaintiff's ancient lights at 8 Chesterfield Gardens, as the same existed before the pulling down by the defendants of buildings known as Chesterfield House.

The plaintiff also claimed a mandatory order directing the defendants to pull down so much of the new buildings erected by them in or near Chesterfield Gardens, as caused a nuisance, obstruction, or interference with plaintiff's ancient lights. The plaintiff also claimed damages.

The case for the plaintiff was that he was lessee of 8 Chesterfield Gardens, under a lease of December, 1930, for Baron Islington, for a term of 35 years, and these premises were situated on the east side of Chesterfield Gardens and were used by the plaintiff as residential flats, the plaintiff himself occupying the basement and ground floor, with staff who resided there. The house consisted of five floors and the basement, and all the windows on the side overlooking Chesterfield Gardens were, the plaintiff alleged, ancient lights. The defendants were the owners and occupiers of a piece of land on the west side of Chesterfield Gardens, formerly the site of a mansion known as Chesterfield House, with garden. Prior to the demolition Chesterfield House consisted of a building of which the parts opposite the plaintiff's premises stood at a distance of approximately 55 ft. therefrom, and varied in height from 34 ft. to approximately 47 ft. The remainder of Chesterfield House stood approximately 49 ft. further from the line of plaintiff's premises, and varied in height from approximately 47 ft. to 69 ft. The plaintiff alleged that after the demolition of Chesterfield House the defendants were erecting on the site and the surrounding gardens a new building, of which the whole of the northerly wing and part of the main structure would be immediately opposite the plaintiff's premises. The main part of the defendants' new building would be, when completed, about 97 ft. high and the northerly wing approximately 80 ft. high. The plaintiff's case was that the defendants, in erecting their new building opposite the plaintiff's premises at a distance of about 92 ft., so far as the main portion was concerned, and about 59 ft., so far as the northerly wing was concerned, measured at the street level, if not stopped, would so seriously diminish the light coming through the plaintiff's windows as to be a nuisance to him and his tenants, and therefore he was entitled to the relief he claimed.

The defendants by their defence pleaded that no obstruction of light to the plaintiff's premises would be caused by the roof edge of the defendants' proposed new building, which was set back from the frontal plane at street level and was approximately 99 ft. distant from the projecting bays and 103 ft. distant from main wall of 8 Chesterfield Gardens. The defendants further pleaded that their proposed new building would not diminish materially or at all the quantity of light which came through the windows of plaintiff's premises, and they alternatively pleaded that, after the completion or erection of their proposed new building, there would be left a quantity of light coming through the windows of plaintiff's premises, ample and sufficient for ordinary requirements of reasonable persons occupying these premises.

Sir Herbert Cunliffe, K.C., and Mr. Thos. Cunliffe appeared for plaintiff and Sir Patrick Hastings, K.C., and Mr. Andrew Clark, for defendants.

Sir Herbert Cunliffe, for the plaintiff, stated that on the east side of Chesterfield Gardens were numerous houses used for residential purposes. Opposite, on the west side, there was formerly a mansion, called Chesterfield House, which was occupied by the Princess Royal and Lord Harewood. That was a building of moderate height and dimensions. That had now been demolished and was being replaced by the defendants by a huge block of buildings very much higher and coming closer to the plaintiff's house, which was opposite and nearest what would be the highest part of the defendants' buildings when it was erected according to the plans. Plaintiff held a string on the lease of his house at a rent of £1,500 a year, and he had spent something like £8,000 on converting the house into flats. It had been said that what would be a nuisance in Belgrave Square would not be a nuisance in Bermondsey. Counsel contended that plaintiff's house should have the benefit of that reasoning. Plaintiff's house was in a neighbourhood quite as good as Belgrave Square. It was in the heart of Mayfair and the plaintiff was entitled to the amenities of light and protection from nuisance judged by the standard of a very high-class residential neighbourhood. The plaintiff's case was that the defendants' proposed new building would be a serious infringement of his right to light. It was not, said

counsel, a case for monetary compensation but for an injunction, a money payment would not be a solution for the permanent cutting off of natural daylight and there should be such an injunction that would compel defendants to cut down their building to such dimensions as would not infringe the plaintiff's light. By reason of the defendants' building the plaintiff would probably suffer damages which could not be at present ascertained as to the letting value of his flats. Defendants had carried on with their building, although they were warned that the plaintiff intended to assert his rights. Counsel contended that the plaintiff's house, by reason of what the defendants did, had not only been rendered less convenient but that in consequence of what the defendants proposed to do there would be insufficient light for ordinary residential purposes. As to the suggestion that the plaintiff by making alterations inside the house had himself affected the internal light he submitted that the use which the plaintiff made of his building, or the variation which he made in the internal structure, did not affect his right to protection against the infringement which he by the present action alleged.

Mr. Matthew Cecil Fox, of Winkworth & Co., estate agents, of Curzon Street, gave evidence that the fan-light over the front door of plaintiff's premises had been in the same position for 35 years.

Plaintiff then gave evidence in support of his case. He said he took exception to the defendants' building as soon as he learned what it was to be. He said the defendants' building had considerably affected the light coming to his premises and would prejudicially affect the letting value of the flats.

Mr. Cole, plaintiff's architect, who superintended the alterations to plaintiff's house, gave expert evidence.

Mr. Douglas Pitts, of Kirby and Sons, architects and surveyors of Liverpool, gave evidence as to how in these matters ordinary lighting was computed. He referred to the measurement of light coming into a room from a half hemisphere of unobstructed prospect, the contour lines of table height, where the value of that light in a room fell to decimal point nought four of its original value and the effect of the erection of the buildings of varying heights and distances before the windows.

Sir Patrick Hastings, for defendants, said that the principle on which the matter must be decided was that sufficient light must be left for ordinary purposes having regard to the ordinary requirements of persons residing in the district concerned. Defendants' case was that on that principle plaintiff would have no ground to complain. The case was one of paramount importance to the West-End of London. In the case of the conversion of Devonshire House into flats the residents in Stratton Street lost the view across an attractive garden. In an action concerning the scheme Mr. Justice Eve granted an injunction restraining the front of the building being carried to a height which would cut off light above an angle of more than 45 deg. It was not uncommon, said counsel, where an injunction was obtained, for what was known in the profession as "selling the injunction," to take place, with the result that the building went up as planned. His submission was that being in the West-End of London the plaintiff must be content with the amenities existing there. In recent years the world, and especially London, had changed, and these high buildings were being put up for the purpose of using very valuable ground by appropriate buildings. The defendants' building, eliminating the buttresses, was similar to one which Mr. Justice Eve permitted. The builders at enormous financial cost had done their best to conform with the directions laid down by the Courts. It was of course useless to build blocks of flats only 30 ft. high.

His lordship said the question he had to decide was whether there was a nuisance caused by the diminution of plaintiff's light.

Mr. Percy John Waldram, of Waldram and Son, L.R.I.B.A., explained that he had carefully gone through the plans of defendants' building with Mr Pitts and had agreed to the figures which had been supplied to his lordship. He was called in to advise the defendants before their building was put up. He was well acquainted with the amenities of the Mayfair district. Speaking generally, in the West-End an angle of 45 deg. of light was usual. If the defendants' building was erected the plaintiff's light would be equal to, if not better than, the light which the older houses in Mayfair generally enjoyed. If the plaintiff was legally entitled to have the same light he had before the defendants' building was put up it would amount to a nuisance.

Sir Patrick Hastings said that the principle laid down in the Colls case was that the question to be decided was what light a plaintiff was entitled to and not the amount he had formerly enjoyed.

Mr. Percy Vivian Burnett, F.R.I.B.A., of Jermyn Street, W., said he had carefully studied the question of light in such a case as this, and he had designed the defendants' building on the principle that it should give an angle of 45 deg. He discussed the matter with Mr. Coles, the plaintiff's architect, who complained of a projecting buttress. Witness said that although the buttress gave an angle of less than 45 deg. of sky light the main line of the building gave more than 45 deg. of skylight; consequently, the average was more than 45 deg.

Cross-examined he agreed that the London Building Act did not affect ancient lights in any way.

Mr. T. P. Bennett, F.R.I.B.A., of Bedford Row, W.C., also gave evidence for defence.

Replying to his lordship, Sir Patrick Hastings said all endeavours to settle the case had been abortive.

Counsel then addressed his lordship.

Judgment

His lordship, in giving judgment, said it was a difficult case in some ways to decide. Mr. Fishenden brought his action for an injunction to restrain Messrs. Higgs and Hill from so erecting their building as to cause him annoyance by obstructing his ancient lights. Mr. Fishenden was the leaseholder of his house and would have it on his hands for at least 21 years from Christmas, 1930, at a rental of £1,500 a year. He lived on the premises. He complained that with the defendants' building, only partly erected, he had to eat his lunch with artificial light, though formerly he had daylight, and that lights had to be lit in other rooms an hour earlier than was formerly the case.

Having referred at some length to the rooms which the plaintiff alleged had been affected by the defendants' building, his lordship said that the defendants admitted that all the windows of those rooms were ancient lights, except the fanlight over the hall door. He was not prepared to hold that the excepted light was an ancient one. With regard to the other windows he said that evidence had been given by other people living in the house as to the diminution of light, and by others as to the effect defendants' building would have on the rooms in the plaintiff's premises. The defendants, as he understood it, admitted that the erection of their building would cause a substantial diminution of the light in the plaintiff's rooms, but alleged that the light left was sufficient for ordinary residential or business purposes. The question for decision was whether the obstruction or interference amounted to an actionable nuisance. It was, he thought, now established by authorities that the plaintiff was not entitled to retain in perpetuity the same light he had formerly enjoyed before the old building, Chesterfield House, was pulled down, but that what he was entitled to was the amount of light required for the ordinary purposes of inhabitancy of his premises according to the ordinary notions of mankind. That was the result of the Colls case decided in the House of Lords in 1904. He thought it was clear from the evidence that the plaintiff had suffered such an interference to his light as would decrease the letting value of rooms in his house, and constituted an actionable nuisance.

He accordingly held that the plaintiff had established his right to relief in respect of his four rooms referred to as Nos. 1, 2, 4 and 6, and then the question arose as to what remedy he was entitled to, viz., whether an injunction or damages. Having regard to all the circumstances he could not find that the injury to the plaintiff was small and which could be adequately compensated for by a small money payment. He saw no alternative to granting the injunction asked for and to order the defendants to pay the costs of the action.

Judgment was entered accordingly.

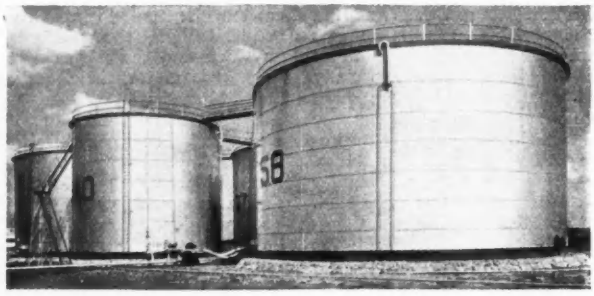
On the application of Mr. Andrew Clark, for the defendants, his lordship suspended the mandatory order on the defendants to pull down and remove so much of the building already erected by them, conditionally on notice of appeal from his judgment being given within seven days. He expressed the hope that some arrangement would be come to with a view to preventing men from being thrown out of work more than was necessary.

[Since the above case was heard, the defendants have decided to appeal against the judgment.]

●

NEW HALL FOR BRIDLINGTON

The Bridlington Town Council has decided to build a concert hall on the north side of Victoria Terrace Gardens. The estimated cost is £27,000.



TRADE NOTES

[BY F. R. S. YORKE, A.R.I.B.A.]

Paint

THE picture at the head of this page is taken from a booklet issued by Nobel Chemical Finishes, to describe the painting of a series of oil storage tanks at Ellesmere Port.

•

The tanks were built with riveted steel plate sides, and welded steel plate tops. The removal of rust and mill scale from the steel surfaces by means of hand manipulated brushes was considered impossible, and chemical solution applied over thousands of square yards would have been prohibitive in cost. Mechanical means were therefore employed. Pneumatic wire brushes, operated by air delivered from large compressors, produced a burnished surface for the primer.

•

The work was done during March and April, when it was particularly important that the surfaces should be sealed quickly and effectively to prevent the action of moisture on the bright steel. Dulux red-brown metal primer was brushed on, and was followed by two coats of Dulux aluminium from a spray gun. The material had a covering capacity of 120 yards per gallon. The second coat was applied when the first coat had been allowed to stand for twelve hours.

•

The primer can be sprayed, but was brushed in this case because, on metal surfaces, brushing is more likely to avoid the danger of air and moisture remaining behind the paint film, and to minimize the risk of "bridging" over indentations—which may be the cause of blistering.

•

Aluminium was used on all tanks and pipelines containing crude oils, benzene, kerosene, and gas oil because its high heat-reflecting properties reduce the absorption of heat in hot weather, and so save losses by evaporation of light fractions.

•

The insides of the tanks were painted with Nobel anti-corrosive synthetic resin enamels, in order to protect the roof sheets and trusses from the saturated vapours of petroleum distillates and the action of water vapour, and to prevent the formation of iron sulphides.

•

The finishing process consisted of one coat of anti-corrosive primer, followed by two coats of the enamel. All these materials were applied by brush, and three days' drying time was allowed between each coat. During the drying period the interiors of the tanks were well ventilated. The chimney stacks, boilers and all parts subjected to heat were painted with Nobel heat-resisting black varnish.

Refrigerators

In a pamphlet just issued by Kelvinator, Ltd., there is a useful table giving capacities and dimensions of the full range of Kelvinator models; this is set out in full below.

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Each of the models is illustrated by a photograph.

Model	Nett food storage cu. ft.	Shelf area sq. ft.	No of ice cubes	Lb. ice per freezing	Overall dimensions Width	Depth	Height
Kelvinette					ins.	ins.	ins.
LT-2	2·2	3·4	21	1¼	22	21½	33
Kelvinette							
LT-3	3·2	5·25	21	1½	28	18¼	41
N	4·2	8·3	42	3¼	24½	24¼	50½
K-485	4·85	9·89	63	6¾	25	25	53½
NA	5·2	10·5	63	5	28	25¾	52¼
K-541	5·41	11·17	84	9	28½	26¼	52
NB	6·4	13·3	63	5	28	25¾	57¼
K-650	6·50	13·88	84	9	28½	26¼	56¾
K-760	7·60	16·76	126	13½	31½	26¼	57¼
D-513	5·13	10·66	81	9	29	26¾	51¾
D-617	6·17	12·8	108	12	29½	26¾	56½
D-736	7·36	14·43	108	12	32½	26¾	57½
D-873	8·73	17·7	108	12	33½	27¼	62¾
SD-1268	12·68	25·05	162	28*	49	29	67

* Including 10 lb. in Frost Chest.

THE BUILDINGS ILLUSTRATED

Sub-Contractors' List

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue :—

Factory at Hatfield (pages 759-762). General contractors, Holland & Hannen and Cubitts, Ltd. Sub-contractors : Demolition and Construction Co., Ltd., preliminary works ; Redpath Brown & Co., Ltd., steelwork ; Trussed Concrete Steel Co., Ltd., reinforced concrete engineers, steel reinforcement ; Ruberoid Co., Ltd., roofing ; Pennycook Patent Glazing Co., Ltd., patent glazing ; Wolverhampton Corrugated Iron Co., Ltd., ventilators ; Hugh Twaddle and Sons, plumber work ; Daniel Adamson & Co., Ltd., power house installation ; Crittall Manufacturing Co., Ltd., steel sashes and partitions ; Educational Supply Association, Ltd., folding doors ; Ashwell and Nesbit, Ltd., steam mains, heating and cooking ; North Metropolitan Electric Power Supply Co., electric lighting ; Bryon & Co., tilework ; Toffolo Jackson & Co., Ltd., terrazzo ; Rippers, Ltd., joinery work ; A. M. MacDougall and Son, Ltd., wood block flooring ; W. B. Morrison and Sons, sanitary fittings ; Haskins, entrance doors, etc. ; George Boyd & Co., ironmongery ; Potter Rax Gate Co., Ltd., cloakroom fittings, etc. ; Guthrie and Wells, Ltd., painter work ; Ryder and Son (1920), Ltd., garden.

Pair of houses in Holly Park, Crouch Hill, N. 4 (pages 774-775). General contractors, W. Silk and Son, Ltd. Sub-contractors : London Brick Co. and Forders, Ltd., flettons ; G. M. Callender & Co. Ltd., bitumen; Colthurst Symons, Bridgewater tiles (laid by J. Macquire); Crittall's Manufacturing Co., Ltd., windows ; Bryce, White Co., Ltd., internal doors ; Bratt Colbran & Co., Thos. Foster, Goslett's ; and Davis Gas Stove Co., Ltd., fireplaces ; Ideal Boilers and Radiators, Ltd., Ideal domestic boiler ; Yannedis & Co., ironmongery ; Mander Bros., Ltd., paint ; Blundell, Spence & Co., enamel.

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Manufacturers' Items

We regret that the name "Linolite" was mis-spelt in the drawing reproduced on page 634 of our issue for April 25.

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The Davis Gas Stove Co., Ltd., point out that the "Alpine" gas cooker illustrated on page 697 of our issue of May 2 is only one of the large range of "New World" cookers manufactured by Radiation, Ltd.

*

The Parkinson Gas Stove Co., Ltd., point out that in the caption under the drawing of the Minette cooker on page 697 of our issue for May 2 the cooker was wrongly described as a "gas boiler."

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

BARKING. *School.* The Education Committee has decided to erect the Manor School, by direct labour, at a cost of £43,000.

CHADWELL HEATH. *School Enlargement.* The Essex E.C. has approved plans for the enlargement of the Warren Council Senior School by the provision of a second department for 480–560 pupils, at an estimated cost of £19,000. The architect is Mr. John Stuart, F.R.I.B.A.

CHISWICK. *Hospital.* Mr. Hugo Bird, F.R.I.B.A., is the architect for the rebuilding of the Chiswick General Hospital. Work of demolishing the old building is to commence shortly.

FINCHLEY. *Municipal Buildings.* The Corporation has selected a site in the Glebe Land for the proposed municipal buildings.

FINCHLEY. *Flats.* Messrs. A. and S. Foux are to build 102 flats at the corner of Great North Road and Granville Road, Finchley.

FINCHLEY. *Shopping Arcade.* The Dansbrook Estate Co., Ltd., are to erect a shopping arcade at Woodhouse Road, Halliwick estate, Finchley.

HARROW WEALD. *Hall.* Work has just begun upon the erection of a new Wykeham hall at the corner of College Road and Bishop Ken Road, Harrow Weald. The hall was designed by Mr. T. F. Ford, and the contractors are Messrs. Limpus and Sons, Kingston-on-Thames. The hall, we understand, will perpetuate the association of New College, Oxford, with Harrow Weald, and it is stated that New College men have subscribed towards the cost of a new parish church, which it is proposed to erect shortly.

HOUNSLOW. *Houses.* Mr. J. P. Blake, of 214 High Street, Hounslow, has prepared plans for the proposed erection of 86 houses at Almorah Road, Broad Walk, and Great West Road. The plans have been approved by the T.C.

HOUNSLOW. *Houses.* The T.C. has approved plans submitted by Messrs. Clifford and Clifford, Ltd., 28 Ealing Road, Wembley, for the erection of 38 houses in a new road off London Road.

ISLEWORTH. *Library.* The Ministry of Health has sanctioned the erection of a library at Redless Park by the Heston-Isleworth T.C.

MIDDLESEX. *Modernization of Hospital.* The Middlesex C.C. Health Committee is to prepare a scheme for the modernization of the North Middlesex Hospital, at an estimated cost of £500,000.

SOUTHGATE. *Shops, etc.* Plans submitted to Corporation: 20 shops and 42 flats, Chase Side, and 14 flats, Crown Lane, for Messrs. North, Robin, and Wilsdon; eight houses, Stonehall estate, for Mr. C. E. Owen Ward; three shops and 12 flats, Bowes Road, for Mr. A. Benjamin; 20 flats, Chase Road, for Bunting Construction Co., Ltd.; six houses, Oakwood Park estate, for Messrs. Harwood, Nash & Co.; 35 houses, Prince George Ave., for Mr. C. E. Ward; hall, eight shops and 42 flats, Bowes Road, for Mr. C. W. Dennis; 66 flats, Vicarage Field estate, Cockfosters, for Mr. H. W. Binns; 46 houses, Chase Road and The Vale, for Mr. C. W. Newman; depot extensions, Reservoir Road, for United Dairies; 18 houses, Firs Lane, for Messrs. Arnold and Malkinson; two houses, Broad Walk, for Messrs. Cramb Bros.; 10 houses, Stone Hall Estate, and 39 houses, Stewartby Close, for Mr. C. E. Ward; 21 houses, Ringwood Way, for Mr. G. W. S. Ingram; 28 houses, Farmleigh Nursery estate, for Messrs. Harwood, Nash & Co.; 42 flats, High Street, for Mr. J. Batty.

EASTERN COUNTIES

CLACTON. *School Enlargement.* Mr. John Stuart, F.R.I.B.A., County Architect, has prepared plans for the proposed enlargement of the County High School, at an estimated cost of £15,581.

SOUTHERN COUNTIES

CANTERBURY. *School.* The City Council has decided upon the erection of a junior and infants' school, to accommodate 650 pupils at the rear of Woodville Homes in Wincheap.

CANTERBURY. *Hospital.* Mr. Cecil Burns, F.R.I.B.A., is now engaged upon the preparation of plans in connection with the proposed erection of a hospital on a site adjoining the Kent County Cricket Ground. Provision is to be made for about 164 beds. In addition, there will be a self-contained nurses' home, and a small building to accommodate motor ambulances and a store. The total estimated cost is £120,000, which is £20,000 in excess of the original estimate, caused by the provision of increased accommodation.

FINDON. *Shops.* Mr. A. T. W. Goldsmith, architect, of Worthing, is to erect 49 shops on the Cissbury Down Estate, Findon, Sussex.

OXFORD. *Cinema.* The Corporation has agreed to a proposal by Messrs. Collcutt and Hunt, Ltd., for the erection of a cinema at the junction of Banbury Road and Mayfield Road.

OXFORD. *School.* The Education Committee is to acquire a site at Kiln Lane, Headington, for the erection of an elementary school.

SOUTH-WESTERN COUNTIES

EXETER. *Swimming Pool.* The Corporation has asked the city engineer to prepare estimates for the construction of an open-air swimming pool and a covered bath on the Barnfield site.

NORTHERN COUNTIES

BIRKENHEAD. *Hall.* The Salvation Army is acquiring a site on the Woodchurch estate from the Birkenhead Corporation for the erection of a hall.

BIRKENHEAD. *Houses.* The Corporation has allocated sites on the Woodchurch estate for the erection of police houses.

HULL. *Factory.* British Cocoa Mills (Hull), Ltd., are to erect a new factoty on a site fronting the Old Harbour, Hull.

LEEDS. *Baths.* The Corporation has allocated a site on the Middleton estate for the erection of baths.

LEEDS. *Houses.* The Corporation has approved the lay-out of the Seacroft estate and is to obtain tenders for the erection of approximately 1,000 houses.

LEEDS. *Houses and Flats.* The Corporation is to erect 242 houses and flats at Hawksworth Wood estate; 260 houses on the Westfield estate; 950 houses and flats on the Sandford House estate, and 166 houses and flats on the York Road estate.

MANCHESTER. *Houses.* The Corporation is to erect 106 houses by direct labour at Ten Acres Lane, Newton Heath.

MORECAMBE. *Development of Pier.* The Corporation has approved plans by the New Morecambe Central Pier Co., Ltd., for the improvement and development of the central pier.

MORECAMBE. *Swimming Pool.* The Corporation has obtained sanction to borrow £61,220 for the construction of an open air swimming pool.

MORECAMBE. *Bus Station, Houses, etc.* Plans passed by the Corporation: Bus station, Euston Road, for Ribble Motor Services, Ltd.; four houses, Acre Moss Lane, for Messrs. Lambert and Atkinson; six houses, Dallam Avenue, for Messrs. H. Hillman and Son; 37 houses, Kayswell Road, for Kay Building Co.; six houses, Woborrow Terrace, for Messrs. R. Kitchen and Sons; four houses, Lister Grove, for Mr. J. Wormwell; two houses, Bristol Street, for Mrs. Wilson.

SHEFFIELD. *Houses.* The Corporation has obtained sanction to borrow £139,600 for the erection of 446 houses on the Arbourthorne estate.

SHEFFIELD. *Houses, etc.* Plans passed by the Corporation: Four houses, Whirlowdale Crescent, for Mr. J. Bailey; six houses, Lees Hall Road, for Messrs. W. and J. Laver; 10 houses, Stradbroke Road, for Mr. S. G. Bailey; eight houses, Hurfield Avenue, for Newhouses (Builders), Ltd.; six houses, Waller Road, for Mr. E. Thompson; 23 houses, Lydgate Road, for Messrs. T. V. and W. L. Simpson; eight houses, Tinker Lane, for Messrs. Watson, Lewis & Co.; four houses, Sheldon Road, for Mr. S. Denton; two houses, Hainsworth Road, for Sheephill Estates; 12 houses,

(Continued on page xxviii.)



The new cocktail bar at the Regent Palace Hotel, W.1, designed by Oliver P. Bernard. The floor was laid by Noel Floors on the old Roman mosaic principle and comprises 25,000 separate pieces, as follows: 8,000 Jarrah; 8,000 pink beech; and 9,000 white beech, laid direct on the cement screed.

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I	II
			s. d.	s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_4	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Banger ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on-Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_2	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M.	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley	N.W. Counties	1 5½	1 1½
A	Burslem	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett	N.E. Coast	1 5	1 0½
A_2	Conway	N.W. Counties	1 4½	1 0½
A	Coventry	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON ..	N.E. Coast	1 5½	1 1½
A	Darwen	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee	Scotland	1 5½	1 1½
A	Durham	N.E. Coast	1 5½	1 1½
A_2	EASTBOURNE ..	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_3	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S.W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W.Counties	1 4½	1 0½
A	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_2	Kendal ..	N.W. Counties	1 4	1 0
A_2	Keswick ..	N.W. Counties	1 4	1 0
A	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12-15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N. E. Coast	1 5½	1 1½
A_2	Middlewich ..	N. W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid. Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_1	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_2	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid. Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan ..	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	,,	1	7
Joiner	,,	1	7
Machinist	,,	1	8
Mason (Banker)	,,	1	7
,, (Fixer)	,,	1	8
Plumber	,,	1	7
Painter	,,	1	6
Paperhanger	,,	1	6
Glazier	,,	1	7
Slater	,,	1	7
Scaffolder	,,	1	3
Timberman	,,	1	3
Navvy	,,	1	2½
General Labourer	,,	1	2½
Lorryman	,,	1	5
Crane Driver	,,	1	6
Watchman	per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	,,	1	16	6
Hydrated Lime	,,	3	0	9
Portland Cement, in 4 ton lots (d/d site, including Paper Bags)	,,	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	,,	2	6	0
White Portland Cement, in 1-ton lots	,,	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	,,		6	9
Building Sand	,,		7	3
Washed Sand	,,		8	3
2" Broken Brick	,,		8	0
¾" ,, ,,	,,		10	3
Pan Breeze	,,		6	6
Coke Breeze	,,		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	,,	3	6	5	3
Rest Bends	,,	4	3	6	3
Single Junctions	,,	3	6	5	3
Double ,,	,,	4	9	6	6
Straight channels	per F.R.	1	8	2	6
¼" Channel bends	each	2	9	4	0
Channel junctions	,,	4	6	6	6
Channel tapers	,,	2	9	4	0
Yard gullies	,,	6	9	8	9
Interceptors	,,	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	,,	9	0	15	0
Single junctions	,,	8	9	18	0
Double junctions	,,	13	6	30	0
Lead Wool	lb.		6		—
Gaskin	,,		5		—

BRICKLAYER

		£	s.	d.
Flettons	per M.	2	15	0
Grooved do.	,,	2	17	0
Phorpres bricks	,,	2	15	0
,, Cellular bricks	,,	2	15	0
Stocks, 1st quality	,,	4	11	0
,, 2nd ,,	,,	4	2	6
Blue Bricks, Pressed	,,	8	17	6
,, Wirecuts	,,	7	17	6
,, Brindles	,,	7	0	0
,, Bullnose	,,	9	0	0
Red Sand-faced Facings	,,	6	18	6
Red Rubbers for Arches	,,	12	0	0
Multicoloured Facings	,,	7	10	0
Luton Facings	,,	7	10	0
Phorpres White Facings	,,	3	17	3
,, Rustic Facings	,,	3	12	3
Midhurst White Facings	,,	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	,,	21	0	0
Headers	,,	20	10	0
Bullnose	,,	27	10	0
Double Stretchers	,,	29	10	0
Double Headers	,,	26	10	0
Glazed Second Quality, *Less*	,,	1	0	0
,, Buffs and Creams, *Add*	,,	2	0	0
,, Other Colours	,,	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" ,, ,, ,,	,,		1	10
3" ,, ,, ,,	,,		2	1
4" ,, ,, ,,	,,		2	6

MASON

The following d/d F.O.R. at Nine Elms:		s.	d.
Portland stone, Whitbed	F.C.	4	4½
,, ,, Basebed	,,	4	7½
Bath stone	,,	2	10
York stone	,,	6	6
,, ,, Sawn templates	,,	7	6
,, ,, Paving, 2"	F.S.	1	8
,, ,, ,, 3"	,,	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	,,	24	10	0
20" × 10" Countesses	,,	19	5	0
18" × 10" Viscountesses	,,	15	10	0
18" × 9" Ladies	,,	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey per 1,000 (actual)		21	11	6
,, ,, green ,,	,,	24	7	4
Best machine roofing tiles	,,	4	10	0
Best hand-made do.	,,	5	0	0
Hips and valleys	each		9½	
,, hand-made	,,		10	
Nails, compo	lb.		1	4
,, copper	,,		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	,, ,,		5
,, ,, 2nds	,, ,,		4
Mahogany, Honduras	,, ,,	1	3
,, African	,, ,,	1	1
,, Cuban	,, ,,	2	6
Oak, plain American	,, ,,	1	0
,, Figured ,,	,, ,,	1	3
,, plain Japanese	,, ,,	1	2
,, Figured ,,	,, ,,	1	5
,, Austrian wainscot	,, ,,	1	6
,, English	,, ,,	1	11
Pine, Yellow	,, ,,	1	0
,, Oregon	,, ,,		4
,, British Columbian	,, ,,		4
Teak, Moulmein	,, ,,	1	3
,, Burma	,, ,,	1	2
Walnut, American	,, ,,	2	3
,, French	,, ,,	2	3
Whitewood, American	,, ,,	1	1
Deal floorings, ¾"	Sq.	18	6
,, 1"	,,	1	1	6
,, 1¼"	,,	1	2	0
,, 1½"	,,	1	5	0
,, 1¾"	,,	1	10	0
Deal matchings ¾"	,,		14	0
,, 1"	,,		15	6
,, 1¼"	,,	1	4	0
Rough boarding ¾"	,,		16	0
,, 1"	,,		18	0
,, 1¼"	,,	1	6	0

Plywood, per ft. sup.

Thickness	¼"	½"	¾"	1"
Qualities	AA. A. B.	AA. A. B.	AA. A. B.	AA. A. B.
	d. d. d.	d. d. d.	d. d. d.	d. d. d.
Birch	4 3 2	5 4 3	7½ 6 4½	8½ 7 6
Alder	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6
Gaboon Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –
Figured Oak 1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –
Plain Oak 1 side	6½ 6 –	7½ 7 –	9½ – –	1/– – –
Oregon Pine	5 4 –	5½ 5 –	6 – –	– – –

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

		¼"	½"	1"	1¼"	2"
Tubes, 2'-14' long, per ft. run		4	5½	9½	1/1	1/10
Pieces, 12"-23" long	each	10	1/1	1/11	2/8	4/9
,, 3"-11½" long	,,	7	9	1/3	1/8	3/–
Long screws, 12"-23½" long	,,	11	1/3	2/2	2/10	5/3
,, ,, 3"M-½" long	,,	8	10	1/5	1/11	3/6
Bends	,,	8	11	1/7½	2/7½	5/2
Springs not socketed	,,	5	7	1/1½	1/11½	3/11
Socket unions	,,	2/–	3/–	5/6	6/9	10/–
Elbows, square	,,	10	1/1	1/6	2/2	4/3
Tees	,,	1/–	1/3	1/10	2/6	5/1
Crosses	,,	2/2	2/9	4/1	5/6	10/6
Plain sockets and nipples	,,	3	4	6	8	1/3
Diminished sockets	,,	4	6	9	1/–	2/–
Flanges	,,	9	1/–	1/4	1/9	2/9
Caps	,,	3½	5	8	1/–	2/–
Backnuts	,,	2	3	5	6	1/1
Iron main cocks	,,	1/6	2/3	4/2	5/4	11/6
,, with brass plugs	,,	—	4/–	7/6	10/–	21/–

Discounts: TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	,, water	47½
Steam	57½	,, steam	42½
FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	,, water	42½
Steam	47½	,, steam	37½

SMITH AND FOUNDER—*continued.*

		s.	d.
Rolled steel joists cut to length	cwt.	12	9
Mild steel reinforcing rods, ¼"	,,	9	6
,, ,, ⅜"	,,	9	3
,, ,, ½"	,,	9	0
,, ,, ⅝"	,,	8	6
,, ,, ¾"	,,	8	6
,, ,, 1"	,,	8	6
,, ,, 1¼"	,,	8	6
,, ,, 1½"	,,	8	6

Cast-iron rain-water pipes of ordinary thickness metal	F.R.	¾" s.	¾" d.	4" s.	4" d.
Shoes	each	2	0	3	0
Anti-splash shoes	,,	4	6	8	0
Boots	,,	3	0	4	0
Bends	,,	2	7	3	9
,, with access door	,,		—	6	3
Heads	,,	4	0	5	0
Swan-necks up to 9" offsets	,,	3	9	6	0
Plinth bends, 4½" to 6"	,,	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal	F.R.		5		6
Stop ends	each		6		8
Angles	,,	1	7	1	11
Obtuse angles	,,	2	0	2	6
Outlets	,,	1	9	2	3

PLUMBER

		s	d.
Lead, milled sheets	cwt.	19	6
,, drawn pipes	,,	19	0
,, soil pipe	,,	19	6
,, scrap	,,	11	6
Solder, plumbers'	lb.		9½
,, fine do.	,,	1	0
Copper, sheet	,,		8½
,, tubes	,,		11

L.C.C. soil and waste pipes:	3"	4"	6"
Plain cast F.R.	1 0	1 2	2 6
Coated ,,	1 1	1 3	2 8
Galvanized ,,	2 0	2 6	4 6
Holderbats each	3 10	4 0	4 9
Bends ,,	3 9	5 3	10 3
Shoes ,,	2 10	4 4	9 6
Heads ,,	4 8	8 5	12 9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	,,	2	10	0
,, fine	,,	4	15	0
Hydrated lime	,,	3	0	9
Sirapite	,,	3	6	0
Keene's cement	,,	5	0	0
Gothite Plaster	,,	3	6	0
Pioneer Plaster	,,	3	3	0
Thistle plaster	,,	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
,, rent	,,		3	9
Lath nails	lb.			3

GLAZIER

	s	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.			s. F.S.	2½
,, 26 oz. ,, ,,			,,	3
Flemish, Arctic, Figures (white)*			,,	7
Blazoned glasses			,,	2 6
Reeded; Cross Reeded			,,	11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite			,,	6
Crown sheet glass (n/e 12 in. x 10 in.)			,,	2 0
Flashed opals (white and coloured)			,, 1 0 and	2 0
¼" rough cast; rolled plate			,,	5½
¼" wired cast; wired rolled			,,	9½
¼" Georgian wired cast			,,	11
¼" Polished plate, n/e 1 ft.			,, †10 to	‡1 1
,, ,, 2			,, †1 2 ,,	‡1 4
,, ,, 4			,, †2 3 ,,	‡2 6
,, ,, 8			,, †2 9 ,,	‡3 2
,, ,, 20			,, †3 7 ,,	‡4 2
,, ,, 45			,, †3 11 ,,	‡4 7
,, ,, 100			,, †5 0 ,,	‡5 7
Vita glass, sheet, n/e 1 ft.			,,	1 0
,, ,, ,, 2 ft.			,,	1 3
,, ,, ,, over 2 ft.			,,	1 9
,, ,, plate, n/e 1 ft.			,,	2 6
,, ,, ,, 2 ft.			,,	3 0
,, ,, ,, 5 ft.			,,	4 0
,, ,, ,, 7 ft.			,,	5 0
,, ,, ,, 15 ft.			,,	6 0
,, ,, ,, over 15 ft.			,,	7 6
"Calorex" sheet 21 oz., and 32 oz.			,, 2 6 and	3 6
,, rough cast ¼" and ¾"			,,	8½ ,, 1 0
Putty, linseed oil			lb.	3

* *Colours, 1d. F.S. extra.*
† *Ordinary glazing quality.* ‡ *Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	8	6
Linseed oil	gall.		2	3
Boiled oil	,,		2	9
Turpentine	,,		4	1½
Patent knotting	,,		14	0
Distemper, washable	cwt.	2	6	0
,, ordinary	,,	2	0	0
Whitening	,,		4	0
Size, double	firkin		3	0
Copal varnish	gall.		13	0
Flat varnish	,,		14	0
Outside varnish	,,		16	0
White enamel	,,	1	15	0
Ready mixed paint	,,		13	6
Brunswick black	,,		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR		£ s. d.
Digging over surface n/e 12" deep and cart away	Y.S.	2 9
,, to reduce levels n/e 5' 0" deep and cart away	Y.C.	8 6
,, to form basement n/e 5' 0" and cart away	,,	9 0
,, ,, 10' 0" deep and cart away	,,	9 6
,, ,, 15' 0" deep and cart away	,,	10 0
If in stiff clay	add ,,	6
If in underpinning	,,	4 0
Planking and strutting to sides of excavation	F.S.	1 0
,, ,, to pier holes	,,	5
,, ,, to trenches	,,	5
,, ,, extra, only if left in	,,	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	,,	1 6 0
,, ,, (4-2-1)	,,	1 12 6
,, ,, underpinning	,,	1 16 0
Finishing surface of concrete, space face	Y.S.	7

DRAINLAYER		4" s. d.	6" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
,, junctions	,,	3 9	4 6
Gullies and gratings	,,	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER		£ s. d.
Brickwork, Flettons in lime mortar	Per Rod	26 10 0
,, ,, in cement	,,	27 12 6
,, Stocks in cement	,,	34 0 0
,, Blues in cement	,,	50 0 0
Extra only for circular on plan	,,	2 0 0
,, backing to masonry	,,	1 10 0
,, raising on old walls	,,	2 0 0
,, underpinning	,,	5 10 0½
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	,,	8
,, ,, ,, red brick facings and pointing	,,	11
,, ,, ,, blue brick facings and pointing	,,	1 4
,, ,, ,, glazed brick facings and pointing	,,	3 6
Tuck pointing	,,	7½
Weather pointing in cement	,,	3
Slate dampcourse	,,	10
Vertical dampcourse	,,	1 1

ASPHALTER		s. d.
½" Horizontal dampcourse	Y.S.	4 6
½" Vertical dampcourse	,,	6 9
½" paving or flat	,,	4 0
1" paving or flat	,,	5 6
1" × 6" skirting	F.R.	1 0
Angle fillet	,,	2
Rounded angle	,,	2
Cesspools	Each	5 0

MASON		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	,,	13 6
Artificial stone and do	,,	13 0
York stone templates, fixed complete	,,	10 6
,, thresholds	,,	13 6
,, sills	,,	1 0 6

SLATER AND TILER		£ s. d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3 10 0
Do., 18" × 9"	,,	3 7 0
Do., 24" × 12"	,,	3 17 0
Westmorland slating, laid with diminished courses	,,	6 0 0
Tiling, best hand-made sand-faced la.id to a 4" gauge, nailed every fourth course	,,	3 0 0
Do., all as last, but of machine-made tiles	,,	2 16 0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	,,	2 16 0
,, ,, ,, ,, ,, (green)	,,	4 15 0

CARPENTER AND JOINER		£ s. d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2 2 6
Shuttering to sides and soffits of beams	F.S.	7
,, to stanchions	,,	7
,, to staircases	,,	1 6
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	,,	4 6
,, ,, roofs	,,	6 6
,, ,, trusses	,,	7 6
,, ,, partitions	,,	8 6
¼" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" ,, ,, ,, ,,	,,	1 17 6
1½" ,, ,, ,, ,,	,,	2 3 0
4" × 2" fir battening for Countess slating	,,	9 0
Do. for 4" gauge tiling	,,	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
,, ,, ,, 2 ,,	,,	2 9
,, ,, ,, 3 ,,	,,	3 3
Stout herringbone strutting to 9" joists	F.R.	10½
1" deal gutter boards and bearers	F.S.	1 2
1½" ,, ,, ,,	,,	1 6
2" deal wrought rounded roll	F.R.	8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼" do.	,,	2 10 0
1½" do.	,,	2 17 0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1½" do.	,,	1 9

CARPENTER AND JOINER—*continued*		s. d.
1½" deal moulded sashes of average size	F.S.	1 9½
2" ,, ,, ,, ,,	,,	1 11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1½" pulley stiles, 1½" heads, 1" inside and outside linings, ¾" parting beads, and with brass faced axle pulleys, etc., fixed complete		3 7
2" ,, ,, ,, ,,	,,	3 10
Extra only for moulded horns	Each	6
1½" deal four-panel square, both sides, door	F.S.	2 0
2" ,, ,, ,, ,,	,,	2 8
1½" ,, but moulded both sides	,,	2 4
2" ,, ,, ,, ,,	,,	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" ,, ,, ,,	,,	1 4
1½" deal tongued and moulded windo board, on and including deal bearers	F.S.	1 9
1½" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	,,	2 6
1½" deal moulded wall strings	,,	2 1
1½" ,, outer strings	,,	2 4
Ends of treads and risers housed to string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1½" × 1½" ,, ,, ,, ,,	,,	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	,,	6 0

SMITH AND FOUNDER		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	16 6
Riveted plate or compound girders, and hoisting and fixing in position	,,	1 0 6
Do., stanchions with riveted caps and bases and do.	,,	19 0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	,,	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER		£ s. d.
Milled lead and labour in flats	cwt.	1 13 0
Do. in flashings	,,	1 16 6
Do. in covering to turrets	,,	2 4 0
Do. in soakers	,,	1 8 6
Labour to welted edge	F.R.	3½
Open copper nailing	,,	3
Close ,, ,,	,,	4

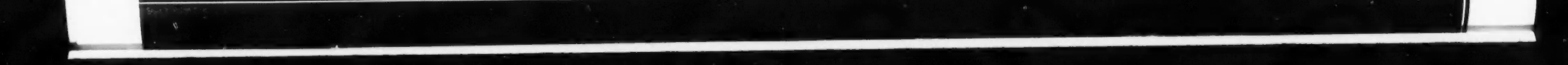
		½" s. d.	¾" s. d.	1" s. d.	1½" s. d.	2" s. d.	4" s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks	,,	—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	,,	6½	8	9	11	1 0	—
Boiler screws and unions	,,	3 3	3 9	5 0	8 0	—	—
Lead traps	,,	—	—	—	6 3	8 9	—
Screw down bib valves	,,	6 9	9 6	11 0	—	—	—
Do. stop cocks	,,	7 0	9 6	12 6	—	—	—

		s. d.
4" cast-iron ½-rd. gutter and fixing	F.R.	1 0
Extra, only stop ends	Each	1 0
Do. angles	,,	1 6
Do. outlets	,,	2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1 2
Extra, only for shoes	Each	1 3
Do. for plain heads	,,	5 6

PLASTERER AND TILING		s. d.
Expanded metal lathing, small mesh	Y.S.	2 0
Do. in n/w to beams, stanchions, etc.	,,	2 9
Lathing with sawn laths to ceilings	,,	1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	,,	1 5
Do. vertical	,,	1 7
Rough render on walls	,,	1 2½
Render, float and set in lime and hair	,,	1 9
Render and set in Sirapite	,,	1 11
Render, backing in cement and sand, and set in Keene's cement	,,	2 9
Extra, only if on lathing	,,	4
Keene's cement, angle and arris	F.R.	6
Arris	,,	
Rounded angle, small	,,	3
Plain cornices in plaster, including dubbing out, per 1" girth	,,	1½
1" granolithic pavings	Y.S.	3 6
1½" ,, ,,	,,	4 6
6" × 6" white glazed wall tiling and fixing on prepared screed	,,	17 6
9" × 3" ,, ,, ,, ,,	,,	1 2 6
Extra, only for small quadrant angle	F.R.	8

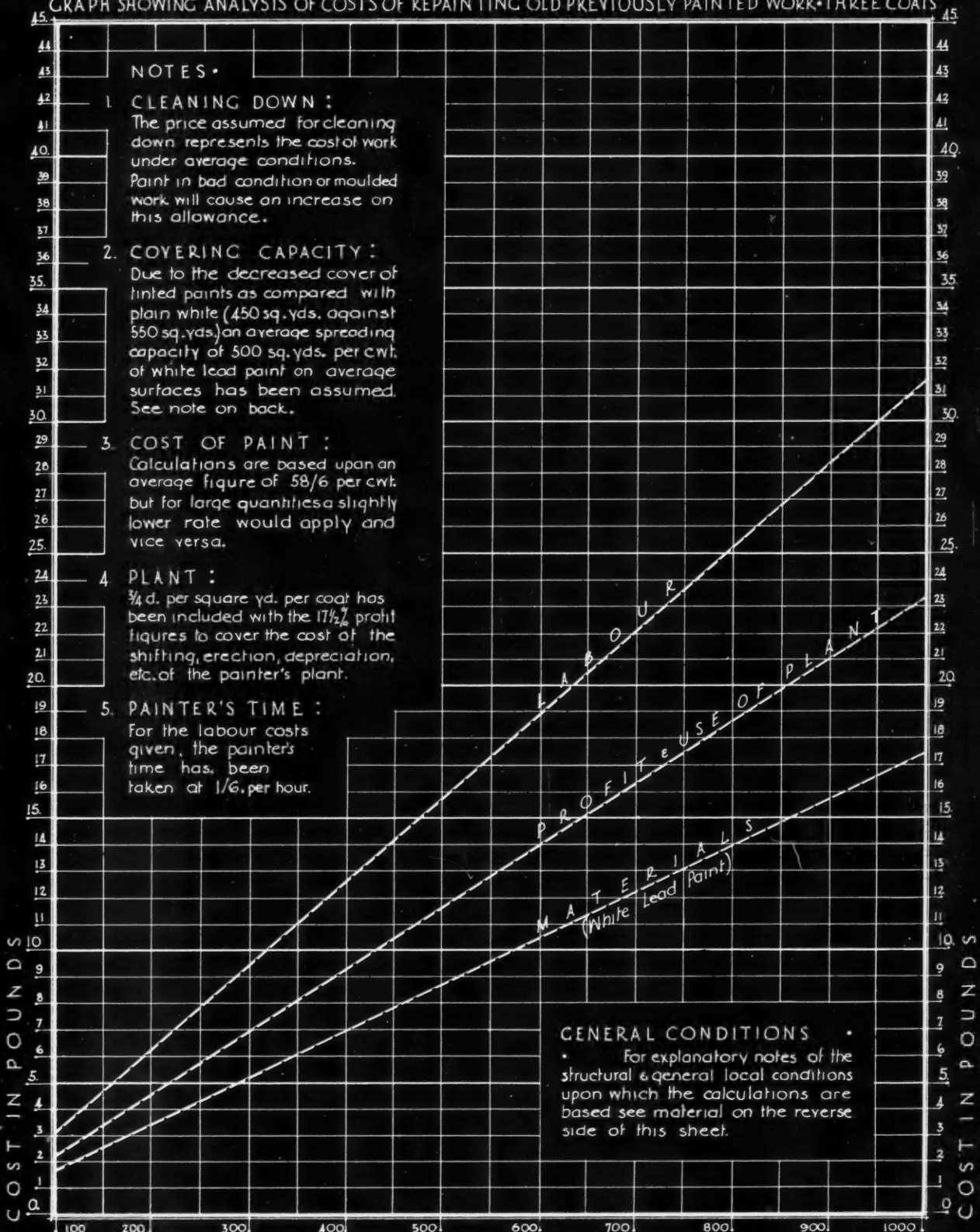
GLAZIER		s. d.
21 oz. sheet glass and glazing with putty	F.S.	6½
26 oz. do. and do.	,,	7½
Flemish, Arctic Figured (white) and glazing with putty	,,	1 1
Cathedral glass and do.	,,	1 2
Glazing only, British polished plate	,,	7
Extra, only if in beads	,,	2
Washleather	F.R.	4

PAINTER		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	,,	9
Do. with washable distemper	,,	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	,,	3 3
Do. on woodwork	,,	3 6
Do. on steelwork	,,	3 0
Do. and brush grain and twice varnish	,,	5 6
Stain and twice varnish woodwork	,,	1 11
Stain and wax-polish woodwork	,,	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper	from ,,	2 9



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GRAPH SHOWING ANALYSIS OF COSTS OF REPAINTING OLD PREVIOUSLY PAINTED WORK • THREE COATS



Information from The White Lead Publicity Bureau.

INFORMATION SHEET • COST ANALYSIS OF REPAINTING • NO. 2 • OLD WORK

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 • Alex. A. Bayne

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 219 •

PAINTING COSTS

Product : White Lead Paints

General :
The graph given in this Sheet is the second of two such, showing the cost analysis of painting work.
The first graph (Information Sheet No. 211) gave an analysis of costs for *new* work, this Sheet gives a corresponding analysis of the cost of *repainting* old work.
In both cases the figures are based on small scale work.

Extent of Works :
The extent of the work to be painted, both as regards area, height above ground, etc., and relative labour and plant cost, has been estimated upon competitive suburban tendering for painting one two-storied house only.
The covering capacities given on this Sheet are average for general painting on plain surfaces, e.g., plaster, woodwork, ironwork, etc. Where paint is applied to more porous surfaces these capacities will be reduced.

Plant :
The use of step ladders, trestles and boards only has been assumed, for which ¾d. per sq. yd. per coat has been allowed to cover getting the plant to the job, shifting it into the various required positions, depreciation, etc.

Progress of Work :
The time required for cleaning down the existing paintwork (100 sq. yds.) has been assumed as 4 hours, the time required for painting 100 sq. yds. has been taken as 14 hours for the first coat, and 12 hours each for the second and third coats.

Cost of White Lead Paint :
First coat at 58s. 6d. a cwt. covering an average of 500 sq. yds. Second and third coats at 58s. 6d. a cwt. each covering 10 per cent. more area than the first coat. (58s. 6d. a cwt. is approximately 14s. 7d. a gallon.)

Rubbing Down :
Labour and materials costs have been included for general damp rubbing down, as is usually required under average conditions when the old surface is not in very bad condition.
If the old surfaces were in very bad condition the cost of complete burning off, etc., would have to be allowed for.

Builders' and Decorators' Profits :
A combined profit of 17½ per cent. has been allocated to the builder and decorator (not including any cash discounts they may obtain by payments to builders' merchants) made up as follows :—
(*a*) 10 per cent. profit on nett cost of materials and labour. In larger contracts this figure would also include profit on water, cartage, fire and workmen's insurance, district surveyor's and quantity surveyor's fee, scaffolding on hire, etc.
(*b*) 5 per cent. for establishment charges, which include expenses in connection with builders' offices and workshops.
(*c*) 2½ per cent. to cover depreciation of plant.

Source of Information : The White Lead Publicity Bureau

Address : Rex House, 38 King William Street, London, E.C.4

Telephone : Mansion House, 2856, 2857

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

ROOF INSULATION ONLY:

COMPARATIVE EFFECTS ON FUEL CONSUMPTION & HEATING PLANT

DATA USED IN THE CALCULATIONS:

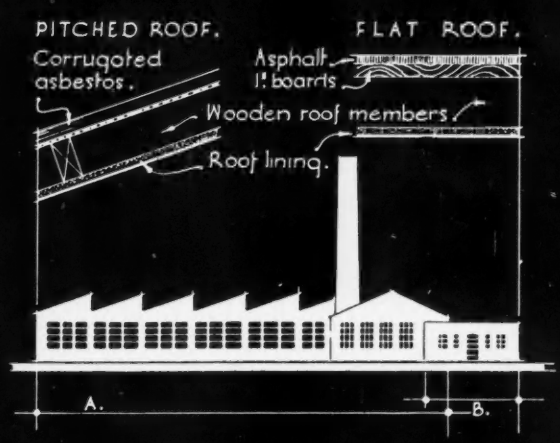
Average EXTERNAL temperature, October 1st. to April 30th. — 43°F.
Minimum EXTERNAL temperature, — 30°F.

THERMAL CONDUCTIVITY (B.T.U's per hour per sq.ft. per °F, for 1" of thickness).
Asbestos cement — 2·7.
Tentest. — 0·38.

TRANSMISSION COEFFICIENTS:
Corrugated asbestos pitched roof. — 1·40.
do. but lined with 3/16" asbestos c'mt sheets. — 0·59.
do. do. 5/8" tentest sheets. — 0·306.

Asphalt on 1" boarded flat roof, — 0·49.
do. but lined with 3/16" asbestos c'mt sheets. — 0·33.
do. do. 5/8" tentest sheets — 0·218.

Diagram showing the sections A & B and the roof construction considered in this analysis:



ANALYSIS OF TEMPERATURE REQUIREMENTS:

SECTION OF BUILDING.	TYPE OF ROOF.	ROOF CONSTRUCTION.	† SQ. FEET OF ROOF LINING.	AVERAGE HEIGHT ABOVE FLOOR.	DO. ABOVE BREATHING LINE (5'0")	TEMP. AT BREATHING LINE.	2% RISE FOR EACH FOOT OF HEIGHT.	AVERAGE TEMP. AT ROOF.	TEMP. DIFF., INTERNAL & EXTERNAL. max. T	av.
A.	Pitched.	See diagrams above.	20,000.	22 Feet.	17 Feet.	55° F.	19° F.	74° F.	44°F.	31°F.
B.	Flat.		3,000.	10 Feet.	5 Feet.	62° F.	6° F.	68° F.	38°F.	25°F.

† Figures given represent total unglazed area of the roof.

NOTE: An annual heating period of 5,000 hours has been assumed (October 1st. to April 30th.) with an effective heating capacity of 6,000 B.T.U's. per pound of fuel, and a heat output from hot water pipes and radiators of 160 B.T.U's. per hour per square foot.

• SECTION A • TYPE OF ROOF LINING. UNLINED.	3/16" asbestos cement.	5/8" TENTEST.	ANALYSIS OF INSULATION.	• SECTION B • TYPE OF ROOF LINING. 5/8" TENTEST.	3/16" asbestos cement.	UNLINED.
•	£.S.D. 113.8.6.	£.S.D. 199.1.6.	CAPITAL COST OF ROOF LINING, Tentest at 1/9½ per sq.yd. for 20,000 Sq.ft. Asbestos C'mt. lining at 1/0¼ per sq.yd. for do.	£.S.D. 29.17.3.	£.S.D. 17.0.4.	•
325.	137.	71.	ANNUAL FUEL CONSUMPTION, in tons of coal.	6·15.	9·25.	13·75.
£.S.D. 406.5.0.	£.S.D. 171.5.0.	£.S.D. 88.15.0.	VALUE OF FUEL CONSUMED, at 25/- a ton.	£.S.D. 7.13.0.	£.S.D. 11.11.3.	£.S.D. 17.5.0.
•	£.S.D. 235.0.0.	£.S.D. 317.10.0.	SAVING IN COST OF FUEL PER YEAR, over unlined roof.	£.S.D. 9.12.0.	£.S.D. 5.13.9.	•
£.S.D. 1732.10.0.	£.S.D. 729.0.0.	£.S.D. 378.0.0.	CAPITAL COST OF HEATING INSTALLATION at 4/6 per sq.ft. of heating surface.	£.S.D. 35.2.0.	£.S.D. 52.17.6.	£.S.D. 78.15.0.
•	£.S.D. 1003.10.0.	£.S.D. 1354.10.0.	SAVING IN CAPITAL COST OF ABOVE, over unlined roof.	£.S.D. 43.13.0.	£.S.D. 25.17.6.	•

Information from the Tentest Fibre Board Co. Ltd.

(1.)

INFORMATION SHEET: COMPARATIVE THERMAL INSULATION OF BUILDINGS.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 · Olive A. Bayne

Supplement to THE ARCHITECTS' JOURNAL for May 16, 1935

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 220 •

THERMAL INSULATION

Product : Tentest Fibre Board

General :

This is the first of a series of Sheets in which the insulating value of various forms of construction will be analysed.

For this purpose a common type of building has been taken. A factory having a small office block and a larger workshop.

This typical building will also form the basis on which all succeeding Sheets will be calculated ; the analysis given on one Sheet will therefore be comparable with those given on any other Sheet.

As will be seen from this Sheet, only the roofs of the buildings are dealt with, as it is intended to analyse in this way various types of roof construction, and, separately, various types of wall construction.

This method, by separating entirely the calculations for the roof from those for the walls, will allow the figures for any type of roof to be used in conjunction with the figures for any type of wall, in order to determine the combined effect.

Basis of Calculation :

The figures used as the basis of these calculations are set out on the face of this Sheet, and normal practice and figures have been followed throughout.

Annual Fuel Consumption :

The fuel consumptions given are based on the calculations given in the tables opposite.

Lining :

It will be noticed that in giving the cost of alternative linings, variations in the cost of fixing have not been taken into account, the price given being the cost of the material itself.

Information from : The Tentest Fibre Board Co.

Address : Astor House, Aldwych, London, W.C.2

Telephone : Holborn 8018

Fuel Consumption in tons = $\frac{\text{Area in ft.}^2 \times \text{transmission Coeff.} \times \text{Average Temp. diff.} \times \text{hours/year.}}{\text{B.T.H. per lb. fuel} \times 2{,}240}$

Section A.

Unlined fuel/year	$\frac{20{,}000 \times 1{\cdot}4 \times 31 \times 5{,}000}{6{,}000 \times 2{,}240}$	= 325 tons.
Asbestos Cement Sheet Lining	$\frac{20{,}000 \times 0{\cdot}59 \times 31 \times 5{,}000}{6{,}000 \times 2{,}240}$	= 137 tons.
Tentest Lining	$\frac{20{,}000 \times 0{\cdot}506 \times 31 \times 5{,}000}{6{,}000 \times 2{,}240}$	= 71 tons.

Section B.

Unlined fuel/year	$\frac{3{,}000 \times 0{\cdot}49 \times 25 \times 5{,}000}{6{,}000 \times 2{,}240}$	= 13·75 tons.
Asbestos Cement Sheet Lining	$\frac{3{,}000 \times 0{\cdot}33 \times 25 \times 5{,}000}{6{,}000 \times 2{,}240}$	= 9·25 tons.
Tentest Lining	$\frac{3{,}000 \times 0{\cdot}218 \times 25 \times 5{,}000}{6{,}000 \times 2{,}240}$	= 6·15 tons.

Capital Cost of Heating Installation.

Capital Cost £ = $\frac{\text{Area in ft.}^2 \times \text{Transmission Coeff.} \times \text{Max. Temp.} \times \text{Diff.} \times \text{Cost per ft.}^2}{\text{Heat output per ft.}^2 \text{ radiation}}$

Section A.

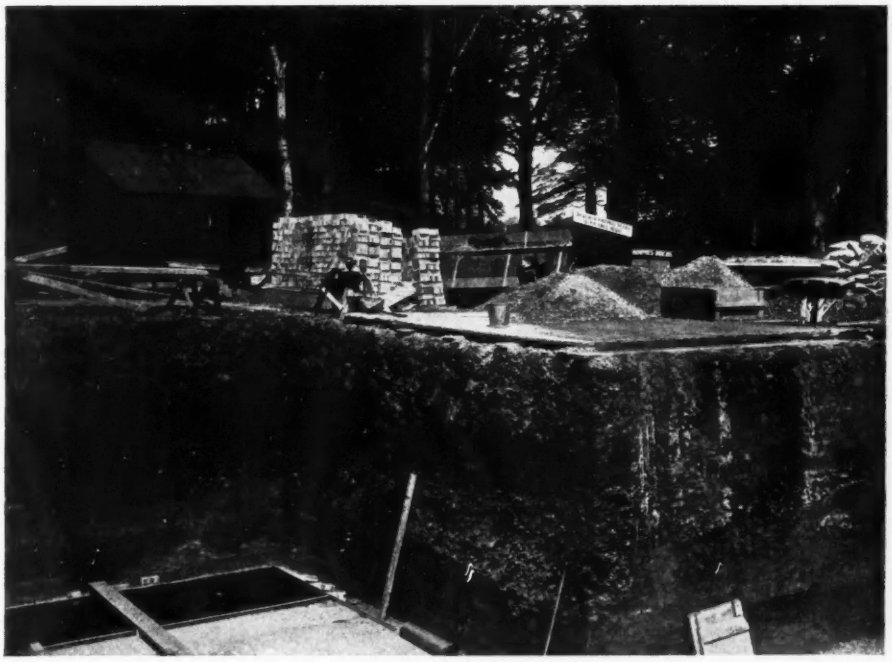
Unlined Capital Cost ...	$\frac{20{,}000 \times 1{\cdot}4 \times 44 \times 4{\cdot}5}{160 \times 20}$	= £1,732 10 0
Asbestos Cement Sheet Lining	$\frac{20{,}000 \times 0{\cdot}59 \times 44 \times 4{\cdot}5}{160 \times 20}$	= £729 0 0
Tentest Lining	$\frac{20{,}000 \times 0{\cdot}306 \times 44 \times 4{\cdot}5}{160 \times 20}$	= £378 0 0

Section B.

Unlined	$\frac{3{,}000 \times 0{\cdot}49 \times 38 \times 4{\cdot}5}{160 \times 20}$	= £78 15 0
Asbestos Cement Sheet Lining	$\frac{3{,}000 \times 0{\cdot}33 \times 38 \times 4{\cdot}5}{160 \times 20}$	= £52 17 6
Tentest Lining	$\frac{3{,}000 \times 0{\cdot}218 \times 38 \times 4{\cdot}5}{160 \times 20}$	= £35 2 0

PROGRESS AT BURHILL

FOUNDATIONS TO THE KING'S HOUSE



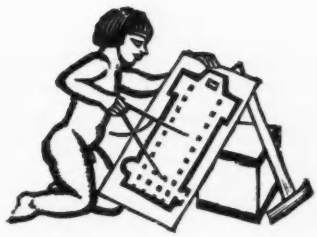
AT Burhill, Surrey, the house that is to be presented to the King by the Royal Warrant Holders' Association, is now in active construction. This photograph shows work in progress, looking across the excavations for the foundations. The architect is Mr. C. Beresford Marshall, L.R.I.B.A.





NATIONAL PAVILIONS AT BRUSSELS

Among the pavilions put up by the various nations partaking in the Brussels Exhibition those with most architectural merit belong, as often seems to be the case on such occasions, to the Scandinavian countries and Holland; also, on this occasion, to Switzerland and Italy. Here photographs of two of them are shown. Top, the Finnish pavilion; bottom, the Swiss pavilion.



THE RIBBON DEVELOPMENT BILL

ARCHITECTS will be among the first of the public to give their general approval to the Bill which was read for the second time in the House of Lords on May 7. As members of a profession which has persistently pointed out during twelve years the injuries being increasingly inflicted upon the countryside surrounding our larger towns by the ribbon development of building estates, a feeling of satisfaction will be common to all that at last something is to be done to save what is left to save.

But after this first and spontaneous response towards the objects of the Bill it is possible that there may come another more cautious. It will be realized that during fifteen years vested interest must have gathered about the "how you like and where you like" policy in building development. It will be realized that there are two sides to the question of ribbon development: that it is bad planning, and therefore in the long run uneconomic, and that the houses of which it is composed do not in many cases contribute to the amenities of the country.

Before yielding more than a general support to the Bill architects, as well as others, will desire to learn its remedy for both these evils. And it must be confessed at once that, save by permitting local authorities to buy up land within 220 yards of any road, with a view to safeguarding amenities and guiding future development, the second aspect of the problem receives little attention. The Bill is one of constraint rather than of reorganization or selection, and the approval of architects will be granted to it more as assistance in the rejection of an obviously bad solution to a problem in large-scale planning than as support to a measure of constructive legislation.

In brief, the Restriction of Ribbon Development Bill provides that in the event of its becoming law the consent of the local highway authority will be necessary before the erection of any building within 220 feet of the centre of a classified road, or before the forming of any side road branching from it. So much for the 43,000 miles of classified roads in this country. In regard to the remaining 134,000 miles, the local authority is empowered to fix for each a standard width, varying from sixty to a hundred and sixty feet according to its conception of the proper future use of the road. Without the permission of the authority no building will be allowed within a distance of half the scheduled standard width from the centre of the road.

Such are the broad provisions of the Bill, regarded alone and not as being superimposed upon any existing town-planning schemes which may be in operation in the various areas. At first sight they would seem to promise something if not a great deal. They would ensure that such classified roads as are yet unbuilt upon would be protected in the future by a green, or at the least a vacant, belt seventy yards wide on each side against both too near a view of the dwellings, sometimes not very pleasing in appearance, and also against the traffic problems that arise upon main roads that are also residential streets. And in their turn minor roads would be protected by similar if narrower strips.

It would serve no good purpose to be hypercritical of this first tentative policy of action in a sphere in which action is so greatly necessary, but one or two weak points in the Bill as it stands may be mentioned. It is, firstly, dependent for its efficacy upon the co-operation of the many highway authorities and upon their willingness to face up to probable claims for compensation. This point should be borne in mind. But far more important is the necessity for visualizing the effect of the Bill upon future building development were its provisions to be fully enforced.

The estate developer of the future will still, in most cases, aim only at immediate cheapness, and it is more than doubtful whether any form of grouped settlement set back from the main road will fulfil this essential condition. If as a general rule the highway authorities permit access to main roads only every half mile it is likely that the keeping of the land and service costs of an estate at an absolute minimum may point the way to a familiar solution. Two such points of access will be joined by the lightest permissible road, running in or as near as possible to the neutral belt, and dwellings fronted upon it—ribbons once again. And, save for the gain to the traffic upon the main road and the increase in the price of each house, little will have been achieved.

Such a forecast may be pessimistic, but that it is by no means impossible forms a part of the last and most fundamental criticism that should be considered in regard to the Bill. This lies in the hand-to-mouth nature of its whole conception. Tacitly this Bill admits the disorganization in lay-out and building development now prevalent in the areas extending for twenty-five miles round our larger cities. By insulating the traveller and the city dweller on his way to the country from the realization of the worse aspects of this disorganization its promoters would seem to hope that the evil will quietly cure itself, out of sight and out of mind.

Ribbon development is a term easily comprehended, and in some cases an eyesore widely objected to. A remedy for it—any remedy for it—is likely to prove a popular measure and to command wide support. But in reality it remains a small part of an infinitely greater problem—a mere by-product of a wide disorganization in the development of a country far too small for such obstructions in the way of its planned and logical growth.



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NOTES & TOPICS

LAWRENCE OF ARABIA

THE late T. E. Lawrence's more spectacular exploits, and the even more spectacular mystery his elusive way of living engendered, rather overshadowed his distinction as an archæologist ; though it was as such that he first entered Arabia.

*

Doughty, whom Lawrence profoundly admired, might well have supplied the pattern for his existence, if affairs had not intervened to turn a seventeenth-century personality of adventurous intellect into a twentieth century one of adventurous activity.

*

His contact with architecture comes closer than archæology ; an architect, Sir Herbert Baker, was numbered among those admitted to his friendship. It was in a room on the top floor of Sir Herbert Baker's office that the one contribution he has left behind him, besides the legend of his career, was written : the *Seven Pillars of Wisdom*.

WATER COLOUR V. ARCHITECTURE

In the Architecture Room at the Royal Academy I noticed a charming little measured drawing of a cathedral porch which a correspondent tells me was submitted not as " architecture " but as a " water colour." (My correspondent quotes the author of the drawing.)

*

Why, then, one is tempted to ask, was it not hung in the Water Colour Room, making space for another contemporary building in the Architecture Room ? One has a horrid suspicion that this little drawing may not be the only " water colour " taking up wall space in that corner gallery which, we all think, has small enough area already.

THE LATEST DANCE

On Monday night I attended the final dance of the season at the R.I.B.A. The new building naturally attracts a larger crowd than did the old Conduit Street premises, and numbers of people are said to have been turned away from the last three dances.

*

That 300 members and their guests should dance from 9.0 till 2.0 a.m. and festoon the Wornum staircase with a brilliance of colour is surely an achievement for any learned society.

ALBERTO SARTORIS

In point of fact the architect of the " scandalous " church of Lourtier (to which I referred last week) is not a Communist, but a quite official Fascist, who was one of the first ardent young Italians to enrol with Mussolini. It would be hard to find a gentler and more selfless " extremist " than Alberto Sartoris, or one with a profounder reverence for tradition—understood as a perennially revitalizing force, not an excuse for sterile historical imitations.

*

Sartoris began as a Cubist, but in 1920 he came under the dynamic influence of Marinetti, who inspired him to follow in the footsteps of Sant'Elia—the remarkable Lombardian precursor of Functionalism who was killed in the war before he could carry out any of his prophetic designs—and " save Italian architecture " by preaching Futurism throughout the length and breadth of the peninsula.

*

In 1928 he founded the Italian Group of Rationalist Architects, and the year following the review *La Citta Futurista*. When convinced that the New Architecture had taken firm root, Sartoris left Italy to avoid any suspicion of caring more for fat commissions than the cause of architecture—the taunt he had so often flung at " reproductory " architects.

*

From his Swiss home on the Lake of Geneva he emulates those Italian architects of past centuries " who worked abroad not without leaving lasting traces of their sojourn." I will hazard the prediction that it will not be long before he is officially recalled to Italy for tasks worthy of his mettle.

*

Italy may well be proud of Sartoris as a wholly disinterested pioneer and one of the few really significant modern architects. His work, which is well described as " rigidly exact forms engendered by rigidly exact thinking," has been exhibited in over sixty cities of Europe and America. But if he has been too active a propagandist to have built much, his contribution includes the first functional building in Italy (an Artisans' Club in Turin),



The main street at the Brussels Exhibition. See also page 788.

several villas and shops, a large block of flats at Vevey, a small theatre and music school, and a mill in Rheims.

*

As a critic of modern painting and sculpture, Sartoris has an international reputation, and there is hardly an architectural paper in any country to which he does not contribute. His books include a fine polemical monograph on Sant'Elia, and the standard work in Italian on the New Architecture. A new edition of the latter has just been published in which MARS claims a not inconsiderable place for England.

THE SALARIED ARCHITECT

I see that there have been protests at the City Corporation against the large discrepancies in the salaries paid to some of its servants.

*

It was proposed to pay a qualified chartered surveyor £1,200 a year, rising by £50 a year to £1,500. As against this a third-class assistant was to receive £60 a year, rising by £10 a year to £200.

*

I agree with Mr. Barry, who raised the point, that for years young men who had to have both education and qualification could not get a living on such a low basis of salary. It is not generally realized how very exacting and comparatively expensive an architect's or surveyor's training is. With doctors every body has at least an idea that fees have to reimburse a very considerable outlay in years and money.

*

£200 a year is not a princely sum to pay to a man who has devoted, say, even three years to an intensive study of any job whatever. And when he has to work for fourteen years before he draws even that amount I am inclined to think that a protest may be justified. It is, presumably, a case for the A.A.S.T.A.

THE INHERITANCE

The Jubilee streamers and flags depart, but the repainted and redecorated buildings remain to enliven our streets for several months at least. They ought to look good, too, for quite a lot of important people have been consultants for the repainting of important buildings.

*

Even in Tottenham Court Road, I noticed an ex-president of the Institute of British Decorators standing unconcerned among the traffic, encouraging the foreman to put "just a leetle more gilt" on the top member of the uppermost cornice.

*

In the suburbs, too, the flags are coming down and the half-timbering is being nailed up again—and very nice it looks, with its bright new coat of paint in the fashionable rose and pale blue tints.

MOPIN

Eighteen months or so ago, when the Mopin system of construction first formed the subject of technical articles in this country, many architects shook their heads, remembered the crop of patent constructions (mostly unpractical) which followed the Armistice, and didn't bother to read the articles. A few saw in this system of pre-fabricated standardized units an important contribution towards the cheaper housing problem.

*

And now I see that Leeds has taken the initiative and invited tenders for the erection of 239 flats on the Mopin system. Local authorities throughout the country will await the result of this enterprise with considerable interest.

*

The Garchey system of refuse disposal is also to be included. It is not unreasonable that with the prospect of the cost of building down, the standard of comfort should go up.

EXHIBITS WITHOUT EXHIBITION

In London and in the provinces there are always any number of exhibitions to be seen of painting and sculpture ; but the difficulty about any I ever see is the old one of not being able to visualize any single exhibit as a decoration in a room.

*

This difficulty, I am glad to see, is being seriously tackled by the Architectural Association, wh ch each month proposes to invite groups of artists to embellish the two members' rooms with paintings and pieces of sculpture. The idea is to avoid any sense of exhibition, but to keep the unity of the *room* uppermost in mind, rejecting any work which does not help the room.

*

This is admirable. I shall watch the experiment with the greatest of interest ; if it is a success, then where Bedford Square leads . . . I have visions of brighter clubs, resurrected waiting rooms, more gracious public buildings and even more popular premises for all our learned societies.

NAMES ?

One or two correspondents write to me to point out that many of the architects of the flats illustrated in the special number of the JOURNAL bear foreign sounding names.

*

I am, of course, flattered that these letters should be addressed to me, but in all humility I must protest (*a*) that I am not the Editor of this delightful JOURNAL, and (*b*) that I am very sorry indeed that the architects who bid fair to make some contribution to the solution of our building problems do not bear the more familiar sounding names of Smith or Jones or Robinson. ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

The London County Council proposes to acquire 50 acres of the White City exhibition ground at Shepherd's Bush for development as a housing estate 792

A decision is expected next month on whether a particular architect will be chosen to prepare a aesign for the new St. George's Hospital, or whether a competition shall be held 792

The premiated designs in the competition for proposed municipal buildings, Wembley 793

"*A skyscraper, like an elephant, is more easily recognized than defined*" 802

CAMBRIDGE GUILDHALL CONTROVERSY ENDED

After six months of controversy over the proposed elevation of the new Cambridge Guildhall the Town Council has approved the recommendation of its special committee that tenders should be invited for the erection of the building to the design and elevation already approved, with the addition of the fourth floor.

L.C.C. TO BUILD AT WHITE CITY

The London County Council proposes to acquire 50 acres of the White City exhibition ground at Shepherd's Bush for development as a housing estate. The site abuts on Westway and Bloemfontein Roads at the western end of the old grounds.

The cost of purchase and of the development of the site is estimated at £500,000. The proposal will come before the Council for confirmation at its next meeting.

THE NEW ST. GEORGE'S HOSPITAL

A decision is expected next month on whether a particular architect will be chosen to prepare a design for the new St. George's Hospital, Hyde Park Corner, or whether a competition shall be held. The Duke of Kent, addressing the Annual Court of Governors last week, said a committee was busy collating data which it was hoped would provide "a building second to none in beauty and usefulness."

NEED FOR NEW BUILDING METHODS

The need for new building methods in this country was urged on May 17 by Mr. A. C. Bossom, F.R.I.B.A., M.P., in an address to the Society of Engineers. The present Minister of Health, he said, was the first man to visualize the entire problem of housing. Within five years this country would be free of slums and it would be the only nation in the world to be free of them.

But there must be national planning. Modern methods must be used, and all unnecessary waste cut out. By the time and progress schedule, which had been introduced in the United States, it was arranged before the job was started what material would follow another, how many men would be needed and so on. In this country we were paying a colossal national tax by not revising our building methods. Revision would permit a material reduction of costs, and the poorest workers would then be able to afford appropriate accommodation anywhere, except in those parts of cities where the cost of land itself was high.

THE ARCHITECTS' DIARY

Thursday, May 23

ROYAL ACADEMY, *Burlington House, Piccadilly, W.1. Summer Exhibition. Open until August* 10. *9 a.m. to 7 p.m.*

LONDON SOCIETY. *Visit to the Royal Normal College for the Blind, Upper Norwood, S.E.*19. *2.30 p.m.*

WHITECHAPEL ART GALLERY, *High Street, E.1. Exhibition of Mural Decorative Paintings. Until June* 15.

12 noon to 9 p.m.; Sundays, 2 to 9 p.m.

R.I.B.A. EXHIBITION OF INTERNATIONAL ARCHITECTURE. *At the Walker Art Gallery, Liverpool. Until June* 20.

MUNICIPAL SCHOOL OF ARTS AND CRAFTS, *Birmingham. Exhibition of Students' Work. At the Museum and Art Gallery. Until May* 25. *10 a.m. to 5 p.m.*

Friday, May 24

TOWN PLANNING INSTITUTE. *At Caxton Hall, Caxton Street, Westminster, S.W.1. "The Plan of Greater Paris." By M. Louis Dausset. 6 p.m.*

ROYAL SANITARY INSTITUTE. *At the Town Hall, Carlisle. "Housing, with special reference to Overcrowding." By Dr. Allan Semple and W. Hanson. 5 p.m.*

Saturday, May 25

ROYAL SANITARY INSTITUTE. *At the Town Hall, Carlisle. "Some Recent Developments in Carlisle." By Percy Dalton. 9 a.m.*

Tuesday, May 28

ARCHITECTURAL ASSOCIATION, 36 *Bedford Square, W.C.1. "The Swimming Pool and other recent work at Wembley Stadium," by Sir E. Owen Williams, K.B.E.; and election of officers and council for session* 1935–1936. *8 p.m. Also Exhibition of working drawings of recent work at Wembley Stadium. Until June* 28. *10 a.m. to 10 p.m.*

Wednesday, May 29

CONWAY HALL. *Lecture: "Art and Propaganda," by Eric Gill. Admission* 1/-. *8.15 p.m.*

WATERLOO BRIDGE

At last week's meeting of the London County Council Mr. G. R. Strauss, Chairman of the Highways Committee, said it was hoped demolition work on the old Waterloo Bridge would be sufficiently advanced to enable work on the new bridge to start about the middle of next year.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND

A meeting of the Council of the above Institute was held at Dublin on May 10. The President, Mr. H. Allberry, occupied the chair.

The Hon. Secretary was directed to make the preliminary arrangements with the Master Builders' Association in connection with a proposed deputation to the Department of Local Government and Public Health on the question of divided contracts.

The Hon. Secretary of the Board of Architectural Education, Mr. W. H. Howard Cooke, reported that the assessors appointed to examine the designs submitted for the Institute Travelling Scholarship recommended that the prize should be awarded to Mr. Basil R. Boyd Barrett, and this recommendation was confirmed.

COMMONWEALTH FELLOWSHIP AWARD

Mr. Frank Hudson Littler, a graduate of the Liverpool School of Architecture, has been awarded the only Commonwealth Fund Fellowship to be given for architecture this year.

The Fellowships, which have an approximate annual value of 3,000 dollars, were founded over ten years ago by the Directors of the Commonwealth Fund of New York in order to enable British students to pursue post-graduate study and research at certain American universities.

For the next two years in the United States Mr. Littler will concentrate on aircraft design, and he will be working principally at the Massachusetts Institute of Technology and Harvard University.

SPECIFICATIONS FOR WATER FITTINGS

The British Standards Institution has received a request from the Ministry of Health to prepare a British Standard Specification for water fittings. In accordance with the usual practice of the Institution, a Conference of all interests concerned will be held, on May 30, to ascertain whether there is a consensus of opinion favourable to the work being undertaken and that it is to fulfil a generally recognized want.

BLUE CIRCLE PLAYERS

On the occasion of the Conference of the Institution of Structural Engineers in London, the Blue Circle Players, on May 8, gave a performance of John Galsworthy's *Loyalties* at the Arts Theatre Club. The play was a great success. It is pointless to single out any one member of the cast for praise; team work, as in all "straight" plays, is the most important point, and each of the seventeen players proved his (or her) ability successfully to accomplish this aim.

ADVANCED ART EDUCATION

The President of the Board of Education (Viscount Halifax) has been considering the steps that should be taken to improve the education of designers of the highest class and the part that the Royal College of Art, as the National College, ought to play in such a development, while at the same time making the best possible provision for the teaching of Fine Art. To advise him in the matter he has appointed a Committee with the following terms of reference:—

"To consider and advise, how far the provision in London for the teaching of Fine and Applied Art on the highest plane would be advanced by a closer correlation of the work and the organization of the Royal College of Art with that of other institutions of similar standing in London, as to the measures necessary to secure any closer correlation which may be found to be desirable and practicable, and as to the

character of any new buildings which may be required."

The Committee is constituted as follows: Viscount Hambleden (Chairman), Mrs. E. M. Lowe, Mr. J. P. Blake, Professor W. G. Constable, Mr. H. Curwen, Mr. E. M. O'R. Dickey, Mr. C. Eaton, C.B., Mr. A. S. Hoskin, Mr. W. R. M. Lamb, C.V.O., Mr. F. J. Marquis, Dr. A. Mawer, Mr. F. M. Morris, Sir Ernest Pooley, Mr. W. L. Stephenson, Mr. C. B. L. Tennyson, C.M.G., Mr. W. H. Webbe, C.B.E., and Mr. J. G. West, O.B.E.

Mr. B. P. Moore, of the Board of Education, will act as Secretary to the Committee and Mr. A. E. Percival, of the Board of Trade, as Assistant Secretary.

R. I. B. A.

ELECTION OF MEMBERS

At a meeting of the Council of the Institute, held on May 13, the following members were elected :—

As HON. CORRESPONDING MEMBER (1) : M. Maigrot (Paris).

As FELLOWS (8) : Messrs. A. E. Batzer ; N. F. Cachemaille-Day ; A. Hale ; G. N. Hill ; R. G. Lovell ; J. G. McBeath ; D. S. Petrovitch and R. B. Craze.

As ASSOCIATES (11) : Messrs. A. F. Barnard ; J. Bland ; D. M. Cowin ; G. M. Geers ; L. F. Hurley ; L. E. Knight ; G. G. Laidler ; A. C. Light ; B. V. Martin ; J. Robertson and B. A. Simpson.

As LICENTIATES (8) : Messrs. K. R. Brady ; W. H. Clough ; R. J. Collins ; C. H. Davis ; C. Fernie ; L. H. Fewster ; A. R. Walsingham and E. G. Williams.

EXAMINATIONS

At the R.I.B.A. Statutory Examination for the Office of District Surveyor in London, held on May 1, 2 and 3, seven candidates presented themselves, and the following were successful in the examination : Messrs. Henry G. Castleman, William Jones and Walter B. Young.

At the R.I.B.A. Examination for the Office of Building Surveyor under Local Authorities, held on May 1, 2 and 3, four candidates presented themselves, and the following were successful : Messrs. William J, H. Cowling, Frank B. Sharpe and George W. Streatton.

COMPETITION NEWS

MUNICIPAL OFFICES, YORK

In connection with the competition for designs for municipal offices on the Castle site the York Corporation recommends, in addition to the premiums already agreed of £250, £150 and £100, that there shall be a fourth of £50. It has been decided that the buildings shall be faced with stone.

LUMPS FORT SITE, PORTSMOUTH

The Portsmouth Corporation has arranged terms for the competition for the development of the Lumps Fort site at Southsea.

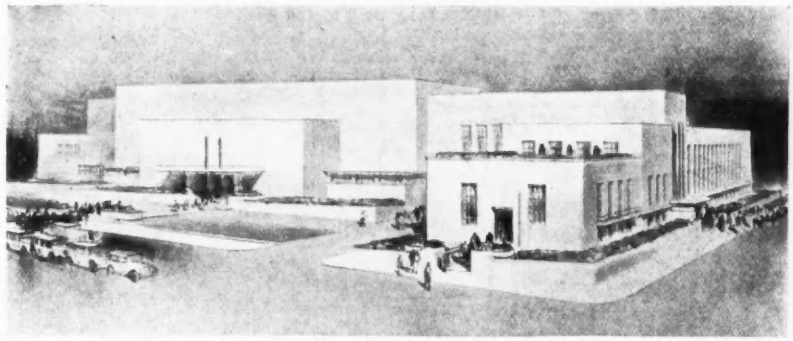
The first premium is to be £350, and £200 will be divided between the authors of the designs placed second, third and fourth, respectively.

The scheme, which is estimated to cost £150,000, will include a winter garden, bathing pool, central café, shelters, etc.

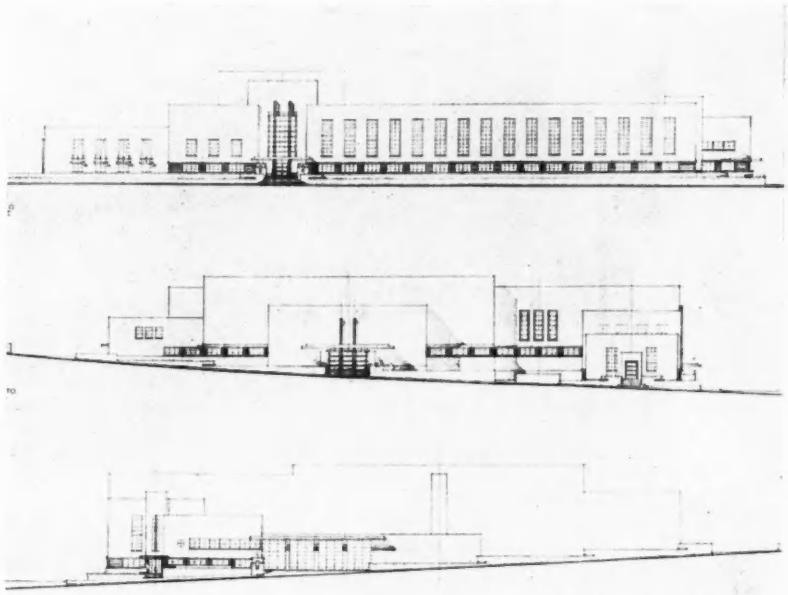
The assessor is Mr. E. Prentice Mawson.

THE WEMBLEY COMPETITION

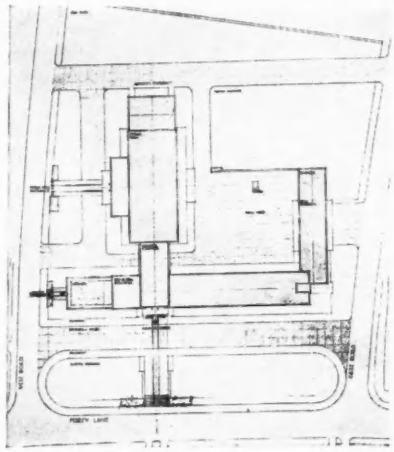
WINNING DESIGN: BY CLIFFORD STRANGE



A perspective by William Suddaby.



Elevations to Forty Lane (top), West Road (centre), and East Road (bottom).



Lay-out plan.

Mr. Stanley Hamp, F.R.I.B.A., the assessor in the competition for proposed municipal buildings, Wembley, has made his award as follows :—

Design placed first (£300) : Mr. Clifford Strange, of 16 King Street, London, W.1.

Design placed second (£250) : Messrs. Arthur W. Kenyon and Stanley G. Livock, FF.R.I.B.A., of 21 Bedford Square, London, W.C.1.

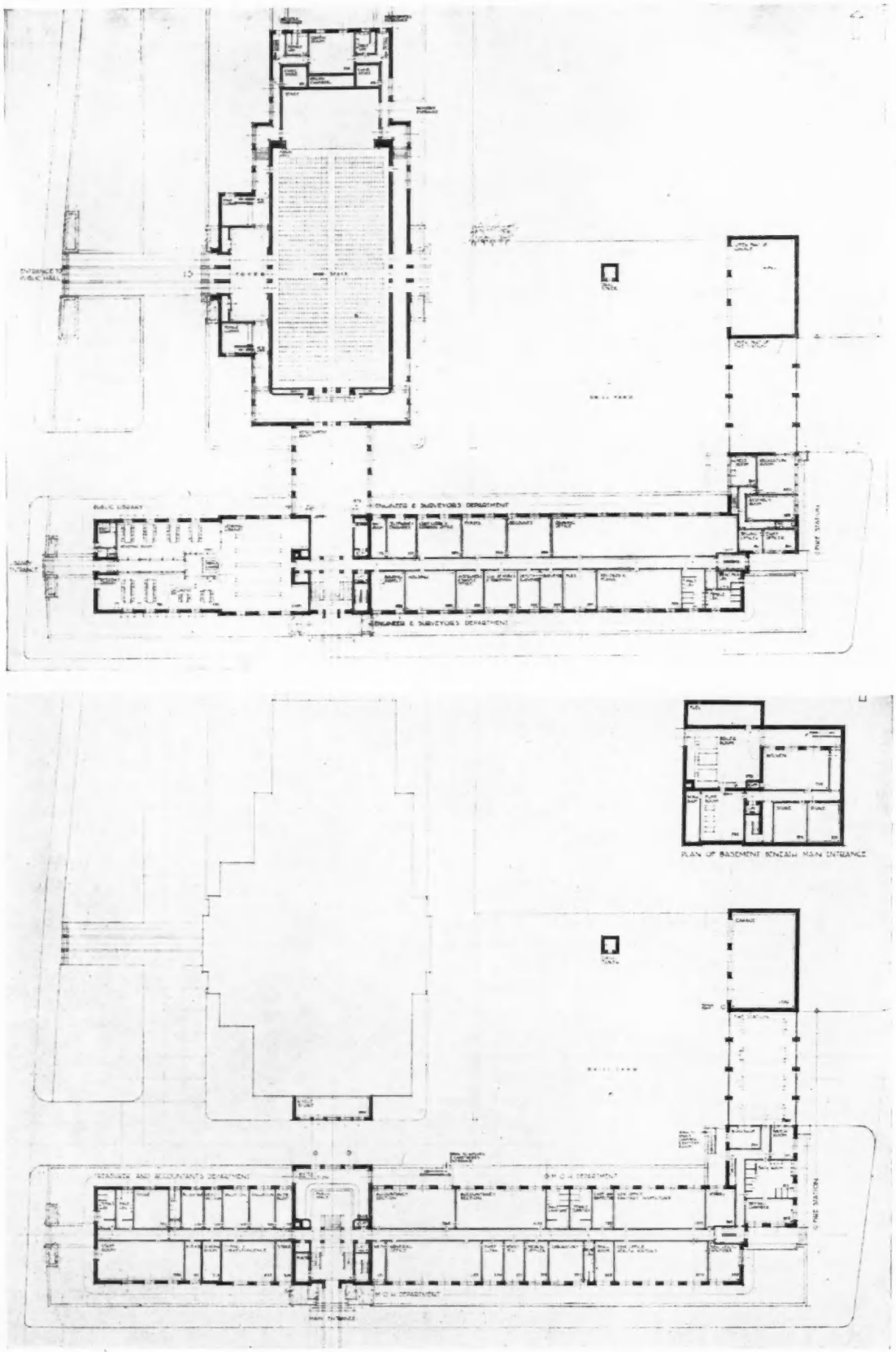
Design placed third (£150) : Messrs. E. D. Lyons and L. Israel, A.R.I.B.A., of 33 Vaughan Gardens, Ilford.

Design placed fourth (£100) : Messrs. R. Owen Vine and C. Malcolm Vine, AA.R.I.B.A., of Tudor Chambers, Station Road, Wood Green, N.22.

The designs submitted by the following competitors were commended : Messrs. H. R. Collins and A. E. O. Geens, F. and A.R.I.B.A., of 15 Westover Road, Bournemouth ; and Messrs. R. G. Cox and Arthur M. Mitchell, of Broadway Chambers, 60a High Street, Acton, W.3.

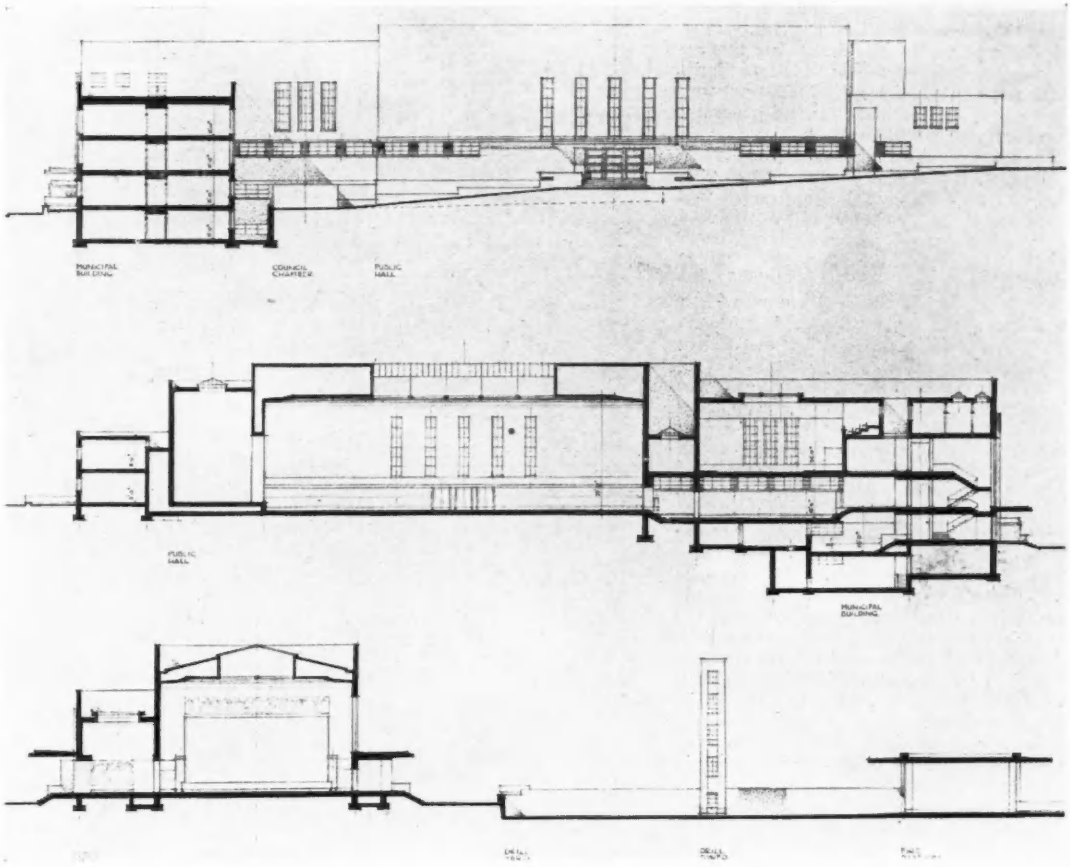
Extracts from the assessor's report are given on page 796.

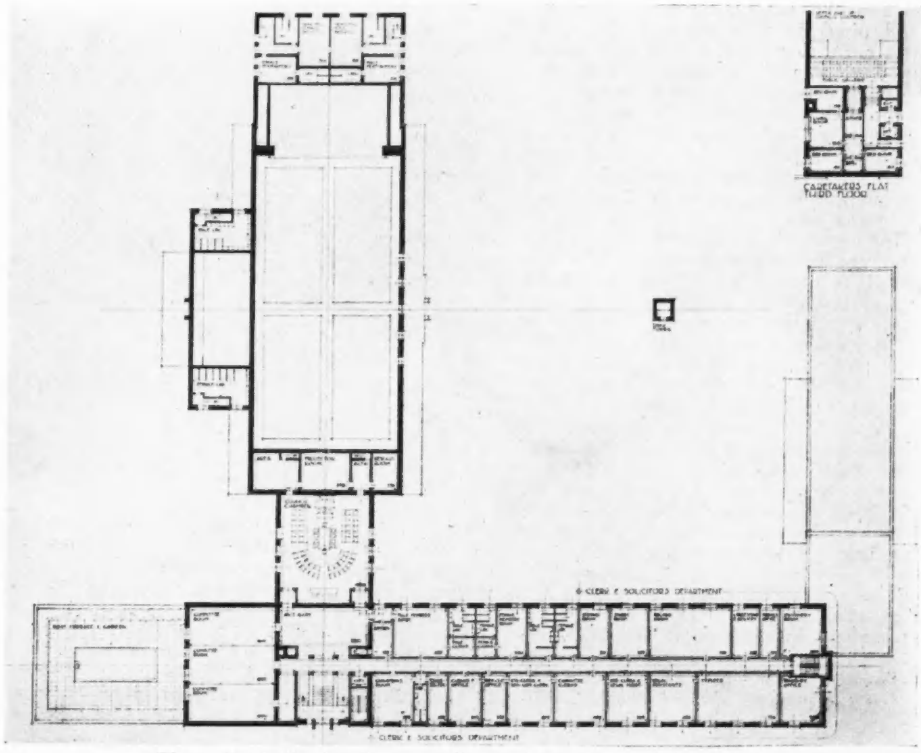
COMPETITION FOR MUNICIPAL BUILDINGS, WEMBLEY:



Top, first floor plan; bottom, ground floor plan.

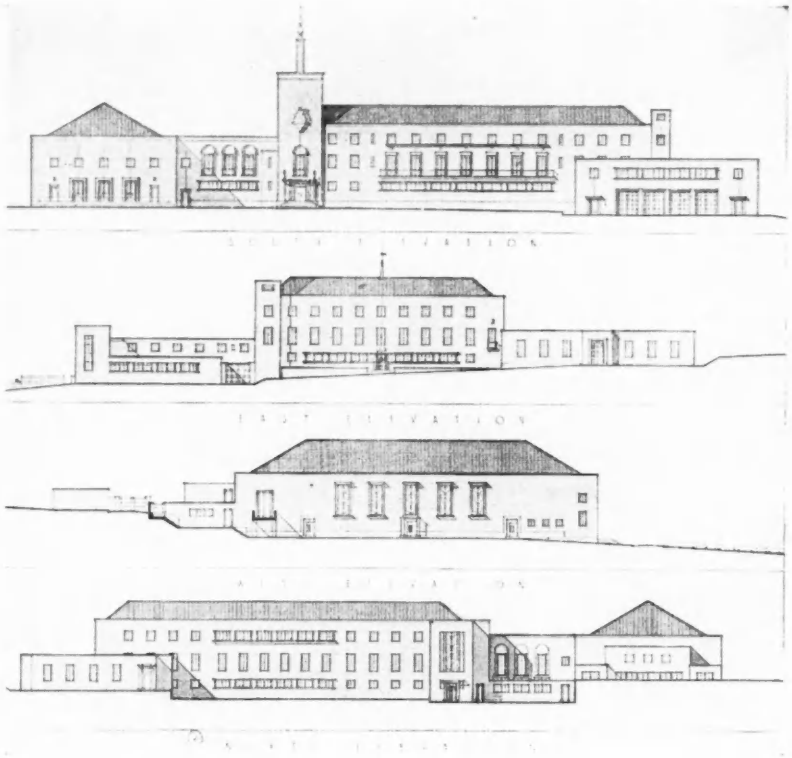
WINNING DESIGN: BY CLIFFORD STRANGE

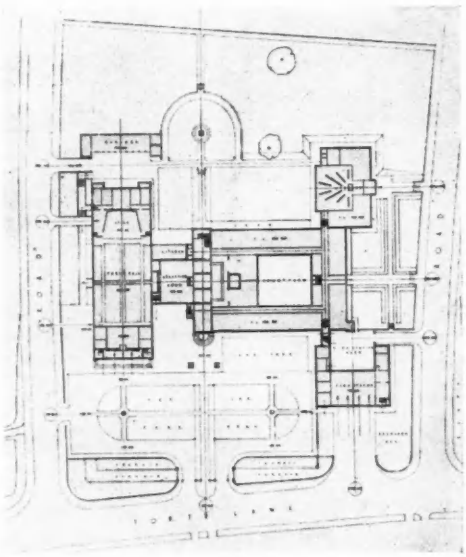




Top: longitudinal and cross sections; bottom: second floor plan.

COMPETITION FOR MUNICIPAL





Lay-out of site.

BY ARTHUR W. KENYON AND STANLEY G. LIVOCK

THE ASSESSOR'S REPORT

The response of the architectural profession to the competition has been most satisfactory, and I am able to state that on the whole the designs show a high standard. The number of sets submitted was 100. The conditions laid down were generally complied with by competitors.

The necessity for dealing with the several buildings for different usages so as to produce a satisfactory architectural result was difficult, although an interesting problem and various types of plans were produced, some of them ingenious but hardly practicable.

The site chosen is a good one, with a southern slope to the main road approach providing facilities for creating an effective and dignified setting.

The sum stated in the conditions as to the limit of cost made it necessary that in order to provide for the accommodation laid down, the utmost simplicity both in plan and elevational treatment would be essential.

The juxtaposition of the several buildings so that, for dual purposes, they would be convenient, was a determining factor in the lay-out. Some designs of otherwise high merit failed in this respect. Although the site was convenient in shape and ample for its purpose, it was necessary that the buildings should be planned well set back from the main traffic road and yet to provide sufficient parking space for the numerous cars that would on occasion have to be accommodated.

At the present time, and even for many years to come, the public approach would tend to be from the south-west direction.

With regard to the first premiated design, I would like to add a few remarks. The design is very clearly the work of an accomplished architect. I had no hesitation in making the award. It fulfilled, in my judgment, all the requirements for a very efficient and practical solution. It is simple and direct in plan and the elevational treatment shows refinement and simple proportions, while at the same time producing a dignified and impressive building.

The position on the site is admirable in every way and lends itself to an effective architectural setting.

The approaches to the several buildings are well arranged and the accommodation for cars is adequate.

The treatment of the interior of the building is again well conceived and, although simple in character, would be refined and dignified in effect.

There are one or two minor defects in connection with the lighting in the building, particularly the rates department, but these are quite capable of adjustment when the plans are further developed.

The total estimate given as the cost of the buildings, having in mind the method of construction and the materials to be used and the general simplicity of the scheme, fulfils the conditions, although I am of the opinion that the estimated cost of the municipal building portion is too low. On the other hand, the ground work is unnecessarily high.

In my judgment, when tenders are obtained for the scheme as submitted, the figures should be within the 10 per cent. allowed by the competition conditions.

For the purpose of your Council's consideration, I have had prepared a perspective view to explain the relation of the several buildings as they will appear as viewed on approaching from the south-west direction.

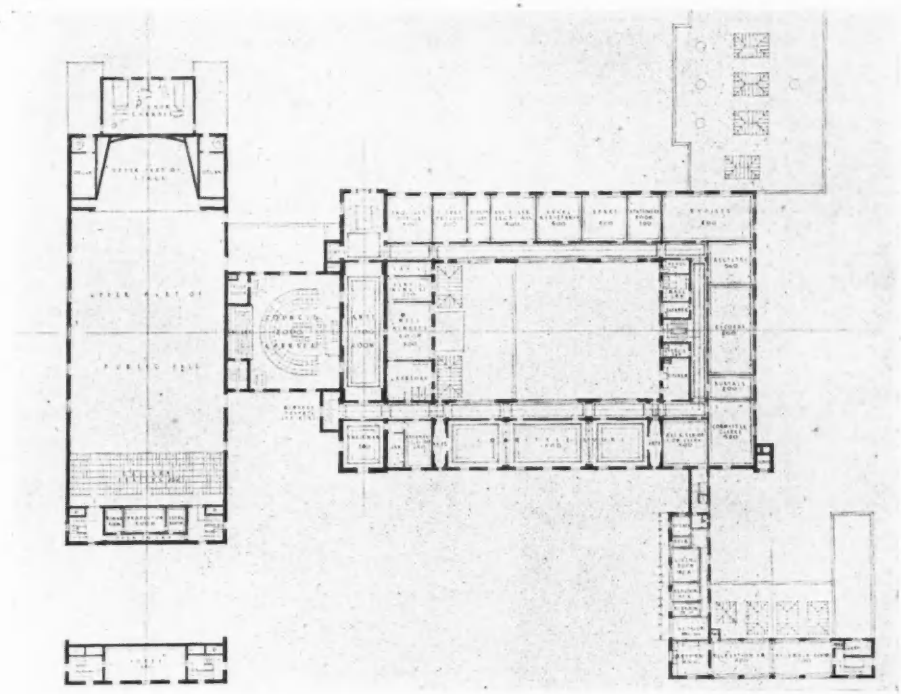
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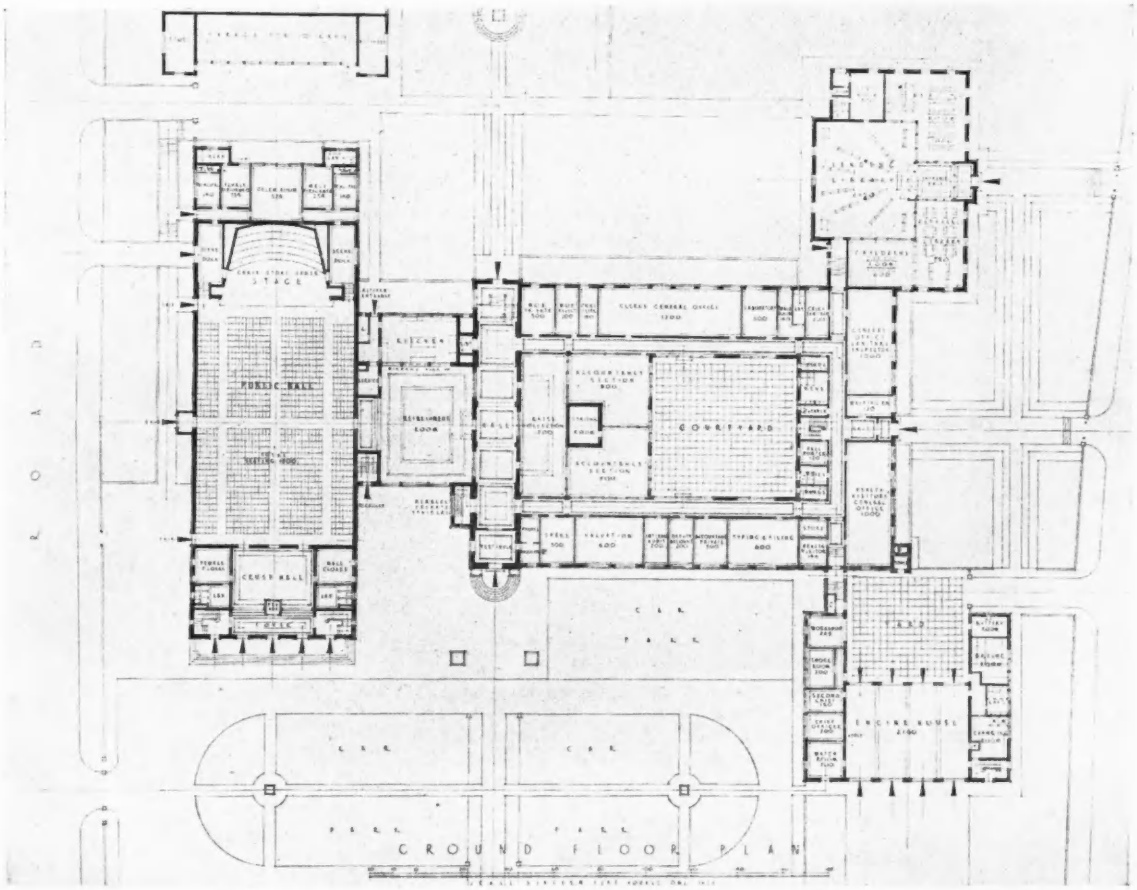
Following the presentation of the assessor's report at a meeting of the Wembley Council, Mr. Hamp, on being asked to enlarge on his report, said the material used would be a simple treatment of brick and the effectiveness of the buildings and the buildings as a group would not only be dignified but imposing.

Mr. Hamp also pointed out that the winning scheme was the only design where the assembly hall could be left out of the scheme without affecting the plan.

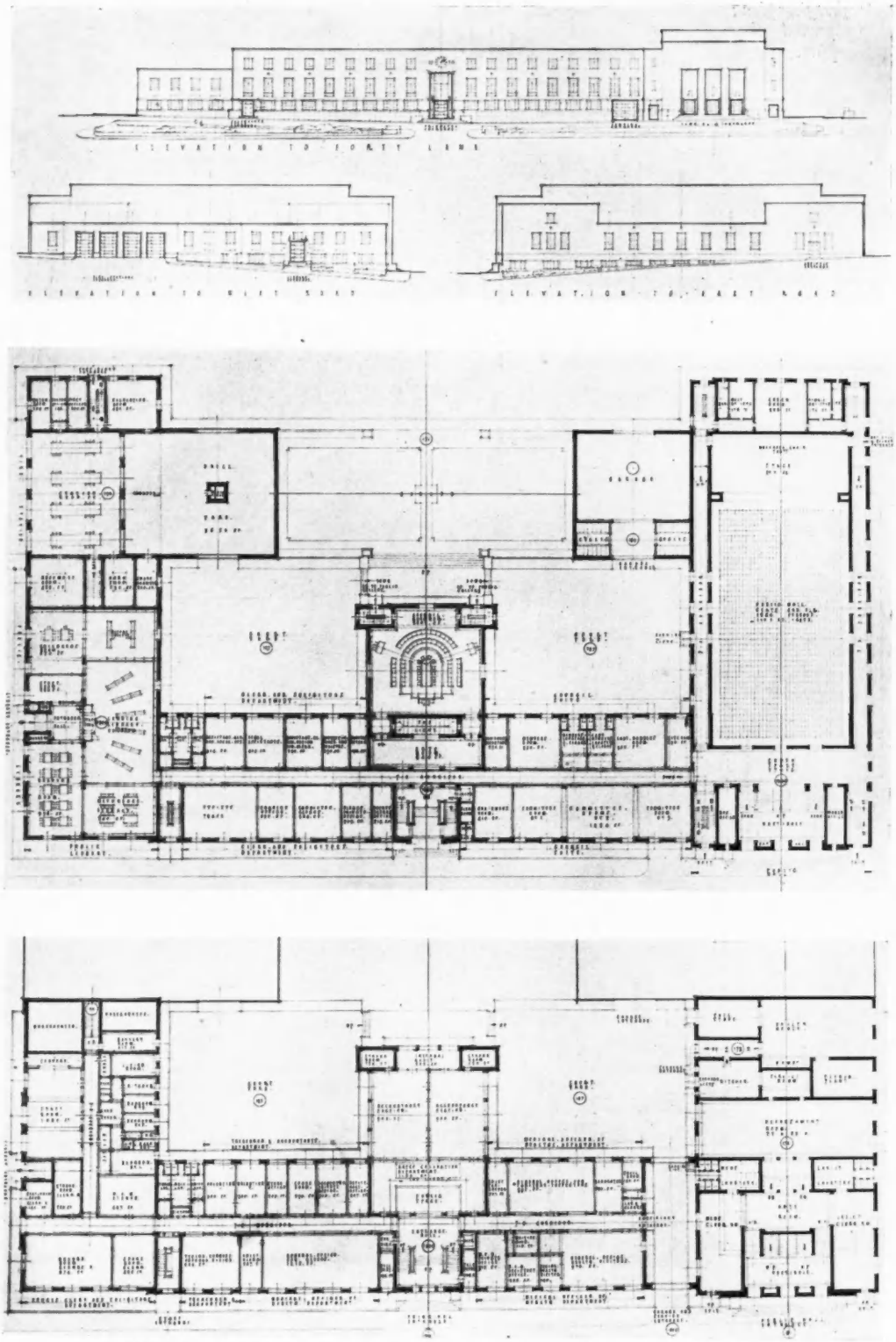
BUILDINGS, WEMBLEY: DESIGN PLACED SECOND

Right, first floor plan; below, ground floor plan.





COMPETITION FOR MUNICIPAL BUILDINGS, WEMBLEY



Top, elevations; centre, upper ground floor plan; bottom, lower ground floor plan.

DESIGN PLACED THIRD: BY E. D. LYONS AND L. ISRAEL

EXTENSIONS, STUDENTS' UNION, LIVERPOOL

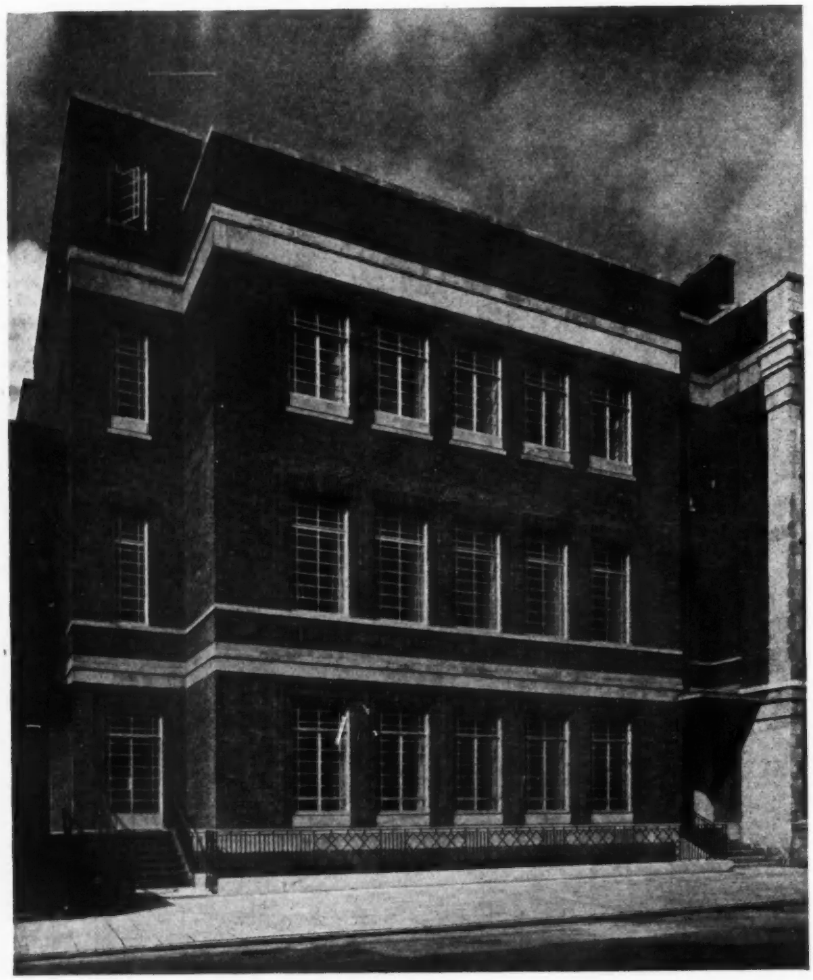


DESIGNED BY C. H. REILLY, LIONEL B. BUDDEN AND J. E. MARSHALL

The original Students' Union building, for which Professor Reilly was architect, was built some years before the war, when it was assumed that the number of students in the university was not likely to increase. The extensions here illustrated are simpler than the original, both internally and externally, but the main floor and fenestration lines have been maintained, and the materials, brick and Portland stone, are the same. Above is a photograph of the main entrance.

EXTENSIONS TO THE STUDENTS'

DESIGNED BY C. H. REILLY, LIONEL B. BUDDEN AND J. E. MARSHALL



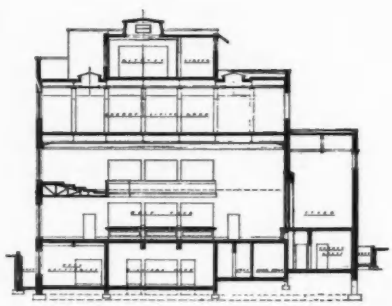
The additional accommodation provided in the new extension, at a cost of about £30,000, includes a hall with seating for an audience of 500, a stage equipped for dramatic performances with a full lighting system, dressing rooms, and provision for an orchestra; a common refectory to seat 240; a new dining room for women in addition to the men's dining room; new and larger kitchen and service quarters; a second billiards room; and greatly extended cloakrooms and lavatory accommodation. These elements have been connected to the original building so as to give the maximum facility of circulation at reunions and receptions.

An administrative wing is contemplated, on the south side of the main entrance from Mount Pleasant, to balance in silhouette the existing block on the north; this will be built when financial resources allow.

The main problems of the undertaking have been solved by making a new recessed main entrance on the Mount Pleasant side of the site and giving to the entrance hall, and to a series of traffic halls above it, a circular shape on plan, thus simplifying the necessary traffic connections; removing the kitchen and other small accommodation from the centre of the old building and replacing it by a spacious main stairway lighted from an inner court by a window 49 ft. high; by placing the new large hall parallel to, and accessible from, a new broad corridor connecting the main entrance on Mount Pleasant with a new secondary entrance (illustrated on this page) on the Bedford Street North front; and by grouping all the dining room and refectory accommodation on the second floor, with the kitchens on the flat roof above, serving downwards by lifts.

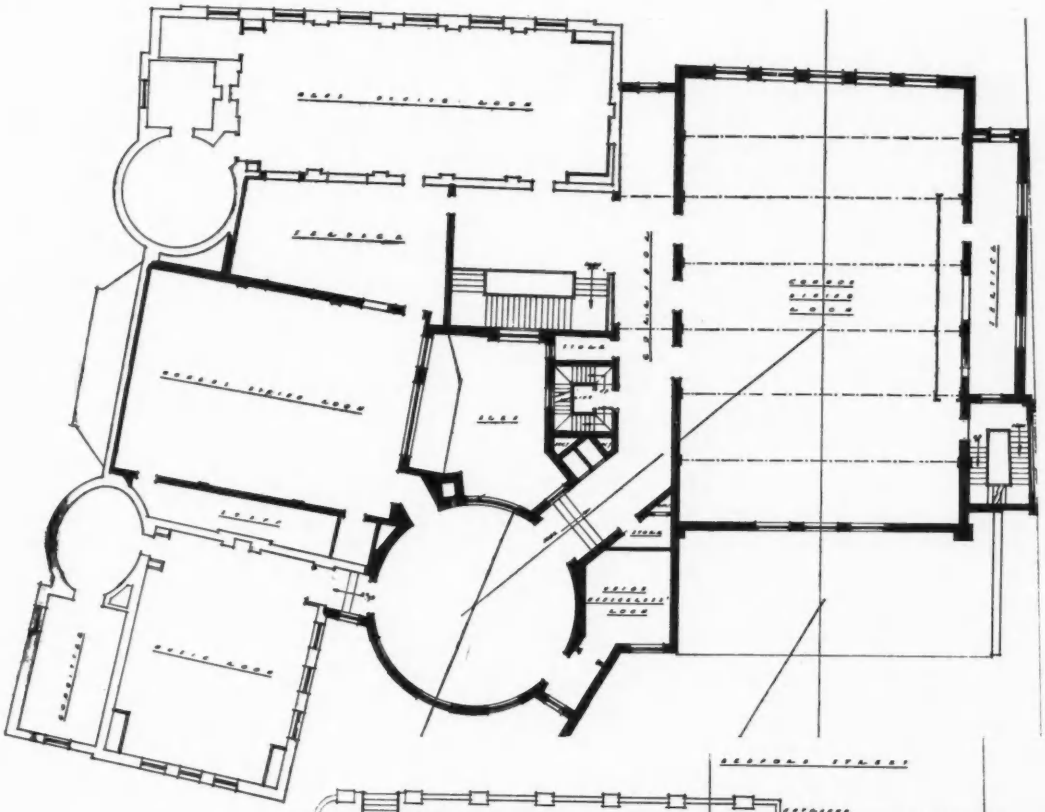
On the left is a view of the main hall.





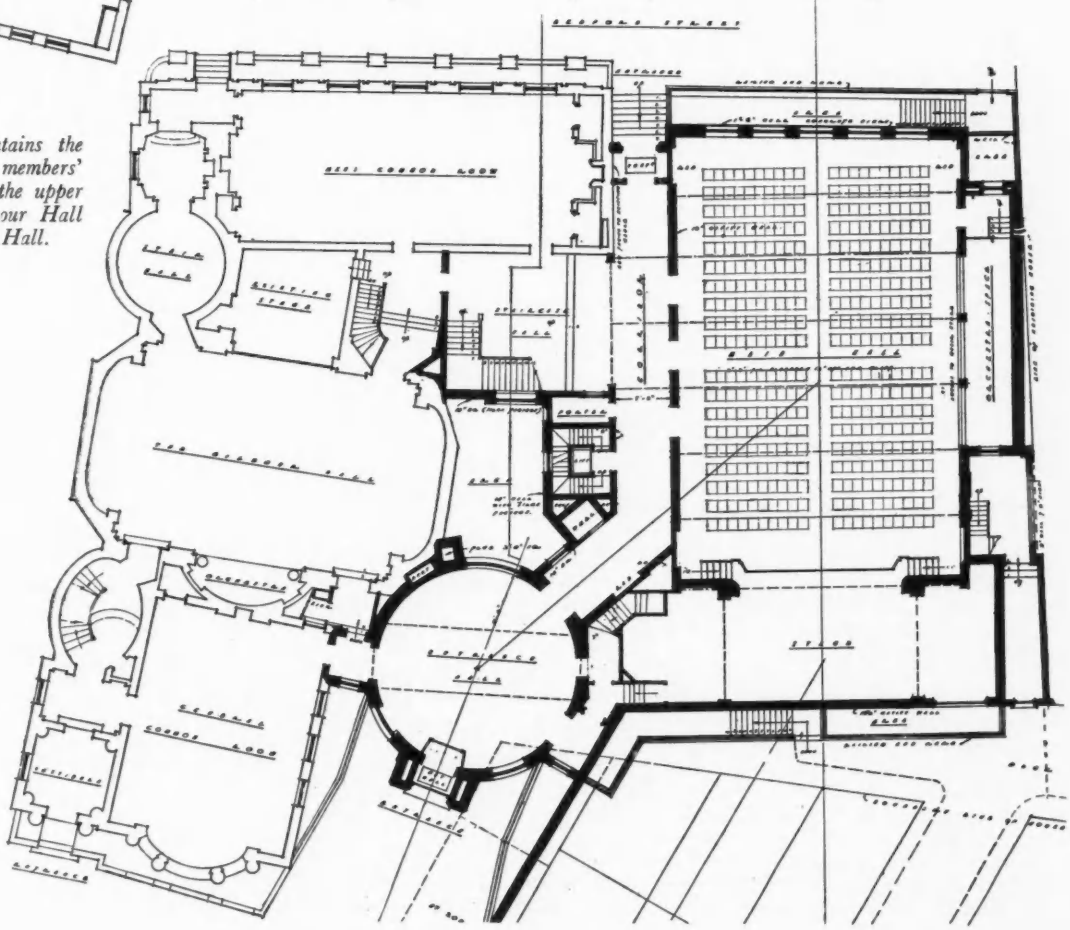
LONGITUDINAL SECTION

UNION, UNIVERSITY OF LIVERPOOL



SECOND FLOOR PLAN

The first floor contains the library, over the members' dining room, and the upper parts of the Gilmour Hall and the new Main Hall.



GROUND FLOOR PLAN

LETTERS FROM READERS

Private and Public Practice

ROBERT TOWNSEND, A.R.I.B.A.

SIR,—We have by no means heard the last of the R.I.B.A.'s circular to local authorities which was referred to in Mr. Douglas Smith's letter in your columns of May 9, and commented on in the leading article of your current issue. The circular has, naturally, won strong approval from the private practitioners of the R.I.B.A.—a minority group, let us remember—but certain of its statements have given grave offence to a large section of salaried architects, both inside and outside the Institute.

While publication of the relevant documents in the next issue was promised in the *R.I.B.A. Journal* for April 27 the issue for May 11 passed over the matter with the statement that "It has not been possible to find space in this number of the *Journal* for the documents relevant to the campaign for the better employment of architects in the building work of local authorities." It is interesting to note that this issue for May 11, in which space could not be found for the publication of documents authorized by the R.I.B.A. Council on an important contemporary question—documents which in certain particulars have given intense umbrage to many salaried members—could yet contain four complete pages devoted to an article entitled "The Harmony of the Spheres," dealing with the primitive-minded antics of two obscure French architects, deceased—happily for architecture—more than a hundred and twenty years ago.

As this matter is one of intimate economic concern to *all* salaried architects, whether engaged in local government service, in the architectural departments of commercial undertakings, or in private offices, you will perhaps permit me to touch on a few of the main implications, the more so since those most affected may have to wait for an indefinite period for an official disclosure.

Under cover of the reasonable plea—to which no competent architect, whether in private practice or salaried employment will be deaf—that the architectural output of local authorities should reach a higher technical standard than often now prevails, many asseverations are brought forward for the acceptance of local councils and other consumers of architectural services.

In the first case a sharp antithesis is immediately made between "the architectural profession" (meaning the private practitioner members, presumably, of the R.I.B.A.) "which is ready and waiting to assist" in the national service of slum-clearance and re-housing, and the staffs of local authorities, many of whom "are not at the moment equipped with the knowledge and experience required for solving completely the problems which arise." Even where an official architect is employed he is apparently to be considered quite an inferior being since "While it is not the purpose of this letter to urge the claims of qualified official architects as against those of qualified architects in private practice, or vice versa, it is the view of my (R.I.B.A.) Council that in the case of all buildings of major civic importance the services of the architect in private practice, possibly in collaboration with the official architect where such is employed, will give the most satisfactory results."

The circular ends with the remarkable assertion that "The Royal Institute also receives, from its members and others, frequent representations and complaints regarding a further, separate, though related, matter—the undertaking of private architectural work by the whole-time officials of public authorities. . . . The authorities themselves suffer loss, since a large part of the private work so undertaken by their officials is done in the authorities' time and offices, using the authorities' materials, light and heat; . . . while, since the officials concerned have, in general, no architectural qualifications, the effect of the practice is damaging to the efficiency and amenity of local building."

I need not dwell on the fact that the streets of London are crammed with buildings which are almost completely without "efficiency and amenity"—most of them designed by private practising architects possessing "architectural qualifications." But what, I ask, is the incontestable gravamen of the document from which I have quoted? Is it not, on analysis, an attempt to derogate the skill or honesty or qualifications, and thus the economic prospects, of a large section of salaried architects to the end of furthering the interests of architects already established in private practice who thirst for increased opportunities? This, by implying to an ignorant public that no architect may be considered qualified who is not among those in private practice for whom the R.I.B.A. now speaks. Against this qualification salaried Associateship, salaried Licentiateship, salaried Registration, or salaried Membership of no matter what other body, are insignificant.

Despite the fact that salaried architects and students form the bulk of its membership and provide an equivalent proportion of its funds, the R.I.B.A. thus publicly characterizes itself as the trade protection society of its private practitioners. This was suggested to many of us by its ready acceptance of a Scale of Salaries for "official" and "commercial" offices, and its subsequent categorical refusal even to consider, in principle, the application of a similar scale to private offices.

Is it not time that *all* salaried architects, whether in private, official or commercial offices, whatever their other affiliations, realized their common need, and pooled their resources to build up their own organization, consciously to pursue their unified interests as salaried architects? The R.I.B.A., from the nature of its constitution, cannot be expected to undertake the task, neither can sectional attempts, catering for one group or another, hope to succeed.

ROBERT TOWNSEND
London

THE HOUSING BILL

During the report stage of the Housing Bill in the House of Commons last week,

Dr. Addison moved a new clause to provide that no Exchequer contribution should be made unless the Minister "is satisfied that the accommodation to be provided will be in conformity with regulations to be made by him specifying minimum standards of equipment and amenity." The regulations should not come into force until approved by both Houses of Parliament.

In the discussion which followed, Mr. Bossom said that the Bill made no effort to reduce the cost of building, though obviously that could be done, as had been shown by the results in other industries, notably the motor trade. The regulations issued by the Ministry of Health ought to secure that there should be uniformity in the materials used in building.

Sir Hilton Young said that there had been a rapid awakening to consciousness that the old housing standard was intolerable and that it was necessary to secure a reasonable minimum of amenity. He accepted the view that it was the function of the Ministry to act as the guardian and guide of building in regard to securing better housing standards. But there had been no deliberate reduction of those standards by the policy of his Department. When contemplating, as they must, an increase of building in blocks of flats they must take the greatest care to avoid errors which occurred through lack of foresight and knowledge at the inception of flat building in the large cities. There could be no question at all of encouragement on the part of the Ministry of building skyscrapers.

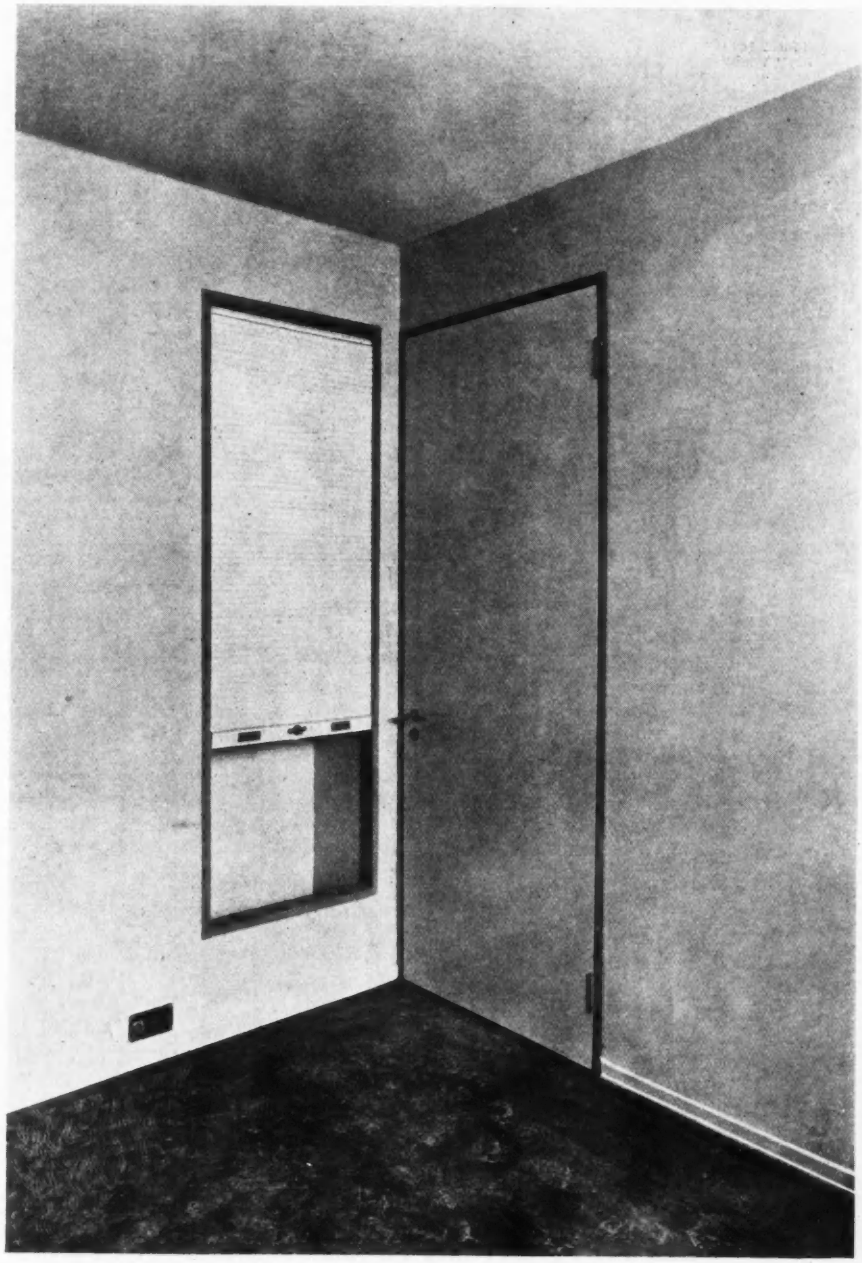
Mr. West: What height do you mean by skyscrapers?

Sir Hilton Young: A skyscraper, like an elephant, is more easily recognized than defined. Under the Bill, he added, the minimum height of a flat was three storeys. He contemplated three or four storeys as normal, with occasionally five storeys.

The new clause was rejected.

WORKING DETAILS : 263

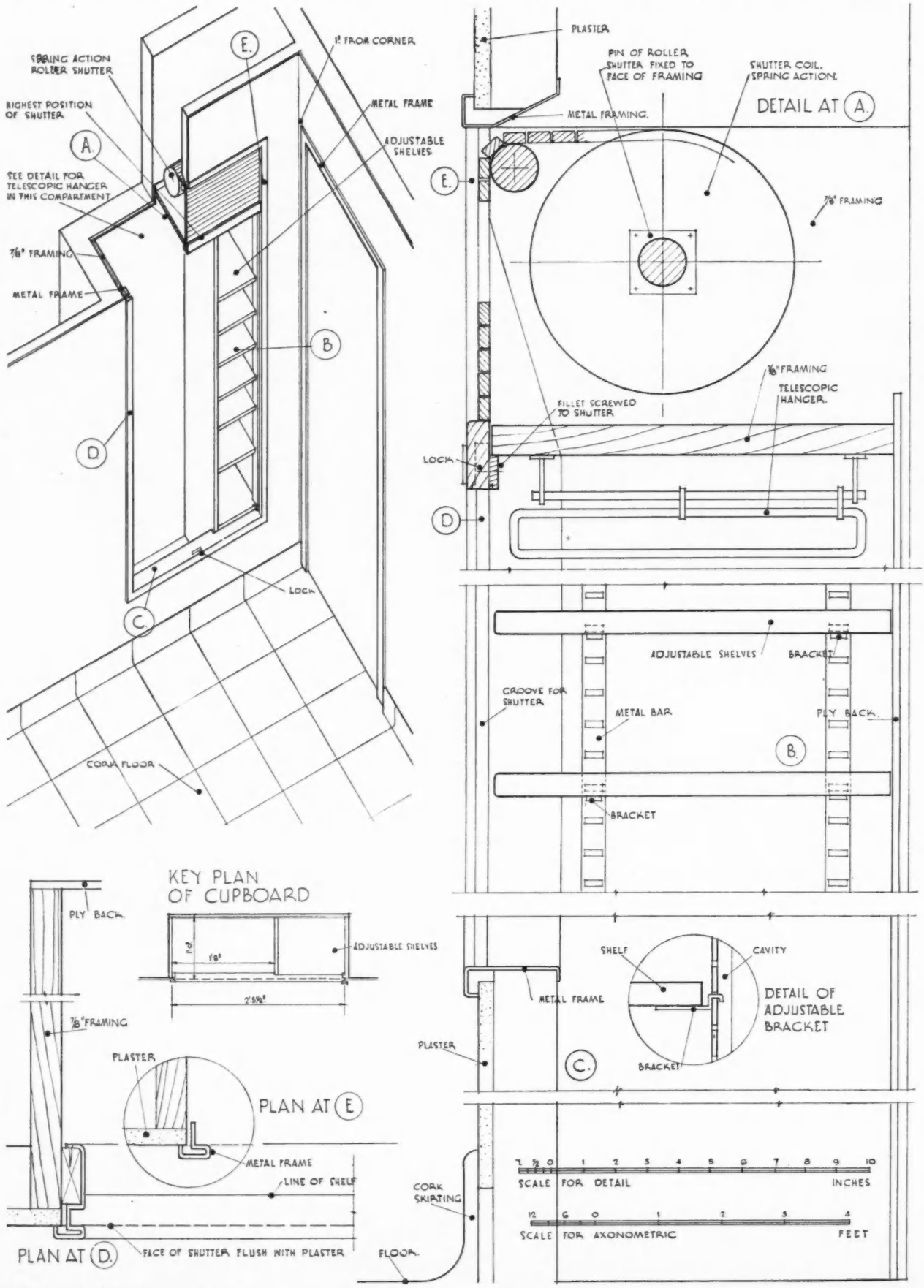
FITTED WARDROBE • FLATS AT HIGHGATE • LUBETKIN AND TECTON



These fitted cupboards are arranged in the second or guests' bedrooms of a block of flats, and are provided with a rolling shutter to avoid interference between door swings. An axonometric is shown overleaf, with details of the joinery work and the pressed metal channel in which the shutter runs.

WORKING DETAILS : 264

FITTED WARDROBE • FLATS AT HIGHGATE • LUBETKIN AND TECTON



Axonometric and details of the fitted wardrobe illustrated overleaf.

WORKING DETAILS : 265

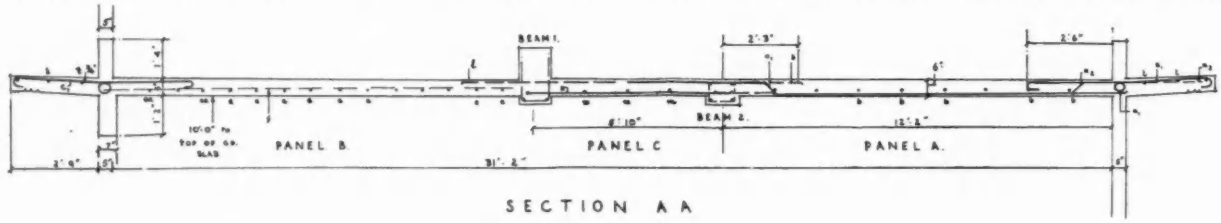
R. C. ROOF • AIRCRAFT FACTORY AT HATFIELD • JAMES MONRO AND SON



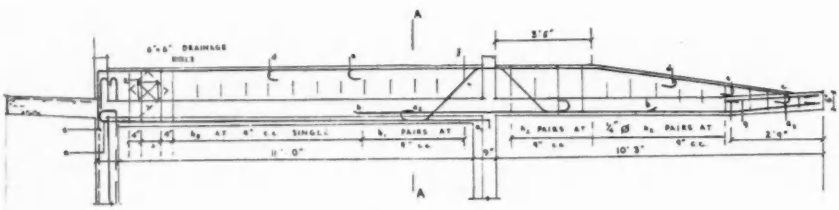
This roof and canopy to a gatehouse at the entrance to a large factory, is built in three panels carried by two main beams, the final finish being asphalt. A key plan and reinforcement diagrams are shown overleaf.

WORKING DETAILS : 266

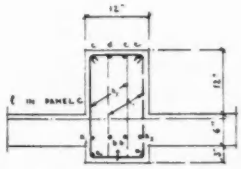
R. C. ROOF • AIRCRAFT FACTORY AT HATFIELD • JAMES MONRO AND SON



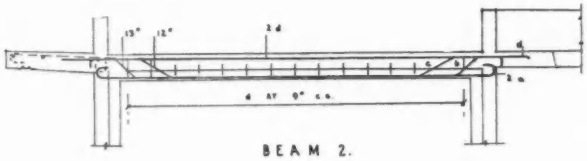
SECTION A A



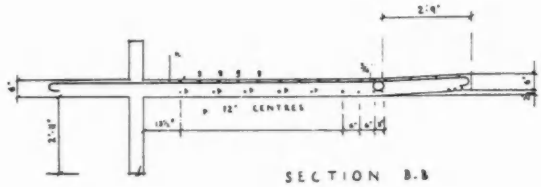
BEAM 1.



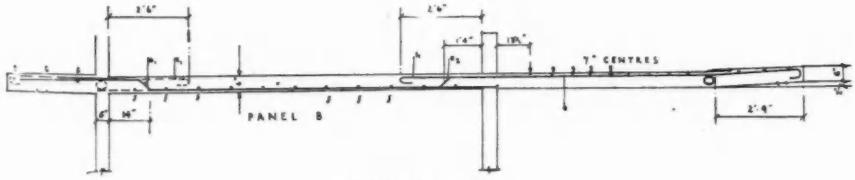
SECTION THRO BEAM 1 ON A A.



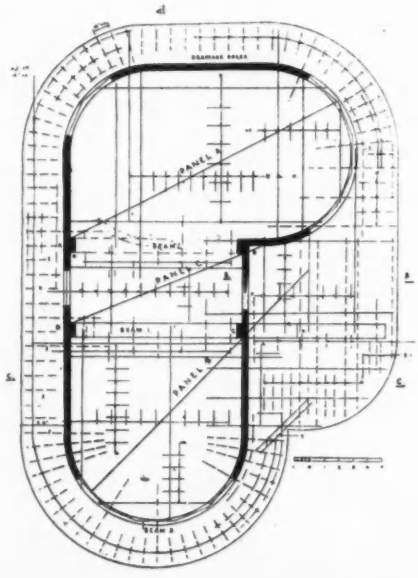
BEAM 2.

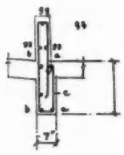


SECTION B.B

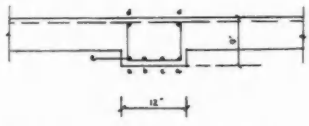


SECTION C C

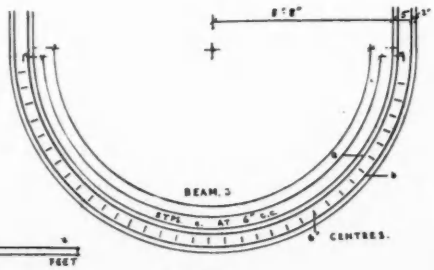


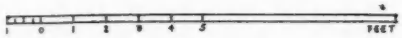


BEAM 3



SECTION THRO' BEAM 2.

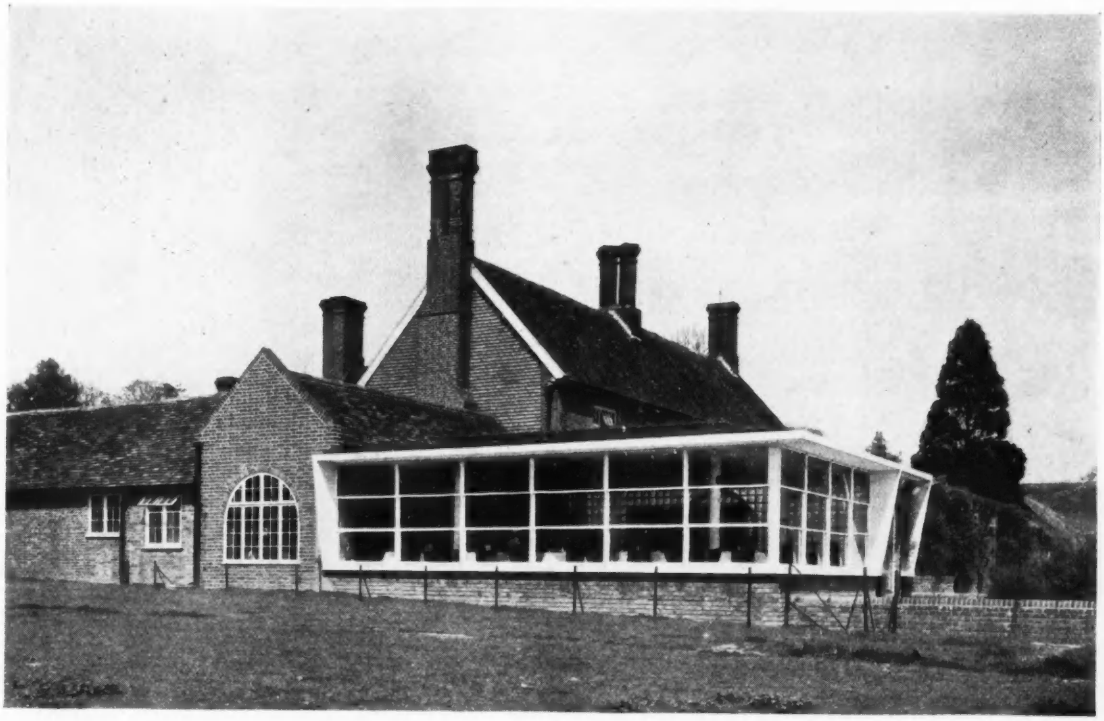




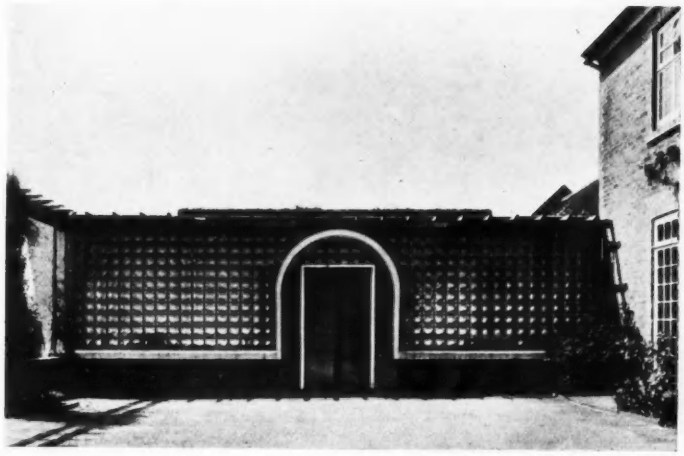
BEAM 3.

Plan and reinforcement diagrams of the reinforced concrete roof illustrated overleaf.

RESTAURANT AT WHIPSNADE

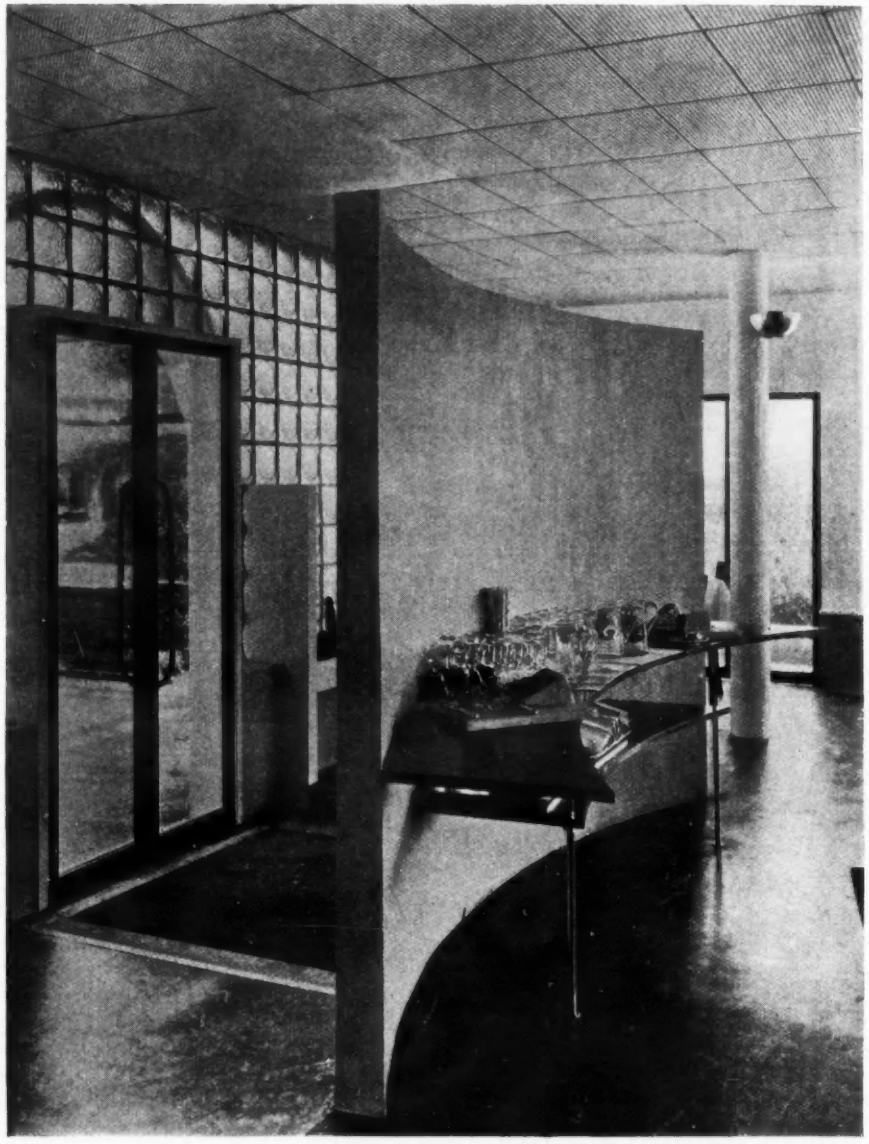


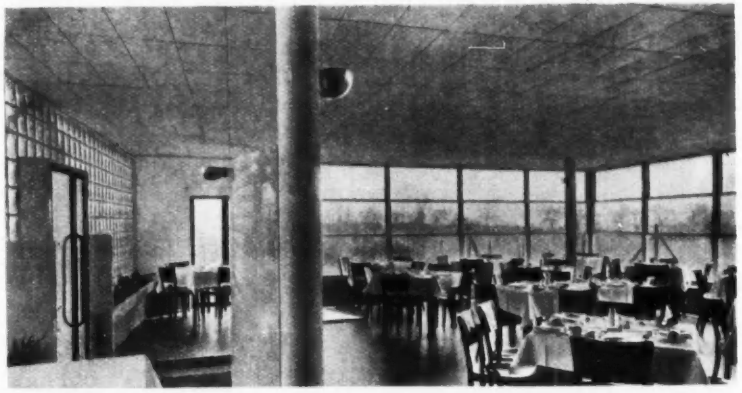
DESIGNED BY LUBETKIN, DRAKE AND TECTON

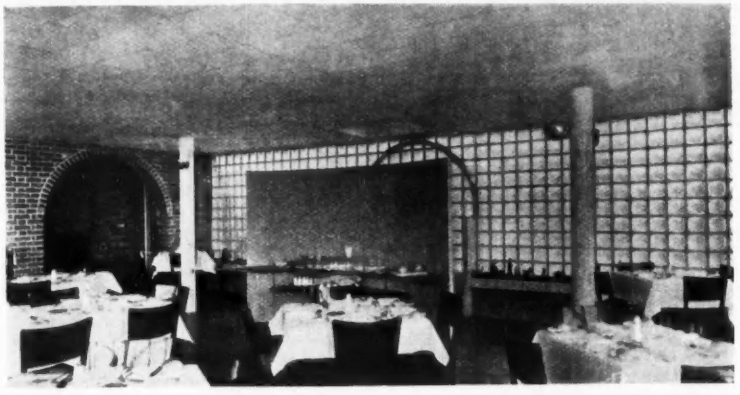


This extension to the restaurant in Whipsnade Park represents an interesting attempt to show that a modern solution to an architectural problem can blend with old buildings in spite of the difference in form and material. An eighteenth-century farm-house that had been used for some while as the restaurant required an extension to seat about 60 people. The old building was a simple structure of brick walls carrying a tiled roof and pierced with the maximum window area allowed by the material, blending excellently with the surrounding gardens. The extension has been carried out on the same simple principles, but taking advantage of new methods of construction.

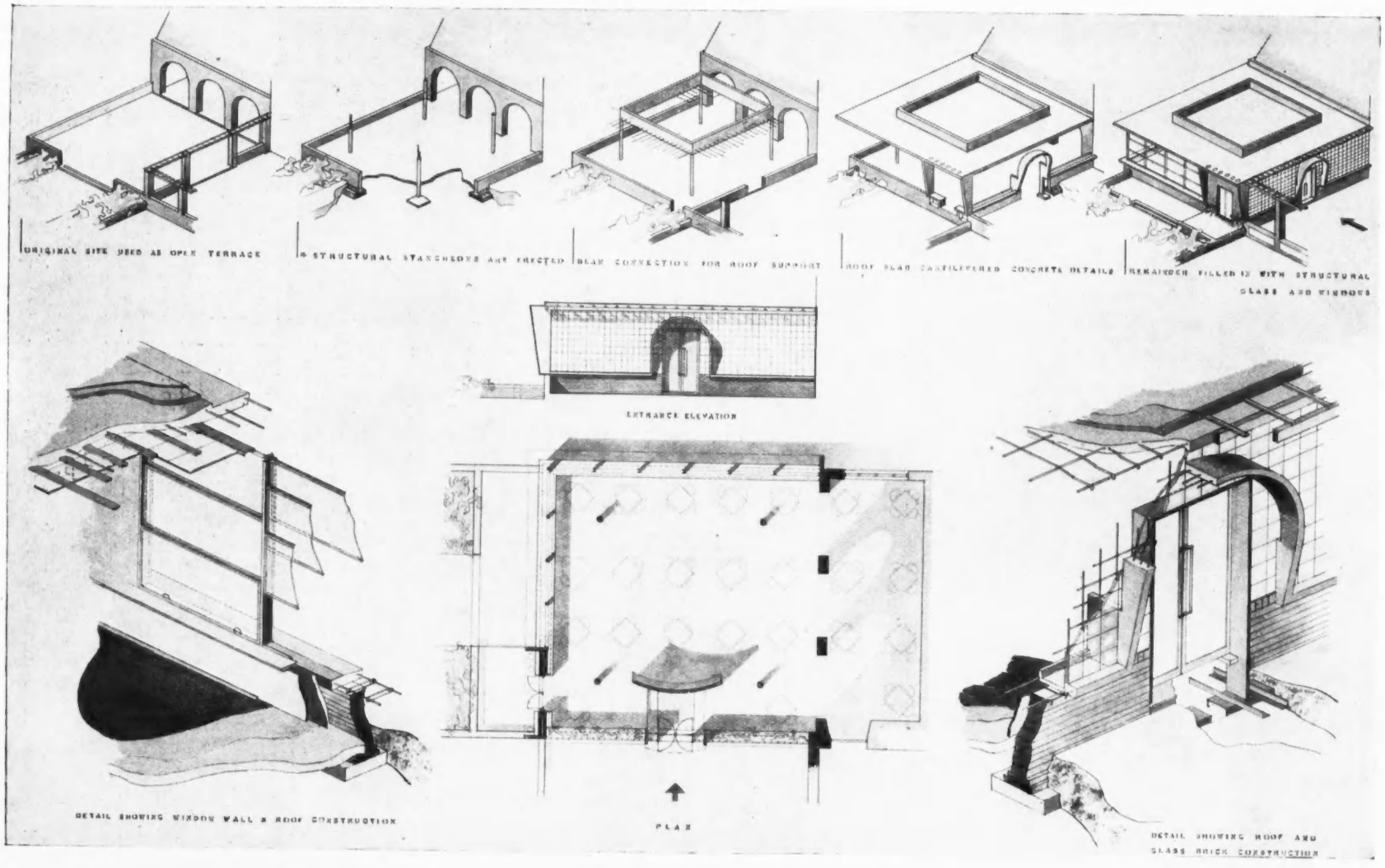
PLANNING AND STRUCTURE. *As wide a view as possible was demanded over the surrounding gardens, and the paddocks from which animals approach to be fed by hand. The development of the structural idea which gave the minimum floor obstruction and the maximum window area is explained in the diagrams on page 809. It was desired to accentuate the entrance to the restaurant from the formal forecourt. Glass bricks form the whole of this elevation, employed to be in scale with the old brickwork, and to allow penetration of morning sun through a screen not so transparent as to over-light the interior. In order to avoid cutting the glass bricks the arched concrete form is projected 1½ ins. in front of them, passing through the glass at a lower level, thus only entailing the cutting of four bricks on each side. This necessitated heavy foundations to counter-balance the forward thrust of the arch, but these serve at the same time as an anchor for the metal frame of the doors, which do not rely for stability on their fixing to the glass bricks. The remaining two elevations are formed of special American metal sash windows, with boxes formed in the roof, allowing independent operation of the three divisions of glazing and enabling the interior to be thrown open to the outside in summer. The lower part of the wall is existing brickwork which previously formed the surrounding walls of the terrace. A projecting cornice all round the outside provides a protection from excessive sunshine during the hottest part of the day. The thick corner post shown in the top photograph is only a temporary one. It will eventually be the same size as the others, as the window members are non-structural.*





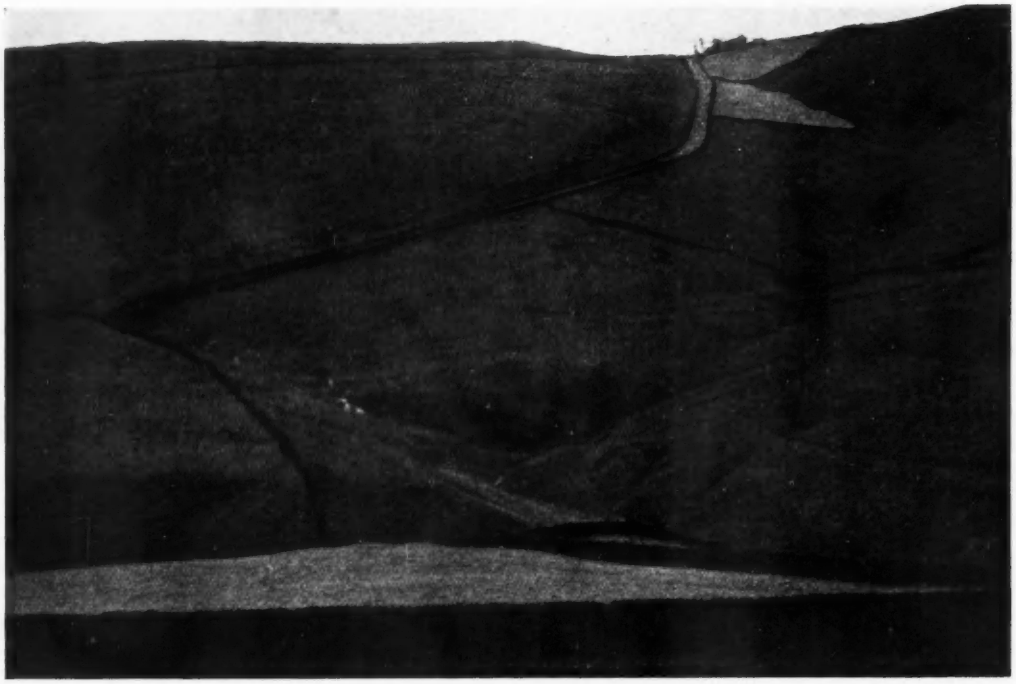


INTERIOR AND FINISHES. *It is intended to paint a map on the inside of the screen to give the interior colour and decoration. The old brick arches, which previously formed the exterior wall of the restaurant, are left exposed to the inside and from a lobby between the old and the new restaurants. Their shape is repeated in the arched entrance. The four structural beams on the roof, from which the slab is cantilevered, besides leaving the interior ceiling unobstructed, form recesses from which creepers, which have been planted, will grow down over the slab. Heating, thermostatically controlled, is supplied by removable electric panels 1 ft. 6 ins. high, placed round the three walls, forming a metal dado underneath the cill. To suppress noise the ceiling is lined with acoustic tiles, fixed to wood battens placed in the concrete during construction. Light is from four reflectors on the columns, the conduits being fixed in the columns during construction.*



The drawing on this page shows the plan and one elevation and a series of diagrams to explain the development of the structural principle employed. On the facing page are: top right, an interior view with, on the left, the screened entrance, placed on the axis to shield the tables from draught and to divide the flow of visitors and avoid congestion in the centre of the restaurant; bottom right, the interior looking in the opposite direction, showing the brick arches of the old building; left, a detail of the entrance.

DESIGNED BY LUBETKIN, DRAKE AND TECTON



Long Hill. From "Derbyshire."

LITERATURE

PEAKS, PITS AND PALACES

[*BY R. P. ROSS WILLIAMSON*]

Shell Guide to Derbyshire. Edited by Christopher Hobhouse. London: The Architectural Press. Price 2s. 6d. net.

HARD upon the heels of Kent and Wiltshire follows Mr. Hobhouse's guide to Derbyshire, fourth of the counties of England to be re-estimated by Mr. John Betjeman's team of young men, who, no doubt realizing that this is the centenary year of the author of *Rural Rides*, is doing its best to show posterity that the English countryside was viewed just as passionately in the twentieth century as it was in the days of our great-grandfathers.

Derbyshire is quite unlike any other guide to the county there has been, and it is also quite different in character (except in its high standard of illustration) from the other volumes in the series, thus supporting the General Editor's desire that each guide should be individual, both in its style and its manner of approach. This is the first guide, surely, that has ecstatically acclaimed mills, mines, railway cuttings and reservoirs as valuable assets to the English Scene! And this without any affectation.

The hardened reader of guide books used to imbibing information in a series of jerks will be surprised at the apparently disproportionate length of the chapter on Great Families and Great Houses. But if he will take a little trouble he will soon discover that the key to the understanding of Derbyshire lies in a proper appreciation of its county families and the architecture with which they have graced their domains. "Apart from unnumbered lesser houses, there are Chatsworth, Hadden Hall, Hardwick, Bolsover and Kedleston supreme above the rest, and every one of them lived in today by the actual representatives of the men who built them. That gives a county proper roots."

We are glad that Mr. Hobhouse should have de-bunked the Dorothy Vernon cycle of legends, product of the two centuries when the abandoned Haddon Hall was the palladium of the romantically minded, and it is very refreshing to find someone with the courage to explode four out of the seven "Wonders of the Peak." But should anyone regret this iconoclasm, let him take comfort from the fact that full homage is paid to she who must have been the most remarkable personage who ever lived in Derbyshire—the redoubtable Bess of Hardwick. Building furiously in the firm belief that she would not die until she stopped building, her great houses are still the wonder and glory of the county, and it was not until the great frost of 1608 that the masons at work at Oldcotes found the mortar freezing beneath their trowels. Boiling water was tried. Beer was tried. But it was no good. Nearly eighty years old, Bess of Hardwick was to find the gipsy's warning come true.

HORTICULTURE INTO ARCHITECTURE

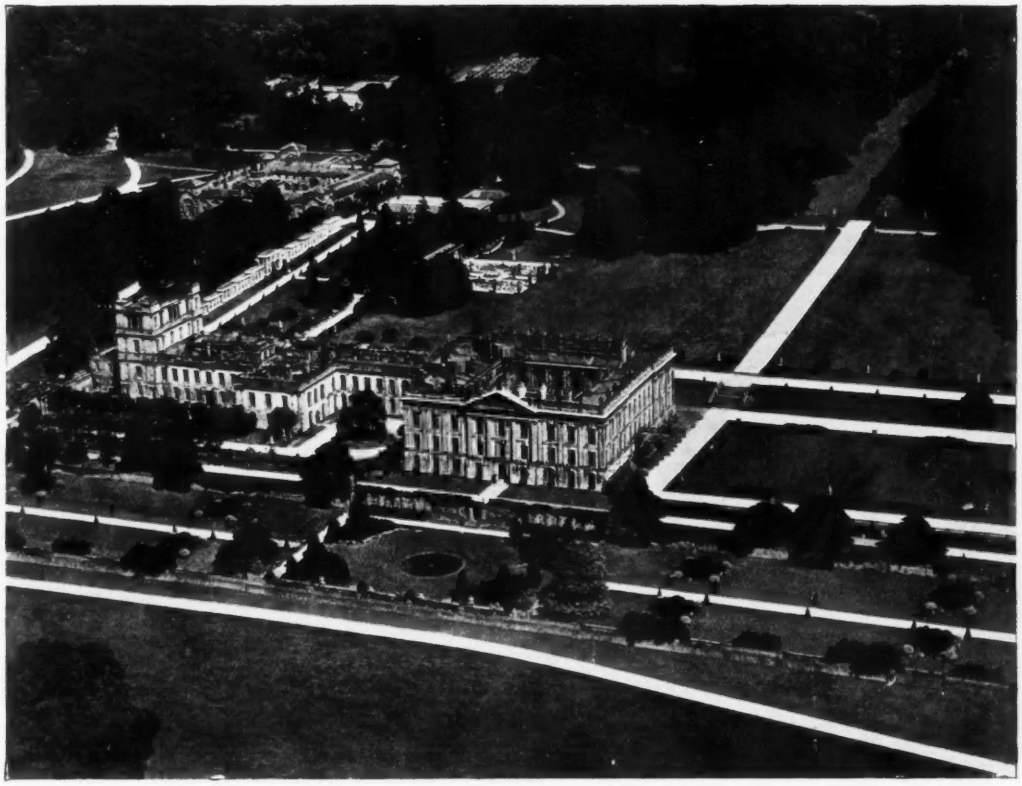
[*BY BAIRD DENNISON*]

Paxton and the Bachelor Duke. By Violet Markham. London: Hodder and Stoughton. Price 20s. net.

A BOOK on Paxton has been badly needed. Miss Markham's full-dress biography is of absorbing interest, though it might have gained by compression in some parts and a less metaphorical style in others.

On the other hand, the brief descriptions of the construction adopted in his conservatories and the Great Exhibition Building are exemplars of lucid and precise technology which will put most engineers to the blush. The only serious omissions are among the illustrations. There are no views of four country houses—Battlesden in Bedfordshire, Mentmore in Bucks., the Château de Ferrières outside Paris, and the villa on the Lake of Geneva for yet another Rothschild—Paxton designed, with some assistance from his architect son-in-law, Mr. Stokes. More serious, there is no view of the Great Conservatory at Chatsworth, which was demolished (with great difficulty) in 1923.

There can be no doubt about Miss Markham's passionate filial piety and human admiration for her grand-



An aerial view of Chatsworth House. From "Derbyshire," reviewed on the facing page. Chatsworth was also the scene of many of the activities described in the biography of Sir Joseph Paxton, reviewed below.

father's memory, and this makes it still harder to understand her reiterated delusion that today he is already as good as forgotten. "It seemed to me," she says in her introduction, "worth while to tell the story of Paxton's life before the waters of oblivion roll over it for ever"; and elsewhere, "He did not put his genius to permanent ends, and so little by little his name has slid into oblivion." With all due respect to Miss Markham, it has done nothing of the sort, nor is it ever in the least likely to.

Strangest of all, because entirely contradictory, is the following passage (the italics are my own) :—

> "Paxton certainly imagined that he had started a new era in ferro-vitreous architecture, and that iron and glass would be largely used in the future, not only for commercial buildings but even for dwelling-houses. *In this anticipation he was wrong*, though by a strange turn of fortune's wheel ferro-vitreous principles are entering, apparently, into the thoughts of latter-day architects."

Which reads like a more aloof paraphrase of Ruskin's denunciation of the awful æsthetic heresy of believing that the magnification of a conservatory could be the genesis of a new style :

> "The quantity of thought the Great Exhibition Building expresses is, I suppose, a single and very remarkable thought of Sir Joseph Paxton's —that it might be possible to build a greenhouse larger than ever greenhouse was built before. This thought and some very ordinary algebra are as much as all that glass can represent of human intellect."

But that beautiful stylist was wrong, as he so often was ; and Miss Markham is wrong too. To begin with, the conservatory was then quite a new type of building, and in its now established "ferro-vitreous" form is almost wholly Paxton's own achievement. Twenty years' practical research into the problems of glazing as a scientific gardener and the fairy godmother Opportunity, which the eleventh-hour fiasco over the designs for the Great Exhibition vouchsafed him, made Paxton the founder of modern frame construction, and so the father of what—to differentiate it from all the various contemporary veneerings of structure—Gropius has taught us to call the New Architecture. Though strictly speaking neither an architect nor an engineer, he remains one of the greatest constructors of all time. That monster greenhouse, the Great Exhibition of 1851, was certainly "the outstanding monument of the Victorian Age." But, above and beyond that, it was the first building of modern materials to embody all the essentials of modern construction and eliminate everything else.

The heavy framework of pre-Paxtonian greenhouses made them both dark and expensive. Paxton began by pitching their roofs at such an angle as would catch the maximum amount of light when the sun was low and the minimum when it was high. Paxton's first notable building was the Great Conservatory at Chatsworth, begun in 1837 and planted in 1840, which cost the Duke of Devonshire £10,000. It measured 277 by 133 feet, and had a curvilineal roof rising to a height of half its breadth. This structure, for long one of the minor wonders of the world, was built entirely of glass and iron. In it the Paxton sash-bar and its corollary the Paxton gutter (a hollowed-out sash bar used for the bottom runs of panes) were first used. To make these Paxton bought a machine for £20, and so improved on it that a man and boy were able to turn out 2,000 feet of sash-bar a day at a saving of £1,400 to the Bachelor Duke. To obviate the repeated overlappings of short-length glazing Paxton induced Chance's of Birmingham to increase their then 3 ft. maximum lengths of glass to 4 ft : a milestone in rationalized standardization to which the feat of building the Great Exhibition in 17 weeks was largely due.

Two tropical plants of appropriately gigantic vegetation successively dominated the middle decades of Paxton's life. *Amherstia Nobilis*, for which he sent out a special expedition to India, throve but would not blossom in Derbyshire, although it capriciously consented to do so at Ealing Park twelve years later. *Victoria Regia*, which had refused to flower at Kew, rapidly shot out 140 leaves and 112 blooms at

Chatsworth. This flatteringly rapid growth of a water-lily whose leaves attain a 5-6 ft. diameter and can support a loading strain of 100 lb. without sinking—Paxton's seven-year-old daughter was safely floated on one of them—compelled him to build a new home for it, with a 33 ft. diameter tank and a 61 by 49 ft. ridge-and-furrow roof, in double-quick time. In explaining his plans for the Great Exhibition Building to the Fine Arts Society in November, 1850, Paxton held up a leaf of *Victoria Regia*. Pointing to the 2 in. deep ribs, which radiate from its centre like bottom-flanged cantilevers, and the delicate system of cross-bracing fibres that prevent the webbed membrane between them buckling, he modestly remarked: "Nature was the engineer, providing the leaf with longitudinal and transverse girders and supports that I, borrowing from it, have adopted in this building."

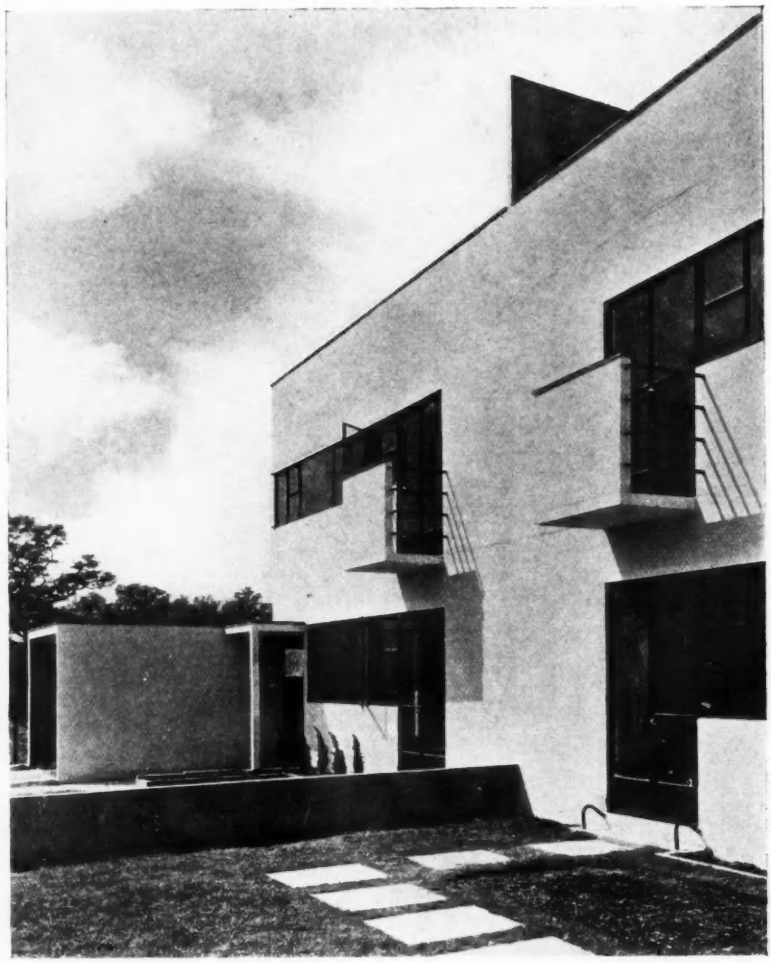
Miss Markham's fine description of the Crystal Palace—"an expression of order and exactitude, lightness, permanance and strength; with complete subordination of its parts to the whole, and nothing crooked or awkward or out of place in the beauty of its mathematical proportions"—could not be bettered. She proceeds:—

> "It was claimed that a new era in building had dawned with it. Though any comparison with famous cathedrals and monuments was, of course, absurd, the Crystal Palace fulfilled the first two essentials of fine architecture—simplicity and consistency. No building was ever more perfectly adapted to the ends it had to serve."

Without apparently realizing either that this claim was fully justified, or that on her own showing the building on whose behalf it was made embodied all the great architectonic qualities. The explanation of the curious discrepancy between the sense and significance of these passages seems to be a pronounced æsthetic bias. Throughout this book there is a rather over-laboured insistence that nothing the Victorians wrought could possibly attain beauty, which prompts her to express a (very Victorian) hope that cellars will still exist in the future "to receive the horrors in the shape of steel furniture that afflict us today."

In what Douglas Jerrold of *Punch* was the first to christen "The Crystal Palace" Paxton achieved a solid performance with which "the greatest of our queens" was—anyhow, in the eighteenth-century sense of the word—very much "amused." "Paxton," she wrote in her diary on the day it opened in Hyde Park, "may well be proud; he rose from being a common gardener's boy."

PAIR OF HOUSES



These are the houses whose design was the subject of the celebrated "Ruislip Case," the architectural cause celèbre *of 1934. The Ruislip-Northwood Urban Council, it will be remembered, refused to sanction the plans on æsthetic grounds, in which decision it was supported by the local Advisory Panel of Architects. The latter, in a famous letter, described the design as "deliberately odd," and one which "nine out of ten of the Ruislip population would view with active disfavour." The matter went to arbitration, an inquiry was held, and the arbitrator appointed by the R.I.B.A. found in favour of the Council, the architects being required to make modifications in their design.*

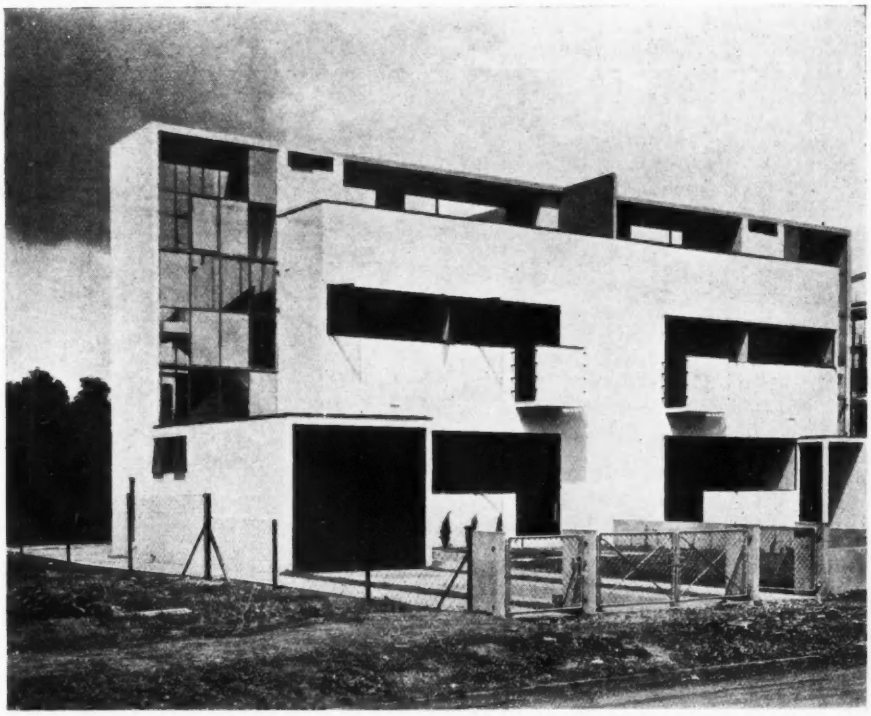
Now that the houses are completed arises the opportunity for the inhabitants of Ruislip to decide whether their Council's estimate of their opinion was correct. It is probable that they will consider that the return to sanity and reasonableness in small house design these houses represent is not an affront to the amenities of the district; such an affront, rather, being provided by the usual type of suburban villa on which this is so great an advance. The builder-client of these houses deserves praise for his determination to sponsor a modern solution to the problem in the face of all the opposition he encountered.

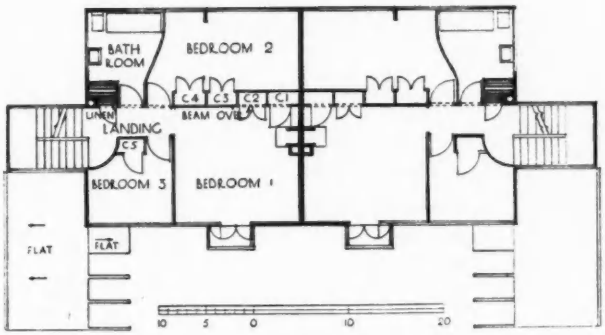
DESIGNED BY CONNELL, WARD AND LUCAS

AT RUISLIP, MIDDLESEX

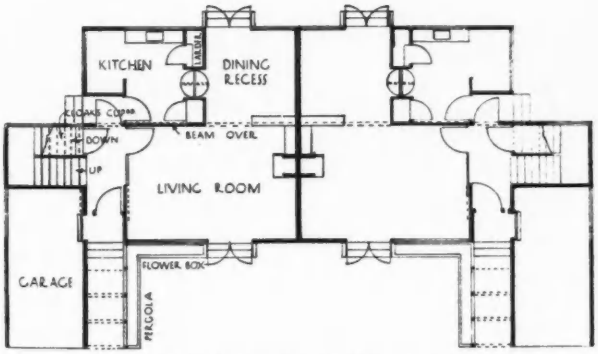
PLANNING. *An important feature of the ground floor is the sliding door between living room and dining recess, which allows the whole living space from front to back to be thrown into one. The purpose of the large staircase window is to provide plenty of light in the halls and passages at all times of day. The balcony serves as a screen to a full-height bedroom window. On the roof are a box-room and a covered shelter.*

STRUCTURE AND MATERIALS. *The houses are entirely in reinforced concrete. No structural member is more than 4 ins. thick, except the party wall which is 6 ins. as required by the local authority. Main structural supports are on isolated foundations, 6 ins. thick. Beams, floor and roof-slab tie in to form monolithic structure. Walls above and below windows form beams. Where not reinforced for this purpose external walls are mesh reinforced to prevent expansion cracks. Internal partitions are patent block. External walls are insulated with wallboard.*





FIRST FLOOR PLAN



GROUND FLOOR PLAN



The photographs show : on the facing page, the houses from the garden, showing glazed door to living room, bedroom balcony and garage ; on this page, top, the elevation to the road ; bottom, the kitchen, showing built-in cupboards and hatch fitments communicating with the dining recess.

TECHNICAL SECTION: 17

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

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CALORIFIERS

A CALORIFIER is, in effect, a heat exchanger; that is to say, a device whereby heat from a medium at a high temperature is transmitted to a second medium at a lower temperature. The high temperature medium may be either steam or hot water, and the low temperature medium water or other liquid.

It is unusual to heat water with water in a heating system, the common case being steam heating water.

The objects and application of calorifiers to heating have already been described (see page 423), and it only remains to discuss their design, characteristics and construction.

A typical steam calorifier installation is shown in Fig. 88. A calorifier consists of:—

(*a*) An outer shell (see Fig. 89).

(*b*) An internal battery of piping (alternatively radiators are occasionally used).

(*c*) A chamber in which the ends of the tubes terminate so as to admit the heating medium.

The high temperature medium is generally passed through the tubes, the medium to be heated being outside. This gives a lower temperature on the outer casing and consequently less heat loss by radiation.

(*a*) The outer shell is either of cast iron or steel, the latter being welded or riveted. More costly metals are generally unnecessary for heating systems in which corrosion troubles are not commonly encountered, though copper is often needed on H.W.S. systems where the same water is not re-circulated. Inlet and outlet connections or flanges are, of course, necessary on the casing. The thickness of shell depends on the head pressure and on the diameter of the vessel; a minimum test pressure should be 100 lbs. per sq. in., increased for higher head pressures, but never less than double the working head.

(*b*) The tube battery may be of steel, brass or copper. Usually the latter is to be preferred, as it may be thinner than steel and a more compact arrangement provided, apart from which it has a slight advantage in conductivity. Of whatever material, solid drawn tubes are advisable.

The tube battery may be made removable, as shown in Fig. 89, with the tubes of U (or hairpin) form, or a "floating header" may be adopted, the tubes then being straight (as in Fig. 90). An alternative construction is as shown in Fig. 91, in which the tube battery is not removable without complete dismantling.

As scale deposition does not occur in a heating system in which the same water is constantly re-circulated, there is no real need for the battery to be readily removable, and the third alternative, which is generally the cheapest, is therefore often adopted.

Those responsible for the maintenance of such plant, however, more usually favour a removable battery, since a defective tube can so much more easily be inspected or replaced.

Tubes may be plain or indented, as in Fig. 92. These latter give a greater surface in a smaller space and have greater freedom for expansion than plain tubes with fixed ends, but have no advantage in this respect over U or hairpin tubes. The plate in which the tubes terminate is either of steel or bronze and is called the tube plate, this generally being about 1 in. in thickness. Plain copper and brass tubes are generally expanded into the plate with an expanding tool; indented tubes are fixed with a screwed thimble connection; steel tubes are either expanded or welded in.

The tubes are commonly arranged in a staggered formation, as this leaves a greater amount of metal in the tube plate between the tubes for a given size, and also gives better transmission by causing the rising convection currents to impinge on each pipe with less shielding.

(*c*) The chamber for the admission of the heating medium is called the steam chest and is generally of cast iron with inlet and outlet connections for the

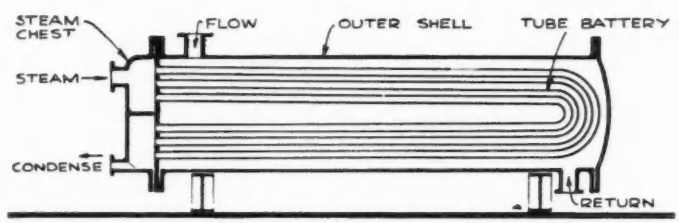


Figure 89. *Steam calorifier for heating.*

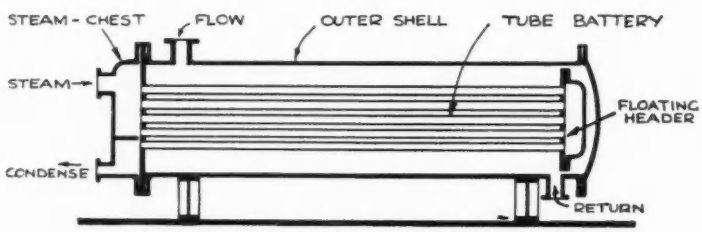


Figure 90. *Steam calorifier with floating header.*

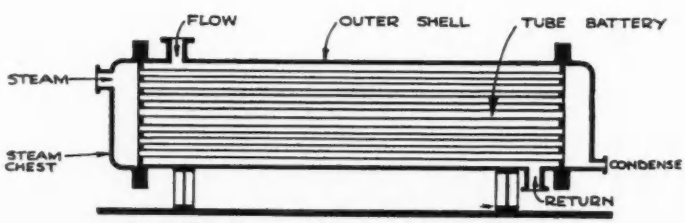


Figure 91. *Steam calorifier with fixed tube-plates.*

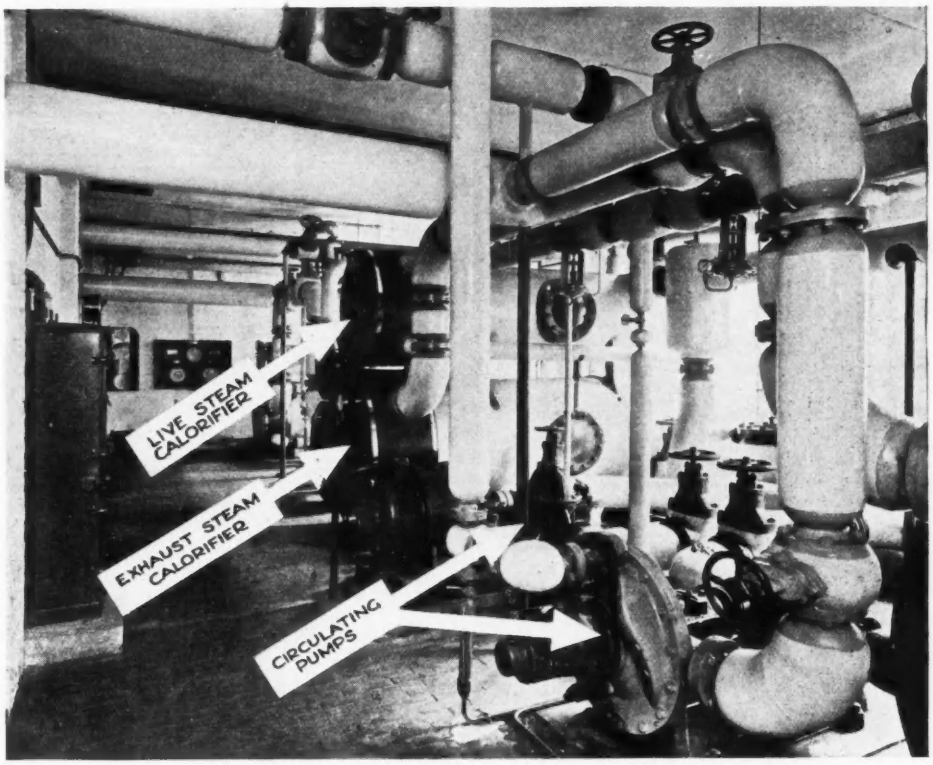


Figure 88. *Typical steam-calorifier heating installation.*

steam and condense (or flow and return if high temperature water is used). The "through" type of calorifier (Fig. 91) has, of course, two such chests, one each end, but the normal U tube and floating header types have one only, with a division to separate the inlet and outlet sides.

The size of the steam chest, or its projection from the front of the tube plate, is dependent on the pressure of steam employed. Exhaust steam entering at atmospheric pressure or below has a comparatively great volume and requires a large entering pipe, hence a large steam chest, perhaps 6 in. or 8 in. from the plate. High-pressure steam may be catered for in a much smaller chest having possibly no more than 2 in. clearance from the tube front.

The steam chest, tube plate and shell are generally machined to the same diameter outside and bolted together with bolts passing through all three, suitable gaskets maintaining the steam and water joints between them. Sometimes the end of the shell is similarly provided with a bolted end for convenience of inspection.

GENERAL NOTES ON CALORIFIERS

1. Calorifiers may be either horizontal, as illustrated in the figures given above, or vertical, as in Fig. 93. The latter type has its steam chest formed in the pedestal, and the casing is lifted bodily off for inspection. This arrangement occupies less floor space than the horizontal type, and is sometimes more convenient on this account. In either case it will be found that considerable outputs may be contained in a very small space.

2. Long or high calorifiers of small diameters are cheaper than short and wide ones, since the main cost is in the number of tubes and not in their length. The only point to be watched here is that the number and internal cross-sectional area of the tubes is not so small as to cause a large pressure drop for the steam in its passage through. For full effectiveness throughout the whole length of the tube battery full pressure should obviously be maintained to the end, and for this reason the pressure drop should be negligible.

3. Tubes should be arranged so as to drain freely all the condensation that collects. Hairpin (see Fig. 94) are better than U tubes on this account, as the latter often tend to sag at the bottom unless adequately supported. The vertical type is superior on account of its freedom of drawing when of the "through" type, but not in the case of the inverted U form, in which steam and condense mix on the inlet side.

4. Water inlet and outlets on the shell should be so disposed that the main flow completely traverses the battery. A useful arrangement with a horizontal type is that shown in

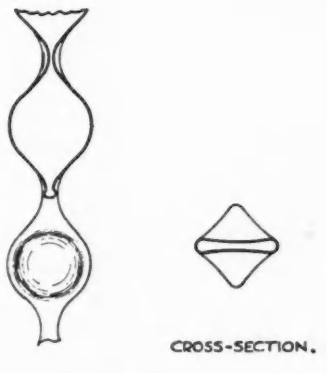


Figure 92. *Indented tube for heating calorifier.*

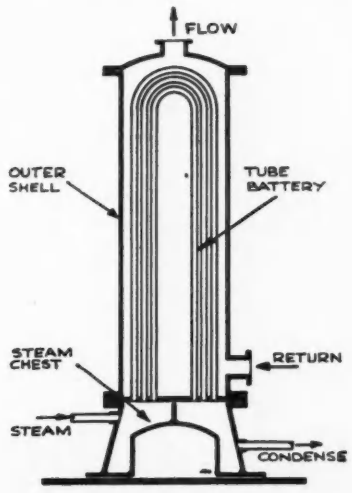


Figure 93. *Right: Vertical steam calorifier for heating.*

Fig. 95, wherein a mid-feather in the shell diverts the incoming water over the full length of the battery and gives, at the same time, a "contra flow" effect whereby the coolest water meets the coolest steam and the hottest water the hottest steam, an arrangement which gives the greatest transmission.

5. The proportioning of the tube surface to the output required is an essential item of calculation in any calorifier. Enquiries sent to six makers for a calorifier of given duty will generally result in as many different areas of heating surface being quoted for.

Conservatism in rating pays, however, since a margin of power over requirements is as desirable with a calorifier as with a boiler, for quick heating-up and rapid response. A little additional tube area adds very little to the cost, so that there is no point in cutting this down to fine limits.

The transmission rate per unit area of heating surface depends on :—

(*a*) The difference of temperature between the steam and water (or high temperature and low temperature water).

(*b*) The coefficient of transmission for the metal of the tubes.

(*c*) The velocity of the water.

Item (*b*) is not important, since the difference between steel and copper, which are the two chief materials used, is not more than 3 or 4 per cent., copper being the higher.

Item (*c*) affects the transmission rate considerably if the calorifier is designed on a high-velocity principle. Normally, however, heating calorifiers are not so designed, and consequently no account is taken of it, the assumption being that the full transmission should be possible with only natural circulation.

Item (*a*), the difference between the steam temperature and the water temperature must be computed for each case. The temperature of steam depends on its pressure (unless superheated), and may be taken from any steam table or from Table XXV.

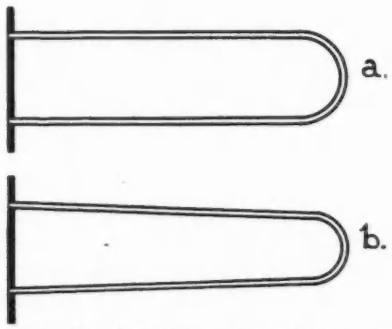


Figure 94. *Calorifier-tubes : a, U tube ; b, hairpin-tube.*

The water temperature is the mean between inlet and outlet. This, strictly, is not the arithmetic mean, but is sufficiently accurate for all practical purposes.

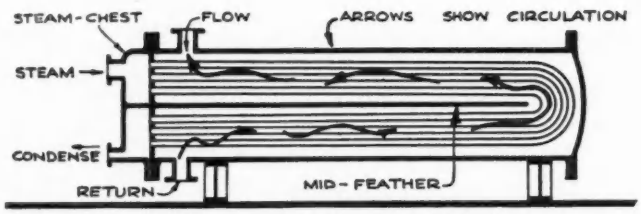


Figure 95. *Steam calorifier with mid-feather.*

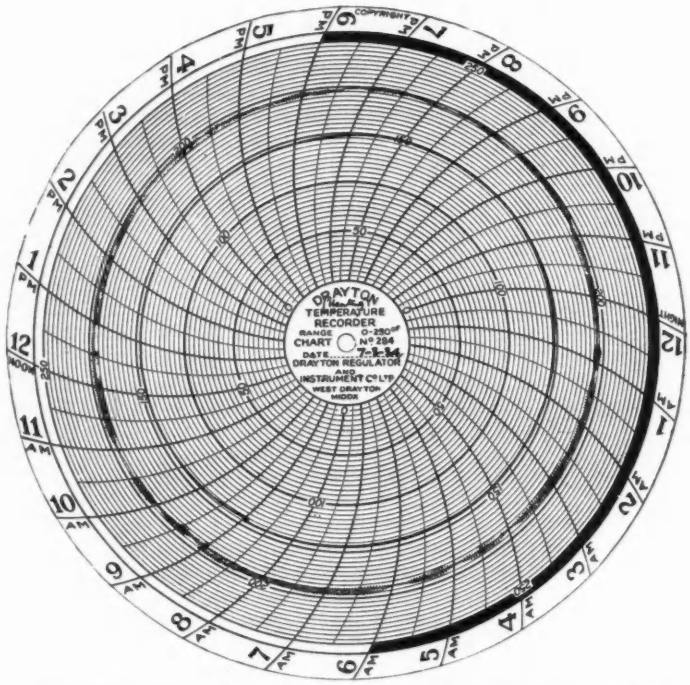


Figure 96. *24-hour temperature chart showing flow and return temperatures for a thermostatically-controlled calorifier installation.*

TABLE XXV
TEMPERATURES OF SATURATED STEAM

Steam Pressure in lb./sq. in. (gauge)	Temperature in ° Fahr.
0	212°
5	228°
10	240°
15	250°
20	259°
30	274°
40	287°
50	298°
75	320°
100	338°
125	353°
150	366°

The coefficient of transmission in B.T.U. per sq. ft. per degree difference depends to some extent on the steam temperature, and may be taken from Table XXVI. A coefficient for water to water is also given in this table, the temperature difference then being the difference between the means in each case.

It should be remembered that the heating surface should be computed on the inside, and not on the outside of the tube. Table XXVII gives the length of pipe required per square foot of heating surface for various sizes of commercial tube for copper and steel.

TABLE XXVI
TRANSMISSION COEFFICIENTS FOR CALORIFIERS
(*a*) *Steam—Water*

Temperature Difference in °F.	Transmission in B.T.U.'s per sq. ft. per 1° F. per hour
50°	140
60°	160
70°	180
80° and over	200

Coefficients given are for heating systems with natural circulation. No allowance being made for furring of coils.

(*b*) *Water—Water.*

Coefficient = 100 B.T.U. per sq. ft. per 1° F. per hour for ordinary temperature differences.

TABLE XXVII
HEATING SURFACE OF CALORIFIER—TUBES

Nominal Diameter of Tube	No. of feet run required to give 1 sq. ft. of Heating Surface on inside surface	
	Iron Tubes (sized on internal diameter)	Copper Tubes (sized on external diameter—16-gauge copper)
¾ in.	5·1	6·1
1 in.	3·8	4·4
1¼ in.	3·0	3·4
1½ in.	2·5	2·8
2 in.	1·9	2·0

Indented tube surfaces are stated to have higher transmission rates than plain tube, but data on this point is not readily available.

6. Mountings for calorifiers are much the same as for boilers. Safety valve, thermometer, and drain cock are essential on the water side, and a steam pressure gauge and trap on the steam side. An altitude gauge connected to the shell is desirable.

Thermostatic control to calorifiers generally effects large savings in steam consumption, and is therefore most desirable. In one installation with which the authors were connected, the operation of such thermostats, after the installation was initially started up with no controls in use, effected a saving of 20 per cent. in the metered steam consumption, owing to the saving in overheating which was otherwise taking place. Fig. 96 gives a chart taken from an installation of calorifiers thermostatically controlled, and the very uniform temperature of output will be noticed.

Such control may be by direct expansion, but the water-operated relay type is much to be preferred for sensitivity, tightness of shut-off, and length of life. Unfortunately, they require maintenance for effective continuous operation. Electric motor-operated steam valves with electric thermostats in the water flow are equally positive and efficient, but suffer from the disadvantage of remaining open if the current should fail when they are in this position. This might in some cases prove dangerous, due to excessive rise of temperature. A solenoid type valve is to be preferred for this reason.

Other items required in connection with calorifiers are supporting cradles, runways or other means for tube withdrawal, and lagging (which will be discussed later). These do not call for comment.

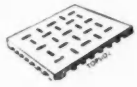
In preparing the lay-out of the plant, the provision of space for tube withdrawal should be borne in mind.

Table XXVIII gives approximate costs and capacities of calorifiers of the cast-iron shell type with copper tubes.

TABLE XXVIII.
APPROXIMATE COSTS AND SIZES OF HEATING CALORIFIERS.

Heating Surface in Sq. Feet.	Capacity in B.T.U. per hour, with water at 150° F. mean.		Overall size, inches.		Approx. Cost, including Fixing.
	Steam at 5 lb./sq. in.	Steam at 50 lb./sq. in.	Length.	Diameter.	£
5	80,000	150,000	40	17	20
7½	120,000	225,000	53	17	22
10	160,000	300,000	50	18	24
12½	200,000	375,000	54	18	27
15	240,000	450,000	58	18	30
20	320,000	600,000	70	18	36
25	400,000	750,000	60	23	40
30	480,000	900,000	65	23	44
35	560,000	1,050,000	72	23	48
40	640,000	1,200,600	80	23	52
50	800,000	1,500,000	88	23	60
60	960,000	1,800,000	80	27	68





TRADE NOTES

This week we publish some notes on the exhibits at the British Industries Fair, Castle Bromwich, by our Birmingham correspondent. The Trade Notes Section by Mr. F. R. S. Yorke will be resumed next week.

B.I.F., Birmingham

THE British Industries Fair at Castle Bromwich was opened on Monday last, and will run until May 31. It is appropriate, therefore, that one should discuss some of the features that will be of especial interest to architects who are visiting the exhibition.

•

One can always be sure that Hope and Sons' exhibit (B.717/616) will be interesting. The main portion of the stand is designed to display patent roof glazing, industrial steel sashes and electrically controlled opening gear in a manner approximating to actual building conditions.

From cheap metal windows for clearance schemes, there are shown examples ranging to patent sliding folding windows which can be folded to either jamb, leaving the window opening entirely free and unobstructed. There are pressed steel door frames with hinges welded to the frame. Pressed steel cavity sub-frames which automatically seal the cavity at window openings in cavity walls are illustrated *in situ*.

Hope's Heating and Lighting exhibit automatic Stoker models for central heating and hot water installations. These Stokers burn a cheap, low grade coal automatically, without stoking. Even temperatures are maintained automatically to suit weather conditions. Fuel is completely consumed, thereby reducing smoke, fumes, attendance and expense to a minimum.

•

The centre of Frederick Braby and Company's stand (B.725) is occupied by a building constructed entirely of their metal products. The exterior walls of this building are left only partly plastered to show the special "dovetail" steel sheeting for walls and ceilings. The steel windows, door frames, stairs, balcony, railings, ventilator, heating panels, etc., and gutters, are all standard Braby products.

•

Perforated ornamental metalwork, such as is produced by G. A. Harvey and Company (B.417/316), for radiator covers, grilles, ventilating panels and pipe guards, has a big demand today. Being produced from the solid sheet it is far stronger and durable than many other materials for the purpose.

Messrs. Harvey are to be congratulated on some of their designs. Such items as filing cabinets, cupboards, shelving, storage bins and racks fabricated in steel are notable for their simple and efficient design in various colours.

Besides the advantage of being fire-resisting, hygienic, proof against rot and vermin, steel equipment has yet another attribute not possessed by wood—the ease with which it can be erected by unskilled labour, dismantled at any time and re-erected without any depreciation.

•

A full range of equipment using oxygen and dissolved acetylene, also arc welding equipment and electrodes, form the exhibit of the British Oxygen & Co. (D.511/410). In the field of oxy-acetylene welding, copper welding with a 3-jet nozzle, rightward welding, and welding with a 2-jet nozzle are demonstrated, in addition to the bronze-welding of joints in copper piping.

In the metal spraying exhibits the high speed unit is exhibited for the first time. This unit effects economy on the spraying of zinc and on metals of high melting point. The value of oxygen machining for the reproduction of parts from plate may be appreciated from the demonstrations of the various types of machines exhibited.

•

Tube Products, Ltd. (No. D.615), has been designed by Mr. Joseph Emberton, F.R.I.B.A. The central feature of the stand is a neon sign, and as far as is practicable the construction of the stand is in the exhibitor's own product, that is, electrically welded steel tube. It is designed to show as many uses as possible of this type of tube. There is also a model of a modern road house which demonstrates the utility of steel tube.

•

The stand of Zinc Alloy Rust Proofing Company (B.728), serves as a technical information bureau where particulars of the rust proofing of ironwork and fittings by the Sheradizing process may be obtained.

Various samples may be seen, and the exhibit includes specimens demonstrating the life of Sheradizing under exposed conditions.

•

The British Electrical Development Association (C.519/418) is represented at a kiosk in the centre of the electrical section. This year the kiosk is decorated with a series of illuminated dioramas illustrating the applications of electricity in the home, the factory and in public works. Two panels graphically display the growth of the electrical industry during the King's reign.

•

On the Dunlop Rubber Co's stand (D.609) there is a full display of Dunlopillo cushioning, the new upholstery filling. Three years ago, Dunlopillo cushioning was installed in the Shakespeare Memorial Theatre, and has also been selected for many other buildings, including the R.I.B.A. headquarters.

Other comfort ideas with this material are loose cushions for woven fibre chairs, and carpet underlay, which gives a silent tread and lengthens the life of even the most inexpensive carpet.

•

On Messrs. Langley London Ltd.'s stand (D.110) a photographic design covers the

The illustrations at the top of this page show the underside and top of a Stelcon Anchor steel plate. Langley (London) Ltd.

walls, forming a mural which portrays some of the many users of Stelcon anchor steel plates in different parts of the world and in a wide range of industries.

Stelcon anchor steel plates are already well known in factories. The plates are formed of steel, and on the underside of each plate fifty-seven anchors are arranged in nine different directions, so that when laid in concrete each anchor grips firmly to form a level all-steel floor. With the increasing use of heavy machinery and trucks in industry, this type of heavy duty flooring is becoming more necessary.

•

An electrically heated hydraulic press demonstrating the actual process used in moulding their products is a feature of the exhibits of Mouldrite, Ltd. (Imperial Chemical Industries, D. 503/402.) A range of finished articles illustrates the variety of uses to which urea and phenol formaldehyde powders are now put. They include laminated panels impregnated with urea resins, these panels being coloured in soft grey shades with a pleasant unusual effect; electric fire hearths made from moulded tiles, with hearth furniture in urea materials; and abrasive wheels bonded together with Mouldrite synthetic resin.

Nobel Chemical Finishes, Ltd. (B. 427) have chosen a good way of displaying their wide range of products for industrial and decorative uses. Their large stand, designed by Mr. H. St. J. Harrison, F.R.I.B.A., shows a modern living-room and kitchen the contents of which are finished with Nobel paints and varnishes.

The tables and chairs, for instance, are finished with Belco wood finishes, electric light fittings with cellulose lacquers, and electric fires and radiators with heat-resisting finishes.

The kitchen illustrates the use of suitable synthetic and cellulose materials on refrigerators, water softeners, gas cookers, metal furniture and other forms of kitchen equipment.

•

A display has been organized by the Coal Utilisation Council (B.602), as representative of both the producers and distributors, in close association with the Coal-burning Appliance Makers' Association. The exhibits include examples of up-to-date appliances for the utilization of solid fuel as well as samples of the particular fuels suitable for use with each.

Amongst the exhibits are the following: up-to-date cookers, such as the Aga; the Briffo Double Oven, manufactured by Messrs. Crittall, Ltd., which combines an open fire with cooking range; the Super Kooksjoie, made by the London Warming Company; and the Taycoette cooker and boiler, by Robert Taylor & Co. There is also the Ure back-to-back, which gives an open fire in the living-room and an oven in the kitchen and provides a supply of hot water.

•

Among the well-known range of Triplex (B.505/404) products one observes a newcomer of greatly improved design, particularly from the aspect of appearances. Every architect knows the difficulty of keeping the looks of a kitchen as simple as possible.

In the Triplex K range all the front castings are enamelled in grey porcelain finish and, as the range is installed and working properly its capacity and efficieny may be tested.

•

The idea of a balanced door—that is, one which, working on a sash principle, is capable of lifting horizontally and leaving a completely free opening—is one that is bound to recommend itself for all sorts of uses.

There is an opportunity for one to inspect this type of door at the exhibit of Messrs. Hawkes and Snow, Ltd. (B.323).

Although executed examples confine themselves largely to factory and garage uses, the principle is one that offers many possibilities for internal uses in these days when it is quite usual to have suites of rooms capable of being thrown into one, even in the most dignified of buildings.

IN THAT CONTINGENCY

The following abstracts of inquiries represent a number of those recently submitted to the Building Research Station. The information given in the replies quoted is based on available knowledge. It has to be borne in mind that further scientific investigations may, in the course of time, indicate directions in which the replies might be supplemented or modified. Moreover, the replies relate to the specific subject of each inquiry, and are not necessarily suitable for general application to all similar problems. Crown Copyright Reserved.

Use of Aluminium in Insulation of Roofs

¶ *An architect was considering various methods of insulating flat roofs and had seen a report of the effectiveness of aluminium sheet as an insulation. He therefore proposed to use it in the construction of roofs for a block of flats.*

The structural part of the roof was in reinforced concrete and hollow tile, this to be covered with cement screeding, and a built-up bituminous felt roof. On this it was proposed to lay the aluminium sheeting, the finish to consist of breeze cement tiles about ⅝ in. thick. Comments on the method of construction were requested.

Metal sheeting is not in itself a good heat insulator like material such as cork, but it has been found that the insulating value of a closed air-space may be increased by the application of a bright metallic finish to one or both of the internal surfaces.

Aluminium has therefore little insulating effect unless used in conjunction with air-spaces. In a "solid" roof structure these may conveniently be formed between the ceiling and the roof slab. Two methods of construction involving the use of aluminium-covered paper are shown in the sketch (Fig. 1) below; of these "A," though probably the more expensive to construct, is preferable on account of the greater uniformity of the air spaces provided.

It should be pointed out, however, that the Building Research Station has not had sufficient experience of this method of roof insulation to ascertain whether the effect of tarnishing of the metallic surfaces is liable to diminish its effectiveness after a period of years.

Insulation of this kind is of value chiefly in reducing heat flow outwards through the roof in cold weather. In hot weather, when excessively high temperatures may be reached under a bituminous roof covering, the benefits are small in comparison with those to be obtained by the use of a white external surface. In the present case the breeze-cement tiles, if kept white, should provide adequate protection against absorption of solar heat, though it is considered that a concrete containing a less porous aggregate could be better depended upon to preserve a light, reflective surface. In view also of the severity of the exposure it is doubtful whether it is advisable to use an aggregate such as breeze, the soundness of which is uncertain.

Limewash for External Use

¶ *A BUILDER asked for particulars of the ingredients and proportions of materials for mixing lime-wash for external use on brickwork or rendered walls, or on roughcast. His interest was principally in the tallow-bound wash.*

Some years ago, a number of "home-made" lime washes and water paints were made up at the Building Research Station, and their behaviour when exposed out of doors was observed. The materials tested included lime washes, with or without whiting, with various binders, such as casein glue or oil. These, when painted out on a smooth surface, would not withstand more than a few months' exposure unless they were protected from sunshine or rain. On rough surfaces they lasted longer. When applied to brickwork built of common pressed bricks, the surface texture of which varied from a dense, almost glazed, surface in some places to a porous open texture in others, a patchy effect developed after a few weeks or months of exposure.

However, of simple lime washes, two "home-made" mixes have given fairly good results on brick. These were based on a cement-lime mix and on the traditional lime and tallow mix respectively.

The mix containing cement is most conveniently prepared with a dry hydrated lime. Three parts of the lime and one part of Portland cement (by volume) are thoroughly mixed dry.

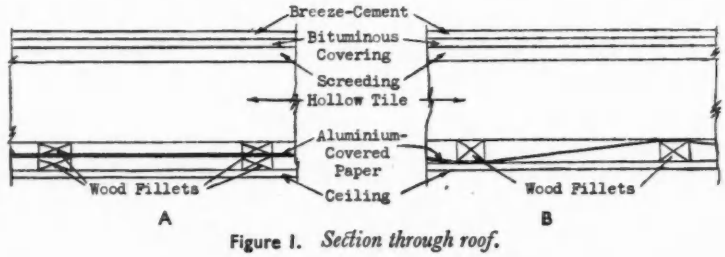


Figure 1. *Section through roof.*

The mixture is added to water with constant stirring, so as to produce a thick slurry. It is then applied thickly, with a brush. A second coat may be necessary on some surfaces. No attempt should be made to brush it out. Pigments may be added if desired: they should be of the lime-fast type, suitable for use as colours in concrete, and thoroughly mixed in with the dry lime and cement mixture. Considerable care is necessary to avoid a streaky effect. If either the lime or cement is lumpy, the dry mix should be passed through a fine sieve before use. When pigments are used, a large batch should be prepared and used to cover a complete panel or unit of the surface at once, otherwise a difference between one batch and another may become unpleasantly conspicuous. A preliminary trial is recommended before starting, and there should be careful control of the amount of pigment added.

The lime-tallow mix is rather expensive in tallow, although for less important work the proportions given below may be somewhat reduced. The hiding power is not very great, especially when the wash is damp, but the tallow-compounded lime-wash is much less readily affected by rain than most other simple mixtures. It is not suitable for smooth surfaces nor for wood exposed to weathering. A mixture mentioned in THE ARCHITECTS' JOURNAL, May 30, 1928, is made up as follows:—

"One bushel of fresh quicklime is placed in a barrel with 20 lb. fresh beef tallow, slaked with hot water, and covered over with a sackcloth to keep in the steam." It is ready for use when cool. Dry colours may be added if desired.

The best way to introduce the colours into the lime mixes is to add them before slaking the lime, and then to run the slaked product through a fine sieve to remove all lumps and unslaked particles.

THE BUILDINGS ILLUSTRATED

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue:—

Extensions to Students' Union, University of Liverpool (pp. 799-801). General contractors, Wm. Moss and Sons, Ltd. Sub-contractors: J. Rearden, demolition; Frank White, Ltd., steelwork; Hollow Steel Floor Co., patent flooring; Ravenhead Brick Co. and West Lancashire Brick Co., Ltd., bricks; H. Tyson Smith and Pearson Bros. and Campbell, cast stone; R. W. Haughton, Ltd., plumbing; David Peters, heating; F. B. Hellon & Co., Ltd., electric lighting; A. V. Milton & Co. and F. B. Hellon & Co., Ltd., stage lighting; Liverpool Corporation Electric Supply Department, cooking apparatus; Rea Metal Casements, metal windows and glazing; T. Southworth and Sons, Ltd., plastering; Magnesite Terrazzo Composite Flooring Co., floors (composition); Bartle, Simonds & Co., floors (wood); W. R. Burden, furniture and panelling; George Lowe and Sons, Ltd., and J. Burden, metal work; Williams, Gamon & Co., patent glazing; Frank Gaskin, painting; Lewis's, Ltd., and Bon Marché, carpets, linoleum, curtains, furniture and seating; Mather and Platt, Ltd., fireproof doors; W. and R. Leggott, Ltd., locks and furniture; Waygood-Otis, Ltd., lifts; Concrete Unit Co., Ltd., non-slip treads; Luxfer, Ltd., stack room fittings; Synchromatic Time Recording Co., Ltd., electric clocks; James Carter, safety curtains; Thornborough and Sons, roller shutters; H. G. Riddell, lightning conductor.

Extension to restaurant at Whipsnade (pages 807–809). General contractors, J. L. Kier & Co., Ltd. Sub-contractors: Celotex, Ltd., acoustic tiles and ceiling; Lenscrete, Ltd., glass brick wall; Paint and Cellulose Spray, Ltd., painting; Joseph Sankey and Sons, Ltd., window cills; Hampton and Sons, Ltd., linoleum; Williams and Williams, Ltd., windows, doors and glazing; G. N. Haden and Sons, Ltd., heating and wiring; Troughton and Young, Ltd., light fixtures.

Pair of houses at Ruislip (pages 812-813). General contractors, Walter Taylor, Ltd. Sub-contractors: Gibbons, electrical work; Vigers, Sons & Co., Ltd., parquet floors; Cellulum Flooring Co., floors generally; Central Joinery, joinery; W. Froy and Sons, Ltd., sanitary fittings and tile cills and wall tiles; Parker, Winder and Achurch, door furniture, gates and fencing; Crittall Manufacturing Co., Ltd., metal windows and doors; Balmer, glazing generally; Triplex Glass Co., Thermolux glass; Sissons Brothers & Co., Ltd., paint (exterior); John Line and Sons, Ltd., paint (interior); Cockburn, sliding door track; A. Johnson & Co., metal sink; Ideal Boilers and Radiators, central heating and domestic boiler; Troughton and Young, Ltd., electrical fittings; Excel Asphalte Co., Ltd., asphalt roofs; Crabtree, electric switches; Art Pavements and Decorations, Ltd., floor tiling; Manu Marble Co., marble fireplace surround; Twisteel Reinforcement, Ltd., steel reinforcement; Light Steelwork, Ltd., handrailing; Donnacona, insulation board; Hydro Keens, interior plaster; Argo Cabinet Works, flush doors; W. H. Ebden, garden lay-out; Finmar, Ltd., furniture.

Messrs. G. M. Callender & Co., Ltd., inform us that they were responsible for the Ledkore dampcourses at the Factory at Hatfield, illustrated in our last issue.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

BATTERSEA. *School.* The L.C.C. recommends a grant of £55,000 to the governors of the Battersea Grammar School for the transfer of the school to a site in Drewstead Road, Streatham.

EALING. *Houses.* Messrs. Swannell and Sly have prepared plans for the erection of 47 houses at Girton Road, by the Hillingdon Estate Company.

EALING. *Flats.* Mr. F. Byford is to erect 80 flats, in blocks, at Haven Green, to plans prepared by Mr. S. H. West, 40 The Broadway, W.5.

EALING. *Extensions.* Alterations and additions are to be made to the works of the Middlesex County Times Printing and Publishing Co., Ltd., at No. 61 The Broadway, W.5. The architects are Messrs. Hall-Jones and Partners, Haven Green, W.5.

EALING. *Schools.* The Town Council has approved sketch plans, for submission to the Board of Education, of new schools to be erected at Perivale, North Hanwell, and West Northolt.

EALING. *Flats.* A block of 45 flats is to be erected at Eaton Rise and Montpelier Road by Messrs. W. H. Read & Co., Ltd., 41 and 42 Haven Green, W.5.

GREENFORD. *Flats.* Messrs. E. H. Williams, Deacon & Co., of 69 Moorgate, E.C.2, acting for Mr. G. Willey, have submitted plans for the erection of a block of 18 flats, 12 garages and cloakroom at Ruislip Road. The plans have been approved.

GREENFORD. *Houses.* Messrs. B. Smith and Son (Builders), Ltd., are to proceed with the development of part five of the Greenford Estate by the erection of 163 houses. The architects Mr. J. M. Wilson, Western Chambers, Station Approach, Hayes.

KENTON. *Church.* The Forty Five Churches Fund of the London Diocese have decided upon the immediate erection of a church for the parish of St. Leonards, Kenton, at an estimated cost of £20,000.

PERIVALE. *Flats and Shops.* Mr. H. J. Mark, 63 Mason's Avenue, Wealdstone, has submitted lay-out plans for the proposed erection of a block of 30 flats, and four shops with eight flats over at Hanger Lane and Station Road.

PERIVALE. *Factory.* Messrs. Percy Bilton (Properties) Ltd., 113, Park Street, W.1, have submitted plans for the erection of a factory at Wadsworth Road for the Philco Radio and Television Corporation Ltd.

ST. PANCRAS. *School.* The L.C.C. Education Committee is to rebuild the Haverstock central school, St. Pancras, at a cost of £27,785.

SOUTHERN COUNTIES

BIDBOROUGH. *Development.* London and Home Counties Property Investments Ltd. is to develop, the Great Bounds Estate, Bidborough, Kent.

CHISLEHURST. *School.* The Kent Education Committee has approved plans for the erection of a county school for 660 boys at Chislehurst.

GRAVESEND. *School.* The Kent Education Committee has approved plans for the erection of a county school for 660 boys at Gravesend.

MAIDSTONE. *School.* The Kent Education Committee has approved plans for new premises for the Maidstone Grammar school to accommodate 570 girls.

NORTHFLEET. *School.* The Kent Education Committee is to erect a girls' central school at Northfleet.

SEVENOAKS. *Housing.* The R.D.C. is in negotiation for land at Brasted Chart for housing purposes.

SOUTH-WESTERN COUNTIES

PLYMOUTH. *Cottages and Tenements.* The Sutton Trust is to erect 260 cottages and 60 tenements at St. Budeaux, Plymouth.

PLYMOUTH. *Houses, etc.* Plans passed by the Corporation: 26 houses, Norfolk Road, Laira, for Mr. J. Neal; 11 houses, Rosedale Avenue, Peverell, for Mr. C. R. Tozer; five houses, Vine Estate, for Mr. R. Tolkein; three houses, Churchill Way, for Mr. A. White; six houses, Orchard Road, for Mr. F. Westcott; 14 houses, Sunny Hill estate, St. Budeaux, for Messrs. Coad Brothers; 16 houses, St. Levan Road, for St. Aubyn Estates, Ltd.; six houses, Bute Road, for Messrs. Donald and Tucker; 26 houses, Mainstone Avenue, Prince Rock, for Miss L. Cohen; alterations and additions, Nursing Home, Durnford Street, for Three Towns Nursing Association; alterations, Sherwell Church, for Congregational trustees.

MIDLAND COUNTIES

BEDWORTH. *Extensions to School.* The Warwickshire Education Committee is to prepare plans for extensions at the Exhall Ash Green School, Bedworth.

BRAUNSTONE, ETC. *Schools.* The Leicestershire Education Committee has purchased three sites in the Braunstone and Leicester Forest areas for the erection of modern and junior schools.

NORTHAMPTON. *Reservoir.* The Corporation is to complete the Hollowell Valley reservoir scheme, at a cost of £138,000, as recommended by Mr. Edward Sandeman, the consulting engineer.

RUGBY. *College.* The Warwickshire Education Committee has approved a scheme for the erection of a College of Technology and Arts at Rugby, at a cost of £97,500.

STRATFORD-ON-AVON. *School.* The Warwickshire Education Committee is considering the provision of a girls' secondary school at Stratford-on-Avon.

NEWTOWN LINFORD. *Development.* Mr. W. Smith is to develop an estate near Groby Road, Newtown Linford, Leicestershire.

NORTHERN COUNTIES

YORK. *Housing.* The Corporation has sold 1¼ acres of land in Hull Road to Mr. H. Williamson for the erection of houses.

YORK. *Houses, etc.* Plans passed by the Corporation: 51 houses, Leslie Avenue, etc., for Mr. S. Newman; four houses, Beck Lane, for Mr. T. F. Clark; additions, Queen Inn, Lawrence Street, for Tadcaster Tower Brewery Co., Ltd.; house and four flats, Crossways, for Messrs. Collins and Murray, Ltd.; eight houses, Birbeck estate, for Mr. T. Gledhill;

(*Continued on page xxx*)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on-Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_2	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M.	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett	N.E. Coast	1 5	1 0½
A_2	Conway	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley ..	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham	N.E. Coast	1 5½	1 1½
A_2	EASTBOURNE	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S.W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W.Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley ..	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_2	Kendal ..	N.W. Counties	1 4	1 0
A_2	Keswick ..	N.W. Counties	1 4	1 0
A_2	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12-15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N. E. Coast	1 5½	1 1½
A_2	Middlewich ..	N. W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid. Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham ..	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford ..	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_2	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid. Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan ..	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	,,	1	7
Joiner	,,	1	7
Machinist	,,	1	8
Mason (Banker)	,,	1	7
,, (Fixer)	,,	1	8
Plumber	,,	1	7
Painter	,,	1	6
Paperhanger	,,	1	6
Glazier	,,	1	7
Slater	,,	1	7
Scaffolder	,,	1	3
Timberman	,,	1	3
Navvy	,,	1	2½
General Labourer	,,	1	2½
Lorryman	,,	1	5
Crane Driver	,,	1	6
Watchman	per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	,,	1	16	6
Hydrated Lime	,,	3	0	9
Portland Cement, in 4 ton lots (d/d site, including Paper Bags)	,,	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	,,	2	6	0
White Portland Cement, in 1-ton lots	,,	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	,,		6	9
Building Sand	,,		7	3
Washed Sand	,,		8	3
2" Broken Brick	,,		8	0
¾" ,, ,,	,,		10	3
Pan Breeze	,,		6	6
Coke Breeze	,,		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	,,	3	6	5	3
Rest Bends	,,	4	3	6	3
Single Junctions	,,	3	6	5	3
Double ,,	,,	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¼" Channel bends	each	2	9	4	0
Channel junctions	,,	4	6	6	6
Channel tapers	,,	2	9	4	0
Yard gullies	,,	6	9	8	9
Interceptors	,,	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	,,	9	0	15	0
Single junctions	,,	8	9	18	0
Double junctions	,,	13	6	30	0
Lead Wool	lb.		6		—
Gaskin	,,		5		—

BRICKLAYER

		£	s.	d.
Flettons	per M.	2	15	0
Grooved do.	,,	2	17	0
Phorpres bricks	,,	2	15	0
,, Cellular bricks	,,	2	15	0
Stocks, 1st quality	,,	4	11	0
,, 2nd ,,	,,	4	2	6
Blue Bricks, Pressed	,,	8	17	6
,, Wirecuts	,,	7	17	6
,, Brindles	,,	7	0	0
,, Bullnose	,,	9	0	0
Red Sand-faced Facings	,,	6	18	6
Red Rubbers for Arches	,,	12	0	0
Multicoloured Facings	,,	7	10	0
Luton Facings	,,	7	10	0
Phorpres White Facings	,,	3	17	3
,, Rustic Facings	,,	3	12	3
Midhurst White Facings	,,	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	,,	21	0	0
Headers	,,	20	10	0
Bullnose	,,	27	10	0
Double Stretchers	,,	29	10	0
Double Headers	,,	26	10	0
Glazed Second Quality, *Less*	,,	1	0	0
,, Buffs and Creams, *Add*	,,	2	0	0
,, Other Colours	,,	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" ,, ,, ,,	,,		1	10
3" ,, ,, ,,	,,		2	1
4" ,, ,, ,,	,,		2	6

MASON

		s.	d.
The following d/d F.O.R. at Nine Elms:			
Portland stone, Whitbed	F.C.	4	4½
,, ,, Basebed	,,	4	7½
Bath stone	,,	2	10
York stone	,,	6	6
,, ,, Sawn templates	,,	7	6
,, ,, Paving, 2"	F.S.	1	8
,, ,, ,, 3"	,,	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	,,	24	10	0
20" × 10" Countesses	,,	19	5	0
18" × 10" Viscountesses	,,	15	10	0
18" × 9" Ladies	,,	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey per 1,000 (actual)		21	11	6
,, ,, green ,,	,,	24	7	4
Best machine roofing tiles	,,	4	10	0
Best hand-made do.	,,	5	0	0
Hips and valleys	each			9½
,, hand-made	,,			10
Nails, compo	lb.		1	4
,, copper	,,		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	,, ,,		5
,, ,, 2nds	,, ,,		4
Mahogany, Honduras	,, ,,	1	3
,, African	,, ,,	1	1
,, Cuban	,, ,,	2	6
Oak, plain American	,, ,,	1	0
,, Figured ,,	,, ,,	1	3
,, plain Japanese	,, ,,	1	2
,, Figured ,,	,, ,,	1	5
,, Austrian wainscot	,, ,,	1	6
,, English	,, ,,	1	11
Pine, Yellow	,, ,,	1	0
,, Oregon	,, ,,		4
,, British Columbian	,, ,,		4
Teak, Moulmein	,, ,,	1	3
,, Burma	,, ,,	1	1
Walnut, American	,, ,,	2	3
,, French	,, ,,	2	3
Whitewood, American	,, ,,	1	1
Deal floorings, ¾"	Sq.	18	6
,, 1"	,,	1	1	6
,, 1¼"	,,	1	2	0
,, 1½"	,,	1	5	0
,, 1¾"	,,	1	10	0
Deal matchings ¾"	,,		14	0
,, 1"	,,		15	6
,, 1¼"	,,	1	4	0
Rough boarding ¾"	,,		16	0
,, 1"	,,		18	0
,, 1¼"	,,	1	6	0

Plywood, per ft. sup.

Thickness	¼"	⅜"	½"	¾"	1"
Qualities	AA.A.B.	AA.A.B.	AA.A.B.	AA.A.B.	AA.A.B.
	d. d. d.	d. d. d.	d. d. d.	d. d. d.	d. d. d.
Birch	4 3 2	5 4 3	7½ 6 4½	8½ 7 6	
Alder	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6	
Gaboon Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –	
Figured Oak 1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –	
Plain Oak 1 side	6½ 6 –	7½ 7 –	9½ – –	1/- – –	
Oregon Pine	5 4 –	5½ 5 –	6 – –	– – –	

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

		¼"	⅜"	½"	¾"	1"	1¼"	2"
Tubes, 2'-14' long, per ft. run		4	5½	9½	1/1	1/10		
Pieces, 12"-23" long	each	10	1/1	1/11	2/8	4/9		
,, 3"-11½" long	,,	7	9	1/3	1/8	3/-		
Long screws, 12"-23½" long	,,	11	1/3	2/2	2/10	5/3		
,, ,, 3"-11½" long	,,	8	10	1/5	1/11	3/6		
Bends	,,	8	11	1/7½	2/7½	5/2		
Springs not socketed	,,	5	7	1/1½	1/11½	3/11		
Socket unions	,,	2/-	3/-	5/6	6/9	10/-		
Elbows, square	,,	10	1/1	1/6	2/2	4/3		
Tees	,,	1/-	1/3	1/10	2/6	5/1		
Crosses	,,	2/2	2/9	4/1	5/6	10/6		
Plain sockets and nipples	,,	3	4	6	8	1/3		
Diminished sockets	,,	4	6	9	1/-	2/-		
Flanges	,,	9	1/-	1/4	1/9	2/9		
Caps	,,	3½	5	8	1/-	2/-		
Backnuts	,,	2	3	5	6	1/1		
Iron main cocks	,,	1/6	2/3	4/2	5/4	11/6		
,, with brass plugs	,,	—	4/-	7/6	10/-	21/-		

Discounts:

	Tubes. Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	,, water	47½
Steam	57½	,, steam	42½

	Fittings.		
Gas	57½	Galvanized gas	47½
Water	52½	,, water	42½
Steam	47½	,, steam	37½

SMITH AND FOUNDER—*continued.*

		s.	d.
Rolled steel joists cut to length	cwt.	12	9
Mild steel reinforcing rods, ⅜"	,,	9	6
,, ,, ½"	,,	9	3
,, ,, ⅝"	,,	9	0
,, ,, ¾"	,,	8	6
,, ,, ⅞"	,,	8	6
,, ,, 1"	,,	8	6
,, ,, 1¼"	,,	8	6
,, ,, 1½"	,,	8	6

		¾" s.	¾" d.	4" s.	4" d.
Cast-iron rain-water pipes of ordinary thickness metal	F.R.		8		10
Shoes	each	2	0	3	0
Anti-splash shoes	,,	4	6	8	0
Boots	,,	3	0	4	0
Bends	,,	2	7	3	9
,, with access door	,,		—	6	3
Heads	,,	4	0	5	0
Swan-necks up to 9" offsets	,,	3	9	6	0
Plinth bends, 4½" to 6"	,,	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal	F.R.		5		6
Stop ends	each		6		6
Angles	,,	1	7	1	11
Obtuse angles	,,	2	0	2	6
Outlets	,,	1	9	2	3

PLUMBER

		s	d.
Lead, milled sheets	cwt.	19	6
,, drawn pipes	,,	19	0
,, soil pipe	,,	19	6
,, scrap	,,	11	6
Solder, plumbers'	lb.		9½
,, fine do.	,,	1	0
Copper, sheet	,,		8½
,, tubes	,,		11

L.C.C. soil and waste pipes:		3" s.	3" d.	4" s.	4" d.	6" s.	6" d.
Plain cast	F.R.	1	0	1	2	2	8
Coated	,,	1	1	1	3	2	8
Galvanized	,,	2	0	2	6	4	6
Holderbats	each	3	10	4	0	4	9
Bends	,,	3	9	5	3	10	3
Shoes	,,	2	10	4	4	9	6
Heads	,,	4	8	8	5	12	9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	,,	2	10	0
,, fine	,,	4	15	0
Hydrated lime	,,	3	0	9
Sirapite	,,	3	6	0
Keene's cement	,,	5	0	0
Gothite Plaster	,,	3	6	0
Pioneer Plaster	,,	3	3	0
Thistle plaster	,,	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
,, rent	,,		3	9
Lath nails	lb.			3

GLAZIER

		s	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.	F.S.				2½
,, ,, 26 oz.	,,				3
Flemish, Arctic, Figures (white)*	,,				7
Blazoned glasses	,,			2	6
Reeded; Cross Reeded	,,				11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite	,,				6
Crown sheet glass (n/e 12 in. x 10 in.)	,,			2	0
Flashed opals (white and coloured)	,,	1	0 and	2	0
¼" rough cast; rolled plate	,,				5½
¼" wired cast; wired rolled	,,				9½
¼" Georgian wired cast	,,				11
¼" Polished plate, n/e 1 ft.	,,	†10	to ‡1		1
,, ,, 2	,,	†1	8 ,, ‡1		4
,, ,, 4	,,	†2	3 ,, ‡2		6
,, ,, 8	,,	†2	9 ,, ‡3		2
,, ,, 20	,,	†3	7 ,, ‡4		2
,, ,, 45	,,	†3	11 ,, ‡4		7
,, ,, 100	,,	†5	0 ,, ‡5		7
Vita glass, sheet, n/e 1 ft.	,,				1
,, ,, ,, 2 ft.	,,				3
,, ,, ,, over 2 ft.	,,				9
,, ,, plate, n/e 1 ft.	,,				6
,, ,, ,, 2 ft.	,,				3
,, ,, ,, 5 ft.	,,				4
,, ,, ,, 7 ft.	,,				5
,, ,, ,, 15 ft.	,,				6
,, ,, ,, over 15 ft.	,,				7
"Calorex" sheet 21 oz., and 32 oz.	,,	2	6 and	3	6
,, rough cast ¼" and ½"	,,		8½ ,,	1	0
Putty, linseed oil	lb.				3

* *Colours, id. F.S. extra.*
† *Ordinary glazing quality.* ‡ *Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	8	6
Linseed oil	gall.		2	3
Boiled oil	,,		2	9
Turpentine	,,		4	1½
Patent knotting	,,		14	0
Distemper, washable	cwt.	2	6	0
,, ordinary	,,	2	0	0
Whitening	,,		4	0
Size, double	firkin		3	0
Copal varnish	gall.		13	0
Flat varnish	,,		14	0
Outside varnish	,,		16	0
White enamel	,,	1	15	0
Ready mixed paint	,,		13	6
Brunswick black	,,		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR

		£ s. d.
Digging over surface n/e 12″ deep and cart away	Y.S.	2 9
,, to reduce levels n/e 5′ 0″ deep and cart away	Y.C.	8 6
,, to form basement n/e 5′ 0″ and cart away	,,	9 0
,, ,, 10′ 0″ deep and cart away	,,	9 6
,, ,, 15′ 0″ deep and cart away	,,	10 0
If in stiff clay	add ,,	6
If in underpinning	,,	4 0
Planking and strutting to sides of excavation	F.S.	1 0
,, ,, to pier holes	,,	5
,, ,, to trenches	,,	5
,, ,, extra, only if left in	,,	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	,,	1 6 0
,, ,, (4-2-1)	,,	1 12 6
,, ,, underpinning	,,	1 16 0
Finishing surface of concrete, space face	Y.S.	7

DRAINLAYER

		4″ s. d.	6″ s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
,, junctions	,,	3 9	4 6
Gullies and gratings	,,	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER

		£ s. d.
Brickwork, Flettons in lime mortar	Per Rod	26 10 0
,, ,, in cement	,,	27 12 6
,, Stocks in cement	,,	34 0 0
,, Blues in cement	,,	50 0 0
Extra only for circular on plan	,,	2 0 0
,, backing to masonry	,,	1 10 0
,, raising on old walls	,,	2 0 0
,, underpinning	,,	5 10 0
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	,,	8
,, ,, ,, red brick facings and pointing	,,	11
,, ,, ,, blue brick facings and pointing	,,	1 4
,, ,, ,, glazed brick facings and pointing	,,	3 6
Tuck pointing	,,	7½
Weather pointing in cement	,,	3
Slate dampcourse	,,	10
Vertical dampcourse	,,	1 1

ASPHALTER

		s. d.
½″ Horizontal dampcourse	Y.S.	4 6
½″ Vertical dampcourse	,,	6 9
½″ paving or flat	,,	4 0
1″ paving or flat	,,	5 6
1″ × 6″ skirting	F.R.	1 0
Angle fillet	,,	2
Rounded angle	,,	2
Cesspools	Each	5 0

MASON

		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	,,	13 6
Artificial stone and do	,,	13 0
York stone templates, fixed complete	,,	10 6
,, thresholds	,,	13 6
,, sills	,,	1 0 6

SLATER AND TILER

		£ s. d.
Slating, Bangor or equal, laid to a 3″ lap, and fixing with compo nails, 20″ × 10″	Sqr.	3 10 0
Do., 18″ × 9″	,,	3 7 0
Do., 24″ × 12″	,,	3 17 0
Westmorland slating, laid with diminished courses	,,	6 0 0
Tiling, best hand-made sand-faced la,id to a 4″ gauge, nailed every fourth course	,,	3 0 0
Do., all as last, but of machine-made tiles	,,	2 16 0
20″ × 10″ medium Old Delabole slating, laid to a 3″ lap (grey)	,,	2 16 0
,, ,, ,, ,, ,, (green)	,,	4 15 0

CARPENTER AND JOINER

		£ s. d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2 2 6
Shuttering to sides and soffits of beams	F.S.	7
,, to stanchions	,,	7
,, to staircases	,,	1 6
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	,,	4 6
,, ,, roofs	,,	6 6
,, ,, trusses	,,	7 6
,, ,, partitions	,,	8 6
¾″ deal sawn boarding and fixing to joists	Sqr.	1 14 6
1″ ,, ,, ,, ,,	,,	1 17 6
1¼″ ,, ,, ,, ,,	,,	2 3 0
8″ × 2″ fir battening for Countess slating	,,	9 0
Do. for 4″ gauge tiling	,,	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
,, ,, ,, 2 ,,	,,	2 9
,, ,, ,, 3 ,,	,,	3 3
Stout herringbone strutting to 9″ joists	F.R.	10½
1″ deal gutter boards and bearers	F.S.	1 2
1½″ ,, ,, ,,	,,	1 6
2″ deal wrought rounded roll	F.R.	8
1″ deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼″ do.	,,	2 10 0
1½″ do.	,,	2 17 0
1″ deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1¼″ do.	,,	1 9

CARPENTER AND JOINER—*continued*

		s. d.
1½″ deal moulded sashes of average size	F.S.	1 9½
2″ ,, ,, ,, ,,	,,	1 11½
1½″ deal cased frames double hung, of 6″ × 3″ oak sills, 1¼″ pulley stiles, 1¼″ heads, 1″ inside and outside linings, ⅝″ parting beads, and with brass faced axle pulleys, etc., fixed complete	,,	3 7
2″ ,, ,, ,, ,,	,,	3 10
Extra only for moulded horns	Each	6
1½″ deal four-panel square, both sides, door	F.S.	2 0
2″ ,, ,, ,, ,,	,,	2 8
1½″ ,, but moulded both sides	,,	2 4
2″ ,, ,, ,, ,,	,,	3 0
4″ × 3″ deal, rebated and moulded frames	F.R.	1 0
4½″ × 3½″ ,, ,, ,,	,,	1 4
1½″ deal tongued and moulded windo board, on and including deal bearers	F.S.	1 9
1½″ deal treads, 1″ risers in staircases, and tongued and grooved together on and including strong fir carriages	,,	2 6
1½″ deal moulded wall strings	,,	2 1
1½″ ,, outer strings	,,	2 4
Ends of treads and risers housed to string	Each	1 9
3″ × 2″ deal moulded handrail	F.R.	1 3
1″ × 1″ deal balusters and housing each end	Each	2 0
1½″ × 1½″ ,, ,, ,,	,,	2 9
3″ × 3″ deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	,,	6 0

SMITH AND FOUNDER

		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	16 6
Riveted plate or compound girders, and hoisting and fixing in position	,,	1 0 6
Do., stanchions with riveted caps and bases and do.	,,	19 0
Mild steel bar reinforcement, ⅜″ and up, bent and fixed complete	,,	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER

		£ s. d.
Milled lead and labour in flats	cwt.	1 13 0
Do. in flashings	,,	1 16 6
Do. in covering to turrets	,,	2 4 0
Do. in soakers	,,	1 8 6
Labour to welted edge	F.R.	3½
Open copper nailing	,,	3
Close ,, ,,	,,	4

		½″ s. d.	¾″ s. d.	1″ s. d.	1½″ s. d.	2″ s. d.	4″ s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks		—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	0 9
Do. to stop ends	,,	6½	8	9	11	1 0	—
Boiler screws and unions	,,	3 3	3 9	5 0	8 0	—	—
Lead traps	,,	—	—	—	6 3	8 9	—
Screw down bib valves	,,	6 9	9 6	11 0	—	—	—
Do. stop cocks	,,	7 0	9 6	12 6	—	—	—

		s. d.
4″ cast-iron ½-rd. gutter and fixing	F.R.	1 0
Extra, only stop ends	Each	1 0
Do. angles	,,	1 0
Do. outlets	,,	2 9
4″ dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1 2
Extra, only for shoes	Each	1 3
Do. for plain heads	,,	5 6

PLASTERER AND TILING

		s. d.
Expanded metal lathing, small mesh	Y.S.	2 0
Do. in n/w to beams, stanchions, etc.	,,	2 9
Lathing with sawn laths to ceilings	,,	1 3
½″ screeding in Portland cement and sand or tiling, wood block floor, etc.	,,	1 5
Do. vertical	,,	1 7
Rough render on walls	,,	1 2½
Render, float and set in lime and hair	,,	1 9
Render and set in Sirapite	,,	1 11
Render, backing in cement and sand, and set in Keene's cement	,,	2 9
Extra, only if on lathing	,,	4
Keene's cement, angle and arris	F.R.	6
Arris	,,	
Rounded angle, small	,,	3
Plain cornices in plaster, including dubbing out, per 1″ girth	,,	1½
1″ granolithic pavings	Y.S.	3 6
1½″ ,, ,, ,,	,,	4 6
6″ × 6″ white glazed wall tiling and fixing on prepared screed	,,	17 6
9″ × 3″ ,, ,, ,, ,,	,,	1 2 6
Extra, only for small quadrant angle	F.R.	8

GLAZIER

		s. d.
21 oz. sheet glass and glazing with putty	F.S.	6½
26 oz. do. and do.	,,	7½
Flemish, Arctic Figured (white) and glazing with putty	,,	1 1
Cathedral glass and do.	,,	1 2
Glazing only, British polished plate	,,	7
Extra, only if in beads	,,	2
Washleather	F.R.	4

PAINTER

		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	,,	9
Do. with washable distemper	,,	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	,,	3 3
Do. on woodwork	,,	3 6
Do. on steelwork	,,	3 0
Do. and brush grain and twice varnish	,,	5 6
Stain and twice varnish woodwork	,,	1 11
Stain and wax-polish woodwork	,,	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper from	,,	2 9



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SPECIFICATIONS FOR PAINTING VARIOUS SURFACES.

TYPE OF SURFACE	PREPARATION	PAINTING TREATMENT & REMARKS.
LIME PLASTER. HARD WALL PLASTER (containing lime). BRICKWORK. PORTLAND CEMENT. — new & not dry.	Remove plaster nibs, efflorescence, etc.	Apply two coats of Walpamur thinned with water, not exceeding 1¾ gallons to 1 cwt. body colour Walpamur.
LIME PLASTER. HARD WALL PLASTER ROUGHCAST. BRICKWORK. STONEWORK. ASBESTOS SHEETS. PORTLAND CEMENT — new, but dry and chemically neutral.	Remove plaster nibs, efflorescence and all loose material.	(a) Apply two coats Walpamur thinned with Walpamur Petrifying Liquid, or (b), Apply one coat of Walpamur Primer, and when dry apply two coats Walpamur Water Paint thinned with Walpamur Petrifying Liquid. Note : If surface is very porous specify (b). If two coats only are desired omit third coat and specify Walpamur Tinted Primer for first coat.
PORTLAND CEMENT. ASBESTOS SHEETS. — new & thoroughly dry, but not chemically neutral.	Remove efflorescence & all loose particles.	Apply one coat N° 5094 Cement Primer and when dry apply two coats of Walpamur Water Paint thinned with Walpamur Petrifying Liquid.
KEEN'S CEMENT. PARIAN CEMENT. FIBROUS PLASTER. — dry.	Remove plaster nibs, efflorescence and all loose particles.	Apply one coat Walpamur Primer and when dry apply two coats Walpamur Water Paint thinned with Walpamur Petrifying Liquid. Note : If two coats only are desired omit third coat and specify Walpamur Tinted Primer for first coat.
WATERPAINTED. (bad condition)	(1) Wash down with warm water and scrape to remove all loose material. Allow to dry. (2) Glasspaper all edges where flaking has occurred and dust down.	Apply one coat of Walpamur Primer and when dry apply two coats of Walpamur Water Paint thinned with Walpamur Petrifying Liquid.
WATERPAINTED. (good condition)	Wash with water to remove dirt & grease. Allow to dry.	Apply two coats of Walpamur thinned with Walpamur Petrifying Liquid.
LIMEWASHED. Size bound distemper.	Wash off & scrape to remove all old material. Allow to dry.	Apply one coat Walpamur Primer & when dry apply two coats Walpamur Water Paint thinned with Walpamur Petrifying Liquid.
OIL PAINTED. (old without elasticity).	Wash to remove dirt & grease, & rub down (wet). Allow to dry.	Apply two coats of Walpamur Water Paint thinned with Walpamur Petrifying Liquid.
PAPERED. (paper firmly adhering).	Brush down to remove dust.	NORMAL TREATMENT : (a). Apply two coats of Walpamur Water Paint thinned with Walpamur Petrifying Liquid, or SPECIAL TREATMENT : (see note below). (b). Apply one coat Walpamur Tinted Primer and when dry apply one or two coats Walpamur Water Paint thinned with Walpamur Petrifying Liquid. Note : If colours on paper are those liable to bleed (e.g. red, green, mica, gold, etc.) treat with one thin coat of Yeoman Stop Tar Knotting N° 5075 & specify (b) according to N° of coats desired.
WOODWORK. (unpainted). WALLBOARDS.	Glasspaper to remove loose particles. Treat knots 1 coat Genuine Shellac Knotting.	Apply one coat of Walpamur Primer and when dry apply two coats of Walpamur Water Paint thinned with Walpamur Petrifying Liquid. Note : If two coats only are desired omit third coat and specify Walpamur Tinted Primer for first coat.

Information from The Walpamur Co. Ltd. (1.)

INFORMATION SHEET : OIL BOUND WATER PAINTS.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1. Oscar C. Bayne.

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INFORMATION SHEET

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OIL BOUND WATER PAINT

Product : " Walpamur " Water Paint

Walpamur is an oil bound water paint, the quality of its components and the scientific method of manufacture rendering it entirely different from distemper. It is supplied in paste form, in over 70 shades, and made ready for use by thinning with Walpamur Petrifying Liquid or water. When correctly thinned and applied to surfaces in accordance with standard specifications it presents a distinctive, smooth, velvety finish which will stand repeated washing.

GENERAL INFORMATION

Mixing and Thinning :

Walpamur should be thinned slowly with Petrifying Liquid or water according to specification in the following quantities for brushing or spraying :—

Brushing consistency : 2½ gallons Walpamur Petrifying Liquid to 1 cwt. Walpamur, or 1¾ gallons water to 1 cwt. Walpamur.

Spraying consistency : 3 to 3½ gallons Walpamur Petrifying Liquid to 1 cwt. Walpamur, or 2 to 2½ gallons water to 1 cwt. Walpamur.

Overthinning should be avoided. Walpamur shades are all intermixable.

Application :

Walpamur is suitable for application by brushing or spraying. If applied by brushing process at least 24 hours should be allowed between coats. The coats should be liberally applied and layed off evenly.

Exterior work :

A special quality Walpamur is made in suitable colours. Exterior quality Walpamur must be specified to be thinned with Walpamur Petrifying Liquid ; it should not be applied during damp or frosty weather.

Spreading capacity :

On normal smooth surfaces, and when used by brushing process, Walpamur will cover approximately 350 square yards (two coats) when thinned with Walpamur Petrifying Liquid. Abnormal porosity or roughness of surface naturally decreases the spreading capacity.

Varnishing :

On all normal surfaces Walpamur may be varnished, if desired, after allowing at least three days to harden.

Size :

On no account should any surface be sized prior to the application of Walpamur, or following the application of Walpamur prior to varnishing.

Stippling :

For general work Walpamur does not require stippling, but the finishing coat may be so treated if desired.

Plastic Relief and Broken Colour Effects :

Effects in relief of various textures can be obtained by the use of Walpamur water paint in conjunction with plaster of paris, thus providing unlimited opportunity for original decorative work. Other effects in broken colour can be easily and economically obtained by the use of Walpamur. Special illustrated folders describing these effects can be obtained on application to the Company.

Walpamur Petrifying Liquid :

Used as a thinner for Walpamur, this Liquid adds to the durability and tends to improve the appearance by checking surface porosity. It also adds smoothness and coolness to the working and increases the spreading capacity. Walpamur Petrifying Liquid is only a thinner for Walpamur and must not be used as a preparatory or priming coat.

Walpamur Primer :

This is a specially prepared oil medium possessing properties which enable it to penetrate porous surfaces and seal loosely bound particles remaining after removal of lime wash, size bound distempers, etc. It stops surface porosity and provides a perfect foundation for Walpamur.

It is supplied in transparent form and also in a range of tints suitable for use with standard tints of Walpamur.

Walpamur Stainers :

These are manufactured for the purpose of producing special tints which cannot conveniently be obtained by intermixing stock shades of Walpamur ; where such a course is necessary no other form of stainers should be used. These stainers possess powerful staining properties and can, if desired, be used alone for decorative work, such as picking out, stencilling, etc.

Advisory Service :

Questions in connection with any problems appertaining to the use of paints, the preparation of specifications or colour schemes, should be addressed to The Architects' Department at Darwen or London.

Name of Manufacturers : The Walpamur Company, Ltd.

Address : 35-6, Rathbone Place, London, W.1

Telephone : Museum 6600

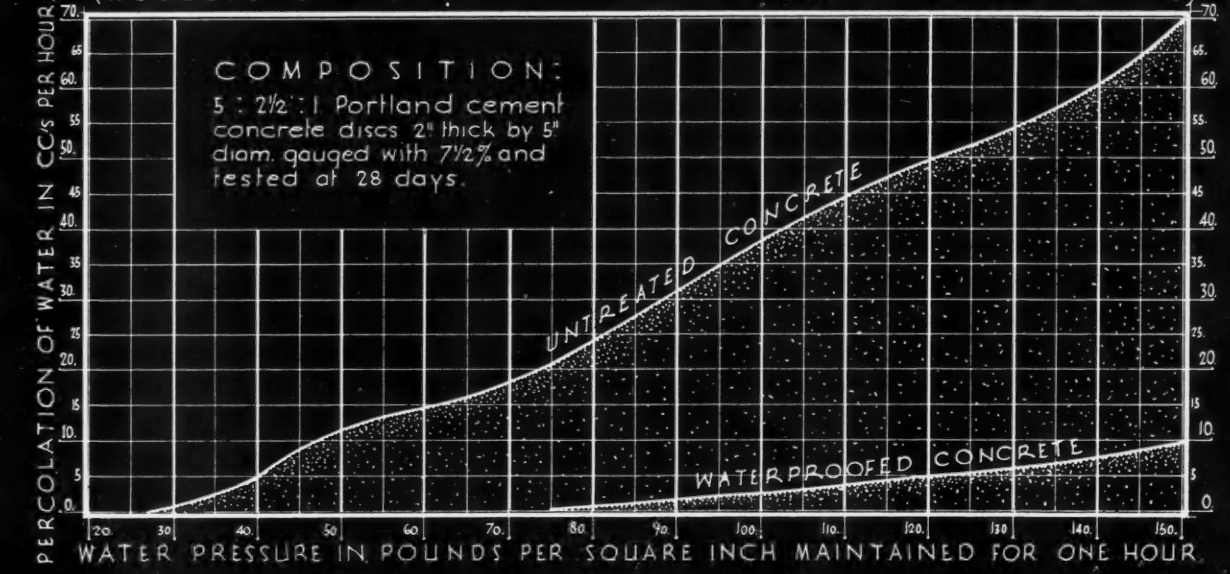
Works : Darwen, Lancs

Telephone : Darwen 662

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R.I.W. TOXEMENT POWDER : AN INTEGRAL WATERPROOFING for Portland cement mortar or Concrete construction, Cement blocks & moulded work (urns, balustrades, statues, benches, posts, etc.)

GRAPH SHOWING THE PERCOLATION OF WATER THROUGH CONCRETE
(RESULTS OF PERCOLATION TESTS ON TWO SPECIMENS)



DESCRIPTION :
Toxement consists of a colloidal waterproofing compound which adds to the cementing power of the mineral substance of the mixture without accelerating or retarding the action of the Portland Cement.

PROPERTIES :
In addition to promoting more thorough hydration, Toxement possesses lubricating qualities which increase the general plasticity of concrete & cement mortar. For given proportions of time and mixing, the desired plasticity can be obtained with the use of less mixing water.

APPLICATION :

HAND-MIXING
Dry sand is spread in a layer of even depth on a level watertight platform and the Portland cement spread thereon Over the Portland cement is sprinkled R.I.W. Toxement in the proportion of 2% by weight of the cement used. These materials are turned over until they are evenly mixed before the balance of the aggregate is added.

MACHINE-MIXING.
R.I.W. Toxement is used in the proportion of 2% by weight of the cement, by placing it into the bag before the cement is put into the hopper.
The procedure is then in the usual manner.

BONDING GROUT :
All concrete should be protected against frost; and joints 24 hours old or more should be thoroughly swept before placing additional concrete.
The bonding grout is made up of neat Portland cement with 5% by weight of Toxement, then thinned down with water to the consistency of thick paint and applied (immed-iately before placing concrete or cement mortar) to the old surface which previously should be dampened.
No more grout should be used than will remain wet until covered by the new work.

NOTE : It is important to note that when using R.I.W. Toxement the minimum amount of water required for workability is to be used at all times to ensure the desired results.

Information from The R.I.W. Protective Products Co. Ltd.

INFORMATION SHEET : DAMPPROOFING PAINTS & COMPOUNDS No 2.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1. Oscar A. Bayne.

INFORMATION SHEET

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WATERPROOFING

Product : R.I.W. Toxement Integral Waterproofing Powder

General :

"R.I.W." Toxement powder is especially adapted for waterproofing all Portland cement construction of varied types, including bridges, viaducts, dams, piers, dry-docks, swimming pools, factories, office buildings, foundations, walls, floors, elevator and boiler pits ; also moulded work such as urns, balustrades, statues, benches and posts.

If concrete, stucco or cement mortar is to be permanent it must be non-porous, and its permanence will be directly proportional to its porosity. Toxement possesses lubricating qualities and increases the workability and plasticity of concrete and mortar. It promotes more complete hydration than would ordinarily be obtained.

For given proportions and time of mixing, the desired plasticity can be obtained with less mixing water when Toxement is used ; hence an automatic restriction is placed on the prime cause of porosity and weakness.

On account of the lubricating qualities which this material possesses, the addition of lime is not recommended, as the function of lime is chiefly to impart plasticity or working quality. This effect is obtained by the use of Toxement and, in addition, the concrete cement mortar or stucco is thoroughly water-proofed.

Toxement lubricates concrete, renders it non-porous, and in concrete mixes eliminates the necessity for extreme tamping and vertical chuting. This lubricating action decreases the friction between the particles of aggregate—cement, sand, and stone—and causes them to settle into a denser mass and enables the concrete to slide more easily into confined spaces in the forms. It makes concrete construction watertight.

Toxement is usually added in the small quantity of 2 per cent. by weight, of the amount of neat Portland cement used, i.e., in the proportion of 2¼ lb. to each bag (112 lb.) of cement.

Prices :

1 Carton containing	6¾ lb.	8/6 each.
1 Case ,,	16 Cartons	£6 16s. per case.
1 cwt. Kegs		9d. per lb.
5 cwt. Kegs		8½d. ,, ,,
½ Ton		8d. ,, ,,
1 Ton		7½d. ,, ,,

Quantities of Toxement and Neat Portland Cement, Required for One Cubic Yard of Compact Mortar or Concrete

Mixtures			Quantities of Materials	Toxement 2¼ lb. to each Bag of Cement	Mixtures			Quantities of Materials	Toxement 2¼ lb. to each Bag of Cement
Cement	Fine Aggregate	Coarse Aggregate (Gravel or Stone)	Cement in 112 lb. Bags	Waterproofing Pounds	Cement	Fine Aggregate	Coarse Aggregate (Gravel or Stone)	Cement in 112 lb. Bags	Waterproofing Pounds
1	1·5	...	13·0	29·25	1	2·0	3	6	13·50
1	2·0	...	10·75	24	1	2·0	4	5	11·25
1	2·5	...	9·25	20·75	1	2·5	4	4·75	10·5
1	3·0	...	8	18	1	2·5	5	4·25	9·5
1	1·5	3	6·33	14·25	1	3·0	5	3·75	8·5

Materials Required for 100 Sq. Ft. of Surface for Varying Thicknesses of Concrete or Mortar

CEMENT MORTAR

Proportion	1 : 1½			1 : 2			1 : 2½			1 : 3		
Thickness in Inches	Cement in 112 lb. Bags	Fine Aggregate (Sand)	Toxement 2% or 2¼ lb. to each Bag of Cement	Cement in 112 lb. Bags	Fine Aggregate (Sand)	Toxement 2% or 2¼ lb. to each Bag of Cement	Cement in 112 lb. Bags	Fine Aggregate (Sand)	Toxement 2% or 2¼ lb. to each Bag of Cement	Cement in 112 lb. Bags	Fine Aggregate (Sand)	Toxement 2% or 2¼ lb. to each Bag of Cement
⅜	1·5	2·7	3·25	[illegible]5	3·0	2·75	1	3·2	2·25	1	3·4	2·25
½	2	3·6	4·5	[illegible]6	4·0	3·75	1·5	4·3	3·33	1·25	4·4	2·75
¾	3	5·4	6·75	[illegible]5	6·0	5	2·12	6·3	4·75	2	6·8	4·5
1	4	7·2	9	[illegible]5	7·9	7	3	8·4	6·75	2·5	8·9	6
1½	5	9·0	11·25	4	9·9	9	3·5	10·5	8	3	11·1	6·75

CONCRETE

	1 : 2 : 3				1 : 2 : 4				1 : 2½ : 4				1 : 2½ : 5			
Thickness in Inches	Cement in 112 lb. Bags	Fine Aggregate (Sand)	Coarse Aggregate (Pebbles or Broken Stones)	Toxement 2% or 2¼ lb. to each Bag of Cement	Cement in 112 lb. Bags	Fine Aggregate (Sand)	Coarse Aggregate (Pebbles or Broken Stones)	Toxement 2% or 2¼ lb. to each Bag of Cement	Cement in 112 lb. Bags	Fine Aggregate (Sand)	Coarse Aggregate (Pebbles or Broken Stones)	Toxement 2% or 2¼ lb. to each Bag of Cement	Cement in 112 lb. Bags	Fine Aggregate (Sand)	Coarse Aggregate (Pebbles or Broken Stones)	Toxement 2% or 2¼ lb. to each Bag of Cement
3	5·5	13·0	19·3	12·5	4·7	11·2	22·4	10·25	4·5	12·9	20·6	10	3·75	11·5	23·0	8·5
4	7·25	17·2	25·8	16·5	6·25	14·9	29·8	14	5·75	17·1	27·5	12	5·25	15·4	30·7	11·75
5	9	21·6	32·2	20·25	8	18·7	37·4	18	7·25	21·5	34·3	16·25	6·5	19·2	38·3	14·5

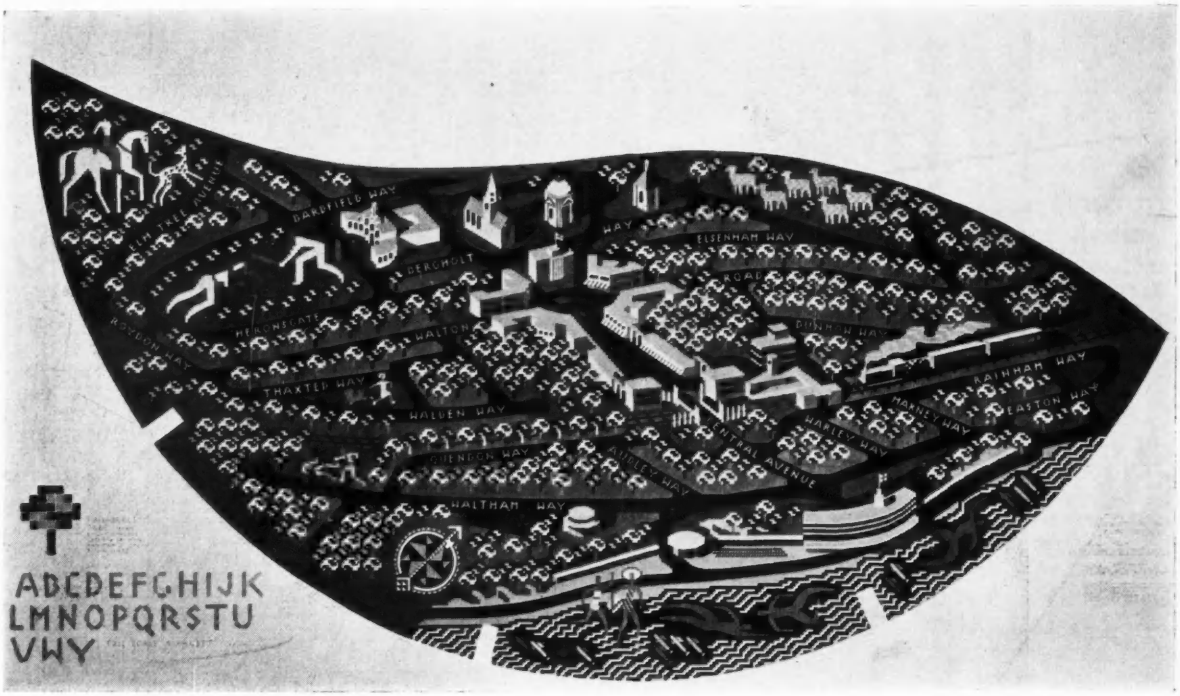
Name of Manufacturers : The R.I.W. Protective Products Co., Ltd.

Address : 16 Devonshire Square, E.C.2

Telephone : Avenue 4735

FRINTON IN MOSAIC

DESIGN FOR A FLOOR

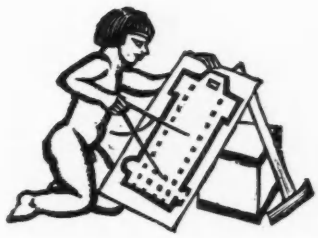


A NEW housing estate, with a hotel and shopping and municipal centre, is now being laid out at Frinton Park. The Estate Information Bureau is to have a floor of mosaic, which is being made by Carters of Poole to this design by Clifford and Rosemary Ellis. The design is based on the plan of the estate, and contains conventionalized representations of some of the principal buildings and of appropriate seaside and recreational activities. The architect to the estate is Oliver Hill.



WHICH SKYSCRAPER?

A dramatic picture, taken at night in the city of New York? Nothing of the sort: a photograph (turned sideways) of the under-water restaurant at Cheddar Gorge, designed by Russell Page and G. A. Jellicoe. The flat roof of the restaurant, made of concrete with glass pavement lights, forms a shallow pool, with fountains playing on its surface. The new restaurant is illustrated on pages 831–834 of this issue.



ROAD, RAIL AND AIR

SOME of the most remarkable changes that our lives and social habits have undergone during the past couple of centuries are connected with transport. The rapid, scientific development of transport facilities has so enlarged the field within which the individual's existence is encompassed, that by now, if only as yet for the few, the limits of travel are simply the limits of the world, and the more strictly preserved limits of the third dimension are already being challenged. Another kind of manifestation in the development of transport is the evolution of the habit of travel as an end in itself, a habit quite peculiar to comparatively modern times. From the institution of the educational grand tour in the middle of the eighteenth century until the present popularity of the pleasure cruise, increasing numbers of the population have demanded transportation from place to place for reasons of curiosity, relaxation, health and entertainment as well as for reasons of business, and they have demanded standards of comfort and convenience in their transport consonant with such sophisticated exercises.

With the evolution of travel evolved an architecture of travel which more and more, as travel became more general, became part of the whole architectural background. In the history of the architecture of travel is seen the history of all architecture during the period of transport's rapid evolution reflected in miniature. It has passed through the same phases of tradition, self-determination, eclecticism, reaction and romanticism ; but, because of its dependence on the march of scientific progress, on the one hand, and its function as a centre of social habit and custom on the other, it presents an even greater contrast between mechanical fertility and the disguises imposed by conservatism.

An architecture of travel comparable in kind with our own begins with the coaching inn of the eighteenth and early nineteenth centuries, which evolved a type appropriate to serve the relatively enormous volume of coach and posting traffic then on the road—a combination of hotel, livery stable, terminus yard and wayside inn. With the development of the railway the great days of the inn came to an end ; and, as with all the architecture produced by the industrial expansion of which railways were a part, the architecture of the new age of transport became lost in a maze of misapplied decoration and eclectic revivalism.

Railway station architecture, in fact, apart from a few examples of sanity such as Mocatta's early functionalism, and apart from the period charm of many small branch-line stations, represents all that is worst in Victorian unsuitability, and it was not till very recent years, when the importance of the railway had already begun to decline that a more appropriate architectural expression began to be realized. In this country the tube railway can be cited as a case of a method of travel evolving at last a sound architectural type.

Characteristic of the past couple of decades are the return to road travel and the evolution of air travel. The architectural result of the first is the revitalization of roadside accommodation—the English inn is coming into its own again ; more typical is the birth of a new type of accommodation—the roadhouse, in which the function of the inn is enlarged to serve the habit already noted of travel for its own sake and the modern tendency towards portable amusement (such as wireless) and gregarious entertainment.

The architectural record of the roadhouse has been, up till now, unfortunate. Growing as it did under the influence of the rusticated petrol station and of the jerry-building along arterial roads, it has seldom been more than a commercial makeshift ; but, as its existence becomes thoroughly established and the architectural opportunities it offers appreciated, the roadhouse is bound to develop its own architectural standards and traditions, learning something, it is likely, from the scientific honesty and precision of the machinery on which its existence depends.

The second type of transport development, air travel, has so far made little contribution to the appearance of our surroundings, but it is obvious that in air travel the greatest future lies. The character of the great air roadhouse of the future can already be imagined. In this issue is illustrated, by means of plans and photographs of a model, a project for a great airport-hotel, the construction of which in this country is now under consideration—so near are we to the future this project represents. In it are combined all the various functions of hotel, sport-centre, service-station and social gathering place that the term roadhouse has gradually come to imply. It may well be the first example of an architectural category that will bring back again under one roof and in one centre all the corporate social activities that were housed by the great inn and the village green in the days before a corporate local existence became disintegrated.



The Architects' Journal
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NOTES & TOPICS

ANTI-NOISE

I HAVE been allowed to inspect the Noise Abatement Exhibition which opens tomorrow at the Science Museum, South Kensington, and at the Building Centre, and have been much impressed. First, because this is not a trade exhibition ; secondly because a very strong committee has selected only tested and tried methods and materials for exhibition ; thirdly, because everything is practical and normal in cost.

*

Noise abatement is a subject which must appeal to the general public as well as to architects, doctors, and professional men who need to know something vital about noise elimination. I was particularly pleased therefore to find an exhibit from the R.I.B.A. concentrating generally on *points in planning* against Noise.

*

In this exhibit almost every aspect of the noise problem is touched upon, from the motor horn, through a full-size demonstration noise-proof house built of cheap materials, to the advanced instruments which science has developed to assist the practical man.

*

It is, I learn, the first exhibit organized (and carried out at very short notice) entirely by the Junior Members of the R.I.B.A. under the general supervision of Mr. Hope Bagenal and Mr. Thornton White. There seems to be to be a good deal of potential energy in these Junior members.

OPERA

Talking of noise abatement and of junior members, reminds me that last Thursday the One-Act Opera Company, an amateur group of six enthusiasts which includes two architects, gave a musical evening at the A.A. They presented three one-act operas by Dibdin, written about 1770, and the performances were first rate.

*

Particularly Miss Alma Archer's. "Charming all," as the Press reports say, in her Grecian robes, she not only showed some very good acting, but a really fine voice. The contrast was rather odd, for earlier in the day, the perfect architect, she had been giving me expert and pointed advice at the Building Centre.

THE RED HOUSE APPEAL

I can't think of an architectural cause more deserving of support than the appeal just launched to save Red House, Bexleyheath, from destruction, and place it in the hands of the National Trust.

*

If we have outgrown that particular form of architectural astylism, this example remains an important landmark architecturally and socially. There could be no more appropriate way of recognizing the significance of the vernacular revival of the sixties than by preserving the house built by Philip Webb, its typical architect, for William Morris, its most ardent champion.

*

Whatever its merits as a building (and Webb, considering his splendid grasp of principles as a writer, was apt to be most disappointing in his works) it and its painted panels and decorations are well worth to history the £3,000 that will save it.

*

As the scene of the strange activities it accommodated Red House well deserves the title Historic Monument.

THE CAMBRIDGE SCHOOL

It has always been a puzzle to me that Cambridge, as a University, should have done so little for its school of Architecture : Mr. Fyfe has no professional chair, and Architecture is no more than a "Pass" degree.

*

Cambridge is so essentially the right place for a School of Architecture, its intellectual background, its architectural decor, its interest in modern sciences, in music, and so forth, should contribute enormously to the development of good architecture.

*

And now the University announces the appointment of a powerful committee (it includes the Vice-Chancellor and the President of Queens') to investigate the future of the School. I shall await their autumn report with considerable . . . alarm.

PROFESSOR ABERCROMBIE

Professor Patrick Abercrombie, who is to be the new occupant of the Chair of Town Planning at London University, has the magnificent record of having been Lever Professor of Civic Design at Liverpool since 1915—20 years. This record is only surpassed by Professor Adshead whom he is succeeding in London. Professor Adshead is retiring after 21 years.

*

Professor Abercrombie brings to London sound judgment and wide experience in every aspect of his subject, which is one that London is all too belatedly becoming aware of. May I recommend (I think I have done it before) his little volume on *Town and Country Planning* in the



Professor Patrick Abercrombie, who has been appointed to the Chair of Town Planning in the Bartlett School of Architecture, University College, London.

Home University Library as lucid and concise and all that a brief, popular introduction to the subject should be.

*

His appointment compels one to say again (as so often where architectural instruction is concerned), "What Lancashire thinks today. . . ."

R. FITZMAURICE

At the R.I.B.A. visit to the Building Research Station last week my disappointment at the absence of Dr. Stradling was tempered by meeting once again that very human building scientist Mr. R. Fitzmaurice.

*

The first occasion on which I visited Watford, Fitzmaurice hailed us from the cockpit of a snorting three-wheeled vehicle ; this time he radiated greetings out of an enormous red speed-car. I knew at once that this change had some symbolic significance and was scarcely surprised later to discover the great advances made at the Station during the last year or two.

*

We were shown experimental buildings which have sprung up all over the place, but the real thrill came at the end when we saw the weather-conditioned room. This proved to be a normal habitable room built inside an insulated structure, the temperature of the air space all round the inner room being controlled by an elaborate heating and refrigeration plant.

*

I know that the most awful experiments and tortures on various unfortunate materials will take place all the year round—but, my dear Fitzmaurice, I beseech you first to do something about those cracks in the plaster ceiling.

KEYS

Every architect knows that keys are the most troublesome accessories encountered in building practice. When it comes to ceremonial keys I am reminded of the experience of an acquaintance who was brought to realize, almost too late, the importance of the opening ceremony of a small public hall.

Two days only before the ceremony it was decided to do the thing in solid gold ; so the architect rang up the caretaker and told her to send the key immediately to a well-known firm who could be relied upon to deliver in time and not be too blatant about the price.

*

The day arrived, and so did the solid gold key, but it was only a minute or two before the ceremony that the architect discovered the key did *not* fit the main door. By a really superb effort of tact and ingenuity a suitable reason was discovered, and Lady A., who performed the opening ceremony, was induced to enter the building by way of the hastily red-carpeted approach to the boiler house door. The caretaker, I understand, now refuses to use any other than the main entrance doors.

MORE KEYS

Which reminds me of an experience of my own, when a client, arriving unexpectedly, demanded the key to his recently completed house (some miles away), in order to conduct a really important personage over the place.

It was not until late in the evening that I discovered my secretary had given him the key of the old house which we pulled down on the site.

The old key was never returned—it was rather a nice one.

THE MUSEUM MIND

The following paragraph, inspired by doubts as to "the æsthetic advantages of concrete, judging from some of the buildings rising in the land," is taken from Sir Thomas Inskip's speech at the annual dinner of the Institution of Structural Engineers on May 10.

*

"When I think of what the builders of 500 years ago produced in the way of church-towers in Somerset, and the glories of Henry VI buildings at Eton, I wonder whether concrete and cement today could be made to provide anything more enduring or lovely. I wonder whether your Institution . . . would be able to prove to people 500 years hence that we, too, were not unaware of the duty, not only to make useful and permanent structures, but to produce something which had æsthetic qualities satisfying the soul as well as the body."

*

This is a very pretty example of the old sentimental Arts and Crafts fallacy. It presupposes that, up to the eclipse of Gothic, builders were confronted with the same choice of materials, methods of construction, and "appropriate styles" as modern architects.

*

Fortunately, perhaps, for architecture, the vague science called æsthetics was still unborn. So mediæval builders built without undue self-consciousness according to their lights—which were governed by the few methods and materials at their command—both well and ill ; and quite as often impermanently as the reverse.

*

The President of the Structural Engineers reminded Sir Thomas, in replying, that for the Attorney-General, as for everyone else, the study of ancient buildings must needs be based on the very few of each epoch which survive ; and that architects, not engineers, are (anyhow officially) responsible for the æsthetic qualities of modern ones. He might have added (Ministers are notoriously eager to be brought up to date) that new methods of construction rather obviously imply new æsthetic concepts.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

The Minister of Health has approved the L.C.C. resolution to prepare a town-planning scheme in respect of the portion of the County of London not already included in resolutions for planning schemes .. 828

"*So many buildings are still built that look as if they would be the better for a good scrape*" 829

"*In a quiet spot in Wales I saw a new outburst of bungalows. The son of a local farmer won a prize in the Irish Sweepstake, and he spent the money in erecting bungalows, which he called 'De Valera Villas'*" 830

THE ARCHITECTS' DIARY

Thursday, May 30

ROYAL ACADEMY, *Burlington House, Piccadilly, W.1. Summer Exhibition. Open until August* 10. 9 *a.m. to* 7 *p.m.*

ARCHITECTURAL ASSOCIATION, 36 *Bedford Square, W.C.* 1. *Exhibition of working drawings of recent work at Wembley Stadium. Until June* 28. 10 *a.m. to* 10 *p.m*

WHITECHAPEL ART GALLERY, *High Street, E.*1. *Exhibition of Mural Decorative Paintings. Until June* 15. 12 *noon to* 9 *p.m.; Sundays,* 2 *to* 9 *p.m.*

R.I.B.A. EXHIBITION OF INTERNATIONAL ARCHITECTURE. *At the Walker Art Gallery, Liverpool. Until June* 20.

LONDON SOCIETY. *Annual Dinner. At the Hotel Victoria, Northumberland Avenue, W.C.*2. 7.30 *for* 7.45 *p.m. Subject for the evening: "What Strikes Me About London." Speakers: The Dean of St. Paul's (Dr. W. R. Matthews), Lt.-Col. Sir Arnold T. Wilson, K.C.I.E., Professor Winifred Cullis, and Sir Hal Colebatch.*

DESIGN AND INDUSTRIES ASSOCIATION AND THE SOCIETY OF INDUSTRIAL ARTISTS. *At the London School of Hygiene and Tropical Medicine, Cromer Street, W.C.*1. *"The Position of Industrial Design in England." By Dr. Nicholas Pevsner.* 8.15 *p.m.*

Saturday, June 1

L.C.C. CENTRAL SCHOOL OF ARTS AND CRAFTS, *Southampton Row, W.C.*1. *Annual Exhibition. Until June* 28 *(except June* 10). 10 *a.m. to* 8 *p.m. Saturdays,* 10 *to* 12 *noon.*

Tuesday, June 4

MEETING OF ARCHITECTS IN SALARIED EMPLOYMENT. *At the Caxton Hall, Caxton Street, S.W.*1. 7 *p.m.*

TOWN PLANNING FOR ALL LONDON

Following are some extracts from a statement issued by the London County Council on Monday last :—

"The Minister of Health has furnished the Council with his decision on its resolution to prepare a town planning scheme in respect of the portion of the County of London not already included in resolutions for planning schemes.

"The Minister has decided that he may properly approve the resolution under Section 6 (2) of the Town and Country Planning Act, 1932, subject to the exclusion of the land belonging to the Societies of Lincoln's Inn and the Middle and Inner Temples. The result is that as from May 27, 1935, the whole County of London, excluding the above-mentioned areas, is subject to town planning control. The County of London, as distinct from the Administrative County, does not include the City of London."

NOISE ABATEMENT EXHIBITION

The Prime Minister will open the Noise Abatement Exhibition at the Science Museum South Kensington, on Friday, May 31. The Exhibition, which will remain open to the public from June 1 to June 30 between the hours of 10 a.m. and 6 p.m. (Sundays 2.30 to 6 p.m.), has been promoted by the Anti-Noise League, of which the Rt. Hon. the Lord Horder, K.C.V.O., is Chairman. It is an attempt on the part of the League not only to enlighten the public in the prevention of noise by scientific means and adjustment, but also to stimulate co-operation between those who understand the causes of noise and those who suffer from its effects.

The organization of the Exhibition has been directed by a special committee, under the chairmanship of Sir Henry Richards, C.B., LL.D., including representatives of the Ministry of Health, the Office of Works, the Admiralty, the National Physical Laboratory, the General Post Office, the British Broadcasting Corporation, the Industrial Health Research Board, as well as a number of industrial research laboratories and firms.

A small demonstration house incorporates the latest architectural and building designs and materials for sound-proofing and sound absorption. In addition to this, separate exhibits will include a hospital ward, a school classroom and an office, all specially treated for sound resistance and control.

Frequent special demonstrations will be arranged for visitors, including silenced pneumatic drills, vacuum cleaners, electric motors, circular saws, etc. The latest devices for the measurement, analysis and filtering of noise will receive attention, and the effect of noise on output in industry will be illustrated by the results of recent investigations. In addition, there will be an almost continuous display of films dealing with the acoustical control of sound in the Museum Lecture Theatre from 11 a.m. to 6 p.m. except on Whit Sunday and Monday, June 9 and 10, and from June 26 to June 28 inclusive.

During the last few days of the Exhibition, i.e., on June 26, 27 and 28, the annual conference of the Anti-Noise League will be held in the Lecture Theatre.

The opening session will follow a reception at the Museum by Lord and Lady Horder on Wednesday, June 26, when Mr. Hore-Belisha will preside and Dr. Kaye will give an address on "Sound and Noise."

On June 27, Mr. H. G. Strauss will speak on "Law and Noise." The Rt. Hon. W. Ormsby-Gore (First Commissioner of Works) will preside over another meeting to be addressed by Mr. Hope Bagenal on "Housing and Noise." The next day Sir Henry Richards will speak on "Education and the Noise Problem" at a meeting to be presided over by Lord Halifax (President of the Board of Education) and Lord Horder will address a further meeting on "Health and Noise."

The Building Centre Section of the above Exhibition will be open on Friday, May 31, and will run in conjunction with that at the Science Museum to which it is complementary.

The Building Centre Section will be confined to the materials and devices to be used in the acoustic correction and prevention of sound transmission in buildings, and will include materials specially designed to that end.

The Exhibition will be open daily, from 10 a.m. to 6 p.m. (Saturdays, 10 a.m. to 1 p.m.).

AGREEMENT ON LONDON BUILDING BYE-LAWS BILL

The Select Committee of the House of Lords, presided over by Lord Askwith, has allowed to proceed the L.C.C.'s Bill to amend the London building code. Its passage had been interrupted by the district surveyors, who wanted their position protected and with whom agreement was reached last week.

A NATIONAL PARK IN SNOWDONIA

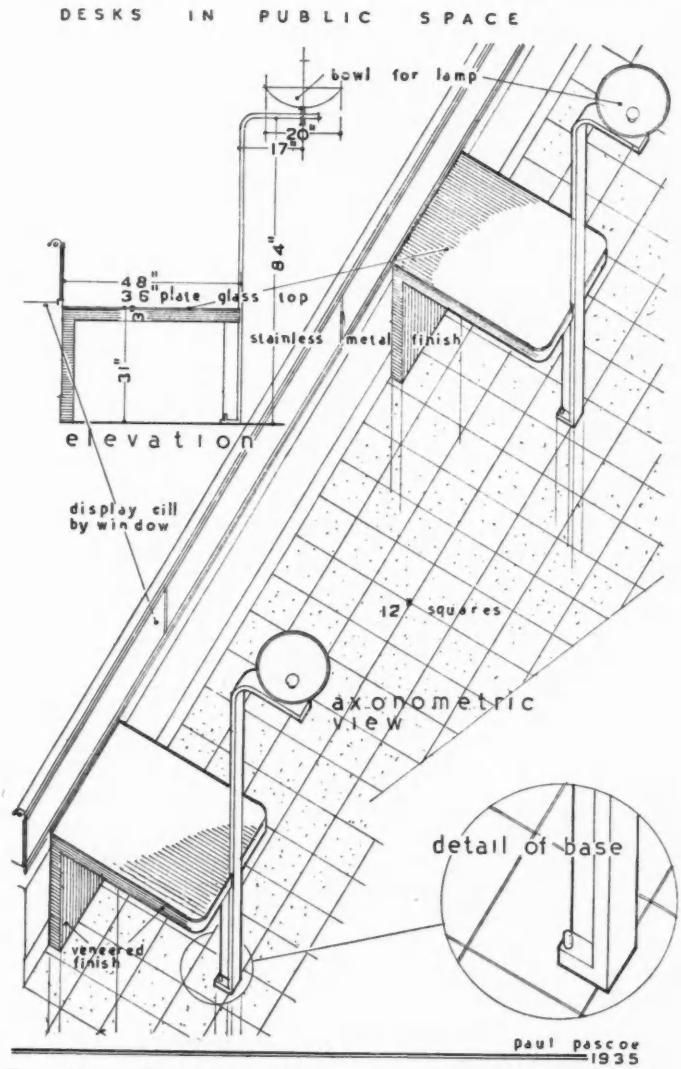
An appeal to mobilize support for a national park in Snowdonia was made by Professor Patrick Abercrombie at the annual meeting, held at Bangor on Friday last, of the Council for the Preservation of Rural Wales. He said that Cærnarvonshire had decided to have a county planning scheme which would include Snowdonia. Financial help would be needed to safeguard it for ever and support should be mobilized throughout the Empire. Then they might approach the Government for a pound-for-pound grant. He had been asked to prepare a preliminary idea of a scheme for the County, and when it was approved it would be put in legal shape.

THE ARCHITECTURE CLUB

Sir Hilton Young, Minister of Health, speaking at the annual dinner of the Architecture Club at the Savoy Hotel, W.C., last week, dealt with the Government's Overcrowding Bill. He said that the passing of the Bill would inaugurate a new era. It would give housing authorities the powers and the money which they needed for a task which they alone could perform —the rebuilding of the obsolete and congested inner areas of towns. It was going to be a magnificent opportunity for putting right the mistakes of the past. We had a countryside of which we could be proud and that we had to preserve. We had towns of which we could not be proud, and those we must re-fashion.

Planning was much in the air. It needed to be brought to the ground and planted on its feet. Purely theoretical planning for years ahead of needs was a counsel of perfection. The urgent need was for thought and foresight in the practical efforts that lay immediately before us.

One such effort was the re-development of the bad old areas of wage-earners'



From No. 14 Regent Street, S.W.1 *Designer: G. Pulitzer-Finali.*

dwellings in the towns that should be begun as soon as the Bill was passed. The opportunity would be wasted unless the areas dealt with were large in extent, courageously replanned and intelligently rebuilt. In particular it would be fatal to lie hidebound within the existing lay-out of mean streets that had been designed for a different civilization, a civilization with the standards of which we were no longer content.

Another watchword must be "space and air." The taller buildings which they contemplated to rehouse the workers centrally required spacious surroundings and the relief of interspersed green lawns and trees.

He hoped all responsible would recognize the beauty of simplicity in design and in carefully chosen materials, and that the days of facades and applied ornaments were past. So many buildings were still built that looked as if they would be the better for a good scrape.

The corrupt slums would then rise again in stately buildings, unhuddled and peaceful, with the dignity of largeness and simplicity.

Mr. R. Holland-Martin, who presided, said it was practically impossible to build tall houses on small bases in London, and it was now impossible to find large areas for modern building. From the point of view of health it would be far better if, instead of building many houses in one area, the land around was set aside as open spaces.

THE INSTITUTION OF STRUCTURAL ENGINEERS

The result of the elections of Officers and Council of the Institution of Structural Engineers for the Session 1935–1936 is as follows:—

President, Dr. Oscar Faber, O.B.E., M.INST.C.E.; vice-presidents, Lieut.-Colonel C. H. Fox, O.B.E., B.SC., Mr. J. T. Saunders, F.R.I.B.A., Professor J. Husband, M.ENG., M.INST.C.E., Professor Sir Thomas Hudson Beare, D.L., B.A., B.SC., Lieut.-Colonel H. S. Rogers, C.M.G., D.S.O., and Mr. P. J. Black, L.R.I.B.A.; hon. secretary, Mr. A. J. Taylor, F.R.I.B.A.; hon. treasurer, Captain M. B. Buxton, M.C., M.A., A.M.INST.C.E.; hon. editor, Mr. H. R. Co ; hon. librarian, Mr. J. Stuart Lewis; hon. curator, Mr. J. F. Butler, A.M.INST.C.E. The ordinary members of Council are: Professor C. E. Inglis, O.B.E., Sir Henry Japp, K.B.E., M.INST.C.E., Major C. H. Heathcote, L.R.I.B.A., and Messrs. S. Bylander, W. Cyril Cocking, M. B. Duff, M.INST.C.E., R. F. Galbraith, M.C., B.SC., G. McLean Gibson, O.B.E., M.I.MECH.E., C. J. Jackaman, A.M.INST.C.E., R. Travers Morgan, M.ENG., M.INST.C.E., W. Muirhead, M.INST.C.E., Gower B. R. Pimm, M.INST.C.E., A. Scott, F.R.I.B.A., F. M. Easton, C. S. Gray, B.SC. A.M.INST.C.E., A. Noel Procter, M.SC., A.M.INST.C.E., and C. Roland Woods, M.B.E., LL.D.

INSTITUTION OF ELECTRICAL ENGINEERS

A conversazione is to be held by the Institution of Electrical] Engineers at the Natural History Museum, Cromwell Road, S.W., on Thursday, June 20, at 8.30 p.m.

ESSEX, CAMBRIDGE AND HERTS. SOCIETY OF ARCHITECTS

At the annual general meeting of the above Society, held recently at Southend, Mr. Hugo R. Bird, F.R.I.B.A., was elected President for 1935-36. The following officers were elected: Hon. Secretary, Mr. Percival C. Blow, A.R.I.B.A.; hon. treasurer, Mr. D. J. McP. Burton, L.R.I.B.A.; hon. assistant secretary, Mr. S. Jaques, A.R.I.B.A.; hon. registrar, Mr. A. C. Russell, L.R.I.B.A.; hon. auditor, Mr. E. Fincham, A.R.I.B.A.; and hon. solicitor, Mr. Stamp W. Wortley, LL.B.

At the annual dinner of the Society Mr. F. J. C. Ingram, president of the London House Builders' Association, said as he went round the country at 30 miles an hour he found time to admire the work which the architects had done, and he thought the progress made during the past ten or fifteen years was enormous. But he was wondering whether they were getting a little bit too—should he say?—Continental in their architecture.

By Continental architecture he meant those beautiful long lines and so much of that cement work. Beautiful as it might be, and much as he admired it, he yet felt that it was somewhat like the lady with an Eton crop—very lovely as an isolated example. But he still loved the ladies with their beautiful hair, and he hoped they were not going to get too much of the Eton crop!

SOUTH-EASTERN SOCIETY OF ARCHITECTS

A lecture on "The Architect's Contribution in Modern Life" was given by Mr. E. R. Jarrett, A.R.I.B.A., at the annual meeting of the Croydon District Chapter of the South-Eastern Society of Architects, held recently in the Public Hall, Croydon, under the chairmanship of Major F. W. Rees.

The lecturer said that, this being Jubilee year, he had been looking at the papers read to the Society in 1910 and compared them with those of today. In 1910 there were nine papers, all of which dealt with the historical side of architecture; this year, out of seven papers read four were on technical subjects such as reinforced concrete and steel in building, plastics and metal finishes.

The modern architect was beginning to think much more seriously about the practical side of his job and realized that

unless a building was well planned for the use to which it was to be put, all decoration would not help him very much. With the extraordinary advance science had made, and was making, the architect's job had been rendered more difficult owing to the varied requirements given him to house. The modern architect was grappling with his own problems and making use of a vast amount of new material at his disposal, at the same time evolving a type of design which was expressive of his age. The great need of the age was planning.

THE NEW GEOLOGICAL MUSEUM

The Royal Geological Museum at South Kensington will be formally opened by the Duke of York on July 2. More than a million specimens have been transferred to the new building from the old museum premises in Jermyn Street. The Reference Library is already open. It was in this building that the World Economic Conference was held in 1933.

COUNTRY PLANNING

That the new Town and Country Planning Bill lays too much emphasis on the traffic side and not enough on the planning side was one of the criticisms advanced by Professor L. P. Abercrombie, M.A., F.R.I.B.A., in an address on "Country Planning" to the Liverpool Rotary Club last week. Professor Abercrombie is shortly leaving Liverpool, where he holds the Chair of Civic Design, for London, where he has been appointed to the Chair of Town Planning in the Bartlett School of Architecture, University College.

Discussing the tremendous changes brought about by transport developments during the past twenty years, Professor Abercrombie said that the country was no longer inaccessible and remote. Recently he came across a striking example of change. In a quiet spot in Wales he saw a new outburst of bungalows—a development due to a pure piece of hazard. It so happened that the son of a local farmer had won a prize in the Irish Sweepstake, and he had spent the money in erecting bungalows, which he called *De Valera Villas*.

"That sort of thing might happen any time," said Professor Abercrombie. "At any moment it is possible for a change to occur in the most remote parts of the country."

Describing the Bill as unsatisfactory, he urged the establishment of a planning officer in each county—"just as there is an engineer for roads and an architect for schools." Country planning could be done only in large units, and the county was the natural unit to think of. Financial co-operation between local authorities was most essential, and under the Act it could be done. Some arrangement was essential whereby the financial side of the problem could be borne by the country as a whole.

ANNOUNCEMENTS

Messrs. James and Bywaters and Rowland Pierce have removed their offices to No. 5 Bloomsbury Street, W.C.1. Telephone Nos.: Museum 9952-3.

Mr. L. W. Thornton White, A.R.I.B.A., has removed his office to No. 7 Bedford Square, W.C.1. Telephone No.: Museum 7851.

Mr. Andrew N. Prentice, F.R.I.B.A., R.B.C., has taken into partnership Mr. H. J. Scaping and Mr. A. H. Wheatley, L.R.I.B.A., both having been his assistants for many years. The firm is now known as Prentice and Partners, chartered and registered architects, and the business will be carried on at 10 Norfolk Street, Strand, London, W.C.2.

AN ARCHITECT'S WILL

Mr. W. G. Buck, F.R.I.B.A., architect and surveyor, of Sheffield, left £12,407 (n.p. £11,112).

IN PARLIAMENT

Housing

In the House of Commons last week Mr. Bossom asked the Minister of Health if he would state the number of skilled mechanics in the country in the various branches of the building trade that enter into a housing operation; and how many beyond the number now usually in employment would be available for the work contemplated under the present Housing Bill.

Sir Hilton Young said that the description of a "skilled mechanic" did not form the basis of any classification as to what statistical information was available; as to the second part of the question, no estimate could be formed until the completion of surveys under the Bill.

Annual Brick Output

Mr. Bossom also asked if the Minister would state the average of the possible total annual brick output of the English manufacturers for the years 1933 and 1934; the average possible total annual tonnage output of the English cement factories for the same years; and what would be the quantity of these commodities available for use in the coming years under the requirements of the new Housing Bill after providing for all other requirements without undue expansion of the various yards and factories.

Sir Hilton Young said that no such complete statistical information was available as would enable him to make a statement in figures of the quantities to which his hon. friend referred. The information available to the Prices of Building Materials Committee and himself showed no reason to anticipate that English manufacturers of brick and cement would be unable to meet all requirements under the new Housing Bill.

Setts and Kerbs

Mr. Burnett asked the President of the Board of Trade whether his attention had been drawn to the recent importation of setts and kerbs from British India and the United States at abnormally low prices; and would he consider the serious unemployment existing among British granite workers and quarriers when he was negotiating future agreements with the Dominions and foreign countries.

Mr. Runciman said that the answer to both parts of the question was in the affirmative.

COMPETITION NEWS

COMPETITION RESULT

Mr. S. N. Cooke, F.R.I.B.A., the assessor in the competition, limited to six firms of architects, for a hospital at Coventry (for the Coventry and Warwickshire Hospital Committee), has made his award as follows:

Design placed first: Messrs. Armstrong and Gardner, of 39 High Street, Warwick.

Design placed second: Messrs. Pite, Son and Fairweather, of 12 Carteret Street, Westminster, S.W.1.

The other competitors were: Messrs. Buckland and Haywood (London); Elcock and Sutcliffe (London); Martin, Martin and Ward (Birmingham); and T. R. J. Meakin (Coventry).

[*For Competitions Open, see page 759 of our issue for May 16.*]

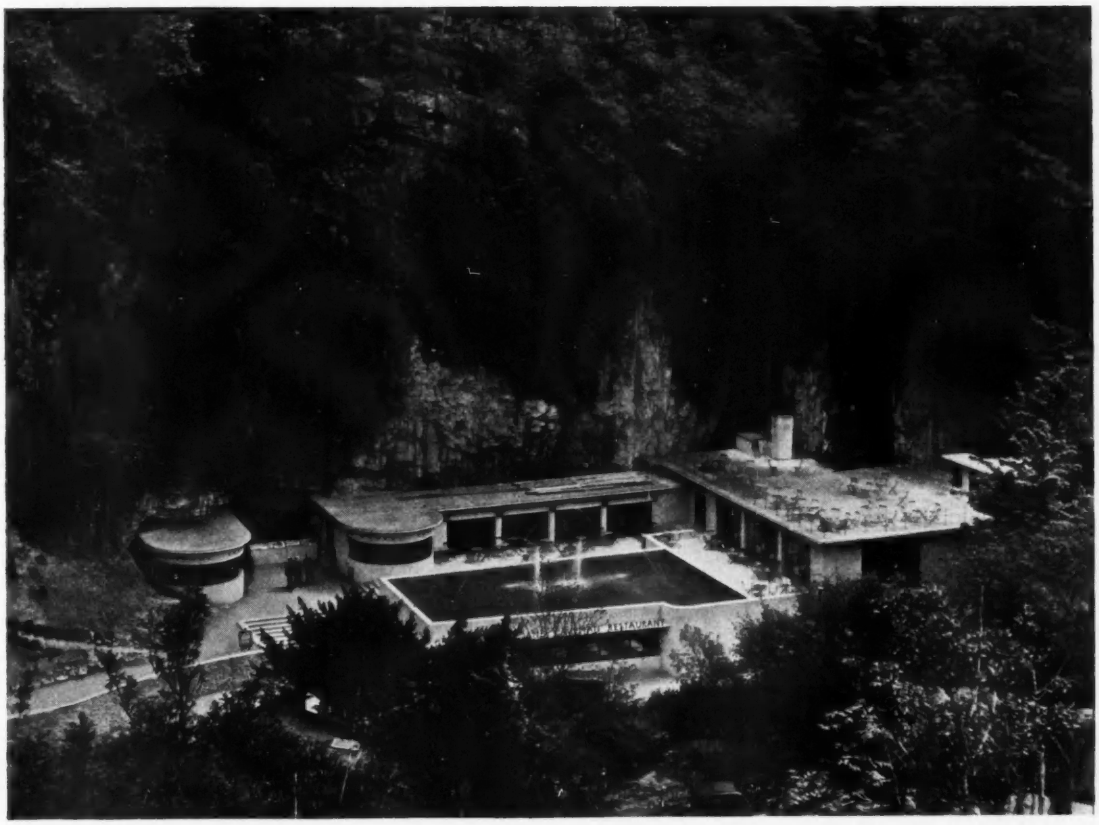
THIS ARSHETECTURE



WHAT IS IT?—A new cinema being built at Elstree for trying out films. Will be open to the public. Is heavily disguised to suit Hertfordshire scenery.

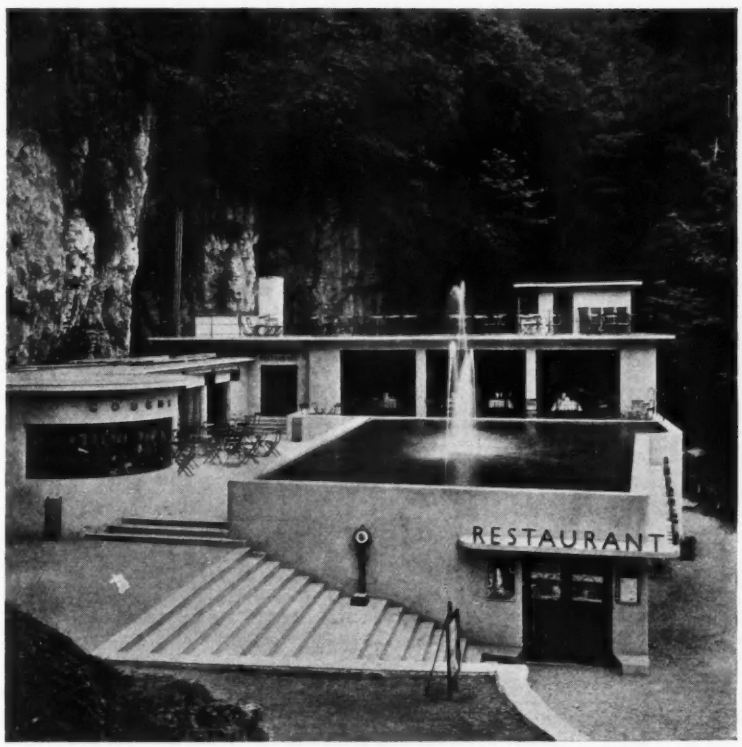
From the "Sunday Express."

NEW RESTAURANT AT CHEDDAR



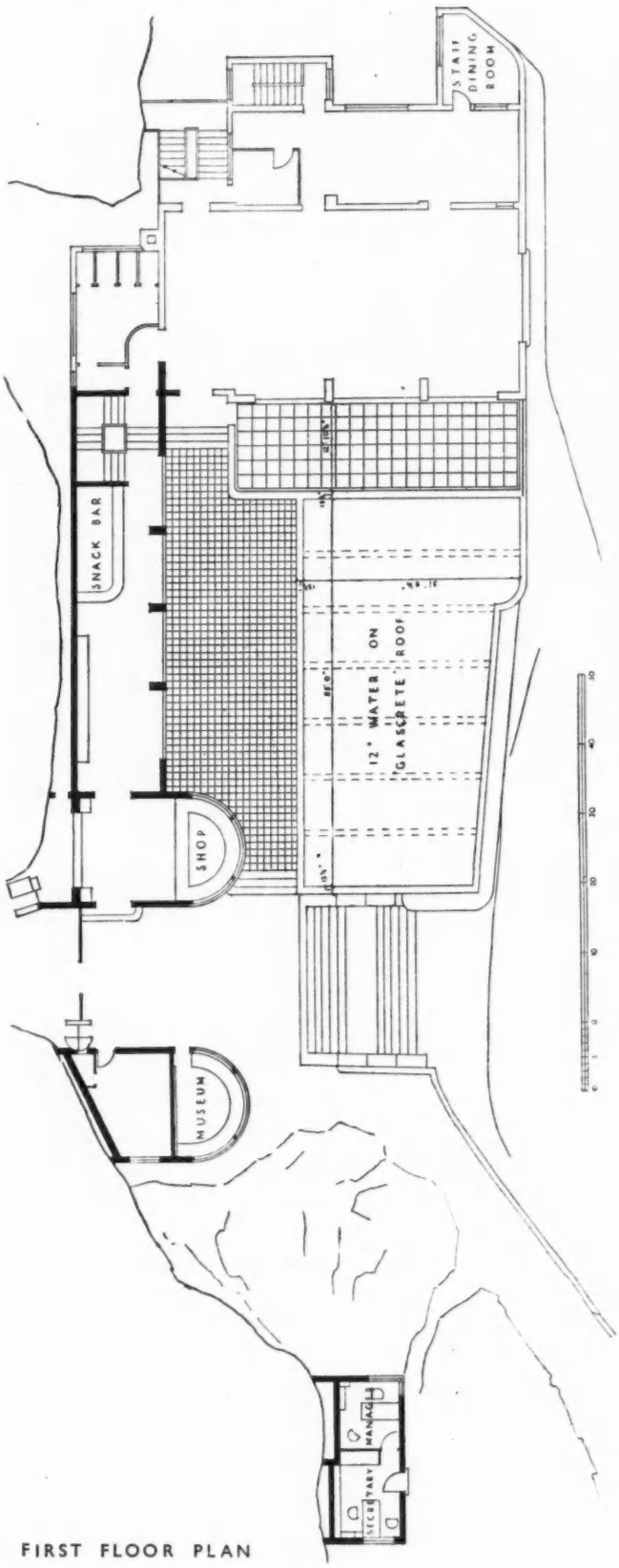
After the last season, the first during which the original building —"The Cave Man"—had been open, it was decided to build a new restaurant to accommodate parties of at least 300 people. Owing to the congestion of the site, a narrow slip of land between the cliffs and the road, there was only one position in which a restaurant of this size could go. That position was in the angle of the old building and at a lower level than the existing restaurant, but on the same level as the kitchen.

The photographs on this page show two views of the complete building, the upper one taken from the cliffs on the opposite side of the road, and that on the right from the manager's office. The new restaurant, with the pool above it, is shown in the foreground.

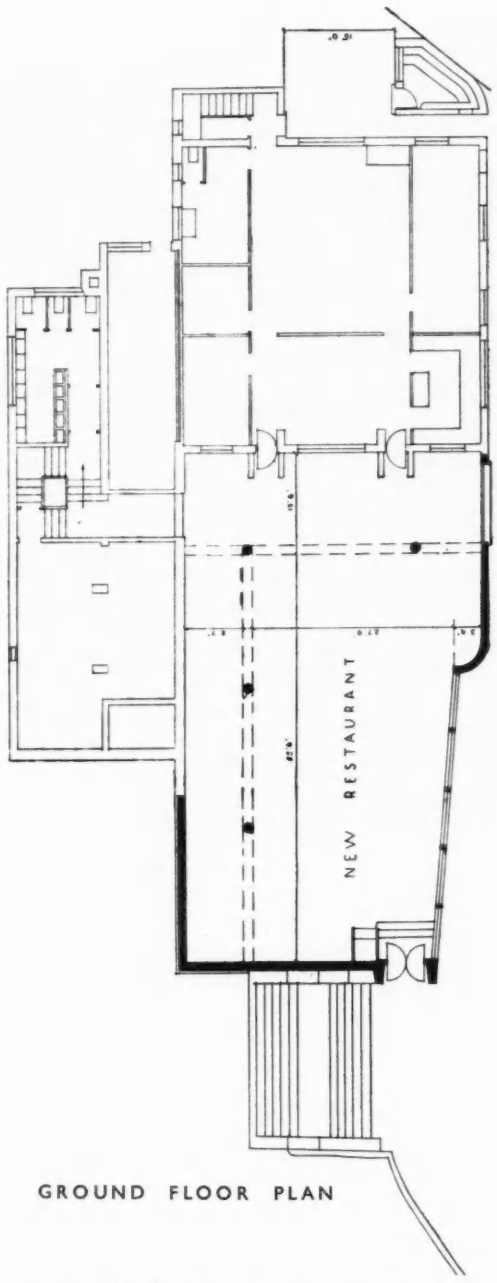


DESIGNED BY RUSSELL PAGE AND G. A. JELLICOE

NEW RESTAURANT, THE CAVE MAN,



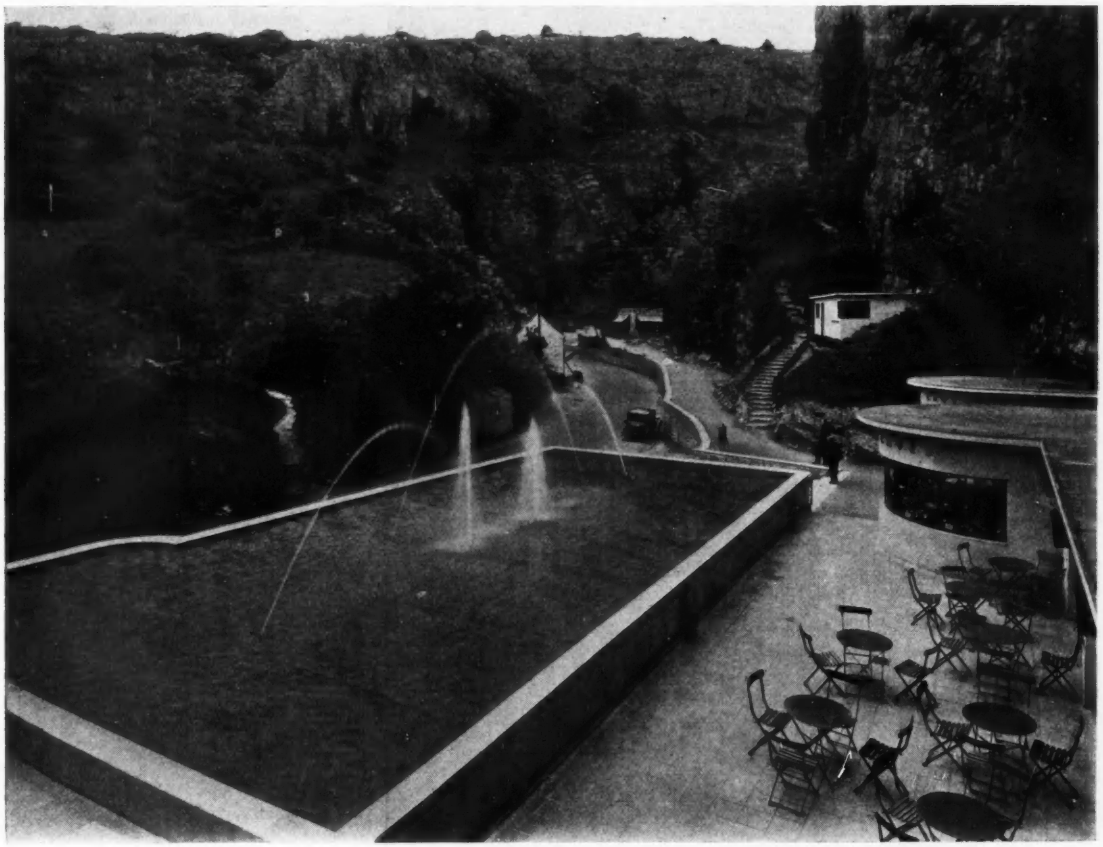
FIRST FLOOR PLAN

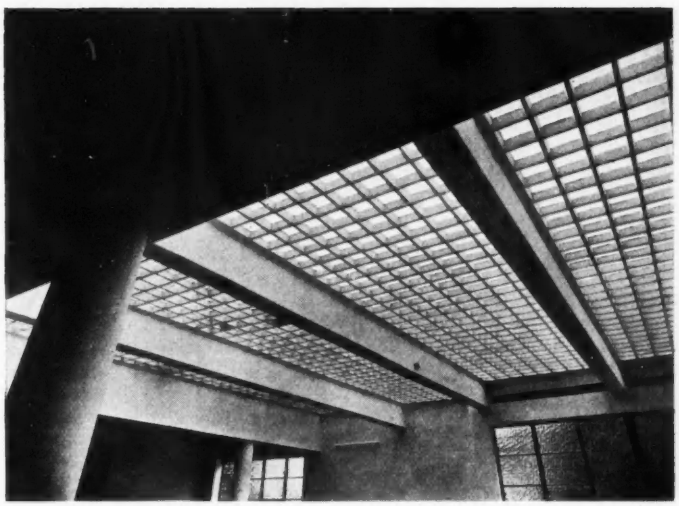


GROUND FLOOR PLAN

In addition to this restaurant, a new manager's office has been built, perched on an adjoining rock, which consists of the manager's room and secretary's room. The manager's window overlooks the whole restaurant from above. On either side of the entrance to the caves are: on the left a museum, and on the right a shop for sale of local souvenirs and postcards. At the rear of the building three floors of service rooms increase storage, and, from the point of view of design, complete the architectural composition. The first floor service has been enlarged. The whole of the quick service arrangements have been increased to give greater capacity. Further alterations include the widening of the road, which has in fact given the curious shape to the restaurant, and the treatment of the existing shop farther up the Gorge to bring it into harmony with the remainder of the building.

CHEDDAR GORGE, SOMERSET





The problems that the design of this restaurant presented were considerable. Apart from the requirements of the local authorities, there was the difficulty of head room, since there was only about 8 ft. between the ground and the floor of the snack-bar terrace. In addition, if this was roofed by any normal method the heat of the lower restaurant would have been insupportable and, in any case, the view from the snack-bar and restaurant would have been seriously impeded.

The present design, therefore, of the glass roof with 12 inches of water only, was not primarily carried out in order to produce an attractive effect, but rather because it was the only logical way of answering what appeared to be an almost impossible problem.

Above is a view of the pool taken from the roof over the snack-bar; on the right is the underside of the pool, which is also the restaurant ceiling.

DESIGNED BY RUSSELL PAGE AND G. A. JELLICOE

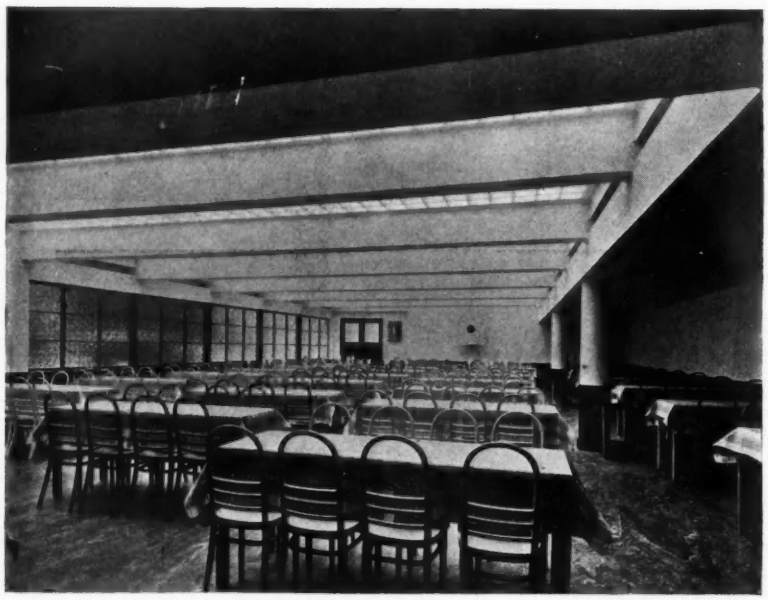
NEW RESTAURANT AT CHEDDAR



DESIGNED BY

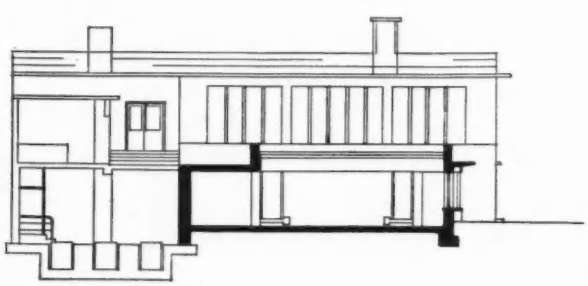
RUSSELL PAGE

AND G. A. JELLICOE



Left, a view of the pool through the windows of the first-floor restaurant; the water level is about 2 ft. 6 ins. above the snack-bar. The water gives an impression of coolness to the upper restaurant and snack-bar, and acts as a mirror to the cliffs. In addition, 13 fountains throw jets a distance of 20 ft. From below, the light comes through the water (see photograph on left), and the effect of water shadows across the walls provides the entire decoration. The shadows of 250 goldfish are constantly on the move, and water tremors given by the fountains are also reflected. The under sides of the goldfish form the ceiling decoration and their colour is repeated in that of the chairs below.

CONSTRUCTION. *Solid brick walls carried out on steel stanchions where necessary, rendered externally in pink cement to match the building. The roof consists of square lenses in seven bays carried on steel stanchions spaced about 9 ft. centre to centre. There is a mastic joint between each bay to allow for expansion and contraction. The roof beams are carried again on cross beams which are in turn carried on steel columns in a circular concrete casing. The finish of the walls and ceiling is white cement on the concrete face.*



SECTION THROUGH RESTAURANT

LETTERS FROM READERS

J. ALAN SLATER, F.R.I.B.A. (Chairman, Public Relations Committee of the R.I.B.A.)
A. SEYMOUR REEVES, L.R.I.B.A. (Secretary of the A.A.S.T.A.)
HARRY COWPERSON
J. THOMAS
RICHARD ACLAND.
W. LAWSON
HARRY BATSFORD
J. M. RICHARDS, A.R.I.B.A.
ROBERT BYRON
C. W. IZARD
G. B. J. ATHOE (Secretary, I.A.A.S.)

Private and Public Practice

SIR,—Mr. Robert Townsend's letter appearing in your issue for May 23 obviously requires an answer. In the first place I do not know whether it is he or your own Editorial Department who is responsible for the heading—"Private and Public Practice."—under which the letter appears.

The letter deals with the circular to local authorities recently issued under the name of the President of the R.I.B.A. The whole trend of this circular (and the considered policy of the Institute with regard to the important matter of the statutory recognition of architects) is based upon an effort to unite qualified architects (whether the salaried official or the privately practising architect) in one campaign. The object of this campaign is to ensure that architectural work which is of importance to the community from the point of view of economy and public amenity should be carried out by those who are qualified, as opposed to those who are unqualified.

Time and again the R.I.B.A. has most emphatically maintained that it cannot and does not wish to differentiate between the public services which can be given both by the qualified salaried architect and the qualified private practitioner. When that policy has been so clearly enunciated, and when the efforts of the Institute are employed to unite the profession in a common aim, it is disheartening to observe that, through either wilful or wrong-headed reading of the various publications, there should be an impression that the policy of the Institute is doing anything to create antagonism between one section of its members and another.

It appears, therefore, to me, that the heading of this correspondence sums up the distorted views of your correspondent. Once again the issue is not between two sections of the Institute; the issue is between services which can be rendered by those who are qualified as opposed to the disservice which is actually being rendered by those who are not.

J. ALAN SLATER
(Chairman, R.I.B.A. Public Relations Committee)

SIR,—May I draw your readers' attention to an open meeting to be held on Tuesday next, June 4, at 7 p.m., in the Caxton Hall, S.W.1, to which all architects in municipal service or salaried employment are invited? Discussion will take place on the matter dealt with in the letter, by Mr. Robert Townsend, appearing in your current issue. In addition, discussion will also be concentrated on the whole question of the status and economic prospects of the entire salaried section of the profession.

The views of my Council are, to a great extent, in accordance with the conclusions of Mr. Townsend's letter, but I should perhaps point out in connection with his last paragraph that already, and for some years, a considerable number of architects in salaried employment, whether in private, official or commercial offices, *have* realized their common need, and pooled their resources to build up their own organization consciously to pursue their unified interests as *salaried* members of the profession. The result is the Association of Architects, Surveyors and Technical Assistants, which is independent of any other architectural body, representing—and with membership restricted to—architects in salaried employment, whether engaged in private offices or commercial or local government establishments. The organization exists to protect and advance their status and remuneration in all categories. As such, and alone, it represents qualified *salaried* architects as a specific group on the Architects' Registration Council of the United Kingdom. It is even now planning a wide campaign for the adoption of a proper scale of remuneration for all salaried services, ranging from £150 to £2,500 per annum.

It is in accordance, therefore, with its established policy that the meeting referred to should be held under A.A.S.T.A. auspices. The chair will be taken by Mr. R. Wynn Owen, F.R.I.B.A. (Past President, A.A.S.T.A.); speakers will include Mr. Ivor Newton (President); Mr. V. Leslie Nash, A.R.I.B.A. (Chairman of Council), the writer, and a free discussion will follow. My Council will be happy to consider correspondence from provincial salaried architects and students—who are unable to attend—for submission to the meeting.

A. SEYMOUR REEVES
(Secretary, Association of Architects, Surveyors and Technical Assistants)

SIR,—All of us who are salaried, in whatever capacity, will rejoice to see the R.I.B.A. in its recent circular to Local Authorities trouncing the practice of engaging qualified salaried architects to design and carry out work under the "control" of unqualified figure-heads, who are often not architects, but who reap the credit of the work. But why limit these observations, as the circular does, to official offices? We know to our cost that such phenomena are the day-to-day experience of salaried architects in the majority of *private* offices. Here, as elsewhere, the work is designed, drawn, and supervised by qualified salaried architects, who receive neither public credit nor adequate financial return for their skill. These are the perquisites of the gentleman whose name is on the brass plate and who, as often as not, is merely a professional clubman, a financier, or simply a pleasant fellow who chatters of—but knows nothing about—architecture.

Can we not therefore confidently expect a further circular from the R.I.B.A. on much the same lines as that already issued to Local Authorities, but directed specifically to private offices?

HARRY COWPERSON
London

SIR,—I shall be surprised if many salaried architects disagree with Mr. Townsend's letter in your issue today. The closing paragraph is fundamental. No one who has watched the architectural scene on its professional side since the war will mistake the meaning of the R.I.B.A.'s latest circular. This circular cannot be taken as an isolated gesture but as part of a consistent policy in defence of the individual private practitioner. It is now evident that the day of the private practitioner is all but over. Modern developments have brought into being a great and growing group of salaried architects with their own pressing economic problems.

The policy of bodies constituted to

serve the special purposes of the private practitioner must result in action against the status and prospects of the salaried group.

This is clearly evident from a study of recent architectural politics with their culmination in the Registration Bill and the struggle for control of the Registration Council.

J. THOMAS
Welwyn Garden City

Ribbon Development

SIR,—It is today a fundamental principle of British politics accepted by all parties except the Communists, that whenever the State directly deprives a man of anything which is of value to him, other than his life, the State must pay compensation. It is true we have recently abolished the trade in caged birds without paying compensation to those who depended upon it, but we have not yet reached the stage at which we can abolish the trade in main road frontages without paying compensation to those who will thereby suffer loss. Hence Dr. Addison in the *News Chronicle* asks anyone to imagine what "the claims (under the ribbon development bill) may amount to along the miles and miles of by-pass and other main roads, and to translate the sum into terms of its repayment through the county rates."

If Dr. Addison will translate the sum into terms of its repayment through national taxation he will reach the conclusion of the American when contemplating a sausage, that "whichever way you look at it, it's still a sausage." By reason of which I declare that no politically possible government could pass any financially possible measure which would save from ruination the sites which are today doomed to "how you like and where you like" development during the next five years. We ought therefore to give up crying for the moon and direct our propaganda towards the adoption now of the measures which are now necessary in order that large scale planning may begin in 1950.

First you must make all landowners declare the present site value of their undeveloped land. Then you must put a tax of ¼d. or so in the £ on the values so declared, which would discourage fancy declarations. Now, although you cannot take away from a man a site value which you have allowed to develop in his hands, you can announce in advance that you will not allow any further value to develop. Therefore, after you had left the present building process rip for another 15 years or so, most landowners would have sold sites to the total value of their declarations, and as to those who had not, your ¼d. in the £ tax would by then have built up a fund with which you could mostly buy up, not the land, but the right to build, at the owner's declaration or what was left of it. Thereafter, no one could build except on terms approved by your large-scale planning authority, which latter could build where it liked on paying agricultural values. I submit that in no other way, and at no earlier date, can large-scale planning begin.

RICHARD ACLAND
Exeter

The Ruislip Houses

SIR,—I agree with the Panel that these houses are "deliberately odd."

Apart from the fact that no cost is given, so that they can be compared with other speculative houses, the following points are open to criticism :

1. Large expanse of glass to staircase is unnecessary, awkward to clean, awkward and expensive to curtain ; will make hall and landing cold.
2. French windows to living-room are no use. Will tenants sit on grass like rabbits whilst the passing public looks over the wire netting ?
3. Hall merely a passage with very awkwardly arranged doors at end. When two or three people happen to be at this end of the hall together someone is going to get a bang with a door.
4. Combined bath and w.c. is very bad in a house of this type.
5. Balcony to front bedroom serves no useful purpose, as it is too small for sitting out—and then, who wants to sit out looking over a public highway ?

W. LAWSON
Birmingham

Book Jackets

SIR,—I thought it might be of interest to you to read the following letter from an architect in Australia, and it occurred to me that the JOURNAL, which is undoubtedly broad-minded and has a sense of humour, might like the opportunity of publishing this view of what appears to be quite an amusingly controversial subject.

From Adrian Ashton, A.R.I.B.A., Sydney, Australia.

DEAR SIR,—I have noticed with irritation on two recent occasions in the columns of that otherwise excellent publication, THE ARCHITECTS' JOURNAL, the jackets of your publications described as "unfortunate art wrappers."

I should like you to know that my personal opinion—and that of others here who are qualified to judge—is entirely the opposite. I consider Mr. Brian Cook's work of a very high standard ; in fact, I make a point of adding a word of praise to this effect in nearly all the reviews of your publications that I do (and have done for the past five years) for *Building Magazine*, Sydney.

Publications such as those that you have seen fit to supply with a Brian Cook wrapper have a definite popular appeal, and such an attractive and striking colour pattern cannot but direct attention to the book. Whether upon the bookstall or on our study shelves they look well.

Another fact that always strikes us out here is the cheapness of your publications ; even when we've paid sales tax and various other odd impositions, and allowed for exchange, they are still reasonable.

I love to read of, and study the beauties of England, which I hope soon to visit.

What sort of a man is Mr. J. M. Richards, the critic in question ? Doesn't he like colour or the modern poster artist's craft ?

I thought these few thoughts may possibly be of interest ; in any case it has relieved my mind.

Yours faithfully,
ADRIAN ASHTON

While making no comment on the opinions expressed, I feel that the obvious solution for any reader who dislikes our jackets is the same as for an unappreciative listener of a wireless programme—you can always take it off !

HARRY BATSFORD
(Director, B. T. Batsford, Ltd.)
London

[*We have submitted Mr. Batsford's letter to the reviewer referred to, who sends the following reply.*—ED., *A.J.*]

SIR,—There is little I can say in reply to Mr. Ashton. Good or bad art are questions of personal opinion ; and, in spite of Mr. Ashton and his "others who are qualified to judge," my own judgment on the wrappers in question remains as it was. I can assure him I do like the modern poster artist's craft —when it is good of its kind. I am very sorry to have offended people in Australia.

J. M. RICHARDS

The Wiltshire Guide

SIR,—In your issue for May 9 Mr. Ross Williamson convicts me of an inaccuracy with regard to Bronze Age man. Perhaps you will be kind enough to point out that, as I wrote it, the passage in question was accurate enough. It was changed, while I was away, into the jargon of which he complains.

Mr. Ross Williamson also, by implication, ascribes to me credit for what he calls the "aptness" of the illustrations. In fairness to myself, I should prefer this credit to be ascribed to the General Editor of the series.

ROBERT BYRON
Marlborough

Asbestos-Cement and Uralite

SIR,—Messrs. Tecton's report upon their winning design in the Cement Marketing Co.'s recent competition contains a small inaccuracy which we should like to clear up. On page 441

of your issue for March 21 Messrs. Tecton refer to a " sealed Uralite pipe " which they propose to use as a chute for refuse disposal. While we have nothing but admiration for this system and its ingenious method of sealing, we feel we must point out that genuine " Uralite " is *not* made in pipe form. " Uralite " is essentially a fireproofing material and is used in flat sheet form ; we suggest, therefore, that Messrs. Tecton are referring to ordinary asbestos cement pipe, which, of course, is also manufactured by us.

C. W. IZARD
(for Celactite and British Uralite, Ltd.)
London

Architects' Registration Council

SIR,—If Registration is to be a success it is essential that registered architects be kept informed of the work of the Architects' Registration Council in order to retain their interest.

The Registration Council is a public body, yet its papers are invariably labelled " Confidential." Though it has been in existence for three years it has failed to issue a report to registered architects and other persons who may well be entitled to know what it is doing. I hold the view that its proceedings should be published.

The work of the Council is of interest to over 12,000 architects of all denominations and not merely to the few who comprise the Council. Publication of information would lead to the expression of views of registered architects —views possibly which have not occurred to the Council and which might assist it. Architectural matters should receive as much publicity as possible in order to encourage the layman and the general public to appreciate the profession as a whole in studying problems of importance.

As a registered architect and a member of the Registration Council holding these views I moved at a recent meeting of the Council that the professional Press be admitted to its meetings. The motion has been referred to a Committee of the Council for consideration and report ; the motion will receive further consideration at the next meeting of the Council. Meantime, it would be interesting to hear your views and your readers' views on the proposal.

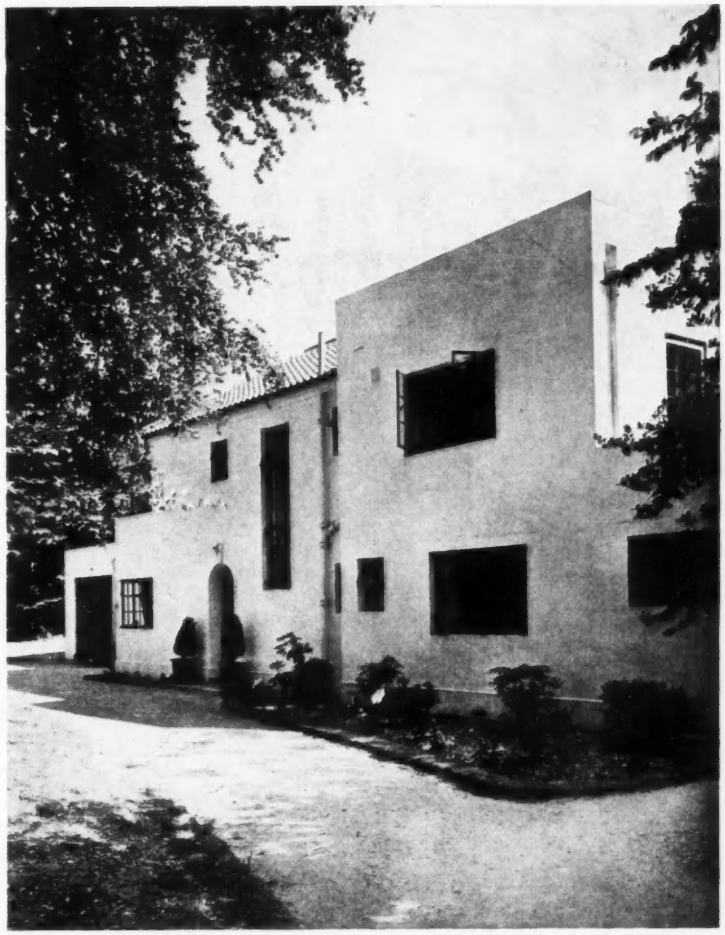
G. B. J. ATHOE
(Secretary, I.A.A.S.)

●

MATERNITY CENTRE, WESTMINSTER

The Westminster City Council has approved plans prepared by Mr. F. Milton Harvey, A.R.I.B.A., for the erection of the new maternity centre and day nursery in Bessborough Street, at a cost of £45,000.

HOUSE AT BEACONSFIELD

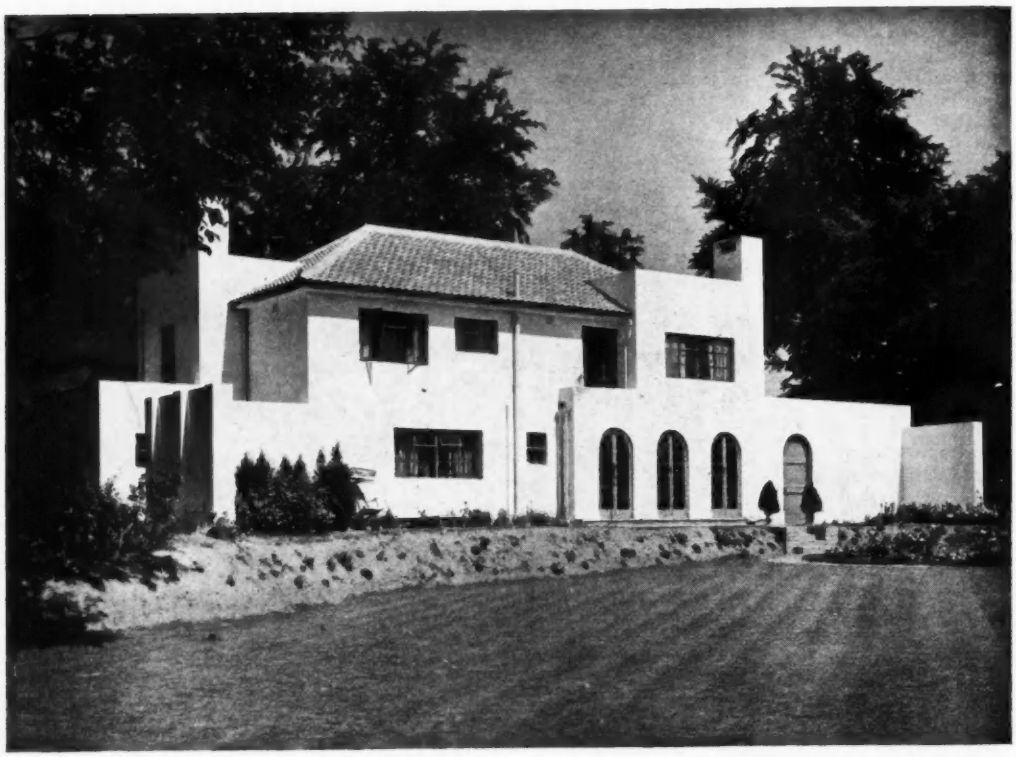


Above is a general view of the main (north) front of " White Walls," Beaconsfield, Buckinghamshire, designed by Stanley Hamp, of Collcutt and Hamp. Below is a view of the living-room looking towards the French windows giving access to the garden terrace. Ground and first floor plans and a photograph of the garden elevation are given overleaf.



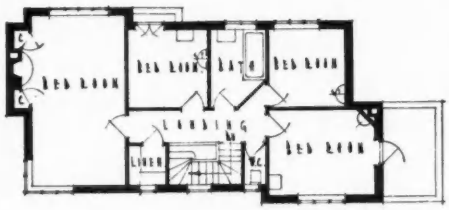
DESIGNED BY STANLEY HAMP

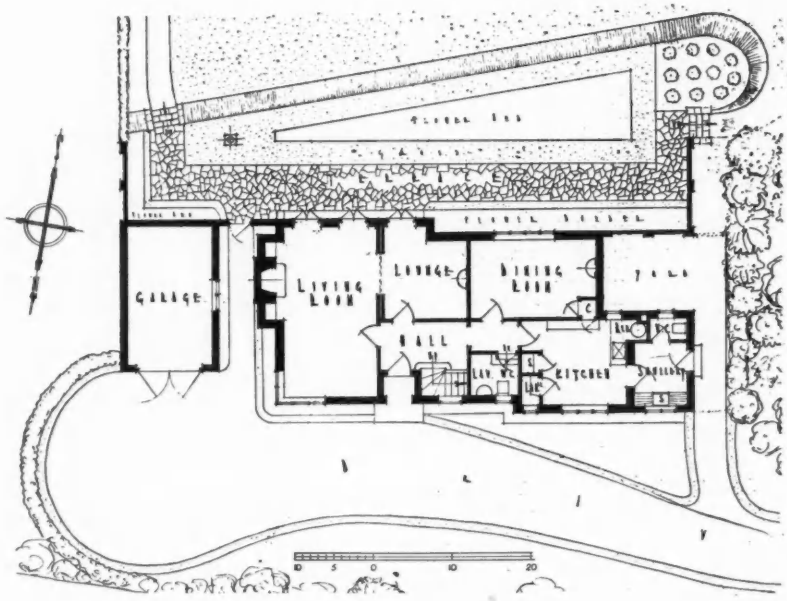
HOUSE AT BEACONSFIELD, BUCKS.



DESIGNED BY STANLEY HAMP (COLLCUTT AND HAMP)

FIRST FLOOR PLAN



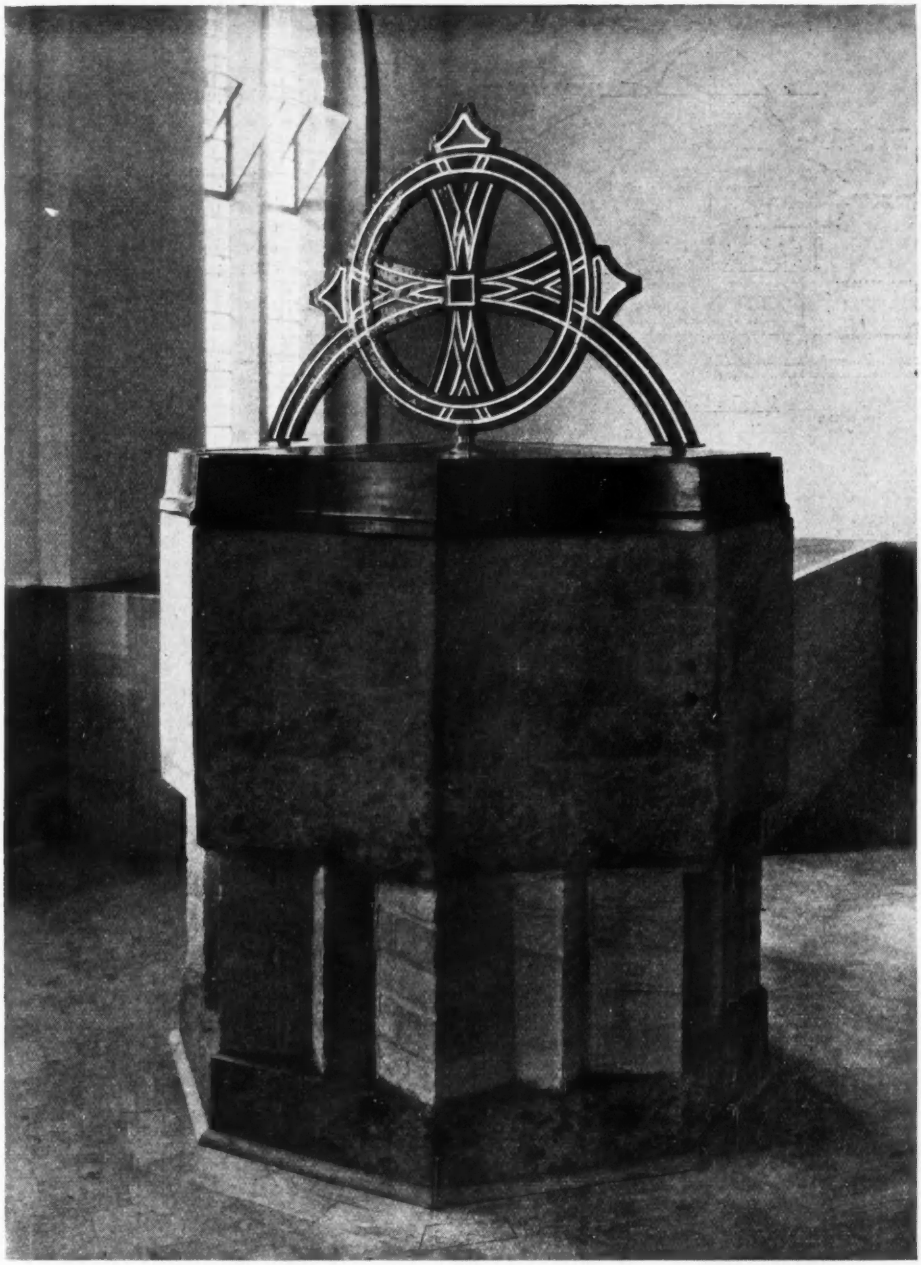


Ground and first floor plans and a general view of the garden elevation of "White Walls," Beaconsfield. The house is constructed of 11 in. hollow walls, the external sace being finished with a white cement flurry, lime-washed. The roof is of timber, finished with concrete pantiles and asphalt.

GROUND FLOOR PLAN

WORKING DETAILS : 267

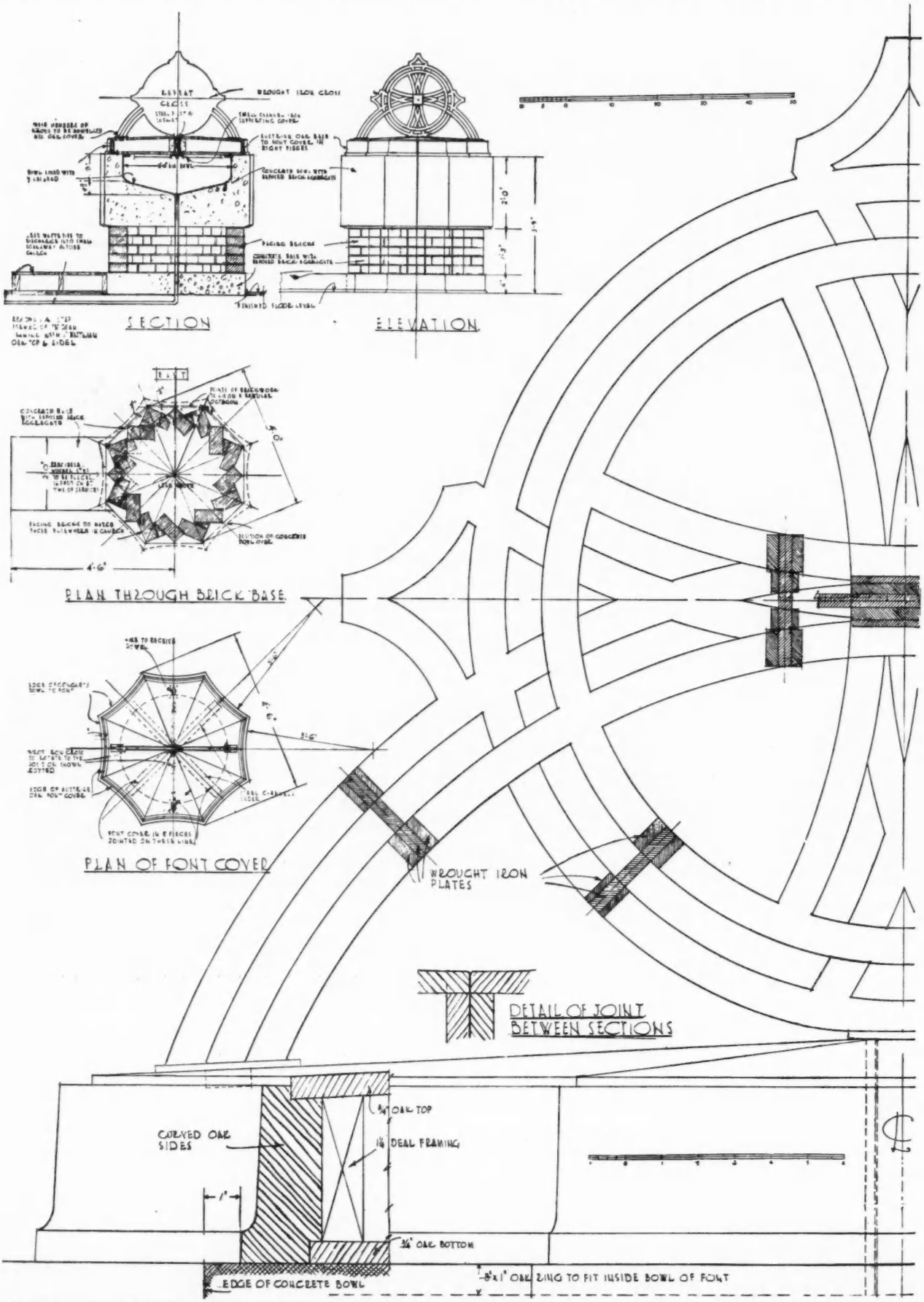
FONT • CHURCH OF ST. MARY, BECONTREE • WELCH, CACHEMAILLE-DAY AND LANDER



The bowl of this font is in concrete with an exposed broken brick aggregate, and is carried on a single shaft of facing bricks, with a base of the same material as the bowl. Plans, section, and a detail of the font are illustrated overleaf.

WORKING DETAILS : 268

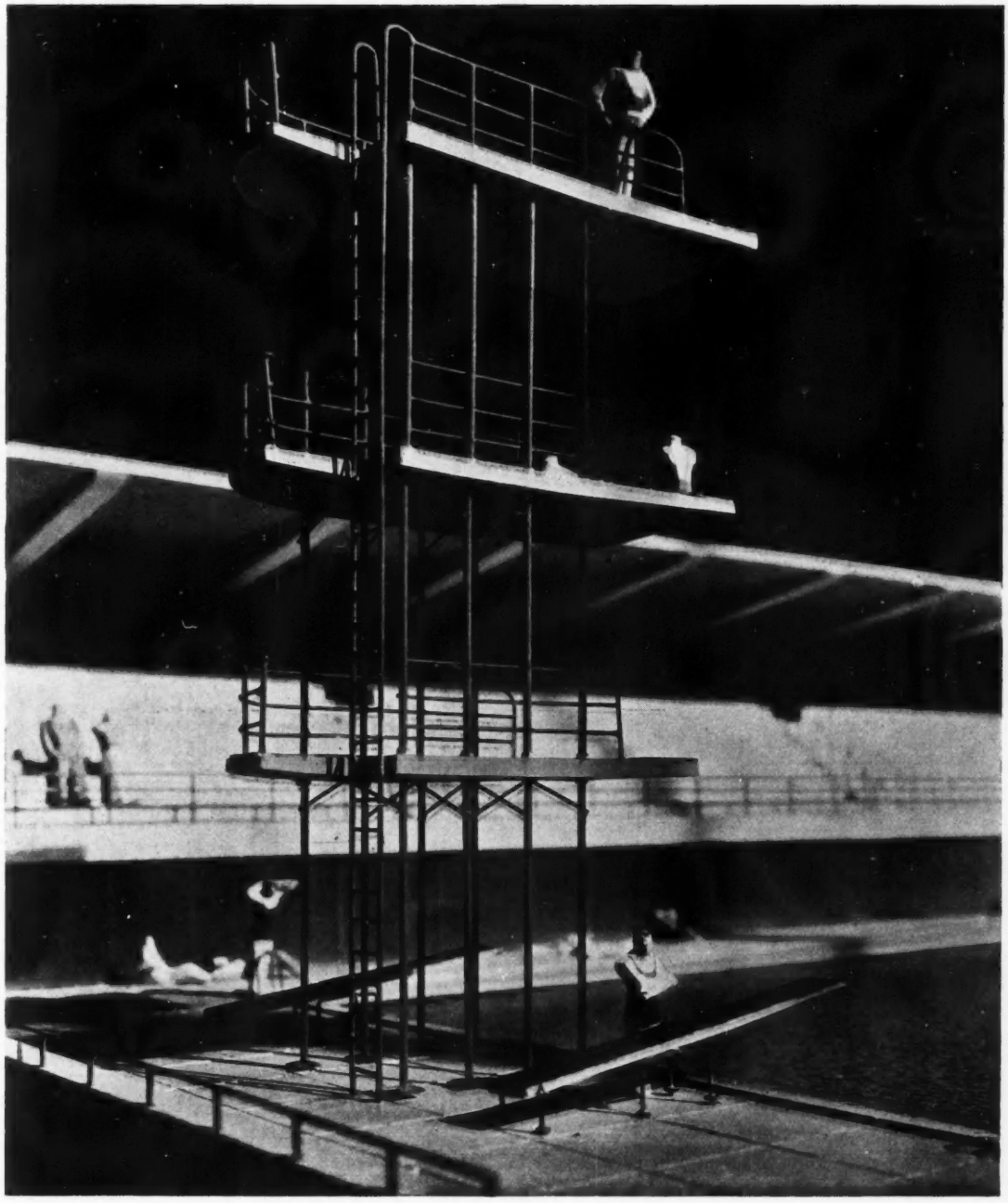
FONT • CHURCH OF ST. MARY, BECONTREE • WELCH, CACHEMAILLE-DAY AND LANDER



Plans, section and detail of the font illustrated overleaf.

WORKING DETAILS : 269

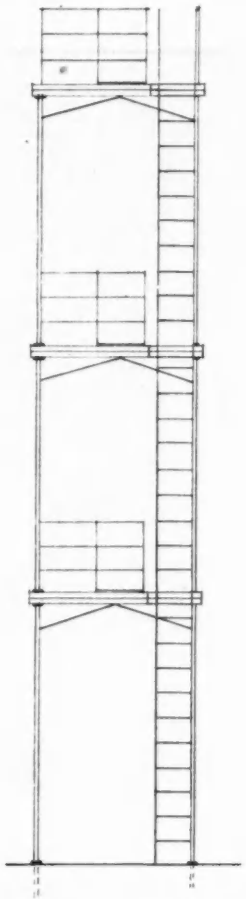
DIVING STAGE • PROPOSED HOTEL-AIRPORT • McGRATH AND GOODESMITH



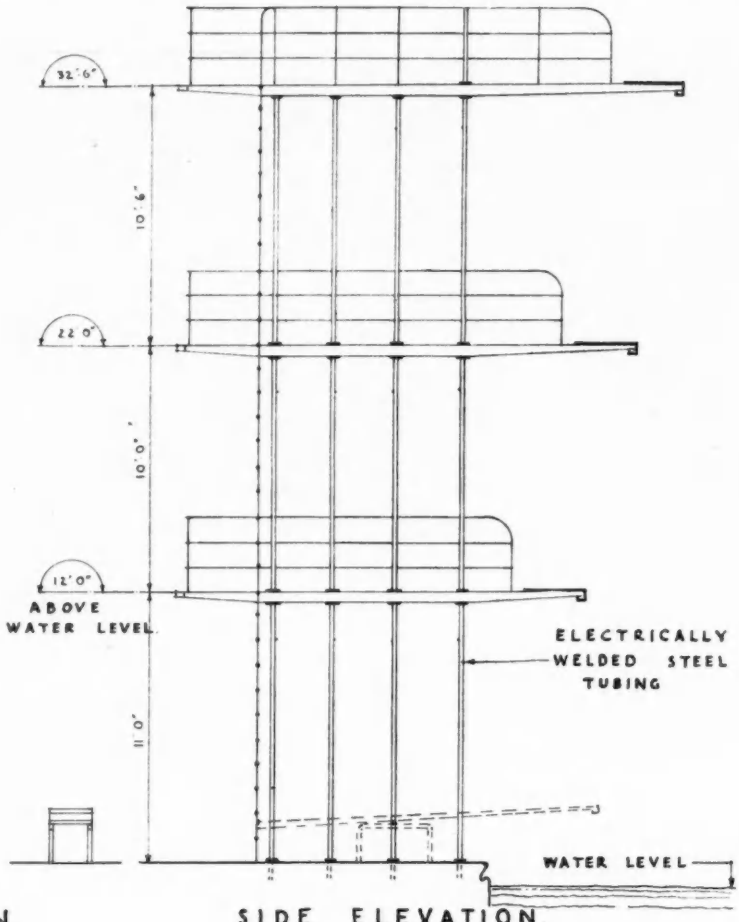
The illustration above shows a triple-stage diving tower, with platforms at the standard heights of 12 ft., 24 ft. and 32 ft. 6 ins. above water level, and at a standard width of 6 ft. 6 ins. in the clear. The tower is constructed of 2¼ in. diameter electrically welded steel tubes, with platforms of rolled steel channels and ¼ in. steel plates covered with matting. Tubes carry through platforms in continuous lengths (see detail) and no exposed fixing bolts are used, one bolt only being required at each junction to fix a cast steel stool. Tubes and plates are secured by shop and field welding, which results in an absence of projecting fixings. The whole tower structure is secured at the base by the embedding of the large vertical tubes in a reinforced concrete slab.

WORKING DETAILS : 270

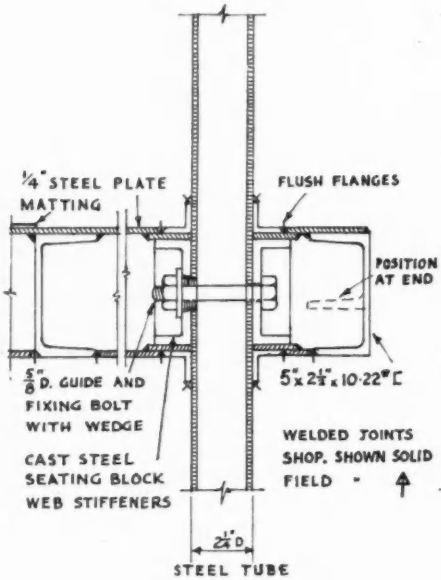
DIVING STAGE • PROPOSED HOTEL-AIRPORT • McGRATH AND GOODESMITH



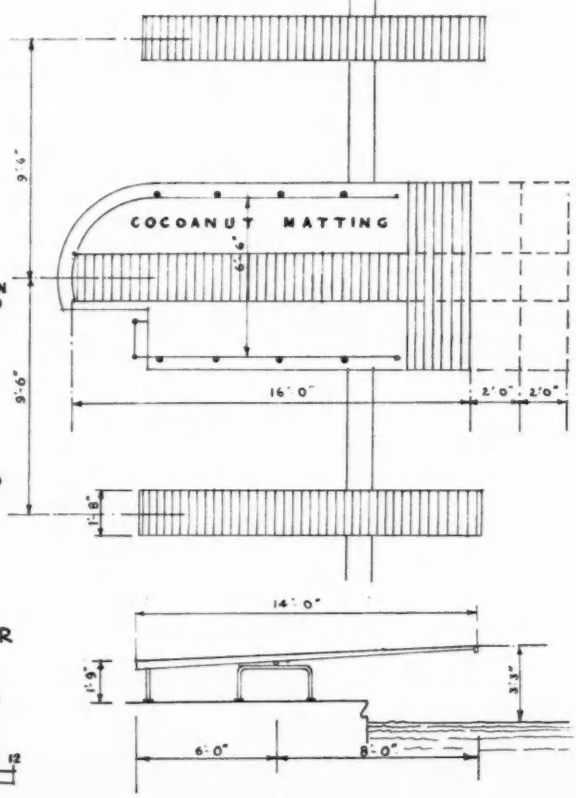
BACK ELEVATION



SIDE ELEVATION



DETAIL OF FIXING COLUMN & FLOOR



SCALE OF FEET 1 0 1 2 3 4 5 6 7 8 9 10

PLANS & ELEVATIONS

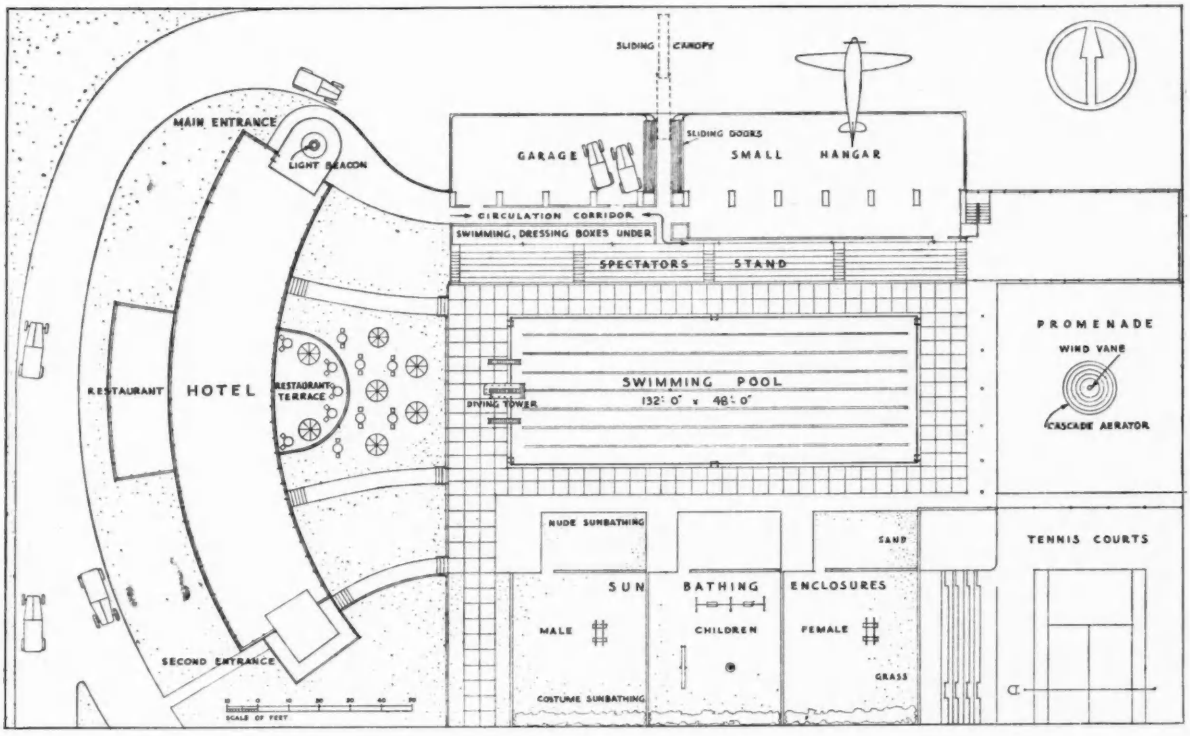
SCALE OF INCHES 0 1 2 3 4 5 6 7 8 9 10 11 12

DETAILS

Elevations, plan and detail of the diving board illustrated overleaf.

PROPOSED HOTEL-AIRPORT





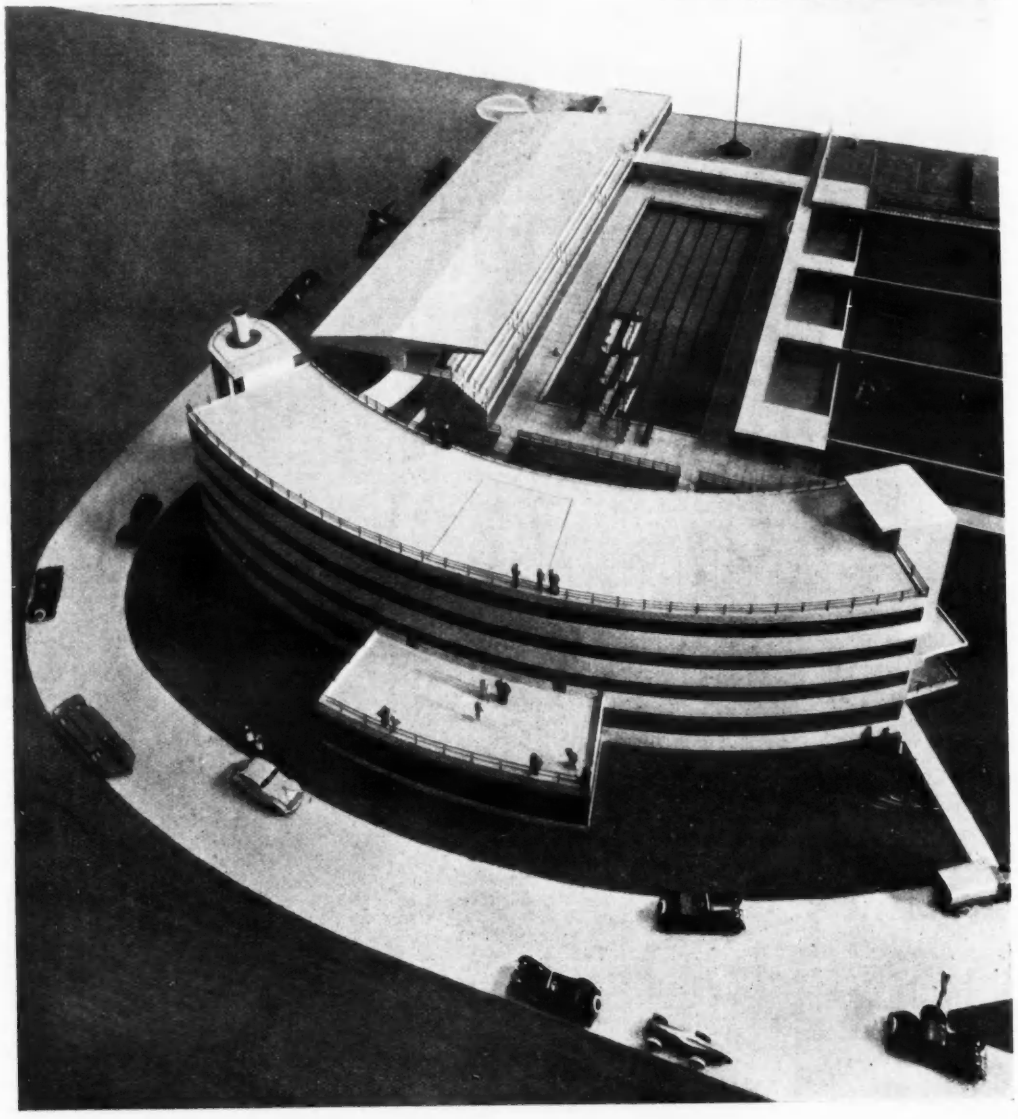
DESIGNED BY

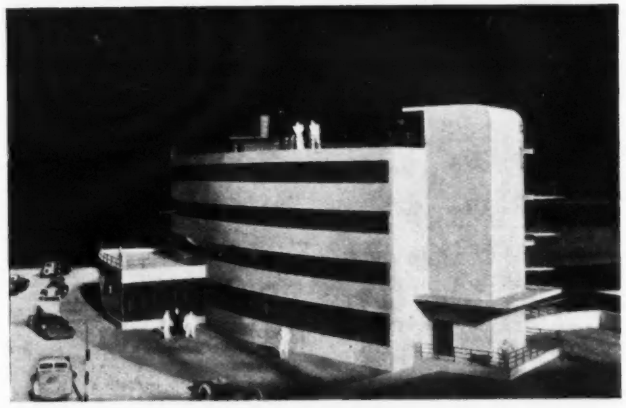
McGRATH AND

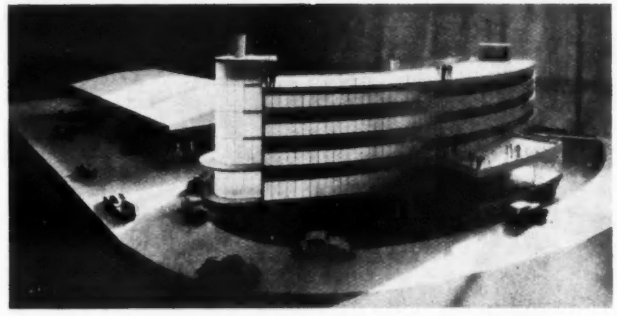
GOODESMITH

Negotiations for the erection of this hotel-airport on a site on the south coast are now proceeding. The complete design incorporates an hotel with a small aerodrome, garage and hangars, swimming pool, bathing enclosures, tennis courts, etc. The main structures are placed on the south side of the 800 yard diameter aerodrome and provision is made for additional hangars (not shown in the model), on the south-west boundary (see lay-out plan overleaf). The photograph is taken from the south-east.

PROPOSED HOTEL-AIRPORT



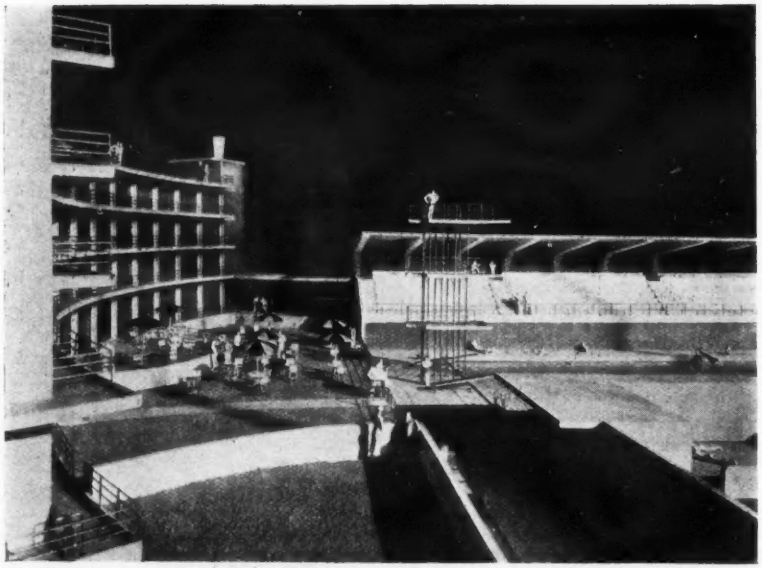




The planning of the main block provides for all the facilities to be expected in a modern hotel, together with the additional entertainment attractions which are, or should be, incorporated in an ideal roadhouse, thus serving the needs of both the passing visitor and the guest who may wish to stay a length of time.

The restaurant, which projects westward from the main building, also extends on the eastern side to form an open-air restaurant terrace.

The main entrance to the hotel is at the base of the glazed north tower, projecting from the top of which is a combined flue and guiding light beacon for aviators. The observation room for the aerodrome is housed in the top storey of this tower. The photographs show : left, a general view of the scheme from the west ; top, a view from the south-west ; bottom, a view from the north-west.

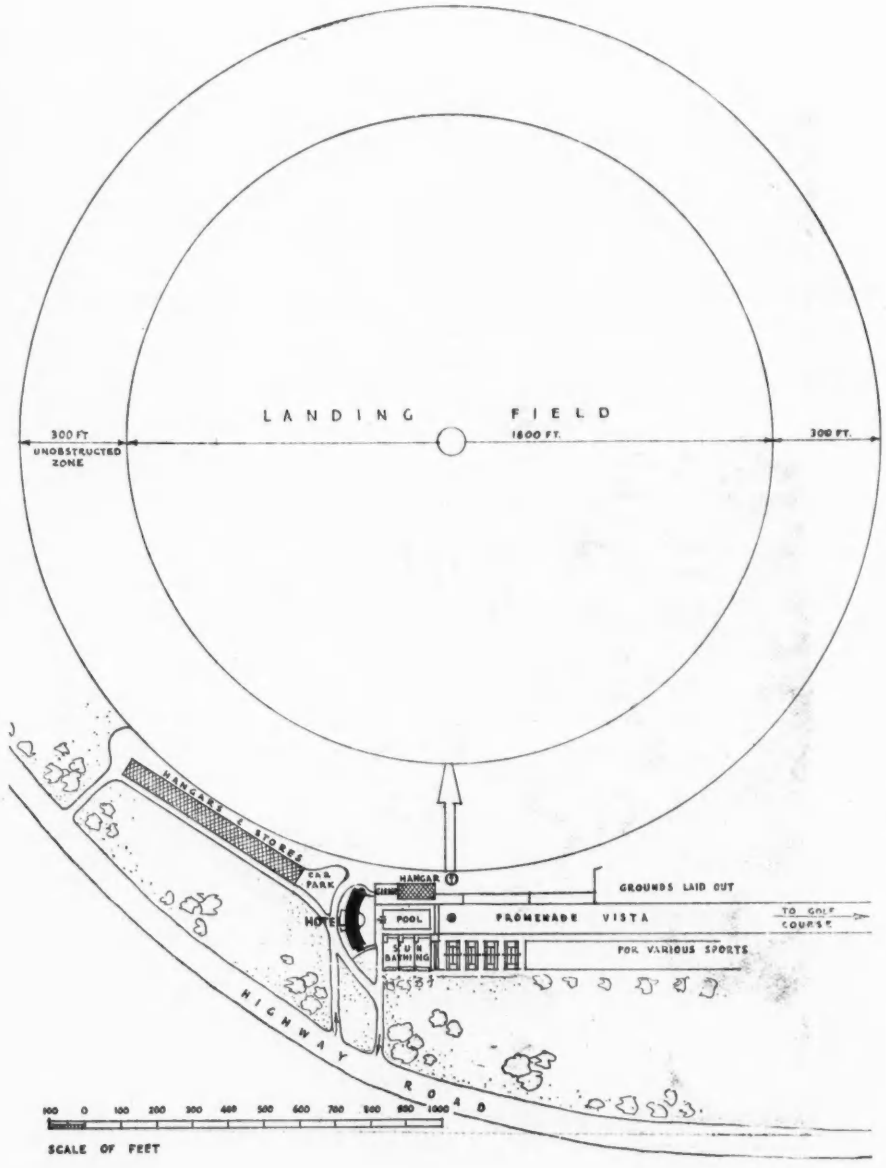


The principal structural material used throughout the scheme is reinforced concrete, and a generous use has been made of glass.

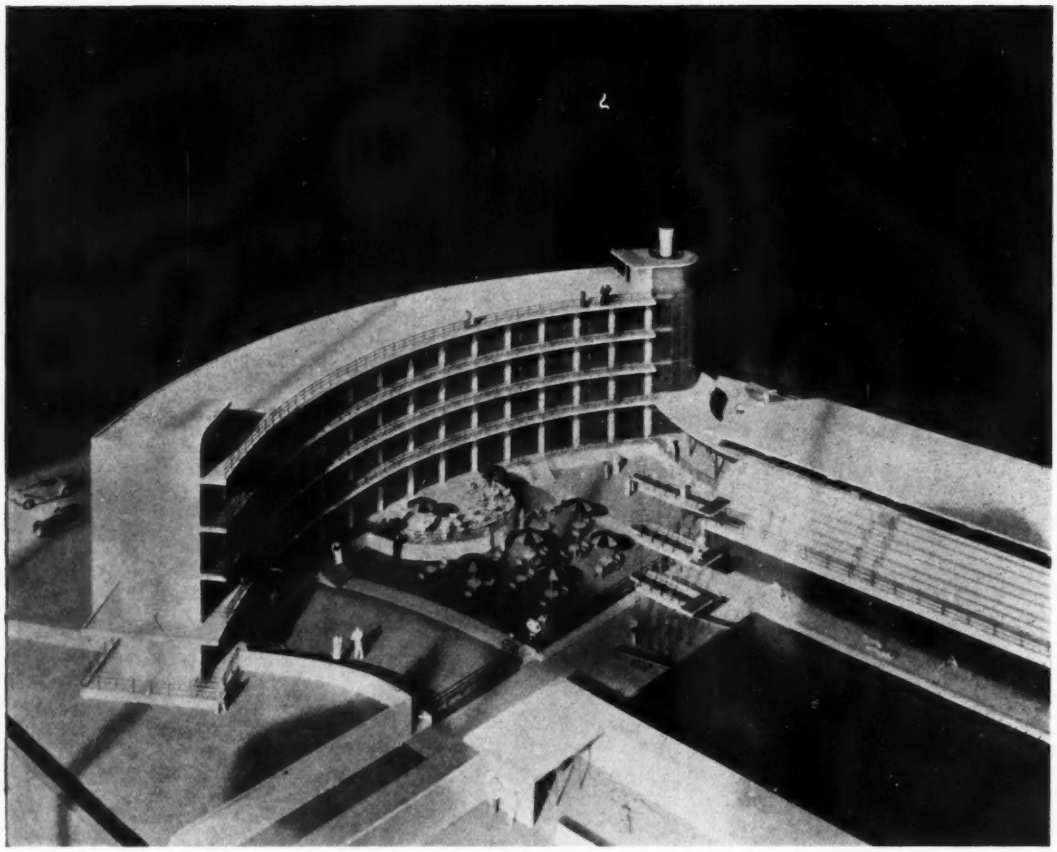
A unique feature of the design is the use made, wherever possible, of electrically welded steel tubing both in stainless and coloured finishes, and it is interesting to note that in constructing the model actual tubes were used to the correct scale, these very small tubes being used in actual practice for hypodermic syringes.

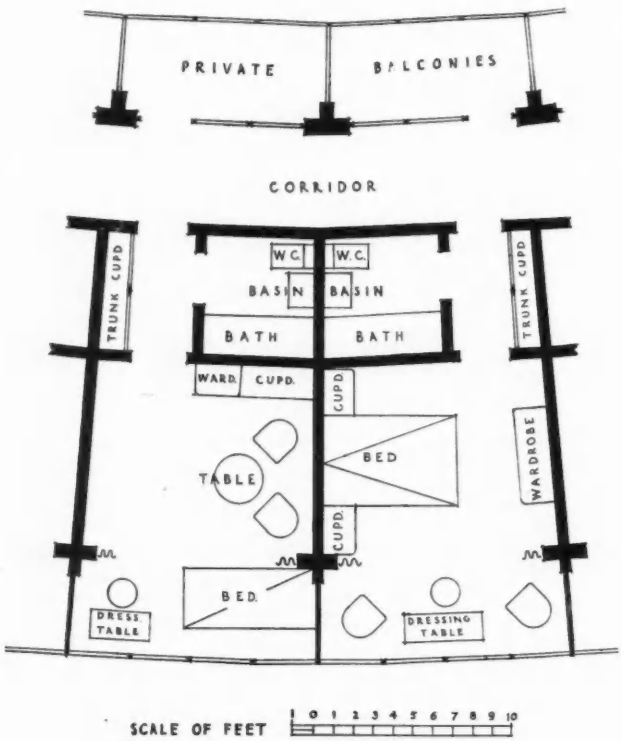
The swimming pool is large enough for championship contests and measures 132 ft. by 48 ft., racing lines being incorporated on the floor of the pool. The dressing boxes are housed under the front portion of the covered spectators' stand, a continuous glazed circulation passage extending the full length of the stand. Above is a view looking across the restaurant terrace and swimming pool.

DESIGNED BY McGRATH AND GOODESMITH



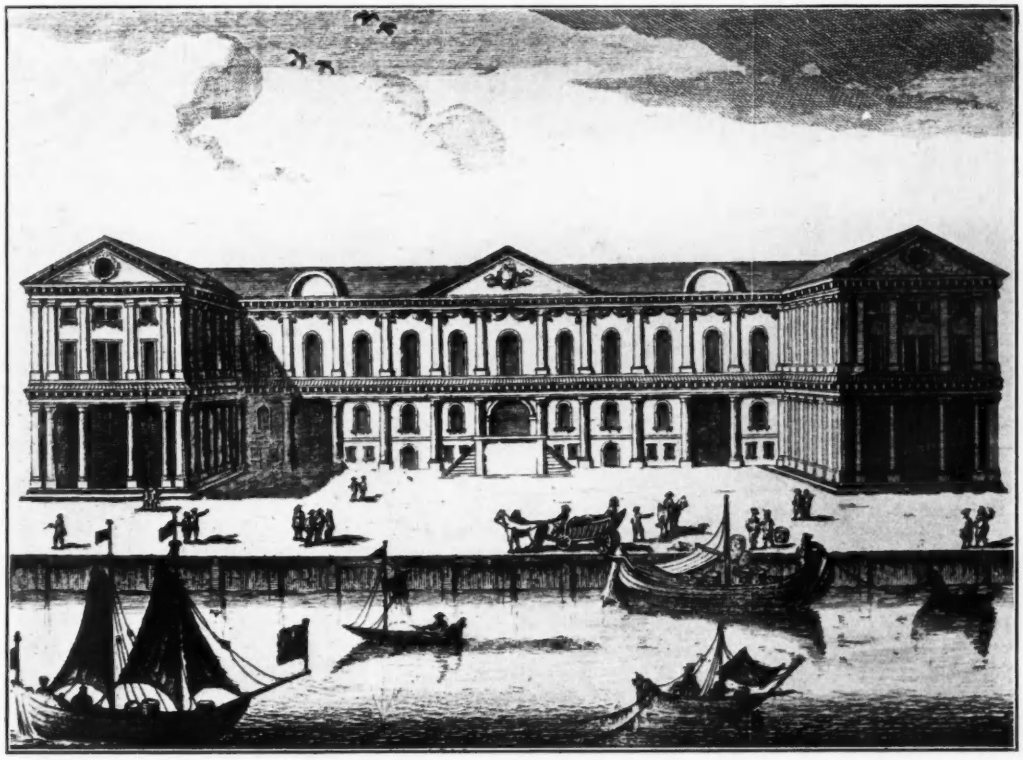
PROPOSED HOTEL-AIRPORT





Above is an aerial view of the model from the south-east, showing the swimming pool and open-air restaurant. On the left is a typical plan of two hotel room units, one single and one double, each with a private balcony.

DESIGNED BY McGRATH AND GOODESMITH



Wren's Custom House, London: completed in 1671; destroyed by fire in 1715. (From a contemporary engraving.) From "The L.C.C. Survey of London: The Parish of All Hallows, Barking-by-the-Tower; Part 2."

L I T E R A T U R E

ALL HALLOWS SURVEY

[*BY S. E. DYKES BOWER*]

London County Council Survey of London, Vol. XV: *The Parish of All Hallows, Barking-by-the-Tower; Part* 2. London: Country Life, Ltd. (for the L.C.C.). Price £2 2s. net.

THE first volume on All Hallows, Barking-by-the-Tower, dealt with the church; this second volume deals with the monuments in the church and the secular buildings of the parish. While the antiquity of the district is suggested by the names of streets and courts still surviving or but lately obliterated, its history can only be pieced together in a fragmentary way, as chance documents remain to illuminate it. We can gather enough however to realize that it is rich in the interest that comes through connection with great persons and events.

As its name implies, the parish no doubt had some link with Barking Abbey in Essex, but a more influential link was that established by its proximity to the Tower of London, which gave it an intimate acquaintance with famous scenes, tragic and otherwise. Moreover, being East of London Bridge, it was the first parish within the city walls to be reached by ships coming in from the sea, and, since these berthed at its quays, it acquired the slightly maritime atmosphere that has always been part of its essential character. The Customs House was naturally its chief monument, and among many interesting plates in this book is one showing Wren's design for that building. It is described as one of his most perfect works, but its life was a very short one, since it was destroyed by fire in less than fifty years. It was succeeded by a rather heavy creation of Ripley, then "master carpenter" to the Board of Customs. Ripley exceeded his estimate very considerably, and, being called to account for the excess, specified some of the larger items but airily passed over the rest as "a great many more things done that could not be foreseen and too tedious to mention!" His building lasted about a century, and having become "inadequate, ruinous and dilapidated" also perished by fire. Its end was remarkable. The fire broke out on the top floor and burned slowly down all through one night and the following day, at the end of which the flames reached the powder stored in the quarters occupied by the Customs House Volunteers and the very considerable quantity of spirit stored in the King's Warehouse. The result was an explosion which scattered multitudes of customs papers all over the metropolis, some being later brought back from as far away as Hackney Marshes. David Laing's new building of 1813 was built on a new site in the parish of St. Dunstan-in-the-East.

The arrival of vessels from abroad caused an association with distant lands that is reflected in the existence of Muscovy Court, occupied for a time by the Russia or Muscovy Company that was the practical outcome of Sir Hugh Willoughby's ill-fated expedition to discover the north-east route to Cathay. Richard Chancellor, who reached Russia and interviewed the Czar, brought back a letter for Queen Mary granting privileges to English merchants, and the Company received its charter in 1555. There is in the church a monument to Dr. Harvey, born at Bruges in 1568 and for six years physician to the Czar of Muscovy.

Another court, Catherine Court, was, until its destruction to make way for the Port of London Authority building



Ripley's Custom House, built in 1722 to succeed Wren's. From "The L.C.C. Survey of London: The Parish of All Hallows, Barking-by-the-Tower; Part 2."

better known to architects. The measured drawings in this book show it to have been an excellent specimen of eighteenth century domestic architecture, with houses full of good panelling, staircases and fireplaces. The most notable single monument now left is No. 34, Great Tower Street, a brick mansion that is perhaps the best example remaining of a city merchant's house built immediately after the Great Fire.

There is no need to commend this volume. It maintains the high standard of its predecessors in the Survey of London and is copiously illustrated with photographs and measured drawings. The discussion, however, of the seventeenth-century prints of the Custom House is not entirely satisfactory. There is surely an intimate relation between those of Visscher and Merian which is not made clear.

Shorter Notices

The "Electrician" Annual Tables of Electricity Undertakings. Edited by Basil H. Tripp. London: Benn Bros. Price 10s.

THE Grid Scheme is gradually rationalizing the whole process of electrical supply, but there are still in this country between six and seven hundred different undertakings whose voltages and charges for current vary within fairly wide limits, particularly in rural areas. Tables such as these can therefore be extremely useful to architects who may be considering the relative costs of various forms of heating, for full details are given of the different tariffs of the supply companies, and the alphabetical list contains a large number of parishes, which are cross-referenced to the appropriate supply company—a useful feature. London undertakings are grouped separately, and there are also sections on Empire and foreign undertakings. Details such as systems of supply and generation are not of enthralling interest to architects, but a casual glance can provide some light relief: Beulah, Victoria, Australia, 154 consumers with a total load of 50 kW—exactly the same as the winter consumption of the new R.I.B.A. building for lighting *only*.

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L.C.C. School of Arts and Crafts

The annual exhibition of students' work at the L.C.C. Central School, Southampton Row, W.C., is to be held at the School from June 21 until June 28, between the hours of 10 a.m. and 8 p.m. except June 10 (Saturdays, 10 a.m. to 12 noon).

St. Paul's Ecclesiological Society

The following visits have been arranged by the St. Paul's Ecclesiological Society:—

Saturday, June 1.—All-day visit to Bath. Particulars from Paymaster Commander G. Bridgmore-Brown, R.D., R.N., "Sunnyside," Heathdene Road, Wallington, Surrey, to whom all applications should be made accompanied by a stamped addressed envelope.

Saturday, June 22.—Parish Church, Almshouses, etc., Harefield, Middlesex. Guide: Mr. Edward Yates, F.S.A. Meet at the Church, 2.30 p.m.

Saturday, July 13.—Parish Church, Quebec House and other houses of interest in Westerham, Kent. Guide: Mr. Granville E. Streatfield, F.R.I.B.A. Meet at the Church, 2.30 p.m.

Moscow's Wooded Parks

The plan for the reconstruction of the suburban zone of Moscow provides for the creation of six immense woodland parks, surrounding the capital on all sides. The largest will be in Zvenigorod, and will cover an area of 50,000 acres. Another, of 42,500 acres, will be created in Kliazma. In some sectors of the parks will be built sanatoria, bases for tourists and hotels.

All the woodland parks will be connected by a park-way, running through three-quarters of the suburban zone and encircling the capital.

TECHNICAL SECTION: 18

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

OIL FIRING

OIL

OIL, being ashless, is an ideal fuel for the firing of boilers; being a fluid it is more easily handled than coal or coke and can be stored in positions impossible with the latter fuels. Oil is, moreover, relatively more dense, and, having a higher calorific value per unit of weight, does not need to be stored in such large quantities.

Table XXX shows the comparative space occupied by one ton of oil, coal and coke, together with the potential heat value in each case.

Further advantages of oil fuel are cleanliness, convenience and flexibility of operation, and saving of labour generally. The former have a money value which is often difficult to assess.

Its disadvantage is cost, which is higher than with coal or coke, though many cases exist where this is balanced by a corresponding saving in labour. Similarly, its great facility for automatic control often brings about greater economy of heat than is possible with a hand fired, hand controlled system. Thus each case requires to be considered on its merits and no generalization can really do justice to the case for oil. More detailed discussion on running costs will appear in a later chapter.

Fuel oil as commonly supplied for boilers is the product remaining after the various petroleum spirits have been removed by distillation from crude oil. Owing to the fact that such oils are obtained from wells in various parts of the globe they vary considerably in their physical and chemical characteristics. All can be burnt in boilers, provided the right type of equipment is provided for the purpose, but for heating installations the oil companies offer fuels which are specially suitable for the purpose, the characteristics often being maintained within small limits by a process of blending.

In addition to the imported oils there is now obtainable a home-produced oil derived from coal by the low temperature carbonization process and from oil-bearing shales. Creosote, a derivative of coal, is also usable for this purpose and is marketed by the gas companies, though it has its disadvantages. In the future it is to be assumed that oil produced from coal by the hydrogenation process will also be available.

TABLE XXXI
CHARACTERISTICS OF TYPICAL FUEL OILS

	Oil A (Shell Domestic)	Oil B (Britoleum)	Oil C (British)
Viscosity (Redwood No. 1 at 100° F.)	40 sec.	200 sec.	100 sec.
Specific Gravity at 60° F.	0·88	0·92	1·01
Flash point (closed)	165° F.	175° F.	190° F.
Pour point	Below 20° F	Up to 30° F	32° F.
Calorific Value in B.T.U /lb.:			
Gross ..	19,350	18,900	17,000
Net ..	18 150	17,800	16,400
Sulphur Content ..	1·25%	2%	0·69%
Asphalt Content ..	Negligible	3%	Nil
Ash Content ..	..	0·04%	0·025%
Cost per ton (100 tons per annum and over) ..	97/-*	77/6*	67/6

* Including import tax.

Table XXXI gives the characteristics of three typical oils now available for use in boilers. A is a light oil suitable for burners incapable of using heavier oils, B is heavier, commonly known as "200 seconds" oil, C is a home-produced oil from the low temperature carbonization process. The prices given are current and inclusive of the present 1d. per gallon tax on the imported fuels, but vary from time to time according to the fluctuations of the market and of the Chancellor of the Exchequer. For contracts of 100 tons per annum and over, reduced rates are generally obtainable.

The flash point (closed) is the minimum temperature at which the vapour will ignite in a closed vessel. A minimum of 150 deg. is set as the line of demarcation between a fuel oil and petroleum. This temperature is important, since it means that at ordinary temperatures and far above them, the oil and its vapour is non-inflammable. It is, in fact, difficult to set the oil alight by plunging a lighted taper into it, the taper being extinguished except in special circumstances where a wick action is set up.

The viscosity as determined according to Redwood's table is the time in seconds for 1 cc. to pass through an orifice of specified dimensions. No. 1 table (fine orifice) is for light oils, No. 2 (larger orifice) for heavier oils.

The pour point generally follows the viscosity, and is the highest temperature at which the oil ceases to run freely. For practical reasons this point must be below the normal temperature of the storage vessel.

The calorific values gross and net have already been explained (see page 572) and need not be referred to again. Petroleum oils vary but little in this respect.

The sulphur content determines the quality of obnoxious gases emitted from the flue and should be as low as possible for obvious reasons. The asphalt content is not so important when the oil is used in boilers as it is in the case of Diesel engines, in which an excess of this constituent may cause gumming of valves, coating of cylinders, etc.

Creosote oils suffer from the disadvantage of containing naphthalene, which crystallizes out at temperatures below 60 deg. F., and on this account the storage vessels have to be kept warm. Another disadvantage is that copper and gunmetal are corroded by this oil, and all burner parts have in consequence to be made of other materials. Low-temperature-carbonization oil is stated not to suffer from these disadvantages, though it is not advocated for anything other than large plants having hand ignition.

TABLE XXX
COMPARATIVE VOLUMES AND HEATING VALUES OF FUELS

Fuel	Lb. per cu. ft.	Cu. ft. per ton	Calorific value in B.T.U. per lb. net	Potential heat-value in B.T.U. per cu. ft. of fuel
Oil	56	40	18,000	1,000,000
Anthracite ..	50	45	14,000	700,000
Coal (average) ..	45	50	13,500	610,000
Coke	25	90	12,500	310,000

COMBUSTION OF OIL

If a piece of rag is dipped in fuel oil, the oil may be burnt, though, as stated

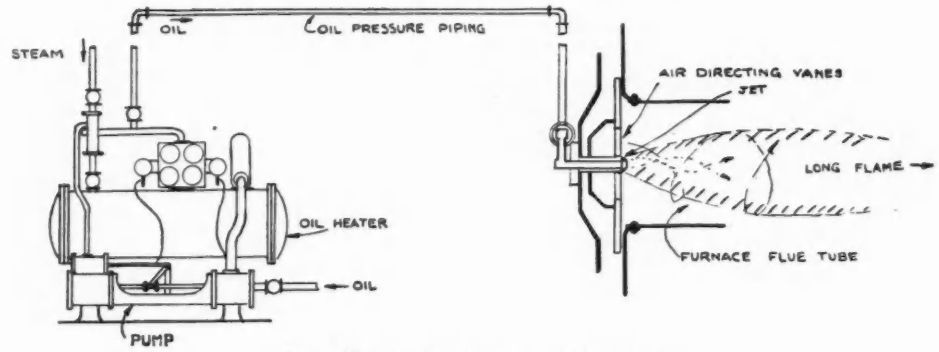


Figure 97. *Oil burning, pressure jet system.*

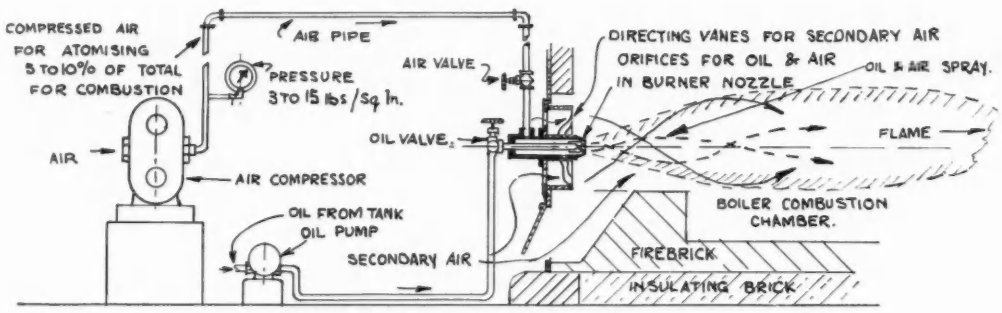


Figure 98. *Oil burning, compressed air system.*

above, it cannot be ignited when a flame is plunged into it in bulk. When soaked into a rag the oil presents a much greater surface to the flame, and the ignition point is reached without any surrounding oil being present to conduct the heat away.

The flame from the oily rag will, however, be found to be extremely smoky and entirely unsuitable for use in a boiler. This is because the oxygen of the air cannot penetrate the oil vapour quickly enough to reach all the molecules of carbon before they are driven off beyond the zone in which combustion is supported.

In order to burn oil smokelessly it is therefore necessary

(*a*) to ensure that the oil is finely divided or atomized so as to present as great a surface as possible to the atmosphere;

(*b*) to retain around the combustion space a material at high temperature so as to support combustion throughout as great a volume as possible.

The first requirement (*a*) has given rise to three main types of oil burner which will be described later.

The requirement (*b*) is generally met by providing in the combustion chamber of the boiler a mass of firebrick, which itself becomes incandescent and so maintains a zone of high temperature around the flame. Until this becomes heated, quantities of black smoke may be emitted, and this is often noticeable when an oil burner first starts up.

Oil Burners.—The three main types of oil burner are :—

(*a*) Pressure jet.
(*b*) Compressed air.
(*c*) Low pressure air.

(A fourth type depending on natural draught atomization is available, but is not in sufficient use to warrant description here.)

(*a*) *Pressure Jet System.* (See Fig. 97.)—This is the method employed in marine work and is commonly used on land in large boilers of the Lancashire, Economic or water tube type. Fig. 47 (page 462) illustrates a typical installation employing this method of firing.

The system comprises essentially an oil heater, pump, jet, and furnace front. Steam is generally used for the heater and pump and is controlled so as to maintain an oil temperature of about 140 deg. F. and an oil pressure of 40 to 100 lb. per sq. in. The jet consists of a hardened steel nozzle with a series of holes drilled tangentially to give a swirling motion to the oil, but this varies with every make of plant. The jets are calibrated for a definite delivery in gallons per hour and for change of load a change of jet is necessary. Thus the jet assembly is always made removable. The heater is necessary to reduce the viscosity so that the oil may be atomized by pressure alone.

The purpose of the furnace front is to give to the oil spray a swirling motion opposite in direction to that of the air entering naturally for combustion, so bringing about a close intermingling. By adjustment of the intake deflector the amount of air admitted may be varied to suit the flame, or the air may be shut off entirely when the burner is closed down, so preventing cooling of the boiler.

The pressure jet system has the following general characteristics :—

(i) Suitable for large boilers, but not for small.
(ii) Capable of high efficiency.
(iii) Can burn any grade of oil.
(iv) Requires skilled attendance.

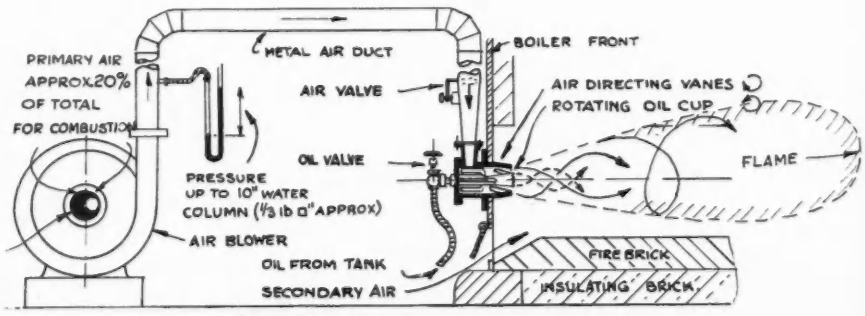
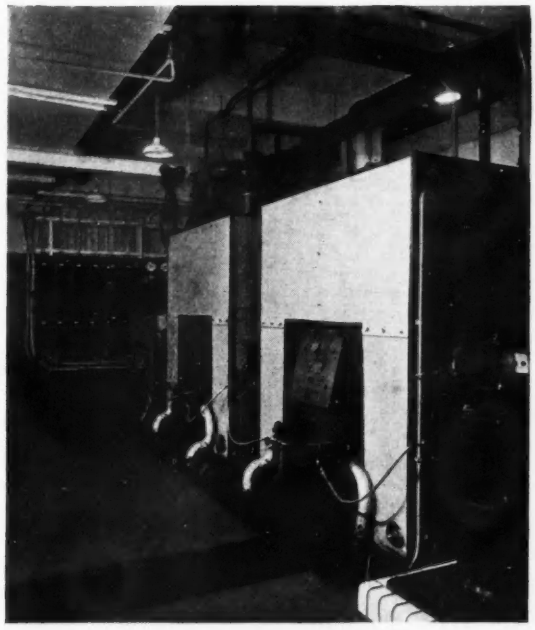


Figure 99. *Oil burning, low-pressure air system*



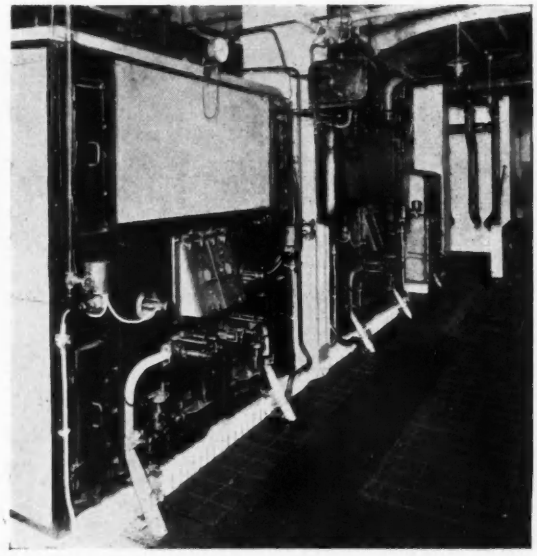
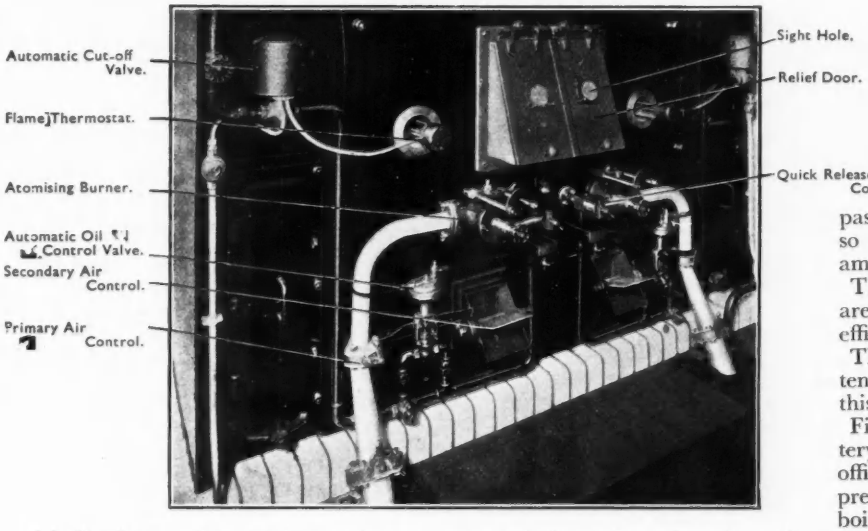


Figure 100. *Typical oil-fired heating installations. Top (left) without automatic control; top (right) with primary and secondary oil control; left, detail of equipment in one boiler in the illustration shown above.*



(v) Tends to be smoky unless draught is good or induced draught provided.
(vi) Burner tends to roar.
(vii) Space occupied by plant is small.
(viii) Does not require electric current for operation, but a steam supply is necessary.
(ix) Is not usually suitable for automatic temperature or pressure control. A change of load requires a change of jets—a manual operation.
(x) Cheaper for large installations than other systems.

Oil piping, being under pressure and at high temperature, requires to be to a special specification as laid down by the Board of Trade, as great danger from fire exists should a joint burst.

COMPRESSED AIR SYSTEM

With this system the atomization of the oil is brought about by a blast of compressed air at the point where the oil is leaving the nozzle, as shown in Fig. 98. In some types the oil enters and is discharged by gravity, and in others by pump under slight pressure.

The air for atomization generally constitutes some 10 per cent. of the total required for combustion and the remainder is allowed to enter through openings in the boiler front or around the burner.

The apparatus comprises an air compressor operating at a pressure of 3 to 15 lb. per sq. in., an oil pump, the burner nozzle and air-controlling furnace front.

Warming of the oil to about 100 deg. F. is generally advocated with this system to prevent smokiness in the flame, and a heater with steam or hot water coils, with electric immersion heaters for starting, is provided for this purpose. The oil pump is arranged to circulate the warm fuel through a pipe running past each burner and back to the heater so as to leave the smallest possible amount of cold oil in the feed to the jet.

The advantages of this method are low price and high relative efficiency.

The main disadvantage is that it tends to be noisy, but in many cases this is not important.

Fig. 81 (see page 746) illustrates a battery of boilers in a London bank hea office fired with this system. The compressors will be seen on the left and each boiler has two burners on account of the size. Gas ignition is provided by the swivel arms seen in the fronts of the boilers.

A variation of this system operates with a steam jet instead of compressed air. This need not be considered in detail here, however, as it has little application in heating practice.

LOW PRESSURE AIR SYSTEM

The principle of the low pressure air system is shown in Fig. 99. Air at low pressure (about ⅓ lb. per sq. in.) is delivered by a blower into the burner nozzle and is here, in one type, arranged to rotate a cup at high speed. The centre of the cup is fed with oil by gravity or by pump and the motion of the periphery causes a finely divided spray to be whirled off the edge tangentially. The incoming air is at the same time deflected in the opposite direction by vanes in the nozzle and a most

satisfactory flame is produced by this means.

The air volume introduced by the fan is generally about 30 per cent. of the total required for combustion, the remainder entering naturally through apertures provided for the purpose. In some instances, however, the full 100 per cent. of air is delivered by the fan and this obviously gives more accurate control of the oil-air ratio.

For handling the heavier oils some preheating is necessary, but with light oils this is not essential.

The equipment in its simplest form comprises low pressure fan and burner only. The air piping has to withstand little pressure and is therefore of light metal construction. The oil has small head pressure and no special piping is required.

The system is probably simpler to operate than others, but, unless proper controls are provided, may be rather lower in efficiency owing to the great ease with which much primary air may be introduced from the fan in the desire to produce a bright clean flame. The excess air may then reach very high values, particularly if the oil supply is cut down below its rated duty.

This method is generally higher in cost than the compressed air system, but is much quieter in running and therefore often to be preferred.

The frontispiece (see page 90) of the Bank of England boiler house shows this system as applied to Economic type boilers each of 9,000,000 B.T.U.'s per hour each. Fig. 100, on page 851, illustrates its application to steel sectional boilers of 2,000,000 B.T.U.'s per hour. The low pressure fans are not shown and the air and oil piping is carried in the trench in the floor covered with chequer plating.

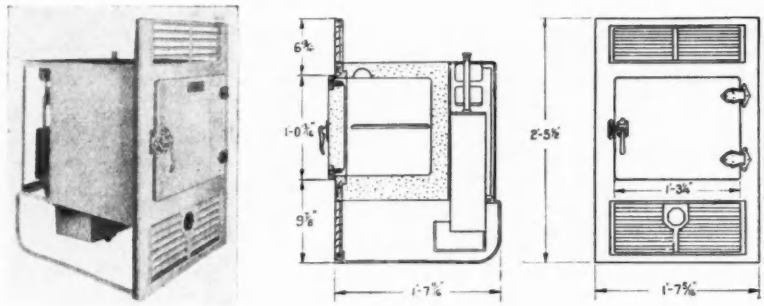
This system is applicable to a wide range of duties from 100,000 B.T.U.'s per hour upwards.

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Co-operation Against Mean Building

Speaking at the annual dinner of the Institute of Builders, held recently, Lord Gorell said it was very strange that not sufficient importance was paid to architects and builders.

There were, he said, Ministries and prohibitions for this and that, but there was no Ministry or prohibition which would prevent someone from putting up a hideous erection in the most beautiful parts of the country. If he interfered with his neighbour's light there was a right of action against him, but if he entirely spoilt his neighbour's view there was no right whatever. He understood that the Institute was engaged in building up standards of housing and of conduct applicable to members of an honourable profession, and its corporate ideals should go far towards alleviating what was becoming a tremendous problem in this extraordinarily overcrowded island.



Electrolux, type M.D.A. : exhibited on the stand of Electrolux Ltd., at the B.I.F., Birmingham.

TRADE NOTES

This week we publish some further notes on the exhibits at the British Industries Fair, Castle Bromwich, by our Birmingham correspondent. The Trade Notes Section by Mr. F. R. S. Yorke will be resumed next week.

On the stand (B.709-608) of Bayliss, Jones and Bayliss, Ltd., there are exhibited all kinds of fencing for factories, public works and estates ; and architectural metal work in wrought iron and non-ferrous metals, including gates, grilles, balustrading in modern or period designs.

•

A chef's burner is shown for the first time on the stand (B.415) of Benham and Sons, Ltd., and is intended for very fast cooking. Other exhibits include Nevastane sound-deadened staybrite steel sinks and draining boards.

•

Exhibited on Berry's Electric, Ltd.'s stand (C.327/210) is the fireplace to be installed in the King's House at Burhill. The surround is constructed of Hopton wood and Derbyshire fossil marble, and has an electric heater of 3 kW capacity of a highly efficient type, with two semi-elliptical screens which may be illuminated to give winter or summer effect as desired. There is also an additional apparatus for air conditioning incorporated in the equipment.

•

On the stand (C.433) of S. O. Bowker, Ltd., there is a complete display of the firm's wiring system and accessories.

•

Bratt Colbran, Ltd. (C.419), exhibit several new designs of their radiators of the inset, portable and convector type. They also show a number of marble mantels and wall panels.

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British Electric Welding Machines, Ltd. (C.518), exhibit one 22 kVA continuous spot welding machine, which is electrically controlled by B.T.-H. Thyratron control gear.

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The British Steelwork Association (No. B.422) shows a sectional model of a block of working-class flats of steel-frame construction, based on the report of the Council for Research on Housing Construction. Its construction is of light steelwork, with simple connections, all standardized. Stairs, door frames, skirtings and windows are of standard steel patterns. External walling is of stuccoed brickwork, and the internal partitioning is of Pioneer blocks with Pioneer plastering. The purpose of the model is to show how standardization and "Dry" building can effect saving in cost and speed in erection.

•

The stand (C.513/412) of British Thomson-Houston Co., Ltd. represents a departure from conventional design. Through its centre a model road is constructed which joins two of the main isles. This design affords a natural setting for the demonstration for the latest B.T.-H. Street Lighting equipment and Mazda Mercra lamps. There are also shown several types of floodlighting units specially developed for the Jubilee Celebrations, together with a range of industrial fittings, both for interior and exterior use. The "Street of Light" is bordered by brilliantly illuminated shop windows, some facing inwards on to the road and some facing outwards.

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A Univectair with electricity as the heating medium is shown in operation on the stand (No. B.418) of British Trane Co., Ltd. A range of these has now been designed with loadings from 10 kW. to 100 kW., and outputs from 34,000 B.T.U. per hour to 340,000 B.T.U. per hour. There is a new model for operating on the floor level with a fan propelled downward, discharge and fourway outlet, quiet in operation. It is in cabinets to match decorations with chromium banding at the edges. This heater offers to premises like big stores, cinemas and large halls exceptional facilities for heating. A range of standard Vectairs in special finishes is shown in operation on hot water and electricity, and a new curved Vectair in a curved window bay. There is a new product, the Trane mechanical draught controller, consisting of a motor and fan thermostatically controlled for regulating fuel combustion ; on the boiler this apparatus does not merely

force the draught, but is designed for complete control.

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Brookes, Ltd. (Exhibition Road, 1,207/1,106), feature their Silex and Nonslip reconstructed stone paving. Other exhibits include glazed bricks, firebricks, roofing tiles, porous Nonchoke pipes, granite for buildings and roads, paving blocks, etc.

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The exhibit (C.603/502) of the Cable Makers' Association has been designed to show the various cables and accessories for power, lighting and telephone purposes manufactured by members of the Cable Makers' Association.

•

On the stand (B.607) of Candy & Co., Ltd., there is a display of the firm's Devon fires, set in faience and tile fireplaces; also glazed roofing and wall tiling.

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The principal feature on the stand (C.509/408) of Carron & Co. is the dog grate which the firm have supplied to the King's House. The grate was designed by Mr. C. Beresford Marshall, L.R.I.B.A. There is also a display of fire grates in various finishes, kerbs, combination grates, kitchen ranges, stoves, electric fires, cookers, gas fires, baths, portable boilers, etc.

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The Cellactite and British Uralite, Ltd. (No. B.614) exhibit their Cellactite asbestos protected metal roofing, and roof ventilators. They are displayed with the Urastone incorrodible flue pipes and fittings, and Uralite fireproof sheeting. Cellactite ventilators uniform in material with the roofing are guaranteed to last, even in the severest conditions, for 20 years; Cellactite is shown in russet, green and aluminium colours. A neat baffle for gas flues is exhibited for the first time; it is called the dwarf Shorne baffler, and has the advantage of being much smaller than older patterns and is useful for cramped positions.

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Cellon, Ltd. (B.623), exhibit their Cerric cellulose lacquers for wood, metal, leather, etc.; and Cerrux synthetic lacquers, air-drying or stoving for industrial purposes.



Fireplace for the guest's bedroom at the King's House at Burhill. (Berry's Electric, Ltd.)

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The Cement Marketing Co., Ltd. (Stand No. C. Outdoor 1201/1100), has co-operated in the Road Exhibit by laying two bays of the all-concrete road in Colorcrete rapid hardening Portland cement. During the exhibition a concrete path is being laid to show the method of construction by the use of mechanical vibrator and tamper. Adjacent to the road the Company have an exhibition of decorative concrete, where demonstrations are carried out to show the method of laying, *in situ*, Cullamix floors, walls and coving. The Cullamix art tile, a new product, is a concrete tile made under pressure with a key on its under-surface and faced with Cullamix of unlimited variety of shades. The manufacturers claim that this tile is very hard wearing and easy to clean.

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On the stand (C.701/600) of Chance Bros. & Co., Ltd., there is a display of glass for various purposes—ships, railways and vehicles, decorative interior lighting, insulation, laboratories and scientific instruments, etc.

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Colas Products, Ltd. (A. 719), are showing various bituminous compounds, road materials and surface dressings for all purposes, and samples of roads laid with cold bituminous emulsion.

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Among the products shown by Crane, Ltd. (B.503), there is a new development to their Whitehall boiler, which consists in directing the water in the boiler over different paths to absorb the maximum amount of heat. Water rising up each side is turned across the top of the combustion chamber by baffles, thus directing the main stream of water over the hottest part of the boiler.

•

The stand of the Croft Granite, Brick and Concrete Co., Ltd. (A.527), is built of Croft Adamant reconstructed stone, with precast imitation marble blocks incorporated in the design. The floor is of precast terrazzo tiles in various colours. The imitation marble is a new production for external and internal use.

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The new Eagle product, exhibited by the Eagle Range and Grate Co., Ltd. (B.601/500), is designed for burning coke. It has been built to ensure a high degree of flexibility. An important feature in this range is the provision of a thermostatic flue control. Spring balanced covers, fitted with insulated linings, completely cover the hot-plate when not in use, thereby avoiding heat losses, and ensuring that the hot-plate is ready for use the moment it is required. The range is supplied in mottled porcelain enamelled finish.

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On Stand (D.600) of Earle, Bourne & Co., Ltd., is shown a large selection of brass, copper and Sebalin aluminium alloys in strip, sheet, tubes, angles, channels, sections, mouldings and ornamental tubes.

•

Various types of wires and cables are



Electric radiator: mantel in Subiaco, black and Napoleon marbles. (Bratt Colbran, Ltd.)

shown on the Stand (C.603/502) of Edison Swan Cables, Ltd.

•

Electrolux, Ltd. (A.423/324), have introduced a small compact refrigerator that can be inexpensively built-in to the kitchen equipment. Details of this type are shown at the top of these notes.

•

In the outdoor section (Stand B.1102) John Ellis and Sons, Ltd., are showing kerbs, paving slabs and tubes in concrete, while further examples of their reconstructed stonework, fireplaces, surrounds and terrazzo are to be found on their indoor stand (A.715).

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The Elsan Manufacturing Co., Ltd. (B.502), are showing their well-known range of chemical closets.

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A practical method of demonstrating the soundness of their products has been adopted by the Expanded Metal Co., Ltd., who have reinforced a length of concrete road in the Exhibition with their R.R. type Expamet reinforcement.

•

Firth-Vickers Stainless Steels, Ltd. (Stand D.513/412), have on display a number of fittings in Staybrite stainless steel for hotels, restaurants, hospitals and household use.

•

A feature of the stand (B.509/408) of Sidney Flavel & Co., Ltd. is the new Jubilee cooker, which has an enamelled splash-back hinging over the cooker top to form a table top when not in use.

The Retriever fire has been designed for small rooms and it is arranged to fix high up in the wall. The fire fits flush with the wall and is provided with doors which are lined with stainless steel reflectors, and catch and redistribute the radiance of the fuel. These doors cannot be shut unless the gas tap is in the " off " position.

•

The General Electric Co. (C.627/526) have, among their exhibits, a private automatic telephone exchange suitable for installations from 15-400 lines, and is shown under working conditions with various " gadgets." One gadget is a moving coil loud-speaker enabling conversations to be carried on without the necessity of holding a receiver.

One end of the stand is devoted to a display of electric cookers, which offers an interesting contrast to a twenty-five-year-old model also on view. One series of cookers has interchangeable electrical elements and components throughout, facilitating the stocking of spare parts.

•

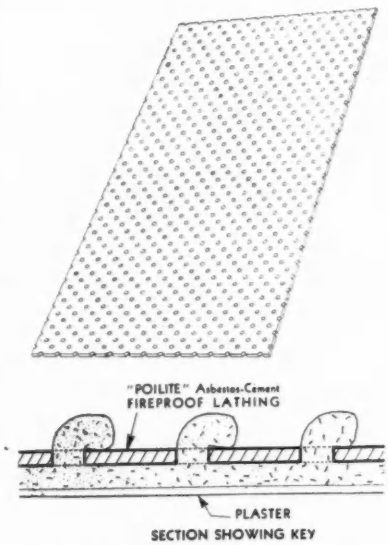
On Stand C.603/502 W. T. Henley's Telegraph Works Co., Ltd., are showing their usual selection of cables and wiring systems for all purposes, including their unobtrusive lead-covered method.

•

I.C.I. Metals, Ltd. (D.503/402), have a large display of brass, copper and other non-ferrous alloys in the form of plates, sheets, strip sheathing, roofing, guttering, tubes, etc., in all shapes, sizes, finishes and tempers.

•

A selection of column and panel radiators, and of Ideal boilers for solid fuel, oil or gas burning has been arranged on Stand B.405/304 by Ideal Boilers and Radiators, Ltd. The remainder of the exhibit consists of heating accessories, towel rails and vitreous enamelled baths.



Sketch and section of Poilite asbestos cement fireproof lathing: length 4 ft. 0 ins., width 2 ft. 4 ins. (Turner's Asbestos Cement Co.)

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The India Rubber, Gutta Percha and Telegraph Works Co., Ltd. (Stand C.603/502), show cables, etc., of interest to telegraph and telephone engineers and to electric light and power companies.

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One of the main features of Lumbys Ltd.'s (B.322) exhibit is their automatic steel sectional boiler ; a large hopper placed centrally in the boiler contains 24 or 36 hours' supply of fuel. The fuel is fed by gravity and the air supply is controlled by fan. With thermostat control high efficiencies are claimed for this boiler.

•

On Stand A.409/308 Midland Metal Diecastings, Ltd., are showing Westtherme unit heaters and Thermidair convectors for water, steam or electricity. Aluminium cooking utensils are also shown on this stand.

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Synthetic resin mouldings, including bakelite, are shown by Moulded Products, Ltd., on Stand C.333. The range consists of articles of all kinds for domestic use, public services, hotels and ship work, and includes electric light fittings.

•

Nobel Chemical Finishes, Ltd. (Stand B.427), are showing Dulux air-drying and stoving finishes, Belco and Necol cellulose finishes for brushing, spraying or dipping, Synobel insulating varnishes, Nobel low-bake enamels, Pynobel heat-resisting finishes, the Deoxodine cleaning process and various paints, enamels and varnishes.

•

Well-known brands of fences, including woven wire, chain link, chestnut paling, and suitable ironwork and gates are exhibited on the stand of Parker, Winder and Achurch, Ltd. (A.708).

•

On stand B.705/604 Pilkington Brothers, Ltd., have staged a comprehensive display of glass suitable for all requirements in any type of building construction, including materials, such as Vitrolite for interior and exterior decoration.

•

Prior Burners, Ltd. (No. A.419) show their Prior Mastoker and Prior Junior stokers for automatic firing and heat control. Both models are shown in actual operation.

•

Ruberoid, Ltd. (B.423) display in their contraction and expansion jointing an important aspect of modern ferro-concrete work. The feature of this joint, as the name implies, is that not only does it allow expansion in concrete, but is sufficiently resilient to take up the consequent contraction. Its use is not confined to concrete work only, as it offers possibilities in connection with wood blocks and the other materials whose movements so frequently cause trouble unless accounted for in some way. Since the thickness of the strips recommended for use with slabs up to 10 ft. is only $\frac{3}{8}$ in., one can see that it is possible that it may be used in positions other than external.

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Stand D.619 shows a large range of steel storage cabinets, adjustable shelving, bins, lockers and cupboards by Rubery, Owen & Co.

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Pressed steel door frames, metal trim, steel skirtings, picture rails, window cills, etc., are becoming more items of every-day use in modern architecture. The display of Sankey and Sons, Ltd. (B.707) illustrates a full range of these features which, together with their pressed steel radiators, serve in themselves as functional motives of pleasing design.

•

The exhibit of Shanks and Co. (B.705/604) has four completely equipped bathrooms of coloured sanitary appliances, glass walls and built-in cabinets. The glass walls are of Vitrolite, supplied by Pilkington Bros., Ltd.

There are also exhibited on the stand separate fittings for domestic, public, and hospital purposes.

A feature of one of the bathrooms is a new design of lavatory made in vitreous china, called the Modus; the supply nozzle is elevated to facilitate washing in running water. Instead of ordinary cross-heads operating the hot and cold taps, serrated ball heads, in colour are used.

•

The principle of certain Creda electric fires exhibited by Simplex Electric Co., Ltd. (C.527/426), is that of a concealed element, which, by means of highly polished and scientifically designed reflectors, distributes rays over a wide area.

One will find several fires that, in design, recommend themselves very strongly.

•

The exhibit of Smith and Davis, Ltd. (A.506) shows various types of curtain rail. They are made of brass, aluminium, or rustproof steel; steel rail is also supplied in cut lengths and with special brackets to fit all the various makes of steel windows.

(Continued on page 855)

The Tentest Fibre Board Co., Ltd., are exhibiting on Stand C.703/602 a series of models showing the application of Tentest to wood and concrete floors and walls, giving information on thermal conductivity and the prevention of sound transmission. There are also examples showing decorative possibilities, particularly on treatment of joints.

•

Turner's Asbestos Cement Co., Ltd. (C. 401) show their Poilite asbestos cement fireproof lathing, which is supplied in sheets ready drilled for nailing to joists, 16 in. or 14 in. centres. This lathing is of flat asbestos cement sheets, with perforations to provide a key for plaster. The perforations continue along all four edges to give a key at the butted joints.

•

The Walpamur Co., Ltd. (Stand B.615), have arranged a display of small machines, apparatus, furniture, models and other articles finished with Walpamur paints for industrial, marine and decorative purposes.

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The stand of Williams and Williams, Ltd. (B. 324) contains a representative range of their Reliance metal windows and doors, a type for every kind of structure (including public buildings, factories, schools and residences) being exhibited.

THE BUILDING ILLUSTRATED

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue :—

Alterations and additions, the Cave Man Restaurant, Cheddar Gorge (pages 831-834). General contractors, G. A. Hayes and Son. Quantity surveyor, Messrs. Donald Cameron. Consulting engineers, Messrs. Wm Macintyre. Sub-contractors : Siegwart Fireproof Floor Co., manager's office roof ; Pulsometer Engineering Co., fountains ; A. T. Morse, Sons & Co., Ltd., Calcarium water paint ; R. Alger and Sons, Ltd., Frigidaire (cold store) ; Gough Bros., electrical work ; J. A. King & Co., Ltd., Glascrete roof ; Pilkington Bros., glass lenses for roof ; Mellowes & Co., Ltd., metal windows ; Chance Bros., window glass ; Cement Marketing Co., cement ; Weston-super-Mare and District Gas Co., kitchen equipment.

House at Beaconsfield (pages 837-838). General contractors, G. T. Buckland. Sub-contractors : Critttall Manufacturing Co., steel casements ; W. N. Froy and Sons, Ltd., sanitary fittings.

F. C. Pritchard, Wood and Partners have been retained as advertising agents by the Timber Development Association. The plan of publicity arranged for the forthcoming twelve months includes the use of the technical press, the cinema, lectures and competitions.

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We are informed by Messrs. Chance Bros. & Co., Ltd., that they are reconstructing their plant at the Glasgow Glass Works, Firhill, Glasgow, N.W., for the manufacture of various window glasses. The new process now being installed is of the latest type for the continuous production of roofing glass for factories and ornamental glass for buildings. The works are so situated that they are convenient not only for supplying glass in Scotland, but also to Ireland and the North of England, as well as for shipment from the Clyde to all parts of the world.

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We are informed by Messrs. Combustions, Ltd., one of the pioneers of thermostatically controlled oil burning plants, that they are now extending their business to handle thermostatically controlled coal burning equipment.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

ACTON. *Labour Exchange.* The Acton Corporation has approved plans for the erection by H.M. Office of Works of a labour exchange in Oldham Terrace.

BATTERSEA. *Swimming Bath.* The L.C.C. has prepared a scheme for the construction of a swimming bath in Battersea Park, at an estimated cost of £15,000.

CHELSEA. *Flats and Shops.* The B.C. has approved revised plans by Mr. A. S. Souter, the architect, for the erection of 102 flats and nine shops on the Manor Street clearance area.

DAGENHAM. *Relief Offices.* The Essex C.C. has acquired a site in Beverley Road, Dagenham, for the erection of relief offices.

EALING. *Shops and Flats.* Mr. W. Henden Winder, of 10 Kingley Street, Regent Street, W.1, is the architect in connection with the proposed erection of nine shops with 10 flats over, and a block of 18 flats, at Windmill Road and Little Ealing Lane, for Mr. E. G. Mearle.

FINSBURY. *Warehouse.* The L.C.C. has approved plans by Sir E. Owen Williams for the erection of a warehouse in St. John Street, Finsbury.

LALEHAM. *Houses.* The Staines U.D.C. has approved plans submitted by Mr. F. Workman, for the proposed erection of 133 houses at Staines Road, Laleham.

LEWISHAM. *Houses, etc.* Plans passed by the B.C. : 10 houses, Callender Road, for Messrs. James Watt (Catford) Ltd. ; three houses, Devonshire Road, for Messrs. Brett and Son : 24 houses, Whitefoot Lane, for Messrs. Wates (Streatham) Ltd. ; chapel, St. Teresa's, Belmont Hill, for Mr. E. J. Walters ; houses in Algiers Road and Veda Road, for Mr. J. C. Anderson ; two houses, Morden Hill, for Messrs. Hynboot and Sons, Ltd. ; extensions, 42-4. Rushey Green, for Royal Arsenal Co-operative Society, Ltd. ; block of flats, Dartmouth Road, for Mr. H. H. R. Ward ; shops and flats, Mariscal Road, for Messrs. Jennings and Battett : flats, Thorpewood Avenue, for Messrs. P. Chase Gardener & Co. ; block of flats, Belmont Grove, for Messrs. Wiltshire & Co. : flats, Dacres Road, and Perry Vale, for Messrs Elgood and Hastie.

ST. PANCRAS. *Theatre.* The B.C. has approved plans by Messrs. Frank Verity and S. Beverley for the erection of a theatre in Tottenham Court Road, W.C.

STOKE NEWINGTON. *Flats.* Plans passed by the B.C. : Flats, 434 Seven Sisters Road, for Messrs. Hobden and Porri ; buildings, site of 310-2 Seven Sisters Road, for Mr. J. A. Dartnall ; flats, 327 Seven Sisters Road, for Messrs. Langley and Fairer ; block of flats, Manor House site, Finsbury Park, for Mr. W. J. Gregory ; hall, site of 59 Clissold Road, for Messrs. Roper Son and Chapman.

WANSTEAD, ETC. *Public Assistance Institution.* The Essex C.C. is negotiating for 13 acres at Wanstead and 59 acres at Dagenham, for the erection of public assistance institutions.

WESTMINSTER. *Maternity Centre.* The City Council has approved plans, by Mr. F. Milton Harvey, A.R.I.B.A., for the erection of a maternity centre and day nursery in Bessborough Street, at a cost of £45,000.

WOOD GREEN. *Shops and Flats.* The Artisans, Labourers and General Dwellings Co., Ltd., are to erect shops and flats in Gladstone Avenue, Wood Green.

SOUTHERN COUNTIES

BRIGHTON. *Houses, etc.* Plans passed by the Corporation : 16 houses, Mayfield Crescent, Withdean, for Mr. Charles W. Parkes ; boarding school, Whittinghame College, Withdean, for Mr. Jacob Halevy ; two houses, London Road, Withdean, for Mr. Henry W. Lee ; 10 houses, Braybon Avenue, for Mr. Edward G. Cornish ; 24 bungalows, Ladies Mile Estate, Patcham, for Ladies Mile Estate, Ltd. two houses, Surrenden Road, for Sussex Property Co., Ltd. ; extensions to offices, North Street, for Prudential Assurance Co., Ltd. : alterations, "Queen's Head," 42 Cheapside, for Tamplins Brewery Co., Ltd. ; alterations, Edinburgh Hotel, Upper Gloucester Road, for Tamplins Brewery, Ltd. ; four houses, Rodmell Avenue, for Saltdean Estate Co., Ltd.

EASTERN COUNTIES

BUSHEY. *Library.* The Herts C.C. has appointed Mr. R. D. Elliott as architect for the proposed library to be erected at Bushey.

CHADWELL HEATH. *Extensions to School.* The Essex Education Committee has passed plans for extensions at the Warren Senior School, Chadwell Heath, at a cost of £19,000.

CHESHUNT. *School.* The Herts Education Committee has obtained an enlarged site in Windmill Lane, Cheshunt, for the erection of a grammar school.

CLACTON. *Extensions to School.* The Essex Education Committee has approved plans for the enlargement of the county high school Clacton, at a cost of £16,000.

ESSEX. *Sanatorium.* The Essex C.C. has asked the county architect to proceed with the preparation of plans for the erection of a sanatorium at Broomfield Court, at an estimated cost of £250,000.

SOUTH-WESTERN COUNTIES

PAIGNTON. *Café, Flats, etc.* Plans passed by the U.D.C. : Café, Marine Parade, for Mr. S. G. Boultwood ; two shops and flats, Roundham Road, for Mr. G. W. H. Spanton ; six houses, Maidenway Road, for Messrs. Wallis and Col. ; 28 houses, Colley End Road, for Mr. A. Coombe.

MIDLAND COUNTIES

DUDLEY. *Swimming Pool, Houses, etc.* Plans passed by the Corporation : Swimming pool, Ward Arms Hotel, for Hansons Brewery, Ltd. ; 50 houses, Holly Hall, and 27, Stourbridge Road, for Messrs. Lloyd Bros. ; eight houses, Cradley Heath, for Messrs. Roberts Bros. ; 36 houses, Tipton Road, for Mr. William Lindley ; five houses, Withymoor Road, for Mr. Trevor Mucklow.

CHESTERFIELD. *Houses.* Plans passed by the Corporation : Two houses, Highfield Avenue, for Mr. J. T. Lomas ; four houses, Ashgate Avenue, for Chesterfield Brick Co., Ltd. ; motor showroom, Sheffield Road, for Mr. B. Lister ; tea rooms and house, Sheffield Road, for Intake Service Station, Ltd. ; four houses, Newbridge Lane, for Mr. H. Hand ; alterations and additions, maternity home, Albion Road, for Nurse Webster ; three houses, Chatsworth Road, for Mr. B. Hattersley.

MANSFIELD. *Houses.* The Corporation has asked the borough engineer to prepare plans for the erection of 176 houses on the Racecourse site.

MANSFIELD. *Houses, etc.* Plans passed by the Corporation : 14 houses, Kate Moody Lane, for Messrs. Blythe and Son ; 18 houses, Cornwall Avenue, for Mr. C. H. Hill ; school reconstruction, St. John Street, for St. John's managers ; house, Chesterfield Road, for Mr. H. James ; shoe factory extensions, Stockwell Gate, for Mansfield Shoe Co., Ltd. ; 30 houses, Beaumont Avenue, for Messrs. Rose Curtis and Co. ; six houses, Sutton Road, for Messrs. Boot Bros. ; shop and house, Nottingham Road, for Mr. W. H. Nicholls.

NEWARK. *Cinema.* The Notts C.C. Licensing Committee has approved plans for the erection of a cinema in Middle Gate, Newark, for the Savoy Cinema Co.

NORTHAMPTON. *Rehousing.* The Corporation is to provide rehousing accommodation on the cleared sites in the St. Andrews Street area.

NORTHAMPTON. *Labour Exchange.* The Corporation has sold a site in Grafton Street to H.M. Office of Works for the erection of a labour exchange.

WALSALL. *Schools.* The Education Committee is to erect two senior schools and a junior school on the housing estates, at a cost of £49,000.

NORTHERN COUNTIES

BARROW-IN-FURNESS. *Houses, etc.* Plans passed by the Corporation : 138 houses, vicinity of Ocean Road, for Messrs. J. Parkinson and

(*Continued on page xxx*)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_4	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on-Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_2	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S Wales & M.	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Bursiem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent ..	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester ..	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley ..	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_2	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley ..	Mid. Counties	1 5½	1 1½
A_3	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham	N.E. Coast	1 5½	1 1½
A_2	EASTBOURNE	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S.W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W.Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley ..	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_2	Kendal ..	N.W. Counties	1 4	1 0
A_2	Keswick ..	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12-15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough ..	Mid. Counties	1 5½	1 1½
A	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N. E. Coast	1 5½	1 1½
A_2	Middlewich ..	N. W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson ..	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid. Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham ..	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford ..	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_2	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid. Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan ..	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger	"	1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
General Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4 ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
¾" "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single Junctions	"	3	6	5	3
Double	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¾" Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead Wool	lb.		6		—
Gaskin	"		5		—

BRICKLAYER

		£	s.	d.
Flettons	per M.	2	15	0
Grooved do.	"	2	17	0
Phorpres bricks	"	2	15	0
" Cellular bricks	"	2	15	0
Stocks, 1st quality	"	4	11	0
" and "	"	4	2	6
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Brindles	"	7	0	0
" Bullnose	"	9	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	0
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midhurst White Facings	"	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	29	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

The following d/d F.O.R. at Nine Elms:		s.	d.
Portland stone, Whitbed	F.C.	4	4½
" Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" " Sawn templates	"	7	6
" " Paving, 2"	F.S.	1	8
" " " 3"	"	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	"	24	10	0
20" × 10" Countesses	"	19	5	0
18" × 10" Viscountesses	"	15	10	0
18" × 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey per 1,000 (actual)		21	11	6
" " green "	"	24	7	4
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each			9½
" hand-made	"			10
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" " 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak, plain American	" "	1	0
" Figured "	" "	1	3
" plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1
Deal floorings, ¾"	Sq.	18	6
" ¾"	"	1	1	6
" 1"	"	1	2	0
" 1¼"	"	1	5	0
" 1½"	"	1	10	0
Deal matchings ¾"	"		14	0
" ¾"	"		15	6
" 1"	"	1	4	0
Rough boarding ¾"	"		16	0
" 1"	"		18	0
" 1¼"	"	1	6	0

Plywood, per ft. sup.

Thickness	¼"	½"	¾"	¾"
Qualities	AA. A. B.	AA. A. B.	AA. A. B.	AA. A. B.
	d. d. d.	d. d. d.	d. d. d.	d. d. d.
Birch	4 3 2	5 4 3	7½ 6 4½	8½ 7 6
Alder	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6
Gaboon Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –
Figured Oak 1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –
Plain Oak 1 side	6½ 6 –	7½ 7 –	9½ – –	1/– – –
Oregon Pine	5 4 –	5½ 5 –	6 – –	– – –

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

		¼"	⅜"	½"	¾"	1"	1¼"	2"
Tubes, 2'-14' long, per ft. run		4	5½	9½	1/1	1/10		
Pieces, 12"-23" long	each	10	1/1	1/11	2/8	4/9		
" 3"-11½" long	"	7	9	1/3	1/8	3/–		
Long screws, 12"-23½" long	"	11	1/3	2/2	2/10	5/3		
" " 3"M-½" long	"	8	10	1/5	1/11	3/6		
Bends	"	8	11	1/7½	2/7½	5/2		
Springs not socketed	"	5	7	1/1½	1/11½	3/11		
Socket unions	"	2/–	3/–	5/6	6/9	10/–		
Elbows, square	"	10	1/1	1/6	2/2	4/3		
Tees	"	1/–	1/3	1/10	2/6	5/1		
Crosses	"	2/2	2/9	4/1	5/6	10/6		
Plain sockets and nipples	"	3	4	6	8	1/3		
Diminished sockets	"	4	6	9	1/–	2/–		
Flanges	"	9	1/–	1/4	1/9	2/9		
Caps	"	3½	5	8	1/–	2/–		
Backnuts	"	2	3	5	6	1/1		
Iron main cocks	"	1/6	2/3	4/2	5/4	11/6		
" with brass plugs	"	—	4/–	7/6	10/–	21/–		

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½

FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued.*

		s.	d.
Rolled steel joists cut to length	cwt.	12	9
Mild steel reinforcing rods, ⅜"	"	9	6
" " ½"	"	9	3
" " ⅝"	"	9	0
" " ¾"	"	8	6
" " ⅞"	"	8	6
" " 1"	"	8	6
" " 1¼"	"	8	6
" " 1½"	"	8	6

		¼" s.	¼" d.
Cast-iron rain-water pipes of ordinary thickness metal	F.R.	8	10
Shoes	each	2	0	3	0
Anti-splash shoes	"	4	6	8	0
Boots	"	3	0	4	0
Bends	"	2	7	3	9
" with access door	"	—		6	3
Heads	"	4	0	5	0
Swan-necks up to 9" offsets	"	3	9	6	0
Plinth bends, 4½" to 6"	"	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal	F.R.	5		6	
Stop ends	each	6		6	
Angles	"	1	7	1	11
Obtuse angles	"	2	0	2	6
Outlets	"	1	9	2	3

PLUMBER

		s	d.
Lead, milled sheets	cwt.	19	6
" drawn pipes	"	19	0
" soil pipe	"	19	6
" scrap	"	11	6
Solder, plumbers'	lb.		9½
" fine do.	"	1	0
Copper, sheet	"		8½
" tubes	"		11

L.C.C. soil and waste pipes:		3"		4"		6"	
Plain cast	F.R.	1	0	1	2	2	6
Coated	"	1	1	1	3	2	8
Galvanized	"	2	0	2	6	3	6
Holderbats	each	3	10	4	0	4	9
Bends	"	3	9	5	3	10	3
Shoes	"	2	10	4	4	9	6
Heads	"	4	8	8	5	12	9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	5	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	4
Lath nails	lb.			3

GLAZIER

		s	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.	F.S.				2½
" 26 oz.	"				3
Flemish, Arctic, Figures (white)*	"				7
Blazoned glasses	"			2	6
Reeded; Cross Reeded	"				11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite	"				6
Crown sheet glass (n/e 12 in. x 10 in.)	"			2	0
Flashed opals (white and coloured)	"	1	0 and	2	0
¼" rough cast; rolled plate	"				5½
¼" wired cast; wired rolled	"				9½
¼" Georgian wired cast	"				11
¼" Polished plate, n/e 1 ft.	"	†10 to		‡1	1
" " 2	"	†1	8 "	‡1	4
" " 4	"	†2	3 "	‡2	6
" " 8	"	†2	9 "	‡3	2
" " 20	"	†3	7 "	‡4	2
" " 45	"	†3	11 "	‡4	7
" " 100	"	†5	0 "	‡5	7
Vita glass, sheet, n/e 1 ft.	"			1	0
" " " 2 ft.	"			1	3
" " " over 2 ft.	"			1	9
" " plate, n/e 1 ft.	"			1	6
" " " 2 ft.	"			3	0
" " " 5 ft.	"			4	0
" " " 7 ft.	"			5	0
" " " 15 ft.	"			6	0
" " " over 15 ft.	"			7	6
"Calorex" sheet 21 oz., and 32 oz.	"	2	6 and	3	6
" rough cast ¼" and ¾"	"		8½ "	1	0
Putty, linseed oil	lb.				3

* *Colours, 1d. F.S. extra.*
† *Ordinary glazing quality.* ‡ *Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	8	6
Linseed oil	gall.		2	3
Boiled oil	"		2	9
Turpentine	"		4	1½
Patent knotting	"		14	0
Distemper, washable	cwt.	2	6	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	firkin		3	0
Copal varnish	gall.		13	0
Flat varnish	"		14	0
Outside varnish	"		16	0
White enamel	"	1	15	0
Ready mixed paint	"		13	6
Brunswick black	"		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR		£ s. d.
Digging over surface n/e 12″ deep and cart away	Y.S.	2 9
,, to reduce levels n/e 5′ 0″ deep and cart away	Y.C.	8 6
,, to form basement n/e 5′ 0″ and cart away	,,	9 0
,, ,, 10′ 0″ deep and cart away	,,	9 6
,, ,, 15′ 0″ deep and cart away	,,	10 0
If in stiff clay	add ,,	6
If in underpinning	,,	4 0
Planking and strutting to sides of excavation	F.S.	1 0
,, ,, to pier holes	,,	5
,, ,, to trenches	,,	5
,, ,, extra, only if left in	,,	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	,,	1 6 0
,, ,, (4-2-1)	,,	1 12 6
,, ,, underpinning	,,	1 16 0
Finishing surface of concrete, space face	Y.S.	7

DRAINLAYER		4″ s. d.	6″ s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
,, junctions	,,	3 9	4 6
Gullies and gratings	,,	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER		£ s. d.
Brickwork, Flettons in lime mortar	Per Rod	26 10 0
,, ,, in cement	,,	27 12 6
,, Stocks in cement	,,	34 0 0
,, Blues in cement	,,	50 0 0
Extra only for circular on plan	,,	2 0 0
,, backing to masonry	,,	1 10 0
,, raising on old walls	,,	2 0 0
,, underpinning	,,	5 10 0
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	,,	8
,, ,, ,, red brick facings and pointing	,,	11
,, ,, ,, blue brick facings and pointing	,,	1 4
,, ,, ,, glazed brick facings and pointing	,,	3 6
Tuck pointing	,,	7½
Weather pointing in cement	,,	3
Slate dampcourse	,,	10
Vertical dampcourse	,,	1 1

ASPHALTER		s. d.
½″ Horizontal dampcourse	Y.S.	4 6
½″ Vertical dampcourse	,,	6 9
½″ paving or flat	,,	4 0
1″ paving or flat	,,	5 6
1″ × 6″ skirting	F.R.	1 0
Angle fillet	,,	2
Rounded angle	,,	2
Cesspools	Each	5 0

MASON		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	,,	13 6
Artificial stone and do	,,	13 0
York stone templates, fixed complete	,,	10 6
,, thresholds	,,	13 6
,, sills	,,	1 0 6

SLATER AND TILER		£ s. d.
Slating, Bangor or equal, laid to a 3″ lap, and fixing with compo nails, 20″ × 10″	Sqr.	3 10 0
Do., 18″ × 9″	,,	3 7 0
Do., 24″ × 12″	,,	3 17 0
Westmorland slating, laid with diminished courses	,,	6 0 0
Tiling, best hand-made sand-faced la,id to a 4″ gauge, nailed every fourth course	,,	3 0 0
Do., all as last, but of machine-made tiles	,,	2 16 0
20″ × 10″ medium Old Delabole slating, laid to a 3″ lap (grey)	,,	2 16 0
,, ,, ,, ,, ,, (green)	,,	4 15 0

CARPENTER AND JOINER		£ s. d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2 2 6
Shuttering to sides and soffits of beams	F.S.	7
,, to stanchions	,,	7
,, to staircases	,,	1 6
Fir and fixing in wall plates, l¹ntols, etc.	F.C.	3 9
Fir framed in floors	,,	4 6
,, ,, roofs	,,	6 6
,, ,, trusses	,,	7 6
,, ,, partitions	,,	8 6
¾″ deal sawn boarding and fixing to joists	Sqr.	1 14 6
1″ ,, ,, ,, ,,	,,	1 17 6
1¼″ ,, ,, ,, ,,	,,	2 3 0
4″ × 2″ fir battening for Countess slating	,,	9 9
Do. for 4″ gauge tiling	,,	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
,, ,, ,, 2 ,,	,,	2 9
,, ,, ,, 3 ,,	,,	3 3
Stout herringbone strutting to 9″ joists	F.R.	10½
1″ deal gutter boards and bearers	F.S.	1 2
1¼″ ,, ,, ,,	,,	1 6
2″ deal wrought rounded roll	F.R.	8
1″ deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼″ do.	,,	2 10 0
1½″ do.	,,	2 17 0
1″ deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1¼″ do.	,,	1 9

CARPENTER AND JOINER—*continued*		s. d.
1½″ deal moulded sashes of average size	F.S.	1 9½
2″ ,, ,, ,,	,,	1 11½
1½″ deal cased frames double hung, of 6″ × 3″ oak sills, 1¼″ pulley stiles, 1¼″ heads, 1″ inside and outside linings, ⅜″ parting beads, and with brass faced axle pulleys, etc., fixed complete	,,	3 7
2″ ,, ,, ,,	,,	3 10
Extra only for moulded horns	Each	6
1½″ deal four-panel square, both sides, door	F.S.	2 0
2″ ,, ,, ,, ,,	,,	2 8
1½″ ,, but moulded both sides	,,	2 4
2″ ,, ,, ,, ,,	,,	3 0
4″ × 3″ deal, rebated and moulded frames	F.R.	1 0
4½″ × 3½″ ,, ,, ,,	,,	1 4
1½″ deal tongued and moulded windo board, on and including deal bearers	F.S.	1 9
1½″ deal treads, 1″ risers in staircases, and tongued and grooved together on and including strong fir carriages	,,	2 6
1½″ deal moulded wall strings	,,	2 1
1½″ ,, outer strings	,,	2 4
Ends of treads and risers housed to string	Each	1 9
3″ × 2″ deal moulded handrail	F.R.	1 3
1″ × 1″ deal balusters and housing each end	Each	2 0
1½″ × 1½″ ,, ,, ,,	,,	2 9
3″ × 3″ deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	,,	6 0

SMITH AND FOUNDER		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	16 6
Riveted plate or compound girders, and hoisting and fixing in position	,,	1 0 6
Do., stanchions with riveted caps and bases and do.	,,	19 0
Mild steel bar reinforcement, ½″ and up, bent and fixed complete	,,	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER		£ s. d.
Milled lead and labour in flats	cwt.	1 13 0
Do. in flashings	,,	1 16 6
Do. in covering to turrets	,,	2 4 0
Do. in soakers	,,	1 8 6
Labour to welted edge	F.R.	3½
Open copper nailing	,,	3
Close ,, ,,	,,	4

		½″ s. d.	¾″ s. d.	1″ s. d.	1¼″ s. d.	2″ s. d.	4″ s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks		—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	0 9
Do. to stop ends	,,	6½	8	9	11	1 0	—
Boiler screws and unions	,,	3 3	3 9	5 0	8 0	—	—
Lead traps	,,	—	—	—	6 3	8 9	—
Screw down bib valves	,,	6 9	9 6	11 0	—	—	—
Do. stop cocks	,,	7 0	9 6	12 6	—	—	—

		£ s. d.
4″ cast-iron ½-rd. gutter and fixing	F.R.	1 0
Extra, only stop ends	Each	1 0
Do. angles	,,	1 6
Do. outlets	,,	2 9
4″ dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1 2
Extra, only for shoes	Each	1 3
Do. for plain heads	,,	5 0

PLASTERER AND TILING		s. d.
Expanded metal lathing, small mesh	Y.S.	2 0
Do. in n/w to beams, stanchions, etc.	,,	2 9
Lathing with sawn laths to ceilings	,,	1 3
½″ screeding in Portland cement and sand or tiling, wood block floor, etc.	,,	1 5
Do. vertical	,,	1 7
Rough render on walls	,,	1 2½
Render, float and set in lime and hair	,,	1 9
Render and set in Sirapite	,,	1 11
Render, backing in cement and sand, and set in Keene's cement	,,	2 9
Extra, only if on lathing	,,	4
Keene's cement, angle and arris	F.R.	6
Arris	,,	
Rounded angle, small	,,	3
Plain cornices in plaster, including dubbing out, per 1″ girth	,,	1½
1″ granolithic pavings	Y.S.	3 6
1½″ ,,	,,	4 6
6″ × 6″ white glazed wall tiling and fixing on prepared screed	,,	17 6
9″ × 3″ ,, ,, ,, ,,	,,	1 2 6
Extra, only for small quadrant angle	F.R.	8

GLAZIER		s. d.
21 oz. sheet glass and glazing with putty	F.S.	6½
26 oz. do. and do.	,,	7½
Flemish, Arctic Figured (white) and glazing with putty	,,	1 1
Cathedral glass and do.	,,	1 2
Glazing only, British polished plate	,,	7
Extra, only if in beads	,,	2
Washleather	F.R.	4

PAINTER		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	,,	9
Do. with washable distemper	,,	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	,,	3 3
Do. on woodwork	,,	3 6
Do. on steelwork	,,	3 0
Do. and brush grain and twice varnish	,,	5 6
Stain and twice varnish woodwork	,,	1 11
Stain and wax-polish woodwork	,,	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper	from ,,	2 9



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FIRMODA RUBBERISED CARPET.

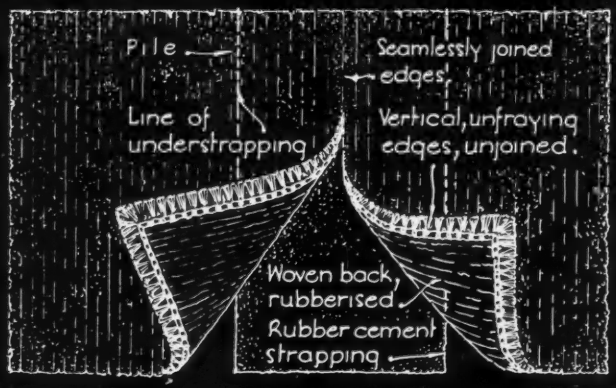
DESCRIPTION:

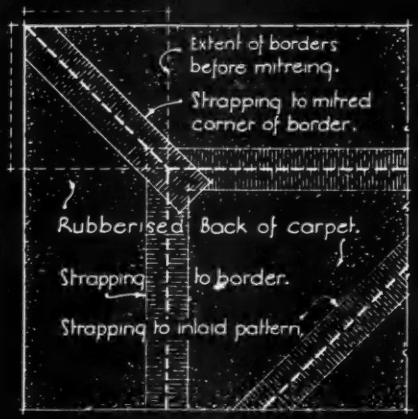
Firmoda patent carpeting has the characteristics of ordinary woven carpet. Through the back, however, which is specially woven, a resilient rubber compound is permeated to permanently anchor the pile to the weave.

CUTTING AND JOINTING:

The carpet is cut from the back with a special razor-blade knife and results in clean vertical edges, automatically selvedged. When any two coinciding profiles are then butted together and understrapped, the pile meshes at the junction to form an invisible and seamless join.

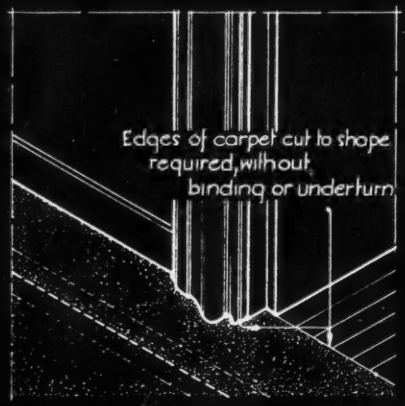
SKETCH OF TYPICAL JOINT:





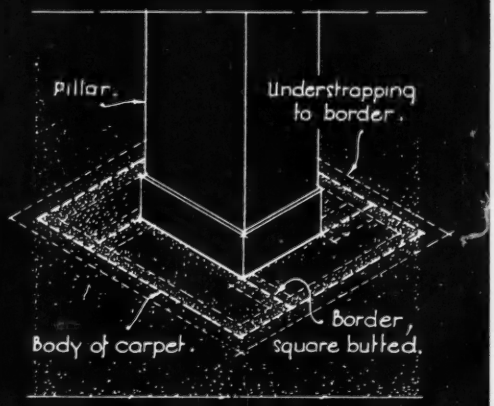
UNDERSTRAPPING:

Trimmed widths, inlays, borders, etc. are reversed, butted together and the junctions overlaid with impregnated rubber cement strapping made tacky by the application of petrol. Strapping is in lengths of 40' by 4½" wide, and ends are laid to overlap 2 to 3".



CLOSE LAYING:

When finishing against the walls, architraves, profiles, etc. the carpet is cut accurately to size, no underturn being necessary. The pile will not unravel from the cut edges and no sewing, taping serging or binding is required, to any shape of cut.



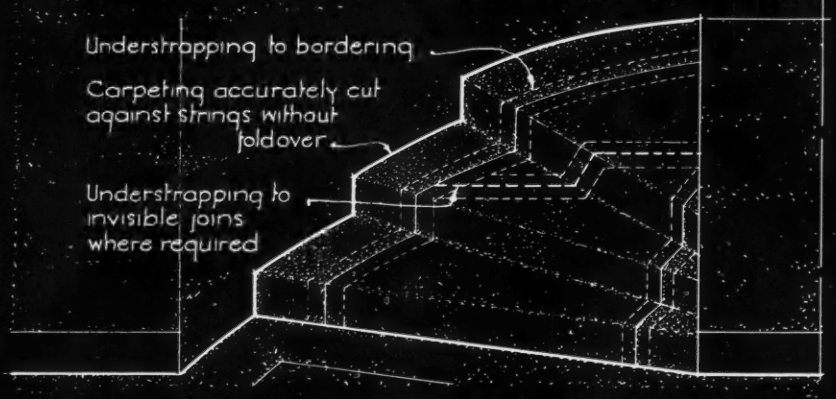
INLAID PATTERNS, BORDERS, ETC.

Inlays are cut from a template, reversed and strapped as before described. Borders are cut from a separate roll and two sides are first joined on, with overlapped ends. The corners are mitred with a straight-edge separately, or they may be seamlessly butt jointed as shown.

STAIRCASES AND RAMPS:

Due to the absence of welted seams any width and shape of stair may be close covered with standard narrow width carpeting, with or without borders and with a minimum of waste material. Surplus material is cut away from the strings, no foldover being required. The rubberised backing forms a watertight and nonslip covering to any type of surface.

APPLICATION TO CLOSE CARPETED WINDING STAIRCASE.



Information from T. F. Firth & Sons Ltd.

INFORMATION SHEET: FIRMODA RUBBERISED CARPETING.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1.

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INFORMATION SHEET

• 223 •

CARPET

Product : Firmoda Carpet

General :

The Firmoda Carpet is of the woven type, but woven by a special process. The weave is not sized on the back in the commonly accepted way, but is impregnated with a special material of permanent resiliency, which penetrates the bottom of the weave and prevents the pile being pulled out.

Joining :

The resilient binding material in the back so binds the weave together that the carpet, when cut in any direction, forms its own selvedge ; a clean edge is formed which requires no binding or sewing. The cut edge requiring no binding, it is possible to butt the edges of carpet together, without a seam, the surface being uninterrupted and apparently jointless.

Such joints require only to be understrapped on the back with the strapping made for the purpose. The strapping is applied with a rubber-cement adhesive made tacky by the application of petrol.

Cutting and Waste :

The readiness with which the carpet is joined enables laying to be carried out with a minimum of waste.

Replacement :

Damaged parts of any carpet may be cut out and replaced by a new piece accurately cut and laid without seaming.

Qualities :

The carpet is made in two qualities—high grade, known as L.S. quality, and medium grade, known as F.A. quality

Colours :

The carpet is stocked in seventeen standard shades as follows :

1. Peony
2. Shore Beige.
3. Parakeet.
4. Shadow Rose.
5. Silver Grey.
6. Autumn Gold.
7. Orient Blue.
8. After Glow.
9. Willow Green.
10. Pompeian.
11. Tawny Brick.
12. Peking Blue.
13. Tango.
14. Sand Dune.
15. Java.
16. Petunia.
17. Black.

Insulating Value :

It should be pointed out that the acoustic effects of a good quality carpet are threefold.

(a) Being an absorbent material it damps down sounds occurring in the room and helps to prevent reverberation.

(b) Similarly the material absorbs a considerable part of the sound which might otherwise travel through the floor.

(c) By presenting a soft surface it reduces impact noises.

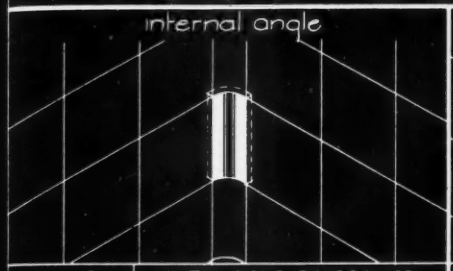
Manufacturers : T. F. Firth and Sons, Ltd.
Address : Clifton Mills, Brighouse
Telephone : Brighouse 374
London Warehouse : Armour House, St. Martins-le-Grand, E.C.1
Telephone : National 3134



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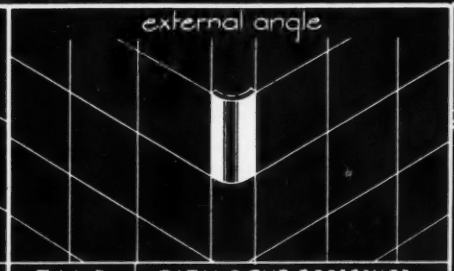
ANGLE BEADS :

internal angle



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 3"	3058 .
6" x 2"	3060 .
6" x 1¼"	3014 .
6" x 1"	3085 .
4" x 2"	4043 .
4" x 1¼"	3982 .
4" x 1"	4042 .

external angle



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 3"	3058 .
6" x 2"	3060 .
6" x 1¼"	3014 .
6" x 1"	3085 .
4" x 2"	4043 .
4" x 1¼"	3982 .
4" x 1"	4042 .

internal beak



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 2"	3060 FF.
6" x 1¼"	3014 FF.
6" x 1"	3085 FF.

external beak



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 2"	3060 EE.
6" x 1¼"	3014 EE.
6" x 1"	3085 EE.

internal corner



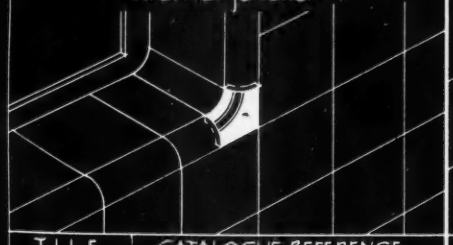
TILE SIZE	CATALOGUE REFERENCE NUMBER
3"	3058 H.
2"	3060 H.
1¼"	3014 H.
1"	3085 H.

external corner



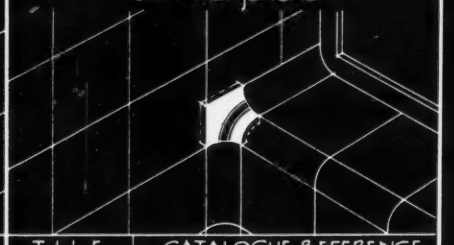
TILE SIZE	CATALOGUE REFERENCE NUMBER
3"	3058 D.
2"	3060 D.
1¼"	3014 D.
1"	3085 D.

internal junction



TILE SIZE	CATALOGUE REFERENCE NUMBER
3"	3058 F.
2"	3060 F.
1¼"	3014 F.
1"	3085 F.

external junction

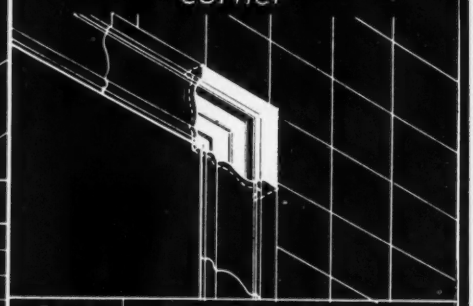


TILE SIZE	CATALOGUE REFERENCE NUMBER
3"	3058 J.
2"	3060 J.
1¼"	3014 J.
1"	3085 J.

SUNDRIES :

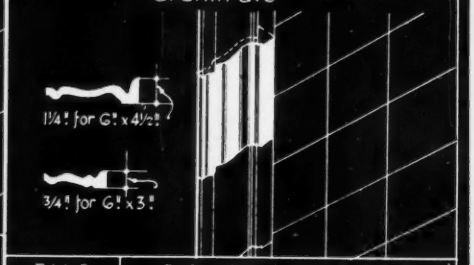
DOOR & WINDOW FITTINGS.

corner



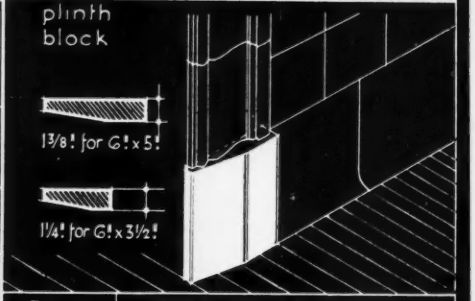
TILE SIZE	CATALOGUE REFERENCE NUMBER
4½" x 4½"	3279 P.
3" x 3"	3083 P.

architrave



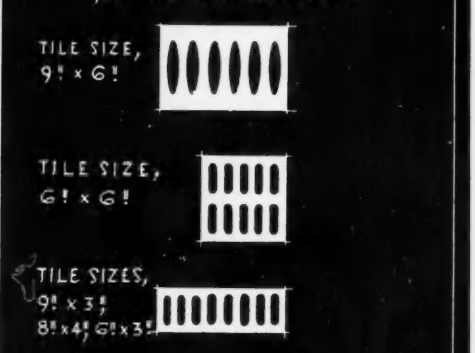
TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 4½"	3279.
6" x 3"	3083.

plinth block



TILE SIZE	CATALOGUE REFERENCE NUMBER
6" x 5"	3952 .
6" x 3½"	3980 .

glazed ventilators .



Information from Richards Tiles Ltd .

INFORMATION SHEET: GLAZED WALL TILE FITTINGS 6 : ANGLE BEADS & SUNDRIES.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

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INFORMATION SHEET

• 224 •

WALL TILES

Type of Product : Glazed Wall Tile Fittings

(See also Information Sheets Nos. 92, 93, 99, 125, 127, 144 on other Tile Products of the same Manufacturers, and Sheets Nos. 180, 189, 197, 205 and 216 for previously illustrated Glazed Tile Fittings.)

The manufacturers' plain—or flat—tiles with which the fittings here illustrated are designed to work, are made in the following shapes and sizes :—

Squares	...	6″×6″, 4″×4″, 3″×3″, 2″×2″
Oblongs	...	6″×3″, 6″×2″, 6″×1½″, 6″×1″
		6″×½″, 4″×2″, 4″×1″, 4″×½″
Hexagons	...	(measured from side to side) 4″, 3″ and 2″, with the necessary halves.

Standard Thickness.—For all sizes of plain tiles and fittings, ⅜″. Plain tiles and Rounded Edge Tiles, in white glaze only, and in sizes 6″×6″ and 6″×3″ only, made also ¼″ thick.

Finish.—All tiles and fittings can be supplied in white glaze, and (except those ¼″ thick, as noted) in colours, both plain and mottled, of bright and eggshell finish.

Stocks.—Plain tiles and fittings are stocked by the Manufacturers in white glaze finish and in biscuit form (i.e. unglazed) ready for glazing in colour as ordered.

Special Fittings for special purposes are made to order as required.

Angle Beads.

Standard angle beads are six inches or four inches in length and from one to three inches in width. The term "width" as applied to angles is explained below. Both internal and external beads are made in all the standard sizes. Special angles can be supplied as required.

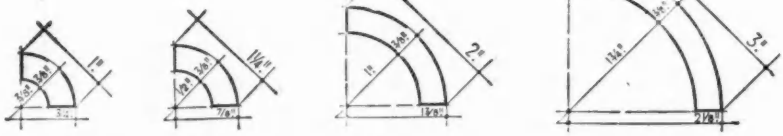
As to the choice between combination angles (see Information Sheet No. 216) and angle beads, it may be said that for better class work of all kinds, the former are generally, and for 6 in.× 3 in. broken jointed work nearly always, used. At external corners, combination angles have a better hold on the wall than beads. The latter, however, are often used for reasons of economy, and occasionally architects specify them because they like the appearance of the double joint at the angle to which they give rise.

Measurement of Tile Angles.

The accepted angular measurement of a tile angle is not that of its radius (though the word radius is often used in this connection) but that of its *greatest width, measured in a straight line.* This applies equally to internal and external angles, the only difference between these being, of course, that the former are glazed on the inner and the latter on the outer surface. The diagrams given below, illustrating angles of different sizes, will make the matter clear.

In the case of Combination Angles and Angles to Cappings, Skirtings and Coves, the size and type of the angular part are indicated by the addition, after the reference number of the fitting itself, of a letter. The following are the letters used, with the meaning of each :

B=1″ Internal Angle. A=1″ External „ E=1¼″ Internal Angle. C=1¼″ External „ L=2″ Internal Angle. G=2″ External „ M=3″ Internal Angle N=3″ External „



1″ Angle Beads or B. & A. Angles.

1¼″ Angle Beads or E. & C. Angles.

2″ Angle Beads or L. & G. Angles.

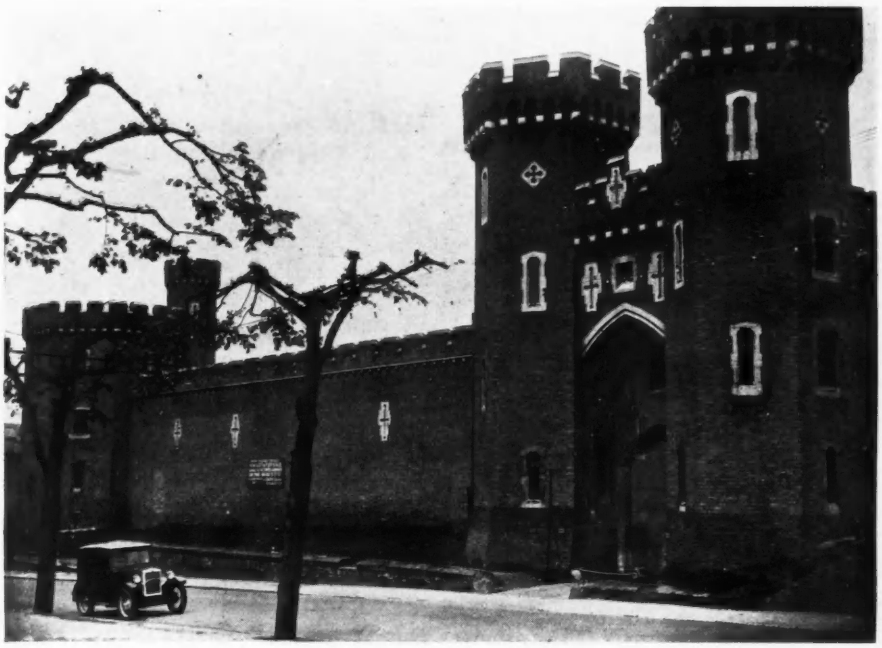
3″ Angle Beads or M. & N. Angles.

Although the manufacturers supply angles in all these sizes, their standard angle is the 1¼″, that having proved the most satisfactory for all ordinary purposes.

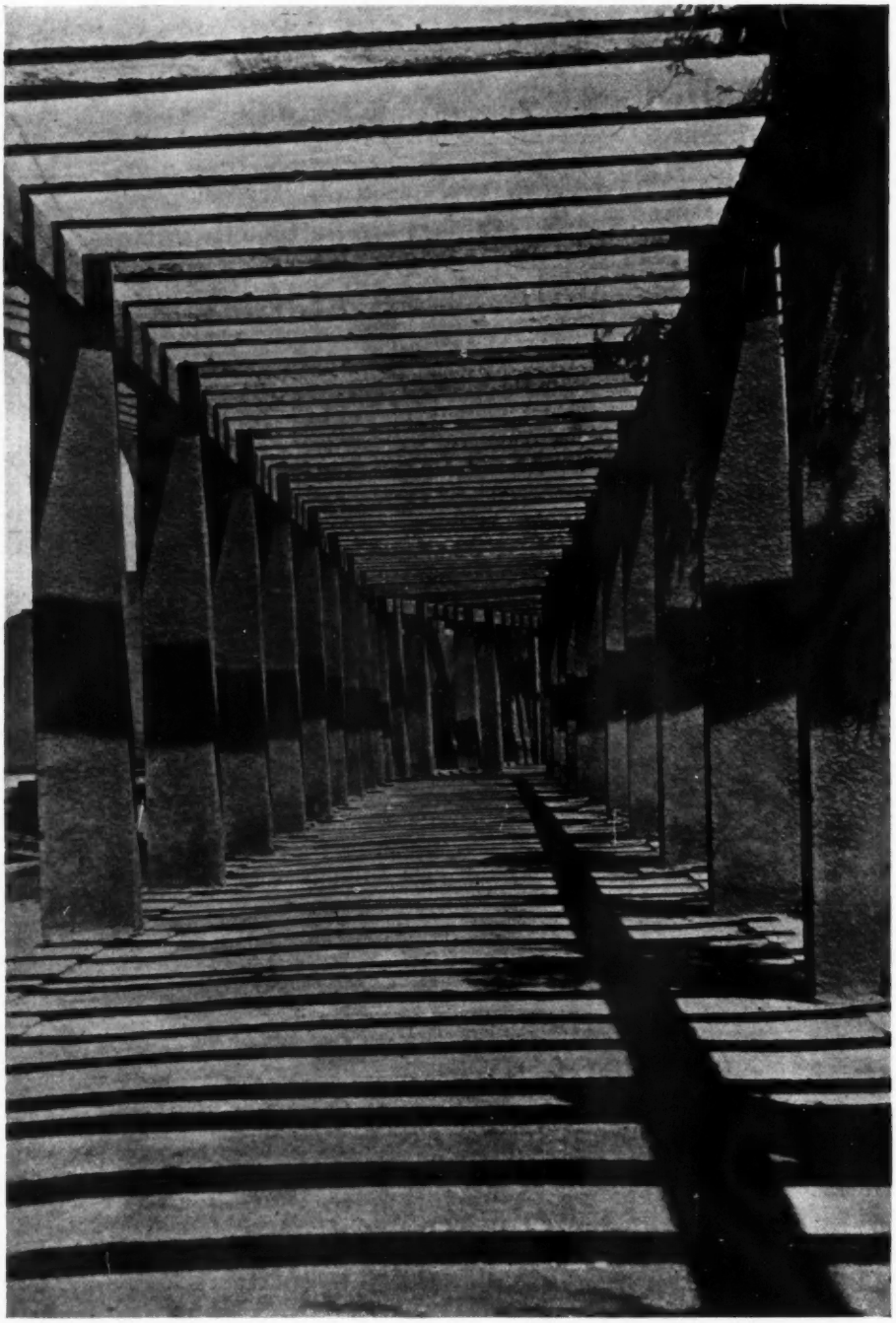
Name of Manufacturers :	Messrs. Richards Tiles, Ltd.
Address :	Tunstall, Stoke-on-Trent
Telephone :	Hanley 7215-8
London Office :	25 Victoria Street
Telephone :	Victoria 9218
Glasgow Office :	53 Bothwell Street Glasgow, C.2
Telephone :	Central 1768

TO LET OR FOR SALE

WORCESTER COUNTY GAOL

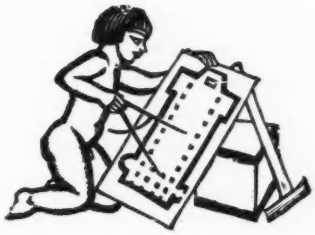


THE offer for disposal of this building, now disused as a prison, invites speculation as to whether the opportunity will be seized for tempting the public by its reconditioning as flats, all completely self-contained, and under entirely new management.



LIGHT, SHADOW, AND LINE

A photograph showing the strong patterning and rigid definition of form and perspective produced by the sun of Mexico City upon a concrete pergola in the civic park.



THIS YEAR'S ELECTIONS

YESTERDAY the ballot papers were distributed to members for the annual R.I.B.A. elections. Now the R.I.B.A. is a democratic body ; that is to say, its constitution is such that the direction of its affairs is truly, by means of democratic representation, in the hands of the mass of its members ; there is no responsibility of control remaining in the sustained possession of a few of its members against the wishes of the majority. It should be a matter for congratulation that the architectural profession is not controlled dictatorially, which makes it particularly incomprehensible that members of the profession are habitually so reluctant to take advantage of their powers of self-government. In recent years the percentage of members who have actually voted in the annual elections for the Council and Standing Committees has been as low as fifteen or seventeen. Members often express their dissatisfaction with this or that detail—sometimes with this or that principle—of R.I.B.A. administration. The remedy is in their own hands.

This year, it is encouraging to note, there are signs that members are at last taking an interest in their representation : the new Council and Committees are elected, as members know—or ought to know—from a number of members nominated by the existing Council, to which are added the names of any members nominated, before the annual general meeting, by at least seven of their fellow members. It is through such additional nominations that members can show their active interest in the administration of the Institute ; and this year, instead of the perfunctory handful of nominations of previous years, there have been twenty-three additional nominations to the Council alone. That is as it always should be ; and it only remains for members to return voting papers in an equally enthusiastic number for the re-democratisation of the Institute to be complete.

This re-awakening of interest is due not so much to increased dissatisfaction with Institute administration as to propaganda for greater interest in its affairs on the part of the R.I.B.A. through the press, and on the part of the press independently. This week we publish an Election Supplement in an attempt to make the press of further use in achieving the second stage of improvement : a large percentage of members exercising their votes.

One of the chief reasons, and the most understandable, why members have not exercised their votes in the past is the quite simple one that they do not know for whom they are voting. They are served with a long list of names, many of which are quite unfamiliar to them and most of the others little more than names ; and they feel justifiably that to vote only by chance would be unfair ; to vote only for the names they happen to know would be equally unfair ; so they refrain from voting at all. We have attempted in our Election Supplement to render this excuse no longer valid. On pages 879 to 894 will be found brief biographical notes on all the candidates for vice-presidentship and for the vacant places on the Council and the four Standing Committees on Art, Literature, Practice and Science.

It is realized, of course, that a member's suitability to fill one of these vacancies is not easily assessed from knowledge of his career or his standing as an architect ; a man may be a brilliant designer but quite impossible on a committee ; he may have few admirers of his work as an architect, yet be admired universally as an efficient chairman ; a man may have a record of the most orthodox architectural achievements and at the same time hold the most eccentric opinions about, for example, registration—and *vice versa*. Nevertheless, apart from the fact that any information is better than absolute ignorance, there are a number of useful points that may be obtained from the series of biographies. These may be enumerated as : 1, locality : the neighbourhood of each candidate's practice is given, so that a proper balance can be kept between London and the different parts of the provinces ; 2, nature of practice : distinction is made between candidates in private practice and those in public employ, so that adequate representation of salaried architects can be allowed for ; 3, age ; 4, other associations : membership of other bodies is mentioned so that the influence of other sections of the profession can be allowed for ; 5, previous service on committees is noted, so that credit can be given for committee experience. In the case of the Standing Committees, as specialist departments, qualification can usually be indicated by biographical details ; in the case of the candidates for vice-president and Council, where views of a more general nature are important, an attempt has been made to indicate what line these are likely to take by making quotations, whenever such are available, from speeches, writings and the like. A man's character and opinions are best displayed in his own words.



The Architects' Journal
Westminster, S.W.1
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NOTES & TOPICS

HONOURS

I NOTICE in the Birthday Honours List, the names of Percy Scott Worthington, M.A., F.S.A., F.R.I.B.A., who becomes a knight, for services to architecture, and Harold Chalton Bradshaw, F.R.I.B.A., who, as the Secretary to the Royal Fine Art Commission, receives a C.B.E. Architects throughout the country will congratulate their colleagues on these honours.

*

The work of Percy Worthington is remarkable for the simplicity of its planning and the refinement of its scholarly detail—I remember several years ago being much impressed by his masonic building at Manchester, and by his extensions to Rossall School.

*

Chalton Bradshaw has won a place in the memories of numerous students as a kindly, but firm, examiner at the R.I.B.A. I know of few architects who can tell an after-dinner tale with such richness as Mr. Bradshaw—only last week the examiners' luncheon was undoubtedly the better, and the afternoon's oral examining the easier, for his gift of entertainment.

THE CANNING ENCLOSURE

Skirmishing over in Parliament Square, it remains but to clear the battlefield. The Middlesex County Council has acquired the contested site and accordingly has withdrawn its Parliamentary Bill for its compulsory acquisition. The next thing to do is to pay the real bill, which totals, including interest and fees, some £375,000.

*

The first appeal to the Treasury for help has met with negative response, out of, as Alderman Crag puts it, "force of habit." I shall await its final decision with impatience and continue to visualize an extended Canning enclosure—no, not merely as a desirable amenity, but as a sound business investment and advertisement for this centre of ceremonies.

WHITE MAN'S BURDEN

Sunday's *Observer* contained an article about Lusaka, the new capital of Northern Rhodesia; it described the choice of a site in the lion-haunted jungle; and the creation and lay-out, within four years, of a brand-new city.

*

It ended with this significant sentence: "'Modernism,' as an architectural expression, has no place in Lusaka, the mass of the building being in an adapted English Renaissance style. . . ."

*

Little comment seems necessary, except that it is hard on the white man not to be able, even in darkest Africa, to shake off the burden of meaningless stylistic survivals.

*

I suppose flat roofs and cantilevered verandahs would be an outrage on the "amenities" of the jungle.

AN EMBRYO PEACEHAVEN

It is characteristic of our age that much the same sort of people should be responsible for rooting wild flowers out of the soil as for rooting wild-west bungaloids into it.

*

A fortnight or so ago Mr. Edward Thompson wrote a timely warning to *The Times* about buccaneer botanists' raids on rare and rapidly disappearing wild flowers peculiar to a few parts of the Upper Thames Valley, like the Margaton and Loddon lilies, Fritillaries and Pasqueflowers. "Though all of these refuse to become acclimatized in private gardens," he says, "they are being offered for sale by 'enterprising' florists round Oxford and Reading, not only in bunches, but as growing plants."

*

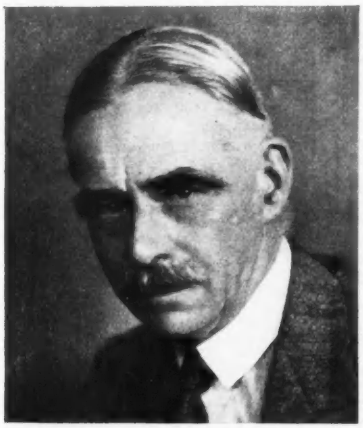
I happened to read Mr. Thompson's letter before setting out on a week-end tramp along the cliffs of an almost entirely unhabited and very beautiful part of the South Coast, which owes its preservation to a complete absence of railway lines and main roads. After some miles the open grassy ridgeway suddenly merged into hedged-in tar-mac. Opposite its "rail-head" was a gate with a large notice "To ——— Bay. Private Road. Car-Park and Bathing-Beach 2s. 6d.," and a happy family digging up bluebells and loading them into the back of their car.

*

It was another half-mile before I grasped that the sophisticated "attractions" announced on that board were simply ground-bait for the nostalgia of the kind of home-hunters who like a spot of seascape in their suburbanized ruralism. A tumbled gap in the cliffs revealed a sheltered little cove, and the "private road" as a perpendicular dropping straight down the slope in a raw gash of chalk to a flat stretch of foreshore.

*

Four or five villa-bungalows in various traditionally unlocal styles, a tin shanty prominently placaded "temporary estate-office," and a few fenced-off plots, denuded of undergrowth, huddled together at the business end of this road, proclaimed that a perfectly valid legal title to a nucleus of unplanning and uglification—i.e., a "quiet"



Dr. Percy Scott Worthington, M.A., F.R.I.B.A., the announcement of whose knighthood is contained in the Birthday Honours List.

or " select " seaside resort—had already been triumphantly staked out.

*

Though only shingle, the "sweep of sands " below is too fine a natural curve to escape definition. When next I pass that way I expect it will have been mathematically rectified by the necessary pedestal for every form of " holiday touch," a cement esplanade.

NOISE

One member of the building committee of the Noise Abatement Exhibition must surely be sadder and wiser as the result of his undue keenness to show a large exhibit of his own conception.

*

Time pressed hard and labour was scarce, but in his own residential flat the thing was sawn and hammered and knocked into shape, to spread the anti-noise principles to vast numbers of people. What matter that its construction brought upon his own head the heated complaints of neighbours that his hammering was keeping them awake at night ?

OVERLOOKED OBITUARY

Those elegant, cream-coloured Bayswater Road houses, which always seemed to have been just repainted, Nos. 8-11 Hyde Park Terrace, are in the hands of the house-breakers. Their boarded-up Doric porches sadden the gayest strip of the Park's railings. No one seems to care, or to have as much as noticed the widening gap. Our own profession is mute.

*

I shall be told they " had " to go. And who am I to dispute that " for economic reasons" their room may have become decidedly more " desirable " than their company.

*

But the point I would like to make—or rather reiterate—is this. Are there to be no exemptions to estate-agents' expert condemnations of " hopelessly superannuated " ? Are no " merely " typical London buildings of the early nineteenth century to be preserved for future generations ? Must all the " museum pieces " of that epoch be small enough to fit into public galleries if not glass cases ?

*

Odd that those realistic and scientifically-trained minds, the historians and archæologists, who never plead for monuments of the eighteenth or early nineteenth century buildings, should rise in passionate protest once any structural vestiges of the seventeenth or earlier centuries are threatened.

*

Can it be simply because the former, as disciplined embodiments of an already rationalized civilization and matured tradition, lack the sixpenny novelist's "romantic glamour and the mellowing patina of picturesque decay " ?

*

In course of time the question of preserving some typical examples of Victorian architecture is bound to arise—not necessarily because our own or the next generation will have grown to admire them, but because this is the only way a phase of architectural history can retain its reality for posterity. I wonder what attitude to it contemporary archædaters will adopt.

THE DEATH RATE

The publication of the Scottish Life Tables gives us some indication of the figures we may expect the forthcoming English Life Tables to reveal.

*

The interesting point about the Scottish figures is that on the precise findings of actuaries, the report definitely states that overcrowding is by far the biggest cause of a high death rate. Even occupational disabilities are found to have little effect on the death rate when compared to the effects of indifferent housing conditions.

*

The death rate has been gradually falling ever since 1840, when, I think, the first statistics were compiled—it is scarcely too much to expect that, with the completion of a slum clearance programme, an optimum figure will be reached.

UNINTENDED ALLITERATION

The eye-catching qualities of alliteration are appreciated by the author of these notes, but on reading last week's issue its perils were also brought home to me. I had intended to comment appreciatively upon the charm of Miss Alma Dicker in the recent show of the One-Act Opera Company. But to my dismay I found that I—or was it the printer ?—had presented this bouquet to a Miss Alma Archer. This lady, if she exists, may well be charming, but I fear that I do not know her.

ASTRAGAL

Owing to the inclusion in this issue of the R.I.B.A. Election Supplement, we are compelled to hold over the Technical Section. This will be resumed next week, with the nineteenth of Dr. Faber's and J. R. Kell's articles on Heating, Air Conditioning and Mechanical Equipment.

NEWS

POINTS FROM THIS ISSUE

" *Yesterday the ballot papers were distributed to members for the annual R.I.B.A. Elections. . . . Members often express their dissatisfaction with this or that detail—sometimes with this or that principle—of R.I.B.A. administration. The remedy is in their own hands*" 861

The result of the competition for the lay-out of an area in Central Croydon 864

" *The labour saving devices in the new flats will make the provision of flats acceptable to the working classes. . . .*" 865

THE HONOURS LIST

The official list of Honours conferred by the King on the occasion of His Majesty's Birthday, and in commemoration of the completion of the twenty-fifth year of his reign, contains the following names :

Knights Bachelor—Percy Scott Worthington, M.A., F.R.I.B.A. ; Hubert Henry Humphries, C.B.E., M.INST.C.E., President of the Town-Planning Institute.

C.B.E.—Harold Chalton Bradshaw, F.R.I.B.A., Secretary of the Royal Fine Art Commission.

O.B.E.—Archibald Bulloch, F.R.I.B.A., Architect, H.M. Office of Works.

THE LEEDS SCHOOL OF ARCHITECTURE

The Leeds Education Committee was recently asked to adopt a proposal formulated by Mr. J. S. Allen, Head of the Leeds School of Architecture, to invite three eminent architects to act in an honorary capacity in connection with the School. Under this scheme the following appointments will be made : Honorary Visitors—Sir Giles Gilbert Scott, D.C.L., LL.D., PP.R.I.B.A., and Sir Raymond Unwin, D.TECH., PP.R.I.B.A., PP.T.P.I. Honorary Lecturer in Architecture and Finance—Mr. A. C. Bossom, M.P., F.R.I.B.A.

NEW OPEN SPACE AT WESTMINSTER

The Middlesex County Council decided, last week, to represent to the Government, the London County Council and the Westminster City Council that the Canning Enclosure, which overlooks Parliament Square, should be completed by the inclusion of the Westminster House site.

The Council has bought the site for £350,000, and it is now certain that the office building proposed for the site will not be built. The Council is seeking the help of the Government and the other authorities mentioned to keep the site as an open space.

THE ARCHITECTS' DIARY

Thursday, June 6

ROYAL ACADEMY, *Burlington House, Piccadilly, W.1. Summer Exhibition. Open until August* 10. 9 *a.m. to* 7 *p.m.*

ARCHITECTURAL ASSOCIATION, 36 *Bedford Square, W.C.1. Exhibition of working drawings of recent work at Wembley Stadium. Until June* 28. 10 *a.m. to* 10 *p.m.*

WHITECHAPEL ART GALLERY, *High Street, E.1. Exhibition of Mural Decorative Paintings. Until June* 15. 12 *noon to* 9 *p.m. ; Sundays,* 2 *to* 9 *p.m.*

R.I.B.A. EXHIBITION OF INTERNATIONAL ARCHITECTURE. *At the Walker Art Gallery, Liverpool. Until June* 30.

L.C.C. CENTRAL SCHOOL OF ARTS AND CRAFTS, *Southampton Row, W.C.1. Annual Exhibition. Until June* 28 *(except June* 10*).* 10 *a.m. to* 8 *p.m. Saturdays,* 10 *to* 12 *noon.*

INSTITUTION OF GAS ENGINEERS. *At the Institution of Civil Engineers,* 12 *Gt. George Street, S.W.1. Annual General Meeting. Also Friday, June* 7.

THE TYLERS AND BRICKLAYERS COMPANY

Sir Giles Gilbert Scott, R.A., PP.R.I.B.A., has been awarded the first annual gold medal presented by the Court of the Tylers and Bricklayers Company for the best brick and tile building erected in London during the last three years. The award was made for the Battersea Power Station. In addition, silver medals are to be presented to the individual craftsmen engaged upon the brickwork. The conditions of the competition were similar to those of the London Architecture Medal.

ARCHITECTURAL ASSOCIATION

The officers and Council of the Architectural Association for the session 1935-1936 were announced last week as follows : President, The Hon. Humphrey Pakington, F.R.I.B.A. ; vice-presidents, Mr. J. R. Leathart, F.R.I.B.A., and Mr. Lionel G. Pearson, F.R.I.B.A. ; hon. treasurer, Mr. C. Lovett Gill, F R.I.B.A. ; hon. secretary, Mr. L. H. Bucknell, F.R.I.B.A. ; hon. librarian, Mr. R. E. Enthoven, F.R.I.B.A. ; hon. editor A.A. Journal, Mr. Joseph Hill, F.R.I.B.A. Ordinary Members of Council : Messrs. A. F. B. Anderson, F.R.I.B.A., S.A.D.G., Edward W. Armstrong, F.R.I.B.A., Louis de Soissons, O.B.E., F.R.I.B.A., S. E. Dykes-Bower, A.R.I.B.A., W. R. F. Fisher, M.A., A.R.I.B.A., C. H. Holden, F.R.I.B.A., Hubert Lidbetter, F.R.I.B.A., S. Rowland Pierce, A.R.I.B.A., V. O. Rees, F.R.I.B.A. and J. C. Shepherd, A.R.I.B.A.

SUMMER SCHOOL AT THE FOREST PRODUCTS RESEARCH LABORATORY

It is proposed to hold a " summer school " at the Forest Products Research Laboratory, Princes Risborough, lasting one week from September 1. The object of the course is to show the useful part which research can play in the timber industries of this country. It will consist of a series of addresses by the staff of the Laboratory on the chief lines of research carried on, followed by demonstrations of the processes used in the investigation of problems at the Laboratory.

All that will be attempted in this course is to give a general bird's-eye view of the nature of the problems dealt with and the ways in which they are tackled.

The number of persons attending the course has to be limited to thirty. No charge will be made for the course, but the cost of transport on the excursion will be charged to members.

Applications to attend the course should be made to the Director, Forest Product Research Laboratory, and should reach him before July 1.

R. I. B. A.

EXHIBITION OF ARCHITECTS' WORKING DRAWINGS

An Exhibition of Architects' Working Drawings will be held at the R.I.B.A. from Monday, June 24, to Saturday, June 29, inclusive.

The Exhibition will be open daily between the hours of 10 a.m. and 8 p.m. (Saturday, 5 p.m.). It will include drawings lent by : Mr. John L. Denman, F.R.I.B.A. (Rickmansworth Girls' School) ; Messrs. Harry S. Fairhurst and Son, F./A.R.I.B.A. (Manchester Building for Messrs. Rylands and Sons) ; Professor W. G. Newton, F.R.I.B.A. (Merchant Taylors' School) ; Mr. R. H. Uren, A.R.I.B.A. (Hornsey Town Hall) ; Mr. Wells Coates, PH.D. (Lawn Road Flats, Hampstead).

A special Students' Evening will be held at the Exhibition on Thursday, June 27, at 8 p.m. All students are invited to attend. It is hoped that the architects (or their representatives) who have lent exhibits will be present in order to explain the drawings to the students. Refreshments will be provided, and no cards of admission are required.

ROME SCHOLARSHIP IN ARCHITECTURE

The designs submitted in the Final Competition for the Rome Scholarship in Architecture will be on exhibition at the R.I.B.A., 66, Portland Place, W.1, between the hours of 10 a.m. and 8 p.m. (Saturday, 10 a.m. and 5 p.m.) from June 17 to June 22, inclusive.

COMPETITION NEWS

COMPETITION RESULTS

As we go to press we learn that Mr. Edward Maufe, F.R.I.B.A., the assessor in the limited competition for a chapel at Cuddesdon College, Oxford, has awarded first place to the design submitted by Professor H. S. Goodhart-Rendel, F.R.I.B.A.

Dr. Thomas Adams, F.R.I.B.A., F.S.I., the assessor in the competition for the lay-out of an area in Central Croydon which is to provide an extension of the Civic Centre of the Borough, has made his award as follows :

Design placed first (£500) : Messrs. F. W. Halfhide and R. J. O'Donoghue, of 5 Gt. Turnstile, Holborn, W.C.1.

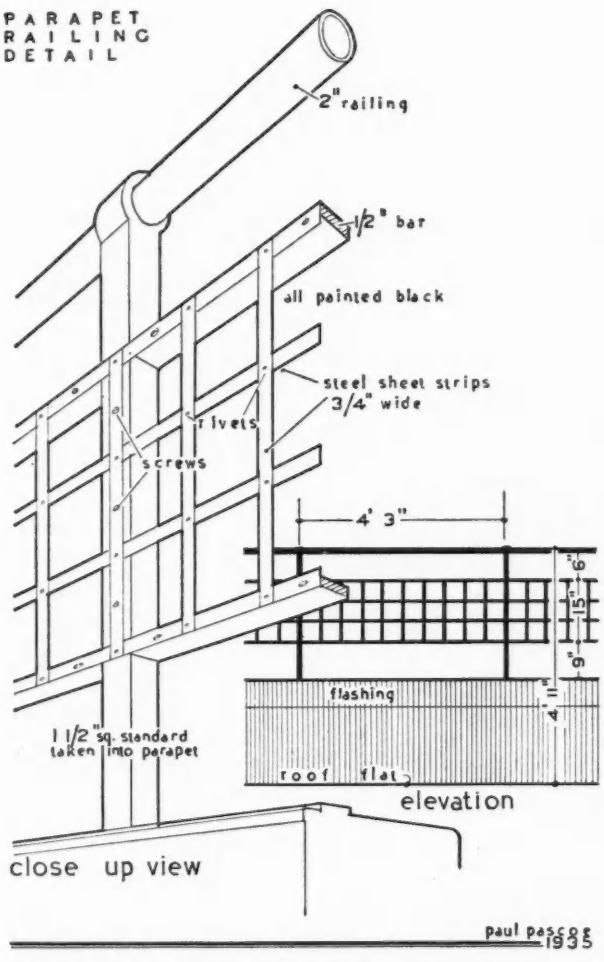
Design placed second (£150) : Messrs. Colin R. Crickmay and J. F. M. Schreiner, of 55 Gordon Square, W.C.1.

Design placed third (£125) : Mr. Edward Prentice Mawson, of High Street House, Lancaster.

Design placed fourth (£75) : Mr. Gilbert H. Jenkins, of 6 Old Bond Street, W.1.

The scheme submitted by the following competitors were highly commended :

Messrs. A. Maxwell Allen and C. St. Clair Oakes, of 625 Cecil Chambers, 86 Strand,



From Vigo House, Regent Street, W.1. Designers: Sir John Burnet and Partners.

W.C.2; Mr. Donald Dex Harrison, of Rutland Lodge, Nascot Road, Watford, Herts; Messrs. Grigore Mathias Hirsch, Alexandrie Josif and Marcel Hornstein, of Str. Negustori No. 19A Et. 3, Bukarest; Messrs. B. S. Hume and R. C. Erith, of 9 Warwick Street, Regent Street, W.1; Messrs. Arthur H. Schofield and A. P. H. Volonterio, Aynsford Manor, Boscombe Cliff Road, Bournemouth; Messrs. Scott, Chesterton and Shepherd, of 12 York Buildings, Adelphi, W.C.2; Mr. Bryan W. R. Thomas, of 29 High Street, N.W.3.

Ninety-six designs were submitted. We hope to publish the premiated designs in our next issue.

POLICE HEADQUARTERS, SOUTHPORT

We understand that the Corporation of Southport has decided to hold an open competition for a building to contain new police headquarters and fire station, and that the President of the R.I.B.A. will be asked to appoint an assessor.

PROPOSED MUNICIPAL OFFICES, ETC., YORK

The Corporation of York invites architects of British nationality domiciled in the United Kingdom to submit designs in competition for the erection of Municipal Offices, Clinics, etc., proposed to be erected in the grounds of York Castle. Mr. Henry V. Ashley, F.R.I.B.A., has been appointed assessor; and premiums of £250 £150, £100 and £50 will be paid to the authors of the designs placed first, second, third and fourth respectively.

Applications for the conditions of the competition, etc., should be made on or before June 29, to Mr. Reginald Anderson, Town Clerk, Guildhall, York.

The last date for receiving Questions is July 29, 1935, and the last date for Sending in Designs is November 1, 1935.

HOSPITAL AT COVENTRY

The winning design is illustrated on pages 868-869 of this issue.

IN PARLIAMENT

Waterloo Bridge

On Monday the issue as to whether borrowing powers should be granted to the L.C.C. for the purpose of building the new Waterloo Bridge came before the House of Commons.

After discussion it was decided that the cost of the new bridge must be met by the L.C.C. out of current revenue, and an instruction to that effect was carried by 121 votes to 96.

Ribbon Development

Despite much opposition from the landowners, the Restriction of Ribbon Development Bill has passed through Committee of the House of Lords without substantial amendment, though on Clause 10 the Government had a majority of one vote only. The third reading has been fixed for to-day, June 6.

The Housing Bill

In moving the third reading of the Housing Bill in the House of Commons last week, Mr. Shakespeare said that the measure represented the last stage of the Government's housing policy which had been continuously and, he hoped, courageously followed. The cumulative effect of all the stages of that policy had succeeded beyond expectations. The liberation of private enterprise had resulted in an output last year, by private enterprise without the subsidy, of the astonishing total of 286,000 houses. That was a greater total than had ever been achieved in any post-war year, even taking the total building by private enterprise and the local authorities.

If they took their slum crusade, the Government had already rehoused under the 1930 Act some 200,000 persons, a total greater than the number rehoused in the previous 60 years. At present they were rehousing at the rate of 150,000 slum tenants a year, and the rate was accelerating all the time. One could confidently predict that by the end of the year or the beginning of next year they would be rehousing at an annual rate of 250,000. The rehousing approval they had given in the last four months meant that they were working at an annual rate of approval for rehousing—the last stage of slum clearance—of 66,000 houses a year.

He would summarize the methods of the Government's direct attack as follows: They aimed at providing, on the right scale, the right accommodation in the right places, at the right rents, and for the right people. The provision of accommodation on the right scale required the estimation of the measure of overcrowding and the laying down of a national standard. They had chosen a minimum standard which should be tolerated at the present stage of their housing history. It was a penal standard which they could enforce and the infringement of which constituted an offence. In this Bill the Government were putting the corner stone to their policy by a nation-wide attack on overcrowding. The standard which had been chosen could be enforced, and the Government meant to enforce it. If they had chosen a higher standard the whole attack would have failed, and when they had gained experience of this method they would tighten it up. The local authorities in any big industrial area for the next five or 10 years would have their hands full in decrowding the overcrowded population.

The labour-saving devices in the new flats would make the provision of flats acceptable to the working classes, and the prejudice that was latent against them would disappear. He anticipated that the housing authorities would choose large areas coming within the definition, would acquire them at market value, would plan them and rebuild them and allocate space for business premises, shops, housing, and recreational facilities, and indeed rebuild some of these areas according to the most enlightened town-planning principles. The Government had enabled the owners in these areas to co-operate in these projects.

It was no good providing the right of

accommodation unless it was within the means of the workers. As regards flats, the Government gave an automatic subsidy which would enable a three-roomed flat to be provided in the provinces at an inclusive rent of from 9s. to 10s. a week and in London at from 11s. to 12s. The consolidation of the subsidy and the continuance of the slum clearance subsidy for five years would mean that below these averages money could be used from the subsidy pool to reduce rents still further. As regards cottages, the subsidy would be discretionary. If rehousing involved a burden in relation to the past or future activity of the housing authority this discretionary subsidy was available for them and would provide cottages at a reasonable rent of from 8s. to 9s. a week. For rural areas the subsidy was more substantial and would enable cottages to be provided at from 3s. to 5s. a week. If an overcrowded industrial worker was rehoused in a rural area the discretionary subsidy would still be available and would provide a cottage at an inclusive rent of 7s. The Bill put a duty on the local authority to rehouse the needy overcrowded worker and to adjust the rent according to his means. The provision of new accommodation would not always be necessary, and the Government had widened the power to recondition. The Government had given an opportunity for an experiment in housing management. Although the bulk of the work must be done by local authorities they brought into line the voluntary housing associations and enabled them to co-operate. In administering the Act the Minister would set up a Central Advisory Committee. The Minister meant to get the right people on that committee, to utilize their experience and to make the committee work. The Government took steps in the Bill to remedy several injustices that had occurred during the operation of the slum clearance crusade.

Mr. Greenwood said that the real way to deal with overcrowding was to build more houses and not to make a fuss about it. The setting up of Housing Management Commissions was an unwise attempt to go back on the track of normal municipal development. If it fell to him or anyone else in his party to deal with this problem Housing Management Commissions would go. The Bill would make no contribution to the solution of the housing problem.

Sir Percy Harris said that in so far as the Bill aimed at avoiding overcrowding it commanded general approval. His criticism all along had been that the Government's proposals were needlessly complex and likely to be very slow in action.

Sir Hilton Young said in the Bill there was a recognition for the first time of a standard of housing accommodation which every man, woman and child in the country could expect and which it was the business of the State to see that they received at the earliest opportunity. The local authorities, he was confident, would be equally ready to respond to the call to deal with overcrowding and, with active administration on their part, the success of the Bill was assured.

The third reading was agreed to.

Earlier in the proceedings the House agreed to a new basis of compensation for the slum owner-occupier.

LETTERS *FROM* READERS

Private and Public Practice

SIR,—In your last issue, Mr. Alan Slater regrets that "there should be an impression that the policy of the Institute is doing anything to create antagonisms between one section of its members and another."

Of course the Institute must strive to maintain unity among its membership, but can it hope to succeed in this?

The policy of the Institute is orientated by its constitution, and the inevitable result is that the policy is administered in the interests of its practitioner minority, by means of funds provided in the main by a salaried majority.

Only one illustration of this is the Institute's recommendation of the adoption of a scale of salaries in Public and Official Offices, and its refusal to recommend a similar scale in the offices of its private practitioner members—thus, in effect, putting a tariff on the architectural work of Public Offices for the benefit of the private practitioners who refuse to recognize economic obligations to their salaried assistants.

A.R.I.B.A.
Welwyn Garden City

The R.I.B.A. and Official Architects

SIR,—With regard to the correspondence that has appeared in your columns respecting paragraph 5 of the Circular Letter sent by the R.I.B.A. to Local Authorities, I enclose a copy of a protest which was signed by 32 members of the Institute and sent to the Council of the R.I.B.A.

A. C. PICKFORD
London

[*The "protest" referred to in the above letter is printed below*—ED., *A.J.*]

We, whose signatures are attached hereto, being members of the R.I.B.A. employed by a Public Authority, having learned from the Annual Report of the Council of the R.I.B.A. that it had authorized the Public Relations Committee to address a communication to every Local Authority in the country concerning official architects, desire to protest against the action of the Council.

1: We resent the assumption that a Committee composed almost entirely of architects in private practice is qualified to make recommendations concerning official architects.

2: We further strongly resent that this Committee has made a communication to our employers without our knowledge, and has not even published the terms of this communication.

3: We deplore the attempt to curtail the liberties of official architects in their actions outside official hours.

4: We assert the right of official architects to equal status with architects and their assistants in private practice as regards their membership of the R.I.B.A.

(Signed)

L. R. Oakes (A.)
J. A. Cragg (L.)
T. Frank Hawkes (F.)
E. Leslie Gunston (A.)
Harold Baker (L.)
C. T. Ayerst (A.)
G. F. Evans-Vaughan (A.)
A. C. Pickford (A.)
R. T. Grummant (A.)
Richard W. White (L.)
H. W. Burchett (A.)
David Robertson (A.)
R. Nelson Guy (A.)
E. A. Grove (A.)
S. J. Watts (A.)
J. G. Wiles (L.)
W. J. Baker (L.)
J. H. M. Bates (A.)
S. Rubery (A.)
Gerald C. P. Gough (A.)
Hugh F. Gossling (A.)
J. T. Castle (A.)
Arthur W. Congdon (L.)
Brian S. Roberts (A.)
G. L. Desmond Hall (F.)
J. H. Davidson (A.)
John E. Deleuse (A.)
James F. Hampton (A.)
B. H. Thompson (A.)
G. M. Boon (A.)
L. A. F. Ireland (L.)
C. D. Andrews (A.)

R.I.B.A. Elections

SIR,—I have submitted a copy of the enclosed statement to the Secretary of the R.I.B.A. with a request that it be considered by the Council, its Standing Committees and the Board of Education, as a matter of some importance.

I sent a similar statement to the R.I.B.A. last year.

The figures and facts have been abstracted from the published attendances and nominations in the R.I.B.A. *Journal*.

FRANK H. HEAVEN
Durham

[*The statement Mr. Heaven sends is as follows. See also the* JOURNAL'S *own Election Supplement, page 879.*—ED., *A.J.*]

The Art Committee (*24 members*).

Two members ignored the call of their

A.R.I.B.A.

A. C. PICKFORD, A.R.I.B.A.

FRANK H. HEAVEN, A.R.I.B.A.

MALCOLM MACTAGGART, L.R.I.B.A

office altogether. Twelve made less than 50 per cent. attendances, of which number four are renominated for 1935-36. Nine of the above 14 members were delinquents last year and three were not elected by the body corporate, but were appointed after the first meeting. Further, one of the stay-aways and one of the half-timers have been given assessorships during the year, and one of the half-timers an arbitrator's appointment and nominated to represent the Institute on another body.

The Literature Committee (24 members).

Six stay away altogether and nine make less than 50 per cent. attendances. Of these 15, 11 were delinquents last year, two are renominated for 1935-36, and three were not elected, but were added after the first meeting.

The Practice Committee (24 members).

Eight made less than 50 per cent. attendances, of which one was a delinquent last year, was not elected, but were added after the first meeting and is again renominated for 1935-36, whilst another has been appointed to represent the Institute on another body.

The Science Committee (25 members).

Two stay away altogether and 11 make less than 50 per cent. attendances. Of these 13, five are renominated, three were delinquents last year and two were not elected, but were added after the first meeting. Two represent the Institute on other bodies and two on the British Standards Institution, and one has been given an arbitrator's appointment during the year.

The Council.

Of the members elected by the body corporate, one failed to put in an appearance during the year, and three put in less than 50 per cent. attendances—one of whom was a delinquent last year. Three members, who have been honoured with the Presidency of the Institute, failed to make 50 per cent. of attendances, one was a delinquent last year and has been appointed to represent the Institute on two other bodies. Eight representatives of Allied Societies make less than 50 per cent. of attendances.

The Board of Education (51 members).

Twelve stay away altogether, 11 make less than 50 per cent. attendances. Of these 23, 15 were delinquents last year. Of the stay-aways two have been given assessorships during the year, and two arbitrators' appointments, and four nominated to represent the Institute on another body. Of the half-timers two have been given assessorships, one an arbitrator's appointment and two to represent the Institute on other bodies.

The Schools Committee (31 members).

Nine stay away altogether, and of these two were delinquents last year, two have been given assessorships and one to represent the Institute on another body.

The Examinations Committee (21 members).

Four stay away altogether and eight make less than 50 per cent. attendances. Of these 12 seven were delinquents last year. Of the stay-aways, one has been given an arbitrator's appointment and nominated to represent the Institute on the British Standards Institution and on four other bodies. Of the half-timers one has been given an arbitrator's appointment, three given assessorships, and two nominated to represent the Institute on other bodies.

The Prizes and Scholarships Committee (24 members).

Four stay away altogether, one of whom has been nominated to represent the Institute on another body, whilst five make less than 50 per cent. attendances.

SIR,—I send you a circular letter which I have received from Mr. Goulburn Lovell regarding the R.I.B.A. Elections, together with my reply thereto. I submit these for publication in the JOURNAL. The matter, in view of recent developments, seems to me to be one of general interest.

MALCOLM MACTAGGART
Welwyn Garden City

[*Mr. Goulburn Lovell's letter reads as follows.*—ED., *A.J.*]

DEAR COLLEAGUE, May 27, 1935.

R.I.B.A. ELECTIONS.

In the past only one-fifth of the members have voted! This is not merely apathy. The conscientious voter hesitates to vote when he is unacquainted with the merits and suitability of those nominated. Again the system of representation is far from perfect. What can the men of the South know of the sterling qualities of those of the North? What can the provincial men know of the virtues of Londoners?

In order to study the whole problem of voting and representation the Allied Societies' Conference—representing over 70 per cent. of the members of the Institute unanimously elected on March 13 a representative committee to consider the present methods of election, so as to enable the Conference to offer its advice to the R.I.B.A. Council.

By an extraordinary interference at Headquarters this committee has been prevented from functioning! This, and other subversive activities, which I believe to be against the best interest of the Institute, have caused me to resign from the Council as a protest on behalf of those members who have elected me on the Council on three consecutive occasions.

I find that many younger men are willing indeed anxious, to work for the Institute and contribute to its administration. We realize that the Institute should be the Centre of Unity of the Profession and Unity should be the objective of all men of goodwill.

A list of candidates to fill the vacancies on the Council is appended. They are members experienced in the administrative problems likely to arise. The list has been arranged in consultation with well-known architects. It behoves all those who desire free discussion and reform of defective procedure to support these members.

This letter has been sent to about 6,700 members in the British Isles entitled to vote, and small contributions towards the heavy cost involved will be appreciated. Next year, I hope that you will be able to nominate and elect your own representatives, but this year let me beg you to vote for the candidates as listed.

Yours sincerely
R. GOULBURN LOVELL

Members strongly recommended to fill vacancies on R.I.B.A. Council :—

Vice-Presidents : E. STANLEY HALL, of Messrs. Hall, Easton and Robertson. STANLEY HAMP, President, Berks., Bucks. and Oxon. Association. OSWALD P. MILNE, Wigmore Street, London. INGALTON SANDERS, Past President, Hampshire and Isle of Wight Association.

Members : WILLIAM HENRY ANSELL, Past Vice-President. JOHN BEGG, Past President, Royal Incorporation of Architects in Scotland. B. R. GRIBBON, Past President, West Yorkshire Society. G. C. LAWRENCE, President, Wessex Society. STANLEY C. RAMSEY, Chairman, Advisory Panels Committee. SAMUEL TAYLOR, Past President, Burnley District Society. MAURICE WEBB, representing Royal Australian Institute.

Associate Members : PERCIVAL C. BLOW, Hon. Sec. Essex, Cambridge and Herts Society. W. AUSTIN DAFT, Chairman, Oxford Society. NORVAL R. PAXTON, Hon. Sec. West Yorkshire Society. BASIL WARD, of Messrs. Connell, Ward and Lucas.

Licentiate Members : F. W. REES, Chairman, Croydon Chapter, South Eastern Society. S. LUNN WHITEHOUSE, Birmingham and Five Counties Association. Hon. Treasurer of the Allied Secretaries' Meetings.

P.S.—Please keep this before you until your voting papers are sent off. If unable to fill them in, will you sign and send them to a colleague to complete. *Please do not allow a Council Voting Paper to be wasted!*

[*Following are some extracts from Mr. MacTaggart's reply to Mr. Lovell.*—ED., *A.J.*]

DEAR COLLEAGUE,

R.I.B.A. ELECTIONS.

Permit me to borrow this address from your circular letter of May 27, and, writing frankly, since I do not know you "from Adam," to remark that the Institute has had a very long time already in which to be "the Centre of Unity of the Profession."

As a metaphysician I can endorse the fundamental soundness of your view that Unity is the most worth-while thing in life to work for, but what has Unity got to do with the Institute?

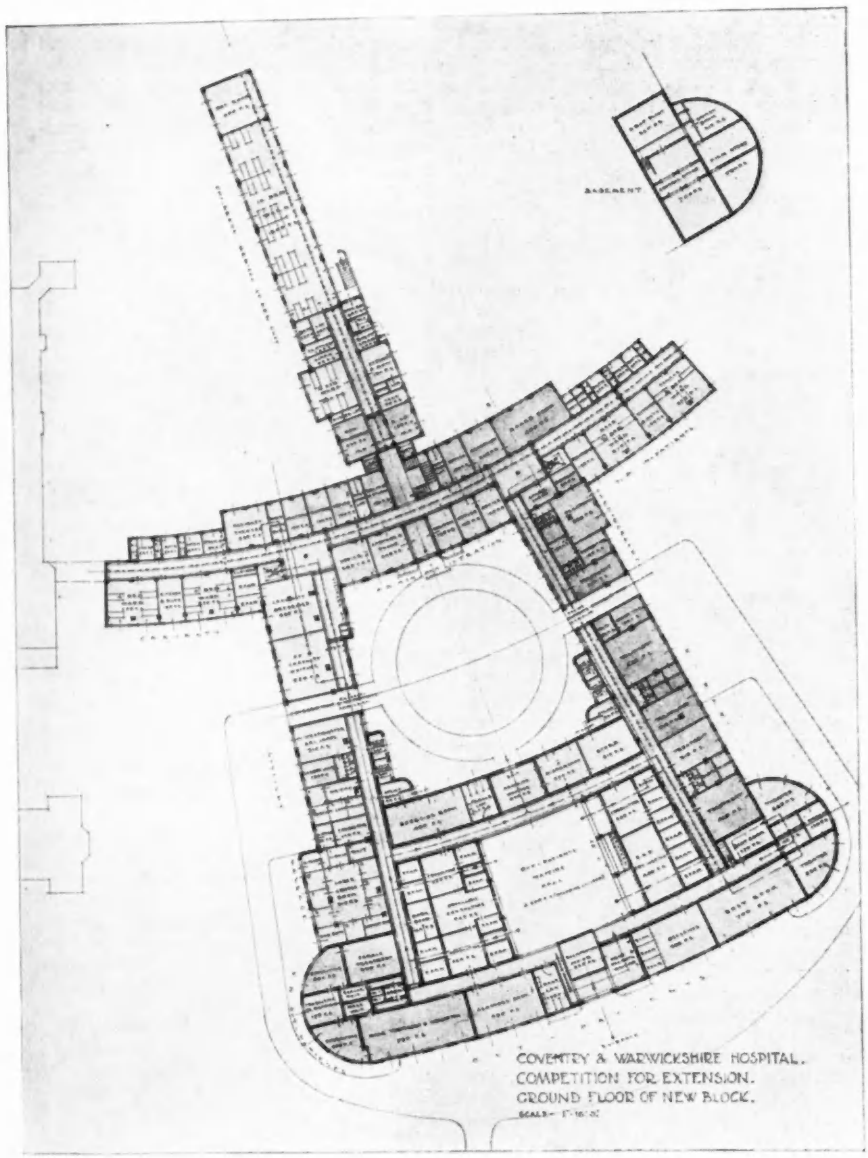
Seventy per cent. of the Profession today is on a salaried basis, while the Council of the Institute consists almost exclusively of private practitioners, who control the examination and competition systems and architectural development generally throughout the country.

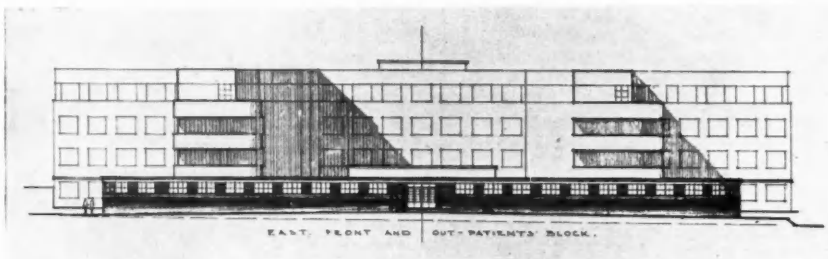
And now this disproportionate representation is to be remedied, or partly remedied by a blind vote! I imagine that many others besides myself would be interested to know the office organizations of your nominees. Perhaps, in support of your plea for confidence, you will be good enough to make this information public.

Yours faithfully
MALCOLM MACTAGGART



COMPETITION FOR EXTENSIONS AT THE WINNING DESIGN: BY ARMSTRONG AND GARDNER





As announced in our last issue, Mr. S. N. Cooke, the assessor in the competition, limited to six firms of architects, for a hospital at Coventry (for the Coventry and Warwickshire Hospital Committee), has made his award as follows:

Design placed first: Messrs. Armstrong and Gardner, of Coventry and Warwick.

Design placed second: Messrs. Pite, Son and Fairweather, of 12 Carteret Street, Westminster, S.W.1.

The winning design is reproduced on this and the facing page. Left: ground floor plan of new block; below, east front and out-patients' block. Facing page: top, first floor plan of new block and ground floor plan of old block; bottom, north elevation.

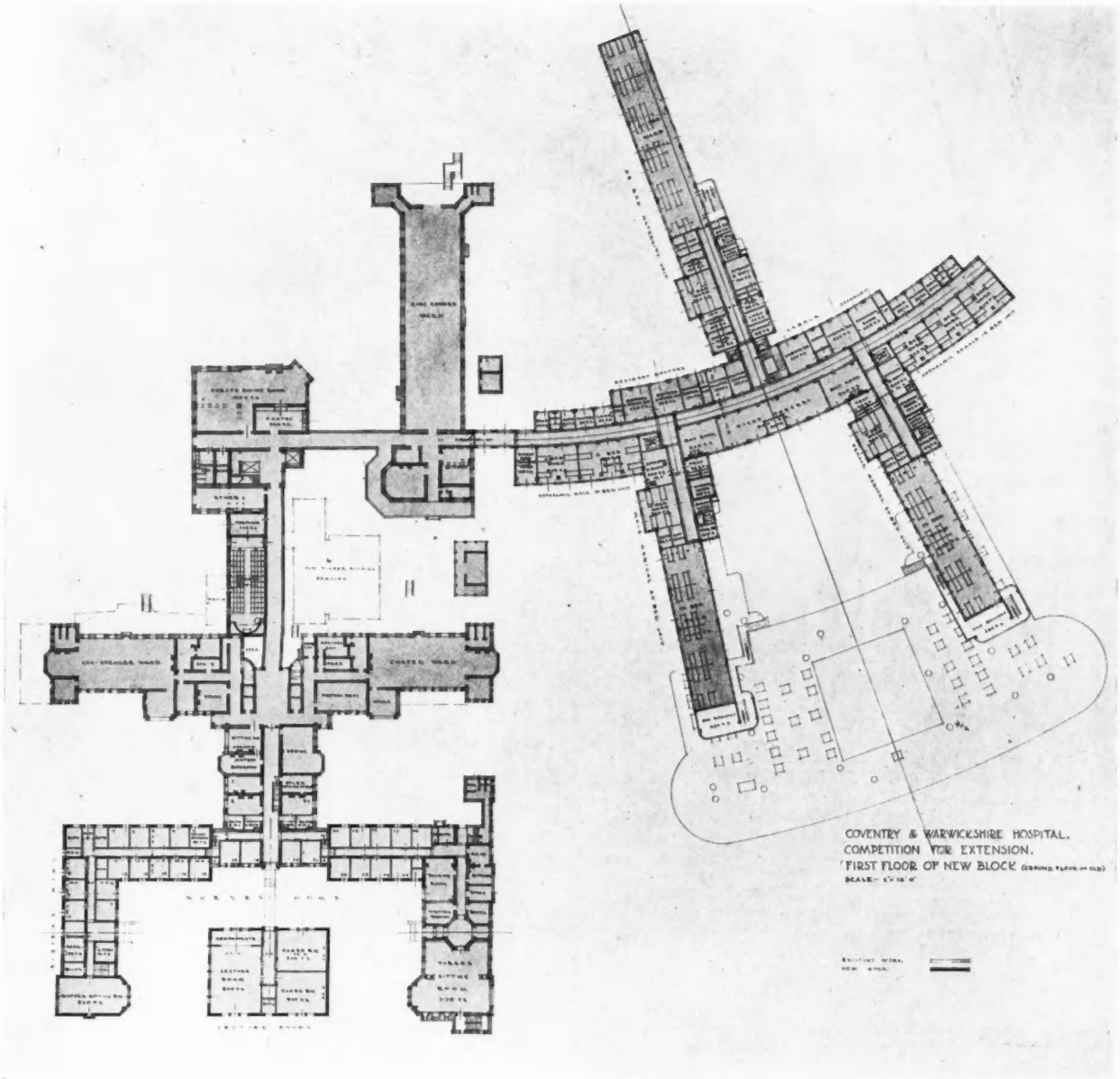
In the report presented by the authors of the winning scheme it is suggested that the greatest economy would be obtained by combining the whole of the new work in a single compact block rather than by adapting the old buildings, and an additional advantage would be the absence of interference to the working of the existing hospital during building operations. The transference of the administration block would also avoid confusion of entrances. Provision has been made for the future addition of a further 400 beds.

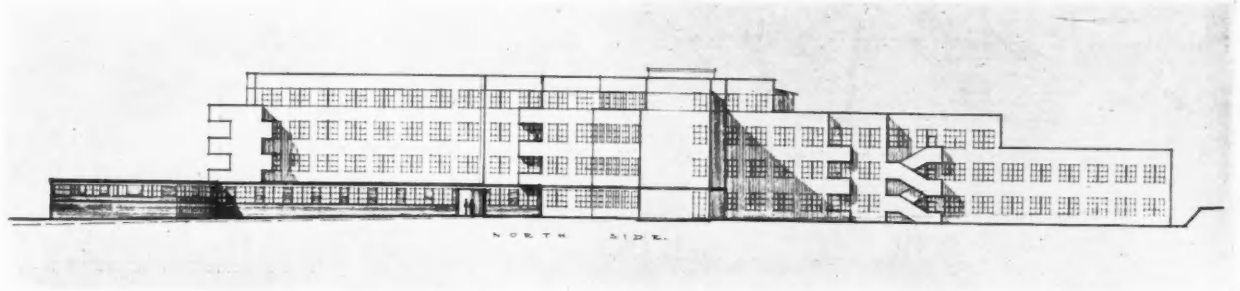
The report states: "The New Block is of the semi-vertical type, consisting of a reinforced concrete multi-ward block and a single-storey out-patients' department. The first and second floors comprise medical units and ophthalmic and E.N.T. wards and theatres, and on the top floor is a paying patients' block of 40 single-bed wards. Kitchens, staff dining-rooms and nurses' home are planned within the old block.

"The construction of the ward blocks will be of 4 in. cork-lined R.C. walls and 2 in. cork carpet over structural floors to take floor finish. The out-patients' block will be in brick and all roofs asphalted.

"Cost is under £600 per bed, the cube of the new block being 1,134,931 at 1s. 4d., totalling £75,662."

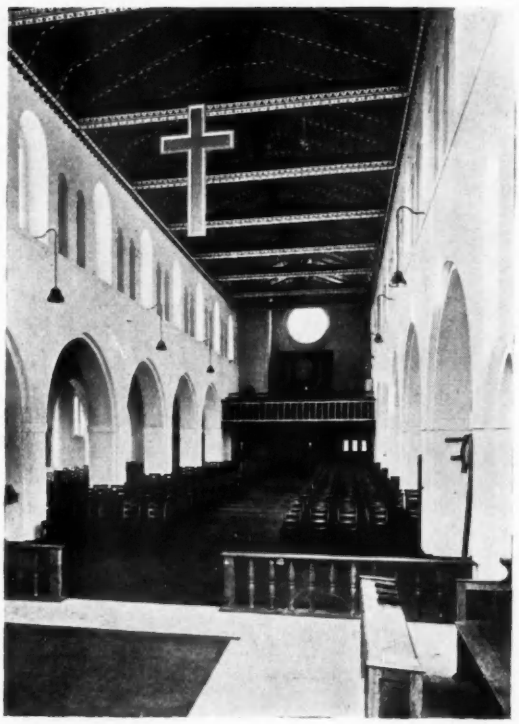
COVENTRY AND WARWICKSHIRE HOSPITAL





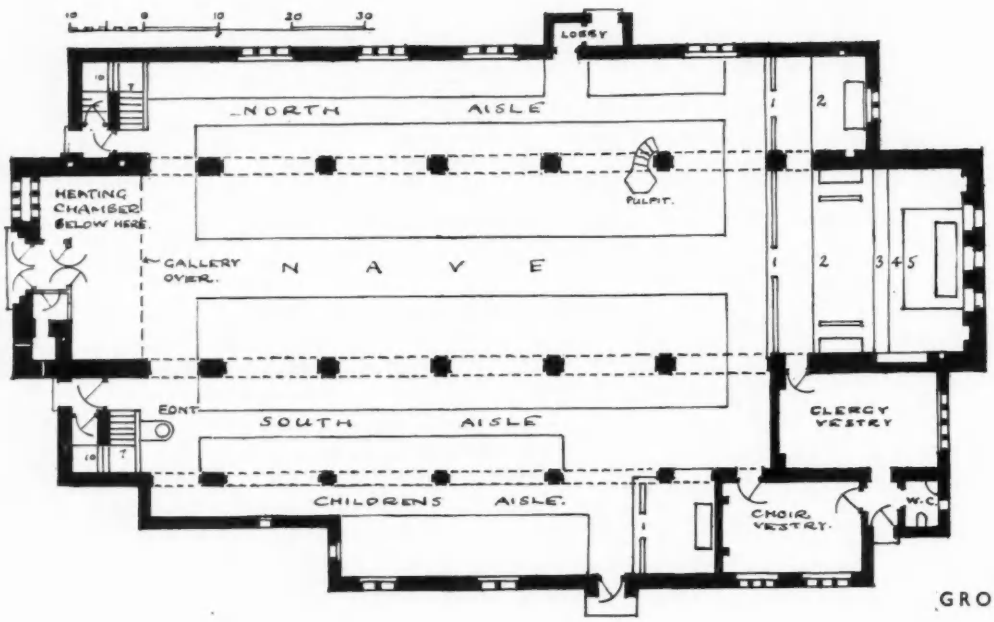
CHURCH OF ST. PETER, ST.





St. Peter's forms a part of the Southwark diocesan church extension scheme, and is situated upon the L.C.C. St. Helier estate at Morden. The church has a seating capacity of 700, and its total cost was £13,000.

The photographs on this page show : above, the east end ; right, a general view of the interior, looking towards the chancel.

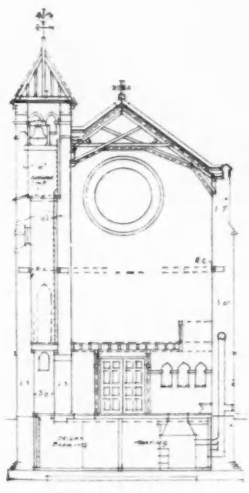


GROUND FLOOR PLAN

HELIER ESTATE, MORDEN, SURREY



A detail of the west entrance. The construction is of brick and timber, the use of stone being restricted to steps, pavings, and the tympanum of the west doorway. The roofs generally are of copper. The internal finish is of white plaster, with ceilings picked out in colour, and the windows are glazed in clear glass. On the left is a cross section through the turret.



CROSS SECTION

DESIGNED BY SIR CHARLES A. NICHOLSON

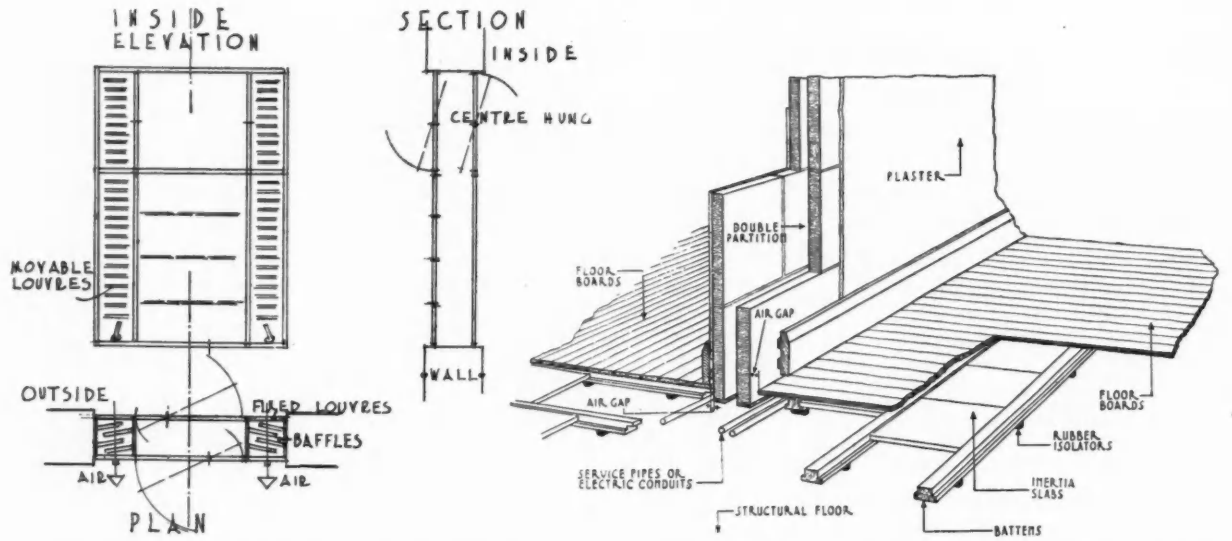
NOISE ABATEMENT EXHIBITION

The Noise Abatement Exhibition, opened by the Prime Minister at the Science Museum, South Kensington, last Friday, is divided into two sections. The larger —at South Kensington—is devoted mainly to the demonstration of various methods of research into the behaviour of sound waves, and to the suppression of noise at its source, though there are, none the less, a number of exhibits which show how noises may be controlled and reduced to a supportable figure. The second part—at the Building Centre—is confined to actual building materials and devices for absorbing or eliminating sound. Both sections of the Exhibition will remain open until the end of this month.

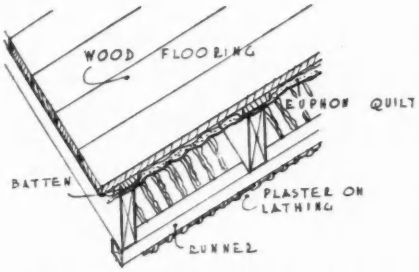
"NOISE nuisance must be tackled first by reducing the source, secondly, by intelligent protective building. Both are equally important. . . In building acoustics there is still much unaccounted for, and the practical designer faced with an individual problem must still fall back frequently on rule-of-thumb experience and empirical results. . . . ." Thus Mr. Bagenal. It is unlikely that the Stentorium, suggested by Lord Horder, a National Noise Park, where "primitive and immature citizens may be let loose to yell to their hearts' content," will provide an adequate solution to the problem, and the gramophone and loudspeaker, designed for the *production* of noise, are unlikely to disappear, even if trains, motor cars and aeroplanes are ultimately made inaudible.

The architect, therefore, will always be faced with the question of noise, and this exhibition, although intended largely for the general public, provides a great deal of useful information. It will be a long time before the decibel and the phon are in sufficiently common use for them to mean anything to the general public ; a client can be trusted to assume that a 30 ft. living-room will be roughly half as long again as his present one of 20 ft., but a sound reduction of 40 db. in a partition conveys less than nothing. This exhibition serves a double purpose ; it not only demonstrates many different methods of reducing sound transmission from one room to another, and of avoiding "bathroom effects" in the room itself, but it gives the architect a "with and without" standard which will enable him to say : "This type of party wall will cost you £*x*, and your neighbour's gramophone will sound like a faint whisper : if you care to spend another £*y* you won't be able to hear it at all."

The largest and most obvious exhibit at South Kensington is the Demonstration House, a two-storey brick structure with normal fire-resisting floors. On the ground floor of this building is an ordinary room constructed with a single-block partition with a skim coat of plaster; a second room has two layers of 4½ in. brickwork with a 2 in. unbridged air gap, insulation, and about ¾ in. of plaster on one side. Between these two rooms is a noise-producing chamber containing a gramophone which is clearly (and offensively) audible in the normal room, whereas in the quiet room it is inaudible. This quiet room also has an interesting soundproof window made up of two friction pivoted casements (shown below), with adjustable baffled ventilating louvres at each side. The door to this room is built on refrigerator type lines, with a rubber rebate and a spring-loaded catch which holds it tightly shut : its sound reducing properties are excellent, but it can only be properly closed by a very hard slam, particularly when the window ventilator is shut. The upper storey of this building is arranged as a single room passing over both ground floor rooms, and contains various noise-producers, such as a piano and a sewing-machine, while, mounted on a pair of electrically operated arms, two gum boots totter engagingly backwards and forwards over a normal and a Cullum floor, the latter mounted on loaded rubber buffers (shown below). The lifelike footsteps thus produced are not only inaudible on the floor below when passing over the Cullum floor, but the



Two details from the demonstration house. On the left is a sound-proof window by Mellowes & Co., made up of two friction-pivoted casements with centre hung top lights above, and with baffled ventilating louvres at each side. On the right is the sound-proof floating floor by H. W. Cullum & Co. ; the rebated battens are supported on rubber isolators and are loaded with inertia slabs.



Euphon glass silk quilt spread across the floor joists and turned up behind skirting boards to a depth of 3 or 4 ins. On top of the quilt, following the run of each joist, is laid a wood strap, 2 ins. by ⅜ in., to facilitate the laying of the floorboards and to give an additional air space. (Chance Bros. & Co.)

noise produced in the room itself is noticeably diminished.

In a brick tower adjoining this building is a silent two-speed push button lift by Messrs. Hammond and Champness. Instead of the usual two-speed squirrel-cage motor a single-speed slipring type is used, variations in speed being produced by an electrical eddy-current brake. The control gear is operated by direct current from a metal rectifier, and all contactors are cushioned where necessary ; the cage gate is specially designed with a bakelite track and rubber buffers, and the guide shoes have non-metallic linings. The whole of the lift gear is mounted on virgin cork on a special foundation.

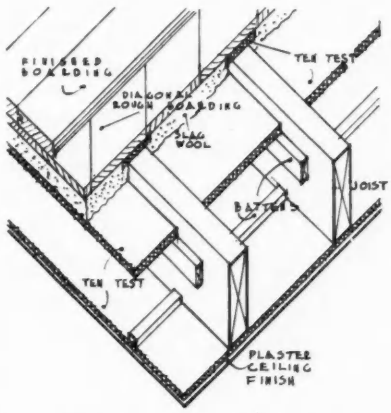
Special materials of all types for insulation and absorption are shown in typical partition and wall sections by Chance Bros., the Tentest Fibre Board Co., Honeywill and Stein, H. W. Cullum & Co., Huntley and Sparks, and others. Various methods of employing these materials are shown in the sketches on this and the following page. A silenced air duct shown by Newalls Insulation Co., is very convincing, the unlined duct giving no perceptible reduction in the sound of a bell at the far end, while through the lagged duct, lined with sound absorbing asbestos felt, the bell is barely audible.

The G.P.O. and the National Physical Laboratory have arranged a large number of exhibits showing standard systems of sound measurement and various other experiments, and there is a simple and most interesting water-ripple tank for investigating the reflections of sound which occur in auditoriums. The building shown corresponds very nearly to the House of Commons, and is a convincing proof that few complaints about the inaudibility of speakers can possibly be exaggerated.

Other exhibits include silenced pneumatic road drills (though this silencing applies only to the exhaust, the noise of the chisel on the concrete remaining as before) and electric motors by the British Thomson-Houston Co., Metropolitan-Vickers and Bull Motors. These last are almost dead silent, a faint whine only being audible when the motor is running up to its rated speed immediately after being switched on.

THE R.I.B.A. EXHIBIT

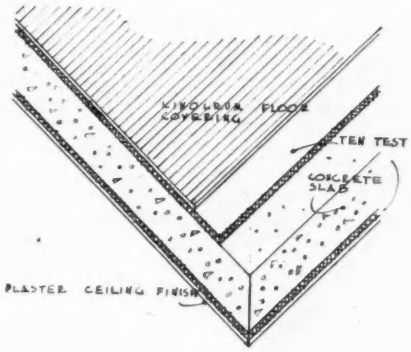
The R.I.B.A., through its Science Standing Committee, is investigating the noise problem in relation to buildings and will ultimately be in a position to make recommendations in regard to planning, construction and equipment. Meanwhile, advantage has been taken of the organization of this exhibition, to exhibit, in simple form, some



A wooden floor which, though departing somewhat from normal methods of construction, allows very little transmission of sound and is, at the same time, economical. (TenTest Fibre Board Co.)

of the preliminary findings of the investigating committee.

In spite of a vast amount of research work by several authorities on various building materials, a comparatively

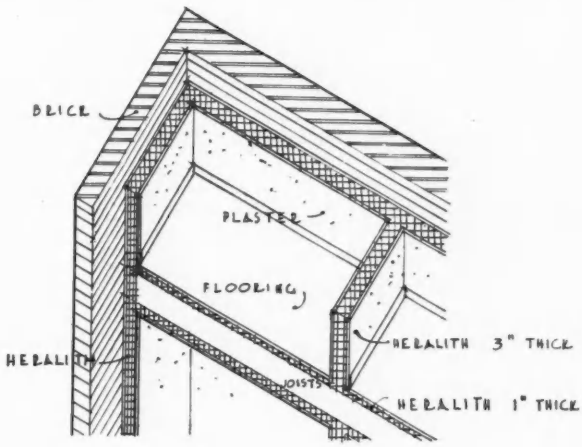


An economical form of concrete floor rendered less transparent o sound by the use of wallboard as a permanent shuttering plastered on the soffit ; another layer of wallboard is used as a cushion under the linoleum floor finish. (TenTest Fibre Board Co.)

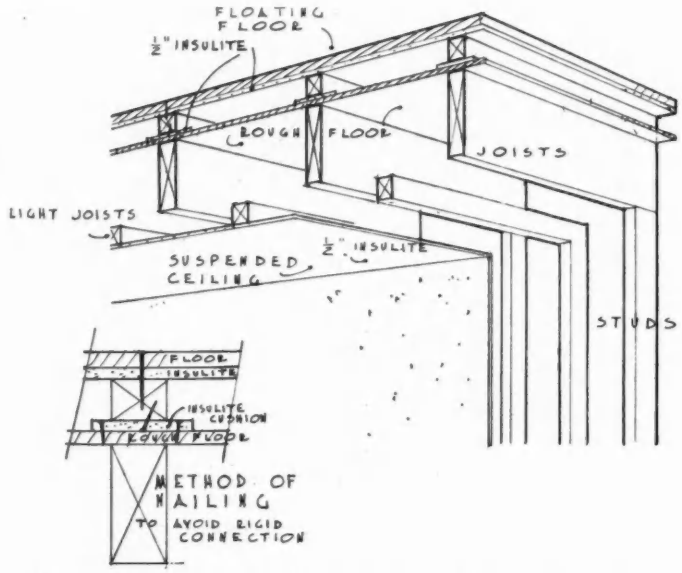
small amount of definite information on the behaviour of buildings themselves in relation to noise is available in practical form. Architects alone should be responsible for the collation of detail findings by the physicist, the engineer, the industrialist, and so on, to arrive at some basic principles which can be applied to buildings as a whole.

The problem of noise in residential buildings especially cannot be ignored. Noise under certain circumstances is a nuisance at Law and to perpetrate a nuisance is to commit a crime, or at the least a civil wrong. The public are beginning to know this ; they are beginning to be noise-conscious and to seek quiet living and sleeping conditions.

It has been found that many noise nuisances which need costly treatment to cure would never have arisen if proper care had been exercised in the initial stages of planning and design. The R.I.B.A. exhibit, therefore, concentrates upon the value of common sense planning to avoid danger from noise, rather than to suggest cures for



Heraklith — a building board which provides a good sound-resisting slab when used in conjunction with other materials and is available in thicknesses of ¾ in. to 4 ins. (W. A. Harding.)



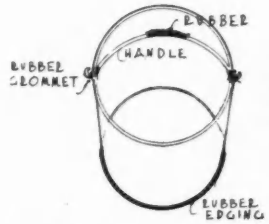
A floating floor above a rough floor ; note particularly the method of nailing, which avoids rigid connection between the upper floor surface and the wood joists, a cushion of Insulite ½-in. building board being provided. In addition, a suspended ceiling of ½-in. board plastered, carried on a separate set of lighter joists, serves to break rigid connection. The whole construction represents a very efficient floor, which gives a sound reduction of 63.5 decibels. (Pharaohs (Wallboards), Ltd.)

existing evils. The plans of flats of widely differing types are exhibited, workmen's flats, "luxury" flats, single-room flats, suburban flats, etc., and good points of planning against noise, which have been tested in actual buildings, are clearly indicated on the diagrams. Some principles of an uncontroverisal character have emerged and these have been tabulated in the form of recommendations to architects. The question of cost has been kept in mind, so that these recommendations have been specially divided under four main headings and refer to (a) workmen's flats, (b) "expensive" flats, (c) semi-detached houses, and (d) large houses.

THE BUILDING CENTRE

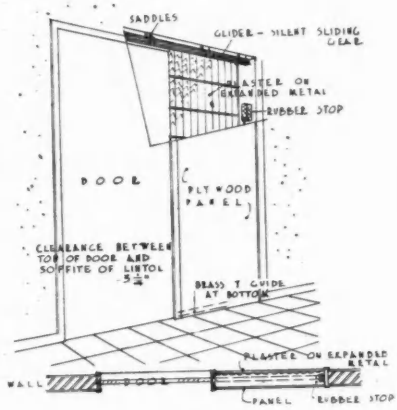
The section of the exhibition arranged at the Building Centre contains a sound-proof office overlooking Bond Street, a useful testing ground. Here there are some double-glazed metal windows by the Crittall Manufacturing Company, with a special lock which wedges them tightly shut. The walls are interlined with felt and are finished with a mixture of cork and paint, sprayed on for sound absorption : the 2 in. flush doors are solid and have a new silent lock recently evolved by James Gibbons, Ltd.

For sound insulation blue bricks from the North Country fields are shown to demonstrate the value of weight per unit area, and the London Brick Co. and Forders have cellular flettons to produce a similar result by means of insulated air spaces. The weight theory is also probably responsible for the exhibition of lead as an insulator, though its surface, texture, and absence of rigidity should make it an efficient absorbent as well : plywood, with a lead sheet face about $\frac{3}{64}$ in. thick, is shown by Venesta, Ltd., and the same firm also has a cork backed ply for reducing sound transmission. An altogether new material called Cellocol is shown by Christiani and Nielsen. This is a cellular organic compound with a gelatinous base, and is sold in slabs, faced with a layer of hessian. Few details are available,

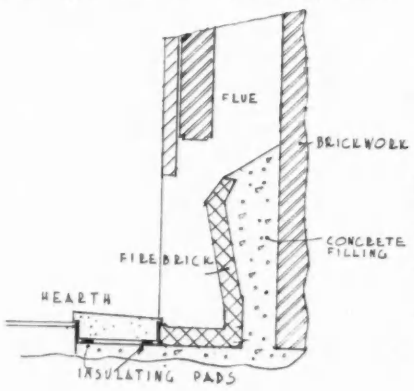


Silenced bucket shown by the Rubber Growers' Association.

but it should be useful where lightness is important. It is stated that this material is used for the wall and floor lining of the Douglas D.C.2 air liner, which did so well in the Mildenhall-Melbourne air race.



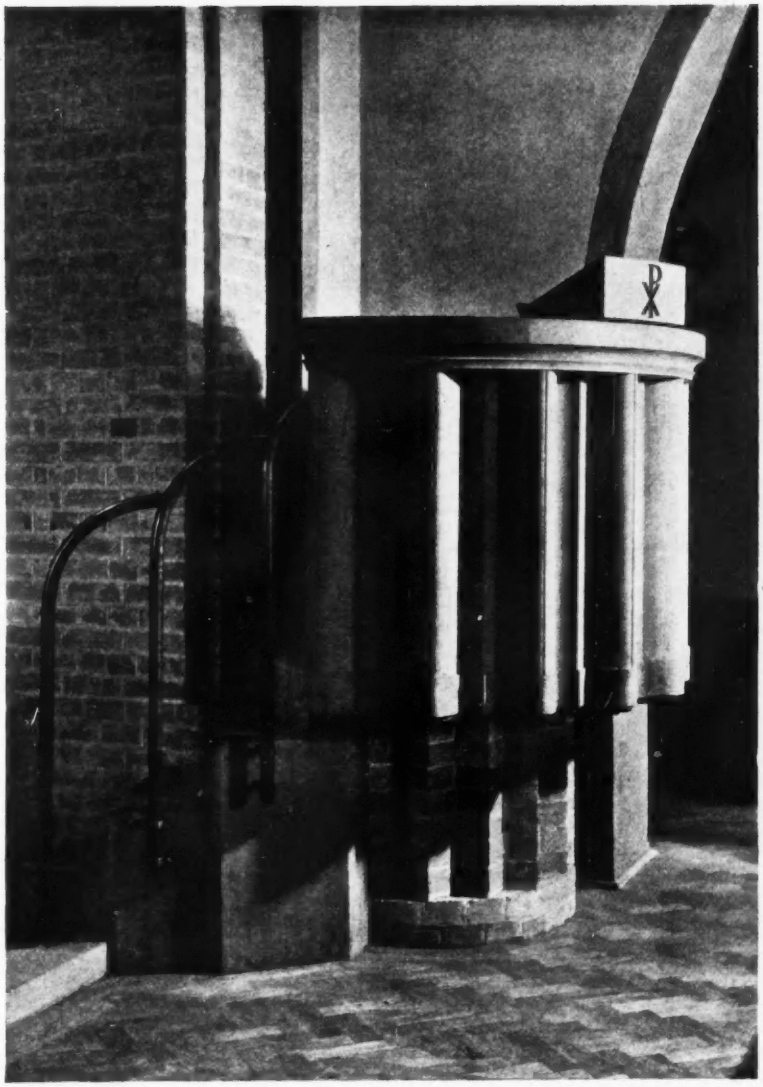
A sliding door arranged in a 4½-in. wall, the fitting is invisible, and an arrangement of brass bottom track with a single fibre shoe (or guide) makes it possible to control the bottom of the door without any obstruction across the door opening. The top track is supported by means of small saddles screwed to the head or lintel. These saddles are slotted to enable the track to be re-levelled if at any time the head warps or drops slightly. The total head room required, including the adjustable saddles, is only 3¼ in. from the top of the door to the soffit of the lintel. The bottom of the door needs only a minimum of clearance over the floor—less than is required by a swing door. The gear employs neither balls nor rollers in its construction, the principle being a glider in a steel tube, lubricated with a little graphite.



An attempt to solve the problem of the noisy hearth : the section shows insulating pads under the hearth, which is sufficiently heavy to compress the pads. Special attention has been paid to heat as well as sound transmission. (Newall's Insulation Co.)

WORKING DETAILS : 271

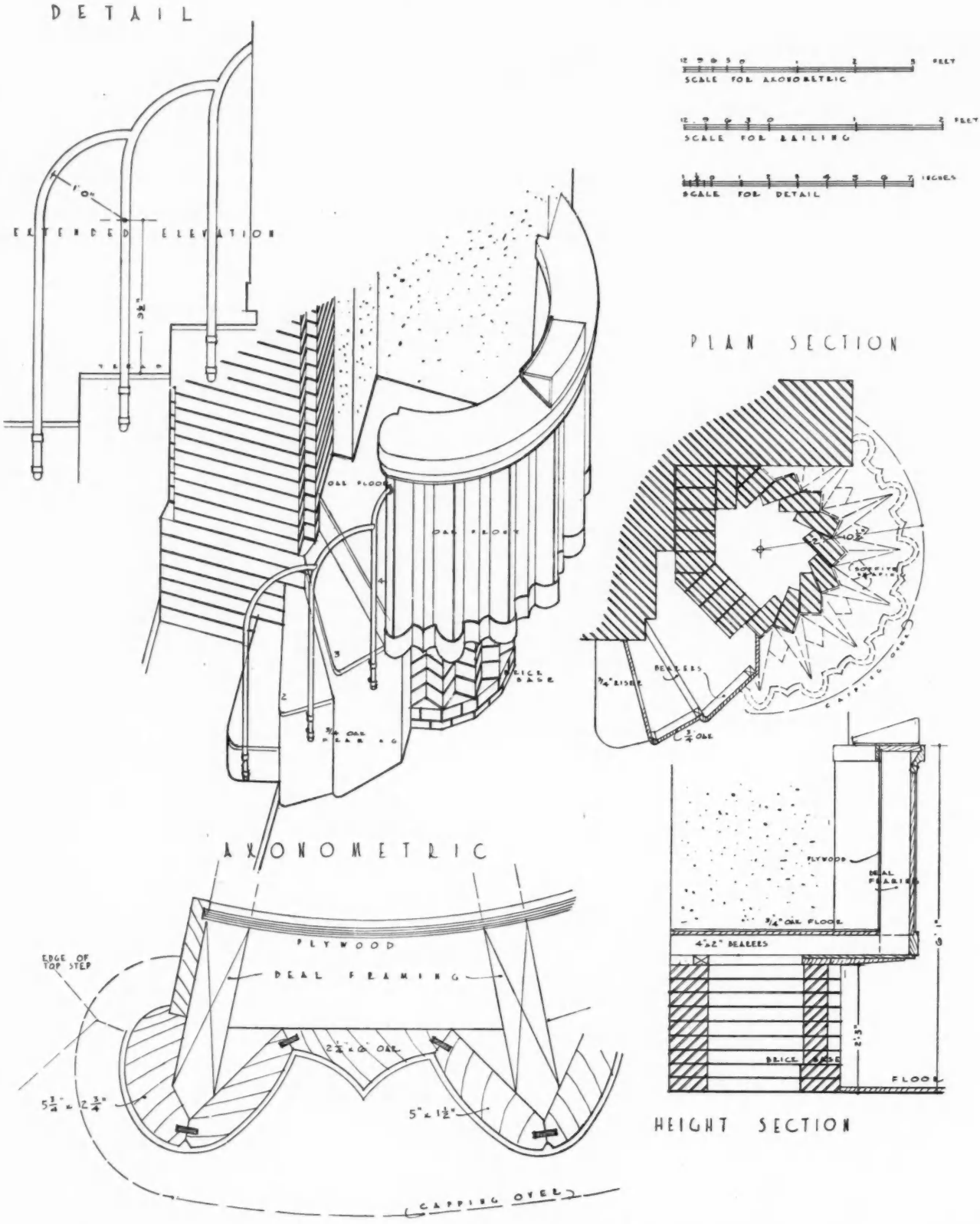
PULPIT • CHURCH OF ST. MARY, BECONTREE • WELCH, CACHEMAILLE-DAY AND LANDER



This pulpit is in oak on deal framing, the floor being of ¾ in. boarding on 4 in. by 2 in. bearers, which are carried on the brick shaft. An axonometric and details are shown overleaf.

WORKING DETAILS : 272

PULPIT • CHURCH OF ST. MARY, BECONTREE • WELCH, CACHEMAILLE-DAY AND LANDER



Details of the pulpit illustrated overleaf.

WORKING DETAILS : 273

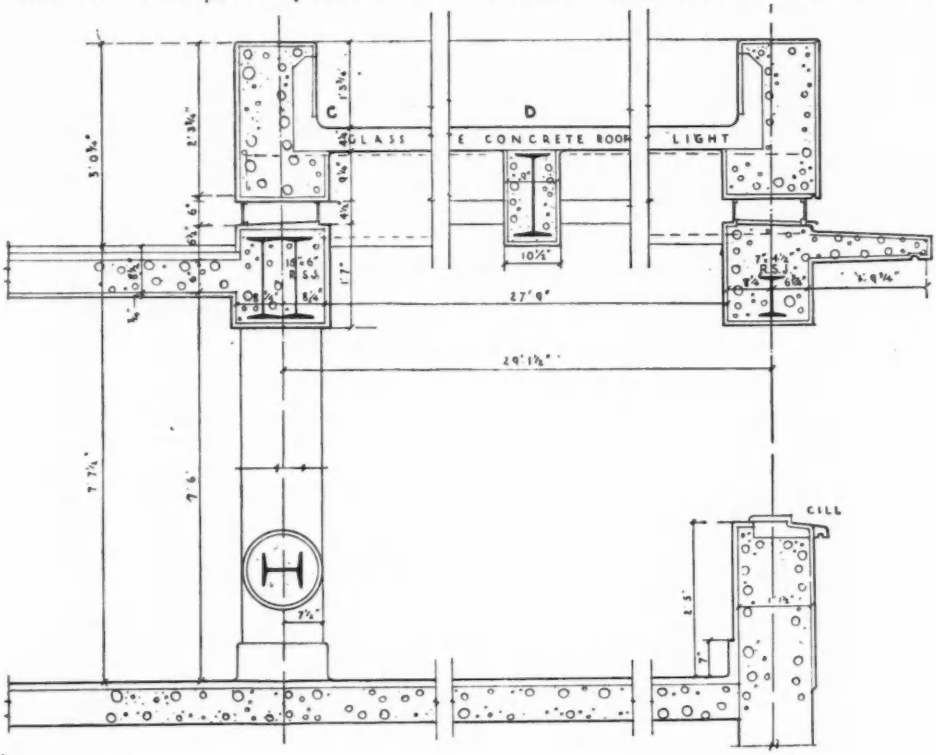
ROOF STRUCTURE • RESTAURANT AT CHEDDAR • RUSSELL PAGE AND G. A. JELLICOE

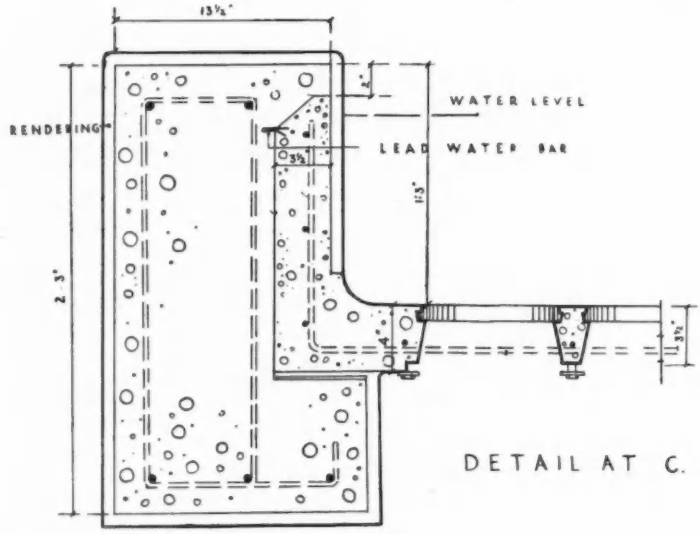


The ceiling of the restaurant illustrated above consists of rectangular glass bricks, above which is a goldfish pool 1 ft. deep. The roof is in seven bays carried on steel stanchions spaced at 9 ft. centres, and there is a mastic joint between each bay to allow for expansion and contraction; the superimposed load produced by the water is not excessive, about 60 lb. per square ft. The original scheme allowed for a double layer of glass to avoid condensation troubles, but the lower layer appears to be unnecessary, and has not been fixed. Overleaf is a key plan and sections.

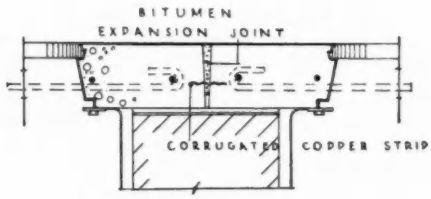
WORKING DETAILS : 274

ROOF STRUCTURE • RESTAURANT AT CHEDDAR • RUSSELL PAGE AND G. A. JELLICOE

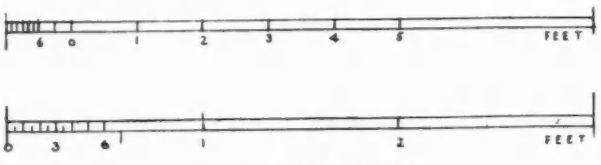




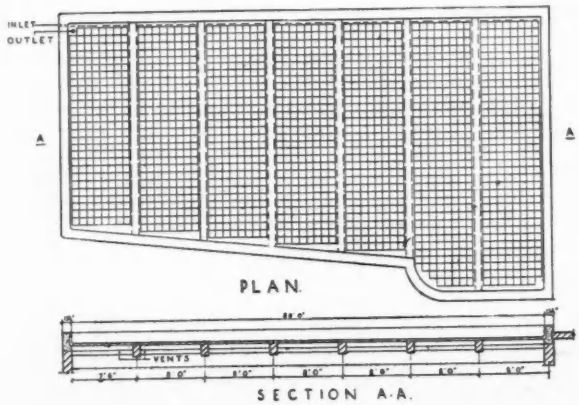
DETAIL AT C.



DETAIL AT D.



FOR DETAILS



PLAN.

SECTION A-A.

Key plan and sections of the roof structure.

ELECTION SUPPLEMENT

The ballot papers for this year's R.I.B.A. elections were issued to members on June 5. The completed papers have to be returned by June 15. As explained in our leading article this week we are attempting to make it easier for members of the Institute to cast their votes on a well-informed basis by giving them some indications of the candidates' positions and antecedents. From details given it ought to be possible to deduce, if not the candidates' usefulness as committee men, at least what they stand for and in what direction they are likely to guide R.I.B.A. policy. It should not be possible any longer for members to excuse their failure to exercise their vote on the grounds that they do not know whom they are voting for. The President is, as is the custom, unopposed on the ballot paper and his election will take place automatically. Similarly the representatives of the Allied Societies. Some notes about the 47 candidates for places on the Council appear on the following pages; also notes on the candidates to fill the vacancies on the four Standing Committees on Art, Literature, Science and Practice.

PRESENT OFFICERS AND MEMBERS OF COUNCIL AND STANDING COMMITTEES

PRESIDENT

Sir Giles Gilbert Scott, R.A.

VICE-PRESIDENTS

W. H. Ansell
John Begg
H. S. Goodhart-Rendel.
Maurice E. Webb.

COUNCIL

Fellows

Prof. Abercrombie.* C. H. Holden.
Prof. S. D. Adshead.* H. V. Lanchester.
H. V. Ashley.* O. P. Milne.
E. C. Bewlay. Prof. C. H. Reilly.*
H. T. Buckland.* Prof. A. E. Richardson.*
Joseph Emberton.*
W. Curtis Green, R.A. H. M. Robertson.
L. S. Sullivan.*
E. Stanley Hall. Sydney Tatchell.*
P. D. Hepworth.* Percy E. Thomas.

Associates

W. N. Adams.* R. N. Mackellar.*
Cyril Fowey.* W. S. Purchon.
E. Maxwell Fry.* M. J. Tapper.
R. G. Lovell. E. Berry Webber.
C. Woodward.*

Licentiates

H. L. Baker.* Maj. F. W. Rees.
Stanley A. Heaps.* F. R. Taylor.*
G. N. Kent. Percy J. Waldram.*

ART STANDING COMMITTEE

A. B. Knapp-Fisher. W. M. Keesey.*
Stanley Hamp.* H. V. Lanchester.*
E. Maxwell Fry. Robert Lowry.
L. H. Bucknell. Raymond McGrath.*
Prof. S. D. Adshead. F. Winton Newman.
R. G. Brocklehurst.* E. B. O'Rorke.
N. F. Cachemaille-Day.* A. S. Soutar.*
T. S. Tait.*
C. F. W. Derring. H. Tomlinson.
Joseph Emberton.* F. E. Towndrow.
C. Lovett Gill.* E. Berry Webber.
C. H. Holden. S. L. Whitehouse.
G. Grey Wornum.*

LITERATURE STANDING COMMITTEE

Martin S. Briggs. F. C. Eden.
Prof. A. E. Richardson.* Theodore Fyfe.
H. S. Goodhart-Rendel.*
Grahame B. Tubbs.* P. D. Hepworth.*
Basil Oliver. W. G. Holford.*
Prof. Abercrombie.* E. R. Jarrett.
Miss J. F. Abram.* G. A. Jellicoe.*
Louis Ambler.* Norman Jewson.*
W. W. Begley. S. D. Kitson.*
S. E. Dykes Bower. A. L. N. Russell.
Prof. L. B. Budden. Miss E. W. Scott.*
Prof. R. B. Butter. J. N. Summerson.

SCIENCE STANDING COMMITTEE

S. Pointon Taylor. Lt.-Col. P. A. Hopkins.
T. E. Scott.
L. W. Thornton White. R. B. Ling.
Alister MacDonald.
F. R. Taylor.* Alan E. Munby.*
R. J. Angel. H. Robertson.
O. P. Bernard. H. D. Searles-Wood.
A. E. Cameron.* J. Swarbrick.*
F. M. Cashmore.* R. Minton Taylor.*
H. M. Fairweather.* Percy J. Waldram.*
J. E. Franck. Thomas Wallis.*
W. A. Harvey.* C. S. White.*
A. J. Hope. R. C. White-Cooper.*

PRACTICE STANDING COMMITTEE

L. S. Sullivan.* B. S. Hume.*
H. S. Fairhurst. Arthur Keen.
C. Woodward. E. B. Kirby.*
G. C. Wilson. Ald. G. A. Lansdown.
H. V. Ashley.*
John Batty.* R. N. Mackellar.
D. H. Beaty-Pownall.* M. W. Matts.*
W. Milburn, Jun.
Louis Blanc. J. MacL. Ross*
H. T. Buckland.* E. W. B. Scott.
W. T. Curtis.* Maj. C. F. Skipper.
Baxter Greig. Percy E. Thomas.
A. B. Hayward.* H. A. Welch.*

* Those members of the Council with asterisks against their names are automatically re-elected for the next session, under bye-law 34.

1935-1936

1: PRESIDENT

Mr. Percy Edward Thomas, O.B.E., of Cardiff, has been nominated as President. As there are no other nominations his election will take place automatically.

2: VICE-PRESIDENT

The seven nominations for Vice-president are: Mr. J. R. Adamson (of Bradshaw Gass and Hope, Bolton), Mr. E. Stanley Hall (of Stanley Hall, Easton and Robertson, London), Mr. Stanley Hamp (of Collcutt and Hamp, London), Mr. Charles Henry Holden (of Adams, Holden and Pearson, London), Mr. Oswald P. Milne, London, Mr. Arthur Hamilton Moberly (of Slater and Moberly, London) and Mr. Ingalton Sanders, of Southampton, nominated by the Allied Societies' Conference under bye-law 28a.

3: COUNCIL

The new Council will consist of those members of the present Council who, under bye-law 34, remain members for another session (these are indicated by an asterisk against their names in the foregoing list of the present Council) and the new members, to be elected. For the vacancies the following 47 names have been nominated.

Fellows, 31:

W. H. Ansell.
Robert Atkinson.
John Begg.
John Bennett.
Martin S. Briggs.
J. C. C. Bruce.
L. H. Bucknell.
H. P. Cart de Lafontaine.
C. Cowles Voysey.
W. T. Curtis.
Louis De Soissons.
J. Murray Easton.

C. Lovett Gill.
H. S. Goodhart-Rendel.
B. R. Gribbon.
T. Cecil Howitt.
E. E. Kemeys-Jenkin.
G. C. Lawrence.
John W. Little.
Francis Lorne.
Edward Maufe.
William Milburn.
G. Val Myer.
Stanley Ramsey.
H. M. Robertson.
J. Alan Slater.
Samuel Taylor.
S. Pointon Taylor.
Maurice E. Webb.
James Grey West.
G. Grey Wornum.

Associates :

P. C. Blow.
W. E. Brooks.
W. A. Daft.
R. A. Duncan.
Norval R. Paxton.
S. Rowland Pierce.
J. D. Scott.
John Summerson.
Basil Ward.
L. W. Thornton White.

Licentiates :

W. W. Begley.
W. A. Jones.
Louis Blanc.
F. W. Rees.
F. C. Wakeford
S. L. Whitehouse.

WHO'S WHO

FELLOWS

Adamson, James R.



PRACTICE : private ; partner in firm of Bradshaw Gass and Hope, Bolton, Lancashire.

EDUCATION : pupil of Sir John Burnet ; Glasgow School of Architecture ; Royral Technical College, Glasgow.

WORKS INCLUDE : municipal, commercial and domestic work carried out by the above firm.

RECORD : president of the Manchester Society of Architects, 1933-34 and 1934-35 ; appointed vice-chairman, R.I.B.A. Allied Societies' Conference for 1935-36 ; also a candidate for the Practice Standing Committee.

Ansell, William Henry

AGE : 63.

PRACTICE : private, in London.

EDUCATION : articled to Naylor and Sale of Derby ; worked in the offices of John Belcher, R.A.; Sir Ambrose Poynter and E. S. Prior.

WORKS INCLUDE : head offices, National Deposit Friendly Society, Queen Square, London ; Church of Humanity, Liverpool ; Butchers' Charitable Institution, Hounslow ; Nurses' Hostel and additions to Hospital, Sevenoaks ; small houses.

RECORD : war service 1915-1919 ; Military Cross ; member of the Council and of the Faculty of Architecture of the British School at Rome ; on the panel of lecturers on architecture for London University ; member of the Art Workers' Guild ; president of the Architectural Association (London), 1928 ; chairman, Board of Architectural Education, 1931-1933 ; chairman, for two years, of the Statutory Board of Architectural Education in connection with the Registration Act ; member, Architects' Unemployment Committee ; just completed two years as vice-president, R.I.B.A.

ATTENDANCE FIGURES : Council, all meetings ; Board of Architectural Education : possible attendances, 4 ; attendances, none.

Briggs, Martin S.

AGE : 53.

PRACTICE : H.M. Inspector, Board of Education, since 1923.

EDUCATION : University of Leeds ; various art schools ; articled to Bedford and Kitson.

WORKS INCLUDE : Keyston Manor ; Surbiton Housing Scheme ; Golderbrook House, Great Tichfield Street ; Otford Vicarage ; the McClure Music School and Winterstoke House, Mill Hill School ; houses at Mill Hill and elsewhere.

RECORD : served in Egypt and Palestine, 1916-1919. Godwin Bursary, 1914 ; formerly Oxford Extension Lecturer ; architect for War Cemeteries in Egypt, 1919 ; lecturer in the School of Architecture, London University, 1919-23 ; chairman, Literature Standing Committee.

PUBLICATIONS : *Baroque Architecture*, 1913 ; *A Short History of the Building Crafts*, 1925 ; *The Architect in History*, 1927 ; *Middlesex, Old and New*, 1935.

ATTENDANCE FIGURES : Schools Committee : possible attendances, 2 ; attendances, 1. Literature Standing Committee : possible attendances, 7 ; attendances, 7.

OPINION : "I cannot believe that a reasonable knowledge of the development of architecture cramps a man's style in modern design any more than a classical education prevents him writing clear, terse, modern English."

From a speech at the R.I.B.A., February, 1935.

Begg, John



AGE : 69.

PRACTICE : private, in Edinburgh.

EDUCATION : articled to H. J. Blanc of Edinburgh ; studied at Royal Academy Schools.

WORKS INCLUDE : Bombay General Post Office ; Poona Agricultural College ; Prince's Dock Custom House, Bombay ; Rangoon Custom House ; the Lady Hardinge Medical College and Hospital, Delhi ; The Stationery Office, Calcutta ; Law Courts, Benares ; and other churches, offices, public buildings, houses, etc., in India.

RECORD : R.I.B.A. Pugin Student, 1890 ; Ashpitel Prizeman, 1891 ; Silver Medallist (Essays), 1894 ; consulting architect to the Government of Bombay, 1901–1908 ; consulting architect to the Government of India, 1918-1921 ; Head of Architectural School, Edinburgh College of Art, 1922 ; president, Royal Corporation of Architects in Scotland, 1932-1934 ; chairman, Allied Societies conference, and vice-president, R.I.B.A., 1933-1935.

ATTENDANCE FIGURES : Council, all meetings ; Board of Architectural Edu-

cation : possible attendances, 4 ; attendances, 1.

Atkinson, Robert

AGE : 52.

PRACTICE : private, in London.

EDUCATION : Nottingham School of Art ; University College, Nottingham.

WORKS INCLUDE : Bath Improvement Scheme ; Regent Theatre, Brighton ; St. Katherine's Church, Hammersmith ; The Picture House, Edinburgh ; Gresham Hotel, Dublin ; domestic work, etc.

RECORD : Tite Prizeman, R.I.B.A., 1904 ; principal, A. A. School of Architecture, 1913 ; director, A.A. School of Architecture, 1920-29 ; member, R.I.B.A. Competitions Committee.

OPINION : "Amongst the contributory causes of that 'architectural inefficiency' which is the subject of so much contemporary discussion, perhaps the greatest is the lack of business organization amongst architects themselves. It is said that an architect loves to call himself an artist, and to cultivate that irresponsibility so dear to a Bohemian—a fly-away artist or a soulless dummy, according to temperament, but seldom or never a person with a grasp of £ s. d. . . . . That these things are true of some architects is scarcely to be denied. Limited liability companies for architects, or something of the sort, are within the bounds of possibility in the near future, and to counteract such tendencies is surely the aim and hope of all true architects."

From an article in the "Journal of the American Institute of Architects," 1920.

Bennett, John

PRACTICE : City Architect, Exeter.

EDUCATION : articled to Telfer Smith, Breconshire ; assistant to Thomas Bower, Nantwich.

WORKS INCLUDE : work in the capacity of chief assistant to Marshall Robinson, Bolton and London ; chief architectural assistant to the Bolton Corporation and (since 1914) City Architect of Exeter.

RECORD : for many years on the Council of the Devon and Cornwall Architectural Society ; president of the Society in 1931-32 ; hon. treasurer since 1933 ; is a governor, as a nominee of the R.I.B.A., of the University College of the South West, Exeter.

Bucknell, L. H.

PRACTICE : private, in London.

EDUCATION : Regent Street Polytechnic ; King's College ; R. A. Schools.

WORKS INCLUDE : offices, extensions, Entertainment Hall and Workmen's Club Buildings for Synthetic Ammonia and Nitrates, Ltd. (I.C.I.) ; Chemical Laboratories for Brunner, Mond and Co. (I.C.I.), Northwick, Cheshire; Agricultural Research Laboratories for Nitram, Ltd. (I.C.I.) ; exhibitions, domestic works, interior decoration, etc.

RECORD : served in France with R.E.'s ; on the staff of the A.A., 1913 to 1925, less war period ; member, this year's A.A. Council.

ATTENDANCE FIGURES : Art Standing Committee : possible attendances, 7 ; attendances, 5. Board of Architectural Education, Examinations Committee : possible attendances, 9 ; attendances, 3.

Bruce, J. C. C.



PRACTICE : private ; partner in firm of Appleton and Bruce, Torquay.

EDUCATION : articled to Messrs. Newcombe and Newcombe, Newcastle-upon-Tyne ; A.A. School of Architecture ; Armstrong College Art Schools, Newcastle-upon-Tyne ; in offices of Messrs. Hope and Tasker and Messrs. Hicks and Charlewood.

WORKS INCLUDE : work at St. Mark's Church, Torwood, Torquay ; and St. Saviour's Church, Dartmouth ; Memorial Hall at St. Marychurch, Torquay ; Memorial Hall for St. Luke's Church, Torquay ; Preparatory Grammar Schools at St. Mary's, Torquay ; printing works and offices, Torquay ; domestic work and alterations and additions to hotels.

RECORD : served in France, 1914-18.

Cart de Lafontaine, H. P.

PRACTICE : private, in London.

WORKS INCLUDE : Empire Memorial Tablets (Westminster Abbey and French and Belgian Cathedrals) for the Imperial War Graves Commission ; Clergy House and Hall, St. Luke's, Victoria Docks, London ; Bargate Improvement Scheme, Southampton ; reconstruction of No. 13 Suffolk Street, S.W.1, for the "Housing Centre" ; domestic work in London and the country.

RECORD : war service : Lt.-Col. ; examiner in Thesis (R.I.B.A. Final) ; A.M.T.P.I.; hon. corresponding member, American Institute of Architects ; S.A.D.G. (France) ; Association des Architectes de Liége (Belgium) ; Sociedad de Arquitectos (Uruguay) ; late chief Inspector of Works, Imperial War Graves Commission, France and Flanders ; surveyor to the Worshipful Company of Gold and Silver Wyre Drawers ; architect to Messrs. Coty (England), Ltd. ; general secretary Franco-British Union of Architects ; hon. secretary Comité Permanent International des Architectes (British Section) ; member, R.I.B.A. Competitions Committee.

Curtis, William Thomas

AGE : 56.

PRACTICE : County Architect, Middlesex County Council.

EDUCATION : Royal Academy Architectural School.

WORKS INCLUDE : official work for Middlesex County Council ; chiefly schools, notably at Harrow, Southgate, etc.

RECORD : hon. sec. Official Architects' Association ; chairman, R.I.B.A. Salaried Members' Committee.

ATTENDANCE FIGURES : Practice Standing Committee : possible attendances, 7 ; attendances, 4.

Cowles-Voysey, Charles



AGE : 46.

PRACTICE : private, in London.

EDUCATION : son of C. F. Annesley Voysey ; University College, London ; articled to Horace Field and Simmonds.

WORKS INCLUDE : White Rock Pavilion, Hastings ; Municipal Offices, Bognor Regis ; Town Hall and Municipal Clinic, Worthing ; Offices for the Corporation of Hastings ; Municipal Offices, High Wycombe—all won in competition ; schools, private houses.

RECORD : Donaldson Medallist, 1908–9 ; Berks, Bucks and Oxon Architecture Medal, 1932 ; Design Examiner, R.I.B.A. Final Examination ; External Examiner, Northern Polytechnic, London, and School of Art, Leicester ; served on Literature, Competitions and Aerodromes Committees, R.I.B.A. ; member of Council of Architectural Association and Committees, 1922–30.

De Soissons, Louis

AGE : 45.

PRACTICE : private, in London.

EDUCATION : articled to J. H. Eastwood ; Royal Academy Schools ; Ecole des Beaux Arts, Paris.

WORKS INCLUDE : estate development at Welwyn Garden City, Churston, Exeter, and Totnes ; tuberculosis dispensary, Stepney ; Earl Haig Memorial Homes at Morden, Sheffield, Penzance, Liverpool, Warrington ; Larkhall Estate, Clapham ; Duchy of Cornwall Estate, Kennington ; flats for St. Marylebone Housing Association ; houses for Weybridge Urban District Council ; Harehills Library, Leeds ; Shredded Wheat Factory, Welwyn Garden City ; Murphy Radio Factory, Welwyn Garden City ; Welwyn Match Factory ; various garages, offices, banks, schools, club houses, etc.

RECORD : S.A.D.G. ; examiner in Design for Inter. and Final Examinations, R.I.B.A. ; member, R.I.B.A. Town Planning and Housing Committee ; member, this year's A.A. Council.

Easton, John Murray



AGE : 46.

PRACTICE : private ; partner in firm of Stanley Hall, Easton and Robertson, London.

EDUCATION : London, University College.

WORKS INCLUDE : (carried out by the firm), Bathing Pool, Pavilion and Hotel at Prestatyn, North Wales ; British Pavilion and Restaurant, Paris Exhibition, 1925 ; New Horticultural Hall, London ; No. 52, Cornhill, London, Bank and Offices ; Queen Charlotte's Hospital, London ; Royal Bank of Canada, Lothbury, London ; Infants' Hospital, Vincent Square, London ; Hospital for Sick Children, Great Ormond Street, London, etc.

RECORD : served in France from September until November, 1914, wounded and invalided out ; Godwin Bursary, 1927 ; R.I.B.A. London Street Façade Medal for the Royal Horticultural Hall, 1928 ; also a Candidate for the Art Standing Committee.

OPINION : " The large buildings of the future will be, as they are at the present time, generally directed by the nominees of large estate agents, who will choose from among good and indifferent and modern and classical architecture, and choose something combining tactfully the better points of all present-day architecture, and they will be nearer to the public taste than we are. I think all we can do at the present day is to work out individually our own salvation."

From a speech at the R.I.B.A., November, 1931.

Gill, Charles Lovett

AGE : 55.

PRACTICE : private, in partnership with Prof. A. E. Richardson, London.

EDUCATION : articled to E. G. Warren, Exeter ; R.A. Schools.

WORKS INCLUDE : farmhouses in Devonshire ; Tor Royal, Princetown, Dartmoor ; Scottish House, Leadenhall Street, London ; London University College, Memorial Hall ; St. Margaret's House, Wells Street, London ; Endsleigh Court (flats) London.

RECORD : Ashpitel Prizeman, 1904 ; past president and hon. treasurer, A.A. ; hon. examiner for the R.I.B.A.

PUBLICATIONS : *London Houses from 1660-1820*, in conjunction with Prof. A. E. Richardson.

ATTENDANCE FIGURES : Art Standing Committee : possible attendances, 7 ; attendances, 3.

OPINION : " Although it may be easier for the architect to design in the so-called Classic or Renaissance styles, whether we like it or not there is an unmistakable demand for new ideas that can only be satisfied with new forms and new thoughts in our architecture, and it must meet the conditions created by science and commerce, conditions that previous architects have not been called upon to meet."

From a book-review in the R.I.B.A. Journal, July, 1930.

Gribbon, B. R.

AGE : 51.

PRACTICE : private : partner in firm of Chorley, Gribbon and Foggitt, Leeds.

EDUCATION : Leeds College of Art ; articled to Chorley, Donnon and Chorley, Leeds ; remained as assistant and became partner.

WORKS INCLUDE : Weetwood Hall Hostel for Women in the University of Leeds ; the Leeds and Holbeck Building Society's offices, Leeds ; Tram Depot, Leeds.

RECORD : past president of the West Yorkshire Society of Architects.

Goodhart-Rendel, H. S.

AGE : 48.

PRACTICE : private ; Slade Professor of Fine Art, Oxford University, since 1933.

EDUCATION : Eton ; Trinity College, Cambridge.

WORKS INCLUDE : Clive Buildings, Calcutta ; St. Mary's Church, Pimlico ; Eton Manor Club, Hackney Wick ; No. 21 High Street, Berkeley Square, London ; Hay's Wharf ; Church at Brighton, etc.

RECORD : president of the A.A., 1924-5 ; has served on Council of R.I.B.A. since 1926, being chairman of the Art Standing Committee, 1927 and 1928, Chairman of Literature Standing Committee, 1931 ; vice-president, 1933 ; authority on architecture of the nineteenth century.

PUBLICATIONS : *Vitruvian Nights*, 1932 ; *Fine Art*, 1934 (Slade Lectures reprinted) : monograph on Nicholas Hawksmoor in the *Masters of Architecture* series.

ATTENDANCE FIGURES : Council : possible attendances, 8 ; attendances, 7. Board of Architectural Education : possible attendances, 4 ; attendances, 1. Literature Standing Committee : possible attendances, 7 ; attendances, none.

OPINION : " I wish that the late William Butterfield could have been with us to-night; I think that the remarks which he would certainly have made . . . might have been very good for us. It would have been very good for Mr. Butterfield to learn how many sorts it takes to make a world, and to hear described as an age of church building a period that to him would seem both frivolous and faithless. It might possibly have been good for us to hear the thunders of ecclesiological judgment on our make-believe asceticism, upon our economical grandeur, upon our catchpenny originality, upon our sentimental trickery, upon the theatrical camouflage by which we try to disguise our essential architectural incapacity."

From a speech at the R.I.B.A., January, 1935.

Hall, Edwin Stanley



AGE : 54.

PRACTICE : private ; partner in firm of Stanley Hall, Easton and Robertson, London.

EDUCATION : A.A. Schools ; articled to Edwin T. Hall.

WORKS INCLUDE : Church at Portsmouth ; additions to Dulwich College Picture Gallery and Ashmolean Museum, Oxford ; completion of Liberty's buildings, Regent Street and Gt. Marlborough Street ; hospital work in England and Wales ; country houses.

RECORD : hon. sec., R.I.B.A. 1925-1928 ; vice-president, 1928-1930 ; chairman of Board of Architectural

Studies, London University; past president, A.A.; consulting architect to Leeds General Infirmary; King Edward Sanatorium, Midhurst; King Edward VII Hospital, Cardiff; etc.
ATTENDANCE FIGURES: Council: possible attendances, 8; attendances 6.

Hamp, Stanley H.



PRACTICE: private; partner in firm of Collcutt and Hamp, London.
EDUCATION: A.A. Schools; articled to T. E. Collcutt, Past President, R.I.B.A.
WORKS INCLUDE: offices for P. and O., Leadenhall Street, E.C.; Thames House, Queen Street, London, E.C.; alterations and additions to the Savoy Hotel, London; alterations and additions to Claridge's Hotel, London; new premises for Messrs. Hamley Bros., Regent Street, London; new premises for Messrs. Fuller, Regent Street, London; work at Mill Hill School, including new science building and Gate of Honour.
RECORD: past president, A.A.; member of R.I.B.A. Town Planning and Housing Committee.
ATTENDANCE FIGURES: Art Standing Committee: possible attendances, 7; attendances, 4.
OPINION: "Until the public say at every new invention that affects the appearance of their buildings, or any object they live with, 'What do our architects say?' we shall not occupy in their minds the place we should; in fact we shall not occupy our proper niche. We can't be everything, but there is one thing we must be, and that is the *creative artist.*

"I do not think it is our job to experiment and find out the strength of materials. . . . In the same way we are not steelwork engineers, neither are we experts in electric lighting and hot-water engineering, nor sanitary engineers. We should all know the principles underlying this work, but to pose as authorities today means, with the time at our disposal, that we are either bad architects and good engineers, or bad engineers and good architects."

From a Presidential Address at the Architectural Association, October, 1922.

Holden, Charles H.

AGE: 60.
PRACTICE: private; partner in firm of Adams, Holden and Pearson.
EDUCATION: articled to E. W. Leeson, Manchester; R.A. Schools.
WORKS INCLUDE: Bristol Central Reference Library; Bristol Royal Infirmary; British Hospital, Constantinople; British Medical Association, Strand; head offices, Underground Railway; Tunbridge Wells General Hospital; King's College for Women; many Underground stations; sole architect for the New London University Buildings.
RECORD: Godwin Bursar, 1913; one of the principal architects, Imperial War Graves Commission; awarded R.I.B.A. London Architectural Medal for Underground Building.
ATTENDANCE FIGURES: Council: possible attendances, 8; attendances, 7. Art Standing Committee: possible attendances, 6; attendances, 3.

Howitt, T. Cecil



AGE: 46.
PRACTICE: private, in Nottingham.
EDUCATION: articled to the late A. N. Bromley, Nottingham; A.A. Schools; foreign travel.
WORKS INCLUDE: Nottingham Town Hall; Birmingham Bank head offices; housing estates, Nottingham.
RECORD: Major; specialized in industrial housing; medallist in architectural design and architectural draughtsmanship.
PUBLICATIONS: book on Nottingham housing, 1919-22.

Kemeys-Jenkin, E. E.

PRACTICE: private, in Exeter.
EDUCATION: commenced training at the College of Technology as an engineer; then studied architecture and practised for a time in Canterbury.
WORKS INCLUDE: grand stand and buildings, County Ground, Exeter; St. Mary's Church, Exmouth; Mission Church, Exeter; Barclays Banks at Babbacombe, Torquay, Barnstaple, Exmouth, and alterations and additions at other branches; Heavitree Arms Hotel, Newton Abbot; private houses in Devon.
RECORD: served in South African War as a Volunteer; served in Great War, Captain, R.E.; vice-president of the Devon and Cornwall Allied Society; member of the Institution of Royal Engineers; life member of the Royal United Service Institution; member of the Monmouthshire and Caerleon Antiquarian Society, and the Devon and Cornwall Record Society.

Lorne, Francis



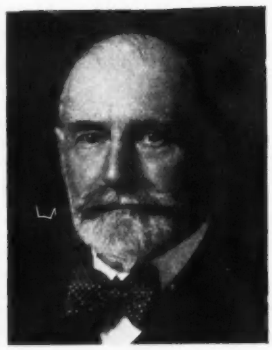
PRACTICE: private; partner in firm of Sir John Burnet, Tait and Lorne, London.
EDUCATION: Glasgow School of Art; Glasgow Technical College; Glasgow University; training and experience in New York and Montreal; with the Bertram Grosvenor Goodhue Associates in New York; member of the American Institute of Architects.
WORKS INCLUDE (mainly responsible for): "Mount Royal" flats, Oxford Street; Curzon Cinema, London; industrial flats in Amherst Road, Hackney; flats in Lowndes Street, London.
RECORD: asked by International Hospital Association to represent Great Britain in a series of post-graduate lectures on Hospital Technique at the Municipal and University Hospital, Frankfort-on-Main; delivered a lecture on "Errors in Hospital Equipment" there in October, 1932; principal architectural representative on the "Council for Research on Housing Construction," which issued the Dudley Report in 1934; member of the present Committee on the "Construction of Flats for the Working Classes."
PUBLICATIONS: responsible for writing and compiling the *Information Book of Sir John Burnet, Tait and Lorne*; Editor of the *Architects' Journal Library of Planned Information.*
OPINION: "During the last quarter of last century and the first quarter of this architecture and building became detached from each other, and we applied false mannered façades to false mannered plans in keeping with the life of the time, and we must now realize that architecture at its best was the perfect solution of the practical building problem of our own age, our own people, climate and mode of life. Their failure to do that was perhaps the principal reason why they (architects) did only about 5% of the building work of their country and accounted for architectural departments being set up by Governments, boroughs and local councils, and large corporations and limited companies, so that some sense

of control might be retained by them over the reasonable solution of that problem.

"The schools and institutes in which we grew up developed within us the book habit of copying traditional work, and it was so deeply implanted into us that in the so-called modern style we copied the work of German, Dutch and Swedish architects, no matter how little their work suited our problem."

From a paper read before the Manchester Society of Architects, February 1935.

Little, John W.



AGE: 69.

PRACTICE: private, at Tonbridge.

EDUCATION: articled to F. W. Hunt, London; University College; A.A. classes; Royal Academy Schools.

WORKS INCLUDE: dwelling-houses; elementary schools; private schools; factories; hospitals; housing estate for a powder factory; lay-outs of building estates.

RECORD: served for 8 years on Tonbridge Urban District Council; past president of the Tonbridge Ratepayers' Association; chairman of the Free Library; chairman, Tonbridge Arts Club; 12 years' hon. sec. and organizer of the Tonbridge Cottage Hospital.

Lawrence, George

PRACTICE: private; partner in firm of Oatley and Lawrence, Bristol.

RECORD: R.W.A.; vice-president, 1928-29; president of the Wessex Society of Architects.

Maufe, Edward B.

AGE: 52.

PRACTICE: private, in London.

EDUCATION: articled to W. A. Pite, London; at the A.A. School.

WORKS INCLUDE: additions to Trinity College, Cambridge and St. John's College, Oxford; houses and gardens; Lloyds Banks at St. Albans, Putney and Cheam; churches: St. Saviour's, Acton; St. Thomas, Hanwell; B.B.C. Chapel; winner of final competition for Guildford Cathedral.

RECORD: served in Salonika Forces; Examiner in Design, R.I.B.A., Cambridge and Liverpool Universities; member of Lloyds.

OPINION: "All are agreed that architecture in mediæval times was alive. But when we thought of churches built during and since the Gothic Revival, we thought of them as museum pieces—not as buildings grown out of their own age. But though this was true of the majority, supremely beautiful examples have been, and were being, produced right up to our own time.

"Today the danger was not of replicas, but of forms built merely in revolt—of stunt architecture, of buildings primarily intended to surprise.

"Of such buildings we would tire in ten years, whereas it would be remembered that Wren had said that architecture should have the attribute of the eternal; especially true in relation to church building."

From the report of a lecture to the Architectural Association, December, 1932.

Milburn, William



PRACTICE: private; partner in firm of W. and T. R. Milburn, Sunderland.

WORKS INCLUDE: Monkwearmouth and Southwick Hospital; the North East Coast Exhibition, 1929; Dominion Theatre, Tottenham Court Road, London; the Bay Hotel, Whitburn.

RECORD: served in France, 1915-1917; president of the Northern Architectural Association, 1933-1935; Saxon Snell Prizeman, 1908; Godwin Bursar, 1910; studied hospital construction in France, Belgium, Germany, Holland, U.S.A. and Canada; also a candidate for the Practice Standing Committee.

PUBLICATIONS: R.I.B.A. hospital reports.

ATTENDANCE FIGURES: Practice Standing Committee: possible attendances, 9; attendances, 2.

OPINION: "Now that Parliament has given statutory recognition to the profession of architecture, I anticipate a considerable increase in the services which we can render to the public. I should like every local authority to be advised on architectural and town-planning matters by a qualified architect and town-planner, and although I know that many will disagree with me, I see no objection whatever to a local authority employing full-time architects and town-planners, providing that they are fully qualified and confine their attention solely to the work of the local authority."

From an inaugural address to the Northern Architectural Association, October, 1933.

Milne, Oswald P.

AGE: 58.

PRACTICE: private, in London.

EDUCATION: articled to Sir Arthur Blomfield and Sons; worked under Sir Edwin Lutyens, R.A.

WORKS INCLUDE: Sprowston Court; Norwich; Huntercombe Place, Oxon; Huntercombe Golf Clubhouse, Oxon; schools at West Lynn, Leighton Buzzard, etc.; Bank of Victoria, King William Street, London; Eleventh Church of Christian Science, London; war memorials at King's Lynn, and for the county of Pembroke; keeper's lodge on the Sandringham Estate; additions to Claridge's Hotel, London; almshouses at Potters Bar, Herts; many country houses.

ATTENDANCE FIGURES: Council: possible attendances, 8; attendances, 6. Board of Architectural Education, Examinations Committee: possible attendances, 9; attendances, 3.

Moberly, A. H.



AGE: 49.

PRACTICE: private; partner in firm of Slater and Moberly, London.

EDUCATION: Winchester; King's College, Cambridge; A.A. School of Architecture; articled to E. J. May; R.A. School.

WORKS INCLUDE: additions to Hockerhill Training College, Bishop's Stortford; premises for Bourne and Hollingsworth, Ltd., Oxford Street, London; premises for John Lewis, Chelsea; houses at Oxford, Cambridge, etc.; Warrington Training College, Liverpool.

RECORD: chairman, Literature Standing Committee, 1925-1927; chairman, Board of Architectural Education, 1934-1935.

ATTENDANCE FIGURES: Board of Architectural Education: possible attendances, 4; attendances, 4. Schools Committee: possible attendances 2; attendances, 1.

Myer, G. Val



AGE : 52.
PRACTICE : private, in partnership with Watson Hart, in London.
EDUCATION : University College ; Westminster School of Art ; articled to John Belcher, R.A.
WORKS INCLUDE : Asia House, Lime Street, E.C. ; White House, Kingly Street, W ; Swanley Men's Club, Kent ; various country houses ; B.B.C., Portland Place, London ; Halifax House, Strand.
RECORD : Lt.-Col. ; Assistant Consulting Architect, P.W.D. Bengal (one year).

Ramsey, Stanley



AGE : 53.
PRACTICE : private ; partner in the firm of Adshead and Ramsey.
EDUCATION : School of Architecture, King's College, London ; articled to Stanley Peach and subsequently became his partner ; in 1911 joined Prof. Adshead.
WORKS INCLUDE : work on the Prince of Wales's estate at Kennington in conjunction with Prof. Adshead ; Dormanstown, Yorkshire ; housing schemes at Newburn, Dover and Totnes ; private houses.
RECORD : Gold Medallist (Architecture), King's College, London ; hon. sec., R.I.B.A. Public Relations Committee.
PUBLICATIONS : *Small Houses of the Late Georgian Period*, with J. D. M. Harvey ; editor of *The Masters of Architecture* series.
OPINION : "One of the things that have spoiled, and are spoiling, England is the thoughtless work of the speculative builder. He is not so unregenerate a person as some would have us believe—I have great hopes of him in the future—but the point about even the best of his work is the deadly dullness of it, chiefly, I think, because his buildings have no regional significance. Everywhere you see the same type of Golders Green villa, in the London suburb, the country town and around our coast—from Land's End to John o' Groats."
From a speech at the R.I.B.A., June, 1930.

Robertson, Howard Morley

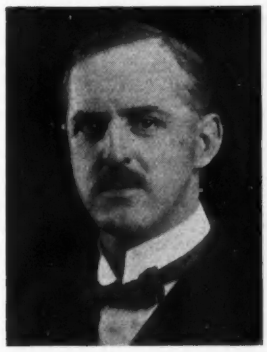


AGE : 47.
PRACTICE : private, partner in firm of Stanley Hall, Easton and Robertson, London.
EDUCATION : A.A. School ; Ecole des Beaux Arts, Paris ; in various offices in London, Boston and New York.
WORKS INCLUDE : British Government Pavilion, Paris Exhibition of Decorative Arts, 1925 ; New Hall for the Royal Horticultural Society ; work at the Savoy, Berkeley and Claridge's Hotels, London ; British Pavilion, Brussels Exhibition, 1935.
RECORD : born, Salt Lake City, State of Utah, U.S.A. ; Principal and Director of Education of the A.A. Schools of Architecture, London, since 1920 ; served in France, 1915–19 (M.C., Legion of Honour, U.S.A. Certificate of Merit, Officier de l'Etoile Noire) ; Godwin Bursar, R.I.B.A., 1933 ; London R.I.B.A. Architecture Medal for the Royal Horticultural Hall, 1928 ; late chairman, Building Industries National Council.
PUBLICATIONS : *Principles of Architectural Composition*, 1924 ; *Architecture Explained*, 1926 ; *Modern French Details* (with F. R. Yerbury), 1928 ; *Modern Architectural Design*, 1932.
ATTENDANCE FIGURES : Council : possible attendances, 8 ; attendances, 6. Board of Architectural Education : possible attendances, 4 ; attendances, 3.
OPINION : "Architectural design is changing so rapidly that committees of control, unless composed of men of a certain education and breadth of knowledge, constitute a real danger to progress ; on the other hand, enthusiasts and fanatics have at times shown a lack of moderation in adventure and a failure to appreciate that in a small country such as this, where neighbourliness is an essential, individual extreme preferences may have to be sunk in the interests of a general, if slower, scheme of progress.
"The full force of the most advanced experiments on the Continent has just recently been felt by some of the younger architects, and there is a tendency to swallow with avidity some of the features of planning and construction which on the Continent are actually in process of being discredited, or at least examined *de novo* with a very searching practical eye.
"One has only to walk through the West End shops at Christmas time to realize how completely taste has orientated itself towards the modern spirit and technique. In glass, china, silverware—in fact, everything for the home and for personal adornment—contemporary design is in the ascendant. But it is rarely design of an extreme or mechanistic type, for of mechanistic symbolism as a design motif the public soon tires ; its chief value lies in being a stimulus, and not a theme."
From an article in "The Builder," January, 1935.

Sanders, Ingalton

PRACTICE : private, at Southampton.
RECORD : past member, R.I.B.A. Council ; nominated vice-president by Allied Societies Conference ; past-president, Hants. and I.O.W. Architectural Association.
OPINION : "Many modern buildings seem to seek grosser minds and strive to impress them by means of exaggeration or excite criticism by their nakedness. . . . Perhaps amongst the greatest of the modern building in London is Broadcasting House ; it is great in its simplicity, and will live by reason of its deep appeal to the intellectual mind. Free from mannerism but instinct with good manners, this building will go down to posterity. But amongst the great buildings of today, I can conceive no higher example than Sir Giles Scott's Cathedral at Liverpool."
From a speech at Winchester, October, 1932.

Slater, John Alan



AGE : 50.
PRACTICE : private ; partner in firm of Slater and Moberly, London.
EDUCATION : Architectural Association School.
WORKS INCLUDE : business premises in West End of London ; houses at Bristol, Burnham, Watford, etc., in partnership with A. H. Moberly.
RECORD : president, Architectural Association, 1926-27 ; chairman, Practice Standing Committee, 1931-33 ; chairman, Public Relations Committee, 1933-35 ; member, R.I.B.A. Council, 1924-25 ; surveyor to the Berners Estate.
ATTENDANCE FIGURES : Board of Archi-

tectural Education; possible attendances, 4; attendances, none.

OPINION: "We have first to educate the public . . . at the present moment the public does get what it wants. Take two examples in the same district: the government house, perhaps designed, or partly designed, by architects; it is simple in plan, and has no frills. Nearby is the average builder's house, with its bay windows and ornaments over the gables. If it is a question of the public choosing between the two, it chooses the ornamental one. If the public is so educated that it chooses the simply designed house in preference to the builder's house we can go a little further on the lines of co-operation with the house builders. But if one kind sells better than the other what is the builder to do?"

From a speech at the R.I.B.A., May, 1932.

Taylor, Samuel

AGE: 62.

PRACTICE: private, at Burnley, Lancs.

EDUCATION: articled to V. Dunkerley, M.S.A.; assistant to W. H. Atkinson, Colne.

WORKS INCLUDE: shop and business premises; industrial buildings, mills and workshops; villas, chapels, schools, clubs, sports pavilions, etc.

RECORD: Valuation Surveyor to Burnley Union Assessment Committee; representative of Local Architects' Society; member of Housing and Town Planning Committee; member of Advisory Committee to Technical College; member of the Burnley Town Council; won sundry prizes and studentships at Local Art School.

Taylor, S. Pointon

PRACTICE: private, Harrow and London.

RECORD: member, R.I.B.A. Council; member, Harrow Advisory Panel; chairman, Science Standing Committee.

ATTENDANCE FIGURES: Science Standing Committee: possible attendances, 7; attendances, 7.

Webb, Maurice Everett



AGE: 55

PRACTICE: private, in London (Sir Aston Webb and partners).

EDUCATION: articled to his father, Sir Aston Webb, P.R.A.

WORKS INCLUDE: numerous works in collaboration with Sir Aston Webb; Pembroke College Hall and Master's Lodge, Cambridge; Kesington, Fulham and Chelsea General Hospital; Bentalls' Store, Kingston, Surrey; Princess Beatrice Hospital, Earl's Court, London; Malvern College War Memorial; Artillery House, Westminster.

RECORD: served Royal Engineers, 1914-19, Salonica, Palestine, etc.; M.C., D.S.O.; president, Architectural Association in 1914 and 1919; chairman, Board of Architectural Education, 1925-27; vice-president, R.I.B.A., 1927-28; representative in the United Kingdom of the Institute of South African Architects and the Royal Australian Institute of Architects; director of the Building Centre; chairman, Architects' Unemployment committee.

ATTENDANCE FIGURES: Council: possible attendances, 8; attendances, 7. Board of Architectural Education: possible attendances, 4; attendances, none.

West, James Grey

AGE: 50.

PRACTICE: Chief Architect, H.M. Office of Works.

EDUCATION: born, educated and articled in Cardiff.

WORKS INCLUDE: The Ministry of Pensions Offices, Acton; The Rose Garden with Pergola, Regent's Park, London; The Mond Picture Gallery, National Gallery; extensions at the National Portrait Gallery; Royal Air Force College, Cranwell, Lincs.; The Royal Courts of Justice, Ulster; Consulate General, Alexandria.

RECORD: for many years in H.M.O.W.; appointed Chief Architect in January, 1934.

Wornum, G. Grey

AGE: 47.

PRACTICE: private, in London.

EDUCATION: Slade School; articled to his uncle, R. Selden Wornum; A.A. evening school.

WORKS INCLUDE: with Louis de Soissons: Haig Memorial Homes at Morden, Liverpool, Sheffield, Warrington and Penzance; with P. D. Hepworth: remodelled and decorated a luxury yacht, *Nyria*; R.I.B.A. Building, London.

RECORD: served in France with the Artists' Rifles and with the Durham Light Infantry; won bronze medal, silver medal and travelling studentship at the A.A.; for a number of years was Reader to Herbert Batsford; past president, A.A.

ATTENDANCE FIGURES: Art Standing Committee: possible attendances, 7; attendances, 1.

OPINION: "Modern architecture is not dependent upon formulæ, but upon fundamental thoughts. This can almost only be achieved by the study of the fundamentals—the classic, not so much in the minor details which have so confused the issue with past generations, but by constant analytical study. . . . As the past had been led away by historical detail, so the modern generation appear to be waylaid by hysterical detail—the all-horizontal, the all-vertical. Keep this modernism as a high goal, but preserve it from ridicule and travesty, for, in its purest form, it is a spiritual thing and can help the world."

From a speech at the R.I.B.A., January, 1934.

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ASSOCIATES

Blow, Percival Cherry



AGE: 62.

PRACTICE: private, in St. Albans.

EDUCATION: articled to the late Charles P. Ayres; worked in the offices of Hassell Tiltman, Stanley Peach and Ernest Runtz.

WORKS INCLUDE: Schools at Dunstable, Abbots Langley, and St. Albans; premises for Barclays Bank; Council Offices for the Hatfield Urban District Council; shops; domestic work.

RECORD: past president of the Essex, Cambridge and Hertfordshire Allied Society of Architects; of which now hon. secretary.

Brooks, W. E.

PRACTICE: Architect's Department, L.C.C.

RECORD: elected associate, 1896; received certificate of competency to act as District Surveyor; member, R.I.B.A. Salaried Members Committee.

Daft, William Austin

AGE: 51.

PRACTICE: private, in Oxford.

EDUCATION: articled to Arthur Marshall, Nottingham.

WORKS INCLUDE: County Offices, Oxford; additions to Middleton Park for the Right Hon. the Earl of Jersey; Brimpton Grange, Oxon; other domestic work.

RECORD: chairman of the Oxford Society of Architects.

Duncan, Ronald Aver



AGE: 46.
PRACTICE: private; partner in firm of Percy Tubbs, Son and Duncan, London.
EDUCATION: articled to Oakley and Lawrence of Bristol; trained in A.A. Schools; assistant to Robert Atkinson, Sir Herbert Baker, A. Marshall Mackenzie and Sons.
WORKS INCLUDE: *Glasgow Herald* Offices, Fleet Street, London; factory and offices for Messrs. May and Baker, Ltd., Battersea; alterations and additions to country houses; a large concrete house, West Heath Close, Hampstead; exhibition and display designing, including the "House of the Future," *Daily Mail* Ideal Home Exhibition, Olympia; furniture and industrial designing generally.
RECORD: 3rd year master and lecturer (1917–22) at the A.A. School; lecturer at the Northern Polytechnic, London (1920–22); R.I.B.A. Essay Medallist; acted as honorary secretary to the R.I.B.A. Exhibition Sub-Committee since 1931; member of the R.I.B.A. Public Relations Committee; active in organizing the new R.I.B.A. Junior Committee.
PUBLICATIONS: *The Architecture of a New Era.*
OPINION: After showing the drastic nature of the change from Classic to Mediæval and the almost equally drastic change from Mediæval to Renaissance, the lecturer dealt with the great change of outlook since the Great War, largely due to the striking nature of scientific and mechanical developments which have taken place. He spoke of the passing of the arts and crafts movement and of changes in architectural technique rendered necessary by the growing use of steel and reinforced concrete and by the steady increase in the height of buildings. He felt that a great measure of standardization was inevitable and he thought it essential that this should not include the use of machine-made ornament. He visualized steady growth of simplicity in architecture, with its main lines increasingly in harmony with the mechanical development of the age. In dealing with certain recent examples of building work normally classed as "functional" he indicated that this was quite the wrong word to use for them as certain of their characteristic features were clearly added for effect.

From the report of a lecture given to the South Wales Institute of Architects and the Institute of Builders (South Wales branch), February, 1935.

Paxton, Norval R.

PRACTICE: private; partner in firm of Paxton and Erskine Hill, Harrogate.
EDUCATION: articled to W. D. McLennan, Paisley (a disciple of the late Charles Mackintosh); also A. Graham Henderson; Glasgow School of Architecture.
RECORD: assistant honorary secretary of the West Yorkshire Society of Architects, 1930; secretary of the Society in 1931.

Pierce, S. Rowland

PRACTICE: private, in partnership with James and Bywaters; for many years on the staff of the A.A. School.
WORKS INCLUDE: work in association with Percy Tubbs, Son and Duncan; now engaged on Norwich Town Hall, won in competition with C. H. James.
RECORD: Rome Scholarship, 1921; A.A. year master; member of this year's A.A. Council.
PUBLICATIONS: co-author of articles under signature, "E. and O. E." in *Architect and Building News.*

Scott, John Douglas

AGE: 69.
PRACTICE: private, in London.
EDUCATION: Architectural Association; classes in conjunction with the Science and Art Department, South Kensington.
WORKS INCLUDE: factories; laundries; town and country houses; inns and hotels.
RECORD: certificate of competency to act as district surveyor; past chairman, Practice Standing Committee, R.I.B.A.; member, London Building Act Committee; hon. secretary, Salaried Members' Committee; member Committee on Scale of Charges.

Summerson, John

AGE: 31.
PRACTICE: assistant editor of the *Architect and Building News.*
EDUCATION: Harrow and University College, London; worked in Sir G. Gilbert Scott's and various other offices.
RECORD: travelled in many parts of Europe; taught architecture at Edinburgh College of Art, 1929-1930; took up journalism 1932; member, MARS Group; also a candidate for the Literature Standing Committee.
PUBLICATIONS: revised edition of S. O. Addy's *Evolution of the English House; Architecture Here and Now* (with Clough Williams-Ellis), 1934; *John Nash, Architect to King George IV*, 1935.

Ward, Basil

AGE: 33.
PRACTICE: private; partner in firm of Connell, Ward and Lucas.
EDUCATION: articled to J. Louis Hay, New Zealand; (follower of Frank Lloyd Wright); one year at British School at Rome.
WORKS INCLUDE: with A. Connell: houses at Grayswood, Hayling Island, Saltdean, Amersham; alterations and additions to house at Sowley; with A. Connell and C. Lucas: houses at Redhill, Ruislip, Bristol, Sutton, Abingdon, Hayes Park, Worcester Park, Frinton Park Estate; slum clearance scheme at St. Pancras; work in progress at present: Preventorium at Highgate, Welfare Centre, Burnham-on-Crouch.
RECORD: worked his passage in company with Amyas Connell from New Zealand to win Henry Jarvis Studentship and Rome Prize, 1926; member, Central Executive Committee, MARS group; protagonist in the "Ruislip Case," 1934; member, Public Relations Committee, R.I.B.A.

White, L. W. Thornton



PRACTICE: private, in London, Yorkshire and Rutland; also A.A. School staff.
WORKS INCLUDE: domestic work, housing and commercial buildings.
RECORD: Ashpitel Prizeman, 1926; Soane Medallist, 1928; R.I.B.A. Henry Jarvis (Rome) Scholar, 1928; hon. sec. to the R.I.B.A. Science Standing Committee; hon. sec. to the R.I.B.A. Informal General Meetings; hon. sec. to the R.I.B.A. Social Committee; lectured on architecture at several schools, and now a member of the A.A. School staff; Gidea Park small house competition: first place for both house and garden in Class D, first place for house in Class C; also a candidate for the Science Standing Committee.
ATTENDANCE FIGURES: Board of Architectural Education, Prizes and Scholarships Committee: possible

attendances, 3 ; attendances, 2. Science Standing Committee : possible attendances, 7 ; attendances, 5.

OPINION : " I do not think that the link between the younger and the older members of the R.I.B.A. can ever have been stronger than it is at the present moment. . . . I hope that opportunities will be given to the younger members to take a more active interest in the advancement of the Institute's educational policy, to keep it as alive as it has always been in the past. With regard to registration, the younger members are inclined to look upon this as a dull affair, but I believe it is extraordinarily important for them to pick up some of the links which have been forged in the registration chain and be in a position within a few years to do their utmost to improve the present Registration Act and carry on the good work of the Institute."

From a speech at the A.A., April 1935.

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LICENTIATES

Begley, W. W.

AGE : 42.
PRACTICE : on architectural staff of the L.C.C. since 1912.
RECORD : member of the Active Committee, London Survey Committee, since 1925 ; member of the R.I.B.A. Literature Committee since 1930 ; member of Committee of Society for the Preservation of Ancient Buildings ; member of Architectural Graphic Records Committee (now representing R.I.B.A., but formerly acting as the first hon. secretary to the Committee) ; Hon. Director of Meetings to the St. Paul's Ecclesiological Society.
ATTENDANCE FIGURES : Literature Standing Committee : possible attendances, 7 ; attendances, 5.

Blanc, Louis

PRACTICE : private, in London.
WORKS INCLUDE : at present engaged on new building for D. H. Evans, Oxford Street.
RECORD : member, R.I.B.A. London Building Act Committee.
ATTENDANCE FIGURES : Practice Standing Committee : possible attendances, 7 ; attendances, 2.

Jones, W. Alban

AGE : 60.
PRACTICE : private ; partner in the firm of W. Alban Jones and John E. Stocks, Leeds.
EDUCATION : articled to the late W. Bakewell ; School of Art, Leeds.
WORKS INCLUDE : Hove Public Library ; Bethnal Green Town Hall ; Kursaal, Douglas, Isle of Man; Fire Office, Leeds ; Baptist Church, Leeds ; houses in Yorkshire.
RECORD : National Silver Medal for Architectural Design at the Royal College of Art in 1892, and again in 1893 ; engaged during the war period in the laboratories of the French chemist, M. Badier, planning and supervizing the erection of special plant and buildings urgently required by the Government for war purposes ; president of the West Yorkshire Society of Architects, 1924-26.

Rees, F. W.

AGE : 42.
PRACTICE : private, in firm of F. W. Rees and Partners, Croydon.
EDUCATION : in South Wales ; articled to T. E. Richards and Stewart Kaye of Pontypridd and Cardiff.
WORKS INCLUDE : new offices and works for the *Croydon Times* ; new offices for the Croydon Branch of the National Deposit Friendly Society ; Covered Market, Croydon ; conversion of No. 8 Carlton House Terrace into flats ; houses in London, Brighton, Hove, Croydon and the South Coast.
RECORD : served throughout the war in Royal Engineers : Major ; member, Croydon Borough Council in 1925, now in 10th year of service ; chairman, Croydon School of Art ; chairman, Croydon Polytechnics ; vice-chairman of the Public Health Committee ; hon. secretary, Croydon Chapter of the South-Eastern Society of Architects, 1928-1933 ; chairman, Croydon Chapter of Architects ; vice-president, South-Eastern Society of Architects for last three years.
ATTENDANCE FIGURES: Council: possible attendances, 8 ; attendances, 6.

Wakeford, Frederick Charles

AGE : 45.
PRACTICE : F. W. Designs, War Office, Whitehall.
EDUCATION : articled to George Baines and Son.
WORKS INCLUDE : several private houses.
RECORD : London County Council (Technical and Parliamentary Branch), 1911-17 ; Ministry of Munitions (Explosives Dept.), 1917-18, Ministry of Health, Whitehall (Housing Department), 1919-22 ; member, Salaried Members Committee, R.I.B.A.

Whitehouse, S. L.

PRACTICE : private, in Birmingham.
RECORD : transferred to R.I.B.A. from Society of Architects, 1926.
ATTENDANCE FIGURES : Art Standing Committee : possible attendances, 7 ; attendances, 4.

4: STANDING COMMITTEES

The four Standing Committees, on Art, Literature, Practice and Science, will consist of those members of the present Committees who retain their places under Bye-law 34 (marked with an asterisk in the list of the present members on page 879) and the new members to be elected. The candidates for the vacancies on the four Standing Committee are as follows :

ART

FELLOWS

Armstrong, Edward



PRACTICE : private, in London.
EDUCATION : at the A.A. School under New Zealand Expeditionary Force Scholarship award ; in the office of Sir John Burnet and partners.
WORKS INCLUDE : McDougall Art Gallery, Christchurch, N.Z. ; All Hallows Hall, Southwark.
RECORD : Henry Jarvis studentship for the British School at Rome ; 1929-32 in private practice abroad (Rangoon and New Zealand).

Bruce, J. C. C.
Bucknell, L. H.
Easton, J. Murray.
Holden, C. H.

(See under Council)

Lowry, Robert

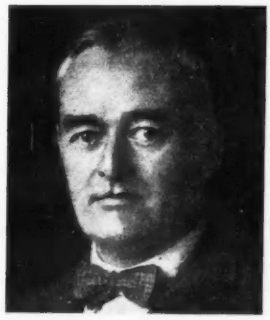
PRACTICE : private, in London ; lecturer and deputy principal of A. A. School of Architecture.
EDUCATION : A.A. School of Architecture ; travelled extensively in Africa, Egypt, Italy, France, Spain, etc.
WORKS INCLUDE : Sadler's Wells Theatre, London ; New Empire, Leicester Square, London ; country houses ; other work in London and provinces, including theatres, flats, etc.

ATTENDANCE FIGURES: Art Standing Committee: possible attendances, 6; attendances, 6.

Newman, F. Winton

AGE: 47.
PRACTICE: private; partner in firm of H. V. Ashley and Winton Newman.
EDUCATION: articled to S. I. Newman; Royal Academy Schools.
WORKS INCLUDE: with H. V. Ashley: Council House and Art Galleries, Birmingham; housing schemes; hospital work; houses; Masonic Peace Memorial
RECORD: Ashpitel Prizeman, 1903; Cates Prizeman, 1905; Silver Medallist, R.A. Schools, 1899; Council, R.I.B.A.; president, A.A., 1929-1930.
ATTENDANCE FIGURES: Board of Architectural Education: possible attendances, 4; attendances, 2. Art Standing Committee: possible attendances, 7; attendances, 3.

Proctor, John C.



PRACTICE: private, in Leeds.
WORKS INCLUDE: in connection with the University of Leeds; Students' Hostels; new wing at the School of Medicine; Institute of Pathology and Cancer Research; Residence for Men, Sheffield; working-class flats for the Leeds Housing Trust.

Pakington, Hon. Humphrey

AGE: 47.
PRACTICE: private, in London.
EDUCATION: A.A. School.
WORKS INCLUDE: domestic work, London and provinces.
RECORD: Holloway Scholarship; Diploma, 1925; A.A. Council; president, A.A.; member, R.I.B.A. Public Relations Committee.
PUBLICATIONS: *Four in Family; The Roving Eye; How the World Builds; English Villages and Hamlets.*
ATTENDANCE FIGURES: Board of Architectural Education; possible attendances, 4; attendances, 1. Prizes and Scholarship Committee: possible attendances, 3; attendances, none.

Reilly, C. H.



AGE: 61.
PRACTICE: until retirement, Professor of Architecture, University of Liverpool.
EDUCATION: in the offices of the late John Belcher, R.A., and Charles Reilly.
WORKS INCLUDE: St. Barnabas' Church, Dalston, London; Students' Union Building, Liverpool; joint architect with Thomas Hastings of the new Devonshire House, Piccadilly.
RECORD: O.B.E.; director for many years of the Liverpool School of Architecture; member of Council, R.I.B.A.
PUBLICATIONS: *Selected Etchings of Piranesi; Some Liverpool Streets and Buildings; Some Manchester Streets and Buildings; Some Architectural Problems of Today;* articles, etc., in the press.
ATTENDANCE FIGURES: Board of Architectural Education: possible attendance, 4; attendances, 1.

Tomlinson, Harold

AGE: 36.
PRACTICE: private, in Cambridge; University Lecturer in Architecture, Cambridge.
EDUCATION: Cambridge University School.
WORKS INCLUDE: work for various Cambridge colleges; Union Society extensions and alterations; New A.D.C Theatre; domestic work in various parts of the country; furniture.
RECORD: M.A. Cantab.; Deck Flying Pilot during war in R.N.A.S. and R.A.F.; joined Cambridge University staff, 1923; president, University Architectural Society, 1926-1930; at present: secretary, Faculty Board of Fine Arts; president, Cambridge Architects' Club
ATTENDANCE FIGURES: Art Standing Committee: possible attendances, 6; attendances, 1. Board of Architectural Education, Schools Committee: possible attendances, 2; attendances, 2.

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ASSOCIATES

Checkley, George

PRACTICE: private, in London; senior lecturer in architecture, Regent Street Polytechnic.
EDUCATION: Liverpool School of Architecture; British School at Rome.
WORKS INCLUDE: modern houses at Cambridge and Frinton-on-Sea.
RECORD: M.A. Cantab.; served with New Zealand Expeditionary Force in France, 1916-19; New Zealand Expeditionary Force Scholar at Liverpool School of Architecture, 1919-22; R.I.B.A. Henry Jarvis Student at British School at Rome, 1923-25; University Demonstrator in Department of Architecture, Faculty of Fine Arts, Cambridge, 1926-33; member, MARS Group.

Daft, W. A.

(See under Council)

Dougill, Wesley

PRACTICE: on the staff of Liverpool School of Architecture.
EDUCATION: Liverpool University; chief assistant to Messrs. Harvey and Wicks, Birmingham; Sir Arnold Thornely and H. J. Rowse, Liverpool.
WORKS INCLUDE: domestic work in Yorkshire, Westmorland and Buckinghamshire; churches, institutes and other buildings in the north.
RECORD: editor of the *Town Planning Review*; Research Fellow in Civic Design; special lecturer in Civic Architecture, Manchester; hon. sec., Liverpool Architectural Society; R.I.B.A. Godwin and Wimperis Bursary, 1935; twice finalist Prix de Rome; second Lever Prize in Architecture; joint holder Holt Scholarship in Architecture; R.I.B.A. Measured Drawings Prize.

O'Rorke, E. B.

PRACTICE: private, in London.
EDUCATION: A.A. School.
WORKS INCLUDE: alterations, additions and interior decoration to houses in London and the country; block of tenement flats at Islington; interior decoration on the new Orient liner, T.S.S. *Orion.*
RECORD: M.A.; Archibald Dawnay Scholar, 1926; Recognized Schools Bronze Medallist, 1926; placed third in the R.I.B.A. New Building Competition and won the A.A. Granite Competition 1933, both with Kenneth Peacock.
ATTENDANCE FIGURES: Art Standing Committee: possible attendances, 7; attendances, 1.

Redwood, R. S.

PRACTICE: private, in Bristol.
RECORD: associate, 1929 (distinction in thesis); secretary, Bristol Society of Architects.

Smith, F. Halliburton

PRACTICE: private, in London.
EDUCATION: A.A. School.
RECORD: associate, 1926; member, R.I.B.A. Social Committee (representing Dramatic Society).

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LICENTIATES

Dean, Humphry

PRACTICE: private; partner in firm of Braddell and Deane.
EDUCATION: articled to J. A. Thompson, London; various offices until 1910.
WORKS INCLUDE: domestic work in London and the country; banks.
RECORD: war service Royal Marines.

Spackman, C. S.



AGE: 48.
PRACTICE: painter-etcher, engraver, sculptor, architect, at Croydon.
EDUCATION: pupil of T. E. Lidiard; King's College, London.
WORKS INCLUDE: several prints in the Print Collection of the British Museum; "The Shepherd and His Flock" at the Arts Institute, Chicago; others at the Art museum, Cleveland and University of Kansas; altar panels in Grosmont Church, Mon., etc.
RECORD: late art editor of *The Parthenon*; exhibited at R.A., R.B.A., R.W.A., Paris Salons, etc.

Whitehouse, S. L.

(See under Council)

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LITERATURE

FELLOWS

Bradshaw, Harold Chalton

AGE: 42.
PRACTICE: private, in London.
EDUCATION: Liverpool School of Architecture; British School at Rome.
WORKS INCLUDE: extension British School, Rome; Guards' Memorial.
RECORD: C.B.E.; Rome Scholar in Architecture, 1913; lecturer at the A.A. School of Architecture; Holt Scholarship, Liverpool University. Secretary, Royal Fine Art Commission.
ATTENDANCE FIGURES: Board of Architectural Education: possible attendances, 4; attendances, 3. Prizes and Scholarships Committee: possible attendances, 3; attendances, 1.

Budden, Lionel B.

AGE: 48.
PRACTICE: Professor of Architecture, University of Liverpool.
EDUCATION: University of Liverpool.
WORKS INCLUDE: new library and chambers, King's College, Cambridge (in collaboration with H. J. Rowse); Cenotaph, Liverpool; veterinary hospital, School of Architecture and Students' Union; University of Liverpool.
RECORD: Liverpool University Travelling Scholar in Architecture, 1909-1910; Holt Travelling Scholar in Architecture, 1909-10; student, British School at Athens, 1909-10; R.I.B.A. essay medallist, 1923; R.I.B.A. examiner.
ATTENDANCE FIGURES: Literature Standing Committee: possible attendances, 7; attendances, 1. Board of Architectural Education: possible attendances, 4; attendances, 4. Schools Committee: possible attendances, 2; attendances, 2.

Butler, Arthur S. G.

AGE: 47.
PRACTICE: private, in London.
EDUCATION: Liverpool University School of Architecture.
WORKS INCLUDE: Chapel for St. David's Home, Ealing; Chapel for the Sisters of Charity, Pinner; country house work.
RECORD: A.A. Travelling Studentships; A.A. Essay Prize.

Butler, Rudolph Maximilan

AGE: 63.
PRACTICE: Professor of Architecture in the National University of Ireland.
EDUCATION: articled to late Walter Glynn Doolin.
WORKS INCLUDE: University College, Dublin; churches in Co. Mayo, Co. Donegal, Belfast, etc.; public libraries, schools, etc.
RECORD: A.R.H.A.; Surveyor and Architect to the Rathdown District Council since 1899; past president and hon. secretary of the Architectural Association of Ireland; Architectural Association of Ireland Essay Prize.
ATTENDANCE FIGURES: Board of Architectural Education: possible attendances, 4; attendances, 1.

Kemeys-Jenkyn, E. E.

(See under Council)

Oliver, Basil

AGE: 53.
PRACTICE: private, in London.
EDUCATION: School of Architecture, Liverpool University; articled to Edward Warren; with Sir A. W. Blomfield and Sons; L.C.C. Central School of Arts and Crafts; A.A. Evening School; R.A. Architectural School.
WORKS INCLUDE: Beach School, Lowestoft; memorials at Blythburgh Church, Suffolk, Hadley, Barnet and at the General Hospital, Tunbridge Wells; country houses; public houses.
RECORD: member of Teaching Staff, Architecture and Building Crafts Section, L.C.C. Central School of Arts and Crafts; member of committee, Art Workers' Guild; Sir T. G. Jackson's Prize for Sketching and Measuring, R.A. School; Silver Medal (Architectural Design), R.A. School; hon. sec., Literature Standing Committee.
PUBLICATIONS: *Old Houses and Village Buildings in E. Anglia*; *The English Inn*.
ATTENDANCE FIGURES: Board of Architectural Education: possible attendance, 4; attendances, 1. Literature Standing Committee: possible attendances, 6; attendances, 6.

Russell, A. L. N.

AGE: 48.
PRACTICE: private; partner in firm of Knapp-Fisher, Powell and Russell, London.
EDUCATION: A.A. School: articled to Forsyth and Maule.
WORKS INCLUDE: (with Messrs. Knapp-Fisher and Powell): housing work at Onslow Garden Village, Guildford; New Romney, Royston, etc.; decoration of mortuary chapel at Kensington Infirmary; memorials at Edgerston and Southdean (Scotland), etc.
ATTENDANCE FIGURES: Literature Standing Committee: possible attendances, 7; attendances, 5.

Strange, C. H.

PRACTICE: private; partner in firm of Strange and Grant, Tunbridge Wells.
RECORD: associate, 1891; fellow, 1920.

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ASSOCIATES

Casson, Hugh

PRACTICE: private, in Cambridge.
EDUCATION: Cambridge University School.

Corfiato, H. O.



AGE : 43.
PRACTICE : private, in London.
EDUCATION : Ecole des Beaux Arts, Paris ; travelled extensively in Europe ; Atelier Daumet-Jaussely.
WORKS INCLUDE : architect to the Greek Cathedral, London, for mosaic, decoration, etc. ; factories ; flats ; interior decoration and furniture.
RECORD : medallist, Ecole des Beaux Arts ; medallist, S.A.D.G. ; reader in architecture at the University of London ; author of various papers on ornamental ironwork, mosaics, etc.
ATTENDANCE FIGURES : Board of Architectural Education, Prizes and Scholarships Committee : possible attendances, 3 ; attendances, 3.

Dykes-Bower, S. E.



AGE : 32.
PRACTICE : private, in London.
EDUCATION : Merton College, Oxford ; A.A. School.
WORKS INCLUDE : Ecclesiastical work for Durham, Gloucester and Truro Cathedrals, and for churches in London and the provinces ; domestic work in country and London.
ATTENDANCE FIGURES : Literature Standing Committee : possible attendances, 7 ; attendances, 5.

Richards, J. M.

AGE : 27.
PRACTICE : on the staff of the *Architectural Review*.
EDUCATION : the A.A. School ; worked in various offices, including those of Sir E. Owen Williams, Vincent Kelly of Dublin and C. Cowles-Voysey ; also in the Dominion of Canada and the United States of America.
WORKS : none.
RECORD : travelled for two years in America and on various occasions in Europe ; on the staff of THE ARCHITECTS' JOURNAL, 1933-1935 ; member, MARS Group.

Summerson, John

(See under Council)

Tatchell, Rodney F.

PRACTICE : private ; member of firm of Tatchell and Wilson, London.
EDUCATION : Bartlett School ; worked in office of W. Curtis Green ; travelled in Germany, Italy and Greece.
RECORD : R.I.B.A. Silver Medal for essay, 1931.

Williams, Llewellyn E.

AGE : 51.
PRACTICE : on permanent staff of H.M. Office of Works ; also private, Merstham, Surrey.
EDUCATION : travelled extensively in Europe.
WORKS INCLUDE : Clock Tower in Queen's Park, Brighton ; various small country houses in Surrey, including alterations and additions to the Old Dower House, Reigate ; restorations of All Saints Church and Merstham Parish Church.
RECORD : Member of Surrey Archæological Society.
PUBLICATIONS : *A History of Amesbury Church (Wilts.) ; The Parish of Merstham* ; also articles, etc., in the technical press.

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PRACTICE

FELLOWS

Adamson, J. R.

(See under Council)

Greig, Baxter

PRACTICE : District Surveyor for Marylebone East.
RECORD : associate, 1902 ; fellow, 1935 ; previously District Surveyor for Deptford.
ATTENDANCE FIGURES : Practice Standing Committee : possible attendances, 6 ; attendances, 1.

Hanton, P. K.

PRACTICE : on the staff of H.M. Office of Works.
RECORD : associate, 1908 ; fellow, 1933 ; member, R.I.B.A. Salaried Members' Committee ; O.B.E.

Keen, Arthur

PRACTICE : private, at Limpsfield, Surrey.
EDUCATION : with R. Norman Shaw.
WORKS INCLUDE : mainly domestic work ; school and church work.
RECORD : past president of the A.A. ; served as hon. secretary to the Board of Architectural Education and the R.I.B.A. ; vice-president, 1925-1927.
ATTENDANCE FIGURES : Practice Standing Committee : possible attendances, 7 ; attendances, 5. Board of Architectural Education, Examinations Committee : possible attendances, 9 ; attendances, 6.

Lansdown, George

PRACTICE : private ; partner in firm of George Lansdown and Brown, London.
RECORD : Alderman ; J.P. ; member, London Building Act Committee.
ATTENDANCE FIGURES : Practice Standing Committee : possible attendances, 6 ; attendances, 6.

Milburn, William

(See under Council)

Ough, Arthur H.

AGE : 72.
PRACTICE : private, at Dawlish, Devon.
EDUCATION : articled to late Henry Ough ; A.A. School ; R.A. Schools.
WORKS INCLUDE : factories, yacht clubs ; houses and flats in the provinces ; work in Hongkong.
RECORD : chairman, Sanitary and Water Committee, Dawlish Urban District Council ; member for Dawlish, Devon County Council.

LICENTIATES

Begley, W. W.

(See under Council)

Cescinsky, Herbert

AGE : 60.
PRACTICE : private, in London.
EDUCATION : trained as a cabinet maker—afterwards as draughtsman and architect.
RECORD : Adviser on English furniture to museums in England and America ; has lectured on furniture and woodwork all over England and U.S.A.
PUBLICATIONS : *English Furniture of the Eighteenth Century ; English Domestic Clocks ; Early English Furniture and Woodwork ; English Furniture ; The Gentle Art of Faking Furniture.*

Scott, E. W. B.



PRACTICE: private; partner in firm of A. F. Scott and Sons, Norwich.
EDUCATION: articled to his father at Norwich; worked in office of A. W. S. Cross; Regent Street Polytechnic.
WORKS INCLUDE: church at Letchworth; industrial buildings at Norwich.
RECORD: hon. secretary, Norfolk and Norwich Association of Architects; head lecturer in Building Construction, Norwich Technical Institute.
ATTENDANCE FIGURES: Practice Standing Committee; possible attendances, 6; attendances, 5.

Shann, Frank Helliwell

AGE: 55.
PRACTICE: chief architect to Lloyds Bank.
EDUCATION: articled to William Edwards, Wolverhampton; worked in office of F. W. Walker and Son, the Diocesan Surveyor of Gloucester.
WORKS INCLUDE: large number of Lloyds Banks.

Skipper, Charles F.

PRACTICE: private, in Cambridge.
RECORD: war service: Major; fellow, 1925 (transferred from Society of Architects); past member, R.I.B.A. Council.
ATTENDANCE FIGURES: Practice Standing Committee: possible attendances, 7; attendances, 7.

Soutar, Charles G.

AGE: 57.
PRACTICE: private; in the firm of Maclaren, Soutar and Salmond, Dundee.
RECORD: F.S.A.(Scot.); past member, R.I.B.A. Council.
ATTENDANCE FIGURES: Art Standing Committee: possible attendances, 7; attendances, 3.

Syme, John Stuart

PRACTICE: private; partner in firm of Brierley, Rutherford and Syme, York.
EDUCATION: articled to the late Sir R. Rowland Anderson, Edinburgh.
WORKS INCLUDE: bank premises; race stands at Lingfield, Newmarket, York, etc.; housing scheme at Hull.
RECORD: president of the York and East Yorkshire Architectural Society, 1927-29; closely concerned with the arrangements for the R.I.B.A. Annual Conference in York, 1929.

Watson, William Ernest

AGE: 55.
PRACTICE: private, in London; also Barrister-at-Law.
EDUCATION: Royal Technical College, Glasgow; School of Art, Glasgow.
RECORD: Hon. Standing Counsel to Inst. of Arbitrators; M.T.P.I.; certificate of competency to act as District Surveyor.

Wilson, Geoffrey C.

PRACTICE: private; partner in firm of Tatchell and Wilson.
EDUCATION: A.A. Day Schools; articled to E. Guy Dawber; assistant in H.M. Office of Works.
WORKS INCLUDE: various banks for Barclays Bank, Ltd.; private houses; flats; the Surveyors' Institution; the National Library for the Blind; War Memorial Buildings, Eastbourne College.
RECORD: war service, 1914-19, Royal Artillery; architect to the Council of Eastbourne College; was hon. secretary Entertainments Sub-Committee, R.I.B.A. Centenary Celebration Conference; captain of the Surrey County Rugby Football XV.
ATTENDANCE FIGURES: Practice Standing Committee: possible attendances, 6; attendances, 5.

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ASSOCIATES

Apps, L. Mason

PRACTICE: private, in Maidstone.
RECORD: H. M. Office of Works; elected A.M.T.P.I., 1930; served on advisory panels for Hastings, Battle and Rye districts; member, Maidstone District Education Committee.

Braddock, Henry

PRACTICE: London.
EDUCATION: A. A. School.
RECORD: A.A. Diploma; associate, 1926.

Brinton, William Ralph

PRACTICE: private, in London; under contract to Fox British Pictures, Ltd., designing film sets.
EDUCATION: A.A. School of Architecture; worked in the office of H. S. Goodhart-Rendel.
WORKS INCLUDE: domestic work; various alteration and decorative work.
RECORD: the Royal Navy (left, 1921); A.A. Diploma; R.I.B.A. Howard Colls Student, 1923; R.I.B.A. Archibald Dawnay Scholar, 1925; R.I.B.A. Recognized Schools Silver Medallist, 1927; for a time on the staff of the Northern Polytechnic.

Fairhurst, Philip G.

PRACTICE: private; in the firm of H. S. Fairhurst, Manchester.
EDUCATION: University of Manchester.
RECORD: M.A. (Arch.) Manchester.

Scott, J. D.

(See under Council)

Woodward, Charles

PRACTICE: private; in the firm of William Woodward and Sons, London.
ATTENDANCE FIGURES: Council: possible attendances, 8; attendances, 7; Practice Standing Committee; possible attendances, 7; attendances, 7.

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LICENTIATE

Rees, F. W.

(See under Council)

SCIENCE

FELLOWS

Angel, Robert John

PRACTICE: private, in London.
RECORD: Grissell Gold Medallist, 1891; M.Inst.C.E.
ATTENDANCE FIGURES: Science Standing Committee: possible attendances, 6; attendances, 5.

Bain, Victor

PRACTICE: private; partner in the firm of Bain and Johnson, Leeds.
EDUCATION: articled to the late G. T. Brown, Sunderland; University College, London; assistant to the late Leonard Stokes.
WORKS INCLUDE: schools and factories at Leeds; domestic work; shops.
RECORD: war service; vice-president of the West Yorkshire Society of Architects for four years.

Barnes, Alfred H.

PRACTICE: private, at Croydon.
EDUCATION: articled to the late Col. C. W. Bevis, Southsea.
WORKS INCLUDE: domestic work; also consultative work concerning the properties of materials, economic methods of construction, fire prevention, etc.

Benslyn, William Thomas

AGE : 50.
PRACTICE : private, in Birmingham and London.
EDUCATION : Birmingham School of Art ; Royal College of Art.
WORKS INCLUDE : houses ; war memorials.
RECORD : A.R.C.A. ; Godwin Bursar, 1923 ; president, Birmingham and Five Counties Architectural Association.

Bluhm, Quentin Mangnall

AGE : 53.
PRACTICE : private, at Southport, Lancs.
EDUCATION : articled to Edward Hewitt, F.R.I.B.A., Manchester ; Manchester School of Architecture.
WORKS INCLUDE : domestic work, mostly in Lancashire.
RECORD : war service ; D.S.O.

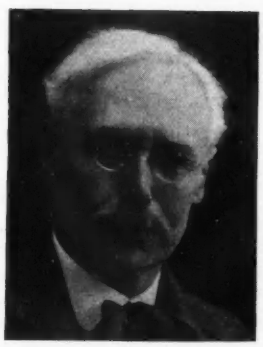
Burnett, Percy Vivian

PRACTICE : private, in London.
EDUCATION : articled to Sir Banister Fletcher ; A.A. School.
WORKS INCLUDE : general domestic practice.
RECORD : associate, 1921 ; fellow, 1930.

Cooksey, Reginald Arthur

PRACTICE : private ; partner in firm of Arthur W. Cooksey and Partners, London.
WORKS INCLUDE : Monico Restaurant, Piccadilly.
RECORD : Major, R.E. ; associate, 1921 ; fellow, 1933.

Crompton, W. E. Vernon



AGE : 68.
PRACTICE : private, in Southport.
EDUCATION : articled pupil in Derby and Liverpool.
WORKS INCLUDE : Work at Covent Garden market ; banks ; domestic work ; war memorials.
RECORD : chairman, Science Standing Committee, 1923-1925 ; member of the Building Research Board, Department of Scientific and Industrial Research, 1925 ; has been a member of the Board of Examiners of the R.I.B.A. since 1911 ; member of the Art Workers Guild.

Franck, James Ernest

PRACTICE : private, in London.
RECORD : past member of R.I.B.A. Council ; associate 1900 ; fellow, 1919.
ATTENDANCE FIGURES : Science Standing Committee : possible attendances, 7 ; attendances, 6.

Hopkins, Percy Alfred

PRACTICE : private, Gerrards Cross.
RECORD : Lieut.-Col. ; O.B.E. ; fellow, 1930 ; hon. treasurer, R.I.B.A. ; has served on R.I.B.A. Council ; chairman, Finance and House Committee ; hon. treasurer, Architects Unemployment Committee.
ATTENDANCE FIGURES : R.I.B.A. Council : possible attendances, 8 ; attendances, 6. Science Standing Committee : possible attendances, 7 ; attendances, 4.

Ling, Richard Bertram

AGE : 51.
PRACTICE : District Surveyor to Camberwell North.
EDUCATION : R.A. Schools.
WORKS INCLUDE : shops, factories, and houses in London.

Robertson, H. M.

(See under Council)

Scott, Thomas Edward

AGE : 40.
PRACTICE : head of Department of Architecture, Surveying and Building at the Northern Polytechnic, London.
EDUCATION : articled to the late John T. Lee.
WORKS INCLUDE : Ex-Service Men's Club, Camberwell ; domestic work.
RECORD : joined staff of Northern Polytechnic, 1920—appointed Head of Department of Architecture, Surveying and Building in 1927 ; on Salaried Members' Committee, R.I.B.A.
ATTENDANCE FIGURES : Board of Architectural Education, Examinations Committee ; possible attendances, 9 ; attendances, 6.

Searles-Wood, Herbert Duncan

AGE : 82.
PRACTICE : private, at Epsom, Surrey
EDUCATION : King's College ; Royal Academy Schools.
WORKS INCLUDE : Epsom Infirmary and Workhouse ; St. Paul's Church, Forest Hill.
RECORD : president of the Architectural Association, 1888-89 ; president of the Institute of Arbitrators, 1918 ; president of the Concrete Institute, 1918 ; vice-president of the R.I.B.A. 1921-23 ; chairman of the Statutory Board of Examiners, R.I.B.A. ; chairman, Timber Committee of Imperial Institute ; chairman, Advisory Committee of the London County Council School of Building.

Solomon, Digby Lewis

AGE : 51.
PRACTICE : private ; partner in firm of Lewis Solomon and Son, London and Bishop's Stortford.
EDUCATION : articled to his father ; evening classes at A.A.
WORKS INCLUDE : Maison Lyons, Oxford Street ; Swedenborg House, Hart Street, Bloomsbury ; synagogue, Golders Green ; factories, shops, etc.
RECORD : B.Sc. Lond. ; member of Royal Commission on Fire Brigades and Fire Prevention, 1921-23 ; past member of Board of Examiners, R.I.B.A.

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ASSOCIATES

Box, Charles Wilfred

PRACTICE : private, in London.
RECORD : associate, 1914.

Clarke, Edmund B.



PRACTICE : private, at Purley.
EDUCATION : articled to James Perry Sharp & Co. ; Birmingham School of Architecture ; worked in the offices of John Douglas, F.S.H., Alfred Waterhouse, R.A. and Sir William Emmerson.
WORKS INCLUDE : garages ; domestic work ; buildings in South America.

Goodesmith, Walter

AGE : 32.
PRACTICE : private ; in partnership with Raymond McGrath.
EDUCATION : Sydney (New South Wales) Technical College ; offices in Sydney, including Dorman Long (Sydney Harbour Bridge) ; London University.
WORKS INCLUDE : Studios at B.B.C. (with Raymond McGrath) ; all-electric house, C.I.D. Exhibition, 1934.
RECORD : Institute of Structural

Engineers' Travelling Scholarship, 1932; editing paper, "Rehousing the People," for the International Housing and Town Planning Congress, to be held at the R.I.B.A. in July; member, MARS Group.

Jackman, F. L.

AGE: 31.
PRACTICE: private; partner in firm of Howes and Jackman, London.
EDUCATION: articled to Gordon Allen; subsequently with Maxwell Ayrton.
WORKS INCLUDE: Regal Cinema, Higham's Park, E.4; as Staff Architect to Battersea Borough Council designed about 400 working-class flats.

MacDonald, Alister G.

PRACTICE: private, in London.
WORKS INCLUDE: news theatres at Waterloo and Victoria, work at Wroxham Parish Church.
RECORD: Donaldson Medallist, 1920-1921; associate, 1926.
ATTENDANCE FIGURES: Science Standing Committee: possible attendances, 7; attendances, 4.

Smith, Lionel Souden

PRACTICE: private, in London.
RECORD: associate, 1934.

Snailum, Terence

PRACTICE: private, at Trowbridge.
EDUCATION: A.A. School.
RECORD: A.A. Diploma; R.I.B.A. Alfred Bossom Silver Medallist, 1929; recently on the staff of the A.A.

White, L. W. Thornton

(See under Council)

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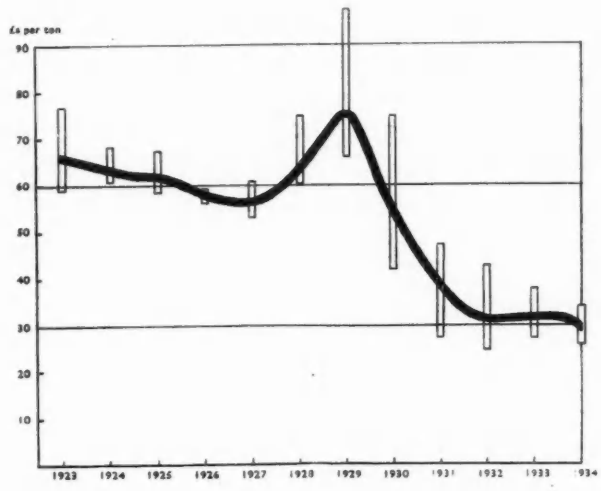
LICENTIATES

Bernard, Oliver P.

AGE: 54.
PRACTICE: private, in London; consultant architect to J. Lyons, etc.
EDUCATION: 8 years in U.S.A.
WORKS INCLUDE: work at British Empire Exhibition, 1924; Oxford Corner House—mural decoration, etc.; reconstructed decoration of Strand Palace Hotel; Cumberland Hotel.
RECORD: on board the "Lusitania" when torpedoed; Royal Engineers, 1916-1919; member of Council of the Institute of Registered Architects.
ATTENDANCE FIGURES: Science Standing Committee: possible attendances, 7; attendances, 3.

Kent, George Nathaniel

PRACTICE: private, at Plaistow.
RECORD: F.S.I.; member of present Council.
ATTENDANCE FIGURES: Council: possible attendances, 8; attendances, 2.



TRADE NOTES

[BY F. R. S. YORKE, A.R.I.B.A.]

Copper

A BOOKLET (No. 9) issued this month by the Copper Development Association gives general information concerning the use of copper for

roofing
window cills and drips
rainwater gutters and pipes
damp proof coursing
wall sheathing.

Normal copper roofing of the traditional type is laid with 24 s.w.g. metal, 0·022 in. thick, weighing 16 oz. per square foot. The more recently developed light-gauge copper roofing, introduced into this country from the U.S.A. and the Continent, is laid with long strips of metal as thin as 45 s.w.g. weighing only 2 oz. per square ft.

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A plastic undercoating—that supplements or replaces the felt or paper undercoating used with the heavier sheet—reduces the danger of puncturing the thin membrane. Some types of copper strip are supplied ready-backed with impregnated fabric.

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The text of the booklet suggests that the light-gauge system is not to be advocated for flat, or nearly flat, roofs designed to take traffic; but is useful for small houses, garages and structures, and for vertical wall sheathing.

Paint for Concrete

On April 18 a request was made under the heading Trade Notes for information concerning paint, etc., for application on green concrete. I have received information from Cementone, Stic B. and Unistuc. Cementone and Stic B. I have already described in these Notes. Unistuc, described as "liquid stone" and "plastic stone treatment" is said to be weatherproof, washable and permanent. The United Paint Company issue typical specifications for the application of the material on various types of surface.

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The principal ingredient of the material



Light gauge copper roofing. The diagram at the head of these notes shows the average yearly price and price range of standard copper in London 1923-1934.

is actual stone, and a surface to which it has been applied with a light stipple has a stone-like granular surface. It is supplied in several pleasant standard colours.

•

Before it is applied the surface must be properly cleaned down. Then one coat of Unistuc primer is brushed or sprayed and left for 24 hours to set and dry. Unistuc liquid stone is brushed on with a 4 in. or 5 in. flat brush (not a distemper brush), and stippled to required texture.

•

New concrete or cement should be allowed to dry out for at least two or three weeks before Unistuc is applied.

•

The cost for one coat each of primer and liquid stone with plain stipple finish should be about 2s. to 2s. 6d. per yard super. The material is, I understand, now being applied to reinforced concrete balconies, etc., of the block of flats at Richmond, known as Lichfield Court, designed by Bertram Carter and Sloot.

Grip Handles

I am asked to announce that the handles designed by Wells Coates, and described in Trade Notes in THE ARCHITECTS' JOURNAL for February 21, are made by Messrs. Taylor, Pearse and Company, of King's Cross, who have been granted sole manufacturing rights.

IN THAT CONTINGENCY

The following enquiry was recently dealt with by the Building Research Station:

Defective Damp-proof Course

¶ *An urban district council asked for advice on the staining of Portland stone in a public library building.*

Examination of the building showed that the staining was immediately above the damp-course, and consisted of bands of brownish discoloration and salt growths extending upwards for 1 or 2 ft. The building was of brick with stone facings and a deep plinth and the effect produced was most unsightly.

The damp-course was in asphalt mastic about 1 in. thick, and was about 1 ft. above ground level. In order to hide the dark line of the damp-proof course running across the plinth, the mastic had been recessed about 1 in., the cavity had been flushed up with a soft porous mortar, and pointed in a very strong mortar. The effect was the reverse of that intended, for the porous mortar provided a capillary path for moisture carrying soil and other salts in solution, so producing efflorescence and discoloration. Furthermore, slight settlement had squeezed out of the mastic, which, in turn, had cracked and loosened, or completely pushed out the pointing, so that the damp-proof course itself had become all too conspicuous.

It would seem impossible, without very great expense, to reproduce the effect of a masked damp-proof course, and it was therefore suggested that the pointing should be raked out and the cavity stopped with asphalt mastic, trowelled off smooth. The damp-course will be very obvious, but it will also be efficient. The building being several years old, further movement of the mastic will probably take place at a reduced rate.

To cleanse the discoloured stone and remove the soluble salts present, clean water should be used. The use of soap, soda, or cleaning preparations of any kind should not be permitted. It is recommended that the stone should first be brushed with a dry brush to remove loose debris and salts from the surface, that these should be swept up from the paving before proceeding, and that the stone should them be scrubbed with bristle brushes and water. The water can conveniently be applied with a garden hose.

If salts reappear when the stone dries, the brushing and washing will have to be repeated.

Since it will be impracticable to prevent further absorption of moisture and salts into the course below the level of the damp-proof course, it will be desirable to wash the plinth in the manner described at regular intervals. Washing twice a year, in April and September, should serve to maintain a good appearance.

THE BUILDINGS ILLUSTRATED

Following are names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue: St. Peter's Church Morden (pages 870-871). General contractors, Woolridge and Simpson, who were also responsible for the oak work in the memorial chapel. Sub-contractors: London Pipeless Heating Co., heating; G. W. Franklin, electric lighting: A. K. Nicholson, stained glass. The altar frontals and hangings were made by Miss M. Becker.

Electrolux Ltd., have just decided to make further extensions to their Luton factory, involving an expenditure of £50,000. This is their fifth factory extension within five years, and it has been made necessary by the demand for their products, i.e., cleaning systems, refrigerators, water softeners, and floor polishers.

The Zinc Alloy Rust-Proofing Co., Ltd., point out that on page 817 of our issue for May 23, the second "r" was omitted from the word "sherardizing."

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

ASHFORD (MIDDLESEX). *Houses.* Messrs. Mercer and Rudd are to erect 43 houses on a site at Clockhouse Lane, Ashford, plans for which have been approved by the Staines U.D.C.; and Messrs. Perry's (Ealing) Ltd., of 75 Uxbridge Road, W.5, are to erect 21 houses at Meadway, Ashford.

EALING. *Houses.* The T.C. has approved plans by Mr. F. W. Field, architect, The Close, Rayner's Lane, Pinner, for 41 houses at Worcester Gardens, Rothesay Avenue, and Currey Road; and Mr. P. J. Mulcrone, 11 Grove Park, N.W.9, for 41 houses, Downing Drive, Middleton Avenue, and Bennetts Avenue.

EAST BARNET. *School.* The Herts Education Committee has appointed Mr. W. Fraser Granger as architect for the proposed grammar school to be erected at East Barnet, at an estimated cost of £30,000.

SOUTHALL-NORWOOD. *Houses.* Plans passed by the U.D.C.: 60 houses, Hayes Bridge, for Hayes Bridge Estate, Ltd.; four houses, Minterne Avenue, for Messrs. Warren and Woods; 12 flats, North Road, for Messrs. Perry and Gandy; 20 houses, Maple Grove, for Messrs. G. Wimpey & Co., Ltd.; 10 shops, The Green, for Messrs. A. and B. Hanson, Ltd.; eight houses, Hambrough Terrace, for Mr. F. S. Honey.

SOUTHERN COUNTIES

HASTINGS. *Houses, etc.* Plans passed by the Corporation: Six houses, Boscobel Road, for Mr. George Fryer; additions printing offices, Cambridge Road, for Messrs. F. J. Parsons, Ltd.; four houses, Mildenhall Drive, for Mr. S. D. Hicks: 26 houses, Oakfield Road, for Mr. T. E. Relfe; four houses, St. Peters Road, for Mr. D. Newton Padgham; eight houses Lower Park Road, for Mr. A. Radcliffe; alterations, 16-17 Castle Street, for Messrs. Ward & Co.; three houses, Frederick Road, for Mr. F. W. Southwell; additions, Hastings Pier, for Pier Co., Ltd.

WORTHING. *Conversion.* Mr. A. T. W. Goldsmith, architect, has prepared plans on behalf of Mr. C. A. Seebold, for the conversion of the Picturedrome, Union Place, Worthing, into a theatre.

WORTHING. *Houses, etc.* Plans passed by the Corporation: 22 houses, Brook Close, for Mr. H. M. Potter; four houses, St. Andrews Road, for Messrs. Princes (Worthing), Ltd.; gymnasium, South Farm Road, for Mr. L. W. Waterman; garage, restaurant and 36 flats, Chapel Road, for Messrs. Brittains (Worthing) Garage, Ltd.; 10 houses, Burnham Road, for Seaside Estates Building Co.; four houses, Ashurst Drive, for Messrs. H. Tier and Son; 34 houses, Brookdean Road, for Mr. H. P. Brazier; ten houses, Garrick Road, for Worthing Estates Building Co.; two houses, Foxley Lane, for Mr. P. Stredwick; 14 houses, Mulberry Lane, for Jeffery Houses, Ltd.; Conservative Club extensions, Mulberry Lane, for Mr. W. G. Eddolls; six houses, Broomfield Avenue, for Mr. E. W. Owen; four houses, Eastbrook Road, for Mr. M. R. Fletcher.

EASTERN COUNTIES

CHELMSFORD. *Extensions to County Hall.* The Essex C.C. proposes to proceed with the third section of the county hall, Chelmsford, at a cost of £93,250. Plans have been prepared by the county architect.

GT. BURSTEAD. *School.* The Essex Education Committee has approved plans for the erection of a senior school at Great Burstead, at a cost of £20,000.

NORWICH. *Extensions.* The Corporation is seeking sanction to borrow £56,000 for extensions at the poor law institution.

NORWICH. *Houses.* The Corporation is to erect 50 houses for displaced tenants, at a cost of £19,752.

ST. ALBANS. *School.* The Herts Education Committee has approved plans for the erection of a senior school for 800 pupils on the Beaumont estate, St. Albans, at a cost of £33,000.

MIDLAND COUNTIES

DUDLEY. *School.* The Corporation has sold land in King Street to the Archdeacon of Dudley for the erection of a new school for St. Thomas's.

NORTHAMPTON. *Shops and Houses, etc.* Plans passed by the Corporation: Five shops and houses, Broadway, and six houses, Bush Hill, for Messrs. A. Glenn and Sons, Ltd.; cinema, eight shops and car park, Abingdon Square, for Associated British Cinemas, Ltd.; alterations and additions, Golden Horse Inn, Southampton Road, for Messrs. P. Phipps & Co., Ltd.; reconstruction, 52-4 Regent Street, for Mr. T. French.

NORTHERN COUNTIES

BLACKPOOL. *Houses, etc.* Plans passed by the Corporation: 10 houses, Lindale Gardens, for Mr. H. Welch; two shops and houses, Cherry Tree Road, for Mr. H. Radcliffe; 42 houses, Carson Road, for Mr. A. Howard; 33 houses, Devonshire Road, 71 Lundale Avenue, and 10 elsewhere, for Messrs. R. Fielding and Son; church hall, Waterloo Road, for Elim Four Square Gospel Alliance; 16 houses, Collins Avenue, for Mr. V. Hague; 18 houses, Wardleys Avenue, for Mr. William

(*Continued on page xxxvi*)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on-Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_2	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M.	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A_2	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley ..	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley ..	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham	N.E. Coast	1 5½	1 1½
A_2	EASTBOURNE	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S.W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W.Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley ..	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_3	Kendal ..	N.W. Counties	1 4	1 0
A_3	Keswick ..	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek ..	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12-15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N. E. Coast	1 5½	1 1½
A_2	Middlewich ..	N. W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson ..	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid. Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham ..	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford ..	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_1	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby ..	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough ..	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_2	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid. Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan ..	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil ..	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger	"	1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3½
Navvy	"	1	2½
General Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10	0

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	●
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4 ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		8	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
¾" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single Junctions	"	3	6	5	3
Double "	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¾" Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Single junctions	"	9	0	15	0
Double junctions	"	8	9	18	0
Lead Wool	lb.	15	6	30	0
Gaskin	"		6		—
			5		—

BRICKLAYER

		£	s.	d.
Flettons	per M.	2	15	0
Grooved do.	"	2	17	0
Phorpres bricks	"	2	15	0
" Cellular bricks	"	2	15	0
Stocks, 1st quality	"	4	11	0
" 2nd "	"	4	2	6
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Brindles	"	7	0	0
" Bullnose	"	9	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	●
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midhurst White Facings	"	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	29	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

		s.	d.
The following d/d F.O.R. at Nine Elms:			
Portland stone, Whitbed	F.C.	4	4½
" " Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" " Sawn templates	"	7	6
" " Paving, 2"	F.S.	1	8
" " " 3"	"	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	"	24	10	0
20" × 10" Countesses	"	19	5	0
18" × 10" Viscountesses	"	15	10	0
18" × 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey per 1,000 (actual)		21	11	6
" " green "	"	24	7	4
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each			9½
" hand-made	"			10
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak, plain American	" "	1	0
" Figured "	" "	1	3
" plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1
Deal floorings, ¾"	Sq.	18	6
" 1"	"	1	1	6
" 1¼"	"	1	2	0
" 1½"	"	1	5	0
" 1¾"	"	1	10	0
Deal matchings ¾"	"		14	0
" 1"	"		15	6
Rough boarding ¾"	"	1	4	0
" 1"	"		16	0
" 1¼"	"		18	0
Plywood, per ft. sup.	"	1	6	0

Thickness	¼"	⅜"	½"	⅝"	¾"	⅞"	1"
Qualities	AA.	A.	B.	AA.	A.	B.	AA.	A.	B.	AA.	A.	B.	AA.	A.	B.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Birch	4	3	2	5	4	3	7½	6	4½	8½	7	6			
Alder	3½	3	2	5	4	3	6½	5½	4½	8	7	6			
Gaboon Mahogany	4	3	3	6½	5½	4½	9½	7½	–	1/0½	10	–			
Figured Oak 1 side	8½	7	–	10	8	–	11½	–	–	1/6	–	–			
Plain Oak 1 side	6½	6	–	7½	7	–	9½	–	–	1/–	–	–			
Oregon Pine	5	4	–	5½	5	–	6	–	–	–	–	–			

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	¼"	⅜"	½"	¾"	1"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23" long each	10	1/1	1/11	2/8	4/9
" 3"-11½" long "	7	9	1/3	1/8	3/–
Long screws, 12"-23½" long "	11	1/3	2/2	2/10	5/3
" " 3"M-½" long "	8	10	1/5	1/11	3/6
Bends "	8	11	1/7½	2/7½	5/2
Springs not socketed "	5	7	1/1½	1/11½	3/11
Socket unions "	2/–	3/–	5/6	6/9	10/–
Elbows, square "	10	1/1	1/6	2/2	4/3
Tees "	1/–	1/3	1/10	2/6	5/1
Crosses "	2/2	2/9	4/1	5/6	10/6
Plain sockets and nipples "	3	4	6	8	1/3
Diminished sockets "	4	6	9	1/–	2/–
Flanges "	9	1/–	1/4	1/9	2/9
Caps "	3½	5	8	1/–	2/–
Backnuts "	2	3	5	6	1/1
Iron main cocks "	1/6	2/3	4/2	5/4	11/6
" with brass plugs "	—	4/–	7/6	10/–	21/–

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½

FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued.*

		s.	d.
Rolled steel joists cut to length	cwt.	12	9
Mild steel reinforcing rods, ⅜"	"	9	6
" " ½"	"	9	3
" " ⅝"	"	9	0
" " ¾"	"	8	6
" " ⅞"	"	8	6
" " 1"	"	8	6
" " 1¼"	"	8	6
" " 1½"	"	8	6
" " 1¾"	"	8	6

Cast-iron rain-water pipes of ordinary thickness metal		4" s.	4" d.	4" s.	4" d.
		F.R.		8	10
Shoes	each	2	0	3	0
Anti-splash shoes	"	4	6	8	0
Boots	"	3	0	4	0
Bends	"	2	7	3	9
" with access door	"		—	6	3
Heads	"	4	0	5	0
Swan-necks up to 9" offsets	"	3	9	6	0
Plinth bends, 4½" to 6"	"	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal	F.R.		5		6
Stop ends	each		6		6
Angles	"	1	7	1	11
Obtuse angles	"	2	0	2	6
Outlets	"	1	9	2	3

PLUMBER

		s	d.	s.	d.
Lead, milled sheets	cwt.			19	6
" drawn pipes	"			19	0
" soil pipe	"			19	6
" scrap	"			11	6
Solder, plumbers'	lb.				9½
" fine do.	"			1	0
Copper, sheet	"				8½
" tubes	"				11

L.C.C. soil and waste pipes:		3"	4"	6"
Plain cast	F.R.	1 0	1 2	2 6
Coated	"	1 1	1 3	2 8
Galvanized	"	2 0	2 6	3 6
Holderbats	each	3 10	4 0	4 9
Bends	"	3 9	5 3	10 3
Shoes	"	2 10	4 4	9 6
Heads	"	4 8	8 5	12 9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	5	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	9
Lath nails	lb.			3

GLAZIER

	s	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.			s.	F.S.
" " 26 oz. " "				3
Flemish, Arctic, Figures (white)*				7
Blazoned glasses			2	6
Reeded; Cross Reeded				11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite				6
Crown sheet glass (n/e 12 in. x 10 in.)			2	0
Flashed opals (white and coloured)	1	0 and	2	0
¼" rough cast; rolled plate				5½
¼" wired cast; wired rolled				9½
¼" Georgian wired cast				11
¼" Polished plate, n/e 1 ft.			†10 to ‡1	1
" " 2 "			†1 2 " ‡1	4
" " 4 "			†2 3 " ‡2	6
" " 8 "			†2 9 " ‡3	2
" " 20 "			†3 7 " ‡4	2
" " 45 "			†3 11 " ‡4	7
" " 100 "			†5 0 " ‡5	7
Vita glass, sheet, n/e 1 ft.			1	0
" " " 2 ft.			1	3
" " " over 2 ft.			1	9
" " plate, n/e 1 ft.			1	6
" " " 2 ft.			3	0
" " " 5 ft.			4	0
" " " 7 ft.			5	0
" " " 15 ft.			6	0
" " " over 15 ft.			7	6
"Calorex" sheet 21 oz., and 32 oz.	2	6 and	3	6
" rough cast ¼" and ½"			8½ " 1	0
Putty, linseed oil	lb.			3

* *Colours, 1d. F.S. extra.*
† *Ordinary glazing quality.* ‡ *Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	8	6
Linseed oil	gall.		2	3
Boiled oil	"		2	9
Turpentine	"		4	1½
Patent knotting	"		14	0
Distemper, washable	cwt.	2	6	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	firkin		3	0
Copal varnish	gall.		13	0
Flat varnish	"		14	0
Outside varnish	"		16	0
White enamel	"	1	15	0
Ready mixed paint	"		13	6
Brunswick black	"		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR

		£ s. d.
Digging over surface n/e 12" deep and cart away	Y.S.	2 9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.	8 6
" to form basement n/e 5' 0" and cart away	"	9 0
" " 10' 0" deep and cart away	"	9 6
" " 15' 0" deep and cart away	"	10 0
If in stiff clay	add "	6
If in underpinning	"	4 0
Planking and strutting to sides of excavation	F.S.	1 0
" " to pier holes	"	5
" " to trenches	"	5
" " extra, only if left in	"	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	"	1 6 0
" " (4-2-1)	"	1 12 6
" " underpinning	"	1 16 0
Finishing surface of concrete, space face	Y.S.	7

DRAINLAYER

		4" s. d.	6" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER

	£ s. d.
Brickwork, Flettons in lime mortar	Per Rod 26 10 0
" " in cement	" 27 12 6
" Stocks in cement	" 34 0 0
" Blues in cement	" 50 0 0
Extra only for circular on plan	" 2 0 0
" backing to masonry	" 1 10 0
" raising on old walls	" 2 0 0
" underpinning	" 5 10 0½
Fair Face and pointing internally	F.S. 1½
Extra over fletton brickwork for picked stock facings and pointing	" 8
" " " red brick facings and pointing	" 11
" " " blue brick facings and pointing	" 1 4
" " " glazed brick facings and pointing	" 3 6
Tuck pointing	" 7½
Weather pointing in cement	" 3
Slate dampcourse	" 10
Vertical dampcourse	" 1 1

ASPHALTER

	s. d.
½" Horizontal dampcourse	Y.S. 4 6
½" Vertical dampcourse	" 6 9
½" paving or flat	" 4 0
1" paving or flat	" 5 6
1" x 6" skirting	F.R. 1 0
Angle fillet	" 2
Rounded angle	" 2
Cesspools	Each 5 0

MASON

	s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C. 17 9
Bath stone and do., all as last	" 13 6
Artificial stone and do	" 13 0
York stone templates, fixed complete	" 10 6
" thresholds	" 13 6
" sills	" 1 0 6

SLATER AND TILER

	£ s. d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" x 10"	Sqr. 3 10 0
Do., 18" x 9"	" 3 7 0
Do., 24" x 12"	" 3 17 0
Westmorland slating, laid with diminished courses	" 6 0 0
Tiling, best hand-made sand-faced la,id to a 4" gauge, nailed every fourth course	" 3 0 0
Do., all as last, but of machine-made tiles	" 2 16 0
20" x 10" medium Old Delabole slating, laid to a 3" lap (grey)	" 2 16 0
" " " " " (green)	" 4 15 0

CARPENTER AND JOINER

	£ s. d.
Flat boarded centering to concrete floors, including all strutting	Sqr. 2 2 6
Shuttering to sides and soffits of beams	F.S. 7
" to stanchions	" 7
" to staircases	" 1 6
Fir and fixing in wall plates, lintols, etc.	F.C. 3 9
Fir framed in floors	" 4 6
" " roofs	" 6 6
" " trusses	" 7 6
" " partitions	" 8 6
¾" deal sawn boarding and fixing to joists	Sqr. 1 14 6
1" " " " "	" 1 17 6
1¼" " " " "	" 2 3 0
4" x 2" fir battening for Countess slating	" 9 0
Do. for 4" gauge tiling	" 12 0
Stout feather-edged tilting fillet	F.R. 4½
Patent inodorous felt, 1 ply	Y.S. 2 3
" " " 2 "	" 2 9
" " " 3 "	" 3 3
Stout herringbone strutting to 9" joists	F.R. 10½
1" deal gutter boards and bearers	F.S. 1 2
1¼" " " " "	" 1 6
2" deal wrought rounded roll	F.R. 8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr. 2 1 0
1¼" do.	" 2 10 0
1½" do.	" 2 17 0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S. 1 6
1¼" do.	" 1 9

CARPENTER AND JOINER—*continued*

	s. d.
1¼" deal moulded sashes of average size	F.S. 1 9½
2" " " " "	" 1 11½
1¼" deal cased frames double hung, of 6" x 3" oak sills, 1¼" pulley stiles, 1¼" heads, 1" inside and outside linings, ¾" parting beads, and with brass faced axle pulleys, etc., fixed complete	3 7
2" " " " "	" 3 10
Extra only for moulded horns	Each 6
1¼" deal four-panel square, both sides, door	F.S. 2 0
2" " " " "	" 2 8
1¼" , but moulded both sides	" 2 4
2" " " " "	" 3 0
4" x 3" deal, rebated and moulded frames	F.R. 1 0
4½" x 3½" " " "	" 1 4
1¼" deal tongued and moulded windo board, on and including deal bearers	F.S. 1 9
1¼" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	" 2 6
1¼" deal moulded wall strings	" 2 1
1¼" " outer strings	" 2 4
Ends of treads and risers housed to string	Each 1 9
3" x 2" deal moulded handrail	F.R. 1 3
1" x 1" deal balusters and housing each end	Each 2 0
1½" x 1½" " " "	" 2 9
3" x 3" deal wrought framed newels	F.R. 1 3
Extra only for newel caps	Each 6 0
Do., pendants	" 6 0

SMITH AND FOUNDER

	£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt. 16 6
Riveted plate or compound girders, and hoisting and fixing in position	" 1 0 6
Do., stanchions with riveted caps and bases and do.	" 19 0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	" 17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S. 11
Wrot-iron caulked and cambered chimney bars	Per cwt. 1 10 0

PLUMBER

	£ s. d.
Milled lead and labour in flats	cwt. 1 13 0
Do. in flashings	" 1 16 6
Do. in covering to turrets	" 2 4 0
Do. in soakers	" 1 8 6
Labour to welted edge	F.R. 3½
Open copper nailing	" 3
Close " "	" 4

		½" s. d.	¾" s. d.	1" s. d.	1¼" s. d.	2" s. d.	4" s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks		—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	3 9	5 0	8 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—

	£ s. d.
4" cast-iron ½-rd. gutter and fixing	F.R. 1 0
Extra, only stop ends	Each 1 0
Do. angles	" 1 6
Do. outlets	" 2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R. 1 2
Extra, only for shoes	Each 1 3
Do. for plain heads	" 5 9

PLASTERER AND TILING

	s. d.
Expanded metal lathing, small mesh	Y.S. 2 0
Do. in n/w to beams, stanchions, etc.	" 2 9
Lathing with sawn laths to ceilings	" 1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	" 1 5
Do. vertical	" 1 7
Rough render on walls	" 1 2½
Render, float and set in lime and hair	" 1 9
Render and set in Sirapite	" 1 11
Render, backing in cement and sand, and set in Keene's cement	" 2 9
Extra, only if on lathing	" 4
Keene's cement, angle and arris	F.R. 6
Arris	"
Rounded angle, small	" 3
Plain cornices in plaster, including dubbing out, per 1" girth	" 1½
1" granolithic pavings	Y.S. 3 6
1½" " "	" 4 6
6" x 6" white glazed wall tiling and fixing on prepared screed	" 17 6
9" x 3" " " " "	" 1 2 6
Extra, only for small quadrant angle	F.R. 8

GLAZIER

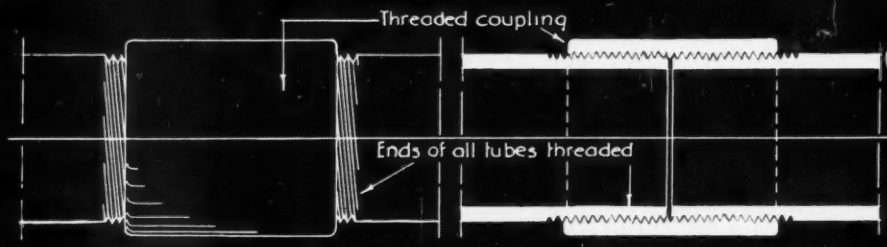
	s. d.
21 oz. sheet glass and glazing with putty	F.S. 6½
26 oz. do. and do.	" 7½
Flemish, Arctic Figured (white) and glazing with putty	" 1 1
Cathedral glass and do.	" 1 2
Glazing only, British polished plate	" 7
Extra, only if in beads	" 2
Washleather	F.R. 4

PAINTER

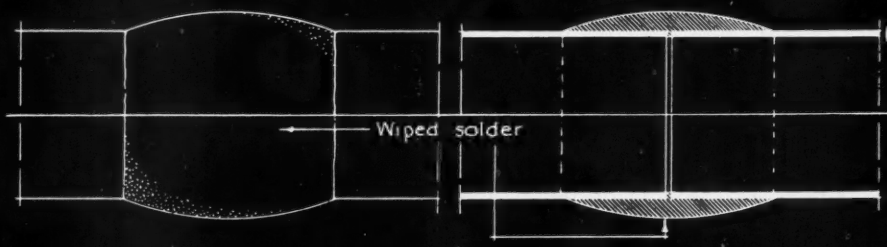
	s. d
Clearcolle and whiten ceilings	Y.S. 6
Do. and distemper walls	" 9
Do. with washable distemper	" 1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	" 3 3
Do. on woodwork	" 3 6
Do. on steelwork	" 3 0
Do. and brush grain and twice varnish	" 5 6
Stain and twice varnish woodwork	" 1 11
Stain and wax-polish woodwork	" 4 6
French polishing	F.S. 1 2
Stripping off old paper	Piece 2 0
Hanging ordinary paper	from " 2 9

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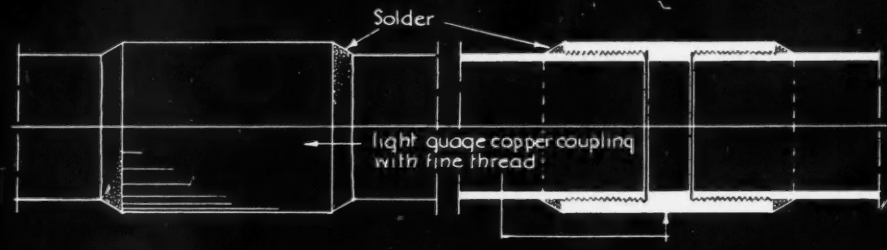
VARIOUS METHODS OF CONNECTING COPPER PIPING



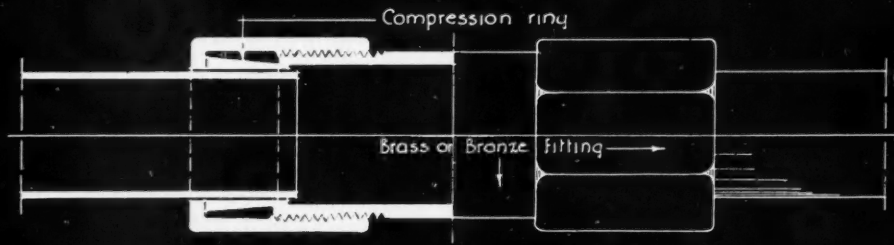
1. SCREWED COUPLINGS. Screwed couplings owing to the depth of the thread, can only be used with heavy guage pipe hence this method is too expensive for normal use.



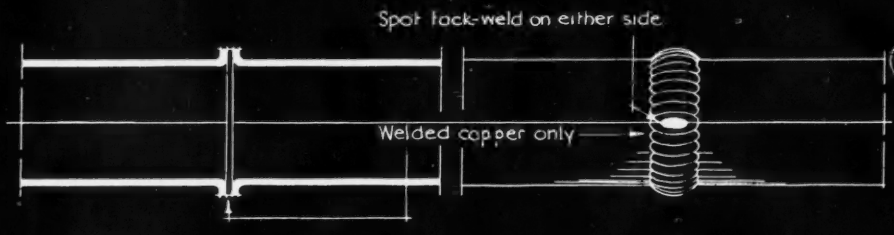
2. WIPED SOLDER JOINTS. Not suitable for high pressure work & not satisfactory for hot water installations owing to electrolytic action and to expansion and contraction of pipes.



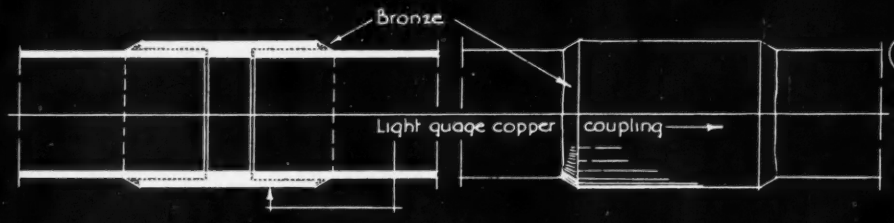
3. FINE THREAD SCREWED COUPLINGS. These couplings had tinned surfaces & were screwed up under the blowpipe so that the tin was fluid. The outer edges were then flooded with solder. A good but expensive joint.



4. COMPRESSION JOINTS. This type of joint is made with various minor differences, usually in bronze or brass.



5. WELDED COPPER FUSION JOINTS. The flanged ends of the pipes are butted together and tack welded in two places. The joint is then made by running down the flanges. A good joint, as strong as the tube itself.



6. BRONZE WELDED JOINTS WITH WELDABLE FITTINGS. Combines advantages of joints made with couplings & of joints welded up. A good economical joint.

Information from W. L. Kilburn, R. P. *Issued by British Oxygen Co. Ltd.*

INFORMATION SHEET: PLUMBING IN WELDED COPPER·1·

5.35 SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1.

INFORMATION SHEET • 225 • PLUMBING IN WELDED COPPER PIPING

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 225 •

PLUMBING IN WELDED COPPER PIPING

This is the first of a series of Information Sheets dealing comprehensively with the use of light gauge copper piping for Plumbing work, and sets out the various methods by which piping may be connected.

It should be noted that where copper pipes are of a sufficiently stout gauge to take screwed threads for taps or jointing fittings, the plumbing work generally will be comparatively expensive. It is possible, however, owing to the durability of copper, to use pipes of a much lighter gauge, provided that the method of jointing is satisfactory. Copper pipes having walls of the following gauges are recommended for pressures to which a domestic installation is usually subjected, and pipes of the sizes given are in common use.

Copper pipes for pressures up to 50 lb.

Internal Diameter	S.W.G.
½ inch	18
¾ "	18
1 "	18
1¼ "	18
1½ "	16
2 "	16
2½ "	16
3 "	16
3½ "	15
4 "	14

Light gauge copper tubes are unsuitable for screwed threads, hence, in place of the screwed thread fitting shown in Detail No. 1 for use with heavier gauges, the method of jointing has usually been by what is known as the compression joint shown in Detail No. 4, in which a cast or wrought fitting, with screwed threads, is introduced to avoid cutting threads in light gauge tube and thereby reducing strength. This joint is made by squeezing or compressing the wall of the tube between the fitting and a screwed union nut. With some types of fitting the tube itself is prepared by cupping or other shaping of the end in order to insert a loose cone as shown, to increase the strength of the joint. These compression fittings are obtainable in many types and sizes. Their cost, however, especially in the larger sizes, tends to increase the expense of a copper installation, and to make it uneconomical by comparison with other metals.

This disadvantage has been overcome by the introduction in recent years of what is known as the bronze welded joint and/or the copper fusion welded joint shown in Detail No. 5. By means of the oxy-acetylene blowpipe a plumber or water-fitter of average skill can weld joints in light gauge copper pipes in simple and complicated forms and in any position. The installation can be completed in a minimum of time and the total expense of copper piping by either of these methods compares favourably with any other form of piping installation. The strength of the welded joints is as great as that of the original pipe, and by the use of bronze alloy welding rod of comparatively low melting point, the heating of the joint in the process is reduced to a minimum. The added metal of the filler rod of the bronze welded type of joint is of sufficient elasticity to enable the joint to retain its soundness after impact or crushing tests, proving that the joint will withstand more than the ordinary requirements of a hot, cold water, or sanitary installation. The elasticity of copper enables it to withstand the extreme conditions of steam pressure or of expansion due to freezing of water.

In addition, the bronze welded joint further reduces the weight of metal, and the facility with which light gauge copper pipes can be handled and erected tends also to reduce the cost in labour charges ; maintenance and renewal costs are minimised and the life of the installation prolonged.

Where it is preferred to use fittings at points where inspection openings are necessary these can be inserted. A typical light gauge weldable copper coupling is shown in Detail No. 6.

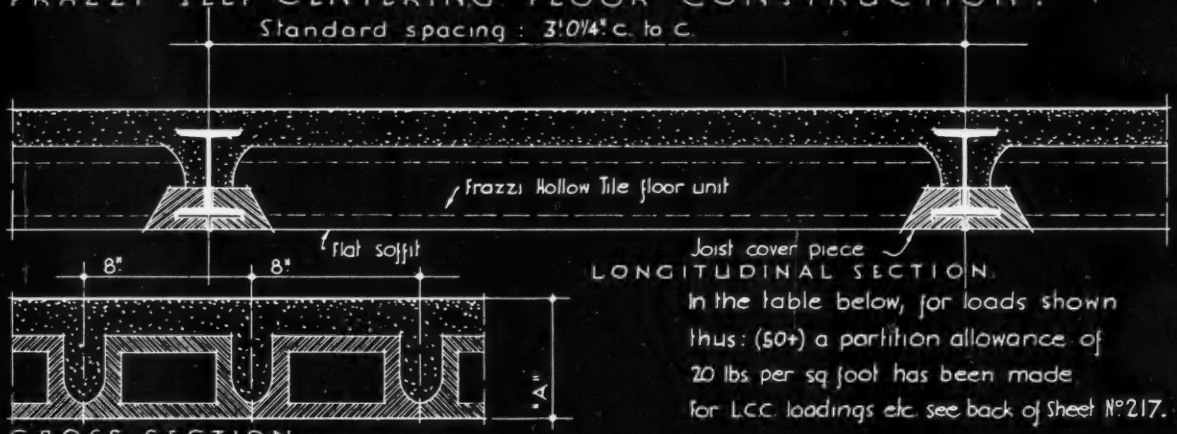
Further Information Sheets of this series will deal with the various types of bronze and copper welded joints and the use of weldable copper fittings for bronze welding.

Information from : The British Oxygen Co., Ltd.
Address : Victoria Station House, London, S.W.1
Telephone : Victoria 9225



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FRAZZI SELF-CENTERING FLOOR CONSTRUCTION:



LONGITUDINAL SECTION.

GROSS SECTION.

In the table below, for loads shown thus: (50+) a partition allowance of 20 lbs. per sq. foot has been made for L.C.C. loadings etc. see back of Sheet N°217.

TABLE OF FLOOR THICKNESSES & WEIGHTS FOR VARIOUS SPANS & LOADS.

CLEAR SPAN	FRAZZI SELF-CENTERING FLOOR.	SUPER LOAD IN LBS PER SQUARE FOOT.						
		30.	40.	50.	70 (50+)	80.	100 (80+)	200.
6'0"	Thickness "A"	5 3/4"	5 3/4"	5 3/4"	5 3/4"	5 3/4"	5 3/4"	5 3/4"
	Weight (lbs/□')	38.	38.	38.	38.	38.	38.	38.
7'0"	Thickness "A"	5 3/4"	5 3/4"	5 3/4"	5 3/4"	5 3/4"	5 3/4"	5 3/4"
	Weight (lbs/□')	38.	38.	38.	38	38.	38.	38.
8'0"	Thickness "A"	5 3/4"	5 3/4"	5 3/4"	5 3/4"	5 3/4"	5 3/4"	6 3/4"
	Weight (lbs/□').	38.	38.	38.	38.	38.	38.	44.
9'0"	Thickness "A"	5 3/4"	5 3/4"	5 3/4"	5 3/4"	5 3/4"	5 3/4"	6 3/4"
	Weight (lbs/□')	38.	38.	38.	38.	38.	38.	44.
10'0"	Thickness "A"	5 3/4"	5 3/4"	5 3/4"	5 3/4"	5 3/4"	5 3/4"	6 3/4"
	Weight (lbs/□').	38.	38	38.	38	38.	38	44.
11'0"	Thickness "A"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	7 3/4"
	Weight (lbs/□')	44.	44	44.	44.	44.	44.	49.
12'0"	Thickness "A"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	7 3/4"
	Weight (lbs/□')	44.	44.	44.	44.	44.	44.	49.
13'0"	Thickness "A"	6 3/4"	6 3/4"	6 3/4"	7 3/4"	7 3/4"	7 3/4"	8 3/4"
	Weight (lbs/□')	44.	44.	44.	49.	49.	49.	54.
14'0"	Thickness "A"	7 3/4"	7 3/4"	7 3/4"	7 3/4"	7 3/4"	7 3/4"	8 3/4"
	Weight (lbs/□')	49.	49	49	49.	49.	49.	54.
15'0"	Thickness "A"	7 3/4"	7 3/4"	7 3/4"	8 3/4"	8 3/4"	8 3/4"	8 3/4"
	Weight (lbs/□')	49.	49	49	54.	54.	54.	54.
16'0"	Thickness "A"	7 3/4"	8 3/4"	8 3/4"	8 3/4"	8 3/4"	8 3/4"	8 3/4"
	Weight (lbs/□').	49.	54.	54.	54.	54.	54.	54.

Information from Frazzi Limited.

INFORMATION SHEET: VARIOUS TYPES OF FIREPROOF FLOOR CONSTRUCTION ③

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1· Oscar A. Bayne.

Supplement to THE ARCHITECTS' JOURNAL for June 6, 1935

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET
• 226 •
FLOOR CONSTRUCTION

Product : Frazzi Self-centering Floor

General :

The Frazzi Self-centering Floor consists of a series of Standard Frazzi Hollow Tile floor units, which are supplied of varying thicknesses from 4 in. to 7 in. inclusive, bearing on especially-shaped joist covers of the same material, which are fitted on to the lower flange of the filler joists.

The self-centering floor, when laid, is completed by filling with concrete to the level 1 in. above the top of the fillers (the required thickness of cover over filler joists).

The table given on this Sheet sets out the floor thicknesses and weights for various spans and various loadings.

Speed of Construction :

The floor may be used immediately after the hollow-tile units are laid, and can be fully loaded 24 hours after pouring the concrete fill.

See also Information Sheets Nos. 181, 215 and 217 for further details of floor construction.

Manufacturers : Frazzi, Ltd.

Address : Lennox House, Norfolk Street

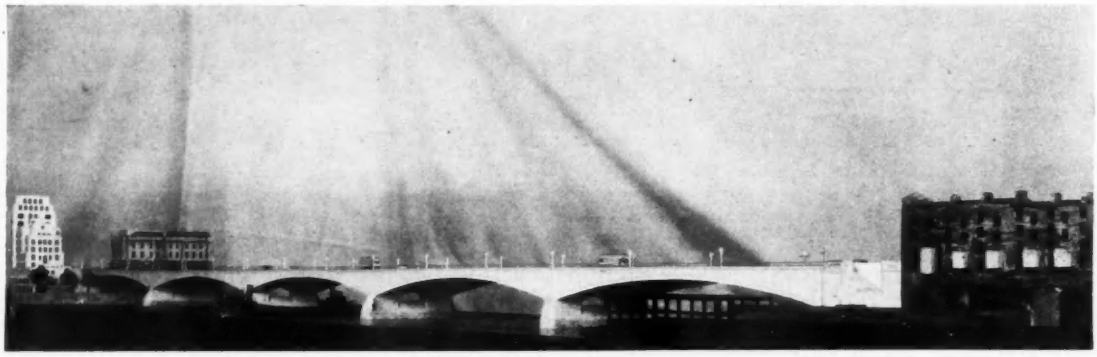
Telephone : Temple Bar 5371-5372

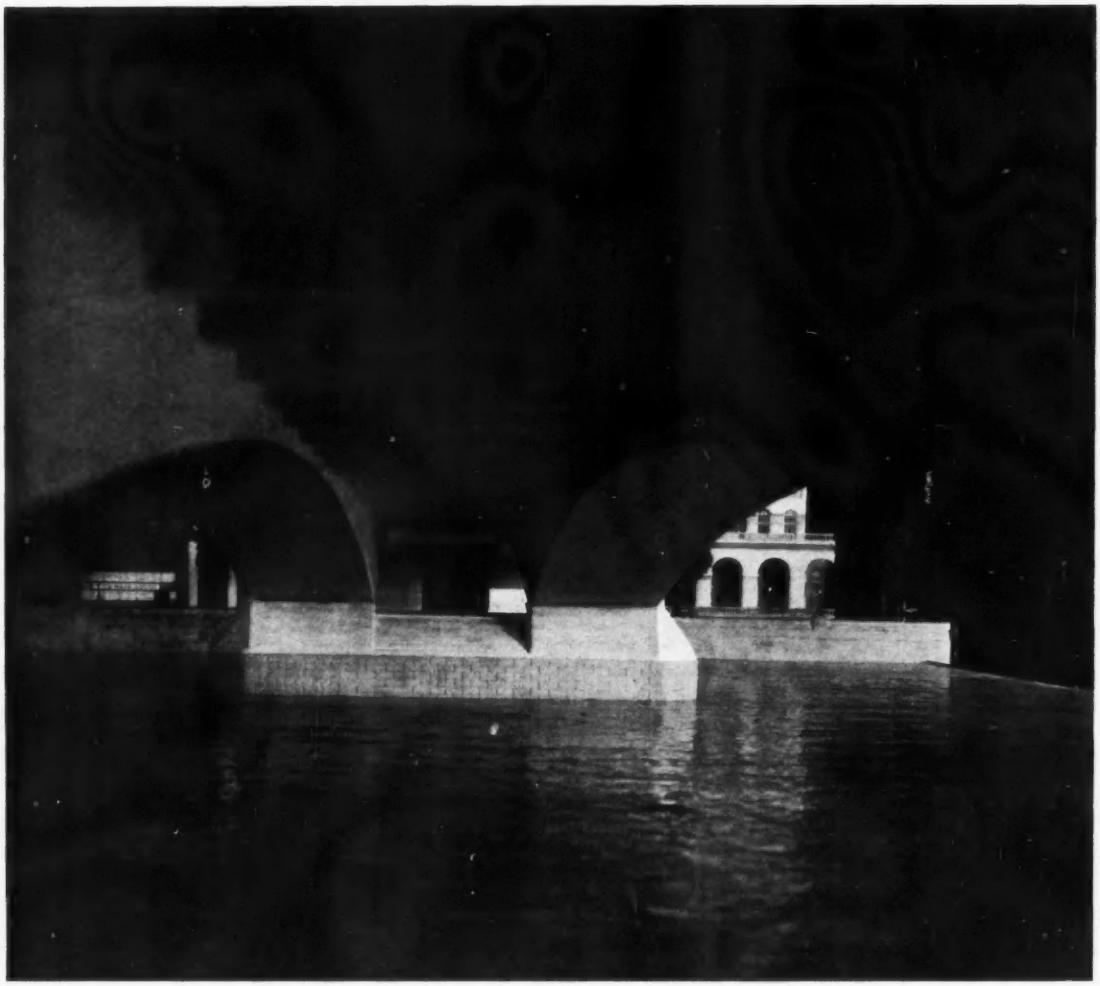
MURAL TREATMENT IN MOSAIC

EXECUTED BY ERIC NEWTON



A DETAIL photograph of the mosaic wall treatment of the apse which has been carried out by Eric Newton at the Royal Hospital School Chapel, Holbrook, Suffolk. Above the altar reredos the work is executed entirely in glass and gold mosaic, and mosaic inlay is also incorporated in the scheme of the marble and panelling below. The architects for the school were Messrs. Buckland and Haywood.

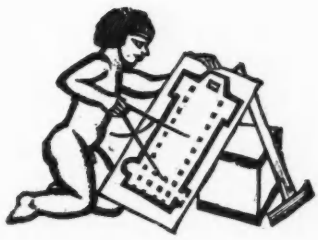




THE NEW WATERLOO BRIDGE

These photographs, from the scale model recently prepared, show the new bridge as it will appear upon completion. The architect of the bridge is Sir Giles Gilbert Scott, R.A., and the engineers are Messrs. Rendel, Palmer and Tritton. The model is the work of Mr. J. B. Thorp.

The upper photograph gives a general view of the bridge from the south bank, showing a portion of Somerset House upon the north bank; below, a detail of one of the piers, showing the twin arch construction and the entrance to the tramway tunnel.



LARGE SCALE PLANNING FOR LONDON

ON May 27 a notice was issued to the press stating that the Minister of Health had approved the resolution of the London County Council to prepare a town planning scheme for that portion of the County of London not already included in resolutions for planning schemes.

This approval means that from now onwards the whole of the Administrative County of London, with the exception of the comparatively small areas occupied by the Temple and Lincoln's Inn, is subject to town planning control. This control may not be as wide as many town planners would desire, but some idea of its extent may be obtained from Section 12 (1) of the Town and Country Planning Act, 1932, part of which says :—

the provisions to be inserted in a scheme with respect to building and building operations may include provisions :

(*a*) Prescribing the space about buildings ;
(*b*) limiting the number of buildings ;
(*c*) regulating, or enabling the responsible authority to regulate, the size, height, design and external appearance of buildings ;
(*d*) imposing restrictions upon the manner in which buildings may be used, including, in the case of dwelling-houses, the letting thereof in separate tenements ; and
(*e*) prohibiting building operations or regulating such operations in respect of matters other than those specified in this sub-section.

It is clear that the control possible under a scheme containing the provisions indicated in this section will cover practically every consideration affecting building, apart from details of construction.

In an existing city like London a fresh start cannot be made, and the objects of town planning must in the main be attained by improving existing conditions by such positive planning as can be afforded, and by regulating the uses of land and generally controlling building development.

The positive side of town planning is naturally the side most interesting to the general public, and it is much to be hoped that the danger of private speculation increasing the cost of public improvements will not prevent the London County Council from making known its proposals.

To the developers of land, however, it is the negative or controlling side of town planning which will provide the greatest interest.

A town planning scheme for a city the size of London must of necessity take a considerable time to make, and until the scheme comes into operation all building and development of land will be carried on under Interim Development Orders.

During this interim period, and as early as possible, it is essential that the London County Council makes known upon what lines it intends to work. Otherwise the utmost uncertainty and dissatisfaction must prevail.

It is obvious that it will not be an easy matter to formulate the provisions to be inserted in the scheme, and all sorts of questions must be answered concerning permissible building densities for residential sites, and in regard to the heights of buildings.

Another aspect which is of interest is the effect that town planning may have on land values apart from zoning for special purposes. As there is competition for sites the tendency is to cram as much accommodation on to them as possible so that the highest price may be offered. This has produced in many instances such things as back to back flats, and kitchens and service without natural light and ventilation, which, in working-class housing, would bring them within the scope of the Slum Clearance Act, and in the case of commercial buildings several basements one below another.

All these matters may fall within the provisions of the town planning scheme, and all will limit, as may height and volume of building permitted, the amount of accommodation that can be placed upon a site, and as a consequence the price that can be paid for land will be reduced.

As already mentioned, the provisions of a town planning scheme may cover practically every consideration affecting building, and may overlap the London Building Act.

Architects must therefore have welcomed Mr. Morrison's statement on the wireless that the Town Planning and Building Acts Committees were to be combined in one committee, as showing a desire on the part of the London County Council to simplify procedure and to prevent irritating delays.

At the public enquiry held at the County Hall it was stated that the London County Council hoped for the co-operation of all interested people.

Anyone who has seen the way in which London has been redeveloping during the past few years, who has seen the remaining open land within the county gradually being built over, who has seen pleasant streets like Regent Street change in appearance from ample and spacious places into comparatively narrow thoroughfares, and has seen the increasing congestion of the traffic, must welcome any effort which is made to preserve the pleasant things that remain and to bring some order into the chaos which has arisen.

It is a tremendous task which has been undertaken and it deserves the most whole-hearted support.



The Architects' Journal
Westminster, S.W.1
Telephones: Victoria
9212-7
Telegrams
Buildable
Parl
London

NOTES & TOPICS

SIR HILTON YOUNG—

IT seems hard to believe that Sir Hilton Young is no longer Minister of Health. Sir Hilton ("Housing Bill") Young—as William Hickey, of the *Daily Express*, would say—has tried his hardest to rid England of her greatest evil—slum. Whether it is wise to relieve him of this task at the present stage—the second year of his five-year plan—is a moot point. Nevertheless, Sir Hilton would be the first to confess that his successor at Whitehall, Sir Kingsley Wood, is an admirable choice.

—AND HIS SUCCESSOR

Sir Kingsley Wood, as recent developments in the Post Office have shown, is a man of great administrative ability. But, in addition, he possesses in a marked degree a capacity hitherto considered superfluous in a Cabinet Minister—the capacity for stimulating the public into a genuine interest in the work of his department.

*

At the Post Office, Sir Stephen Tallents and Mr. Grierson have shown beyond all question the value which their up-to-date departments of public relations and films may possess for an up-to-date Minister. It would surely be advantageous were it possible for these two of his former assistants to accompany the new Minister of Health to Whitehall.

POOL OF HARMONY

We had an excellent opportunity of understanding the engineer's point of view when Sir Owen Williams gave his paper—an extemporary one—on the Wembley Swimming Pool at the Architectural Association.

*

Sir Owen opened the attack by saying there are two kinds of racketeers—those who get out guns and those who get out elevations. He was not interested, he said, in elevations; in fact he was not interested in results at all, but in methods—methods for the achievement of complete agreement or harmony between all the conditions of a building problem.

*

At the Wembley Pool major problems having been solved by the application of a trained imagination, we were told that the next thing was to discover a vital unit. Inspiration here came from the regulations of the Middlesex County Council, which state that stairs should have an 11 in. by 6 in. going. Splendid! Three times 11 in. is 2 ft. 9 in., the seating depths; eight times 2 ft. 9 in. equals 22 ft., the supports and gangways centres; twice times 22 ft. gives us 44 ft., the distance apart of the exits.

*

I am reminded of those patterns we used to make, as boys, with a fixed compass. We chose a centre, swung a full circle and filled it with segments struck from regular intervals along the circumference. The result, if one chose the right centre each time, was inevitably a pattern, pleasing enough and demanding to be filled with colour.

*

The great difficulty, as Sir Owen has pointed out, was always to choose the right centre.

*

Sir Owen spoke for an hour and twenty-seven minutes or for two hours and twenty-seven minutes—I forget which. Personally I should not have minded if he had spoken for three hours and twenty-seven minutes because his is the sort of speech-making I can listen to for days, if necessary years, on end.

*

It had its tragic side, however. One member of the audience not only listened but wrote copious notes, which grew, as the hours flew by, into a book. Here, we all felt, preparing under our eyes, was the counter-offensive which would blow Sir Owen and his vital work off the face of Bedford Square.

*

Alas! As night fell and the speech neared its final phase the note-maker drew out his watch and a peculiar agony manifested itself in his face. He had fifteen minutes to catch the 11.13. Should he miss it and make his counter-attack or catch it and waste his notes? The struggle was brief but terrible. The counter-attack was never made.

TOWN PLANNING—AS IT SHOULD BE

The announcement that the Minister of Health has now approved of the extension of town planning to the whole of the County of London, save for the Inns of Court, will probably have been passed unnoticed by most of the millions who live in that well-filled area.

*

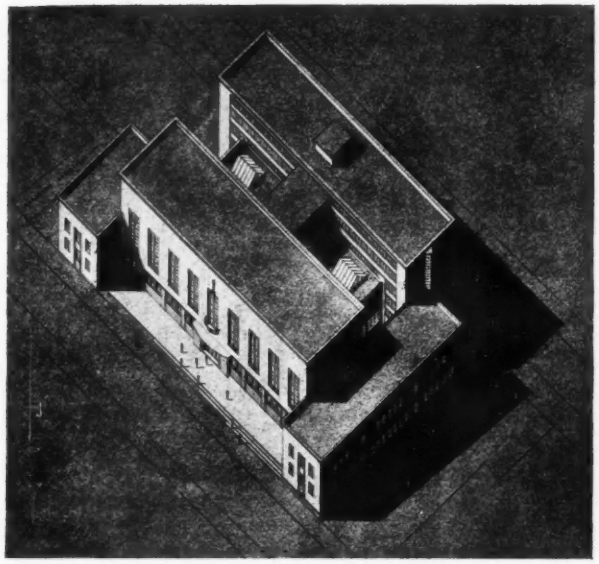
We seem to have had so many town planning measures. And perhaps the cordiality with which each was welcomed as being a further step towards the inevitable future regulation of a present chaos has tended to diminish, just a little, with the passing years.

*

But we must not lose heart. The subject of our leader this week shows that we still hasten—slowly—towards the final, and national, plan. At last the first essential step has been taken; we have made a beginning upon almost the the right scale.

AT THE COUNTY HALL

The exhibition at the London County Hall (that finishes this week) describing twenty-five years of local government was full of interesting exhibits and evidence of progress;



An axonometric drawing of the proposed new library for the University of Liverpool. The entrance block, which faces an archway leading from the university quadrangle, contains the main reading room, with the catalogue hall behind it. At the rear are the book stacks, designed eventually to accommodate 650,000 volumes on eight decks. The main fronts of the building will be in Portland stone. The architect is H. A. Dod, of Willink and Dod, of Liverpool.

but, besides the disadvantages of the huge scope compressed into a small space—and that not planned for exhibitions—it suffered from the limitation all such "evidence of progress" has, that there is no criterion by which intrinsic quality can be judged.

*

The exhibition successfully demonstrated improvement in every field since 1910; but actual achievement comparatively with other countries and other communities would not have been quite so deserving of complacence.

*

In the field of housing this method of internal examination is particularly deceptive. You can make a most satisfactory comparison between a London slum street and the L.C.C. tenement that replaced it twenty-five years later; but a less satisfactory one between what the L.C.C. has thus proudly completed and, say, a German *siedlung* of even ten years ago.

*

The most absolute advances, the exhibition shows, are in technique; the least absolute in social ideology. The most influential all-round improvement is probably in educational methods.

ART IN PRACTICE—

To someone who does not know what sort of work is being done in that line the children's drawings shown must have been a revelation; art education in L.C.C. schools is of a standard really to be proud of, and the best of its products would, in imaginative quality and sensibility, put the Royal Academy to shame.

*

If other parts of the school curriculum were ordered with the same insight and enthusiasm as this we should soon have a population of genuinely independent, intelligent minds. Then, perhaps, there would be more hope for democracy.

—AND PRECEPT

One other thing, allied to the art education, I found encouraging at the exhibition: the selection of pictures, generally reproductions of oil-paintings, that have been chosen to decorate school classrooms and corridors.

*

Those in use at various times between 1910 and 1935 were exhibited. You can guess what the former were like: Landseer in bulk, the more respectable pre-Raphaelites with the usual sprinkling of scenes from English history and conquest.

*

Today the liveliness of Van Gogh and the French Impressionists in excellent reproductions provide a gay leavening to the survivals of the former selection; though they might get rid of a bit more of the romantic historical realism.

*

The paintings the children themselves make in the schools suggest that experiments with abstract art on the walls might be worth while—that they would naturally appreciate now what later environmental prejudices might inhibit them from understanding.

*

The significant change is, I think, that pictures for the schools are being chosen now as art and not as illustration.

BRICKS AND TILES

I notice with interest that the Tylers and Bricklayers Company has offered an annual gold medal, upon terms similar to those of the London Architecture Medal, to be awarded to the designer of the best London building constructed of these materials.

*

Besides being, perhaps, just a trifle inevitable it is a favourable sign for the future good effect of the medal that its first award should be to Sir Giles Gilbert Scott for the impressive brick surfaces of Battersea Power Station.

*

In the hands of a jury discreetly firm, it is not too much to hope that this award—which includes buildings of terra-cotta—may do something to bring to favour in the eyes of our merchant princes an external facing for London's buildings which can meet its atmosphere on equal terms.

MORE HOPEFULNESS

And whilst in this mood of mildly glowing optimism it would seem the right moment for me to congratulate the four Scottish Schools of Art who have asked Mr. McKnight Kauffer to adjudicate this year upon the work of their diploma students.

*

I know little of the recent work of Scottish schools, but, from a brief experience of an English provincial school, this invitation would seem to show that the spirit of the times, in the minor arts at least, is more really appreciated across the border.

*

Mr. Kauffer's first judicial circuit should be succeeded by many others which do not take him so far afield.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

"*The Town Planning and Building Acts Committees of the L.C.C. are to be combined in one committee . . . to simplify procedure and to prevent irritating delays*" 901

"*The Ruislip houses* are *deliberate—the only design showing really deliberate thought that I could find in a countryside search for a suitable house to live in*" 908

Analysis of a Building—2 909

The report of the Special Committee set up by the Council of the R.I.B.A., to consider the salaried and privately-practising bases for the employment of architects 914

RICHMOND ROAD SCHEME PROTEST

The residents of the adjoining villages of Ham and Petersham, Surrey, have formed a preservation society to oppose undesirable developments and, in particular, a scheme of the Richmond Town Council to build a new road which it is contended would not only destroy the amenities of Petersham but also spoil the celebrated view from Richmond Hill. Both villages contain fine examples of eighteenth century domestic architecture. The proposed by-pass is part of a five-year plan of "improvements" by the Richmond Council, but it is unlikely to be built if the Ministry of Transport and the Surrey County Council are unwilling to make grants which the Town Council considers adequate.

L.C.C. REHOUSING PROGRESS

By 1939 it is expected that the clearance of all the unhealthy areas in London will have been undertaken, according to a statement issued on behalf of the L.C.C. last week during a tour of rehousing schemes in Lambeth. Seven years is given as the time for the solution of the London slum problem. In this period it is hoped to re-house 250,000 people at a cost of about £35,000,000. At present 86 clearance schemes are in progress and operations involving the displacement and re-housing of 100,000 people are to be commenced within the next two years.

OPEN MEETING OF SALARIED ARCHITECTS

There was a considerable attendance at a meeting of salaried architects held by the A.A.S.T.A. at the Caxton Hall, on June 4.

Mr. R. Wynn Owen, F.R.I.B.A. (chairman), said that the meeting had been called to discuss the recent R.I.B.A. circular letter to municipal and local authorities. Today approximately 70 per cent. of the architectural profession were salaried men, and that great change would have to be accepted and the profession adjusted to meet it.

After the reading of the circular letter mentioned above the following motion was put to the meeting:—

"This meeting of architects in salaried employment recognizes the need for strengthening their representation on the Registration Council in order to protect their statutory and economic interests, which are jeopardized by the actions of architectural bodies which, though supported by the membership of salaried men, confine their influence to the promotion of the interests of private practising architects, as exemplified by the letter of April 5, 1935, of the Royal Institute of British Architects, sent to municipal and local authorities.

"It further desires to correct the implication therein contained that private practice is synonymous with the status of qualified architects.

"This meeting particularly protests against the vague aspersions cast upon officials of public authorities set forth in paragraph five of the letter referred to."

The above resolution was carried unanimously. The speakers included Messrs. V. Leslie Nash, T. Braddock, C. Hutton, S. Pointon Taylor, L. A. F. Ireland, R. Davies, H. S. King.

WEST YORKSHIRE SOCIETY OF ARCHITECTS

The inaugural meeting of the Halifax branch of the above society was held recently at the Old Cock Hotel, Halifax, when about sixteen members were present. The following were elected officers: Chairman, Mr. C. E. Fox; vice-chairman, Mr. G. Maddock; Hon, secretary, Mr. C. Sunderland; Committee, Messrs. Wm. Hall, C. E. Horsfall, A. Ingham and G. R. Oddy.

KING'S REACH

Sir Edwin Cooper, A.R.A., F.R.I.B.A., will design the tablet to commemorate the association of the part of the Thames between London Bridge and Westminster Bridge—now to be called the King's Reach—with the King's Silver Jubilee. The tablet is to be placed in a prominent position on the Embankment.

NEW FLATS IN PICCADILLY

A large block of flats, designed by Messrs. G. M. Adie, is to replace the house at 116 Piccadilly, at the corner of Down Street, which was the home for many years of the Junior Athenæum. The block is expected to be ready in June of next year and is to be called Athenæum Court.

MAIDSTONE TOWN HALL

The Maidstone Town Council has abandoned a scheme to build a new town hall on a site beside the river. It was thought that the cost of the scheme—about £120,000—would have been too great a burden on the rates.

GLASS CONFERENCE

At the Conference of the Glass Manufacturers' Federation, held recently at Folkestone, a paper entitled "Design and the Glass Industry" was read by Mr. Maxwell Fry.

The lecturer said that he intended to avoid talking about art as much as possible—for it was a term that had suffered by a century of misuse. He wished to go to the heart of the matter and to ask the Conference whether they would be happy to use every one of their products in their own homes. If the answer to this was that the manufacturer must cater for the public taste, he would agree that the design and making of things was inseparable from the world they lived in. But this should not serve as an excuse for perpetuating an unhappy state of affairs.

The standards of taste of the majority of the public had been depressed by the squalor by which they were surrounded—a squalor from which a gaudy salad bowl represented a small escape. Better surroundings might well discover a good judgment which those circumstances obscured.

The glass of the eighteenth century had had in it the essential quality of art—in it and not *on* it. The losing of this quality was the story of the industrial revolution.

From the beginning of that change in the life of the country design had been found almost only in engines and engineering structure: the domestic arts were barren. The public had by now become educated to judge and appreciate the beauties of machines, and were well catered for by men fully sensitive to the forms of abstract design.

This excellence of machine design was slowly spreading over an increasing range of products and must eventually touch upon the design of glass.

The lecturer said that he had stressed the machine aspect of the production of glass because they lived in an age when the wants of the majority of the people could be served only by machine production.

Pressed glass was now found in singularly beautiful forms, ranging from common bottles to electrical insulators, which fully displayed the ductile, transparent and reflective qualities of the glass. These simple

THE ARCHITECTS' DIARY

Thursday, June 13

ROYAL ACADEMY, *Burlington House, Piccadilly, W.1. Summer Exhibition. Open until August* 10. 9 *a.m. to* 7 *p.m.*

WHITECHAPEL ART GALLERY, *High Street, E.1. Exhibition of Mural Decorative Paintings. Until June* 15. 12 *noon to* 9 *p.m.*

R.I.B.A. EXHIBITION OF INTERNATIONAL ARCHITECTURE. *At the Walker Art Gallery, Liverpool. Until June* 30.

L.C.C. CENTRAL SCHOOL OF ARTS AND CRAFTS, *Southampton Row, W.C.1. Annual Exhibition. Until June* 28. 10 *a.m. to* 8 *p.m. Saturdays,* 10 *to* 12 *noon.*

Friday, June 14

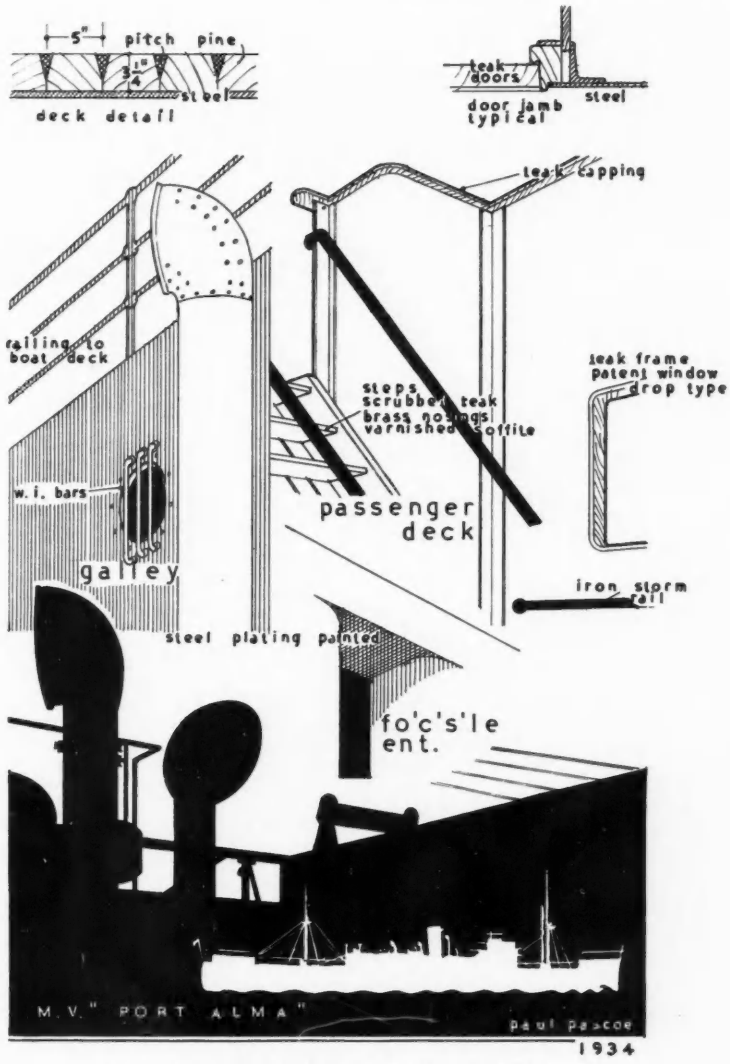
NATIONAL HOUSING AND TOWN PLANNING COUNCIL. *At the County Hall, S.E.1. Annual Conference.* 11 *a.m.*

Saturday, June 15

R.I.B.A. *Last day for receiving voting papers for elections of Council and Standing Committees. Also, Exhibition of Designs submitted for the Rome Scholarship. Until June* 22. *Open daily from* 10 *a.m. to* 8 *p.m. (Saturdays,* 10 *a.m. to* 5 *p.m.)*

Wednesday, June 19

R.I.B.A. *Annual Conference. At Glasgow. Until June* 22. *For programme, see page* 905 *of this issue.*



M. V. "Port Alma," Commonwealth and Dominions Line.

forms were more than any others aligned with the facts of industrial processes and the real needs of the people.

Mr. Fry concluded by quoting the principle upon which Professor Gropius based his system of training at the Bauhaus at Dessau : " Artistic design is neither an intellectual nor a material affair, but simply an integral part of the stuff of life."

R. I. B. A.

R.I.B.A. CONFERENCE AT GLASGOW

The headquarters of the R.I.B.A. Conference will be at the Glasgow School of Art, 162 Renfrew Street. Members should call there as soon as possible on arrival to obtain Conference badges, information, etc. The programme for the four days, June 19–22 inclusive, is as follows :

WEDNESDAY, JUNE 19.—8 p.m. to 11 p.m. Informal reception in the Assembly Hall of the Glasgow School of Art.

THURSDAY, JUNE 20, 10.30 a.m.—The Conference will assemble at the Fore Hall of the University for the Inaugural Meeting, and will be welcomed by Principal Sir Robert S. Rait, C.B.E., D.L., LL.D., J.P. The Inaugural Address will be delivered by the President of the R.I.B.A., to be followed by short addresses by Sir John Stirling Maxwell, Bart., K.T., of Pollok, and Professor T. Harold Hughes, F.S.I., F.R.I.B.A. 12.30 p.m.—Assemble in front of the University at the Main Entrance facing the Art Galleries, where the Conference photograph will be taken. *Lunch.*—Members of the Conference and their guests will make their own arrangements for lunch. 2.15 p.m.—ALTERNATIVE VISITS. By motor coach. All coaches will start from 162 Renfrew Street, the Conference Headquarters, at 2.15 p.m.

VISIT A.—Tour round Glasgow. On this tour some of the works of " Greek Thomson " will be inspected such as : St. Vincent Street Church, Gt. Western Terrace, Walmer Crescent, Bungalow 204 Nithsdale Road, Moray Place Terrace, Queen's Park Church, Eglinton Street Tenement, Caledonia Road Church. Prospects of the City will be viewed from Park Terrace and Pollokshields. Before finishing at 162 Renfrew Street, Glasgow Cathedral will be visited and, if time permits, Provands' Lordship, the oldest house in Glasgow, from which places Members who desire may disperse. Cost per head, 2s.

VISIT B.—Visit to Formakin, Bishopton, residence of John Holms. Building designed by the late Sir Robert Lorimer. Attractively laid out garden. Cost per head, 2s. 6d.

VISIT C.—To Paisley Abbey : commenced in twelfth century and completely restored within last twenty years by Sir Rowand Anderson, Dr. McGregor Chalmers and Sir Robert Lorimer. Cost per head, 2s. 8 p.m. to 11 p.m.—Reception by the Lord Provost and Magistrates of the City of Glasgow.

FRIDAY, JUNE 21.—ALTERNATIVE WHOLE-DAY TOURS. (All coaches will start from 162 Renfrew Street, the Conference Headquarters.)

TOUR NO. 1.—9.15 a.m. to 5.30 p.m. By motor coach. Coaches will proceed by Kilmarnock Road through Whitecraigs, Newton Mearns, and over Fenwick Moor to Rowallan Castle, where a halt will be made by kind permission of Lord Rowallan. The old Castle now disused is situate in the grounds, and the new Castle, the seat of Lord Rowallan, is a fine example of the work of the late Sir Robert Lorimer. Continue through Kilmarnock to Dean Castle, and thereafter the party will proceed to Ayr, passing Mauchline, Burns' House, Poosie Nansie's Inn, Barskimming Bridge, Stair House, Auld Brig o' Ayr, Cromwell's Fort, Tower of St. John Baptist, Ayr. (LUNCH.)

Leaving Ayr continue past Burns' Cottage (the birthplace of Robert Burns), and a short stop will be made at Burns' Monument, Alloway Kirk, and Brig o' Doon. Continuing via Maybole Castle, Crossragual Abbey will be viewed and thereafter proceed by Kirkoswald to Turnberry. (TEA). Here are fine views of the Firth of Clyde and the golf courses. The return journey will be made by Culzean Castle, Shore Road, Dunure, Ayr, Prestwick, and Kilmarnock to Glasgow.

This tour is arranged to traverse part of Ayrshire commonly described as the Land of Burns, associated with the history of Scotland's national poet, and to provide an opportunity of viewing a few of the mediæval and other examples of Scottish architecture. *Leader :* Mr. James Carrick, L.R.I.B.A. Cost, including lunch and tea, 12s. 6d. per head.

TOUR NO. 2.—9.15 a.m. to 5.30 p.m. By motor coach. Coaches will proceed by Bearsden, Buchanan Castle Gate, and Drymen to Aberfoyle in the heart of the Rob Roy country, where a halt will be made at the famed Bailie Nicol Jarvie Hotel. From Aberfoyle the route to the next halt at Dunblane will be by the

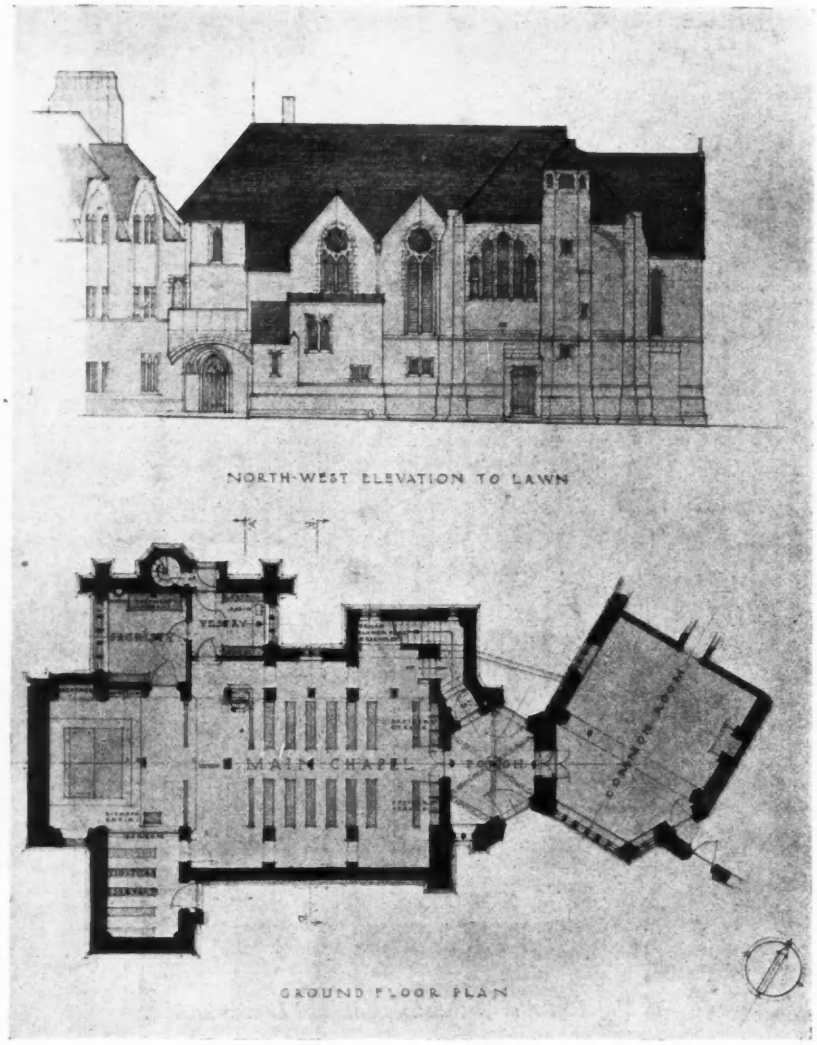
Lake of Menteith, Thornhill, and Doune. At Dunblane time will be allowed for an inspection of the fine old cathedral, in which are some beautiful stained-glass windows. The next halt will be at Gleneagles, where lunch will be served in the Gleneagles Hotels.

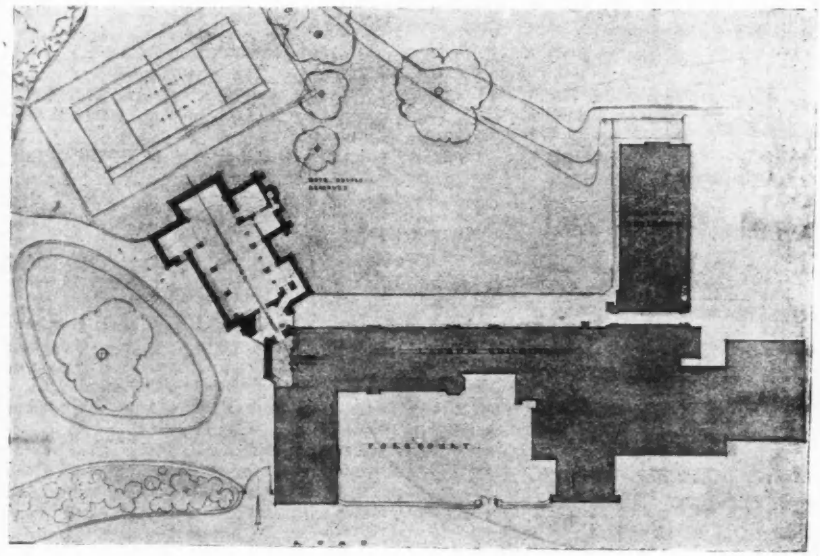
Stirling is the next objective, and the route from Gleneagles will be through Glen Devon to the Yetts o' Muckart, and from thence by the Hill Foots road through Dollar, Tillicoultry, Alva, and Menstrie to Stirling, where afternoon tea will be served in the Golden Lion Hotel. The final stage of the tour will be from Stirling by Dumbarton Road, to Kippen, Buchlyvie, Balfron, Killearn, Strathblane, and Milngavie on the outskirts of the City of Glasgow. This tour offers a fine opportunity of seeing at close quarters the real character and some of the finest scenery in Central Scotland. *Leader:* Mr. A. N. Malcolm, F.R.I.B.A. Cost, including lunch and tea, 12s. 6d. per head.

TOUR NO. 3.—9.30 a.m. to 5.15 p.m. By steamer. This tour or sail will be by the turbine steamer *Queen Mary II*, which will accommodate between 350 and 400 passengers, and which has been specially chartered for the whole day. Leaving Glasgow Bridge Wharf at 9.30 a.m. proceed down the River Clyde, passing shipyards on the right and left banks of the river. About half-an-hour after leaving, the yard of Messrs. John Brown & Co., Ltd., and the new Cunard White Star liner *Queen Mary* will be seen. From here the river winds its way to Bowling Harbour, where the Forth and Clyde Canal joins the Clyde. Leaving the pier behind, the ruins of Dunglass Castle, an ancient seat of the Colquhouns of Luss, will be passed. There is an obelisk at this point erected in 1839 to the memory of Henry Bell, whose little vessel, the *Comet*, is the pioneer of passenger craft driven by steam power in the year 1812. The Castle Rock, Dumbarton, famous in Scottish history, will also be seen. After rounding Toward Light, passing Rothesay on the left, the beautiful Kyles of Bute will be entered. On the right, at the foot of the hills, is the village of Tighnabruich. Passing Ardlamont point on the right, Loch Fyne will be seen and Lochranza on the Isle of Arran is reached. An hour's stop (after lunch) will be made here and passengers will be allowed to go ashore. Tradition associates Lochranza Castle ruin with King Robert Bruce, but antiquarians are in doubt as to its age. Leave Lochranza after an hour's stay, at about 2.45 p.m. The steamer will sail round the North end of Arran, make for the Garrochhead and pass between the Islands of Cumbræ, within sight of Millport on the larger island, and Largs on the mainland. Further on Wemyss Bay will be passed and thence up the Firth past the Cloch Lighthouse and into Gourock, where the L.M.S. train for Glasgow will be waiting.

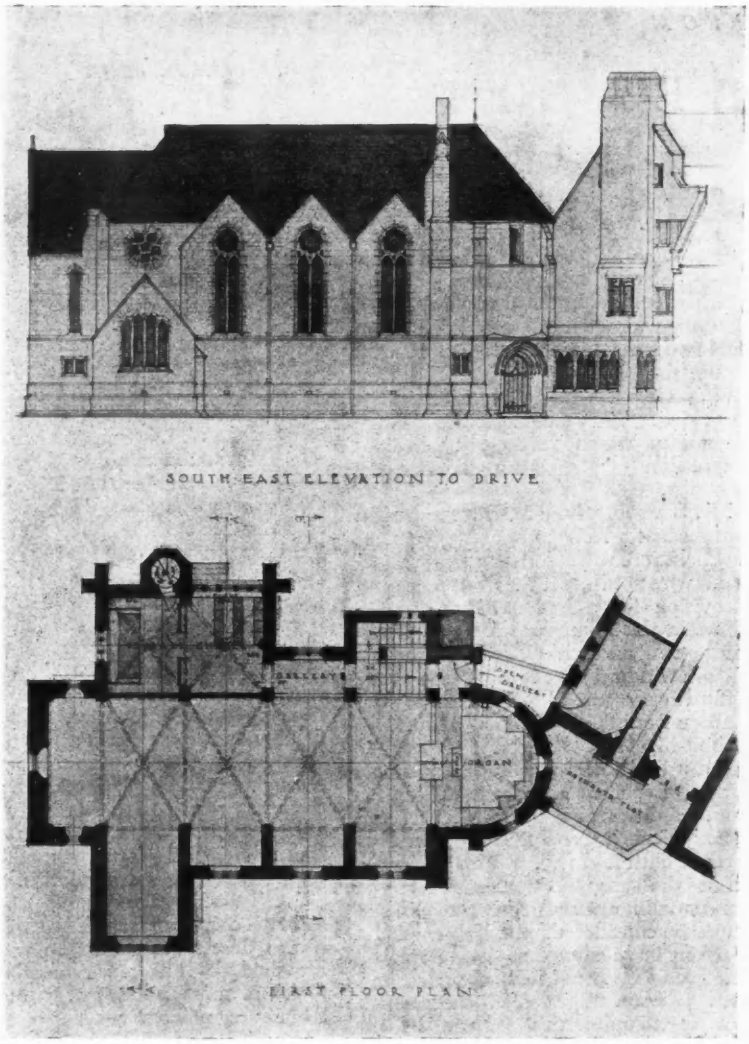
Tea and coffee will be served on board during the forenoon and lunch before going ashore at Lochranza. Afternoon tea will be served before disembarking at Gourock. The sail will afford visitors the opportunity of seeing the shipbuilding

COMPETITION FOR CHAPEL AT





CUDDESDON COLLEGE, OXFORD



As announced in last week's issue, Mr. Edward Maufe, F.R.I.B.A., the assessor in the limited competition for a new chapel at Cuddesdon College, near Oxford, has awarded first place to the design submitted by Professor H. S. Goodhart-Rendel, F.R.I.B.A. The other competitors were: Mr. J. N. Comper, Mr. S. E. Dykes-Bower, A.R.I.B.A.; Mr. J. H. Gibbons, F.R.I.B.A., and Professor A. E. Richardson, F.R.I.B.A.

The winning design is illustrated on this and the facing page.

The assessor, in his report, said:

"After careful examination of the designs submitted in this competition I consider that No. 3 (Mr. H. S. Goodhart-Rendel) provides the best solution to the problems involved, and is definitely outstanding in architectural merit—therefore I place it first. I have no hesitation in endorsing the reasons given by No. 3 in his report for the siting of this chapel. He gives the following four points: (1) The house is brought into architectural relation with the College. (2) The existing drive and the grass surrounding the tree are undisturbed. (3) The west front of the College is kept as open to the south-west as possible. (4) The connection between College and Chapel is simple and convenient.

"But what I think far more important is that this chapel will group up admirably with the College buildings, and be right with the lie of the land. The plan fulfils the requirements of the conditions of the competition; it is simple and practical, yet romantic in conception."

WINNING DESIGN: BY H. S. GOODHART-RENDEL

on the River Clyde, and the magnificent scenery of the Kyles of Bute.

Cost, including morning tea or coffee lunch, tea, and steamer and rail fares, 17s. 6d. per head.

7 p.m. for 7.30 p.m.—Conference Banquet in Central Hotel. The guests will be received by the President of the Institute, the President of the Royal Incorporation of Architects in Scotland, and the President of the Glasgow Institute of Architects. Cost of dinner (exclusive of wines and cigars), 15s. Evening dress, decorations, presidential badges.

SATURDAY, JUNE 22.—INFORMAL VISITS.—Private parties to other places of interest. Members to make their own arrangements. Information will be available at the Conference Office.

COUNCIL MEETING

Following are some notes from a recent meeting of the Council of the R.I.B.A.:—

Ancient Monuments Board for England:—Sir Banister (Flight) Fletcher (Past-President) was re-appointed as the R.I.B.A. representative on the Ancient Monuments Board for England for a further period of five years.

The Twenty-first Annual Conference of the National Association for the Prevention of Tuberculosis, Southport:—Mr. Albert Schofield (F.) was appointed as the R.I.B.A., delegate to the above Conference.

Standardization of Mortars:—Mr. Francis R. Taylor (L.) was appointed to represent the R.I.B.A. on the B.S.I. Technical Committee B/31, Mortars.

Acoustical Terms and Definitions:—Mr. Alister G. MacDonald (A.) was appointed to represent the R.I.B.A. on the B.S.I. Technical Committee B/26, Acoustical Terms and Definitions.

Standardization of Heating Boilers:—Mr. H. Ingham Ashworth (A.) was appointed to represent the R.I.B.A. on the B.S.I. Sub-Committee ME/34/4, Heating Boilers, which is considering the preparation of British Standard Specifications for Central Heating and Hot Water Supply Boilers.

Standardization of Rubber Flooring:—Mr. O. P. Bernard (L.) was appointed to represent the R.I.B.A. on the B.S.I. Technical Committee B/33, Rubber Flooring.

Standardization of Slates and Tiles:—Mr. S. Pointon Taylor (F.) was appointed to represent the R.I.B.A. on the B.S.I. Technical Committee B/5, Slates and Tiles, in place of Mr. Edwin Gunn, who had found it necessary to resign therefrom.

Standarization of Asphalt for Roofing:—Mr. A. H. Barnes (F.) was appointed to represent the R.I.B.A. on the B.S.I. Technical Committee B/2, Asphalt for Roofing, and Sub-Committee B/2/1, Asphalt for Roofing (Drafting) in place of Mr. Edwin Gunn.

R.I.B.A. Architecture Medals: Western Australia:—Lt.-Gen. Sir Talbot Hobbs (F.) was appointed as the R.I.B.A. representative on the Jury set up to make the award for the R.I.B.A. Architecture Medal for Western Australia.

The London Building Act and the Town Planning Act:—It was decided to set up a Joint Committee of representatives of the London Building Act Committee and the Town Planning and Housing Committee to consider the administration of the

London Building Act and the Town Planning Act with a view to the simplification of procedure and the expediting of consents to build in the London Area.

Reinstatements :—The following ex-members were reinstated : As Associate : Mr. L. H. Kearne. As Licentiates : Messrs. J. Anderson (Retired Licentiate) and E. Stockwell.

Resignations :—The following resignations were accepted with regret : Messrs. H. Booth (L.) and J. T. Lawrence (L.).

Transfers to the Retired Members' Class :—The following members were transferred to the Retired Members' Class : *As Retired Fellows* : Messrs. H. Bragg, J. Crouch, J. Cubbon and W. B. Dawson. *As Retired Associate* : Mr. H. Ross. *As Retired Licentiates* : Messrs. J. G. Chignell and F. C. Wren.

R.I.B.A. HOUSTON MAINTENANCE SCHOLARSHIPS

The R.I.B.A. offers for award in July 1935, in addition to the R.I.B.A. Maintenance Scholarship of a maximum value of £100 per annum, two Houston Maintenance Scholarships of the maximum value of £100 per annum each.

The Houston Maintenance Scholarships are for the purpose of providing educational and maintenance allowances for the sons of architects and artists who may be, or at the time of their death were, in impecunious circumstances, whether such architects or artists are alive or dead.

Particulars and forms of application may be obtained on application to the Secretary to the Board of Architectural Education of the R.I.B.A., 66, Portland Place, London, W.1. The closing date for the receipt of applications, duly completed, is June 17.

COMPETITION NEWS

COMPETITION RESULT

The first premium in the competition for a new library block at Ackworth School has been awarded to Mr. H. H. Castle. The competition was open to members of the Society of Friends and to old students of the school. About thirty schemes were submitted.

The library will consist of a large reading room lined with bookcases and with bays for study. The main room will be used for lecture purposes also.

Mr. Castle, who is twenty-two years of age, is at present a research student at the Leeds School of Architecture.

The assessors were, Messrs. J. J. Wood, A.R.I.B.A. and Hubert Lidbetter, F.R.I.B.A.

THE SOUTH AFRICAN EXHIBITION, 1936

A feature of the organization of the great South African Exhibition which is to be held in Johannesburg in the latter part of 1936 and the early part of 1937 is the promotion of a competition for architectural designs (states *The British South African Export Gazette*). These are required for the façades of the various temporary structures which will be erected, and the competition is open to young architects and students in South Africa, to whom substantial prizes are offered.

The Institute of South African Architects is conducting the competition.

LETTERS *FROM* READERS

J. W. JONES

H. R. FINN, L.R.I.B.A.

The Ruislip Houses

SIR,—The Ruislip houses *are* deliberate—the only design showing really deliberate thought that I could find in a country-wide search for a suitable house to live in. I bought the first Ruislip house for £1,095 ; a reasonable sum considering the fittings and amenities provided. They *are* odd to the average mentality which sees oddity in any expression of deliberate evolutionary thought.

Mr. Lawson, whose letter appeared in your issue for May 30, should give more deliberation to his criticisms, for there is no wire netting on the front fence but provision for a hedge. French windows in this house *are* of use to obtain more sun and air cheaply (standard french windows) and easily. Also they afford easy means of access to the garden from the living room. However rabbit-like Mr. Lawson sees me, I need a hall to be a passage and not a waste of space. I find the concentration of doors and stairs efficient and economical, just as I find the combination of bath and w.c. I do not suffer from the separate w.c. snobbishness. In a small house single items of expense must be considered, but if I needed a balcony large enough to sit on no doubt the architects could have designed one. Mr. Lawson might read the sensible comment upon this feature in the issue of your JOURNAL for May 23 last. The french window again gives added spaciousness, but is screened as an opening to a bedroom.

The first point in Mr. Lawson's letter seems a common bugbear. I am satisfied that the window to the staircase is an added amenity. With 50 per cent. of it glazed with an insulated opaque glass which has the quality of light diffusion and with a small radiator at the foot (the house is centrally heated) it is a sensible piece of design. From the point of beauty it seems to me we are getting back to proper relationship with space and air and giving up the small window gentility of late years. I am not a window cleaner to judge the awkwardness of these windows, but I feel certain that I can get them cleaned easily and inexpensively.

Finally, as an engineer, I must say that Mr. Lawson's criticisms do not seem born of reason but of prejudice, and, if he is an architect, I look *forward* to seeing his solution to the problem of the suburban house.

J. W. JONES
Ruislip

SIR,—I have made great efforts to appreciate these houses, as the JOURNAL has enjoined, but I have failed, and I must associate myself with your correspondent W. Lawson, of Birmingham, who talks sound sense.

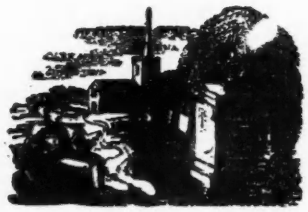
Your commentator thinks it probable that the inhabitants of Ruislip will consider that these houses represent "the return to sanity and reasonableness in small house design," but it seems to me unfortunate to make so sweeping a claim on such slight grounds.

The staircase windows alone would render the houses unendurable during extremes of temperature, unless artificial means, expensive to install and to operate, were employed to counteract the effect of such eccentricities; while the arrangement of these windows must afford to the unhappy users of the staircases all that privacy which his glass bowl ensures to a goldfish.

The interior photograph does not seem to correspond with the plan, but if the door with semicircular shelves attached to it is a service fitting, it looks a most unhappy arrangement from every point of view.

I confess, without shame, that I consider the first necessity of a house to be comfort for its tenants, after that has been thought out, and only then, has one any right to decide how clever one can be about its outward appearance.

H. R. FINN
St. Albans



Consulting Architect, Worcester Cathedral

Mr. W. H. R. Blacking, F.R.I.B.A., of Salisbury, has been appointed consulting architect of Worcester Cathedral in place of the late Sir Harold Brakspear.

ANALYSIS OF A BUILDING : 2

All architects know that "design" is not a matter of ornament applied to a workable plan, but is the inherent result of the proper planning of a building and the arrangement of its parts. The final result, however, gives no indication of the processes of evolution, the testing and rejection of tentative solutions, or the demands of a particular client; technical interest in the design is lost when the conditions are not fully appreciated. The aim of this series of analyses is to explain the steps leading up to the ultimate building; the presentation of the whole problem is far from easy, but the arguments advanced should provide food for thought even though they may not be universally acceptable.

HOUSE IN HAMPSTEAD BY E. MAXWELL FRY (OF ADAMS, THOMPSON AND FRY).

PROGRAMME

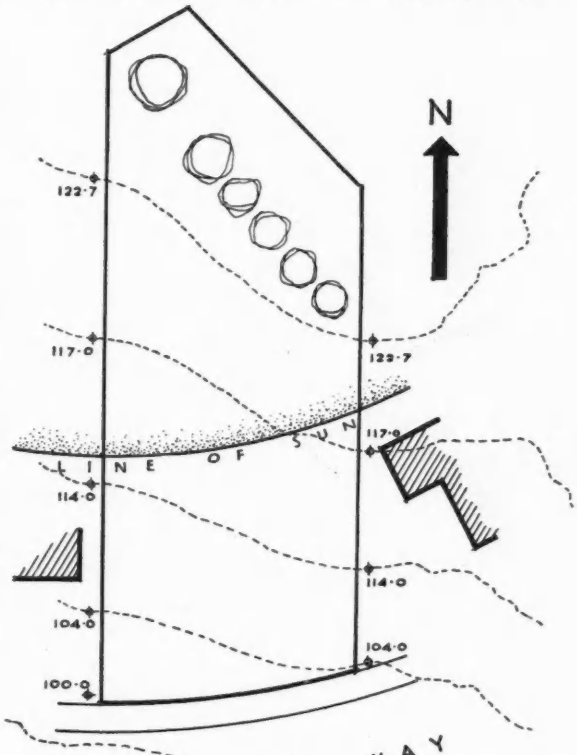
A SITE. A small and expensive piece of land sloping steeply to the south on to a quiet road, with a further fall beyond. There is a line of large elms across the top of the site.

REQUIREMENTS. A family of two, with housekeeper in charge of house by day, and no other service. There should be large spaces for the entertainment of friends, but provision should be made for one guest room only. The house must be planned for the maximum of usable space and light, but must be well warmed in cold weather. It should provide terraces for recreation and relaxation, which should neither overlook nor be overlooked by neighbours. Easily cleaned materials, built-in fitments and self-operating machinery should be used to reduce labour.

DETAILED REQUIREMENTS.

(*a*) Large living-room and dining space.
(*b*) Kitchen, servery, housekeeper's room.
(*c*) Own bedroom, dressing-room and bathroom en suite, with dressing-room as bedroom.
(*d*) Guest room and bathroom.
(*e*) Sewing room.
(*f*) Dark room.
(*g*) Cloakroom and lavatory.
(*h*) Garage.
(*k*) Roof terrace, tea terrace.

Note.—All living-rooms and principal bedrooms should face direct south.

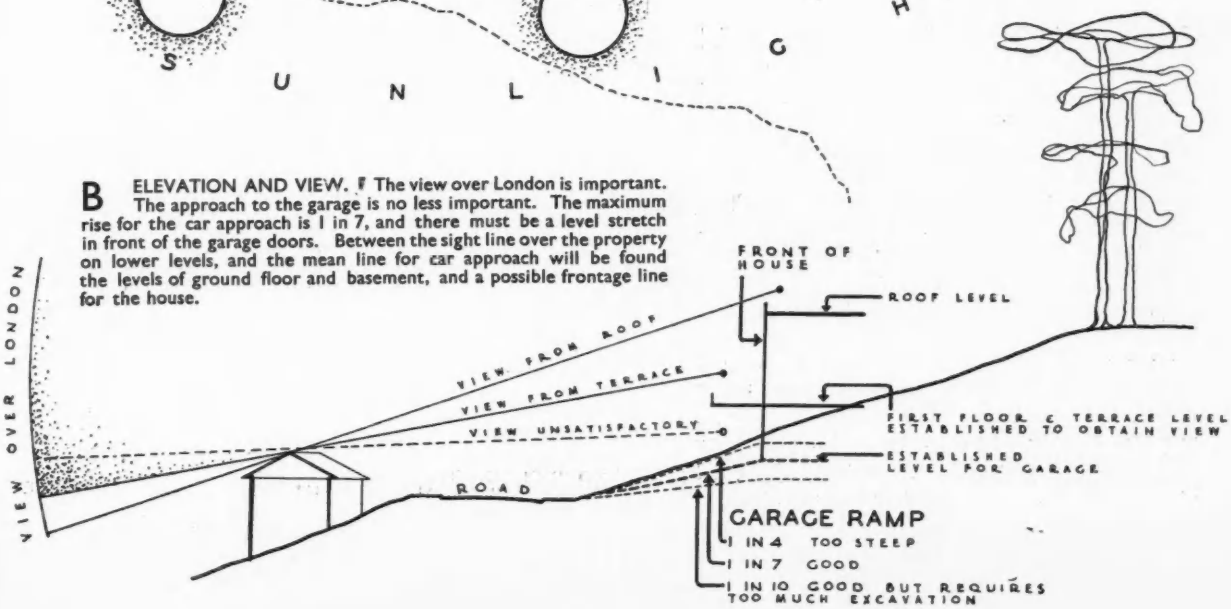


SITE. The fall is diagonal to the length of the site, the road sloping steeply.

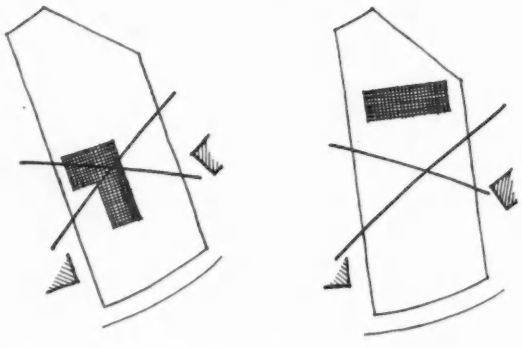
SUNLIGHT. The site commands a nearly unobstructed daily range of sunlight in winter and summer. Lines normal to the road frontage give a workable approximation to maximum sunlight penetration, and the enjoyment of varying conditions of sunlight.

SECTION. The flat portion above is occupied by large trees. The ground is clay with a safe bearing of 1½ tons load per sq. foot, obtained from borings. Note the slight flattening of fall on the section, which is taken towards the eastern boundary. This suggests a garage entrance.

B ELEVATION AND VIEW. The view over London is important. The approach to the garage is no less important. The maximum rise for the car approach is 1 in 7, and there must be a level stretch in front of the garage doors. Between the sight line over the property on lower levels, and the mean line for car approach will be found the levels of ground floor and basement, and a possible frontage line for the house.

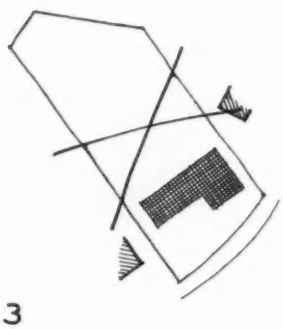


ANALYSIS OF A BUILDING: 2.

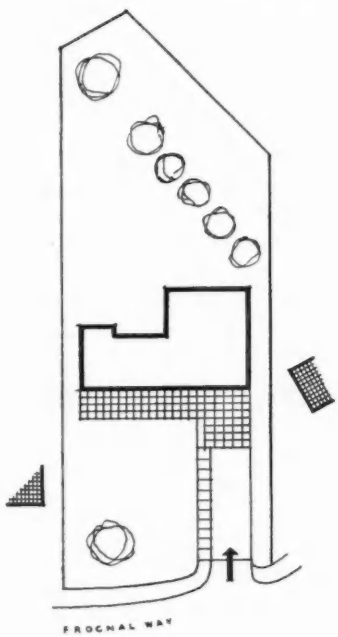


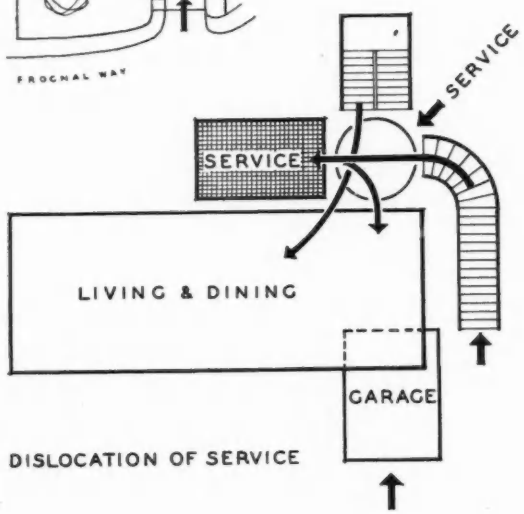
1

2

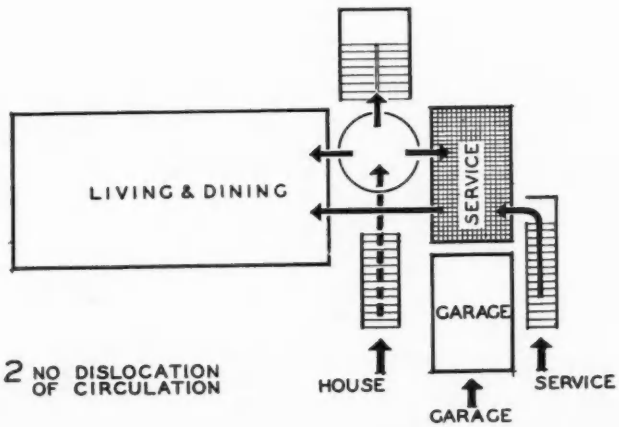


3





1 DISLOCATION OF SERVICE



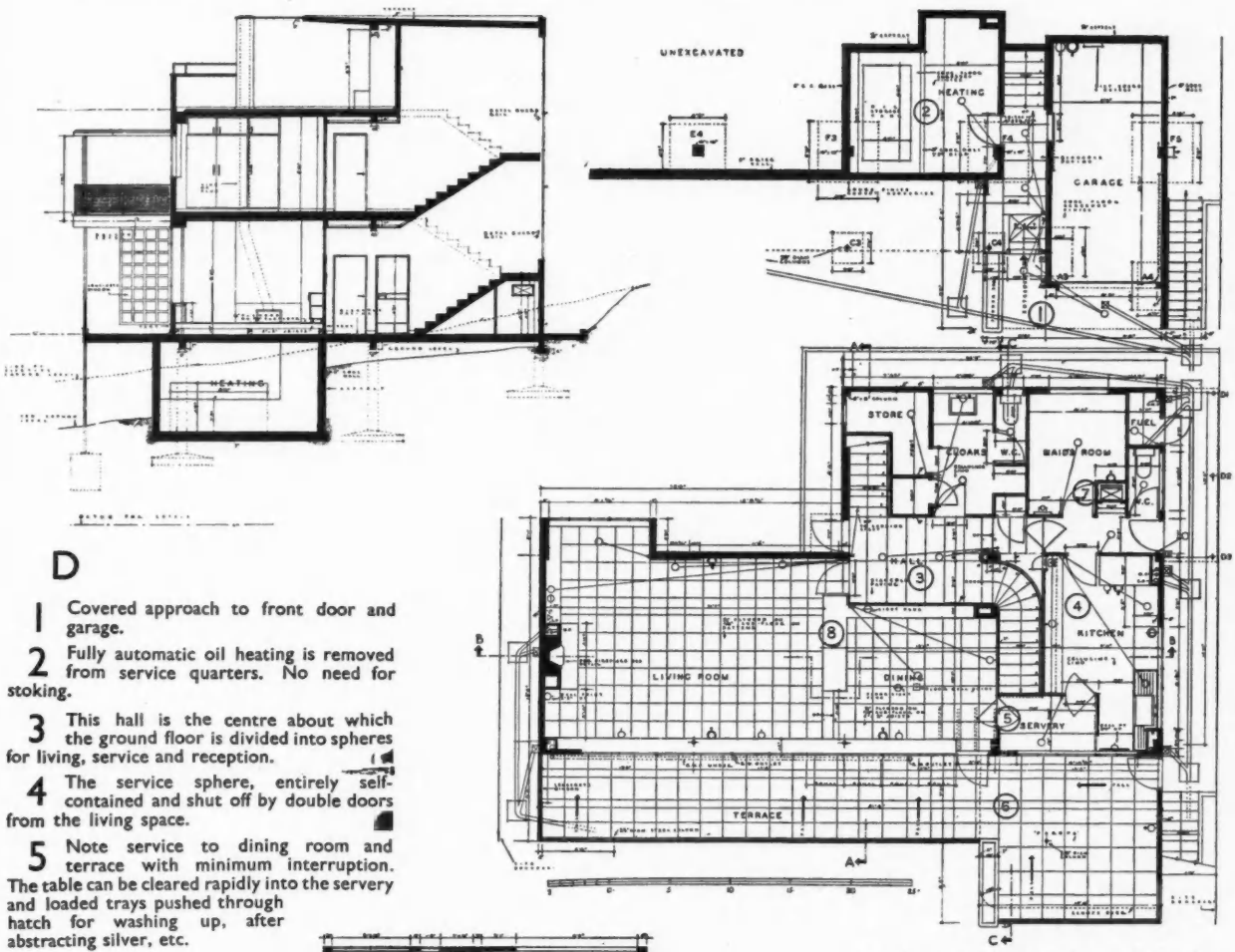
2 NO DISLOCATION OF CIRCULATION

THE PROBLEM RE-STATED.

C As arrived at by the foregoing consideration, we have a house of which the living-rooms and bedrooms above occupy most of the width of the site. The garage will be on the right, and will probably project to form a terrace. Entrance will be from a lower level and should not obtrude upon the living space. This *must* be entered from the side or from behind : practically and psychologically. From this a dilemma: how to avoid crossing the circulations of service and entrance to living space and bedroom space ? Entrance from outside, whether from the garage terrace or from the end, cannot reach living spaces without choking the circulations from service to living space. For easy running, service, entrance and stairs must be close together, but the service circulation must be short and unbroken. The two main alternatives are shown diagrammatically. They turn upon circulation, and Fig. 2, which is in effect an underground by-pass, leaves the service intact. See next page for details.

TRIAL AND ERROR. The scientific approach offers clear indications, but the goddess Chance still whispers : what about a house on the long axis ? (Fig. 1). Or on top of the site with all the goods in the window ? (Fig. 2). Or near the admittedly quiet road, with garden hidden away behind ? (Fig. 3). No, to all of them. Tested by sunlight, elevation, view, privacy, economy in foundations and ease of garage approach, chance has nothing better to offer.

HOUSE BY E. MAXWELL FRY



D

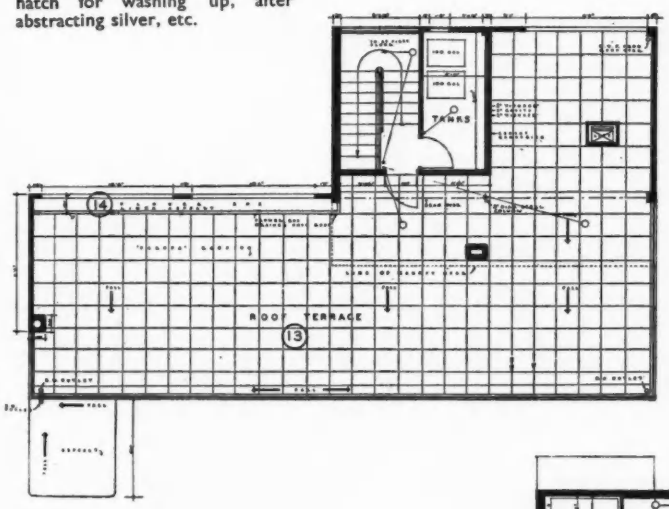
1 Covered approach to front door and garage.

2 Fully automatic oil heating is removed from service quarters. No need for stoking.

3 This hall is the centre about which the ground floor is divided into spheres for living, service and reception.

4 The service sphere, entirely self-contained and shut off by double doors from the living space.

5 Note service to dining room and terrace with minimum interruption. The table can be cleared rapidly into the servery and loaded trays pushed through hatch for washing up, after abstracting silver, etc.



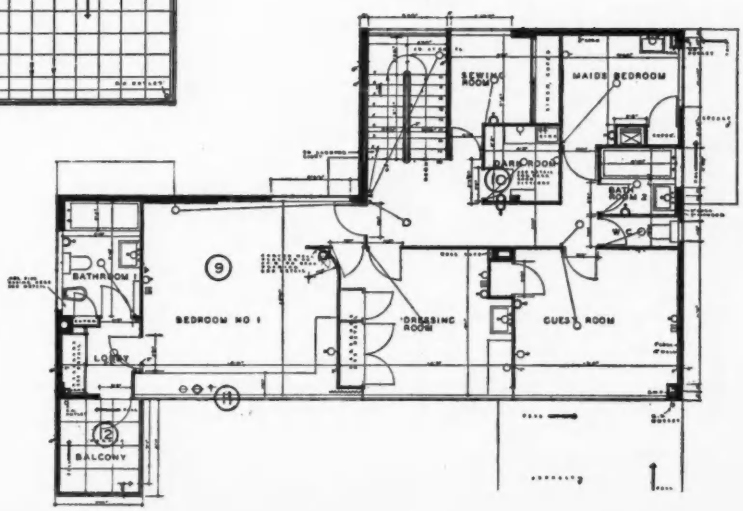
6 Terrace with wide views—sheltered at each end from winds, with one large sun shelter from summer sun and rain.

7 Lift to roof terrace.

8 Low division between dining and living room. This is a fitted cocktail and wine cabinet.

9 This is a complete suite equipped and practically furnished.

10 Dark room placed in the dark spot.



11 Continuous sliding windows.

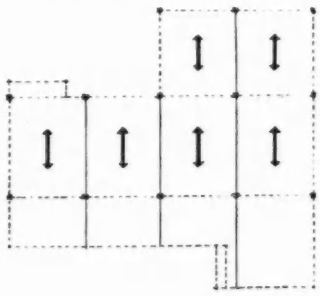
12 Balcony for summer night sleep or morning stretch.

13 Paved roof terrace with views over London.

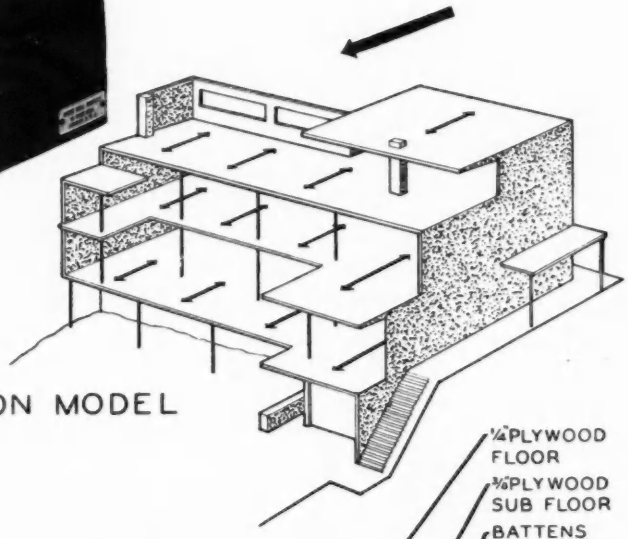
14 Built-in flower box.

ANALYSIS OF A BUILDING: 2.



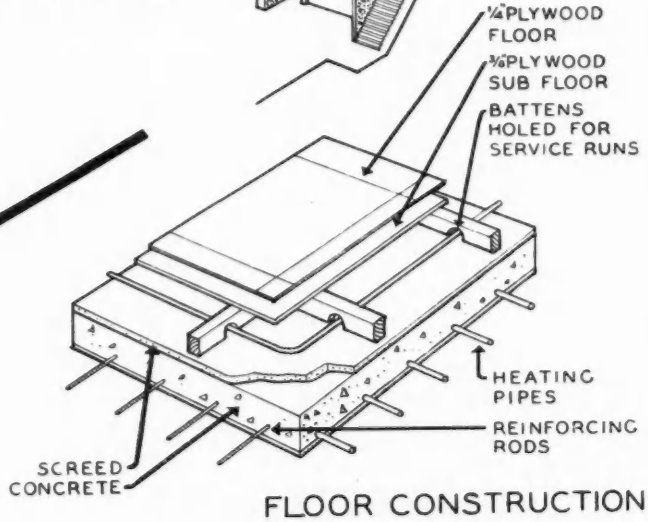


FRAMING PLAN

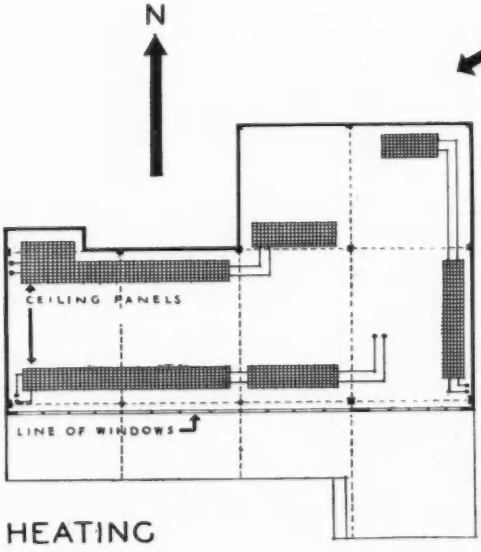


SKELETON MODEL

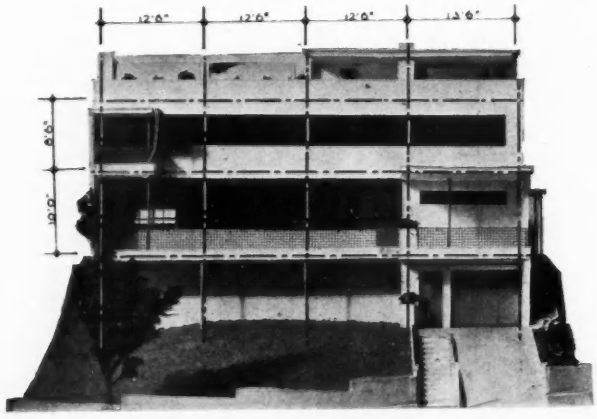
E STRUCTURE. The structural skeleton shows that fenestration is conditioned by considerations of weather protection, insolation, heating and prospect. In a framed structure the wall is a covering only.



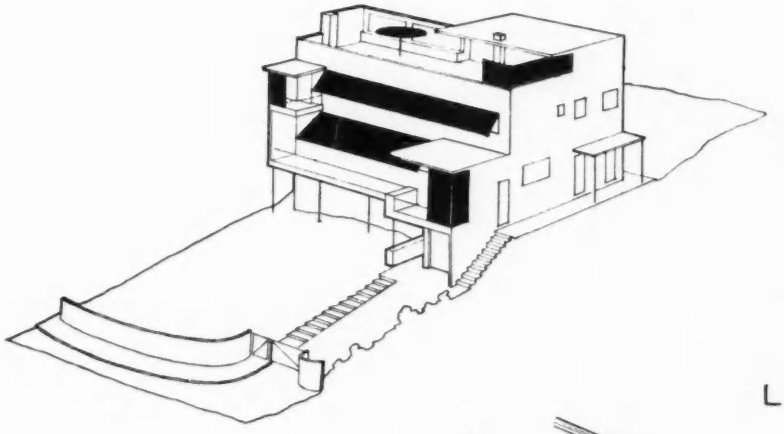
FLOOR CONSTRUCTION



HEATING



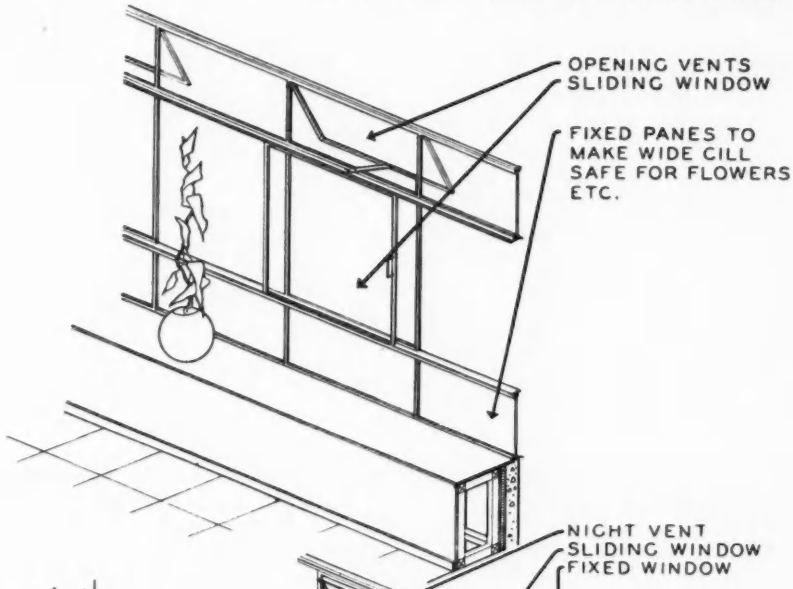
HOUSE BY E. MAXWELL FRY

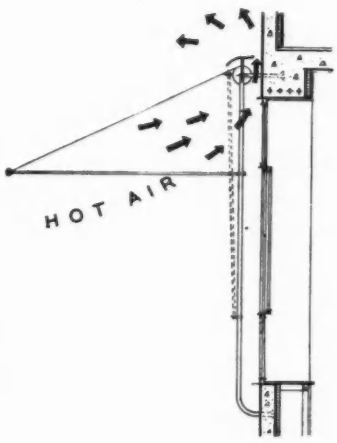


PROTECTION FROM SUN

F A roof terrace is useless unless it gives a feeling of security and can be easily adapted to differing conditions. Large windows presuppose both good radiant heating inside and efficient sun protection outside.

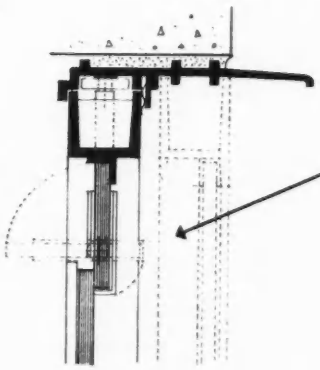
LIVING ROOM WINDOWS



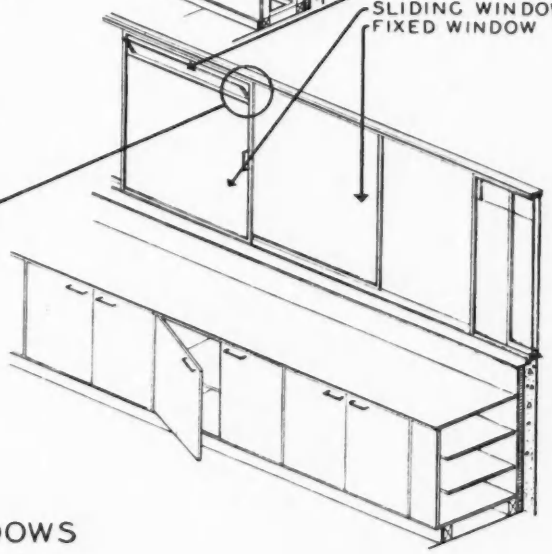


SUNBLINDS

G Roller blinds fixed a few inches from the wall face, with independent cover for roller, allow the hot air that gathers under the blind to escape upwards. Cooling in summer is largely a matter of circulation.



DETAIL



BEDROOM WINDOWS

SALARIED AND PRIVATELY-PRACTISING ARCHITECTS

Following are some extracts from the Report of the Special Committee, set up by the Council of the R.I.B.A., to consider the salaried and privately-practising bases for the employment of architects. The Report has been written by Sir Raymond Unwin as Chairman of the Committee. In addition to Sir Raymond Unwin, the Committee consisted of six members of the Institute, three of whom are in private practice and three of whom occupy official posts, and they represented both London and the country. The Report has received the unanimous approval of the Council and has been sent to 2,250 local authorities in Gt. Britain and Northern Ireland.

ON behalf of the Special Committee appointed to consider certain aspects of the question of Official Architecture, I have the honour as Chairman to report that the matters referred to the Committee have been carefully considered, and although the representatives of private practice and official architecture would each naturally wish to lay stress on different aspects of the question, the following represent considerations and conclusions as to which there is substantial agreement. The reference to the Committee was contained in a minute of your Council dated December 12, 1933, which read as follows :—

> The Council have had under consideration, as a point of departure, a private and confidential document on the subject of Official Architecture, dated July 12, 1933.
>
> In this document four distinct elements connected with the subject are separately dealt with. They are :—
>
> (*a*) Private practice carried on by a whole-time officially employed architect.
>
> (*b*) Architectural work entrusted by a Public Authority to a person who is not a trained architect.
>
> (*c*) Architectural work carried out by an unnamed assistant for an unqualified official who takes the credit of the work.
>
> (*d*) Government or official work entrusted to a fully qualified member of the R.I.B.A. on a salary basis.

The Committee were informed that the situation arising under the last paragraph (*d*) of the minute was the one which alone they were asked to consider.

The first principle to be laid down would seem to be that in all cases where the nominal architect, whether an official or in private practice, is mainly responsible for the business administration or the structural science, and where the design, as apart from these, depends on some subordinate or assistant architect, the recognized etiquette of the profession should be that the name of the architect responsible for the design is associated with the work.

The development of Government and Local Government activities and their extension to new and wider fields, and the development of business firms extending over wide areas and having many branches, all tend to create new conditions. In such cases there is a great deal of architectural work, maintenance of building, alterations, the erection of new branch buildings especially adapted to a technique which has been developed by long experience, and so forth, which can most conveniently be carried out by men specializing in that work, retained for it, remunerated by salary and becoming in fact more or less completely officials.

All these conditions tend to emphasize the administrative, scientific and constructional aspects of architecture ; and in many cases to relegate high quality of design and imaginative planning to a subordinate position. Those appointing chief architects for these purposes are more likely to be influenced by high administrative and executive qualities than by outstanding designing ability. In any case, such chief architects must have their time and attention largely occupied by routine duties ; and they can seldom be in the position to get free from such duties to a sufficient extent to be able themselves to undertake the planning and designing of any extensive buildings.

These considerations seem to point to dangers in the undue development of official architecture. On the other hand, the natural pride of the official architect in his work and the desire, which he must frequently feel, himself to essay the design of the chief buildings called for are legitimate considerations which not only affect the chief architect, but affect also his assistants, who will naturally wish to have the opportunity to work upon the best buildings that are called for.

As regards the system of remunerating architects on a salary basis, whether by public bodies or by commercial organizations, the committee see no reason to take exception to this basis, provided that abuses are avoided, such for example as are referred to in paragraphs (b) and (c) of the minute recited above, and the architect is adequately remunerated and is given credit as designer for the work for which he is personally responsible.

No doubt architects in private practice, especially in provincial towns, frequently feel aggrieved when, in hard times, their own practice dwindles, while their officially employed confrère does not share in the loss which the depression causes. There can hardly be any architect, official or otherwise, who would not be sympathetic under such circumstances ; and if the official architect were dealing with more work than should be dealt with by one man a grievance would undoubtedly exist.

Such a situation if abnormal in duration or extent would clearly be an abuse of the system of official employment ; such abuse is not, however, a valid ground on which to condemn the system in principle.

The practising architect is naturally impressed with that aspect of the problem which is represented by his finding what appears to be a favoured competitor to whom a large practice is secured by his official position. As regards such rival claims for commissions, if there were no official architects it is reasonable to suppose that the same men would be added to the number seeking a share of the same work in private practice. Probably, therefore, this aspect of the matter is not one of the most important. That a constant stream of work of growing importance should, however, be securely directed to be carried out by architects who may be chosen mainly on account of administrative qualifications by local authorities, who are thinking mainly in terms of cost and are less interested in good design, may well prove a danger to architecture. It may also become an ultimate source of legitimate grievance to those architects who may feel that there are equally well qualified men and better designers who do not get their share of the existing opportunities for the exercise of their faculties.

Here then is the problem ; and the above considerations seem to suggest that solutions are likely to be found :

(*a*) By directing attention first to the need for securing the best possible architecture, with a view mainly to securing that important buildings shall be entrusted to the best designers. The R.I.B.A. have encouraged and perfected the system of competition as a means of selecting the architects, and the more general adoption of this method would do much to meet the difficulties ;

(*b*) by recognizing that in the great complexities of modern conditions, requirements, materials and structural progress there is ample place in the architects' profession for men who, having a sufficient range of knowledge over all the aspects of architecture, are nevertheless specially qualified only in one or two, either as designers, constructors, or administrators ; and that to expect in the majority of cases that all these faculties will be united in one person in supreme degree is unreasonable ;

(*c*) by appreciating that there may be a tendency for designers to come to the fore in private practice, while in official work there is a greater risk that administrators and constructors may obtain the chief posts.

The conditions seem to point to the further suggestions that the practising architect should be more ready to ally his designing faculties with the administrative skill and special experience of official architects of special administrative ability in some form of co-operation ; that official architects should realize that there may be men better qualified than themselves in the matter of design, and be more ready to seek their help and co-operation ; that they should recognize as architects that the first duty of an official architect is to secure good buildings ; and that the greater the importance or prominence of the building, either in character or location, the more necessary it is that the supreme quality of design should be present to harmonize and crown all other qualities.

The conditions of difficulty obviously tell with greater force in regard to the small official departments of minor authorities and of lesser commercial enterprises. The difficulties due to difference of faculty can be met, and are met, much more thoroughly in some of the larger departments, and particularly in H.M. Office of Works, where the custom has for some time been prevalent of giving definite recognition to the architect responsible for any particular building, the design for which bears his name.

The following conclusions, therefore, would seem to emerge :—

(1) It is recognized that for all routine and technical matters both in Government, County and Municipal Offices the official architect is generally deemed best fitted to carry out these duties.

(2) Where, however, a new building of civic importance is required, or where there is scope for fresh ideas of design leading to an advance in architectural planning, the outside architect is more likely to be successful and to contribute to such an advance than one who is cumbered about with much serving ; and as to such cases, the lead given by the Office of Works both in London and Edinburgh in seeking outside assistance is heartily welcomed ; as also is the recent announcement of the L.C.C. that they propose to entrust to private architects some of their housing work.

(3) To draw the line between what is routine work and what is not may be difficult ; and here reliance must be placed on (*a*) the official architect himself in advising his authority ; and (*b*) on the development of public taste and that of the authorities themselves, so that they shall demand that fresh brains shall be invited to solve problems the solutions of which hitherto may have become stereotyped and the continuance of which would not be for the advancement of architecture.

(4) In the interest of good architecture it is important that the architect responsible for any design should be known and his work recognized and that his proper status should be secured.

WORKING DETAILS : 275

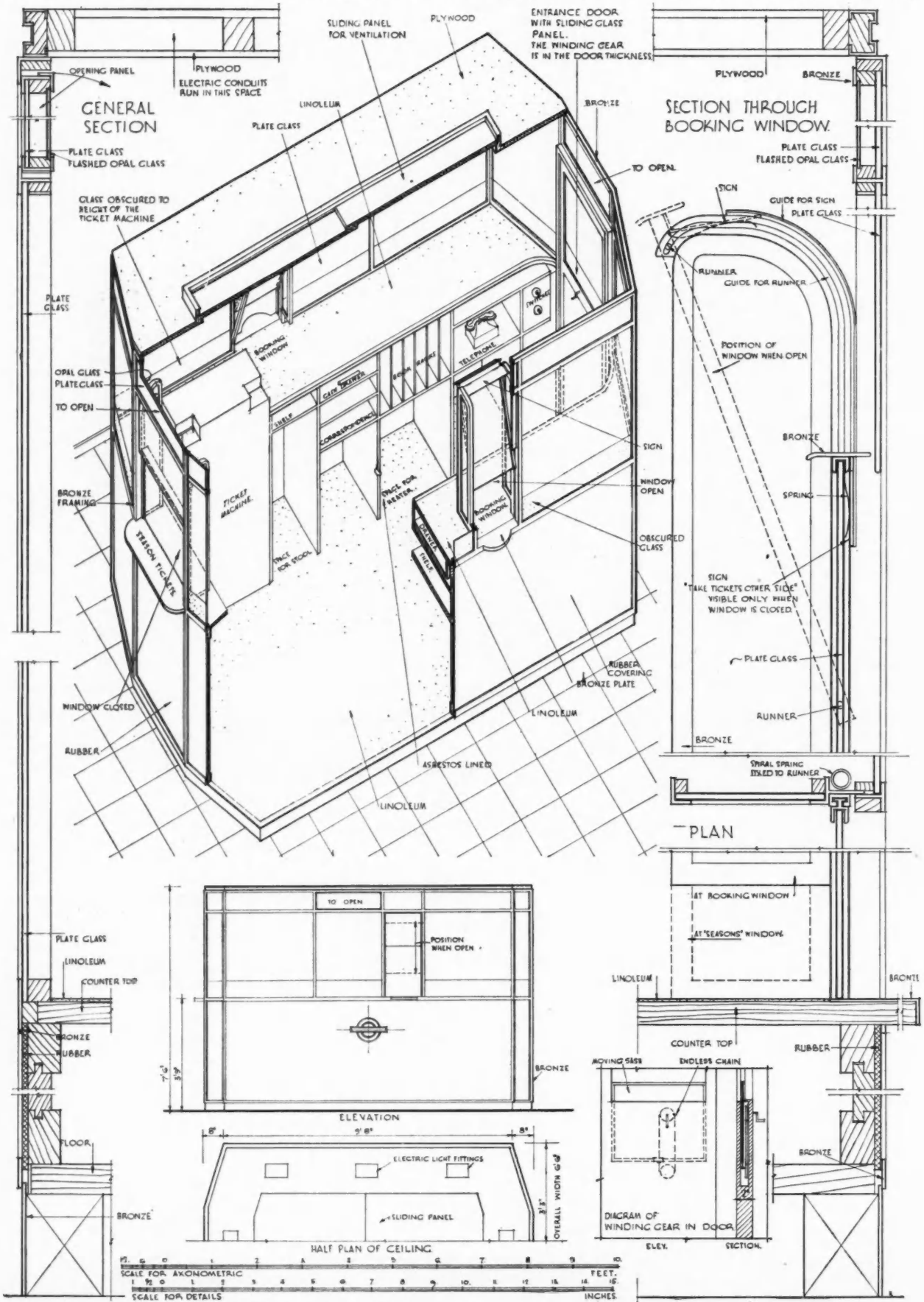
TICKET BOOTH • LEICESTER SQUARE STATION • S. A. HEAPS



This ticket booth has now been virtually standardized by the London Passenger Transport Board, the position of the various cash drawers and ticket machines remaining the same, with only small variations in plan shape at different stations. The ticket window (see details overleaf) is arranged so that while tickets are taken at counter level, conversation is carried on via a more intricate path, thus avoiding the transference of colds, influenza, etc., from passengers to staff. The door has a winding window, and additional ventilation is obtainable through the sliding roof. An axonometric and details are shown overleaf.

WORKING DETAILS : 276

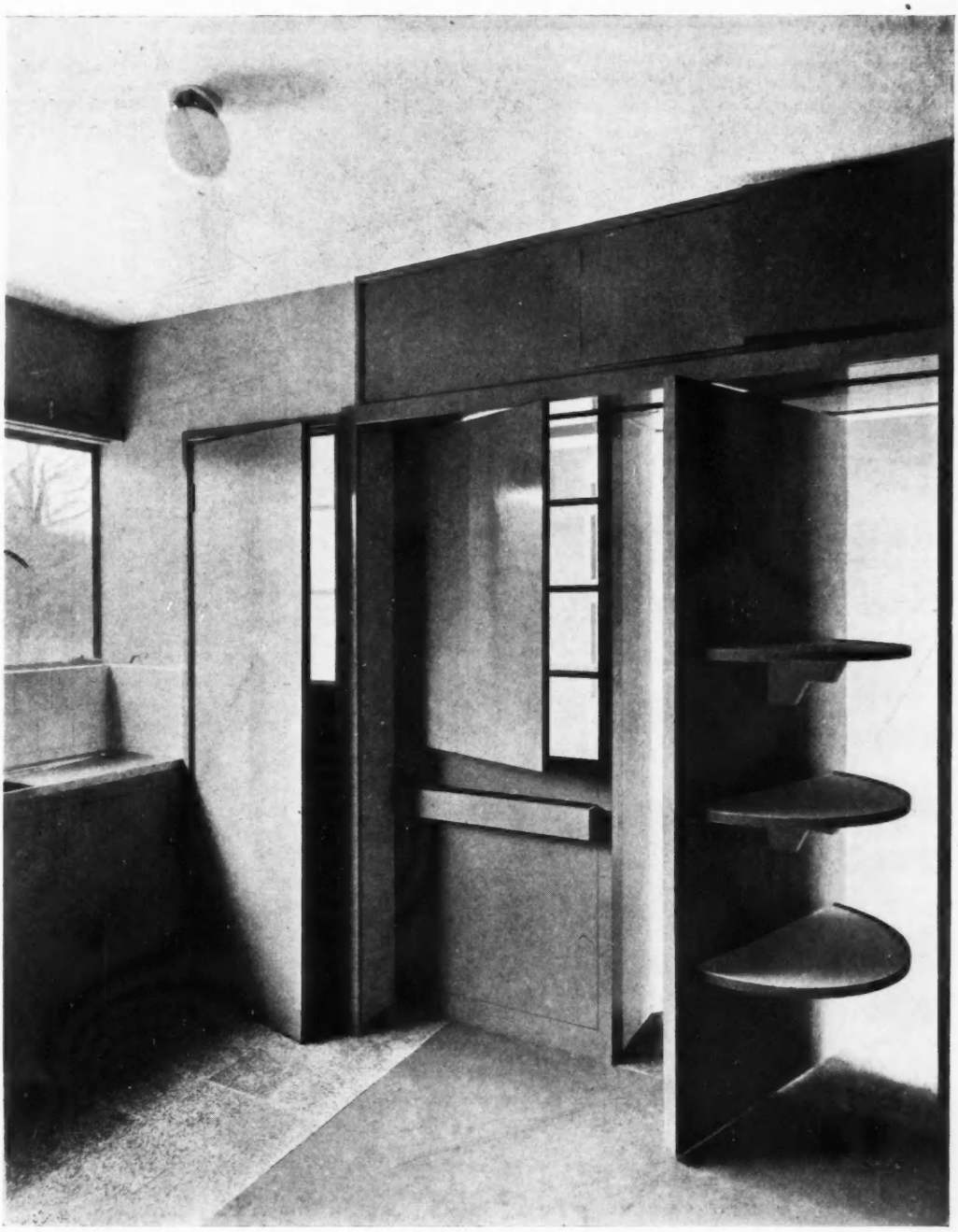
TICKET BOOTH • LEICESTER SQUARE STATION • S. A. HEAPS



Axonometric and details of the ticket booth illustrated overleaf.

WORKING DETAILS : 277

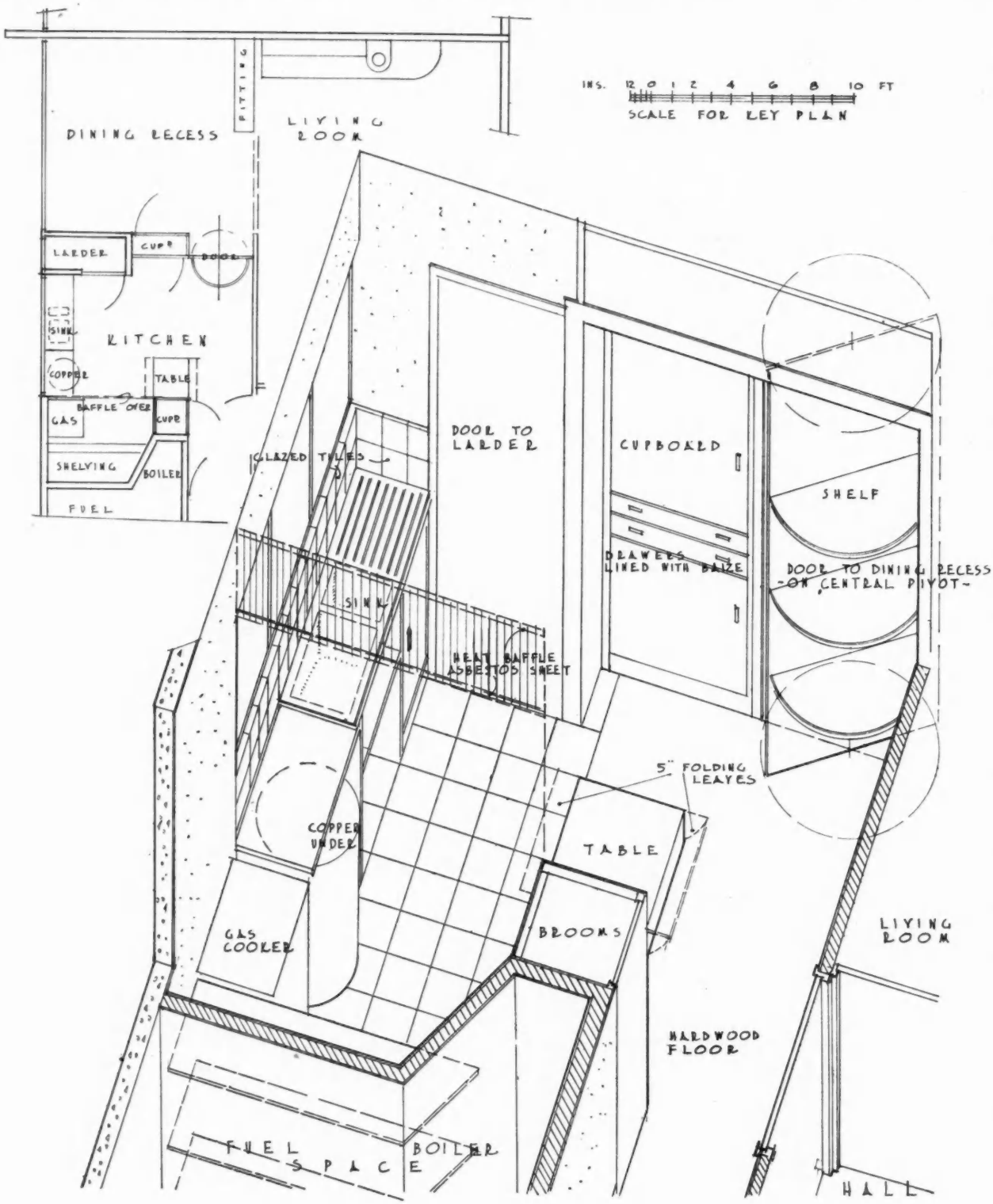
KITCHEN • HOUSE AT RUISLIP • CONNELL, WARD AND LUCAS



This kitchen has a revolving door fitted with semi-circular shelves which make a combined service hatch and access door to the dining recess in the living room. The shelves were originally designed to be supported by short tubular struts, the brackets shown in the photograph being temporary. An axonometric and plan are shown overleaf.

WORKING DETAILS : 278

KITCHEN • HOUSE AT RUISLIP • CONNELL, WARD AND LUCAS



AXONOMETRIC VIEW



Plan, axonometric and details of the kitchen illustrated overleaf.

LITERATURE

PLANNED INFORMATION

[*BY E. MAXWELL FRY*]

The Architects' Journal Library of Planned Information: Vol. I. Edited by Sir John Burnet, Tait and Lorne. London: The Architectural Press. Price 21s.

DURING the last quarter of a century the practice of architecture has complicated itself out of all recognition. From being a matter of dealing with a restricted range of familiar and well-tried materials building has developed in such a way as to spread before the architect a never-ending choice of materials which he is required to embody into a structure where intricate machinery is to be housed, where complex services must be organized, and where calculation and scientific measurement play an ever-growing part. The architect is in the position of having to exercise a wider judgment —with less time in which to do it. And he asks, and has for some time asked, that the information which manufacturers are anxious he should have, should be served to him in a form the most easily digestible.

The world of manufactory being strictly competitive no method of organizing the size, type and degree of informativeness of advertising matter was arrived at, and the motley flow of catalogues continued unabated, until a well-organized firm of architects took on the job themselves and prepared for their own use a series of standard Sheets, of which this Library of Planned Information is the direct offspring.

Week by week these Sheets have been appearing in the ARCHITECTS' JOURNAL, have been eagerly collected by architects and their assistants everywhere, and are gradually establishing a standard method of conveying the essential facts of building method and material to the profession. There is no doubt in my mind whatsoever that this system of planned information, providing diagrams *to scale*, with the essential facts and figures of products normally advertised in boastful phrase backed up by irrelevant pictures, provides the shortest link between the architect and manufacturer, because it short-circuits the often laborious search through catalogues, leaflets, booklets and weighty volumes for which there has been devised no simple system of filing. The complete catalogue cannot, of course, be superseded, but it should obviously become a second-line support, and in its turn must yield to some form of standardization if it is to be used as freely as this toughly made book that can be chucked about the office and turn up smiling.

The Sheets, to the number of 122, cover a wide field of information, varied from trigonometrical formulæ to escalators and including building materials and equipment of many kinds. A spirax binder allows the book to open flat at any page, and the limp rubberized covers are an insurance against disruption.

HOUSING

Building Science Abstracts. April Issue. Building Research Station, Garston, Watford. London: H. M. Stationery Office. Price 1s. 6d. net.

ADDITIONS to the numerous references given in recent issues of *Building Science Abstracts* to the literature of housing problems are to be found in the April number recently issued by the Building Research Station.

Abstract No. 655 summarizes a report issued by the Lieutenant-Governor's Committee on Housing Conditions in Toronto. This report is divided into seven principal sections, the first of which deals generally with the housing conditions in Toronto, and particularly with those in the slum areas. In the second chapter the relationship between housing conditions and health and social problems is fully considered, and it is shown that the principal factors injuriously affecting health and morality in slum areas are overcrowding, insanitary conditions and unsatisfactory or insufficient methods of storing food. There is also some discussion of the effects of bad housing as regards tuberculosis, infantile and general mortality, juvenile delinquency, crime and family life. In the third chapter the causes of the growth of slums are shown to be the inability of the lowest wage earners to pay rents sufficiently high to obtain adequate housing accommodation on the one hand, and the high costs of building construction and maintenance on the other. The fourth chapter deals with some methods of housing control developed for application in Toronto, and in the fifth chapter a review is given of various systems of controlling housing which have been adopted in Great Britain, Germany, France, Belgium and the United States. The conclusions are derived that the value of Governmental assistance in housing development is now definitely established, and that town planning is an indispensable adjunct to any satisfactory scheme of housing development. In the sixth chapter details are given of suggested schemes for the reconstruction of a typical slum area. A final chapter embodies the Committee's conclusions and recommendations. There are six appendices containing definitions of minimum standards of health and comfort, specimens of forms used in reporting on a housing survey, and statistical summaries of the conditions existing in slum districts in Toronto.

Two blocks of working-class flats in Copenhagen are referred to in Abstract No. 658. The buildings are steel framed, faced with stone. One is a six-storey structure, containing 84 one-room flats, two two-room flats and eleven four-room flats; the building is provided with central heating and lifts; all flats have a bathroom with built-in bath, lavatory, and electric kitchen. Bathroom and lavatory have tiled walls; the kitchen walls are finished in hard plaster. Each flat has a balcony. The room height is 9ft. 10in. In the second block there are nine five-room flats and seven shops. Illustrations and plans show the appearance and lay-out.

An interesting scheme for the provision of small dwellings, which is being carried out in Sweden, finds mention in Abstract No. 660. The essentials of the scheme are that the buildings are designed largely in prefabricated units, which are assembled and erected by the prospective occupants, under official supervision and with official financial assistance. Above the basement level the cottages, of which there are several types, are of wood, the walls, etc., consisting of several layers of wood, with building and dampproofing paper between the layers, any air spaces being packed with sawdust or similar material. The units are assembled in a factory and delivered in sections, including windows, doors and floors. Four types are described and illustrated.

The bed bug and its eradication, as well as means of preventing the infestation of buildings, have recently been the subjects of comment in the Press in this country, and interest in these problems seems to be fairly widely shared abroad, for Abstract No. 662 tells us of a German investigation, which included a study of a fairly copious literature on the subject.

This led to the conclusion that bed bugs (*Cimex lectularius, L.*) harbour and breed in birds' nests. Owing to the nature of the materials of which they are constructed, sparrows' nests are particularly favourable breeding places for the larvæ of moths, and on account of their widespread occurrence on

and near to dwelling-houses, such nests constitute a natural source of infestation by many species of unpleasant and harmful insects.

Rickets is less common among Oriental than occidental children, and this phenomenon has been attributed to the almost universal use of paper windows in Oriental dwellings. Study of the transmissivity of some typical Chinese window papers has, therefore, been carried out at the Institute of Physics Research of the National Academy of Peiping. Spectrophotometric measurements were made over a wavelength range from 2,000 to 4,500 A., using a Cooper-Hewitt lamp radiating a constant mercury spectrum. The results show that these papers have high transmission values in the ultra-violet, and their use in Western hospitals and clinics as a cheap substitute for ultra-violet glasses is suggested. A table shows the transmission values obtained, and the thickness, density and strength of the materials studied. The total transmission of light ranged from 38 to 72 per cent., and of ultra-violet radiation from 16 to 41 per cent. Oiling the papers with a vegetable oil increased transmission by about 50 per cent., and this also had the effect of rendering them less vulnerable to damage by water. (See also *B.S.A.*, 1929, No. 389.)

TOWN AND COUNTRY PLANNING

BETTERMENT AND PLANNING SCHEMES

[*BY A BARRISTER-AT-LAW*]

AN important judgment with regard to betterment and to the effect of a planning scheme in relation to land not within the area of the scheme, but merely contiguous thereto, was recently given by a Divisional Court in R. *v.* Webster ex p. Young (51 T.L.R. 201).

In this case, an owner of land, which was not within the area of a planning scheme, and which accordingly was not within the scheme itself, challenged the right of the local authority to recover betterment from him in respect of the land in question.

The material facts of this case were briefly as follows :—

On December 4, 1930, a scheme known as the Coulsdon and Purley Town Planning Scheme was approved by the Minister of Health, and the scheme thereupon, according to the law then in force under the Town Planning Act, 1925, came into full effect.

[Under the Town and Country Planning Act, 1932, it should be noted, the scheme does not take effect immediately on receiving the Minister's approval, and it must pass through certain other stages. Thus it must be laid before each House of Parliament for at least twenty-one sitting days, and after receiving such Parliamentary approval, and thereby being rendered capable of coming into operation, it must be advertised ; finally, after the lapse of six weeks from the date of such advertisement, it will become effective provided that its validity has not in the meantime been challenged in the Courts.]

The above-mentioned scheme authorized the execution of street works on certain land within the area of the scheme, and empowered the council to declare land to be a street for the purpose of the scheme. The scheme further provided that claims for betterment were to be made within twelve months of the date of the approval of the scheme by the Minister, but that in the event of such a claim arising out of the exercise by the council of any power conferred on them by the scheme, including, *inter alia*, the above-mentioned power with regard to the declaring of land to be a street, the claim might be made at any time not later than twelve months after the date on which notice was given by the council of the exercise by them of such power, or of their intention to exercise such power, as the case might be.

In 1932 an owner of land within the area of the scheme constructed a new street along the southern boundary of the area. The person against whom the claim for betterment was made in the above case owned land which was not within the area of the scheme, but which was contiguous to part of the southern boundary of the area ; in other words, his property abutted on the street in question, but just fell outside the area of the scheme.

On March 14, 1933, the council gave him notice of its intention to declare the street to be a street for the purposes of the scheme, and later on, December 6, preferred a claim for betterment on the ground that the value of the land had thereby been increased.

In these circumstances the question arose whether any claim for betterment could be sustained.

This question raised two important points for consideration.

A claim for betterment arises under S.10 (3) of the Town Planning Act, 1925, in cases " where, by the *making* of any town planning scheme, *any* property is increased in value. . . ." It is necessary to determine for this purpose :—

1. What is meant by the *making* of a scheme ? and

2. What property may be made the subject of a claim for betterment ? Are such claims, in other words, to be restricted to property within the area of the scheme itself, or, on the other hand, may they extend to *any* property irrespectively of whether or not such property is within the area of the scheme ?

As regards the first question, as to the meaning of the " making " of a scheme, it is noteworthy that the Town and Country Planning Act of 1932 has attempted to amplify, as it were, the basis of a claim for betterment. Thus S. 21 provides that betterment may be claimed in cases " where, by the coming into operation of any provision contained in a scheme, or by the execution by a responsible authority of any work under a scheme, any property is increased in value."

The Court, in R. *v.* Webster ex p. Young, were of opinion that S. 10 of the 1925 Act had the same intent as S. 21 of the 1932 Act. The words " making of the scheme " in the former provision were not to be read literally as referring only to the actual drafting or drawing up of the scheme, the mere act of preparing a plan, the drawing up of a written order and so on.

As the Lord Chief Justice put it in his judgment : " It seems to me to be quite plain when the scheme is read in conjunction with the . . . Act that this claim for betterment (whether it be right or wrong) undoubtedly does arise out of the making of a town planning scheme. The Act authorized the scheme. The scheme authorized the exercise of this power [i.e., to declare land to be a street for the purposes of the scheme]. The exercise of the power has given rise, it is said, to the increase in value." Or, as Mr. Justice Avory put it : " ' The purposes of this scheme . . . include the execution of street work upon lands.' . . . ' The council may declare any land . . . to be a street.' . . . In doing so, therefore, they are carrying out one of the purposes of the scheme, because the purposes of the scheme are to include the execution of street works. In carrying out the purposes of the scheme they are carrying out the purposes of the Act, and doing some-

thing which is the result of the making of a town planning scheme."

The second point—and this is of extreme importance—is as to whether a claim for betterment may be made even against an owner of property which is not within the area of the scheme itself, as the result of which the claim is alleged to arise. The Court were of opinion in R. *v.* Webster ex p. Young that it was immaterial whether or not the land in question was within the area of the scheme, and that accordingly it was competent for the arbitrator to determine the claim.

What applies to betterment would, it seems, equally apply to compensation. For if a claim for betterment can be made in respect of "*any*" property (see S. 10 (3) of the 1925 Act; S. 21 (1) of the 1932 Act), there is no reason to prevent "*any*" person whose property is injuriously affected in the manner stated in S. 18 (1) (a) of the 1932 Act from bringing a claim for compensation for "injurious affection." On the other hand, claims for compensation on either of the two other grounds contained in paragraphs (b) and (c) of S. 18 (1) of the 1932 Act would, it seems, not be competent in the case of land outside the area of the scheme, since those paragraphs necessarily imply that the land affected is within the area of the scheme.

Before concluding, attention may be drawn to two other points of importance raised in the above case.

The first point relates to the question whether the claim was in time.

The scheme, it will be observed, was "made" on December 4, 1930, that being the date when it became effective and had statutory force, as the result of the Minister's approval. The claim for betterment, however, was not made until December 6, 1933. Now, under S. 10 (3) of the 1925 Act the claim is to be made "within the time (if any) limited by the scheme." As already stated, the scheme provided for the making of claims within twelve months from the date of the approval of the scheme (i.e., at some time prior to December 4, 1931).

The scheme, however, provided at the same time that claims *arising out of the exercise by the council of certain powers* conferred by the scheme, within which was included the power to declare a street to be a street for the purposes of the scheme, were to be made within twelve months of the date on which the council gave notice of their intention to exercise the power. The notice of their intention to exercise their power under the scheme of declaring the street in question a street for the purposes of the scheme was given on March 14, 1933. The Court were of opinion that the time was to be calculated as if it ran, not from the date of the making of the scheme (i.e., December 4, 1930), but from the date of the council's notice of their intention to exercise their power under the scheme (i.e., March 14, 1933). The council's claim for betterment which was made on December 6, 1933, was accordingly held to be a good one.

Finally, it is to be noted that the Court was of opinion that all such points as those above-mentioned were points which the arbitrator could properly consider, and that accordingly an owner who did not consider himself liable to pay betterment on any such or other similar grounds was not entitled to come to the Court and to ask for an Order prohibiting the arbitrator from entering on the inquiry itself.

The proper course to be adopted in such a case would be to take the points of law before the arbitrator himself if necessary, and to request him after concluding the inquiry to state a case for the opinion of the Court on the points of law raised before him.

LAW REPORT

OPEN SPACE AT THE REAR OF DWELLING HOUSES —CONSTRUCTION OF BYE-LAWS

Andrews v. *R. V. Fournier and the Magistrates of the Borough of Weymouth and Melcombe Regis.—King's Bench Divisional Court. Before the Lord Chief Justice and Justices Avory and Lawrence.*

IN this case Mr. Frank Sidney Andrews, building inspector of the Borough of Weymouth and Melcombe Regis, appealed from the decision of the justices dismissing an information he had preferred against Mr. Roger Victor Fournier, a builder, of Cleveland Avenue, Weymouth, on August 28, 1934.

The information preferred against Mr. Fournier was that he on June 14, 1934, and on other dates at the parish of Weymouth, at Abbotsbury Road, wilfully failed to comply with bye-law No. 59 made by the urban authority of Weymouth and Melcombe Regis with respect to nine streets and buildings, in that he did not provide in the rear of the easternmost house of a terrace of four dwelling houses he recently erected on the south side of Abbotsbury Road on a site adjacent to the Westham Railway Halt an open space free from an erection thereon above the level of the ground and exclusively belonging to such building extending throughout the entire width of such building, and leaving a distance across such open space from the line of the rearmost wall of such building to the boundary of any lands or premises immediately in the rear of the site of such building, of not less in any part of 15 ft.

The bye-law in question provided as follows: (1) Every person who shall erect a new domestic building intended to be used wholly or partly for human habitation shall provide in the rear of such building an open space exclusively belonging to such building, and of an aggregate extent of not less than 225 sq. ft. (*a*) He shall cause the open space to extend throughout the entire width of such building, and he shall cause the distance across such open space from the line of the rearmost wall of such building to the boundary of any lands or premises immediately in the rear of the site of such building to be not less in any part than 15 ft. (*b*) If the height of such building is not less than 35 ft., he shall cause the distance to be 25 ft. at the least. (3) He shall cause such open space at the least for the distance hereinbefore required to be free from any erection thereon above the level of the ground, except a water closet or privy erected in accordance with the bye-laws. (4) In every case where by reason of the exceptional shape of the site of such building the minimum distance across the open space required by this bye-law cannot be obtained throughout the entire width of such building it shall suffice if the mean distance across such open space shall be not less than the minimum distance required.

Before the magistrates Mr. Fournier admitted that he was the owner of the land running from Abbotsbury Road to the iron railings, the boundary of the Weymouth and Portland Railway line in the rear. He also admitted that the plan signed by one W. Moggeridge "approved" was submitted to the Weymouth Corporation, and he also admitted that on the completion of the four houses shown on the plan he had erected a fence also shown on the plan.

The Town Clerk, who conducted the case before the magistrates, took objection to the fence which Mr. Fournier had erected at the rear of the easternmost house enclosing a passage 4 ft. 5 in. in width, thus curtailing the 15 ft. to 9 ft. 1¼ in. The Town Clerk emphasized the fact that it was the erection of the fence to which he took objection and not to the fact that only 14 ft. 7 in. was left, and he contended that the erection of the fence was a breach of the bye-law, inasmuch as the space between the fence and the railing of the railway embankment could not be said to exclusively belong to such building.

On behalf of the respondent Mr. Fournier, it was contended that the words in the bye-law, "site of such building," meant the site of the whole land on which the building was erected, and further that as the question of the 5 inches had been waived, sub-section 4 of bye-law No. 59 came into operation, and that as according to the plan the dimensions showed 9 ft. 1¼ in. on the eastern side and 27 ft. 5 in. on the western side, the mean distance across the open space was 18 ft. 3¼ in., giving an open space of approximately 300 sq. ft., being in excess of the minimum required by the bye-law, and therefore that the bye-law had not been broken.

The Justices held that in the circumstances the bye-law had not been broken by Mr. Fournier, and dismissed the summons. Hence the present appeal of Mr. Andrews, the Borough building inspector.

Mr. Montgomery, K.C., and Mr. Arthur Capewell attended for the appellant, and Sir Robert Aske, K.C., and Mr. Honeyman for the respondent, Mr. Fournier, the builder.

At the conclusion of the arguments the Lord Chief Justice, in delivering judgment allowing the appeal, said that the point for consideration was the meaning of the words "site of such building," and did it mean the land on which the house stood or the whole plot. He thought that the Town Clerk was right in the measurements and that the Justices were wrong when they decided that the "site of such building" was the whole plot, which, being an exceptional shape, came within the provision of section 4 of the bye-law. To so hold, in his opinion, would render the operation of the bye-law inoperative. The appeal would be allowed and the cases remitted to the Justices, when, if the respondent desired it, the question could be decided whether the fence on the land was an erection upon an open space.

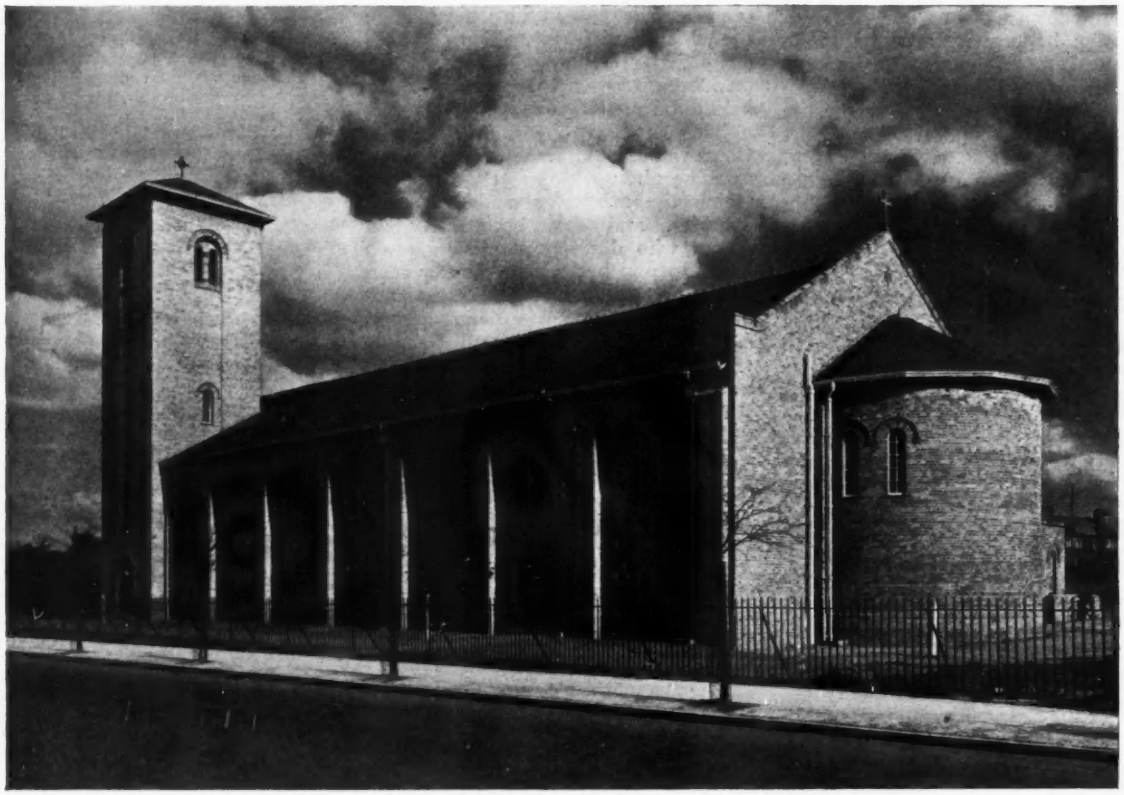
Mr. Justice Avory and Mr. Justice Lawrence delivered concurring judgments.

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Hampton Court Bridge Design

At a meeting of the Surrey County Council it was decided to recommend to the Middlesex and Surrey Thames Bridges Joint Committee that Hampton Court Bridge should be completed without the addition of the four kiosks included in the original design by Sir Edwin Lutyens. The kiosks have been the subject of much controversy.

CHURCH OF THE ENGLISH

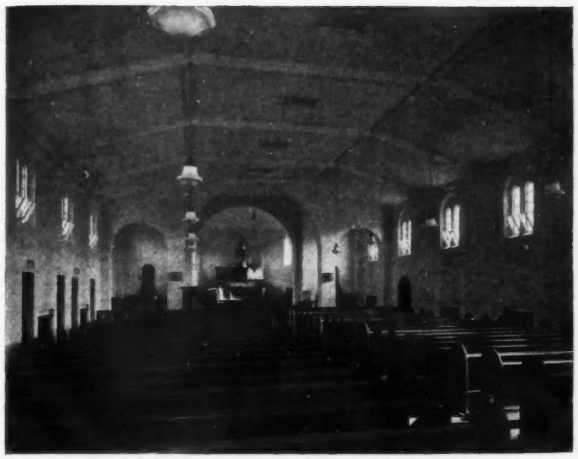


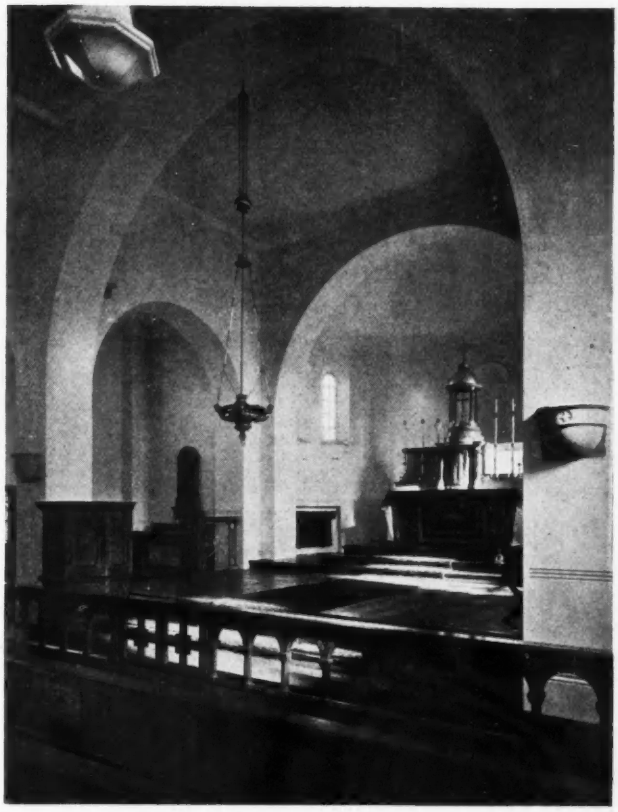


This church is situated in the new Litherland housing area, near Liverpool. The external walls are carried out in grey, multi-coloured bricks, and the roof is of russet hand-made tiles. The seating accommodation of the nave is 540, and the choir balcony, situated above the narthex and adjoining baptistry, accommodates an additional 60 persons. Heating is by hot-water radiators, and the heating chamber is below the priests' sacristy. The cost of the building, exclusive of furnishings, was £7,040.

The photographs on this page show: above, a general view from the south-east: left, the west entrance.

MARTYRS, LITHERLAND, LANCS.

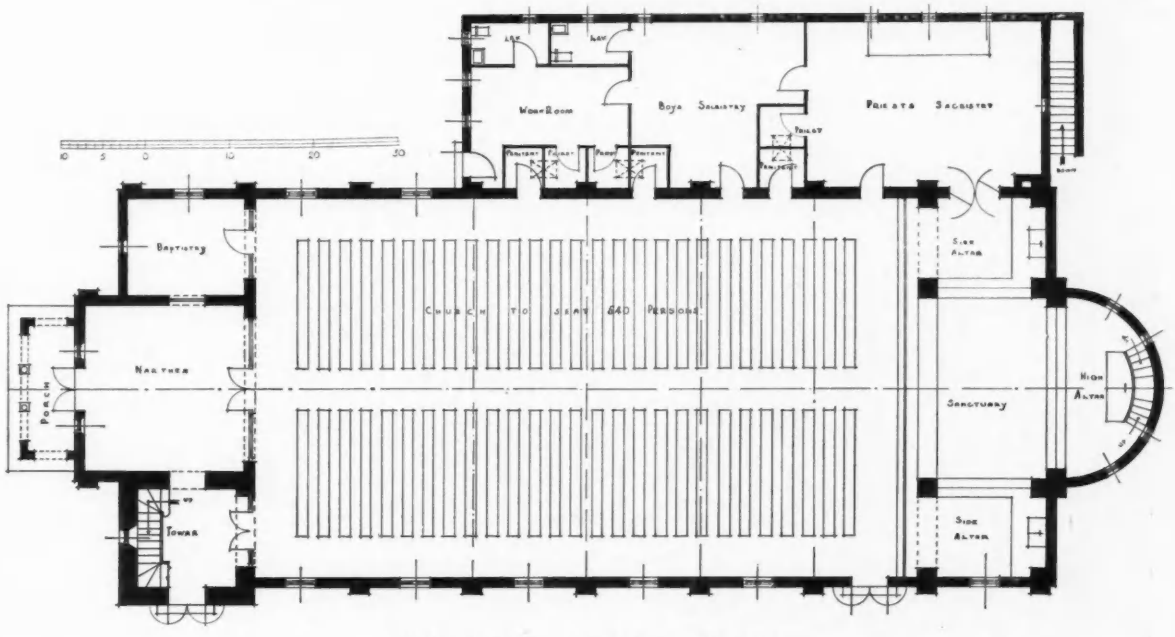




DESIGNED BY

LIONEL A. G.

PRITCHARD



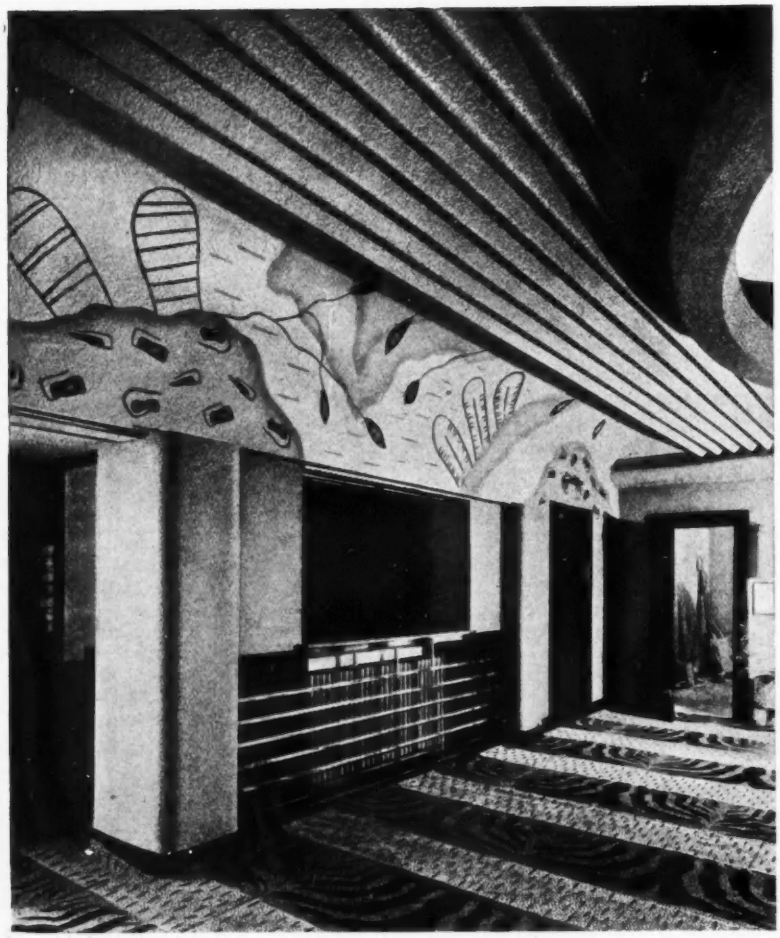
GROUND FLOOR PLAN

Above ; left, a general view of the nave ; right, a detail of the sanctuary and high altar. The internal treatment is in white plaster and Austrian Oak.

THE REGAL CINEMA,

DESIGNED BY ROBERT CROMIE





This cinema has been erected to seat 2,000 persons. Together with its four adjoining shops and offices, it is of steel-framed construction with brick infilling, and the auditorium is of the two-tier type with steppings in reinforced concrete.

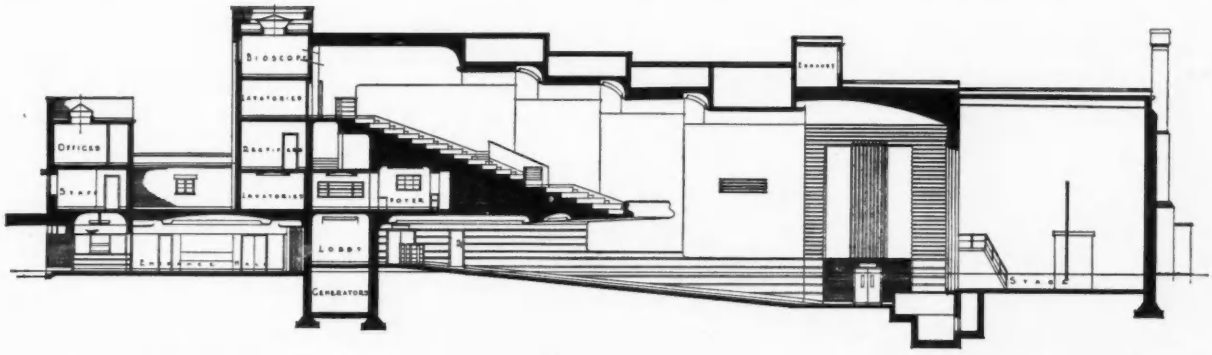
The elevations, faced with two-inch brick with stone dressings, have the lift-tower to the upper seating carried up as a conspicuous feature, illuminated at night.

The principal components of the decorative scheme of the entrance foyer are ebonized mahogany and stainless steel, and the electric fire has a surround of black marble. The mural decorations in the auditorium are upon fibrous and acoustic plaster.

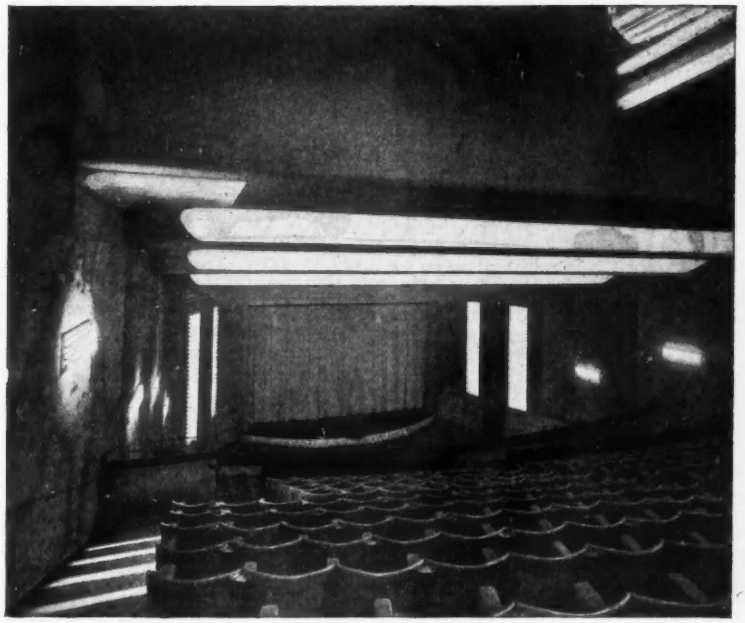
Ventilation is on the full plenum system, and heating elsewhere than in the auditorium is by radiators supplied by a low pressure accelerated hot-water system. The solid fueling of the boilers is automatic and thermostatically controlled.

The photographs on this page show : above, the main entrance front ; below, a detail of the entrance foyer.

BEXLEY HEATH, KENT

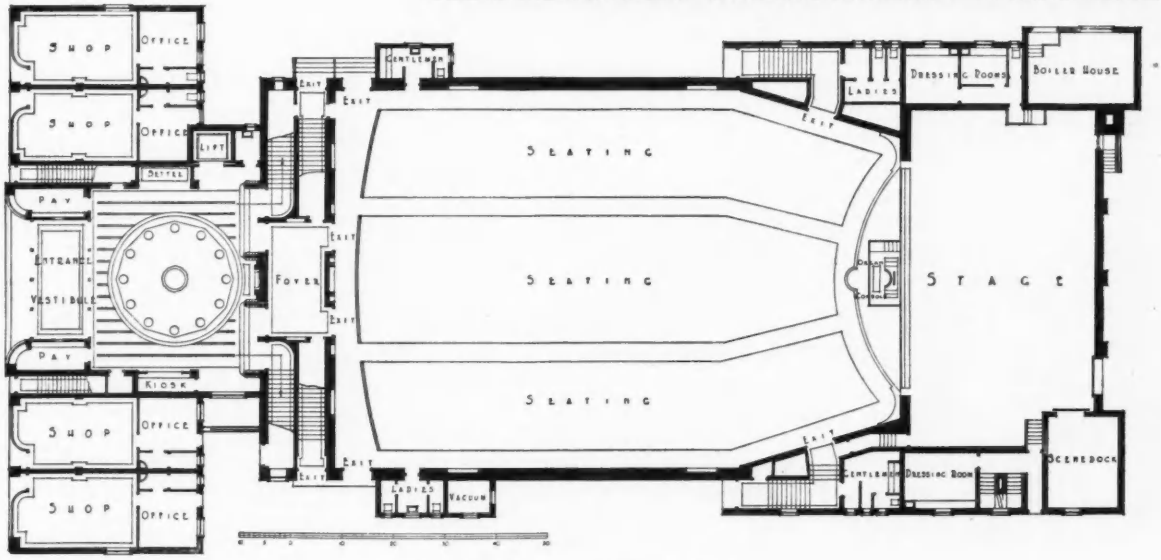


LONGITUDINAL SECTION



The building has been planned with a view to the alternative presentation of full stage performances, and has therefore been equipped with a thirty-six foot stage, screen dock and dressing-room accommodation.

Right: a view of the proscenium, showing the recessed ceiling lighting troughs.



GROUND FLOOR PLAN

TECHNICAL SECTION: 19

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

FLAME CHARACTERISTICS

OF the three main types of oil burner, the pressure jet system has the longest flame, and for this reason a lengthy cylindrical combustion chamber such as is provided in a Lancashire or Economic type boiler is particularly suitable. In these the flame appears to fill the flue completely.

The compressed air system has a somewhat shorter, more fierce flame, but it still requires a lengthy travel before the gases pass away from the high temperature zone.

The low pressure air system produces a soft gaseous flame high in radiant heat value and is of such flexibility that it may be adapted to operate successfully in almost any shape or size of combustion chamber.

CONTROLS

Control may be manual, semi-automatic, or completely automatic. The latter will be discussed separately.

Manual operation comprises hand ignition and hand operation of the fuel valve and air dampers. For large plants with steady load this may be satisfactory, but may lead to wasteful firing for reasons already stated.

The pressure jet is essentially a manual system, but both the high and low pressure air blast systems are readily controllable by other means.

The semi-automatic category applies only to the latter systems and denotes hand ignition, but automatic control of oil and air. This generally takes the form of thermostatic control operated from water temperature or steam pressure and is arranged to control the flame in two stages—full and minimum flame ; the flame is never extinguished. Further controls with some systems regulate the primary and secondary air sympathetically with the oil flow, so maintaining a correct oil-air ratio and high CO_2 content over the whole range of operation.

A further essential control with the semi-automatic plant is one which shuts off the oil supply in the event of flame failure, so preventing unburnt oil being delivered into the combustion chamber. This operates with a " flue stat " in the boiler flues or combustion chamber.

A still further control shuts off the oil in the event of failure of air pressure due to stoppage of the compressor or fan motor. Such controls are operated either electrically or by air or water pressure.

COMPLETELY AUTOMATIC SYSTEM

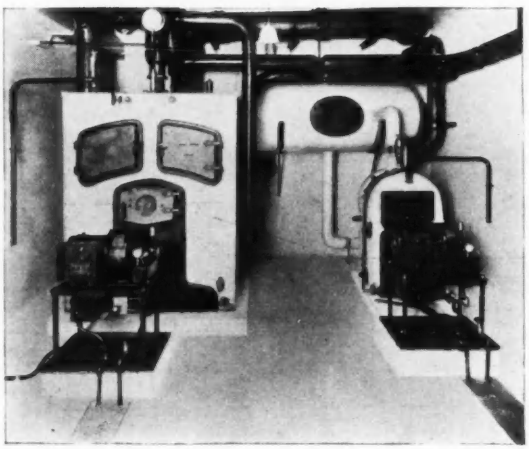
The completely automatic burner is one which is self-igniting and self-extinguishing, in addition to being thermostatically controlled. It takes the form of a self-contained oil-firing unit which is now quite well known and has long passed the experimental stage.

Fig. 101 illustrates a typical small installation of this type comprising cast iron sectional boiler and steel domestic boiler.

The system has its origin in the United States and Canada, but a much lighter grade of oil has always been obtainable there at low cost, and such equipment in this country has therefore been redesigned to suit the more viscous oils commercially obtainable here. With the tax on oil and the desirability of burning still heavier and cheaper grades, these units have still further adapted themselves to circumstances and can now burn even these oils satisfactorily.

At first their range was limited to a maximum of about 1,000,000 B.T.U.'s per hour in one unit, but this is now extended in many makes up to 2,000,000. The limit of output is really more dependent on the boiler than on the burner, since, when the boiler is cold, the rapid expansion produced when a large burner is suddenly turned full on without any gradual warming up period may be so severe as to cause dangerous straining of the joints and plates. Sizes much over 1,750,000 B.T.U.s per hour in one unit are thus not commonly recommended unless means are provided to build the flame up in steps.

The number of makes and types of these units is too numerous to describe, but all, in the main, are of a pressure jet atomizing type, the combustion air being supplied at low pressure by means



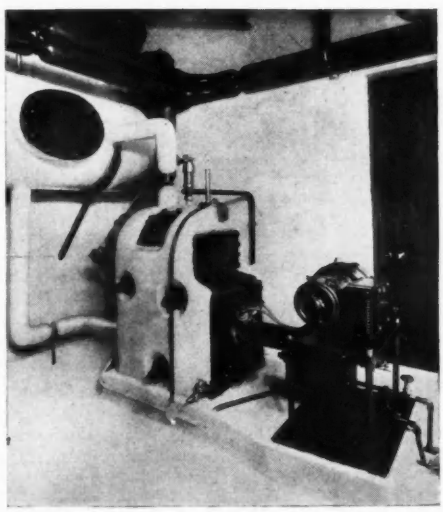


Figure 101. *Typical fully automatic installations. Top, front view ; right, side view of hot water boiler.*

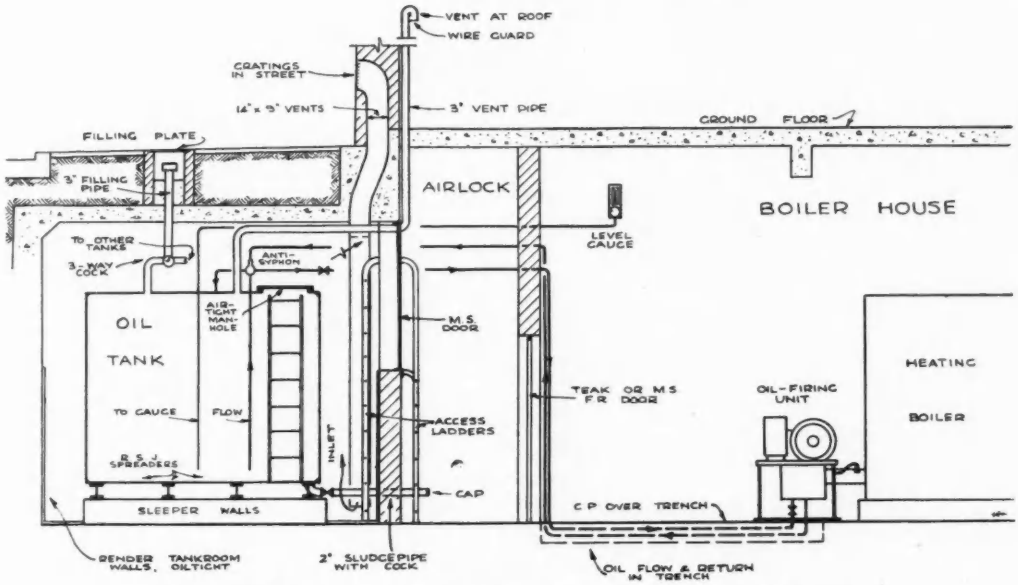


Figure 102. *Typical arrangement of oil-tanks, etc., for heating installations.*

of a fan. The fan is generally arranged to deliver the full 100 per cent. of the air for combustion. Practically all employ a pump for injecting the oil through a jet under pressure, and the burner nozzle takes a variety of forms.

One motor is arranged to drive both the fan and the oil pump and is mounted on a base plate with the various electrical control devices, safety switches, oil filter, oil heater, etc., around it.

Ignition is generally by means of an electric spark derived from a transformer also fixed to the unit, and with the spark gap electrodes carried through the air blast tube in front of the burner tip. The spark is generally arranged to cut off after the oil is alight so as to save wastage of the electrodes.

An alternative method of ignition is gas, in which a small pilot flame is kept constantly alight, and is expanded for a period when the plant is switched on. Sometimes both gas and electric ignition are provided as a safeguard against failure, but this is not common.

The completely automatic system may be adjusted to a high state of efficiency, but it should be remembered that, when shut off, cold air may leak in through the fan and so cool the boiler down, with a corresponding wastage of fuel. Many plants employ means for preventing this loss. Some such means is desirable.

These plants are generally quiet in operation, and may be left unattended for long periods and are frequently left running all night, cutting in and cutting off in response to the thermostat.

In addition to the boiler water or pressure control it is often convenient to provide a room control, the former then acting as a master. In this case a thermostat is placed in a selected room and controls the burner so as to maintain a steady temperature in that room—the difficulty is, of course, to find a room which is typical of the whole building, and, whilst this may be possible in a private residence, it is often difficult, for example, in a large block of offices.

Such room controls are sometimes arranged with a day and night setting, the latter being perhaps 10 deg. below the former. A clock control changes over on to the lower setting at a specified hour and returns to the higher one in the morning. This is sometimes further extended to remain on the lower level over the week-end when applied to offices, shops, etc.

An almost unlimited number of circumstances may be catered for with these controls, such as, for example, exist in a combined heating and hot water supply system. Here hot water may be provided for baths with radiators operating at a lower temperature in mild weather. This can be catered for by a thermostatically controlled valve in the water flow to the heating system, the oil burner control then being a " master."

Each case must be considered on its merits if great complication with increased first cost and higher maintenance charges is to be avoided.

Approximate costs of self-contained oil-firing units of various duties (exclusive of tanks, pipework, etc.) are given in Table XXXII.

TABLE XXXII

APPROXIMATE COST OF SELF-CONTAINED OIL-FIRING UNITS

Output in B.T.U.'s per hour	Cost,* including fixing
(*a*) For light oil :—	
90,000–350,000	£120
350,000–750,000	£135
750,000–1,750,000	£150
(*b*) For heavy oil :—	
200,000–750,000	£150
750,000–1,750,000	£167

* Prices are for units to work off a.c. supply. For d.c., add £5 to figures given.

FUEL OIL STORAGE

Oil storage vessels are of cast iron or steel, the former being always sectional, and the latter sectional, welded or riveted.

Sectional tanks are of necessity rectangular, and have their joints made with a special oil-resisting cement. Cast iron sections are generally 2 ft. square bolted together with the bolts inside. Those of steel are of either 1 metre or 4 ft. square plates, bolted externally.

Steel tanks are cheaper than the cast iron, but, due to the absence of rigidity of the flanges, are not so easy to make perfectly oil-tight. Cast iron, on the other hand, suffers from the occasional defect of porous plates.

For these and other reasons welded steel tanks are now being more used and may be either rectangular or cylindrical, brought into the building in one piece or welded *in situ*. The latter is necessary in confined situations, otherwise a shop-welded tank is to be preferred.

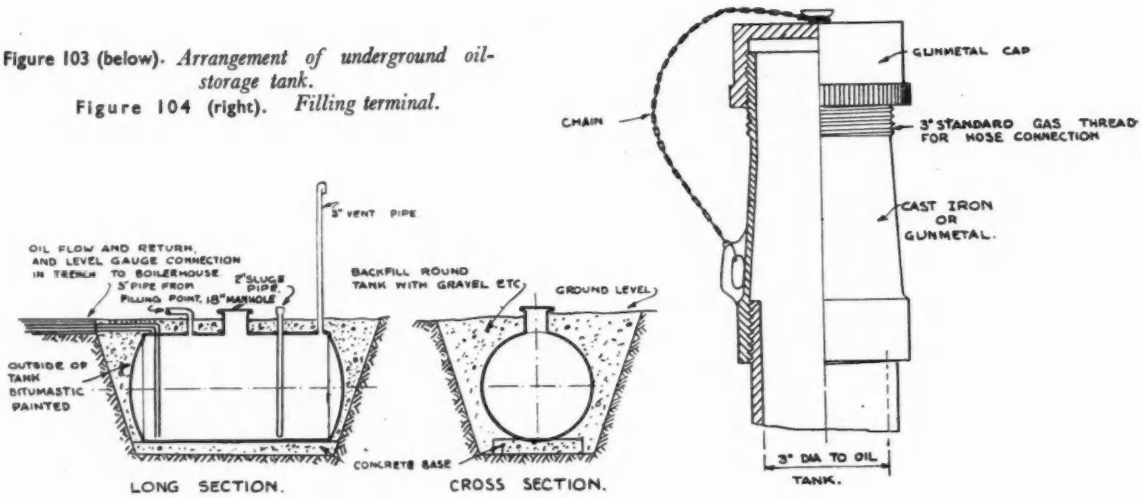
Cylindrical vessels are cheaper than rectangular, owing to the absence of internal stays, but occupy more space for a given volume.

Plate thicknesses vary from $\frac{3}{16}$ in. to $\frac{5}{16}$ in. and over, according to size, and all tanks should be tested with air pressure to not less than 15 lbs. per sq. inch after erection on site. Cylindrical vessels should have domed ends.

Except in special cases of small installations, a storage capacity of six tons should be considered the minimum, as this enables a 5 ton load to be received with a ton still in reserve. It is an advantage to have two tanks, so that one may be cleaned or repaired with the other in use. In large installations a greater number will, of course, be necessary to obtain adequate

Figure 103 (below). *Arrangement of underground oil-storage tank.*

Figure 104 (right). *Filling terminal.*



storage. The capacity is generally based on about three or four weeks' run at full load. Table XXXIII gives the consumption of various sized plants based on four weeks' run at full load 12 hours per day, together with the cost of tankage, including piping and fittings, based on averages taken over a large number of actual installations.

Tanks deeper than 3 ft. should have iron access ladders inside. To allow proper inspection outside of the tanks they should have a walking way of 18 in. clear all round, and should be carried on steel joists bearing on sleeper walls about 12 in. high, the top of the joists being covered with sheet lead to prevent rusting.

Tank rooms separated entirely from the boiler house by a brick or concrete wall are preferred by the authors and are, in any event, called for where a building has to be licensed by the London County Council. Where the tank-room has only a dwarf-wall separating it from the heating chamber the smell of oil pervades the whole room when manholes are opened and may enter the surrounding corridors and building.

TABLE XXXIII

COST AND CAPACITY OF OIL STORAGE

(*a*) Capacity Required.

Boiler Capacity B.T.U./hour	Approx. oil consumption per 4 weeks: full duty for 12 hours per day at 66% efficiency
250,000	3 tons
500,000	6 ,,
750,000	9 ,,
1,000,000	12½ ,,
1,250,000	16 ,,
1,500,000	19 ,,
2,000,000	25 ,,
4,000,000	50 ,,
6,000,000	75 ,,
8,000,000	100 ,,

(*b*) Approx. cost of oil storage tanks with fittings and pipework complete.

Capacity in tons.	Cost, including fixing
6	£100
10	£160
20	£250
30	£350
40	£450
50	£530

An oil-storage room should have the lower portion oil tight to hold the full capacity of the tanks, should they leak; this calls for an access door at a higher level with steps outside and inside. The L.C.C. demand that an air lock shall be provided to this door, also separate inlet and outlet ducts direct from outside into the tank room. These ducts must have an area of about one square foot, be of metal, concrete or brick, and one is carried near to floor level to serve as an inlet. Gratings to each are required at the upper ends. Access doors must naturally be fire-resisting, of ¼ in. steel or 2 in. teak.

Fig. 102 shows this arrangement, together with other details which will be referred to later.

Where it is possible, tanks may be placed out of doors underground. This economizes building space and is a very safe and practical arrangement. If buried without an enclosing pit (as in Fig. 103) the tank should be properly protected with concrete or bituminous paint on the outside and the bottom of the excavation should be drained. A better arrangement is to construct a concrete pit so that inspection may be made all round. However placed, tanks or cylinders should have a slight fall to the sludge outlet for cleaning.

Further points in connection with oil storage may be summarized as follows:—

(*a*) A manhole is necessary on each tank, 18 in. diam. jointed gastight.

(*b*) Filling pipe should be 3 in. diameter generally, but may be 2½ in. for small systems using oil of less than 70 secs. (Redwood No. 1 at 100 deg.)

(*c*) Filling terminal (see Fig. 104) should be standard male gas thread for hose coupling with gunmetal cap. The terminal may be under a coal plate in the pavement, or in such other suitable place as circumstances dictate. Where exposed it should have a padlock.

The filling pipe may be a considerable length, but should drain into the tank.

Where two tanks are provided, a three-way cock allows one pipe to be used to serve both, but for a greater number, separate filling pipes to each, or a single pipe with valved branches are called for.

(*d*) Vent pipe. A vent pipe from each tank is required, and should be 3 in. diam., carried separately up to the roof of the building. Any attempt to economize by terminating these at a low level only leads to a smell of oil pervading the building when filling takes place. The ends of vent pipes are turned over and fitted with wire guards to exclude rain and birds.

A common vent pipe with a branch from each tank is not permitted by the L.C.C., but is obviously much more economical in the case of a high building.

It should be remembered that in the event of over-filling of a tank from a road wagon, delivering with compressed air or pump, the combined vent pipe arrangement allows oil to flow into the next tank through the pipe without obstruction. Where a separate vent to each tank is provided, this is not possible, and the oil may rise in the vent pipe to a considerable height if the building is tall, so placing an undue pressure on the tank. Thus storage vessels should either be strong enough to withstand this head, which is probably uneconomical, or some means of relief should be provided. This may take the form of an oil seal (as in Fig. 105) branched from the vent pipe in the tank room.

It is unnecessary to point out that vent pipes should have a steady rise to the top, as any dip which might become filled with oil would obstruct the free passage of vapour.

(*e*) The outlet connection should have a valve next to the tank and should be 3 or 4 inches above the tank bottom. The size is determined by the number

and size of burners connected, each of which should again be separately valved.

If, under the L.C.C., the outlet has to take the form of a vertical pipe taken inside the tank and out of the top, an anti-syphon fitting is necessary at the highest point to prevent syphoning into the boiler house, such as might occur from a broken pipe joint below the level of the oil.

Another arrangement of the outlet connection is one in which a daily service tank is used. To comply with the L.C.C. regulations, this must not exceed 100 gallons capacity. This tank is placed in the boiler house above the burners and feeds them by gravity. A pump, either hand or electric, is used to fill this from the main storage. Such an arrangement is not so convenient in working as the direct connection to the burners, since the attendant must be present at regular intervals to fill the tank. Any automatic filling device, such as a float switch operating an electric pump, defeats the object of the service tank, since, in the event of a pipe leak from the latter, it would continue to be refilled until the main storage tank had been emptied into the boiler house.

Direct connection between main storage and burner units is obviously to be preferred on the grounds of simplicity, and the authors have not heard of any case where a defect in such an arrangement has been a cause of fire.

(*f*) *Sludge Outlet.*—Water, being denser than oil, collects at the bottom of the tank, generally in the form of mud, being mixed with the sludge and solid matter which gradually settles out from the oil. After a year or two of partial emptying and refilling of the tanks the accumulation obviously increases, and before there is any chance of its reaching the outlet it must be removed. A sludge outlet is therefore provided at the lowest point and is fitted with a valve. The size should be 2 in. and the end may terminate in the tank room, provided it is easily accessible, or in the boiler house, where it should have a screwed plug. The oil companies generally make arrangements for the collection and removal of sludge, as it cannot, of course, be put down the drains. Where the tank is below ground, as in Fig. 103, the sludge may be drawn out with a pump.

Incidentally, it should be pointed out that creosote oils, being more dense than water, cause the latter to float on the surface, and it is then important not to drain the tank to the level of the outlet, as oil and water in the burner are very troublesome, if not dangerous.

(*g*) *Level Indicator.* — Gauge glass indicators, being fragile, are unsatisfactory. The best and simplest device is a pneumatic gauge, various makes of which are available, and one of which is illustrated in Fig. 106. Air pressure from a small rotary hand pump is

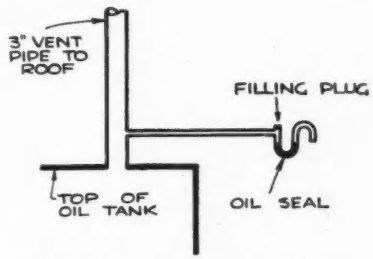


Figure 105. *Oil-sealed relief pipe.*

delivered through a pipe carried to the bottom of the oil tank, and a tee connection from this pipe is connected to a mercury manometer gauge, which is calibrated in feet of depth or in gallons or tons for any given tank. Other types employ a circular dial similar to a pressure gauge.

This form of gauge allows the top of the tank to be kept gas-tight and conforms to all regulations.

(*h*) *Pipe work and tanks* used in connection with oil should not be galvanized, as this is liable to be attacked. Welded pipe joints are much to be preferred to screwed for this purpose.

FURNACE LININGS

The firebrick lining of oil fired combustion chambers calls for a material which will withstand temperatures of 2,500 to 3,000 deg. F. without fusing or premature disintegration. The brick, therefore, requires to be burnt to a temperature in excess of this, and several standard brands are available for the purpose.

One important point to watch in the building in of this brickwork, particularly with a sectional boiler, is that the material is not carried solid up to the metal without an air-gap of half an inch or so being left around it. The great temperature in the combustion chamber causes considerable expansion of the bricks, and the air-gap allows freedom for this to take place without any strain being put on the boiler plates or joints.

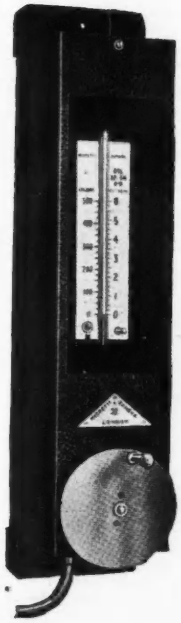


Figure 106. *Pneumatic level oil-gauge.*

FIRE PROTECTION BY FUSIBLE LINKS

One point not mentioned in the discussion on outlets from tanks is the provision of a fire valve. This generally takes the form of a lever type valve heavily weighted, kept open by a taut wire stretched across the boiler-house and having a fusible link of low melting point alloy over each boiler front. Such an arrangement may be seen in Fig. 47.

Should a fire occur, the rising flames or hot gases will melt the link and the valve will shut immediately, thus cutting off the supply of oil and minimizing further damage.

This fitment is called for by the L.C.C. for all buildings with oil firing, but in any event is a desirable precaution. It also requires to be fitted with a hand control so that it may be shut off by the fire brigade if it has failed to act automatically.

FURTHER SAFETY PRECAUTIONS

Insurance companies and licensing authorities often call for further devices for protection against oil fires, particularly on the large plants. These include the following :—

(*a*) Boiler dampers to be removed or locked open with an indicating plate showing position of vane.

(*b*) Alternatively the burner valve and damper must be provided with an interlock operated by a common key which cannot be withdrawn from the damper lever until this is in the open position.

(*c*) A foam chemical extinguisher of portable or permanent type to be installed, serving both the boiler room and oil tank chamber.

(*d*) In addition to the latter a curb around the boilers is called for to serve as a catchpit for escaping oil and the foam.

(*e*) Alternatively to (*c*) foam pipes to boiler house and tank chamber to which the fire brigade can connect their apparatus in the street.

(*f*) A sump in the oil tank room provided with a ball float and electrical contact so as to give a warning signal immediately there is a leakage of oil from the tanks.

Royal Incorporation of Architects in Scotland

The Council of the Royal Incorporation of Architects in Scotland has awarded the first prize of £15 in their quarterly essay competition to Mr. H. A. Rendel Govan, Edinburgh College of Art, and the second prize of £5 to Mr. T. O. W. Gratton, Glasgow School of Architecture.



TRADE NOTES

[BY F. R. S. YORKE, A.R.I.B.A.]

Gates and Railings

A VERY nicely produced brochure, by Bayliss, Jones and Bayliss, shows by means of a series of photographs the various processes through which metal must go, first for hand work and then for mass production by machine.

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The designs for modern gates—presumably designed to be made by machine—do not show up well alongside the traditional craftsman's work. They do not appear to me to have been designed for mass production. The photographs are excellent, and the captions brief and to the point in the running commentary manner.

High Tensile Steel

Sufficient steel-frame buildings have now been erected with high tensile structural steel to show that economies can be made in the cost of construction by its use. For it must be remembered that the reduction in cost of the steel frame itself is not the final saving. Since the cost per ton of the material itself is higher than that of ordinary mild steel, there must be a considerable reduction of the amount of steel used, which means the members must be smaller. The amount of casing required is therefore reduced—a saving in material and also in foundations—and there is a possibility of reduction in the storey heights required.

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A large range of structural sections is now stocked in several high-tensile steels, such as Chromador by Messrs. Dorman Long & Co., Ducol by Messrs. Colvilles, Ltd., etc., all of which comply with the recently issued B.S.S. No. 548 (High Tensile Steel for . . . General Building Construction). Architects wishing to use high tensile steel can therefore obtain competitive estimates by asking for steel in accordance with this specification.

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On the question of allowable working stresses for the material, however, there has up to the present been no official guidance, and no "Code" laying down such allowable stresses that could be specified. This position has now been remedied by the publication, in the May issue of the *Structural Engineer*, of the Institution's "Recommendations in Respect of the Use of High-Tensile Steel for Structural Purposes."

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These recommendations, the principal of which are given below, are for material complying with the B.S.S. mentioned above, and it will be noted that in general the allowable working stresses are 50 per cent. greater than those for ordinary mild steel.

	Tons per sq. in.
Flexural stress on beams ..	12
Shear stress on shop-driven rivets	9
Shear stress on field driven rivets	7·5
Shear stress on black bolts ..	6

Pillar Stresses

l/k	*Working stress in tons per sq. in. for free ends*
10	10·84
15	10·67
20	10·50
25	10·31
30	10·11
35	9·90
40	9·66
45	9·39
50	9·08
55	8·73
60	8·34
65	7·90
70	7·41
75	6·88
80	6·35
85	5·82
90	5·32
95	4·86
100	4·45
105	4·08
110	3·76
115	3·47
120	3·21
130	2·78
140	2·42
150	2·13



A photograph showing how the standard patterns of railing are dipped in preserving paint and dried. From "Metalwork, Hand Wrought and Machine Made," reviewed on this page.

The recommendations draw attention to the "fact that the consideration of deflection becomes relatively more important in high-tensile steel than in mild structural steel. The elastic modulus is approximately the same for the two materials, and the deflection increases in proportion to the increased stress. The depth of any beam (other than a filler joist) shall, therefore, not be less than one-sixteenth part of the span, provided that a shallower depth may be used in cases where the calculated deflection of the beam does not exceed one three-hundred-and-twenty-fifth part of the span."

THE BUILDINGS ILLUSTRATED

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue :—

Church of the English Martyrs, Litherland, Lancs (pages 922–923). General contractors, John William (Liverpool), Ltd. Sub-contractors : Ravenhead Brick Co., bricks ; G. H. Downing, Acme Century Tiles ; Fleming Bros., steelwork ; Richard Hill, reinforcement.

Regal Cinema, Bexley Heath (pages 924–925). General contractors, J. W. Ellingham, Ltd. Sub-contractors : A. D. Dawnay and Sons, Ltd., steelwork ; London Radiator Co., Ltd., heating and ventilation ; H. H. Martyn & Co., Ltd., fibrous plasterwork ; Mollo and Egan, decorative work ; Theatre Equipment, Ltd., seating and carpets ; F. H. Carpenter and Son, Ltd., draperies ; Ross, Ltd., projection equipment ; F. H. Pride, electric fittings ; John Compton Organ Co., Ltd., organ ; The High Brooms Brick and Tile Co., Ltd., bricks ; Girlings Ferro-Concrete Co., Ltd., glazed concrete lights ; A. Goslett & Co., Ltd., sanitary goods ; Swanser and Son, Ltd., ornamental metal work and canopy ; Express Lift Co., Ltd., lifts ; Ragusa Asphalte Paving Co., Ltd., asphalt ; Stuarts Granolithic Co., Ltd., concrete steps ; Concrete, Ltd., concrete balcony steppings ; Walter Cassey, Ltd., door furniture; Pyrene Co., Ltd., fire appliances ; British Vacuum Cleaner and Engineering Co., vacuum plant ; Automaticket, Ltd., automaticket machine ; Western Electric, Ltd., sound equipment ; Ionlite Co., Ltd., neon lighting ; Andrew Smith Harkness, screens ; Callender's Cable and Construction Co., Ltd., electric cables ; Venreco, Ltd., electrical stage equipment ; Hall Manufacturing and Supply Co., stage equipment ; Prior Burners, Ltd., Mastokers ; Hewittic Electric Co., Ltd., rectifiers and transformers ; Mickelwright, Ltd., dimmers and switchboards ; Simplex Conduits Ltd., conduit and switches.

Messrs. A. T. Morse, Sons & Co., Ltd., point out that the interior walls and ceiling of the new restaurant at Cheddar, illustrated in our issue for May 30, were finished in their white Calcarium water paint.

●

ANNOUNCEMENT

Mr. H. R. Crabb, F.R.I.B.A., M.INST.C.E., A.M.T.P.I., is retiring shortly from the position of Engineer and Surveyor to the Urban District Council of Enfield but will continue to act as Consultant to the Council and as Architect and Surveyor to the Enfield and Edmonton Joint Hospital Board. Upon retirement Mr. Crabb will practise as an Architect, Consulting Engineer and Town Planning Consultant at Nos. 3 and 4 Market Chambers, The Town, Enfield, at which address he will be pleased to receive trade catalogues.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

BALHAM. *Shops and Flats.* Plans have been submitted to the B.C., by Mr. E. Cavanagh, for the proposed erection of a block of shops and flats at the junction of Balham High Road and Nightingale Lane, and by Mr. V. L. Johnson for 16 flats and garages on the site of 1-5 Terrafin Road.

BALHAM. *Offices.* Mr. E. J. Elford proposes to erect a block of offices on the site of 297-301 Balham High Road, plans for which have been approved.

CITY OF LONDON. *Rebuilding.* The Press Association, Ltd., is to rebuild premises fronting Fleet Street, Salisbury Court and St. Bride's Avenue, City of London.

CLAPHAM. *Flats.* Plans submitted by Messrs. W. H. Gaze and Sons, Kingston, for the erection of blocks of flats in Macaulay Road, have been sanctioned by the B.C.

CROYDON. *Flats.* Mr. P. B. Davis, 91 Queen's Road, W.2, proposes to erect 38 flats, porter's quarters and 10 garages at Goldwell Road, London Road.

CROYDON. *Houses.* The T.C. has approved plans submitted by Mr. P. Richardson, 139 Wickham Road, for 16 houses at Beckford Road, and Chapple Estates, Ltd., Limpsfield Road, Sanderstead, for 49 houses at Links Road, Covington Way, Christian Fields, and Gibsons Hill.

CROYDON. *Houses.* Messrs. Bennett, Worskett and Bennett, 73 Gower Street, W.C.1, have prepared plans for the erection of 58 houses at Shirley Way.

GREENWICH. *Reconstruction.* The L.C.C. is to reconstruct the Creek Road School, Greenwich, at a cost of £58,700.

HACKNEY. *School.* The L.C.C. is to erect a new elementary school for 1,280 in North Hackney.

LIMEHOUSE. *Reconstruction.* The L.C.C. is to reconstruct the girls' central school, Thomas Street, Limehouse, at a cost of £23,598.

POPLAR. *Flats.* The B.C. is to erect on sites in Collins Place and Ford Road, at a cost of £16,000.

POPLAR. *Tenements.* The B.C. is to redevelop the St. Stephens Road area and erect tenements at a cost of £11,200.

POPLAR. *Flats.* The Isle of Dogs Housing Society, Ltd., is to erect 64 flats in Janet Street.

POPLAR. *Flats, etc.* Plans passed by the B.C. : Extensions, Port of London Wharf, Wharf Road, for Messrs. Gregson & Co. ; 87 L.C.C. flats, Oban Street, for Messrs. H. Boot and Sons, Ltd. ; L.C.C. flats, St. Leonards Street, for Messrs. Rowley Bros., Ltd. ; additions, Grave Maurice P. H., St. Leonards Road, for Mr. W. G. Ingram.

PUTNEY. *Flats.* Mr. B. A. T. Hammond, 8 Spring Gardens, S.W.1, proposes to erect a block of 40 flats on the site of Bath House, at the Junction of West Hill and Putney Heath ; and Messrs. C. F. Kearley, 31 Davies Street, W.1, are to erect two blocks of flats in Kersfield Road.

PUTNEY. *Cinema.* The plans for the proposed erection of a super-cinema in Putney High Street, have now been approved by the B.C. The architects are Messrs. Stanley, Beard and Bennett.

PUTNEY. *Flats.* A block of flats is to be erected at the junction of Putney Hill and Westleigh Avenue. The architects are Messrs. Marshall and Tweedy.

STREATHAM. *Shops.* Mr. P. W. Meredith F.R.I.B.A., has prepared plans for a block of nine shops on the Northern Side of Sternhold Avenue, near its junction with Streatham Hill.

TWICKENHAM. *Houses.* The T.C. has given sanction to the New Ideal Homesteads, Ltd., to proceed with the erection of the 185 houses required to complete the development of the Woodlawn Park Estate.

TWICKENHAM. *Houses.* The T.C. is to proceed with the development of the third section of the Forty Acre Field estate. It is proposed to erect 138 houses, comprising 24 two-bedroom, and the remainder of the three-bedroom type, at an estimated cost of £49,470.

WANDSWORTH. *Flats.* The B.C. has approved the erection of blocks of flats at Spencer Road. The architect is Mr. H. A. Holt.

EASTERN COUNTIES

CHELMSFORD. *Houses, etc.* Plans passed by the Corporation : Three houses, Fourth Avenue, for Messrs. R. H. Currie and Sons ; eight houses, Prykes Drive, for Mr. J. C. Pryke ; nine houses, Sunningdale Road, for Messrs. Tyler-Dobie ; two houses, off Victoria Road, for Mr. W. Myall ; four houses, Broomfield Road, for Messrs. W. and A. Pudney ; eight houses, Third Avenue, for Messrs. D. Salmon & Co., Ltd.

CHELMSFORD. *School.* The Education Committee is to erect a junior school for 750 in the south ward.

CHELMSFORD. *Assembly Hall.* The Boarded Barns Tenants' Association, Chelmsford, have prepared plans for the erection of an assembly hall on the estate.

MIDLAND COUNTIES

BLURTON. *Shops.* Messrs. Ball and Robinson are to erect shop premises on the Blurton Green Farm Estate, Blurton, Staffs.

BURSLEM. *Houses, etc.* Plans passed at Burslem : Extensions, Station Garage, Sneyd Street, for Mr. C. H. Heath ; 19 houses, Leek Road, for Mr. A. Gurney ; nine houses, Hamil Road, for Mr. J. Dickinson.

STOKE-ON-TRENT. *Crematorium.* The Corporation has forwarded to the Ministry of Health plans for the proposed crematorium at Carmountside Cemetery, the cost being estimated at £61,145.

STOKE-ON-TRENT. *Houses.* Plans passed by the Corporation : Two houses, Cliffe Vale, for Johnson Fireclay Co., Ltd. ; 64 houses, Grove Road, Fenton, for Mr. J. B. Thompson ; two houses, Blurton Road, for Mr. B. J. Brittle ; five houses, Victoria Street, for Mr. S. Mason ; 24 houses, Stone Road, Lightwood, for Messrs. J. E. Simester & Co. ; three houses, Cobden Street, for Mr. T. Hales ; two houses, Stone Road, for Mr. W. Brammar ; 28 houses, off Chamberlain Avenue, for Messrs. Leese and Peers ; two houses, Highfield Avenue, for Messrs. W. Ball and Son ; eight houses, Lancaster Road, Harpfields, for Modern Architectural Estates, Ltd. ; 18 houses, Hunterscroft Estate, for Mr. H. Bratt ; two houses, Richmond Street, for Messrs. Griffiths ; alterations, Church Street, for National Provincial Bank, Ltd. ; three houses and one shop, Greasley Road, Bucknall, for Mr. W. Withington ; nine houses, Leek Road, for Mr. R. J. Cooper ; warehouse, Crescent Pottery, for Messrs. G. Jones and Son ; 10 houses, Ronson Avenue, for Messrs. P. Bailey & Co., Ltd. ; two houses, Stone Road, for Mr. J. E. Robinson ; six houses, Hunterscroft, for Mr. A. Hood ; eight houses, off Stone Road, for Messrs. Hobson and Parkinson ; 22 houses, Penkville Street, for Messrs. Holloway & Co. ; eight houses, off Longton Road, for Messrs. Cooper and Jones ; six houses, Blurton Road, for Mr. B. J. Brittle ; six houses, Blurton Road, for Mr. H. W. Cartlidge ; extensions, Garfield Pottery, Market Street, Longton, for Mr. A. Clough ; eight houses, Stone Road, for Mr. J. Barber ; eight houses, Argyle Road, Sneyd Green, for Mr. J. Davies ; two houses, Highfield Avenue, for Messrs. Ball and Sons ; 66 houses, off Trentham Road, Longton, for Messrs. Holloway & Co. ; 28 houses, Lennox Road, Longton, for Mr. G. F. Norris.

NORTHERN COUNTIES

BLACKPOOL. *Shops.* Mr. J. V. Whitehead has prepared a scheme for the erection of shops in Squires Gate Lane, Blackpool.

BLACKPOOL. *Development.* Mr. H. Welch has prepared plans for the development of the Lindale estate, Blackpool.

MANSFIELD *Rehousing.* The Corporation has purchased a rehousing site on the racecourse estate.

MANSFIELD. *Houses.* Plans passed by the Corporation : Two houses, Bleakhills Lane, for Messrs. Todd and Handby ; two houses,

(*Continued on page xxvi*)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on-Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_2	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M.	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley ..	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley ..	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham	N.E. Coast	1 5½	1 1½
A_2	EASTBOURNE	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S.W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W.Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_2	Kendal ..	N.W. Counties	1 4	1 0
A_2	Keswick ..	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12-15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough ..	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N. E. Coast	1 5½	1 1½
A_2	Middlewich ..	N. W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson ..	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid. Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham ..	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford ..	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough ..	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_2	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid. Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil ..	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger	"	1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
General Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4 ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
¾" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single Junctions	"	3	6	5	3
Double "	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¼" Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	15	6	30	0
Lead Wool	lb.		6		—
Gaskin	"		5		—

BRICKLAYER

		£	s.	d.
Flettons	per M.	2	15	0
Grooved do.	"	2	17	0
Phorpres bricks	"	2	15	0
" Cellular bricks	"	2	15	0
Stocks, 1st quality	"	4	11	0
" and "	"	4	2	6
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Brindles	"	7	0	0
" Bullnose	"	9	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	0
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midhurst White Facings	"	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	29	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

The following d/d F.O.R. at Nine Elms:

		s.	d.
Portland stone, Whitbed	F.C.	4	4½
" " Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" " Sawn templates	"	7	6
" " Paving, 2"	F.S.	1	8
" " " 3"	"	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24" × 12" Duchesses	per M.	28	17	6
22" × 12" Marchionesses	"	24	10	0
20" × 10" Countesses	"	19	5	0
18" × 10" Viscountesses	"	15	10	0
18" × 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20" × 10" medium grey per 1,000 (actual)		21	11	6
" " green "	"	24	7	4
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each			9½
" hand-made	"			10
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" " 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak, plain American	" "	1	0
" Figured "	" "	1	3
" plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1
Deal floorings, ¾"	Sq.	18	6
" 1"	"	1	1	6
" 1¼"	"	1	2	0
" 1½"	"	1	5	0
" 1¾"	"	1	10	0
Deal matchings ¾"	"		14	0
" 1"	"		15	6
Rough boarding ¾"	"	1	4	0
" 1"	"		16	0
" 1¼"	"		18	0
	"	1	6	0

Plywood, per ft. sup.

Thickness	¼" d.	⅜" d.	½" d.	⅝" d.
Qualities	AA. A. B.	AA. A. B.	AA. A. B.	AA. A. B.
Birch	4 3 2	5 4 3	7½ 6 4½	8½ 7 6
Alder	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6
Gaboon Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –
Figured Oak 1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –
Plain Oak 1 side	6½ 6 –	7½ 7 –	9½ – –	1/– – –
Oregon Pine	5 4 –	5½ 5 –	6 – –	– – –

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

Tubes and Fittings:
(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

		½"	¾"	1"	1¼"	2"
Tubes, 2'-14' long, per ft. run		4	5½	9½	1/1	1/10
Pieces, 12"-23" long	each	10	1/1	1/11	2/8	4/9
" 3"-11½" long	"	7	9	1/3	1/8	3/–
Long screws, 12"-23½" long	"	11	1/3	2/2	2/10	5/3
" " 3"M-½" long	"	8	10	1/5	1/11	3/6
Bends	"	8	11	1/7½	2/7½	5/2
Springs not socketed	"	5	7	1/1½	1/11½	3/11
Socket unions	"	2/–	3/–	5/6	6/9	10/–
Elbows, square	"	10	1/1	1/6	2/2	4/3
Tees	"	1/–	1/3	1/10	2/6	5/1
Crosses	"	2/2	2/9	4/1	5/6	10/6
Plain sockets and nipples	"	3	4	6	8	1/3
Diminished sockets	"	4	6	9	1/–	2/–
Flanges	"	9	1/–	1/4	1/9	2/9
Caps	"	3½	5	8	1/–	2/–
Backnuts	"	2	3	5	6	1/1
Iron main cocks	"	1/6	2/3	4/2	5/4	11/6
" with brass plugs	"	—	4/–	7/6	10/–	21/–

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½

FITTINGS.			
Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued.*

		s.	d.
Rolled steel joists cut to length	cwt.	12	9
Mild steel reinforcing rods, ¾"	"	9	6
" " ⅞"	"	9	3
" " 1"	"	9	0
" " 1¼"	"	8	6
" " 1½"	"	8	6
" " 1¾"	"	8	6
" " 2"	"	8	6
" " 2¼"	"	8	6
" " 2½"	"	8	6
" " 2¾"	"		4"

		s.	d.
Cast-iron rain-water pipes of ordinary thickness metal	F.R.	8	10
Shoes	each	2	0
Anti-splash shoes	"	3	0
Boots	"	4	6
Bends	"	3	0
" with access door	"	2	7
Heads	"	—	6
Swan-necks up to 9" offsets	"	4	0
Plinth bends, 4½" to 6"	"	3	9
Half-round rain-water gutters of ordinary thickness metal	F.R.	3	9
Stop ends	each	5	6
Angles	"	6	6
Obtuse angles	"	1	7
Outlets	"	2	0

PLUMBER

		s.	d.
Lead, milled sheets	cwt.	19	6
" drawn pipes	"	19	0
" soil pipe	"	19	6
" scrap	"	11	6
Solder, plumbers'	lb.		9½
" fine do.	"	1	0
Copper, sheet	"		8½
" tubes	"		11

L.C.C. soil and waste pipes:	3"	4"	6"
Plain cast	F.R. 1 0	1 2	2 6
Coated	" 1 1	1 3	2 8
Galvanized	" 2 0	2 6	3 6
Holderbats	each 3 10	4 0	4 9
Bends	" 3 9	5 3	10 3
Shoes	" 2 10	4 4	9 6
Heads	" 4 8	8 5	12 9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	5	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	9
Lath nails	lb.			3

GLAZIER

	s.	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.			s. F.S.	2½
" " 26 oz.	"	"	"	3
Flemish, Arctic, Figures (white)*	"		"	7
Blazoned glasses	"		"	2 6
Reeded; Cross Reeded	"		"	11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite	"			6
Crown sheet glass (n/e 12 in. x 10 in.)	"			2 0
Flashed opals (white and coloured)	"	1 0	and	2 0
¼" rough cast; rolled plate	"			5½
¼" wired cast; wired rolled	"			9½
¼" Georgian wired cast	"			11
¼" Polished plate, n/e 1 ft.	"	†10	to	‡1 1
" " 2	"	†1	2 "	‡1 4
" " 4	"	†2	3 "	‡2 6
" " 8	"	†2	9 "	‡3 2
" " 20	"	†3	7 "	‡4 2
" " 45	"	†3	11 "	‡4 7
" " 100	"	†5	0 "	‡5 7
Vita glass, sheet, n/e 1 ft.	"			1 0
" " 2 ft.	"			1 3
" " over 2 ft.	"			1 9
" plate, n/e 1 ft.	"			1 6
" " 2 ft.	"			3 0
" " 5 ft.	"			4 0
" " 7 ft.	"			5 0
" " 15 ft.	"			6 0
" " over 15 ft.	"			7 6
"Calorex" sheet 21 oz., and 32 oz.	"	2 6	and	3 6
" rough cast ¼" and ⅜"	"	8½	"	1 0
Putty, linseed oil	lb.			3

* *Colours, 1d. F.S. extra.*
† *Ordinary glazing quality.* ‡ *Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	8	6
Linseed oil	gall.		2	3
Boiled oil	"		2	9
Turpentine	"		4	1½
Patent knotting	"		14	0
Distemper, washable	cwt.	2	6	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	firkin		3	0
Copal varnish	gall.		13	0
Flat varnish	"		14	0
Outside varnish	"		16	0
White enamel	"	1	15	0
Ready mixed paint	"		13	6
Brunswick black	"		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR

		£ s. d.
Digging over surface n/e 12" deep and cart away	Y.S.	2 9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.	8 6
" to form basement n/e 5' 0" and cart away	"	9 0
" " 10' 0" deep and cart away	"	9 6
" " 15' 0" deep and cart away	"	10 0
If in stiff clay add	"	6
If in underpinning	"	4 0
Planking and strutting to sides of excavation	F.S.	1 0
" " to pier holes	"	5
" " to trenches	"	5
" " extra, only if left in	"	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	"	1 6 0
" " (4-2-1)	"	1 12 6
" " underpinning	"	1 16 0
Finishing surface of concrete, space face	Y.S.	7

DRAINLAYER

		4" s. d.	6" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER

		£ s. d.
Brickwork, Flettons in lime mortar	Per Rod	26 10 0
" " in cement	"	27 12 6
" Stocks in cement	"	34 0 0
" Blues in cement	"	50 0 0
Extra only for circular on plan	"	2 0 0
" backing to masonry	"	1 10 0
" raising on old walls	"	2 0 0
" underpinning	"	3 10 0½
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	"	8
" " " red brick facings and pointing	"	11
" " " blue brick facings and pointing	"	1 4
" " " glazed brick facings and pointing	"	3 6
Tuck pointing	"	7½
Weather pointing in cement	"	3
Slate dampcourse	"	10
Vertical dampcourse	"	1 1

ASPHALTER

		s. d.
½" Horizontal dampcourse	Y.S.	4 6
½" Vertical dampcourse	"	6 9
½" paving or flat	"	4 0
1" paving or flat	"	5 6
1" × 6" skirting	F.R.	1 0
Angle fillet	"	2
Rounded angle	"	2
Cesspools	Each	5 0

MASON

		s. d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	"	13 6
Artificial stone and do	"	13 0
York stone templates, fixed complete	"	10 6
" thresholds	"	13 6
" sills	"	1 0 6

SLATER AND TILER

		£ s. d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3 10 0
Do., 18" × 9"	"	3 7 0
Do., 24" × 12"	"	3 17 0
Westmorland slating, laid with diminished courses	"	6 0 0
Tiling, best hand-made sand-faced lapped to a 4" gauge, nailed every fourth course	"	3 0 0
Do., all as last, but of machine-made tiles	"	2 16 0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	2 16 0
" " " " " (green)	"	4 15 0

CARPENTER AND JOINER

		£ s. d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2 2 6
Shuttering to sides and soffits of beams	F.S.	7
" to stanchions	"	7
" to staircases	"	1 6
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	"	4 6
" " roofs	"	6 6
" " trusses	"	7 6
" " partitions	"	8 6
¾" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" " " " "	"	1 17 6
1¼" " " " "	"	2 3 0
1½" × 2" fir battening for Countess slating	"	9 0
Do. for 4" gauge tiling	"	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
" " " 2 "	"	2 9
" " " 3 "	"	3 3
Stout herringbone strutting to 9" joists	F.R.	10½
1" deal gutter boards and bearers	F.S.	1 2
1¼" " " "	"	1 6
2" deal wrought rounded roll	F.R.	8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼" do.	"	2 10 0
1½" do.	"	2 17 0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1¼" do.	"	1 9

CARPENTER AND JOINER—*continued*

		s. d.
1½" deal moulded sashes of average size	F.S.	1 9½
2" " " " "	"	1 11½
1¼" deal cased frames double hung, of 6" × 3" oak sills, 1¼" pulley stiles, 1¼" heads, 1" inside and outside linings, ⅜" parting beads, and with brass faced axle pulleys, etc., fixed complete		3 7
2" " " " "	"	3 10
Extra only for moulded horns	Each	6
1½" deal four-panel square, both sides, door	F.S.	2 0
2" " " " "	"	2 8
1¼" " but moulded both sides	"	2 4
2" " " " "	"	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" " " "	"	1 4
1½" deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1½" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
1½" deal moulded wall strings	"	2 1
1½" " outer strings	"	2 4
Ends of treads and risers housed to string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1½" × 1½" " " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

SMITH AND FOUNDER

		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	16 6
Riveted plate or compound girders, and hoisting and fixing in position	"	1 0 6
Do., stanchions with riveted caps and bases and do.	"	19 0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	"	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER

		£ s. d.
Milled lead and labour in flats	cwt.	1 13 0
Do. in flashings	"	1 16 6
Do. in covering to turrets	"	2 4 0
Do. in soakers	"	1 8 6
Labour to welted edge	F.R.	3½
Open copper nailing	"	3
Close " "	"	4

		½" s. d.	¾" s. d.	1" s. d.	1¼" s. d.	2" s. d.	4" s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks		—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	3 9	5 0	8 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—

		£ s. d.
4" cast-iron ½-rd. gutter and fixing	F.R.	1 0
Extra, only stop ends	Each	1 0
Do. angles	"	1 6
Do. outlets	"	2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1 2
Extra, only for shoes	Each	1 3
Do. for plain heads	"	5 6

PLASTERER AND TILING

		s. d.
Expanded metal lathing, small mesh	Y.S.	2 0
Do. in n/w to beams, stanchions, etc.	"	2 9
Lathing with sawn laths to ceilings	"	1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1 5
Do. vertical	"	1 7
Rough render on walls	"	1 2½
Render, float and set in lime and hair	"	1 9
Render and set in Sirapite	"	1 11
Render, backing in cement and sand, and set in Keene's cement	"	2 9
Extra, only if on lathing	"	4
Keene's cement, angle and arris	F.R.	6
Arris	"	
Rounded angle, small	"	3
Plain cornices in plaster, including dubbing out, per 1" girth	"	1½
1" granolithic pavings	Y.S.	3 6
1½" " " "	"	4 6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17 6
9" × 3" " " " "	"	1 2 6
Extra, only for small quadrant angle	F.R.	8

GLAZIER

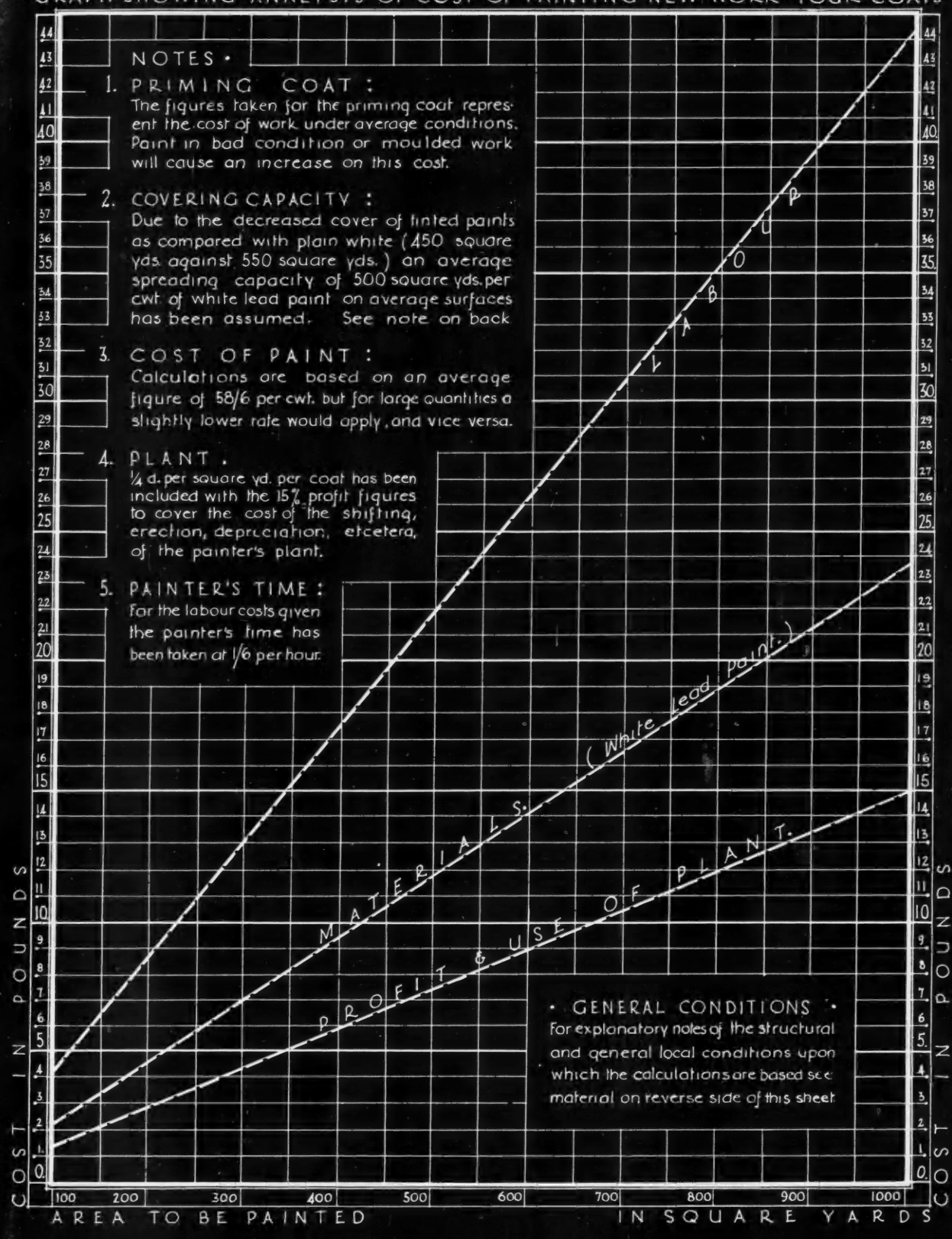
		s. d.
21 oz. sheet glass and glazing with putty	F.S.	0½
26 oz. do. and do.	"	7½
Flemish, Arctic Figured (white) and glazing with putty	"	1 1
Cathedral glass and do.	"	1 2
Glazing only, British polished plate	"	7
Extra, only if in beads	"	2
Washleather	F.R.	4

PAINTER

		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	"	9
Do. with washable distemper	"	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3 3
Do. on woodwork	"	3 6
Do. on steelwork	"	3 0
Do. and brush grain and twice varnish	"	5 6
Stain and twice varnish woodwork	"	1 11
Stain and wax-polish woodwork	"	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper	from "	2 9

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GRAPH SHOWING ANALYSIS OF COST OF PAINTING NEW WORK • FOUR COATS



Information from The White Lead Publicity Bureau.

INFORMATION SHEET • COST ANALYSIS OF PAINTING • NO. 3 • NEW WORK

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1.

INFORMATION SHEET • 227 • PAINTING COSTS

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET
• 227 •
PAINTING COSTS

Product : White Lead Paints

General :

The graph given on this Sheet is the third of the series showing the cost analysis of painting work.

The two previous graphs (Information Sheets Nos. 211 and 219), giving the analyses of costs for new work and for repainting old work respectively, were both based on small scale work, viz. a two storied suburban house.

This and the fourth of the series are based on large scale work, the present dealing with new work only.

Extent of Works :

The extent of the work to be painted, both as regards area, height above ground, etc., and relative labour and plant cost, has been estimated upon competitive tendering for painting large scale work only.

The covering capacities given on this Sheet are average for general painting on plain surfaces, e.g., plaster, woodwork, ironwork, etc. Where paint is applied to more porous surfaces these capacities will be reduced.

Plant :

The use of step-ladders, trestles and boards only has been assumed, for which ¼d. per sq. yd. per coat has been allowed to cover getting the plant to the job, shifting it into the various required positions, depreciation, etc.

Progress of Work :

The time required for painting 100 sq. yds. has been taken as 16 hours for the priming coat, 15 hours for the first coat, and 14 hours each for the second and third coats.

Cost of White Lead Paint :

(Priming coat at 58s. 6d. a cwt. covering 400 sq. yds. under average conditions.)

First coat at 58s. 6d. a cwt. covering an average of 500 sq. yds. Second and third coats at 58s. 6d. a cwt. each covering 10 per cent. more area than the first coat. (58s. 6d. a cwt. is approximately 14s. 7d. a gallon.)

Builders' and Decorators' Profits :

A combined profit of 15 per cent. has been allocated to the builder and decorator (not including any cash discounts they may obtain by payments to builders' merchants), made up as follows :—

(*a*) Ten per cent. profit on net cost of materials and labour. This figure would also include profit on water, cartage, fire and workmen's insurance, district surveyor's and quantity surveyor's fee, scaffolding on hire, etc.

(*b*) Five per cent. for establishment charges, which include expenses in connection with builders' offices and workshops.

Source of Information : The White Lead Publicity Bureau

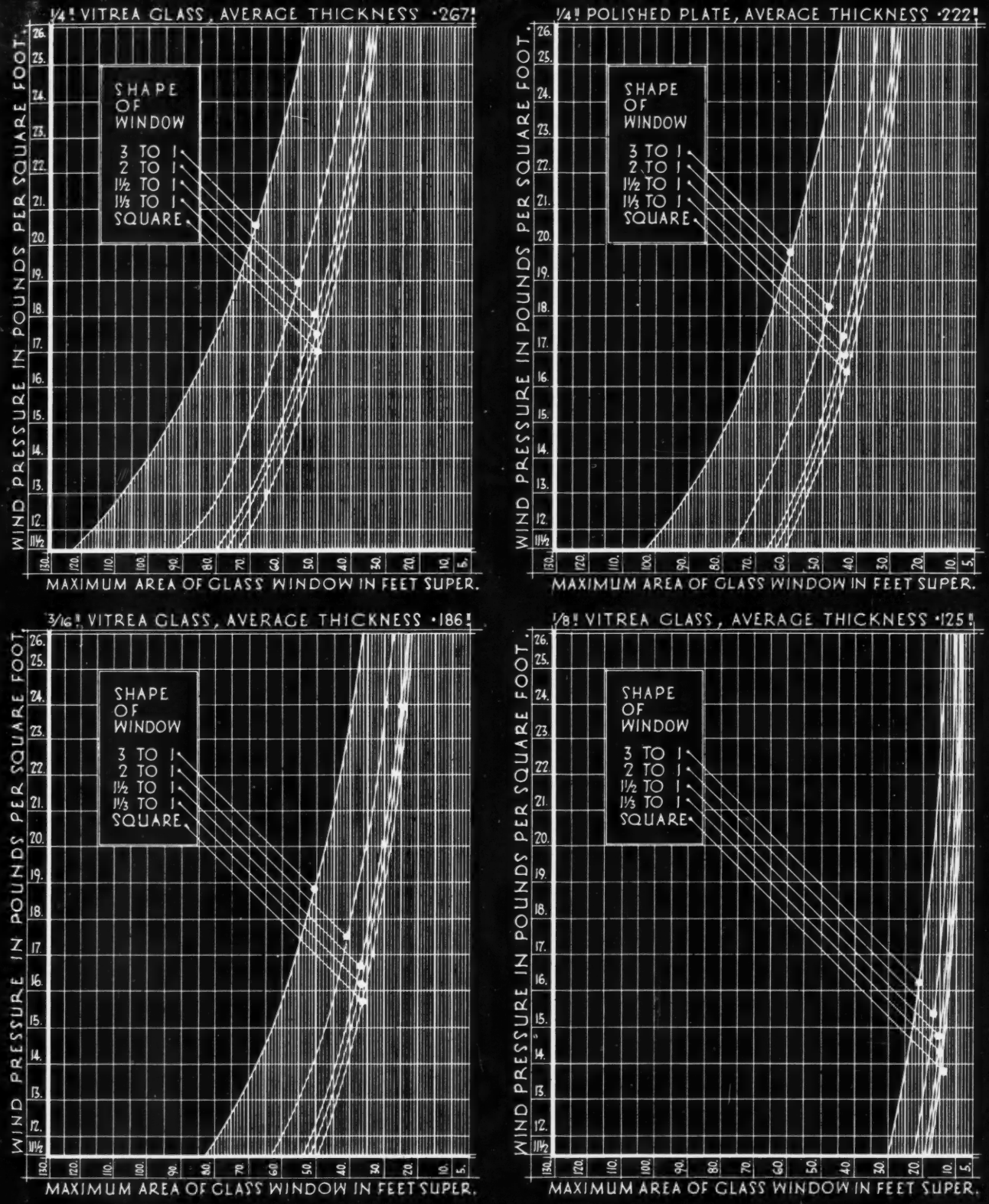
Address : Rex House, 38 King William Street, London, E.C.4

Telephone : Mansion House 2856, 2857

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

GRAPH SHOWING MAXIMUM AREA OF GLASS WINDOWS (IN FEET SUPER) TO WITHSTAND VARIOUS WIND PRESSURES.

NOTE · A factor of safety of three has been assumed, with the glass freely supported at the edges, and the maximum stress occurring at the centre of the pane.



Information from The Vitrea Drawn Sheet Glass Co. Ltd.

INFORMATION SHEET: MAXIMUM AREA OF GLASS WINDOWS:
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 · Oscar A. Bayne.

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 228 •

GLASS

Name of Product : Vitrea Glass

The four graphs given on this Sheet set out the maximum areas of undivided glass in windows, for various wind pressures from 11½ lb. per sq. ft. (60 m.p.h. gale) up to 26 lb. per sq. ft. (90 m.p.h. gale) with varying shapes of window from the proportion of 3 to 1 to a square.

Three thicknesses of Vitrea glass have been analysed, ¼", 3/16", and ⅛", each in a separate graph ; the fourth graph gives as a comparison the corresponding areas for ordinary ¼" polished plate glass.

The Calculations are based on the assumption that the panes have all edges freely supported, with the maximum stress occurring at the centre, and the formula used for the loading is that for square plates, viz., $f=\frac{ps^2}{4t^2}$ where s=the side, t=the thickness under a uniform pressure p, and the mean intensity of the bending stress=f at the central point.

A factor of safety of three has been assumed, and the maximum permissible stress (f), by test, is as follows :

¼" Vitrea, 2,980 lb. per sq. in.
¼" polished plate, 3,600 lb. per sq. in.
3/16" Vitrea, 4,140 lb. per sq. in.
⅛" Vitrea, 3,330 lb. per sq. in.

The relative strengths of rectangular glass windows of equal area, assuming the square to be unity, are as follows :

1½ : 1,	1·04
1⅔ : 1,	1·08
2 : 1,	1·25
3 : 1,	1·66.

The L.C.C. Building Regulations (1930) specify that for vertical walls on the upper two-thirds of a building, a wind pressure value of 15 lb. per sq. ft. should be assumed.

General Description :

Vitrea Heavy Drawn glass has been produced in order to make possible the employment of thick flat glass where its more extensive use has so far been prevented by consideration of cost.

Specification :

For building purposes the following standard specification should be adopted :—

Vitrea glass, " A " quality, as marketed by the Vitrea Drawn Sheet Glass Co., Ltd., of High Holborn House, London, W.C.1, glazed so that any drawing striations run horizontally.

Thicknesses and Weights :

Thickness in inches (approx.)	Thickness in millimetres (approx.)	Weight per ft. super (approx.)
¼"	6 —7 mm.	50 to 56 oz.
7/32"	5½—6 mm.	44 to 48 ,,
3/16"	4½—5 mm.	36 to 40 ,,
5/32"	4 mm.	32 ,,
⅛"	3 mm.	24 ,,
1/12"	2 mm.	18 ,,

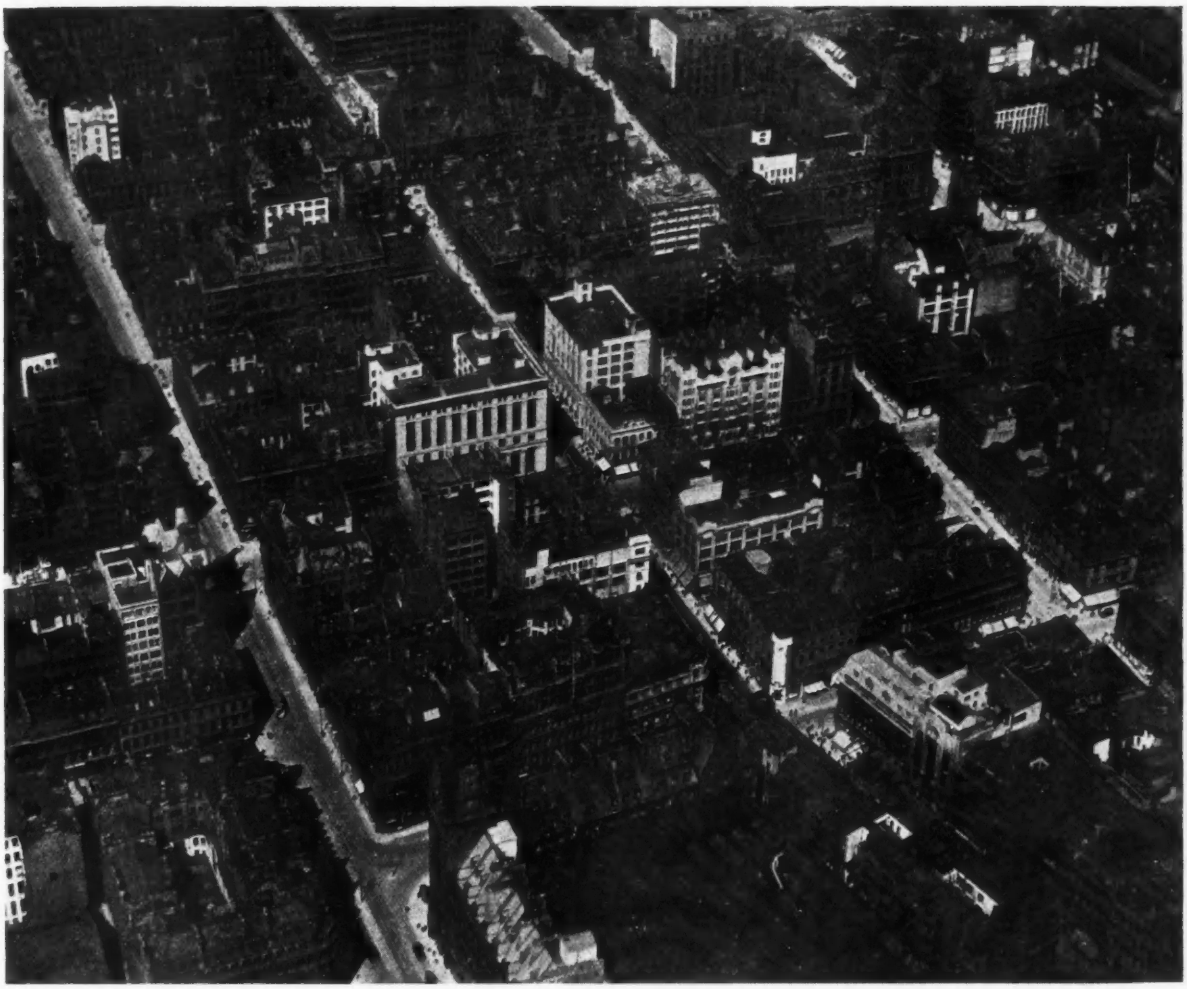
Manufacturers : The Vitrea Drawn Sheet Glass Co., Ltd.

Address : 52-54, High Holborn, W.C.1

Telephone : Chancery 7891-2-3

GLASGOW: A MODERN VIEWPOINT

THE SCENE OF THE R.I.B.A. CONFERENCE



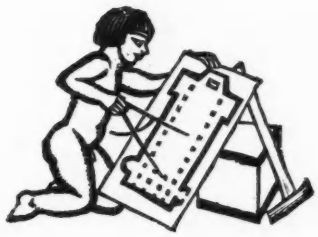
AN aerial view of Central Glasgow. In the foreground is the Central Station, and the streets shown are: left, Hope Street; centre, Renfield Street; right, Buchanan Street, leading up to Queen Street Station.





THE ROYAL INFIRMARIES

In these photographs of two Royal Infirmaries, seen past the west end of Glasgow Cathedral, the lay eye might find several points of resemblance: in the projecting wings, the columnar treatment of the entrance and the surmounting saucer dome. The upper illustration is of the present Royal Infirmary. Below is the old Royal Infirmary, designed by Robert and James Adam and opened in 1794. The building was demolished in 1910.



GLASGOW

THE Annual Conference of the R.I.B.A., which takes place this week in Glasgow, could not have been better placed for its meeting in Jubilee year. For to the display of feeling natural at such a time has been added the conviction that during recent years Great Britain has proved that it can still face difficulties with resolution, reorganize with courage, and face the future with a real appreciation of changed conditions—with confidence but without complaisance.

Why at such a moment is it suitable that the architects of the country should visit Glasgow? Because Clydeside has a particular need of the qualities which the country has shown it yet possesses; because Glasgow forms the worst, because the largest, example of the evil effects of rapid, unregulated and unplanned industrial expansion over a period of a century. A Glasgow Sunday is proverbial not only in England but throughout the world; and this phrase implies not only a sense of boredom towards the unutterably banal, but also a feeling of hostility—even of hatred—towards a Glasgow both inhuman and evil.

Strangers have sometimes wondered whether the people of Glasgow realize the extent of the disgust which is inspired by their city as the architype of all those cities which have allowed industrialism to overwhelm them without protest.

Glasgow slums are widely infamous. Half its population—to be exact, four hundred and forty-five thousand people—live more than two to a room. And Clydeside has thus succeeded in identifying the noble craftsmanship of its shipbuilding with a squalor and a misery of living conditions probably unequalled in the records of wealthy and civilized communities. For these the provision of excellent public services provides no cure, and the grandeur which is now sometimes claimed for Glasgow—the grandeur of factory chimneys, warehouses and smoke—assumes in terms of living conditions a very different grandeur, one both sinister and diabolical.

How did such conditions come about? In this issue we try to outline Glasgow's growth.

From a small fishing community ranged about its Abbey, Glasgow twice rose to prosperity and was twice brought near to financial disaster through causes beyond its citizens' control, before the advent of the metal hull gave in shipbuilding a third and greatest opportunity. The enterprise of Clydeside used in full the advantages of its position. The closely neighbouring coal and iron workings gave an initial thrust to the capturing of a world market, and ancillary industries, arising quickly in adjoining areas, consolidated an enviable reputation in all that concerned ships and propelling machinery. Around this prospering central group of industries others formed; the docks extended steadily to handle increasing traffic, and the manufacture of armaments was added to the long list of Clydeside industries.

In brief, the story is not one peculiar to Glasgow in its wider implications. It is a story common to many cities—the usual nineteenth-century history of immense industrial enterprise and expansion carried on at the expense of civilization, happiness, life. But in Glasgow, as we have said before, it attained its apotheosis.

Nevertheless, the extent of the evil is the extent of the opportunity, and there could be no greater opportunity than the present housing conditions. If it takes this opportunity Glasgow can set an example and a standard to the whole country.

The Housing authorities of the city now possess powers which enable them to make the future homes of the workers as minutely planned to a purpose, and as beautiful, as are the ships that bear the convincing hall-mark—"Clyde-built."

And industry, in its turn, now realizes the value of planning; it has found that an ordered arrangement of processes, carried out in well-lighted, well-ventilated, carefully heated workshops of a pleasing and seemly appearance, makes for better work and better workers.

The members of the R.I.B.A. Conference, at present in Glasgow, overwhelmed by a hospitality as famous as the Clyde's ships, may well experience as guests a compulsion to be polite—or silent. But we would stress that as guests concerned with Glasgow's future their politeness should take a higher form; that they should state with emphasis the opportunity now existing both for the directors of Glasgow's housing policy and for her masters of industry.

Should they neglect this duty, a renewed commercial activity, accompanied once more by the makeshifts of self-interest, may bring Clydeside's industries to an eventual standstill in the midst of a planless chaos.



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NOTES & TOPICS

THE R.I.B.A. CONFERENCE

GLASGOW this week will be full of architects, large and small.

*

They will have a good time—I have no doubt of that. I have plenty of confidence in Scottish hospitality. But what they will think of Glasgow as an example of the contemporary industrial city is another matter.

*

It is rather ironic that, while C. R. Mackintosh is one of the Glasgow celebrities whose work is honoured by the R.I.B.A. visit, as far as Glasgow is concerned the movement he did so much to initiate might never have taken place.

*

But it is not so much in the design of individual buildings that Glasgow's standard is so poor (it has some good buildings) but in all matters of town-planning, civic amenity and " civic sense " generally.

*

I am afraid the lesson the conference will learn from Glasgow will be solely a cautionary one.

*

I hope Glasgow will learn some constructive lessons from the conference.

GLASGOW-ON-SEA

One correspondent writes to say she isn't going to be at Glasgow for the conference, and with her reason I have a lot of sympathy. I will quote part of her letter.

I had hoped to be able to hear the " learned profession " give its few words of praise, or fluent depreciations to the greatest ship of our time, now being finished off, and fitted for her first Atlantic crossing.

Eagerly I scanned the programme. If it is a fine day, there is what should be a most enchanting trip down the Clyde—curiously enough to be made on the S.S. *Queen Mary II*, from which we may catch a glimpse of her celebrated namesake, and the yard in which she was built.

But nothing more ; the ship remains a mystery. If architects are to visit Glasgow, surely show them ships, and above all, the ship about which they so fiercely wrangled, some months ago, when a good deal of publicity and wit flew about concerning the interior decoration of liners.

But this royal ship, after the fanfare of her launching, seems determined to keep the curtain down. We cannot, unfortunately, be curiosity passengers on her maiden voyage, but we cannot help being interested.

Well, no ships—no Glasgow for me. Three hundred miles to see a maritime city's second best on land. Distinctly not worth while.

*

It does seem an opportunity missed of reviving a vital question on a practical basis of eye-witnesses' evidence and opinion.

*

And, by the way, what *is* the interior going to be like? I must confess that the continually lowered curtain that my correspondent mentions only increases my misgivings.

THE SNOWDONIA PARK

The arguments in favour of the formation of national parks are invincible. They have been stated authoritatively on several occasions and have even been officially tabulated in a Government report. But nothing, of course, is done — nothing of any size or importance ever seems to be done so long as " preservation " and " amenity " form the basis of appeal.

*

Architects, among other people, appealed for years for the preservation of amenities against the paralysis of ribbon development along our roads, and, as I pointed out some months ago, nothing happened until the basis of appeal was changed to the saving of life and limb on the roadway itself.

*

And now Mr. Clough Williams-Ellis is following up his generous offer of three hundred acres, to form the nucleus of a national park around Snowdon, by an appeal to pockets on the elemental grounds that actual prosperity and profits are at stake. The largest and more enlightened of his brother publicans in Wales, he says, have already seen the point and are supporting generously. Funds are required to compensate innumerable small freeholders who cannot afford to wait for ultimate prosperity when bungalow builders make immediate and tempting offers.

*

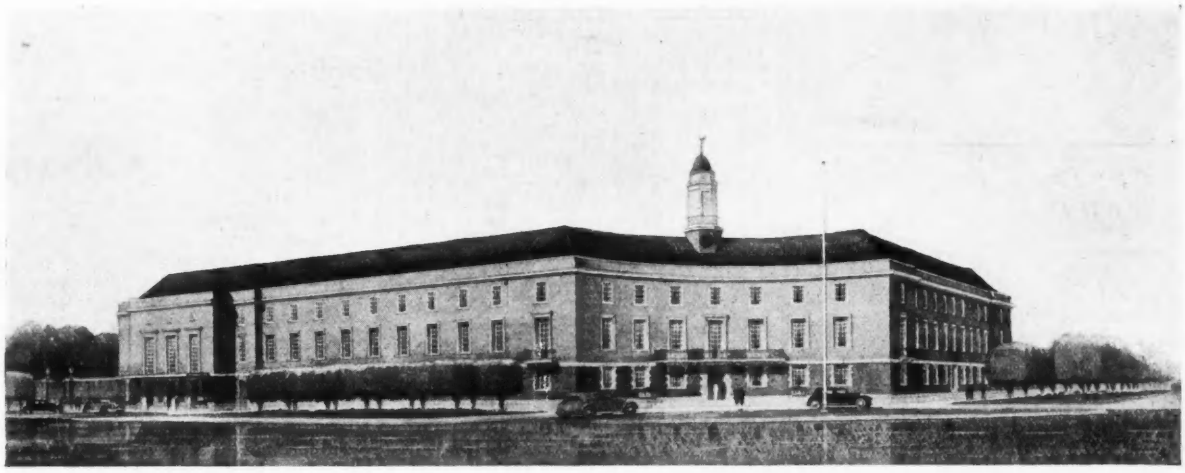
Mr. Williams-Ellis's appeal should succeed ; and when he has finished preserving livelihoods he will, incidentally, have achieved the preservation of amenities.

ART IN . . . GEOGRAPHY

Soon after commenting last week upon the high standard of art education in L.C.C. schools I was able to see the exhibition of work at Goldsmiths' College, where some of the teachers are trained. Art, of course, is only one of the many subjects the student teachers tackle in their brief two years of training, but I found their imaginative painting and fabric designs better than the work turned out in many art schools.

*

Not so, alas, their studies of architecture. The two portfolios labelled " architecture " which I inspected were appallingly dull in execution and as remote as nineteenth-century archæology in outlook. Three miserable " types



A perspective of the winning design, by C. Cowles-Voysey, in the competition for proposed municipal buildings, Watford, *For elevations and plans, see pages 967-969.*

of traceried windows and wall arcades," some flying buttresses, some ruins and some more ruins.

*

It is incredible that a training college thoroughly up to date in most departments, even advanced in art training, should be so completely out of touch with architectural thought. All the more incredible, I thought, when I saw that one of the largest rooms in the Exhibition was filled with the C.P.R.E. loan photographs illustrating good and bad examples of town and country planning—a room arranged, I learned, by the geography mistress.

INTERNATIONAL CONGRESSES : IN HOLLAND—

In Holland, where the International Congress for Modern Architecture held its annual meeting over Whitsuntide, there is a vigorous group of modern architects working together and publishing a journal called very shortly " de 8 "—the eight. The eight do, in fact, number 30, and for this Congress they had collected together for an exhibition in the Amsterdam Town Museum an impressive collection of plans, photographs, models and diagrams, all bearing upon modern architecture and urbanism.

*

Drawn from many countries this exhibition showed clearly the collective strength of rational building and planning and, conducting its meetings in such surroundings the Congress might well have felt that it met for a purpose more than sufficient to overcome the obvious difficulties that language, race and distance set in the path of collective action.

*

England is the last comer among the nations, and needs time as yet to add its effective quota to the pool.

—IN PRAGUE

Following close on the heels of our own conference at Glasgow there is the International Housing Conference on June 23-26 at Prague. This Conference recommends itself both because an international exchange of housing ideas is likely to benefit more people than the exchange of any other architectural ideas and because Prague itself is a good place to see.

*

I remember it as a city of rich baroque background, geographically and architecturally. Its people give one the impression of enjoying hard work and achieving in an easy and matter-of-fact way what they wish. Its modern architecture is as precise and unconcerned as two working girls I saw walking along the Embankment one evening. Their quick conversation was scarcely interrupted as they dropped attaché cases, slipped off clothes, swam across the swift running river and returned to don mackintoshes and continue their homeward walk—just like that.

*

Several interesting papers are to be read by delegates from various countries. I have seen the manuscript of one of the English delegates—Miss Elizabeth Halton—and if all the papers reach the standard set by her, then the conference will prove very successful. The title of her paper is : " Some Effects of English Legislation on Slum Clearance "

BUILDING IN TIMBER

In a letter in *The Times* of last Monday, Mr. John Gloag maintains that the use in rural districts of the traditional timber frame house is the principal cause of the relative immunity of the United States from the worst horrors of shoddy building. He is probably right, for the simple and practical fulfilment of a need is nearly always done well by simple people—if left to themselves.

*

But Mr. Gloag might have made his contention more forcible still. He might have said that the great number of timber houses still inhabited in this country proves that the danger from fire is greatly imaginary, a fact borne out by a firm of purveyors of timber houses in their guarantee of an unincreased fire insurance policy.

ASTRAGAL

GLASGOW

Owing to the space devoted in this issue to the history and development of the town of Glasgow, we are compelled to hold over three of our usual weekly features: the Technical Section by Dr. Oscar Faber and Mr. J. R. Kell, Trade Notes by Mr. F. R. S. Yorke, and Working Details Nos. 279 to 282. These sections will be resumed next week.

NEWS

POINTS FROM THIS ISSUE

"*Half its (Glasgow's) population—to be exact, four hundred and forty-five thousand people—live more than two to a room*" 937

"*. . . . Portland Place is having its pleasantness destroyed*" 940

"*The Faculty of Architecture of the British School at Rome, having examined the drawings submitted in the final competition, is unable to recommend any candidate for the award of the Rome Scholarship in Architecture for 1935*" 941

It would be worth while for the Engineer to visit some of the old-world villages and study the design of the houses 942

TOWN PLANNERS AND SLUM CLEARANCE

Criticisms of the Housing Bill were made on Saturday last at a Housing and Town Planning Conference in the County Hall, Westminster, at which 350 delegates from London and the Home Counties were present.

Mr. J. G. Martin, Secretary of the Housing and Town Planning Council, criticized the clause enabling a local authority to form a House Management Committee. He did not think any efficient local authority would wish to transfer its functions to some committee not to be popularly elected, but to be virtually a precepting body which would draw from the general rates to carry on its work. Mr. Martin protested also against the contemplated inclusion of living rooms in assessing sleeping accommodation, and the conference passed a resolution regretting this inclusion.

Sir Raymond Unwin said we needed some permanent board to step in when it saw the time had come to stop ribbon development or to create a green belt round London. He hoped our buildings would never be raised to twice the height of the width of the street. The pleasantness of Regent Street had been destroyed and Portland Place was having its pleasantness destroyed. High buildings kept out sunshine and made streets look dull and dreary.

SCHEME TO SAFEGUARD RANELAGH

The Barnes Council has approved a memorandum providing for the replanning of the grounds of the Ranelagh Club, whose estate covers 117 acres, so that, should the club cease to exist, the grounds would be safe from small villa "development." As a result of negotiations between the Council and the club, one of whose representatives was Sir Edwin Lutyens, a town-planning scheme has been prepared by which the present golf links would be replaced by a smaller course, the swimming pool enlarged, and a twelfth to an eighth of the site reserved for flats.

The club has no present intention, however, of selling the property. The scheme is simply a provision against future possibilities.

THE ARCHITECTS' DIARY

Thursday, June 20

R.I.B.A. *Annual Conference. At Glasgow. Until June 22. For programme, see page 943 of this issue.*

R.I.B.A., 66 *Portland Place, W.1. Exhibition of Designs submitted for the Rome Scholarship. Until June 22.* 10 *a.m. to 8 p.m. Saturday, June 22* (10 *a.m. to 5 p.m.*)

ROYAL ACADEMY, *Burlington House, Piccadilly, W.1. Summer Exhibition. Open until August 10.* 9 *a.m. to 7 p.m.*

R.I.B.A. EXHIBITION OF INTERNATIONAL ARCHITECTURE. *At the Walker Art Gallery, Liverpool. Until June 30.*

L.C.C. CENTRAL SCHOOL OF ARTS AND CRAFTS, *Southampton Row, W.C.1. Annual Exhibition. Until June 28.* 10 *a.m to 8 p.m.*

ANTI-NOISE EXHIBITION. *At the Science Museum, South Kensington, S.W.; and the Building Centre, New Bond Street, W.1. Until June 30.* 10 *a.m. to 6 p.m.*

INSTITUTION OF ELECTRICAL ENGINEERS. *At the Natural History Museum, Cromwell Road, S.W. Concersazione.* 8.30 *p.m.*

Saturday, June 22

ST. PAUL'S ECCLESIOLOGICAL SOCIETY. *Visit to the Parish Church, Almshouses, etc., at Harefield, Middlesex.* 2.30 *p.m.*

LONDON SOCIETY. *Visit to Dulwich College and Picture Gallery.* 3 *p.m.*

Monday, June 24

R.I.B.A., 66 *Portman Place, W.1. General Meeting 8 p.m. Announcement of results of Annual Elections of Council and Standing Committees. Informal discussion on matters of professional interest. Also, exhibition of architects' working drawings. Until June 29.* 10 *a.m. to 8 p.m.* (*Saturday, June 29: 10 a.m. to 5 p.m.*)

Tuesday, June 25

LONDON SOCIETY. *Council excursion to the Royal Horticultural Society Gardens, Wisley.* 2 *p.m.*

Wednesday, June 26

ANTI-NOISE LEAGUE. *At the Science Museum, South Kensington, S.W. Annual Conference. Until June 28. "Sound and Noise," by Dr. G. W. C. Kaye.* 4.15 *p.m.*

NEW TOWN HALL FOR BRIGHTON

Plans for a new town hall were passed by the Improvements Committee of the Brighton Corporation last week. The building is estimated to cost £300,000.

BRITISH INDUSTRIES FAIR 1936

It has been unanimously decided by the Birmingham Chamber of Commerce to hold the Engineering and Hardware Section of the British Industries Fair next year from February 17-28—the same dates as for the Fair as a whole.

This year, when the Section was held from May 20-31, was the first time since the Section was inaugurated that it had not been opened simultaneously with the rest of the Fair.

After the decision for next year had been made, Mr. J. Percy Plant, chairman of the Fair Management Committee, Birmingham, said: "There has been a feeling for some years that May would be a more convenient month for many exhibitors who show their goods in our Section which is devoted to hardware and the heavier industries, but the generally held opinion now is that synchronization of all sections of the Fair outweighs all other considerations."

ROYAL SOCIETY OF ULSTER ARCHITECTS

At the annual meeting of the above Society the following members were elected officers for the ensuing session: President, Mr. R. S. Wilshere, M.C., F.R.I.B.A.; vice-president, Mr T. R. Eager, F.R.I.B.A.; hon. treasurer, Mr. J. H. Stevenson, L.R.I.B.A.; hon. secretary, Mr. H. V. M'Caughan; members of council: Messrs. R. H. Gibson, F.R.I.B.A., T. Houston, F.R.I.B.A., J. MacGeagh, A.R.I.B.A., J. S. Munce, B.E., M.INST.C.E., and J. Seeds, F.R.I.B.A.; associate members, Messrs. C. T. M'Lynn and V. Smyth; hon. auditors, Messrs. D. W. Boyd, M.R.I.A.I., and J. Scott, B.E.

£100,000 SWIMMING BATH SCHEME FOR LEEDS

A scheme for central baths in Leeds was approved by Leeds Corporation Baths Committee last week. The scheme is estimated to cost £100,000.

NATIONAL ASSOCIATION OF BUILDING SOCIETIES

Mr. Stanley C. Ramsey, F.R.I.B.A., addressing the annual conference of the National Association of Building Societies at Folkestone last week, said that "up to the beginning of the industrial period any new building or group of buildings was usually hailed as a delightful enrichment of the countryside, while today building is for the most part looked upon as some sort of desecration. Yet many—probably the great majority—of the houses built for sale to-day are of an infinitely higher standard of construction than those of the pre-industrial period."

Certain standards of construction were not only desirable but essential to the safety of the building society movement. "However keen the competition for business among the units of our movement, none of us, I am sure, wants to compete for the shoddy and the badly built. At present one of the chief difficulties with which we have to contend is that the three principal agencies that should be used for the purpose of obtaining higher building standards have been working along different and at times divergent lines. Until quite recently I think it would not be unfair to say that the building societies have been too much concerned with the financial aspect, which, of course, must always remain their chief consideration, but which cannot, I suggest, be divorced from other considerations; the builders have perhaps been too much concerned with the purely practical and material aspects of their problems; and the architects, the trained designers, have been far too much concerned with the purely æsthetic side of building.

"In the reaction from much that was ugly and depressing in the building of our nineteenth-century industrial development, the architects turned to the earlier historic periods of inspiration. This absorption in the past, which was probably a very necessary stage for better development in the

future, did undoubtedly help to blind us as a profession to many of the social problems of our time.

"If people wanted to live in small houses," he continued, "why not produce or attempt to produce the beautiful cottages of a past age with their fascinating thatch or hand-made tiled roofs and their small leaded casement windows? And this is in the main what we essayed to do. But the public, for which the building societies exist, is in the main not composed of cottagers or those who desire to become cottagers."

NORFOLK ASSOCIATION CRUISE

In place of the usual annual outing by charabanc, the Norfolk and Norwich Association of Architects has this year arranged facilities for its members to join a week-end cruise to Holland.

The s.s. *Vienna* is to sail from Harwich about midnight on Friday, June 28, and will return there early on the following Monday morning, enabling members to arrive in Norwich in time for work. The whole of Saturday afternoon is to be spent at Amsterdam and Sunday afternoon at the Hague, when visits are being arranged to interesting Dutch buildings.

CINEMATOGRAPH TRADE EXHIBITION

The Cinematograph Trade Exhibition which is to be held at Cardiff from June 24 to June 28, in connection with the Annual Conference of the Cinematograph Exhibitors' Association, will contain a section displaying drawings and photographs loaned by the following: Mr. P. V. Starkey, Mr. Frank H. Smith, A.I.A.A., Messrs. C. J. McNair and Elder, Mr. George Coles, Mr. Ivan F. Roberts, Messrs. Drury and Gomersall, Mr. Robert Cromie, Messrs. Wigglesworth and Mackenzie, Messrs. Percy L. Browne and Son, Messrs. T. P. Bennett and Son, Messrs. L. W. Barnard and Partners, Mr. Edgar Simmons, Messrs. Roberts and Wood, Mr. J. Owen Bond, F.R.I.B.A., Mr. Harry W. Weedon, A.R.I.B.A., and Mr. Harold S. Scott, A.R.I.B.A.

OBITUARY

We regret to record the death of Mr. Edward Le Bas, the founder and chairman of Le Bas Tube Co.

R. I. B. A.

GENERAL MEETING

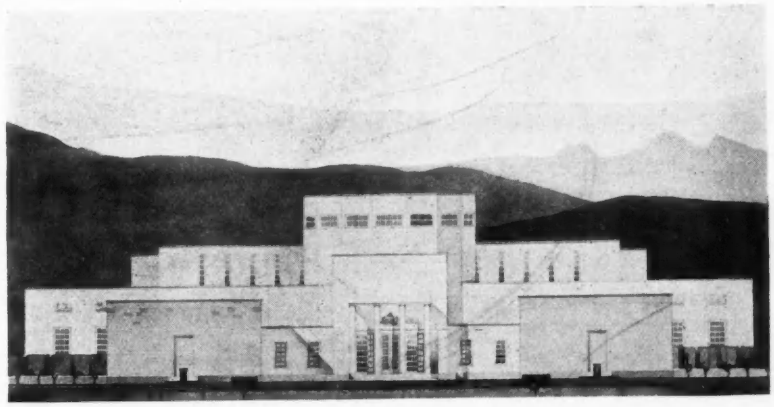
On Monday next, at 8 p.m., a general meeting will be held at 66 Portland Place, W.1, for the purpose of receiving the Scrutineers' Report on the Annual Elections of Council and Standing Committees. This will be followed by an informal and private discussion on matters of current professional interest or concern.

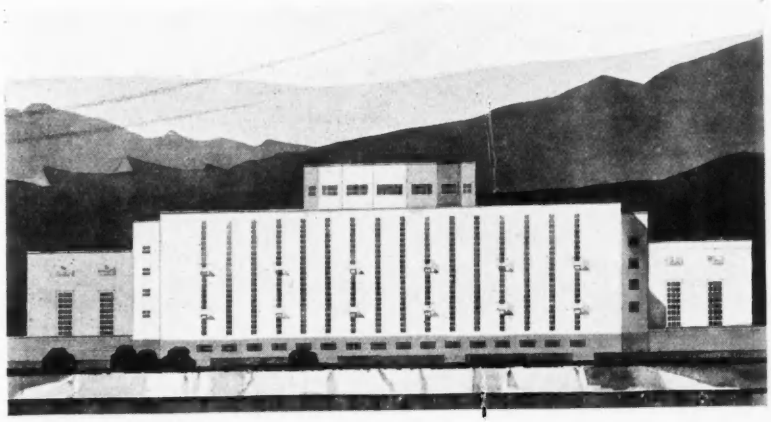
COMPETITION NEWS

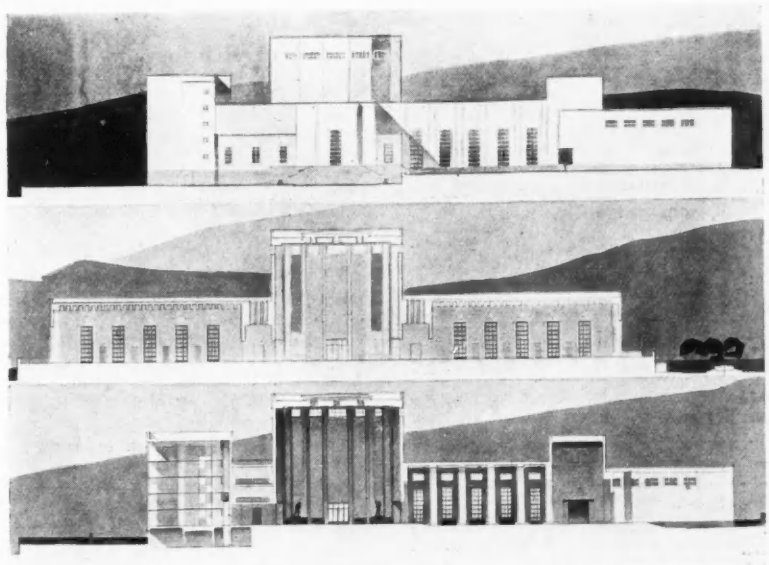
PORTLAND HOUSE PRIZE COMPETITION

The Council of the Institution of Structural Engineers has made the following awards in connection with this year's competition for the Portland House Prize :—

First Prize of £60 : Mr. G. G. Watkins, B.SC., A.M.I.STRUCT.E., of Nottingham.



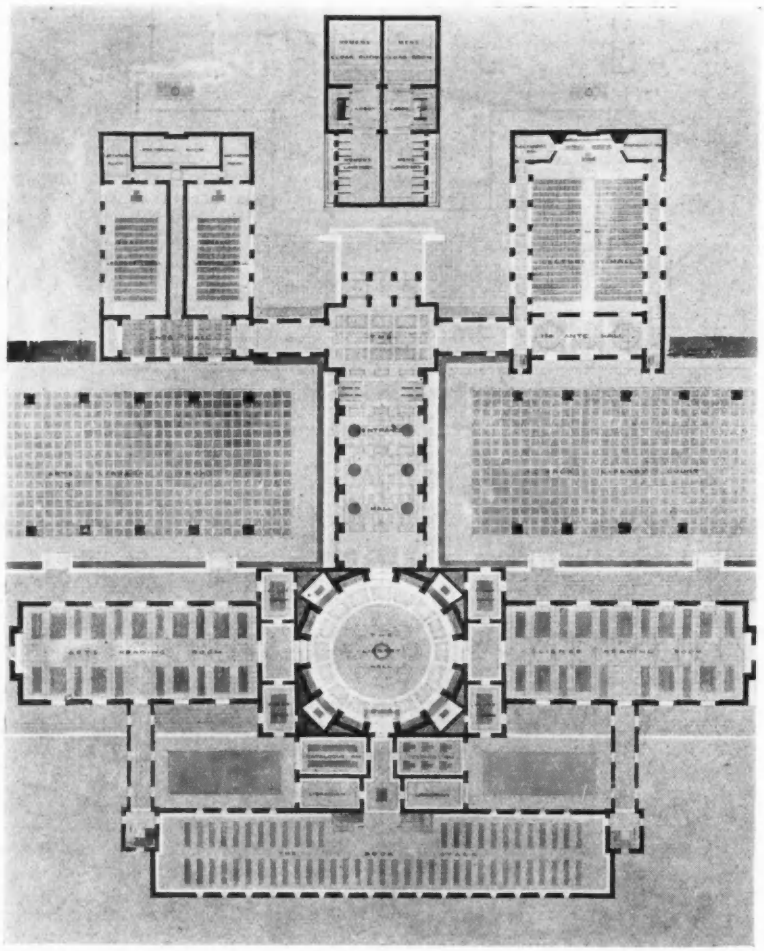




It was announced on Monday last that the Faculty of Architecture of the British School at Rome, having examined the drawings submitted in the Final Competition, is unable to recommend any candidate for the award of the Rome Scholarship in Architecture for 1935. The Faculty has, however, awarded first place amongst the designs submitted to that of F. W. Risdon, of the Architectural Association, London, whose design is here illustrated. The subject for this year's competition was "A University Library."

Second Prize of £40 : Mr. R. Cheetham, A.M.I.STRUCT.E., of Timperley, Cheshire.

The competition was held in March for the best design of a multi-storey garage in concrete, and the adjudicators were Professor C. Batho, Mr. Gower B. R. Pimm



Ground floor plan of the design submitted by F. W. Risdon, in the final competition for the Rome Scholarship.

Mr. R. Travers Morgan and Mr. W. L. Scott.

COMPETITION DESIGNS

The winning designs in the competitions for municipal buildings, Watford, and a civic centre at Croydon, are illustrated on pages 967–971 of this issue.

Competitions Open

June 28.—Sending-in Day. Municipal offices for the Birmingham City Council. Assessor: Sir Reginald Blomfield, R.A., PP.R.I.B.A. Premiums: £1,000, £600, £400 and £250. Conditions, etc., are obtainable from Mr. Herbert H. Humphries, M.INST.C.E., the City Engineer and Surveyor, Council offices, Birmingham. (Deposit £3 3s.) Designs must be submitted to the Town Clerk, Birmingham, not later than June 28.

June 29.—Sending-in Day. Municipal offices, Romford, for the Romford U.D.C. (Open to architects of British nationality practising in the British Isles.) Assessor: Kenneth M. B. Cross, M.A., F.R.I.B.A. Premiums: £250, £100 and £50. Conditions, etc., obtainable from the Clerk to the Council, Arcade Chambers, South Street, Romford. (Deposit, £1 1s.) Latest date for submission of designs: June 29.

July 4.—Sending-in Day. County offices, Kendal, for the Westmorland County Council. (Open to architects of British nationality, practising in the British Isles.) Assessor: G. H. Foggitt, F.R.I.B.A. Premiums: £200, £125 and £75. Conditions, etc., obtainable from H. B. Greenwood, Clerk to the Westmorland County Council, Exchange Chambers, Kendal. (Deposit £1 1s.) The latest date for submission of designs is July 4.

August 31.—Sending-in Day. Municipal offices, Swindon, for the Swindon Corporation. (Open to architects of British nationality, practising in the British Isles.) Assessor: Professor A. B. Knapp-Fisher, F.R.I.B.A. Premiums: £350, £250, and £150. May 25 is the last day for questions, and August 31 is the closing date. Conditions of the competition are obtainable from the Town Clerk, Town Hall, Swindon (deposit £1 1s.)

October 1.—Sending-in Day. Central county buildings, Hertford, for the Hertfordshire County Council. Assessor: Robert Atkinson, F.R.I.B.A. Premiums: £350, £250 and £150. Designs must not be submitted later than October 1. Particulars of the competition are obtainable from the Clerk of the County Council, Clerk of the Peace Office, Hertford. (Deposit £2 2s.)

October 31.—Sending-in Day. New technical college, Manchester Road, Bolton, for the Bolton Corporation. (Open to architects of British nationality.) Assessors: John Bradshaw Gass, F.R.I.B.A., and Arthur J. Hope, F.R.I.B.A. Premiums: £500, £250 and £100. Conditions, etc., are obtainable from Mr. John A. Cox, M.A., Director of Education, Education Offices, Bolton. (Deposit £2 2s.) The designs must be submitted to the Director of Education before October 31.

November 1.—Sending-in Day. Municipal offices, clinics, etc., proposed to be erected in the grounds of York Castle, for the Corporation of York. (Open to architects of British nationality domiciled in the United Kingdom.) Assessor: Henry V. Ashley, F.R.I.B.A. Premiums: £250, £150, £100 and £50. Applications for the conditions of the competition, etc., should be made on or before June 29 to Mr. Reginald Anderson, Town Clerk, Guildhall, York. The last date for receiving questions is July 29, 1935, and the last date for sending in designs is November 1.

THIS ARSHETECTURE

Middlesbrough Housing Committee yesterday decided to make an attempt to overcome the "personification of monotony" which characterized their housing estates. The matter had been previously discussed, and the Borough Engineer, Mr. S. E. Burgess, submitted plans showing an improved elevation at a cost of £50 a house.

Alderman E. Spence said: "To erect hundreds of houses of the same design is simply the personification of monotony," and added that even if it cost a little more, they should vary the elevations. Tenants were affected by their surroundings, and the Committee should give them higher standards.

The Town Clerk, Mr. Preston Kitchen, said the alternative elevation submitted by the Borough Engineer would increase the cost by about £50, and the rent by a shilling a week.

The Borough Engineer: You can have any standards you like if you are prepared to pay for them.

Some variation of design was highly desirable, declared Mr. J. Wesley Brown, who said the Council could do a great deal to relieve the monotony of the estates.

The chairman, Dr. H. D. Levick, said several better-designed houses had been built on the main roads of the estates. The rents were slightly higher, but there had been a great demand for them.

Mrs. Coates-Hansen said what was needed was the adaptation of the design of old-world houses. It would be worth while for the Engineer to visit some of the old-world villages and study the design of the houses.

Mr. R. R. Kitching, an architect, said £50 was far too much to allow for an improved elevation, and he thought an increased expenditure of £15 would enable great improvements to be effected. Upon his suggestion a special sub-committee was appointed to investigate. *From the "Yorkshire Post."*

CONFERENCE PROGRAMME

The R.I.B.A. Conference opened at Glasgow yesterday, June 19, when an informal reception was held in the Assembly Hall of the Glasgow School of Art—the headquarters of the Conference—162 Renfrew Street. The programme for the three days, June 20-22, is as follows :

TO-DAY, JUNE 20, 10.30 a.m.—The Conference will assemble at the Fore Hall of the University for the Inaugural Meeting, and will be welcomed by Principal Sir Robert S. Rait, C.B.E., D.L., LL.D., J.P. The Inaugural Address will be delivered by the President of the R.I.B.A., to be followed by short addresses by Sir John Stirling Maxwell, Bart., K.T., of Pollok, and Professor T. Harold Hughes, F.S.I., F.R.I.B.A. 12.30 p.m.—Assemble in front of the University at the Main Entrance facing the Art Galleries, where the Conference photograph will be taken. *Lunch.*—Members of the Conference and their guests will make their own arrangements for lunch. 2.15 p.m.—

ALTERNATIVE VISITS. By motor coach. All coaches will start from 162 Renfrew Street, the Conference Headquarters, at 2.15 p.m.

VISIT A.—Tour round Glasgow. On this tour some of the works of "Greek Thomson" will be inspected such as : St. Vincent Street Church, Gt. Western Terrace, Walmer Crescent, Bungalow 204 Nithsdale Road, Moray Place Terrace, Queen's Park Church, Eglinton Street Tenement, Caledonia Road Church. Prospects of the City will be viewed from Park Terrace and Pollokshields. Before finishing at 162 Renfrew Street, Glasgow Cathedral will be visited and, if time permits, Provands' Lordship, the oldest house in Glasgow, from which places Members who desire may disperse. Cost per head, 2s.

VISIT B.—Visit to Formakin, Bishopton, residence of John Holms. Building designed by the late Sir Robert Lorimer. Attractively laid out garden. Cost per head, 2s. 6d.

VISIT C.—To Paisley Abbey : commenced in twelfth century and completely restored within last twenty years by Sir Rowand Anderson, Dr. McGregor Chalmers and Sir Robert Lorimer. Cost per head, 2s. 8 p.m. to 11 p.m.—Reception by the Lord Provost and Magistrates of the City of Glasgow.

FRIDAY, JUNE 21.—ALTERNATIVE WHOLE-DAY TOURS. (All coaches will start from 162 Renfrew Street, the Conference Headquarters.)

TOUR NO. 1.—9.15 a.m. to 5.30 p.m. By motor coach. Coaches will proceed by Kilmarnock Road through Whitecraigs, Newton Mearns, and over Fenwick Moor to Rowallan Castle, where a halt will be made by kind permission of Lord Rowallan. The old Castle now disused is situate in the grounds, and the new Castle, the seat of Lord Rowallan, is a fine example of the work of the late Sir Robert Lorimer. Continue through Kilmarnock to Dean Castle, and thereafter the party will proceed to Ayr, passing Mauchline, Burns' House, Poosie Nansie's Inn, Barskimming Bridge, Stair House, Auld Brig o' Ayr, Cromwell's Fort, Tower of St. John Baptist, Ayr. (LUNCH.)

Leaving Ayr continue past Burns' Cottage (the birthplace of Robert Burns), and a short stop will be made at Burns' Monument, Alloway Kirk, and Brig o' Doon. Continuing via Maybole Castle, Crossragual Abbey will be viewed and thereafter proceed by Kirkoswald to Turnberry. (TEA). Here are fine views of the Firth of Clyde and the golf courses. The return journey will be made by Culzean Castle, Shore Road, Dunure, Ayr, Prestwick, and Kilmarnock to Glasgow.

This tour is arranged to traverse part of Ayrshire commonly described as the Land of Burns, associated with the history of Scotland's national poet, and to provide an opportunity of viewing a few of the mediæval and other examples of Scottish architecture. *Leader :* Mr. James Carrick, L.R.I.B.A. Cost, including lunch and tea, 12s. 6d. per head.

TOUR NO. 2.—9.15 a.m. to 5.30 p.m. By motor coach. Coaches will proceed by Bearsden, Buchanan Castle Gate, and Drymen to Aberfoyle in the heart of the Rob Roy country, where a halt will be made at the famed Bailie Nicol Jarvie Hotel. From Aberfoyle the route to the next halt at Dunblane will be by the Lake of Menteith, Thornhill, and Doune. At Dunblane time will be allowed for an inspection of the fine old cathedral, in which are some beautiful stained-glass windows. The next halt will be at Gleneagles, where lunch will be served in the Gleneagles Hotels.

Stirling is the next objective, and the route from Gleneagles will be through Glen Devon to the Yetts o' Muckart, and from thence by the Hill Foots road through Dollar, Tillicoultry, Alva, and Menstrie to Stirling, where afternoon tea will be served in the Golden Lion Hotel. The final stage of the tour will be from Stirling by Dumbarton Road, to Kippen, Buchlyvie, Balfron, Killearn, Strathblane, and Milngavie on the outskirts of the City of Glasgow. This tour offers a fine opportunity of seeing at close quarters the real character and some of the finest scenery in Central Scotland. *Leader :* Mr. A. N. Malcolm, F.R.I.B.A. Cost, including lunch and tea, 12s. 6d. per head.

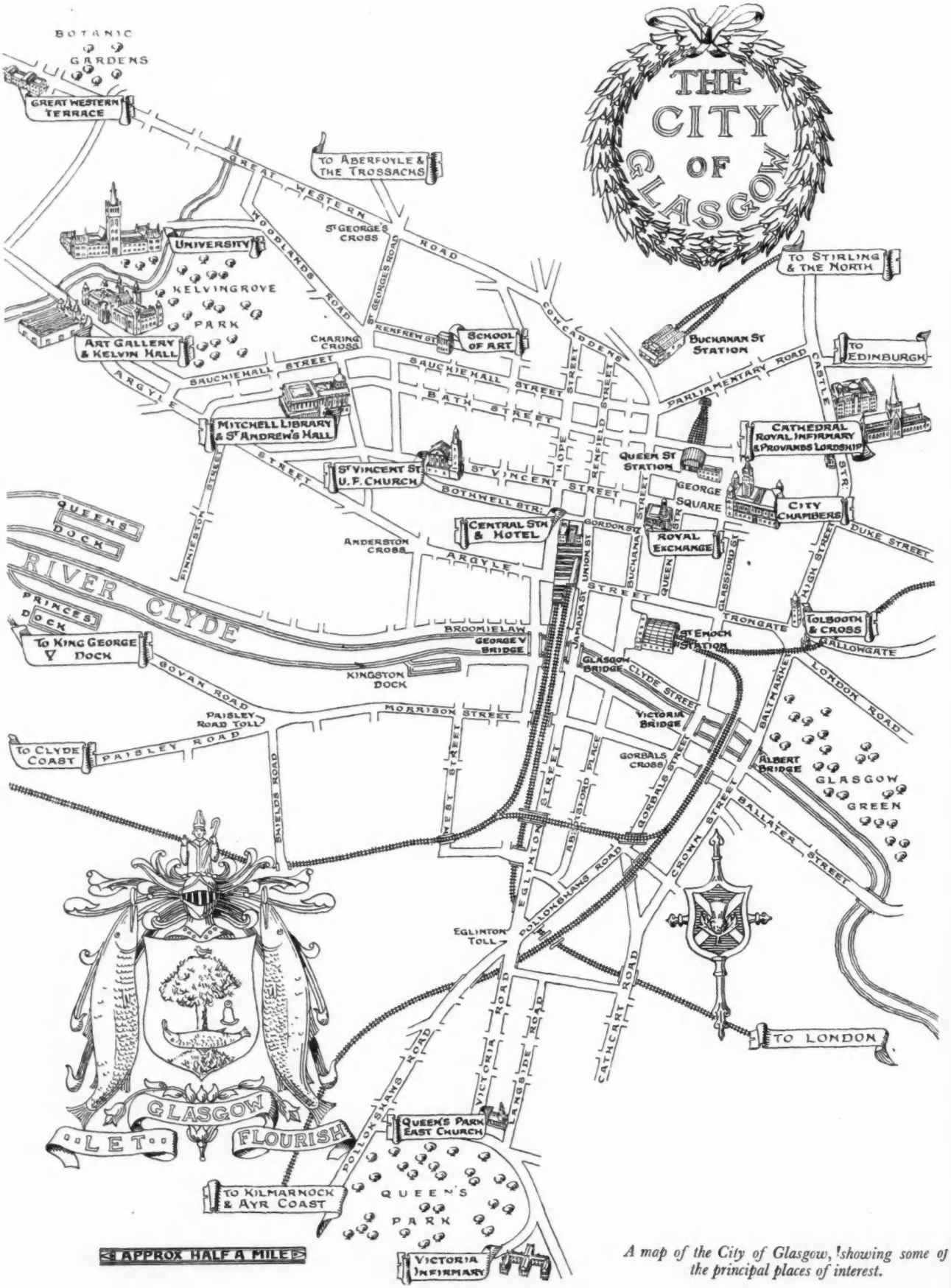
TOUR NO. 3.—9.30 a.m. to 5.15 p.m. By steamer. This tour or sail will be by the turbine steamer *Queen Mary II*, which will accommodate between 350 and 400 passengers, and which has been specially chartered for the whole day. Leaving Glasgow Bridge Wharf at 9.30 a.m. proceed down the River Clyde, passing shipyards on the right and left banks of the river. About half-an-hour after leaving, the yard of Messrs. John Brown & Co., Ltd., and the new Cunard White Star liner *Queen Mary* will be seen. From here the river winds its way to Bowling Harbour, where the Forth and Clyde Canal joins the Clyde. Leaving the pier behind, the ruins of Dunglass Castle, an ancient seat of the Colquhouns of Luss, will be passed. There is an obelisk at this point erected in 1839 to the memory of Henry Bell, whose little vessel, the *Comet*, is the pioneer of passenger craft driven by steam power in the year 1812. The Castle Rock, Dumbarton, famous in Scottish history, will also be seen. After rounding Toward Light, passing Rothesay on the left, the beautiful Kyles of Bute will be entered. On the right, at the foot of the hills, is the village of Tighnabruich. Passing Ardlamont point on the right, Loch Fyne will be seen and Lochranza on the Isle of Arran is reached. An hour's stop (after lunch) will be made here and passengers will be allowed to go ashore. Tradition associates Lochranza Castle ruin with King Robert Bruce, but antiquarians are in doubt as to its age. Leave Lochranza after an hour's stay, at about 2.45 p.m. The steamer will sail round the North end of Arran, make for the Garrochhead and pass between the Islands of Cumbræ, within sight of Millport on the larger island, and Largs on the mainland. Further on Wemyss Bay will be passed and thence up the Firth past the Cloch Lighthouse and into Gourock, where the L.M.S. train for Glasgow will be waiting.

Tea and coffee will be served on board during the forenoon and lunch before going ashore at Lochranza. Afternoon tea will be served before disembarking at Gourock. The sail will afford visitors the opportunity of seeing the shipbuilding on the River Clyde, and the magnificent scenery of the Kyles of Bute.

Cost, including morning tea or coffee lunch, tea, and steamer and rail fares, 17s. 6d. per head.

7 p.m. for 7.30 p.m.—Conference Banquet in Central Hotel. The guests will be received by the President of the Institute, the President of the Royal Incorporation of Architects in Scotland, and the President of the Glasgow Institute of Architects. Cost of dinner (exclusive of wines and cigars), 15s. Evening dress, decorations, presidential badges.

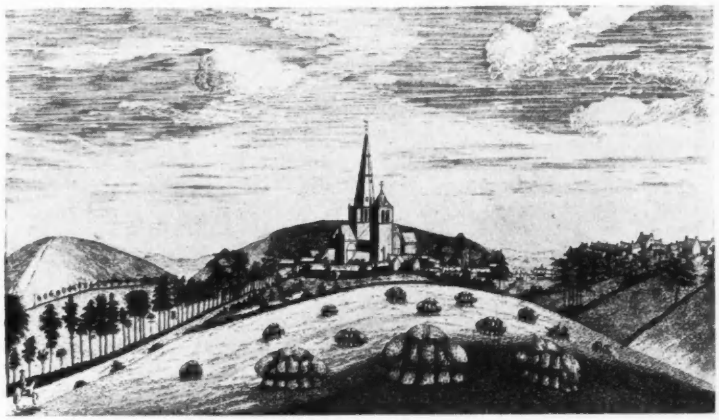
SATURDAY, JUNE 22.—INFORMAL VISITS.—Private parties to other places of interest. Members to make their own arrangements. Information will be available at the Conference Office.



A map of the City of Glasgow, showing some of the principal places of interest.

GLASGOW

We have attempted, on this and the pages following, to describe the development of the town of Glasgow in the form of a history told by several narrators, each of whom takes up the story where the other left off. All of these narrators —with the exception of Philip H. Massey, B.Sc.(Econ.). F.R.Econ.S.—were either born or actually live in the town. They are John Watson, Jnr., A.R.I.B.A., Professor Scott, F.B.A., D. F. Watt, George Blake, J. G. Rosie, Sir William Whyte, Basil Clitheroe, Hugh Quigley and J. A. Dempster, A.R.I.B.A.



Cathedral Church of Glasgow. A print (c. 1753) showing the original West Tower and Consistory House removed in 1846.

HISTORY: I.

JOHN WATSON, JNR.

A CATHEDRAL TOWN

THE foundation of what is now the city of Glasgow dates from about the time when Kentigern, at the age of twenty-five, was made a bishop. Authorities differ as to the exact date, but it was probably between the years 543-552.

The very early history of what has come to be known as "The Second City" is synonymous with the history of the growth of the first Church.

This history is obscure for some five centuries after the death of Saint Kentigern about 603.

In the year 1120, a note of the ancient property of the Church was drawn up and formed the foundation charter of the Bishopric of Glasgow, and David I appointed John Achains to be Bishop of Glasgow. About the year 1238 the present cathedral was founded by Bishop Bondington.

This cathedral was added to at various periods by different bishops, and for centuries the temporal as well as the spiritual lords of Glasgow were the successive bishops of the cathedral. In the earliest records, apart from its position as a religious centre, Glasgow was only known as a salmon fishing village. This industry on the river Clyde formed an important branch of trade, and records are extant as early as 1180 showing how fishing rights were conveyed along with property.

Macgeorge, in his book on Glasgow, illustrates a fisherman's hut which was situated on the bank of the river "at the village of Govan" in 1815. The river was spanned by a bridge referred to in a charter dated 1285. This was probably a wooden bridge and served for pedestrians, there being a ford previous to the erection of this bridge. What is commonly referred to as the first bridge was built by Bishop Rae in 1345, and was still standing in the eighteenth century, having been widened to suit altered requirements.

The plan of Glasgow about 1258 would appear to have comprised the dwellings in the immediate vicinity of the cathedral, and a row of huts or houses adjacent to the old wooden bridge and used by the salmon fishers. This row was known as "the Fyschergate." There is a great deal of variation in the conjectures of antiquaries as to how these houses were constructed, but they were probably of unhewn stone bedded in mud with timber projections and ornamentations.

It seems unlikely that the small colony was enclosed with walls, although an ancient record contains the phrase "infra muros civitatis Glasguensis." "Muros" most probably refers to the gates, of which many remained in the fifteenth century.

The extension of the burgh was most marked during the time of Bishop John Cameron, 1426-1446. During this period the Bishop carried his duties beyond the immediate precincts of the cathedral, and interested himself, as became a far-seeing man, in all that appertained to making the burgh more prosperous. Before his death Glasgow had become a prosperous burgh with three main streets—the Drygate, the High Street, and the Via Ratonum, as the Rottenrow is referred to in old documents and some old maps.

About this time Glasgow was created a royal burgh, due to the efforts of William Turnbull who, in addition to being Bishop of Glasgow, 1448-1454, held the office of Keeper of the King's Privy Seal.

There was a school in existence previous to the founding of the University —now the High School of Glasgow— the classes being held in "the Auld Pedagogry" in the Rottenrow. The building known as the Old College (University) was not commenced until 1632, the classes having been conducted since the foundation in 1450 in the chapter house and elsewhere in the cathedral.

In 1491 the see of Glasgow was raised to metropolitan rank, and Archbishop Blacader added the richest as well as the most recent portions to the cathedral. Glasgow was now governed by a provost, bailies and sergeants appointed and dismissed at will by the Archbishop.

The lay-out of the burgh was probably not unlike the plan (on page 960), and from old accounts it is evident that although there was no trace of walls, many of the ports or gateways were extant, some remaining in fact until a much later date.

Before alluding to the enterprise shown by the early Glasgow merchants it might be well to mention two of the old landmarks which still remain from about this period. The Tron Kirk, of which only the steeple now remains, was built in 1592 to house the congregation

of the third reformed minister to the city. This steeple appears on the plate illustrating the Tolbooth. The date of the original Tolbooth is uncertain, and there is no account of its appearance. It was the meeting place for the burgh courts and it would appear from a council record of 1574 that there were booths under the Tolbooth. A new Tolbooth was erected in 1626, and until the nineteenth century served as a council house and prison. The steeple is all that remains to-day of this building.

In 1650, Franck says of the merchants of Glasgow that their trade was considerable, and reports on their free trade with France. The staple trade of the city consisted, according to this writer, of linen, friezes, furs, tartans, pelts, hides, tallow, skins and "various other small manufactures and commodities."

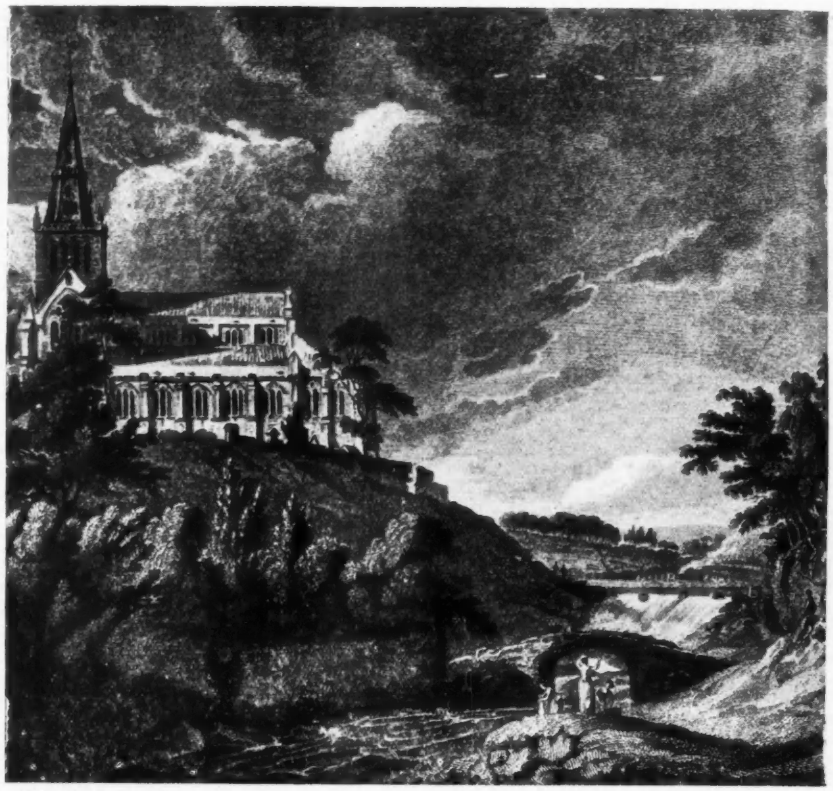
In a great conflagration which occurred in 1642 nearly a third of the city was destroyed, and fifteen years later yet another fire caused great destruction and threatened to envelope the Tolbooth. There was now considerable development independent of the cathedral—this development took place round about the Cross or civic centre and towards the river. The city commenced to spread towards the south bank in the line of the old bridge on the lands of "Gorbaldis and Brigend."

Although Cromwell was not popular in Glasgow the trade of the city ripened during the commonwealth. The Restoration proved a severe set back to the trade of Glasgow, as Scotland was treated as an alien nation by the English Parliament, which imposed tariffs and duties on the commodities of the country which made it well nigh impossible for Glasgow to compete in the foreign markets.

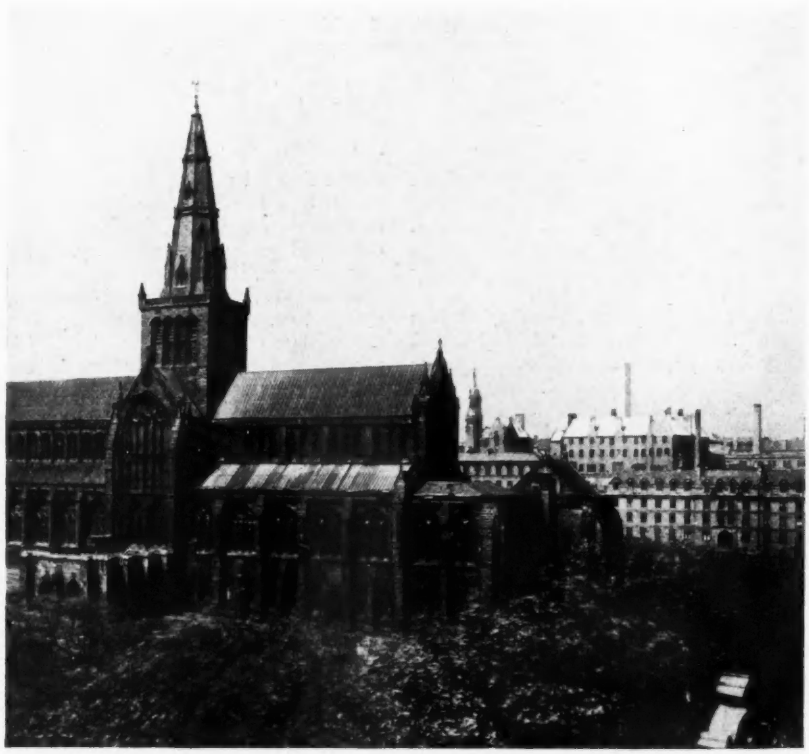
This and many other reasons hastened the union which was, in spite of its eventual benefit to trade in Glasgow, a most unpopular measure in that city and one which caused serious rioting. The great commencement of commercial enterprise began in Glasgow in 1707, when traders in the city opened up the tobacco trade with the American colonies.

Since this date the city has developed rapidly, and although many old buildings were demolished to make way for the new buildings and domiciles of the "Tobacco Lords" as they were called, yet it is evident from old prints and drawings that these buildings were themselves in excellent taste.

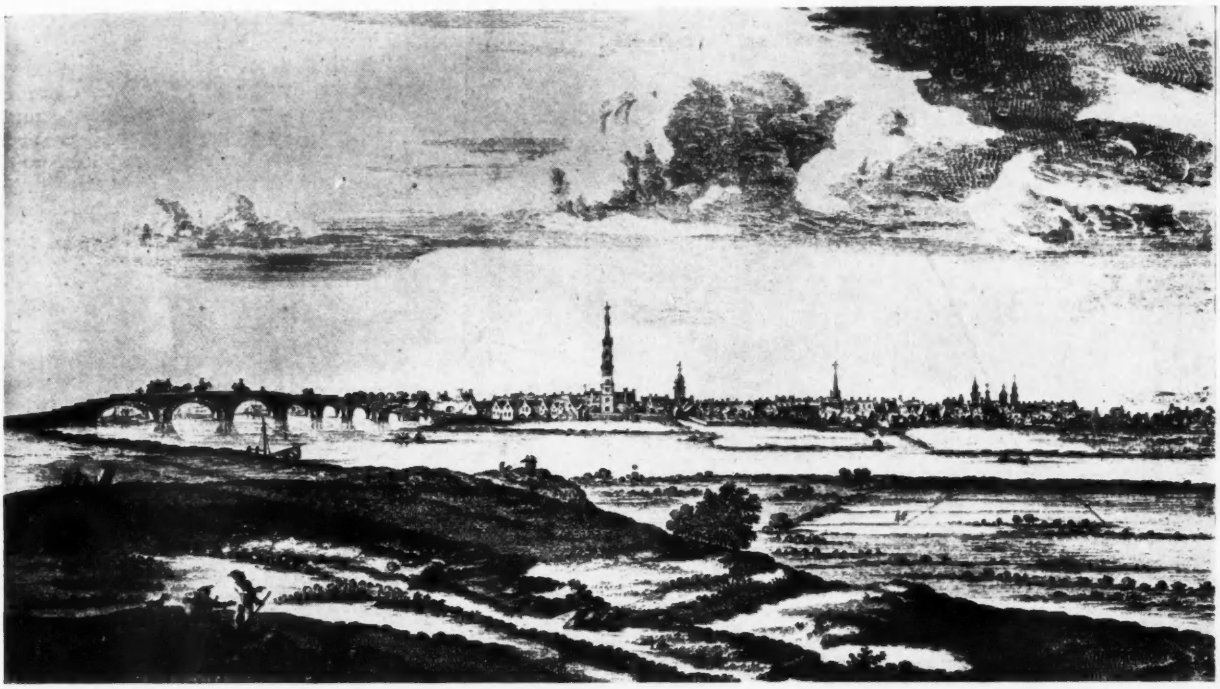
The population of Glasgow in 1740 was in the region of 17,000 souls, as opposed to the 4,500 odd of Reformation times. A very good impression of the city in 1769, just prior to the Industrial Revolution, is to be found in Pennant's *Tour of Scotland* of that year. His description is very complete, and his mention of Messrs. Robert and Andrew Foulis most deserving. Of these two



The Cathedral from an engraving in 1779 by Thomas Hearne and William Byrne.



The same view as it appears in a recent photograph. The building is the same, but the expanding city has encroached on the wooded slopes which made the almost perfect setting for the engraving above.



"The prospect of the Town of Glasgow from ye South," drawn by Captain John Slezer about 1693. Bishop Rae's Bridge, built 1350, spans the Clyde.



The same view taken in 1935. The natural banks of the Clyde have, of course, been lost in the building of docks. There are many more bridges, some large and efficient railway stations and, on the south bank, a mass of housing—all, of course, signifying progress.







Top, a view of old Glasgow College (now removed) and Church of the Blackfriars (destroyed in 1670), drawn by Captain John Slezer. Centre, a photograph of the old College from College Street. Below, when the old College was pulled down the entrance feature, corbelled balconies and window details were rebuilt in the lodge of the new University, the façade being, as it were, wrapped round the corner.

men, printers and booksellers to the University, he says that they have "instituted an academy for painting and engraving; and like good citizens, zealous to promote the honour and welfare of their native place, have at a vast expense formed a most numerous collection of paintings from abroad, in order to form the taste of their *elèves*." It is to Robert and Andrew Foulis and the students of their Academy of Arts that we are indebted for knowledge of a great deal of the seventeenth century Glasgow which has since disappeared.

2

PROFESSOR SCOTT

FROM THE SEVENTEENTH CENTURY

THE city of this century was built on the slope rising from the river, and the country round consisted of a series of hills, of moderate elevation, which afforded opportunities for later development as trade and population increased. Where change has been so marked the survivals of industrial structures are very few indeed, and thus a picture of one, which was founded in the reign of Charles II, may be of interest. This was the Easter sugar works, belonging to a partnership which was formed in 1669. At that date and for a century afterwards the river was not navigable except for small ships, and it is one of the romances of commerce, as Mr. Watson describes above, how, following the Union of 1707, a great trade in the importing and re-exporting of tobacco was built up. In the year 1771–2 the quantity, entered at the Custom House, was 43,890,821 lb. In order to pay for this an immense variety of small manufactures came into existence. The war with America a few years later destroyed almost the whole of this trade, and the West of Scotland had to make a fresh start. Watt had made one of his greatest discoveries on the steam engine when repairing a model of an early type belonging to the Natural Philosophy Department at the University; and, through the improvement of the river (which had been undertaken in the late eighteenth and early nineteenth centuries) and the presence of coal at hand, a large textile industry developed. In fact, at one period the West of Scotland had more looms than Lancashire. The American Civil War once more reduced a flourishing trade almost to vanishing point, but there was an element of compensation in so far as the success of Glasgow-built blockade runners



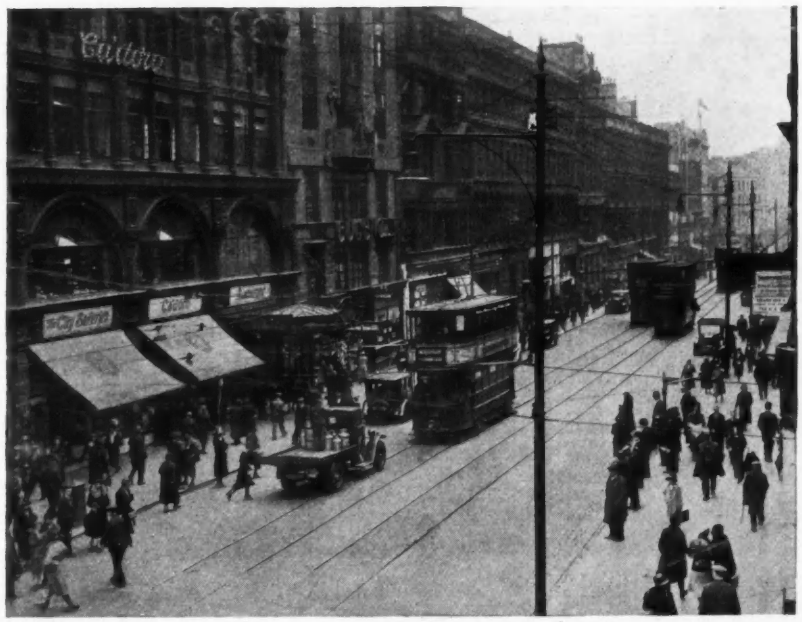
revealed the possibilities of the shipbuilding industry. Once the steel ship had proved its efficiency a great industry grew up; and when the shipbuilding yards were extended during the war the greater part of both banks of the river was required for this purpose. Apart from the war period, the maximum production was reached in 1913, when the Clyde built 757 thousand tons, which was one-third of the world production and exceeded that of all the German yards.

3

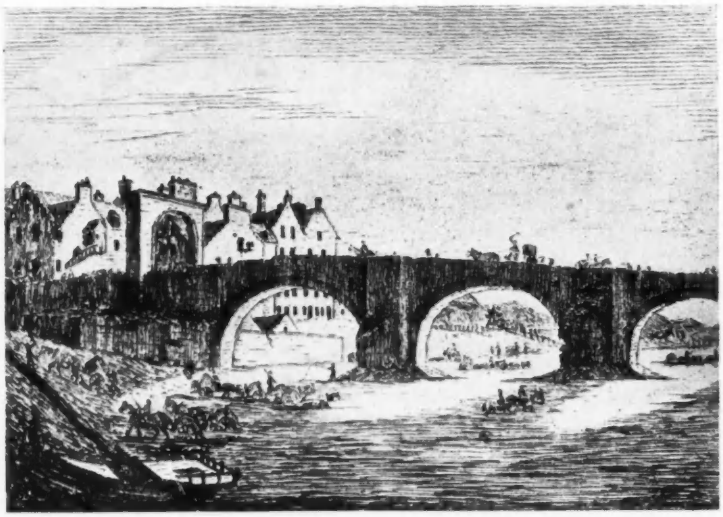
D. S. WATT

THE CLYDE

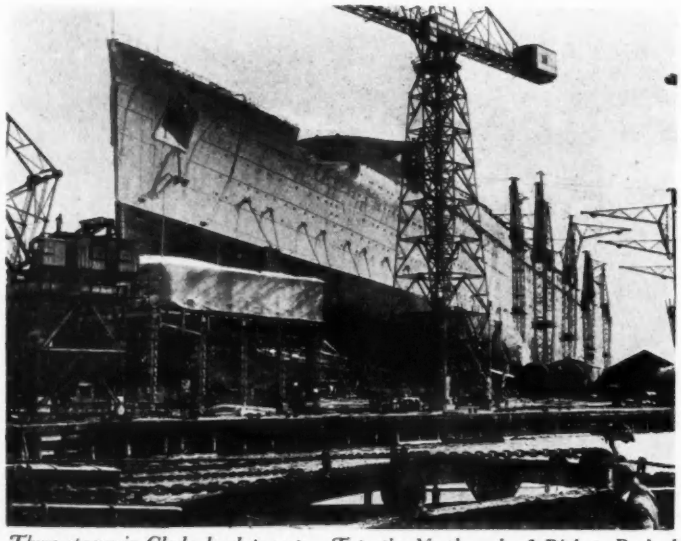
CLYDESIDE is less than it might be as a city of impressive buildings, but it is supreme as the birthplace of great ships. Activity in every branch of marine architecture



The illustration at the top, from an engraving by Wm. Buchanan in 1752, shows a view of the Trongate of Glasgow from the east, with the Tolbooth Steeple in the foreground, which should be compared with photo on page 963. Below, a typical Glasgow street today.







Three stages in Clyde development. Top, the North end of Bishop Rae's bridge and, in the foreground, the Old Horse Ford, etched by James Brown in 1776. Centre, early docks and ships at the Broomielaw, photographed about 1850. Below, the "Queen Mary" just before her launching, amid the conglomeration of machinery and equipment of modern shipbuilding.

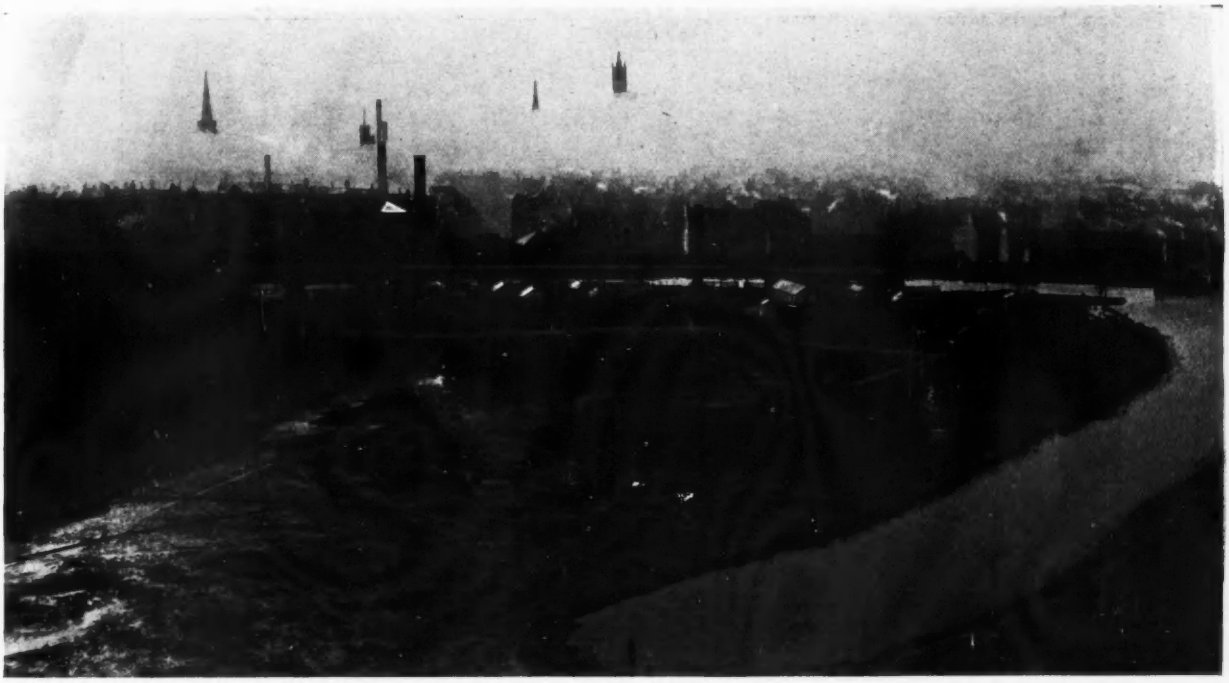
has made the Clyde at once a leading highway of commerce and the greatest shipbuilding river in the world.

And, in the years before the depression, the Clyde area was regularly responsible for considerably more than one-third of the shipbuilding output of Great Britain and Ireland, and something like a sixth of the world output. Even today, despite intense international competition, the Clyde remains the greatest shipbuilding centre in the world, and at present, although the industry is not by any means operating to capacity, Clyde shipyards account for nearly 50 per cent. of the mercantile and warship tonnage now under construction in the shipyards of Great Britain and Ireland. This leading place enjoyed by Glasgow's primary industry is not a matter of mere quantity. The quality of the work produced also counts, and it is due to the first-class workmanship and the last word of reliability associated with the cognomen "Clyde-built" that such a relatively large number of contracts is allocated to this district. Such outstanding products as the Cunard White Star liner *Queen Mary*, the Canadian Pacific liner *Empress of Britain*, and the world's largest and most powerful warship, the battle cruiser *H.M.S. Hood*, show the far-reaching significance of the part played by Glasgow and its river in this industry.

One may well ask why it is that the Clyde of all rivers should occupy the topmost place in this industry. The river as it is today has been adapted for shipbuilding by the work of the civil engineer rather than by that of Nature. A one-time shallow and tortuous stream has been widened and deepened and transformed into a navigable highway of such dimensions that some of the largest cargo-carrying vessels can come right up to the heart of Glasgow to load or unload their cargoes. The process of widening and dredging the river is a continuous one, and it is now possible, even in the upper reaches, to launch safely and successfully the largest ships in the world.

Ever since the dawn of metallic ship construction the building of ships and propelling machinery has been a traditional occupation in Glasgow and district, having been handed down from father to son, and today on the boards of directors of many of the leading establishments may be found representatives of the sixth and seventh generation of families associated with those industries.

In addition to building ships of every type the Clyde area itself, with its numerous engineering shops, iron and steel works, and all of the metallurgical industries, supplies everything for the ship, including frames, plates, rivets and other items of construction, and the entire range of equipment



No longer a "quaint Cathedral town"—no longer a town at all—but a great shipbuilding camp—with a good tram service.

involved in the propelling machinery.

Such, in broad outline, is the predominant industry of Clydeside, and one which has made for the neighbourhood of Glasgow an international reputation for reliability and fine workmanship.

4

GEORGE BLAKE

TO-DAY

BUT industrial development overwhelmed too swiftly "one of the prettiest little cities in Europe," and within a century a vast ugliness was created and a tradition simultaneously destroyed; the finest intact cathedral on the mainland of Scotland miraculously surviving. It was only by a miracle that oak beams from the cathedral were not used in the making of the city's first quay on the Clyde. . . .

The sheer amorphous ugliness of too much of Glasgow is a fact admitted and incontestable. The eye of patriotism may discern a fantastic beauty in effects of sunset or furnace-glow over huddled roofs and great lengths of drab street, but none could look searchingly upon the East End without discomfort. The Victorian instinct to make money quickly has left Glasgow with a whole series of social and æsthetic problems of the most desperate character.

To be sure, it would be quite wrong to present of the city a purely negative report. The tenement, at the moment so much out of favour, may have too easily degenerated to a slum, but on the South Side, and in the West End particularly, great streets of these four- or five-storeyed buildings create austere effects of quite classical charm. The richer terraces of such as Great Western Road (page 962) one at least the work of "Greek" Thomson—are undeniably fine. Indeed, the domestic architecture of middle-class Glasgow has on the whole its own grave distinction, even if in its public endeavours—such as the Municipal Buildings and the University—the same social group inclined to the florid, the bastard and the vulgar.

But there was no aristocracy to control the first industrial expansion of the community. The successful of those days were rich rather than refined, even if their descendants are the landed gentry of the present. The great terraces and mansions of the West End housed an intelligent enough middle-class, but they are being transformed now into offices, nursing homes and hotels. (One of these mansions was exposed for sale the other day at the upset price of five shillings.) Another prosperous group dug itself into its solid villas in Pollokshields and Kelvinside, but now your business man notably prefers to live in the dormitory townships of Renfrew, Ayr, and Dumbarton. And while the centrifugal tendency is to be observed in every industrial community it can fairly be said that, by and large, those who owe the heaviest responsibility to Glasgow have been the first to desert her, and that the vast bulk of the population within the boundaries is of what we can only call working-class status with working-class standards.

Need we wonder that, in all the circumstances, the drive of the local authorities is towards new housing and rehousing with speed and technical efficiency rather than with a fine regard for amenity? This process has been badly planned, or, rather, not planned at all, so that the newer municipal schemes are dotted here and there and everywhere in a glorious confusion not so very unlike that which produced the slums of yesterday. Glasgow, however, is not building a New Jerusalem; for tradition has been knocked out of us, and the Town Planning Act means nothing in our understanding. The tragedy has its perfect embodiment in the efforts of private enterprise during the last fifteen years or so. Of almost all of these it is impossible to speak temperately. We have simply suffered the building of new slums, even if we have temporarily assuaged the thirst of decent folk from the grey street for a little bit of garden of their own.

Certain signs of an awakening interest in the value of amenity are to be



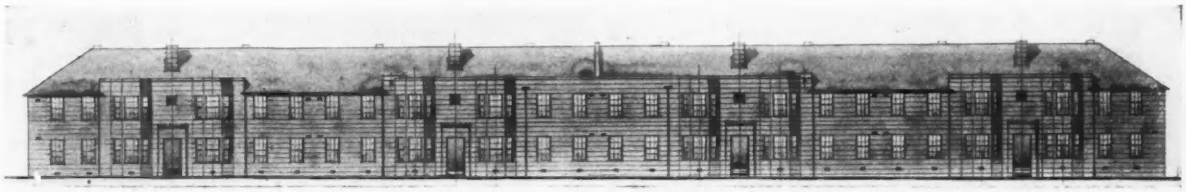
The type of Slum Tenement in Glasgow from which—



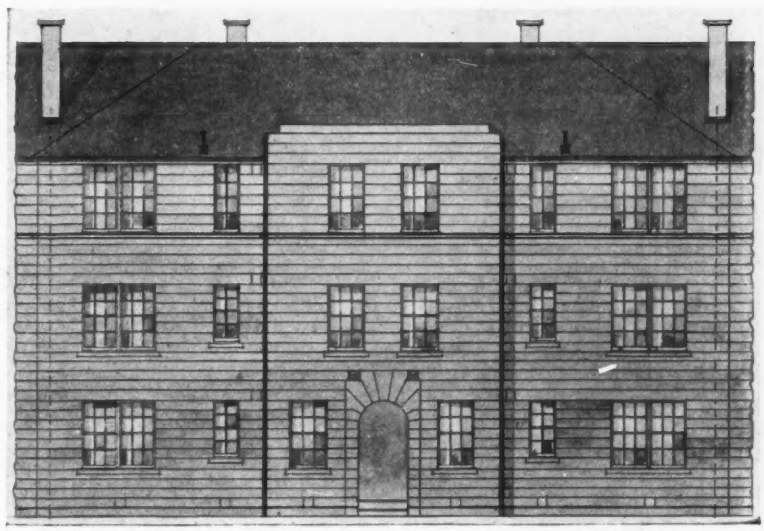
families are being moved to new housing schemes where the children can grow up—



in different surroundings (New Tenements at East Keppoch). Dirty and uncomfortable as the old tenement slums are, many of them have real architectural quality.



observed even in industrial Scotland, but they are faint and belated. It is terribly difficult to escape the conclusion that our well-intended efforts, unsupported by knowledge and tradition, have failed to meet a magnificent opportunity, and that we are solving one problem only by the creation of others. One such problem is overcrowding, not by any means a *new* problem.



Drawings of proposed schemes at Househillwood. These have been passed and work will begin at once.

5

J. G. ROSIE

SLUM

THE overcrowding which worked such deadly havoc in Glasgow during the nineteenth century cannot be traced further back than the last quarter of the eighteenth. Up till that time weaving and certain other industries were organized mainly on a domestic basis. Weavers and their families worked in sheds or workshops attached to their dwellings, but when the factory system of cotton spinning and weaving was introduced the population of Glasgow began to increase with extraordinary rapidity. Thousands of workers from villages and rural districts crowded into the city from all parts of Scotland and many came also from Ireland.

With housing accommodation at a premium the speculative builder stepped in, and the dwellings he provided were mostly on the form of high tenements erected at a minimum of outlay, and too often jerry-built throughout. The old lines of streets were already closely built up even in the residential districts of the old town, but most of the houses of the well-to-do had large gardens behind them, and as that class of citizens was by that time leaving the central districts for the more attractive suburbs, the gardens were seized on by the jerry-builders for the erection of huge tenements which in due course degenerated in slums. The Town Council had no power to stay this reckless policy, and even if they had, it is doubtful if they would have exercised control as the Council was then composed largely of the property-owning classes whose financial interests were bound up with the industrial expansion either as manufacturers or as owners of land and houses.



Newbank and Belvedere scheme for rehousing.

The districts which in course of time became Glasgow's first and worst slum areas were those situated on both sides of High Street from the old College to the Gallowgate, the Trongate westwards to Stockwell Street, thence to the River Clyde and eastwards to the Saltmarket. This district, where there once stood many large private residences with gardens and in many cases orchards attached, became so closely packed with tenements, crowded with low-paid workers and their families, that neighbours could shake hands or fight, as occasion arose, from the windows of their houses across the narrow spaces left by the tenements. When it is remembered that these conditions existed at a time when the water supply was still ob-



An aerial view of housing at Muirend.

tained from public wells, and that sewers and drains had no existence, it will be realized that the graver evils of overcrowding soon made their appearance. Both physically and morally the people deteriorated, and epidemics were frequent.

The first efforts for reform came not from the City Corporation, but from groups of private individuals who formed organizations for dealing with slum problems. At last matters became so serious that the Corporation was obliged to take action. Apart from an expenditure of about £30,000 on the demolition of the worst tenements in 1848, following a cholera epidemic, the first real effort of the Corporation dates from the passing of the Glasgow City Improvement Act in 1866, supplemented by further powers obtained under subsequent Acts in 1897 and 1902. Under these measures the greater part of the slum areas in the central part of the city, referred to above, were cleared, but the number of new houses erected formed only a small proportion of the number demolished. Accommodation was found for the dispossessed tenants elsewhere throughout the city.

In the meantime public opinion was being gradually awakened to the magnitude of the problem, as there were other districts of the city which had deteriorated into slums of the worst type. Yielding to pressure from various social organizations, the Corporation, in 1902, appointed a Commission to inquire into the housing of the poor.

Some important recommendations were made by the Commission, but these were not immediately acted on. Groups of houses for people removed from the slums were erected at Kennyhill, in Moncur Street and elsewhere, the total number being under 1,000. The delay which arose in this connection appears to have been due, in part, to a large and unexpected increase in the number of small houses which were tenantless for some time after the Commission issued their report. Action was again contemplated in dealing with the slum problem in 1912 and 1913, but before much could be done the war broke out and gave rise to further delay.

6

SIR WILLIAM WHYTE

HOUSING

SINCE the war, Glasgow corporation has had four town planning schemes approved for the city and, in the amenity provisions of those schemes it is provided that "when plans of any building or buildings proposed to be erected or re-erected within the area are submitted, the corporation, if it is of opinion that the proposed building or buildings would be injurious to the amenity of any zone or any part of a zone, whether on account of proximity of other buildings, the elevation or design or the materials to be used or the undue repetition of the design, may require such alterations to be made as they made as they may deem necessary or expedient." These provisions will be

welcomed with the hope that they will be wisely used.

There is real hope for the future. It is pleasing to record that there has definitely been a growing interest and concern in Scotland these last few years, not only for the preservation of amenities but for improved architectural effects in houses and buildings generally. Clause 69 (1) of the Scottish Housing Bill at present before Parliament proposes to amend section 28 of the Housing (Scotland) Act, 1930, in such a manner that the Department of Health will in future have power to require local authorities to comply with such directions as may be given to them by the Department with reference to quality and lay-out planning and treatment of State-assisted houses. Clause 69 (2) of the same Bill proposes also to give local authorities power to appoint local advisory committees which may include representatives of architectural and other interests to assist them in considering the quality and amenities of housing schemes.

The housing authorities of Glasgow are thus fully empowered to provide, in their solution to the problem that remains to them, a compelling example to the whole of Clydeside of the benefits of planning, constructing and building for an exact purpose.

If Glasgow or any other established town were to be built today it would obviously not be built on the existing plan. The great changes that have been witnessed during the last generation or two have demonstrated many defects in the planning and general arrangement of the built-up areas. Many of those defects will probably never be rectified. Why, therefore, should those deficiencies be perpetuated or even accentuated by adding to the existing unit instead of making a fresh start on virgin ground with a new settlement, still attached and related to the old, but offering wonderful possibilities for the creation of a model township and at the same time making it possible to remodel the old?

Without going into details, it may be said that a grand total of some 200,000 houses, accommodating probably 800,000 persons, have been provided during the last fifteen years—no mean achievement. Nevertheless, today, in Scotland, as a whole, more than a third of the population are living more than two to a room (six times worse than in England); and more than one-seventh living more than three to a room (10 times worse than in England). Nearly one-half of the houses in Scotland are of one and two apartments as against only one in 20 in England. The contrast in size of houses, Scotland and England, may be illustrated as follows:

	1 and 2 apartment houses.
Glasgow	58% of all houses.
Edinburgh	38·5% ,, ,,
Birmingham	1·3% ,, ,,
Liverpool	3·0% ,, ,,

It is officially estimated that at the very least 100,000 new houses are needed to relieve overcrowding in Scotland, and that, in addition, over 60,000 houses are needed to replace the slums.

The Corporation of Glasgow has erected 38,945 houses for the working classes since the passing of the Housing Act of 1919; but notwithstanding this very extensive building programme, today in Glasgow over 455,000 persons—between four and five out of every 10 persons on the average—are living more than two to a room. It is estimated that Glasgow needs the following:

15,000 houses to replace unfit houses.
22,000 houses to abate overcrowding.
6,000 houses to meet ordinary needs.

43,000 houses in all.

The corporation completed over 4,000 houses last year and it is expected that a similar number will be completed this year. Their plans are now so well forward that a considerable augmentation of this number is assured for the ensuing year.

7

BASIL CLITHEROE

OPPORTUNITY

GLASGOW has, in fact, before it the largest single housing programme in the country. (The figure, I understand, is nearer 60,000 than 45,000 houses to be built within the next five or six years.) In other words, the town planner and the architect of genius have before them the single greatest opportunity of creating new values in housing as well as in social amenities presented during the twentieth century. What are the possibilities of Glasgow rising to this great occasion? That is a question which is being eagerly debated, and it is rather unfortunate that the intention of the Corporation to appoint a City Architect to plan this development, or at least to guide it, has been so long delayed.

Elsewhere in this number contributors indicate the real economic significance of the housing plans which may be carried out within the next five or six years. They can, if intelligently used, create all the conditions favourable not only to a trade revival, but also to the establishment of new industries in the West of Scotland, industries capable of taking their place in supplying the equipment and the amenities of the new age of good design.

Yet the problems confronting the planner involved in the re-planning of Glasgow are many and extremely difficult. They only begin with the design and location of the houses themselves. They are linked up more closely still with the provision of new communal services necessary to the proper functioning of any housing scheme. With the examples of the new French schools in education, from the nursery school right up to the university, with the lesson of the Peckham Pioneer Health Centre and everything it connotes from a proper medical service linked up with slum clearance and with the high Scottish tradition itself of enlightened public service in everything touching on the individual and the community, those who are responsible for the new Glasgow have an extremely intricate but inspiring task.

It would be a mistake to entrust this great work to any one small group of officials. It is rather an achievement which should call on all the resources of intelligence and spirit and vision available in Scotland, which have not yet had an opportunity of exercising their full force.

One can, of course, condemn too easily, but compared with recent developments on the Continent, particularly in the suburbs of Paris, one can see that the experiments in housing carried out by Glasgow Corporation hitherto are not inspiring. It is a moot point whether the new types of tenement are architecturally, at least, as good as the old slum tenement. In equipment and in space, both interior and exterior, and in the provision of the necessary public services they may be superior, but they show no appreciation of what a fine modern scheme can be.

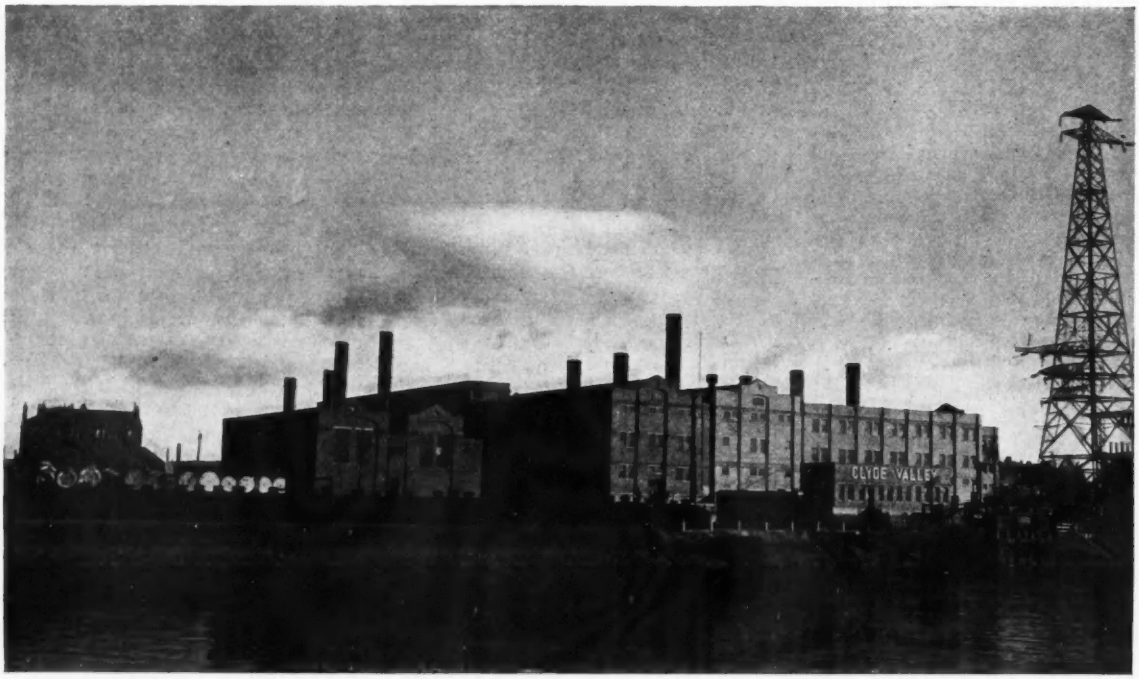
After all, Glasgow is one of the most fascinating towns in Britain. It lends itself to remarkable perspectives largely owing to the fact that it is built on a series of hills. It has in the past, through its very perspectives, inspired artists and writers of the quality of Jules Lessore and Frederick Niven, and it has intellectual material of its own, as the rise of the Glasgow Art School shows. Is there any reason why the new Glasgow, as laid out on the hills surrounding the town, should not lend itself to fine perspectives, inspiring masses and beautiful landscape design not less impressive than that which characterizes the new Amsterdam? The natural conditions are there, the ability can be enlisted and the opportunity has come into existence with the slum clearance and overcrowding proposals of the Government. Will Glasgow be able to make such use of those possibilities that it will inspire a renaissance of art and architecture in Scotland?



A typical slum.



The Ferry Crossing at Yoker.



Clyde Valley Electric Power Station.

8

PHILIP MASSEY

STATISTICS

POPULATION

THE population of Glasgow is now in the neighbourhood of 1,100,000. In 1690 it was about 15,000 and in 1801, when the first Census was taken, it was 77,385.

The following table shows the decennial figures recorded in the Census. For 1801-31, the population figure given is that of the City, including suburbs; for 1841-81, the Parliamentary Burgh; for 1891-1931, the Municipal Burgh, i.e., the area delimited for local government purposes.

1801	..	77,385
1811	..	100,749
1821	..	147,043
1831	..	202,426
1841	..	255,650
1851	..	329,097
1861	..	394,864
1871	..	477,156
1881	..	487,985
1891	..	564,981
1901	..	761,709
1911	..	784,496
1921	..	1,034,174
1931	..	1,088,461

ACREAGE

The acreage of the City before 1901 is not available in the Census Reports, except for Civil Parishes. Figures for the last four censuses are as follows :—

1901	..	12,382 acres
1911	..	12,663 ,,
1921	..	18,589 ,,
1931	..	28,694 ,,

There were many great additions prior to 1901. The following additions are listed in the 1931 Census Report :—

1830.	Blythswood.
1846.	Anderston, Calton and Gorbals.
1872.	Springburn, Possil, Gilmorehill and Alexandra Park.
1878.	Coplawhill.
1891.	Hillhead, Maryhill, Govanhill, Crosshill, Pollokshields and other suburban areas.
1896.	Bellahouston.
1899.	Blackhill.
1905.	Kinning Park.
1909.	Corkerhill.
1912.	Govan, Partick, Pollokshaws and other suburban areas.
1926.	Carntyne, Millerston, Lambhill, Knightswood, Scotstoun, Yoker, Aikenhead, Kennishead, Mansewood, Nitshill, Crookston and Cardonald.

VALUATION

The first valuation was in 1855. Since then the gross annual value has greatly increased owing to the extension of boundaries as well as to the rise in values and the increase in the number of buildings within the old boundaries.

The following decennial figures exclude the Supplementary Valuation Roll.

		£
1855-56	..	1,336,475
1865-66	..	1,771,326
1875-76	..	2,922,151
1885-86	..	3,395,804
1895-96	..	4,283,928
1905-06	..	5,770,571
1915-16	..	7,567,092
1925-26	..	11,018,946
(1933-34	..	12,466,691)

DEATH RATE, ETC.

The death-rate in 1933 was 13·36 per thousand, representing a very great improvement during the last half century. (The 1881-90 average was 24·22.) Comparing the same dates, the pulmonary tuberculosis rate fell from 2·86 to 0·82, and the non-pulmonary tuberculosis rate from 1·15 to 0·25.

The infantile mortality rate in 1933 was 96 per thousand births; in the first decade of this century, the rate averaged 135 per thousand.

The maternal mortality rate in 1933 was 5·9 per thousand births.

INCREASE AND MOVEMENT OF POPULATION, 1921-1931

The population of the City at the last Census, April 26, 1931, was 1,088,461. At the 1921 Census it was 1,034,174. The decennial increase of 54,287 includes, however, the population of areas added in 1926, which, in 1921, was 17,353. The 1921 population of the City as constituted in 1931 was therefore 1,051,527.

Comparing the 1931 population with this last figure, the increase is only 36,934. Moreover, since the 1921 Census was taken in June, this increase is somewhat inflated.

Births occurring in the City (as constituted in 1931) during 1921-31 numbered about 246,000, and deaths numbered about 158,000. The excess of births was therefore about 88,000.

Comparing this figure with the increase in population of 36,934, arrived at above, it will be seen that there was during the decade an apparent loss by migration of about 50,000 persons. In view of the fact that the 1921 Census was in June, it is certain that this somewhat underestimates the true loss by migration.

During the intercensal decade, 1921-31, very considerable changes in the distribution of the population of Glasgow took place.

The population within the 1921 boundaries *declined* by 6,755 and the population of the area added to the City in 1926 increased by 43,689 (from 17,353 to 61,042).

Of the thirty-seven wards, fifteen showed increases, and the increase recorded in Whiteinch and Ruchill, taken together, was greater than the increase for the whole City as constituted in 1931.

The fifteen wards where an increase of population was recorded were :—

Whiteinch	Dennistoun
Ruchill	Parkhead
Cathcart	Govanhill
Provan	Fairfield
Pollokshields	Pollokshaws
Shettleston and Tollcross	Langside
Springburn	Camphill
Kelvinside	

(These are arranged in order of absolute increase.)

The first four of the above recorded increases of population exceeding 10,000, the next four increases exceeding 5,000, and the remaining seven increases of less than 5,000.

Part of the boundary of each of these wards, except Dennistoun and Camphill, corresponds with the City boundary, and both Dennistoun and Camphill are outer areas.

The remaining twenty-two wards showed decreases of population, and nearly all these are central or inner wards. Following is the list, the wards with the *least decrease* being shown at the head —

Maryhill	Exchange
Park	Blythswood
Hutchesontown	Woodside
North Kelvin	Sandyford
Govan	Kingston
Kinning Park	Calton
Partick East	Anderston
Townhead	Mile-End
Partick West	Dalmarnock
Whitevale	Gorbals
Cowlairs	Cowcaddens

Following are some interesting facts taken from various sources :—

At May 31, 1934, the Loan Debt of the Corporation was just over £45,000,000—i.e. over £40 per head of the population.

•

The total number of permanent employees of the Corporation at May 31, 1934, was 34,070, and the total remuneration paid to these employees, together with temporary and casual employees, during the year, was £7,102,487.

•

The Corporation are the proprietors of 23 suites of public halls in various parts of the City. The halls are supervised by a General Manager and a large staff, and are licensed for concerts and other forms of entertainment.

•

There are 28 separate establishments under the control of the Baths Department.

•

The work of the Lighting Department is one of the oldest services of the Corporation. In

1800 the first Glasgow Police Act made the lighting of the streets a statutory duty. Now the lamps and fittings in all streets, courts and common stairs are provided, erected and maintained by the Corporation, and the gas or electricity is supplied by the Corporation.

•

For many years the Lighting Department has had the largest number of both street and stair lamps under one public authority in the British Isles; at May 31, 1934, there were 35,668 lamps under public control in streets, lanes and courts—18,418 gas and 17,250 electric. "Common stairs" were lighted with 91,072 lamps—72,288 gas and 18,784 electric.

•

The consumption of gas for street and stair lamps in the latest year for which figures are available was more than 482,000,000 cu. ft., and the consumption of electricity totalled over 13,500,000 units.

•

The quantity of water sent into the City during 1933-34 was over 70 million gallons a day, the estimated population supplied being 1,214,000.

•

There are 35 public parks, totalling nearly 3,000 acres, and over 330 open spaces, owned by the Corporation, in addition to Ardgoil. Ardgoil (14,740 acres) was gifted to the City by the late Lord Rowallan. It is situated forty miles from Glasgow.

•

The total number of volumes contained in the libraries now administered by the Corporation for the public service is upwards of 835,000; the number of volumes issued and consulted exceeds five million per year.

•

There are 13 hotels and 1,165 public houses in the city. Grocers allowed to sell intoxicating liquor number 258.

•

At May 31, 1934, there were in use in the city 62 lavatories for males and seven waiting-rooms for females, in charge of attendants.

•

The city contains about 661 miles of streets (of which about 514 miles consists of public streets).

•

Under the Ministry of Transport's classification system there are 71·42 miles of first-class roads and 22·10 miles of second-class roads.

•

There are 30 public bridges, 10 over the Clyde, 11 over the Kelvin, and 9 over the Cart.

•

During the latest year for which figures are available, nearly 200,000 children and young persons attended schools in Glasgow, and fewer than 5,000 of them were in non-Corporation schools.

•

The number of educational establishments maintained by the Corporation was 223 and the teaching staff 5,773.

•

(The number of individual necessitous children supplied with clothing, including boots, during 1933–34 was 52,574.)

OCCUPATIONS AND INDUSTRIES

The following table shows the occupation-orders into which more than 10,000 Glasgow people fell at the 1931 census :—

Commercial occupations (clerks excluded)	70,291
Metal workers (not precious metals)	66,793
"Other and undefined workers" (generally unskilled)	58,780
Workers in transport and communication	57,860
Personal service occupations	50,124
Clerks, etc. (including Civil Service and local authority)	47,713
Makers of textile goods, dress, etc.	23,154
Professional occupations (excluding clerical staff)	19,799
Workers in wood and furniture	16,993
Warehousemen, packers, etc.	15,407
Builders, bricklayers, workers in stone, etc.	12,596
Makers of food, drink and tobacco	11,620
Textile workers	11,077

The following table shows the industry-orders into which more than 10,000 Glasgow people fell at the 1931 census :—

Commerce and finance	108,576
Manufacture of metals, machines, implements, conveyances, jewellery, watches	105,311
Transport and communication	47,532
Personal service (including hotels and catering)	41,866
Public administration and defence	34,934
Manufacture of food, drink and tobacco	28,529
Building, decorating, stone- and slate-cutting and dressing, contracting	25,055
Manufacture of clothing (not knitted)	21,373
Professions	18,000
Paper-making, manufacture of stationery and stationery requisites, printing, bookbinding and photography	16,664
Manufacture of textiles and textile goods (not dress), cellulose	16,173
Wood-working, manufacture of cane and basketware, furniture fittings (not elsewhere enumerated)	13,711

STATISTICAL REVIEW OF HOUSING CONDITIONS TO 1931

The decennial population figures, 1801–1931, have been indicated above. Information respecting the population living in private families, and the number of persons living at various room densities is not available for the years before 1861.

•

The following table shows the number of occupied houses in the city at the census dates from 1801 to 1931. The figures are, of course, applicable to the area of the city as it was at the respective dates.

In 1851 and 1861 (and possibly also in 1811) the census definition of a "house" (as in England) was "a distinct building separated from others by party walls," and the definition in 1871 was somewhat similar. As the working-class house in Glasgow is rarely a distinct building," the numbers quoted for these years are not comparable with those for other years.

	Number of Occupied Houses		Number of Occupied Houses
1801	20,276	1871	14,652
1811	17,543	1881	101,713
1821	31,644	1891	117,424
1831	41,598	1901	155,414
1841	—	1911	163,057
1851	11,965	1921	225,059
1861	13,866	1931	256,399

The following table shows for each census date from 1861 the population in private families, and the number of persons in private families living (*a*) more than two but not more than three per room, (*b*) more than three per room :—

	Population in private families*	Persons living more than two but not more than three per room†	Persons living more than three per room†
1861	388,509	102,206	135,787
1871	468,825	124,334	172,708
1881	477,553	133,540	155,950
1891	551,077	158,695	176,255
1901	746,546	202,675	213,999
1911	754,534	209,918	210,270
1921	998,419	263,365	277,266
1931	1,053,258	246,205	199,614

The chart shown illustrates these figures. The population figure used in the chart is, however, the total population, not the population in private families. If the figures in the first column of the above table are compared with the total population figures given on a previous page it will be seen that the differences are not considerable.

In the following table the above statistics are shown in the form of percentages, and the proportions of the population in private families which fell into the two overcrowded categories are shown together as well as separately.

	Percentage of population in private families living		
	more than 2 but not more than 3 per room	more than 3 per room	more than 2 per room (total of previous columns)
1861	26·3	35·0	61·3
1871	26·5	36·8	63·4
1881	28·0	32·7	60·6
1891	28·8	32·0	60·8
1901	27·1	28·7	55·8
1911	27·8	27·9	55·7
1921	26·4	27·8	54·1
1931	23·4	19·0	42·3

—

Mr. A. K. Cairncross, in an article on "The Glasgow Building Industry," which appeared in the October, 1934, issue of *Review of Economic Studies*, com-

* In 1911 and 1921 this figure was obtained by deducting from the total population all persons in families of 20 persons or over, or persons living in houses of 25 rooms or over, as well as persons not enumerated in houses. The figures for 1861–1901 have been calculated on the same basis.

† For years prior to 1911 these figures were calculated on the number of rooms occupied by each family within the house (including lodgers), not on the number of rooms in the entire house.

ments on the extraordinary violence of the fluctuations in building activity in the City, and the very heavy rate of demolition in the early seventies, due in large measure to the City Improvement Trust.

His estimates are shown below. The figures in brackets following the "houses demolished" represent the *annual* demolition rate, expressed as a percentage of houses standing.

Period	Number of Years	Houses Built	Houses Demolished
1873-83	10	27,100	15,200 (1·3)
1883-90	7	6,800	2,500 (0·3)
1890-1900	10	32,000	12,300 (0·8)
1900-10	10	26,700	7,700 (0·4)
1910-14	4	2,200	7,200 (1·0)

HOUSING IN 1931

Figures for the City as a whole.

Population	1,088,461
Population in private households	1,053,258
Occupied houses and establishments	256,399
Houses in the occupation of private households	256,171
Number of one-roomed houses	37,230
Number of two-roomed houses	111,727
Average number of rooms per private house	2·68
Average number of persons per room	1·54

Of the 1,053,258 persons in private households :—

79,267 (7·5%) were living more than four per room

120,347 (11·4%) were living more than three but not more than four per room

246,205 (23·4%) were living more than two but not more than three per room

445,819 (42·3%) were living more than two per room

115,490 living in one-roomed houses

467,725 living in two-roomed houses

583,215 living in houses of one or two rooms

There were :—

3,498 *families* living six or more in one room

685 with eight or more in one room

83 with ten or more in one room

7,947 *families* living eight or more in two rooms

1,621 with ten or more in two rooms

186 with twelve or more in two rooms

Some Statistics for the Wards.

The percentage of one-roomed houses was greatest in Dalmarnock (37·5), followed by Mile-End (36·1), Hutchesontown (32·5), Calton (27·9), Exchange (24·4), Cowcaddens (22·2), Woodside (21·3), Provan (20·6), Parkhead (20·1).

Two-roomed houses formed 50 per cent. and upwards of the dwellings in sixteen wards.

Of the thirty-seven wards in the City, only six had an overall average of less than one person per room. Of the thirty-one with an overall average of more than one person per room, in twenty-three the average exceeded one-and-a-half per room, and in seven the average exceeded two per room. These seven were Dalmarnock, Mile-End, Hutchesontown, Cowcaddens, Parkhead, Calton and Govan.

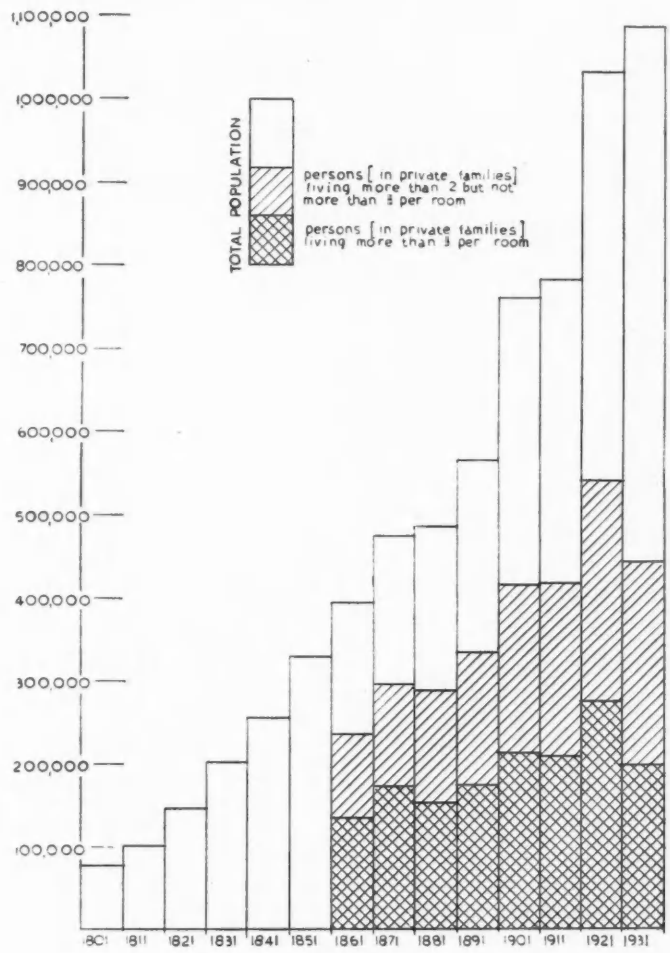


Figure 1.

The following table gives comparative figures respecting the average number of rooms per house, the average number of persons per room, and the percentage of the population living more than two to the room for each of the thirty-seven wards.

Burgh Ward	Rooms per House	Persons per Room	Percentage of Population living more than two per Room
Dalmarnock	1·71	2·47	69·3
Mile-End ..	1·75	2·38	66·7
Hutchesontown	1·78	2·29	63·8
Cowlairs ..	2·01	1·90	47·5
Cowcaddens	2·02	2·09	58·8
Parkhead ..	2·07	2·07	56·3
Calton ..	2·07	2·04	58·4
Whitevale ..	2·13	1·95	52·1
Exchange ..	2·14	1·88	50·0
Govan ..	2·25	2·01	59·0
Anderston ..	2·26	1·87	51·6
Woodside ..	2·27	1·76	49·4
Kinning Park	2·28	1·84	51·4
Gorbals ..	2·32	1·94	52·5
Kington ..	2·34	1·92	52·7
Provan ..	2·36	1·78	46·3
Fairfield ..	2·36	1·76	43·6
Townhead ..	2·38	1·76	44·4
Maryhill ..	2·38	1·75	45·6
Ruchill ..	2·41	1·85	45·4
Shettleston and Tollcross ..	2·45	1·78	46·8
Springburn ..	2·47	1·76	44·6
Govanhill ..	2·55	1·55	31·5
Partick West ..	2·64	1·41	36·5
North Kelvin	2·80	1·35	34·9
Dennistoun ..	2·91	1·33	23·8
Partick East	2·91	1·41	39·2
Sandyford ..	3·00	1·43	37·0
Blythswood ..	3·08	1·43	36·9
Pollokshaws ..	3·13	1·25	33·5
Whiteinch ..	3·22	1·23	22·6
Camphill ..	3·51	0·98	8·1
Langside ..	3·83	0·96	7·1
Cathcart ..	4·20	0·87	9·0
Park ..	4·42	0·91	11·3
Pollokshields	4·83	0·80	7·0
Kelvinside ..	6·01	0·65	1·8

The following figures relating to the city as a whole, which show the position at Whitsunday, 1934, i.e.,

about three years later than the last Census, are of considerable value.

Occupied Houses	
1-apartment	35,871
2-apartments	112,743
3-apartments	66,964
4-apartments	27,750
5-apartments and over	22,242
	265,570
Empty Houses	
1-apartment	125
2-apartments	160
3-apartments	800
4-apartments	1,775
5-apartments and over	1,523
	4,383
Shop and Houses	
Occupied	1,949
Empty	44
	1,993
Other Premises	
Occupied	44,601
Empty	4,063
	48,664

Of the 4,383 empty houses, it will be noted, only 285 were of one room or two rooms. In only five wards did the number of empty houses exceed 200. These five wards were Pollokshields (where there were 743 empty houses, of which 550 were of four apartments, and 25 of three or less), Park, Kelvinside, Sandyford and Gorbals. In none of these wards were there more than eleven empty houses of one or two apartments.

POST-WAR HOUSING WORK OF THE CORPORATION

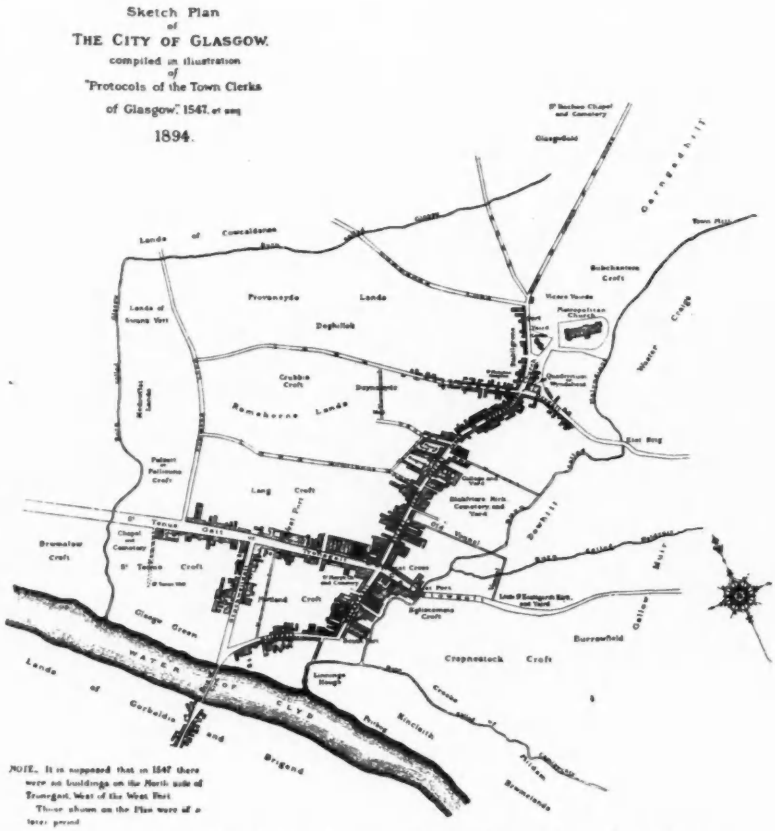
Ten schemes of slum clearance had been prepared by the Housing Department between 1923 and 1934, and, at December 31, 1933, nearly 7,000 houses had been demolished or closed. (The supervision of families transferred from slum areas to rehousing schemes is undertaken by nurse-inspectors for the purpose of maintaining as high a standard of occupancy as possible. About 75 per cent. of rehoused families keep their houses in clean condition and only about 1 per cent. are wholly unsatisfactory.)

Following the passage of the Housing, etc. (Scotland), Act, 1919, the Corporation estimated the housing needs of the city at 57,000 houses.

The volume of housing work carried out by the Corporation since the War is summarised below. The figures show the position at May 31, 1934.

	Houses completed or in course of erection
1919 Act	4,728
1923 Act	2,052
House Purchase Schemes	662
1924 Act	21,636
1923 Act schemes for tenants from uninhabitable houses	6,546
1930 Act schemes for tenants from uninhabitable houses	4,528
	40,152

There were in addition at the above date 2,617 houses for which tenders



Sketch plan of the City of Glasgow completed about 1547. *See page 945.*



Easter Sugar House, belonging to a company founded 1669. Referred to by Professor Scott on page 948.



Kelvin House, designed by Robert Adam and demolished to make room for the 1901 Exhibition. Another Adam building which was destroyed in the march of progress was the old Glasgow Royal Infirmary (see frontispiece).

had been received and 2,109 for which land had been acquired.

Of the 40,152 houses completed, or in course of erection at the above date, there were :—

66 of one apartment (hostels)
4,678 of two apartments
25,804 of three apartments
8, 122 of four apartments
820 of five apartments
662 in purchase schemes

Rents.

The following may be taken as the average rents, *exclusive of rates*, for post-war Corporation dwellings :—

	Per Annum
3-apartment flats ..	£26 10s. to £28 10s.
4-apartment flats ..	£31 and £32
3-apartment cottages	£30 and £32
4-apartment cottages	£33 to £38
5-apartment cottages	£36 to £45

In the case of " intermediate " houses, the rents are *inclusive of rates* :—

	Per Week
3-apartment houses	10s. 6d.
4-apartment houses	12s. 0d.

Usual rents for dwellings in rehousing schemes, *inclusive of rates* :—

	Per Month
2-apartment dwellings in 3-storey tenements ..	28s. to 30s.
2-apartment dwellings in 2-storey blocks ..	33s. to 34s.
3-apartment dwellings in 3-storey tenements ..	32s. to 37s.
3-apartment dwellings in 2-storey blocks ..	36s. to 38s.
4-apartment dwellings in 3-storey tenements ..	38s.

It is stated that " the rents in the Re-housing Schemes . . will compare favourably with the rents which the occupants had to pay for a worn, dilapidated house without the essential sanitary conveniences within the house itself."



Miss Cranston's Tearooms in Sauchiehall Street decorated by Charles Rennie Mackintosh about 40 years ago and since destroyed to make way for a large warehouse.

G L A S G O W : A N

1. *St. Vincent Street Church. Alexander Thomson, architect.* 2. *Great Western Terrace. Alexander Thomson, architect.*

With the exception of the old Tolbooth steeple, the buildings illustrated on these two pages show the wideness of the search during the nineteenth century for a satisfying expression in an architecture divorced from the life of the community.

As the influence of industrial revolution spread, the practicality of late Georgian and its perfection of scale with the life of its time was gradually lost. And in proportion with the greater intensity and narrowing outlook of industrialism, the fashion of the times sought to redress the balance by an architecture of the romantic and picturesque. The architecture of the 'forties sought expression in every style—Gothic, Roman, Italian.

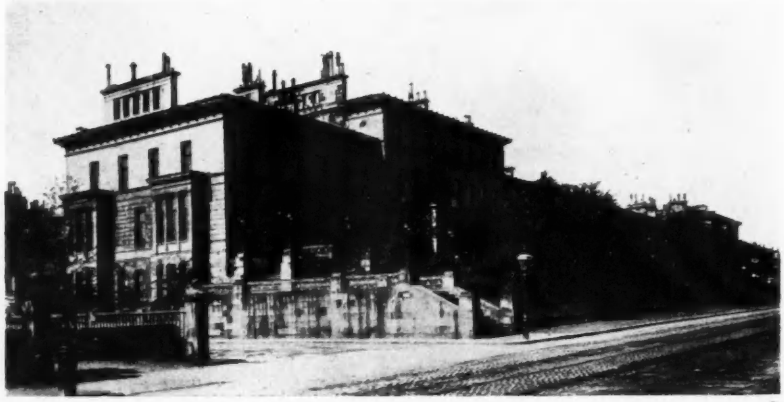
Alexander Thomson, the Nash, but a bolder Nash, of Glasgow, made full use of the unfettered eclecticism of the architecture of the moment. With Greece as chief inspiration he did not hesitate in borrowing lotus-columns from Egypt or the towers of Assyria. But in his isolated buildings there is a freedom and liveliness, and in his domestic work a dignified restraint, which entitles him to his pre-eminence, as does the failure of those who tried to imitate his methods.

After Thompson, Glasgow architecture lapsed into a general mediocrity, largely unrelieved until the building of the School of Art by Charles Rennie Mackintosh.

Beneath mannerisms and detail which is sometimes trivial C. R. Mackintosh possessed two great qualities: he realized the importance of conceiving a building as an integral part of its surroundings, and he struggled to bring back a logical realism to an architecture which had become greatly two-dimensional. In the photograph reproduced of the Hill House, Helensburgh, is shown his realization of the value of mass and line.



1



2

ARCHITECTURAL TOUR



3



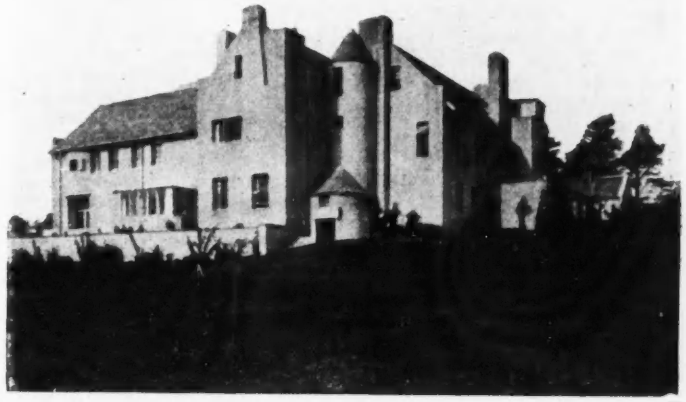
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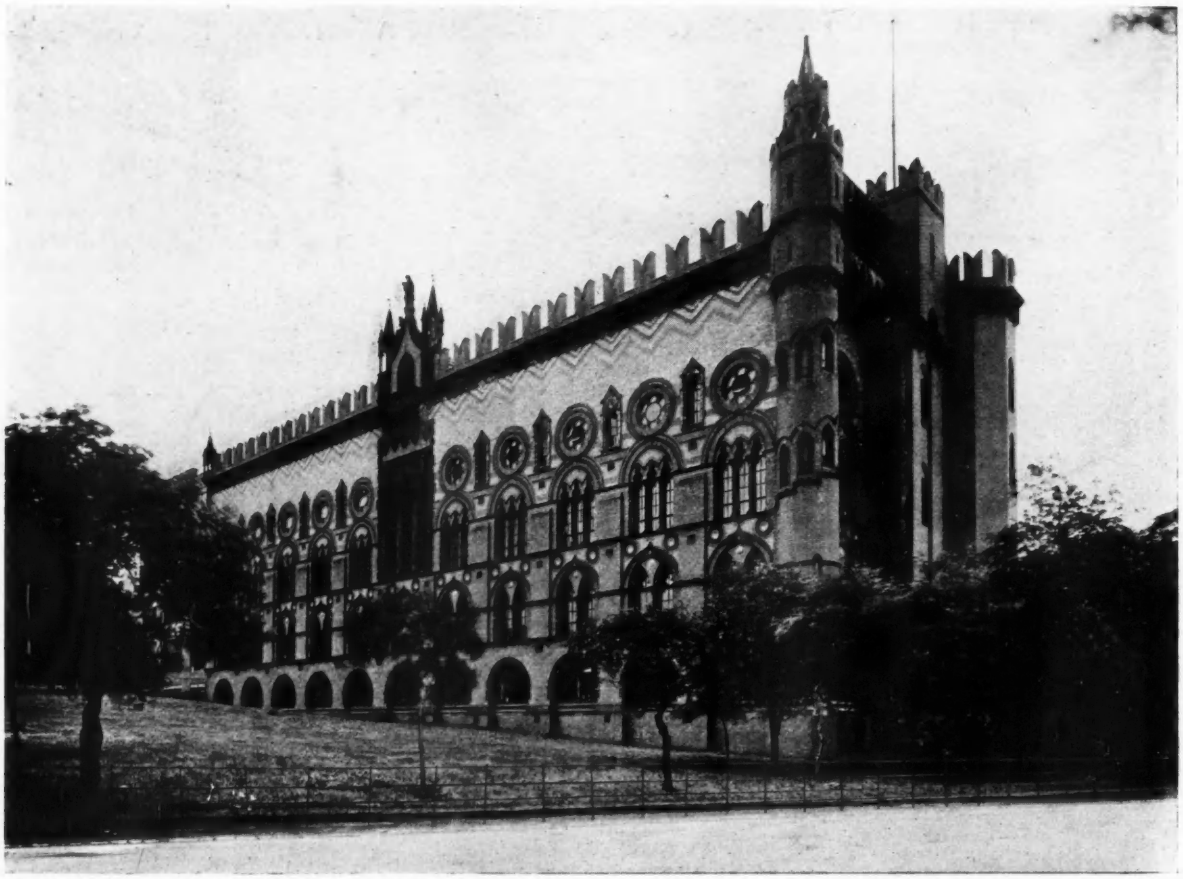


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7

3. *The Royal Exchange.* **4.** *Alexander Thomson's Queen's Park East Church.* **5.** *The old Tolbooth Steeple—all that remains of the original council house and prison.* **6.** *The heart of Glasgow—George Square and the Municipal Buildings.* **7.** *The Hill House, Helensburgh, designed by Charles Rennie Mackintosh.*



The architecture of two dimensions. In its pictorial romanticism and the blending of Venetian and Scottish mediæval influences in its façades, this building finely illustrates the nineteenth-century progress towards an architecture of purely external application, and though the fact that it is a carpet factory (Templeton and Co.'s at Glasgow Green) makes it seem slightly absurd, it nevertheless has remarkable character.

9

HUGH QUIGLEY

THE FUTURE

FEW of the depressed areas have been more completely analysed than the west and south-west of Scotland, not only by government commissions but also by economists, universities, development councils, and similar institutions. The result is that there is already a fairly clear understanding of the present position, although various methods of diagnosis have not so far coincided in the same result. The disease is there but no doctor can tell whether it is really serious or whether it is merely a temporary indisposition.

If one were to make any sort of forecast one should collect all the conclusions of all the surveys that have been prepared and published during the last four years and establish a series of greatest common denominators. This would probably be just as accurate a method of obtaining a result as to theorize in the hope that one may not appear too wide of the mark.

There are, however, certain features in the economic configuration of Glasgow about which there can be very little doubt.

Events during the last two years particularly have established one truth—namely, that the competitive capacity of the principal industries located in Glasgow and the surrounding area, industries such as shipbuilding, iron and steel, heavy engineering, particularly marine engineering, boiler making and ancillary activities converging on those industries, has never been seriously weakened. Their position is as strong now as it has ever been, and the remarkable revival that has taken place in the shipbuilding and iron and steel industries during 1934 confirms that impression. One is not confronted in this case, as in Lancashire, with a serious decline in the competitive power of a basic industry. Still less is one confronted with the economic collapse due to ill-regulation of manufacturing units within an industry. The characteristic of the important industries of Scotland has been precisely their high degree of concentration of manufacturing units such as we find in coal-mining, iron and steel, and certain branches of the textile industry—close co-operative working between individual concerns within an industry and fairly careful regulation of practices and customs affecting competition.

Again, the financial position of the important industries located in Glasgow and the surrounding area, with one or two exceptions, has never been anything but strong. This applies even to the shipbuilding industry, with the result that there is very little mortgaging of industrial activity to the banks, a potent cause of inefficiency and bad organization in Lancashire. It is still true that the majority of large firms operating in the west of Scotland have still sufficient resources to finance a very considerable revival in trade, and they have always retained sufficient resources to keep their equipment up to date.

In the third place the quality and ability of the labour available to the manufacturer in Glasgow is at least as good now as it has ever been, and there has been no serious falling off in the physique and in the craftsmanship of the industrial population.

On the other hand organized labour is slowly but surely declining in strength in the west of Scotland, even at a time when it is gaining power in municipal politics, with the result that some part at least of the competitive power of the principal industries has been due to their capacity to tap a free labour market and remunerate it accordingly.

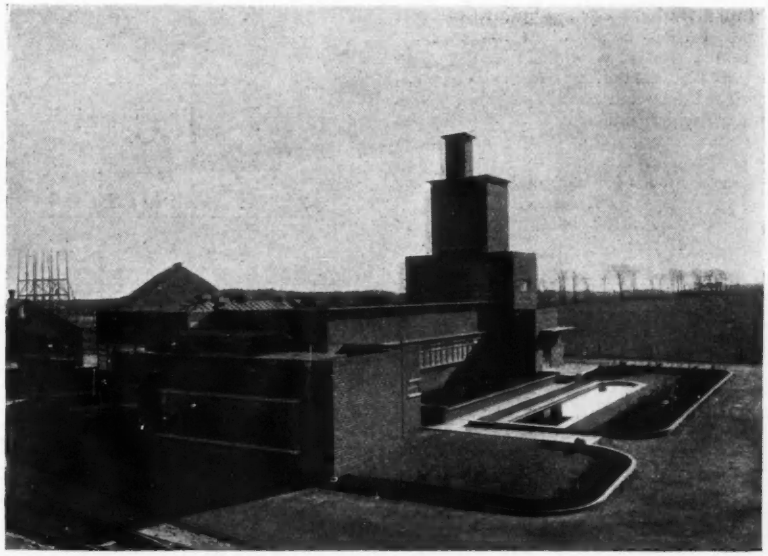
What, then, are the factors which have caused serious trade depression in Glasgow

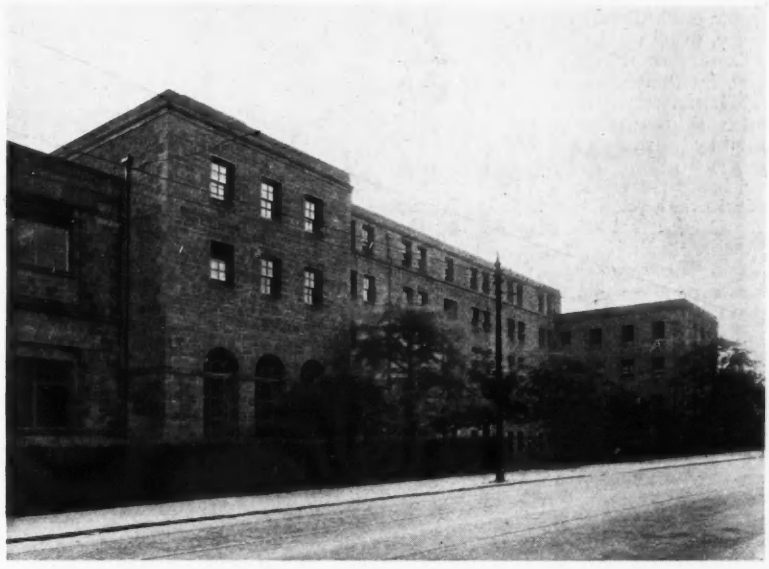
and the surrounding district? They are so complex that one cannot do otherwise than make the barest of statements. The principal cause of depression is post-war armament policy. The Glasgow area before the war was one of the most powerful armament and munition areas in Great Britain, perhaps the most powerful if shipbuilding is brought into consideration, and during the war its capacity for production on the armament side was enormously increased. The limitation of armaments after the war bore precisely on the very specialities which had brought prosperity to Glasgow firms. The process of reorganization to take care of this change in the national policy has been necessarily slow, and really only came to an end last year. The character of international trade has changed in a direction adverse to the west of Scotland. Emigrant traffic with the Americas has shrunk to negligible proportions and deprived a large part of the shipping trade of a valuable source of revenue. The emigrant traffic made it possible to offer low freights for shipments from the United States and Canada to this country and Europe. Passenger traffic across the Atlantic has changed fundamentally, and inevitably must go towards the south of England and the Continent direct. It is useless for economists to assume that Glasgow can attract back this type of traffic as long as there is no direct marine communication between Glasgow and the North Sea. In much the same way, owing to the industrialization of Canada and many of the South American republics combined with deliberate restriction of imports, coal shipments from the west coast of Scotland have shrunk quite materially.

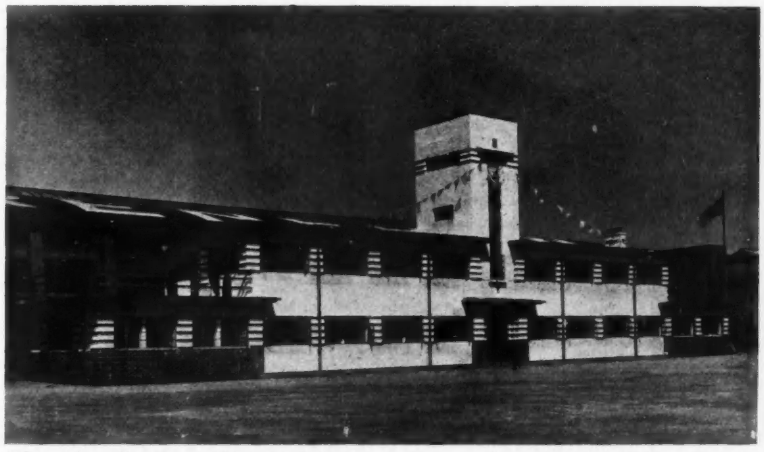
Owing to the operation of certain movements, some of them beyond control, new enterprise has tended to move out of the west of Scotland. This tendency has been reinforced by the process of rationalization in certain public services operated from London or from England. Thus the centralization of railway services, resulting from the grouping of the main line railways, has undoubtedly reduced activity in the railway workshops in Glasgow. The tightening control of textile combines in the furnishing trades has closed down a number of factories of importance in areas to the west of Glasgow, while even in shipbuilding there has been some transfer of activity to the north of Ireland.

Granted those developments, there are certain things in which Glasgow has been guilty of lack of enterprise.

It has been almost completely unsuccessful in developing new industries or in attracting to itself new factories within industries which have come through a very rapid post-war expansion. In the lighter and, probably from the point of view of labour, more important side of the electrical manufacturing industry, namely, distribution equipment and domestic appliances, Scotland has proved itself incapable either of initiating a demand or of developing enterprises even to export to England. In artificial silk and in automobile construction the industrial history of the post-war years is tragic in the extreme. Even in paper, which should normally be an important new industry in Glasgow, the manufacture of newsprint is still confined to the north-west and south-east of England. The inability to keep pace with modern design has had its effect on the woodworking and







Top, New Cardowan Pit Head Baths, (built by the Miners' Welfare Centre). Architects: J. A. Dempster and J. H. Forshaw; centre, recently opened extension to Victoria Infirmary. Architects: Watson, Salmond and Gray; bottom, new aerodrome club house at Renfrew. Architects: R. Mervyn Noad and Wallace.

furniture trades. Certain industries have increased their contribution to economic life in the west of Scotland : industries in the woollen and fine cotton categories, biscuit making, and ancillary trades, but in clothing, which one would expect to keep pace with the demands of the population, the invasion of Glasgow by London and Manchester firms has diverted much of the retail trade south of the Border.

What, then, is the industrial future of Glasgow? As one can see from the new factories and factory extensions that are going up in increasing number in Glasgow there are signs of a return of confidence to the entrepreneur himself, a return due to the revival of the basic industries. With this return has come a clearer conception of what public enterprise ought to do. Glasgow Corporation, for example, is committed to housing schemes which will aim at the provision of at least 10,000 houses a year for the next six years. Now if this demand is properly organized it is sufficient in itself not only to provide a very extensive range of industries but also to attract new industries. It is sufficient in itself, for example, to make it possible for Glasgow, on the lighter side of the electrical industry, to fill up the gap which exists in the Scottish contribution to this new industry, but that means that a real effort should be made to link up electrical development with rehousing. The building of houses by private enterprise, which has been so marked a characteristic of the trade boom in south-east England, has not really begun in the west of Scotland, but it may do so if some real effort is made by the local authorities to inspire and, if necessary, assist the development of new housing estates of middle-class type.

The adoption of a courageous economic policy bearing on public works such as the widening of the Forth and Clyde Canal, the development of better port facilities not only in Glasgow itself but also further down the river, the electrification of the whole of the Glasgow suburban system, which is now perfectly feasible in view of the water power supplies coming from the Clyde itself and from the Grampians, the deliberate encouragement of new industrial enterprise linked up with agricultural marketing and wheat legislation, such as flour milling, bacon curing, the manufacture of milk products, the extension of industries producing consumption goods such as we find in the Scottish Co-operative Wholesale Society's group of works at Shieldhall, the introduction of modern designs into furniture, textile, and glass industries, and the extension of the metal working industry to take care of modern fashion in the equipment of housing as much as of public buildings—all those activities together would cause a revival in Glasgow trade.

To ensure this, however, would mean a change in the spirit of those who have been responsible for the policy of Glasgow in matters bearing on industry and economics. The Glasgow of 1935 is only beginning to understand how intimate the connection was between the love of good design and good architecture in the Glasgow of the latter half of the nineteenth century—and the prosperity of its basic industries. Such a connection can be restored if Glasgow Corporation takes the immense opportunity now at its disposal to set an example to every capital in the world in its housing and town-planning schemes.

10

J. A. DEMPSTER

THE ARCHITECT

I BRING forward these notes not so much as a criticism against the powers-that-be as a warning to the architectural profession who are on the threshold of a great work in bringing about an ordered community. There are today certain leaders of industry who are only too glad to avail themselves of proper architectural help. I am thinking of the company who own that splendid tyre factory at Inchinnan, and certain colliery directors who take a delight in making their collieries a monument of ordered thought. It is therefore up to the present generation of architects to show that they will not be found wanting when called on. The time has no doubt come when real progress in industry is being made, and there is no reason why industry here should not try to keep pace with that of other countries in the provision of well-planned, good to look at, hygienic workshops for their workpeople—but what have Glasgow architects to offer toward these new conditions of life?

It seems that we have come to a point where we can look back over the past and see its contribution, and at the same time look forward over the future and glimpse its possibilities.

The part architecture should play and the place of the architect in industrial progress are questions assuming aspects of vital interest to the profession. The architect's interest in any prospective changing of the industrial progress of the city must be real, and architects in general must be ready in every respect to take on that responsibility by studying their subjects, not merely from the æsthetic point of view, but with a desire to give to their clients real help in stopping the high maintenance and operative costs and the misuse of industry's hard-earned gains. High standards of design, planning and execution, together with low costs of services, must attend the profession's future in any great campaign of this description.

The profession must not by default permit the designing of these new shapes of industrial life by inept, ignorant and selfish hands. The new architecture, so often now condemned by those architects who are responsible for certain abortive schemes throughout Glasgow, has uses to commend it to great industrial efficiency. For the first time in the history of architecture we have at our disposal means and methods of building that are unlimited in their possibilities. In looking forward to a new industrial architecture the ideas and uses of materials that have held in the past will be slowly discarded, and new materials and their uses will come into effect.

Of course, with the highest possible regard for the value of beauty of design and effective treatment of materials, it must be emphasised that special purpose industrial building is but a means to an end, and the end is the attainment of enhanced operating results. Anyone who looks around Glasgow to-day must realize that with few exceptions the architects responsible for the industrial buildings had only studied their subject from their own standard of æsthetic taste. How poor that has been we will not dwell upon—but the real purpose of the building was, as often as not, ignored. The architect had never studied the economics of his project or the purpose for which the building was required. I am not going to define economics, but it is necessary, if this article is to be in keeping with the design of industrial buildings fit for their purpose, to understand just what is meant by the statement that a building enterprise is "economic." Briefly, a building is economical when its value exceeds its cost—if its cost exceeds its value it is uneconomical. Here is a new point of view for the architect, and one where he can be of inestimable value to his client. He can work along two separate lines of endeavour. First, there is the possibility of altering his design and specification to reduce the building cost. Secondly, there is the possibility of increasing the earning power by improving the design. It is possible to do both.

It is not at all strange that the architect has in his hands the power to increase the earning power of his project whereas his client has not. The latter simply measures the earning power of the design submitted to him and the architect can change that design.

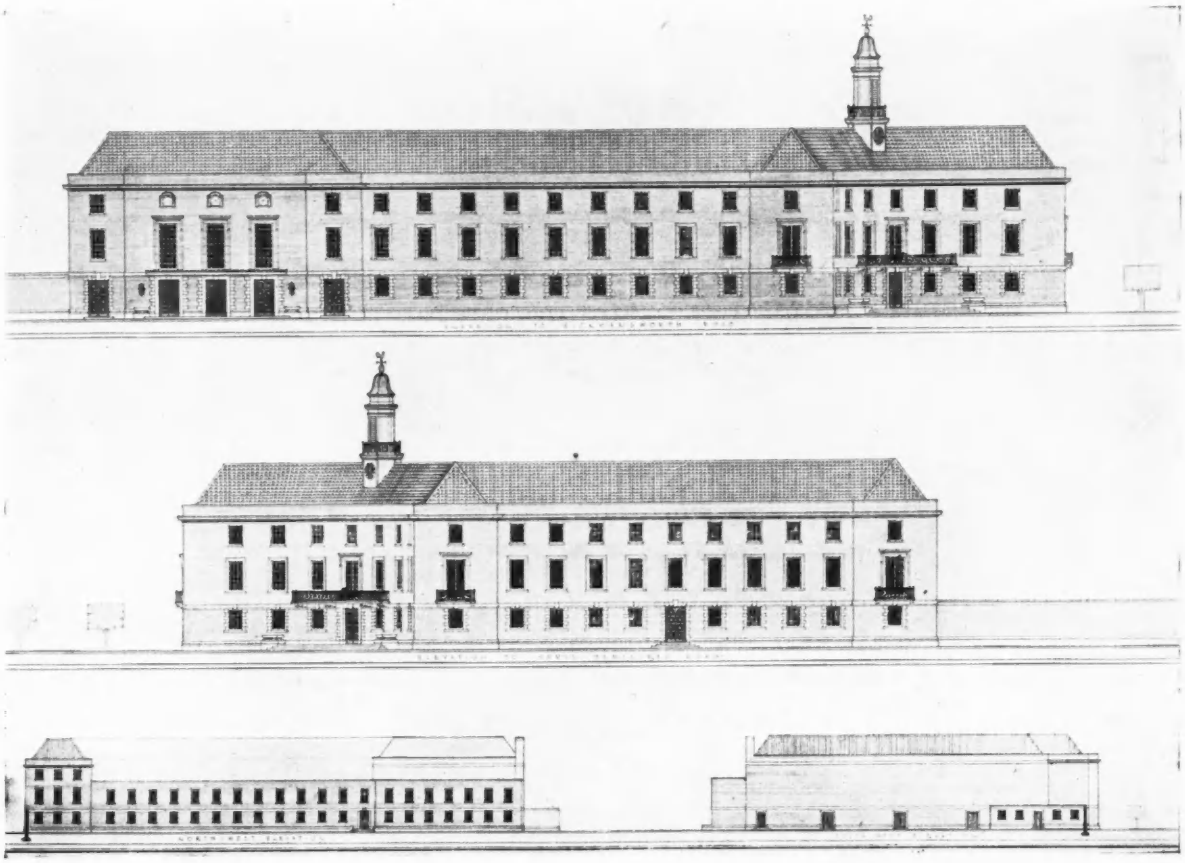
A word about beauty and its economic value. The old idea that beauty in a commercial building is an unnecessary luxury and a waste of money has, I believe, passed away and is not likely to return. It has been generally realized abroad that beauty of design and appointment pays dividends. Ugly and awkward buildings stand half empty, whilst their graceful or majestic neighbours draw the tenants. In assessing the relative responsibilities of waste in planning industrial enterprises quite 50 per cent. is placed at the door of management, 25 per cent. accounted for by the cost of labour conditions, and 25 per cent. by the inefficient architect who somehow always gets a good job while the man who has been specially trained for it goes without.

Industry itself must be trained to value the architect as essential to planned enterprise and to realize that it should be planning for years to come with the aid of a profession which has now learnt to study its problems from a psychological point of view.

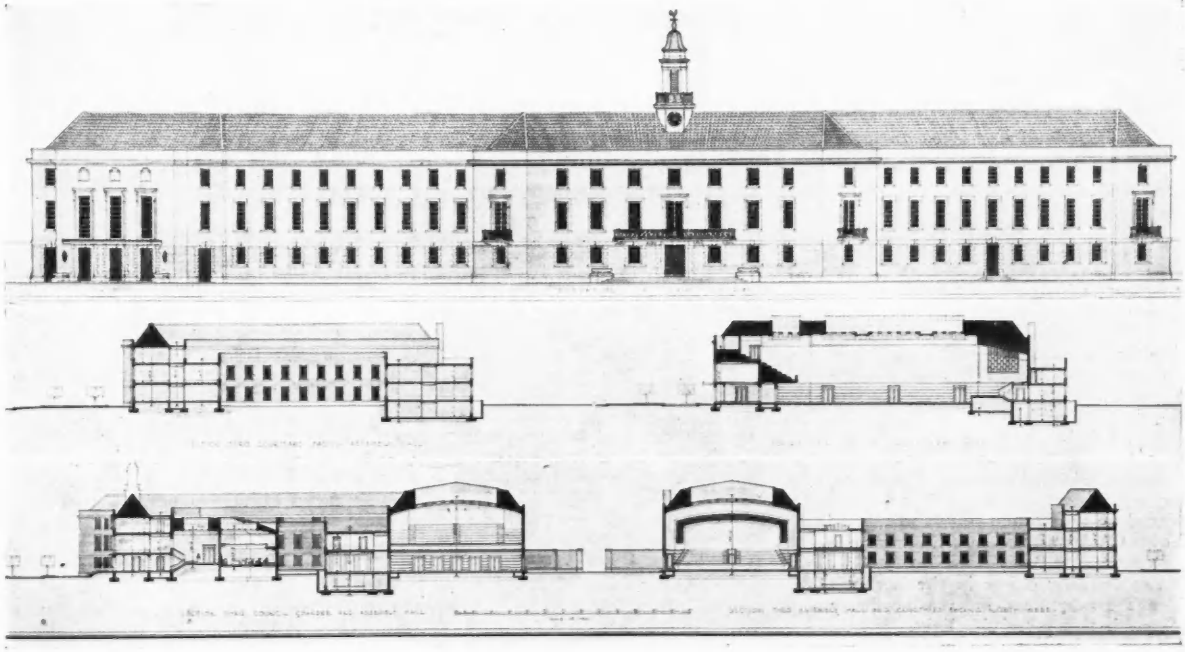
Glasgow's housing problem is a big one, but its industrial one is greater if it wishes to get back to its old days of prosperity. Recent attention has been drawn to the former. What has the architectural profession done about the latter? Will it see light by what has been done by foreign countries, or are they to be allowed to perpetuate the evils of their fathers?

Lastly it must be remembered that the architecture of a country is the visual record of its evolution. It changes as civilization changes. Glasgow should show the world that its products are made in buildings worthy of their intrinsic quality.

COMPETITION FOR MUNICIPAL BUILDINGS, WATFORD



On this page are reproduced elevations and sections of the winning design, by C. Cowles-Voysey, in the limited competition for municipal buildings, Watford. For plans, and the report submitted by the author of the winning scheme, see pages 968-969.



WINNING DESIGN: BY C. COWLES-VOYSEY

COMPETITION FOR MUNICIPAL BUILDINGS, WATFORD

Mr. E. Vincent Harris, F.R.I.B.A., the assessor in the limited competition for new municipal offices and town hall at Watford, has made his award as follows :

Design placed first : Mr. C. Cowles-Voysey, F.R.I.B.A., of 14 Gray's Inn Square, London, W.C.1.

Design placed second : Messrs. H. V. Ashley and Winton Newman, FF.R.I.B.A., of 14 Gray's Inn Square, London, W.C.1.

Design placed third : Messrs. C. H. James and S. Rowland Pierce, F. and A.R.I.B.A., of 33 Bedford Place, London, W.C.1.

Design placed fourth : Mr. A. Gilbert Scott, F.R.I.B.A., of 3 Field Court, London, E.C.

The winning design is illustrated on this, the preceding, and following pages. Following are some extracts from the report submitted by the author of the design placed first :

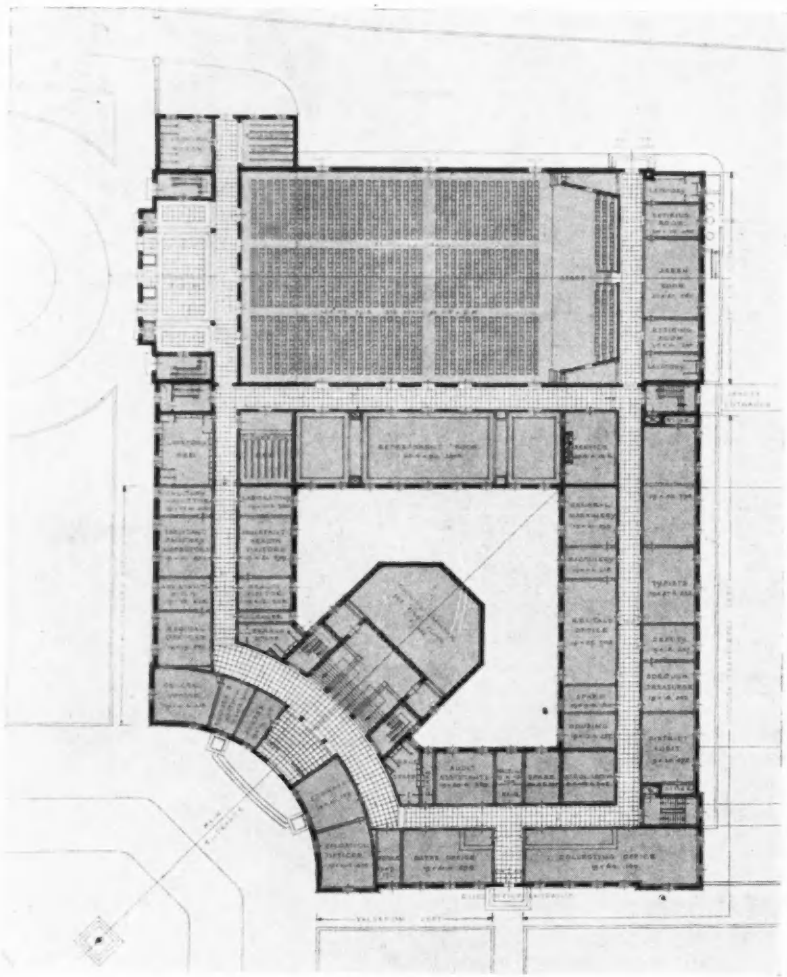
LAY-OUT.—In the accompanying design an attempt has been made (1) to provide a simple and direct solution of the problem, (2) to connect and unify the main divisions (i.e., Assembly Hall, Council Suite and Offices), (3) to give a dignified and civic aspect to the buildings befitting their purpose and ownership.

The building has been placed on the south-east end of the site, leaving the maximum area of land to the north-west free for future extension and development. The main entrance to the Municipal Buildings is arranged at the corner of Hemel Hempstead Road and Rickmansworth Road as suggested in the conditions. A secondary office entrance adjacent to the collecting office is placed in the centre of the frontage to Hemel Hempstead Road, while the public entrance to the assembly hall is in Rickmansworth Road. A roadway is suggested along the south-west boundary from Rickmansworth Road to a service yard. Access for fuel, goods and transformer sub-station is obtained from this yard, and an independent garage building is placed adjoining.

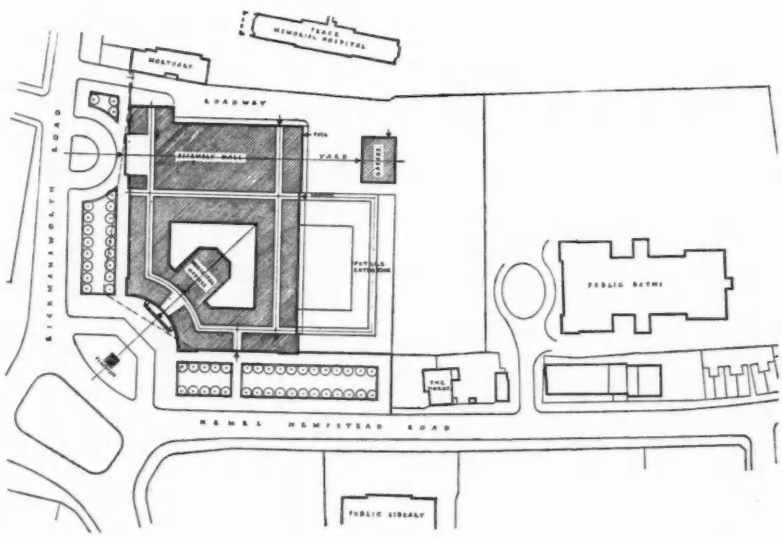
MUNICIPAL OFFICES.—The Municipal Offices are planned to form three sides of a central courtyard, with the assembly hall forming the fourth side, the angle of the buildings being splayed off at the junction of the two roads. The council chamber is placed on the main axis, the remaining accommodation being arranged in simple blocks of offices with internal corridors.

The council suite on the first floor is placed between the main entrance and staircase and the assembly hall. This arrangement provides privacy for this suite, easy connection to the assembly hall and refreshment room and an internal position for the council chamber protected from disturbance from the traffic of the main roads. Two secondary staircases with lifts connect with all floors in the office wings which, being on the north-west side, are capable of future extension. The departments of the Borough Treasurer, Rating and Valuation and Public Health are placed on the ground floor and that of the Town Clerk and Borough Engineer are placed on the first floor.

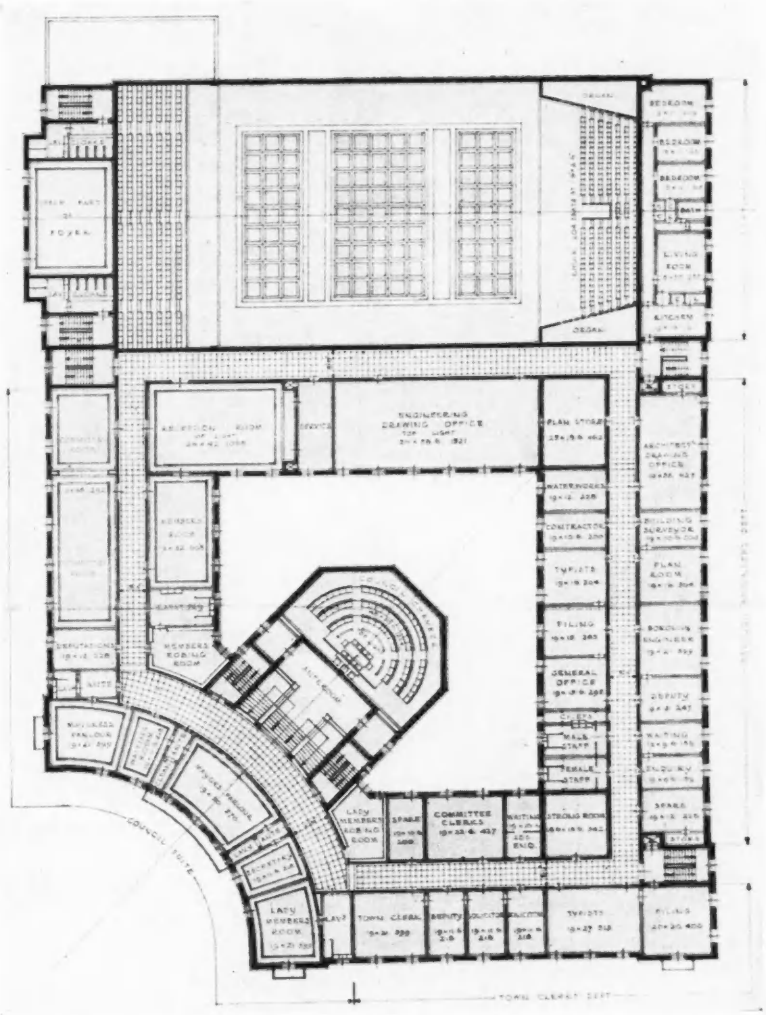
The two drawing offices in the Borough Engineer's Department have a northerly aspect and both top and side light.



Ground floor plan.



Lay-out plan.



First floor plan of the winning design in the competition for municipal buildings, Watford.

The two strongrooms required are placed one above another to enable a strongroom tower to be constructed.

ASSEMBLY HALL.—The Assembly Hall has a seating accommodation of 1,332 on the ground floor and 324 in an end gallery carried over the foyer to avoid excessive overhang. Cloak rooms and lavatories for both sexes are placed on the main floor level and adjoining the foyer. The Hall has a flat floor suitable for dancing.

ELEVATIONS.—A simple and dignified elevational treatment in brick with stone dressings has been aimed at expressive of the purpose of the building, suitable for the locality and in accord with the funds available. It is thought that, by association, the introduction of such features as the clock turret, flagstaff, coat-of-arms and balcony a "town hall" character can be obtained.

CONSTRUCTION.—The building would be constructed of brick faced with 2 in. sand-faced hand-made bricks and stone dressings. The pitched roofs would be constructed of timber on steel trusses and covered with Roman tiles. The flat roofs would be of reinforced concrete covered with asphalte and an insulating material. The floors and staircases would be formed of reinforced concrete covered with hardwood blocks generally, terrazzo being used in lavatories and on staircases. The internal walls would be of hollow brick and a continuous frieze of glass would be put to the internal corridors. The finish generally would be consistent with modern practice in this class of building. The walls and ceilings would be plastered and hardwood veneer panelling put to the more important rooms.

ACOUSTICS.—Special attention has been given to the acoustics of the Council Chamber and Assembly Hall.

(a) Council Chamber. This room has a flat ceiling of hard plaster and glass, the height of the room being 20 ft. Above dado height the walls would be covered up to cornice level with absorbent material in the form of acoustic plaster or tile of felt and fabric. The floor should be covered with pile carpet and underfelt and the seats upholstered. These absorbent surfaces would be regulated to give a reverberation of not more than 1·5 seconds. The chamber is placed in an internal position away from traffic noise.

(b) Assembly Hall. A megaphone form is adopted at the source of sound and a flat curved reflecting ceiling of glass and hard plaster is placed over the body of the hall. The walls between dado and cornice would be lined with an absorbent material, the floor with carpet and underfelt and the seating should be upholstered. The absorbent surfaces would be regulated to give a reverberation of between 1·7 and 2·0 seconds, which is considered to be a satisfactory compromise for an all-purpose hall, A hardwood dado round the Hall and at the source of sound would be introduced to reinforce musical tone.

(c) Committee Rooms. These rooms would have windows specially constructed to exclude noise. The ceiling would have absorbent acoustic plaster, the walls panelled in hardwood, and there should be a pile carpet and underfelt. The absorbent material would be regulated to reduce reverberation to approximately 1·5 seconds.

All fans, motors, etc., would be of silent running type with adequately insulated bases.

HEATING AND VENTILATION.—The central heating chamber is placed under the Artist's Rooms with easy communication by means of ducts with the whole of the building. Access for fuel is obtained from the Service Yard adjoining.

The heating system would be low-pressure hot water mechanically circulated in conjunction with either radiators or panels as finally decided upon. The boilers would be suitable for either solid or oil fuel. The whole of the condensation from all services would be returned as hot water feed to the boilers to effect fuel economy.

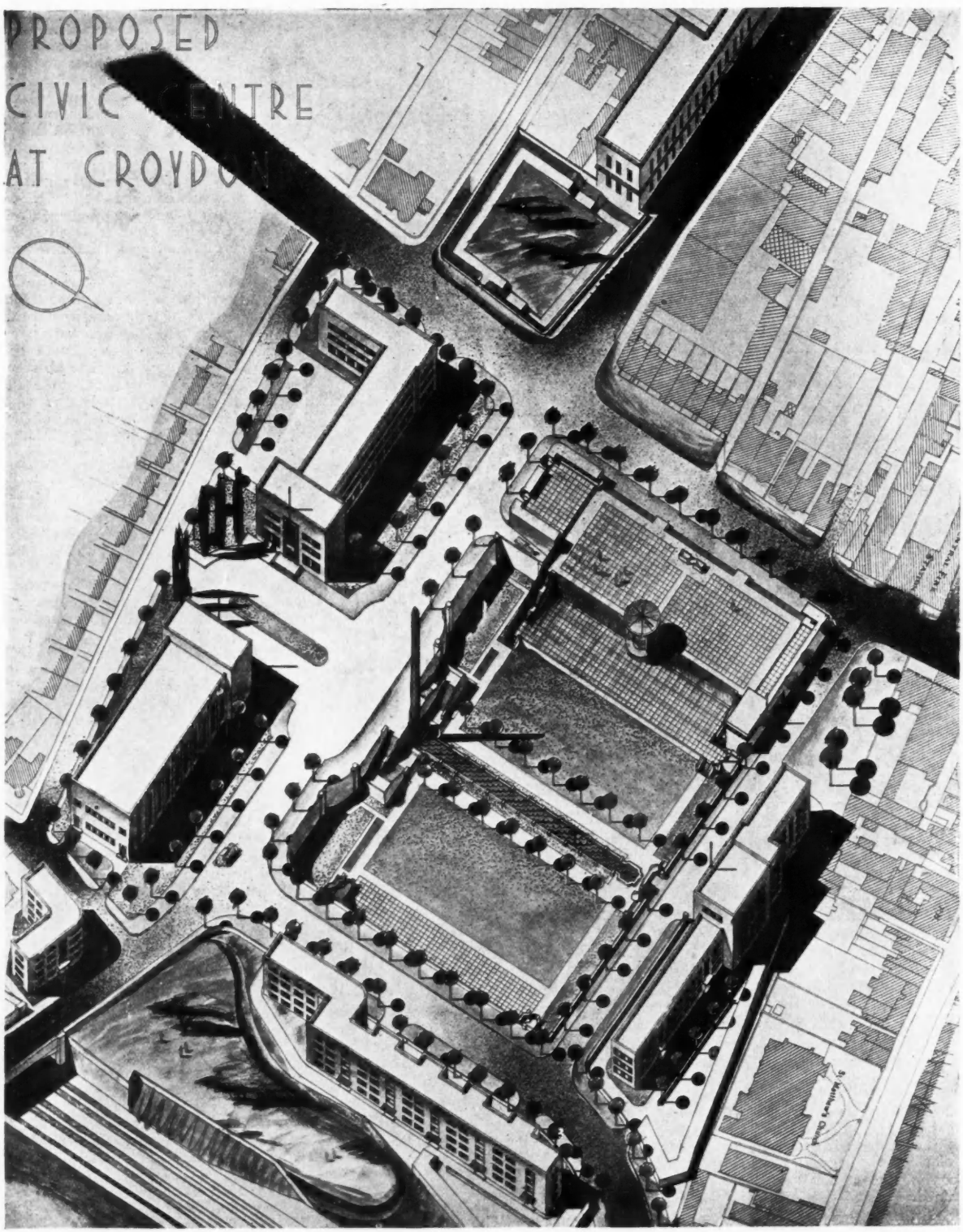
A centrally heated hot water supply would be taken to all points throughout the building.

Mechanical ventilation is proposed for the Assembly Hall, Council Chamber, Committee Rooms and Refreshment Room. This would include dry screen, wet washers, pre-heating and main heating coils. There would be thermostatic control and an air volume to give not less than 1,000 cubic feet per person per hour, or a temperature rise between inlet and outlet of 10°, whichever is the greatest requirement. Extraction by motor-driven fans would be taken through ducts fixed in the roof space.

ESTIMATE OF COST

Assembly Hall Block— 648,991 cubic feet at 1s. 6d. per ft. cube	£48,673
Municipal Office Block— 864,177 cubic feet at 1s. 9d. per ft. cube	£75,615
Garage— 41,040 cubic feet at 7d. per ft. cube	£1,197
Allow for Removing Sub-station Plant	£2,500
Allow for Areas, Boundary Walls and Gates ..	£2,000
	£129,985

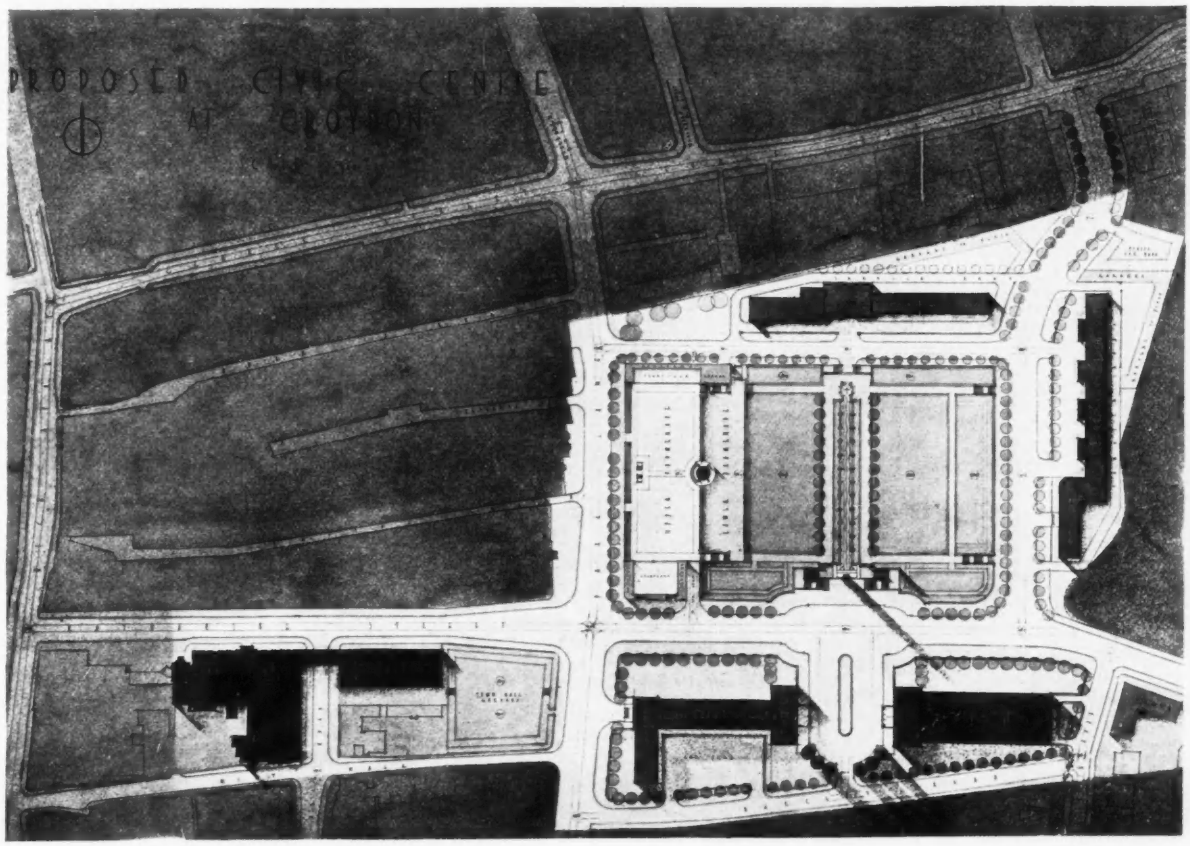
COMPETITION FOR CIVIC CENTRE, CROYDON



On this and the following page we reproduce the winning design, in the competition for a proposed civic centre at Croydon. The assessor was Dr. Thomas Adams, F.R.I.B.A. The full award of the assessor was given in our issue for June 6.

WINNING DESIGN BY F. W. HALFHIDE AND R. J. O'DONOGHUE

COMPETITION FOR CIVIC CENTRE, CROYDON



WINNING DESIGN: BY F. W. HALFHIDE AND R. J. O'DONOGHUE

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

CITY OF LONDON. *Street Widening.* In connection with the proposed rebuilding of 56 and 60 Gresham Street, the City of London Corporation recommends a scheme for widening that thoroughfare, at a cost of £87,645.

EASTCOTE. *Hospital Extension. The Trustees of* St. Vincent's Orthopædic Hospital, Eastcote, propose to extend the hospital, at an estimated cost of £25,000.

IVER. *Studios.* The British National Pictures, Golden Square, London, have decided to proceed immediately with the work of erecting film studios at Heatherden Hall, Iver Heath. The scheme is estimated to cost £250,000 and will be carried out by Messrs. Henry Boot & Co., Ltd.

SOUTH HARROW. *Houses and Flats.* The U.D.C. has approved plans submitted by P. H. Edwards, on behalf of C. W. and W. Harding (London), Ltd., for the erection of 382 houses on the Earlsmead Estate. Other plans approved were : 141 flats at Alexandra Avenue, by T. F. Nash, Ltd. ; and 20 flats at Lower Road, by F. H. Shearley.

TEDDINGTON. *Maisonettes.* The U.D.C. has instructed the surveyor to prepare plans for the erection of 20 maisonettes on three sites.

SOUTHERN COUNTIES

HASTINGS. *School.* The Education Committee has acquired a site in Red Lake, Ore, for the erection of an elementary school.

HASTINGS. *Houses, etc.* Plans passed by the Corporation : Three houses, Frederick Road, for Mr. F. W. Southwell ; six houses, Mildenhall Drive, for Messrs. Fryer and Sons ; two shops and flats, Battle Road, for Messrs. Manser and Stevenson ; six houses and shop and house, Mildenhall Drive, for Mr. J. S. D. Hicks ; eight houses, Park Drive, for Mr. A. Radcliffe ; nurses' hostel, Buchanan Hospital, St. Leonards, for Messrs. H. Ward, Son and Wray ; reconstruction, Royal Sussex Arms, Frederick Road, for Mr. J. Thompson.

OXFORD. *Cinema.* The Corporation has approved preliminary plans submitted by the Oxfordshire and Berkshire Cinemas, Ltd., for the erection of a cinema—the Regal—in George Street.

OXFORD. *Houses, etc.* Plans passed by the Corporation : 14 houses, Iffley Turn estate, for Mr. W. H. Walker ; additions, St. Giles' Parish Hall, St. Giles' Street, for Vicar ; four houses, King's Cross Road, for Mr. D. Mealing ; two houses, Ramsay Road, for Mr. G. Coppock ; house, Five Mile Drive, for Mr. C. E. Newling ; eight houses, Wharton Road, for Fernhill Building Co., Ltd. ; six houses, Iffley Turn estate, for Cowley Estate Co.

PORTSMOUTH. *Houses, etc.* Plans passed by the Corporation : 26 houses, Highbury Grove, for Messrs. G. and W. Mitchell ; two houses, Hilldown Avenue, for Victory Housing Society, Ltd. ; additions, Cathedral, High Street, for Bishop of Portsmouth ; bank, London Road, for Westminster Bank, Ltd. ; seven houses, Southdown Road, for Mr. W. W. E. Ekers, house, Bernard Avenue, for Messrs. Brown and Fuller.

SWINDON. *School.* The Education Committee is to erect a secondary school at Crowdy's Hill.

SWINDON. *Houses, etc.* Plans passed by the Corporation : 71 houses, Dean Street and Birch Street, for Sir John Brown ; three houses, off Carlisle Avenue, for Messrs. E. H. Bradley and Sons ; 79 houses, off Drove Road, for Mr. A. J. Colborne.

SOUTH-WESTERN COUNTIES

PLYMOUTH. *Houses, etc.* Plans passed by the Corporation ; 58 houses, Trefusis estate, Laira, for Messrs. Cohen and Fredman ; 191 houses and 20 flats, Moor Farm estate, for Corporation Housing Committee ; 11 houses, Beauchamp Road, for Mr. C. R. Tozer ; eight houses, Peverell Terrace, for Messrs. Hill and Lang ; eight houses, Brancker Road, for Mr. A. G. Blatchford ; four houses, Tavistock Road, for Mr. R. Pearse ; nine houses, Mollison Road, for Messrs. Searle and Son ; six houses, York Road, for Mr. J. W. Binmore ; motor showroom, Prospect Place, for Mr. R. Gulley ; 27 houses, Mainstone Avenue, for Miss L. Cohen ; school, Barne estate, St. Budeaux, for Catholic Community ; hotel, Moon Street, Devonport, for Messrs. H. and G. Simonds ; six flats, James Street, for Mr. D. Fredman.

PLYMOUTH. *Abattoir, etc.* The Corporation porposes during the year to proceed with the abattoir scheme, at a cost of £40,000 ; and alterations and extensions at the Guildhall and municipal offices, at a cost of £35,500.

MIDLAND COUNTIES

DUDLEY. *Cinema.* The Corporation has asked the Plaza Co. to submit revised plans for the construction of a cinema in Birmingham Road.

WEST BROMWICH. *Houses and Bungalows.* The Corporation is to erect 100 houses and eight bungalows at the Hateley Heath Estate and 17 on the Hambletts Estate.

NORTHERN COUNTIES

BLACKPOOL. *Houses, etc.* Plans passed by the Corporation : Two houses, Devonshire Road, for Mr. L. Helliwell ; four houses, Harrington

(*Continued on page xl*)

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	Aberdare ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	Banbury ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on-Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton	N.W. Counties	1 5½	1 1½
A	Boston.. ..	Mid. Counties	1 4	1 0
A_2	Bournemouth..	S. Counties	1 4½	1 0½
B_2	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M.	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol.. ..	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent ..	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	Cambridge ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff.. ..	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley ..	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	Darlington ..	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee	Scotland	1 5½	1 1½
A	Durham ..	N.E. Coast	1 5½	1 1½
A_2	Eastbourne ..	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	Felixstowe ..	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S.W. Counties	1 2½	11
A	Gateshead ..	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W.Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	Halifax	Yorkshire	1 5½	1 1½
A	Hanley	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	Ilkley	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	Jarrow	N.E. Coast	1 5½	1 1½
A	Keighley ..	Yorkshire	1 5½	1 1½
A_2	Kendal ..	N.W. Counties	1 4	1 0
A_2	Keswick ..	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	Lancaster ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12-15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough ..	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	Macclesfield	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N. E. Coast	1 5½	1 1½
A_2	Middlewich ..	N. W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	Nantwich ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson ..	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid. Counties	1 5½	1 1½
A	Oakham ..	Mid. Counties	1 4	1 0
A	Oldham ..	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford ..	S. Counties	1 5	1 0½
A	Paisley ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_2	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	Queensferry	N.W. Counties	1 5½	1 1½
A_2	Reading ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby ..	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	St. Albans ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough ..	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	Tamworth ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist...	N.E. Counties	1 5½	1 1½
A_2	Teignmouth ..	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_2	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District..	N.E. Coast	1 5½	1 1½
A	Wakefield ..	Yorkshire	1 5½	1 1½
A	Walsall	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid. Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	Yarmouth ..	E. Counties	1 3½	11½
B	Yeovil	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger	"	1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
General Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	8
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4 ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
¾" " "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single Junctions	"	3	6	5	3
Double "	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¼" Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead Wool	lb.		6		—
Gaskin	"		5		—

BRICKLAYER

		£	s.	d.
Flettons	per M.	2	15	0
Grooved do.	"	2	17	0
Phorpres bricks	"	2	15	0
" Cellular bricks	"	2	15	0
Stocks, 1st quality	"	4	11	0
" 2nd "	"	4	2	6
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Brindles	"	7	0	0
" Bullnose	"	8	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	0
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midhurst White Facings	"	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	29	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

The following d/d F.O.R. at Nine Elms:

		s.	d.
Portland stone, Whitbed	F.C.	4	4½
" " Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" " Sawn templates	"	7	6
" " Paving, 2"	F.S.	1	8
" " " 3"	"	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24"×12" Duchesses	per M.	28	17	6
22"×12" Marchionesses	"	24	10	0
20"×10" Countesses	"	19	5	0
18"×10" Viscountesses	"	15	10	0
18"× 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20"×10" medium grey per 1,000 (actual)		21	11	6
" " green "	"	24	7	4
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each		9½	
" hand-made	"		10	
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" " 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak, plain American	" "	1	0
" Figured "	" "	1	3
" plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1
Deal floorings, ¾"	Sq.	18	6
" 1"	"	1	6
" 1¼"	"	1	2
" 1½"	"	1	5
" 1¾"	"	1	10
Deal matchings ¾"	"		14
" 1"	"		15
Rough boarding ¾"	"	1	4
" 1"	"		16
" 1¼"	"		18
Plywood, per ft. sup. Thickness ¼"	"	1	6

Qualities	¼" AA.	¼" A.	¼" B.	⅜" AA.	⅜" A.	⅜" B.	½" AA.	½" A.	½" B.	⅝" AA.	⅝" A.	⅝" B.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Birch	4	3	2	5	4	3	7½	6	4½	8½	7	6
Alder	3½	3	2	5	4	3	6½	5½	4½	8	7	6
Gaboon Mahogany	4	3	3	6½	5½	4½	9½	7½	–	1/0½	10	–
Figured Oak 1 side	8½	7	–	10	8	–	11½	–	–	1/6	–	–
Plain Oak 1 side	6½	6	–	7½	7	–	9½	–	–	1/–	–	–
Oregon Pine	5	4	–	5½	5	–	6	–	–	–	–	–

	d.
Scotch glue lb.	8

SMITH AND FOUNDER

Tubes and Fittings:

(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	½"	¾"	1"	1½"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23" long each	10	1/1	1/11	2/8	4/9
" 3"-11½" long "	7	9	1/3	1/8	3/–
Long screws, 12"-23½" long "	11	1/3	2/2	2/10	5/3
" " 3"M-½" long "	8	10	1/5	1/11	3/6
Bends "	8	11	1/7½	2/7½	5/2
Springs not socketed "	5	7	1/1½	1/11½	3/11
Socket unions "	2/–	3/–	5/6	6/9	10/–
Elbows, square "	10	1/1	1/6	2/2	4/3
Tees "	1/–	1/3	1/10	2/6	5/1
Crosses "	2/2	2/9	4/1	5/6	10/6
Plain sockets and nipples "	3	4	6	8	1/3
Diminished sockets "	4	6	9	1/–	2/–
Flanges "	9	1/–	1/4	1/9	2/9
Caps "	3½	5	8	1/–	2/–
Backnuts "	2	3	5	6	1/1
Iron main cocks "	1/6	2/3	4/2	5/4	11/6
" with brass plugs "	—	4/–	7/6	10/–	21/–

Discounts:

TUBES.	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½

FITTINGS.	Per cent.		Per cent.
Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued.*

		s.	d.
Rolled steel joists cut to length	cwt.	12	9
Mild steel reinforcing rods, ¾"	"	9	6
" " ⅝"	"	9	3
" " ½"	"	9	0
" " ⅜"	"	8	6
" " ¼"	"	8	6
" " 1"	"	8	6
" " 1¼"	"	8	6
" " 1½"	"	8	6

		4" s.	4" d.	6" s.	6" d.
Cast-iron rain-water pipes of ordinary thickness metal	F.R.	8		10	
Shoes	each	2	0	3	0
Anti-splash shoes	"	4	6	8	0
Boots	"	3	0	4	0
Bends	"	2	7	3	9
" with access door	"		—	6	3
Heads	"	4	0	5	0
Swan-necks up to 9" offsets	"	3	9	6	0
Plinth bends, 4½" to 6"	"	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal	F.R.	5		6	
Stop ends	each	6		6	
Angles	"	1	7	1	11
Obtuse angles	"	2	0	2	6
Outlets	"	1	9	2	3

PLUMBER

		s	d.
Lead, milled sheets	cwt.	19	6
" drawn pipes	"	19	0
" soil pipe	"	19	6
" scrap	"	11	6
Solder, plumbers'	lb.		9½
" fine do.	"	1	0
Copper, sheet	"		8½
" tubes	"		11

L.C.C. soil and waste pipes:	3" F.R.	4"	6"
Plain cast	1 0	1 2	2 6
Coated	" 1 1	1 3	2 8
Galvanized	" 2 0	2 6	3 6
Holderbats	each 3 10	4 0	4 9
Bends	" 3 9	5 3	10 3
Shoes	" 2 10	4 4	9 6
Heads	" 4 8	8 5	12 9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	3	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	9
Lath nails	lb.			3

GLAZIER

	s	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.			s. F.S.	2½
" " 26 oz.	"	"	"	3
Flemish, Arctic, Figures (white)*	"		"	7
Blazoned glasses	"		"	2 6
Reeded; Cross Reeded	"		"	11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite	"			6
Crown sheet glass (n/e 12 in. x 10 in.)	"			2 0
Flashed opals (white and coloured)	"	1 0	and 2	0
¼" rough cast; rolled plate	"			5½
¼" wired cast; wired rolled	"			9½
¼" Georgian wired cast	"			11

¼" Polished plate, n/e 1 ft.	"	†10 to	‡1	1
" " 2 "	"	†1 2 "	‡1	4
" " 4 "	"	†2 3 "	‡2	6
" " 8 "	"	†2 9 "	‡3	2
" " 20 "	"	†3 7 "	‡4	2
" " 45 "	"	†3 11 "	‡4	7
" " 100 "	"	†5 0 "	‡5	7

Vita glass, sheet, n/e 1 ft.	"			1	0
" " " 2 ft.	"			1	3
" " " over 2 ft.	"			1	9
" " plate, n/e 1 ft.	"			1	6
" " " 2 ft.	"			3	0
" " " 5 ft.	"			4	0
" " " 7 ft.	"			5	0
" " " 15 ft.	"			6	0
" " " over 15 ft.	"			7	6
"Calorex" sheet 21 oz., and 32 oz.	"	2 6	and 3	6	
" rough cast ¼" and ¾"	"		8½ " 1	0	
Putty, linseed oil	lb.			3	

* *Colours, 1d. F.S. extra.*

† *Ordinary glazing quality.* ‡ *Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	8	6
Linseed oil	gall.		2	3
Boiled oil	"		2	9
Turpentine	"		4	1½
Patent knotting	"		14	0
Distemper, washable	cwt.	2	6	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	firkin		3	0
Copal varnish	gall.		13	0
Flat varnish	"		14	0
Outside varnish	"		16	0
White enamel	"	1	15	0
Ready mixed paint	"		13	6
Brunswick black	"		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR	£	s.	d.
Digging over surface n/e 12" deep and cart away	Y.S.	2	9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.	8	6
" to form basement n/e 5' 0" and cart away	"	9	0
" " 10' 0" deep and cart away	"	9	6
" " 15' 0" deep and cart away	"	10	0
If in stiff clay add	"		6
If in underpinning	"	4	0
Planking and strutting to sides of excavation	F.S.	1	0
" " to pier holes	"		5
" " to trenches	"		5
" " extra, only if left in	"		3
Hardcore, filled in and rammed	Y.C.	10	0
Portland cement concrete in foundations (6-1)	"	1	6	0
" " (4-2-1)	"	1	12	6
" " underpinning	"	1	16	0
Finishing surface of concrete, space face	Y.S.			7

DRAINLAYER		4" s.	d.	6" s.	d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	P.R.	1	6	2	3
Extra, only for bends	Each	2	8	3	9
" junctions	"	3	9	4	6
Gullies and gratings	"	16	6	18	0
Cast iron drains, and laying and jointing	F.R.	4	9	6	9
Extra, only for bends	Each	10	6	15	6

BRICKLAYER	£	s.	d.
Brickwork, Flettons in lime mortar	Per Rod	26	10	0
" " in cement	"	27	12	6
" Stocks in cement	"	34	0	0
" Blues in cement	"	50	0	0
Extra only for circular on plan	"	2	0	0
" backing to masonry	"	1	10	0
" raising on old walls	"	2	0	0
" underpinning	"	5	10	0
Fair Face and pointing internally	F.S.			1½
Extra over fletton brickwork for picked stock facings and pointing	"			8
" " " red brick facings and pointing	"			11
" " " blue brick facings and pointing	"	1	4	
" " " glazed brick facings and pointing	"	3	6	
Tuck pointing	"			7½
Weather pointing in cement	"			3
Slate dampcourse	"			10
Vertical dampcourse	"	1	1	

ASPHALTER	s.	d.
½" Horizontal dampcourse	Y.S.	4	6
½" Vertical dampcourse	"	6	9
½" paving or flat	"	4	0
1" paving or flat	"	5	6
1" × 6" skirting	F.R.	1	0
Angle fillet	"		2
Rounded angle	"		2
Cesspools	Each	5	0

MASON	s.	d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17	9
Bath stone and do., all as last	"	13	6
Artificial stone and do	"	13	0
York stone templates, fixed complete	"	10	6
" thresholds	"	13	6
" sills	"	1	0	6

SLATER AND TILER	£	s.	d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3	10	0
Do., 18" × 9"	"	3	7	0
Do., 24" × 12"	"	3	17	0
Westmorland slating, laid with diminished courses	"	6	0	0
Tiling, best hand-made sand-faced la,id to a 4" gauge, nailed every fourth course	"	3	0	0
Do., all as last, but of machine-made tiles	"	2	16	0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	2	16	0
" " " " " (green)	"	4	15	0

CARPENTER AND JOINER	£	s.	d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2	2	6
Shuttering to sides and soffits of beams	F.S.			7
" to stanchions	"			7
" to staircases	"		1	6
Fir and fixing in wall plates, lintols, etc.	F.C.	3	9	
Fir framed in floors	"		4	6
" " roofs	"		6	6
" " trusses	"		7	6
" " partitions	"		8	6
½" deal sawn boarding and fixing to joists	Sqr.	1	14	6
1" " " " "	"	1	17	6
1½" " " " "	"	2	3	0
2½" × 2" fir battening for Countess slating	"		9	0
Do. for 4" gauge tiling	"		12	0
Stout feather-edged tilting fillet	F.R.			4½
Patent inodorous felt, 1 ply	Y.S.		2	3
" " " 2 "	"		2	9
" " " 3 "	"		3	3
Stout herringbone strutting to 9" joists	F.R.			10½
1" deal gutter boards and bearers	F.S.		1	2
1½" " " "	"		1	6
2" deal wrought rounded roll	F.R.			8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2	1	0
1½" do.	"	2	10	0
1¼" do.	"	2	17	0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.		1	6
1½" do.	"		1	9

CARPENTER AND JOINER—*continued*		s.	d.
1½" deal moulded sashes of average size	F.S.	1	9½
2" " " "	"	1	11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1½" pulley stiles, 1½" heads, 1" inside and outside linings, ⅝" parting beads, and with brass faced axle pulleys, etc., fixed complete		3	7
2" " " "	"	3	10
Extra only for moulded horns	Each		6
1½" deal four-panel square, both sides, door	F.S.	2	0
2" " " "	"	2	8
1½" " but moulded both sides	"	2	4
2" " " "	"	3	0
4" × 3" deal, rebated and moulded frames	F.R.	1	0
4½" × 3½" " "	"	1	4
1½" deal tongued and moulded window board, on and including deal bearers	F.S.	1	9
1½" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2	6
1½" deal moulded wall strings	"	2	1
1½" " outer strings	"	2	4
Ends of treads and risers housed to string	Each	1	9
3" × 2" deal moulded handrail	F.R.	1	3
1" × 1" deal balusters and housing each end	Each	2	0
1½" × 1½" " " "	"	2	9
3" × 3" deal wrought framed newels	F.R.	1	3
Extra only for newel caps	Each	6	0
Do., pendants	"	6	0

SMITH AND FOUNDER	£	s.	d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	16	6
Riveted plate or compound girders, and hoisting and fixing in position	"	1	0	6
Do., stanchions with riveted caps and bases and do.	"	19	0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	"	17	6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.			11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1	10	0

PLUMBER	£	s.	d.
Milled lead and labour in flats	cwt.	1	13	0
Do. in flashings	"	1	16	6
Do. in covering to turrets	"	2	4	0
Do. in soakers	"	1	8	6
Labour to welted edge	F.R.			3½
Open copper nailing	"			3
Close " "	"			4

	½" s.	d.	¾" s.	d.	1" s.	d.	1½" s.	d.	2" s.	d.	4" s.	d.
Lead service pipe and fixing with pipe hooks F.R.	10		1	0	1	3	2	0	2	10	—	
Do. soil pipe and fixing with cast lead tacks	—		—		—		—		—		5	6
Extra, only to bends Each	—		—		—		—		2	0	6	9
Do. to stop ends "	6½		8		9		11		1	0	—	
Boiler screws and unions "	3	3	3	9	5	0	8	0	—		—	
Lead traps "	—		—		—		6	3	8	9	—	
Screw down bib valves "	6	9	9	6	11	0	—		—		—	
Do. stop cocks "	7	0	9	6	12	6	—		—		—	

		s.	d.
4" cast-iron ½-rd. gutter and fixing	F.R.	1	0
Extra, only stop ends	Each	1	0
Do. angles	"	1	6
Do. outlets	"	2	9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1	2
Extra, only for shoes	Each	1	3
Do. for plain heads	"	5	6

PLASTERER AND TILING		s.	d.
Expanded metal lathing, small mesh	Y.S.	2	0
Do. in n/w to beams, stanchions, etc.	"	2	9
Lathing with sawn laths to ceilings	"	1	3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1	5
Do. vertical	"	1	7
Rough render on walls	"	1	2½
Render, float and set in lime and hair	"	1	9
Render and set in Sirapite	"	1	11
Render, backing in cement and sand, and set in Keene's cement	"	2	9
Extra, only if on lathing	"		4
Keene's cement, angle and arris	F.R.		6
Arris	"		
Rounded angle, small	"		3
Plain cornices in plaster, including dubbing out, per 1" girth	"		1½
1" granolithic pavings	Y.S.	3	6
1½" " "	"	4	6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17	6
9" × 3" " " " "	"	1	2	6
Extra, only for small quadrant angle	F.R.			8

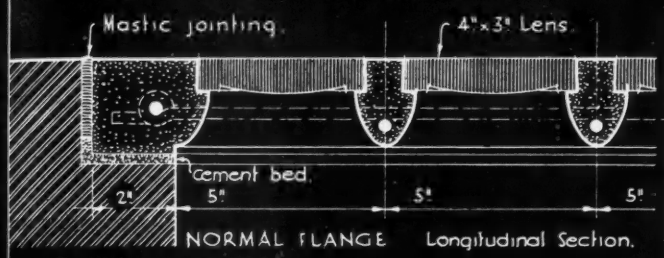
GLAZIER	s.	d.
21 oz. sheet glass and glazing with putty	F.S.		6½
26 oz. do. and do.	"		7½
Flemish, Arctic Figured (white) and glazing with putty	"	1	1
Cathedral glass and do.	"	1	2
Glazing only, British polished plate	"		7
Extra, only if in beads	"		2
Washleather	F.R.		4

PAINTER	s.	d
Clearcolle and whiten ceilings	Y.S.		6
Do. and distemper walls	"		9
Do. with washable distemper	"	1	1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3	3
Do. on woodwork	"	3	6
Do. on steelwork	"	3	0
Do. and brush grain and twice varnish	"	5	6
Stain and twice varnish woodwork	"	1	11
Stain and wax-polish woodwork	"	4	6
French polishing	F.S.	1	2
Stripping off old paper	Piece	2	0
Hanging ordinary paper	from "	2	9

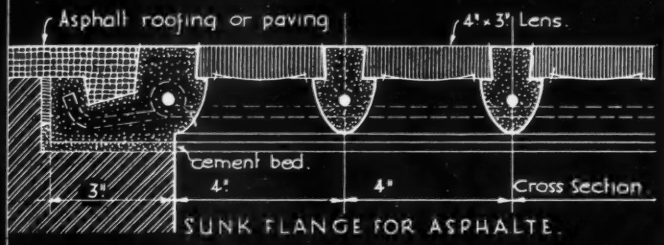
THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION.

Scale : ¼ Full size.

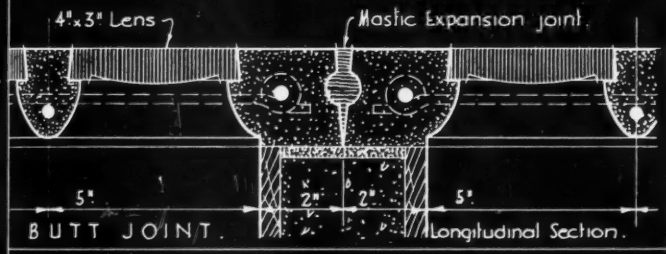
TWOEX PAVEMENT LIGHTS:



NORMAL FLANGE Longitudinal Section.

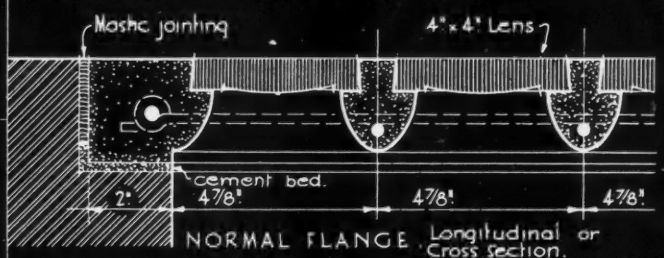


SUNK FLANGE FOR ASPHALTE.

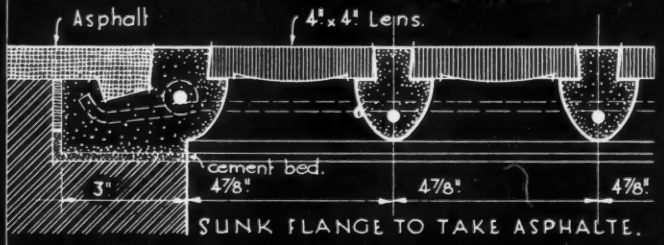


BUTT JOINT. Longitudinal Section.

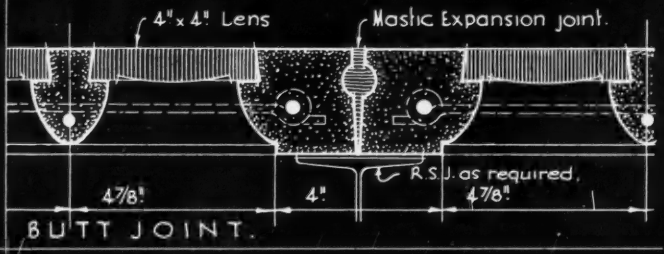
SEVENEX PAVEMENT LIGHTS:



NORMAL FLANGE Longitudinal or Cross Section.

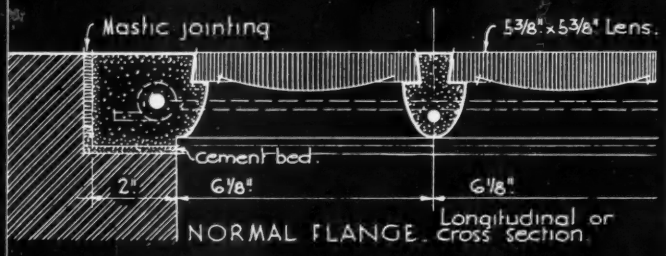


SUNK FLANGE TO TAKE ASPHALTE.

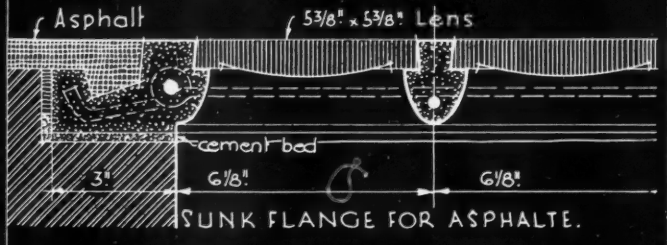


BUTT JOINT.

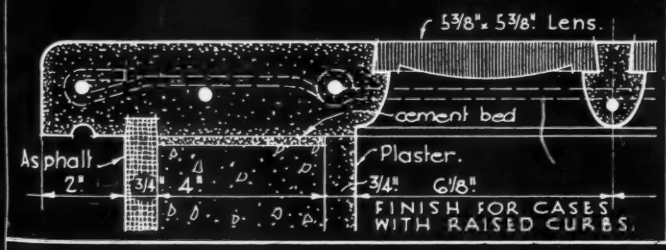
EIGHTEX FLOOR OR ROOF LIGHTS:



NORMAL FLANGE. Longitudinal or cross section.

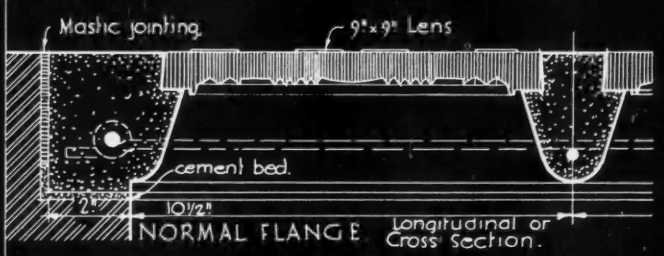


SUNK FLANGE FOR ASPHALTE.

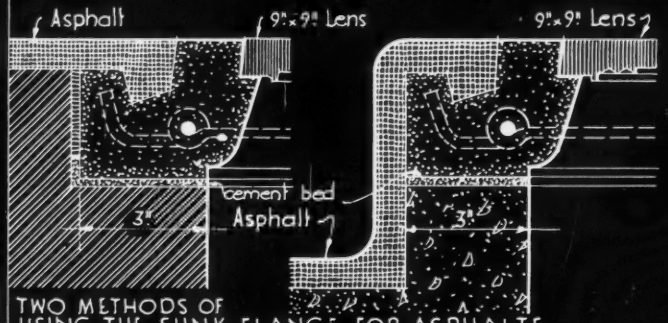


FINISH FOR CASES WITH RAISED CURBS.

NINEX FLOOR OR ROOF LIGHTS:



NORMAL FLANGE Longitudinal or Cross Section.



TWO METHODS OF USING THE SUNK FLANGE FOR ASPHALTE.

OVERALL SIZES OF FRAMES FOR ALL TYPES :
The overall width or length of the frame with
Normal flange = (C. to C. of bars in inches x number of lenses) + 4"
Sunk flange = (C. to C. of bars in inches x number of lenses) + 6"

Information from Haywards Limited.

INFORMATION SHEET: PAVEMENT LIGHTS AND ROOF LIGHTS. N°1.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1.

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INFORMATION SHEET

• 229 •

PAVEMENT AND ROOF LIGHTS

Product : "Crete-o-Lux" (Ferro-Concrete), "EX" Type

All types of Lights dealt with on this Sheet are of precast construction, and are recommended for use in preference to *in situ* made Lights, wherever possible, as the precast methods of manufacture take full advantage of the greater precision obtainable in a factory process, and permit special treatments for "curing," etc., which are not possible with *in situ* work.

Types.

The four types shown on this Sheet comprise the range of "EX" type Lights regularly made by the company, though many variations can be arranged to meet special circumstances.

"Twoex"	4 in. by 3 in. glasses	Pavement Lights
"Sevenex"	4 in. by 4 in. ,,	Pavement Lights
"Eightex"	$5\frac{3}{8}$ in. sqr. ,,	Floor and Roof Lights
"Ninex"	9 in. sqr. ,,	Floor and Roof Lights

(The "Ninex" can also be made with modification for double glazing.)

Strength and Design.

The sections given on this Sheet are all standard, and are designed for a safe loading up to 2 cwt. per ft. super in the case of pavement lights, and for safe load up to 1 cwt. per ft. super for floor and roof lights. Special ferro-concrete beams and supporting margins can be constructed to suit requirements.

Glass.

The lenses used throughout for the manufacture of "EX" type lights are of Haywards' "W" high quality glass of British manufacture which has been specially developed after much scientific research, to withstand "fledding" and other defects.

Sizes of Single Lights.

Used singly, or in ranges, the sizes vary considerably, and in the case of Pavement Lights, are largely dependent upon the limits permitted by Local Authorities. "EX" type lights are made to suit the requirements of the situation, but suggested maximum sizes of single lights for all normal purposes are given in the following table :—

Ex-Type	Maximum Square	Typical Rectangle	Maximum Length x Advisable Width
TWOEX	5′ 4″	4′ 6″ x 2′ 8″	6′ 2″ x 2′ 8″
SEVENEX	5′ $2\frac{1}{4}$″	4′ $4\frac{3}{4}$″ x 2′ $9\frac{1}{4}$″	6′ $0\frac{1}{2}$″ x 2′ $4\frac{3}{4}$″
EIGHTEX	5′ $11\frac{3}{8}$″	5′ $5\frac{1}{4}$″ x 4′ 5″	6′ $11\frac{3}{8}$″ x 4′ $11\frac{1}{8}$″
NINEX	7′ 4″	6′ $5\frac{1}{2}$″ x 5′ 7″	7′ 4″ x 5′ 7″

Note : Nearest round figures can be worked to, if preferred, by adjustment of outside margins.

Pavement Lights in courtyards, etc., subject to vehicular traffic, should be referred to the company, as in some cases iron framed Lights are more suitable.

Prices.

Prices vary from 7s. to 10s. per ft. super according to the nature and size of the job. Special quotations are given for each specific contract, and the makers prefer to deal with the circumstances of each job when quoting prices.

Manufacturers : Haywards, Ltd.

Address : Union Street, Borough, S.E.1
Telephone : Hop 6035 (five lines)

Glasgow Office: 141, West Regent St., Glasgow
Telephone : Douglas 1577

Manchester Office : 32, King Street West, Manchester
Telephone : City 4022

Birmingham Office : 121, Colmore Row, Birmingham
Telephone : Central 5242

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ROOF INSULATION ONLY :

COMPARATIVE EFFECTS ON FUEL CONSUMPTION & HEATING PLANT.

DATA USED IN THE CALCULATIONS:

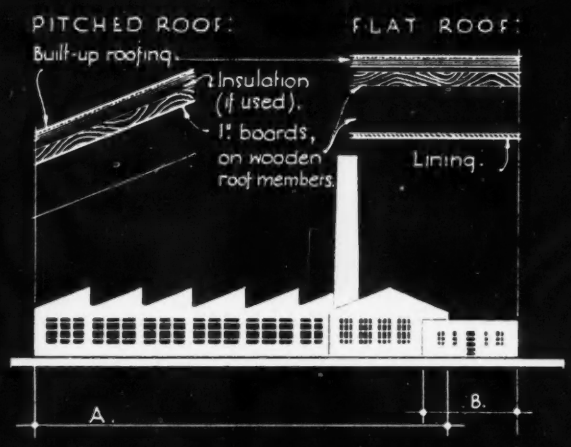
Average EXTERNAL temperature, October 1st to April 30th ..... 43°F.
Minimum EXTERNAL temperature, ... 30°F.

THERMAL CONDUCTIVITY (B.T.U's per hour per sq. ft. per °F. for 1" of thickness).
Tentest: (N.P.L. test) ..... 0·38.

TRANSMISSION COEFFICIENTS:
Pitched roof of built-up roofing on 1" rough boarding ..... 0·485.
ditto, with 5/8" Tentest insulation: ..... 0·27.

Flat roof of built-up roofing on 1" rough boarding: ..... 0·485.
ditto, with 3/16" Asbestos c'm't sheet lining: ..... 0·33.
ditto, with 5/8" Tentest insulation: ..... 0·216.

Diagram showing the sections A & B and the roof construction considered in this analysis :



ANALYSIS OF TEMPERATURE REQUIREMENTS :

SECTION OF BUILDING.	TYPE OF ROOF.	ROOF CONSTRUCTION.	*SQ. FEET OF ROOF INSULATION.	AVERAGE HEIGHT ABOVE FLOOR.	DITTO ABOVE BREATHING LINE (5'0").	TEMP. AT BREATHING LINE.	2° RISE FOR EACH FOOT OF HEIGHT.	AVERAGE TEMP. AT ROOF.	TEMP. DIFF. INTERNAL & EXTERNAL max.	TEMP. DIFF. INTERNAL & EXTERNAL av.
A.	Pitched.	See diagrams above.	20,000.	22 Feet.	17 Feet.	55° F.	19° F.	74° F.	44° F.	31° F.
B.	Flat.		3,000.	10 Feet.	5 Feet.	62° F.	6° F.	68° F.	38° F.	25° F.

* figures given represent total unglazed area of the roof.

NOTE : An annual heating period of 5000 hours has been assumed (October 1st to April 30th) with an effective heating capacity of 6000 B.T.U's per pound of fuel and a heat output from hot water pipes & radiators of 160 B.T.U's per hour per square foot.

ANALYSIS OF INSULATION :

SECTION A. UNINSULATED	SECTION A. 5/8" TENTEST.		SECTION B. 5/8" TENTEST.	SECTION B. 3/16" asbestos cement.	SECTION B. UNLINED.
	£ S D	CAPITAL COST OF ROOF INSULATION, Asbestos cement lining at 1/0¼ per sq. yd., tentest at 1/9½ per sq. yard for 20,000 sq. feet.	£ S D	£ S D	
•	199 1 6		29 17 3	17 0 4	•
		ANNUAL FUEL CONSUMPTION,			
111·1.	62·0	in tons of coal.	6·03	9·21	13·53
£ S D	£ S D	VALUE OF FUEL CONSUMED,	£ S D	£ S D	£ S D
138 17 6	77 10 0	at 25/- a ton.	7 10 9	11 10 3	16 18 3
	£ S D	SAVING IN COST OF FUEL PER YEAR,	£ S D	£ S D	
•	61 7 6	over uninsulated roof.	9 7 6	5 8 0	•
£ S D	£ S D	CAPITAL COST OF HEATING INSTALLATION,	£ S D	£ S D	£ S D
600 3 9	334 2 6	at 4/6 per sq. ft. of heating surface.	34 12 6	52 18 1	77 15 0
	£ S D	SAVING IN CAPITAL COST OF ABOVE,	£ S D	£ S D	
•	266 1 3	over uninsulated roof.	43 2 6	24 16 11	•

Information from the Tentest Fibre Board Co. Ltd. (2)

INFORMATION SHEET: COMPARATIVE THERMAL INSULATION OF BUILDINGS.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 · Ola & Bayne

Supplement to THE ARCHITECTS' JOURNAL for June 20, 1935

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INFORMATION SHEET

• 230 •

THERMAL INSULATION

Product : Tentest Fibre Board

General.

This is the second of a series of Sheets in which the insulating value of various forms of construction are being analysed.

For this purpose a common type of building has been taken ; a factory having a small office block and a larger workshop.

This typical building will also form the basis on which all succeeding Sheets will be calculated ; the analysis given on one Sheet will therefore be comparable with those given on any other Sheet.

As will be seen on this Sheet, only the roofs of the buildings are dealt with, as it is intended to analyse in this way various types of roof construction, and, separately, various types of wall construction.

This method, by separating entirely the calculations for the roof from those for the walls, will allow the figures for any type of roof to be used in conjunction with the figures for any type of wall, in order to determine the combined effect.

Basis of Calculations :

The figures used as the basis of these calculations are set out on the face of this Sheet, and normal practice and figures have been followed throughout.

Average Temperature at Roof : The temperature of the air at the roof increases with the height of the roof by 2 per cent. for each foot of height above the breathing line.

Annual Fuel Consumption.

The fuel consumptions given are based on the calculations given in the tables opposite.

The previous Sheet in this series was No. 220.

Lining :

It will be noticed that in giving the cost of insulation, variations in the cost of fixing have not been taken into account, the price given being the cost of the material itself.

Information from : The Tentest Fibre Board Co., Ltd.

Address : Astor House, Aldwych, London, W.C.2.

Telephone : Holborn 8018

Fuel Consumption for One Fuel-Year.

$$\text{Fuel consumption in tons} = \frac{\text{Area in sq. ft.} \times \text{transmission Coeff.} \times \text{Average Temp. difference} \times \text{hours per year.}}{\text{B.T.U. per lb. of fuel} \times 2{,}240.}$$

Section A.

Pitched roof uninsulated ...	$\frac{20{,}000 \times 0{\cdot}485 \times 31 \times 5{,}000}{6{,}000 \times 2{,}240}$	= 111·1 tons
Pitched roof with $\frac{1}{2}$ in. Tentest insulation	$\frac{20{,}000 \times 0{\cdot}27 \times 31 \times 5{,}000}{6{,}000 \times 2{,}240}$	= 62 tons.

Section B.

Flat roof unlined	$\frac{3{,}000 \times 0{\cdot}485 \times 25 \times 5{,}000}{6{,}000 \times 2{,}240}$	= 13·53 tons.
Flat roof with $\frac{3}{16}$ in. Asbestos cement lining	$\frac{3{,}000 \times 0{\cdot}33 \times 25 \times 5{,}000}{6{,}000 \times 2{,}240}$	= 9·21 tons.
Flat roof with $\frac{1}{2}$ in. Tentest Lining	$\frac{3{,}000 \times 0{\cdot}216 \times 25 \times 5{,}000}{6{,}000 \times 2{,}240}$	= 6·03 tons.

Capital cost of Heating Installation (calculated for the roof only)

$$\text{Capital Cost} = \frac{\text{Area in sq. ft.} \times \text{Transmission Coeff.} \times \text{Max. Temp. diff.} \times \text{cost per sq. ft.}}{\text{Heat Output per sq. ft. radiation.}}$$

Section A.

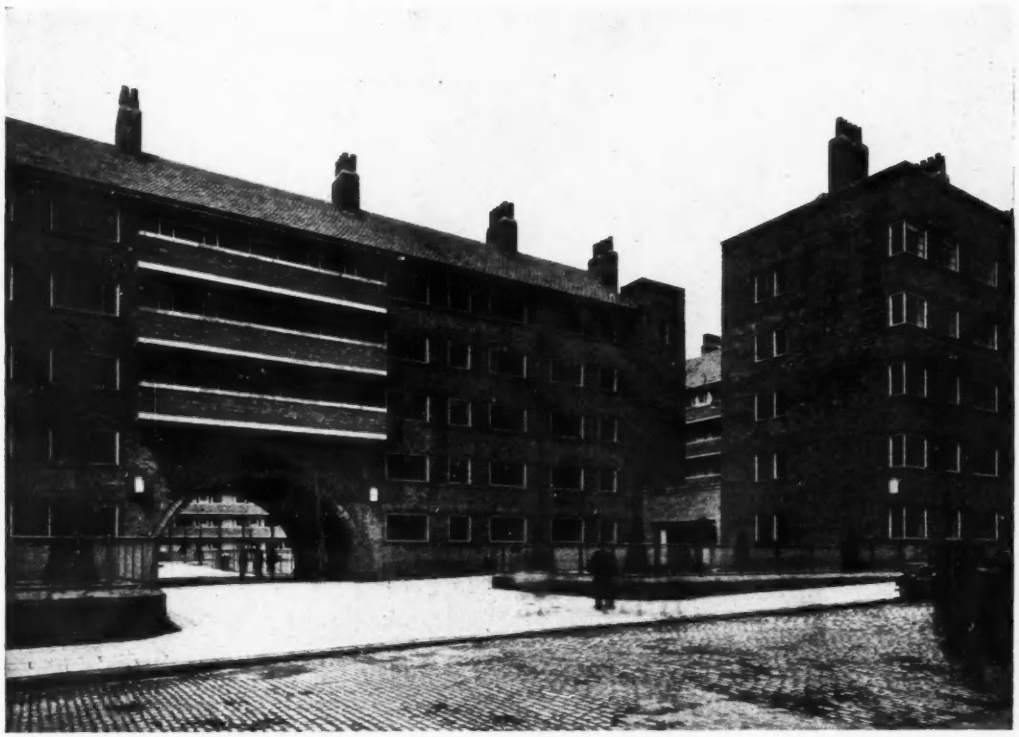
Capital cost for pitched roof uninsulated	$\frac{20{,}000 \times 0{\cdot}485 \times 44 \times 4{\cdot}5}{160 \times 20}$	= £600 3 9
Capital cost for pitched roof with $\frac{1}{2}$ in. Tentest insulation	$\frac{120{,}000 \times 0{\cdot}27 \times 44 \times 4{\cdot}5}{160 \times 20}$	= £334 2 6

Section B.

Flat roof uninsulated ...	$\frac{3{,}000 \times 0{\cdot}485 \times 38 \times 4{\cdot}5}{160 \times 20}$	= £77 15 0
Flat roof with $\frac{3}{16}$ in. asbestos cement lining	$\frac{3{,}000 \times 0{\cdot}33 \times 38 \times 4{\cdot}5}{160 \times 20}$	= £52 18 1
Flat roof with $\frac{1}{2}$ in. Tentest Lining	$\frac{3{,}000 \times 0{\cdot}216 \times 38 \times 4{\cdot}5}{160 \times 20}$	= £34 12 6

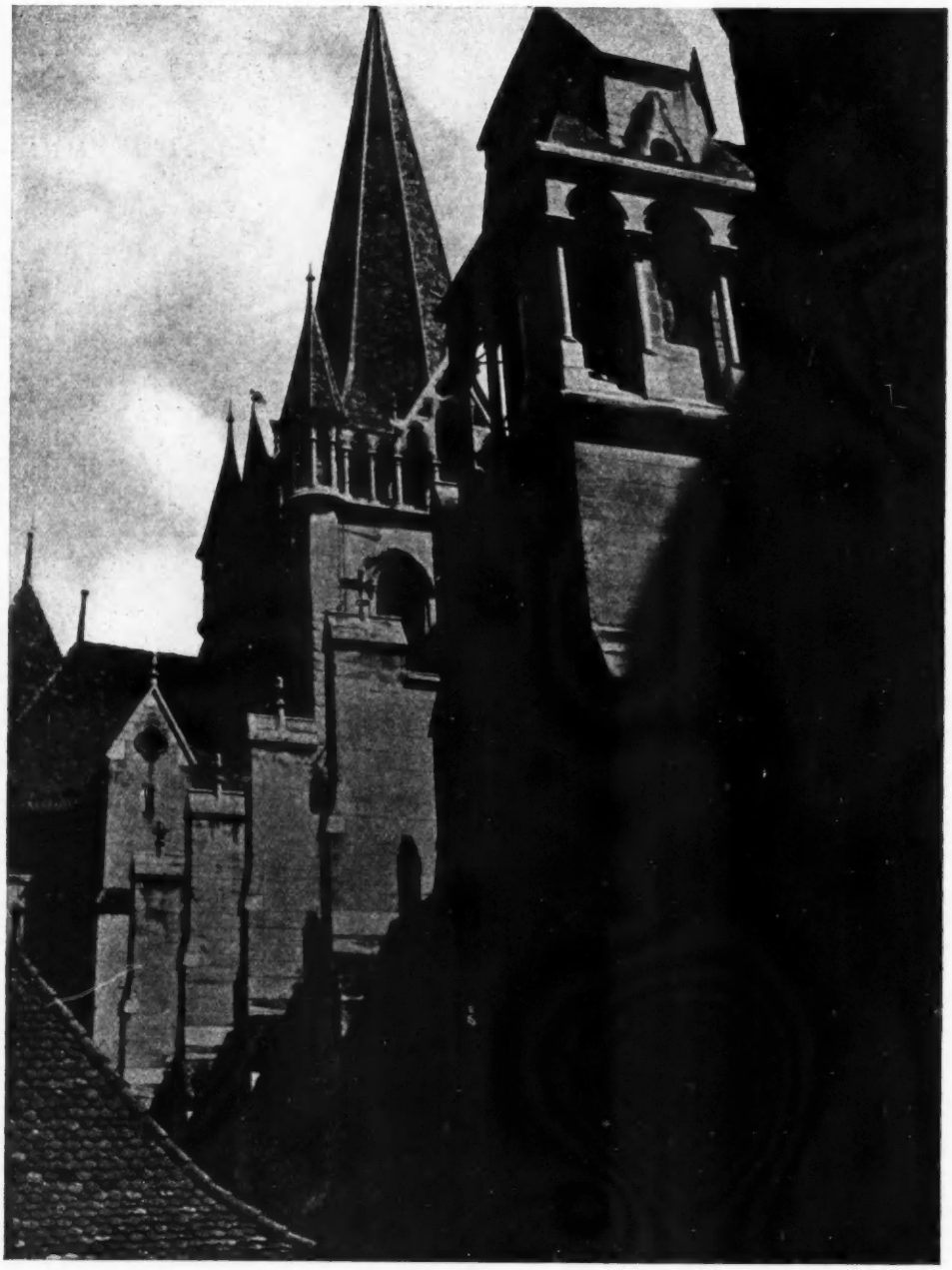
THE PROGRESS OF HOUSING

NEW FLATS AT LIVERPOOL



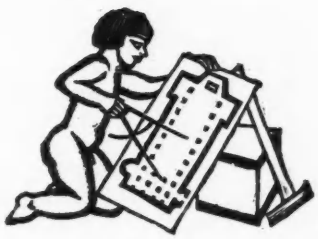
THE last and largest section of the St. Andrew's Gardens Estate of the Liverpool housing authorities was opened last Friday by Sir Kingsley Wood, the new Minister of Health. The complete scheme provides accommodation for 316 families, chiefly in three-bedroom flats at rents ranging from 7s. 8d. to 8s. 8d. per week.

The photograph shows a detail of the entrance archway between the return ends of the 122 ft. radius horse-shoe block which forms the main architectural feature of the group. The architect is L. H. Keay, Director of Housing.



THE EXPRESSION OF STRUCTURE

The Cathedral of Lausanne, commenced in 1175 and completed one hundred years later, portrays a transitional stage in the absorption and development of external influences into a native structural tradition. Still retaining a Romanesque form allied to the churches both of Burgundy and Provence, the building has begun to show in its external detail the structural freedom of later Gothic. The photograph is of the south wall buttresses, looking west, towards the central tower above the crossing.



B . I . N . C .

BEHIND these initials there lies an idea which will be understood and appreciated, and which should be passionately supported, by everyone whose work has any connection with building. The Building Industries National Council was first set up during the extreme depression in the building trades in 1932—a depression now, and gladly, almost entirely forgotten.

The object of the Council, supported by the more energetic of building interests, was then the intensely practical one of trying to find means to rid a huge industry of those slump conditions.

Since that time a wonderful change has come over the building outlook—of the moment. So wonderful indeed that the industry is now "suffering" from something very like a boom. And though it would be straining many points to attribute this roseate renaissance to the B.I.N.C., Mr. Bryant—with whose name must be joined those of Sydney Tatchell and Howard Robertson—has done work which is very valuable today, and which certainly will be found of enormous value within a very few years.

For the immediate moment happily busy, and all too forgetful, manufacturers may be found who consider that the Council has now done its work—or has had it done for it—and, after passing itself a suitable vote of thanks, should cease from functioning. Optimists are truly far more dangerous than the most mournful of pessimists.

Such manufacturers forget that the one fact of certain truth that emerges from the complications of modern economics is that slump and boom follow one another. And amongst the solid and lasting increases of national wealth which the building trades are providing today, speculators in building sites, concerned only with the seizing of quick profits, are already doing their best to bring about the next building slump of nineteen-thirty. . . . whatever it may be. That means the next building slump—unless its coming is prevented.

Mussolini's *obiter dictum*—"It is necessary above all to be pessimistic in victory" has a very pointed application for the building and associated trades. It prophesies that unless the industry organizes during prosperity to escape a succeeding slump, that slump will come—unpleasant for individual members of the building industries, and, perhaps more important, thoroughly bad for the country. Building, directly and indirectly, employs more people than any other single activity and is probably greater in effect upon the national fluctuations in employment. Thus the prosperity index of the nation is the condition of the building trades.

That this is now widely realized, and as a tribute to the work already done by the B.I.N.C., it may be mentioned that the Building Industries Survey, the monthly publication of the Council, is now greatly relied upon by financial houses as a guide to investment and in the preparing of economic forecasts.

We make these remarks because upon July 2 there will be held at the Royal Institute of British Architects a meeting of the B.I.N.C. This meeting and its date should be carefully noted. Its object is to raise funds which will be used for securing an increase in public works—so that by the beginning of a sound, carefully organized public building development at the moment when the present activity in private building has died down, the hitherto inevitable succeeding slump may be avoided. And in addition, the alternation of private with public works will secure for both the advantages of cheap prices and keenly competitive tendering, and for the building trades that continuous stability of turnover which it so much needs. The paradox of public works stagnation at a time of high building activity could not be more happily resolved.

The B.I.N.C. has more than justified the hopes of those who were originally concerned in its formation, and its research into public works is not merely of great interest; it is vital, if the present boom is to be maintained with reasonable steadiness.

We urge all manufacturers in the building and allied industries to support the Building Industries National Council not with kindly words alone, but with hard cash.

If they fail in an action which, at its lowest, is one of pure self-interest, they will have only themselves to thank if they are again faced with the trade conditions of 1932 when the present boom in the building of houses and flats comes to an end. That boom is already showing signs of instability.

Remember—July 2 at the R.I.B.A.!



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NOTES & TOPICS

GLASGOW

THE conference at Glasgow opened in an affable and homely way which did nobody any harm, but I am completely at a loss to relate the utterances of Professor Hughes, whose anti-streamline efforts received such wide publicity.

*

Imitation modernism is so dead an architectural horse that one becomes wearied of its flogging.

*

Fortunately later speakers, especially at the banquet, made some really constructive suggestions about the place of architecture in Glasgow. And Mr. Percy Thomas, on the eve of his first presidential year, made a fighting speech which impressed the whole Press both for its strong delivery and pointed content.

THE CONFERENCE AND THE CUNARDER

Following my remarks last week about the R.I.B.A. conference at Glasgow and the *Queen Mary*, I understand from an authoritative source that the Institute *did* apply for permission to arrange a visit to the vessel but were refused.

*

Which makes it none the less a pity; but not the fault of the R.I.B.A.

THE B.I.N.C. LUNCHEON

The luncheon given by B.I.N.C. to the architectural press last Friday was remarkable, I think, for one particular thing—that the moving spirits of B.I.N.C. appeared to realize that, although we are now entering on the full fruits of a boom period in building, that boom is itself the cause of a succeeding slump which is bound to happen unless the means are taken to avoid it. B.I.N.C. therefore proposes to take steps to prepare for the future and avoid the slump by means of studying the possibilities and repercussions of public works, and, at a meeting at the R.I.B.A. on July 2, the members of the building industry are to be asked to provide further news.

*

This talk about boom and slump periods is today commonplace—one might almost say trite. Why then, is it remarkable? Simply because to think of the future while catering for the present is now becoming commonplace in the building industry at least. This, in itself, is remarkable, in that it is a symptom of an entirely new point of view, and for this reason alone, even if there were no others, B.I.N.C. would be worth supporting.

*

Mr. Greville Montgomery referred in his speech to the builder's labourer at a luncheon who was asked to propose a vote of thanks and said in reply, "I am a bricklayer, my proper place is on the scaffold." The building industry, whose proper place is on the scaffold, unless it takes proper means to reorganize its activities, will experience a succession of short, sharp and extremely unpleasant shocks or drops.

*

Sir Raymond Unwin's remark in this respect was significant. In 1927, he said, when he was himself in a position to need to study these matters, their nearest estimate of the families likely to be in existence in 1931 was out by half a million, and he added, "That is the difference between a boom and a slump."

ANOTHER OBITUARY

I find I do not get hardened to repeated news of one patch after another of civilized London to be pulled down in the name of progress. The latest one affected me as sadly as they all do.

*

When I read in the papers the other day that the row of charming houses in Knightsbridge, opposite the top of Sloane Street, was to be demolished and replaced by a block of shops and flats I had to admit that my regret was largely æsthetic and sentimental. Those houses have long been the only relics of a time when Knightsbridge was a residential thoroughfare. Commerce is moving west and even such delightful architecture as that must submit to being submerged by it.

*

But when I read further that the site to be developed included one side of Park Row, which is also to be demolished, I was really shocked. Park Row has long been a favourite visiting place of mine. It was (I already say "was") the ideal corner with which to surprise delightfully the visitor who hardly knew London.

*

In case all my readers are not familiar with it, it is approached only from Knightsbridge. You walk up a narrow alley-way and find yourself in a miniature square enclosed on three sides by the most elegant Queen Anne houses. The houses were actually built by that proverbially defunct monarch to house her Ladies-in-Waiting, where she could keep an eye on their conduct from her palace of Kensington across the Park.

*

The houses facing the entrance to the square, of course, overlook the Park from their back windows. I can think of no more appropriate site for the small independent aristocratic house, which cannot yet be a complete anachronism—in a cul-de-sac between a smart shopping thoroughfare and the more beautiful end of Hyde Park.

*

Park Row is not to be built on, it may be argued; but



"Events of the Reign—No. 37": an architectural flavour with Gold Flake cigarettes. The Prince of Wales is shaking hands with Miss Elizabeth Scott, while Mr. Maurice Chesterton wears his orchid in the background.

four or five of its dozen or so miniature mansions are to go, and its character, balance and attractiveness destroyed forever by a contemporary (I won't say modern till I see it) neighbour perched on one of its shoulders.

*

And a depressing thing is that in not one of the press reports that I have read of this project is any regret shown. Without doubt we are a nation of shopkeepers. Anyway, I am very sorry about it, and I advise everyone who does not know it to visit Park Row while it is still there.

LE LIERRE

One does not usually associate the writer of original architectural philosophy with that lighter touch of human insight which everyone appreciates. It was therefore with some delight that I heard of one of Le Corbusier's actions, and remark, when he recently visited the Crystal Palace.

*

He detached himself from the party to investigate an obelisk of ivy which stood upon the terrace wall, and found it was covering a copy of some naked Venus. No, not quite covering, for there was an uncovered area in the centre at the back of the marble. Corbusier was equal to the occasion and rearranged the ivy to conceal the exposed anatomy. . . . "In Paris, yes; in London, but no," he murmured, and quietly rejoined the party.

LAVENHAM

My week-end wanderings took me into Suffolk, where I saw again that fine example of an English flint and timber village, Lavenham. My previous visit, I remember, found the place *en fête* over the return and re-erection of one of its finest fifteenth-century cottages. The cottage had been bought for transportation to America and was well on the way to Southampton when the local army and navy (retired) galvanized the village to action and chase.

*

At the point of blunderbuss and marline-spike the lorry drivers, then somewhere in Hampshire, were induced to turn round and bring the bits of weathered timber and leaded glass back to Suffolk. The cottage now toes the building line with seemly patience, though it wears the knowing twinkle of the rustic travelled beyond the county.

*

And the whole village twinkles, too, with electric light, distributed by the merriest company of crooked timber poles which can ever have caroused in an English timber village.

R.I.B.A. ELECTIONS

I see that over 2,000 members this year used their voting papers. This represents an increase of about one-third on the usual number of active voters, but only an increase of about 7 per cent. of the total membership of the R.I.B.A.

*

Even this increase in the number of architects who have shown willingness to help in the affairs of their own profession is distinctly promising.

*

A glance at the names of the new Council and Standing Committees, too, shows that the members voting for the first time this year have already pulled their full weight.

*

But an increase of 7 per cent. is not yet good enough.

THE "ROME"

What is wrong with the Rome Scholarship in Architecture? This question has been asked by many architects since the result of this year's competition was published last week. The Scholarship has not this year been awarded.

*

Some three or four years ago I remember that Mr. A. J. Davis, at the public criticism of the Rome drawings for the year, made an impassioned appeal for more reality in the work, for an overthrow of that extravagance of planning manner and elaboration of technique which had very stupidly become known as the Prix-de-Rome style.

*

No one seems to have taken any notice of that appeal, and even the programmes of the last few competitions have encouraged the unfortunate students to submerge their architecture under a morass of outmoded competition technique.

TORQUAY

Over the signature of the Borough Surveyor, I notice that Torquay is advertising for a qualified architectural assistant "in connection with a scheme for a New Library and Town Hall extensions, etc."

*

A salary at the rate of £220 a year is offered, "and subject to satisfactory service will rise by annual increments of £20 to £260 per annum." It all sounds most unsatisfactory.

ENDURING INFORMATION

I hear that Sir John Burnet, Tait, and Lorne's Information Book has gone into yet another edition—the third—and I have received encouraging reports concerning the new issue; or rather, and more especially, concerning the hardihood of the new Rexine covering.

*

Prolonged experiment has apparently resulted in a clothing which can stand up to the most temperamental and vigorous search for elusive enlightenment. Squeezing into a pocket or occasional use as a missile alike leave this covering glossily unimpressed.

*

In its way it is quite a triumph of exact specification for a purpose.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

"It is necessary above all to be pessimistic in victory" 977

Many local authorities were not educated to the value of buildings they wanted to destroy 980

Ninety per cent. of modern work in art . . . . is pure rubbish 982

Anybody can rebuild the outskirts, but it requires a Corporation to rebuild and re-plan within the city 983

Sand lime bricks as facings 985

THE NEW WESTMINSTER HOSPITAL

The foundation stone of the first block of buildings to be erected for the New Westminster Hospital was laid yesterday by the Prince of Wales.

The hospital, with its Nurses' Home and Medical School, will be erected on two sites, east and west of St. John's Gardens, a public open space bounded on one side by Horseferry Road and on the other by Page Street.

The total cost of this gigantic rebuilding scheme will be in the neighbourhood of £750,000. The existing hospital sites are, of course, of great value, but in order to complete the whole scheme it will be necessary to secure a sum of £250,000, which will enable the governors to open their new hospital free of debt. The whole scheme, for which the architects are Messrs. Adams, Holden and Pearson, will take about four years to complete.

REHOUSING IN SOUTHWARK

The Lord Mayor of London last week laid the foundation stone of the new flats being erected by the Bridge-House Estates Committee of the Corporation in Silex Street, Southwark. There are to be four blocks, designed by Mr. Victor Wilkins, F.R.I.B.A., and they will accommodate nearly 300 persons. All living and bedrooms face south, south-east or south-west.

DANGERS OF THE "OLDE WORLDE"

"The building tradition is in danger of being lost unless those who preserve and those who build compose their differences and rescue it," said Mr. W. G. Holford, senior lecturer at the Liverpool University School of Architecture, in an address last week at the annual meeting of the S.P.A.B.

Every truly modern architect, he added, would agree with the society in its dislike of sham and even extend his denunciation to cover that shameful stuff that might be described as pseudo-modern or modernistic architecture. This trickery mocked properly traditional work and brought modern architecture into discredit.

It was so long since there was an accepted standard of criticism in England that the public had come to demand imitation rather than the original. The man who was content with any pseudo-artistic surroundings provided they had a comfortable "olde worlde" look, presented a pretty problem in architectural education.

Lord Esher, who presided, said the housing subsidy had tempted local authorities to pull down buildings which should be reconditioned. Many local authorities were not educated to the value of buildings they wanted to destroy. No doubt time would educate them, but the danger was that meanwhile the buildings would have been pulled down.

THE ARCHITECTS' DIARY

Thursday, June 27

ROYAL ACADEMY, *Burlington House, Piccadilly, W.1. Summer Exhibition. Open until August 10. 9 a.m. to 7 p.m.*

ANTI-NOISE LEAGUE. *Conference. At Science Museum, South Kensington; 11.30 a.m. "The Law and Noise," by H. G. Strauss; 3 p.m., "Housing and Noise," by Hope Bagenal, A.R.I.B.A.*

R.I.B.A., *66 Portland Place, W.1. Exhibition of Architects' Working Drawings. Until June 29. 10 a.m. to 8 p.m. Saturdays 5 p.m.*

R.I.B.A. EXHIBITION OF INTERNATIONAL ARCHITECTURE. *At the Walker Art Gallery, Liverpool. Until June 30*

L.C.C. CENTRAL SCHOOL OF ARTS AND CRAFTS, *Southampton Row, W.C.1. Annual Exhibition. Until June 27. 10 a.m. to 8 p.m.*

Saturday, June 29

I.A.A.S. *Visit to Research and Training Centre of the Gas Light and Coke Company at Watson House, Nine Elms. 2.30 p.m.*

Monday, July 1

SOCIETY OF CHEMICAL INDUSTRY. *Annual Meeting and Conference. At Central Station Hotel, Glasgow. Until July 6.*

DECORATING THE "QUEEN MARY"

Messrs. Bainbridge Copnall, James Woodford and Jan Juta, who were largely responsible for the sculpture and decorative glasswork of the new R.I.B.A. building, are among the artists chosen by the Cunard-White Star company to do decorative work for the new liner *Queen Mary*.

MANCHESTER FLATS PLAN

Manchester Corporation Housing Committee recommends the erection of 236 additional flats for the accommodation of displaced tenants of a slum area on a site formerly occupied by an ironworks at Ardwick. The scheme is estimated to cost £115,000.

SUSSEX RESORT SCHEME OPPOSED

Residents of West Wittering, Sussex, are strongly opposing a £200,000 scheme of development, to include a hotel and the construction of a golf course on reclaimed land, which a private promoter has drawn up. It is urged that the golf course would spoil the harbour and destroy a natural amenity. A meeting of residents last week urged the West Sussex County Council to obtain the view of an independent engineer before considering the scheme. The land in question is the east bank of the Chichester river between Wittering and Itchenor, and is, at the moment, completely unspoilt.

£100,000 HOVE IMPROVEMENT

Hove Town Council is to consider a sea-front improvement scheme estimated to cost £100,000. It is proposed to build over the site of the corporation baths and a gravel pit on the east side of the coastguard station an open-air swimming pool with sun terraces, sun lounge, tennis and squash courts, an indoor bowling green, a concert hall, and an underground car park.

A PICCADILLY CONTROVERSY?

There are prospects of an interesting "battle of the styles" in the appointment of Mr. Joseph Emberton, F.R.I.B.A., as architect of the large store that is to replace the old Geological Museum in Piccadilly. The site is Crown property and the advisory committee to the Commissioners of Crown Lands has advised that new buildings should, as regards height and general treatment, harmonize with the Crown property on the opposite side of Piccadilly. The building opposite the museum is Norman Shaw's Piccadilly Hotel.

LEVERHULME SCHOLARSHIPS IN ARCHITECTURE

The third Leverhulme scholarship in architecture for 1935 (value £200 a year for five years) tenable at the Architectural Association School of Architecture, has been awarded to Mr. Geoffrey Robson of the Dudley Grammar School, Dudley, Worcs. Mr. W. A. S. Doig, of Dundee, was placed second in the competition.

R.I.B.A. INTERMEDIATE EXAMINATION

The Intermediate Examination qualifying for election as Student, R.I.B.A., was held in London, Belfast, Edinburgh, Hull, Manchester and Plymouth, from the 24th to 30th May, 1935. Of the 207 candidates examined 94 passed and 113 were relegated. The successful candidates are as follows :—

C. H. Atkinson, E. T. Baldwin, E. W. Beaumont, C. Bellinger, S. B. Billing, C. Binks, J. Blackburn, S. Blank, L. R. Bradshaw, B. I. Briggs, E. Brittlebank, G. Bullimore, S. W. Chappell, G. M. Clowes, D. M. Craig, J. W. Davidson, R. V. Davis, C. J. Dixon, A. Dorman, B. A. Elam, T. B. H. Ellis, B. Ferguson, S. H. Fisk, R. W. Foreman, J. S. Foster, H. A. Fraser-Spooner, A. G. Fudge, R. M. de Guérin, A. P. Gwynne, C. Hadfield, A. A. Haggar, S. C. Halbritter, R. J. Hannam, M. S. Hare, A. H. Hatt, G. H. Hawkins, F. O. Hayes, F. K. Hicklin, D. A. Hogben, R. Holtby, D. R. Humphrys, L. E. G. Hunt, R. W. Hurst, R. F. Hutchison, J. A. Jackson, F. W. Johnson, R. K. Kinton, R. G. K. de Kretser, R. A. Laker, J. W. Leathem, C. Lee, V. G. Lilley, S. C. Lock, W. J. Lovelace, H. W. Lovell, L. L. Luck, C. T. MacLynn, L. S. Middleton, D. B. Mills, E. D. Mills, W. R. Morris, G. K. Moss, A. Nicholls, L. C. North, W. G. Owen, R. S.



New buildings for Queens' College, Cambridge. This photograph of the block as it will appear on completion is from a perspective drawing by Hesketh Hubbard, and shows Silver Street Bridge and Queens' College upon the extreme right. The architect for the building is Mr. George Drinkwater.

Pardoe-Williams, G. Pearson, E. F. Peat, C. E. Peverley, F. R. Pite, H. J. Powell, E. J. Preece, D. H. S. Prince, R. Pye, W. G. Rymills, T. B. Sanders, E. C. R. Sandon, G. P. Scott, H. L. Searson, J. R. Sketchley, R. C. T. Steel, A. A. Thomas, W. F. Thomson, A. J. F. Vowell, D. Wagg, R. Whitaker, H. A. White, M. F. White, G. J. Whyte, J. C. Wilks, H. W. Woodnoth, C. E. D. Wooster, R. D. Wormald, A. M. J. Wright.

A CORRECTION

We regret that in our report of the case Fishenden v. Higgs and Hill Ltd., published in our issue for May 16, we omitted to state that Mr. John Swarbrick, F.R.I.B.A., M.INST.STRUCT.E., was responsible for preparing the daylight plans; also the model, which was used in connection with the case, was prepared under his direction.

COMPETITION NEWS

LIBRARY BLOCK, ACKWORTH SCHOOL, YORKS.

The result of the above limited competition is as follows:

Design placed first: Mr. H. H. Castle, A.R.I.B.A., of Lynthorpe, North Croft Grove, Ilkley, Yorks.

Design placed second: Mr. E. S. North, A.R.I.B.A., of 17 Featherstone Buildings, Holborn, W.C.1.

Design placed third: Mr. P. Allison, F.R.I.B.A., of 22 Orchard Street, W.1.

HARROW COUNCIL OFFICES

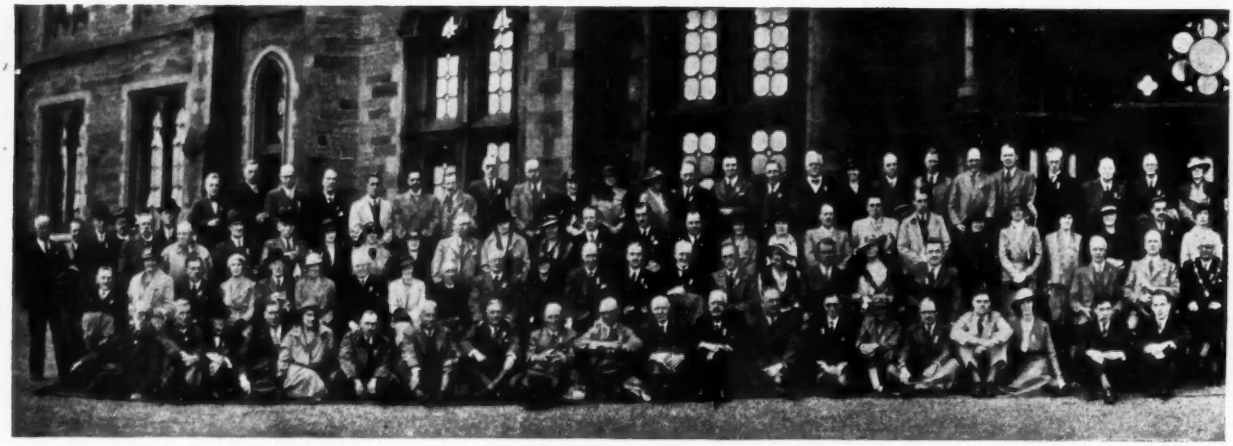
The Harrow Urban District Council, at a special meeting last week, decided to proceed with the scheme for the erection of new Council Offices and other buildings on the site of Kynaston Court. The council were recommended by a special sub-committee that designs be invited by open competition, promoted by the council under the regulations of the R.I.B.A. Two forms of competition were considered, but the sub-committee decided to recommend an open competition rather than to restrict the field; this was agreed to. The site has a frontage of 380 ft. to Boxtree Road, and 405 ft. to Uxbridge Road. The sub-committee will settle the conditions of the competition with the assessor, and the following figures give the approximate cost, based for purposes of calculation on an assumption that the building would cost £60,000: Assessors' fee, about £170; architects' fees, on basis of work not being proceeded with within twelve months, £900; second premium, £200; third premium, £150.

[*For Competitions Open, see page 942 of our issue for June 20.*]

THIS ARSHETECTURE



From a Manchester Store's catalogue.



Members attending the R.I.B.A. Annual Conference at Glasgow last week

R. I. B. A. CONFERENCE

GLASGOW

JUNE 20—JUNE 22

AT the inaugural meeting of the Conference held in the Fore Hall of Glasgow University on June 20, the Principal of the University, Sir Robert Rait, welcomed the members of the Conference.

Following are some extracts from the speeches made :

Sir Giles Gilbert Scott (President) : In art one cannot but be amazed at the amount of written or spoken comments that appear, without any apparent effect upon the quality of work produced by artists, except that it is rather worse than it was in days when men talked less.

In architecture there are usually two main schools of thought. If one tries to analyse the cause of this dissension it seems to me to be due, fundamentally, to the importance attached by different individuals to two qualities latent in every human being, the intellect and the emotions—derived, I suppose, from the conscious and the subconscious mind.

The present controversy of Modernism versus Traditionalism is the same issue under other names. Modernism, by its attempt to approach architecture purely from the functional and materialistic point of view, appeals to the scientific or thinking side of our minds, and by its extremism has made, by contrast, all Traditionalists appear " Romantics." The two schools have certain characteristics that differentiate them. The " Thinkers " who pride themselves on being scientific are essentially urban-minded ; they have developed a town mentality, and this is combined with an enthusiasm for machinery and its characteristics of smooth, hard finish, more in keeping with the character of a large town. Whereas the " Feelers " are more rural-minded and have a preference for the work of man, with its characteristics of roughness and texture, which they feel to be more in keeping with the roughness of nature. They feel that really modern architecture is not at home in rural surroundings ; its hard, mechanical smoothness seems ill at ease with the roughness of the earth. It is interesting to notice how the swing of the pendulum puts first one school in the ascendant and then the other. The modern approach is well expressed by Mr. Lorne, when he states that the modern architect " will have to approach his problem with the attitude of the scientist and be guided in his work by facts more than romantic sentimentalism."

" Use modern materials " is the correct slogan, I believe, but " Use common sense " seems to be the better one. Large span window openings are often an advantage, but I fear they are used when actually disadvantageous, merely because they conform with the modern formula that all buildings, especially their staircases, must have large areas of glass.

But modern developments have undoubtedly brought a breath of fresh air into what had become a stagnant architectural atmosphere; and now that the modern expression has affected most architects it is to be hoped that it will, by trial and error and elimination of mere stunts, gradually develop into a tradition enabling all architects to work in the same style as occurred before the break-up of tradition a century or so ago.

Glasgow has produced men who have had considerable influence upon developments of modern architectural thought, including Mackintosh, considered by some to be the first modernist, and from whom the pioneer Continental modernists derived inspiration. But has Glasgow, as a great and important city, taken advantage of the ability of her sons to make herself beautiful ? It requires more than a number of good buildings to make a beautiful city, and Glasgow has a number of very good buildings; but being, on the whole, a city of narrow streets and the buildings having no relation to anything in particular, they make but a small contribution to the general beauty of the city. Architects are powerless in this matter of planning and beautifying cities unless they are given opportunities to do so ; the initiative, the imagination, must come first from those who are in a position of control in the city and also those great captains of industry and great merchants of the nation. I only hope that Glasgow is giving an example in this matter worthy of a great city.

Sir John Stirling Maxwell : The position of the architect in this period of transition is as interesting as it is difficult, and I hope you will forgive me if instead of talking generalities I venture to say a word on this absorbing topic. Never before in the long history of your profession has the architect been called upon to meet so many new needs with so many new materials or been in a sense so completely emancipated from the past. Is this a misfortune or a great opportunity ? If an interested observer may attempt to answer this question I should be inclined to reply that it is a misfortune for the many but a great opportunity for the few who know how to use it.

Must there be a complete break with tradition ? I hope not. The architects who, faced with this dilemma, have thrown up the sponge and turned into engineers seem to some of us to have made a bad mistake. They have emancipated themselves from tradition. But have they not paid too dearly for their freedom ?

Professor T. Harold Hughes : I think 90 per cent. of modern work in art, music, painting and sculpture, is pure rubbish. I really think it is a disease, an insidious disease, and I think at this Conference we ought to try to take some steps to do something about it and lead the modern movement on to better lines. Can we evolve a new style in one generation ? History and common senese both say emphatically, No. The ancient Doric Temple of Olympia was completed 700 years B.C. The Doric temple, of similar plan and order but in its most perfect form, was not achieved until the building of the Parthenon in the year 438 B.C. It took three centuries more or less for men of enthusiasm, light and learning, to evolve a perfect form of dome, one of the ambitions of the Renaissance. In the past the evolution of a style has been a matter of not one, but of ten or even fifteen generations.

Have we progressed steadily, logically and reasonably in the right direction ? No. Common sense and ordered development have gone to the wall. We have been led away by the desire for novelty. We seem to have forgotten the traditions and natural developments of our own country.

What is the usual stock-in-trade of modern designers in domestic work ? A bald flatness, enormous chilly windows, with horizontal bars, generally pushed to the extreme angles of the building : lofty windows to force the contrast at intervals and a few balconies pushed in here and there with more horizontal bars as a source



The photograph was taken before the main entrance to the University.

of danger to the children who may climb them. If we cannot afford to employ the materials which the Continental architect has used then we imitate concrete in brick and plaster and whitewash it.

We have been moving too quickly—perhaps the natural result of the Great War. The great French wars introduced to our palates sherry and port. The last Great War has introduced to our tastes the less appetising Corbusier and Tony Garnier.

Three months' hard practical work mixing concrete and filling in beams could well be substituted in the training of architects for three years feeding on architectural journalism.

Sincerity and freedom from an affected modernism is what we want. A sincere modern architecture, slowly evolved, will still remain British, but, given a sound start, may develop a beauty of its own, a beauty equal to that of the Parthenon, Sancta Sophia or Amiens.

Mr. Percy Waldram : May I suggest that architects in the past, Wren, Cook and all those great men had to be engineers and to learn structural engineering with their own hands and with their own brains. I would urge with all the emphasis I can put into it that if we could only learn our structural engineering in the simple practical way that our predecessors in the past 200 or 300 years ago had to learn it by means of models and practice we will get over many of our difficulties, all our buildings would express themselves correctly in the way that the buildings in the Elizabethan era used the obvious means to obvious ends with the obvious resulting beauty. I think we architects could afford to devote a few Saturday afternoons to a few practical experiments. If a man has once taken a piece of timber and loaded it up with his own hands with bricks until it breaks, he knows more about the structural capacities of that marvellous material timber than all the textbooks, especially my own, can teach.

Mr. Henry Fletcher : You cannot turn back the clock of time and the spirit of adventure is one to be encouraged. What I am rather afraid of in the modern movement or rather in its exponents is their extreme æstheticism. Everybody remembers what was the result of the æstheticism of the Commonwealth of England. We have seen another example of the results of prohibition in America. Well, is there not some fear that if everything is cut out of building except the bare bones, they will presently be turning up in robes of most shocking and licentious ostentation? The pendulum always does swing. People embracing a new movement think it is not a pendulum, but it is a pendulum.

THE CONFERENCE BANQUET

The Banquet was held in the Central Station Hotel, Glasgow, on June 21. The President, Sir Giles Gilbert Scott, presided.

Mr. Percy Thomas, in proposing the toast of the City of Glasgow, said : Glasgow has always been associated in my mind with two great architects, "Greek Thomson" and Mackintosh. I wonder whether you in Glasgow think as much of these men and are as proud of them as we are outside your city, and as people are all over the continent of Europe.

When I was a young man—quite a long time ago—"Greek Thomson" was my architectural hero, and although architectural thought ' as changed a good deal since those days the work of Thomson and Mackintosh is still spoken of where architecture is mentioned all over the world. I feel that it is a great pity —I have been asking several of my friends here in Glasgow whether there is any permanent record of the work of Mackintosh, and I find there is not. I do with all respect throw this out as a suggestion to the local architectural chapter that before it is too late the works of Mackintosh should be collected and published in book form. I suppose at a gathering like this I oughtn't to refer to the present generation of architects, but I do want to say this, my Lord Provost, that you have architects in Glasgow, people well worthy to carry on the traditions of the two men I have mentioned. I do hope that whatever developments you may have in store you will see that the services of your architects are fully utilized. I think it is one of the tragedies of our profession that so far as public work is concerned we are not used nearly enough.

The Lord Provost (Sir Alexander B. Swan, LL.D.) : I believe you will have been damning the many municipalities for their want of foresight and their want of thought and their want of making use of you. I would just say that after all we may have the will and not the power, because one has to have regard to the situation in which we found ourselves after the war. We found it a very difficult situation and we found it a situation which was not controlled by the people of Glasgow. It was controlled by that great multitude of people that you send up to London and that made certain obligations and limitations upon us, and if by any means we wanted to do something outside the orbit which they considered proper, they would not allow us, or rather they would not give us any grant for anything we wanted in that particular way. In Glasgow today we are faced with a very big problem, and I think every big city is faced with the very same problem as the city of Glasgow, and that is the rebuilding of the city itself, not the rebuilding of the outskirts of the city of Glasgow. Anybody can rebuild the outskirts ; I don't think it needs a Corporation to do that ; but it certainly requires a Corporation to get the powers to do the rebuilding and the replanning within the city. Glasgow has built something like 50,000 houses. Some of you will say that that is 45,000 abortions and 5,000 houses, some of you who are architecturally minded, but after all is said and done we have improved the situation compared with what it was. Still the problem remains, and I would like to say to whose who can assist us to come along and help with our town-planning, not the town-planning of the fields outside our border but the town-planning of our city, to make it a new city.

Sir John Stirling Maxwell : It seems to have been asked if the City Chambers and the Corporation have made a wise move in deciding to appoint a city architect. Fifty thousand houses, the Lord Provost tells me, have been built without one, but another 40,000 have still to be tackled, and the City Fathers realize that work on that scale ought not to be relegated to the anonymous staff of a municipal office. The salary of a first-class architect would count as nothing in an expenditure of twenty millions. If the right man is found and given a free hand we may yet have building schemes worthy of this city and of a country which has always prided itself on its beauty.

Mr. Ingalton Sanders : The allied societies, as you all know, any of you who are with me on the Allied Societies Conference, have been for the last fifty years a very rising factor in the Royal Institute of British Architects. The Royal Institute has widened our franchise and today the allied societies have a very important voice in the Institute's measures. Fifty years ago the provincial member had very little say, but the Institute has widened the franchise so that to-day he exercises a definite voice in the affairs of the Institute.

R.I.B.A. ELECTIONS

The results of the voting upon the nominations for seats upon the Council and Standing Committees during 1935-36, were announced on Monday last.

The membership of the new Council is as follows :—

President

Percy Edward Thomas.*

Vice-Presidents

Edwin Stanley Hall, Stanley Hinge Hamp, Charles Henry Holden, Ingalton Sanders.

Members of Council

W. H. Ansell, Robert Atkinson, John Begg, H. S. Goodhart-Rendel, Maurice E. Webb.

Associate Members

P. C. Blow, W. A. Daft, Norval R. Paxton, Basil Ward.

Licentiate Members

F. W. Rees, S. L. Whitehouse.

Honorary Secretary

H. M. Fletcher.*

Honorary Treasurer.

Lieut.-Col. P. A. Hopkins.*

Past Presidents

Sir Giles Gilbert Scott*, Sir Raymond Unwin.

Representatives of Allied Societies in the United Kingdom or the Irish Free State.

(1) Six Representatives from the Northern Province of England : Harold Oswald,* Lieut.-Col. Ernest Gee,* Harry Andrew,* Victor Bain,* John Mansell Jenkinson.* One Representative to be nominated by the Council of the Manchester Society of Architects.

(2) Five Representatives from the Midland Provinces of England : Alfred Hale,* Clement Stretton,* George Pemberton Allen* One Representative to be nominated by the Council of the Nottingham, Derby, and Lincoln Architectural Society. E. W. B. Scott.*

(3) Six Representatives from the Southern Province of England : A. H. Ough,* H. S. Davis,* A. Saxon Snell,* Lieut.-Col. R. F. Gutteridge,* H. R. Bird.* One Representative to be nominated by the Council of the South-Eastern Society of Architects.*

(4) Four Representatives of Allied Societies in Scotland : Col. J. M. Arthur,* A. F. B. Paul,* C. G. Soutar,* W. B. Whitie.*

(5) One Representative of Allied Societies in Wales. : W. S. Purchon.*

(6) Two Representatives of Allied Societies in Ireland : J. J. Robinson. One Representative to be nominated by the Council of the Royal Society of Ulster Architects.

Five Representatives of Allied Societies in the British Dominions Overseas.

Representative of the Architectural Association (London): The Hon. H. A. Pakington.*

Representative of the Association of Architects, Surveyors and Technical Assistants.

Chairman of the Board of Architectural Education : T. A. Darcy Braddell.*

Chairmen of the Art, Literature, Practice and Science Standing Committees.

Chairman of the Architects Registration Council of the United Kingdom. : Major Harry Barnes.*

Chairman of the R.I.B.A. Competitions Committee.

ART STANDING COMMITTEE

Stanley Hamp.*	C. H. Holden.
L. H. Bucknell.	W. M. Keesey.*
R. G. Brocklehurst.*	H. V. Lanchester.*
N. F. Cachemaille-Day.*	Robert Lowry.
	Raymond McGrath.*
George Checkley.	C. H. Reilly.
W. Austin Daft.	A. S. Soutar.*
Wesley Dougill.	T. S. Tait.*
J. Murray Easton.	S. L. Whitehouse.
Joseph Emberton*	G. Grey Wornum.*
C. Lovett Gill.*	

LITERATURE STANDING COMMITTEE

H. Chalton Bradshaw.	H. S. Goodhart-Rendel.*
Prof. A. E. Richardson.*	P. D. Hepworth.*
Grahame B. Tubbs.*	W. G. Holford.*
Basil Oliver.	G. A. Jellicoe.*
Prof. Abercrombie.*	Norman Jewson.*
Miss J. F. Abram.*	S. D. Kitson.*
Louis Ambler.*	A. L. N. Russell.
W. W. Begley.	Miss E. W. Scott.*
S. E. Dykes Bower.	R. F. Tatchell.
Prof. L. B. Budden.	

SCIENCE STANDING COMMITTEE

L. W. Thornton White.	Alan E. Munby.*
	H. M. Robertson.
F. R. Taylor.*	H. D. Searles-Wood.
R. J. Angel.	J. Swarbrick.*
O. P. Bernard.	R. Minton Taylor.*
A. E. Cameron.*	Percy J. Waldram.*
H. M. Cashmore.*	Thomas Wallis.*
H. M. Fairweather.*	C. S. White.*
W. A. Harvey.*	R. C. White-Cooper*
Alister MacDonald.	V. Bain.

PRACTICE STANDING COMMITTEE.

L.S. Sullivan.*	B. S. Hume.*
P. G. Fairhurst.	Arthur Keen.
C. Woodward.	E. B. Kirby.*
H. V. Ashley.*	M. W. Matts.*
John Batty.*	W. Milburn.
D. H. Beaty-Pownall.*	F. W. Rees.
	J. MacL. Ross.*
H. T. Buckland.*	E. W. B. Scott.
W. T. Curtis.*	Maj. C. F. Skipper.
A. B. Hayward.*	H. A. Welch.*

*Members elected unopposed

COUNCIL MEETING

Following are some notes from a recent meeting of the Council of the R.I.B.A. :—

Ancient Monuments Board for England :—Sir Banister (Flight) Fletcher (Past-President) was re-appointed as the R.I.B.A. representative on the Ancient Monuments Board for England for a further period of five years.

The Twenty-first Annual Conference of the National Association for the Prevention of Tuberculosis, Southport :—Mr. Albert Schofield (F.) was appointed as the R.I.B.A., delegate to the above Conference.

Standardization of Mortars :—Mr. Francis R. Taylor (L.) was appointed to represent the R.I.B.A. on the B.S.I. Technical Committee B/31, Mortars.

Acoustical Terms and Definitions :—Mr. Alister G. MacDonald (A.) was appointed to represent the R.I.B.A. on the B.S.I. Technical Committee B/26, Acoustical Terms and Definitions.

Standardization of Heating Boilers :—Mr. H. Ingham Ashworth (A.) was appointed to represent the R.I.B.A. on the B.S.I. Sub-Committee ME/34/4, Heating Boilers, which is considering the preparation of British Standard Specifications for Central Heating and Hot Water Supply Boilers.

Standardization of Rubber Flooring :—Mr. O. P. Bernard (L.) was appointed to represent the R.I.B.A. on the B.S.I. Technical Committee B/33, Rubber Flooring.

Standardization of Slates and Tiles :—Mr. S. Pointon Taylor (F.) was appointed to represent the R.I.B.A. on the B.S.I. Technical Committee B/5, Slates and Tiles, in place of Mr. Edwin Gunn, who had found it necessary to resign therefrom.

Standarization of Asphalt for Roofing :—Mr. A. H. Barnes (F.) was appointed to represent the R.I.B.A. on the B.S.I. Technical Committee B/2, Asphalt for Roofing, and Sub-Committee B/2/1, Asphalt for Roofing (Drafting) in place of Mr. Edwin Gunn.

R.I.B.A. Architecture Medals : Western Australia :—Lt.-Gen. Sir Talbot Hobbs (F.) was appointed as the R.I.B.A. representative on the Jury set up to make the award for the R.I.B.A. Architecture Medal for Western Australia.

The London Building Act and the Town Planning Act :—It was decided to set up a Joint Committee of representatives of the London Building Act Committee and the Town Planning and Housing Committee to consider the administration of the London Building Act and the Town Planning Act with a view to the simplification of procedure and the expediting of consents to build in the London Area.

Reinstatements :—The following ex-members were reinstated : As Associate : Mr. L. H. Kearne. As Licentiates : Messrs. J. Anderson (Retired Licentiate) and E. Stockwell.

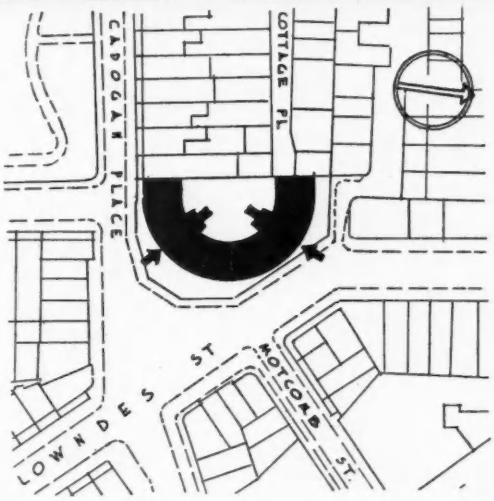
Resignations :—The following resignations were accepted with regret : Messrs. H. Booth (L.) and J. T. Lawrence (L.).

Transfers to the Retired Members' Class :—The following members were transferred to the Retired Members' Class : *As Retired Fellows :* Messrs. H. Bragg, J. Crouch, J. Cubbon and W. B. Dawson. *As Retired Associate :* Mr. H. Ross. *As Retired Licentiates :* Messrs. J. G. Chignell and F. C. Wren.

FLATS IN LOWNDES STREET, S.W.

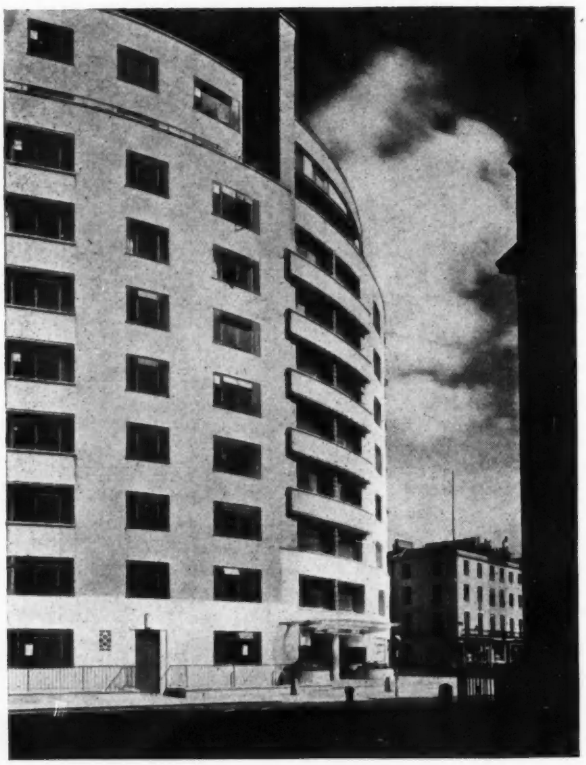


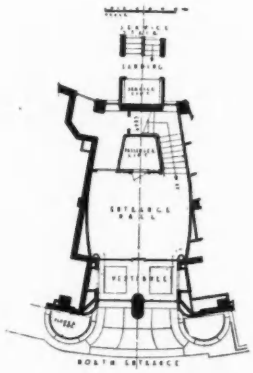
This new block of flats stands on the site of Chelsea House, a site which has an extremely irregular frontage to Lowndes Street, and is situated at the junction of a number of busy thoroughfares. Early investigation showed that a semicircular plan would logically fit into this irregular plot of land and provide the maximum accommodation. The effect of such a plan would also be to open up the sight lines for traffic, and present a rational façade from the various angles of approach. The detailed requirements of the owners were obtained by planning four flats per floor, approached from two entrances. The subdivision of the plan was therefore symmetrical, with two large and two smaller flats per floor.



DESIGNED BY SIR JOHN BURNET, TAIT AND LORNE

FLATS IN LOWNDES STREET, S.W.:



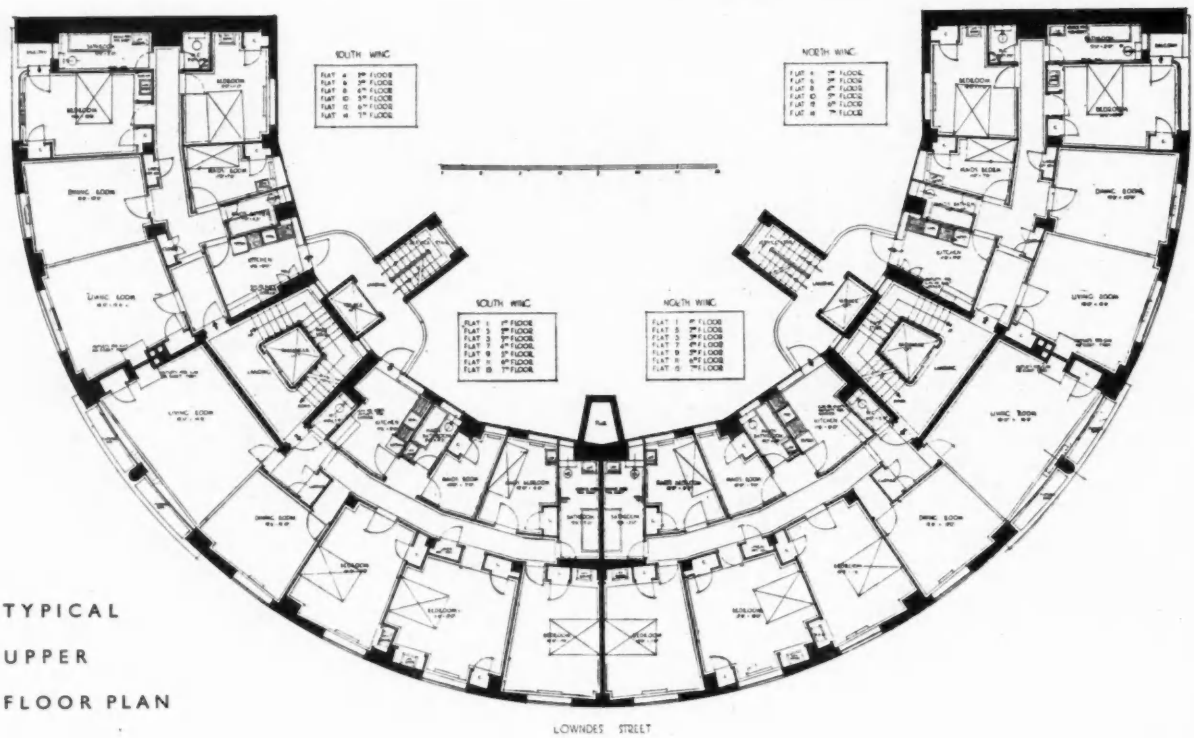


ENTRANCE PLAN

The service quarters are designed as a unit, convenient for service and communication and yet cut off as far as possible. The kitchens are planned as fully equipped working units, and each has its own service entrance with stair and lift. Each flat has two bathrooms and a guest's w.c. and lavatory in addition; rooms for extra male or female servants are provided separately. The elevations are the natural outcome of the lay-out, and indicate the disposition of the plan, while the light-coloured brick and stone façade, designed to give a monolithic effect, acts as a foil for bright-coloured flowers and plants in the balconies and flower-boxes.

Of the various materials used the most notable perhaps is the use of sand lime bricks as facings. These are laid in semi-English bond and flush pointed in a matched mortar. These external walls are constructed as 9 in. thick panels, waterproofed internally and lined with insulation blocks.

Internally the finishes are extremely simple, designed so as to enable the individual tenants to decorate to their own tastes.



TYPICAL UPPER FLOOR PLAN

BY SIR JOHN BURNET, TAIT AND LORNE



A view in the courtyard, showing one of the two service staircase units, with the balconies giving access to the kitchens.

LETTERS FROM READERS

MALCOLM MACTAGGART

RAYMOND WALKER

M. COOKE

LAWRENCE WRIGHT

Salaried Architects

SIR,—Three years ago, when applying for licentiate membership of the Institute, I was requested to support my application with a letter from my principal confirming that the drawings I had submitted with my application were in fact, as stated by me, my own work. I replied by asking whether it was equally the custom of the Institute to require a "principal" applying for election to obtain a similar confirmation from his "assistant." A simple yes or no would have sufficed, but the fact is that my question, though several times repeated and made clear beyond all possible chance of misunderstanding, to this day has not been accorded the courtesy of an answer.

I have now another question to put to the Institute. The Institute cannot but be fully alive to the fact (recently made prominent by the A.A.S.T.A.) that some 70 per cent. of the profession today is on a salaried basis, and that the Council of the Institute which, by its constitution consists almost exclusively of architects in private practice, therefore cannot be other than misrepresentative of its members viewed either in terms of numerical membership or of monetary contribution. Now, I should like to know—and many others no doubt share my curiosity—whether the Institute considers that any privately practising member who, being aware that his election to the Council must be contributive to a misrepresentation of the present state of the profession and who, being under no compulsion in the matter, yet offers himself for election, *is acting in accordance with the best interests and traditions of the profession?* Again a simple yes or no will be a sufficient answer.

MALCOLM MACTAGGART
Welwyn

SIR,—So much of the JOURNAL has lately been devoted to the Politics of Architecture that I hope you will allow me to enter the field on behalf of that remnant of the "unattached" architects who are not members of the Institute of Registered Architects.

If Major Athoe can assure me that a large enough majority of the unattached architects are members of his Institute, then I will agree with him that it is well for them to be represented on the Registration Council by members of the Institute of Registered Architects and my most unattached self: but I think it is really time we heard a little more about the huge numbers of unattached men supporting that body, rather than about the number of "unattached" representatives who belong to it.

Of course, if the Registration Council could have recognized the Institute of Registered Architects in the first place, it would not have been necessary to express the views of that body by putting up its members to represent the unattached man: it would have been represented in ratio to its membership. Now we have that apparently united party—of course, whichever way I vote nowadays can affect matters very little—we do not seem to hear much more of this Unity that was to effect so much, than we heard of the former Chaos that did so little.

That "chaos" at least managed, without any assistance from Major Athoe, to persuade the Council to discuss the possibility of enforcing a code that could pull the profession into shape.

Now that Major Athoe has lent a hand we do not seem to hear much more about questions of code. If you ask me why, I can only reply that I, too, want an answer to that question!

Now if the unattached architects are going to steer their way free of this, that or the other society, I think they should make quite sure of the aims of the men they choose to represent them on the Council: and though the Registration Council elections are a long way off, it may not be too early to suggest that the ARCHITECTS' JOURNAL follows the excellent precedent it has set in publishing biographical notes of the candidates for the R.I.B.A. elections.

Some of the unattached may remember that when I first asked them to elect me to the Council I sent out a brief autobiography: for the unattached voter who has no regular meeting places, no journals and no organization, it becomes more and more apparent that he requires such information to guide him in his choice of representatives. Of course if all the unattached apply for membership of the Institute of Registered Architects that matter solves itself—but if there are still men who prefer their state of freedom and desire to continue enjoying this blessing, I should be glad if they would write to me c/o the A.R.C.U.K.

In view of recent turns in events it will be necessary for me to communicate with the "unattached unattached," for unless we can get some sort of machine



Smarterley in France: a portion of a large wayside hoarding. See letter from Mr. Lawrence Wright.

operating we risk sinking into oblivion. Let me make it quite clear that I am not asking for contributions in any shape or form : I believe that it is the duty of the Council to operate the necessary machinery to keep us united in the blessed state of "unattachedness."

RAYMOND WALKER
London

R.I.B.A. Conference

SIR,—I found the last number of the ARCHITECTS' JOURNAL very refreshing. The analysis of the present condition of the City of Glasgow gives an excellent idea of the tremendous scope for architectural activity and the crying need for a concentrated attack on the deplorable conditions which exist in the slums, not only of Glasgow, but of all our big cities.

But when I turned to the programme of the R.I.B.A. Conference, around which your admirable number was written, I was astounded to find that the whole of the three days of the "Conference" appear to be spent in a round of entertainments—trips, tours, tea-parties, banquets, and posing in groups to be photographed. It is difficult to believe that in Glasgow, of all cities, the R.I.B.A., the official representatives of British architecture, could fail apparently to allot even half an hour for serious discussion of the most urgent problem which confronts architects today.

M. COOKE
London

Professional Publicity

SIR,—The accompanying photograph may be of interest to such of your readers as are patiently sitting back awaiting work, with conscientious observance of professional etiquette.

M. Artigue's announcement measures about 4 ft. by 3 ft. and forms part of a roadside hoarding.

I cannot help thinking that they order these things better in France.

LAWRENCE WRIGHT
London



The New Brighton Town Hall

Mr. John L. Denman, F.R.I.B.A., is to be the architect of the new Town Hall at Brighton; the scheme involves the disappearance of three hotels, a market hall, several public houses and an entire street. A roadway 60 feet wide will surround the building, which will have a 130 feet tower. Work is expected to begin in 1937 and the building will probably take three years to erect.

"HISTORY OF ARCHITECTS"

[A PAMPHLET PUBLISHED BY THE ASSOCIATION OF ARCHITECTS, SURVEYORS AND TECHNICAL ASSISTANTS. Price One Penny.]

REVIEWED BY A. SEYMOUR REEVES

The publication of which a short review is printed below sets out in categorical form a series of events of considerable importance in the history of the architectural profession over a period of fifteen years. To brief statements of these occurrences are attached notes as to the motives on the part of individuals and organizations which led to their taking place.

Since the construction to be put upon these events is susceptible of definition from two different standpoints, it was considered that the most suitable notice of this pamphlet would take the form of two short reviews expressing each of these attitudes.

Representatives of the organizations which might be considered to represent either side have therefore been approached, but up to going to press we have been able to obtain only the review published below.

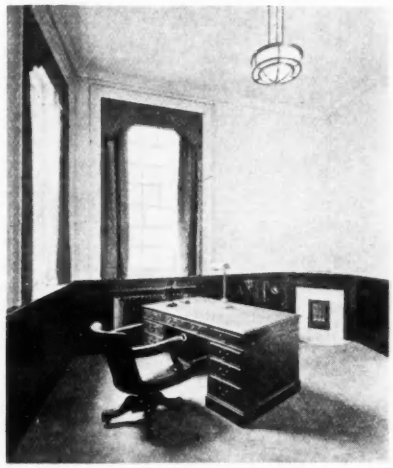
While there are many histories of architecture, this is probably the first History of Architects, and, although in pamphlet form, it covers some of the most important events in the architectural profession of this country. The period dealt with is from 1919 to 1935 and the development of Registration and contemporary matters are briefly set out.

This chronicle sets out to show that throughout this period the real energies of the R.I.B.A. have been directed to promoting and advancing the interests of private practitioners and to thwarting or attacking any activities which are thought to be against this interest. The feeling in the A.A.S.T.A. that the R.I.B.A. was combining this real aim with a pretended care for the interests of those employed on a salary led to the breach between the A.A.S.T.A. and the R.I.B.A. Although there is this implied pretence towards the salaried members, yet the R.I.B.A. has consistently evaded the question which asks, "What power has the Institute to protect the interests of its salaried members? What action *can* the R.I.B.A. take to support them?" The A.A.S.T.A. has put this question to the R.I.B.A. and has pressed for a reply. The Institute promised a statement but has never fulfilled this promise.

This very brief chronicle shows the manœuvres of the R.I.B.A. in Registration Bills and their development, its anxiety to protect the interests of private practitioners to ensure that it would control all professional affairs at all costs. It also shows that a feature which contributed to the breach between the two bodies was provided by the fact that, after the Registration Council was set up, the R.I.B.A. regarded the A.A.S.T.A. as merely the pledged supporter of the R.I.B.A. whose only function was to provide support on the Registration Council. It happens that the Standing Committee of the House of Commons, which dealt with the Registration Bill which finally became an Act of Parliament, knew full well that the A.A.S.T.A. was the only body specially constituted for the protection of those in salaried employment, and the only body competent to represent this interest in matters of Registration. It happens that the Council of the A.A.S.T.A. considers that, in the work of the Registration Council it has, in a general sense, a liability to see that Registration affairs are carried out with a due regard to the interest of Registered Architects who provide the funds which the Registration Council administers. It will be obvious that the A.A.S.T.A. could not accept the implied suggestion that it was only expected to support the R.I.B.A. and to ensure that Registration affairs would be carried on not in the interests of Registered Architects, but in the interests of the R.I.B.A.

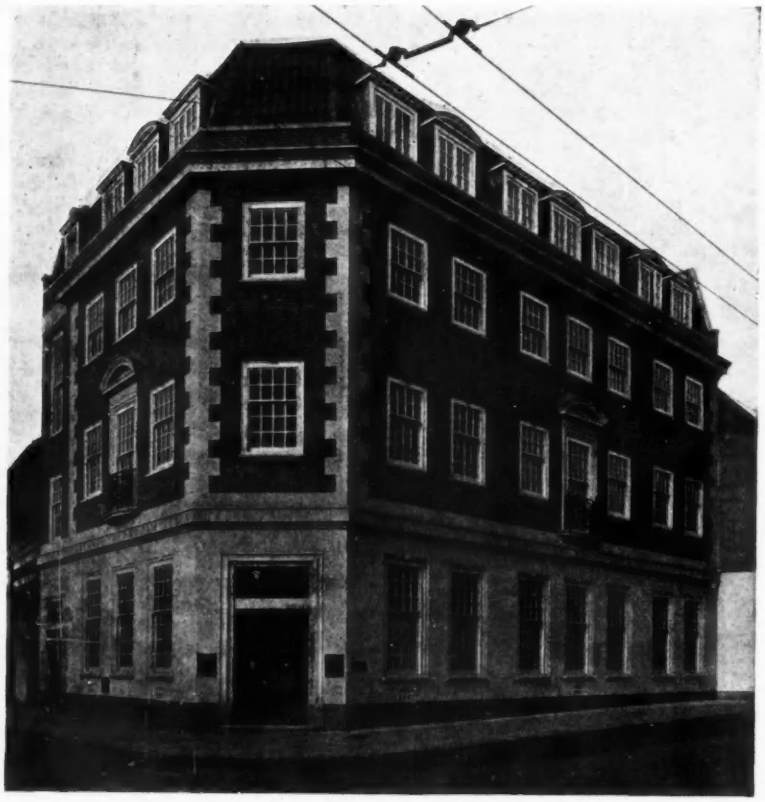
BARCLAYS BANK, KINGSTON





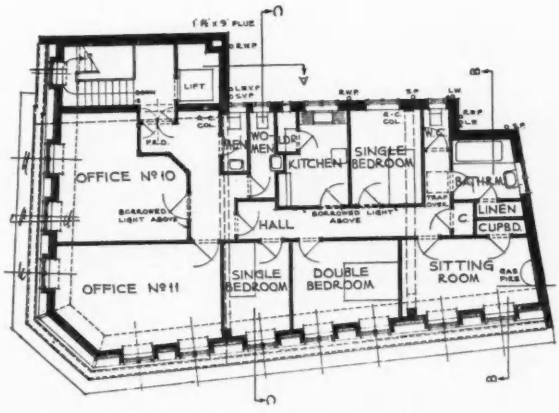
The manager's office.

Above, the former bank before demolition; below, the new building from the same viewpoint.

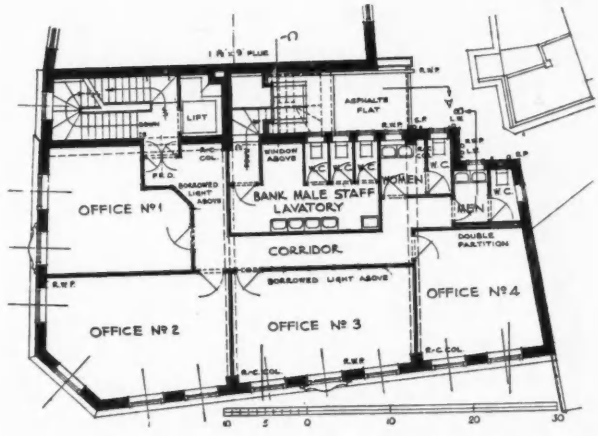


DESIGNED BY TATCHELL AND WILSON





THIRD FLOOR PLAN



FIRST FLOOR PLAN

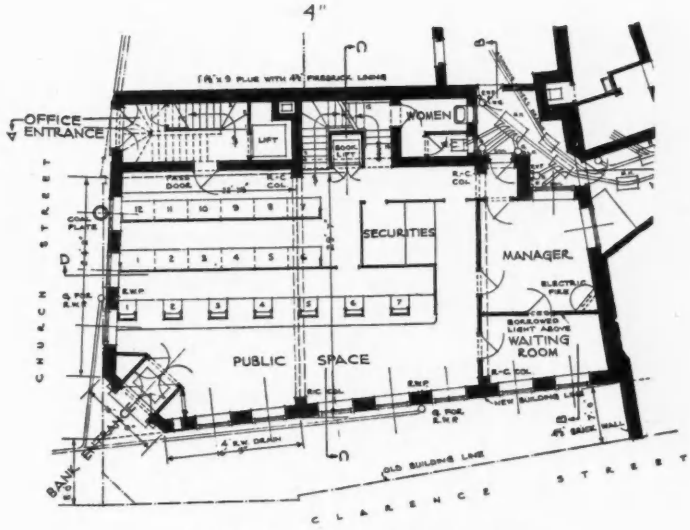
Erected to replace former premises demolished for the purpose, the building consists of banking premises upon the ground floor, two floors of offices above, and a third floor comprising two offices and a caretaker's flat. An additional basement floor contains strong rooms, heating, lift gear, and night safe. The lavatory accommodation for the bank staff and that for the offices (to be let to private tenants) are kept entirely separate.

The building is brick built, with reinforced concrete roof, floors, beams and columns in the case of the larger spans.

The elevational treatment, expressly desired by the clients to be of eighteenth-century character, is carried out in 2 in. hand-made brick, with Portland stone dressings and facing to the ground floor. The roof is of red Lombardic tiles and the plinth of polished Creetown granite.

The internal woodwork is of Cuban mahogany and the plaster finish a light buff in colour. The floor of the banking hall is of Hopton Wood stone with a black marble skirting.

The photograph above is a general view of the banking hall.



GROUND FLOOR PLAN



The living-room of a small apartment in a working-class quarter of Stockholm. The chairs are by Gemla Fabrikers A.B., the table by Svenska Möbelfabrikerna, and the plain jute rug from Kasthalls Mattfabrik. From "Decorative Art, 1935."

L I T E R A T U R E

DECORATION AND UTILITY

[*BY GEOFFREY BOUMPHREY*]

Decorative Art, 1935: The Studio Year Book. London: The Studio, Ltd. Price 7s. 6d. (Cloth 10s. 6d.).

THE Studio Year Book of *Decorative Art* has so clearly demonstrated its value over a number of years as "an annual survey of the world's progress in home planning and decoration" that the reviewer may feel justified in taking its considerable merits for granted and in judging it by very high standards indeed. Let it first be said, however, that the 1935 issue in no way falls short of its predecessors. The illustrations are uniformly well reproduced; the photographs selected reach, on the whole, a rather higher level than usual—some of the British specimens, even, show that we are at last learning how to photograph objects of this type. It is on the question of policy (which has, perhaps, nothing to do with the reviewer) that one would like to comment with some stringency.

The Studio is, quite naturally, concerned primarily with art. But, at the same time, in this publication it continues to make queer ineffectual dabs at industry. Perhaps nineteen out of every twenty examples illustrated are obviously jobs where money has been little, if any, object, utility a minor consideration. We see, this year, all our old friends: the cocktail cabinet at floor level; the dining table with plate-glass or Portland stone top ("Teach the ladies to rest their bare elbows on it, what!"); the suite of furniture which, if it be true that a room should express its owner's personality, might fittingly grace a lounge for elephants; and this time (joy of joys!) even the modernist four-poster. Modern, modernist, modernistic and modernistical—all are generously represented. The twentieth example, however, will be found to illustrate some genuine attempt to design for the average level of life today—almost invariably Swedish, in the present volume, if at all successful (see the illustration on page 52, reproduced above). Moreover, such things as gas-cookers and refrigerators, whose beauty or appeal is of a totally different order from that of the "art" products, are well represented.

All this makes it very difficult for the reviewer to discover what are the standards by which the objects or schemes included are selected. It also gives the impression that the compiler or compilers suffer from the same disability. In other words, *Decorative Art* is attempting to sit on two stools. There seems no reason why it should not succeed; but if it is to do so, it must distribute its weight more equally—the more so since the stool which it is inclined to neglect is of far greater importance to the majority (and so to the world, sociologically) than that of *de luxe* decorative art. The book should either be divided into two distinct sections or, at least, the captions should be carefully framed so as to make the distinction quite clear. In the present issue many of these can only be regarded as fatuous. "The presence of the little tree (in a nursery) contributes to the friendly character of the room." "The extension of the skirting board to make a frame for the inset electric fire helps to emphasize the latter." "The circular mirror is in a semi-circular frame (art!) and looks very striking against the bold wallpaper design"—when it would obviously look more striking still against a plain wall. "The compartments (of a sink) and the draining board come in logical order, dishes that are washed in the first are rinsed in the second and set to drain"—when there is no place by the first for the dirty dishes to stand before being washed—a nice example of bogus modern-scientific reasoning, since, though the architect may have provided for the difficulty with a trolley, the reader is not shown this, and the caption-writer should therefore have held his peace.

But these are small points to cavil at among so much that is good. Particular attention should be drawn to the service cabinet on page 79 as a common-sense and long-overdue development of the kitchen dresser. On page 122 the Wedgwood beer mugs and jug (designed by Keith Murray, and reproduced below) must be commended as being almost the only native example of the "design" rather



Beer mugs, jug and vase, designed by Keith Murray for Josiah Wedgwood and Sons, London. From "Decorative Art, 1935."

than the "art" section. And from page 64, if the colourless lacquer referred to *really* "preserves the natural colour of the wood," it is a product of considerable importance and should be made available in this country without delay. In an introduction, with much of which the present reviewer disagrees profoundly, the Editor yet makes a criticism of some point: "Some modern houses are merely 'display.' Blind walls without meaning . . . concrete projections sensational in effect but useless in fact—recall the lavish surprises of the baroque architects rather than the modest practical aim which is theoretically professed." If the cap fits. . . .

MEASURED WORK

The Standard Method of Measurement of Building Works (third edition). London: The Chartered Surveyors' Institution and the National Federation of Building Trades Employers. Price 7s. 6d. net.

IT is now thirteen years since the first edition of this volume was produced. In the preparation of this edition, the result of two years' work by a representative committee, some 2,000 constructive suggestions, submitted as a result of a general invitation, were individually considered. The committee are to be congratulated on their achievement.

The difficulty in the adoption of a standard method of measurement is the unwillingness of some to change from set methods which they may have adopted for many years. Such methods may be equally good and in some cases possibly even better than those recommended in the standard method. To hope for concurrence in every detail amongst surveyors is more than one can humanly expect, and, as in all agreements arrived at by negotiation, there must be a certain amount of give and take. The main object of the quantity surveyor's professional existence being to present to contractors tendering a fair representation of the labour and materials involved in building work, he will appreciate the tremendous value to the builder's estimator of a uniform method of measurement the basic principles of which are set down in black and white. The incorporation of this volume by reference in the usual R.I.B.A. building contract makes the study and adoption of it by surveyors all the more important.

While the necessity to make everything clear to the contractor is naturally a laudable object, the requirement in Clause 2(*b*) of the "Preliminaries" section that a general description of the works shall be given seems out of place in the bill of quantities, as the contractor's inspection of the drawings will convey this much more clearly than any words in the bill of quantities could do. He also at such inspection, as well as on his visit to the site, would see if the site is adjacent to other buildings which it is required under Clause 3(*a*) of the "Preliminaries" shall be stated in the bill. Clause 18 with its long list of insurances looks rather like an insurance agent's circular, and will certainly need some research by quantity surveyors into the subject of industrial insurance.

One or two expressions which appear vague may be found, such as the reference in Clause 3(*b*) of "Excavator" to working space "when required by the method of construction" and the references in Clause 12(*a*) and (*b*) of the same trade to "special shoring." The classification of bars in Clause 22 of "Concretor" as "whether straight or bent" does not make it clear if straight should be separate from bent or whether both may be classified together.

An entirely new section appears on patent fire-resisting floors and the section on piling has been considerably enlarged. The joiner is separated from the carpenter as a distinct trade, and the "Founder and Smith" is given a more modern designation as "Steel and Iron Worker" and rewritten to meet the requirements of steel-framed buildings. The "Mason," too, has been revised to accord with modern methods. Cast iron rainwater goods have been transferred to the plumber, presumably as when plumber's work is sublet the supply and fixing of these are often let with it.

A number of notable absentees from the last edition make their appearance, e.g., hardcore, weather boarding, terrazzo and painting on metal casements.

One would have liked to see some suggestions for an abbreviated form of quantities for smaller work. The preparation of full quantities for small work in the normal way produces a document out of proportion with the size of the building. Moreover, it is unnecessarily complicated for a type of builder who might be invited to tender for this class of work and who, not being accustomed to larger contracts, has no thorough knowledge of the surveyor's methods in preparing quantities.

The book is clearly printed on a good paper but the reduced "format" with its narrower margins does not give that impression of dignity and importance which was given by the older edition. The binding, too, does not indicate that it is a volume which will be constantly handled by pupil, pedagogue and practitioner.

A. J. W.

HOUSING THE AGED

Housing the Old. By Miss Olive Mathews. Obtainable from the author at 44 Cresswell Place, London, S.W.10; or the Housing Centre, 13 Suffolk Street, S.W. Price 4d. (post 1d.).

ONE of the most important problems that local authorities must face in the immediate future is the provision of accommodation for the aged person of limited means. This fact is clearly brought home to us by Miss Olive Mathews in her excellent little booklet recently issued:

After the war the most urgent demand was the provision of homes of adequate size for families with children, and many estates of Council houses were built to cater only for them; but the time has now come to include in every estate a certain number of homes for older people. Unless this is done, the present estates will deteriorate as time goes on. The tenants will grow older—the men will retire on pensions or their wives will be widowed—they will no longer be able to afford the rent of a three-bedroomed house. What will the Council do then? It will be faced by an unpleasant choice. Either it must turn them out, to return to the sordid streets and comfortless homes from which it was proud to rescue them years before; or else it must permit them to sub-let rooms, thereby introducing all the evils which follow this process. When every housing estate contains some small dwellings for the older people, this dilemma will not arise. The Council will be able to offer smaller accommodation *in the same place*, and the ties of association with a certain neighbourhood need not be roughly broken. The small homes will never become overcrowded, for they will never be allowed to be let to younger couples, but will be kept entirely for the older people.

In spite of the demand for these small homes, little has been done to satisfy the demand. Since the war, for instance, over two million houses for wage-earners have been built—only 5,000 of them were for aged persons—a proportion of less than a quarter of 1 per cent. Yet, according to the 1931 census figures, there are, in Great Britain, over three million people over 65 years of age. In 1900 there were only one-and-three-quarter million persons over 65 years of age, so that, in another twenty years' time, the increase over the figure for 1931 will obviously be far greater. Miss Mathews, dealing with this point, writes:—

The people of 65 and over will soon constitute one-tenth of our population! A certain proportion of these will, it is true, retain their former larger houses, but even after allowing for this factor, the present ratio is obviously absurd. If even 5 per cent. of the population needed aged persons' dwellings, the proportion of such dwellings to family ones should be at least 15 per cent., since each family dwelling will contain four or five persons, on an average, while the old people's flats will house only one or two. A wise average



Figure 1

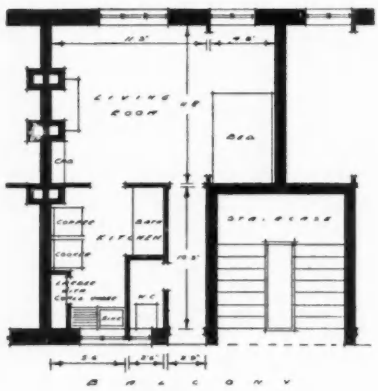


Figure 2

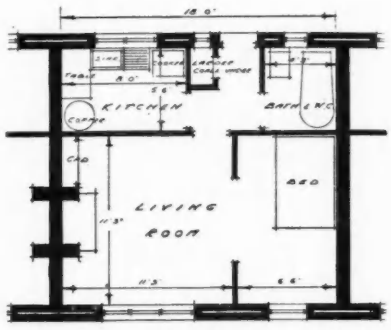
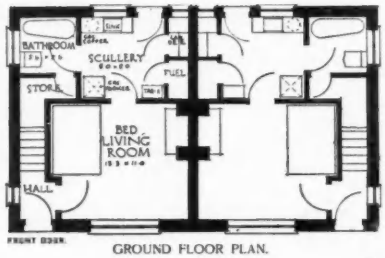
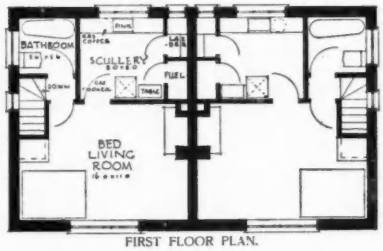


Figure 3



GROUND FLOOR PLAN.



FIRST FLOOR PLAN.

Figure 4

Figure 1 : a flat for an old person ; area approximately = 290 sq. ft. (Architect : K. W. Furneaux Harris). Figure 2 : plan of city flats suitable for old couples as part of a block of tenements ; floor area = 303 ft. super per flat. Figure 3 : plan of country town tenements suitable for old couples ; floor area = 306 ft. super per flat. Figure 4 : ground and first floor plans of a cottage (containing four flats) for country districts ; area of each flat = 290 sq. feet (Architect : Harold F. Trew). These plans are reproduced from "Housing the Old."

proportion would be 15-20 per cent. old persons' dwellings in each housing estate.

A point to notice in connection with housing plans is that women have on the average five years expectation of life more than men. This means that the great proportion of our "surplus" women are, in fact, old ladies. Not only are husbands older, as a rule, than their wives, but even when they are the same age, the wife will probably survive her husband by five years. The number of widows is therefore likely to remain a large one. Under present conditions an elderly widow has often no alternative to living with her married children, and this is seldom the happiest solution.

It must, of course, be remembered that one solution of the problem of housing the aged person of limited means is the workhouse. But is this not the worst possible solution ? According to Miss Mathews, it costs about twenty-five shillings a week, mainly out of the rates, to maintain an old person in one of these institutions.

The author, in the second part of the booklet, discusses the possibilities of providing accommodation for these people. Her remarks are illustrated by plans, which are reproduced on this page. The author says :

TOWN DESIGNS :

In London and other cities, housing sites are dear, so that the smallest flats consistent with comfort are advised. The cost of building, including purchase of site, will probably vary from 14s. to 18s. a sq. ft. ; the advantage of eliminating waste of space is therefore evident. The average superficial area of dwellings for aged persons built since the war has been 400 sq. ft. ; but it is quite possible to provide real comfort for two people on an area of 300 sq. ft. Taking a figure of 16s. per sq. ft., it will be seen that a plan which reduces the superficial area of one flat by 100 sq. ft. saves £80 ; and if the interest on the capital raised for the purpose be taken at 5 per cent., to include sinking fund, the saving will amount to £4 a year —and the rent can be lessened by 1s. 6d. a week.

It must never be forgotten that the tenants for whom these flats are intended are the poorest of all—the old age pensioners, for instance, and women maintaining themselves by daily work for low wages. To these people even sixpence a week off the rent makes a real difference ; it means more to spend on food or coal. For this reason the plans shown are the smallest in which comfort and convenience can be found. Local authorities can very easily obtain plans of the many larger designs which have been carried out in various parts of the country if they wish to do so.

The one-room flat, figure 1, is suggested for the solitary older tenant (though it might also suffice for two people), and this includes every necessity in a superficial area of 290 sq. ft.

The slightly larger flat, figure 2, is suggested as meeting the needs of an older couple, and every provision for their comfort has been included on a floor space of 303 sq. ft. The living room is just over 11 ft. square, and besides this there is a bed recess, wide enough to take a double bed, which can be curtained off. . . . A bed recess is also included in the plan, suitable for country towns, shown in figure 3.

The flats (shown in figures 1 and 2) have been specially designed to fit in with the average depth, from back to front, of present-day wage-earners' tenements, as it is felt that the best solution is to include a few of these flats in each tenement erected rather than to segregate the older people.

Then, again, many older people cannot manage long flights of stairs. . . It is, therefore, a good plan to arrange that their flats are on the ground floor or first floor.

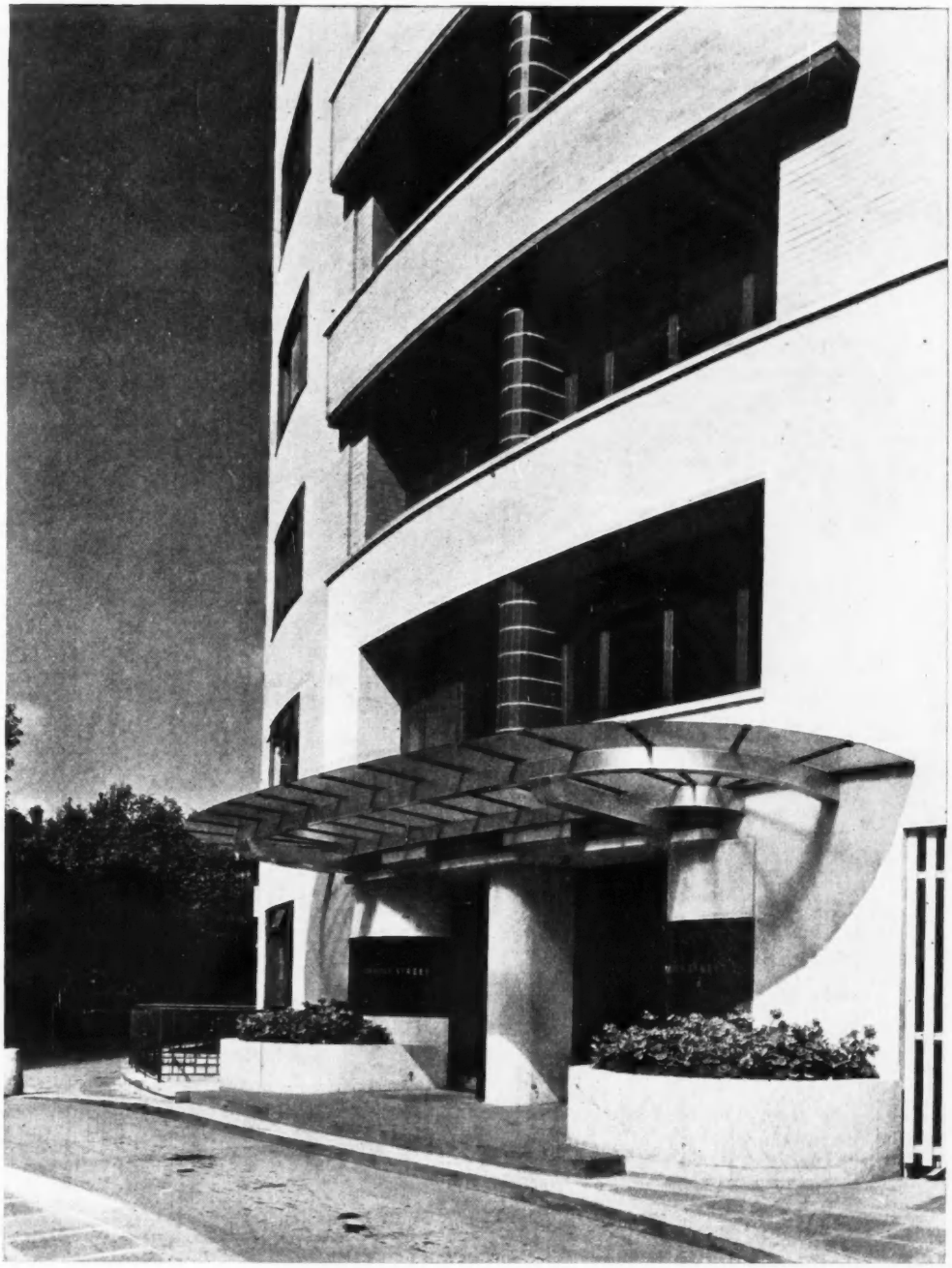
The policy of inclusion has been tried with complete success by several public utility societies, and the Peabody Trust has incorporated one-room flats in every building for 60 years, and always found them in great demand. A modern one-room flat equipped with every convenience—bath, electric cooker, and so on—is let by these societies at five or six shillings a week, including rates, and this has been possible on expensive London sites. In provincial towns the rents could be lower than this, since the sites would have cost considerably less.

COUNTRY PLANS :

For country districts cottage plans are best. . . . The choice lies between bungalows, cottages and cottage flats. Bungalows might be chosen, since they eliminate stairs, which many old people cannot negotiate, but the cost of building these is relatively high. If cottage flats are chosen, the infirm tenants can rent those on the ground floor, whereas if cottages of the old-fashioned type are built there will always be stairs. Cottage flats are the cheapest solution, and may be attractive in design at the same time. The plans, figure 4, show a cottage containing four flats for old people, and this could be built at a cost of £700, excluding land. If a short row of these cottages was built, the cost per unit would, of course, be less.

WORKING DETAILS : 279

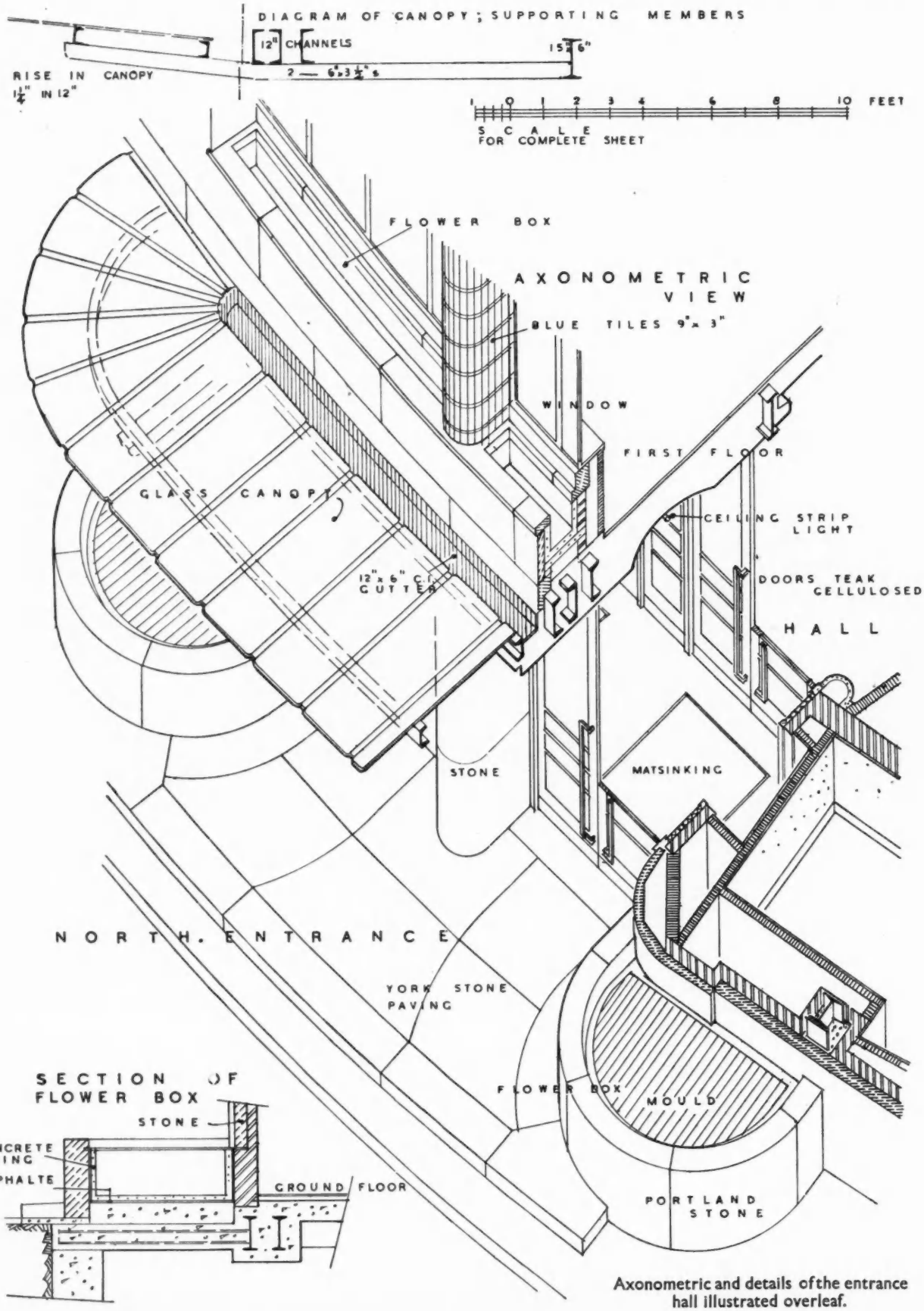
MARQUISE AND ENTRANCE • FLATS IN LOWNDES ST., S.W.1 • SIR JOHN BURNET, TAIT AND LORNE



The marquise illustrated above is carried on two 6 by 3½ in. channels hung from the channels spanning the entrance and tailed down to a floor joist : the supporting channels are cased in anodized aluminium. The base of the building is faced with reconstructed Portland stone with a horizontal band of plum-coloured marble at either side of the door. An axonometric and details are shown overleaf.

WORKING DETAILS : 280

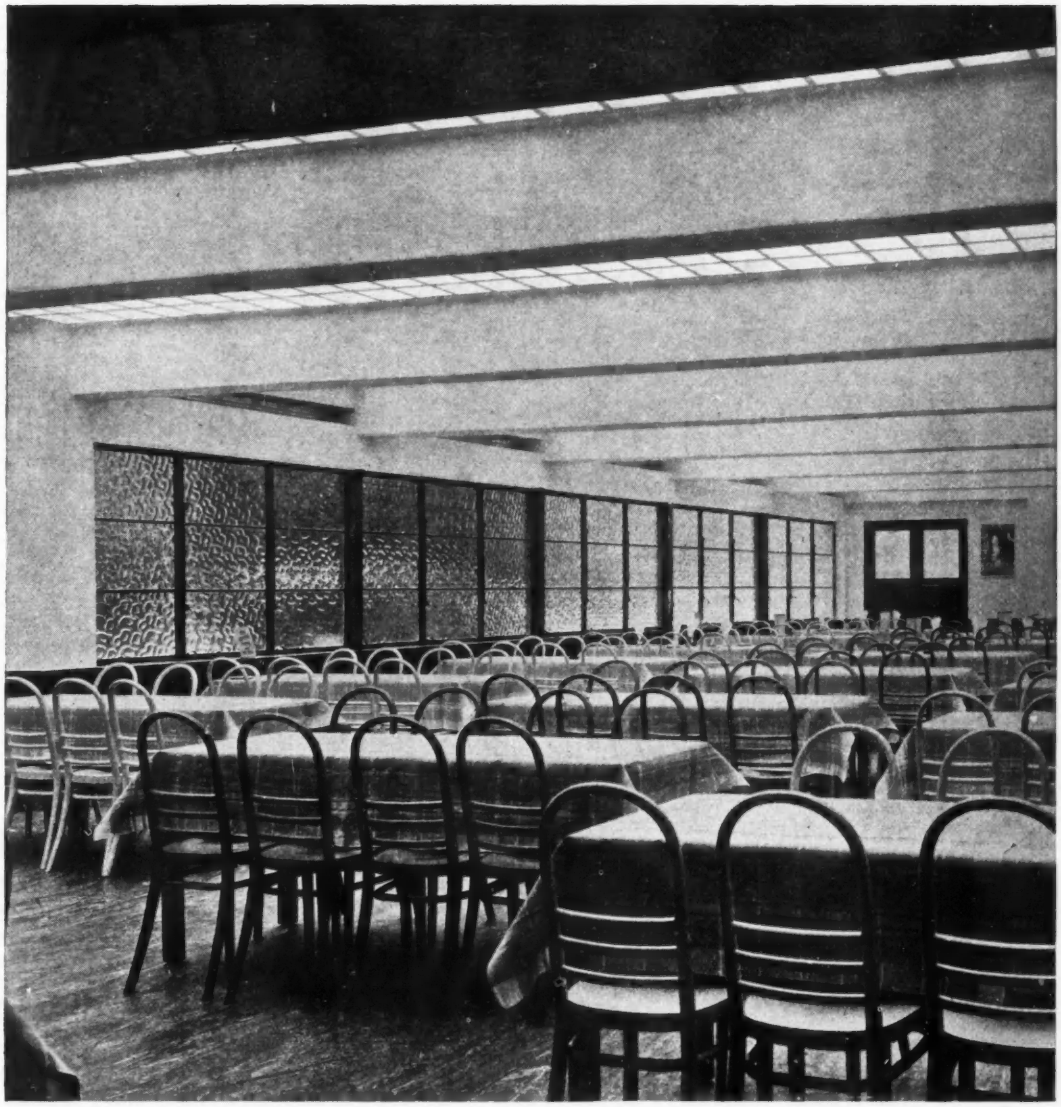
MARQUISE AND ENTRANCE • FLATS IN LOWNDES ST., S.W.1 • SIR JOHN BURNET, TAIT AND LORNE



Axonometric and details of the entrance hall illustrated overleaf.

WORKING DETAILS : 281

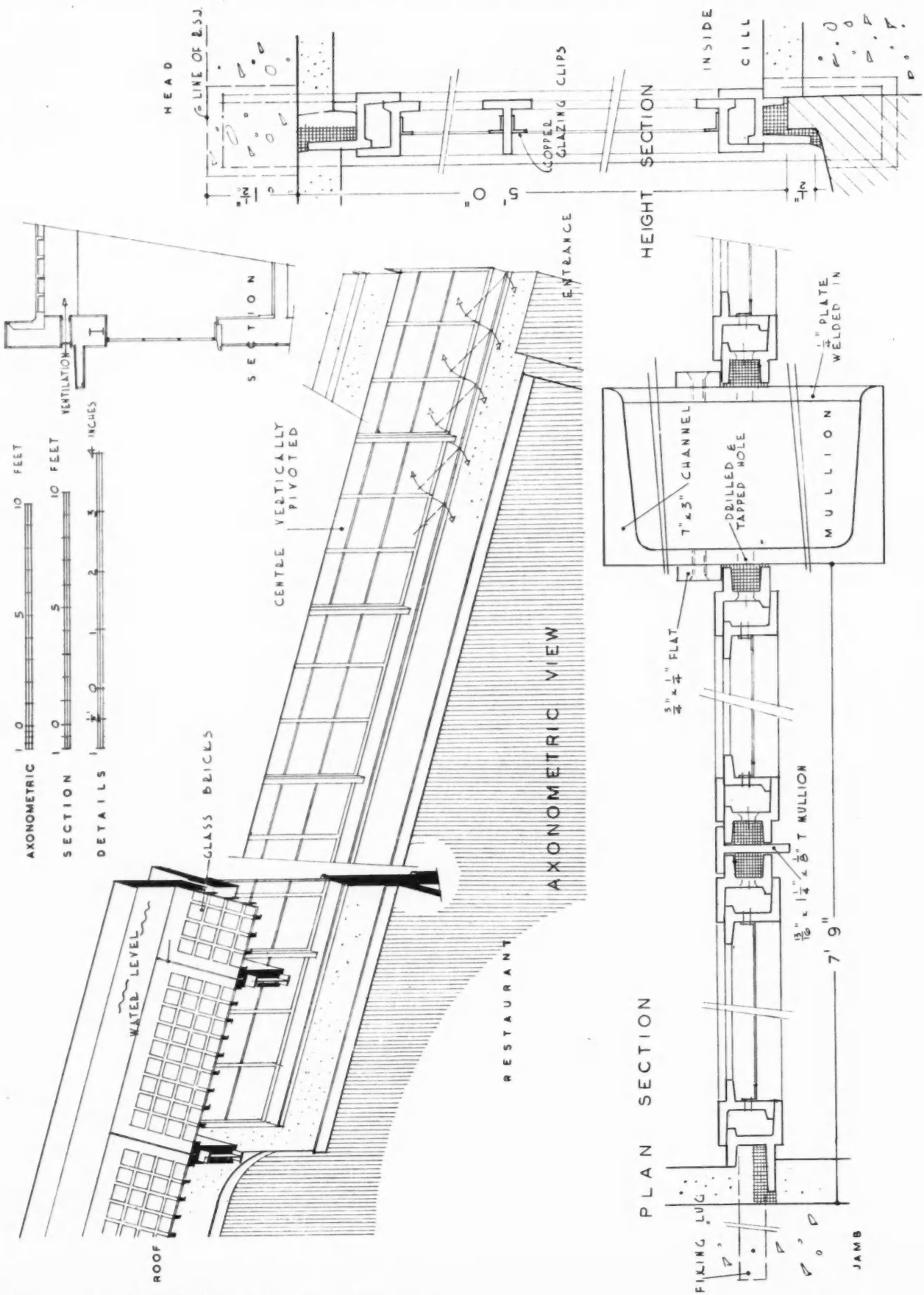
METAL WINDOWS • RESTAURANT AT CHEDDAR • RUSSELL PAGE AND G. A. JELLICOE



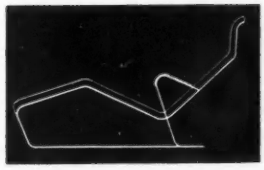
These windows are built up of standard metal sections, the mullions consisting of a channel section with a flat plate welded to it, the whole forming a box section supporting the roof above. An axonometric and details are shown overleaf.

WORKING DETAILS : 282

METAL WINDOWS • RESTAURANT AT CHEDDAR • RUSSELL PAGE AND G. A. JELLICOE



Axonometric and details of the windows illustrated overleaf.



PERIODICALS

MAY ANTHOLOGY

AMERICA

American Architect
(Monthly, $1. 572 Madison Avenue, New York)

APRIL. Remodelling schemes : awards in the G.E. small house competition. An excellent reference data article on waterproofing and dampproofing.

Architectural Record
(Monthly, 50 cents. 115 West 40th Street, New York)

May. Furnishing the interior, an article by William Muschenheim, with numerous illustrations. Some interesting chair designs by Kem Weber, Marcel Breuer and others, and a useful analysis of furniture sizes and the angle of chair backs and seats.

Pencil Points
(Monthly, 35 cents. 330 West 42nd Street, New York)

May. The European architects series is continued with an article on the work of Gio Ponti : some measured drawings of garden pools, and other regular features. Mr. Magonigle's high horse is getting somewhat taller.

ARGENTINA

Revista de Arquitectura
(Monthly, $1. Lavalle 310, Buenos Aires)

April. The Edificio Volta, by Alijandro Bustillo, a large building for the sale of electrical appliances ; the main floors are showrooms, with offices above. A 5-page illustrated article on the work of Louis Sullivan.

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BELGIUM

La Cité
(Monthly, 5 fr. Librairie Dietrich, 10 Rue du Musée, Brussels)

No. 1. Memorials, a long article illustrated with numerous examples of work carried out during the last few years.

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FINLAND

Arkitekten
(Monthly, 15 fmk. Ainogatan 3, Helsingfors)

No. 4. A town planning scheme by P. A. Blomstedt for the Broholmen district of Helsingfors. Recent work by various architects and a review of the Helsingfors cemetery lay-out competition. The result seems to have aroused a certain amount of discussion.

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FRANCE

L'Architecte
(Monthly, 12 fr. 2 rue de l'Echelle, Paris)

March. An open-air school at Suresnes by Beaudouin and Lods, arranged on the pavilion plan and built under the Mopin system. A telephone building in the Boulevard Vaugirard by J. Debat-Ponsan.

L'Architecture
(Monthly, 6 fr. 51 rue des Ecoles, Paris 5e)

May. Further competition schemes for various sections of the 1937 Paris exhibition. The town hall at Boulogne-sur-Seine, by Tony Garnier, and churches at Groningen and Bolsward by H. C. van de Leur.

La Technique des Travaux
(Monthly, 10 fr. 54 rue de Clichy, Paris 9)

May. Chemical research laboratory by Eugène Dhuicque and a "Cité Scolaire" in Morocco by Antoine Marchisio, an interesting symmetrical plan. Various civil engineering projects, including the Sautet barrage on the river Drac, not far below the Gorges du Loup.

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GERMANY

Baugilde
(Fortnightly, 1 m. 50. Grünstrasse 4, Berlin, S.W.19)

No. 9. Result of a competition for mosaic panels in the Deutschen museums at Munich, won by Hermann Kaspar. Various types of flower window designed by Walter Loeffler.

No. 10. Decorative sculpture for building : the work of Fritz von Graevenitz.

Baukunst und Städtebau
(Monthly, 1 m. 90. Bauwelt-Verlag, Berlin, S.W.68)

May. Designs submitted in competition for a mausoleum for Field-Marshal von Hindenburg. The new university buildings at Aarhus, and various other jobs already illustrated in *Bauwelt*.

Baumeister
(Monthly, 3 m. Georg D. W. Callwey, Munich)

May. A new pump room at Wildbad by Baurat Schuler, a logical plan, but the interior is marred by a profusion of unfortunate palm trees. The engineering laboratories for the technical high school at Zurich by Otto Salvisberg, well illustrated with good plans and sections. Working details.

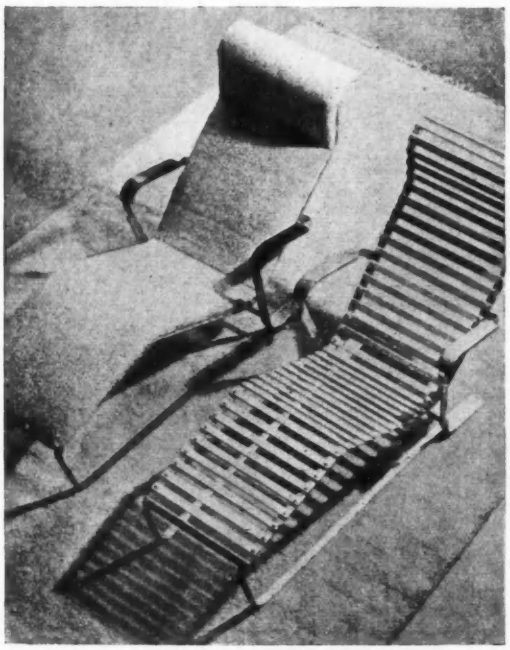
Bauwelt
(Weekly, 90 pf. Ullstein verlag, Berlin S.W.68)

May 2. Soundproofing for buildings, some interesting constructional details. A table giving the essential dimensions for restaurant seating. Workers' housing in Stuttgart by various architects.

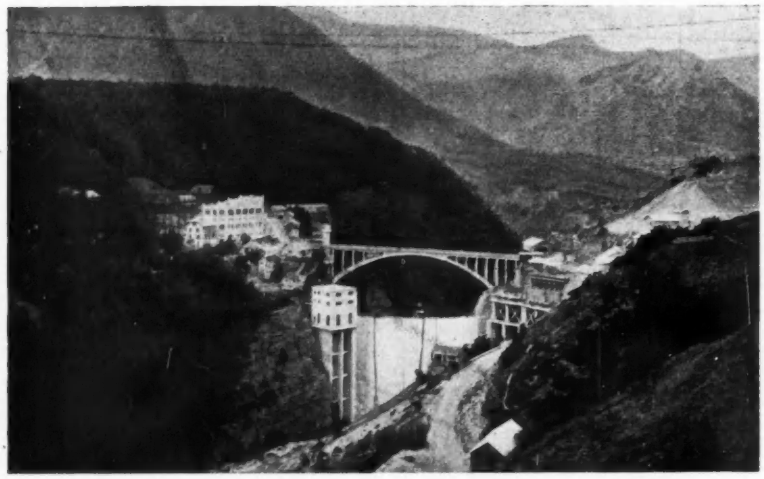
May 9. More gasproofing, with some informative working details.

May 16. Result of a competition for a concert hall at Garmisch-Partenkirchen. Essential dimensions for sleeping accommodation in youth hostels.

May 23. Windows, various methods of



Two versions of an aluminium chair designed by Marcel Breuer and awarded first prize in the international competition. [*From the "Architectural Record."*]



The Sautet hydro-electric barrage on the river Drac. [*From "La Technique des Travaux."*]

ventilation, heating, curtaining and shuttering. Detached workers' houses at Selchow by Robert Heuschmann.

May 30. Office dimensions, chair, desk, locker, and filing cabinet lay-outs. A week-end house by Rudolf Lodders.

Deutsche Bauzeitung
(Weekly, 3 m. 40 per month. Seydelstrasse 6, Berlin S.W.19)

May 1. Two theatre competition results: relatively normal plans with ample foyer space.

May 8. Workers' housing, a four-room detached house of wood-frame construction.

May 15. Various recent country post offices.

May 22. Furniture and housing equipment shown at an exhibition at Stuttgart.

May 29. Measured drawings of further post office entrance doors and gates.

Innen-Dekoration
(Monthly, 2 m. 50. Mecharstrasse 121, Stuttgart)

No. 5. A house in the Grünewald by F. A. Breuhaus, well illustrated and with good plans. Interior decoration jobs, furniture and light fittings.

Moderne Bauformen
(Monthly, 2 m. 25. Julius Hoffmann, Stuttgart)

May. The "German House" in Prague, by Friedrich Lehmann; a well-illustrated job, the essential dimensions, cornice height, window proportions, etc., of which were fixed beforehand by an outside committee: the result is surprisingly good. Holiday and week-end houses in country districts.

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HOLLAND

Bouwkundig Weekblad Architectura
(Weekly, 15 florins per annum. Weteringshaus 102, Amsterdam)

May 4. Brussels exhibition: the main hall, with constructional details.

May 11. Two houses at Rotterdam by Brinckman and van der Vlugt.

May 25. The older canal buildings of Amsterdam.

de 8 en opbouw
(Fortnightly, 30 cents. Amstel 22, Amsterdam C)

Nos. 10-11. A town-planning article, "The Functional State."

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HUNGARY

Tér és forma
(Monthly, 4 pengös. Teréz-körut 56, Budapesth VI)

No. 5. The R.I.B.A. building and a block of flats by L. Lauber and I. Nyiry.

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ITALY

Architettura
(Monthly, 18 lire. via Palermo 10, Milan)

April. Giovanni Bosio's golf club at Firenze, already illustrated in the *Architectural Review*. New buildings at Sabaudia by Angelo Vicario: various competition results.

Rassegna di Architettura
(Monthly, 12 lire. via Podgora 9, Milan 105)

April. Information sheets on bathrooms; the monumental fountain in the Mussolini Forum in Rome, and two interesting medium-sized country houses.

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SWEDEN

Byggmästaren
(Weekly, 15 kr. per annum. Kungsgatan 32, Stockholm)

No. 14. An obituary notice of Carl Bergsten, by Ivar Tengbom. Holiday and week-end houses, mostly in wood, some constructed in sections.

No. 15. The preservation of timber from insect attack.

No. 16. Welding and bolted joints in recent building construction.

Form
(Monthly. Nybrogatan 7, Stockholm 7)

No. 4. Week-end houses constructed sectionally in wood: camping equipment, including an ingenious collapsible bed.

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SWITZERLAND

Schweizerische Bauzeitung
(Weekly, 1 fr. Dianastrasse 6, Zurich)

May 4. Competition for a school at Winterthur, won by Kellermüller and Hoffmann; a very open plan.

May 11. Further schemes submitted for the competition referred to above.

May 18. The design of the Protestant church.

May 25. A review of an exhibition at Basle devoted to small week-end houses.

Werk
(Monthly, 3 fr. 60. Mühlebachstrasse 59, Zurich)

May. Further country and week-end houses. An interesting article on the processes employed for printing the magazine, illustrated with some good photographs.



A cinema and a combined bank, hotel and flat block in Shanghai, by L. E. Hudec. [*From "Baumeister."*]

TECHNICAL SECTION: 20

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

O.B.E., D.Sc., M.Inst.C.E., Hon.A.R.I.B.A., A.M.I.E.E., F.C.G.I., M.I.H.V.E., M.Am.S.H.V.E.

AND J. R. KELL, M.I.H.V.E.

WARMING BY HOT WATER

IT has already been explained that hot water in this country is often the best compromise as a medium for heating, on account of its simple temperature control to meet variations in weather, and the absence of the parching effect commonly associated with steam and heated air. Warming by hot water therefore deserves detailed consideration.

EMISSION FROM HEATING SURFACE

The question of the choice and disposition of heating surfaces for any particular installation has previously been discussed and it now remains to show how the amount of such surface necessary to meet a given heat loss may be established.

EMISSION FROM PIPES

Piping of cast iron or steel, when used as a heating surface, is commonly placed near the floor round the walls, or overhead under an exposed roof or skylight. Frequently two, three or four pipes placed vertically above one another are required to provide the necessary heating surface, though where more than two pipes are used, the masking effect of the adjacent surfaces becomes important and the transmission is reduced.

It is sometimes convenient, and architecturally permissible, to provide the main heating surface in the form of radiators with the main pipes serving them left exposed. In this case the heat emission from the pipes is taken as assisting in the general heating and greater economy is achieved than if they are buried in a trench.

Table XXXIV gives the emission in B.T.U.s per foot run of the commercial sizes of pipes for various temperature differences. It will be seen that small pipes have a greater emission per sq. ft. than large ones.

The following example will illustrate the use of this table :—

Water flow temperature—180° F. } mean 160° F.
" return " —140° F. }
Air in room .. .. 60° F.
Difference .. .. .. 100° F.

Heat loss of room .. 22,500 B.T.U. per hour
Length of pipe possible around room .. 100 ft.

$$\text{B.T.U. per foot} = \frac{22{,}500}{100} = 225$$

With 100° difference (from table) 1—4 in. pipe gives 232 B.T.U.s per foot.
Alternatively 2—1½ in. pipes give 220 B.T.U.s per foot.

TABLE XXXIV
TRANSMISSION OF IRON PIPES
B.T.U. per lineal foot per hour
For bare pipes

Nominal Size of Pipe Inches	Temperature Difference (° F.) between Air and Mean Water						
	60°	70°	80°	90°	100°	110°	120°
¼	29	35	42	48	56	63	71
½	35	44	53	61	70	79	88
1	41	50	60	70	80	90	101
1¼	49	61	73	85	98	110	123
1½	56	69	82	96	110	124	139
2	66	81	97	113	129	145	163
2½	79	96	115	135	154	174	194
3	96	118	141	165	188	212	237
3½	107	130	156	182	208	234	263
4	119	145	174	203	232	262	292
5	144	176	212	247	282	318	354
6	170	208	249	291	331	373	515

EMISSION FROM HEATED PANELS AND RADIATION OF VARIOUS FORMS

The radiation from heated surfaces is proportional to the difference of the fourth powers of the absolute temperatures of the radiating and absorbing surfaces. This law is known as Stefan and Boltzmann's.

Convection from heated surfaces varies considerably with their form and height, but if the heat emitted by convection at any one temperature is known, that at some other temperature will be proportional to the temperature difference to the power of 5/4 (approximately).

It has been pointed out previously that probably no surface gives 100 per cent. radiation, though a ceiling panel closely approaches it (about 90 per cent.). Panels on walls may have 60 per cent. radiation and 40 per cent. convection, and in floors 50 per cent. radiation and 50 per cent. convection. Radiators of the ordinary cast iron type vary according to their convolutions, but transmit commonly 20 per cent. by radiation and 80 per cent. by convection.

Combined radiation and convection from most types of heated surface, when plotted for various water-air temperature differences, is found to follow a logarithmic curve. Knowing the transmission at any one temperature the total transmission (radiation plus convection) at any other normal temperature may be calculated approximately as proportional to the temperature differences to the power of 1·3.

Fig. 107 shows curves plotted on this basis for three main classes of heating surface. It will be noted that whilst those mostly radiant (curve No. 1) are superior in transmission to those mostly convected (curves 2 and 3) the differences are not considerable. The figure also shows the range of temperature over which the various forms of surface normally operate.

Radiant Surfaces.—The radiation of large flat surfaces, covered by curve 1, is often given an increased value on account of the so-called "comfort effect." One method divides the total emission into two parts, radiation and convection, of which the former is about 45 per cent. and the latter 55 per cent.

It is then stated that for ceiling positions the radiation should be increased by 100 per cent. and the convection reduced by 50 per cent. For wall positions the radiation is increased by 100 per cent. and the convection reduced by 20 per cent. For floors the total remains unaltered. When, as is usual, however, a guaranteed temperature (as determined by an ordinary thermometer) has to be provided, this effect may not be allowed for and the actual transmission in B.T.U.s per sq. ft. taken from the curves is the safe basis.

In Fig. 107 the temperature of water taken in arriving at the difference between water and air, is (as for pipes) the mean of the flow and return. This, however, is not necessarily the surface temperature except in the case of radiators where the drop through the metal is negligible. With metallic plate panels a water mean of 150° will give a surface mean of 140° and with embedded panels a mean water temperature of 125° will give a surface mean of 95°. Actually, of course, temperatures vary over the whole intermediate surface between the heating elements.

Embedded Panels.—The greater the spacing apart of the water tubes in an embedded panel, the greater, up to a point, the transmission will be per foot run of pipe, but the smaller the trans-

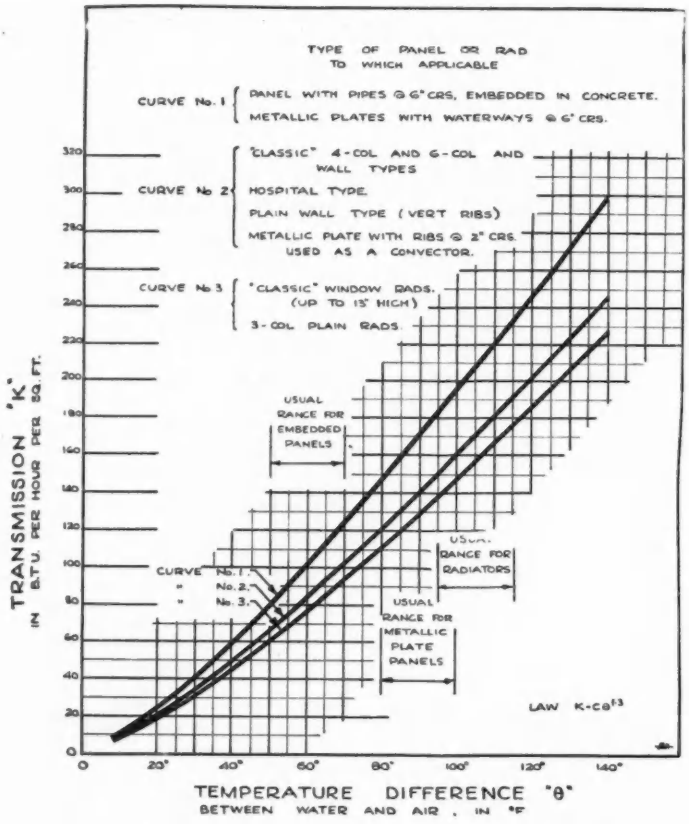


Figure 107. *Emission from various types of heating surface.*

mission per sq. ft. of surface, since a greater surface is available for radiation for a unit of length. Results of tests carried out with pipes embedded in concrete at 4½ in., 6 in., 9 in., 12 in., and 18 in. centres show the transmissions per foot run of pipe and per sq. ft. of surface given in table XXXV at 62° difference mean water to air.

TABLE XXXV

HEAT-TRANSMISSION FROM EMBEDDED PANELS

Centres of Pipes	½ in. Copper Pipe		¾ in. Copper or 1 in. Iron Pipe	
	Per ft. run	Per sq. ft. of surface	Per ft. run	Per sq. ft. of surface
4½ in.	40	107	45	120
6 in.	47½	95	52½	105
9 in.	51	68	56	75
12 in.	54	54	59	59
18 in.	56	37	61	40

A spacing of 6 in. appears to be a good compromise between excessively large areas of heated surface and a reasonably high transmission rate.

A temperature drop of 15° F. is usual with embedded panels. This is less than commonly taken for radiator systems on account of the lower temperature of the flow and the necessity for providing a fairly uniform distribution of heat over the whole surface.

The maximum flow temperature taken for this system is 135° F., giving a return of 120° and a mean of 127½°. With air in the room to be heated at 65°, the difference is thus 62½°, and from curve 1, Fig. 107, the emission is 105 B.T.U.s per sq. ft. of surface for ½ in. iron pipes. This basis appears to apply satisfactorily whether the panel is in the ceiling, wall or floor, or whether covered with plaster, stone, marble, or other good heat-conducting finish.

Fibrous plaster under a ceiling panel is unsuitable owing to the voids which are left in such a material, though it has been used in special applications when it is possible to get access to the back and fill these in solid with plaster over the pipes.

When in floor screed, insulating coverings of wood, cork or rubber are unsuitable. Hard materials are liable to crack unless divided into small areas. This is naturally always done with marble, stone and tiles, but can also be arranged with terrazzo and other hard finishes and is to be recommended. A carpet placed over heated floor panels does not appear to reduce the transmission, as presumably the small fibres all become heated by conduction.

It is found to be unpleasant and tiring to sit for long with the feet in contact with a warm floor, even though the surface may be at no more than 90 deg. or 95 deg. and for this reason floor heating surfaces are usually confined to halls and corridors, or are kept as a mere border close to the walls where no one sits.

Ceiling Panels.—The normal (and often the most convenient) position for embedded pipe panels is in the ceiling. Here they are embedded in the concrete soffit of the floor slabs during construction and are subsequently finished with a special plaster made with a finely ground hydrated lime, sharp sand and long cowhair. The setting coat mesh has a scrim of ⅛ in. coarse hessian trowelled into it to prevent surface cracking.

A point of great importance is the key provided on the concrete for the adhesion of the plaster. This requires to be as good as possible and is very suitably provided by laying grooved tile slips between the pipes, or by placing grooved rubber sheeting over the shuttering before the pipes are laid, this being subsequently removed, so leaving a deeply serrated surface. Hacking is objectionable as giving an insufficient key and involving risk of damage to the panel pipes.

A completed ceiling panel and slab is shown in section in Fig. 108.

As concrete is a good conductor of heat a proportion is transmitted upwards, and, where the slab forms the roof, good insulation by cork, moler brick or other method as already described (see page 168) is essential. Where serving the lower floor of a multi-storey building this upward transmission should be allowed for by making an addition of about 25 per cent. to the heating surface, or underheating of this floor may occur. With intermediate floors the upward heat balances the reduced heat downward, but the top floor may have a corresponding reduction made. The above figure of 25 per cent. applies to concrete slabs 6 in. to 8 in. thick with timber or similar floor finish over. If a stone or hard finish is above, this should be increased to 33⅓ per cent. If the slab has hollow tiles above, the pipes 15 per cent. only goes upward.

A number of different applications of embedded panels are possible for floor slabs and false ceilings of various types, but these are too numerous to detail here. It may be said, in general, that, provided adequate care and experience is brought to bear on any particular case, there is no type of ceiling construction to which embedded heating panels cannot be satisfactorily applied.

A question often asked is "What about expansion of the pipes, and won't the ceilings crack?" The answer is that when embedded in a solid slab the pipes are restrained from expanding. This restraint brings into play compressive stress and strain in the pipe and tensile stress and strain in the concrete. When low temperatures are employed, as recommended, it can be shown that the stresses induced are too low to cause cracking of concrete or damage to pipes. This is, in fact, borne out in practice, as hundreds of examples can be cited where this type

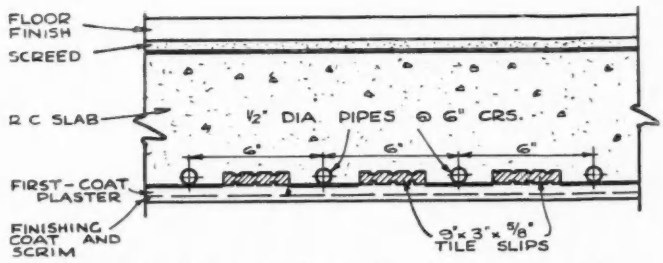


Figure 108. *Detail of ceiling panel in reinforced concrete slab.*

of heating has been applied without cracking.

A test was carried out some years ago at the Authors' instigation with a sample panel of pipes embedded in concrete, and plastered in the normal way. Boiling water and iced water were alternately passed through the coils in an endeavour to produce cracking, but without success. Whilst this is an interesting experiment it is not suggested as applicable in practice with slabs of great expanse. It does, however, indicate a considerable factor of safety at the small ranges of temperature normally employed.

In the early days of panel heating, the concrete floors were cast first, and panels of compo pipe were then slung up and fixed thereto and subsequently plastered. Here the normal insecurity of plaster applied to a concrete ceiling was much enhanced by the expansion and contraction of panels plus plaster, and separation was bound to occur. This type of pipe also had a low yield point and suffered by being strained beyond this limit with many reversals of stress.

None of these objections apply when copper or steel are embedded in the concrete slabs above the plane separating them from the plaster.

Ceiling Panels in High Rooms.—The effectiveness of ceiling panels does not appear to be reduced by the height of rooms normally encountered in practice, at any rate, up to 30 ft. or so. In such rooms, however, the windows are often high, and it is found that a band of panels under the cills is desirable to prevent down draughts.

Metallic Plate Panels.—Owing to the higher temperature at which these may be operated the emission per square foot from curve 1, Fig. 107, will be seen to be from 147 to 195 B.T.U.'s per hour per sq. ft. of exposed surface.

With a standard cast iron section 30 in. high by 16 in. wide, giving $3\frac{1}{3}$ sq. ft. frontal area and with a co-efficient of 195 (at 100 deg. diff.) the transmission per section will be seen to be 650 B.T.U.'s. This is less than the manufacturers' rating, but it is doubtful whether higher outputs are reliable. It should be noted that the catalogue area of such sections is often misleading, as it is the total of both back and front, whereas the useful surface in the normal case is the front only.

Steel plate panels are adaptable to almost any shape, size and position, but are best concentrated under or over the windows, where the major heat loss occurs.

In the ceilings of rooms less than 10 ft. high it is undesirable for metallic plate panels of any type to be used at temperatures of more than 120 deg. on the surface, corresponding to a water mean of 130 deg., as above this the intensity of heat radiated on to the head is unpleasant.

Metal plate panels in the ceiling must be jointed to the plaster at the edges, and to prevent a crack appearing a cover strip is usual. This is not always architecturally desirable and for this reason the embedded panel is to be preferred. Metal plates are much more adapted to wall positions, though it will generally be found that their length considerably overruns the spaces under the windows.

Metallic plate with ribs used as a convector.—This is a cast-iron panel having ribbed vertical waterways at 2 in. centres on the back, intended to be left free for air convection as shown in Fig. 109. Owing to the increased surface per foot of length, as compared with the plain, non-ventilated, type, these generally do not outrun the confined space of the window position. They are, in effect, radiators of the ordinary type with the space between the sections filled in solid on the front, and, as may be expected, have nearly the same co-efficient of transmission per sq. ft. coming as they do about 3 per cent. above curve two, Fig. 107.

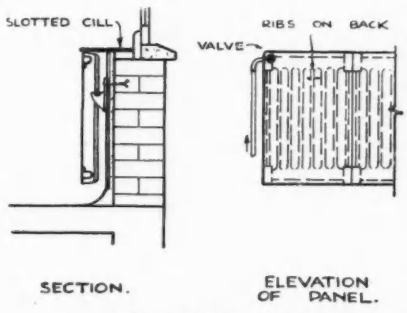


Figure 109. *Ribbed metallic-plate convector.*

Radiators.—Curves two and three, Fig. 107, apply to the types of radiators in common use.

Table XXXVI gives the co-efficients for various temperature differences more accurately and is slightly below maker's ratings. A mean water temperature of 160 deg. is usually allowed, which, with a 40 deg. drop through the system, normal with gravity circulation, gives a flow of 180 deg. and return of 140 deg. With 30 deg. drop, and pump circulation, these become 175 and 145 deg. respectively.

TABLE XXXVI
RADIATOR TRASMISSIONS
B.T.U. per sq. ft. per hour

Ideal Radiators	Temperature Difference in deg. F. between air and mean water					
	70	80	90	100	110	120
Neo-Classic No. 2. ..	106	129	152	175	198	224
,, ,, No. 4 ..	96	118	139	160	182	205
,, ,, No. 6 ..	90	110	130	150	170	192
Hospital 3 in.	106	129	152	175	198	224
,, 5½ in.	89	109	128	148	168	189
,, 7½ in.	84	103	121	140	159	179
Neo-Classic Window ..	89	109	128	148	168	189
Classic Wall	96	118	139	160	182	205
Plain Wall (horizontal)	90	110	130	150	170	192
,, ,, (vertical) ..	54	67	80	93	106	120
Plain Single Column ..	90	110	130	150	170	192
,, Two ,, ..	88	107	126	146	166	187

It will be seen that with 95 deg. difference air to water (160 deg.–65 deg.) a figure of 150 B.T.U.'s per sq. ft. is obtained for the more efficient types, and this is a convenient figure for general use.

Radiators are generally best placed under windows, both for architectural and technical reasons. Architectural because here they do not mar an otherwise unblemished wall surface, and technical, since this is the point of maximum heat loss. They counteract down draught, and do not cause dirty marks on the walls, since the window only is above.

Shelves over Radiators.—It is frequently desirable to carry the cill of the window over the top of the radiator, the latter being placed in a recess in the wall so as to save floor space.

Similarly, when placed against a wall, not under a window, the provision of a shelf over a radiator is necessary to prevent, as far as possible, the smoky marks above it, which would certainly otherwise occur. The jointing to the wall should be sound, as the slightest crack will allow a black mark to form, and end shields are necessary to prevent markings at the sides. A useful shield is one made of one piece of metal with the angle curved, and to the top of this, timber, marble, or other material, may be screwed as in Fig. 110.

Provided such shelves are not less than 3 in. above the radiator the reduction in transmission caused by them is so slight that it may be ignored. In fact it may be argued that, as the uprising current is baffled to some extent by a shelf, the layering of hot air near the ceiling is reduced, with

consequently better diffusion at lower levels.

Radiator Grilles.—Where the appearance of radiators cannot be tolerated on architectural grounds, grilles of painted iron, bronze, hardwood or other material are commonly used to enclose them. These not only reduce the heat transmission, thereby calling for increased surface, but are in themselves costly and dirty. Means should be provided for their removal for cleaning, but even so it is generally found that the interior spaces are seldom brushed out.

It is desirable, therefore, to avoid these enclosures, if possible, by adopting other forms of heating surface, such as one of the panel types, and it is often questionable whether these are any more costly when the expense of the grilles is taken into account.

Cases exist, however, where radiators in grilles present the only solution, and it is then a question of how much extra surface is required to maintain the same temperature. This largely depends on the form of grille, and additions from 20 per cent. to 33 per cent., depending on the amount of free opening left, are necessary. It should be remembered that with a suitable design of grille it is possible to produce a "flue" effect and so increase the transmission from a radiator, as in the case of the finned copper tube convector in Fig. 47 (page 420).

Painting of Radiators.—It has already been mentioned (see page 94) that the best radiating and absorbing surface is dead black, and that the painting of a surface white (such as a roof) will reduce the absorption and radiation considerably. Whilst this is true of high temperature radiation, such as is received from the sun, and is important when considering the material for a roof, it does not apply at low temperatures. Dr. Margaret Fishenden* states that the result of researches carried out by various authorities appears to confirm that radiation from various painted surfaces, glossy or matt, including black, green, brown, red, ivorine, and white is indistinguishable at temperatures below 212 deg. F. This is fortunate, since it means that any colour may be used with impunity.

Polished metallic surfaces are, however, bad *radiators* of heat (even at these low temperatures) (in some cases only 10 per cent. as efficient as the unpolished surface) as are the metallic paints such as aluminium, bronze or gold, though the *convection* is not of course affected.

The use of such metallic paints reduces the radiation component by about 50 per cent. Assuming that an ordinary radiator emits 20 per cent. by radiation, a 10 per cent. total reduction may be expected. It is stated that a coat of varnish over a metallic paint brings the emissivity back almost to normal.

* *Calculation of Heat Transmission, page* 19.

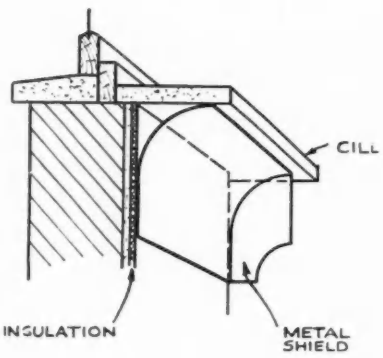


Figure 110. *Metal radiator shield.*

This is not the place to discuss the reasons why polished surfaces do not radiate and absorb heat so readily as painted ones, or why certain surfaces are better emitters at one wavelength than at others, even if the knowledge were available. These matters are bound up with the whole theory of radiation, which is at present undergoing rapid development, and the observed facts are all that concern us here.

Indirect radiators and convectors.—The emission from various types of purely convective heaters consisting of cast-iron finned tubes, and copper gilled tubes, depends on the height of flue to which they are connected, as mentioned on page 421. These are particular cases for which manufacturer's published data must be relied upon, and it is not proposed to give tables here applying to them.

Fresh air inlets to radiators.—Fresh air inlets are frequently provided behind radiators as in Fig. 111. Their effect is to increase the heat transmission by some 20 per cent. to 30 per cent., which is enough to counterbalance the reduction in efficiency caused by enclosing grilles. When such inlets are used a baffle plate is necessary in front of the radiator to prevent the direct in-flow of cold air, and means for closing the grating by adjustable louvres or a hit-and-miss register should be provided.

These inlets, admitting air straight from outside, tend to make the radiators and their enclosures dirty. It is, moreover, frequently found that after a number of years they have been stopped up on account of the draughts which occur with strong winds on that particular face. For these and other reasons they have fallen somewhat into disfavour, though their principle is sound.

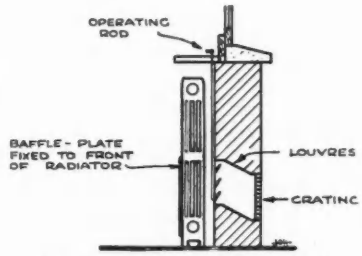


Figure 111. *Radiator baffle plate.*

Piping arrangement.—Having selected the type, position, and size of heating surface, and marked this on the plans of the building in question, the next stage is to determine how this shall be connected to the boiler with pipes in the most economical and effective manner, and how the water shall be circulated, i.e., whether by gravity or by a pump.

IN THAT CONTINGENCY

The following abstracts of inquiries represent a number of those recently submitted to the Building Research Station. The information given in the replies quoted is based on available knowledge. It has to be borne in mind that further scientific investigations may, in the course of time, indicate directions in which the replies might be supplemented or modified. Moreover, the replies relate to the specific subject of each inquiry, and are not necessarily suitable for application to all similar problems. Crown Copyright is reserved.

Injury to Decorations due to Moisture Penetration

¶ *THE advice of the Station was asked with respect to injury to decorations in the Council Chamber of a Town Hall recently built. It appeared that the injury was due to moisture penetration, but the mode of entry of the moisture was not clear. Furthermore, there was some uncertainty as to the nature of a parapet coping which appeared to be behaving badly. It was stated that the coping was in cast stone, but examination showed that it was actually a natural Portland stone. There was a considerable length of cast York stone coping in the same building and this was giving no trouble. The nature of the stones was probably not the cause of the difference in effectiveness, since it appeared that the penetration through the coping was principally by way of the joints and due to bad workmanship in bedding and jointing.*

The injuries to the decorations in the Council Chamber were in three different situations :—

(1) On the reveal of the window on the underside of the head.

(2) In patches on the walls. These were opposite the heads of projecting panels of brickwork.

(3) In the coving of the ceiling immediately below the coping referred to above.

After inspection of the damage, the discoloration of the decorations in the various situations was considered to be due to the following causes :—

(1) At the Window Heads.

The window frame was bedded against the solid 14-in. brickwork, with a narrow reveal externally. There being no break in the capillary path for the moisture in the straight joint, penetration could occur whenever the rainfall was sufficiently heavy to cause water to stream down the face of the brickwork. The provision of a small lead flashing in a groove cut in the brickwork on the soffit of the window head had been recommended by the builder responsible for the maintenance work in the building. This would throw the water down the outside of the frame and would be expected to effect a cure.

(2) On the Plain Wall Surface.

The trouble at these points was considered to be due to absorption of water by the brickwork at the head of the projecting brickwork panels. The surfaces of these were in some places actually sloping back to the wall surface. In several other parts of the building where the construction was similar, these surfaces had been flashed apparently with lead or copper, either during erection or subsequently. It was recommended that similar provision should be made wherever there was reason to suspect penetration at such points.

(3) In the Coving.

The position of these damp spots at once suggested entry of moisture by way of the parapet wall. The examination of the coping confirmed this. The parapet consisted of about 24 in. of 9-in. brickwork surmounted by a Portland stone coping, having an ample overhang twice throated and weathered to the roof surface. The joints were badly made, not being filled solidly but merely pointed either with a very rich cement mix or neat cement. This joint, as might be expected, had opened appreciably. The stones were not bedded solidly, the middle of the joint being empty. The stone itself was of reasonable quality and, though it was not possible to exclude the possibility of some penetration through the stone itself, the joints were almost certainly the points of major weakness.

There was no damp-proof course in the parapet.

It was recommended that the coping should be relaid in a " compo " mortar of good workability, solidly bedded and with the vertical joints properly filled. As an additional assurance the opportunity might be taken to insert a damp-proof course below the coping. Sheet copper would be a suitable material.

Plastering on Sand-Lime Bricks

¶ *DURING the past few years the production of sand-lime bricks has markedly increased in this country, and, as a reflection of this growth in production, an increasing number of inquiries is being received relating to various properties of the bricks. One type of question often raised refers to the suitability of the bricks for plastering, and frequently reference is made to a prevalent opinion that the bricks offer special difficulties. It is thought that some of the objections which have been raised are due to a natural hesitation on the part of operatives, when faced with an unfamiliar backing.*

The effective adhesion of a plaster to a surface depends mainly on two factors, viz. : " true adhesion " to the surface and the mechanical key provided by rough pores, undercut scoring, joints, etc.

The adhesion due to mechanical key, is, of course, important over lathing, but over solid surfaces it is seldom effective. This is due to the fact that, unless a portion of the plaster penetrates deep cavities in the surface and interlocks with the material, a definite mechanical key is not formed (i.e., undercutting is essential).

Raked joints in a brick wall act to some extent as a mechanical key, though they are not very effective in this particular respect since they are not undercut appreciably. Benefit is, however, derived from raked joints, probably chiefly in distributing shrinkage stresses uniformly and so reducing the tendency to the formation of large cracks and local breakdown of adhesion.

The large pores of a rough-faced brick or a breeze partition slab may provide some key, if filled by the plaster.

A third factor which is sometimes of great importance in affecting the ultimate adhesion of a plaster is the subsequent crystallization of salts derived from the background at the wall face just behind the plaster. This effect is not manifested during the actual plastering operation, but becomes evident later, often after a long time.

In relation to plastering, sand-lime bricks differ from many clay bricks in that they have level and uniform surfaces. They probably vary in suction from make to make over a somewhat narrower range than do clay bricks ; there is none so impervious as a clay engineering brick and few, if any, as porous as an underburnt clay brick. In any one make they are more uniform than the majority of clay bricks.

Owing to the uniformity of the bricks, the joints with sand-lime bricks are often narrower, better filled and finished off closer to the surface than with many clay bricks. The fact that normal sand-lime brickwork is frequently considered sufficiently good to stand without plaster work in corridors, staircases, etc., illustrates this general uniformity. Because of this uniformity, comparatively little mechanical key can be expected on a surface of sand-lime bricks.

Good adhesion of plaster is secured under conditions such that (1) the material of the bricks is easily wetted by the plaster, (2) the plaster comes into the most intimate contact with every portion of the surface and (3) the suction is sufficient to secure effective contact of brick and plaster, but not so great as to withdraw the moisture from the plaster and so leave a semi-dry layer next to the brick surface.

One reason why a somewhat porous surface texture is preferable to one that is glazed, is that the former not only increases the effective area of ahhesion, but provides what may be regarded as a large number of minute undercut mechanical keys, if the plaster makes really intimate contact without being unduly dried out.

There is no doubt that the surface of a sand-lime brick is as readily " wetted " by plaster as any burnt clay, and more easily than certain glazed surfaces.

The suction of a sand-lime brick, as stated above, is in general comparable with that of average clay building bricks. A brick must not be too " thirsty " or it will dry out the plaster unduly ; nor must it be too wet, or of too low a suction, for a moderate degree of suction is, as stated above, a great aid in ensuring effective contact between the brick and plaster. The moderate but uniform suction over the surface of a sand-lime brick wall is favourable for obtaining a high degree of intimate contact with, and of true adhesion to, the plaster.

With regard to the risk of plaster failure due to the crystallization of soluble salts, it can be stated that, as a class, sand-lime bricks rarely contain more than traces of such salts.

The absence of these salts is also beneficial if the plaster is to be decorated immediately with oil paint. Building Research Bulletin No. 11, " The Effect of Building Materials on Paint Films," published by H.M. Stationery Office, London, 1934, price 3d. net, deals with this problem.

In general it may be stated that there is no evidence that the bricks are in fact difficult to plaster or that there is any special liability to subsequent failure of plaster.

Moreover, experience with sand-lime bricks in countries where they have been in general use for a long period affords no indication of difficulties in this connection.

It appears desirable to emphasize that the remarks with respect to plastering on sand-lime bricks only apply to products of good quality. The British Standard Specification No. 187—1934 (which may be obtained from the British Standards Institution, 28, Victoria Street, S.W.1, price 2s. 2d., post free) provides users with a means of ensuring the supply of good quality bricks.

For information on the general characteristics of sand-lime bricks, reference may be made to Building Research Special Report No. 21, " Sand-Lime Bricks," which may be obtained from H.M. Stationery Office, price 1s. 3d. net.

●

Manufacturers' Items

For some years past The Adamite Company, Limited, and Redalon, Limited, though separate companies, have been conducted conjointly. An amalgamation has now been completed to take effect as and from July 1, 1935, whereby the Adamite Company, Limited, and Redalon, Limited, together with their subsidiary manufacturing and distributing companies, including F. E. Doran, Ltd., of Manchester, and the Adamite Company, Limited, of Birmingham, will trade under the name of The Adamite Company, Limited, at Manfield House, Strand, W.C.2. The Manchester office will remain at 42 Deansgate, Manchester, under the management of Mr. F. E. Doran, and the Birmingham office at 83 Colmore Row, Birmingham, under the management of Mr. D. R. Base. This arrangement, which has been brought about by the increase of business making internal organization somewhat complicated, will prove beneficial, as it will simplify the ordering of goods and speed up distribution. The technical departments will not be in any way affected.

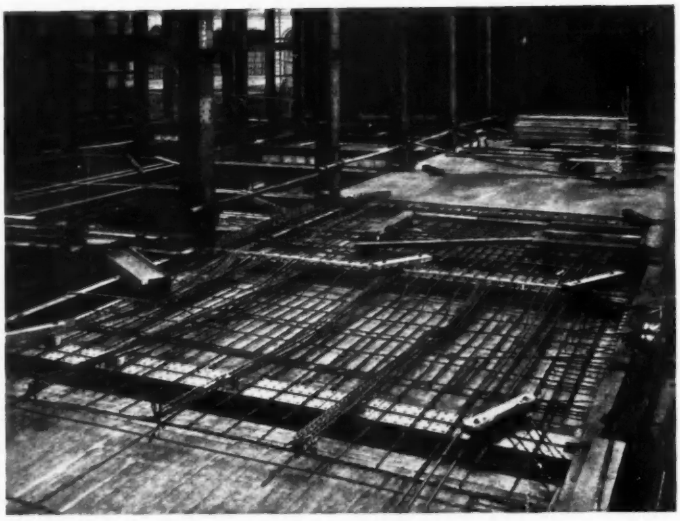
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We have received from Messrs. Henry Hope and Sons, Ltd., a small tin of Wakefield's Oilit. In a covering letter the firm writes : " We are sending similar tins to all users of our windows, as we find from experience that whereas the owner of a bicycle, lawn mower or a piece of machinery of any kind will, with a view to preserving it in good order, give a few minutes occasionally to oiling the working parts, the householder or caretaker, hardly if ever, thinks of doors, window hinges, and other fittings unless through long neglect they suddenly cease to function. We are hoping that this little reminder will impress upon our customers that our interest in our windows does not cease when they are installed, and that it will prevent them from being entirely neglected."

Announcements

Mr. William M. Guild has commenced practice as an architect at 16, Crossgate, Cupar, Fife, where he will be pleased to receive manufacturers' catalogues, etc.

Messrs. Bettington and Son, Architects and Surveyors, of Hereford, are moving on July 1 to No. 12 Castle Street, Hereford. Telephone No. : Hereford 2042.



TRADE NOTES

[BY F. R. S. YORKE, A.R.I.B.A.]

Concrete Reinforcement

IT is well known that if ordinary mild steel is "worked cold" its tensile strength is increased; in other words, the steel is "physically developed," as, for example, in the drawing of wire.

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Isteg steel for concrete reinforcement is produced by twisting around each other two round mild steel bars. The bars are placed side by side in a machine with two headstocks in which the ends of the bars are gripped. These headstocks cannot approach each other, but one of them is made to revolve, with the result that the bars are twisted and, at the same time, stretched.

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This twisting and stretching is carried out to a calculated stage beyond the yield point of the component bars, which have as their axis of rotation a line at which they make contact throughout their whole length, with the result that the entire cross section of each bar is developed. The resulting twin bar will have a rectangular stress strain diagram giving a guaranteed yield point (taken at 0·2% permanent elongation) of not less than 54,000 lb. per square inch. The permissible stress, therefore, in the case of Isteg can be safely increased by 50%, which is equivalent to 27,000 lb. per square inch.

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I understand the Austrian, Czecho-Slovakian, French, German and Polish authorities permit the use of Isteg steel at a working stress of 50% over that allowed for ordinary mild steel.

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The practical result of this higher stress is that one ton of Isteg steel replaces one-and-a-half tons of ordinary mild steel in tension reinforcement. There is no necessity for any increase in the amount of concrete employed, as exhaustive trials and tests have shown that in conjunction with Isteg steel the permissible stress for concrete may be increased by 15%, and this is allowed by the German and Austrian decrees.

•

Isteg steel is bent and laid in exactly the same way as plain round bars, and should present no difficulty to the workmen on the site. The photograph shows Isteg used as concrete reinforcement in the new building for the Bank of England, under the supervision of Dr. Oscar Faber.

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Tables are available showing the sizes of Isteg that will replace corresponding plain mild steel bars, so that no more calculations are necessary than for plain bars.

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The advantages claimed for Isteg are :—

1. *Safety.*—Each Isteg bar is tested in the process of manufacture, when it is subjected to at least twice the stress it will be called upon to bear in the concrete structure. Any defects are revealed during the stretching process.
2. *Economy.*—As the efficiency of Isteg is 50% greater than that of ordinary mild steel, there is a saving of one-third of :
   (*a*) the weight of steel required in tension members ;
   (*b*) transport costs ;
   (*c*) bending and fixing costs.
   Hooks are not required when Isteg is used. This is said to effect a saving of at least 5%.
3. *Bond.*—Isteg provides an excellent bond with the concrete.
4. *Scale.*—The bars are free from scale.

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The price of Isteg is so regulated in relation to that of ordinary steel as to effect a saving of not less than 15% in the cost of the reinforcement.

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Isteg steel is manufactured by Messrs. Dorman Long & Co., Ltd., at Middlesbrough, by twisting together two bars of equal diameter in any normal size between 7/32 in. and 25/32 in. It is protected by patents covering both the process and the machines in which it is produced.

Paint

On June 6 a note appeared dealing with paint for concrete, concerning which I had received information in response to a request that appeared on April 18. I have since received information concerning Silexine.

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Silexine is made from finely ground stone incorporated in a media consisting of casein emulsified with a specially prepared oil. It can be applied on cement and concrete and on brick, wood, stone, asbestos sheeting, etc. In the case of old paint-work and surfaces such as brickwork it is advisable to apply two coats, otherwise one coat is sufficient.

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Silexine is supplied in ½ cwt. and 1 cwt. drums, ready for use, in three distinct forms :—

thinned
standard
texture.

It can be applied with 3 in. or 4 in. flat brush, immediately followed with a stippler, when a very fine effect is required. It can also be applied with a special steel tool to give a smooth surface.

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One coat of Silexine covers approximately 90 sq. yds. per cwt.—the material costs from 75s. to 80s. per cwt., according to quantity. One coat costs about 10d. per sq. yd., plus labour costs as for ordinary paint.

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It should not be brushed out, but rather "smacked on" and then stippled, so that it shall be smooth and solid and free from grinning and lumps. It is obtainable in a variety of shades, and special colours can normally be matched.

LAW REPORT

APPORTIONMENT OF STREET WORKS—QUESTION OF OBJECTION

Absalom v. *Bexley Urban District Council.—Before the Lord Chief Justice and Justices Avory and Lawrence.*

THIS was an appeal by Mr. F. R. Absalom, a builder, from a sitting of Justices sitting at Dartford, refusing to hear his objection to certain provisional apportionments made for street works by the Bexley Urban District Council under the Private Streets Works Act, 1892.

Mr. Segar Shaw appeared for the appellant, and Mr. G. A. Thesiger the District Council, who were the respondents to the appeal.

The Council duly adopted a resolution containing specifications, etc., with provisional

apportionments in respect of the sewering, paving and making up of Hook Lane, Welling, where Mr. Absalom was erecting houses. Some he had sold free of road charges. The resolution was duly advertised, and the intention of the Council to proceed was posted in the proper quarters for the requisite month.

Appellant wrote three letters to the Council in May, 1934, in which he stated that he could not agree with the apportionment, which was higher than it should be, and that he intended to carry out the work himself so far as the frontages for which he was responsible were concerned. He stated that he was not prepared to pay more than £1 a foot.

Before the justices he contended that it was open to him to give formal notice and formulate his various grounds for objection at a later date. He submitted that the letters were sufficient notice under Section 7, of the Act, and there had been a valid objection to the apportionment which had not been heard.

The Council, however, argued that the letters did not comprise a notice of objection as demanded by the section

The justices upheld that contention, and refused to quash the apportionment.

The Court allowed the appeal.

The Lord Chief Justice said the justices held, in terms, that the letters relied upon by the appellant did not constitute valid notice of objection within section 7 (d) of the Act of 1892.

One of the letters included the words " as these (expenses) are much higher than they should be." Section 7 (d) of the Act stated, amongst the possible grounds of appeal that one might be " that the works are insufficient and unreasonable or that the estimated expenses are excessive."

He saw no difference between " these expenses are higher than they should be " and " the estimated expenses are excessive."

He thought, therefore, that the justices were wrong, and the case would go back to them with the direction that the objection was a valid one, and they should hear and determine it accordingly to law.

Justice Avory and Lawrence agreed, and the appeal was allowed with costs.

THE BUILDINGS ILLUSTRATED

Following are the names of the general contractors and some of the sub-contractors for the buildings illustrated in this issue :—

Flats in Lowndes Street, S.W. (pages 985-987, 995, 996). General contractors, Holland & Hannen and Cubitts, Ltd., who were also responsible for the electrical work, painting and plumbing. Sub-contractors: Willment Bros., pulling down and excavation; Caxton Floors, Ltd., hollow tile floors; Plastering, Ltd., granolithic paving; Val de Travers, asphalt; Patent Impervious Stone Co., Ltd., artificial stone; Wm. Knight & Co., Ltd., York stone; Frazzi, Ltd., area paving; Art Pavements and Decorations, Ltd., marble; Liverpool Artificial Stone Co., Ltd., artificial stone paving; Stevens and Adams, Ltd., wood block floors; Treloar's, lino and cork carpet; Lion Foundry Co., Ltd., wrot iron work; Redpath Brown & Co., Ltd., structural steel; Birmingham Build, Ltd., canopies, radiator casings, etc.; Haywards, Ltd., steel stairs and pavement lights; F. Braby & Co., Ltd., steel windows; Waygood-Otis, Ltd., lifts; Ashwell and Nesbit, Ltd., heating and ventilating; Plastering, Ltd., plastering; Carter & Co., Ltd., tiling; Compton Bros., glazing; Easiwork, kitchen cabinets; Kelvinator, Ltd., refrigerators; Gas Light and Coke Company, gas services.

Bank at Kingston (pages 990-991). General contractors, Higgs and Hill Ltd.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

EALING. *Flats.* Messrs. Minoprio and Spencely, 18 Seymour Street, W.1, have submitted lay-out of 25 blocks of flats proposed to be erected in Helena Road, Montpelier Road, Eaton Rise and Mount Avenue. Lay-out approved.

EALING. *Estate Development.* The Hillingdon Estates Co. are to develop the Oldfield Estate (parts 6 and 7) by the erection of 212 houses. The plans, which have been approved, were prepared by Messrs. Swannell and Sly, High Street, Rickmansworth.

EAST HAM. *Maternity Hospital.* The Corporation is in negotiation with the Memorial Hospital Committee regarding proposals for the erection of a maternity hospital.

FINCHLEY. *Telephone Exchange.* Plans have been prepared by H.M. Office of Works for the erection of an automatic telephone exchange in Dollis Park, Finchley.

FINCHLEY. *Synagogue.* The Corporation has approved plans submitted by the United Synagogue Authorities for the erection of a synagogue and social hall at the corner of North Circular Road and Kinloss Gardens.

GREENFORD. *Shops and Flats.* Mr. R. Vaughan, 105, Boundaries Road, S.W.12, has prepared plans for the proposed erection of 30 shops with flats over at Ruislip Road, Greenford and Northolt, for the North West London Estates Co., Ltd.

GREENFORD. *Shops and Flats.* Messrs. Towndrow and Kaufmann have submitted lay-out plans for eight shops and 16 flats proposed to be erected at Greenford Road, for Messrs. Max Snapper and Sons.

NORTHOLT. *Shops and Garages.* Mr. William J. Ross, Surveyor, has prepared lay-out plans for the proposed erection of shops and garages at Yeading Lane, Church Road and Ruislip Road.

NORTHOLT. *Shops, Flats, etc.* The Neasden Land Co. are to erect 12 shops, 12 flats and eight garages at Whitton Avenue, Ealing Road, to plans by Messrs. McGlashan & Co., High Road, Wembley.

SOUTHERN COUNTIES

PORTSMOUTH. *School.* The Education Committee has purchased a site in Waterworks Road, Farlington, for the erection of an elementary school.

WORTHING. *Flats, Houses, etc.* Plans passed by the Corporation: Three blocks of flats, Winchelsea Gardens, for Onslow Estates (Worthing), Ltd.; 12 shops, Liverpool Road, for Mr. H. P. Brazier; 24 houses, Turner Road, for Messrs. A. Clare, Ltd.; eight houses, Copthorne Hill, for Messrs. F. W. Payne, Ltd.; additions, St. James Church Hall, High Street, for Mr. S. J. Henman; stores, Teville Road, for Messrs. W. Dibden, Ltd.; 12 houses, Castle Road, for Mr. J. Warren; church hall, St. Georges Church, St. Georges Road, for Mr. H. Overnell; three shops and offices, Chapel Road, for Sterling Estates, Ltd.; 12 houses, George V Avenue, for Mr. H. M. Potter; 10 houses, Angus Road, for Messrs. Middleton, Cathcart & Co.; five houses, Turner Road, for Mr. R. A. N. Gammans; 35 houses, Findon Road, for Jeffery Houses, Ltd.; two houses, Brook Close, for Mr. E. J. Woodward; five houses, Sea Lane, for Mr. Sam Nove; 18 flats, Brighton Road, for Mr. M. R. Fletcher; parish rooms, Richmond Road, for St. Paul's Church Council; four houses, Brook Barn Way, for Mr. A. S. Hopkins; four shops and offices, Montague Street, for Universal Estates, Ltd.

NORTHERN COUNTIES

BLACKPOOL. *School.* The Education Committee is to obtain a site in the south of the town for the erection of an elementary school.

BLACKPOOL. *Exhibition Hall.* The Corporation has asked the borough engineer to prepare a scheme for the erection of an exhibition hall.

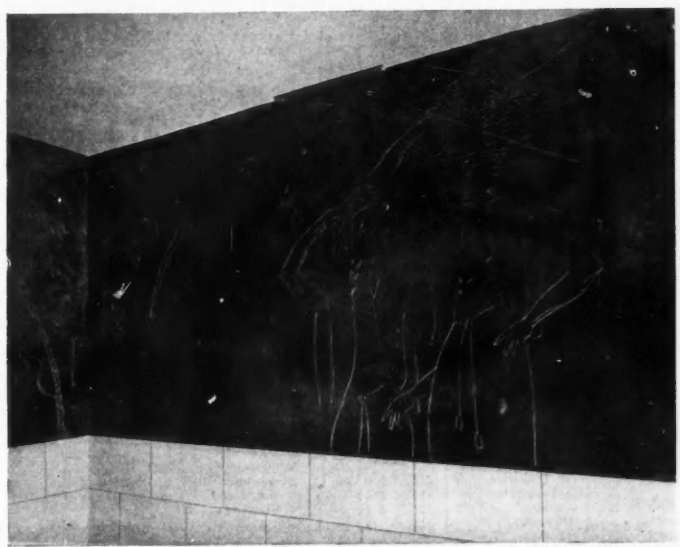
CARLISLE. *Houses.* Plans passed by the Corporation: Two houses, Belah Crescent, for Mr. W. C. Johnston; house, Burgh Road, for Mr. T. Sneezum; two houses, Dalston Road, for Mr. H. E. Scarborough; 21 houses, Norfolk Road, for Messrs. J. Laing and Son, Ltd.

DRYBURN. *Hospital.* The County Council has agreed to the proposal for the erection of a joint hospital for 300 patients at Dryburn.

ECCLES. *Telephone Exchange.* The Corporation has sold a site in Regent Street to H.M. Office of Works for the erection of a telephone exchange.

ROTHERHAM. *Houses, etc.* Plans passed by the Corporation: Six houses, Wortley Road, for Mr. F. Dobson; two houses, Gerard Road,

(*Continued on page xxxiv*)



A mural treatment carried out at a West End restaurant in "Polimac" plastic finish. The white dado projects half an inch from the background in stippled blue, upon which the design is incised in gold. The surface is highly polished and gives an effect very similar to that of marble.

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I s. d.	II s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	•1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
B	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on-Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	•1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton ..	N.W. Counties	1 5½	1 1½
A	Boston ..	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_2	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M.	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_1	Consett ..	N.E. Coast	1 5	1 0½
A	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee	Scotland	1 5½	1 1½
A	Durham	N.E. Coast	1 5½	1 1½
A_2	EASTBOURNE ..	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter	S.W. Counties	•1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_3	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S.W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W.Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	•1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley ..	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_2	Kendal ..	N.W. Counties	1 4	1 0
A_2	Keswick ..	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	•1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7	1 2½
	Do. (12-15 miles radius)		1 6½	1 2
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N. E. Coast	1 5½	1 1½
A_2	Middlewich ..	N. W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson ..	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid. Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham ..	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford ..	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	•1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	•1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	•1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby ..	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough ..	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_2	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid. Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan ..	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil ..	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

• In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	7
Carpenter	"	1	7
Joiner	"	1	7
Machinist	"	1	8
Mason (Banker)	"	1	7
" (Fixer)	"	1	8
Plumber	"	1	7
Painter	"	1	6
Paperhanger	"	1	6
Glazier	"	1	7
Slater	"	1	7
Scaffolder	"	1	3
Timberman	"	1	3
Navvy	"	1	2½
General Labourer	"	1	2½
Lorryman	"	1	5
Crane Driver	"	1	6
Watchman	per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	"	1	16	6
Hydrated Lime	"	3	0	9
Portland Cement, in 4 ton lots (d/d site, including Paper Bags)	"	2	0	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	"	2	6	0
White Portland Cement, in 1-ton lots	"	8	15	0
Thames Ballast	per Y.C.		6	3
¾" Crushed Ballast	"		6	9
Building Sand	"		7	3
Washed Sand	"		8	3
2" Broken Brick	"		8	0
¾" "	"		10	3
Pan Breeze	"		6	6
Coke Breeze	"		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	4" d.	6" s.	6" d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	"	3	6	5	3
Rest Bends	"	4	3	6	3
Single Junctions	"	3	6	5	3
Double	"	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¾" Channel bends	each	2	9	4	0
Channel junctions	"	4	6	6	6
Channel tapers	"	2	9	4	0
Yard gullies	"	6	9	8	9
Interceptors	"	16	0	19	6

IRON DRAINS:

		£	s.	d.
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	"	9	0	15	0
Single junctions	"	8	9	18	0
Double junctions	"	13	6	30	0
Lead Wool	lb.		6	—	
Gaskin	"		5	—	

BRICKLAYER

		£	s.	d.
Flettons	per M.	2	15	0
Grooved do.	"	2	17	0
Phorpres bricks	"	2	15	0
" Cellular bricks	"	2	15	0
Stocks, 1st quality	"	4	11	0
" 2nd "	"	4	2	6
Blue Bricks, Pressed	"	8	17	6
" Wirecuts	"	7	17	6
" Brindles	"	7	0	0
" Bullnose	"	9	0	0
Red Sand-faced Facings	"	6	18	6
Red Rubbers for Arches	"	12	0	0
Multicoloured Facings	"	7	10	0
Luton Facings	"	7	10	0
Phorpres White Facings	"	3	17	3
" Rustic Facings	"	3	12	3
Midhurst White Facings	"	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	"	21	0	0
Headers	"	20	10	0
Bullnose	"	27	10	0
Double Stretchers	"	29	10	0
Double Headers	"	26	10	0
Glazed Second Quality, *Less*	"	1	0	0
" Buffs and Creams, *Add*	"	2	0	0
" Other Colours	"	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" " " "	"		1	10
3" " " "	"		2	1
4" " " "	"		2	6

MASON

The following d/d F.O.R. at Nine Elms:

		s.	d.
Portland stone, Whitbed	F.C.	4	4½
" Basebed	"	4	7½
Bath stone	"	2	10
York stone	"	6	6
" " Sawn templates	"	7	6
" " Paving, 2"	F.S.	1	8
" " " 3"	"	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station

		£	s.	d.
24"×12" Duchesses	per M.	28	17	6
22"×12" Marchionesses	"	24	10	0
20"×10" Countesses	"	19	5	0
18"×10" Viscountesses	"	15	10	0
18"× 9" Ladies	"	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20"×10" medium grey	per 1,000 (actual)	21	11	6
" " green	"	24	7	4
Best machine roofing tiles	"	4	10	0
Best hand-made do.	"	5	0	0
Hips and valleys	each			9½
" hand-made	"			10
Nails, compo	lb.		1	4
" copper	"		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	" "		5
" 2nds	" "		4
Mahogany, Honduras	" "	1	3
" African	" "	1	1
" Cuban	" "	2	6
Oak, plain American	" "	1	0
" Figured "	" "	1	3
" plain Japanese	" "	1	2
" Figured "	" "	1	5
" Austrian wainscot	" "	1	6
" English	" "	1	11
Pine, Yellow	" "	1	0
" Oregon	" "		4
" British Columbian	" "		4
Teak, Moulmein	" "	1	3
" Burma	" "	1	2
Walnut, American	" "	2	3
" French	" "	2	3
Whitewood, American	" "	1	1
Deal floorings, ¾"	Sq.	18	6
" 1"	"	1	1	6
" 1¼"	"	1	2	0
" 1½"	"	1	5	0
" 1¾"	"	1	10	0
Deal matchings ¾"	"		14	0
" 1"	"		15	6
Rough boarding ¾"	"	1	4	0
" 1"	"		16	0
" 1¼"	"		18	0
		1	6	0

Plywood, per ft. sup.

Thickness	¼"	½"	¾"	1"
Qualities	AA. A. B.	AA. A. B.	AA. A. B.	AA. A. B.
	d. d. d.	d. d. d.	d. d. d.	d. d. d.
Birch	4 3 2	5 4 3	7½ 6 4½	8½ 7 6
Alder	3½ 3 2	5 4 3	6½ 5½ 4½	8 7 6
Gaboon Mahogany	4 3 3	6½ 5½ 4½	9½ 7½ –	1/0½ 10 –
Figured Oak 1 side	8½ 7 –	10 8 –	11½ – –	1/6 – –
Plain Oak 1 side	6½ 6 –	7½ 7 –	9½ – –	1/– – –
Oregon Pine	5 4 –	5½ 5 –	6 – –	– – –

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

Tubes and Fittings:

(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	½"	¾"	1"	1½"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23" long each	10	1/1	1/11	2/8	4/9
" 3"-11¾" long "	7	9	1/3	1/8	3/–
Long screws, 12"-23¾" long "	11	1/3	2/2	2/10	5/3
" " 3"M-¾" long "	8	10	1/5	1/11	3/6
Bends "	8	11	1/7½	2/7½	5/2
Springs not socketed "	5	7	1/1½	1/11½	3/11
Socket unions "	2/–	3/–	5/6	6/9	10/–
Elbows, square "	10	1/1	1/6	2/2	4/3
Tees "	1/–	1/3	1/10	2/6	5/1
Crosses "	2/2	2/9	4/1	5/6	10/6
Plain sockets and nipples "	3	4	6	8	1/3
Diminished sockets "	4	6	9	1/–	2/–
Flanges "	9	1/–	1/4	1/9	2/9
Caps "	3½	5	8	1/–	2/–
Backnuts "	2	3	5	6	1/1
Iron main cocks "	1/6	2/3	4/2	5/4	11/6
" with brass plugs "	—	4/–	7/6	10/–	21/–

Discounts:

TUBES.

	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	" water	47½
Steam	57½	" steam	42½

FITTINGS.

Gas	57½	Galvanized gas	47½
Water	52½	" water	42½
Steam	47½	" steam	37½

SMITH AND FOUNDER—*continued.*

		s.	d.
Rolled steel joists cut to length	cwt.	12	9
Mild steel reinforcing rods, ¼"	"	9	6
" " ⅜"	"	9	3
" " ½"	"	9	0
" " ⅝"	"	8	6
" " ¾"	"	8	6
" " 1"	"	8	6
" " 1¼"	"	8	6
" " 1½"	"	8	6

Cast-iron rain-water pipes of ordinary thickness metal	F.R.	3" s.	3" d.	4" s.	4" d.
		8			10
Shoes	each	2	0	3	0
Anti-splash shoes	"	4	6	8	0
Boots	"	3	0	4	0
Bends	"	2	7	3	9
" with access door	"		—	6	3
Heads	"	4	0	5	0
Swan-necks up to 9" offsets	"	3	9	6	0
Plinth bends, 4½" to 6"	"	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal	F.R.		5		6
Stop ends	each		6		6
Angles	"	1	7	1	11
Obtuse angles	"	2	0	2	6
Outlets	"	1	9	2	3

PLUMBER

		s	d.
Lead, milled sheets	cwt.	19	6
" drawn pipes	"	19	0
" soil pipe	"	19	6
" scrap	"	11	6
Solder, plumbers'	lb.		9½
" fine do.	"	1	0
Copper, sheet	"		8½
" tubes	"		11

L.C.C. soil and waste pipes:		3"	4"	6"
Plain cast	F.R.	1 0	1 2	2 6
Coated	"	1 1	1 3	3 8
Galvanized	"	2 0	2 6	4 6
Holderbats	each	3 10	4 0	4 9
Bends	"	3 9	5 3	10 3
Shoes	"	2 10	4 4	9 6
Heads	"	4 8	8 5	12 9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	"	2	10	0
" fine	"	4	15	0
Hydrated lime	"	3	0	9
Sirapite	"	3	6	0
Keene's cement	"	5	0	0
Gothite Plaster	"	3	6	0
Pioneer Plaster	"	3	3	0
Thistle plaster	"	3	6	0
Sand, washed	Y.C.		11	6
Hair	lb.			6
Laths, sawn	bundle		2	4
" rent	"		3	9
Lath nails	lb.			3

GLAZIER

		s	d.		s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.		s.	F.S.			2½
" " 26 oz.	"	"	"			3
Flemish, Arctic, Figures (white)*	"					7
Blazoned glasses	"				2	6
Reeded; Cross Reeded	"					11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite	"					6
Crown sheet glass (n/e 12 in. x 10 in.)	"				2	0
Flashed opals (white and coloured)	"	1	0	and 2	0	
¼" rough cast; rolled plate	"					5½
¼" wired cast; wired rolled	"					9½
¼" Georgian wired cast	"					11

¼" Polished plate, n/e	1 ft.			†10 to	‡1	1
" "	2	"	"	†1 2 "	‡1	4
" "	4	"	"	†2 3 "	‡2	6
" "	8	"	"	†2 9 "	‡3	2
" "	20	"	"	†3 7 "	‡4	2
" "	45	"	"	†3 11 "	‡4	7
" "	100	"	"	†5 0 "	‡5	7

Vita glass, sheet, n/e	1 ft.				1	0
" " "	2 ft.				1	3
" " "	over 2 ft.				1	9
" " plate, n/e	1 ft.				1	6
" " "	2 ft.				3	0
" " "	5 ft.				4	0
" " "	7 ft.				5	0
" " "	15 ft.				6	0
" " "	over 15 ft.				7	6
"Calorex" sheet 21 oz., and 32 oz.		"	2	6 and	3	6
" rough cast ¼" and ¾"		"		8½ "	1	0
Putty, linseed oil		lb.				3

* *Colours, 1d. F.S. extra.*

† *Ordinary glazing quality.* ‡ *Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	8	6
Linseed oil	gall.		2	3
Boiled oil	"		2	9
Turpentine	"		4	1½
Patent knotting	"		14	0
Distemper, washable	cwt.	2	6	0
" ordinary	"	2	0	0
Whitening	"		4	0
Size, double	firkin		3	0
Copal varnish	gall.		13	0
Flat varnish	"		14	0
Outside varnish	"		16	0
White enamel	"	1	15	0
Ready mixed paint	"		13	6
Brunswick black	"		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR		£	s.	d.
Digging over surface n/e 12" deep and cart away	Y.S.		2	9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.		8	6
" to form basement n/e 5' 0" and cart away	"		9	0
" " 10' 0" deep and cart away	"		9	6
" " 15' 0" deep and cart away	"		10	0
If in stiff clay	add			6
If in underpinning	"		4	0
Planking and strutting to sides of excavation	F.S.		1	0
" " to pier holes	"			5
" " to trenches	"			5
" " extra, only if left in	"			3
Hardcore, filled in and rammed	Y.C.		10	0
Portland cement concrete in foundations (6-1)	"	1	6	0
" " (4-2-1)	"	1	12	6
" " underpinning	"	1	16	0
Finishing surface of concrete, space face	Y.S.			7

DRAINLAYER		4" s.	d.	6" s.	d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1	6	2	3
Extra, only for bends	Each	2	8	3	9
" junctions	"	3	9	4	6
Gullies and gratings	"	16	6	18	0
Cast iron drains, and laying and jointing	F.R.	4	9	6	9
Extra, only for bends	Each	10	6	15	6

BRICKLAYER		£	s.	d.
Brickwork, Flettons in lime mortar	Per Rod	26	10	0
" " in cement	"	27	12	6
" Stocks in cement	"	34	0	0
" Blues in cement	"	50	0	0
Extra only for circular on plan	"	2	0	0
" backing to masonry	"	1	10	0
" raising on old walls	"	2	0	0
" underpinning	"	5	10	0
Fair Face and pointing internally	F.S.			1½
Extra over fletton brickwork for picked stock facings and pointing	"			8
" " " red brick facings and pointing	"			11
" " " blue brick facings and pointing	"		1	4
" " " glazed brick facings and pointing	"		3	6
Tuck pointing	"			7½
Weather pointing in cement	"			3
Slate dampcourse	"			10
Vertical dampcourse	"		1	1

ASPHALTER		s.	d.
½" Horizontal dampcourse	Y.S.	4	6
½" Vertical dampcourse	"	6	9
½" paving or flat	"	4	0
1" paving or flat	"	5	6
1" × 6" skirting	F.R.	1	0
Angle fillet	"		2
Rounded angle	"		2
Cesspools	Each	5	0

MASON		s.	d.
Portland stone, including all labours, hoisting, fixing and cleaning down, complete	F.C.	17	9
Bath stone and do., all as last	"	13	6
Artificial stone and do	"	13	0
York stone templates, fixed complete	"	10	6
" thresholds	"	13	6
" sills	"	1	0 6

SLATER AND TILER		£	s.	d.
Slating, Bangor or equal, laid to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3	10	0
Do., 18" × 9"	"	3	7	0
Do., 24" × 12"	"	3	17	0
Westmorland slating, laid with diminished courses	"	6	0	0
Tiling, best hand-made sand-faced la,id to a 4" gauge, nailed every fourth course	"	3	0	0
Do., all as last, but of machine-made tiles	"	2	16	0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	2	16	0
" " " " " (green)	"	4	15	0

CARPENTER AND JOINER		£	s.	d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2	2	6
Shuttering to sides and soffits of beams	F.S.			7
" to stanchions	"			7
" to staircases	"		1	6
Fir and fixing in wall plates, lintols, etc.	F.C.		3	9
Fir framed in floors	"		4	6
" " roofs	"		6	6
" " trusses	"		7	6
" " partitions	"		8	6
⅞" deal sawn boarding and fixing to joists	Sqr.	1	14	6
1" " " " "	"	1	17	6
1½" " " " "	"	2	3	0
1" × 2" fir battening tor Countess slating	"		9	0
Do. for 4" gauge tiling	"		12	0
Stout feather-edged tilting fillet	F.R.			4½
Patent inodorous felt, 1 ply	Y.S.		2	3
" " " 2 "	"		2	9
" " " 3 "	"		3	3
Stout herringbone strutting to 9" joists	F.R.			10½
1" deal gutter boards and bearers	F.S.		1	2
1½" " " "	"		1	6
2" deal wrought rounded roll	F.R.			8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2	1	0
1¼" do.	"	2	10	0
1½" do.	"	2	17	0
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.		1	6
1½" do.	"		1	9

CARPENTER AND JOINER—*continued*		s.	d.
1½" deal moulded sashes of average size	F.S.	1	9½
2" " " " "	"	1	11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1¼" pulley stiles, 1¼" heads, 1" inside and outside linings, ½" parting beads, and with brass faced axle pulleys, etc., fixed complete		3	7
2" " " "	"	3	10
Extra only for moulded horns	Each		6
1½" deal four-panel square, both sides, door	F.S.	2	0
2" " " " "	"	2	8
1½" , but moulded both sides	"	2	4
2" " " " "	"	3	0
4" × 3" deal, rebated and moulded frames	F.R.	1	0
4½" × 3½" " " "	"	1	4
1½" deal tongued and moulded window board, on and including deal bearers	F.S.	1	9
1½" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2	6
1½" deal moulded wall strings	"	2	1
1½" " outer strings	"	2	4
Ends of treads and risers housed to string	Each	1	9
3" × 2" deal moulded handrail	F.R.	1	3
1" × 1" deal balusters and housing each end	Each	2	0
1½" × 1½" " " "	"	2	9
3" × 3" deal wrought framed newels	F.R.	1	3
Extra only for newel caps	Each	6	0
Do., pendants	"	6	0

SMITH AND FOUNDER		£	s.	d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.		16	6
Riveted plate or compound girders, and hoisting and fixing in position	"	1	0	6
Do., stanchions with riveted caps and bases and do.	"		19	0
Mild steel bar reinforcement, ¼" and up, bent and fixed complete	"		17	6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.			11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1	10	0

PLUMBER		£	s.	d.
Milled lead and labour in flats	cwt.	1	13	0
Do. in flashings	"	1	16	6
Do. in covering to turrets	"	2	4	0
Do. in soakers	"	1	8	6
Labour to welted edge	F.R.			3½
Open copper nailing	"			3
Close " "	"			4

		½" s.	d.	½" s.	d.	1" s.	d.	1½" s.	d.	2" s.	d.	4" s.	d.
Lead service pipe and fixing with pipe hooks	F.R.	10		1	0	1	3	2	0	2	10	—	
Do. soil pipe and fixing with cast lead tacks		—		—		—		—		—		5	6
Extra, only to bends	Each	—		—		—		—		2	0	6	9
Do. to stop ends	"	6½		8		9		11		1	0	—	
Boiler screws and unions	"	3	3	3	9	5	0	8	0	—		—	
Lead traps	"	—		—		—		6	3	8	9	—	
Screw down bib valves	"	6	9	9	6	11	0	—		—		—	
Do. stop cocks	"	7	0	9	6	12	6	—		—		—	

		s.	d.
4" cast-iron ½-rd. gutter and fixing	F.R.	1	0
Extra, only stop ends	Each	1	0
Do. angles	"	1	6
Do. outlets	"	2	9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.	1	2
Extra, only for shoes	Each	1	3
Do. for plain heads	"	5	6

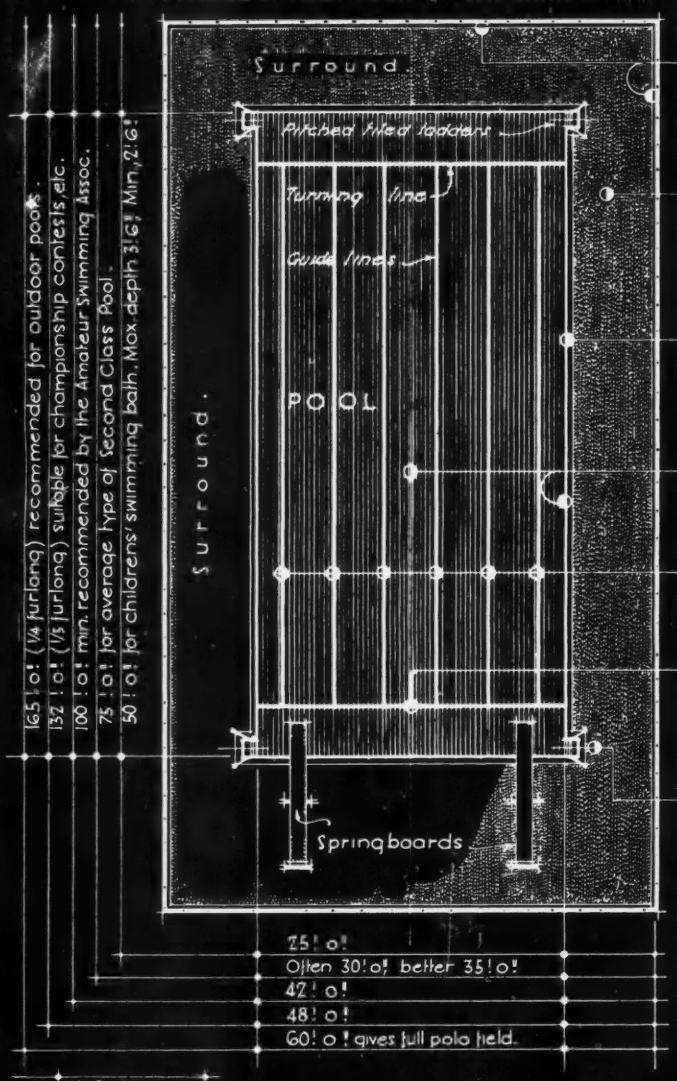
PLASTERER AND TILING		s.	d.
Expanded metal lathing, small mesh	Y.S.	2	0
Do. in n/w to beams, stanchions, etc.	"	2	9
Lathing with sawn laths to ceilings	"	1	3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1	5
Do. vertical	"	1	7
Rough render on walls	"	1	2½
Render, float and set in lime and hair	"	1	9
Render and set in Sirapite	"	1	11
Render, backing in cement and sand, and set in Keene's cement	"	2	9
Extra, only if on lathing	"		4
Keene's cement, angle and arris	F.R.		6
Arris	"		
Rounded angle, small	"		3
Plain cornices in plaster, including dubbing out, per 1" girth	"		1½
1" granolithic pavings	Y.S.	3	6
1½" " "	"	4	6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17	6
9" × 3" " " " "	"	1	2 6
Extra, only for small quadrant angle	F.R.		8

GLAZIER		s.	d.
21 oz. sheet glass and glazing with putty	F.S.		6½
26 oz. do. and do.	"		7½
Flemish, Arctic Figured (white) and glazing with putty	"	1	1
Cathedral glass and do.	"	1	2
Glazing only, British polished plate	"		7
Extra, only if in beads	"		2
Washleather	F.R.		4

PAINTER		s.	d
Clearcolle and whiten ceilings	Y.S.		6
Do. and distemper walls	"		9
Do. with washable distemper	"	1	1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3	3
Do. on woodwork	"	3	6
Do. on steelwork	"	3	0
Do. and brush grain and twice varnish	"	5	6
Stain and twice varnish woodwork	"	1	11
Stain and wax-polish woodwork	"	4	6
French polishing	F.S.	1	2
Stripping off old paper	Piece	2	0
Hanging ordinary paper	from ~	2	9

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TYPICAL LAYOUT PLAN OF SWIMMING POOL.



NOTES ON TILING TREATMENT :

GLAZED CHANNEL TILING, 2" or 3" wide, continuous round surround of pool. Corners and scuppers where required. See Information Sheet "Tiled Swimming Pools N° 2."

SURROUND of pool, preferably tiled with Gripfoot nonslip pin-head mosaic or floor tiles, with a fall of 1" in 10' 0" away from the pool. See sections below. Minimum width of surround, 4' 0" at sides, 10' 0" at ends of pool.

NOSING to surround should be of Grip-foot nonslip pin-head mosaic, or Gripfoot or ribbed step nosing, and should preferably finish vertically over the face of the tiling at water line. See sections below.

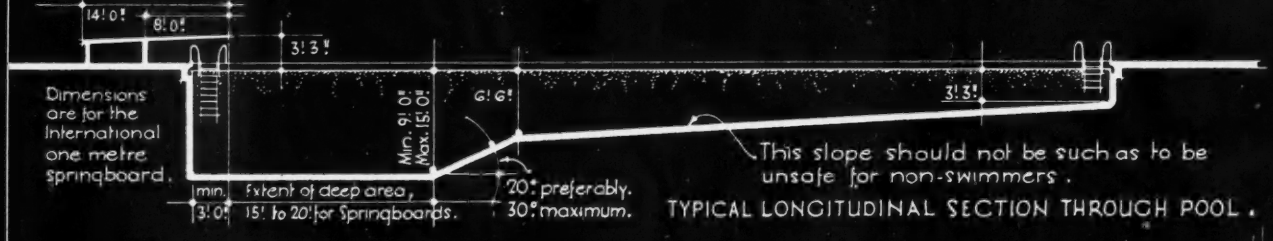
FLOOR & WALLS of pool faced with white or coloured glazed tiles, generally 6" x 6" or 6" x 3", or with vitreous mosaic, generally 3/4" squares. All internal corners to be rounded, preferably 3" angles.

GUIDE LINES for swimmers, on floor of pool, at least 3" wide; formed of dark glazed tiles or dark mosaic and generally at 5' 0" to 6' 0" c/rs.

TURNING LINES, 5' 0" to 10' 0" from end walls of pool are desirable. They may also serve as goal or two-yard lines for polo.

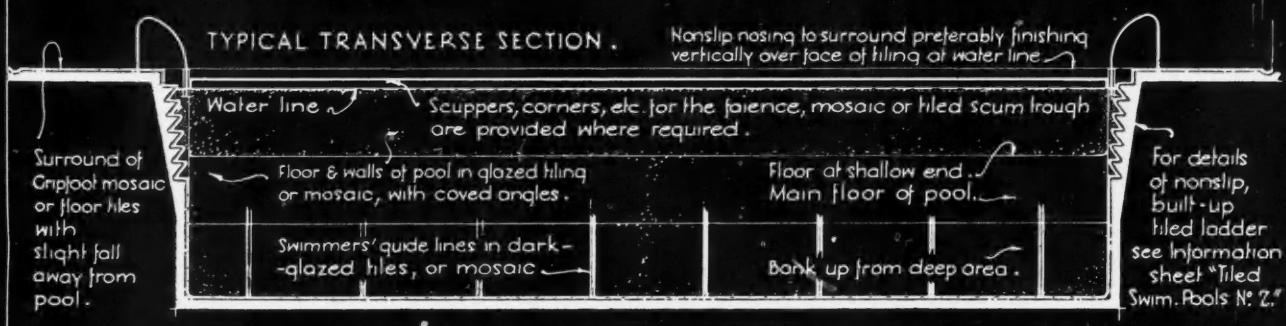
LADDERS to pool, are best formed of tiled risers and nonslip tiled treads, and should be recessed into the side walls and built at a slight pitch with the vertical. Handrails should be provided. See sections below & Information Sheet "Tiled Swimming Pools N° 2".

SCUM TROUGH in walls of pool, should preferably be of glazed faience with the lip so shaped internally as to form a good handrail for swimmers, and to prevent scum water splashing back into the pool. Scum troughs can also be formed of mosaic or of glazed tile fittings, see "Tiled Swim. Pools N° 2."



TYPICAL LONGITUDINAL SECTION THROUGH POOL.

TYPICAL TRANSVERSE SECTION.



Information from Richards Tiles Ltd.

INFORMATION SHEET : TILED SWIMMING POOLS N° 1.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1. Oliver A. Bayne.

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INFORMATION SHEET

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TILES

Type of Product : Glazed and Floor Tiling for Swimming Pools

The Pool Itself :

It is generally agreed that the lining of a swimming pool is best carried out either in glazed tiles or in vitreous mosaic. In this country white glazed tiles are the more generally used, but in America vitreous mosaic, usually in ¾ in. squares, is perhaps the more popular. For open-air pools in countries subject to frost, glazed tiles are not to be recommended. Vitreous mosaic, however, being impervious to water, is not liable to injury by frost, and may be used in all pools. It is not uncommon to use mosaic—as giving a better foothold—for a pool floor, and glazed tiles for the walls.

Details of scum troughs, ladders, etc., will be given in a future Sheet, "Tiled Swimming Pools, No. 2," to be published shortly.

The Pool Surround :

It is essential that the pool nosing and the surround or platform round the pool, as also the dressing room floors, shall be of a thoroughly non-slip character under wet as well as under dry conditions. The manufacturer's "Gripfoot" mosaic, made specially for pool surrounds, has a surface covered with raised points about the size of pin-heads, and however wet it may be, it is practically impossible to slip on it. Both floor tiles and mosaic are manufactured with the "Gripfoot" surface. "Durundum" non-slip tiles and mosaics (containing an abrasive grit) and ribbed floor tiles—each class having its own particular uses—are also available.

The Pool Hall and its Approaches, etc. :

Apart from their use for the pool itself, glazed tiles—as being unaffected by moisture—are especially suitable for the walls of the pool hall, dressing rooms, etc., and both wall and floor tiles may appropriately be used in almost all parts of a baths establishment. All the classes of tiling concerned are covered by the following Information Sheets of the manufacturer's products : Nos. 92, 93, 99, 125, 127, 144, 180, 189, 197, 205, 216 and 224.

Copies of booklet No. R.T.29 on Swimming Pools may be obtained from the manufacturers on application, in addition to the following publications dealing with their products :

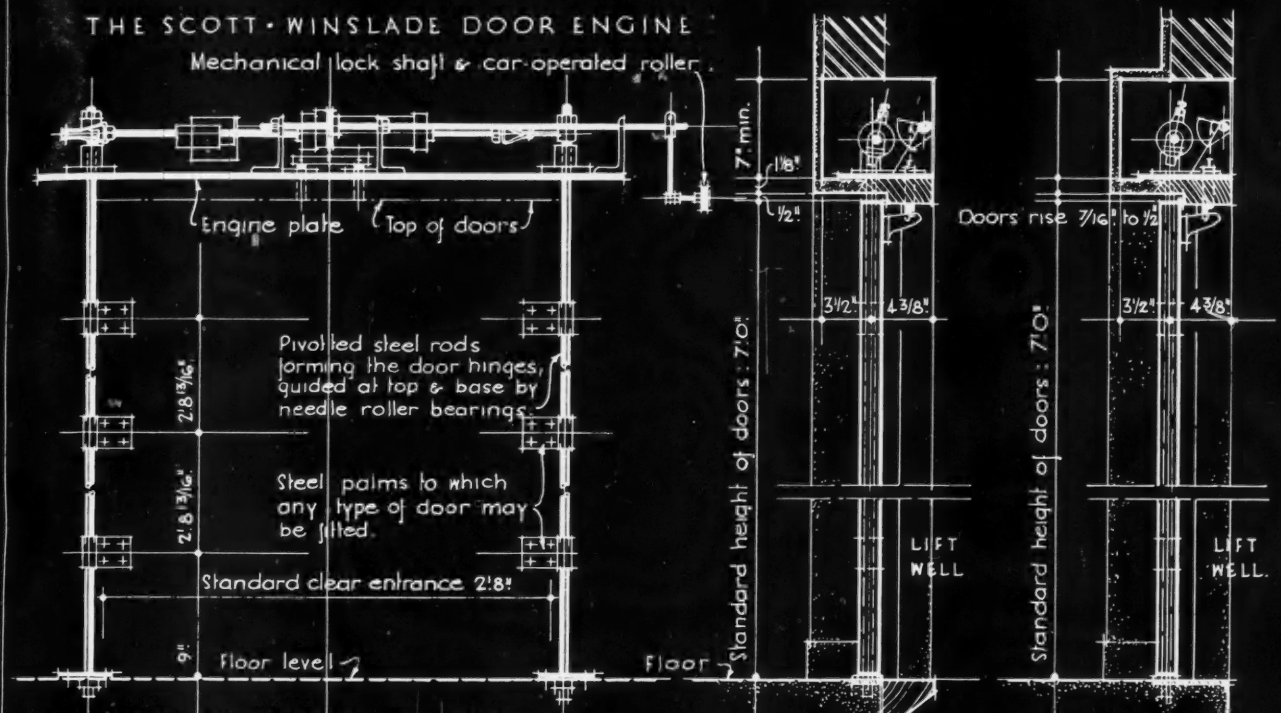
Bathroom Tiling	Ref. RT. 25
Floor Tiles	RT. 26
Mosaics	RT. 27
Wall Tiling	RT. 28
Wall Tile Fittings	RT. 30
"Recesso" Bathroom Fittings	RT. 31
Tiled Fireplaces	RT. 32
"Richards Tiles in the Making"	RT. E

Name of Manufacturers :	Messrs. Richards Tiles, Ltd.
Address :	Tunstall, Stoke-on-Trent
Telephone :	Hanley 7215-8
London Office :	25 Victoria Street
Telephone :	Victoria 9218
Glasgow Office :	53 Bothwell Street Glasgow, C.2
Telephone :	Central 1768



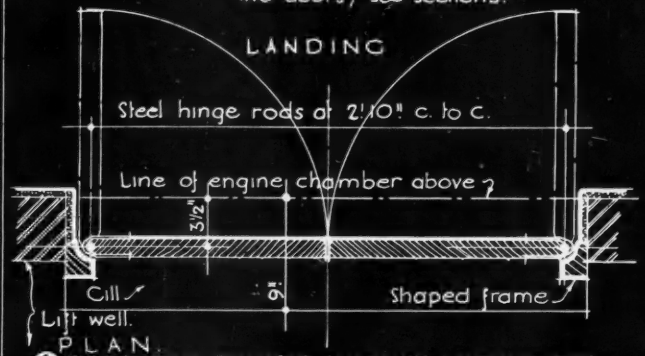
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THE SCOTT-WINSLADE DOOR ENGINE

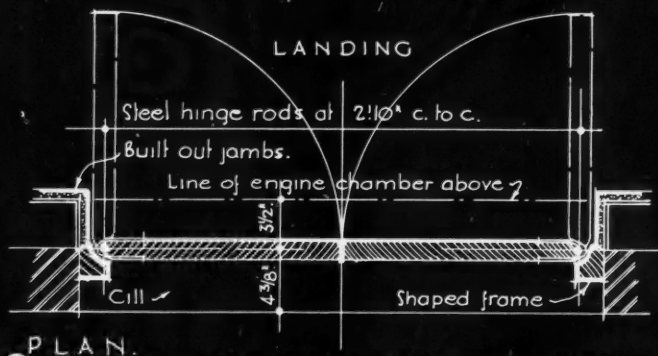


ELEVATION OF GEAR FROM LIFT WELL SIDE.
(Gear only is shown; doors, frame, etc. are omitted.)
The door engine is contained in an open chamber above the doors; see sections.

1 Gear chamber flush on the landing side.
2 Gear chamber flush on the well side.
ALTERNATIVE SECTIONS THROUGH ℄ OF DOORS.

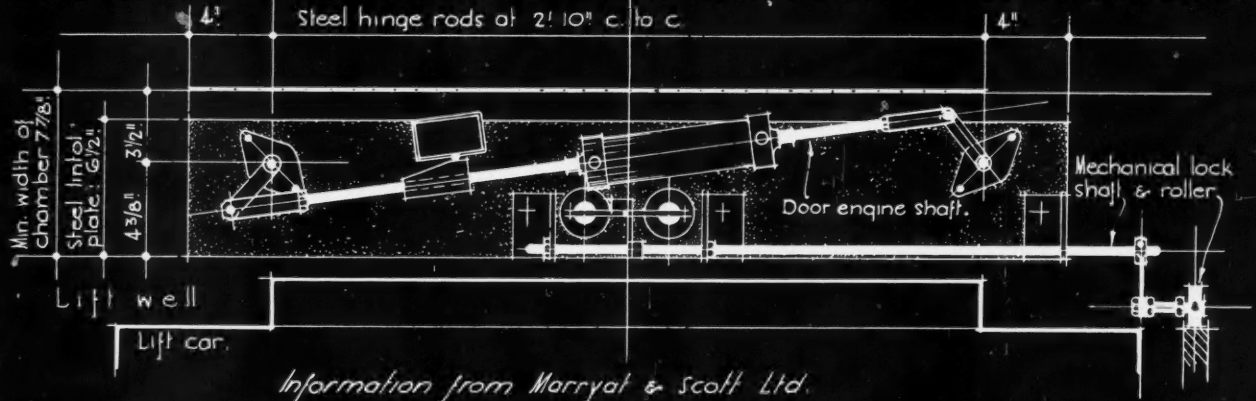


PLAN.
1 WITH ENGINE CHAMBER FLUSH ON LANDING SIDE.
When the grip handle of either door is pulled for the purpose of opening, the remaining door opens automatically.



PLAN.
2 WITH ENGINE CHAMBER FLUSH ON WELL SIDE.
Doors can be opened only when the car is at landing level, and close automatically upon being released.

½" SCALE PLAN SHOWING ARRANGEMENT OF DOOR CLOSER ENGINE & MECHANICAL LOCKS.



Information from Morryat & Scott Ltd.

INFORMATION SHEET: LIFT EQUIPMENT: SYMPATHETIC, SELF-CLOSING DOOR GEAR.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1. Oscar A. Bayne.

INFORMATION SHEET • 232 • SELF-CLOSING LIFT DOORS

Supplement to THE ARCHITECTS' JOURNAL for June 27, 1935

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INFORMATION SHEET

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SELF-CLOSING LIFT DOORS

Type of Product : Scott-Winslade Automatic Door Engine

Description :

The details given on this Sheet show diagrammatically the mechanism of the Scott-Winslade door gear, and set out the two positions in which the gear may be fixed. It will be seen from these details that the mechanism is designed to :

a. Operate the two leaves of a pair of doors sympathetically.
b. Close both doors automatically and silently.

This mechanism was designed principally for use with lifts, it is, however, suitable for use wherever lightly balanced or sympathetic-operating doors are required.

Effort required to open doors :

It has been found that the effort required to operate typical doors of various kinds is as follows :—

	Average Effort in lbs.		Work done opening and closing 3' 0" Entrance. ft. lbs.
	To open	To close	
*Double doors with Scott-Winslade door engines ..	4	nil	9·5
Ordinary collapsible steel gate	4	4	24
Self-closing collapsible steel gate	11	nil	33
Fire resisting steel shutter gate	6	6	36
Self-closing sliding doors 2 piece sympathetic ..	25	nil	37·5
Self-closing double swing doors	9	nil	42·5
Sliding doors 3 piece sympathetic	10	10	60
Collapsible steel gate with steel shutter leaves ..	13	13	78

*Effort remains constant throughout movement of doors.

Door Frames :

It should be noted that the mechanism provides steel pivot rods on which each door hangs, the surrounding wood frame therefore carries no weight, but should be shaped suitably to take the door and act as a cover.

Patents :

Patents have been applied for covering the various parts of the mechanism shown on this Sheet.

Manufacturers : Marryat and Scott, Ltd.

Address : 75 Clerkenwell Road, E.C.1

Telephone : Holborn 7955