

THE ARCHITECTS' JOURNAL



standard contents

every issue does not necessarily contain all these contents, but they are the regular features which continually recur.

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Wanted and Vacant

No. 3034]

[Vol. 117

THE ARCHITECTURAL PRESS

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★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ie one week, Ig to Z the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. Marlborough Whitehead, "Dyneley," Castle Hill Avenue, Berkhamstead, Herts.	
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5721
ABT	Association of Building Technicians. 5, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James' Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
APRR	Association for Planning and Regional Reconstruction. 34, Gordon Square, W.C.1.	Euston 2158-9
ArchSA	Architectural Students' Association. 34/36, Bedford Square, W.C.1.	
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Langham 8738
AScW	Association of Scientific Workers. 15, Half Moon Street, Piccadilly, W.1.	Grosvenor 4761
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BATC	Building Apprenticeship and Training Council. Lambeth Bridge House, S.E.1.	Reliance 7611, Ext. 1706
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 17, Amherst Road, Ealing, W.13.	Perivale 6869
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Fremantle 8494
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Glasgow Central 2891
BIAE	British Institute of Adult Education. 29, Tavistock Square, W.C.1.	Euston 5385
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Chancery 7772
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Millbank, S.W.1.	Whitehall 5140
BRDB	British Rubber Development Board. Market Buildings, Mark Lane, E.C.3.	Mansion House 9383
BRS	Building Research Station. Bucknalls Lane, Watford.	Garston 2246
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. 28, Victoria Street, S.W.1.	Abbey 3333
BTE	Building Trades Exhibition. 4, Vernon Place, W.C.1.	Holborn 8146/7
CABAS	City and Borough Architects Society. C/o Johnson Blackett, F.R.I.B.A., Civic Centre, Newport, Mon. Newport 5491	
CAS	County Architects' Society. C/o F. R. Steele, F.R.I.B.A., County Hall, Chichester. Chichester 3001	
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Sloane 5255
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611
CDA	Copper Development Association. Kendals Hall, Radlett, Herts.	Radlett 5616
CIAM	Congrès Internationaux d'Architecture Moderne. Dolderal, 7, Zurich, Switzerland.	Abbey 7080
COID	Council of Industrial Design. Tilbury House, Petty France, S.W.1.	Sloane 4280
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.1.	Sloane 9116
CUC	Coal Utilization Council. 3, Upper Belgrave Street, S.W.1.	Reading 72255
CVE	Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.	Reliance 7611
DGW	Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1.	Whitehall 0540
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Trafalgar 8855
DPT	Department of Overseas Trade. Horseguards Avenue, Whitehall, S.W.1.	Regent 4448
EJMA	English Joinery Manufacturers' Association (Incorporated), Sackville House, 40, Piccadilly, W.1.	Regent 4448
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 8, Buckingham Palace Gdns., S.W.1.	Sloane 2837
FASSC	Federation of Association of Specialists and Sub-Contractors, 5, Arundel Street, Strand. Temple Bar 6633	
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.	Sloane 1002
FDMA	The Flush Door Manufacturers Association Ltd. Trowell, Nottingham. Ilkeston 623	
FLD	Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.	Ulverston 201
FMB	Federation of Master Builders. 26, Great Ormond Street, Holborn, W.C.1.	Chancery 7583
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Whitehall 3902
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Langham 4041
FS (Eng.)	Faculty of Surveyors of England. Buckingham Palace Gdns., S.W.1.	Sloane 2837
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. 27, Grosvenor Place, S.W.1.	Sloane 2844
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 75, Eaton Place, S.W.1.	Sloane 5615
ICA	Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215

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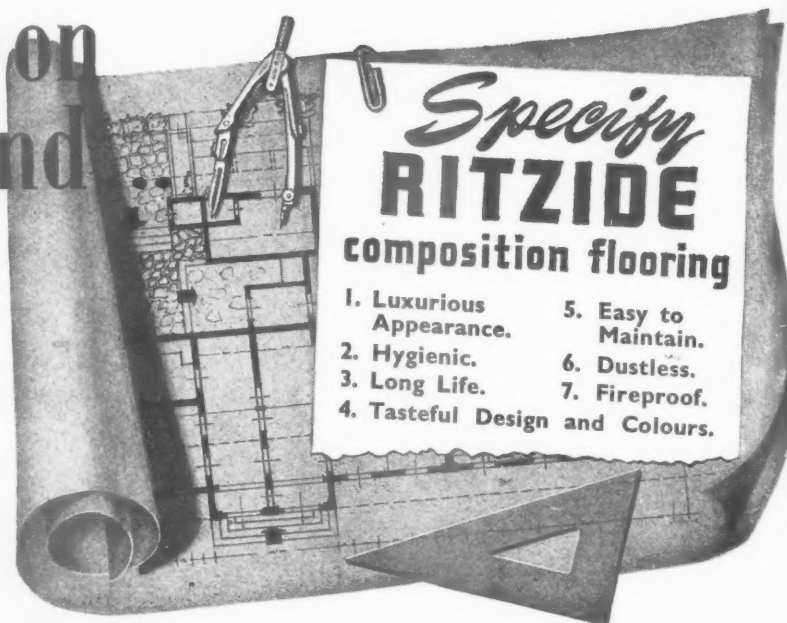
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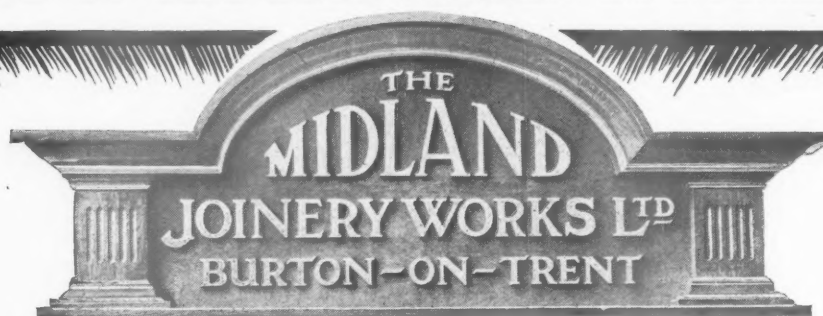


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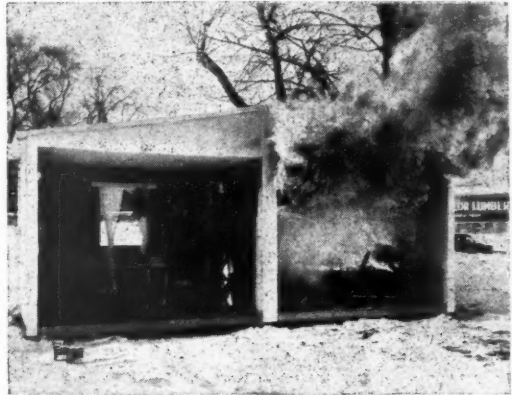


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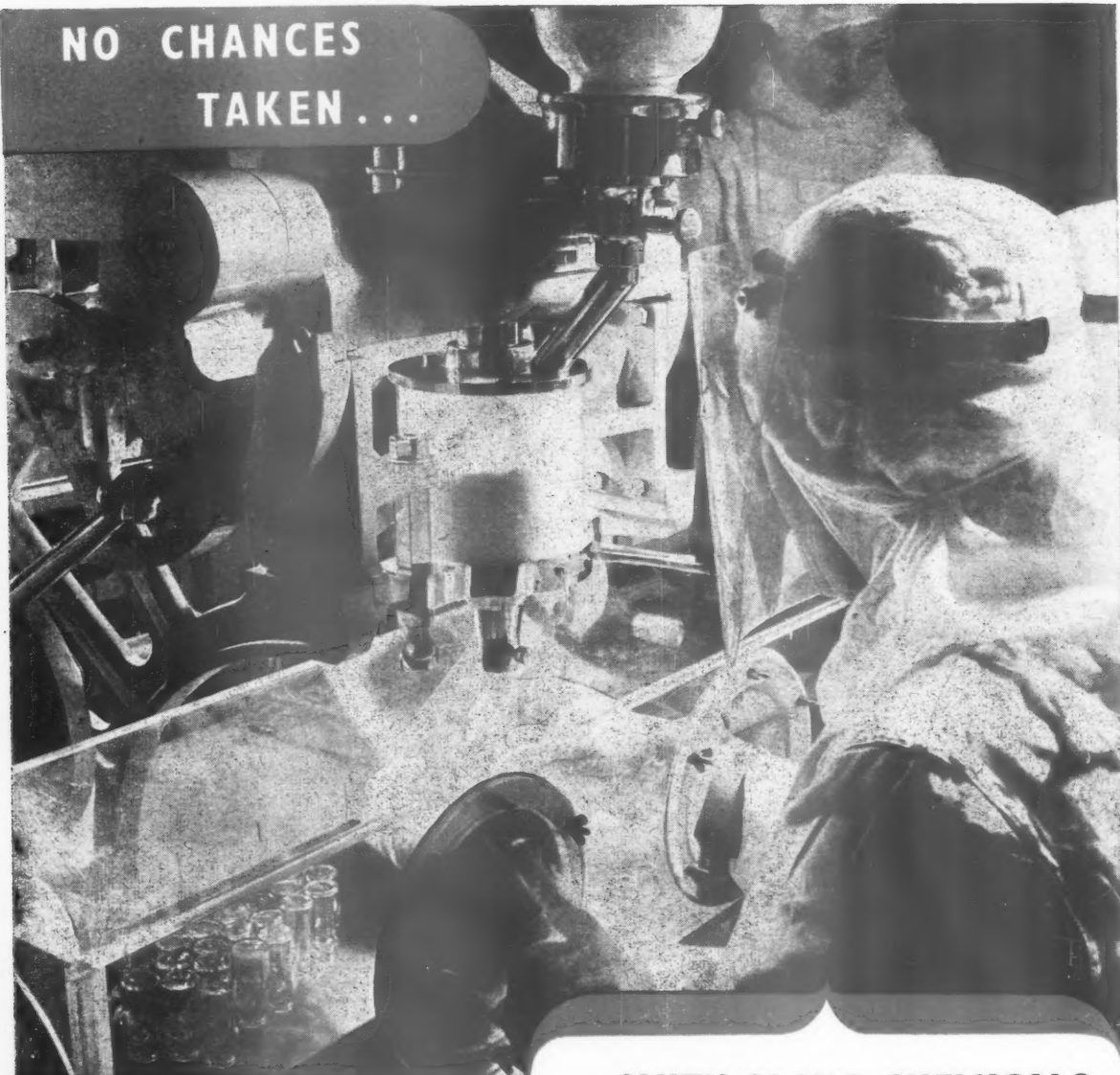


Striking demonstration of the ability of Albi-"R" to stop the spread of fire. The left hand half of this wooden structure was coated inside with Albi-"R". Both sides fired simultaneously with a blowlamp.



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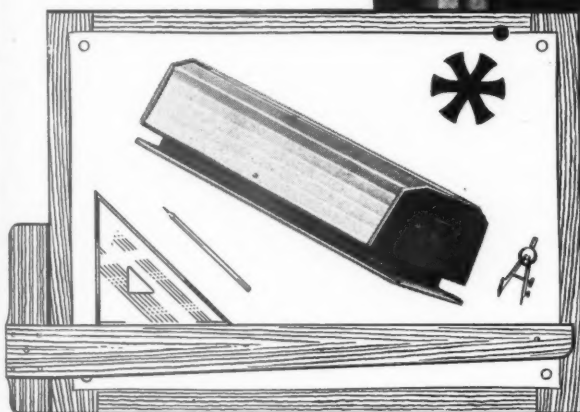
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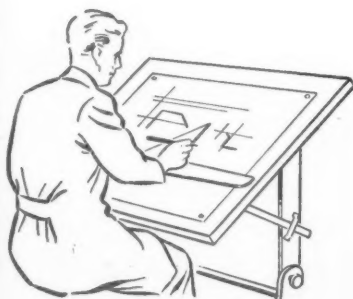
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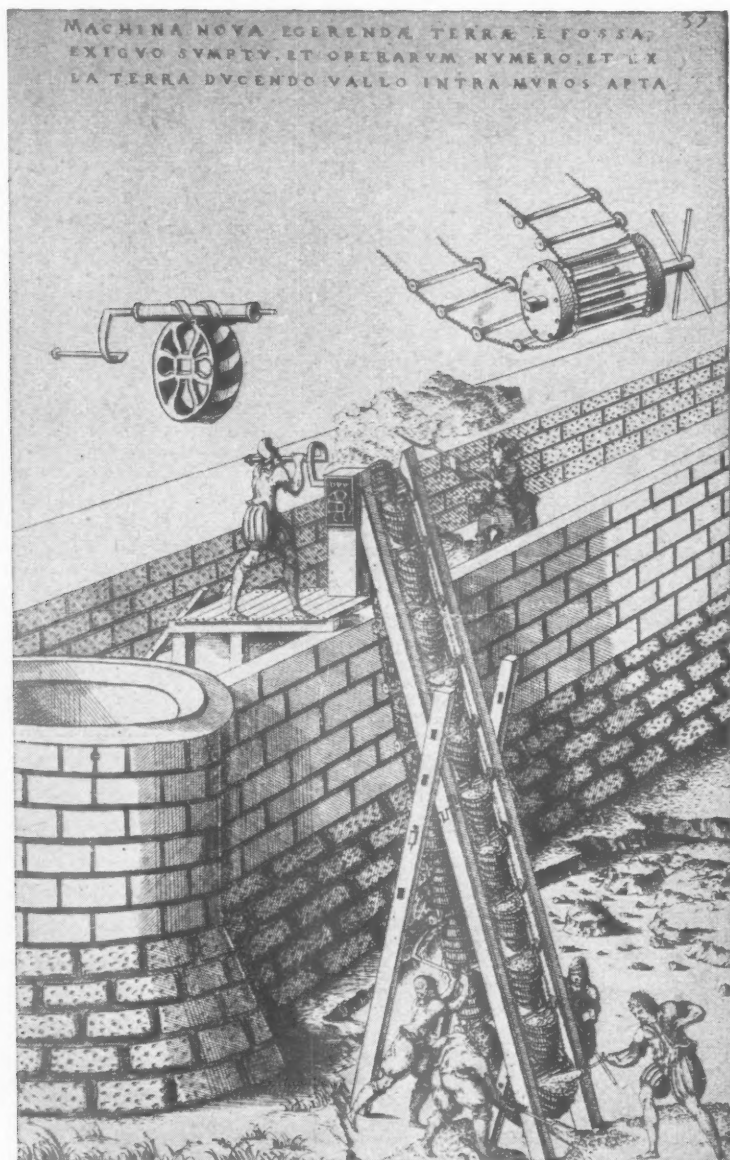


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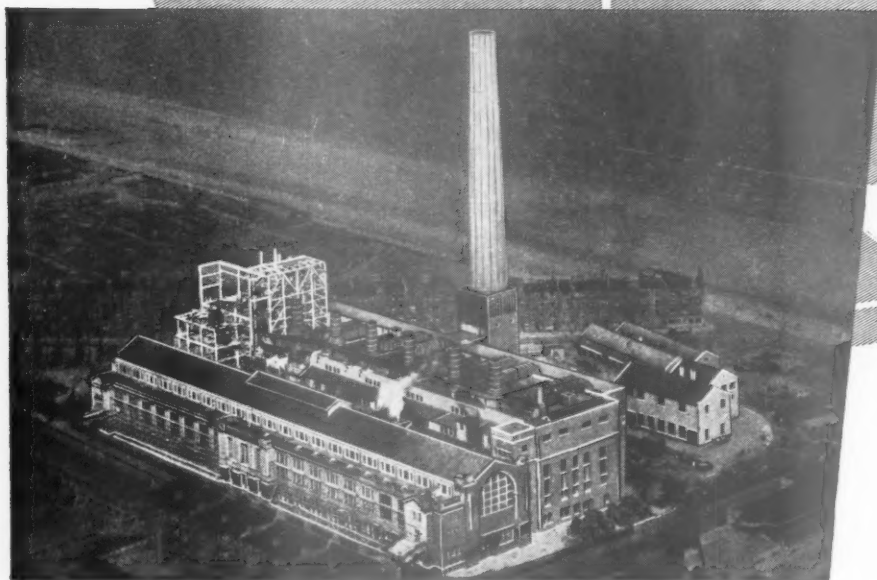
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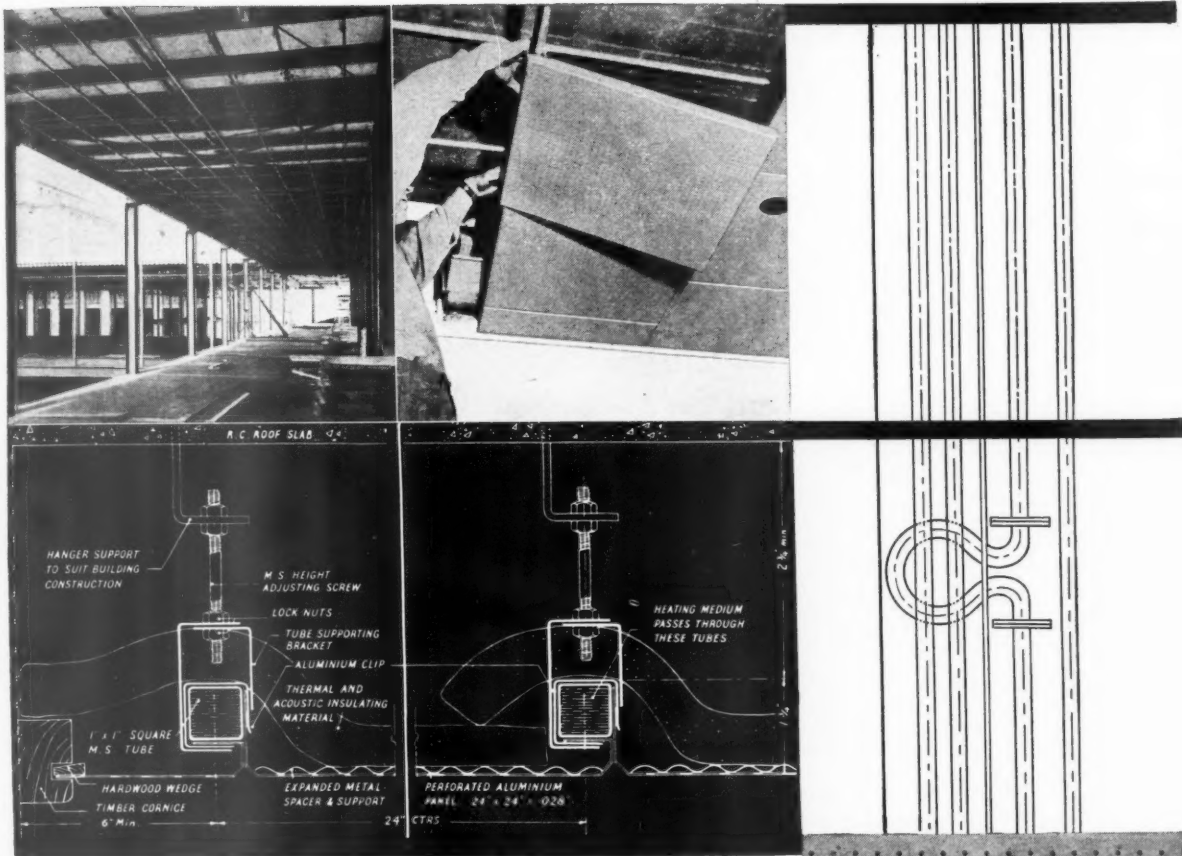
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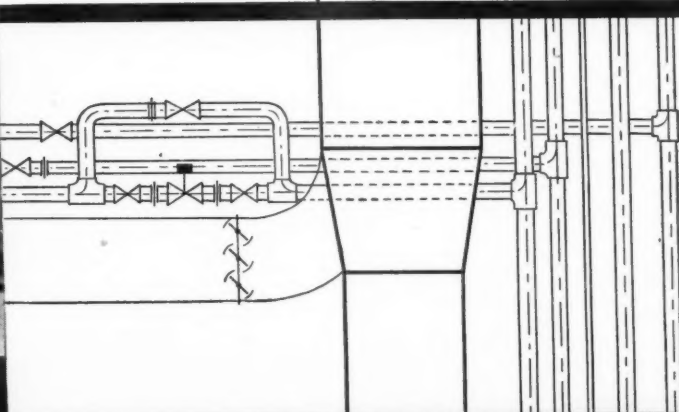
FRENGER—three ceilings in one

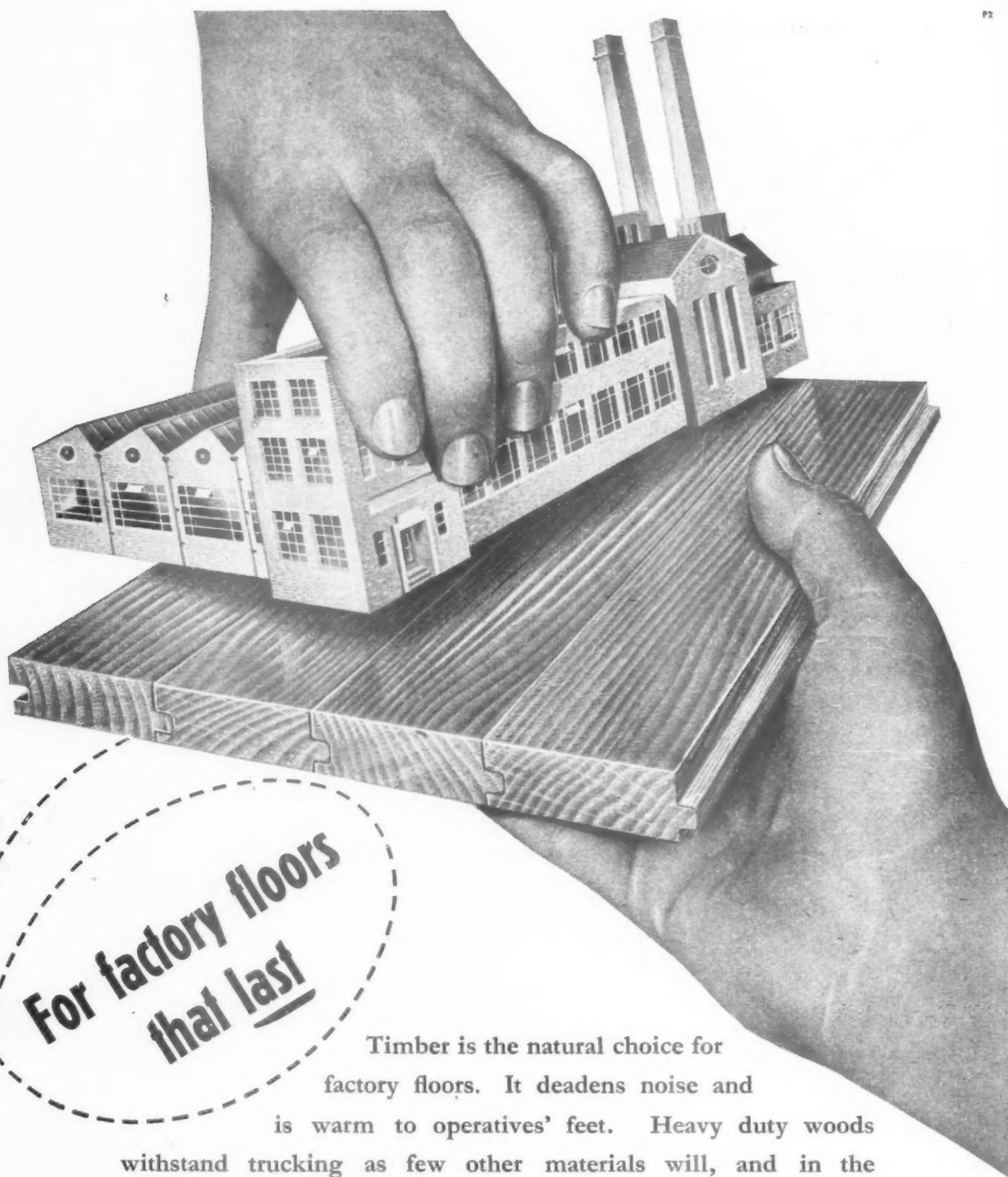
Here is a ceiling, that is *first*: a radiant panel heating unit with an immediate response to changes in temperature; *second*: a most efficient sound absorbing surface; and *third*: a suspended, removable ceiling that serves to conceal a mass of ugly pipes, wiring, ducts and other services while leaving them completely accessible.

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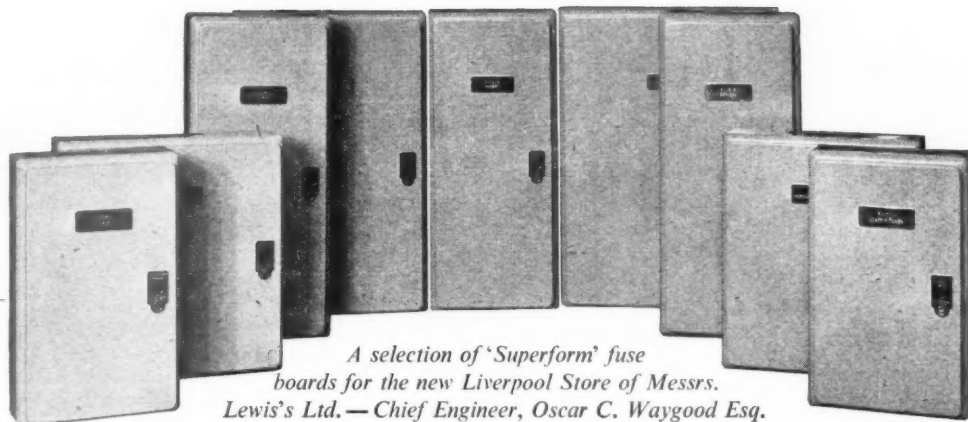
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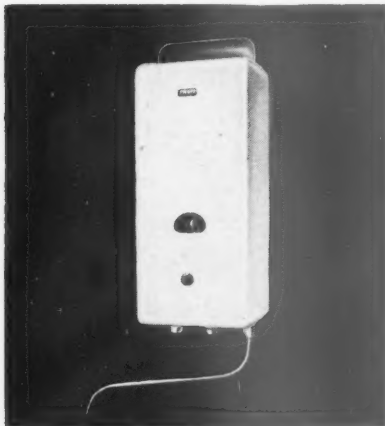
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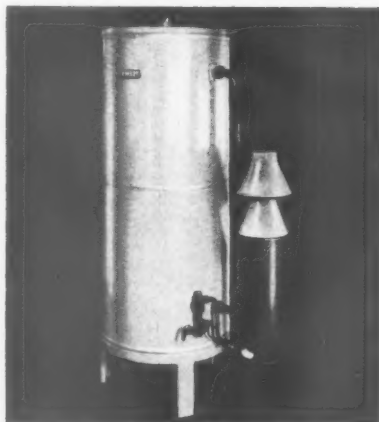
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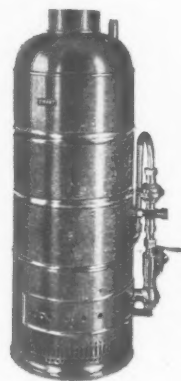
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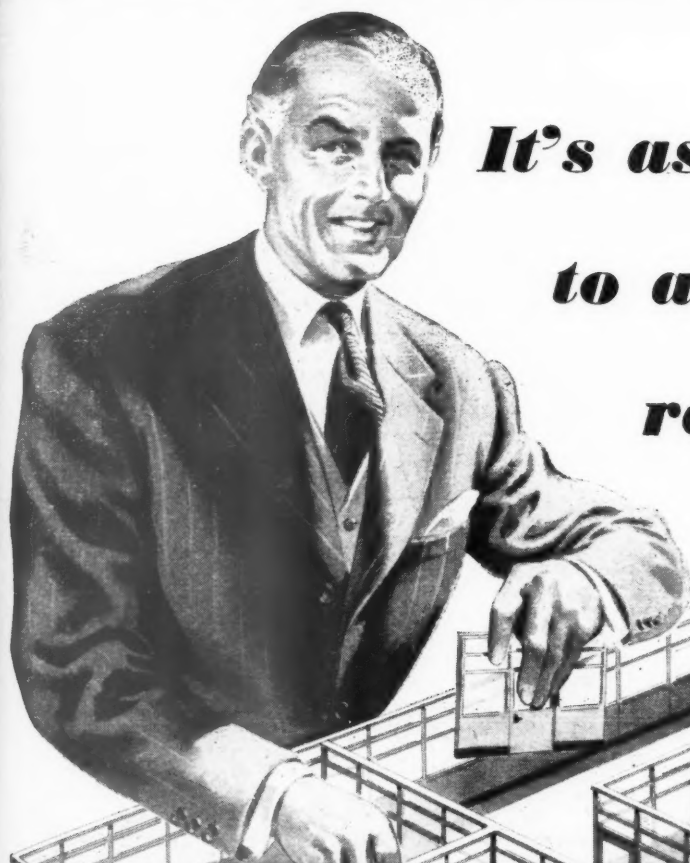


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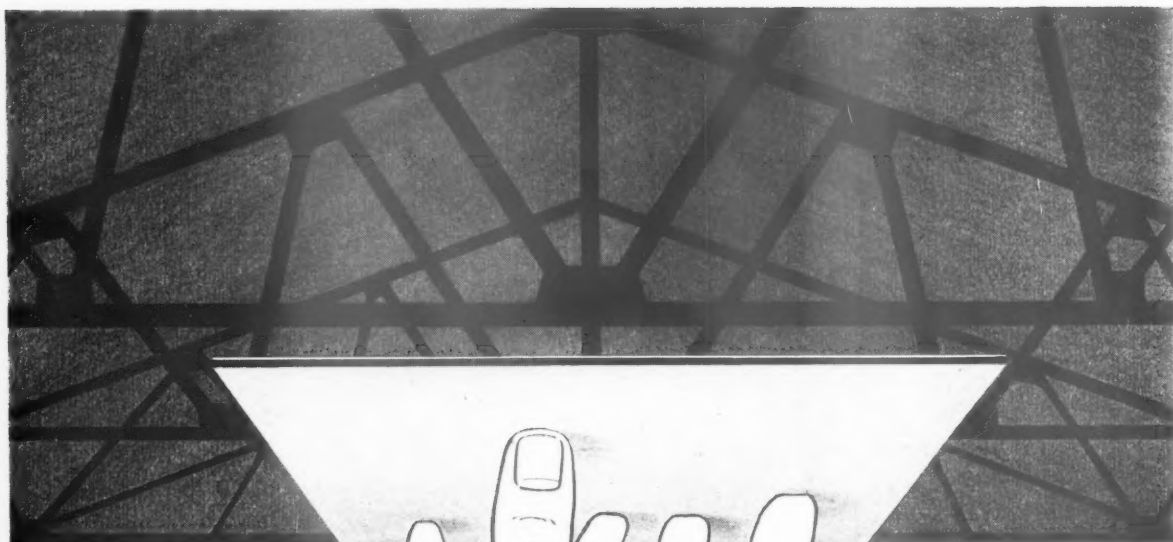
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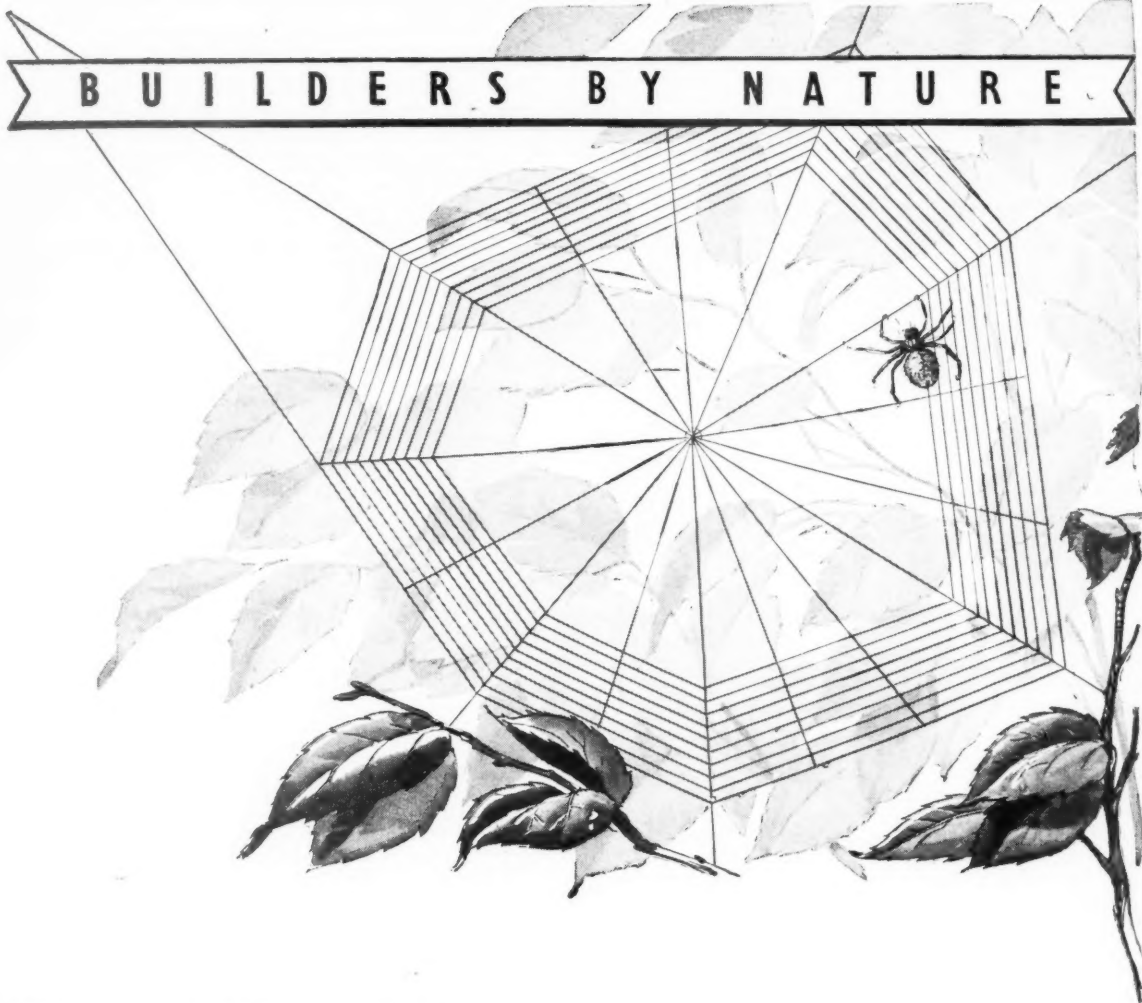
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Boundary points are chosen and foundation lines are laid down between them, sometimes with the help of the wind. The spider lets out a thread of silk which is

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Radial lines are now laid down in whatever order tends to keep the strain fairly equal. Next the parallel spiral lines are added and the hub is strengthened to bind the spokes more firmly.

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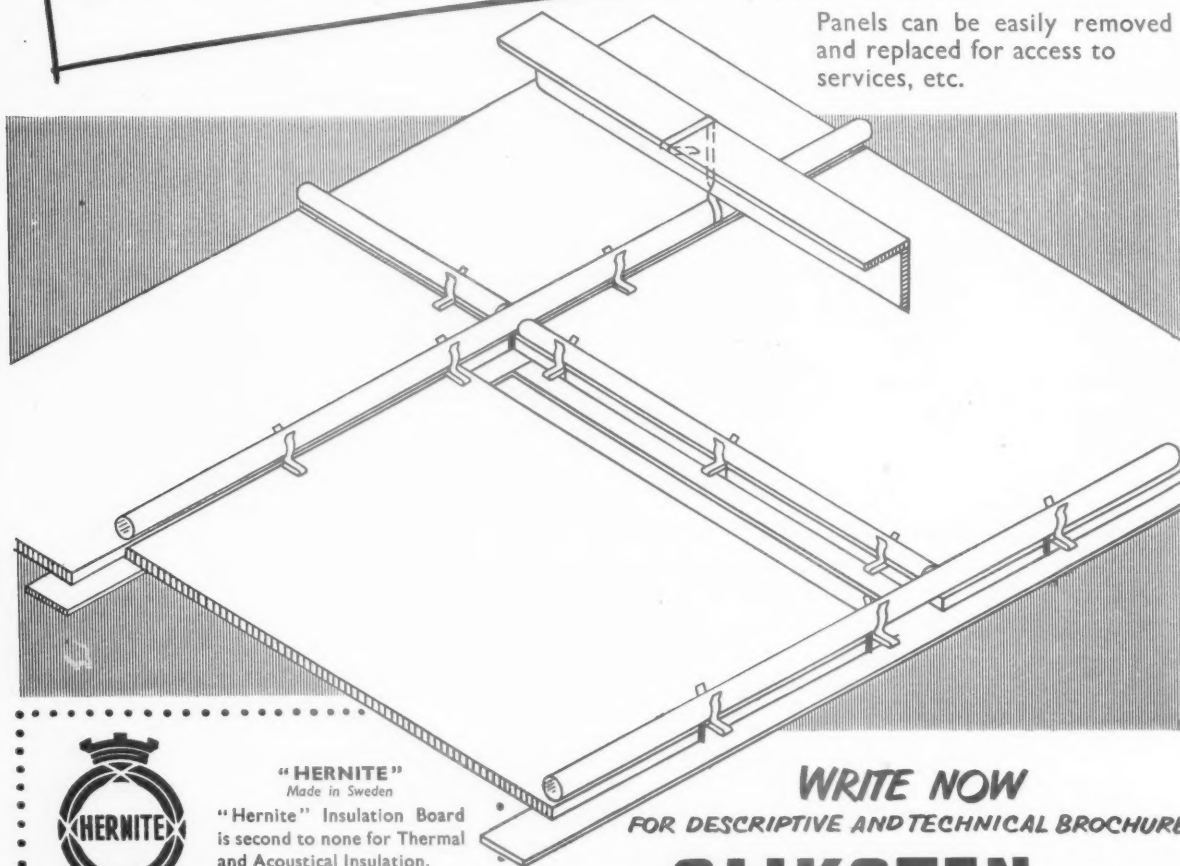
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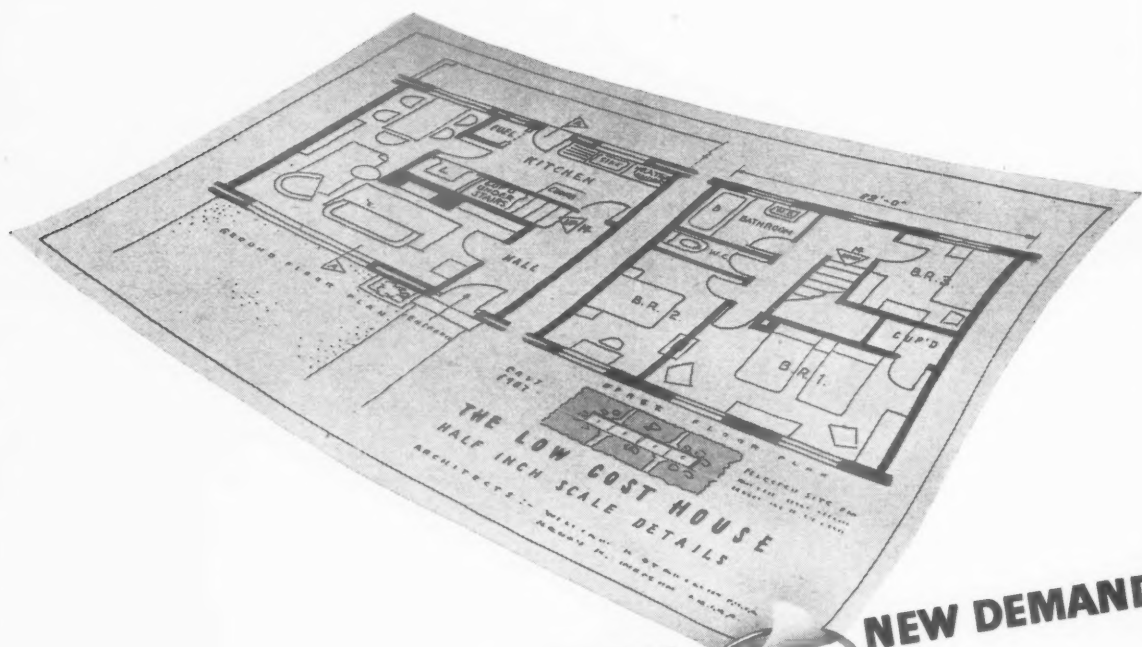
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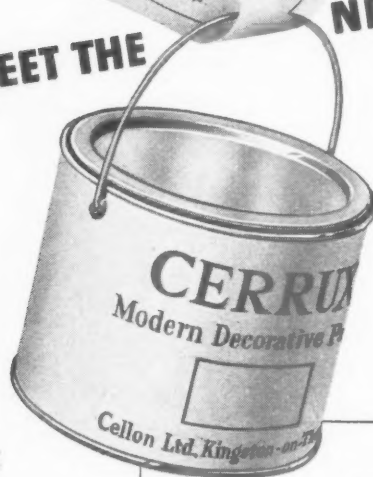
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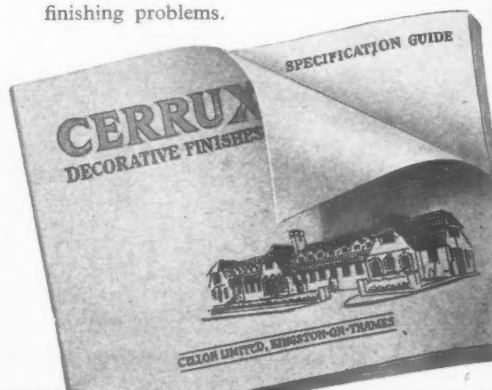
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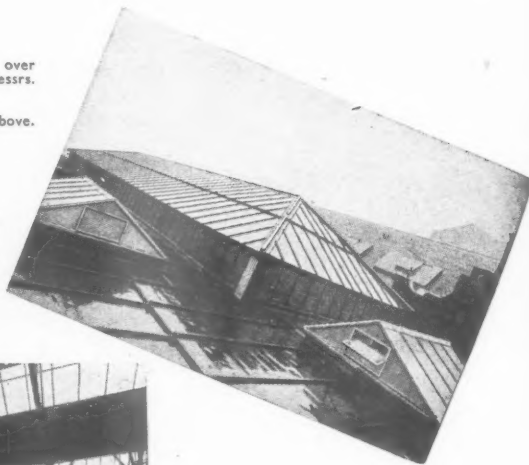
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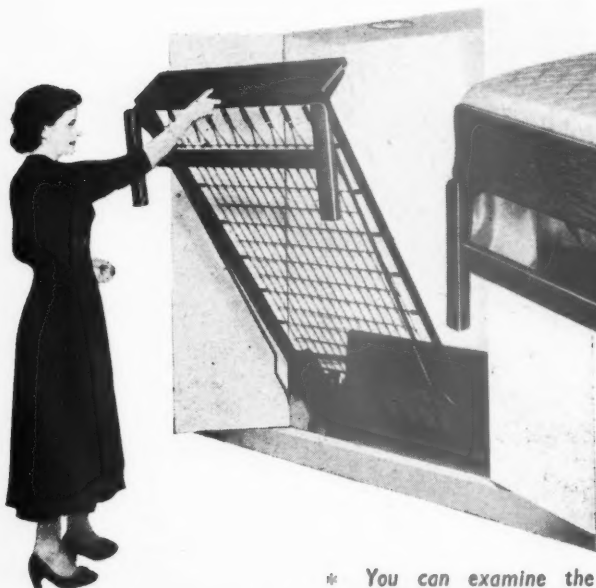
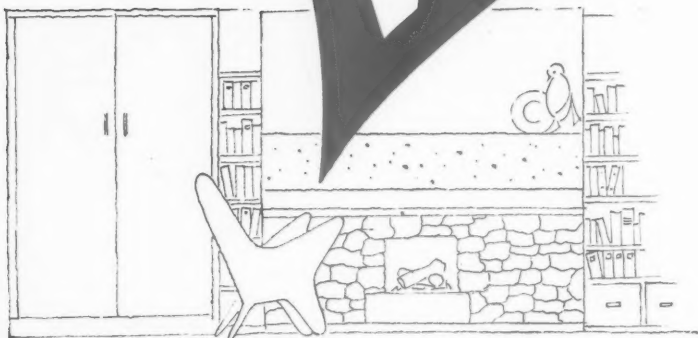
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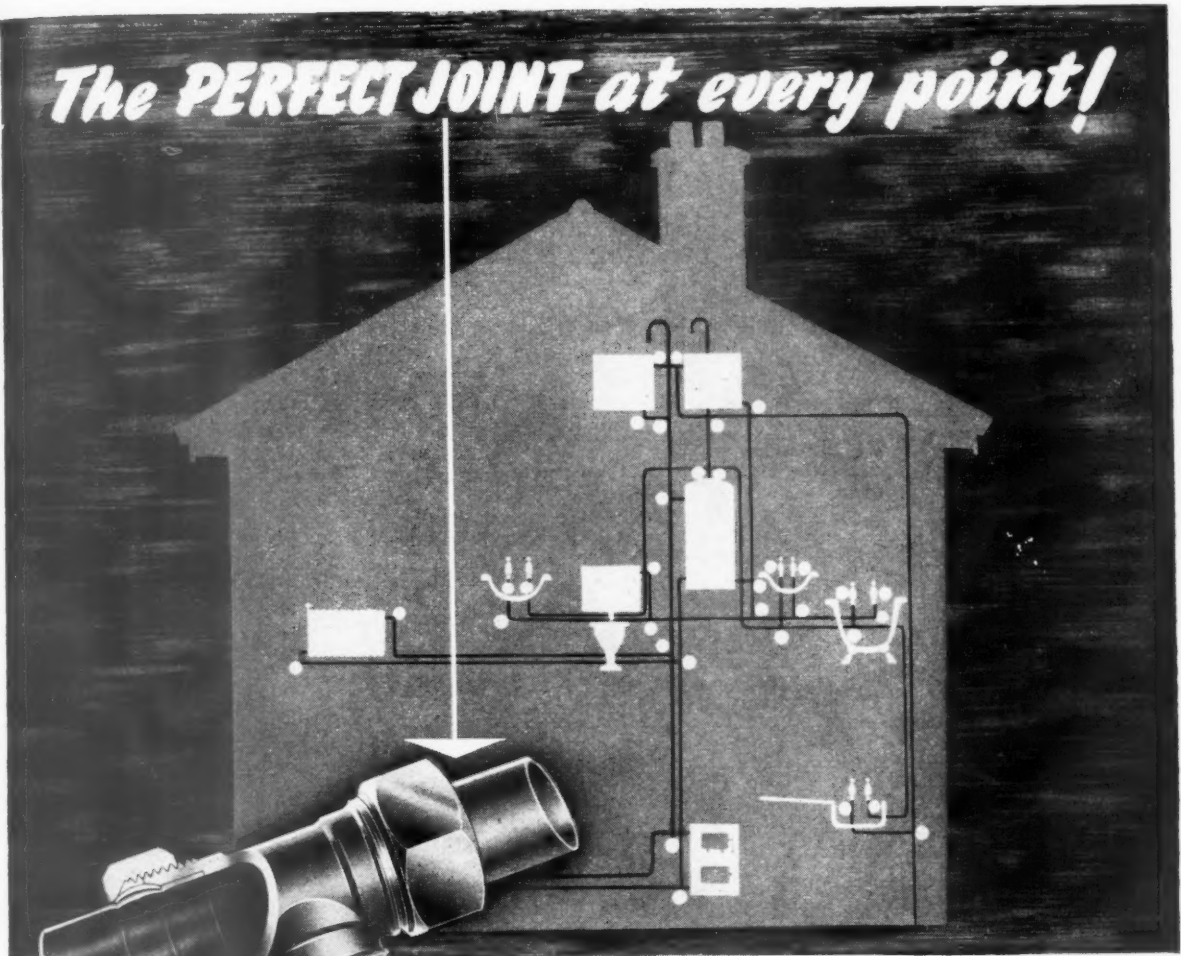
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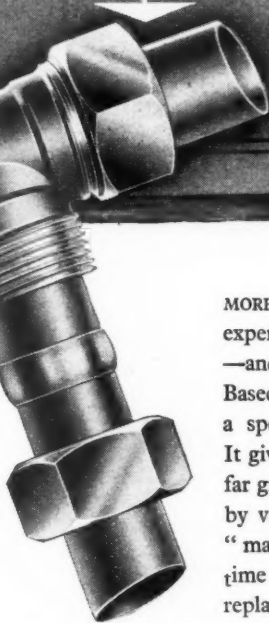
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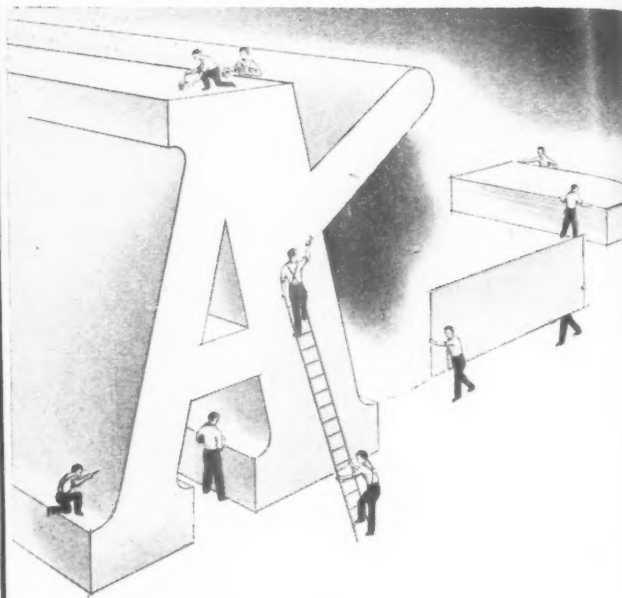
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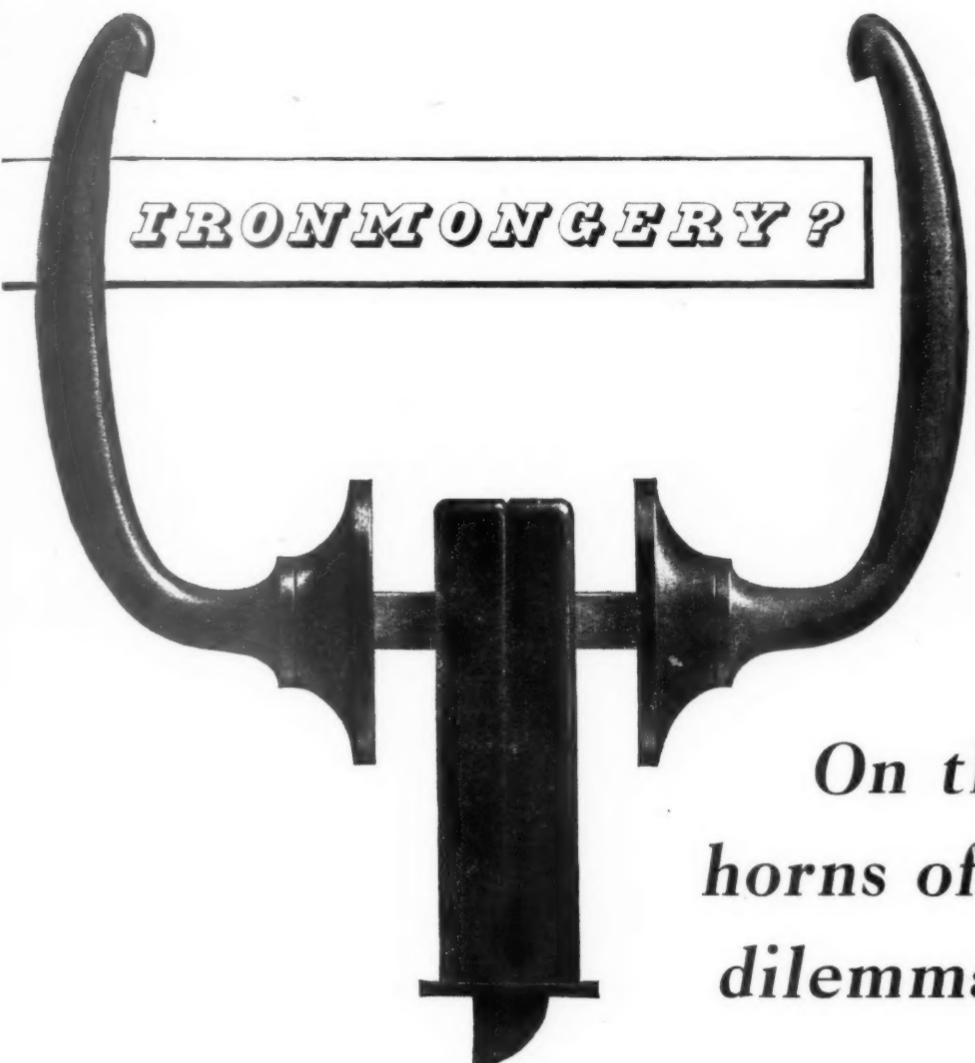


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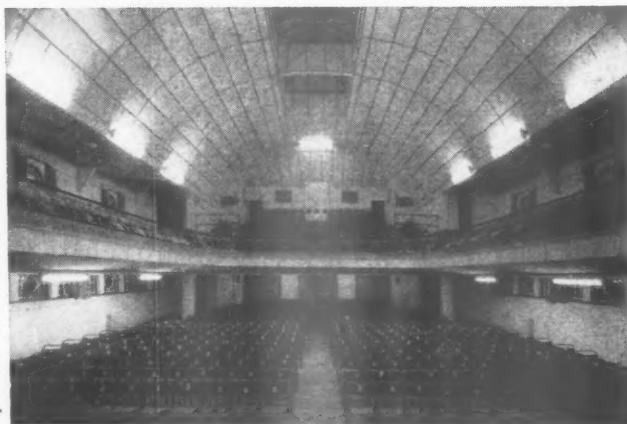
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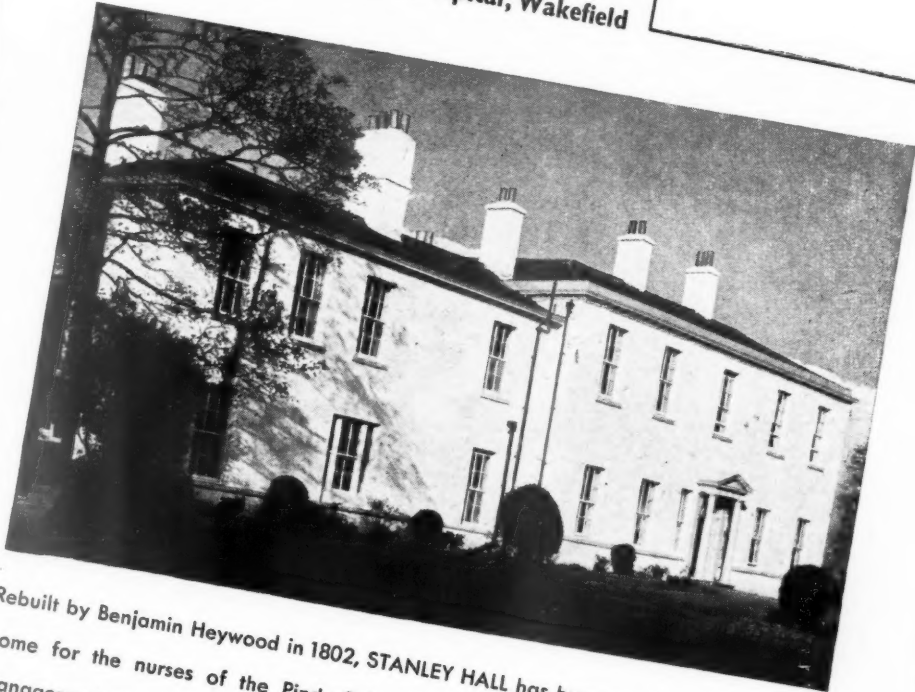
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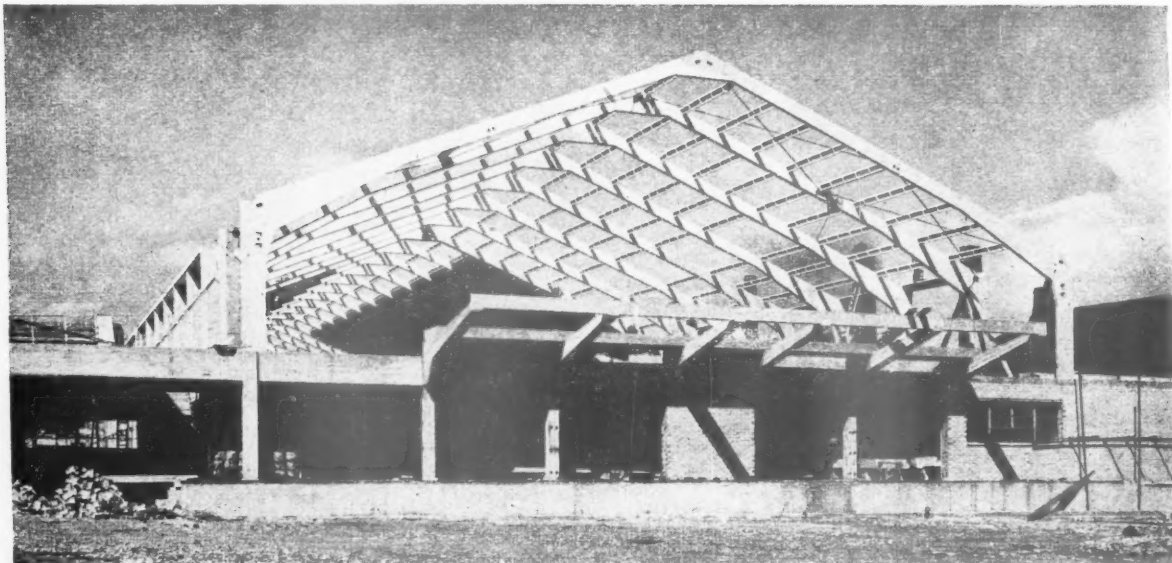
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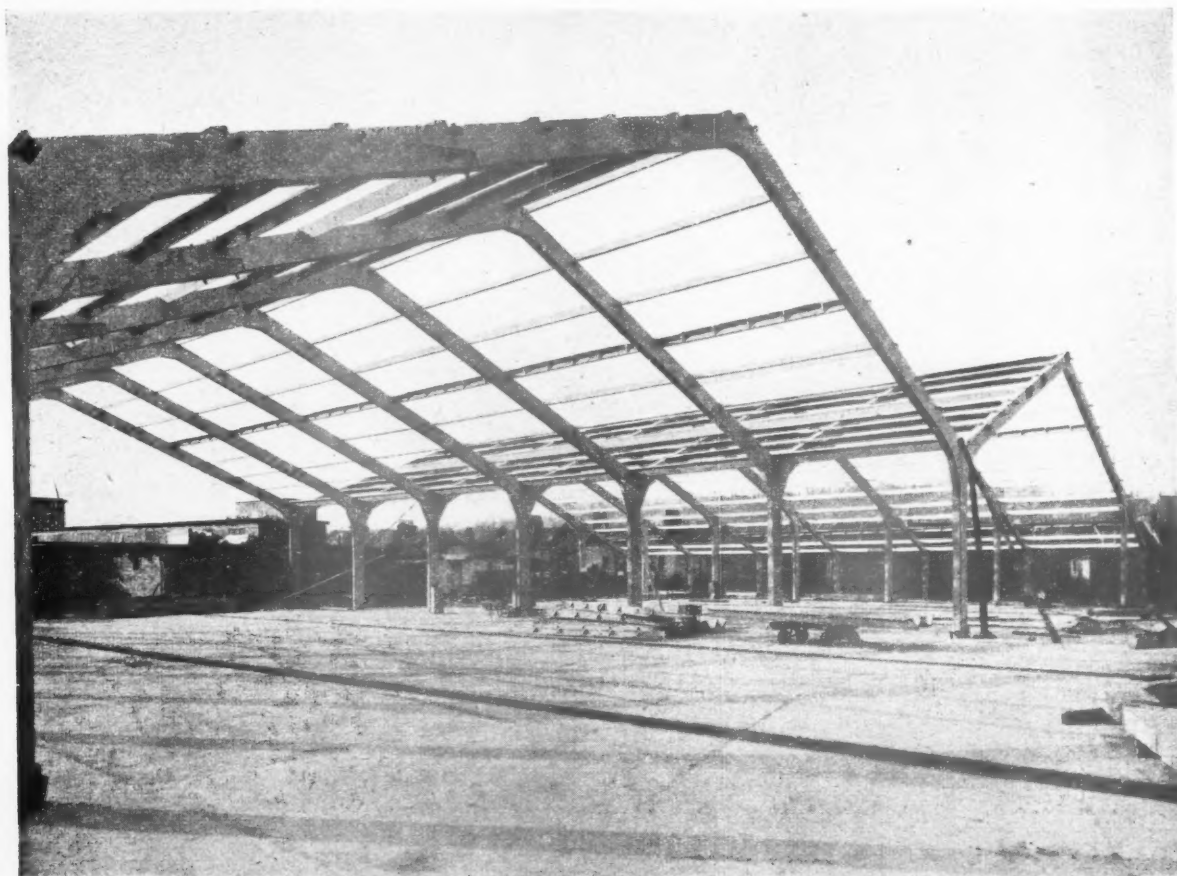
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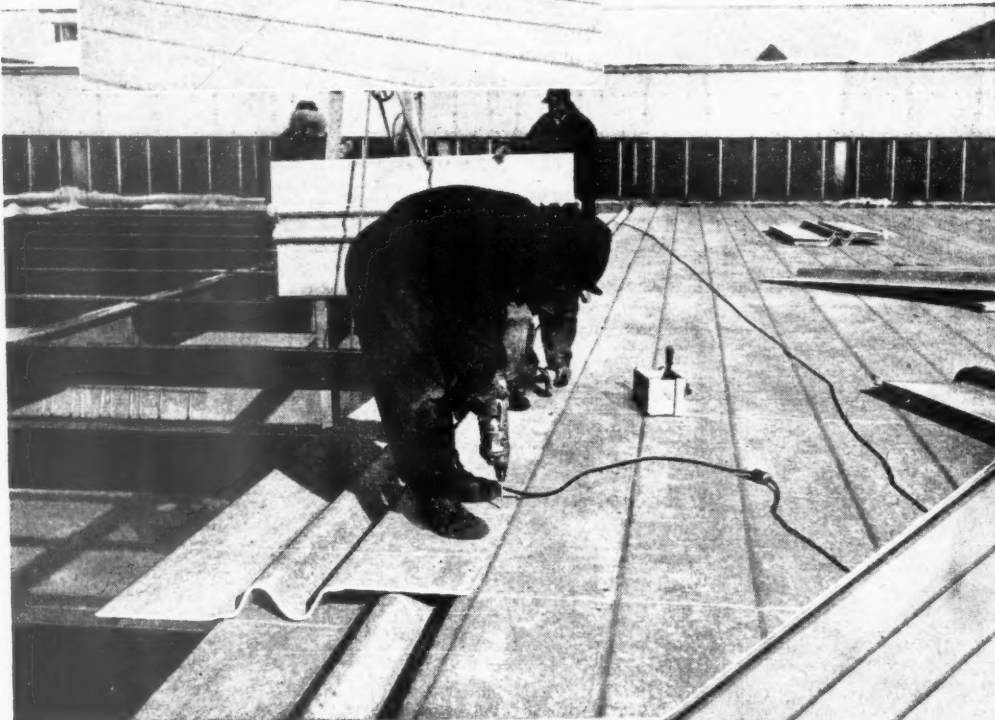
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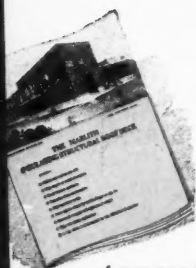
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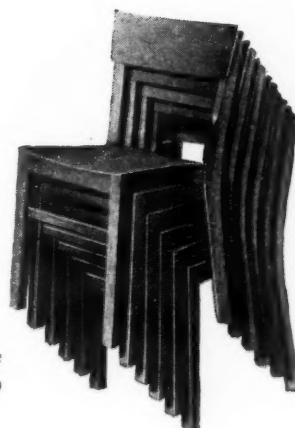
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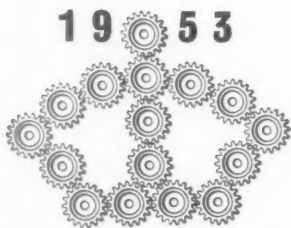
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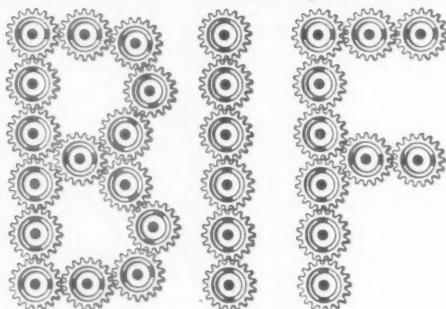
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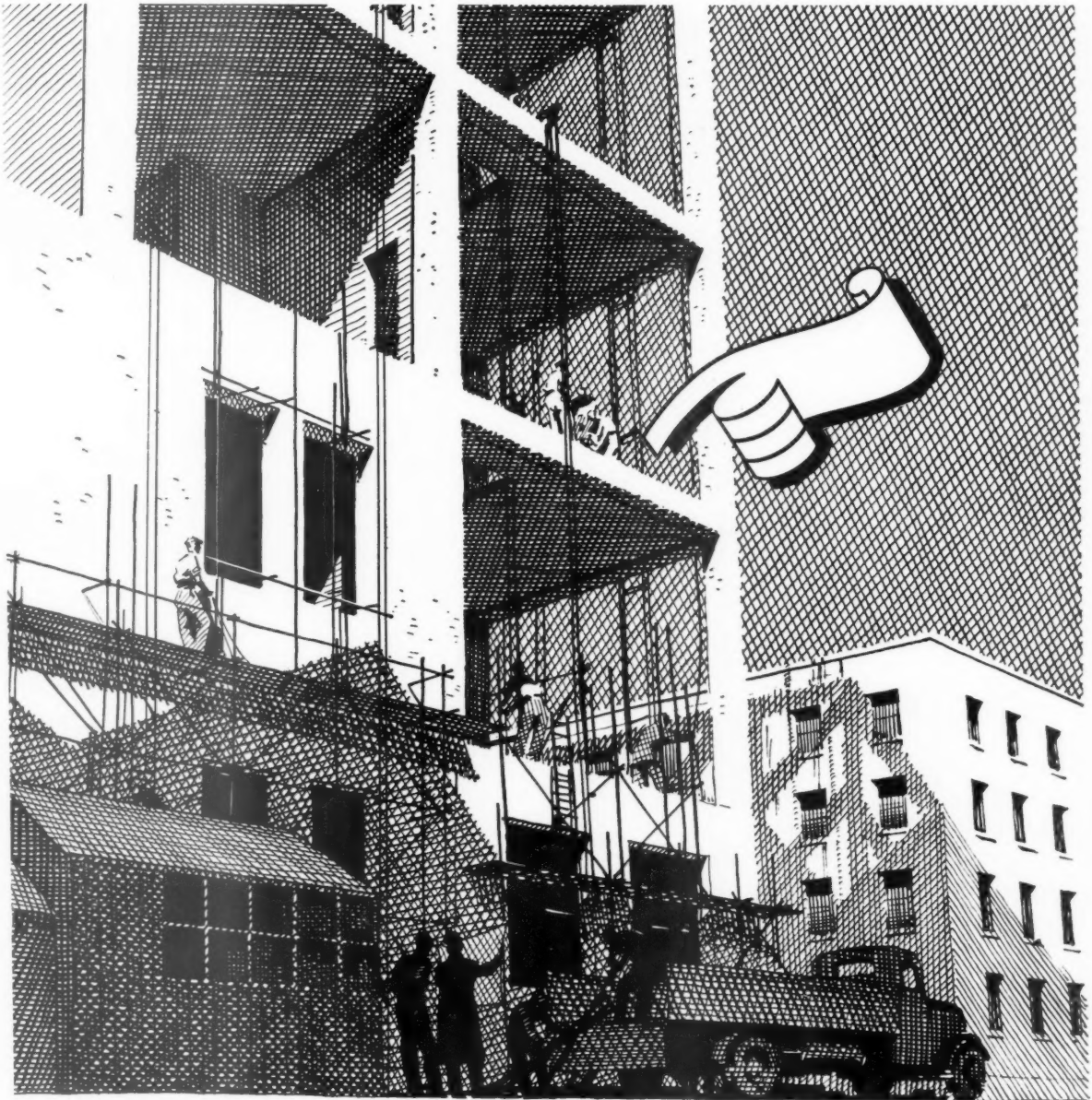
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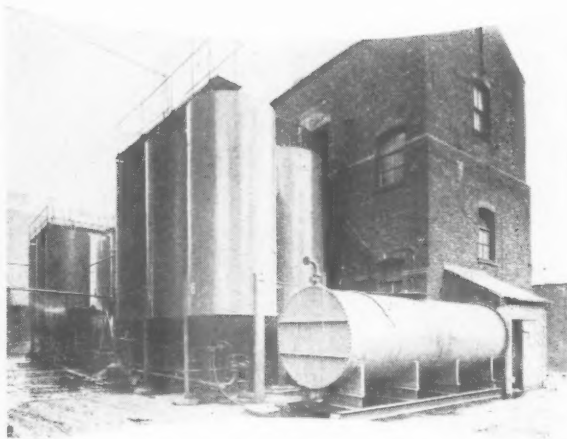
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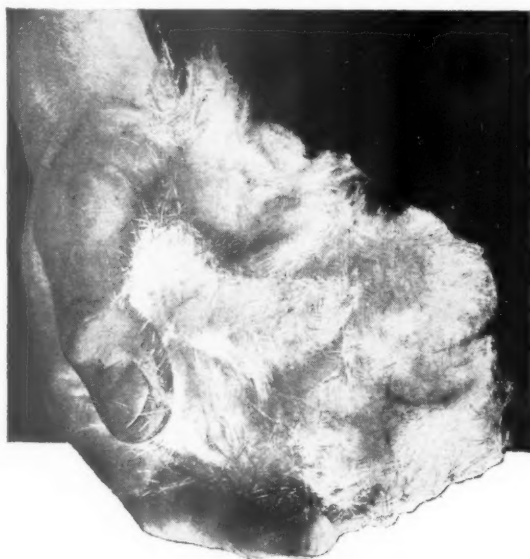
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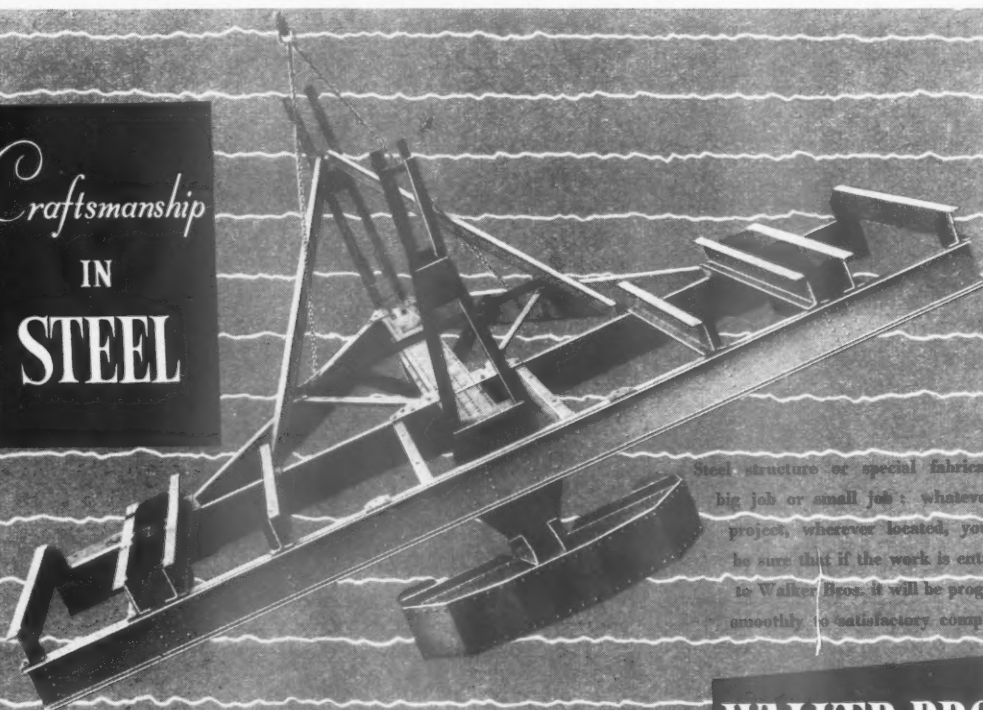
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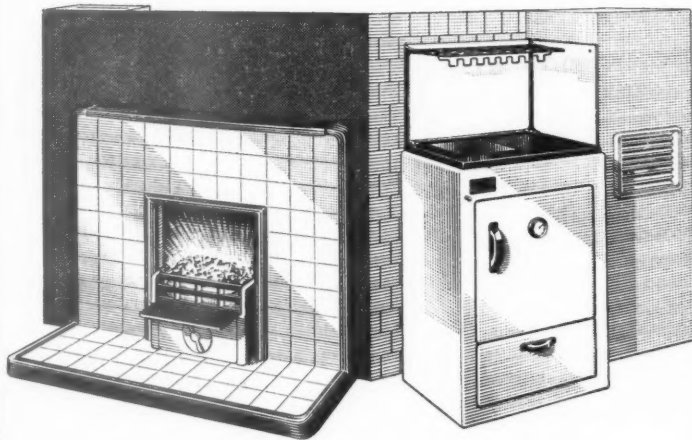
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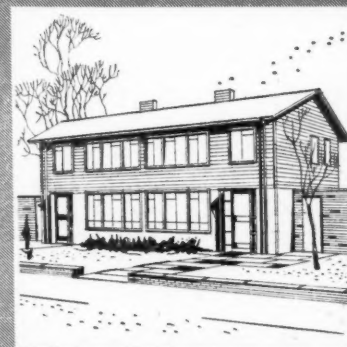
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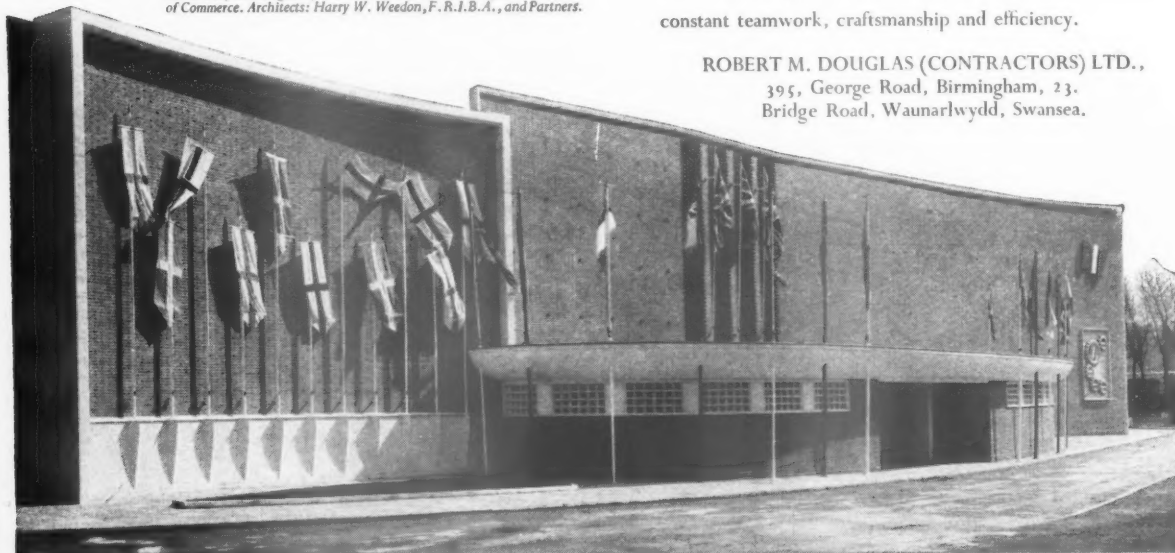
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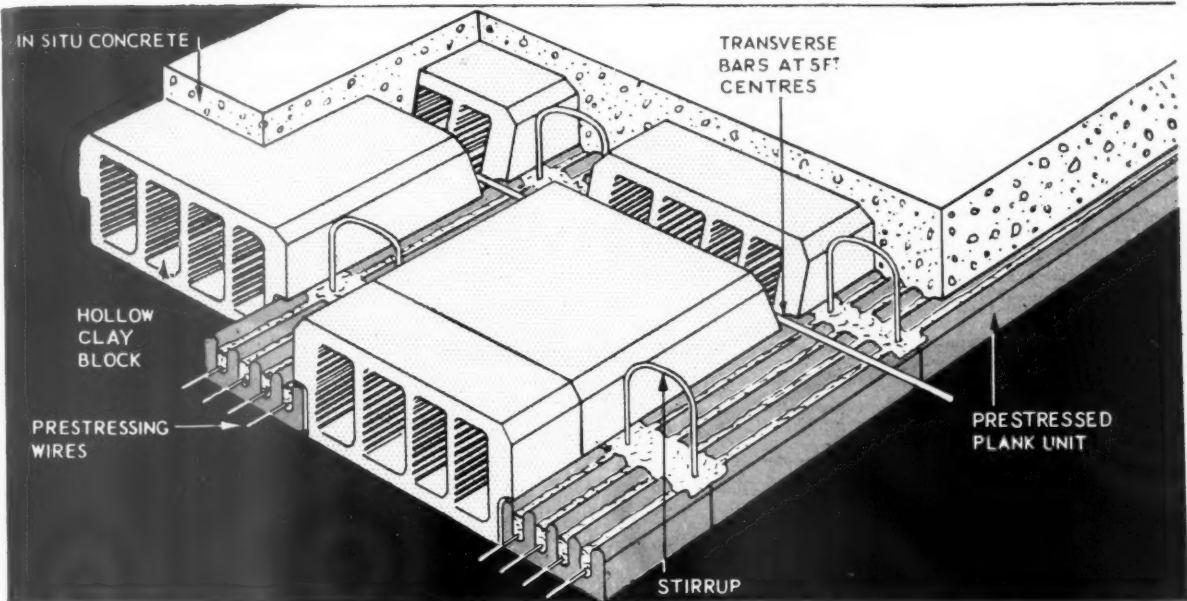
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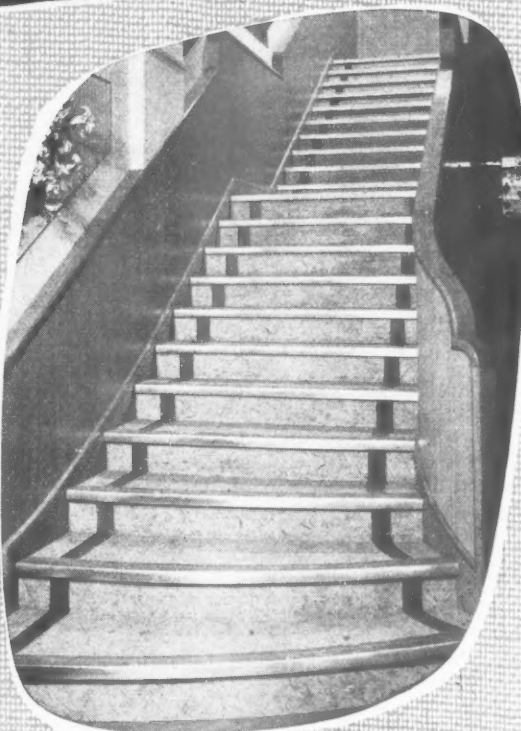


Photo: Jays Furnishing Store, Plymouth

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No. 3034 April 23, 1953 VOL 117



THE BUDGET

While we can all be personally grateful for sixpence off our Income Tax, it strikes ASTRAGAL that the various other concessions — the increased initial allowance for plant and buildings and the ending of the excess profits levy—should be an encouragement to industrial building and may provide a little more work for architects, at the same time making things easier for contractors, who suffer from very rapid plant depreciation. Reduced purchase tax will help people wanting to build and furnish houses, though the tax on gas and electrical appliances is surely still too high.

My only grumble is that I never knew there was no Income Tax in the

Scillies; but, even so, I don't expect a population of 1,800 odd is enough to support an architect.

WALL PAINTING

Passing, with eyes averted, an elderly, pink- and gilt-painted motor car outside—"such jolly fun"—ASTRAGAL descended into a horde of painters in the Henry Jarvis Room at the RIBA when the second exhibition by the Society of Mural Painters was opened. Also present were a sprinkling of architects, each appearing slightly unhappy before such an imposing and colourful array of exhibition screens saying only too clearly "this is what your next building needs—you, too, can have a mural like mine."

It was an excellent idea to show these paintings, together with their actual or mythical building sites, but the exhibition drove a second nail into ASTRAGAL's confirmation that mural painters can be the most dangerous people to allow into a building—a danger which can only be lessened by architects being thoroughly familiar with the mural painters' work (please go and see this exhibition) and by collaboration between painter and architect from as early as possible in the design-stage of a building.

"My definition of a mural is that it should need no frame," said Oliver Cox, who, as mural painter and architect, holds all the cards (readers will remember his brilliant and witty [false] ceiling painting in the Time-Life building which is especially appreciated by those who habitually walk upside-down on their hands—an example, perhaps, of inadequate architect-painter col-

laboration). And, judged by this definition, too many of the murals seem inadequate—they are merely rather large paintings, with no "wall" quality at all. More interesting, or potentially so, were the mosaics, sgraffito and three-dimensional tricks. More disappointing were the heavy-bodied, bullet-headed morons so frequently portrayed; just what one doesn't want stuck on the dining room wall, twice as large as life and half as natural.

It is good to see painters and architects on speaking terms in Portland Place; good, too, to find an exhibition in Whitechapel of "Painting, Sculpture and Architecture." Is all this the beginning of a pendulum swing towards truce-talks with the Fine Arts?

BORNEO CATHEDRAL

Those of you who read the *Observer*—and what architect dare admit that he does not?—must have felt terribly frustrated last Sunday but one, at being asked by the Rev. Dewi Morgan, of the Society for the Propagation of the Gospel, to comment on the plans of the Borneo cathedral, only to be offered a tiny perspective from the North East instead. It was a cruel joke to spoil a splendid invitation in such a way. But if you really want to accept the invitation you will find on the next page a plan to study.

It consists, as you will see, of a large soothing rectangle, about one hundred feet by four hundred; the transepts are set slightly back into this block between Wembleyesque towers, and in front of them are enormous portecochères (Eh? For parking rickshaws

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in, of course.) The roof, which is carried on more-or-less paraboloid arches, with passages cut through at their feet, is of concrete, but will be covered with Chinese tiles. The crossing is crowned by a tall dome from Dahomey—how's that for an original touch?—and a note of resolute modernity is struck by the application of that modish "coffin-form" motif, not only all over the floor but on some parts of the elevation as well. The rest of the exterior—and this is what ASTRAGAL finds really exciting—is to be of hazy blue concrete, polished and lined out to represent stone.

How's that for an answer to the challenge of the tropics—for a solution to the problem of creating "something which will harmonize East and West and look at home in its surroundings"? Don't write to me about it. All comments should be addressed to the Bishop of Borneo (c/o S.P.G. House, 15, Tufton Street, S.W.1), who is "most anxious" (according to the *Observer* letter) to have them.

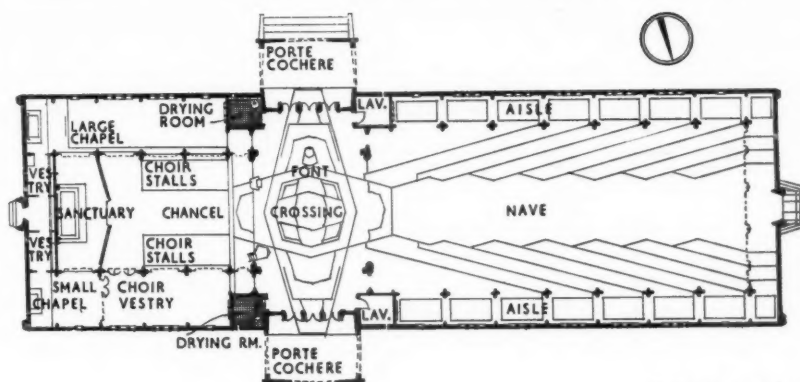
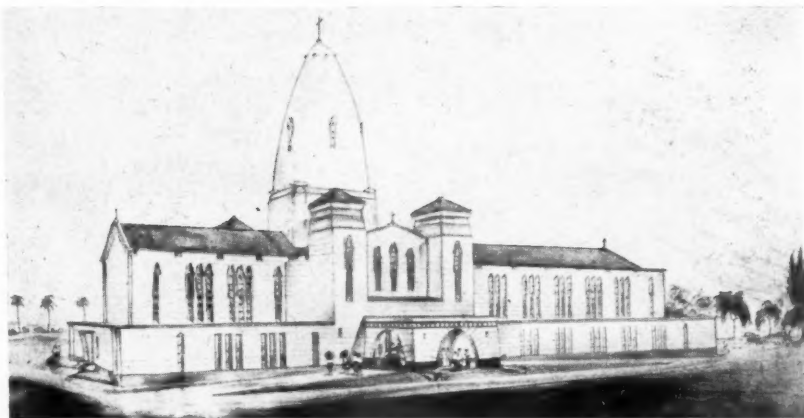
REGENCY MIND

No one can help enjoying Goodhart-Rendel's writing—a clear, precise style slightly mannered, like his view of architecture. His latest book, *English Architecture Since the Regency*,* is a fascinating well of erudition, and a glorious diversion from real issues. But this is rather a dangerous book to commend to the young, for the author is rather naughty. It is surely with deliberation that he discusses Butterfield just when he knows that he ought to discuss Morris; and writes about Norman Shaw at length, though he dismisses Voysey in a paragraph. Great fun for those who see through it all.

*

Incidentally, should the last chapter have been published? The whole book is a collection of Mr. Goodhart-Rendel's 1934 lectures; he has amended the tenses but the Kingsway, Functionalist, Stratford Memorial controversies in the last chapter are really no longer readable. However, the rest is a delectable addition to the unending spate of Victoriana. This is a curious book—so learned, and yet not really serious.

* Constable & Co. Ltd. 25s.



Drawing and ground floor plan of the Cathedral of St. Thomas, Kuching, Borneo (architect, C. W. Garton, of Nelson Garton and Co.). ASTRAGAL comments on page 509.

DUDLEY HARBORON

So torrential has this spate recently become that one easily forgets for how short a time Victorian architecture has been a seriously discussed, objectively viewed, subject. As recently as the nineteen-twenties the subject only meant jokes about the Albert Memorial. When we are enjoying the writings of our Goodhart-Rendels, our Pevsners and our Hitchcocks we should remember with gratitude the man who came before them all, Dudley Harbron, who while still in practice died last week, aged 72.

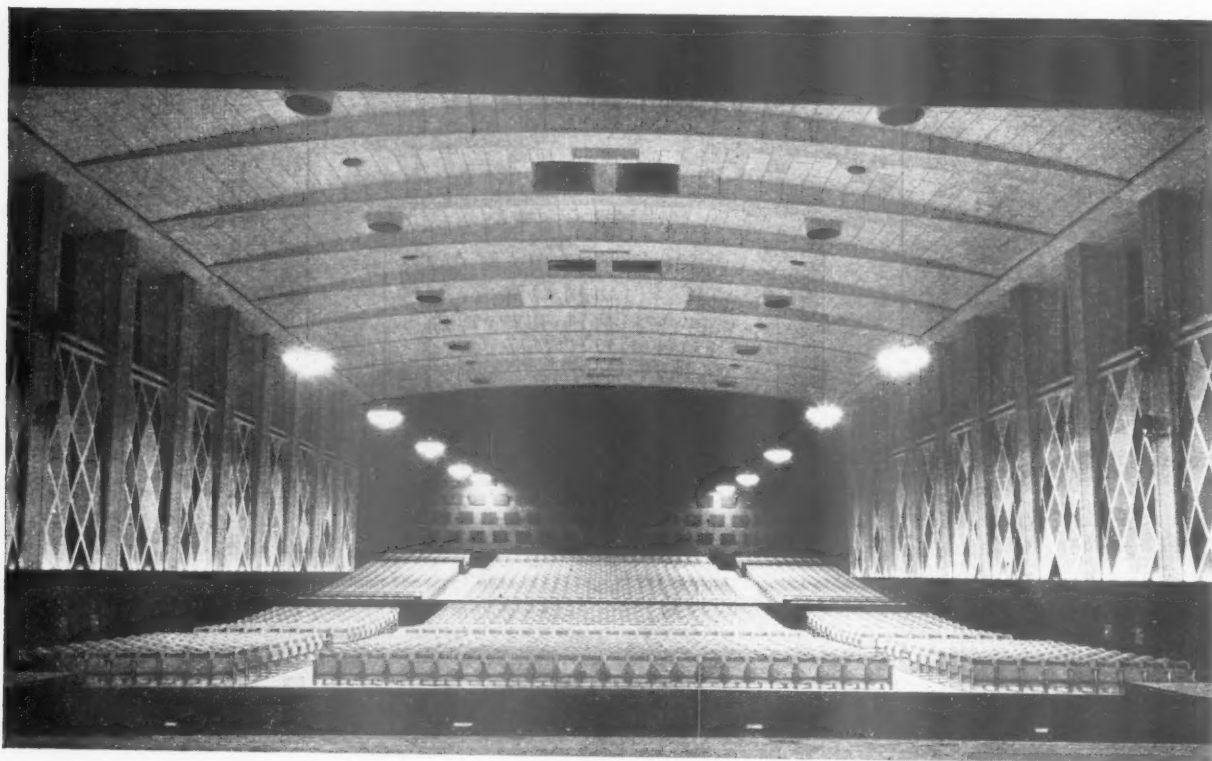
*

Living and practising architecture in his home town, Hull, and being quiet and retiring by nature (though an admirable raconteur), Harbron did not come much into the limelight. But his book, *Amphion, or the Nineteenth Century*, was the first to treat Victorian architecture as material for the historian. It was published in 1930, and followed a few years ago by an admirable life of E. W. Godwin—both most warmly recommended for re-reading.

ART AND TECHNICS

Art and Technics must not be confused with a publishing firm of the same name. It is the title of Lewis Mumford's latest book,* a collection of lectures that he gave about two years ago. They are good lectures, one or two of them very good, but none of them as good as Mumford at his best. They beat an old drum—the drum of how the individual must resist the mechanized civilization in which both here and—far more so—in America, he is now trapped. But of course—as the whole of his own historical philosophy should have told him—there is no real escape. The condition of man is part and parcel of the age that has borne him. Eventually, and this must be Mumford's comfort, American civilization, like all others, will die of its own excesses. Meanwhile the Mumfords of this world can only smash their own machines, and retire to the study where—if they are really Mumfords—they may also be prophets.

* Geoffrey Cumberledge. Oxford University Press. 15s.



Danish Festival Hall

The largest concert hall in Scandinavia—known as the “Danish Festival Hall”—was opened in January. It was built on the site of Aalborg’s assembly hall (destroyed by German troops during the war) to the design of architects Preben Hansen, Otto Frankild and Arne Kjar, the winners of a national competition for the hall. In addition to its main hall (shown here) the building, which covers 86,000 square feet, has four secondary halls. One of these, “The Intimate Theatre,” seats 270 people and can be used for chamber music, amateur drama, etc.; the other three, which are equipped for broadcasting, can be used for meetings and lectures. In addition the building has a restaurant and a games room, as well as a dressing room wing containing

residential accommodation (for artists or congress visitors or—during the summer season—for tourists). The main hall (seen in these pictures, which are on view—with other details—at the Building Centre’s exhibition of Danish Architecture) can be used as a concert hall (1,796 seats), a meeting hall (3,400 seats), a theatre (1,381 seats) or a circus. A sound-insulated partition, seen at the back of the auditorium in the bottom picture, can slide forward on rails. Thus, the hall can be adapted for different functions—or even for two functions carried out simultaneously. The seating is divided into fifteen chair units which can be rolled (on rails) under the stage and lowered by lift to stores in the basement.

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POINTS FROM THIS ISSUE

Danish Festival Hall opened page 512

Contracting Procedure: Described and Criticised pages 513 and 521

"News Chronicle" House Competition Winners.. .. page 516

The Editors

CONTRACTING METHODS

ON pages 521-528 there appears a special feature comprising brief descriptions of the principal forms of contract at present in use in the building industry in this country, together with a few notes on past practice and practice in other countries, and comments on the advantages and disadvantages of the various systems of choosing contractors, determining the contract sum and dealing with the thorny problem of sub-contracting. These comments have been contributed by a team of men chosen by the JOURNAL for their particular interest in these problems—an architect, a contractor, a quantity surveyor, a representative of the operatives, and a production consultant. Our purpose in publishing this feature is to bring to the attention of our readers, particularly our younger and most recently qualified readers, the main points over which the current controversy over contracting procedure has arisen, and to provide some background information which, we hope, will enable readers to reach their own conclusions on some, at least, of the points at issue.

In preparing this feature it has *not* been our intention to give a detailed analysis of contract procedure; this was done most ably in the famous Simon report,* which every architect could profitably re-read (although it must be said that some of the Simon Committee's recommendations—in particular, the one concerning the virtues of the normal system of competitive tendering—are not so widely accepted today as they were in 1944). Nor *was* it our intention to try to draw any conclusions on the basis of a limited discussion involving only five people. However, certain points have emerged so clearly that we must draw further attention to them, although it should be realised that no one form of contract is suitable for every type of building, and that most of these remarks do not apply to small, uncomplicated buildings. Firstly, the general contractor and the sub-contractors should be selected as early as possible *during* the design of a building. Secondly, little is lost by nominating the main contractor rather than selecting him as a result of competition, particularly if there is a great deal of specialist work to be sub-contracted. Thirdly, if the main contractor *is* to be chosen as a result of competition, the competition need not be based on a fixed price for the job, since for this to be effective the choosing of the contractor must await the preparation not only of bills of quantity, but also of detailed drawings.

* The Placing and Management of Building Contracts. (HMSO, 1944. 2s. 6d.)

CHARLES EDOUARD

Which brings me effortlessly to one final post-script on Le Corbusier's very brief but very successful visit to London. It seems that—presumably upon the advice either of the RIBA or of the French Embassy—"The Medal" was engraved with the name "Charles Edouard Jeanneret." Now to change one's name either by deed poll or for political purposes or for professional purposes is common enough, and is entirely a matter for the individual concerned. Le Corbusier, at least in this respect, is not unique.

*

Presumably the RIBA will not, in 1964, invite some eminent scholar to celebrate a certain centenary by reading a paper on a Florentine sculptor called Buonarroti, but there is some danger that they make themselves illogical in this century and incomprehensible in the next by engraving the words "Charles Edouard Jeanneret" upon the travertine of Portland Place. From one point of view the matter is trivial enough; it is also silly enough to need stopping.

SI TRISTE!

From all accounts the best part of the visit—despite the disappearance of Corb's overcoat during the party—was the lunch with students at a Euston Road restaurant. Someone slyly slipped a drawing block on to the table and, about half way through lunch, Corb got going with some effect—all the more unexpectedly because he had seemed earlier to be rather unwilling to talk to students. "Les jeunes," he said, "sont si triste aujourd'hui!"

*

One hears quite a bit on these lines. What has gone wrong in Bloomsbury? Your guess is possibly—though not probably—as good as mine. And while you're guessing what mine is (it has something to do with a distaste for generalisations about "youth today") let me close my column with an appalling piece of news—news which may lead to fearful bouts of frustration among even younger people. *There is now a plastic conker*, which can be mended after every game. Can you imagine how many infants will be stretched on psychiatrists' couches when they find they can't smash their opponent's weapons? *Si triste!*

ASTRAGAL

Instead, competition should be only partially financial; for example, tenderers might be asked to price a schedule, but to submit with it evidence of his available resources, such as labour and plant, local buying arrangements and supervisory staff, which would enable him to bring the project to a more speedy and economic conclusion than his competitors. Alternatively, when a fee contract is to be used—a system we think has much to commend it—firms need be asked to quote simply the percentage for overheads and profit for which they are willing to do the job; the accepted figure then being used to establish the contractor's fee for the job.

In general, we feel that the ending of the present system of competitive tendering, and the widespread adoption of a system under which more attention would be paid to firm's *reputations* than to financial *estimates*, would in time raise the status of the general contractor to that of a professional man. This is a need that becomes more urgent as the pattern of building changes. As an ever higher proportion of the contract sum consists of sub-contracted specialist work, the general contractor becomes, or should become, more and more the "organizer" and administrator of the job—a role for which someone with the outlook of a professional man is clearly needed.

Like the main contractor, the sub-contractors should be chosen at an early stage, but if a fixed-price contract is being used, competition for sub-contracts must be based on drawings, specifications and quantities every bit as detailed as those for the main contract. If the sub-contract is for specialist work, then the design should be prepared by a consultant and (as was recommended in the Simon Report) it should be made clear to clients that the architect's fee does not cover these services, and that no money is saved by eliminating the consultant, for if specialists do the designing themselves its cost is included in their tenders. Another point which was made in the Simon Report is that sub-contractors, even when nominated by the architect, must work under the control of the main contractor so that their programmes can be made to dovetail into his.

We feel that the fixed sum, particularly when based only on bills of quantity, is far too haphazard a method of determining the cost of a building. The fixed price depends on so many extraneous factors, such as the condition of the market, the financial situations of the individual tenderers, the capabilities of the estimators. And, in any case, as a result of variations, difficulties regarding materials' supplies, wage increases, etc., the original "fixed price" seldom becomes the final cost of the building.

We favour, therefore, some form of cost reimbursement system, whereby savings due to the architect's ingenuity, efficiency in the contractor's office, hard work on the site, and self-control with regard to variations on the part of the client, can be shared by the client, the contractor and the operatives, and dare we suggest it, by the architect, too.

LETTERS

{ A. A. Macfarlane, A.R.I.B.A.
Frederick Adkins, A.R.I.B.A.

When should a Student become an Architect?

SIR.—I doubt whether a youth of eighteen can know that he was pre-ordained to be an architectural designer. Many do not find their vocation until much later in life. If a youth is interested in building he ought to be allowed a few years to find out where his interests lie rather than be pushed into architecture where, without the qualities to become a principal through a keen business sense, he wastes such talent for design as he may have, talent that could be put to better use in interior decoration, furniture design or fabrics—or even diverted to building and civil engineering.

A youth interested in architecture can be of use to a principal as a junior, and earn his keep, while learning to make good working drawings. He ought not to be committed to become an architect until he approaches the grade of senior assistant. During all this time he will have been absorbing some of the knowledge required of a practising architect, working on surveys, dilapidations schedules, assisting on structural reports, measuring up for alteration works and getting out sketches, analysing sub-contractors' quotations and many of the humdrum jobs which take up 99 per cent. of a principal's time.

Planning and elevational design, which are the justification of architectural schools, necessarily occupy very little of the principal's or section leader's time. Without denying the importance of these, it must be remembered that the demand for architects depends mainly on the administrative providing economical buildings.

Welwyn Garden City. A. A. MACFARLANE.

Put a Stop to Unqualified and Pirate Practices

SIR.—Mr. Scott-Moncrieff's letter (March 19) commenting on the mass of work being done by unqualified persons is very much to the point in these difficult times for the private architect. All buildings should be designed only by qualified architects. Your correspondent's suggestion that local authorities ought only to consider drawings by qualified architects is one quite good way of achieving the object, but the right way is by amendment of the Architects' Registration Act.

The letter from Mr. McCartney (April 2) touches on another menace—"pirating." Is it not time that government departments, local authorities and other similar bodies withdrew permission for their assistants to do private work and banned such activities? The assistant is employed to do a job of work for the authority concerned and should do so conscientiously instead of coming in tired in the morning after working hour after hour on private work—that is unfair to his employers (the public), to his client (who can only get part attention), and to the practising architect. Moreover most of this spare-time activity is certainly done at cut fees, which is most unprofessional and again unfair to the practising architect.

Harrow.

FREDERICK ADKINS.

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BISCOMBE, John Henry, 11 Lonsdale Street, Selby
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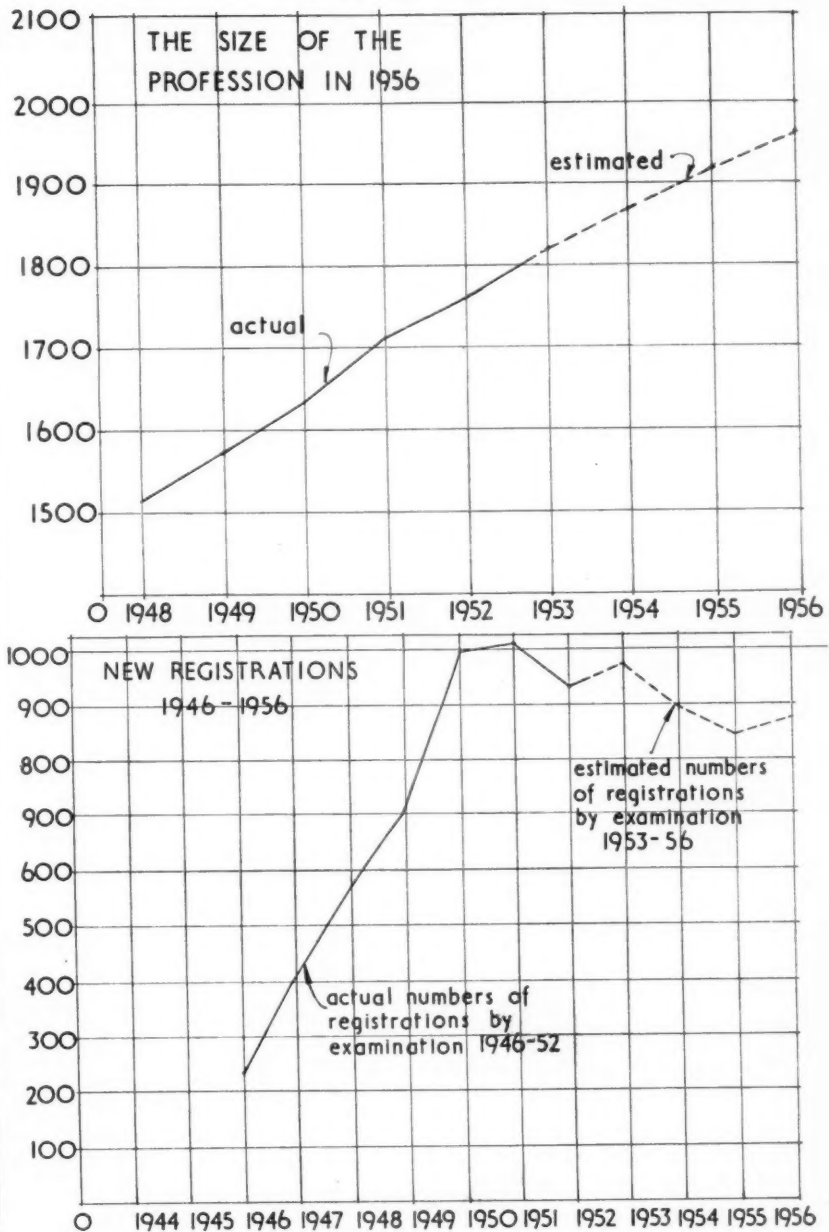
Professor Ian Bowen and Martyn J. Webb continue their investigation into the state of the profession. (The names in the title-piece above were taken at random from the Architects Register.)

Guest Editor :
Professor IAN BOWEN

Future Registrations

Below is an estimate of the total numbers likely to be available for registration between 1953 and 1956. These estimates may be on the low side, but even then they show that we can expect a fairly high rate of entry to the profession during the next few years. We can compare them with approximately 325 examination successes per annum before the war, or with our earlier estimate of the gross pre-war rate (i.e., including non-examination entrants) of approximately 650 per annum.

Not all of these successful candidates will register; about 100 people per annum have failed to do so in the last three years. Thus, although the register recorded nearly 18,000 architects at the beginning of this year, it is possible that there were, in fact, nearly 19,000 qualified architects, not all of them practising. A further 300 or so registered architects resign or die or are struck off each year, and so the numbers of registered architects will increase at a rate of 400 per annum less than the total number of successful examination candidates.



The possible size of the profession and the rate of entry during the next few years is shown in the graphs on this page. We can conclude that the architectural profession shows every sign of continued growth during the coming years, and that, although the post-war peak has been passed, there are indications that the number of new registrations will continue to be numerous. There is a sign of a slow decline, but it is clearly not the sudden fall in numbers that was predicted some years ago.

It is possible that the gross number of architects either registered or entitled to seek qualification will reach something approaching 21,500 by the year 1956, the total number of architects actually on the register may then be about 19,600.

The numbers of architects available will, however, depend on how many want to remain in the profession, and also on death and retirement. The present death and retirement rates seem very low in comparison with the size of the profession; and in the long run they are bound to increase. There may, indeed, be a shortage of architects when the large numbers of young persons who have recently entered the profession reach the age of retirement and death. But that is a long way ahead.

	Internal Students	External Students	Total
1953	667	300	967
1954	600	300	900
1955	548	300	848
1956	582	300	882



COMPETITION

"News Chronicle" House

The winners of the *News Chronicle* open architecture competition for bungalows and houses are:—Andrew Jackson, A.R.I.B.A., East Kilbride, Lanarkshire (bungalow); Brian Smith, A.R.I.B.A., Winchmore Hill, N. (house); John Bruckland, A.R.I.B.A., Edmonton, N. (house); John and Kaethe Morton, Wallingford, Berks. (bungalow); Herbert Morel, A.R.I.B.A., Sidcup, Kent (bungalow). Each receives 150 guineas.

The assessors were Louis de Soissons, Herbert Tayler, and J. Lewis Womersley.

The winning designs will be published in the *News Chronicle* next week, with five others by architects specially commissioned by the *News Chronicle* to plan houses on preferences expressed by readers in the series of home-planning competitions.

MOHLG

Housing Progress

The number of permanent houses completed in February was 20,118, as compared with 16,163 in February, 1952. In the first two months of 1953, 40,702 permanent

houses were completed, as compared with 31,855 for the same period of 1952.

Approximately one-sixth of the total was erected by private builders; less than one per cent. for housing associations. The total number of permanent dwellings provided since the end of the war was 1,437,170 at the end of February.

CPRE

The Row Saved

The Oxfordshire Housing Society has won its fight to save from demolition the thirteen 17th century cottages comprising The Row, Blethingdon. The CPRE took up the case for preserving The Row on the grounds that its demolition would destroy the character of the village, and it viewed The Row as a "test case."

A donation of £2,000 from The Pilgrim Trust and a similar donation from an anonymous trust, together with loans and donations from the public, will now make it possible for the scheme for converting the cottages into seven up-to-date homes to go ahead.

RICS

Co-operation between Architect and Quantity Surveyor

Speaking at the RICS last week, Richard Sheppard made a number of points relevant to the current controversy over contracting procedure which forms the subject of a special feature on pages 521-528. He was strongly in favour of bringing in the quantity surveyor at the sketch design stage and of close co-operation between the architect and the quantity surveyor.

The RIBA contract, said Mr. Sheppard, was not very effective in dealing with the problems arising from the fact that a few large firms dominated some of the specialist fields, nor were orthodox methods of costing capable of being adapted to unorthodox methods of construction.

Mr. Sheppard said that he would like to see more attention given to the publication and annotation of costs in the technical journals—analyses of costs should always accompany the criticism of a building.

A full report of Mr. Sheppard's paper will appear in next week's JOURNAL.

HC

Competition

The Housing Centre is offering prizes to the value of 22 guineas for an illustrated essay on a play area for a site in Central London. The competition is open to anyone. Entries should be of approximately 2,000 words, illustrated with a layout plan and up to six sketches showing the equipment and amenities of the play space. The essay should give arguments for and against such provision as is made, and should take into consideration social and physical factors. The assessors will be Lady Allen of Hurtwood, James W. R. Adams, G. Eagleton of the National Playing Fields Association, Gordon Logic, L. E. White, Liaison Officer, Harlow Development Corporation.

The site is on an estate in a high density area of London to be developed with flats, with a child population of about two hundred of up to twelve years of age. Competitors should suggest how the needs of children of different ages within the group can most successfully be met.

A site plan and details of the conditions can be obtained from the HC, 13, Suffolk Street, S.W.1. The closing date is September 1.

STUDENTS

Decline in Numbers

In an article published in the JOURNAL on April 2 Professor Bowen gave the number of students attending full-time architectural courses during the last few years. The figures for January, 1953, have since become available. They are given below, together with figures for the previous year.

The decline in the numbers of full-time students continues, but the decrease is not as great as it was in the previous year.

Year	1952	1953
Recognised schools ..	4354	3871
Technical colleges ..	905	786
Total	5259	4757

DIARY

Paintings, Drawings, Sculpture and Tapestry, 1918-1953. By Le Corbusier. At the ICA Gallery, 17-18, Dover Street, W.1. Daily, 11 a.m. to 6 p.m.; Sundays, 2 p.m. to 6 p.m. APRIL 23-MAY 17

Fuel Efficiency and Smoke Abatement. Exhibition at Charing Cross Underground Station, W.C.2. (Sponsor: Solid Smokeless Fuels Federation.) Weekdays 10 a.m. to 7.30 p.m.

UNTIL APRIL 25

British Architects in the Tropics. G. Anthony Atkinson. At the AA, 34, Bedford Square, W.C.1. 8 p.m.

APRIL 29

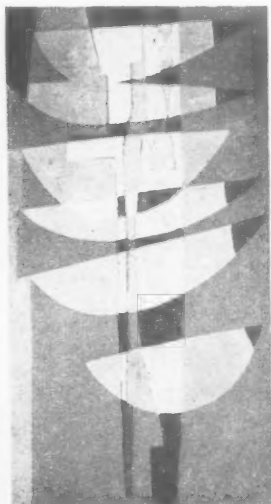
Competitive Tendering Is Not Necessarily Conducive to Economic Building. Debate at Talbot Restaurant, London Wall, E.C.2. (Sponsor: RICS Junior Organization, Quantity Surveyors' Committee.) 7.40 p.m. APRIL 30

Mural Paintings Exhibition. At the RIBA, 66, Portland Place, W.1. Weekdays, 10 a.m. to 7 p.m.; Saturday, until 5 p.m.

UNTIL MAY 2

Danish Housing Exhibition. At the BC, 26, Store Street, W.C.1. Weekdays 9.30 a.m. to 5 p.m.; Saturdays until 1 p.m.

UNTIL MAY 9



Two of the murals on view at the exhibition which has been organised by the Society of Mural Painters at the RIBA headquarters, 66, Portland Place, W.1. Extreme left, a detail by Laurence Scarfe to be interpreted in Venetian glass mosaic for a reception hall at Waterloo Air Terminal, South Bank. Left, a painting by Clifford Ellis. The exhibition closes on May 2.



Shoe Shop in London

Above, an interior view, looking towards the entrance, of the London Shoe Co., Ltd., branch at 116-7, New Bond Street, W.1, which has been re-designed by Chamberlin, Powell & Bon. On the sales floor area of 2,000 sq. ft. there are eight double seats and ten chairs. The storage area covers 875 sq. ft. The ceiling is blue; wall panels are lime green; other vertical planes are in various shades of grey; horizontal heating panels are yellow; columns and laylight are white; and furniture framework is black. The cost per sq. ft. was £2 17s. Of the total cost, 40.9 per cent. was spent on building work; 41.4 per cent. on other work, decorating and furnishing and 17.7 per cent. on the new shop front. The shop will be fully illustrated in a future issue.

BUILDINGS IN THE NEWS



Houses at Crawley New Town

Above, two views of the Northgate (site 8) area of Crawley New Town, designed by A. G. Shepherd Fidler; the senior architect was Nelson Foley, the assistant was D. G. Yeatman. This is the area most recently completed. It consists of 121 dwellings on nine acres of land (giving a density of 13.4 dwellings per acre). The contract price was £212,000. The top picture shows 3-bedroom houses on the left (floor area 974 sq. ft.) and 4-bedroom houses on the right (floor area 1,273 sq. ft.). The curved block, above, consists of 3-bedroom houses of 1,069 sq. ft. costing £1,800.



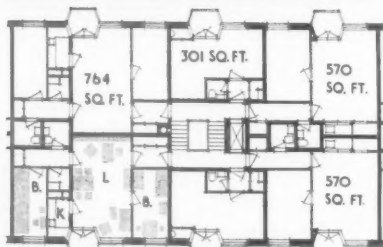
Flats in Great Yarmouth

Above, a block of flats at Friar's Lane, Great Yarmouth, designed in the Borough Engineer's Department (chief assistant architect, C. J. Oliver). This 3-storey block contains six flats (£1,500 each) with an average floor area of 720 sq. ft. per flat. The block is in the Middle-gate reconstruction area, where the pre-war housing density was 100 dwellings to the acre. Future density will be 30 dwellings to the acre.

FLATS IN COPENHAGEN, DENMARK



The six-storey block of 124 flats in the Gladsaxe suburb of Copenhagen was designed by P. E. Hoff and B. Windinge. This is one of the buildings illustrated in the Modern Danish Housing Exhibition, now open at the Building Centre. There are eight types of flat; sizes range from 301 sq. ft., at a rent of 65s. a month, to 883 sq. ft., at a rent of 190s. a month. An arrangement for three types of flat is shown above right. The kitchen in the two smaller types consists of a cupboard equipped with a sink and electric cooking plates. This is the first block of flats in Denmark to include such amenities as a restaurant, shop, offices, rooms for parties and a communal kitchen. Above, the flats from the west. Right above, the shop. Right, the restaurant.



Typical floor plans [Scale: $\frac{1}{4}$ " = 1'0"]



RIBA

Education Committee to Report Soon

The RIBA Joint Committee on Architectural Education, set up in the spring of 1952 to consider the means of training and the standard required for qualification as Associate RIBA, is now examining evidence received from more than seventy allied societies, schools of architecture, official and private architects and others.

The committee wish to express appreciation of the help they have received from many sources and for the trouble that has been taken in submitting evidence.

They regret that they are not able to consider any further evidence, since to do so might unduly delay the preparation of a report which the committee are anxious to issue as soon as possible.

Golfing Society

In their first match of the season, the RIBA Golfing Society, playing against the Building Alliance Golfing Society, at Camberley Heath, on April 16, lost by ten games to fourteen. Sir Giles Gilbert Scott, the society president, won his singles game in the morning and his foursome in the afternoon.

Officers for 1953 are as follows:—President: Sir Giles Gilbert Scott. Captain: A. E. Henson. Committee: W. R. F. Fisher, A. H. Watkins, H. St. John Harrison, F. T. Smith, F. Sutcliffe. Honorary treasurer: G. Felix Wilson, 4, Russell Gardens, Kensington, W.14. Honorary secretary: Eric H. Firmin, at 10, Manchester Square, W.1, will be pleased to hear from members or students who wish to join the society. The annual subscription is 10s. The society tie is now available at 22s.

The following meetings have been arranged:—April 28, Spring Meeting, St. George's Hill Golf Club. The Sullivan Trophy. June 27, 28, Week-end Meeting at Royal Cinque Ports G.C., Deal, Kent. The President's Prize. The Captain's Prize. The Allensby Bowl. (Accommodation provisionally booked at the Royal Hotel, Deal, from Friday night until Monday morning.). September 17, Autumn Meeting at Denham Golf Club. The Selby Cup. Annual General Meeting.

The following matches have been arranged:—May 2, 3, Versus The Liverpool Architects G.S., Formby Golf Club. June 16, Versus the LMBA G.S. at West Hill G.C., Brookwood, Surrey. July 15, Versus the RICS G.S. at New Zealand, West Byfleet, Surrey. September 5, Versus The London Solicitors G.S. at Woking G.C.

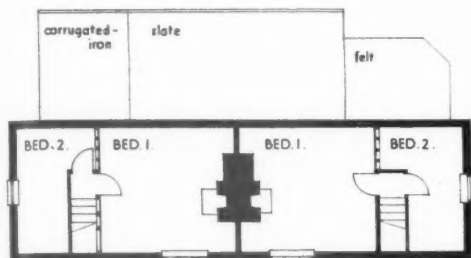
LONDON AIRPORT
BOAC Headquarters

The attention of the editors has been drawn by Sir Owen Williams and Partners to the caption to the aerial perspective of the BOAC Headquarters at London Airport which appeared on page 392 of the issue of March 26.

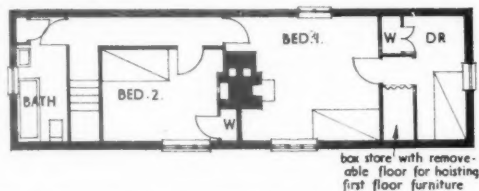
Sir Owen Williams desires to point out that the entire design and construction of the whole building, including the interiors of the workshops, hangars and administrative area, is the responsibility of his firm under agreement with the Air Ministry. His firm is also in control of all matters affecting the visual appearance of the building.

Design Research Unit are not working in collaboration with Sir Owen Williams and Partners, but are acting as consultants direct to BOAC on all equipment and furnishings which will go into the building. They are collaborating with BOAC engineers in the arrangement of workshops, stores and offices.

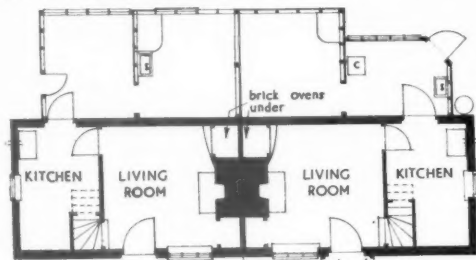
CONVERSION OF TWO COTTAGES AT SHIPLAKE, OXFORDSHIRE



First floor plan, before conversion

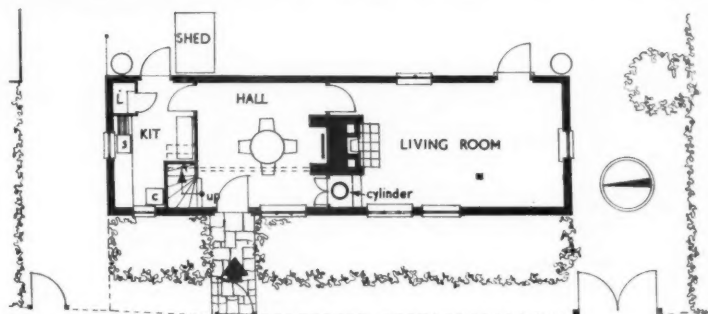


First floor plan, after conversion



Ground floor plan, before conversion

The pair of cottages illustrated on this page were bought with $\frac{1}{4}$ acre of land for £1,600 for conversion into a single house. The architect for the conversion was G. E. P. Day. The cottages, which bear several bricks dated 1787, were in a semi-derelict state, one having been empty for a long time, but the main structure was reasonably sound. There was no drainage system, bathroom or proper kitchen, and only one main water tap to each cottage, in the outhouses. Both had gas supply and bucket type lavatories in small timber huts a few yards from the back door, and one cottage had electric light. Timber lean-to outhouses covered most of the east wall, as seen below, but were found

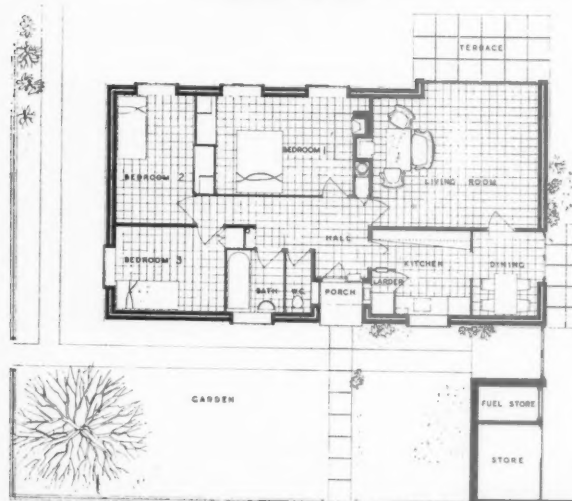
Ground floor plan, after conversion [Scale: $\frac{1}{16}$ " = 1' 0"]

to be unsafe and demolished. The same facade after conversion is seen above from the garden. The photograph below shows the new living room fireplace, which is used to heat domestic hot water and a radiator in a recess off the dining-hall. The cost of the conversion was just over £1,000, including work under licence and under the free limit amounts in force during 1951 and 1952. About £250 has been spent on the garden. The general contractors were Walden & Son (Henley), Ltd.



CARETAKER'S COTTAGE AT PRIMARY SCHOOL IN PUTNEY

The caretaker's cottage at the LCC Primary School in Brandlehow Road, Putney, is designed by Erno Goldfinger. The house is approached from Brandlehow Road, which runs on a north-south axis along the west side of the site. The photograph right is of the east facade; below, right, the west facade; bottom, left, the kitchen looking to-

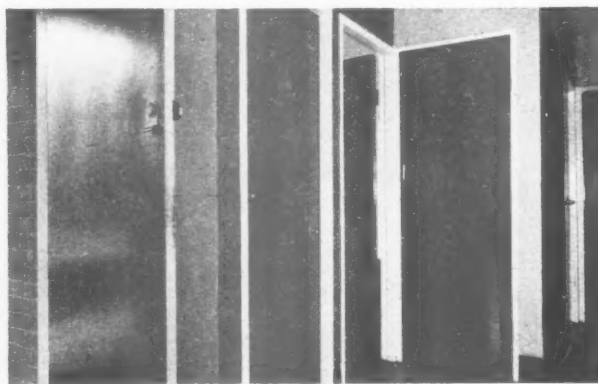


Plan [Scale: $\frac{1}{4}$ " = 1' 0"]

wards the dining room, and bottom, right, a view from the hall, showing the front door and doors to the w.c. and bathroom. Exterior walls



are of 11-in. cavity brickwork and partitions are of 2-in. hollow clay blocks, plastered. The roof is of $5\frac{1}{2}$ -in. precast concrete units, insulated with 2-in. of lightweight concrete and finished with roofing felt. The living room floor is covered with 9-in. sq. cork tiles and elsewhere thermoplastic tiles are used. The area of the house is 842 sq. ft. and the cost was £2,080. The quantity surveyors were Davis, Belfield & Everest. The general contractors were H. T. Oliver & Sons, Ltd.



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In the special feature that commences below are described briefly most of the forms of contract in use in the building industry both in Gt. Britain and abroad. Emphasis has been given to the least familiar forms of contract and one is described which, as far as we know, has never yet been tried out. Roughly alongside this descriptive material will be found comments from a team of men chosen for their particular interest in problems of contracting procedure. They are : an architect and a contractor, both of whom must remain anonymous, a quantity surveyor—O. A. Davis, a production consultant—R. H. James, and, representing the operatives, Sir Richard Coppock, general secretary of the NFBTO. The feature begins with a short historical note and ends with a section on the current controversy and the team's conclusions as to what improvements in contracting procedure are most urgently needed in the interests of the client, the contractor, and the nation as a whole. The conclusions of the editors of the JOURNAL, who also comment in this article, will be found in the leading article on page 509.

CONTRACTING PROCEDURE

Various Methods Described and Criticised

THE HISTORICAL BACKGROUND

Before the rise of the general contractor, building work was let out by the landowner or his agent to the various local master-craftsmen. Competition did not exist, as there would seldom be more than one master-craftsman of each trade in the district and travel was very limited. This system was general until about 1835 ; it persisted until the 'eighties in certain rural districts, and may still be found in some parts of the Continent.

On completion of the job, the agent and the craftsmen would thrash out the value of the work between them, either in person, or by each appointing a surveyor. In remote areas, the two parties would agree to nominate

the local schoolmaster or parson—then often the only literate member of the community—to measure the work and value it according to customary unit prices.

It seems probable that the beginning of competitive tendering as we know it today coincided with the Industrial Revolution and the immense expansion of the building and civil engineering industries to meet the construction of the railway and canal systems, and other industrial developments, many financed by public money.

This period, too, saw the rise of the large speculative house-builder to satisfy the housing demands of the industrial worker and to meet the residential and other needs of the increasingly prosperous urban sections of the community.

LUMP-SUM CONTRACTS

FIXED PRICE CONTRACTS

The basis of the fixed price contract is that the contractor arrives at his estimate of the total cost of executing the work from information supplied by the architect and (usually) the quantity surveyor, and, provided no variations are called for in the execution of the work, his estimate forms the basis for payment. Interim payments are usually made as the work proceeds and a certain proportion of the money is usually retained until an agreed period after the completion of the work has elapsed.

Where the contractor's estimate is built up from priced bills of quantity, the unit prices contained therein usually form the basis for agreeing the price of any variations. These prices are usually all-in sums, inclusive of labour, materials, overheads and profit, although a "Preliminaries Bill" usually covers certain indirect costs.

Before the war, a "completion date" was usually included in the contract, and the contractor was liable to progressive penalties for any delay beyond this agreed date. During and since the war, conditions have made it difficult to enforce a penalty clause, but the practice is returning.

THE RIBA CONTRACTS

In 1931 the RIBA published new standard forms of contract (one for use with bills of quantity and one for use without) which, with slight modifications, are those in present use. The forms are kept under review by a

The Quantity Surveyor :—

The fixed price contract is the most popular form of contract because the contractor gets to know as much about the job as possible in the early stages—he must do to give a "fixed price"—and because the employer knows within as close limits as possible what he is contracting to pay. It is likely to remain popular so long as employers, whether they be private individuals, local authorities or government departments, want to know their commitments in advance.

General Secretary, NFBTO :—

I regard the fixed price system as satisfactory, subject to the client or his agent having the fullest opportunity, at every stage of the proceedings, of checking prices, if he so desires. It is not (under the present economic order) that profit in itself is objectionable, but the suspicion that it is (a) excessive and/or (b) furtively obtained. To dispel such suspicion there should be complete frankness between the client (or anyone acting on his behalf) and the contractor. Why more so in building than in other industries? Because of the infinite variety of tendering methods, which provide the opportunity for all sorts of anti-social activities.

The Editors :—

The trouble with the fixed price contract is that the fixed price seldom remains a fixed price for long : firstly, there are the "inevitable" variations—those made by the client and those due to unforeseen materials' shortages ; secondly, there are the "rise and fall" clauses so often introduced in these days of unstable materials' prices and frequent wage increases ; thirdly, there is the large number of Provisional Sums necessitated by the large amount of specialist work

committee, including representatives of the RIBA, the NFBTE, and the RICS, and certain revisions are made from time to time.

One of the chief differences between the RIBA contracts and most of the forms of fixed price contract drawn up by the government lies in the practice relating to authorised overtime, guaranteed time, travelling time, etc. Under the RIBA contracts these expenses are deemed to be included in the contract sum; under most of the forms of contract issued by government departments, they are recoverable as extras.

With the RIBA contract without quantities, the fixed price is a lump sum determined by the contractor on the basis of the architect's drawings and specification only, but



The RIBA headquarters, Portland Place, London (architect, G. Grey Wornum) built in 1934 under an RIBA contract.

the NFBTE insists that for all buildings valued at over £3,000, its members may tender only if issued with bills of quantity. However, the NFBTE and the RICS have designed a simplified "Code of Measurement (for preparing bills of quantity) for Building Work in Small Dwelling Houses," in which the number of separate items is much reduced.

To meet the needs of local authorities the RIBA issued in 1937 specially designed standard forms of contract

(with and without quantities) for use by local authorities; they include certain additional provisions, e.g., a fair-wages clause. Both forms of RIBA contract are much used by local authorities, and the tendency for these bodies to evolve their own conditions of contract is rapidly diminishing.

THE MOW CONTRACT

The other form of fixed-price contract in general use is that introduced by MOW in 1942 (Form CCC/Works/1), or its variants used by other government departments. (This is replaced for small contracts by Form CCC/Works/2.) These forms were compiled to incorporate the best features of the various type of departmental contract in use before that time and were accepted by the building industry for use during the war. They have, in practice, been found very satisfactory and, although used only by government departments, the "variations-of-price" conditions* have, at various times, been used by other authorities.

NEGOTIATED HOUSING CONTRACTS

Since the war, some local authorities, in order to utilise to the full the labour of small contractors who would be unable to undertake large housing contracts, have employed the expedient of the "negotiated contract." The local authority agrees with a group of local

required for large buildings today. A fixed-price contract which is varied a great deal becomes, in effect, a schedule contract!

The Contractor :—

If the cost of variations were settled before the variation order was issued, the owner would have a clearer picture of his ultimate liability.

The Quantity Surveyor :—

Variations are discouraged in America by charging at more than contract rates for additions and less than contract rates for omissions.

General Secretary, NFBTO :—

On the face of it rise and fall clauses seem eminently fair, but the objection to them arises from the fact that the contractor has no urge or incentive to save, as he is automatically covered by any price rise. Why should he worry about wise and careful buying of materials or about any kind of saving when he knows he will not need to bear any loss? But is there a remedy? Not a completely satisfactory one, but I suggest that the difficulty might be met by deleting the rise and fall clauses and allowing the contractor instead a percentage margin of safety to offset proven loss of expected profit. It can never be highly satisfactory to allow a contract to be overlaid with exceptions which make the main content almost purposeless.

The Production Consultant :—

The lump-sum contract, based on competitive tendering on bills of quantity and drawings showing the extent (although rarely the detail) of the work to be carried out, has become the accepted method of determining, as nearly as possible and as early as possible, the final cost to the client of a building project.

To the builder, the sense of challenge in tendering for the work and the reward of good buying and organization of the work in its execution is, under conditions where there is a reasonable balance between the capacity of the building industry and the work available, an effective method of providing the client with the best possible value, the contractor with a reasonable profit for good quality work, and the operatives with a reasonable standard of living.

It is true that the client does not benefit from any saving achieved by the contractor on a particular contract, but it must be remembered that, where the contractor is in competition, he will be forced to take account in his tenders of all possible savings, based on his past experience.

The Editors :—

It should be said that the contractor who has consistently, through efficient organization, etc., made high profits is able to take this into account when preparing tenders for further work and to offer future clients keener prices than inefficient contractors who have not been able to build up a "balance" of profits.

The Production Consultant :—

Lump-sum contracts based on competitive tenders do not, however, always provide the best conditions for the efficient execution of work, because the contractor who will be responsible for buying the materials and supplying the labour and plant is not known until a comparatively late stage in the project, and forward planning of the available resources, in collaboration with the architect, is limited.

The Quantity Surveyor :—

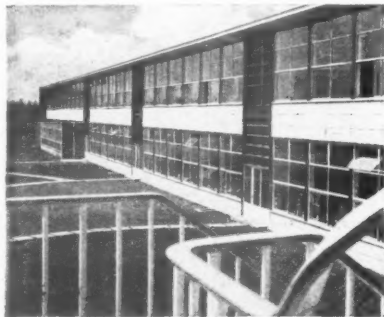
For simplicity, one "national form of contract," possibly with slight variations to suit local authorities and government departments, would be ideal. It is to be hoped that the RIBA will be able to achieve this.

* These make provision for changes in the prices of materials, wage rates and conditions of employment

contractors a "fair price" per house of a particular type and size, and "parcels" of houses are allocated to each firm, according to their capacity, to be built for the agreed fair price.

APPROXIMATE QUANTITIES CONTRACTS

In cases where time for contract preparation is very short, an approximate bill of quantities may be prepared by the quantity surveyor and put out to tender. As the work proceeds the job is measured accurately, interim payments are made in the same way as with fixed-price contracts,



Part of the Primary School, Lansbury, Poplar (architects, Yorke, Rosenberg and Mardall), built in 1951 under an "approximate quantities" contract.

and, on completion of the contract, the variations between the work actually done and that described in the approximate bill are dealt with in the same way as variations on a fixed price contract.

SCHEDULE CONTRACTS

With a schedule contract, the price paid to the contractor is compiled from the rates contained in an accepted schedule of prices as applied to the quantities actually measured on completion. Tenderers may be supplied with a schedule which they themselves price, or with a schedule priced by the quantity surveyor against each item of which they are asked to quote a percentage on or off the printed price at which they are prepared to do the work. Approximate quantities are sometimes supplied with the schedule.

Several government departments made use of this system during the war, when it was found that a *standard* schedule of prices saved a good deal of time by eliminating the necessity for drawing up fresh schedules for each new job, especially as much of the construction work dealt with was of a repetitive nature. These standard schedules are not now much used because the assumptions made in their preparation are becoming out of date and because the industry does not favour them. They did, however, form the basis for priced bills issued in respect of various types of post-war construction, such as temporary housing.

In the absence of quantities, the tenderer is unable to make satisfactory provision for the cost of temporary works and contract risks, insurance, etc. This tends to make schedule contracts a satisfactory method only where such contingencies are of very minor importance. They are popular, for instance, for routine maintenance work.

SUB-CONTRACTING

General contractors often sub-let a convenient portion of the work to other firms. Under the RIBA form of contract,

General Secretary, NFBTO :—

The committee which from time to time reviews the RIBA form of contract should, in my opinion, include a representative of the operatives. The latter are—I put it no higher—a not unimportant part of the industry, and are closely concerned in any arrangement which other sections of the industry reach.

The Production Consultant :—

On the surface the negotiated contract appears to be the very negation of any incentive to increased efficiency; it tends to freeze costs at an arbitrary level. It is true that negotiated prices of this type are usually vetted by the sponsoring government department, but they should be employed only as an expedient for using local labour and other resources of the small contractor, which would otherwise be denied to the housing programme.

The Quantity Surveyor :—

The best substitute for the orthodox fixed price contract, if there is no time for the preparation of an accurate bill of quantities or if there is uncertainty as to the exact nature or quantity of the work, is the fixed price contract based on approximate quantities. The provisions of the contract are the same, except that the whole of the work—not merely the variations—will be re-measured and re-valued in due course.

The contractor's initial knowledge of the job and the employer's knowledge of his commitments are less exact than with an accurate bill, but are as complete as they can be in the circumstances.

If there is insufficient information for an accurate bill of quantities there will probably be insufficient information for speedy and efficient execution, so this departure from the more orthodox contract should not be made without good reason.

The Architect :—

To base a contract on approximate quantities is, in my opinion, a very wasteful procedure; it is better to reduce it to a schedule of prices applied to as full a set of drawings as possible.

The Quantity Surveyor :—

A schedule contract, without even approximate quantities is, I think, vastly inferior to the fixed price contract. The contractor has to agree prices without having any knowledge of the quantity of work or the manner in which it is to be carried out and the employer can have little idea as to his ultimate commitments. Moreover, if circumstances make impossible the preparation of any sort of bills of quantity, they must also make impossible any sort of organized planning. In short, there may be a strong case for a schedule contract if the nature and extent of the work cannot be foreseen and the only alternative is prime cost, but it can never be regarded as a satisfactory substitute for a fixed price contract.

A priced schedule, to which the contractor adds or deducts a percentage, may be useful for maintenance contracts, where a large range of prices may be necessary to cover all eventualities, and where the size of individual contracts does not justify re-pricing the schedule each time. Nevertheless, it is a particularly hazardous way of pricing, unless conditions are unusually stable.

General Secretary, NFBTO :—

I see no theoretical objection to schedule contracts where experience has confirmed their value. Here again, allowance

the architect's consent must first be obtained. Sometimes the sub-contracting is for "labour only"; this being a system whereby a more-or-less informal group of men will agree to do a section of the work for a given sum, the main contractor providing all materials and facilities and being responsible for the quality of the finished work. The Working Rule Agreements provide that all sub-contractors, including such organizations as the above, shall observe all the usual rules and provisions in force. Under the 1951 National Joint Council Agreement, labour-only contracts are recognized, subject to the *bona fides* of the sub-contractors being established.

"NOMINATED SUB-CONTRACTORS"*

Architects frequently invite tenders from specialist firms, in respect of particular sections of the work, and "nominate" the firms that give the best tenders. The sub-contracts are normally subject to the terms and conditions of the main contract and, since the main contractor must undertake responsibility, he may successfully object to the employment of any particular firm. He also adds a specified or tendered percentage to cover his risk and his services to the sub-contractor.

AMERICAN PRACTICE

In America, a similar system to the above is used, but in a very detailed manner. There, when a general contractor tenders for a job he issues a comparatively large number



*The Lever Building,
New York (architects,
Skidmore, Owings and
Merrill).*

of invitations to specialist sub-contractors, who will then take-off their own quantities from the drawings, for the purpose of submitting tenders to the general contractor. Meanwhile, the latter is engaged in preparing schedules of quantities for the work which he intends to do himself. The cost of each item is entered under the headings of labour and materials, and separate calculations are made for overheads, profit, plant, temporary works, etc.

It is obviously an essential part of the system that drawings and specifications should be complete before tendering, and it is found that these are usually done in considerable detail. Subsequent modifications do not frequently occur

* When sub-contractors are nominated by the architect it would be advantageous to employ the RICS Standard Conditions of Tender for Nominated Sub-contractors. This form of tender has been designed to provide maximum flexibility—it can thus be used for tenders based either on bills of quantity (such as those for asphalt floors) or on specification only (as for lifts or ventilation systems). The RICS has also developed a closely allied form for use for nominated suppliers. Unfortunately, these standard conditions are not yet in general use.

can be made for proven loss, but the important thing is to minimise uncertainty.

The Quantity Surveyor :—

In all contracts the employer has the right, through his architect, to vary the work and to nominate firms for specialist operations. These are privileges which should not be abused. If failure to plan adequately in the initial stages, subsequent changes, or failure to nominate specialists in sufficient time are as big a hindrance to efficiency as has been alleged, it may be desirable to provide a deterrent by making such abuses more costly for the employer.

It is worth noting that these abuses can occur with any contract and are certainly not a feature of the fixed price contract, which, in my opinion, gives the greatest possible opportunity for pre-planning.

The Contractor :—

It seems odd to me that some allowance is not made by architects to those builders who produce their own joinery and carry out their own plastering. This might deter contractors from unnecessarily sub-contracting non-specialist work.

In these days, a major building operation consists of a number of specialists assembled together and operating under the control of the main contractor. Since these specialists owe no allegiance to the contractor—only to the architect, the job of organizing them is sometimes difficult.

There is no doubt whatever that both the architect and the builder feel they have rights in the selection of specialists. A good case can be made out for each of them, consequently this is a subject to which a great deal of attention needs to be paid. In America, far more time is devoted to details before work begins and much benefit would be derived from the education of building owners whereby they would learn that pressure on the architect to get the job under way at the earliest moment saves neither time nor money in the long run.

General Secretary, NFBTO :—

I think it should be made clearer than it is now that the final arbiter in the matter of selecting sub-contractors should be the client. That may be the inference to be drawn from the present RIBA forms of contract, but inference is not evidence. There may be—one cannot say how often this arises in practice—quite substantial (and perfectly legitimate) differences of opinion among client, architect and contractor, even though the architect is acting on behalf of the client, as to the selection of sub-contractors. The final say lies with the client, surely?

I am—and here I speak in an official as well as in a personal capacity—utterly opposed to "labour-only" sub-contractors. Building workers have had most unfortunate experiences with them. The working rule agreements might provide that sub-contractors shall observe all negotiated industrial conditions of labour, but the fact is that, in practice, the "labour-only" person flagrantly disregards all the obligations imposed on contractors and sub-contractors, and frequently enough—all too frequently—disappears, leaving men with un-stamped insurance and holiday cards, and sometimes without wages!

Leaving out the "labour-only" man, I have no strong views about the method in which sub-contractors come on to the scene, or even whether they should come on at all, as long as they are held to the obligations imposed on the main contractor in the matter of wages and conditions and—this I regard as important—as long as the main contractor is made finally responsible to the client and to the operatives for the observance of rules and conditions.

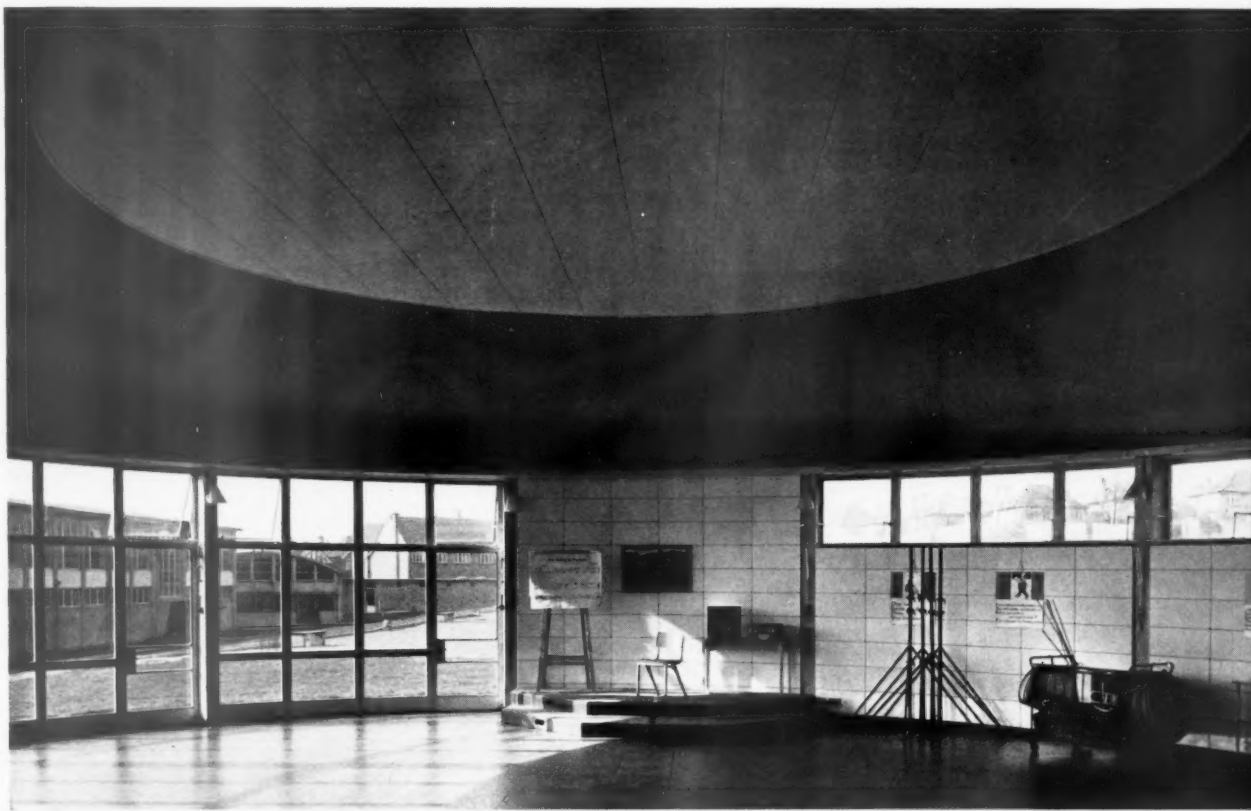
The present system of contracting and sub-contracting must not develop or degenerate into one where the sub-contractors do all the work and the main contractor is merely the financial link, with no technical knowledge of the industry.

WORKING DETAIL

ROOFS AND CEILINGS : 9

ROOF AND SUSPENDED CEILING: ASSEMBLY HALL, SCHOOL AT WEMBLEY

G. Stillman, Architect to the Middlesex County Council; D. R. Duncan, area architect; acoustic ceiling designed and made by John Dale Limited



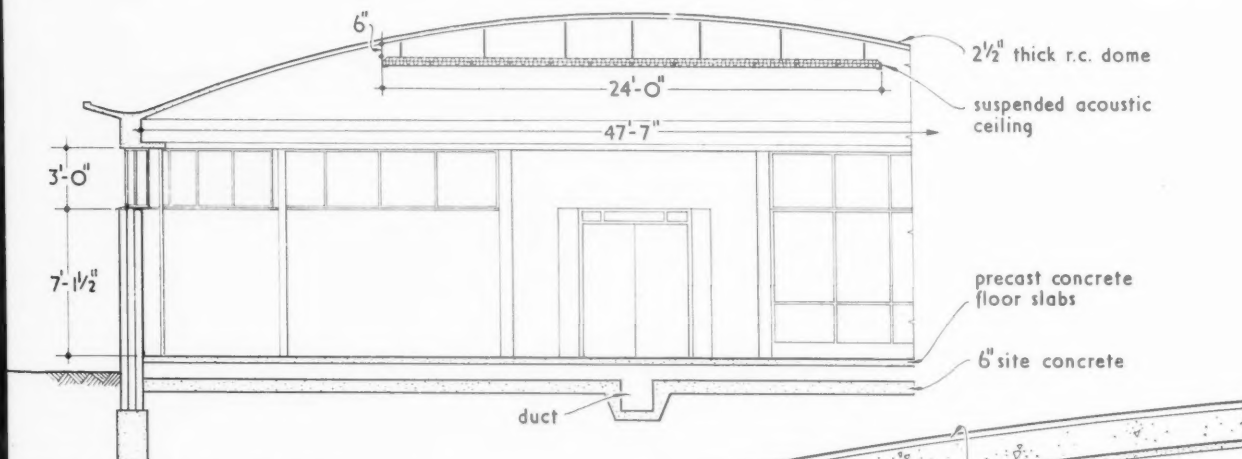
The circular form of the hall raised acoustical problems which were successfully overcome by the introduction of the suspended disc

WORKING DETAIL

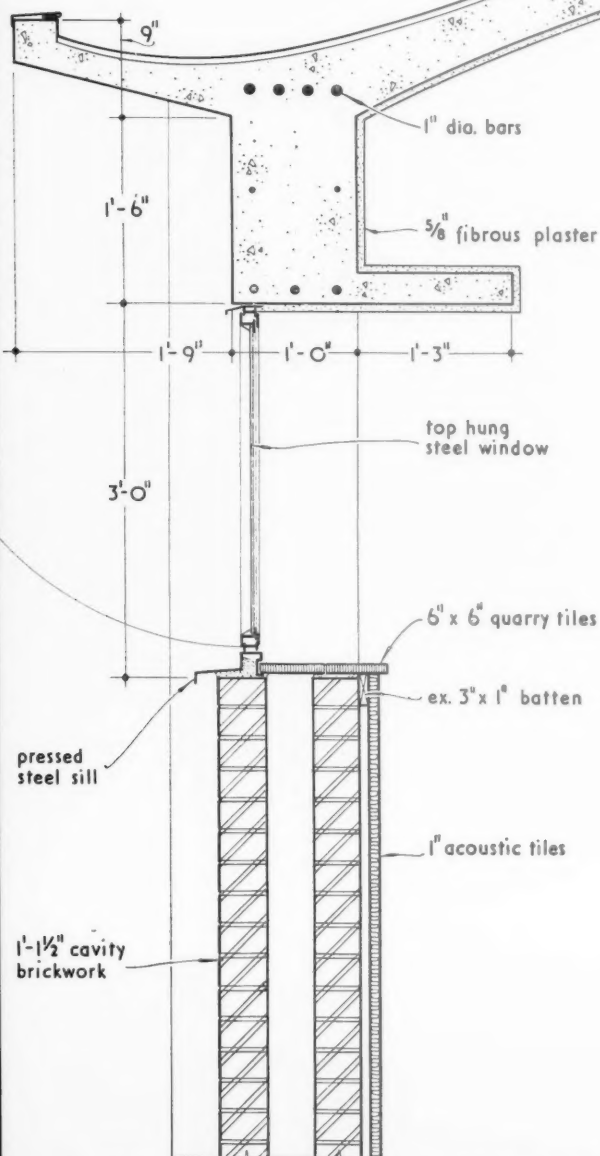
ROOFS AND CEILINGS : 9

ROOF AND SUSPENDED CEILING: ASSEMBLY HALL, SCHOOL AT WEMBLEY

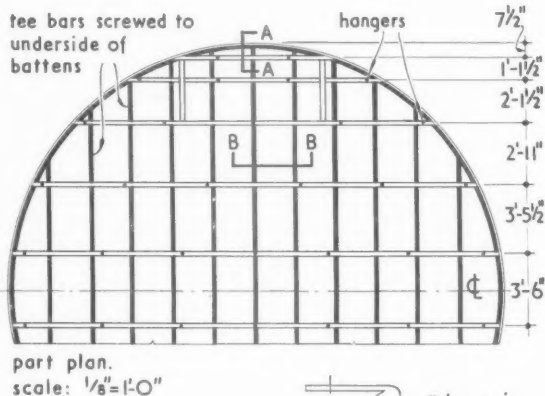
G. Stillman, Architect to the Middlesex County Council; D. R. Duncan, area architect: acoustic ceiling designed and made by John Dale Limited



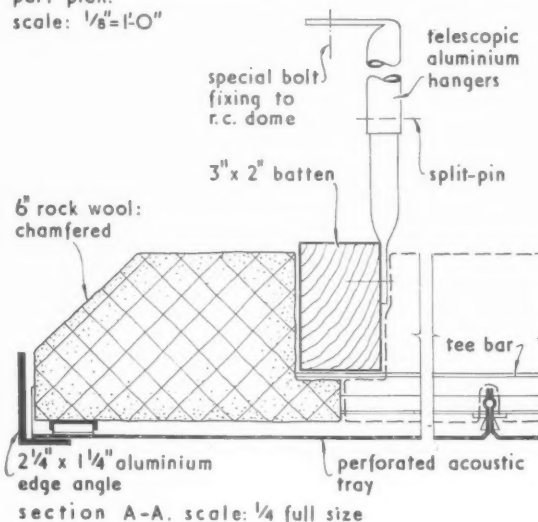
PART SECTION THRO' ASSEMBLY HALL.
scale: 1/8" = 1'-0"



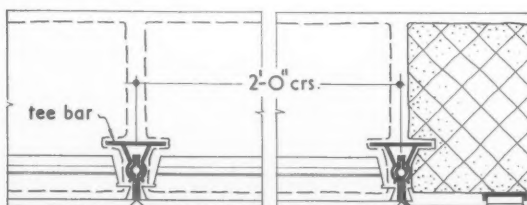
DETAIL OF EXTERNAL WALL AND EAVES. scale: 3/4" = 1'-0"



part plan.
scale: 1/8" = 1'-0"



section A-A. scale: 1/4 full size



section B-B. scale: 1/4 full size

DETAILS OF SUSPENDED ACOUSTIC CEILING.

WORKING DETAIL

FURNITURE AND FITTINGS : 34

BOOKING OFFICE SCREEN : PADDINGTON STATION, LONDON, W.2

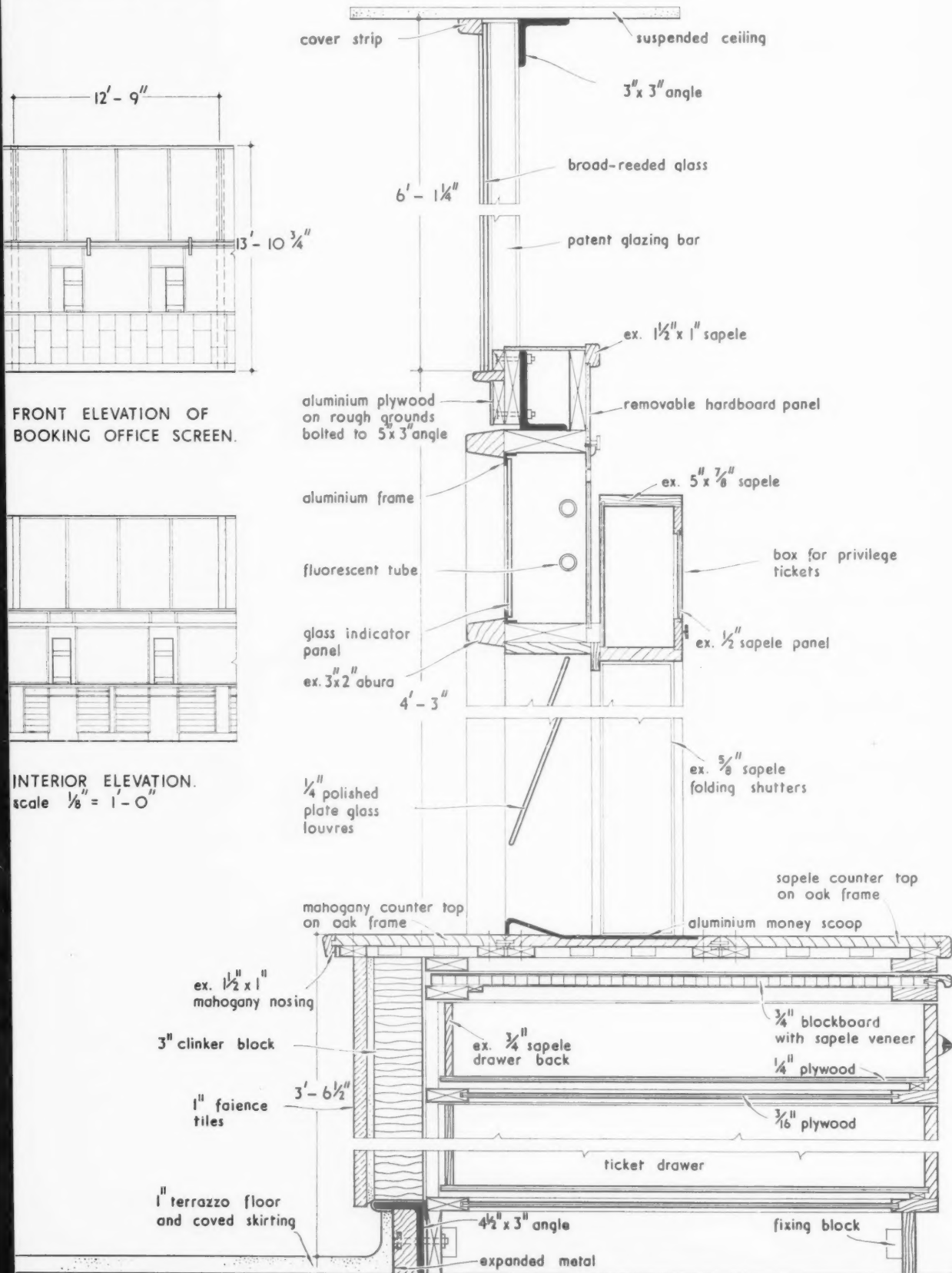
Architect's office, British Railways (Western Region), under the direction of the civil engineer, architects ; W. R. Headley, T. P. Wurr, Margaret Aitken, assistants



The panels between the ticket windows are of cellular plastic sheeting, veneered with sapele mahogany, and the large numerals are cast aluminium

BOOKING OFFICE SCREEN : PADDINGTON STATION, LONDON, W.2

Architect's office, British Railways (Western Region), under the direction of the civil engineer, architects ; W. R. Headley, T. P. Wurr, Margaret Aitken, assistants



VERTICAL SECTION THROUGH TICKET WINDOW AND DRAWERS scale 1/2" = 1'-0"

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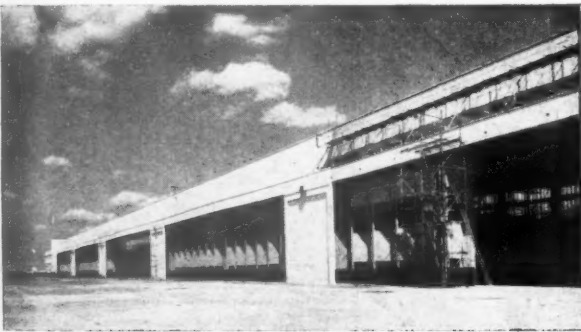
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and claims for extras are rare. Where detailed information is lacking, the contractor may add to his tender to cover for contingencies, and an allowance is usually made to cover errors which may occur in the taking-off. The completion of the account usually presents very little difficulty, the reckoning of extras and omissions being a comparatively simple matter. Tenders vary more widely than is the case in this country, and it will be clear that the risk to the contractor is greater. The overall cost of tendering is obviously considerable, although the system saves time in the early stages—it is perhaps because of this that the quantities system, which makes for more scientific tendering, has never become popular in the USA.

STRUCTURAL ENGINEERING AND SCANDINAVIAN PRACTICE

In structural engineering, it is usual for the building owner to outline his requirements to the firms competing for the job and to leave them free to satisfy these requirements in the cheapest and most efficient manner possible; i.e., with materials and techniques which they themselves choose. This system of obtaining contracts is widely used in Sweden and other Scandinavian countries for ordinary building work too.



Hangars at London Airport (architect, Keith Murray). The main contractor was chosen on the basis of competitive tenders based on materials and structural techniques chosen by the firms competing.

SCOTTISH AND CONTINENTAL PRACTICE

In Scotland and on the Continent building work is often carried out as a number of contracts to the separate trades without a general contractor. However, the practice of having a general contractor seems to be growing. On the Continent specialist contracts in connection with building work are usually under the direct control of the building owner, who is responsible for the co-ordinating of the various contractors, but the system meets with some criticism on the score of delays.

The Editors :—

When the architect nominates sub-contractors for a large proportion of the work the competitive nature of the tender from the general contractor is of course "diluted" because, very often, the sub-contracted work is not competed for, or, if it is, the firms competing prepare their own specifications which are not strictly comparable. The solution would be to issue to firms competing for sub-contracts drawings, specifications and bills of quantity every bit as detailed as those supplied to firms competing for the main contract. These would very often have to be prepared by consultants and, as was recommended in the Simon Report, it should be made clear to clients that the architect's fee does not include the design of specialist works. If a consultant is not employed, the client pays for the design work anyway, as specialist contractors naturally include the cost of design work (when they perform it) in their estimates.

The Architect :—

Most reputable architects invite competitive estimates for specialist sub-contract items only on complete drawings and a full specification. This is essential if the competitive element is to have any value.

There is everything to be said for the American practice of completing all drawings and details and issuing these to firms tendering for sub-contracts, together with a full specification. This implies a degree of pre-planning and time spent at pre-contract stage which is unusual in this country and which might well be emulated, with corresponding savings in building time. The report of the Anglo-American Council on Productivity emphasized this aspect of American practice almost more than any other. If applied in this country the provision of full drawings and specification could be supplemented by shortened and less detailed bills of quantity which would provide the contractors tendering with essential information on basic items of materials and labour.

General Secretary, NFBTO :—

It is always wise and profitable to be guided by practice in other countries, but one cannot always adapt the conditions of one country to those of another. America is on a continental scale, and may have as many variants in the form of contract as exist elsewhere. It would do us no harm to re-examine the Bossom Mission's report of 1943 and the report of the Anglo-American Building Productivity Team, issued in 1950. The evidence before the Working Party—whose report was also published in 1950—was most illuminating on this point.

The Architect :—

Scottish practice, where the architect acts as general contractor seems to have nothing to recommend it, particularly as the growing complexity of modern building practice makes it more necessary, yet more difficult, for the architect to cope with his own functions, without also acting as co-ordinator on the building site.

The Contractor :—

It is not a good practice to try to dispense with the general contractor; the skilled contractor should be, if he knows his job, of inestimable value to the architect.

COST-REIMBURSEMENT CONTRACTS

"COST PLUS"

In this system, the contractor is reimbursed for the actual cost of the work, as determined on completion, plus a fee in the form of a percentage of the cost.

This is the quickest method of arriving at an agreement and starting work and has been customarily used in cases

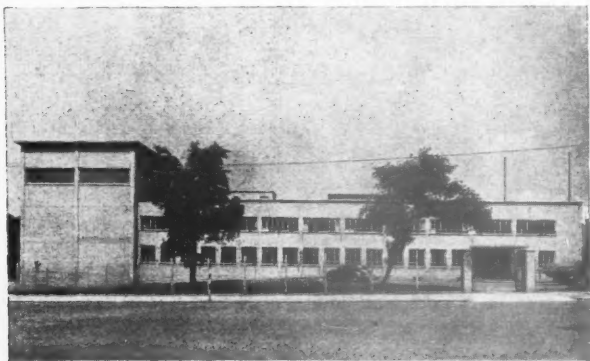
The Architect :—

I do not think there is any doubt that "cost plus" should be restricted to works where cost cannot be estimated, such as bomb-damage, renovation and/or reinstatement of historic buildings, etc. It would seem to offer no incentive or advantages for new works.

of emergency; it is now used, almost exclusively, for work the cost of which cannot be estimated, and for "daywork" and "jobbing" work. During the war it was the usual method of dealing with bomb damage repairs.

COST PLUS FIXED FEE

There are various types of "fixed-fee" contract, but the following has been operated extensively: after the architect has prepared his plans and specifications, the quantity surveyor produces a set of quantities priced nett and establishes a firm "target estimate" for the prime cost of the job, after agreement with the builder. On this basis, the builder, who is generally chosen for his reputation and his ability to do the job in hand, calculates his fee to cover overheads, plant and profit. During the progress of the



The nuclear fission laboratory, Liverpool (architect, Professor W. G. Holford), built in 1952 under a "fixed fee" contract; the main contractor having been "nominated."

work, the quantity surveyor visits the contractor's office at regular intervals to examine all records of expenditure. He reports this expenditure to the architect who issues certificates in the normal way. The incentive to economy results from the fact that the lower the actual expenditure on materials and labour in relation to the agreed estimate, the higher proportionally is the builder's fee.

While in this type of contract the owner carries contingency risks, he has greater control over speed and cost than is possible under normal contracting procedure. It enables the architect, quantity surveyor and contractor to work together from the beginning and plan the cheapest way of doing the job, and it makes possible an early start.

COST PLUS VARIABLE FEE

(KNOWN AS "TARGET COST" OR "VALUE COST")

Under the Air Ministry "Target Cost" contracts, operated during the war, the contractor was paid a fee which was a percentage of a "Target Cost" based on a measured schedule. Any saving on the "Target Cost" earned rewards to the contractor. The main disadvantage arose out of the many price fluctuations, site adjustments, etc., which resulted in many contracts being completed before the target figures had been finally fixed!

The LCC executes a large amount of work on what they call the "Value Cost" system, and they appear to consider it highly suitable for their purposes, from the points of view both of quality and economy. It is, however, only

The Quantity Surveyor :—

However conscientious and disinterested a builder may be, the fact remains that with "cost plus" the more the job costs, the higher is his profit. Moreover, the employer can have little idea of his commitments until the end.

The only valid reasons for using this type of contract are extreme urgency or work which it is impossible to value in other ways.

With the fee contract, the contractor is not encouraged to organize inefficiently, but both his cost and some profits are guaranteed, and one might assume that if he has both good and bad workmen, he would be tempted to put his bad workmen on the job where his cost is guaranteed.

The administrative duties are not light. The target must be agreed on the basis of a priced bill of quantities and the prime cost must be checked. If variations increase the scope of the work, the fee originally agreed will be inadequate and the value of the variations will have to be assessed.

It is true that there are many versions of the fee contract, but the principles remain much the same, although some of the versions embody greater inducements to efficiency than others.

It is claimed that the fee contract makes possible an early start, but if the job has not been adequately thought out this advantage is more apparent than real. Further, the advantage of being able to select a contractor with a reputation above normal would be lost if the practice became widespread; the building industry as a whole must still be "employed."

The Editors :—

It is clear that contractors who work under fee contracts should not work under other forms of contract as well. This would prevent the danger of the firm's worst employees being put on the "fee" site and the possible danger that men might be "switched" to other sites while on the books of the "fee" contract.

The Contractor :—

With fee contracts, no bonus to the builder of any kind should be permitted and his remuneration should never be put out to tender. If it were, all the advantages would immediately disappear. The owner takes little risk that his job is likely to cost more than his quantity surveyor's estimate, since a builder who consistently "outran the constable" would soon be out of work.

The Architect :—

I understand that the "value cost" system has been applied by the LCC, mainly to its out-county cottage estates, where there are extensive road and sewer operations, and repetition of a variety of house types, the target costs of which are accurately known from experience and for which standard bills of quantity are available. It has advantages of flexibility, if, for instance, it is required to substitute a group of proprietary non-traditional houses for traditional types.

The Editors :—

The advantages of fee contracts are (i) that they make it feasible to nominate the contractor at an early stage, with all the advantages that this implies, and (ii) that the client knows that he is not paying more than the cost of the work plus a known figure for profit and overheads.

The contractor has an adequate incentive to efficiency, for his profit, or with the fixed fee contract his percentage profit, goes up as the cost is reduced. On the other hand, he does not have the same incentive to skimp the work as with lump sum contracts, for he stands to gain only a percentage of the resulting saving, whereas with a lump sum contract he gains 100 per cent. of the saving.

suitable if large and competent staffs are available and if there is a fairly continuous supply of work.

The work in progress is measured periodically and valued according to a schedule of prices (agreed before work starts, between the client, or his architect, and the builder). If the actual cost in labour and materials is below the cost calculated for the work, the fee is increased, and *vice versa* according to a predetermined scale.

THREE-PARTY, LABOUR-COST CONTRACT

This is a variant on the fee contract in which a fixed-price contract for the materials is coupled with a "fee" contract for the labour only. This is based on a quantity surveyor's estimate of the labour costs; any saving on the agreed figures (which may, for convenience, be converted into man-hour targets) being shared in agreed proportions, between the operative, in the form of bonus, the contractor, and the building owner, under a comprehensive incentives scheme. If there is an overall loss, clearly this is borne only by the contractor and the building owner.



Housing on the LCC's St. Paul's Gray estate, built under the "Value Cost" system—a form of variable fee contract.

The quantity surveyor has increased responsibilities under fee contracts, but this is surely a good thing, for, since with these contracts he must be called in at an early stage, he is available to give the architect advice on the financial aspects of his design before it is too late to change it.

The Architect :—

Any system where incentives are shared by all financially interested parties should be investigated fully by those competent to judge its pros and cons and inherent difficulties.

A SUMMARY OF THE ALTERNATIVES

Controversy over contracting procedure arises over two main questions : Firstly, how should the general contractor (if there is to be one) and the sub-contractors be chosen ; secondly, how should the amounts of money they are to be paid be determined ?

The contractors can be selected (a) by competition, (b) by reputation, (c) by a combination of a and b. Most bodies handling public money are obliged to use method "a," and to accept the lowest tender offered them. Moreover, they are frequently required to advertise a project and to consider tenders from all firms that care to submit them. Hence, they may be obliged to accept a tender from a firm whose reputation they know very little of or, worse still, from a firm with insufficient experience of the type of work involved, or insufficient capital for the scale of the job. Most architects working for private clients prefer to obtain competitive tenders only from firms selected by them and their clients.

Competition for a contract is usually on the basis of (a) a fixed price for the entire job (based on bills of quantity, unless the job is only a small one), (b) a lump sum based on approximate quantities, or (c) a schedule of prices.

When tenders have been based on (a), clearly this becomes the contract sum ; similarly, with (b), subject to re-measurement at the end of the job. When the tenders have been based on a schedule of prices, this is used, on the completion

of the job and its measurement by the quantity surveyor, to determine the contract sum.

When contractors are selected without competition, it is obvious that some system of determining the contract sum must be devised other than that whereby the contractor submits a tender, unless, of course, the client is willing to accept the price submitted by a contractor whom he knows—from previous experience—will give him value. With small works of a repetitive nature, such as housing, the contract sum may be a previously agreed figure, per house or per sq. ft. of floor area (see negotiated contract). Normally, when the contractor is "nominated" on the basis of reputation, the contract sum must be based on a "cost-reimbursement scheme," i.e., on the cost of the work in terms of labour and materials, plus (a) a percentage for overheads and profit ("cost plus"), (b) a fixed fee (to cover overheads and profit), based on an approximate estimate of the cost of the work, or (c) a variable fee, again based on an approximate estimate, but increased or decreased according to whether the final cost is less than or greater than the original estimate.

Contractors for work carried out under any of the above three forms of contract may be selected competitively by asking firms to quote, in the case of "cost plus" the percentage, and in the cases of the fee contracts, the fixed sum, to cover overheads and profit, for which they are willing to work.

THE TEAM'S CONCLUSIONS

The Architect :—

Any system which enables the architect, contractor, quantity surveyor, etc., to collaborate from the inception of a project should be fully investigated and encouraged, as, in my view, there can be no rapid technological advance in building methods, particularly regarding the full use of modern plant, prefabrication of components, etc., until such collaboration is possible. I have had personal experience of a large housing project where, as a compromise, the number of contractors tendering was reduced to six and discussions held with all six,

during the preparation of the working drawings, with a view to incorporating, as alternatives, any ideas they might have had on techniques for (a) increased speed of erection and (b) reduced costs. The whole procedure proved to be too cumbersome and wasteful of office time and was finally virtually abandoned.

A large municipal or public authority should be able to operate a system of nominated contractors, by means of a panel selected perhaps initially by competition, and then to allocate an annual programme of work to each on the basis of capability and size of organization.

The Contractor :—

A major building operation these days contains something like 25 per cent. builders work; given builders of equal standing, the prime cost to each of them of this part of the contract should be just about identical, always assuming none of the contractors sub-let any part of their work. Since the net profit thereon is minute, surely it would be more realistic for the architect to get an expert to price the job, and draw the name of a contractor out of a hat. Better still, offer the job to a suitable contractor at the fair price and make the builder depend on his service and ability to get his livelihood rather than on the "Building Pools."

In any event, if competition is insisted upon, it should be limited both as to the number invited to tender and to builders of equal capacity and standing.

There is room in the industry for a number of professional builders, brought up with an entirely new outlook, who would operate organizations dedicated to working solely under fee contracts. This method of working cannot be mixed with other methods of contract, since the staff could not be expected to have a professional point of view one moment and a profit motive the next. It also necessitates a special costing system which renders its results in a suitable manner. The people undertaking this type of work would have to be of a high order as their livelihood would depend on their capacity and integrity.

The Quantity Surveyor :—

The practice of selecting the contractors for most contracts, more particularly fixed price and schedule contracts, by tender, is likely to continue so long as employers want reasonable proof that they are paying a fair price, but tenders should be obtained only from firms of equal standing and, to avoid wastage, they should be limited in number; conversely those obtained must be genuine and the "cover price" should be severely frowned upon.

For fixed price contracts, it is less wasteful to have a bill of quantities prepared by an independent surveyor than to require each Contractor to prepare his own. The bill could possibly be simplified or made more useful, but the initiative must come from the contractors, as they are the people who have to price the bill and who might find other uses for it.

The fee contract has its uses for particular jobs, but the selection of contractors should be limited to reputable firms working solely on this basis—selection would become increasingly difficult as the practice became more widespread.

General Secretary, NFBTO :—

While the competitive system exists there must obviously be some arrangement for tendering. As I see the problem, we must devise a method which ensures fair play for the client, the contractor and all concerned, and let me add that "all" includes the operatives. In any estimate of costs the imponderable element is the labour unit.

I favour a definite or fixed price (as nearly as this can be achieved) in preference to vagueness and exceptions. Loop-holes, if any (they cannot always or entirely be avoided) should be at a minimum. Even the profit should be stated—whether 10 per cent. or 100 per cent.!

I regard the inclusion of a fair wage clause in a contract as very important and am of the opinion that it should be embodied, without exception, in every form of contract. This by-passing, as it were, of the operatives is a survival of the days when little thought was given to the hewers of wood and drawers of water. They managed these affairs, however, better in the period of the old craft guilds. But one cannot put an old economy into a modern setting, because of the vast technological changes. The fair wages clause should be obligatory on every contractor and sub-contractor, not merely because of the building worker's interest, but also because its inclusion would reduce the area of possible contention and would so benefit all concerned.

The Production Consultant :—

One of the disadvantages of the normal system of competitive tendering is that when work is scarce, competition is rendered uneconomically keen and when the available work exceeds the capacity of the industry, real competition ceases to operate.

In the former case there is a danger that, in order to obtain work, contractors cut their prices below the economic level. As a result, either the quality of the work suffers, or the client is presented with a cheap product at the expense of all in the industry, from the shareholder to the operative.

On the other hand, when there is lack of real competition, there is no guarantee to the client that the lowest tender bears any true relation to the economic cost of the work.

In an industry responsible for so large a proportion of national capital expenditure, any modification to the present system which would provide value for money under any market conditions would have a stabilizing effect on the economy as a whole.

One field in which modification of existing practice would help to improve the efficiency of the industry is the preparation of quantities. The present system, which seems to be purely an English concept, has much to commend it and is looked upon with admiration by other countries who do not, as a general rule, have quantities prepared by an independent professional person.

Bills of quantity tend to be wasteful of effort, because, for the purpose of ordering materials, planning the work, cost control and the operation of incentive schemes, bills of quantity in their present form are of little use. Hence, the contractor usually prepares a separate set of quantities for these purposes, no doubt very much on the same lines as those prepared by American and Continental contractors to form the basis of their estimates.

Any move to bring the two forms of quantities together would be a move towards increased efficiency. Several reports, including that of the Working Party, have suggested that bills should be priced, not as at present, in a comprehensive form inclusive of labour, materials, overheads, etc., but should separate, at least, the estimated labour cost from the other elements in the prices. Apart from the obvious benefit to the contractor in executing the work, this method would surely be of great help in agreeing variations or operating rise-and-fall clauses.

It is generally agreed that the earlier both the main and sub-contractors can be chosen, the better, for they can then be brought into consultation with the architect at the design stage. One solution to the problem of doing this without abandoning competitive tendering would be for the architect to prepare sketch plans, with a brief specification as to his requirements, and ask selected contractors to put forward their suggestions for alternative materials and modifications to design, together with their proposed programme for completion and an estimated cost based on approximate quantities and/or a schedule of prices. (A similar practice to this has been successfully adopted for large flat construction projects in Sweden.) The contractor would be chosen by the client and architect, taking into account not only the contractor's estimate of costs, but also his estimated completion date, which might well be subject to a penalty clause. At this stage the sub-contractors would also be nominated on a similar basis, possibly on the recommendation of the nominated main contractor, and bulk quantities of the main materials could be ordered. The final design would then be worked out by the architect in collaboration with all the interested parties, and final quantities prepared by the quantity surveyor and priced on the basis of the contractor's original schedule of prices. The final contract could be in the form either of a lump-sum contract, inclusive of sub-contractor's work, or a cost-reimbursement contract, with an agreed fee related to the final estimate of costs. The choice of contract might well depend on the state of the market at the time.

PRIMARY SCHOOL

in MOUNT STEWART AVENUE, WEMBLEY, MIDDLESEX

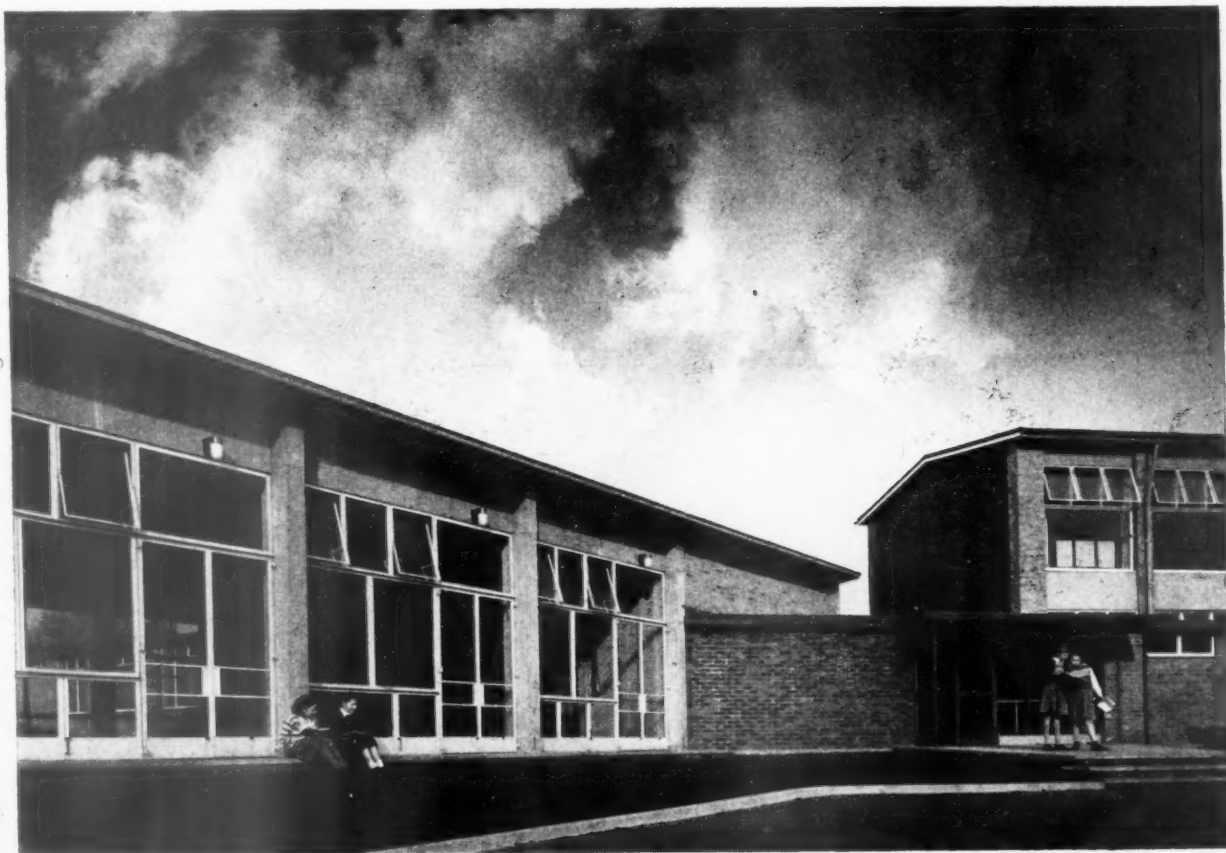
designed by C. G. STILLMAN, County Architect

and D. R. DUNCAN, Area Architect

quantity surveyors, YOUNG and BROWN

The Mount Stewart Avenue Junior and Infants' School at Wembley for the Middlesex County Council stands on a site of 8 acres, which has a fall of 35 ft. from north to south. The site is partly surrounded by houses and gardens, and contains some old trees. The two departments, for 320 juniors and 240 infants, are both two-form entry and have been planned separately.

[The junior assembly hall from the south.





Left, view from the north-east with the infants' assembly hall on the right. Above, the playground, with the two-storey junior classroom block on the right, seen from the north-east.

reached by three short corridors to the south of the main block. The junior assembly hall is shut off from the exhibition hall by glazed folding doors.

CONSTRUCTION.—With the exception of the assembly halls, walls are of load-bearing brick piers and panels. Roofs are of aluminium trusses in infant classrooms, steel trusses in junior classrooms, concrete in corridors, shell concrete barrel vaults in junior assembly hall and dining room and there is a 24-in. R.C. dome in the infants' hall. The roof of this hall appears as a Working Detail between pages 524 and 525.

FINISHES.—The exterior is faced with London stock bricks and panels of purple multi-coloured bricks. The classroom roofs are finished with bitumen sheeting on asbestos decking and in infant classrooms there are roof lights of transparent plastic and adjustable aluminium louvres. Floors are covered with composition blocks in the assembly halls and granolithic, concrete tiles or mastic tiles elsewhere. Internally, the classroom walls are in neutral colours with contrasting colours on blackboard walls. Corridor walls are of fair-faced brickwork.

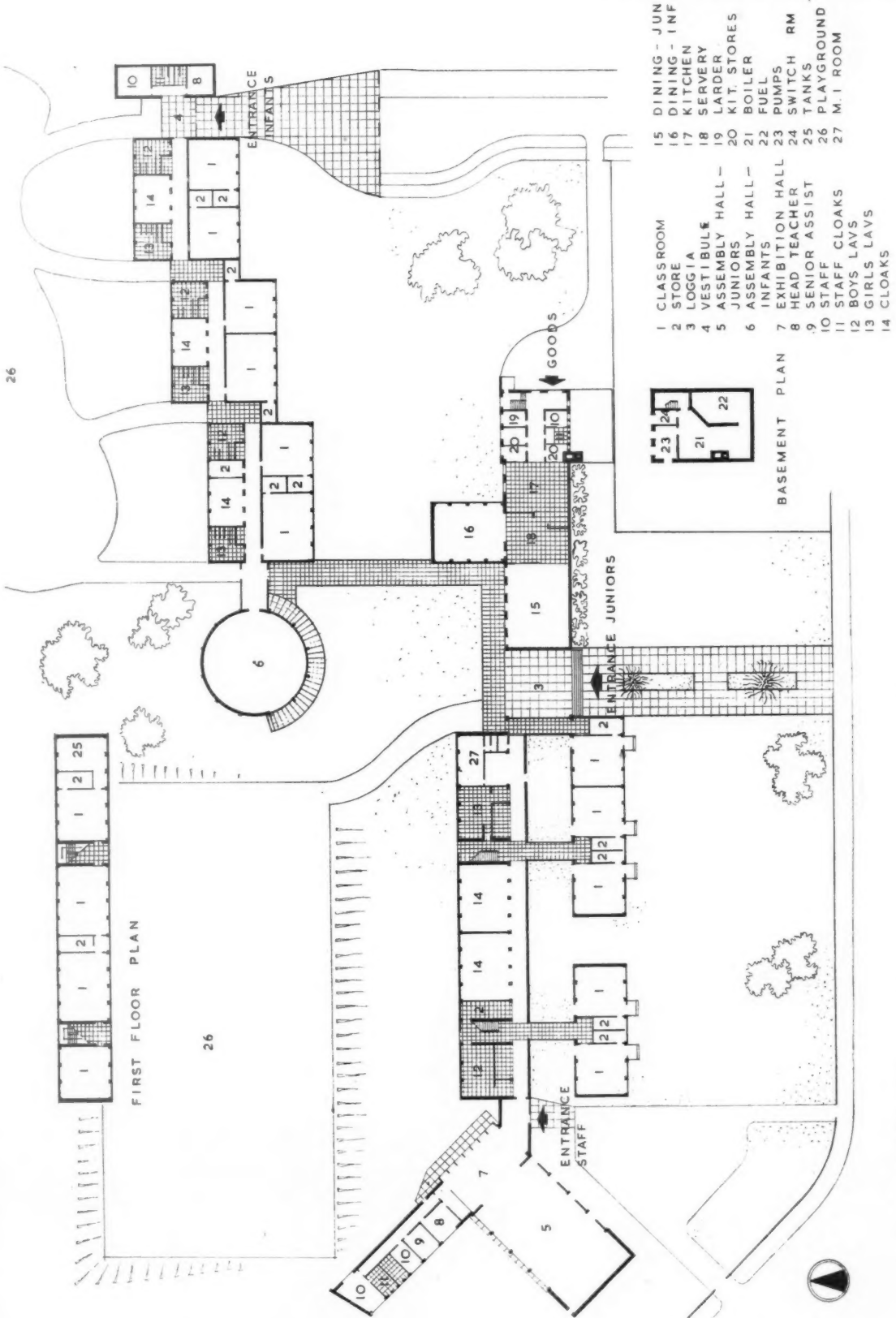
pin-up boards are placed on the end walls of each short section. The circular infants' assembly hall has floor-to-ceiling windows on the south side and clerestory lighting elsewhere, with a movable platform. In the junior school four of the classrooms are in a two-storey block, with cloakrooms on the ground floor, and the five remaining classrooms are

PLAN.—The infants' school and the junior school are linked by covered ways leading to the centrally-placed dining rooms and kitchen. There are six classrooms in pairs with top lighting controlled by louvres, for the infants, with cloakrooms and sanitary accommodation for each pair on the opposite side of the corridor. The corridor is stepped and large

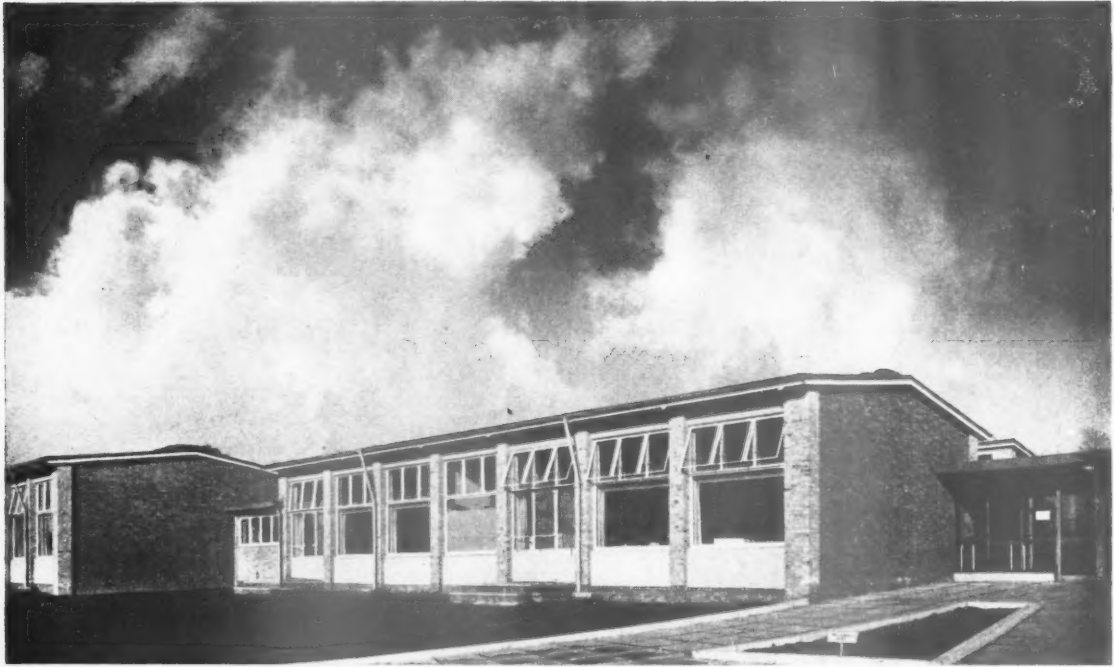
PRIMARY SCHOOL

at WEMBLEY, MIDDLESEX
designed by C. G. STILLMAN
County Architect

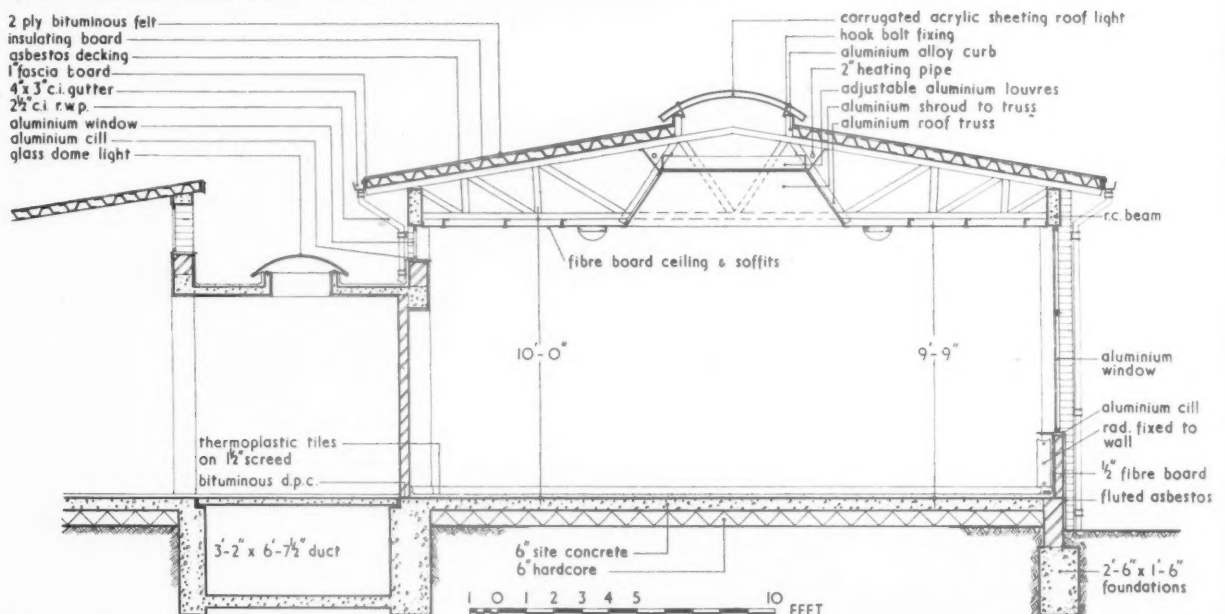
26



Basement, ground and first floor plans [Scale: 1/4" = 1' 0"]



Infants' entrance and classrooms from the south-east.



Cross section through infants' classroom and corridor

Roof lighting with adjustable louvres in infants' classroom.

PRIMARY SCHOOL

at WEMBLEY, MIDDLESEX
designed by C. G. STILLMAN, County Architect

SERVICES.—Heating : low-pressure hot water radiator system, except in assembly halls, which have under floor heating.

The school forms part of the 1949 building programme and there are 63 ft. super per place.

The general contractor was Charles R. Price. For sub-contractors see page 538.



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TECHNICAL SECTION

The fall in world prices—now accelerated by the improved international situation—of the building materials we have to import has, up to now, been counteracted by the rise in the prices of home-produced materials. According to Professor Bowen, this rise may be due to the high cost of holding the large stocks which have accumulated as a result of reduced demand. If this is true, we can expect the prices of home-produced materials to start falling when traders are able to reduce their stocks. But this will not necessarily be a healthy sign, for it may only indicate that the falling off in the demands on the industry is continuing, and that last year's relaxations of the licensing regulations are failing to "mop up" the excess capacity of the industry (and the architectural profession).

There is some hope, however, that as a result of the proposed changes outlined by Mr. Butler in his budget speech, a healthy level of demand may be maintained. It remains to be seen whether a tax allowance of 10 per cent. on new industrial buildings and Mr. Butler's assurance that "no manufacturer should now find difficulty or delay in getting a licence for productive work" will be sufficient inducement for industrialists to overcome their natural reluctance to build when interest rates are so high and world markets for their products so uncertain.

This week's
special feature

8 ESTIMATING index of materials' prices

The number preceding the week's special article or survey indicates the appropriate subject heading of the Information Centre to which the article or survey belongs. The complete list of these headings is printed from time-to-time. To each survey is appended a list of recently-published and relevant Information Centre items. Further and earlier information can be found by referring to the index published free each year

Although within the last 6 months there have not been the same violent fluctuations in the prices of building materials as took place in 1950 and 1951, stability has by no means yet been reached. Moreover, materials' prices are constantly changing relative to each other, and what may be a "cheap" material when a building is planned may have become an "expensive" material when the contractor orders it. There are two solutions to this problem: firstly, the early nomination of the contractors (as recommended in the feature on contracting procedure, pages 521-528), so that the time lag between design and ordering is minimized: secondly, as Professor Bowen suggests in his article below, government action to "iron out" temporary changes in the relative prices of building materials.

Since 1951, the Board of Trade has published two indexes of building materials' prices, one for building and civil engineering prices generally, and the other for house-building materials only. Both are derived from 50 price quotations recorded monthly, but

weighted differently for the calculation of each index. (Since 1951 there have been some slight variations in the price quotations used, but these changes have not affected the general trends shown by the indexes.) On a basis of 1949 = 100, the general



THE DERBY ARMS EPSOM DOWNS



The two illustrations show the DERBY ARMS public house before and after renovation.

Architect & Surveyors:
Leonard Chignall & Son,
F.I.A.A., M.Inst.R.A.,
of Romford, Essex.

Contractors:
Piling & Construction Co., Ltd.,
of Croydon, Surrey.

THIS old and famous landmark, standing high on the Epsom Downs facing the Grand Stand, is extremely exposed and stands alone without protection from other buildings. In carrying out alterations and war damage repairs, the Architects decided to re-face the damaged and

weather worn external walls and at the same time to make them impervious to penetration by severe driving rain. This was accomplished by the simple addition of 5 lbs. of 'PUDLO' Brand Powder to each 100 lbs. of cement in the 2 to 1 sand and cement rendering coats.



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building materials' index averaged 131 for the first quarter of 1953. The index for house-building materials was a little lower at 129, i.e., 29 per cent. above the 1949 level.

In the table below, the official index is shown, together with my own calculations of how the main different components of the index have moved each quarter since the beginning of 1950. The figures are also plotted on the accompanying graph. There have been some very interesting fluctuations over the last few years, and those concerned with the practical effects of future trends in the index need to consider the component parts with as much care as the over-all average index.

IMPORTED MATERIALS

Just as in the previous period, from 1945-50, imported materials continued to rise in price; not until the third quarter of 1952 was there a substantial fall. The most outstanding feature of the present index is that the other groups—I to III—are on the average, not far from each other, varying from 31 per cent. to 35 per cent. above the 1949 level, although only a year before, the same groups had varied from 26 per cent. to 51 per cent. above the 1949 level.

The index as a whole is three points lower than the peak recorded in the second quarter of 1952, due mainly to the heavy decline in "imported" items (chiefly softwoods and paint) and to a less spectacular, but notable, fall in the price of metals.

METALS

Fluctuations in metal prices have been very violent over the last few years; they have varied from one metal to another, not only in severity but in direction. Thus, in February, 1953, the index for copper stood at 243 (June, 1949 = 100), while that for zinc was 110. Sixteen months earlier, in October, 1951, the position had been almost the reverse. Thus, from October, 1951, to February, 1953, copper

rose by 26 per cent. and aluminium by 34 per cent. while, over the same period, zinc fell by 55 per cent., lead by 45 per cent. and tin by 5 per cent.

Other raw materials, besides metals, had also fallen sharply in price over the same period; e.g., jute, rubber and imported hardwood, all of which at least halved in price.

What can be said about these fluctuations in metal prices, which means in the prices of raw materials generally? So far as building materials are concerned, metal products, like imported items in general, have begun to fall in price, thereby offsetting the rising prices of other materials. But is the downward tendency to be reinforced, or is it to be suddenly countered by another violent rise, such as was experienced from 1950 to the beginning of 1952? Obviously, these are the two groups most sensitive to changes in world conditions of international trade, and subject to influences that are largely, indeed almost completely, outside British control.

Economists on both sides of the Atlantic are at present busily engaged on working out the prospects for either a slowing down in the rate of American business activity, or for an actual decline. Even before the Malenkov dove upset the likelihood that Western economies would indefinitely be sustained by armament activities, there was a considerable possibility of an economic "pause" in America, either late in 1953 or in 1954; and now, peace, or a slight cooling-down of the "cold war," may bring in serious economic problems.

It cannot be concluded, therefore, that the fall in the prices of basic materials is at an end. Only yet another spectacular reversal of the political and economic world situation could cause a change in the downward trend.

QUARRIED AND PRIMARY PRODUCTS

Fluctuations in the price indexes for these two groups have usually been more modest than those in the other

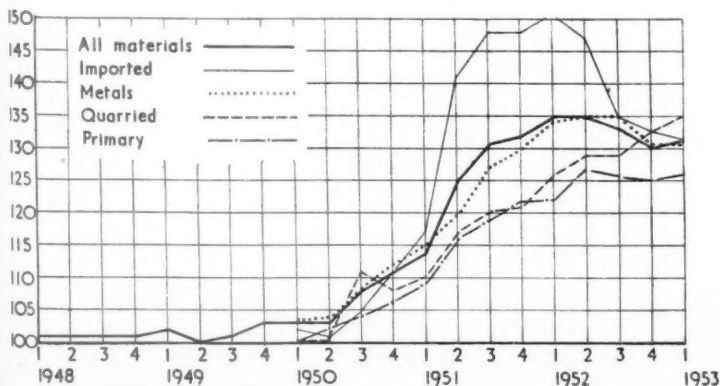
categories, yet they are now the two groups with a rising tendency. Their trend depends mainly on the costs of home-produced fuel and of labour, and on the level of demand. Home demand is at present high and for some industries, e.g., the cement industry, export demand is important too.

Last year it was already possible, if perhaps rash, to speculate on the turning-point in the hitherto apparently inexhaustible post-war demand for building. Perhaps the fear of this turning-point was premature, but it was hardly groundless. It is easy to under-estimate the cumulative effect on building activity of a relatively high rate of interest, and of a steady restrictive pressure on the credit mechanism. The first consequences of Mr. Butler's deflationary measures seem to have been on the holding of traders' stocks, mainly outside the building materials' industries; stocks become expensive to hold and tend to be run down in the search for liquidity. There may be two stages to this process: first, a falling off in demand (in relation to supply) and a building up of stocks; second, a change in business policy, and a running down of stocks—which almost necessarily implies a weakening of prices and a reduction in employment.

On one interpretation—it is impossible to be sure that it is the correct one—many of the building materials' industries have passed through the first stage but not the second. Their stocks have risen, as marginal home and export demand has fallen. (Bricks are, of course, a notable exception to this, and stocks have fallen because of a shortage of supply.) If the second stage is to develop, these stocks would have to be liquidated.

Hitherto, it has always been assumed that a slight easing of licensing restrictions would mop up any excess capacity of any kind likely to occur, and, so far, this policy has indeed worked smoothly, helped out by the perennially booming housing programme. But a

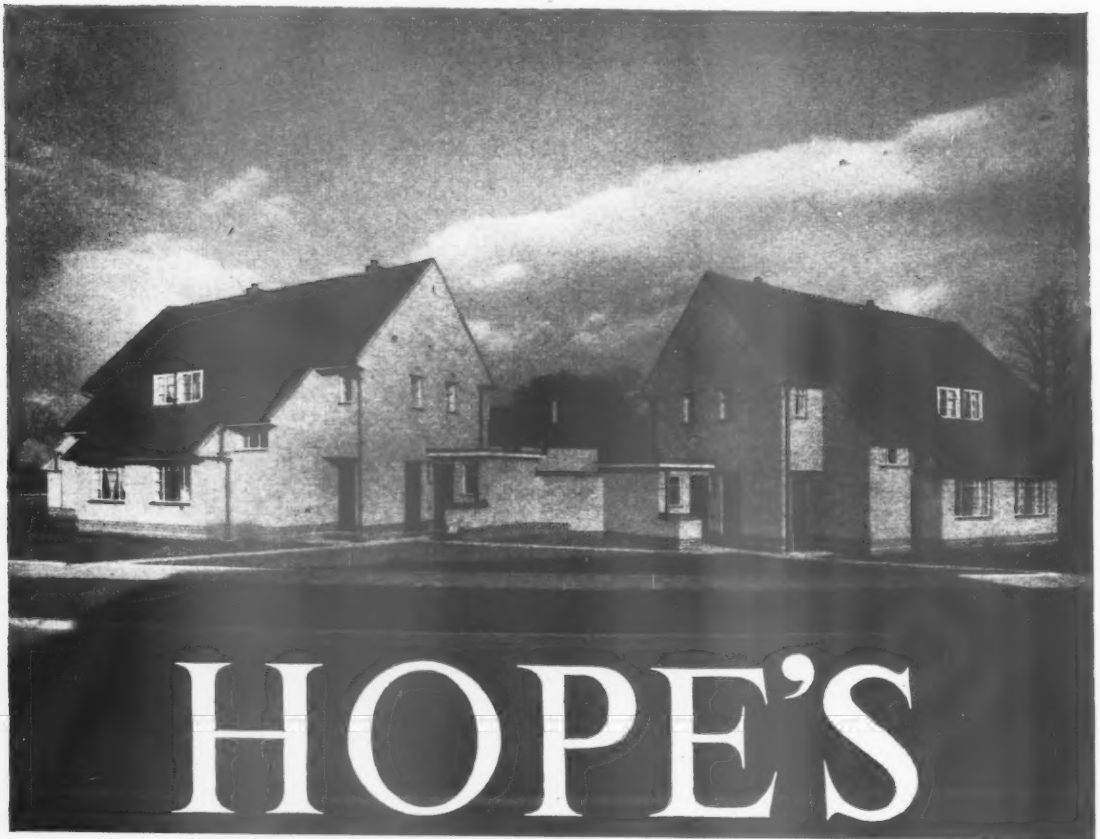
BUILDING MATERIALS' INDEX (June 30, 1949 = 100)



Date	I Imported	II Metals	III Quarried	IV Primary	BOT Index for House Building Materials
1950					
1	102	103	100	100	102
2	101	104	100	102	103
3	105	108	111	104	107
4	111	112	108	106	108
1951					
1	117	115	110	109	113
2	141	120	117	116	124
3	148	127	120	119	128
4	148	130	121	122	128
1952					
1	151	134	126	122	131
2	147	135	129	127	132
3	135	135	129	126	130
4	133	131	133	125	129
1953					
1	132	131	135	126	129
2 months only					

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high rate of interest and the deflation are now leading to more and more "house for sale" notices being put up all over the country. This must eventually threaten the housing programme; for ever-increasing local rates to provide new houses when old houses are visibly not being used to capacity represents a policy that cannot last indefinitely.

The policy outlined in the Budget seems deliberately designed to encourage industrial capital expenditure. Home demand for building will, therefore, be well maintained, at least until the end of the year, although the "further outlook" will depend on world economic developments.

COSTS OF HOME-PRODUCED MATERIALS

On the cost side, coal prices are an important factor. There is no doubt that coal prices are *too low* in relation to the cost of producing the present quantity of coal—no amount of wishful thinking can alter this unpleasant fact. Hence, if coal output remains high (and, again, if exports continue to sag) the home price of coal is likely to rise still further. (The only alternative would be if reduced activity permitted less coal to be consumed, and the more expensive pits to be closed down, but this is an unlikely development in the near future.) As for wages, their rapid increase may slow down, but a "wages-stop" is not yet in sight. With demand fairly high, and costs still rising, the prices of quarried and primary products are unlikely to fall, except in so far as technological improvements result in lower costs. Both home manufactured building components and the two groups considered here are likely to come down in price only when demand is finally reduced. However, the Budget and housing policy are still aimed at keeping prices high.

MATERIALS' PRICES AND PLANNING

The uncertainty as to the cost of different materials, which fluctuate so violently from year to year, makes the economic planning of a large building exceptionally difficult. One year a copper roof may be hardly any dearer than a tiled one, and the next year the position will be wholly reversed. Do architects and planners always know which are the relatively cheap materials at the date when the purchases are to be made? Is there available a service on materials' costs, and is the flow of information comprehensive and up to date? An economical design for 1951 might prove to be grossly extravagant if carried out in 1953.

These are problems that can, perhaps, only be solved nationally. Various government agencies provide guidance on the availability of materials, on their relative costs and on their performance in use. But, in addition to

this, an economic policy is needed, either to smooth out or to take advantage of violent changes in the relative prices of materials. Supposing timber becomes relatively cheap and plentiful for a few years, but is likely to rise sharply in price at the end of five years or so (as has been recently suggested by an international committee), full advantage of the period of low price should be taken, perhaps with some government encouragement, by architects and planners, and, if advisable, by commercial firms that are in a position to hold large stocks.

In this imperfect world, the last thing to be expected is stability. Prices will, doubtless, continue to rise and fall by very large percentages; but wise buying, and intelligent variations in design, should be able to offset, to some degree at least, the unfavourable effects of these changes upon one of this country's major industries.

INFORMATION CENTRE

A digest of current information prepared by independent specialists; printed so that readers may cut out items for filing and paste them up in classified order.

23.170 heating and ventilation FAN TESTING

Fan Performance Tests. FMA 3:1952. (Fan Manufacturers Association Ltd. 9s. 6d.)

A standard code for the testing of various types of fans. It has been devised by the trade organization to replace BS 848, which was issued in 1939, and is more comprehensive and in line with modern views. It is, however, very regrettable that the association has seen fit to proceed independently rather than by instituting a revision of the BS. This is an important matter of principle and, however good the reasons may have been in this case, it is to be hoped that it will not be repeated.

23.171 heating and ventilation OPEN FIRES

Installing Solid Fuel Appliances. No. 1. *Open Fires.* MOW Advisory Leaflet No. 30. (HMSO. 1953. 3d.)

Excellent summary of obvious but essential points which are so often missed or done wrongly on the site. It would pay architects to study this and to purchase a number of the leaflets for distribution to the workmen on their sites.

26.103 services and equipment: miscellaneous LIFTS

Operator-less Elevators. (Magazine of Building: Architectural Forum. [USA] Jan., 1953.)

Although US lift problems are greater than ours, the increasing number of high buildings in England makes development of interest. This brief article describes latest American advances towards swift and safe operation of lifts without the need for the considerable expense of paid lift operators.

ENQUIRY FORM

I am interested in the following advertisements appearing in this issue of "The Architects' Journal." (BLOCK LETTERS, and list in alphabetical order of manufacturers' names please).

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INFORMATION CENTRE INDEX FOR 1952

An alphabetical index covering Information Centre items and special articles published in the Technical Section during the twelve months ended December 31, 1952, is being prepared. Readers who wish to have a copy—it is free of charge—should complete the form below and post it to the Technical Editor, THE ARCHITECTS' JOURNAL, not later than April 30, 1953.

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THE INDUSTRY

From the Industry this week, Brian Grant reports on a new type of industrial floor, the resistance of aluminium roofing to corrosion, a non-slip surfacing material which can be laid dry and a flexible system of prefabrication.

INDUSTRIAL FLOORS

A new type of industrial floor, which has been widely used abroad, particularly in Holland, is shortly to be marketed in this country by "Stelcon." The flooring slabs, known as "steel clad rafts," consist of large concrete slabs reinforced both ways, bound with angle iron and finished with Stelcon's steel-clad wearing surface. The angle iron is specially rolled with rounded edges to prevent excessive wear of rubber tyres, and, as the drawing shows, is thoroughly anchored to the concrete. The rafts are in standard sizes, 6 ft. 6½ in. square and 4 in. thick, and weigh about 4½ cwt. per sq. yd.

The rafts are laid on a bed of sand 4 to 6 in. thick and well compacted and levelled; no sub-floor is necessary and the laying of the greater part of the floor can therefore be the first building operation—thus making all subsequent work easier, as the floor can take heavy traffic as soon as it is laid. Special shapes are produced for laying round column bases and machinery, or between rails and points in sidings. Since each complete raft weighs about a ton, a crane is normally used for laying them and each raft has two small holes to take lifting keys. (Stelcon (Industrial Floors) Ltd., Cliffords Inn, London, E.C.4.)

BUILDINGS FOR CORROSIVE ATMOSPHERES

Five years ago the Northern Aluminium Co. provided the material for a roof over the purification plant at Sevenoaks Gas Works, this position being chosen by the South Eastern Gas Board because it provided an excellent test in a severe atmosphere. The alloys used were 51S for the structural sections and 3S for the sheeting, and no paint or other protection was applied. Tests carried out recently show that the amount of corrosion has been very small and that the properties of both sheeting and sections remain within the limits of the original specification on which the structure was designed. Most of the corrosion to which aluminium alloys are subject takes place during the first three years or so of exposure and subsequent loss of strength is very slow. It is assumed that the roof will have a minimum life of 25 years, still unpainted.

Comparisons of any kind are always a little dangerous, but it seems that, in this particular situation, the light alloy roof can

show a saving over steel trusses and galvanized sheeting. At any rate the Gas Board has been sufficiently impressed to erect other light alloy roofs at their works in Wandsworth and Guildford. The Sevenoaks job cost £1,450, as against £830 for steel trusses and sheeting, but to the latter figure must be added a further £170 every two years for painting, so that over 25 years the cost of the light alloy roof works out at a little over half the steel one.

It must be admitted that this is something of a special case, and it would be even more interesting to see comparisons with materials other than steel, but at least the figures suggest that the more expensive material may well save far more than its extra first cost when the inevitable maintenance charges are added. The Northern Aluminium Co. recommends light alloys wherever industrial atmospheres are sulphur laden or polluted with combustion products, though they add the very proper reservation that the precise nature of the pollution must be determined before a decision is reached. (Northern Aluminium Co. Ltd., Banbury, Oxon.)

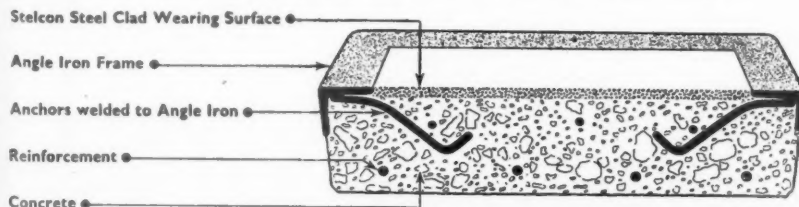
NON-SLIP FLOORS

Making existing floors "non-slip" is always something of a problem if the job is to be done without shutting off areas of floor while the new surface sets. Where simple and rapid application is required a product called "Safety Walk" may well be the answer. The material is flexible and has a surface which looks like medium grade black emery cloth, though it is also produced in red and green. I gather that it was first produced during the war to provide non-slip areas on the flight decks of aircraft carriers, but it is now being widely used in industry. It is waterproof and not affected by extremes of temperature. The mineral grains which form the non-slip surface have a heavy fabric backing which is coated with a pressure sensitive adhesive, in turn covered with a protective liner. For application, it is only necessary to peel off the liner, apply the adhesive face to the floor and then roll or hammer it to make complete contact. The only proviso is that the floor must be clean, dry and free from dust. The material is sold in 6-in. by 24-in. rectangles for ordinary surfaces; 5½-in. squares for tiling; 4-in. by 8½-in. for bricks, or in ½-in. by 24-in. strips for edging staircase treads. (The Minnesota Mining & Manufacturing Co. Ltd., Arden Road, Adderley Park, Birmingham, 8.)

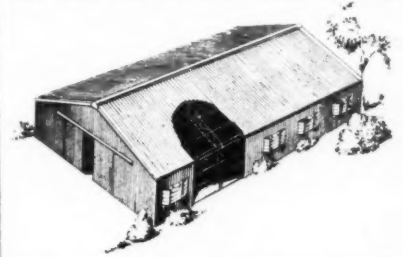
LIGHT ALLOY BUILDINGS

One of the disadvantages of any type of mass-produced prefabricated industrial building is the limited number of sizes which can be economically produced and the standardized spans and wall heights may not be suitable for all the purposes for which the building might otherwise be used. A new type of light alloy building, produced by Chamberlain Industries provides a possible solution, for the greater part of each building is standardized, while the industrialist is allowed a maximum choice of building sizes.

The new type of industrial flooring slab, known as a "steel clad raft," which will be available shortly in this country.



The basis of the building is a two-pin portal frame, which is produced in 30- and 40-ft. spans, each having an eaves height of 12 ft. Each bay consists of two standard wall units and two rafter units; to obtain



greater spans and wall heights a "knuckle unit" is used at the eaves, between the wall and rafter units. This knuckle unit is not a fixed size but is specially designed so that it can provide a frame with a span of anything between 30 and 56 ft. and wall heights between 12 and 15 ft. Building length is in multiples of 10 ft., with a special bay at the end to make up any required size, and, since only about 20 per cent. of any non-standard building has to be specially made, deliveries are quick. Cladding can be either asbestos cement or light alloy sheeting.

One of the chief advantages of these buildings is the speed with which they can be erected, as the individual members are light and no elaborate lifting gear is needed. Base plates for the portal frames are set in the foundation concrete; the wall and rafter components are then bolted together on the ground and the bottoms of the half portals so formed are bolted to the base plates. Sheet piling rails and purlins are then fixed between the half portals and the complete frames are lifted and pivoted about the base plates until they meet at the centre. Dismantling and removal to another site is quick and easy, and there is no need to paint the light alloy members, except for decoration. (Chamberlain Industries Ltd., Staffa Works, Leyton, London, E.10.)

SIMPLIFIED SHAVING

As one who is reactionary enough to go on using an old-fashioned razor with a blade, I do not know how often those who use electric shavers run into trouble. Presumably all the shavers sold in this country are arranged for 230 volts, but I cannot remember many hotels where there is a suitable socket near the mirror. The other trouble is that visitors from abroad bring their own shavers—American types needing 110 volt flat pin sockets, while continental models may be 110, 165 or 230 volts, with a continental 2-pin plug having a different spacing from ours.

Hotel proprietors and their architects, who wish Coronation visitors to retain their sanity may, therefore, be interested in a small device which provides all these voltages from the appropriate sockets. The fitting includes an auto transformer and the flush mounting type has a face plate only about 4½ in. square, with all the sockets clearly marked. Maximum loading is 20 Watts and the fitting incorporates a cartridge fuse so that it cannot be damaged by people trying to use travelling irons and similar equipment. The price is only 39s. 9d. (Chilton Electric Products Ltd., Hungerford, Berks.)

CORRECTION

Messrs. Hornflowa, the makers of "Soleway" P.V.C. tiles inform me that these tiles have been on the market for about two years. They also state that, provided "Evo-Stick SH25" is used as an adhesive, there is no danger from washing water seeping between the tile joints.

Buildings Illustrated

Primary School, Mount Stewart Avenue, Wembley, Middlesex, for the Middlesex County Council. (Pages 529-532.) Architects: C. G. Stillman, F.R.I.B.A., County Architect; D. R. Duncan, A.R.I.B.A., Area Architect. Quantity Surveyors: Young & Brown. General contractor: Charles R. Price. Sub-contractors: bricks, W. T. Lamb & Sons Ltd., H. J. Greenham (1929) Ltd., and Uxbridge Flint Bricks Co. Ltd.; roofs, Roberts Adlard Ltd., Permanite Ltd., and D. Anderson & Son Ltd.; steel roof trusses, Smith Walker Ltd.; heating, hot water and gas installation, Fretwell Heating Co. Ltd.; underfloor heating, Granwood Flooring Co. Ltd.; electrical installation, Duncan Mays Ltd.; suspended ceilings, Anderson Construction Co. Ltd.; ironmongery, metal doors and windows, cloakroom fittings, James Gibbons Ltd.; door frames, Henry Hope & Sons Ltd.; flush doors, William Mallinson & Sons Ltd.; windows, Lenscrete Ltd. ("Lenscrete"), J. A. King & Co. Ltd. ("Glascrcrete"); sanitary fittings, Shanks & Co. Ltd.; w.c. partitions, Venesta Ltd.; roller shutters, Milners Safe Co. Ltd.; playgrounds, W. & J. Glossop Ltd.

Announcements

Loveday & Davis, A./A.R.I.B.A., have moved their office to 42, Regent Place, Rugby. (Tel.: Rugby 2394.)

THM Partners, specialists in packaging & interior design have moved into new offices at 48 Dover Street, W.1. (Tel.: Mayfair 1045-7.)

Sealocrete Products, Ltd., have appointed R. B. C. Douglas, of 13, Queensborough Gardens, Hyndland, Glasgow, W.2 (Tel.: Western 859) as technical representative for Scotland.

Victor R. Pierce, L.R.I.B.A., is now in practice at 10, Wish Hill, Willingdon, Eastbourne, where he will be pleased to receive trade catalogues, etc. (Tel.: Hampden Park 3198.)

G. E. Gardener, for some years associated with the Cargo Fleet Iron Co. Ltd., and South Durham Steel & Iron Co. Ltd., has been appointed general manager of Messrs. Cook & Co. Ltd., Constructional Engineers, 62, Clapham Road, S.W.9. (Tel.: Reliance 3364/5.)

A meeting of the Council of the Faculty of Building was held at Church House, Westminster, recently. B. C. Brook was re-elected president. The following were elected vice-presidents: A. J. Hayes, R. H. Lowe, R. Macdonald, R. P. Spibey.

C. J. Epril, F.R.I.B.A. & Associates of 55, Pall Mall, have taken Cyril Adler, A.R.I.B.A. into partnership. The style and address of the firm is unchanged. Mr. Adler's practice at 11, King's Road, Chelsea, will be incorporated in that of the firm and continued at 55, Pall Mall, S.W.1. (Tel.: Whitehall 1182.)

Glow Worm Boilers Ltd., have appointed Alexander Moyes, of 24, Claremont Gardens, Milngavie, Glasgow, as representative for the whole of Scotland. T. E. Green, of 40, Longley Lane, Northenden, Manchester (Tel.: Wythenshawe 2679) has been appointed as representative for the counties of Lancashire, Westmorland and Cumberland.

The Glass Manufacturers Federation, British Lampblown Scientific Glassware Manufacturers' Association Ltd., British Chemical Ware Manufacturers' Association Ltd., Lighting Glass Manufacturers' Association, and the European Glass Manufacturers' Federation, have removed to 19, Portland Place, London, W.1. (Tel.: Langham 6952. Telegrams: Glassmanef, Wesdo, London.)

Parker Winder & Achurch Ltd., of Birmingham, have opened a showroom at 16, Grosvenor Place, S.W.1. The branch manager is Bernard A. Peck. (Tel.: Sloane 2339. Telegrams: Parwinac, Knights, London.)

W. H. Colt (London) Ltd. announce the formation of the "Colterro" Clay Lath sales division, for which Norman P. Slade will be sales manager. For the time being the division will operate from the company's head office at Surbiton.

The British Standards Institution have just issued a revision of BS799, "Oil Burning Equipment." The document was originally published in 1938 and was then confined to fully automatic oil burning equipment for central heating and hot water supply suitable for fuel oils conforming to Grades A and B of BS742, "Fuel Bills for Burners." The standard has now been extended to include semi-automatic and hand-controlled equipment suitable for petroleum oils, Grades A, B and G of BS742 and coal tar liquid fuels to BS1469. The standard applies to oil burning equipment for boilers, heaters, furnaces, ovens and other similar plant, but it is not intended to apply to marine and mobile installations. The British Standard gives full descriptions of items of equipment required (without sizes) including particulars of storage tanks, fittings, oil pipe lines, etc. Copies of this standard may be obtained from the British Standards Institution, Sales Branch, 24, Victoria Street, London, S.W.1. Price 10s.

Ian Henderson Ltd., in association with Nicholls & James Ltd., are opening offices and showrooms for the display of contemporary furniture, textiles, carpets, wall papers and lighting fittings at 184, Sloane Street, S.W.1, early in May. The contract department of Ian Henderson Ltd. will undertake special work to the designs and specifications of architects.

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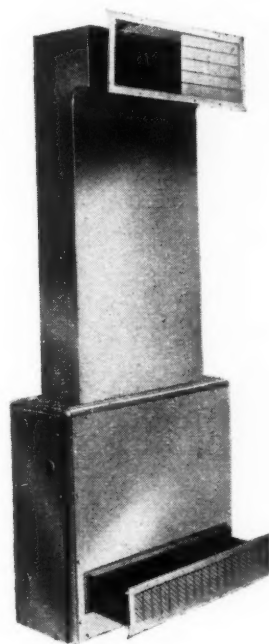
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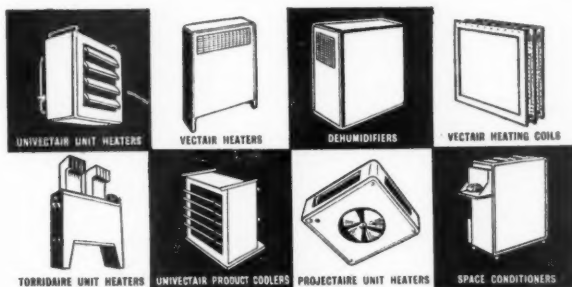
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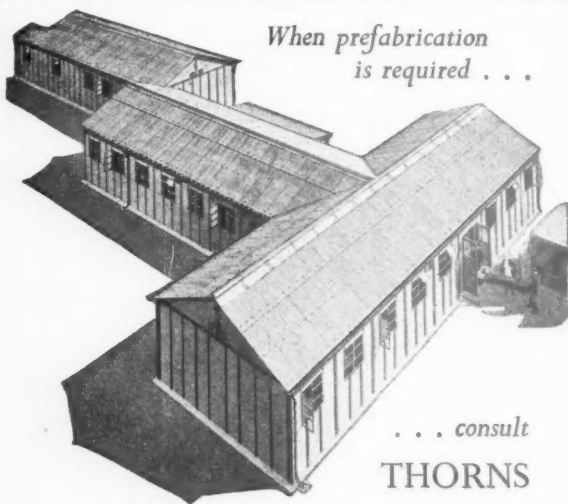
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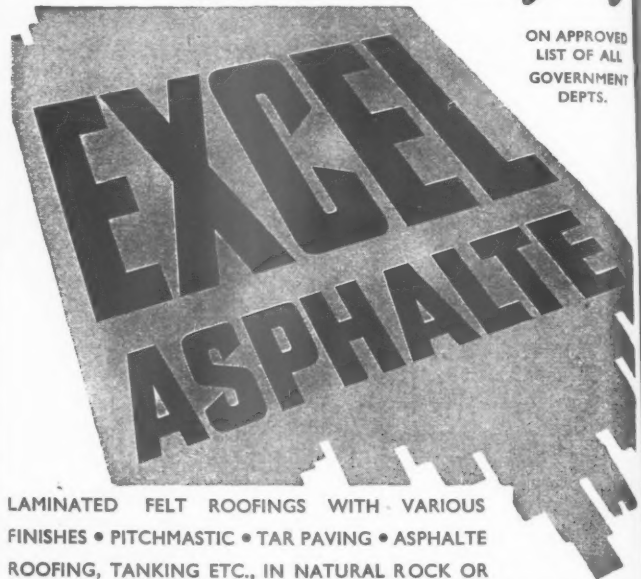
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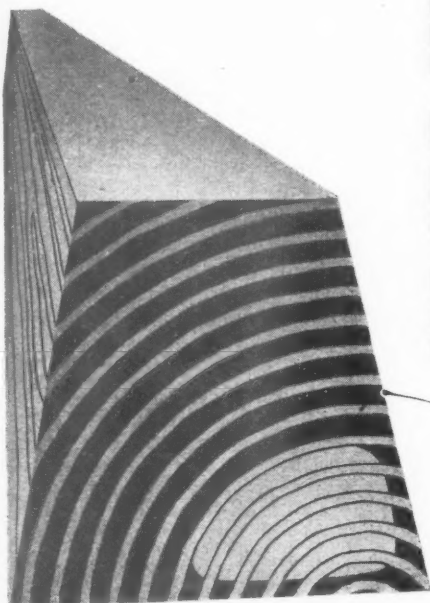
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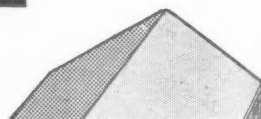


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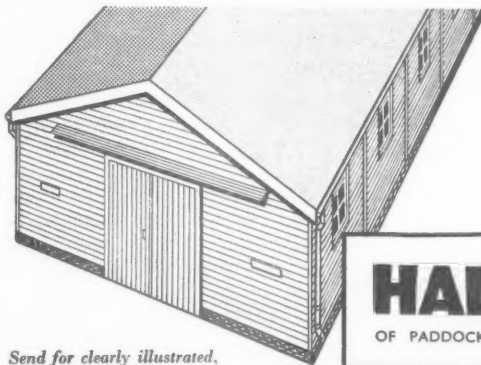
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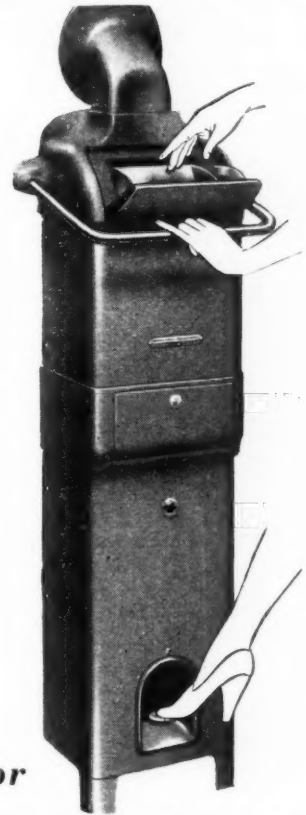
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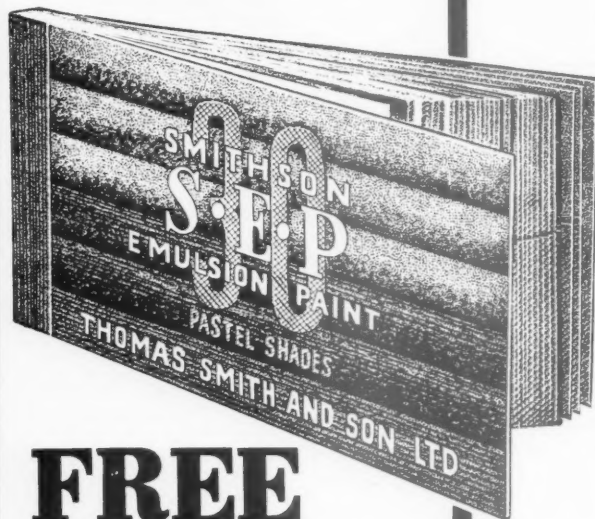
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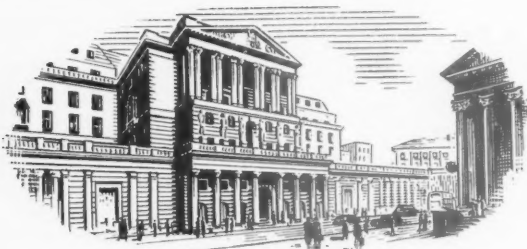


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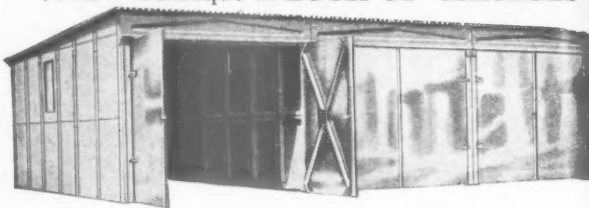
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CLASSIFIED ADVERTISEMENTS

Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post on Friday morning for inclusion in the following Thursday's paper.

Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

Public and Official Announcements

25s. per inch; each additional line, 2s.

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

BOROUGH OF SCARBOROUGH. BOROUGH AND WATER ENGINEER'S DEPARTMENT. APPOINTMENT OF CHIEF ARCHITECTURAL ASSISTANT.

Applications are invited for the permanent appointment of Chief Architectural Assistant at a salary in accordance with Grade VII of the A.P.T. Scale of the National Scale of Salaries (£710-£785).

Applicants must be Chartered Architects capable of undertaking the design and supervision of the various works required in a seaside resort.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and to the passing of a medical examination.

In a suitable case the Council will be prepared to pay part of the removal expenses and assist in the provision of housing accommodation.

Applications, on a form to be obtained from the Borough Engineer, must be delivered to the undersigned not later than 4th May, 1953.

H. V. OVERFIELD, M.I.C.E.,

Borough and Water Engineer.

Town Hall, Scarborough.

7th April, 1953.

8554

COUNTY BOROUGH OF ROTHERHAM. APPOINTMENT OF CHIEF ASSISTANT ARCHITECT (GRADE VIII).

Applications are invited for the above appointment in the Architect's Department in the office of E. J. Manson, B.Eng., A.M.I.C.E., Borough Engineer, at a salary in accordance with Grade VIII of the A.P.T. Division of Scales (£760-£835).

Applicants must be Registered Architects and Associate Members of the Royal Institute of British Architects, and have had considerable experience in design, construction and contract administration, preferably with a local authority, particularly in connection with housing schemes.

Applications, to be endorsed "Chief Assistant Architect," stating age, qualifications, architectural training and details of experience, together with copies of three recent testimonials, should be received by me not later than 5th May, 1953.

Canvassing will disqualify.

JOHN S. WALL,

Town Clerk.

Municipal Offices, Rotherham.

10th April, 1953.

8553

BOROUGH OF LOWESTOFT. SENIOR AND JUNIOR ARCHITECTURAL ASSISTANTS.

Applications are invited for the above appointments in the Borough Engineer and Surveyor's Department. SENIOR ARCHITECTURAL ASSISTANT, Grade V (£595-£645). The Council will take all possible action to assist in obtaining housing accommodation.

JUNIOR ARCHITECTURAL ASSISTANT, General Division (£160-£450). Details of these appointments should be obtained from the Borough Engineer, Town Hall, Lowestoft, and applications should reach this office not later than the 9th May, 1953.

F. B. NUNNEY,

Town Clerk.

Town Hall, Lowestoft.

8th April, 1953.

8580

MINISTRY OF WORKS.

Vacancies exist in the Chief Architect's Division for ARCHITECTURAL ASSISTANTS with recognised training and fair experience. Vacancies are mainly in London. Successful candidates will be employed on a variety of Public Buildings, including Atomic Energy and other Research Establishments, Telephone Exchanges and Housing.

London Salary: Up to £628 per annum. Starting pay according to age, qualifications and experience. Rates outside London are slightly lower.

Although these are not established posts, many have long term possibilities and competitions are held periodically to fill established vacancies.

Apply in writing, stating age, nationality and full details of training and experience, to the Chief Architect, Ministry of Works, Abell House, John Islip Street, London, S.W.1, quoting reference W.G.10/C.A.1.

8047

THE NORTH WESTERN ELECTRICITY BOARD.

APPOINTMENT OF ENGINEERING DRAUGHTSMAN (BUILDING), SUB-AREA HEADQUARTERS, BLACKBURN.

Applicants should have had a good general and technical education to at least O.N.C. standard in Building and Civil Engineering, and have had experience in general building construction, design and layout of industrial type buildings, including site works and services.

Salary scale: £433-£567 p.a. Sched. D, Grade 6, N.J.B. Conditions.

Applications to Sub-Area Manager, No. 5 Sub-Area, The North Western Electricity Board, Jubilee Street, Blackburn, by 2nd May, 1953.

JAMES W. CHANT,

Secretary.

8530

BOROUGH OF EALING require TOWN PLANNING ASSISTANT, A.P.T., VI, £700-£765, including London weighting. N.J.C. service conditions. Superannuation. Candidates must have wide practical experience, knowledge of Town and Country Planning Act, 1947, and its regulations, and possess a recognised planning qualification. No housing accommodation. Canvassing disqualifies. Form of application, obtainable from Borough Surveyor, Town Hall, Ealing, W.5, should be returned to E. J. Cope-Brown, Town Clerk, Town Hall, Ealing, W.5, by 11th May, 1953.

8617

ISLE OF ELY COUNTY COUNCIL. COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the under-mentioned appointments on the staff of the County Architect:

(a) QUANTITY SURVEYOR'S CLERK, Grade Misc. III (£375-£440 per annum).

(b) JUNIOR ARCHITECTURAL ASSISTANT, Grade Misc. I-III (£300-£440 per annum).

Appointment (a) is permanent. Appointment (b) is on the temporary staff. Both are subject to the provisions of the National Scheme of Conditions of Service, the Local Government Superannuation Act, and to the passing of a medical examination.

Applications, stating age, education, qualifications and experience, accompanied by copies of two recent testimonials, should reach the County Architect, County Hall, March, not later than Thursday, 30th April, 1953.

R. F. G. THURLOW,

Clerk of the County Council.

8616

COUNTY BOROUGH OF DUDLEY.

ARCHITECTURAL ASSISTANT.

Applications are invited from persons who must have passed the Intermediate Examination of the R.I.B.A. for the above appointment on the permanent staff of the Borough Architect's Department. Salary: A.P.T., Grade IV (£555 to £600). Applications giving the names of three persons to whom reference may be made, are to reach me not later than Monday, 4th May, 1953.

P. D. WADSWORTH,

Town Clerk.

The Council House, Dudley.

13th April, 1953.

8615

NORTH RIDING COUNTY COUNCIL.

COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited from Registered Architects for the appointment on the permanent staff of an ASSISTANT ARCHITECT, A.P.T., Grade V (£595-£645).

Appointment, superannuable, and subject to medical examination.

No form of application is issued, but further information may be obtained from County Architect, County Hall, Northallerton. Applications, stating age, qualifications and experience, with particulars of previous and previous appointments, and names and addresses of three referees, to be received by undersigned not later than 4th May, 1953.

Canvassing, directly or indirectly, will disqualify, and candidates should state whether they are related to any member of, or senior officer under, the Council.

H. G. THORNLEY,

Clerk of the County Council.

County Hall, Northallerton.

14th April, 1953.

8614

BEDFORDSHIRE COUNTY COUNCIL invite applications for SENIOR PLANNING ASSISTANT, A.P.T., VIII, from Fellows or Associates of the R.I.B.A., and preferably Corporate Members of the T.P.I. Experience in preparation of housing layouts essential. N.J.C. service conditions; car allowance; post pensionable; medical examination. An allowance of 25s. a week may be paid to a married officer unable to obtain housing accommodation who has to maintain his family away from Bedford. Application forms from County Planning Officer, 61, High Street, Bedford to be returned by 16th May.

8601

MANCHESTER CORPORATION HOUSING COMMITTEE. Applications are invited from suitably qualified persons for the following positions:

ASSISTANT ARCHITECT, Grade A.P.T., VI (£670-£735 p.a.). (Must be a Registered Architect, and preference will be given to an Associate of the R.I.B.A.)

ASSISTANT QUANTITY SURVEYOR, Grade A.P.T., III (£525-£570 p.a.).

Candidates should forward particulars of age, qualification and experience to the Director of Housing, Town Hall, Manchester, 2, to be received by Saturday, 2nd May, 1953. Canvassing is prohibited.

8612

CANNOCK RURAL DISTRICT COUNCIL. APPOINTMENT OF QUANTITY SURVEYING ASSISTANT (GRADE A.P.T., VI-VII (£570- £785)).

Applications are invited for the above appointment on the permanent staff of the Engineer and Surveyor of the Cannock Rural District Council.

Applicants for the post should be fully capable of taking off and preparing Bills of Quantities for housing schemes, measuring builders' works, and checking and agreeing interim and final accounts, and should preferably have passed the Final Examination of the R.I.C.S. (Quantities Sub-Division).

The appointment will be subject to one month's notice on either side, to the provisions of National Joint Council Conditions of Service, and the Local Government Superannuation Act, 1937, and to the passing of a medical examination.

A travelling allowance in accordance with the National Joint Council Scale for casual users will be paid to the successful applicant for the post, who will be required to provide a car or motor-cycle.

Applications, giving full particulars of age, qualifications, experience, etc., together with copies of two recent testimonials, should reach the undersigned not later than Monday, 4th May, 1953.

JOHN P. ROBERTS,

Clerk of the Council.

Council Offices, Penkridge, Stafford.

15th April, 1953.

8610

HAMPSHIRE COUNTY COUNCIL.

Applications are invited for the appointment of TWO TECHNICAL ASSISTANTS, in the County Planning Department, on Grade III of the National Scales (£525-£570), to work in the Headquarters Office at Winchester and in the South-East Area Office at Fareham. Candidates should have passed the Intermediate Examination of the Town Planning Institute or of a related professional body, and have had experience in the Planning Department of a Local Planning Authority.

In the event of applicants being appointed who do not hold the appropriate qualification, appointments will be made at a suitable point in Grade I-II, pending the passing of the requisite examination. The appointments are pensionable and will be subject to satisfactory medical reports.

Officers using their own cars when travelling on County Council duties will receive travelling allowances on the County Scale for the time being in force.

In approved cases the County Council are prepared to assist newly appointed staff to meet removal expenses.

Applications, stating age, education, qualifications and experience, together with a copy of one testimonial and the names and addresses of two persons to whom reference may be made, should reach the County Planning Officer, Litton Lodge, Clifton Road, Winchester, not later than the 30th April.

8593

COUNTY BOROUGH OF WIGAN EDUCATION COMMITTEE.

CLERK OF WORKS.

The Governors of the St. John Fisher R.C. Secondary School invite applications for the post of Clerk of Works for the school, which is to be built at Springfield, Wigan.

Salary will be £14 per week. Applicants should be experienced in the erection of large public buildings of modern construction and should have a knowledge of reinforced concrete construction. They should also be experienced in the installation of engineering services, and be able to keep records of foundation work, drainage, and other work below ground.

Further details regarding this appointment, and conditions of service, may be obtained from the undersigned on sending a stamped addressed foolscap envelope. Completed applications should be returned not later than 4th May, 1953.

J. DEAN,

Clerk to the Governors.

12, Danesway, Wigan.

8599

OXFORDSHIRE COUNTY COUNCIL.

ASSISTANT ARCHITECTS. Salary: A.P. & T., Grade VI (£670-£735).

ASSISTANT ARCHITECTS. Salary: A.P. & T., Grade V (£595-£645).

Applications are invited for the above posts in the County Architect's Department. Applicants should have a sound knowledge of design and construction of Schools, and must be Associates of the R.I.B.A. The appointments are subject to the provisions of the Local Government Superannuation Act, 1937, and to medical examination.

Applications, stating age, experience, qualifications, and the names of two referees, are to be sent to the County Architect, Park End Street, Oxford, not later than the 4th May, 1953.

GERALD GALE BURKITT,

Clerk of the Council.

County Hall, Oxford.

8627

COUNTY BOROUGH OF EAST HAM. HOUSING DEPARTMENT.

TEMPORARY ARCHITECTURAL ASSISTANT, A.P.T., III.

(Salary: £525-£570 per annum, plus London weighting).

Applicants should have passed the Intermediate Examination of the R.I.B.A., and have had experience in the detailing of flats and houses. Further details and form of application (returnable by 4th May, 1953), obtainable from the Town Clerk, Town Hall, East Ham, E.6.

8613

NORFOLK COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.
 Applications are invited for permanent appointments of:—
 (a) ASSISTANT ARCHITECT. A.P.T., Grade V (£595-£645).
 (b) ARCHITECTURAL ASSISTANT. A.P.T., Grade III (£495-£570).
 Applicants for (a) must be Members of R.I.B.A. or hold equivalent qualifications, and for (b) at least of Intermediate status. Candidates must have a sound knowledge of design, construction and specifications.
 Local Government Superannuation Acts and National Joint Council conditions of service apply.
 Applications, stating age, training, experience, present appointment and salary, names of three referees (including present employer), by 5th May, 1953, to Mr. C. H. Thurston, L.R.I.B.A., F.R.I.C.S., County Architect, 27, Thorpe Road, Norwich. 8625

METROPOLITAN BOROUGH OF CAMBERWELL.
DEPARTMENT OF DIRECTOR OF HOUSING AND BOROUGH ARCHITECT.
 (a) SENIOR ASSISTANT ARCHITECT. National Scales, Grade A.P.T., VIII (£790-£865, inclusive of £30 London weighting). Qualification: A.R.I.B.A.
 (b) ASSISTANT ARCHITECTS, Grades A.P.T., VI (£700-£765 inclusive), or A.P.T., V/VI (£625-£765 inclusive), according to experience. Qualification: A.R.I.B.A.
 (c) JUNIOR ARCHITECT. Grades A.P.T., III/IV (£555-£630 inclusive). Qualification: R.I.B.A. Intermediate. Examination of its equivalent, with a minimum of one year in an architectural office.
 No housing provision. Local Superannuation Act. Application form from Town Clerk, Town Hall, Camberwell, S.E.5. Closing date: Wednesday, 13th May, 1953. 8626

SURREY COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.
 Applications are invited for the appointment of ASSISTANT ARCHITECT, Grade V, at a commencing salary of £595 per annum, rising by annual increments of £15, £20 to a maximum of £845 per annum, plus London allowance of up to £30 per annum, according to age.
 Preference will be given to applicants who are Associate Members of the Royal Institute of British Architects, and who have had a good training and an adequate experience in the design and construction of modern buildings.
 The appointment will be subject to the provisions of the Local Government Act, 1937, and the successful applicant will be required to pass a medical examination.
 Applications, stating age, qualifications and experience, and accompanied by copies of three recent testimonials, should be sent to The County Architect, Surrey County Council, County Hall, Kingston-upon-Thames, not later than the 9th May, 1953.
 Canvassing, either directly or indirectly, will disqualify a candidate for consideration.
 The Council will be unable to provide any housing accommodation, and the successful applicant will be expected to make his own arrangements in this direction.
 W. W. RUFF, Clerk of the Council. 8641
 County Hall, Kingston-upon-Thames.

STAFFORDSHIRE COUNTY COUNCIL.
COUNTY PLANNING AND DEVELOPMENT DEPARTMENT.
 Applications are invited for the appointment of ASSISTANT PLANNING OFFICER (DEVELOPMENT) on Grade D of the Joint Negotiating Committees' Scales (£1,150-£1,350 p.a.) at the Headquarters Office of the above Department at Stafford.
 The person appointed will be mainly engaged on the implementation of the County Development Plan, and particularly on the carrying into effect of the County's Overspill Scheme for redistribution of housing and industry. He should have sound administrative and technical ability and have had experience in large scale housing development projects of local authorities, and in handling negotiations. The officer should be fully experienced in local government administration, committee procedure, and in dealing with staff.
 Candidates should have a recognised qualification in Architecture, Engineering or Surveying, and an additional qualification in Planning will be an advantage.
 The appointments will be subject to the provisions of the Local Government Superannuation Act, 1937; the passing of a medical examination, and to three months' notice on either side.
 Canvassing, directly or indirectly, will be deemed a disqualification, and relationship to any member or senior officer of the County Council must be disclosed.
 Applicants should give details of age, education, qualifications, present and previous appointments and experience, and should give the names of two persons to whom reference could be made. Applications should be sent to D. W. Riley, County Planning and Development Officer, 41A, Eastgate Street, Stafford, not later than the 9th May, 1953.
 T. H. EVANS, Clerk of the County Council. 8638

NORTH RIDING EDUCATION COMMITTEE.
 Vacancy for DEPUTY ARCHITECT, Grade A.P.T., IX. Salary scale: £815-£480-£935. Car, travelling and subsistence allowances. Local Government Superannuation Act. Send stamped envelope for form and particulars. Closing date for applications, 9th May, 1953. Canvassing disqualifies.
 F. BARRACLOUGH, 8608
 County Hall, Northallerton.

PADDINGTON M.B.C. require JUNIOR ARCHITECTURAL ASSISTANT (A.P.T., I, £495-£515-£540 p.a.) (£10 less if under 26). Candidates should be preparing for Inter. R.I.B.A., be used to preparing working drawings, and be good draughtsmen. N.J.C. conditions, superannuation, one month's notice. Write age, qualifications, experience, names, and addresses of three referees, to Town Clerk (A.112), Paddington, W.2, by 28th April, 1953. 8611

URBAN DISTRICT COUNCIL OF ABERCARN.
ARCHITECT'S DEPARTMENT.
QUANTITY SURVEYING ASSISTANT.
 Applications are invited for the appointment of Quantity Surveying Assistant in the Architect's Department. Applicants should be competent to assist in preparing bills of quantities, Interim Valuations and Final Accounts for houses and site works, and to analyse expenditure on maintenance works.
 Housing accommodation will be offered the successful applicant, if required. The appointment is superannuable, and will be terminable by one month's notice on either side. The person appointed must devote the whole of his time to the duties of the office. The salary payable will be in accordance with Grade A.P.T., V, of the National Scales of Salaries (£495-£515-£545).
 Applications, stating age, qualifications, present and previous appointments, and giving names of three persons to whom reference can be made, to be sent to the undersigned not later than Monday, the 11th May.
 Canvassing in any form will disqualify, and applicants must disclose whether they are related to any member or senior officer of the Council.
 LEON KING, Clerk of the Council. 8600
 Council Offices, Abercarn, Mon. 14th April, 1953.

BRITISH ELECTRICITY AUTHORITY.
EAST MIDLANDS DIVISION.
 Applications are invited for the following positions within the Division:—
 CIVIL ENGINEERING DRAUGHTSMEN,
 Construction Department, North Wilford.
 (vacancy no. 22/50.)
 Candidates should have experience in design and detail of reinforced concrete structures, piled and slab foundations or heavy piers, culverts, cable suways, etc., for general building construction, drainage and sanitation schemes, associated with offices and administrative buildings.
 The salary will be in accordance with Grade V (£507-£611 per annum) or Grade VI (£433-£567 per annum) of Schedule D of the National Joint Board Agreement.
 DRAUGHTSMAN, Transmission Department, Divisional Headquarters, Nottingham. (Vacancy No. 42/53.)
 Candidates should preferably have had experience in one or more of the following:—Design and construction of High Voltage Sub-stations or overhead Transmission Lines and underground cable systems. Civil Engineering, Electrical Engineering, including lay-outs and Diagrams for H.V. Transformers and Switchgear.
 Salary and conditions of service will be in accordance with the National Joint Board Agreement, Grade VI of Schedule D (£433-£567 per annum), according to qualifications and experience.
 Closing date for this appointment will be the 4th May, 1953.

ENGINEERING DRAUGHTSMEN (MECHANICAL), Construction Department, North Wilford. (Vacancy No. 44/53.)
 Senior Draughtsmen are required in the Mechanical section of the Construction Department at North Wilford Power Station. Candidates should have experience in one or more of the following:—
 (i) Design and layout of Power Station equipment, including Turbo-Alternators, Boiler Plant, Coal and Ash Plant, and General Station Auxiliaries.
 (ii) H.P. and L.P. Steam and Feed Pipework. Condensing plant and feed heating systems.
 (iii) Conveyor plant, coal handling systems, and material handling of static auxiliary equipment.
 Salary and conditions of service will be in accordance with the National Joint Board Agreement, Grade V (£507-£611 per annum) and Grade VI (£433-£567 per annum) of Schedule D, according to experience.
 Closing date for this appointment will be the 4th May, 1953.
 The above appointments will be pensionable, within the provisions of the British Electricity Authority and Area Boards Superannuation Scheme.
 Applications should be submitted on the official form, which may be obtained from the Divisional Establishments Officer, British Electricity Authority, Barker Gate, Nottingham, and should be returned to the undersigned by the dates stated. Please quote Vacancy number.
 L. F. JEFFREY, Divisional Controller. 8639

OXFORDSHIRE COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.
 The address of this Department with effect from 22 April, 1953, will be:
 PARK END STREET OFFICES, OXFORD.
 Telephone: Oxford 48681.
 GERALD GALE BURKITT, Clerk of the Council. 8637

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.
 Applications are invited for the following appointments in the normal Housing and Flats Sub-Sections of the City Architect's Department:—
 (a) SENIOR ASSISTANT ARCHITECT. A.P.T. Division, Grade VII (£710-£785).
 (b) SENIOR ASSISTANT ARCHITECT. A.P.T. Division, Grade VI (£570-£735).
 (c) ASSISTANT ARCHITECT. A.P.T. Division, Grade IV (£555-£600).
 Candidates for appointments (a) and (b) should be Associates, R.I.B.A., having considerable experience, and all applicants should possess marked ability in the design and construction of contemporary buildings.
 The present work of the Sections includes the development of large housing neighbourhoods, with the probability that the intensive redevelopment of sites in central areas will become increasingly important.
 The appointments will be subject to the National Conditions of Service as adopted by the City Council, to the provisions of the Local Government Superannuation Act, 1937, and to one month's notice on either side. Successful candidates will be required to pass a medical examination.
 Applications, stating position applied for, age, particulars of training, qualifications, experience, present and past appointments, together with copies of two recent testimonials or the names and addresses of two persons to whom reference may be made, should be addressed to George Keayon, A.R.I.B.A., A.M.T.P.I., City Architect, 18, Cloth Market, Newcastle-upon-Tyne, 1, not later than Saturday, the 9th May, 1953.
 JOHN ATKINSON, Town Clerk. 8640
 Town Hall, Newcastle-upon-Tyne, 1. 17th April, 1953.

Sale by Auction
 6 lines or under, 12s. 6d.; each additional line, 2s.
WEST SUSSEX.—Norfolk Cottage, Bury, near Pulborough. Within easy daily reach of London by rail. Attractive Period Cottage, situated in favoured and unspoiled village providing unusual opportunity for modernisation and improvement. Living Room, Two Sitting Rooms, Large Larder, Scullery, Three Bedrooms, Garage. Fine old barn also affording opportunities for conversion. Main services available. Garden. Vacant possession. By auction at Pulborough, previously sold, Monday, 18th May, 1953. Solicitors: Messrs. Warren & Co., 186, Streatham High Road, London, S.W.16. Auctioneers: Messrs. Jackson-Stops & Staff, 37, South Street, Chichester (Tel. 2633/4). 8591

Architectural Appointments Vacant
 4 lines or under, 7s. 6d.; each additional line, 2s.
 The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she is, or the woman is, exempted from the provisions of the Notification of Vacancies Order, 1952.

ARCHITECTURAL ASSISTANT required:
 either fully qualified or approaching final examination. Mixed practice, mainly commercial and industrial. Watson, Johnson Stokes, Victoria Square, Birmingham, 2. 8471

ASSISTANT required. Inter. standard, in North Devon office. General practice. State salary required. Oliver & Dyer, The Strand, Barnstaple. 8558

SENIOR ARCHITECTURAL ASSISTANTS
 required immediately in Hammersmith Head Office. Work will entail the preparation of working drawings and details for contracts involving Multi-Storey Flats, at home and abroad. Salaries, ranging from £600 to £750 per annum according to experience. Applications, giving brief particulars of experience and qualifications, to Staff Architect, George Wimpey & Co., Limited, 27, Hammersmith Grove, London, W.6. 8541

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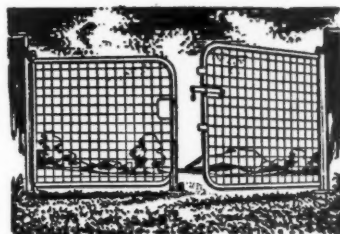
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