

THE ARCHITECTS' JOURNAL & *Architectural Engineer*

With which is incorporated "The Builders' Journal."



FROM AN ARCHITECT'S NOTEBOOK.

ROME—A MEMORY.

"I see . . . the Palatine by moonlight; the moon streaming on all the thousand fragments, and the few large plinths of the Forum; and Vernon Lee saying that moonlight on the Palatine sounded like a stage direction in a play of Shelley's; and I see the marbles coloured like some pale sea-weed in Santa Maria in Cosmedin, and the peep at St. Peter's, through the keyhole of one of the college gardens, and the fountains in the moonlight on the top of the hill, as you drive from the station, the fountain of Trevi into which I threw a penny, wishing that I might come back to Rome, one day, but not as a diplomat."

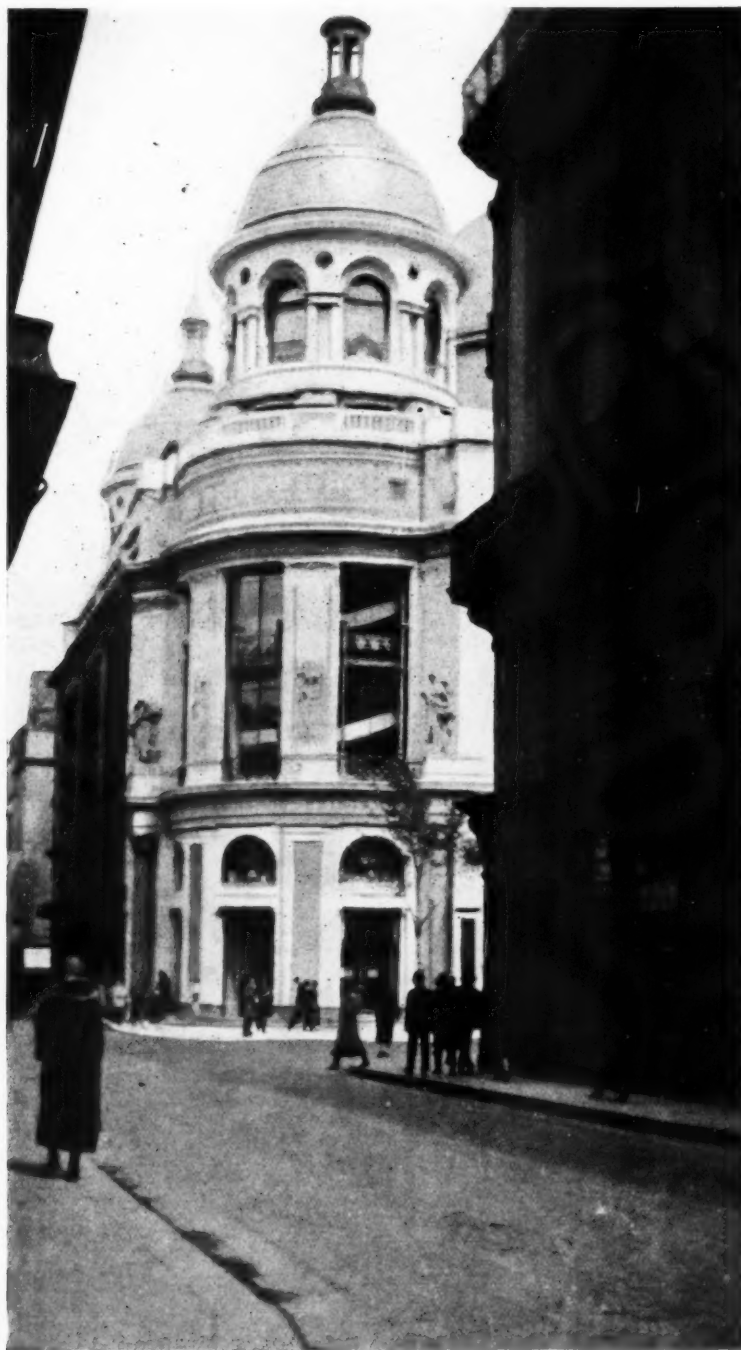
MAURICE BARING:

"The Puppet Show of Memory."

27-29 Tothill Street, Westminster, S.W.1.

The Magasins du Printemps, Paris : A Detail of one of the Angles

René Binet, Architect



The great block of the Magasins du Printemps which was destroyed by fire about two years ago, has been re-built to the designs of M. René Binet. The photograph above shows a detail of one of the angle entrances towards Boulevard Haussmann.

THE ARCHITECTS' JOURNAL

27-29 Tothill Street, Westminster, S.W.1.

Wednesday, September 3, 1924.

Volume LX. No. 1548.

Unrest in the Building Industry

Wanted: A New Spirit

SOME comment upon the correspondence elicited by our recent leading article on the building strike is called for, especially as our remarks have been, in some instances, palpably misinterpreted or misrepresented.

Mr. Elvins, in his letter which we published last week, suggested that we were wrong in saying that the master builders' organizations suffered from an excess of officialdom, and pointed to the small number of persons engaged in organization and propaganda work. It should be obvious that officialdom and officiousness have nothing to do with the *number* of officials employed. He observed, further, that it was illogical to say that employers may be imbued with good feeling individually, yet show an entirely different spirit as a body. Mr. Elvins apparently knows nothing of mass psychology nor of the tendency among organizations of men for the stronger or more vocal personalities to predominate.

"Human nature being what it is" (says Mr. Elvins on another point), "the suggestion that the already complaining public would willingly pay more for their building work if they knew the additional cost was going to the operatives is altogether too altruistic." Our suggestion, however, was that the trade itself should bear the cost of any scheme of insurance against bad weather. To quote our exact words: "If it can bear the cost of its non-productive trade unions and master builders' organizations, it ought to be able to support a scheme of insurance for its workers." And why not? Let the funds (or some part of them) that are at present wasted in useless fighting be devoted to a constructive and useful purpose.

Our leader has elicited the gratifying information that real consideration has been given to the problem of loss of work through bad weather. Neither side, apparently, has been able to bring forward any tangible scheme of amelioration as yet. If the Press had been kept informed of the progress of efforts in this respect the whole trade would have been presented in a more favourable light, and would have escaped a good deal of adverse criticism, both from the architectural profession and the public.

The reply of the Press Committee of the master builders to our leader is concerned mainly with the etiquette of publishing a critical article during the progress of negotiations. We suppose it is natural, in a measure, that, when two organized parties are engaged in a dispute, they should forget that others are also directly concerned in it. But it is a mistake for master builders' or labour organizations to regard the architectural profession as a body of men apart from a dispute in the building trade. Obviously architects

were vitally concerned in this dispute, both personally and as the agents of their clients, whose interests were very gravely affected. We wonder what attitude the recent disputants would take up if, were it possible, the building trade were brought to a standstill through a quarrel between architects and their assistants. Would the builders—masters or men—be content to sit idle while the dispute dragged on week after week?

In view of the still rather unsettled conditions of the building trade, we do not propose at this juncture to deal with the subject further. We shall, however, return to it, for, with the majority of those who have any real knowledge of building trade conditions, we are convinced that lasting peace can be only secured by stabilizing the conditions of employment. There is too much concern with hours and wages and too little with working conditions and output.

The main purpose of our leader was to suggest a new attitude towards disputes in the building trade, and it is interesting to note that within a few days of the appearance of the article the strike was brought to an end. It was palpable that plain speaking was needed, and although we have information that legal action against us was contemplated, that some of our advertisers were approached with the suggestion that a protest should be sent to us, and note also that some papers of the general Press have quoted our article in a party spirit, we shall not be deterred from expressing our views on this matter or on any other that may have injurious consequences for the architectural profession.

In connection with the recent dispute, we were glad to notice in "The Manchester City News," a letter by Mr. Ernest Ogden, Licentiate R.I.B.A. It is worth quoting from here as it deals with the questions which we discussed in our recent leader, and offers a specific remedy for loss of time due to inclement weather. "Let every architect or surveyor inviting tenders from federated builders" (says Mr. Ogden), "boldly put a clause at the end of his bill of quantities stating that one per cent. must be added to the tender to cover this ('wet time'), and as each certificate for payment on account is made, the proportionate sum of one per cent. be handed over by the builders out of such payment to the trade unions, who should open a joint special fund for dealing with this branch, and also add a levy of a similar amount themselves. The question of whatever may be due to the men can easily be arrived at by the trade union's officials, as they have all the jobs and information in every district to assist them, and as time goes on the amount of one per cent. can be

adjusted as may be found fair and equitable. All day work would, of course, be subject to a similar pro rata amount.

"In fixing the amount at one per cent. I have gone very carefully into the matter, and this was in my opinion ample to meet the loss on wet time, together with a similar amount of one per cent. provided by the trade unions."

Mr. Ogden's suggestion carries weight by reason of the fact that it comes from an architect of over twenty years' practical experience of building trade conditions. As we have already made clear, we are not in sympathy with any scheme that proposes to pass on to the public the cost of an insurance that should rightly be borne by the trade itself, though if one per cent. could be regarded as a sufficient charge the generality of building owners might not be disposed to cavil at it. Be that as it may, Mr. Ogden's suggestion is one of considerable interest, and its possibilities should be thoroughly explored. We should welcome the views of our readers upon the whole question, for until it is satisfactorily settled there can be little certainty of peace and prosperity for the building community.

Conscious or Unconscious Repetition?

Proverbially history repeats itself, in architecture no less than in other respects. Sometimes the repetition is deliberate, as when, for example, we find a modern club taking the exact form of an Italian Renaissance palace. At other times it has the appearance of being unconscious, and we talk sagaciously of coincidence or of change that remains always the same. It would be extremely interesting to know what was in the mind of the French engineer when he designed the great airship hangar at Orly, of which we publish some illustrations in this issue. Did he say to himself: "I will devise a form of building that shall be exactly suited to the purpose of housing an airship. It shall be of a shape such as this world has never seen before. It shall be modern. Away with all traditional forms; the modern designer has no use for them." Or did he say to himself: "I seem to remember an historical arch that takes exactly the form that is best suited to the shelter of my 'blimp.' I will build a reproduction—two reproductions, in fact—of the Arch of Ctesiphon." Whatever he thought he has succeeded in producing a very striking imitation of the famous arch. If it were done unconsciously, this is a distinct score for the traditionalists, who tell us that architectural form has been invented for all time, and that there can never be anything new.

Symmetry and Function

In the course of an article which he recently wrote for this JOURNAL, a valued contributor expressed by implication some disapproval of the current practice, in the design of small houses, of preserving an external symmetrical shape by balancing the garage with the loggia, or the pergola with the potting-plus-tool shed. Absolute symmetry in small houses may or may not be desirable according to individual outlook. To some good people, symmetry is anathema in any case. They point to the irregularities of nature and ask why we should wish to ignore natural precedent. Yet nature can be regular enough at times, and even if she were not, man, since he is an inventive creature, would still be justified in conventionalizing her forms. The orderly mind is satisfied only with an orderly arrangement of forms; odd projections and angles, tortured roof shapes, irregular window openings, "loose ends" of any kind, are abhorrent to it. The Procrustean method of inducing uniformity, especially in the case of small work, such as country cottages, may not be entirely desirable, but it is preferable to loose irregularity. A symmetrical shape seems to function better than one that is not, and usually it will be found to be more economical. The steam locomotive, the motor-car, the ship—all combine symmetry with functional perfection. The combined motor cycle and side-car, on the contrary, is a mechanical monstrosity, and the eccentric strains which it suffers are entirely due to lack of symmetry

in construction. It is palpably wrong to the eye. You realize instinctively that the irregular wheel-base is setting up stresses that must affect the efficiency of the machine. Persons of orderly mind must have had exactly this same sensation when contemplating an irregularly planned house. It seems to function badly. From the point of view of abstract design, there is much more satisfaction in mastering your shapes than in allowing your shapes to master you. We would not wish the symmetricalists to be discouraged. Let them preserve their peace of mind even if it does mean balancing the pergola with the tool-shed.

The Man and the Plan

The Londoner returning from the Continent may be sadly discontented with the architecture of his native city, but one feature of its familiar scenery will please him, and that is its narrow streets. Not, of course, from the spectacular point of view; merely from that of personal safety. He will admire the immense open spaces of the Continental cities—Paris, for example—so long as he contemplates them from a place of safety, but he will have very different emotions when he essays to cross their aching expanses, with never a refuge in sight and fleets of threatening taxicabs bearing swiftly upon him. Continental town planning is magnificent, but it is menacing. The narrow canons of Cannon Street or Cornhill may not be much to look at, but, crossing them in a few rapid strides, the Londoner blesses the fate that decreed that Haussmann should be born a Frenchman.

The Home Counties and Town Planning

Mr. Basil Holmes, the Secretary of the Metropolitan Public Gardens Association, writes to "The Times" to commend the action of the Middlesex County Council in encouraging its rural and urban authorities to provide open spaces among their rapidly-developing areas. During a period of twenty years, by the joint action of county and local bodies, about 1,900 acres of open space have been acquired in over 100 separate areas at a cost of about £920,000, the grants made by the County Council being about £230,000. "Never," says Mr. Holmes, "was money better invested for the health and welfare of the inhabitants, and it would be a most excellent thing if other county councils would follow in the same line. But I am not aware (save, of course, in the case of London) that they have initiated any definite open-space policy. It is very necessary to remember that rural areas may soon become urban, hence the necessity of looking ahead while land is cheap." This is a timely reminder. The Home Counties are being built over at an alarming rate, and if no action is taken we must expect to see the indefinite expansion of suburbia into the green fields of the country. The mere acquisition of land for open spaces is not enough. The problem is too big for piecemeal handling. We want a development scheme for the whole of the Home Counties, a scheme that will anticipate the requirements of expansion for the next hundred years. The county councils must appoint their town-planning experts without delay if the blunders of a century ago are to be avoided.

Testing Westminster Bridge

Modern scientific methods of testing bridges were interestingly demonstrated at Westminster last week, when a party of experts assembled armed with theodolites, tenso-meters, photographic film, refecters, pendulums, and other esoteric apparatus. Tension, compression, stress, and vibration tests were made, while traffic was held up for some fifteen minutes. The results are not yet known, but the experts say there is no special anxiety about the bridge; they wished to find out the exact effect of the increased weight and speed of traffic since the bridge was tested about ten years ago. For all that, Westminster Bridge is carrying excessively heavy loads, and there can be no real peace of mind until some part of the burden is transferred to new bridges.

A Town House by Robert Adam

The Redecoration of Chandos House

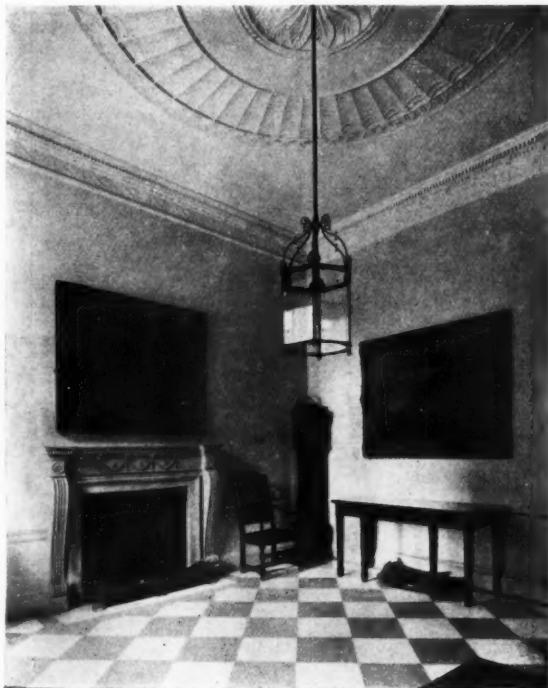
IF fairies lived in houses, Robert Adam would no doubt have been appointed their architect. As things are, Robert Adam probably petitioned the fairies to help him in his work. For certainly his designs for interiors have about them all the simplicity and naturalness which we associate with fairies—or little children. Those delicate floral wreaths on ceilings, the spider-web *motifs* on cornice or frieze, seem to be the daisy chains of childhood, or the patterns made by Jack Frost which we loved to find on the pane.

Chandos House is a typical London house by Robert Adam. A highly important group of three town houses, Chandos House, Chandos Street (1771); Sir Watkin Williams-Wynn's house, No. 20 St. James's Square (1772); and Derby House, No. 23 Grosvenor Square (1773), form an ascending series of high importance and value, one which illuminates the development of Robert Adam's ideas in house-planning and decoration. Chandos House, the first of the three (writes Mr. Arthur Bolton in the second of his two monumental volumes on the work of the brothers Adam), was built for James, third and last Duke of Buckingham and Chandos. It remained for long in the family, being left to Earl Temple, the duke's nephew, and in 1813 the Duchess of Chandos was still living in the house. Chandos House was sold by her executors in May, 1815, and the sale particulars are in the Soane Museum. The lease is described as for fifty-two years unexpired, from Michaelmas, 1814, the ground rent being £77 per annum. Prince Esterhazy, the Austrian Ambassador, was living in the house in 1817. At this time the house had a large garden plot with "a frontage of 75 ft. to that elegant continuation of Portland Place, called Langham Place, the said plot 112 ft. deep." There was also a large block of offices,

including stabling for twelve horses, and four coach-houses. The adjoining house on the left was the large mansion built by Adam in 1779 for General Clerk. The actual surroundings of Chandos House have, therefore, been a good deal changed since its erection.

The house is comparatively little altered inside, and the redecoration, which was carried out under the direction of Messrs. Mewès and Davis, consisted for the most part of restoring; where any additions had to be made, the original work was faithfully copied. The date of the building may be taken as about 1770, when Mansfield Street was laid out. James Adam, in fact, appears in the rate book of 1771 as paying the covered-in rate of 4d. on No. 1 Queen Street West, the original title of the house. In the "White" survey map of 1797-99 the name on the site-plot is still James Adam, which looks as though the Chandos family had only a long lease. There are six drawings for ceilings, dated 1771 in the Soane collection, which agree with those still existing at Chandos House. Three lead cisterns, dated 1774, having coronets, paterae, and an interlaced pattern cast upon their fronts are preserved in the house. Chandos House is, therefore, two years earlier than No. 20 St. James's Square, which is dated 1772. The correspondence of sizes in the plans of the two houses is quite close, but the later example is better distributed and proportioned. Adam's ideas were carried still further at Derby House in Grosvenor Square, dated a year later.

The elevation of Chandos House is extremely simple; the main interest is concentrated on the unique porch with its fine metalwork, which is exceptionally intact. Entering a very pleasant and simple hall, square instead of oblong, as in the later plan of the house in St. James's Square, the ceiling attracts attention as well as the bold stone



THE ENTRANCE HALL.



THE STAIRCASE FROM THE LANDING.

Photos: Bedford Lemere.

mantelpiece, with its long consoles and frieze. The three swags dependent from four lions' heads are grouped in an unusual disposition. The staircase carries on the same simplicity, the walls are not panelled, and the chief features are the Ionic loggia at the level of the second floor and the circular skylight surrounded by Adam decoration. The lighting is ample, and helps to produce the fine sense of space that is afforded by this admirable staircase hall. The small niche on the ground floor is an early trial of the apsidal development which became so fine a feature at No. 20 St. James's Square. In fact, in the later house the space given to the staircase has been increased by about 7 ft. in length, while the width is lessened by 4 ft., resulting in a better proportion.

The front room on the ground floor towards the street has a ceiling which rather harks back to the early Shardeloes manner, while the columned end recalls the ante-room at Lansdowne House. The walls are somewhat heavily panelled above a plain dado. The marble mantelpiece has a good centre table with a sacrificial subject. The columned recess here takes the place of the apse, introduced in the other house with the same object—that of reducing the great depth of the room.

The apartment behind has a large segmental window. This ceiling also has the free scrolls characteristic of the earlier work. The marble mantelpiece is a good specimen of Adam's capacity for ornamentation, independent of "Order" treatment. The frieze below the cornice of the room has a curious ogce section, quite an Egyptian idea.

A door at the far end on the left leads to the present dining-room, which was originally the library; this room

has now the exceptional length of 45 ft., because the original study behind has been absorbed. The distribution suggests that Adam intended to treat one end of the library with a screen of columns in his favourite manner. The coffering of the beams in fact, as set out in the soffit, agrees with the idea that the original columns have been taken away. The mantelpiece is a fine combination of golden Sienna marbles on a white ground. The ceiling has been altered, no doubt when the two rooms were united. There is no drawing for the ceiling of this room in the Soane collection.

On the first floor the three front rooms are of the same dimensions as those below. The morning-room, or boudoir, over the hall, is a very pleasant apartment. The principal drawing-room adjoining has a good ceiling and mantelpiece. The walls have the same heavy panel mouldings noticed in the room below. It seems reasonable to suppose that they were set out for a series of family portraits or other paintings. A central door leads into the back room, where the ceiling is of particular interest. The Angelica Kauffman paintings in the medallions bear her signature.

From this room the bedchamber and dressing-rooms were reached, beyond which again were the powdering closet and a service stairs. This suite exactly occupies the back wing, and the planning is on the same lines as at No. 20 St. James's Square.

Both of these rooms have the earlier deep cove treatment of the ceiling. The bedchamber, having a large pilastered Venetian window, is a very cheerful interior. There is a good mantelpiece in marble, with console brackets and a basket of fruit in low relief on the central tablet of the frieze.



THE GREEN ROOM.

Photo: Belford Lemere.

A TOWN HOUSE BY ROBERT ADAM: CHANDOS HOUSE, LONDON.

A Town House by Robert Adam. Chandos House, London: The Front Drawing-Room

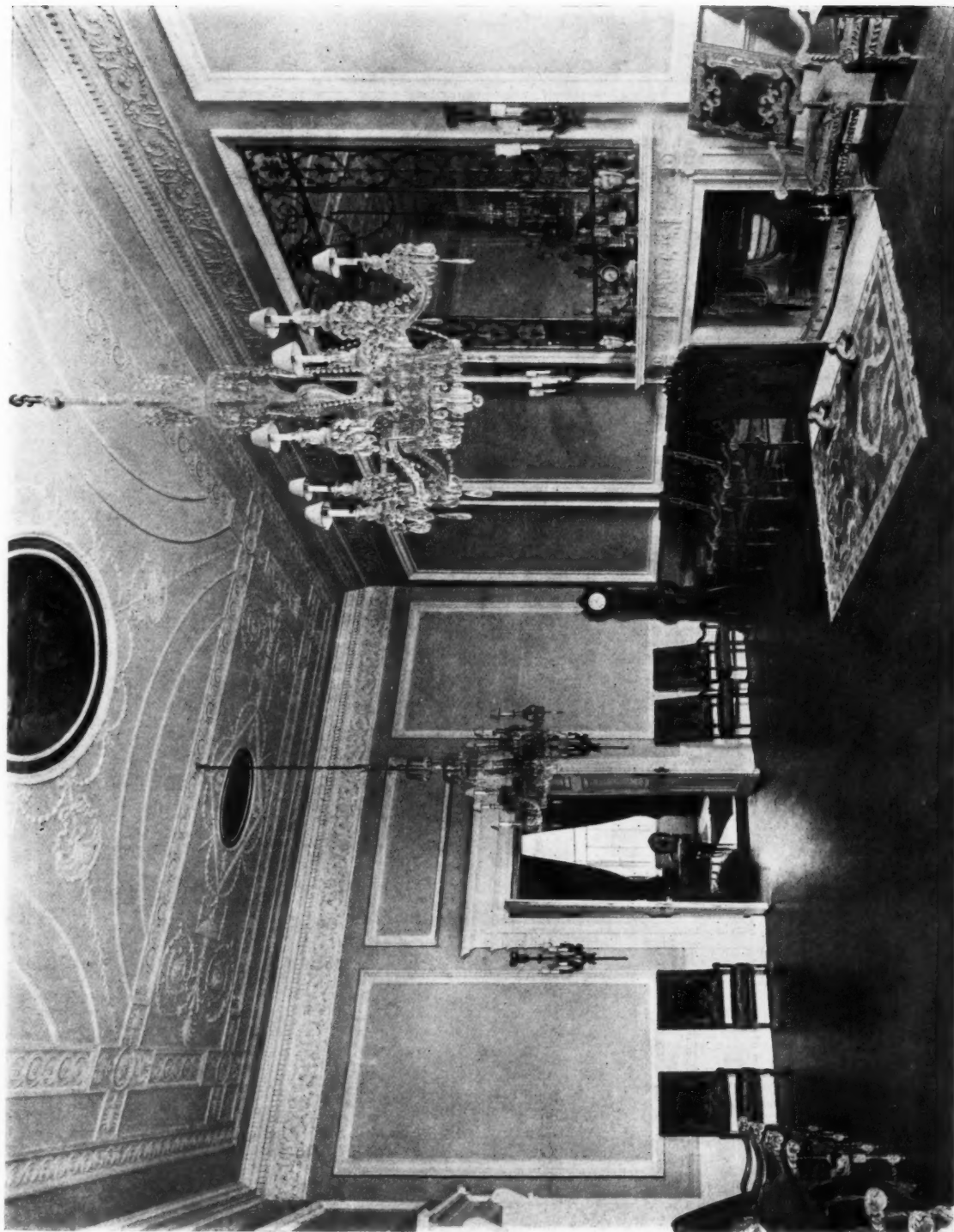
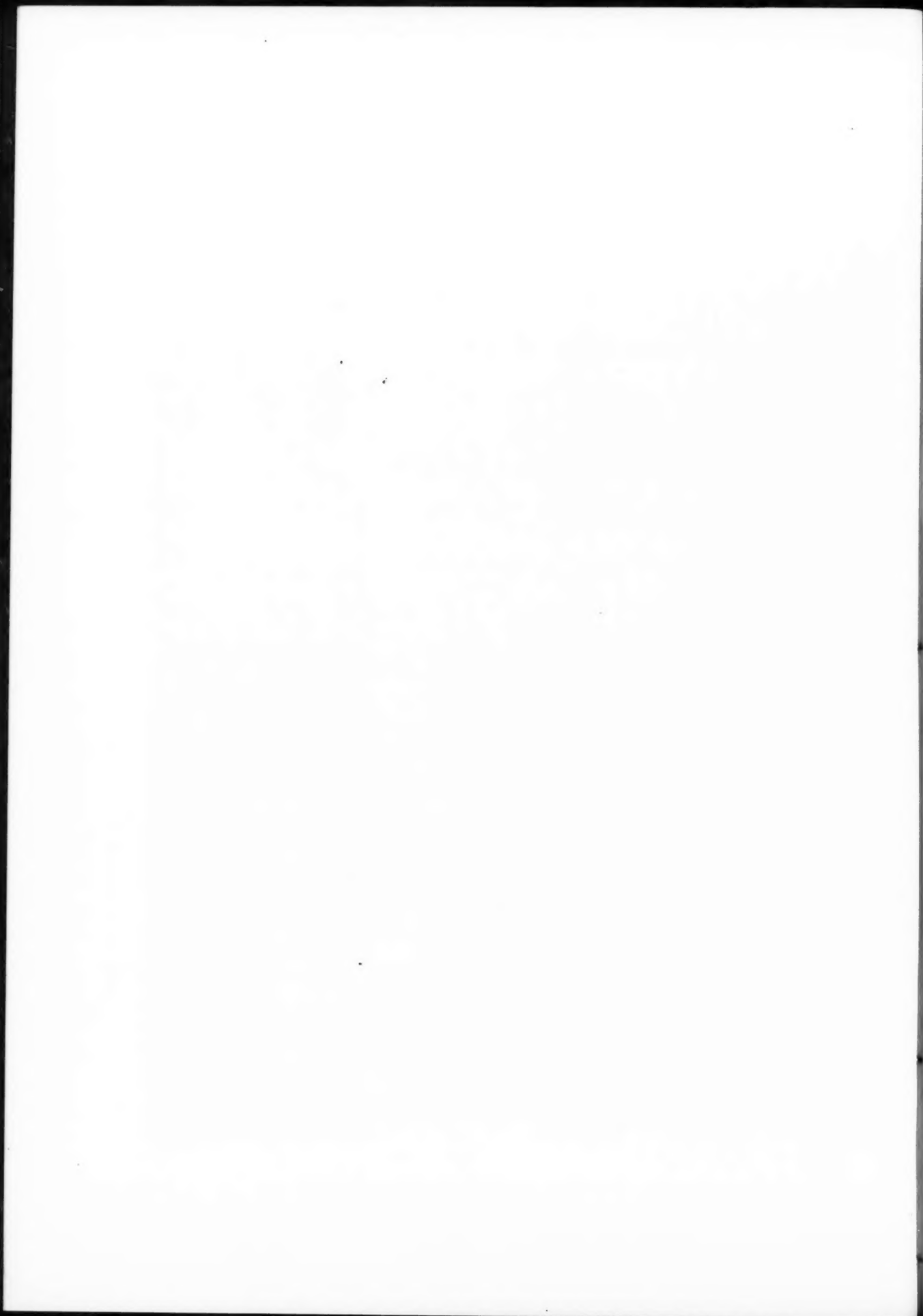


Photo: Bedford Levere.
 "The front room on the ground floor towards the street has a ceiling which rather harks back to the early Shadlowes manner. . . . The walls are somewhat heavily panelled above a plain dado. The marble mantelpiece has a good centre table with a sacrificial subject."



A Town House by Robert Adam. Chandos House, London : The Morning Room

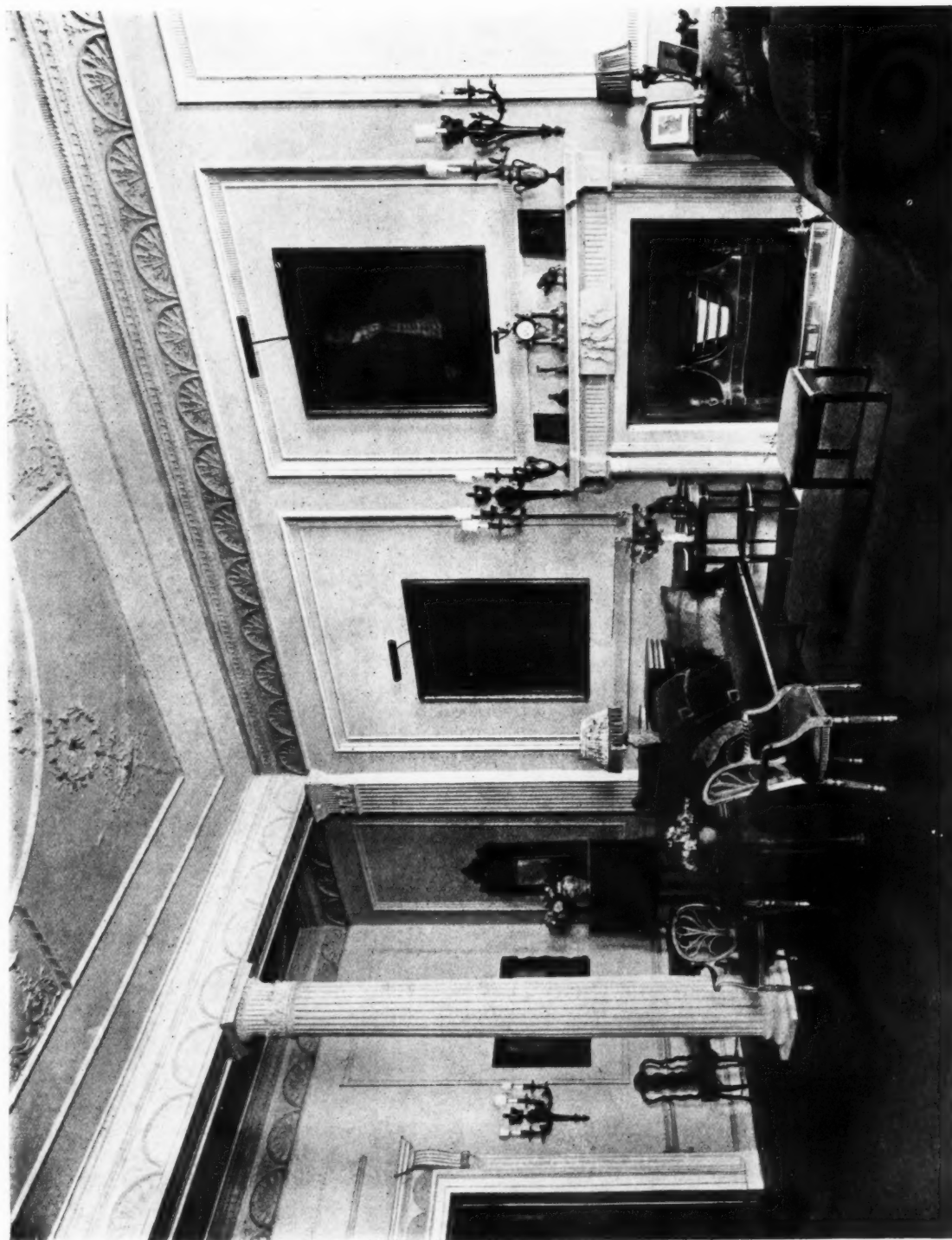
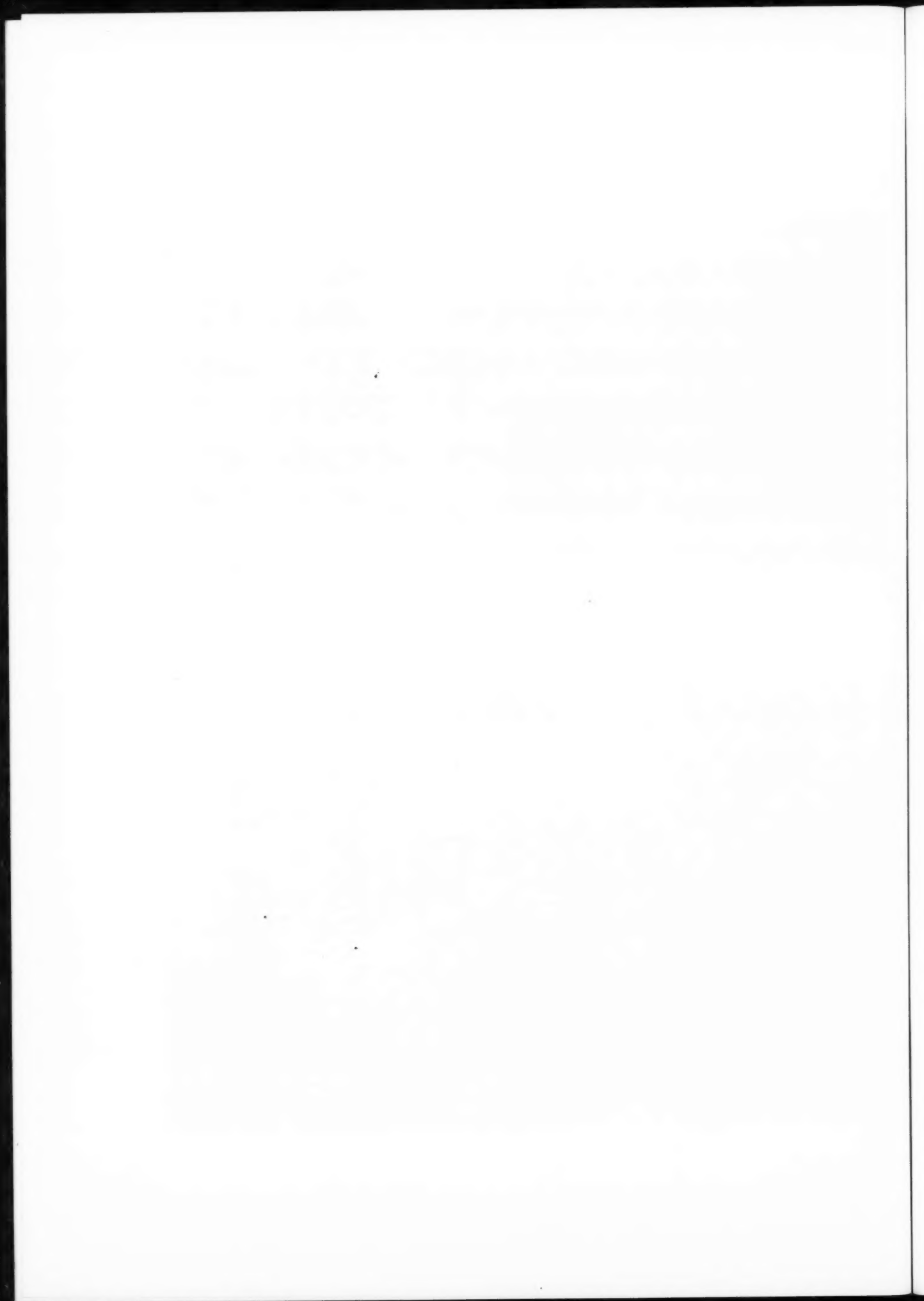
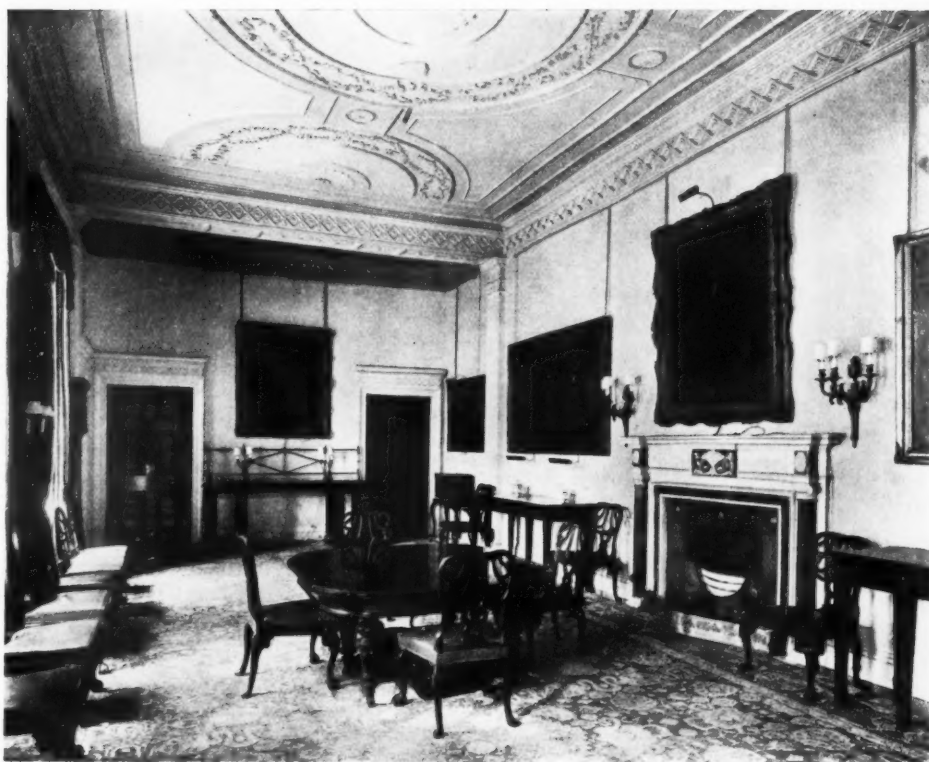


Photo: Bedford Lemere.

"The morning room, or boudoir, is on the first floor, over the hall." Much of the furniture, of course, is not contemporary.





THE DINING ROOM.



THE BACK DRAWING ROOM.

Photos: Belford Lemaire.

A TOWN HOUSE BY ROBERT ADAM: CHANDOS HOUSE, LONDON.

Architects' Own Homes—7

Mr. C. B. Willcocks's House, "Willstead," Caversham Heights, Reading



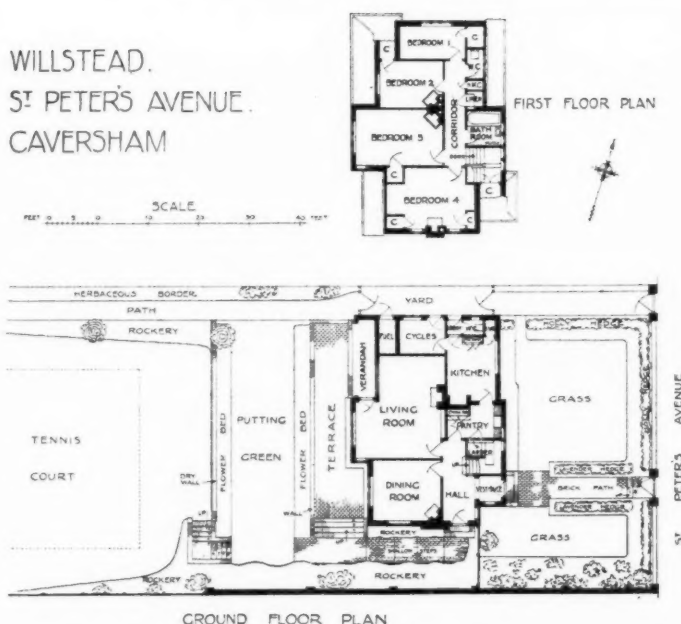
THE GARDEN SIDE.

"WE make our buildings, and afterwards they make us. They regulate the course of our lives." Thus Mr. Winston Churchill, at the Architectural Association, a little while ago. A dictum which is rather the reverse of what Viollet le Duc would have us believe—that a building reflects the character of its inhabitants—but perhaps both are true. We have certainly seen dogs that have grown like their masters and, though more rarely, masters that have grown like their dogs. In some very special instance, dog, master, and house have, after long acquaintance, each with each, all become as one.

The architect designing his own house is in a better position than most people to make himself part of his home: and every corner in his house should have some counterpart corner in his heart or mind.

We recollect one of Mr. Hardy's poems in which he dwells, with irony, upon how fine houses are often occupied by vulgar people, and fine people are often to be found living their lives within vulgar houses. Indeed we quoted one or two verses from it

WILLSTEAD.
ST PETER'S AVENUE.
CAVERSHAM





THE ENTRANCE FRONT.

in the first article of this series. Why such things are, can be explained. *It is the inequality of the human intellect.* Where shall you find the great musician with a great appreciation of architecture? Where the poet? Where the mathematician? Where the successful business man? Where the brilliant preacher? Where shall you find the great architect with a knowledge of all these in return? But even so, Mr. Hardy's poem is based on what is only half a truth, and if the refinement or the vulgarity of the inmates is not apparent from the façade, at least it will be discerned within. In the drawing-room, in the dining-room, in the study will their character be reflected; it will be as if they had spoken whole sentences—without saying a word.

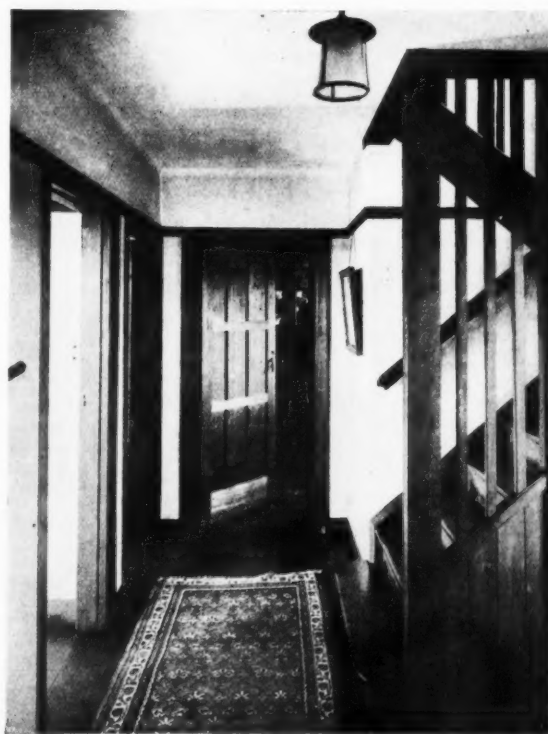
This small labour-saving house—the seventh to be illustrated in our series of Architects' Own Homes—was built by the architect for his own occupation in 1914, and was begun just before the outbreak of the War.

The accommodation, as will be seen from the plan, consists of one good-sized living-room with a veranda, a small dining-room, and four bedrooms. Space has been left on the south end of the building for future additions.

The site on which the house is built slopes towards the



THE LIVING-ROOM.



THE HALL, ENTRANCE.

"WILLSTEAD," CAVERSHAM HEIGHTS, READING.

west, affording picturesque views across a small valley, and advantage has been taken of the slope for laying out the gardens on a series of terraces. The upper terrace near the house is paved with old bricks.

The original site was about one-third of an acre. Eighteen months ago an additional three-quarters of an acre at the rear of the site, facing on to a new road, was obtained. On this was built a garage, and space for a hard tennis court was found.

The house is faced externally with Higgs' (Reading)

multi-coloured dark-red bricks, and the roof is covered with Brewerton's (Caversham) Old English tiles.

Internally, all walls are finished with a plastered wood-floated surface, and all joinery is stained with "Uleto."

The dining-room, living-room, and hall floors are of Austrian oak.

The house is wired for electric light, heating and cooking.

The contractor for the house was Mr. F. Robinson of Caversham. The garage was built by Messrs. Dean and Sons, of Reading.

New Pavilion at Bisley for the National Rifle Association

ELGOOD and HASTIE, Architects

VISITORS to the Bisley meeting this year had a pleasant surprise when, after a tiring time spent on the ranges, they turned to seek the National Rifle Association refreshment pavilion. In place of the dilapidated wooden building with leaking roof and creaking floor, a fine new permanent building had been erected, and being equipped with a modern kitchen, was able to provide excellent catering for the very large number of visitors on a scale quite beyond the possibilities of the old pavilion. The natural slope of the site, from the roadway in front to the railway siding in the rear, enabled the architects, as will be seen from the accompanying plans, to design a detached building with all the public rooms placed on the ground floor, with a manager's flat on the first floor, leaving the basement under the rear portion for stores, bathrooms, lavatories, etc.

The front elevation presents a pleasant combination of two red brick wings linked together with a wide veranda and the manager's flat, forming a central feature and treated with oak half-timber work with cement panels, whilst the sloping roofs are covered with red sand-faced tiles.

On either side are deep shady verandas under which meals are served. These verandas are approached by broad flights of artificial stone steps, and have brindled quarry tiled floors. The lounge hall, a large central room, is fitted with a wine bar, and provides extra accommodation for serving teas during rush hours. The floor of this room is laid with wood block flooring, and there are fibrous plaster decorations both here and in the first class dining-room. The two mantels and interiors in the lounge form a pleasing feature, being executed in pine with green slate surrounds and stone hearths.

A door on the right-hand side of the lounge leads into the first class dining-room, an apartment 92 ft. long by 34 ft. wide. This room is well lighted along the sides and by dormers over the veranda roofs. Folding doors lead out on to the veranda. Another room at the end is devoted to the range officers' mess. This together with the lounge and the canteen are heated by steam radiators. In one wing is the press club room opening from the lounge and the second class dining-room, beyond which is the canteen and grocery store, which, unlike the remainder of the building, are open all the year round.

Between these two wings, and at the rear of the lounge hall, lies the kitchen, a single story top-lighted room of 28 ft. by 50 ft.

Owing to the fact that gas was not available, all cooking has to be done by steam or coal, and the kitchen contains two central ranges, a coke grill, and pastry oven connected to a central flue, and round the walls are fitted three steamers and three boiling pans. At either end is a steam heated hot plate incorporated in a service counter. This

arrangement enables the one kitchen to serve both first and second class needs whilst keeping the services entirely separate. Very little catering is done at the pavilion except during the Bisley meeting, when an enormous demand is made. Owing to this fact, the kitchen arrangements had to be curtailed as much as possible consistent with giving good service. The success of the layout may be judged by the fact that during the meeting an average of 3,000 meals a day were comfortably served (about 800 of these during the mid-day rush hour) without using the kitchen to its maximum capacity. Beyond the service counters are the wine and tea bar on the first class side and tea bar on the second class side, each having a hatchway serving direct into the dining-rooms and fitted with steam heated tea and coffee urns. Between the kitchen and the lounge and opening on to a central area, are the wash-ups, fitted with teak sinks with hot and cold supplies and steam sparge pipes for maintaining the heat of the water.

Behind the kitchen are situated the vegetable scullery, larders, linen room and staff dining-room, and from the service corridor a sloping way leads down to the existing railway siding enabling stores to be wheeled direct from the railway trucks into the larders and kitchens.

Underneath the larders are situated store room, plant room, and meat store, while the boiler house, beer, and grocery cellar are placed under the canteen and grocery store. These are all similarly approached by a sloping way from the railway which greatly facilitates the provisioning of the fuel and other stores.

On the ground floor, beyond the canteen, is an up-to-date hairdressing saloon, and approached from this, in the basement, are six well-appointed bathrooms for the use of visitors.

Lavatory accommodation for visitors of both sexes is provided off the lounge, whilst the staff lavatories are situated in the basement.

Messrs. Bovis, the general contractors, had an exceedingly difficult task in erecting the building in the limited time of six months.

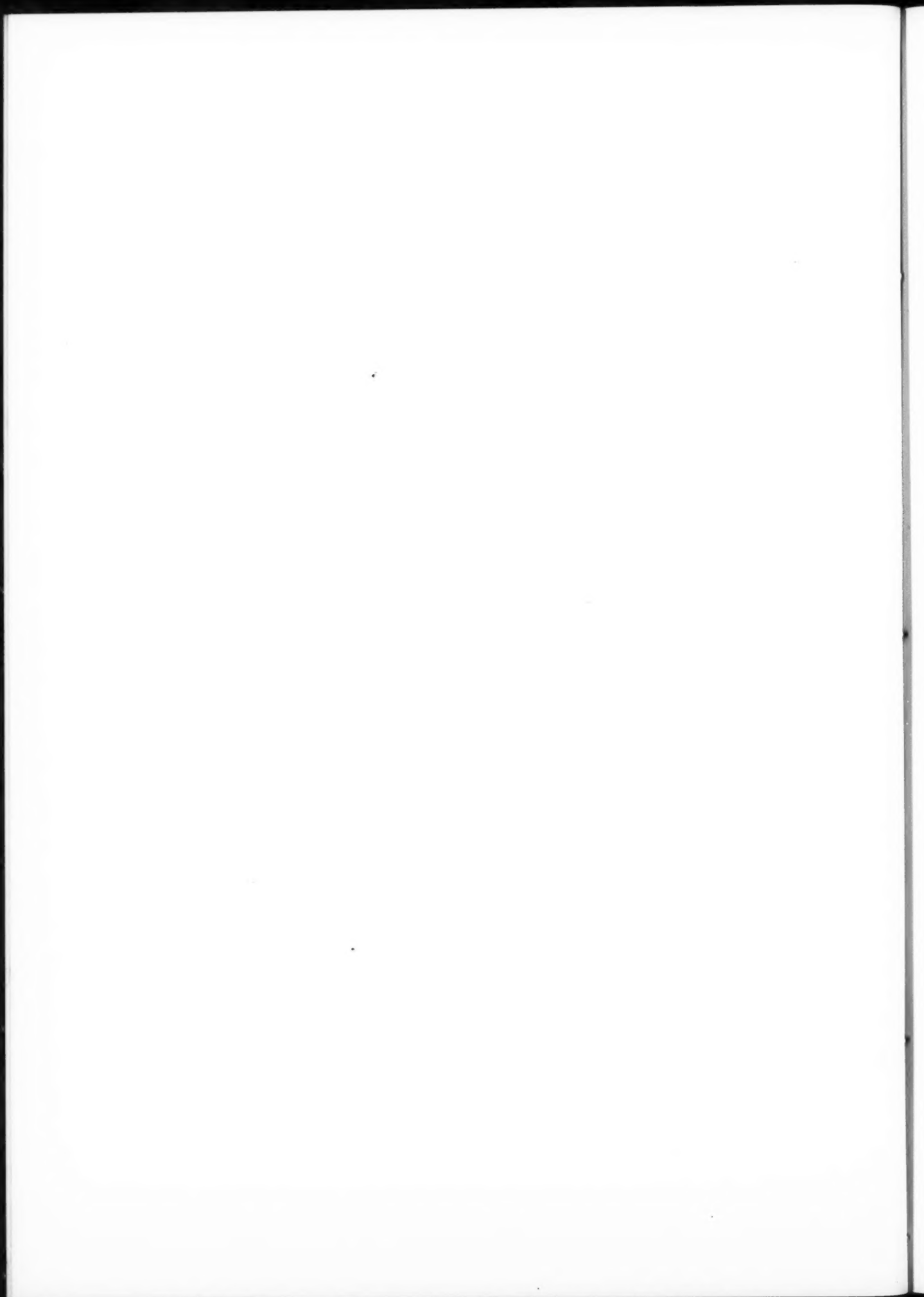
The sub-contractors were as follows:—

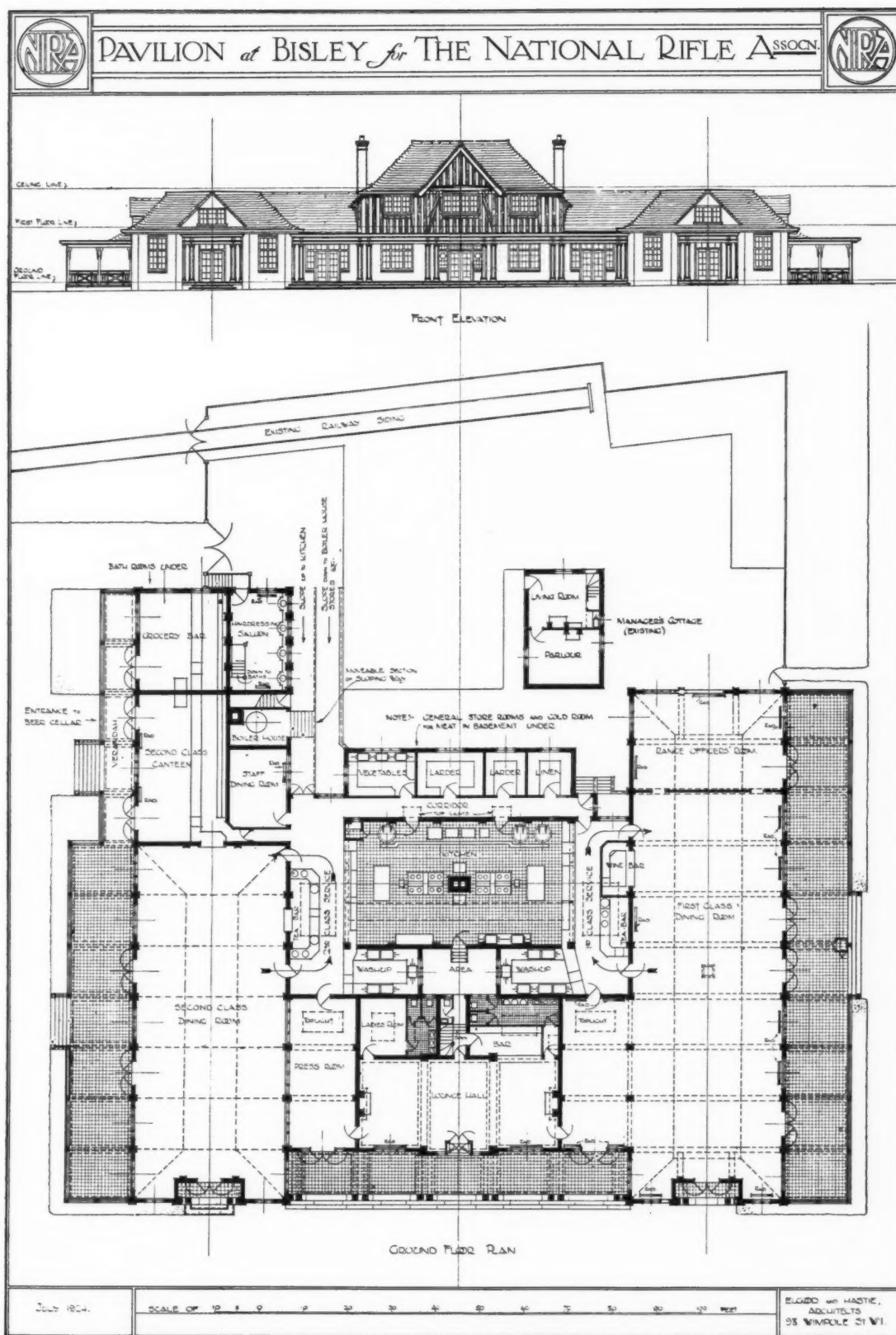
Lawrence Bros., of Bracknall (facing bricks); G. Matthews, Ltd. (red sand faced roofing tiles and mantels and interiors in the lounge); Malcolm Macleod & Co., Ltd., and the Concrete Stone Co. (artificial stone steps); Roberts Adlard & Co. (brindled quarry tiling to veranda floors); Ragusa Asphalte Co. (flat roofs); Joseph Ebner (wood block flooring); Veronese Co. (fibrous plaster decorators); Fawcett Construction Co. (steel-work); Luxfer Co. (patent glazing to kitchen); Henry Hope and Sons, Ltd. (cooking, heating and washing-up apparatus; boiler work and piping, and 5,000 gallon cast-iron tank over hairdressing room); George Wright (sanitary ware); Woking Electric Light Co. (electric light and bells); Yannedis & Co. (door and window furniture).

Current Architecture. 243.—New Pavilion for the National Rifle Association, Bisley
Elgood and Hastie, Architects



This new building takes the place of a temporary structure that has hitherto done service as a refreshment pavilion at Bisley, and was open in time for this year's meeting. The wings of the building are of red brick, the centre feature being treated with oak half-timber work with cement panels, and the roofs covered with red, sand-faced tiles. A plan is given on page 349.





Architectural Competitions

Some Hints to Beginners

By J. E. REID

WITHOUT discussing the question whether architectural competitions subserve their original purpose or not, or whether the best plan or elevation is really "the best" that is chosen out of many, one must admit that competitions have opened out a way by which an unknown architect can rise to notoriety, if not to fame. If competitions have done nothing more than this, they undoubtedly often saved many a young architect from giving way to despair, and buoyed up, so to speak, his flagging spirits during the dreary monotony of waiting for clients to turn up. Working at a competition necessarily involves much hard work and close application, and this certainly draws his attention away from empty drawing-boards.

First Attempts

In competition work, as in many other things, first attempts are seldom successful, and it is a mistake for any competitor to be too sanguine of winning, but to assume the attitude of a sportsman, because if he builds his hopes in too rosy a light, and they are not fulfilled, the reaction is equal and opposite. Even if he fails to win the second place, he should not give way to despair, but rather ask himself the reason of his failure. A study of the winning set may furnish him with a lesson or two from which he will gain many valuable hints for future guidance, and lower the thermometer of his conceit—should he possess any. To have one's plans rejected again and again is no doubt disheartening, but before efforts are crowned with success many attempts are needed, and in this respect it is wise for a competitor before the result of the first competition is declared, to be well on with another.

Many a clever architect to-day may be able to relate the same story; to recollect his dark moments when he found solace in working at competitions in lieu of doing nothing, the walls of his office meanwhile becoming decorated with plans that had been rejected. One can quite understand what deep emotions must surge around the heart of an assessor who has been called in to give his verdict on a large number of sets of drawings sent in for competition. How he must regard the vast array before him with a feeling of sorrow, knowing that only the creators of one or two of them can be rewarded, and that the remainder will be disappointed men, whose work, on which they had been engaged for so long, will be of no more value to them than waste paper.

Luck and Skill

Some architects are said to be more lucky than others at winning competitions. In reality, of course, there is no luck about it at all, but the exercise of a great deal of skill. No one can win a bona-fide competition without skill, that is quite clear, and it will simply be throwing away valuable time and also money, without. This is the conclusion arrived at by many architects whose plans have been repeatedly rejected. It might be asked, what does the requisite skill include? The first essential lies in thoroughly mastering the subject in hand. The drawings will then show that the author of them has an intelligent grasp of it, which will permeate the whole set of drawings in a very practical way.

Obviously, if the competition is for an infirmary, public library, municipal office, etc., the man who knows little about any of these institutions is not the one whose plans will show that he does, however well they may be finished

off. To be successful in a competition, an architect not only requires knowledge of the building he is working at, but also to be up to date is very essential. In any case, whatever the building may be, exhaustive knowledge of a practical sort is absolutely necessary. This means, of course, that it has to be procured first hand from people whose daily occupation lies in connection with it. If an architect is competing, say, for an infirmary, it will pay him to visit the latest buildings in that respect, and interview as many of the doctors and officials as possible and make notes of their information. It will be found that they are only too willing to discuss the advantage or otherwise of the latest innovations that have been introduced. By following this method he will hear the last word in infirmary construction and requirements, and it remains for him to embody in his plans all the information he has gleaned, which will show a grasp of detail that will emphasize some of the most important points he has learned. A competitor cannot be too careful of detail—not the detail associated with myriads of lines: rather is it thoroughness in small things that prove real knowledge.

Movable Blocks as an Aid to Design

Arranging the accommodation to fit in with the "conditions of competition" draws upon one's patience. But the visiting of several buildings of the same class lends a certain aid to this. Innumerable plans may have to be sketched before anything satisfactory can be evolved. A very practical way of planning and one which is followed by many architects—not only in competition work—is to adopt the method of movable blocks; in other words, to cut out rooms in paper or thin cardboard, to a scale, of course, and then arrange them upon the space at his disposal. The great advantage of this lies in the facility by which the plan can be recast into many varied combinations. It is like a game of chess to fit in all the rooms, because many are the times when the process of planning receives a check, and it calls forth all the architect's judgment and skill to manœuvre the pieces in such a way that they will ultimately work in with the conditions upon which the competition is based. By following out this method of laying out the floors enormous time is saved in not having to draw and redraw innumerable lines, because from this tentative arrangement arrived at a sketch plan can be draughted in a more permanent form, which can in its turn be used to work upon for the upper floors by the method enumerated above.

There are many considerations that should be taken into account when preparing the floors. Without presuming to lay down any set system that intelligence will alone furnish and skill apply, a word may be said about harmony in planning. If a floor plan looks confused, or lacks cohesion in the arrangement of its parts, a successful termination to the competition will hardly be possible. It is quite apparent that when rooms in a building are arranged without a due regard to proportion, or harmony, the work in that building cannot be carried on in an economical manner as one that is laid out with more observance to order.

The Simple Plan

The simple plan will always hold its own. When the competing plans are laid before the assessor, his attention will be most strongly drawn to those that look harmonious, whilst those that are laboured and disarranged will hardly detain him. Experienced architects know quite well that

the cost of a building varies enormously owing to the way it is planned, the accommodation being identical. An experienced assessor will bear this in mind when he is judging. Therefore it stands to reason when arranging the rooms due regard should be observed as to simplicity and order.

The Elevation

Whilst more prominence is, in most cases, given to the laying out of the floors, yet in some instances it should not be forgotten that the elevation plays a more important part. There are cases, as in a church, where the planning is of a very simple character. Hence the effect must take precedence, and should a set of drawings of this nature have to pass before the critical judgment of a committee of persons who usurp the place of an experienced assessor, the competing architect can be excused if he steps beyond the realm of the architect and encroaches upon that of the artist. Otherwise it hardly pays for a competitor to make a firework display of his elevations. The elevation that "speaks" will always hold the assessor's attention beyond one that is full of subterfuges and excuses. An elevation should proclaim the purport of a building—the language of architecture could not be more worthily employed. The greatness of an elevation lies in the legitimate use of such a language. The spaces, moulds, etc., express the architectural vocabulary, and to overlay an elevation with a superabundance of such is just the same as introducing superfluous words into a literary composition for the sole sake of effect. The meaning is obscured in one as in the other.

Spoiling the Plan for the Elevation

There is another point that might be mentioned, and it has special reference to elevation in relation to floor plans. Many architects are tempted to spoil a floor for the sake of an elevation. An elevation treated so is not legitimate or true, but full of excuses. Rather should he display his skill in overmastering difficulties such as the plan occasionally evokes, and the opportunity of doing so should be taken advantage of in competition work. It is a point an assessor will see at a glance and hardly fail to make a note of.

A competitor should not forget that the assessor is not only trying to select the best set of drawings submitted to him, but also, by the aid of these, to pick out the cleverest architect.

Finish of Drawings

As to the finish of competition drawings a word or two will not be out of place. This is usually stipulated in the "conditions of competition," also the size of the sheets, the number of plans and how they are to be mounted. If this was not so there would be no uniformity in the drawings and no limit to their elaboration. The drawings are usually required to be finished in black and white, with a light wash of colour on the floors. A perspective drawing is also often required upon which the unfettered hand of the architect usually takes full licence.

All drawings, whether plans, sections or elevations, ought to show an easy skill, as if the work had not been laboured in any way. This comes, of course, from practice, and there are many draughtsmen who are expert at this kind of work. Competitive work should always be the best of its kind. An otherwise good plan may be ruined by indifferent drawing. It is surprising how a good man can produce great effects simply by a skilful manipulation of the pen and a judicious use of a shadow or two. An expert thus, when finishing off an elevation, can dispense with many lines and still retain the meaning and intent of the design quite clearly.

A competitor should always bear in mind that a competition drawing is not a contract drawing, and thus fewer lines are needed. A clear and simple way of "indicating" is half the secret of such draughtsmanship. On the floors

he should be as explicit as possible and indicate in a very decisive manner some of the special points he wishes to emphasize, without confusing the plan itself. Lucidity on the floors should be a competitor's keynote so that the work of the assessor is made as light as possible. It certainly is a mistake in competition drawings to elaborate the floors for the simple sake of draughtsmanship. Any display he wishes to make should be left for the elevations, and in some cases tit-bits in blank sections show up remarkably well.

There is another thing a competitor should guard against, and that is undecipherable lettering. Lettering, or printing, as it is sometimes called, should be as clear and as lucid as the plan, and all the letters unaffected or fantastic. It is quite true to say that much of the lettering exhibited on competition drawings is unreadable owing to the habit of introducing an archaic or ultra modern alphabet.

In conclusion it may be said that competitions for important buildings are much more frequently advertised than of yore, and are also conducted in a more generous and honourable spirit, thanks to the efforts made by the R.I.B.A. who usually warns its members against having anything to do with a competition that has met with its disapproval.

Competition Regulations

In the regulations that body has drawn up for the conducting of competitions, it recommends the appointment of a fully qualified professional assessor who must himself not assist or take part in the competition in any shape or form, or act as architect or joint architect for the building: the assessor to advise the promoters as to the drawing up of the conditions or instructions of competition. All the premiums to be paid according to his award, which will be final; the author of the design placed first to be appointed architect, unless there is any valid objection to such appointment. If so, the author of the design next in merit to be appointed. The successful architect to receive $1\frac{1}{4}$ per cent. on the estimated cost in lieu of receiving any instructions to proceed with the work within twelve months from date of award, which will ultimately merge into the commission. None of the designs sent in to bear a motto.

Unfair Competitions

Unfortunately, much remains to be done. Some of the greatest offenders are to be found amongst public bodies, who often display a niggardly and unfair spirit when it comes to engaging an architect. This is the reason, no doubt, why one often sees a competition advertised for a public building and for a prize that is very trivial. In cases like this, the building committee, no doubt, who have engineered the affair, wish to procure a set of plans for which they intend to pay but little, because no mention is ever made as to the definite appointment of the prizewinner as architect. To go further, it means that the work will have no architect beyond the stage of preliminary plans, and it will not be put out to tender in the usual way, but very likely there will be on the said committee an interested builder, who has pledged himself to carry out the work at a cost little above the price of material. Such a proceeding is greatly resented not only by architects, but also builders.

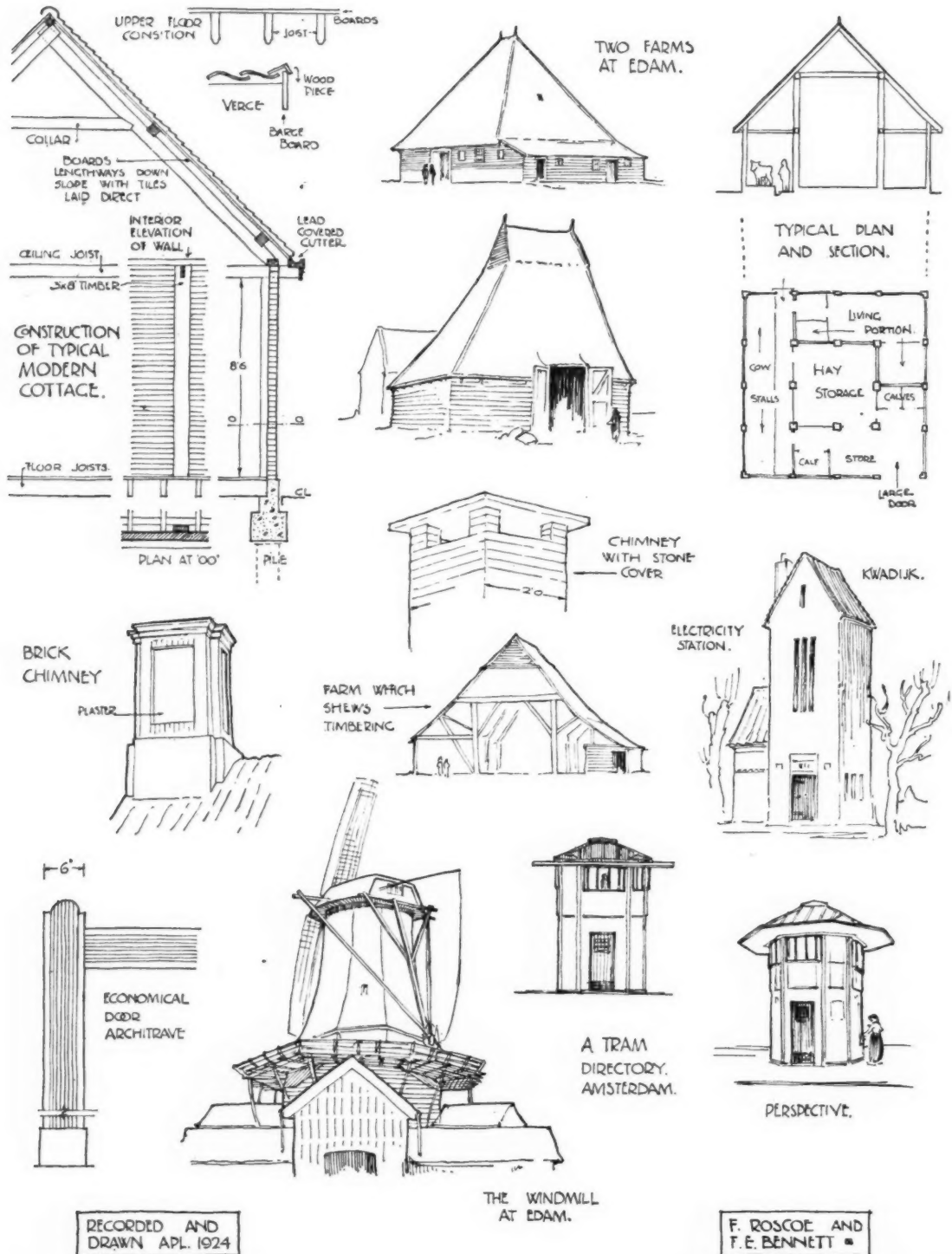
The Position of the Architect

Architects themselves, of course, can do much to aid in raising the status of competitions, and refrain from having anything to do with those that withhold from the winner the true fruit of his labour. But in many competitions that are clearly unfair will still be found architects taking part who are blind to their own interests and the etiquette of the profession they follow. The first prize in any building competition should always include the appointment of the winner as architect. Every set of plans submitted cost their authors a great deal of time, and also money, to prepare, and it is but a blank reward for the winner to be deprived of what cannot but mean a good advertisement for himself.

Measured Drawings. 49.—Details

Measured and Drawn by F. E.

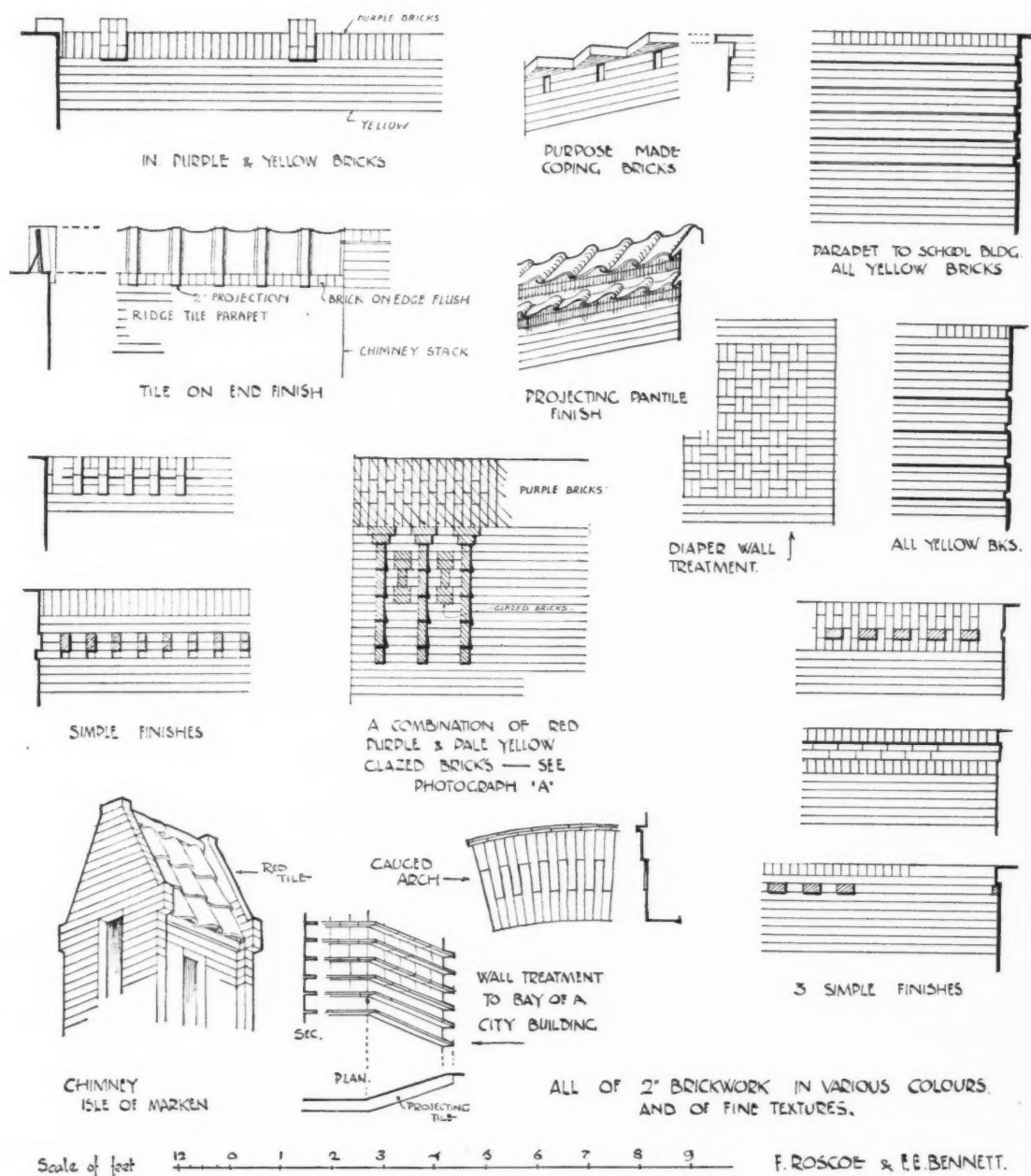
FARMHOUSES AND OTHER DETAILS FROM HOLLAND.



It is in their parapets and occasional small features that the Dutch excel. Where examples of eaves and soffits occur we pass on disappointedly. The bricklaying is a marvel, and one wonders where brick

—Details of Modern Dutch Brickwork

by F. E. Bennett and Frank Roscoe

MORE PARAPETS & OTHER BRICKWORK
FROM AMSTERDAM.

on disappointed. The fantastic shapes as seen in balconies, doors, and windows are amusing on the first visit, but begin to pall on one rapidly. s where bricklayers capable of doing such work are to be found.

Construction. 31.—Housing a "Blimp" in Reinforced Concrete

By FREDERIC M. DELANO, Junr.

TWO monster dirigible hangars, constructed entirely of concrete, are being completed at Orly, France, near the aviation school of Captain Nungesser. Each of these two vast structures measures 300 metres (nearly 1,000 ft.) long, 59.3 metres (about 196 ft.) high, and 91 metres (about 300 ft.) across at the base. Seen from the road in the Bois de Vincennes, as one drives in from the historic Marne, the two buildings loom like giant eggs protruding about half-way out of the ground, some 15 miles off across country; for their general shape is like the sharper end of a hen's egg.

The Government called for bids and plans to be submitted on the specifications it gave out for the enterprise, and those drawn up by M. Freyssinet were accepted. These were adjudged by the committee to be the most practical, simple, and at the same time, the most economical. The idea was simply a long arch of corrugated appearance, closed at both ends by huge metal doors swinging outwards.

Due to the constitution of the soil, which was argillous and compact, and the lack of a heavy pressure over the entire surface, a simple foundation of reinforced concrete under each side of the hangars was found to be sufficient. A trench was dug the full length of each side—300 metres long, 2 metres deep, and 7.85 metres (about 25 ft.) wide. In each of these trenches a slab of reinforced concrete was poured, and this 3-ft. slab supports the superstructure. The braces protruding from this foundation form the "liaison" between it and the hangar walls.

The next step in this work of pouring the concrete shell was to build the base of the hangar walls to a height of about one metre above the soil, in that peculiar zigzagging form adopted for the arches, giving the hangars, as completed, the appearance of great accordions. These sections of "accordion pleats" are referred to by the French as "zores elements." When the constructors had completed

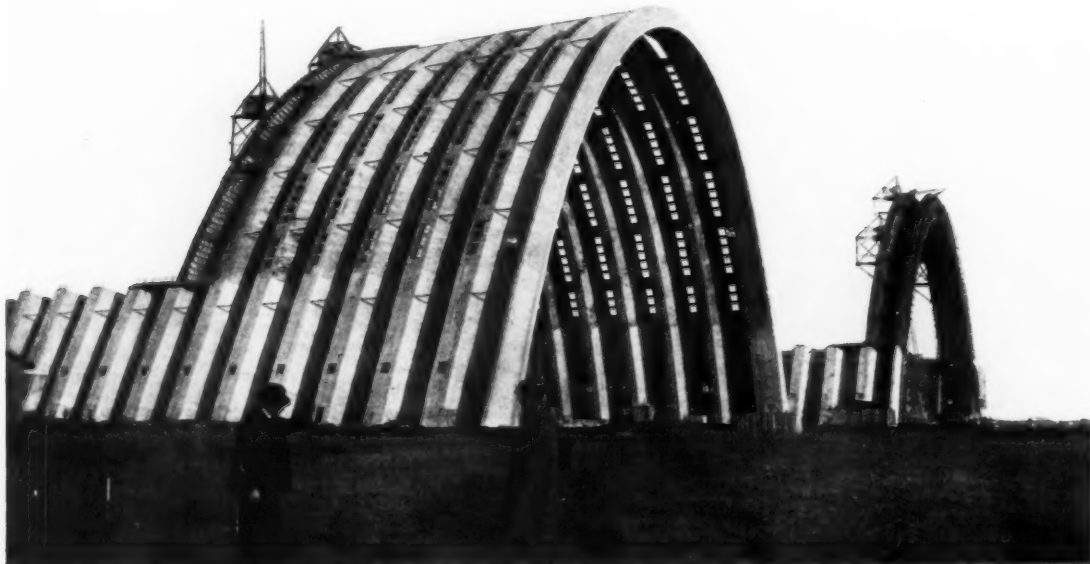
the first stage of the walls, by a simple process of building the moulds, placing the reinforcing steel, and pouring the concrete—working from the ground—they turned to the problem of erecting the second stage, which was to be 17 metres (about 55 ft.) high. Here began the originality of construction which has made this job stand out from all others in the world.

On the inner side of the hangar walls, and parallel to them for their entire length, rails were laid, on which a platform of reinforced concrete was placed on rollers which allowed it to be moved the length of the hangar. On this platform a wood scaffolding 18 metres high was erected, surmounted by a derrick. The scaffolding was made universally mobile, transverse motion being provided for by means of rollers on the platform.

The scaffolding carried the interior mould for the concrete, the mould being just the size of a "zores element." The exterior mould was movable in pieces, which were built up for each pouring with the aid of the derrick, after the reinforcement and braces had been put in place. The mould being entirely built up, it remained only to pour the concrete. After the concrete had hardened, the interior mould was rolled back on its movable scaffolding, the exterior pieces were taken down, and the whole platform moved forward 7.50 metres, the length of one "zores element," or segment. After moving up the platform again the same operation was repeated.

In building the last part of the arch, which is actually superimposed upon the two first stages of the walls, the same method of constructing one segment of arch at a time was followed; but here another problem had to be met—that of withdrawing the mould from *under* the arch instead of away from the side. Following the idea of economy still, the method employed was simple and cheap.

For the semicircular mould required, a very strong arch was necessary. This arch-mould was constructed on the



REINFORCED CONCRETE HANGARS AT ORLY, FRANCE, IN COURSE OF CONSTRUCTION.

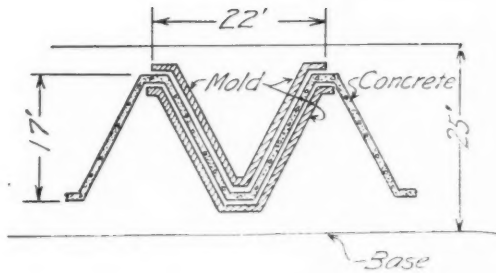


Diagram of cross section, showing formation of "Zores Elements."

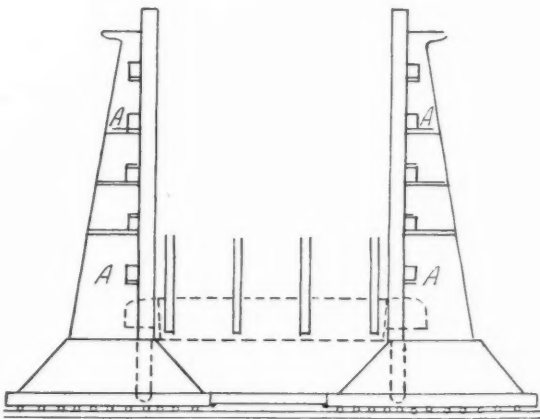
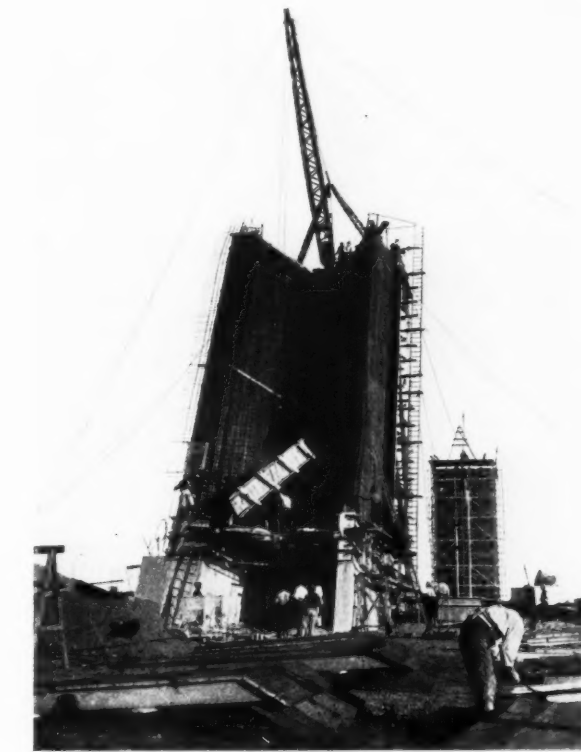


Diagram of hydraulic elevator for lifting concrete base upon which rests one of the extremities of the arch for interior mould.

ground, in three pieces—the key, which weighed 30 tons, and the two sides, each weighing 45 tons. The lower ends of the sides were made of beams of reinforced concrete, which, during the construction of the rest of the semicircle, rested on two supports of reinforced concrete, on which they could roll without sliding.

The lateral arches, when finished, rested on the provisional supports and on wooden horses which had been used to hold them during construction. About 24 metres (79 ft.) from the rotation girder, screw-jacks, resting on the ground and working in pairs, were braced at an angle of 60 deg. With these jacks the lateral arches were raised by steps of about 4 ft. As soon as possible sheers were placed under the arch segments, and the segments raised to their proper positions by these sheers of varying length. Once these two lower parts were in place they served as derricks, by which the key part of the arch-mould was raised into place.

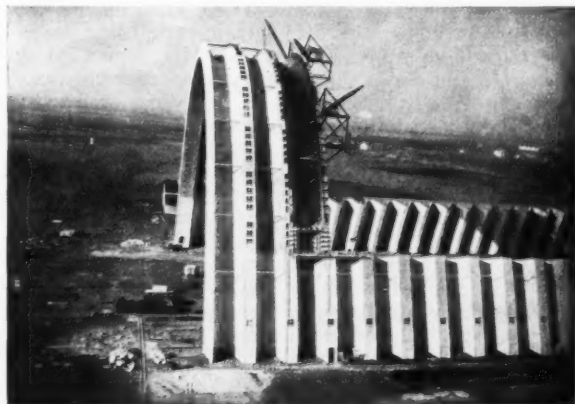
To remove the mould from under the concrete arch after



THE SECOND SECTION BEING IMPOSED UPON THE FIRST.

the concrete had hardened, this arch-mould had to be lowered out of place. The bases of the arch were therefore placed on elevators which allowed for a movement of 11 metres (about 35 ft.) up and down. These elevators were constructed of two pieces raised opposite each other, about 15 ft. apart, on a large concrete platform resting on rollers. Each upright piece was grooved vertically, and in this groove ran the ends of the girder on which the arch actually rested. At the base of each groove was a hydraulic jack, which raised the girder 1.85 metres (about 6 ft.) at a time. Thus the arch-mould could be raised and lowered on both sides at the same time in a perfectly level position.

As the jack would only raise the girder 6 ft., it was necessary to work by stages, holding the arch base in its semi-raised position until the jack could be lowered again and something placed underneath the girder to give new purchase. By placing timbers in the holes in the uprights, A A A, the girder could be locked in place, and four timbers



TWO VIEWS OF THE HANGARS DURING CONSTRUCTION.

placed between the head of the jack and the girder, thus elongating lift of the jack by 6 ft.

With the inner mould in place, and with the aid of derricks built on the arch itself, the outer mould pieces could be raised and assembled and held together by bolts. The planking of the mould was strong enough to hold an interior pressure of about 13,000 lb. to the square metre. To hold the inner and outer moulds at the proper distance apart, octagonal concrete blocks were made with hollow cores. By placing these in the mould at intervals, and passing bolts through them, the thickness of the mould at any one place could be regulated and the bolts removed without difficulty after the concrete had hardened. Following this process of work, including letting the concrete harden and dismantling the mould again, the time required per segment was seven days. Every Monday regularly the advance was made—one segment forward.

Each of these segments is 7.50 metres (about 34 ft.) wide, from the centre of one key to the next, and 15 ft. deep, there being forty of them to each hangar. At the ridge of the hangar the thickness of the concrete on the sides of the

segment is only 9 cm., and 20 cm. on the tops and bottoms; while at the lower part of the hangar walls the thickness runs to 34 cm. The hangars are strengthened by horizontal brace beams running from one gable to the other, which prevent possible distortion by wind action.

An interesting thing about the economical method of work is that practically every piece of equipment, windlass, derrick, etc., was built from wood or concrete. The cranes on the arch-mould are entirely of wood.

The hangar is lighted by 2,428 square windows of yellow mica or glass, placed in the outer ridges of the segments. There is also a system of ventilation which allows the gases and bad air to escape, but no water to run in through the concrete ventilators, which are placed at the tops of the structures. In order to have access to all parts of the dirigibles, which will be housed there, five rails of trolleys have been placed at the intrados of the arch, and runways of reinforced concrete are suspended from the tops of the hangars. To get to these runways, stairways of concrete are built in the four wings of the doorways, which are hollow.

Little Things That Matter—37

Keeping out the Weather: The Surfaces of Exterior Walls

By WILLIAM HARVEY

EXPOSURE to the hardening influences of life in a draughty cloister was a recognized part of the monastic system which conserved learning in Europe during the Mediæval period, and it is still a debated point whether complete protection from the elements is likely to make for the utmost possible efficiency of mind and body.

Observations made in connection with the output in munition factories during the war have established the fact that comfort is conducive to better and more speedy production, and it would seem that, provided the hardening influences are supplied in the form of outdoor sport and recreation, the complete control of heating, drying, and ventilation of human habitations is of very definite advantage.

Vigorous muscular exertion in the open, alternating with periods of repose or intellectual labour, in the protection of an efficiently constructed home or workroom would be considered a more healthy life by most modern men than continual exposure in the stone-built cloister and the damp of a concrete-vaulted and dimly-lighted cell. It need not be feared that keeping out the weather will lead to national degeneracy, and the architect planning a house of any ordinary type for erection in these islands aims at the attainment of as high a standard of protection against the weather as the funds at his disposal will permit.

A certain amount of cubic space has to be surrounded by floor, walls, and roof, and the materials concerned are chosen with regard to their protective power as well as on account of their artistic appearance or their relative economy in cost. A great deal of research is still necessary before it can be stated confidently which type of wall or roof (among several which might be employed at approximately equal expense) is capable of best excluding the weather and retaining heat inside the building, but it is a subject that should receive attention before the materials are determined for the production of any large housing scheme.

Heating and ventilating engineers are guided by some rough-and-ready rules which differentiate between buildings constructed with various materials in regard to the loss of heat by transmission through walls and roofs, but the cost and the constructional strength of each material is important to the architect as well as its heat-conserving

value. Nor can figures determined for practice in great timber-producing countries like the United States or Canada be expected to apply here at a time when high-class seasoned timber is not available for ordinary building purposes in England. Experience of army huts, even when they are "converted" by the use of interior linings, does not bear out the contention that a wooden wall is as warm as a wall of brick, and to produce a similar degree of heat-retention it is necessary to use two layers of boarding with an aggregate thickness of at least 1½ in., exclusive of studding, and to plug up cracks and knot holes as well as to lath and plaster the interior face of the wall (see Fig. 1).

Measures which tend to make a wooden wall thoroughly effective against changes of temperature and the admission of draughts have also an unpleasant propensity to set up ideal conditions for the propagation of dry-rot, and the probability that some active spores of this pest will be included in modern building-timber in England cannot be ignored with impunity.

The temptation to use walls of studding covered with weather-board is accentuated by the saving of floor space, which would be taken up by the thicker wall of brick, and by the ease and speed of erection, especially during lock-outs and strikes of bricklayers, and when suitable bricks are difficult to obtain in requisite quantities.

The readiness with which timber construction admits of adequate bracing and tensile connection is another point in its favour, but the liability to dry-rot and to the admission to draughts through knot holes and the warped edges of weather-boarding are serious defects which seem to be inseparable from the use of timber in England at the present time.

Slate and tile hangings are still sometimes used as serious contributions to the weather-resisting power of a building, and are seen affixed to a single exposed wall of the house in spite of all artistic considerations, which would require that the colour scheme should pull together on all sides (see Fig. 2).

Where the brickwork is already in existence the courses of slates or tiles are generally nailed into the horizontal mortar joints, and the tiles given a margin and gauge equal to the brick course. Slates being larger, they are given a gauge of two courses or, alternatively, both tiles and slates

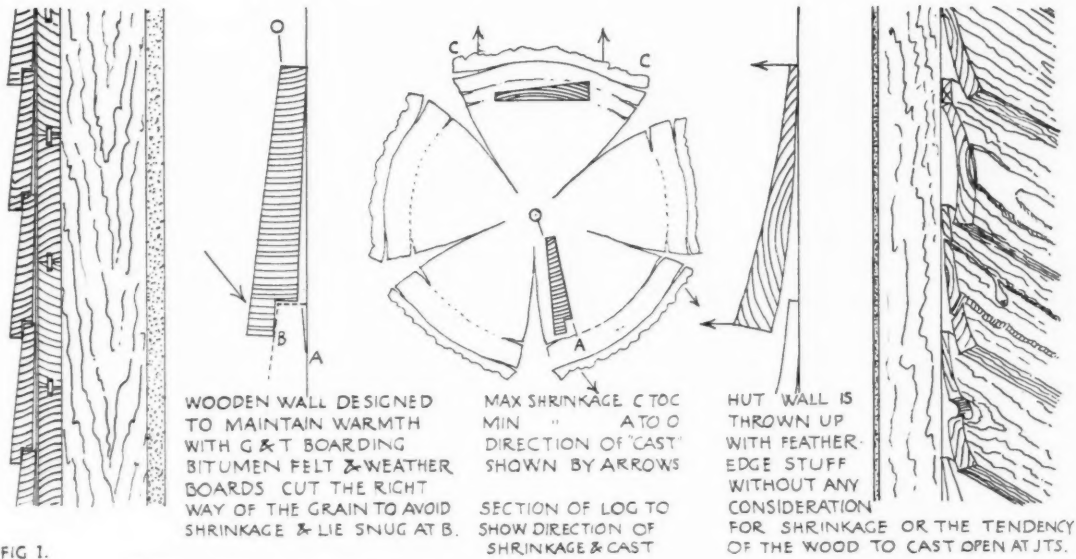


FIG 1.

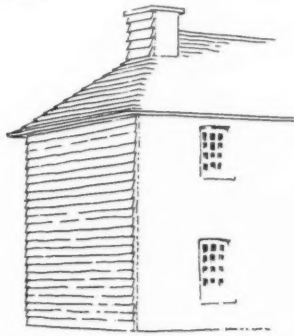


FIG 2 UTILITARIAN WEATHER SLATING



FIG 3 LIGHT WEATHER TILED WALLS OVERHANG BASE.

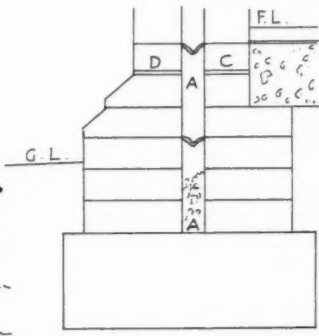


FIG 4. SPACE AA FOR DROPPINGS.

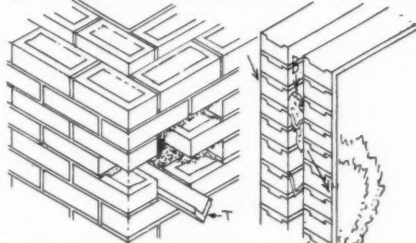


FIG 5 METHOD OF CLEARING CAVITY OF MORTAR DROPPINGS T= LONG WOODEN TROUGH.

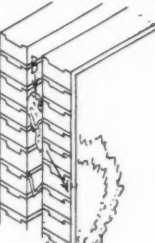
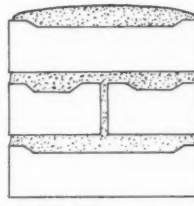
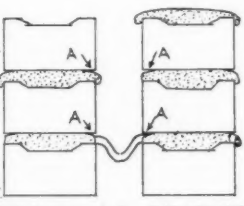


FIG 6 BRIDGE B & DAMP PATCH INSIDE.



HOLLOW WALLS NEED QUICK-SETTING MORTAR. FIG 7. IT IS IMPRACTICABLE TO POINT THE JOINTS IN THE CAVITY WITH THE RESULT THAT EACH BRICK OVERHANGS AT 'A'.



COMPARED WITH A SOLID WALL A HOLLOW WALL HAS RATHER LESS EFFECTIVE AREA OF MORTAR BED & SETTLES RATHER MORE.

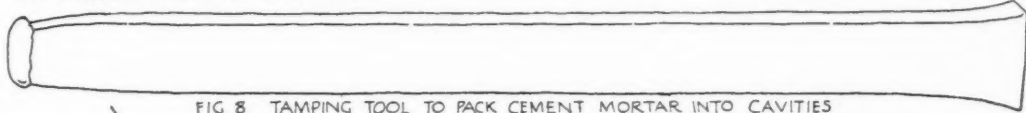


FIG 8 TAMPING TOOL TO PACK CEMENT MORTAR INTO CAVITIES



FIG 9 A CRACK IN FLINT FACINGS ABSORBS DRIVING RAIN.



B SUPERFICIAL POINTING BREAKS AWAY WITH FROST OR MOVEMENT



C CAVITY SHOULD BE CLEANED & TAMPED FULL OF CEMENT MORTAR.

W.H. 1924

may be hung to battens nailed to plugs in the vertical joints of the brickwork and spaced at any appropriate gauge.

Tile-hanging applied to timber-studding in modern work shares the advantages and disadvantages of weatherboarding. A certain amount of floor space is saved in comparison with a 9 in. or 11 in. hollow wall of brick, and the gain in picturesque appearance and in actual cubic contents that is achieved by projecting parts of the upper story beyond the line of the lower is made possible by its use (see Fig. 3). Tiles do not need the painting or tarring that is generally thought to be necessary where weatherboards are employed, but on the other hand they are not always absolutely watertight and are seldom draughtproof.

To make a wall of studding and tile-hanging capable of retaining heat in the building, it is usual to nail a lining of tarred felt to the studs under the tile battens or upon close boarding to which nibless tiles may be nailed without battens.

Pointing the tiles is sometimes attempted and their draughty character is advertised in certain cases by thick coatings of cement wash applied in desperation across the whole tile-hung surface. From time immemorial brickwork has proved its value as a material of construction, in that it is substantial enough to bear the weight of the building, is moderately weatherproof, and a non-conductor of heat. The two last-mentioned qualities can be immensely increased by the use of brickwork in the form of hollow walls, provided that the central cavity is kept absolutely clear of mortar droppings or any material that can act as a bridge from the damp and cold outer face to the warm and dry interior face of the wall.

Various methods of building have been advocated to guarantee that the central space shall be kept clear. A board on edge supported in the cavity on the galvanized metal ties is sometimes used, but unless supervision is constant the difficulty of fitting boards to every space in the varying lengths of walling between windows and doors leads to the precaution being neglected. One method which is within the scope of practical politics is to first drag up as much as possible of the mortar that has fallen into the cavity by means of an iron rod with a bent and flattened end and then to poke down the remainder to the foot of the wall into a space arranged to contain it beneath the level of the damp-course (see Fig. 4). This process is effective for the height of a two-story cottage, and for greater heights the material collected by the poking-down process can be caught on battens left in the walls and withdrawn through holes in their ends after the brickwork has been raised to its full height (see Fig. 5). The holes are filled up when the building is nearing completion and just before the scaffold is demolished.

Failure to clear away mortar droppings leads to the concentration of dampness at the points bridged by the fallen mortar to the ruin of the internal decorations, and the sacrifice of the very quality for which the hollow wall was designed (see Fig. 6).

Where these accidental weeping places occur in a finished building that has been provided with hollow walls, the remedy is to cut out a brick or two and remove the obstructing material and then repair the hole. The application of damp-proofed plaster slabs to the interior only spreads the water and drives it down to reappear at some other point rather lower in the wall.

Thin hollow walls have a tendency to contract in height during construction and consolidation, and where solid window and door frames are built in as the work proceeds, this settlement must be allowed for or the concrete lintol may be found riding on the wooden door frame some months after the erection of the building, instead of being supported on its bearings on the brick piers on either side. The settlement may be quite trifling in actual measurement and yet suffice to separate the lintol from its bearings and allow it to quiver alarmingly whenever the door slams.

Somewhat richer and quicker-setting mortar should be used for hollow walls to obviate the shrinkage which takes

place in consequence of the reduction in effective bearing area in the green joints as compared with the bearing area of joints in a thicker wall (see Fig. 7).

Stone walls are approximately 50 per cent. less efficient than walls of good brick in retaining heat and are generally also inferior in their resistance to driving rain. Unless they are thick and thoroughly well-built they are liable to suffer from unequal settlement with the result that fractures occur which collect moisture and conduct it into the interior of the building. Walls of flint with stone dressings are particularly subject to damage in this way, and efficient repair is expensive and difficult. The use of lacing courses at frequent intervals, with suitable reinforcement in the joints and a thoroughly reliable mortar, would prevent the nuisance and avoid the necessity of stitching the building together with ties and iron cramps inserted after its erection. Horizontal cracks and open joints are especially troublesome as they are certain to catch all the moisture which strikes and runs down from the upper part of the wall, but even vertical cracks receive a great deal of water that is blown slantwise down the wall in a storm.

Where repairs have to be executed it is of the first importance to find out whether the movement is liable to continue in response to defective foundations or other structural weaknesses which may demand underpinning or the employment of reinforcement or buttressing.

Pointing, as usually executed, is but a feeble device for keeping out the weather from a crack. The cement is too often only superficially "battered" on and, if it adheres at all, only does so at one side leaving the cavity beneath almost as accessible to moisture as before (see Fig. 9).

Where a crack is to be cured by pointing, the dirt and old defective mortar must be thoroughly raked out and washed out and the new cement driven in forcibly with proper tools made for the purpose. These can be contrived from old flat files of different sizes whose ends have been heated and "upset" on the anvil (see Fig. 8). To take off the crudity of the new joint the pointing mortar should be made to approximate in composition to that of the surrounding work. The newness of the surface can be modified by spraying it with water just after the initial set has taken place in order to bring the grains of sand to the surface and achieve in a few minutes an appearance in harmony with that produced by the action of wind and rain during several years.

Impatient repairers sometimes pin their faith upon a coat of cement-rendering trowelled on across the face of the work and hiding the defects for the moment at the price of hiding also any colour or texture the wall may have possessed, and reducing it to dull uniform grey. Such rendering on old work is seldom either artistically or structurally satisfactory. It is often applied in default either of means or of goodwill to repair in a more thorough manner, and generally bears evidence of its slipshod character in a tendency to crack at points where the building was already defective, and to part company with the old work in large flakes and slabs.

Rendering on new walls of brick or stone is more likely to remain intact since the surface is in a better condition to receive and adhere to the coating of compo, and the use of a facing of stucco or roughcast has come into fashion again after being banished as a reprehensible sham during some part of the Victorian era.

The advantage of being able to proceed rapidly with the building by employing bricks of many different sizes and colours without waiting for consignments of a particular make appeals to the builder at a time when trade disputes or other causes are interrupting the normal deliveries, and rendering or roughcast constitute a facile disguise for the motley mixture so formed. If the rendering itself is watertight it is supposed that bricks of an inferior quality will suffice for walling purposes, thus saving in cost as well as in time. This is a somewhat optimistic assumption to make, for a crack or porous place in the rendering will allow moisture and frost to attack the lightly-burnt bricks within, and the repair of the exterior

that will become necessary from time to time may cost in money and trouble at least as much as would have been spent in the use of thoroughly good brick facings in the first instance. A genuine preference for the lighter colour of a wall coated with roughcast may make its employment worth while, but in places where soot and grime are certain to be deposited upon it, its "cheerful" appearance is likely to undergo a very serious transformation to a tint more depressing than that of any moderately pleasing kind of brick.

Where the colour of the roughcast is modified by the use of added washes of pigment the periodical renewal of these will also be costly, and in dull, rainy weather light-coloured buildings become sodden-looking and unattractive just when the need for a cheerful appearance is greatest. To turn from matters of opinion to one of fact, a dark-coloured material actually absorbs more heat than a light one, and a house built of it is therefore likely to be warmer and more comfortable in this peculiar climate.

Paints and colour washes on the outside of buildings have some protective value, but the appearance of the oil-painted stucco-fronted buildings of London, after they had suffered neglect during the last years of the war, showed that the protection afforded by paint and stucco is strictly limited as to duration. Whole terraces were denuded of paint which scaled off in sheets, and was followed in some instances by the stucco itself, and even by the brick corbels that had formed the backing of cornices near the wall tops. It is possible that some of the falls of heavy

material in Bayswater were the result of vibration occasioned by German bomb explosions, though months elapsed between time of the air-raid and the frost which ultimately forced the brickwork out of position. In the meantime rain had been soaking into the building through minute cracks in the coatings of paint and stucco which had disguised the defects until the danger-point was reached and the brickwork collapsed.

Where the appearance of a stucco or rendered finish is acceptable it would be sound construction to cast the building units in reinforced concrete in portable form and assemble them on the site with the minimum of local labour. Concrete composed of suitable ingredients, and cast under proper conditions, can be made watertight, and though in its solid form it is no improvement on brickwork in its retention of heat, it lends itself to the formation of hollow walls and roofs which are highly efficient in this respect.

The reputation of concrete as a building material has suffered from the fact that too much was expected of it at too cheap a rate. Coke-breeze slabs of starved and crumbling consistency share, with far stronger materials, the name of "concrete," and the reported failure of concrete to meet any practical test need not be taken seriously until the exact conditions of the case are known. It is distinctly unfortunate that the use of this material has in many, if not in most, cases been dictated by the desire to save in first cost which places an onerous condition upon the scientific development of a building method and material still in its experimental stage.

Correspondence

Unightly Advertising Signs

To the Editor of THE ARCHITECTS' JOURNAL.

SIR,—The advertising sign which obscures the view of St. Paul's will not have been entirely detrimental in its effect if it calls attention once again to the scandalous condition of London streets generally in this respect. Look where you will, you are confronted by hideous advertising signs, often obscuring entire façades. It is surely most extraordinary that landscape scenery should be protected while the architectural scenery of our cities is left to the tender mercies of any advertising maniac who decides to obliterate it. Who can wonder that visitors from the Continent find London intolerable and quit it as soon as they possibly can!

These advertising people must be forcibly restrained. They are making London hideous and a laughing stock among the great cities of the world.

CYRIL HOLDING.

Cast Stone

To the Editor of THE ARCHITECTS' JOURNAL.

SIR,—In your issue of August 27 appears a letter from Mr. Arthur Keen, the last paragraph of which contains, robbed of its context, the following statement: "Efforts are being made (widely) to do away with skilled building work; (the use of) cast stone (among other things) is an illustration of how people are dispensing with skilled work (because of the bother and worry of it)."

This is illuminating, as illustrative of how astonishingly little is known of even the general character of cast stone by some architects.

I do not cast concrete stone. Nor have I any specific interest in those who do so. I have sufficiently studied the subject, however, and have seen enough cast concrete stone in use, to have learned that such a statement is woefully incorrect.

A building constructed of cast concrete stone requires skilled labour to much the same extent as one built of

natural stone. Why not? Does Mr. Keen realize that more than 90 per cent. of the cast stone used in the world is surface-treated just as natural stone is treated?

Cast stone is moulded and, therefore, the finisher has less to do to make it ready for placing than in the case of natural stone. Exactly the same operations of tooling, planing, and bush-hammering are performed on the surface of each product.

That Mr. Keen should scornfully class cast stone with machine-made casements and stamped steel cornices shows he is unaware of the trend of progress in this department of modern construction.

I can show him in some of London's most noted thoroughfares buildings with fronts of cast stone, the surfaces of which have had more effective work expended upon them than have many buildings of natural stone near at hand.

FREDERIC COLEMAN.

"Modernity in Design"

To the Editor of THE ARCHITECTS' JOURNAL.

SIR,—In the leading article on "Modernity in Design," in your issue for August 20, contributed by Mr. Gordon Holt, there occur some remarkable sentences in which he contrasts the apostles of architectural tradition with the new "modernist" school of designers. "On the one side," he says, "we see a team with its talons deep in traditional ground; on the other, one with its antennæ, as it were, searching in yet unknown regions, and between the two a rare tug-of-war takes place." It is perhaps worth while trying to visualize the picture. Talons suggest a bird of prey, while antennæ, of course, suggest an insect. We are told that between these two "a rare tug-of-war takes place," and it does not look as if the "modernists," who apparently possess the antennæ, are in for a very good time. In fact, the whole thing is sheer bullying, and even the king of moths is quite justified in crying out: "You nasty old eagle, let go my antennæ at once!"

A. TRYSTAN EDWARDS.

The Birmingham Civic Society's Latest Report

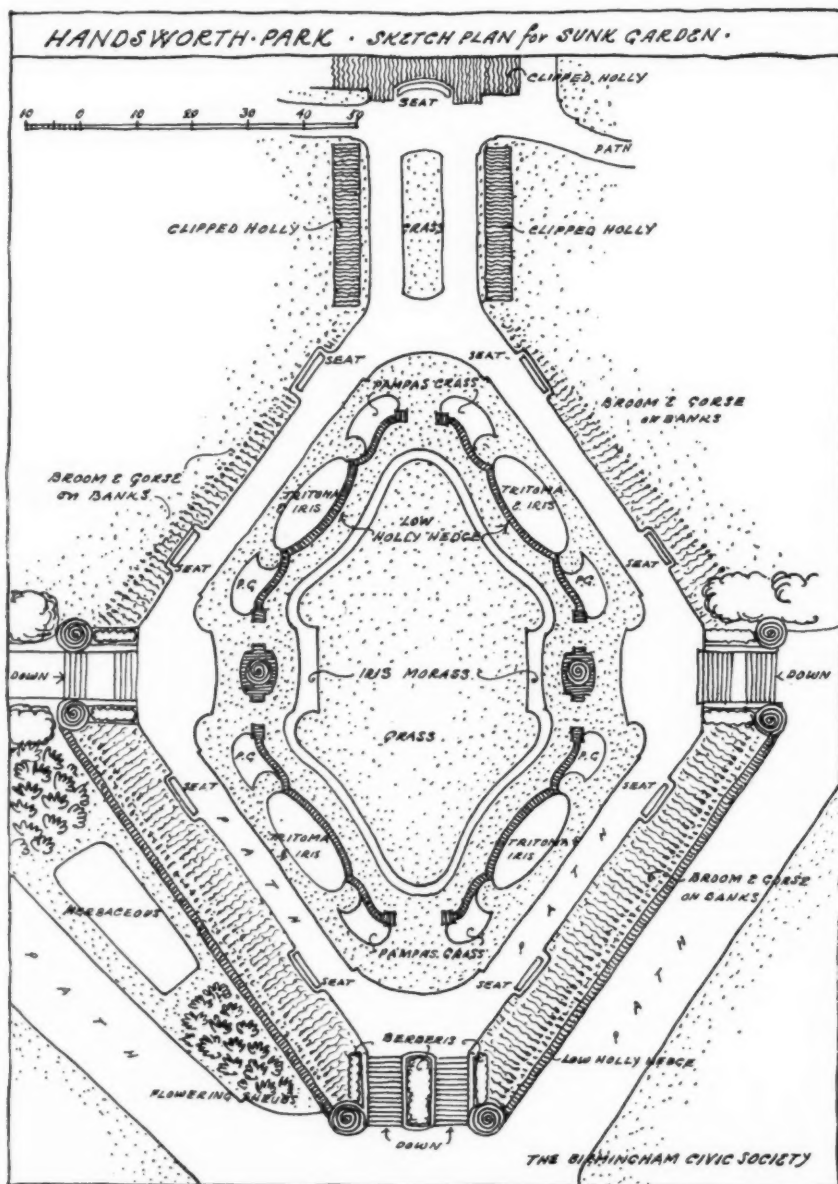
IN a foreword to its latest report (June, 1923-June, 1924) the Birmingham Civic Society return to a scheme for the entrance to Cannon Hill Park. This scheme was first put forward by the Society in 1921 as part of a larger scheme which included the revision of an important road junction. For various reasons progress with the work has been slow; but the old derelict road which was suggested as the new approach to the park has now been reclaimed; the hedges and the herbaceous borders are already planted, and the entrance pavilion and gates are now in course of erection. A line drawing of the pavilion is given on the facing page. Reference also is made to the interesting possibilities of the new park at Yardley, where the City Parks Committee—actively supported by the Society—have purchased the old half-timbered schoolhouse adjoining the church, and have accepted their collaboration in converting this beautiful old building into club rooms.

Handsworth Park

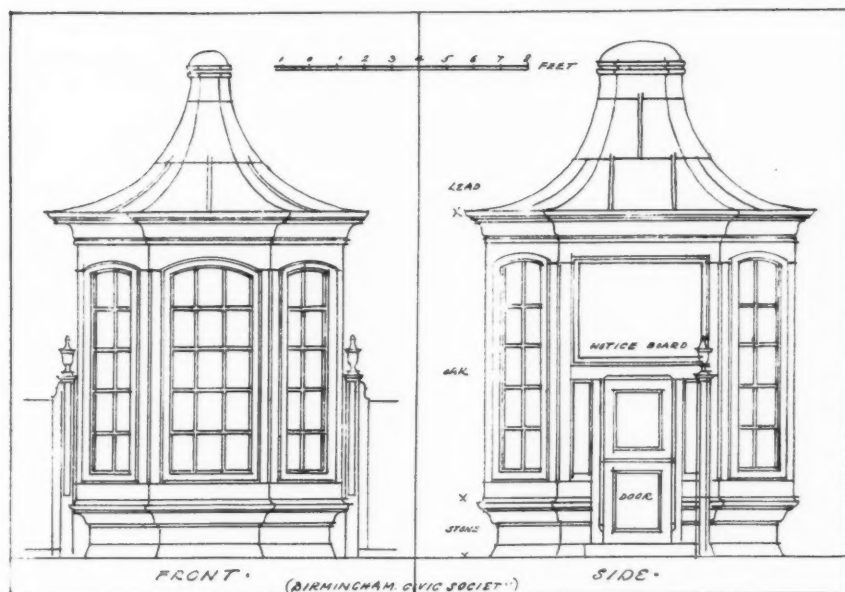
The plan for a new formal garden at the entrance to Handsworth Park will serve as an indication of one of several park designs on a small scale for which the Society has been responsible. The site of this garden was previously an irregular hollow, with informal shrubbing and no public paths. The executed design makes use of an opportunity for the display of formal pattern work, carries on the axial line of the park entrance, and adapts itself to the natural levels of the ground and the existing informal paths in the vicinity.

Telephone Kiosks

It was stated in their last report that the Society were engaged in an attempt to improve the appearance of public telephone boxes or kiosks. The hon. secretary called upon the Director of Telephones, London, and submitted



(From the Birmingham Civic Society's Report.)



ELEVATIONS OF THE CENTRAL PAVILION TO THE NEW ENTRANCES AT CANNON HILL AND KING'S NORTON PARKS.

(From the Birmingham Civic Society's Report.)

for his inspection a special model prepared to a design approved, first by the council, and afterwards by the committee of the Birmingham Public Works Department and the Birmingham Advisory Art Committee. This design represented a kiosk not only superior artistically to those now in use, but also more convenient and cheaper to construct. The receipt of the model was acknowledged by the director, and it appears to have stimulated the department to the preparation of a number of alternative designs, which were referred for adjudication to a special committee of the department. The deliberations of this committee

ended in the selection of a design illustrated in THE ARCHITECTS' JOURNAL for February 6, 1924.

The council of the Society have not been content to leave this decision unchallenged. Kindred societies have been asked to use their influence in favour of a more worthy design (though not necessarily that one illustrated). As a result, the Royal Commission of Fine Arts has been asked to prepare and submit further designs to the department; so that, although the Society may not see their own design adopted, one may still hope that the trouble and cost of their effort have not been spent in vain.

Book Reviews

Sheffield Civic Survey and Development Plan.

The excellent reports for which Professor Abercrombie has been responsible during the last few years, such as those on the development of Dublin, Doncaster Region, and Stratford-on-Avon, have now been followed by one for the City of Sheffield. Ably assisted by Mr. R. H. Mattocks, the author in his "Civic Survey and Development Plan of Sheffield" gives further proof of his profound insight into the potent forces at work in the growth of an industrial town. The book is divided into two parts, the first of which consists of a didactic analysis, entirely independent in its point of view, of conditions as they now exist in Sheffield, while the second half embodies the author's suggestions for the control of future development in the city and suburbs.

Turning to the first part—the civic survey, the reader is presented with all the facts from which the author has made his deductions and in their proper sequence. There are sections dealing with natural topography, history, boundaries, natural zoning, industries, communications, the distribution of the population, housing and open spaces. Such an accumulation of figures and data would, in the hands of a nineteenth-century statistician, have been presented in a form as unpalatable to the reader as the black smoke that lies over the lower Don Valley. Yet this is by no means the case in the Sheffield report, for with a keen appreciation of Sheffield's unique situation, encircled by beautiful hills, and conscious of its potential greatness as the home of the steel industry, Professor Abercrombie

has given us a most vivid picture of the complete civic organism. One can indeed visualize most clearly this very congested community of men skilled in highly technical trades, and can realize the conditions under which they work and play, because all such information is graphically shown in a complete series of maps, drawn with imagination and printed in good simple colours.

So much for the civic survey. The second part of the report contains most valuable constructive proposals for the future, beginning with the "zoning" of the city. In this connection there is no question as to the real function of Sheffield. It is eminently a centre for industries, and these mostly of the "heavy" class, which have already, very fortunately, established themselves in the proper zone, i.e., the lower Don Valley. As "zoning" is at the root of all town-planning schemes, one must agree most emphatically with the author's introductory remarks to Part II. He says, "a zone plan must above all be capable of flexibility: a city is too complex a thing for it to be possible to invent three or four pigeon-holes in which all its activities can be thrust. But while it must not be rigid it must possess courage. . . . A courageous zoning scheme does indeed aim at guiding the development of a place and avoids rashness by dint of careful study of natural tendencies."

Then follow suggestions for new traffic routes, the re-distribution and grouping of the population, and several ideas for central improvements. An enlarged Park system would, if carried out as the author suggests, place Sheffield

in the first rank among English towns as regards facilities for recreation, and this with comparatively little expense, for it already has access to open moorlands and some charming riverside reservations.

Perhaps the most definitely constructive proposal is for the establishment of several self-contained satellite suburbs and "neighbourhood centres," making use of the excellent train and omnibus services now existing. This is the ideal and natural method of expansion. There are, too, several practical hints for the improvement of the railway terminals and extension of water transport, but we believe too little emphasis has been laid on the vital necessity for such a city to abolish the smoke cloud and adopt more neo-technic methods of producing energy. This is a matter perhaps outside the scope of the development plan, but if the medical and engineering professions do little to improve the air breathed by the urban dweller, town planners will have to take the initiative, more particularly in a city with a reputation like Sheffield.

In conclusion, one might add that this report is a model of its kind, both in its subject matter and in the form in which it has been produced. The fifty plates and diagrams are as admirable as the text. W. HARDING THOMPSON.

"Civic Survey and Development Plan of Sheffield," by Professor Abercrombie and R. H. Maitlands. The University Press of Liverpool, Ltd. Hodder and Stoughton, Ltd. 20s. net, cloth; 15s. net, paper.

"Practical Cabinetmaking."

This book has been written by Mr. Henry G. Phillips to supply information concerning cabinetmaking in all its branches. It is the result of actual experience, and is suited to those who may be just entering the trade, as well as to the more advanced craftsmen. After describing the tools used in the craft, and explaining their uses, he describes the making of bedroom, dining-room, drawing-room, library, and other furniture, and explains all the processes from the making of simple joints to the finished article. He also deals with workshop practice, machines, panelling, cabinet brasswork, and timber. Not only does the author put forward his instruction in a lucid and simple manner, but he also shows most suitable methods by which the information may be assimilated by the reader. Particular care has also been given to the illustrations, of which there are no fewer than 327. To avoid confusion these are all carefully and distinctly produced in line, and great use has been made of sketches and of isometric projection to show detail which is not likely readily to be understood from a working drawing. The book is published at such a modest price that there should be no longer any excuse for ignorance of the practical principles of the cabinet-making craft.

"Practical Cabinetmaking." By H. G. Phillips. Price 4s. net. George Routledge and Sons, Ltd., Broadway House, 68-74 Carter Lane, London, E.C.4.

Enquiries Answered

Enquiries from readers on points of architectural, constructional, and legal interest, etc., are cordially invited. They will be dealt with by a staff of experts, whose services are specially retained for this purpose. If desired, answers will be sent direct through the post. In no case is any charge made for this service. Whenever diagrams accompany an enquiry, they should be clearly drawn and lettered and inked in.

THE FILTRATION AND STORAGE OF RAIN-WATER.

"A. R." writes: "It is desired to convert a large barn on a hill on the South Coast into a dwelling. It has no water supply, but there is a concrete R.W. tank 11'6" diam. (circular) by 15 ft. deep, which gives, I think, over 9,000 gallons contents. This is collected from a roof area of over 2,400 sq. ft.

"(a) Is it practicable to use this for *all* purposes, and how does one filter or treat it? (Mr. Harvey's article, in your issue of July 2, suggests that it *is* practical.)

"(b) Is this a good enough quantity to rely on in the south of England for about six persons?"

"Obviously if this supply can be made to serve, it will save much expense and uncertainty in well-sinking."

—The storage of rain-water for all purposes is perfectly feasible in England, as in other parts of the world, though the disadvantage of so doing in this country is that the householder is probably unused to the method, and is unable or unwilling to attend to the necessary precautions, cleaning of catchment areas and storage tanks, renewal of filtering material and prevention of contamination by sewage, etc. Some district councils refuse to class new houses as "habitable" that are not supplied with water from an approved source, and the medical officer of health for the district should be consulted before any expense is incurred in adapting the existing water tank and buildings.

The quantity of water available may be calculated as follows:—

Hawkesley's rule for storage gives the number of days for which storage should be provided in proportion to the rainfall as equal to $\frac{1,000}{\sqrt{F}}$ where $F = \frac{1}{2}$ mean annual rainfall.

Taking the mean annual rainfall in the south-east of England as 20 in., this gives $20 \times \frac{1}{2} = 10$ in.;

$$\frac{1,000}{\sqrt{10}} = \frac{1,000}{3.16} = 316 \text{ days' suppl. y.}$$

Daily needs of a household of six persons: 6×20 gallons

= 120 gallons; 245 days' supply \times 120 gallons = 29,400 gallons required storage capacity.

These figures indicate that two other storage tanks equal in cubic contents to the existing one would be necessary at the least to meet the emergencies of dry years.

The area of catchment is estimated on a basis of three-fifths of the total rainfall, as it is not possible to collect every drop of rain. A roof whose horizontal area is 2,400 sq. ft. would therefore collect $2,400 \times 20 \times \frac{3}{5}$, or 2,400 cub. ft. of water when the rainfall is 20 in. per annum. Stated in gallons this gives 14,954 gallons per annum as against 43,800 gallons required at 120 gallons per day for 365 days. The catchment would therefore have to be enlarged to approximately three times its present area. The exact average annual rainfall on the site very greatly affects the question of catchment and of storage, and local figures should be obtained.

The estimate of 20 gallons per head per day is not lavish, but agrees with the figure of 25 American gallons at 0.1336 cub. ft. per gallon.

A family depending upon rain-water would presumably exercise care to avoid waste. Cottages without fixed baths where all supplies are drawn in buckets or pumped, and where the dry earth system of sewage disposal is in use, probably do not need quite so much.

The figures should be confirmed by visiting existing premises where rain-water is used, and ascertaining what size tanks have been installed, and whether it has been necessary to purchase and carry water in hot summers.

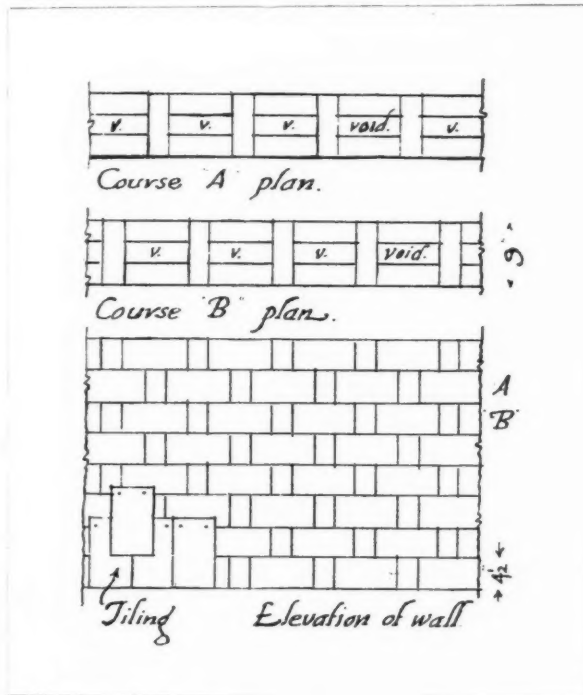
Filtering should be performed before storage of water by making the supply pass through 2 ft. 6 in. of fine sand, 6 in. common sand, 6 in. shells, and 2 ft. 6 in. of gravel. One square yard of filter is allowed for each 700 gallons passing in twenty-four hours. For cleaning the filter the collected dirt is removed from the surface of the sand, and the sand itself removed for cleaning or renewal at short intervals. The stored water after filtering should be clean enough for all purposes excepting drinking. A supply for

this purpose is run through a special filter in the house supplied with a suitable coagulant to arrest minute impurities that have escaped the sand. The boiling of water for twenty minutes in a closed vessel, or, better still, condensing it in a proper apparatus, are frequently resorted to in order to render stored rain-water safe for drinking.

WILLIAM HARVEY.

"RAT-TRAP" WALLING.

"M. A." writes: "In describing, in your issue for July 23, the construction of two houses at Cranleigh for the masters of Cranleigh school, you mention 'rat-trap' walling covered with vertical tiling. Please tell me what this is, and how it is constructed."



—"Rat-trap" or "mouse-trap" is the local description for walling built as shown in the accompanying sketch. It is a semi-hollow wall, and the bricks are laid on edge, thus making the horizontal joints $4\frac{1}{2}$ in. apart. The vertical tiling is nailed into these joints, thus saving the cost of battening the walls to receive the tiles.

PROVISIONAL OR P.C. AMOUNTS.

"Herefordian" writes: "In fixing a provisional or P.C. amount of, say, £20 (in an architect's specification) for certain goods to be obtained from a specified firm, whose name and address is given, would the architect be responsible to that firm for payment, supposing that goods had been ordered by the builder and yet not paid for by him, even if the final certificate of payment to the builder had been made for carrying out the contract work? I have been given to understand that specifying the P.C. amount or provisional sum, and name and address of the firm to whom the builder must purchase from, makes the architect liable if the builder has not paid the firm's account."

—The right answer to your question depends upon the exact wording of the correspondence or communications with the builder, and with the specified firm supplying the goods. Prima facie the architect is not liable, but he may very easily have made himself liable. The whole facts and correspondence should be carefully considered and advised upon by a solicitor.

STRENGTH OF FLOOR AND WALLS.

"F. V." writes: "I enclose sketch of an existing building in which it is proposed to place a 13 ft. by 6 ft. by 5 ft. high, galvanized iron water tank on the loft floor, and I shall be glad to know if you consider the structure strong enough to carry the weight. If it is not, please give sketches of how to deal with same in the cheapest manner."

"The ground floor is permanently used as a coal store, which might tend to bulge the walls."

"The tank weighs approximately one ton, and will always be kept full of water."

"Should it be found necessary to strengthen walls it will have to be done as exterior work as the tank is already built in."

—The tank weighs 1 ton, the water weighs $\frac{13 \times 6 \times 5 \times 62\frac{1}{2}}{2240} = 10.88$, say, 11 tons, or a total to be carried of 12 tons. The fir joists are 7 in. by 3 in., and 11 in. apart; each on a 14 ft. 6 in. effective span will carry $\frac{3 \times 7 \times 7}{14 \times 5} = 10$ cwt. distributed,

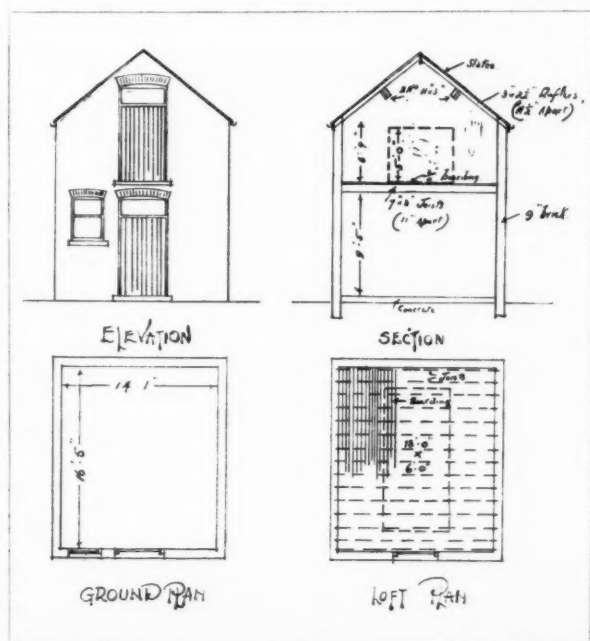
with a bending moment of $\frac{Wl}{8} = \frac{10 \times 14.5}{8} =$, say,

18 cwt.-ft., or for the thirteen joists supporting the tank $18 \times 13 = 234$ cwt.-ft. The total bending moment produced by the full tank will be $6 \times 7.25 - 6 \times 1.5 = 34.5$ ton-ft., $34.5 \times 20 = 690$ cwt.-ft., and the floor is only good for 234 cwt.-ft. Separate provision should be made, therefore, by two 12 in. by 5 in. by 32 lb. rolled steel joists, put under the floor boards through the walls from side to side, resting on 6 in. by 3 in. by 12.4 lb. channel stanchions with 4 in. by 4 in. by $\frac{3}{8}$ in. angle cleats riveted at the top to form a cap, to which the joist should be bolted. A sufficient base plate and foundation to each should be put in to carry, say, 5 tons. The ground floor being used as a coal store is also a serious matter, as the thrust when the coal is 6 ft. high

may reach $\frac{1}{2} \text{ wk ton}^2 \left(\frac{90 - \theta}{2} \right) = \frac{1}{2} \times \frac{1}{2} \times 6 \times 6 \times \text{ton}^2 \left(\frac{90 - 36}{2} \right)$

$= 9 \times .25 = 2.25$ cwt. per foot run, which, with the other loads to be carried, would make the maximum compression on the brickwork about 3 tons per square foot, and the tension about 2 tons per square foot. The remedy would be to store the coal in sacks only one tier high, and to rely upon the channel stanchions to act as buttresses to the walls.

HENRY ADAMS.



Bridgeton Public Halls Competition, Glasgow

A Criticism of the Designs

THE problem set to competitors in this competition appears at the first glance to have been a simple one—merely the provision of a large hall and a small one, with their necessary retiring rooms, etc. The site is apparently of ample area, and there are no difficulties of level. It is the shape of the site which has proved the stumbling block to many of the competitors. No two opposite sides are parallel, and the acceptance of any one frontage line of the streets on three sides involved ignoring the other street frontage, or their acceptance at the expense of wasteful and complicated internal planning.

The principal frontage is that to London Road, a main thoroughfare, and most of the competitors, including the authors of three of the principal schemes, have made their principal entrance here. Others have thought apparently that the quieter side street would be a better entrance point. A few, greatly daring, have been intrigued with the idea of a corner entrance, and thereby plunged into a quagmire of internal planning. There are the usual freak schemes with circular halls, costly and unnecessary corridors, and other features quite unsuitable for a suite of halls to serve the needs of a working-class district in a large city.

The large number of schemes submitted, between ninety and one hundred, makes it impossible to analyse the designs individually; but we think it will be agreed that the design placed first fully merits its position, and provides in its general lines the right solution of the problem. The two halls, with their long axis at right angles to the main front, and the buffet accommodation between, is the general arrangement adopted in a number of the schemes, but the manner in which this arrangement is worked out by the winner, Mr. C. Cowles Voysey, is the most satisfactory. It is not without defects, however. The cloak-room and lavatory accommodation is very inadequate, the gallery of the large hall projects very deeply over the area, and the ceiling heights are cut down too greatly; but these defects can be remedied. The internal court is an interesting feature of the plan, but the practical requirements of the buildings would probably be served better if the space occupied by it was used for the improvement of the cloak-room accommodation. The architectural treatment of the exterior is both interesting and effective. It has refinement and character without any extravagance of detail, and expresses the plan and purpose of the building. The back elevation is somewhat forced, in fact, it is rather a drawing-board composition, as the elevation suggests a balanced effect which is negated by the varying projections disclosed on the plan.

The design of Messrs. MacNaughton and Son, and John Arthur, placed second, differs from that of the winner in the reversed positions for the two halls, the smaller one being brought to the corner of the two streets. This appears to be wrong as the site is deeper here, and, therefore, can take in the greater depth of the large hall better. Generally, it is a simpler and more spacious looking plan, but these virtues are obtained by placing all the cloak-room accommodation in the basement, and by sacrificing convenience of position for the artistes' rooms. The elevations are unattractive and poorly presented.

The third premiated design, that of Mr. Walter Alison, is entirely different from the first and second in its relationship to the site, and may cause some controversy as to the justice of "placing" a design which is presumably the best of a different but, on the basis of the prior placings, a wrong type. In this design the two halls are placed side by side with a corridor between, their long axis at right angles to and their principal entrances in the side street. This arrangement gives greater length, and, therefore, a better

proportion to the interior of the large hall, but it involves the sacrifice of convenience in the placing of the buffet in relation to the two halls, and externally throws the frontage to the principal street out of any relationship to the building line. The architectural treatment is conventionally sound, if somewhat commonplace.

The design of Messrs. Harrison and Ash, placed fourth, is a variation of the type disclosed in the first. Its principal defect is the cutting down of the ground floor area of the small hall, the balance of accommodation being obtained in a gallery which, for many of the purposes for which this hall would be required, would be useless. The arrangement of entrances, a main central entrance common to the two halls with side entrances, while it gives better cloak-room accommodation, is both practically and architecturally inferior to that shown in the scheme placed first. Externally this design gains in balanced effect on account of the uniform height of frontage necessary, but this advantage is obtained through defects in the planning.

In making his award the assessor, Mr. James Lochhead, F.R.I.B.A., commends a number of other designs, among these, No. 80, by Messrs. Cackett and Burns Dick, which apparently only lost its chance of a place on account of its excessive cost. It differs from the premiated designs in having the small hall placed on an upper floor with the buffet and kitchen under, which gives a larger space for cloak-rooms and crush hall. The elevations, while interesting and well proportioned, totally belie the interior arrangements.

Of the others mentioned, we think the only ones which could have seriously been in the running as variations of the accepted type are No. 59, by Mr. Chas. B. Pearson, which is excellent both in plan and elevation, and from a cursory survey superior to some of the premiated designs; No. 51, by Mr. T. Harold Hughes, which is simple and well proportioned in its arrangement and external treatment; No. 14, by Mr. Wm. R. Glan, with a good plan, but restless elevations emphasized by the method of presentation adopted; and No. 34, by Mr. James MacGregor, which is on the right lines and has a quiet and refined exterior treatment.

No. 20, by Messrs. Buckland and Haywood, though not mentioned by the assessor, is also worthy of notice, its plan being similar in general arrangement to the winner's, while its elevations, though marred by over emphasis of the roofs, are distinctive and expressive. It may have been disqualified on account of the method of rendering employed, or its apparently excessive cost.

The remainder of the mentioned designs are the best of various types, and a study of them only discloses that the lines adopted in the accepted design give the most convenient arrangement of plan.

No. 70, by Messrs. Wright and Wylie, is of the type which adopt the side street for principal entrances. They, unlike the author of the design placed third, keep their large hall parallel to the main frontage, and accepting also the line of the back street get a small hall which contracts in width from back to front.

No. 37, by Mr. Stewart G. Kirby, is a distinctive scheme in which the large hall is placed at right angles to the main front with the small hall at right angles to and entered from the side street. The minor accommodation is carried round the small hall and right up to the building lines, the result being one of the few schemes which fits the irregular shape of the site in a natural manner. Unfortunately, the arrangement does not give good intercommunication between the various parts. The elevations are very refined and suitable.

No. 17, by Mr. de Soissons, is notable for its external treatment and excellent draughtsmanship.

The Week's News

Big East-end Improvements.

The City of London Corporation are to deal with insanitary areas in the neighbourhood of the Minories, and have adopted a £95,000 scheme for rehousing the displaced tenants.

Public Baths for Deptford.

The Deptford Borough Council are about to build public baths and wash-houses in Evelyn Street, North Deptford, near the river. The estimated cost of the scheme is £72,769.

Easington Rural Housing.

At the last meeting of the Easington Rural District Council plans were passed for the erection of 135 houses by private enterprise.

Proposed New Fire Station for Leicester.

The Leicester City Council are applying to the Ministry of Health for sanction to a loan of £51,754 for the erection of a new central fire station and houses for the firemen.

Maidstone Bridge Widening Scheme.

High Street bridge, Maidstone, will be widened at a cost of between £40,000 and £50,000, to fit in with the Maidstone to Folkestone road scheme, which will cost £400,000. The widening of the bridge will be started during the coming winter.

Wallasey Promenade Scheme.

There is some objection to the Corporation's £750,000 promenade scheme, but it is anticipated that it will be overcome, and that as soon as the Bill has received Parliamentary sanction the work will proceed.

More Houses for Bolsover.

The Bolsover Urban District Council have decided to seek the sanction of the Ministry of Health to borrow £14,000 for the erection of houses in Moorfield Lane, and £2,650 for the construction of the necessary roads and sewers.

A Sheffield Road Improvement Scheme.

The widening of the "blind" corner at Whirlow, part of a scheme at Ecclesall, which it is understood will cost about £30,000, will do away with one of the most dangerous bends in Sheffield.

Proposed New Bridges for Glasgow.

A special sub-committee of the Glasgow Corporation have recommended the construction of a bridge over the River Clyde in the centre of the city to relieve the traffic congestion. A new bridge is at present being constructed at Oswald Street, but this is not considered sufficient to relieve the congestion.

Severn Electrical Power Scheme.

The Government have decided to investigate at once the feasibility of the scheme for using the tidal power of the River Severn for the production of electrical power by the erection of a barrage across the river. The cost of the scheme has been estimated at about £26,000,000.

The Repair of the Mosque of Omar.

King Hussein has sent £25,000 in gold to Jerusalem for the necessary repairs to the Mosque of Omar. Known also as the "Dome of the Rock," it marks, according to tradition, the very spot where the "Holy of Holies" of King Solomon's Temple formerly stood.

Tadcaster Rural Town Planning Scheme.

Messrs. Ernest G. Allen, F.R.I.B.A., M.T.P.I., and Alfred Reginald Potter, M.T.P.I., of London, have been appointed by the Tadcaster Rural District Council to prepare a town-planning scheme for a portion of its district, comprising some 5,700 acres.

The late Mr. E. M. Johnson.

It is with deep regret that we record the death of Mr. Edward Mayott Johnson, after an operation for appendicitis. He was a director of Messrs. Locke, Lancaster and W. W. and R. Johnson and Sons, Ltd., of 14 Fenchurch Street, London, E.C.3, lead and zinc manufacturers.

Ancient Buildings of Architectural Interest.

Will our readers kindly notify us of any ancient buildings of architectural interest around which scaffolding has been erected? We propose to publish in the JOURNAL from time to time a list of such buildings for the benefit of students who wish to make measured drawings.

Bradley Hall for Stratford-on-Avon.

Bradley Hall, a half-timbered house at Kingswinford, Staffs, bearing a date of the fourteenth century, has been acquired by the Stratford-on-Avon Guild, and is to be pulled down and reconstructed at Stratford. The hall is near Holbeach, where conspirators in the Gunpowder Plot made their last stand.

Housing Developments at Radcliffe.

The Radcliffe Urban District Council have passed plans for the erection of fifty houses in the colliery district of Outwood by private enterprise. The Council have also decided to build fifty houses themselves in the same district. The Council are also purchasing fifteen acres of land on which there will be provision for 182 houses.

Memorial to the Inventor of Portland Cement.

The American Portland Cement Association have offered to the Leeds Corporation a bronze memorial tablet to commemorate the achievement of Joseph Aspdin, the Leeds stonemason who invented Portland cement 100 years ago. The Corporation have accepted the gift. The memorial is to be placed in the Town Hall and unveiled on September 6.

Thirteenth-century Glass Panel for the Victoria and Albert Museum.

With the generous assistance of Sir Otto Beit, K.C.M.G., and the National Art Collections Fund, the Victoria and Albert Museum has acquired a fine panel of thirteenth-century stained glass. The panel, an example of the art of stained glass at the height of its achievement, is exhibited among the thirteenth-century stained glass in Room 110.

An Ancient Castle Discovered near Newport.

In a field near the ancient parish church of Llanhilleth, near Newport, the remains of an ancient castle have been discovered. The turrets, eye-holes, and some secret passages have been unearthed. The operations will continue till the whole fabric is exposed. In the same field there is a curiously-shaped mound, which, it is thought, will yield other discoveries.

Proposed Bandstand Improvement for Eastbourne.

Professor S. D. Adshead has reported against the removal of Eastbourne's bandstand from its position on the Grand Parade. He is in favour of the construction of an oval projection on piles on the present site, with a band enclosure, 200 ft. wide and 175 ft. deep, which will provide accommodation for 3,000 people. The estimated cost is between £30,000 and £40,000.

Waterloo Bridge.

The decision of the London County Council in regard to Waterloo Bridge will not be made until towards the end of the year at the earliest. In the meanwhile the Council are pushing on with the building of the temporary bridge, which will take nine months at the least to complete. It is being built at the down-river side opposite Somerset House, and as close as possible to the existing bridge, so as to allow of the use of the present approaches, north and south.

Dublin's £1,000,000 Housing Scheme.

A scheme for the erection of a further 1,500 houses on the north side of the city is being promoted by the Dublin City Commissioners. This scheme is in addition to the big scheme at Marino under which between 1,200 and 1,500 houses are contemplated. The site of the new scheme covers about 160 acres. It will involve an expenditure of over £1,000,000, and will provide continuous employment for about 3,000 men for from three to four years.

Roman Discoveries at Folkestone.

An exedra has been unearthed at the Roman site at Folkestone. One of the walls is in the shape of a large bay, from which splendid views of the Channel could be obtained. A fourth hypocaust has been excavated, and in the centre is a large hearth, three sides of which are straight and the other is semicircular. Close by are two large stone piers, standing 2 ft. high. On the top of these piers, it is thought, was a large water tank, the water in which was heated by a fire between the piers. The floor of this room is covered entirely with burnt wood ash.

Contemporary Art

British Industrial Art.

There are two main aspects in the consideration of the question of the applied arts. In some ways the more important is that of manufactures, for these are fabricated on the large scale for the use of the million. The other is the production of craft-work, more or less individual, for the few, which makes and maintains its own safeguards. Manufactured articles, in many cases, have for too long been left to the untender mercies of men who know little of art and care less; men who are engaged in trades not for the sake of the trades, but for a mere living. There is still an urgent need for progress in British industrial manufactures; indeed, a revolution in many trades is the only solution.

It is as well, therefore, that extensive efforts are now being made to at least modify the aims of omission and commission of British manufactures. One of the most hopeful signs is the establishment at the Victoria and Albert Museum of a depot at which a selection of work by individual craftsmen can always be seen, and where articles of an artistic character, made on the large reproductive scale, can always be examined. There is a charming collection at South Kensington now, and it is to be periodically changed and renewed. The individual work is there for purchase, and commissions are accepted. But in this direction the Arts and Crafts Exhibition Society, the Art Workers' Guild, and other only less important organizations have led the way. It is in the wider field of the industrial arts proper that the real benefit of the movement will be felt.

It is admirable that it takes on the complexion of a national stirring by its location at the museum, and this is due to the efforts of the British Institute of Industrial Art, acting in association with the Design and Industries Association, and the Civic Arts Association. Already many exhibitions abroad, in London, and in the provinces have been held, but the constant renewal of the exhibition is its distinctive feature. It could hardly be expected that everything about this initial venture should be satisfactory, or that all will be well now that it is established. The British manufacturer—especially the hardware-man—has yet to be harnessed, and until he is the movement cannot proceed. The training of the workmen goes on from success to success at our schools and schools of art, but how many manufacturers are there who have taken the trouble to study this question or to train their sons and successors in the principles of art and taste?

This is the problem the Institute of Industrial Art will find the hardest to face. It is very well that Powell's glass and Pilkington's tiles should find a place here, and that men like Sir Henry Birchenough and Sir Frank Warner, long associated with the improvement of textile design, should have weight on the governing body; that good craftsmen's work should show the way that manufactures should follow; all these things are constructive in the best sense, but a wholesale destruction of the wholesale patterns of the past is needed. In this first attempt at permanency this is insufficiently brought out; the craftwork is beautiful as well as abundant, but too precious and too little practical to show the way to the desired end, which is the improvement of the walls and floors of halls and houses; their doors and windows; their furniture and decorations: the halls and houses in which the life of the millions will be spent, and from which the industrial manufacturer derives his profit and claim to live. There is a further consideration of extreme importance, which is that with the production of beautiful articles, even by machinery and on the largest scale, the moral degradation of the workman will be arrested; he will once more be proud of the things he makes or helps to make; a profound factor in the future of civilization.

KINETON PARKES.

Trade and Craft

"Stantonite" Waterproofing.

Ever since man, when he was *not* man, but a sea creature, was cast up out of the waters and found himself on land, he has been trying to keep himself dry. First he sheltered in large trees and caves (and, for the time, they were good enough); then he built houses (and they, too, have served). But the snows of winter and the storms of summer still pursue him—and he grows more sensitive to their attacks—racking him with agues as if revengeful at his ever forsaking the floods. Water is trying again to claim man for its own! Walls of bricks and stones protected him well once, but conditions endured by his grandfathers would be the death of him to-day. Are

not half the pains of old-age caused by indifference to the weather in one's youth?

Among the products invented to aid man in his war with the elements is "Stantonite," which is stated to be not only water- and oil-proof, but wear-proof and dust-proof. For damp walls it is applied simply with a brush, and rendering is totally unnecessary. In flooring it is applied mixed with cement. Precise information as to its application may be had from the manufacturers, the Stanton Ironworks Company, Ltd., Nottingham.

H. J.

Gas Lighting in the Wembley Amusement Park.

There are in the Amusement Park at Wembley low-pressure gas lamps which give 500,000 candle power. In a paper read at the conference of the Illuminating Engineering Society, held at Wembley, Mr. G. L. Jennings, of the Brentford Gas Company, which supplies the exhibition with its three-quarters of a million cubic feet of gas per day, stated that this brilliant gas lighting made it possible on a night without a moon to walk and read a newspaper in comfort throughout the whole area which it lighted. Practically the whole of the amusement area of the White City had been lighted by gas from high-pressure mains. To-day the low-pressure gas lighting at Wembley reached the high standard required without the necessity for laying special mains. The average standard of illumination in the Amusement Park and the adjoining roads was equal to that outside Marlborough House, though at certain points where an "extra pull" was desirable columns had been set up carrying four instead of two gas lamps and giving a total light of over 6,000 candle power.

The Alterations to Westminster Hospital.

On page 310 of our last issue we stated that Messrs. Slater and Sons carried out the heating and ventilating in connection with the alterations to Westminster Hospital, London. This should read Messrs. James Slater and Co., Engineers, Ltd.

Competition News

The Manchester Art Gallery Competition.

On the day following the issue of the conditions of the Manchester Art Gallery Competition, more than fifty architects from all parts of the country had applied for them.

List of Competitions Open

Date of Delivery.	COMPETITION.
Sept. 24	Row of shops with hotel over. Premium £150. Apply Mr. H. Walduck, Imperial Hotel, Russell Square, W.C.1.
Sept. 30	The Hamilton War Memorial Committee invite designs for the proposed war memorial to be erected in the Public Park. The estimated cost of the memorial will be £2,000. Premiums £60, £40, £20, and £10. Mr. G. A. Paterson, President of the Glasgow Institute of Architects, will act as Assessor. Apply, with deposit of £1 rs., to Mr. P. M. Kirkpatrick, Town Clerk, and Clerk to the Committee, Hamilton.
Sept. 30	Designs are invited for a statue in bronze and a pedestal (at a cost of about £5,000) in honour of the late Sir Ross Smith, K.B.E. Apply The Agent-General for South Australia, Australia House, London.
Sept. 30	Competitive designs are invited for a Memorial Club House and Pavilion to be erected on the ground of the Glasgow High School Club at Anniesland, Glasgow. The competition is confined to former pupils of the High School of Glasgow. Apply Mr. Hugh R. Buchanan, Hon. Secretary, Glasgow High School War Memorial Committee, 172 St. Vincent Street, Glasgow.
Sept. 30	The Committee of the Harrogate Infirmary invite designs for the extension of the infirmary by the addition of 67 beds. Application had to be made by May 31.
Sept. 30	The Newton-in-Makerfield Urban District Council invite designs for Public Baths. Premiums £150, £50 and £25. Assessor Mr. Arnold Thornley, F.R.I.B.A. Application had to be made to Mr. C. Cole, Clerk to the Council, Town Hall, Earlestown, Lancashire, not later than July 25.
No Date	Memorial to the Missing at Cambrai and Soissons. Apply The Secretary (Works), Imperial War Graves Commission, 82 Baker Street, W.
No Date	Adding a second story to the Rhyl Conservative Club premises. Apply The Secretary, Market Street, Rhyl.
Jan. 20, 1925	Art gallery and museum of art for the City of Manchester. Assessors, Mr. Paul Waterhouse, Professor C. H. Reilly, and Mr. Percy S. Worthington. Premiums £500, £300, £200, £100. Apply with payment of 5s., which is not returnable, to Mr. P. M. Heath, Town Clerk.
Mar. 31, 1925	Bethune War Memorial. Assessor, Sir Aston Webb, P.R.A. Apply Secretary, Imperial War Graves Commission, 82 Baker Street, W.1.
May 1, 1925	The United Grand Lodge of England invite designs for re-building the Freemasons' Hall in Great Queen Street, Kingsway, London. Apply, with deposit of one guinea, to the Grand Secretary, Freemasons' Hall, Great Queen Street, London, W.C.2. The envelope should be marked "M.M.M. Competition."

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