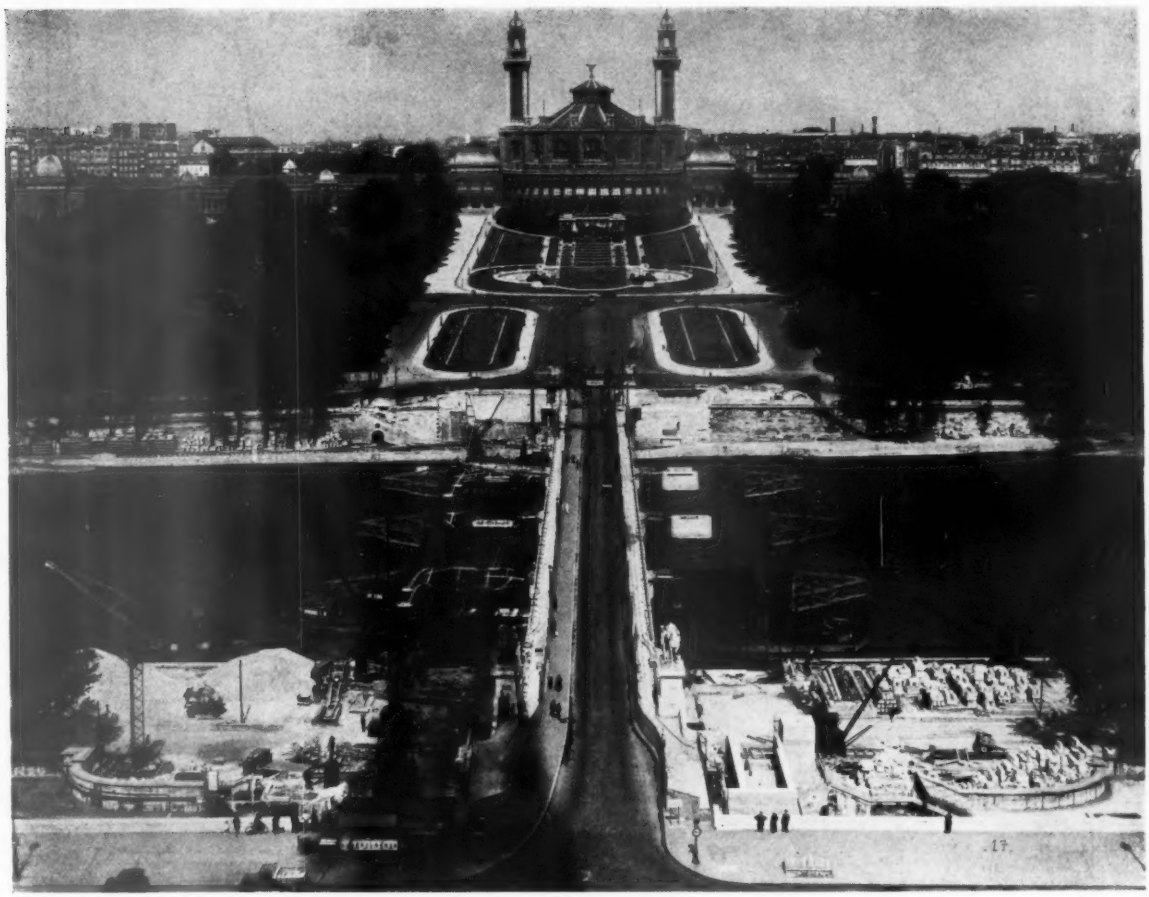
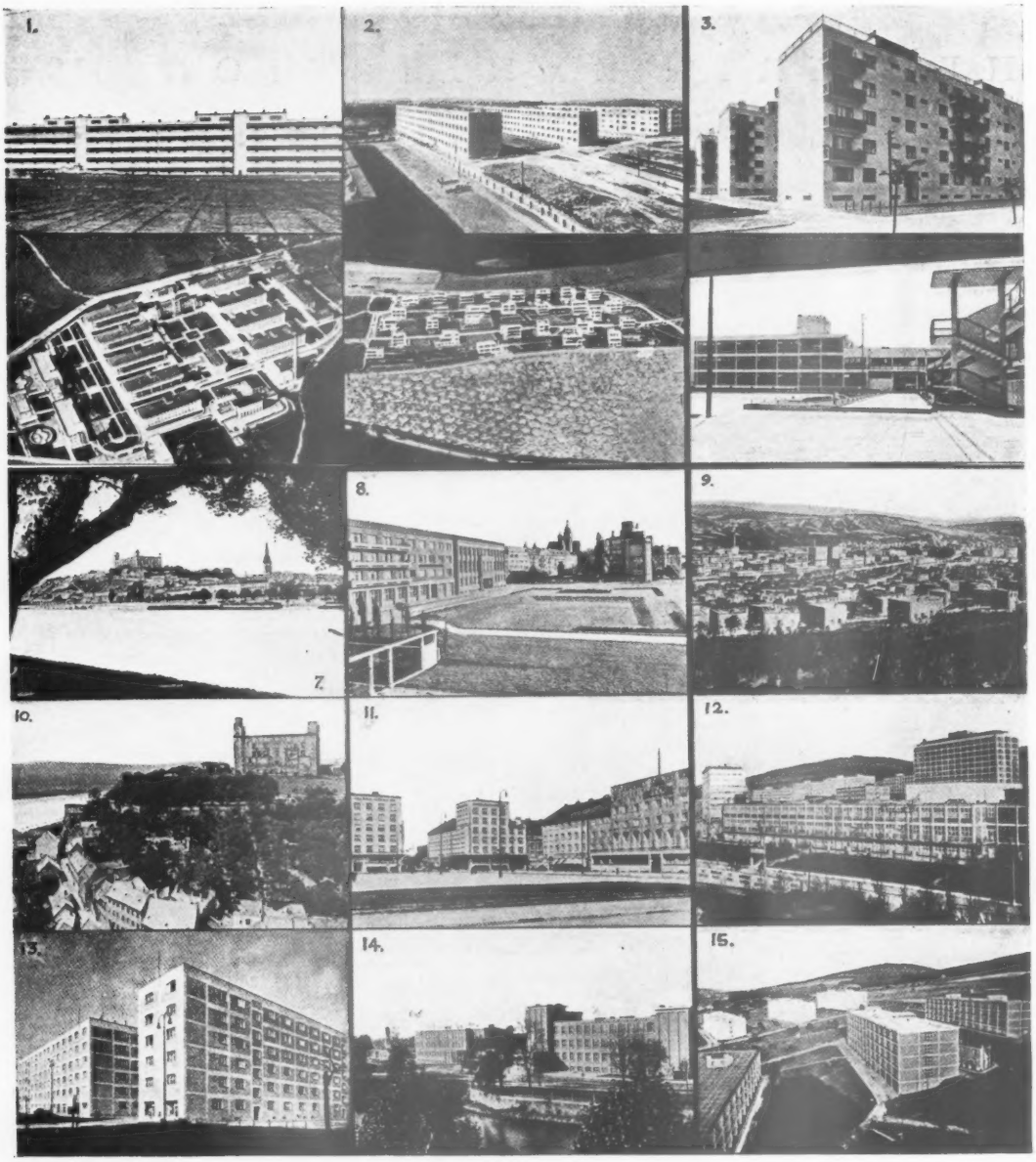
THE PARIS EXHIBITION 1937

WIDENING OF THE PONT D'IENA

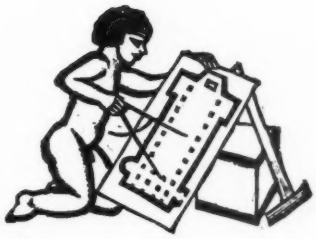


THIS photograph, taken from the Eiffel Tower, shows the existing theatre and museums of the Palais du Trocadero. In connection with the International Exhibition of 1937 it is proposed to demolish the central building and to form in its place a ceremonial entrance 220 feet wide. The flanking wings will be retained and extended, and their façades reconstructed to conform to the general architectural scheme of the Exhibition. In the foreground, work is seen in progress upon the widening of the Pont d'Iena and the foundations of the foreign pavilions.



INTERNATIONAL REUNION OF ARCHITECTS

Tomorrow, members attending the International Reunion of Architects will arrive in Prague for the commencement of a continental study tour arranged by the General Committee. The photographs reproduced above show some of the buildings in various towns of Czechoslovakia which will be available for the inspection of members: 1, 2, 4 and 5, Prague; 3 and 6, Brno; 7, 10 and 13, Bratislava; 8, 11 and 14, Hradec-Kralove; 9, 12 and 15, Zlin.



THE NEW HOUSING ACT

THE Housing Act, 1935, received the Royal Assent on August 2, and the attack upon overcrowding has now officially opened. Previous legislation has not been specifically devoted to this purpose—the various post-war Acts having been concerned mainly with encouraging by subsidies the building of working-class houses in general and the replacement of slums.

Indirect methods have not produced sufficiently rapid results in the way of alleviating overcrowding. The Government is now of the opinion that "the provision of new houses by private enterprise and otherwise is proceeding satisfactorily" and that "the local authorities who have slums to replace are well advanced in the five-year campaign."

We have expressed disagreement with both these opinions, and there is adequate evidence in support of our views. It is quite clear that private enterprise is not building a sufficiency of houses to let at rents which the working classes can afford to pay; it is quite clear that the slum clearance campaign is behind schedule. We do not think it likely, indeed, in many areas we regard it as impossible, that the first of these deficiencies will be remedied; it is possible, however, that local authorities will be able to recover the ground they have lost in regard to slum clearance.

Meanwhile, an additional task has been placed upon their shoulders. The policy of concentrating the activities of local authorities on slum clearance has been reversed, and these bodies have been told to return, broadly, to the work they were doing indirectly and incidentally before, but to attack their problem in a specified way to a specified end.

Local authorities are to make inspections of their districts, ascertain the number of dwellings that are overcrowded according to a standard laid down, and then to present schemes for the abatement of overcrowding.

Thus the two main aspects of housing activity—separated from one another when it was decided to accelerate slum clearance—have been partially reunited.

The provisions for abatement of overcrowding and matters connected therewith are the most important, but by no means the only, points to notice in the new Act. It contains a part devoted to the establishment of a Central Housing Advisory Committee, the empowering of local authorities to establish Housing Management Commissions, and the position of Housing Associations; a number of changes in the law relating to slum clearance, the reconditioning of agricultural cottages, and other matters, and provisions for the consolidation of Housing Accounts and the unification of conditions affecting local authorities' houses.

It is upon the first part of the Act, however, that attention should first be directed. Some criticism has been made of the overcrowding standard laid down, but it must be acknowledged that its achievement would mark a very great advance. It is one to which the members of local authorities can work with the prospect of seeing the task completed within, say, the next five years. Moreover, it is "reasonable" enough, surely, to avoid causing much deliberate obstruction by the less socially minded members of local authorities. And while housing rests largely with the local authorities that is an important point, unfortunate as we may regard it. It will be a very simple task, Parliament being willing, to set a higher standard at some future date by amending the First Schedule to the Act.

We are much more immediately concerned with the methods by which the overcrowded are to be discovered and the degree of freedom that is left to local authorities in the execution of their duties. Above all, we regard it as unfortunate that the necessity of conducting a proper housing survey has not been realized. The advantage gained by concentrating in the hands of public authorities the task of overcoming the worst of the housing shortage as well as that of rehousing the slum-dwellers is considerably reduced by the fact that in both respects the majority of authorities are unlikely to be properly informed of their tasks.

The provisions for the treatment of large overcrowded urban areas as "redevelopment areas" and for compulsory purchase of land in this connection make it possible for local authorities to rehouse large blocks of overcrowded persons on the site. It is to be noted, however, that the duty of following this procedure is laid upon local authorities only when they are satisfied on four questions, two of which are not questions of ascertainable fact.

We regard this Act, therefore, as showing the way to a further bettering of conditions, but recognize that it cannot provide anything like a final solution of the housing problem. It is unrelated to planning as a whole, it is indeed just one more addition to the mass of improvised social legislation through which so much progress has been achieved in this country, but which should be replaced now by something more suitable to the age of "efficiency" in which we are supposed to be living.

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

NOTES & TOPICS

THE COMPETITION SYSTEM

THE competition system of selecting an architect has had to put up with a lot of criticism in its time. And it is true that when one has competed unsuccessfully a dozen times it does begin to seem shocking that so much hard work should go entirely unrewarded.

*

But, on the whole, the system seems to be the fairest that has been evolved up to the present. It provides for all competitors an excellent post-graduate course of training in planning, for young architects a sporting chance of establishing themselves, and, for the promoters, a certainty of getting a building of a very high standard for a very small additional outlay.

*

It is only just, however, that promoters and their professional advisers should bear constantly in mind that they are going to obtain, entirely free of charge, a great deal of very hard work from men by no means wealthy.

*

And the fact that there is nothing to pay should not make them less mindful of their responsibilities in this matter. It is essential that they should make up their minds beforehand not only as to exactly what they want, but as to what they want to pay for it.

KENDAL

The recent Kendal competition illustrates this necessity very pointedly. In that competition no total cost was stipulated, and a most careful reading of the conditions did not indicate that economy would be considered vital.

*

As a result Mr. Verner O. Rees, the winner, adopted the reasonable average rate per cubic foot of a shade under 1s. 10d., with a total estimate of £68,400.

*

But now it is reported that, at a recent meeting of the Westmorland County Council it was recommended that no estimate exceeding £40,000 should be considered. Also that unless this could be complied with the Council should not proceed with the erection of the building. It was pointed out that the estimated cost of the scheme was in excess of what the Council had in mind.

*

It would not seem to be going too far to say that this somewhat important matter should have been thought of earlier, and that such a state of affairs is fair neither to the winner nor to the other competitors.

TOWN PLANNING IN ACTION

For a very long time town planning has been a very popular subject for rather theoretical discussions. Indeed, since the war alone there must have been innumerable lectures and meetings at which Karlsruhe, Bath and Haussmann were mentioned, and a general regret manifest that Wren's plan for London was never carried out. And gradually almost everyone became of the opinion that some form of positive town planning must eventually come into force.

*

But despite quite a lot of legislation, nothing very much seemed to happen—a result which in more progressive lands would, no doubt, have been attributed to sabotage by secret enemies of proletarian progress, but one which, amongst an enlightened democracy, was more unemotionally attributed to " those local authorities " !

*

At last, however, " positive " town planning has shown signs of being alive, and very vigorously alive, if in a negative way.

*

Acting under an Interim Development Order which came into force on May 27 last, the Town Planning Committee of the L.C.C. have bridged the gap between theory and practise by their decisive disapproval of schemes for the redevelopment of several sites in the metropolitan area.

*

Unfortunately, whilst certain of that which they dislike the Committee do not seem to be so certain of what they want to encourage. And pending the completion of at least the first section of the final town-planning scheme for London, no general guidance for prospective building owners, or for their harassed architects, seems to be obtainable.

*

No one can wish to prejudice the eventual attainment of a well-planned London by a too hurried production of the final scheme, but it is much to be hoped that before the present restrictions cause a serious slump in building production the L.C.C. will have seen some way of helping architects to become once again on speaking terms with impatient clients.

THE PARTHENON GALLERY

I had a momentary shock when I read in the *Daily Telegraph* that Lord Duveen has now approved the plans of the new gallery that he is presenting to the British

The Vauxbelets Chapel, Guernsey. This miniature chapel, built entirely by one man from material on the spot, is approximately 20 feet long and 15 feet high. It is a replica of the church at Lourdes. Pieces of broken china have been used for the "applied art" on the exterior.

Museum to house the Elgin Marbles, and that "building cannot begin until the leases of certain houses in Gower Street (i.e., the east side of Bedford Square) fall in, which will be in about 18 months' time."

*

I had a horror that all those assurances of the permanent safety of Bedford Square were, after all, a delusion, that our work to keep out the sacreligious trolley-bus from London's finest monument of eighteenth-century civility was to end in a worse catastrophe than loss of amenity—permanent mutilation : that Bedford Square was to be butchered to make a Periclean holiday.

*

However, I read thankfully on, that "for the new Parthenon Gallery they (the British Museum authorities, who are landlords of the Bedford Square houses) wish to encroach a few feet on the gardens at the back of the houses."

*

A few feet of garden is not an extravagant demand for the Museum to make. Indeed, the existence of the new gallery may serve to define the limits of the Museum's spread in that direction, and the Parthenon Gallery become a bulwark against the further devastation of Bloomsbury instead of the first encroachment on its centre.

*

But how else the Museum will next expand it is hard to think—unless upwards. One day will Smirke's Ionic portio suffer the fate of Soane's Tivoli Corner at the Bank, and be tolerated only as the dowdy base to some aspiring pile of 1985 in French Romanesque or whatever style is fashionable amongst the academicians of that date ?

OVERHEADS

Contractors in this country have quite enough things to allow for in their estimates, but once the job is started they are at least able to go on unhindered by actual violence.

*

Not so their American equivalents, who, I gather, are liable to be fleeced of $5,000 to call off a one-day strike, quite apart from paying regular tribute to prevent stored cement from damage by water and other unfortunate happenings.

*

All this because I see that a certain Mr. Dewey is running an enquiry into " any and all acts of racketeering . . . in New York." He's got a pretty tough job, but it ought to do a lot of good to the building industry in the whole of America.

HOUSING

I have done my best to plough through the Minister of Health's report for the twelve months ending in March of this year. The almost astronomical figures of the benefits distributed and the numbers of people insured under Health and Pensions schemes are so vast that one or two noughts here and there convey very little to me, but I *am* interested in the rest of the report.

*

Credit for the declining death rate should, I suppose, go largely to the medical profession, though architects might reasonably claim a few good marks for providing healthier buildings for those of the population that live in architect-designed houses.

*

The year has also been a record for private enterprise, with a total of over a quarter of a million houses, and I see that two-fifths of England and Wales is now under some form of town-planning control. Architects haven't done as much as they might, but that's because nobody seems to want them to, not because they can't.

POISONALITY

Some weeks ago I listened for several minutes while a friend from the advertising world spoke about publicity agents. Evidently all the great people employ them, even the great architects if my friend is to be believed.

*

Consider, then, my sense of flattery when a few days later a young (very young, alas) publicity man wrote to me. Had I ever thought of extending the scope of my architectural labours ? Had I considered allowing my personality to make even greater and wider contacts ?

*

If not, then could he do it for me ? Quite a simple plan, too, for he assured me of a personal paragraph circulated once a month to all the newspaper Press and one large photograph of self in the better illustrated weeklies sometime during the year . . . and all for 14 guineas a year.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

EXHIBITION CENTRE AT EARL'S COURT

On Monday last, work was started on the first stage of the construction of the new exhibition building at Earl's Court. The building, which is estimated to cost £1,250,000 is expected to be completed by January, 1937, in time for the British Industries Fair and other annual exhibitions which will be held there in 1937 and onwards.

The architects for the scheme are Mr. C. Howard Crane and Messrs. Gordon Jeeves.

BRITISH MUSEUM EXTENSION

Lord Duveen, who is paying the cost of the new gallery for the Elgin Marbles in the British Museum, has approved the plans, but building cannot begin until the leases of certain houses in Gower Street fall in, which will be in about 18 months' time.

The Secretary of the I.A.A.S., who has been officially informed of the position, states that the British Museum authorities already have, as landlords, control of the houses in question, but what they want to do for the purposes of the new Parthenon Gallery is to encroach a matter of a few feet on the gardens at the back of the houses. The gardens abut on the western front of the Museum, and the present householders have not granted permission for that extension of the museum building. Hence the delay in starting to build.

THREAT TO SOUTH DOWNS

The view of the South Downs from Eastbourne and Willingdon is threatened by the proposal of a Brighton syndicate to build houses above the 300 ft. contour on the slopes above Willingdon. Hailsham Rural District Council protested at a recent Ministry of Health inquiry, but the Minister has replied that while such building is undesirable the owners should be compensated if it is to be forbidden!

THE ARCHITECTS' DIARY

Thursday, September 5

INTERNATIONAL REUNION OF ARCHITECTS. *Until September 22. Itinerary for the week. Today, at Brussels. Visit to the International Exhibition. September 6: Arrive Prague. September 7 to 9: Prague. September 10: Hradec-Kralove. September 11: Zlin and Brno. September 12: Bratislava. The full programme of the tour was published on page 294 of last week's issue.*

LONDON MUSEUM, *St. James's, S.W.1. Exhibition of photographs, " New London from the Air." Open until further notice* 10 *a.m. to* 6 *p.m.*

R.I.B.A. INTERNATIONAL EXHIBITION OF ARCHITECTURE. *At the Royal West of England Academy, Bristol. Until September 28.*

Friday, September 6

ARCHITECTURAL ASSOCIATION. *Excursion to Spain.*

Tuesday, September 10

LONDON SOCIETY. *Visit to the new Geological Museum, Exhibition Road, South Kensington.* 8 *p.m.*

RICHMOND IMPROVEMENT

Richmond Station is to be rebuilt by the Southern Railway. It is divided into the old station, the Waterloo line, and the new station, used by the District and L.M.S. Railways. The former will disappear and shops, possibly with flats above, will be built on the site.

£86,000 SCHEME AT COVENTRY

The Coventry and Warwickshire Hospital Board of Management decided, last week, to proceed immediately with the first two sections of the scheme for the enlargement of the hospital, at an estimated cost of £86,000.

WORTHING COUNCIL OVER-RULED

The Ministry of Health has overruled Worthing Town Council's decision to forbid the erection of three blocks of flats on an estate overlooking the Marine Gardens. The area had been scheduled for private residences only, and the Council and adjoining owners protested that flats would be detrimental to the character and amenities of the neighbourhood.

R.I.B.A. EXHIBITION AT BRISTOL

The R.I.B.A. exhibition of international architecture was opened at the Royal West of England Academy, Bristol, last week, by Sir Fabian Ware, President of the Gloucestershire branch of the C.P.R.E. Mr. A. Mowbray Green, F.R.I.B.A., Chairman of the Bristol Society of Architects, presided.

Sir Fabian Ware said that the exhibition had already visited Manchester, Liverpool, and Hull and had attracted 60,000 visitors. " These attendances show," he continued, " that the national conscience is awakening to the defacement of England which has taken place since the war, and which is largely due to the lack of public appreciation of the value and power of architects to mould and improve our national surroundings.

" In this exhibition you see the best that the architects of the world have done in the last ten years, an achievement which, if the architecture of these years is to be judged by this work alone, compares not unfavourably with any of the periods of architectural history. In this work English architects have splendidly upheld the honour and reputation of their country.

" The more I study this exhibition the more I am led to hope that it marks a turn of the tide, and that, guided by our architects, we are being borne over the mud-flats in which we have floundered since the war."

The object of the exhibition, he continued, was to impress the country that we must plan. " The greatest sin of our generation, architecturally, is that there has been deliberate unplanning of what previous generations have planned."

SCOTTISH HOUSING PROGRESS

The Secretary of State for Scotland announces that the number of houses completed in Scotland under State-assisted schemes by local authorities during July was 892, as compared with 578 in the corresponding month last year. The total number of houses erected this year by local authorities to July 31 was 9,784, compared with 8,857 in the first seven months of 1934, an increase of 927.

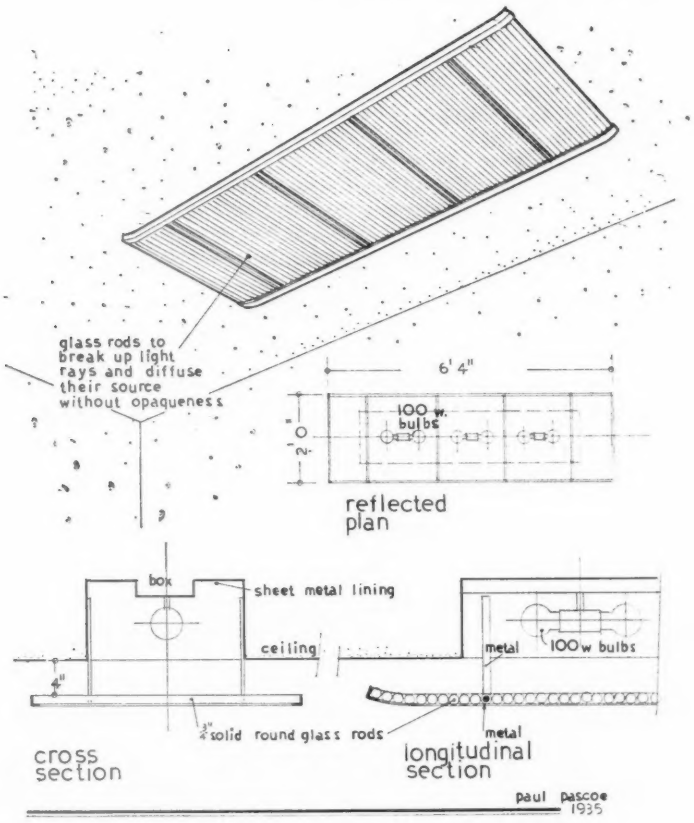
The total number of houses completed in Scotland under all State-assisted schemes up to July 31, 1935, was 192,935. At that date, there were also 17,099 houses in course of construction, while 6,374 houses which had been approved for erection had not been commenced. Many of the latter should now be under construction.

Recently, the majority of the houses under construction have been for the purpose of rehousing families displaced from condemned houses, but it is now confidently expected that, following the passing into law at the beginning of last month of the Housing (Scotland) Act, 1935, there will be before long many houses under construction all over the country for the relief of overcrowding. Already 666 houses have been tendered for specifically for this purpose, and a number of these are under construction. This work will, of course, proceed concurrently with that of clearing the slums, which continues to make steady progress. Approximately 53 per cent. of the houses which local authorities estimated were required for this purpose in the period 1934-38 have either been completed. are under construction or are about to be commenced.

Apart from the erection of new houses, it should be noted that the housing conditions of agricultural workers or of persons whose economic condition is substantially the same as that of such workers, has been very considerably improved. Up to the end of June last 18,656 houses had been reconstructed or improved with State assistance under the Housing (Rural Workers) Acts, 1926 and 1931, while work was in progress under these Acts on a further 2,828. The operation of the Housing (Rural Workers) Acts has been extended by Section 34 (1) of the Housing (Scotland) Act, 1935, until June 24, 1938.

OPEN SPACES AND PUBLIC POLICY

The scheme of the London County Council to convert 30 acres of Hackney Marshes into a building site was the subject of a letter in *The Times* for August 31 signed by the following: Mr. Basil Holmes (Secretary, Metropolitan Public Gardens Association); Earl of Cavan (Vice-Chairman, National Playing Fields Association); Marquess of Crewe (President, London and Greater London Playing Fields Association); Mr. Cecil Harmsworth (Chairman, Commons, Open Spaces, and Footpaths Preservation Society);



Built-in ceiling fixture. Designer: John R. Weber.

Lord Esher (Chairman, London Society); and Miss Janet Trevelyan.

The letter is printed below :—

We desire to associate ourselves with the protests which have already appeared in your columns against the scheme of the London County Council to convert 30 acres of Hackney Marshes into a building site.

The Housing Acts and a number of other statutes contain provisions, inserted at the instance of the open space societies, which provide that when it is found necessary to appropriate for urgent public purposes any part of a common or recreation ground the rights of the public shall be safeguarded by the provision of an alternative area to the satisfaction of the Ministers of Health and Agriculture. Where exchanges have taken place it has been the practice hitherto to add to the open space affected an area of equally suitable land actually adjoining it, or in close proximity to it. In the case of Hackney Marshes it is not proposed to follow this custom, the advantages of which are apparent, but to substitute 50 acres of land at Chigwell, some five miles away.

The organizations we represent are unanimously of opinion that, however urgent may be the need for improving the housing conditions of the working classes, the provision of an alternative area so far away as to be of no practical value to the present users of Hackney Marshes will not compensate them for what they must lose, and is open to grave objection.

The common in question is perhaps the most valuable playing field area within easy reach of all parts of East London. The Marshes are accessible from the homes of densely populated working class districts badly supplied with recreational facilities, and not an inch of the existing open space can be spared. For this and other reasons the scheme is viewed with deep anxiety by the organizations we represent. It will create a dangerous precedent and may lead to similar attacks on other open spaces. If, for instance, it is justifiable to take for housing 30 acres of Hackney Marshes it will be equally justifiable to appropriate parts of Hyde Park, Hampstead Heath, Clapham Common, Battersea Park, or any other open space by substituting in exchange an alternative area miles away, regardless of the needs of the local community.

It must also be recognized that the present scheme, if carried through, will have a very disturbing effect upon public opinion. Hitherto when an area of land has been acquired and dedicated for the use and enjoyment of the community no serious attempt has ever been made to tamper on a large scale with that open space. This has given rise to the feeling that a playing field, park, or common once acquired and vested in a local authority is safeguarded for ever. Most of the parks and recreation grounds of London have been secured by a combination of civic and individual effort. The purchase schemes have usually been initiated by the open space societies or by local committees acting under their guidance and with their co-operation.

We cannot believe that the London County Council has adequately considered the inevitable effect of its decision on the minds of the generous benefactors of the open space movement. We have no doubt that the effect will render far more difficult the task of initiating and carrying through further schemes for adding to the lungs of London. The enthusiasm of those who have hitherto supported our appeals with wonderful generosity will inevitably be damped when they realize that land vested in the County Council as a public open space may nevertheless be used for building purposes, notwithstanding solemn covenants or pledges that it shall be safeguarded in perpetuity for the purposes for which it was acquired.

OBITUARY

We regret to record the death of Mr. Francis Meakin, A.R.I.B.A., of Fairbank Road, Sheffield, an assistant architect in the City Architect's office at the Sheffield Town Hall.

Mr. Meakin, who was 54 years of age, was drowned at the end of his holiday at Auburn, near Bridlington.

Competitions Open

October 1.—Sending-in Day. Central county buildings, Hertford, for the Hertfordshire County Council. Assessor: Robert Atkinson, F.R.I.B.A. Premiums: £350, £250 and £150. Designs must not be submitted later than October 1. Particulars of the competition are obtainable from the Clerk of the County Council, Clerk of the Peace Office, Hertford. (Deposit £2 2s.)

October 5.—Sending-in Day. New Fire Station, Brighton, for the County Borough of Brighton. (Open to architects of British nationality resident in the British Isles.) Assessor: Stanley O. Livock, F.R.I.B.A. Premiums of £200, £125 and £75. Conditions of the competition may be obtained from J. G. Drew. Clerk, Town Hall, Brighton. (Deposit £1 1s.)

October 16.—Sending-in Day. Lay-out competition for Lump Fort site, for Portsmouth T.C. Assessor: E. Prentice Mawson, F.R.I.B.A. Premiums: £350 and further £200 divisible. Conditions are obtainable from the Town Clerk, Guildhall, Portsmouth. (Deposit £1 1s.)

October 28.—Sending-in Day. Competition for timber houses organized by the Timber Development Association. Assessors: Robert Atkinson, F.R.I.B.A., G. Grey Wornum, F.R.I.B.A. and E. Maxwell Fry, A.R.I.B.A. The competition is divided into two sections and competitors may enter for one or both. In each section there will be the following awards: first premium, £100; second premium, £30; third premium, £25.

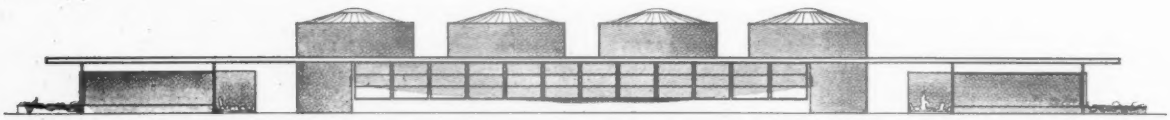
SECTION 1 :—Designs to be submitted for a timber house suitable for a small family, the total cost to be £800. SECTION 2 :—Designs to be submitted for a week-end timber cottage, the total cost to be £350. Conditions, etc., are obtainable from the Manager, Timber Development Association, 69-73 Cannon Street, London, E.C.4. The latest date for submission of designs is Monday, October 28.

October 31.—Sending-in Day. New technical college, Manchester Road, Bolton, for the Bolton Corporation. (Open to architects of British nationality.) Assessors: John Bradshaw Gass, F.R.I.B.A., and Arthur J. Hope, F.R.I.B.A. Premiums: £500, £250 and £100. Conditions, etc., are obtainable from Mr. John A. Cox, M.A., Director of Education, Education Offices, Bolton. (Deposit £2 2s.) The designs must be submitted to the Director of Education before October 31.

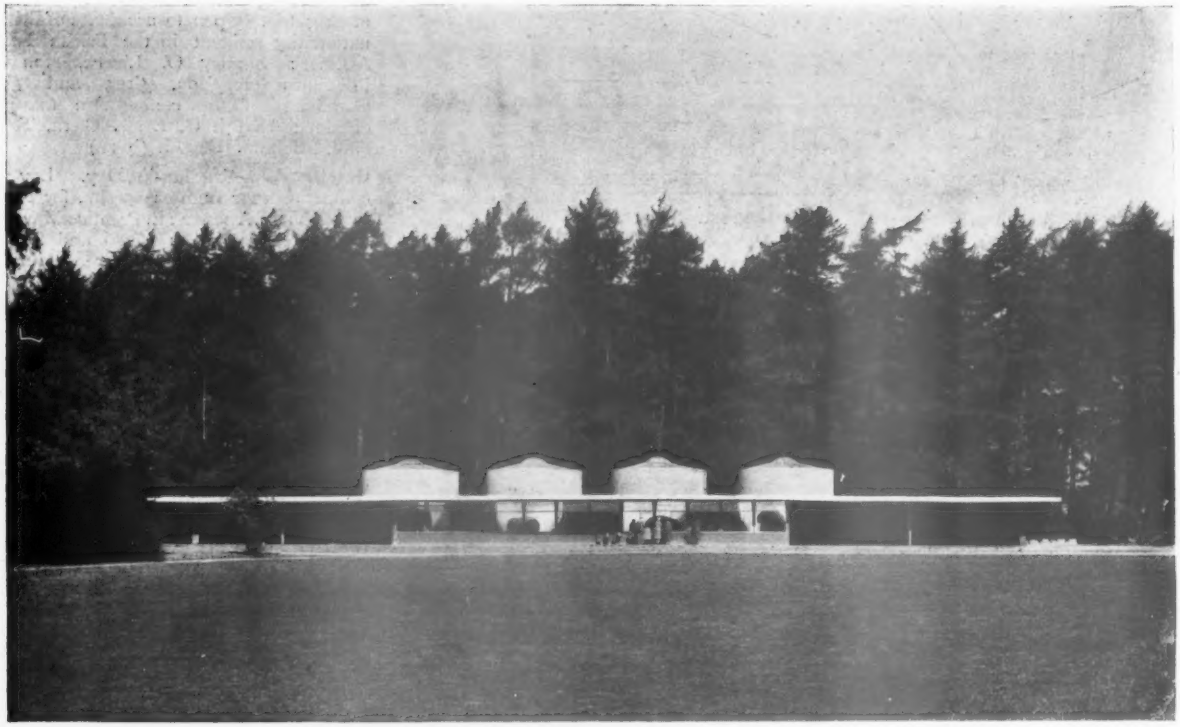
December 31.—Sending-in Day. Proposed town hall, Bury, for the Corporation of Bury. Assessor: J. Hubert Worthington, O.B.E., M.A., F.R.I.B.A. Premiums: £500, £300 and £150. Conditions, etc., are obtainable from Richard Moore, Town Clerk, Municipal Offices, Bank Street, Bury. (Deposit £2.)

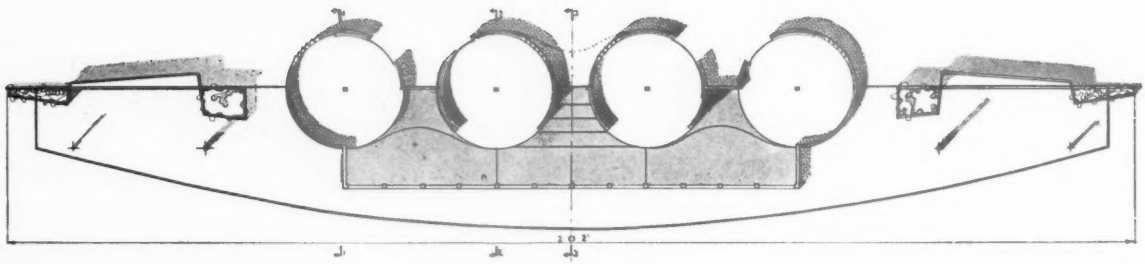
January 31, 1936.—Sending-in Day. Proposed Parliament House, Salisbury, Southern Rhodesia, for the Government of Southern Rhodesia. (Open to architects of British citizenship.) Assessor: James R. Adamson, F.R.I.B.A. Premiums: £500, £300, £200 and £100. Conditions, etc., obtainable from the High Commissioner for Southern Rhodesia, Crown House, Aldwych, W.C.2. (Deposit £2 2s.) Last day for questions was August 26. The designs must be sent to the Assessor at 19 Silverwell Street, Bolton, not later than January 31.

ELEPHANT HOUSE, WHIPSNADE ZOO:



FRONT ELEVATION





PLAN

GENERAL PROBLEM AND SITE.—*The new elephant house at Whipsnade resulted from the decision of the Zoological Society to rehouse the four Indian elephants in surroundings more convenient and more hygienic than the two thatched sheds which they had previously occupied.*

The problem before the architects was, therefore, that of combining in one building both living quarters and a bathing pool for the four animals, as well as allowing for visitors watching and feeding the elephants in safety.

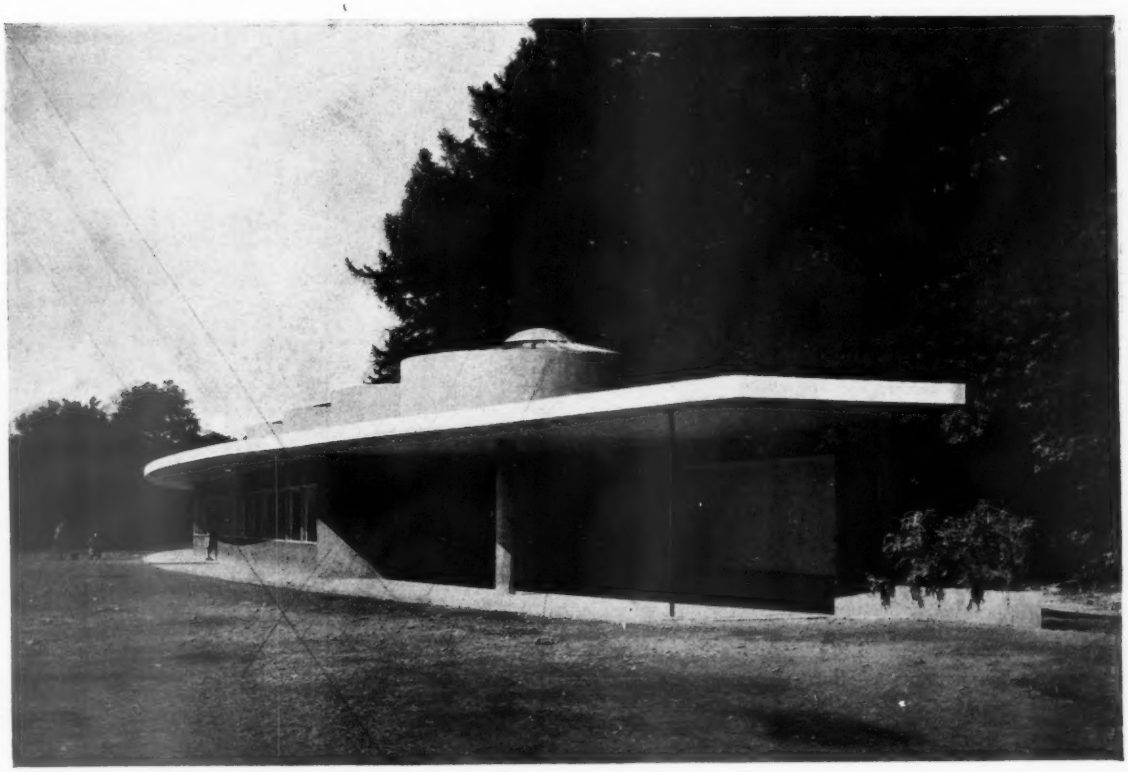
The site extends along the side of a well-grown and densely spaced plantation and faces open fields.

PLAN.—*The primary form of the plan was arrived at by the desire to distinguish between the four animals, whilst at the same time uniting them in one unit from the exhibition point of view.*

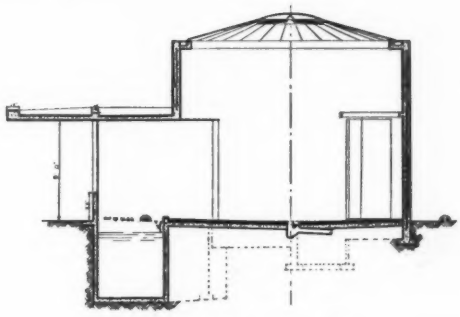
Caged elephants are very restless and move continually, and the circular shape of the houses was decided upon to allow them ease of movement and to avoid awkward angles. Before the houses is the 8 ft. deep bathing pool, entered by a flight of steps, which, while narrow enough to permit of the feeding of the animals, keeps visitors at a safe distance when the elephants are not under the supervision of keepers.

Above is a general view of the building from the north.

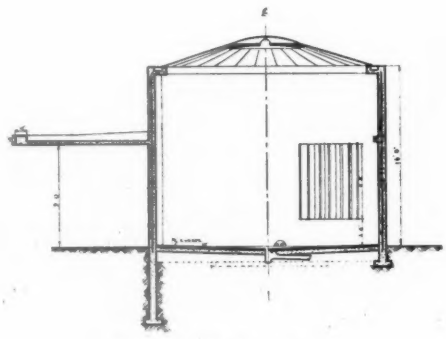
BY LUBETKIN AND TECTON



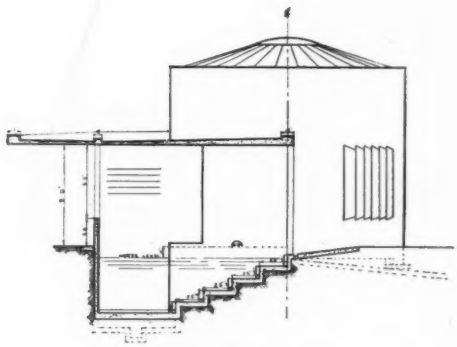
Above is a general view from the east.



SECTION 2-2

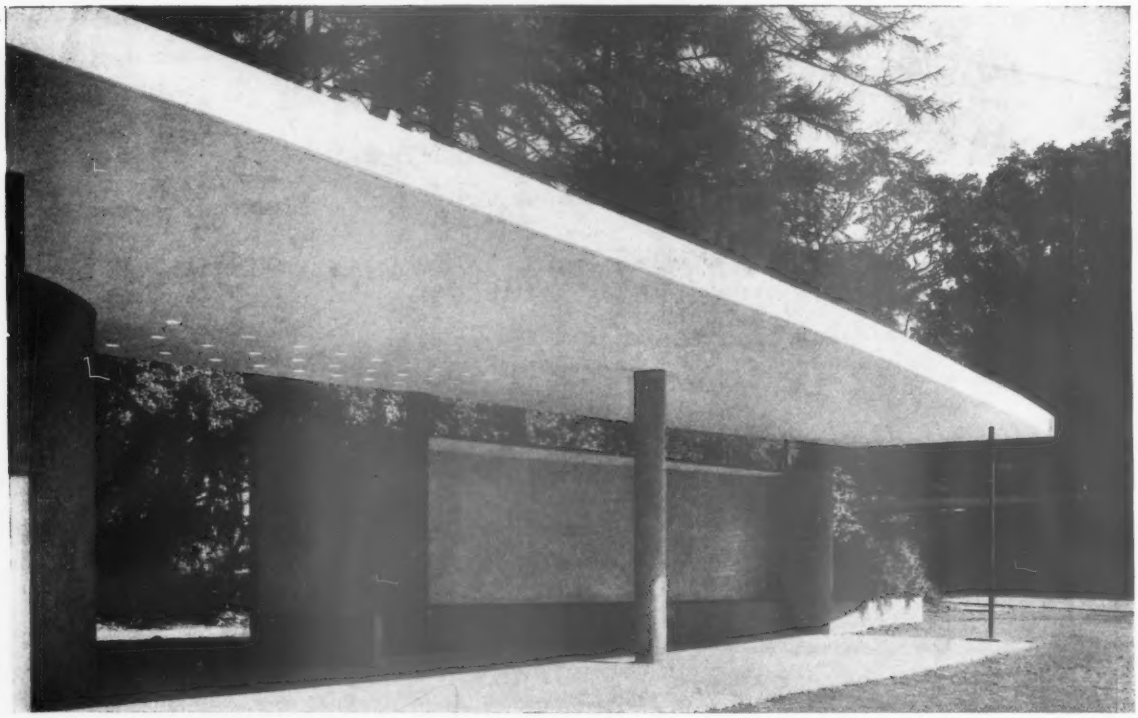


SECTION 1-1



SECTION 3-3

ELEPHANT HOUSE, WHIPSNADE ZOO:



CONSTRUCTION.—*The walls of the houses must resist a pressure of three to four tons and are, therefore, constructed of two 3 in. R.C. layers with 1 in. cork insulation between. The horizontal roof over the observation terrace is cantilevered from four R.C. columns containing the rainwater downcomers.*

ELEVATIONAL TREATMENT.—*The exterior of the house is painted with special cement paint in various shades, and flower boxes and seats are arranged under the shelter of the roof whence the public can watch elephant rides.*

LIGHTING.—*The principle adopted in the arrangement of the lighting is that the spectators are in shade whilst the animals are in the full light admitted through the glass domes of the houses. Artificial lighting for winter use is provided in the centre of the dome.*

The photographs show: top, a detail of one of the seats; bottom, one of the houses.

BY LUBETKIN AND TECTON

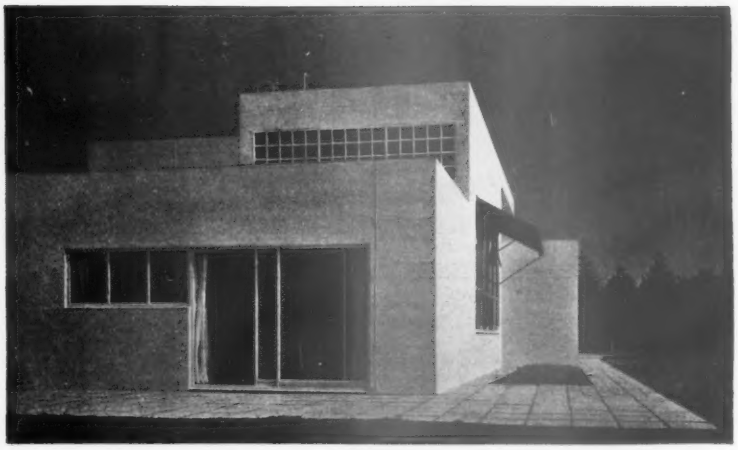
HEATING AND VENTILATION.—*Electric radiant panels are provided in the centre of the domes, distributing heat over the elephants' backs, as also over the pool. Additional convection units surround the houses near floor level. Permanent ventilation is provided by louvres in the concrete walls, whilst humidity is obtained by evaporation from the pool. The electrical system is thermostatically controlled.*

As water is scarce at Whipsnade a filter plant has been installed in connection with the pool, the entire contents being sterilized every 24 hours.

On this page are reproduced two views of the interior.

For list of general and sub-contractors, see page 356.

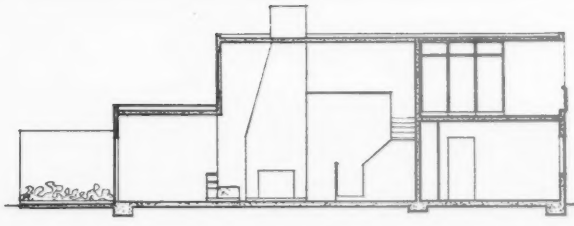
HOUSE AT HATFIELD, HERTS.:



SITE.—*The house is situated on a level and open site having fairly extensive views in all directions.*

PLAN.—*The plan form was governed by the client's requirement that the principal bedrooms should be on the ground floor, and by the desire to secure for the living room both the maximum amount of sunlight and as great an effect of space as possible.*

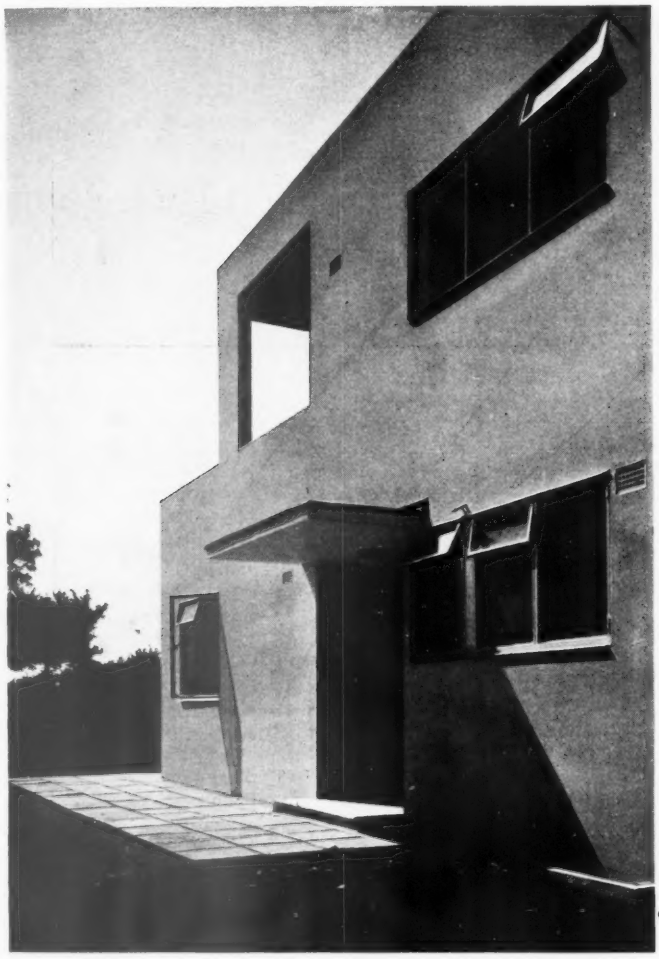
CONSTRUCTION.—*5 in. and 4 in. solid reinforced concrete walls supporting reinforced concrete floor and roof slabs. The north wall provides a cantilever for the dark room on the first floor. Partitions are of plaster slabs. Insulation to external walls is provided by ½ in. fibre-boards cast with the concrete and keying to it by projecting galvanized wire lugs. Roof insulation is similar, with a finish of cement squares laid on bitumen sheeting upon a second layer of insulating boards.*

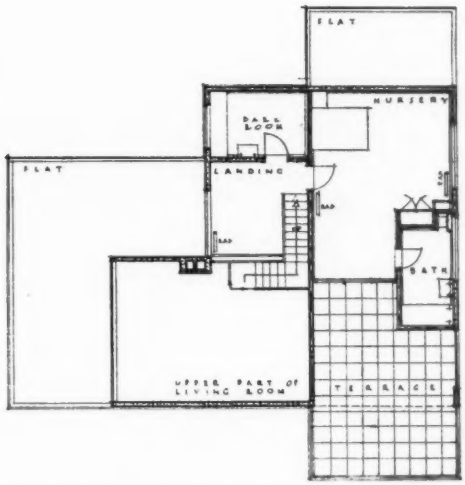


SECTION

The photographs show: Top, a general view from the north-west; centre, a detail of the west front; bottom, a view from the south-east.

DESIGNED BY F. R. S. YORKE

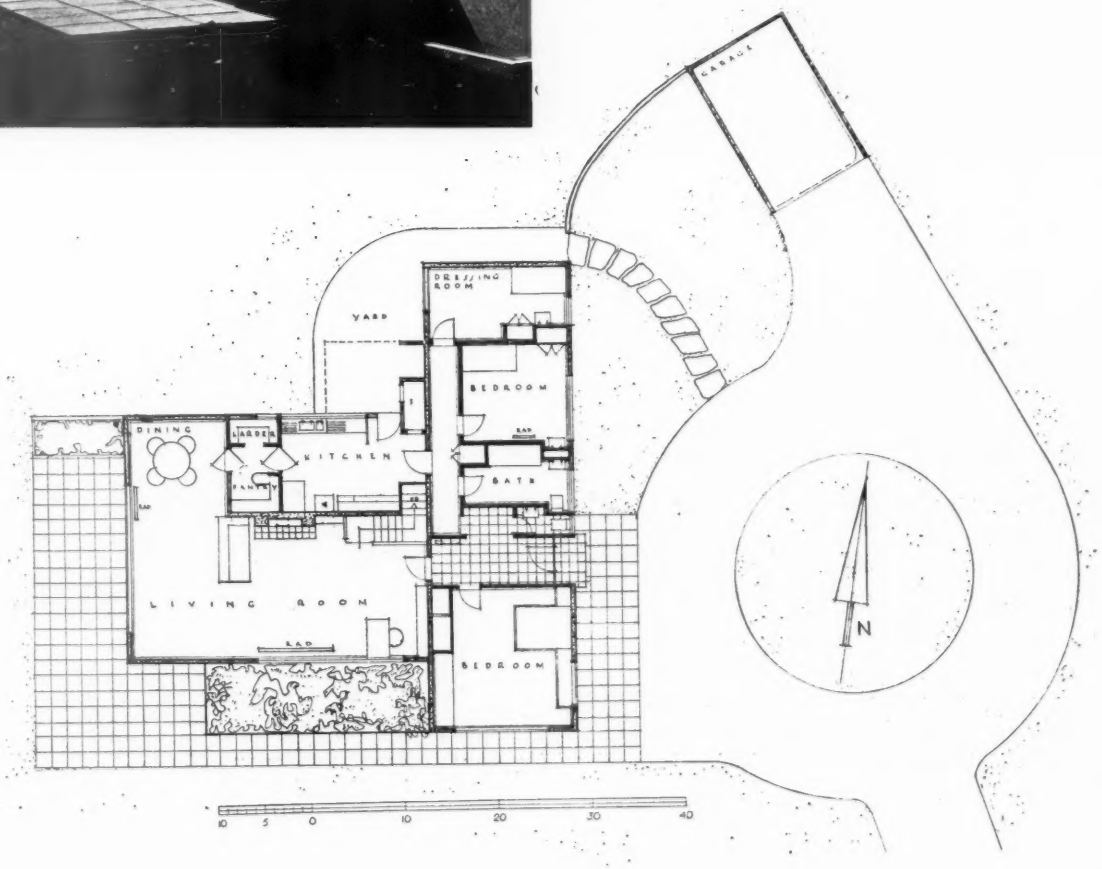




FIRST FLOOR PLAN

EXTERNAL FINISH.— *In special concrete paint finished to a light pink. Windows are of steel; sliding-folding between nursery and roof terrace, and in dining recess; elsewhere—sideways, sliding and casement; additional ventilation for winter use by small top-hung adjustable casements.*

Left, a detail of the main entrance.



GROUND FLOOR PLAN

HOUSE AT HATFIELD, HERTS.:

Figure 1.

Figure 2.

Figure 3.

Figure 4.

Figure 5.

Figure 6.

PROGRESS.—*The photographs on this page show various stages in the development of the reinforced concrete shell of the house.*

Fig. 1. The site set out preparatory to the removal of top-soil.

Fig. 2. Form work completed for first lift of R.C. walls after the completion of surface concreting.

Fig. 3. Rods being placed to reinforce the cantilever wall beneath the dark room.

Fig. 4. Reinforcement of beam below glass-concrete clerestory window of living room in position.

Fig. 5. Typical detail of wall reinforcements, showing position of fibre-board lining to external shuttering.

Fig. 6. The concrete shell completed and shuttering being struck.

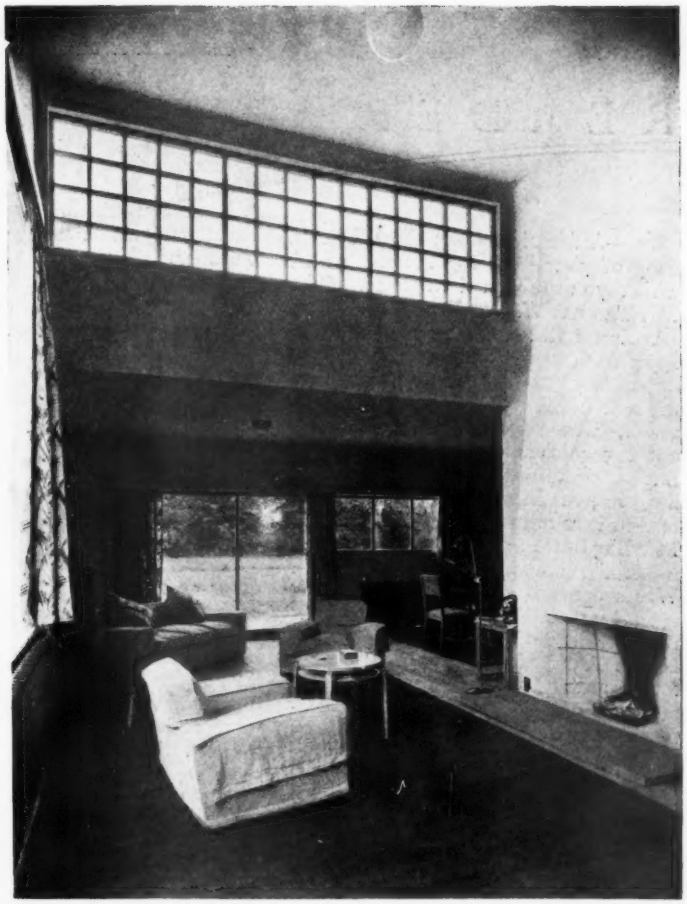
INTERNAL FINISH AND SERVICES.—*Internal wall treatment is of skim-coat plaster on insulating boards and plaster slab partitions, finished with distemper. Floor finish is of maple strip in the living room, terrazzo tiles in the hall, quarry tiles in the kitchen, and cork carpet on the first floor. The bathroom has tiled walls and cork tile floor. Doors are wax-polished flush veneer in steel frames, and door furniture of stainless steel and composition. The stair is in concrete, painted red, and treads and risers are in light and dark grey rubber.*

Dressing table and clothes cupboards in the bedrooms are built-in, the latter having sliding doors.

Heating is by hospital radiators and electric fires, with one coal fire in the living room.

For list of general and sub-contractors, see page 356.

DESIGNED BY F. R. S. YORKE



Above are two photographs of the living room. Below, a detail of the kitchen, showing heating boiler and electric stove. Left, the built-in clothes cabinets in the principal bedroom.

LETTERS FROM READERS

J. R. RODGERS

LESLIE R. HISCOCK, F.R.I.B.A.

Whipsnade

SIR,—A friend of mine showed me a copy of your issue for August 22 in which you published a letter from Mr. Thomas W. Bagshawe.

At first I did not take seriously this letter from a man whose only solution apparently to the complications of modern life is to migrate to the Antarctic, where even Nature produces nothing which strikes a discordant note. But a certain amount of reflection, however, reminded me that this point of view is not unfortunately confined to Mr. Bagshawe and a small circle, but is still comparatively widespread. Words came back to me which were recently uttered by none other than the President of the Royal Institute of British Architects, crying passionately for an architecture of "roughness and texture" and based on that fine tradition of craftsmanship which blends so perfectly with God's own handiwork. So I decided to try to analyse this quaint and apparently still popular attitude towards architecture.

In their fumblings for an architectural philosophy all these people yearn for an architecture based on "those old English traditions," "that fine tradition of craftsmanship," etc. Now, exactly where craftsmanship stopped and this terrible, soulless, materialistic machine production began is a little difficult to say. In fact, a great deal of pure craftsmanship still exists, and machine production has been developing for centuries. Perhaps the exquisitely turned balusters of a Georgian staircase are too much the result of machine technique for these sensitive gentlemen. It would be safer, perhaps, to go back to the mediæval times to find a real craftsman's architecture. But the safest of all would be to go back to prehistoric cave dwellings or, as Mr. Bagshawe suggests, to ice huts in the Antarctic, in order to make sure that the splendours of "pure Nature" are left unsullied.

The problem of designing buildings for present-day needs, however, remains for those architects who are unwilling to follow our courageous friends all the way back into barbarism, and my admiration for the more serious section of modern architects is based on their efforts to forge an architectural style which takes advantage of all the wonderful opportunities which modern technique can offer. When I was at Whipsnade, and saw there the buildings which Mr. Bagshawe saw, I was particularly impressed with them because they seem to me to avoid that self-conscious exploitation of modern technique which so many modern buildings seem to display. I was pleased because the buildings at Whipsnade seemed to me to possess that elusive quality of "delight," and yet to take advantage of the best technique which modern science has to offer. The completely "straightforward" solution has apparently been rejected in favour of the imaginative solution which makes concessions to environment, setting and other local conditions. Mr. Bagshawe says that the elephant house is a building such as he has never seen before and considers that it does not "blend" with the woods behind it. How exactly Mr. Bagshawe thinks that an elephant house should be constructed, and what it should look like, is hard to imagine. The problem is one of which I imagine the proper solution has here been attempted for the first time. Certainly the present structure in the Regent's Park Zoo, which looks rather like a Victorian gentleman's two-storey Tudor residence, is hardly a proper solution, and I am inclined to think that, at Whipsnade, the solution, both technically and æsthetically, has been highly successful.

We English are notorious for our confused thinking and muddle-headedness, and Mr. Bagshawe, with his public school and university education and his pathetic love of the "Olde England," seems to be no exception to the rule. It is indeed sad for such men that that "truly English plant," the aspidistra, is being replaced by such an impudent foreign importation as the cactus, and that an architecture based on anything so un-English as reason and science should be introduced into this "green and pleasant land"!

The essence of the question lies in this fallacy (produced by the Victorian literary miasma, and continued today by Mr. Bagshawe and his contemporaries) that architecture must "tone in with" or "harmonize with" Nature, implying an intrinsic inferiority in the work of man when set beside the said Nature.

Let us learn a lesson from our one great period of English Architecture—the eighteenth century. The great houses of this time were not based on such sentimentality. Each was a conscious solution to a problem, not merely a utilitarian problem, but an imaginative one also, in which Nature was a factor to be contended with and subdued, man being creator of order out of chaos, by intellect and education. This grand English tradition, culminating in the eighteenth century, sprang from a conscious appreciation of the individuality of the human mind and its control over natural phenomena. Has Mr. Bagshawe ever been to Devonshire? The same tradition is here also in more primitive form. Do the cottages "tone in with" the countryside? No. Each unit stands out in brilliant white or green or pink or blue, giving scale and added point to the incredible richness of the scenery and bearing witness to the dignity of human endeavour.

Can we, therefore, not free ourselves from the defeatist last-century illusion that nothing is better than that which went before, and be once more *traditional?* The buildings at Whipsnade are to me traditional, but our Victorian friends seem to miss the meaning of the word tradition—through an inability to study history without prejudice.

J. R. RODGERS
Portsmouth

Guildford Civic Centre

SIR,—Your congratulations to the Guildford Town Council on their alleged foresight in looking ahead and planning for a Civic Centre are, I am afraid, somewhat misplaced.

The credit for the conception of a Civic Centre for Guildford should go to three young business men of the town (Mr. Bryan Leighton, Mr. H. H. Norris and Mr. J. Garnett Harper), who, at very considerable expense, both in money and time, carried out research and presented to the Council a very carefully considered report on the whole matter.

I had the pleasure of acting as Architectural Adviser for the project, and in my opinion the scheme was a brilliant conception, in that it was based on the exchange of land already owned by the Corporation, but unsuitable for a Civic Centre, for land owned by other parties and eminently suitable for the Centre.

The exchange would have been of considerable benefit to the second party in that it was more suitable for this party's purpose than the land at present in their possession.

The promoters went to the trouble of personally interviewing the majority of influential people in the district, and I think without exception they received unanimous support.

They were also exceedingly fortunate in having an opportunity to explain the scheme to Sir Edwin Lutyens, who was equally enthusiastic.

Whether the Corporation are giving this matter consideration or not I cannot say, but it is some months since the report was presented, and no important statement of policy has yet been published.

L. R. HISCOCK
Guildford

WORKING DETAILS : 319

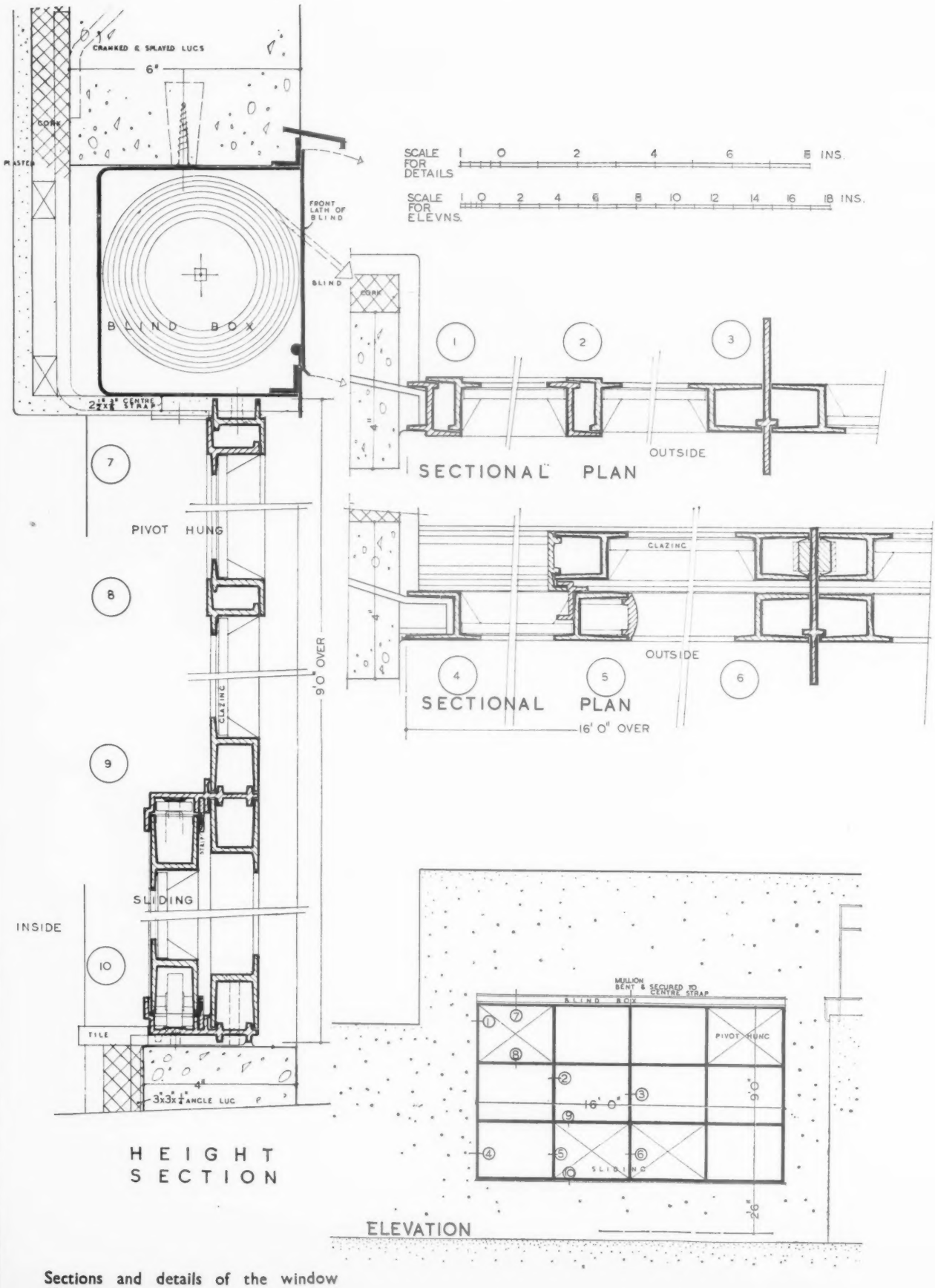
WINDOW • HOUSE AT HATFIELD, HERTS. • F. R. S. YORKE

The window illustrated above has centre-hung lights at the top and two sliding lights at the bottom, the latter running on a special section and sealed with brass weather-strips. Sections and essential details are shown overleaf.

FILING REFERENCE:

WORKING DETAILS : 320

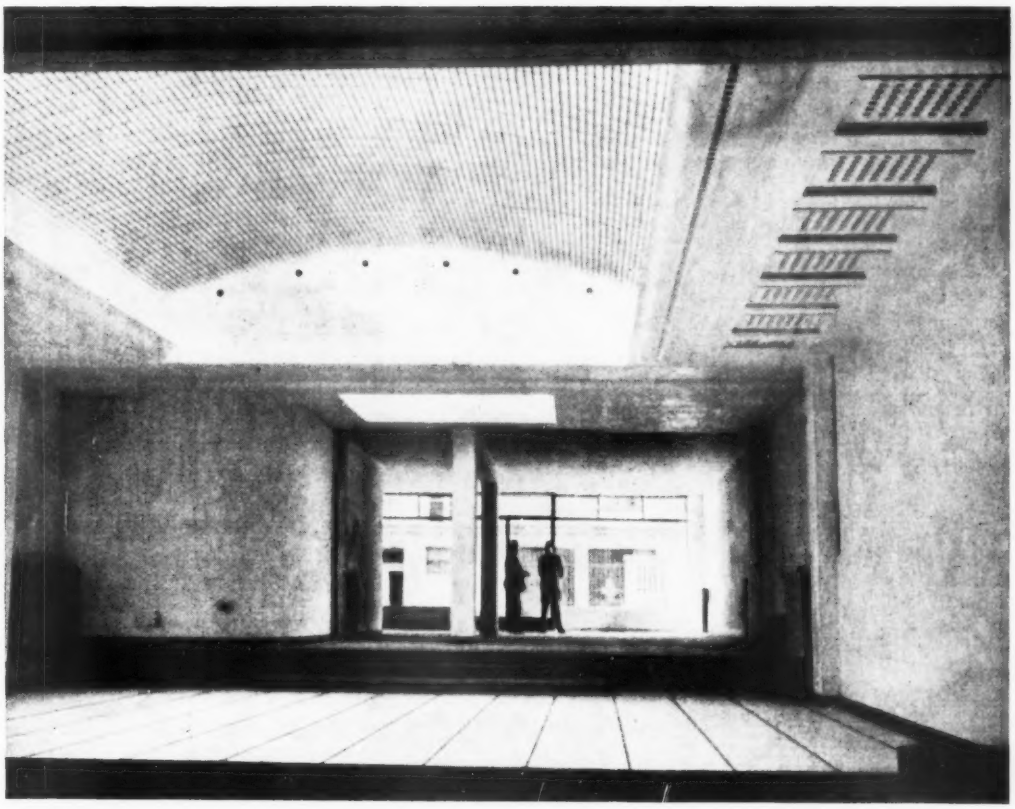
WINDOW • HOUSE AT HATFIELD, HERTS. • F. R. S. YORKE



Sections and details of the window illustrated overleaf.

WORKING DETAILS : 321

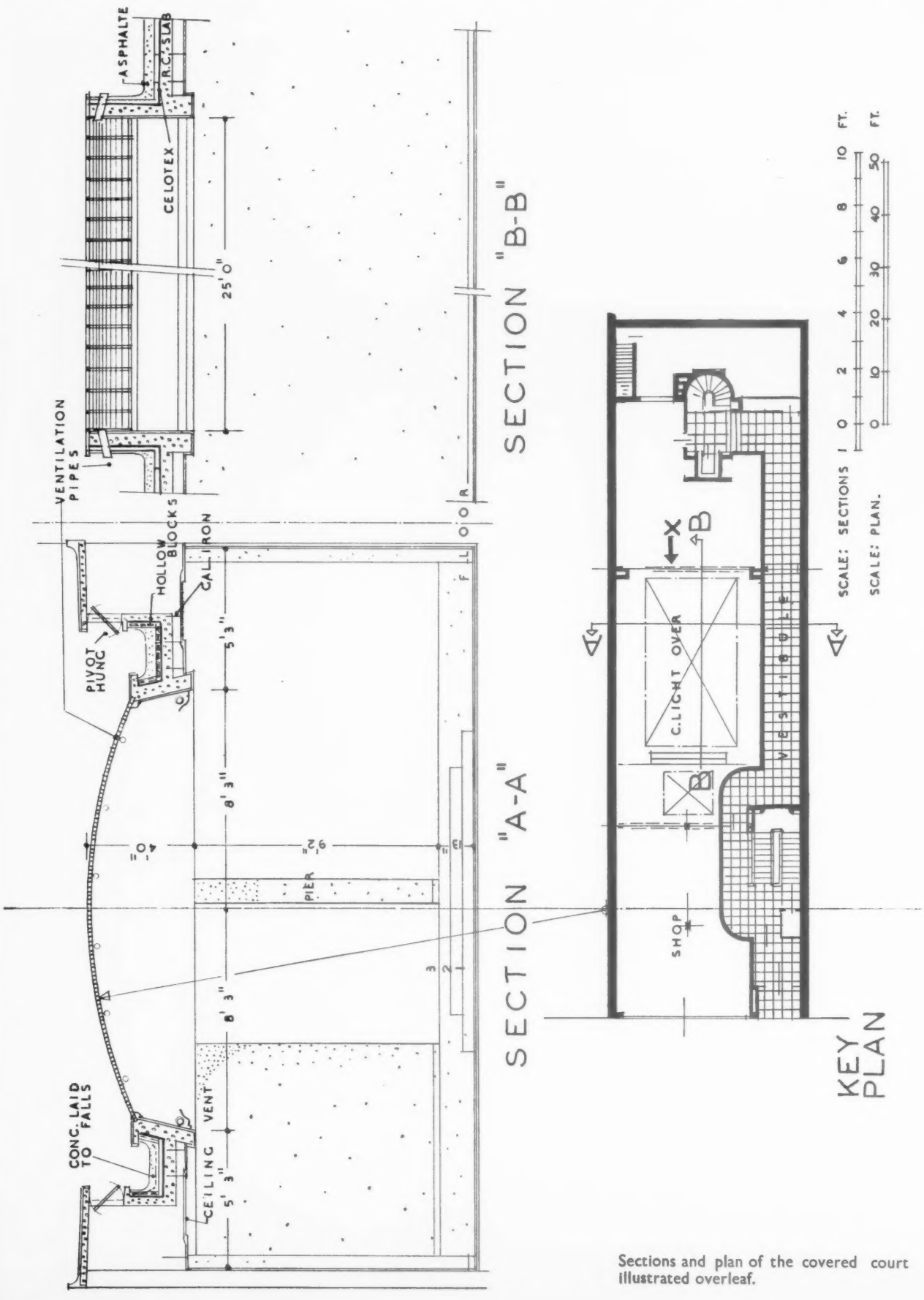
COVERED COURT • SHOP IN PARIS • BRUNO ELKOUKEN



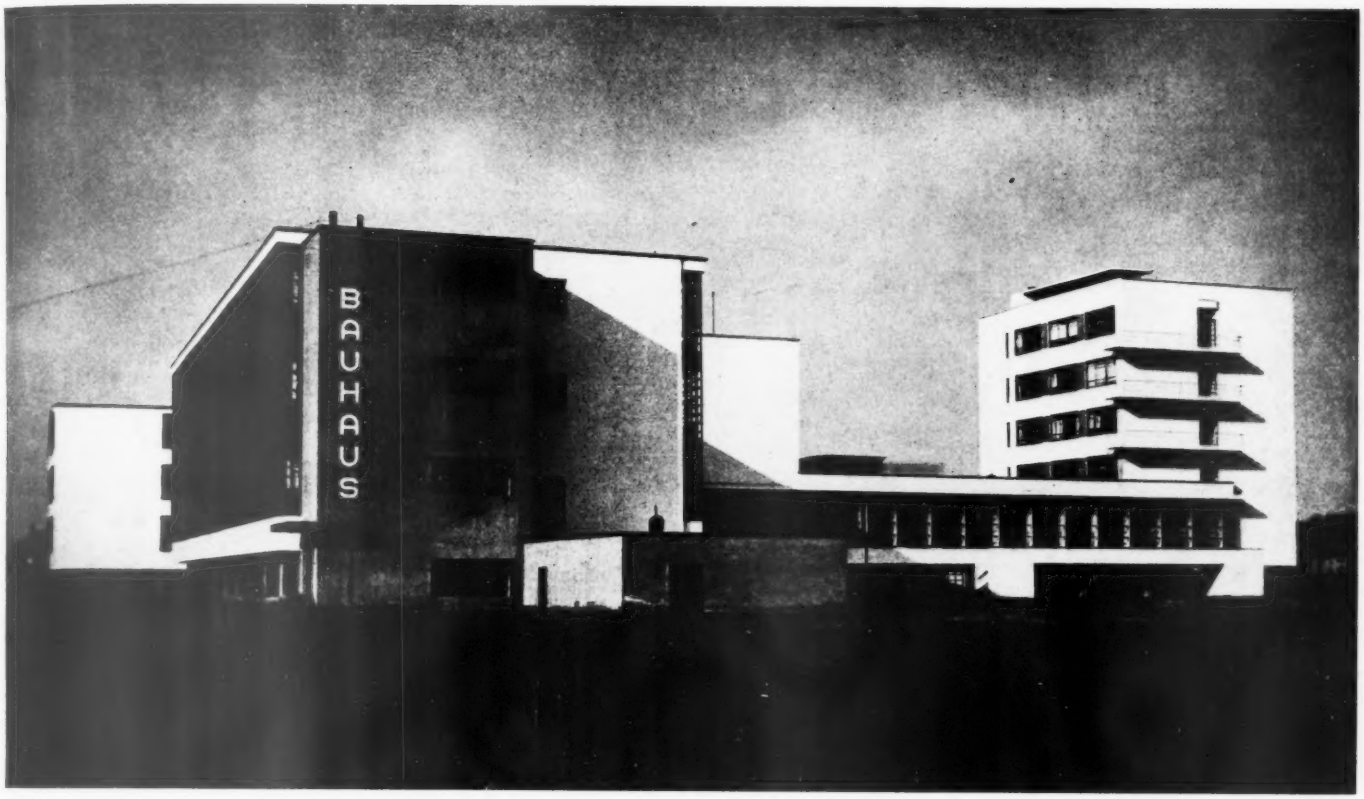
The illustration on this page shows the covered court of a shop on the ground floor of a block of flats on a deep and narrow site. The court is covered by a roof of glass bricks, and ventilated by centre-hung lights (see section overleaf); additional ventilation is by small pipes in the end walls of the roof. Condensation is prevented by a pair of 4-in. heating pipes mounted about 20 ins. below the springing of the arch. The photograph is taken from point X on the plan overleaf.

WORKING DETAILS : 322

COVERED COURT • SHOP IN PARIS • BRUNO ELKOUKEN



Sections and plan of the covered court illustrated overleaf.



The Bauhaus, Dessau. By Walter Gropius. From "The New Architecture and the Bauhaus."

LITERATURE

ARCHITECTURE STEPS FORWARD

[*BY H. MYLES WRIGHT*]

The New Architecture and the Bauhaus. By Walter Gropius. Translated from the German by P. Morton Shand. London: Faber and Faber. Price 6s.

IT is a great pity that the buildings which have resulted from a changed attitude of mind concerning the real usefulness of the architect in society should have come to be regarded as a species isolated and abruptly novel, and, therefore, in British eyes, as a species both suspect and transitory.

The blame for this state of affairs rests in part upon those who believe most strongly in the necessity for this change of attitude. Phrases such as "modern architecture," "the new architecture" and "the architecture of tomorrow" have been freely used, indeed almost brandished beneath the noses of all who did not express immediate agreement with the arguments that lay behind them.

Nor was this all. The protagonists of this belief that the general architectural attitude of mind was out of touch with contemporary social conditions naturally encountered opposition; and, feeling strongly, did not hesitate to point out oddnesses and inconsistencies in the methods of architectural expression adhered to by their critics. And thus, betrayed by impetuosity, were almost led into the denial of the manifestly enormous value of that which may be learnt from past architectural evolution.

All this was natural. But there can be no doubt that by linking up an outlook which was really one of change, at most a little abrupt, and of development, at most a little rapid, with ideas of the "newest ever," the adherents to this viewpoint did their cause much harm—at any rate, in a country where everyone at heart is born "a little Conservative." Abroad it is possible to say that a thing is new and yet to have it judged on its merits; in Britain it is better, if new it is, to say at least that it is the result of fifty years' thoughtful research by a firm of five hundred years' experience in the same line of business.

What is called modern architecture would have been better received in these islands if its would-be publishers had thought to make use of a puff so truthful. As it was, this development of architecture was heralded even by its advocates as an unique and self-contained novelty, possessed of no past and, therefore, in insular judgment, unlikely to have much of a future.

It would have been more tactful, and not wholly untrue, to have said that architecture, after a hundred years' sojourn in a dreamland of romance, was once again awake and going about its business. But even this might have been resented, for on the whole architects enjoyed themselves in dreamland, and the public had become so thoroughly acclimatised that an awakening irritability could hardly have been escaped.

Professor Gropius, perhaps thinking that the first shock to the public is now over, prefers to use the simpler and blunter method. He believes that the fundamental change which must come over the attitude of the architect in regard to his service to society is more comprehensible when expressed as a novelty than as development.

The New Architecture and the Bauhaus is in the form of a statement, and one admittedly subjective. The author sets out to recount the influences and observations which seemed to him to demand this change and the conclusions he has come to concerning its nature. So that in its first part the book contains the creed of one of the most famous practitioners of that new architecture. And therein lies much of its value.

But before his statement of faith Prof. Gropius points out the extreme danger of misuse and misunderstanding of this change of outlook; that it cannot be explained by catchwords and clichés. "Functionalism" and "Fitness for Purpose" lead us quickly to the Mechanical Fallacy today as they ever did before. And none are more destructive to architectural progress than those ambidextrous persons who, using the same plan form and con-

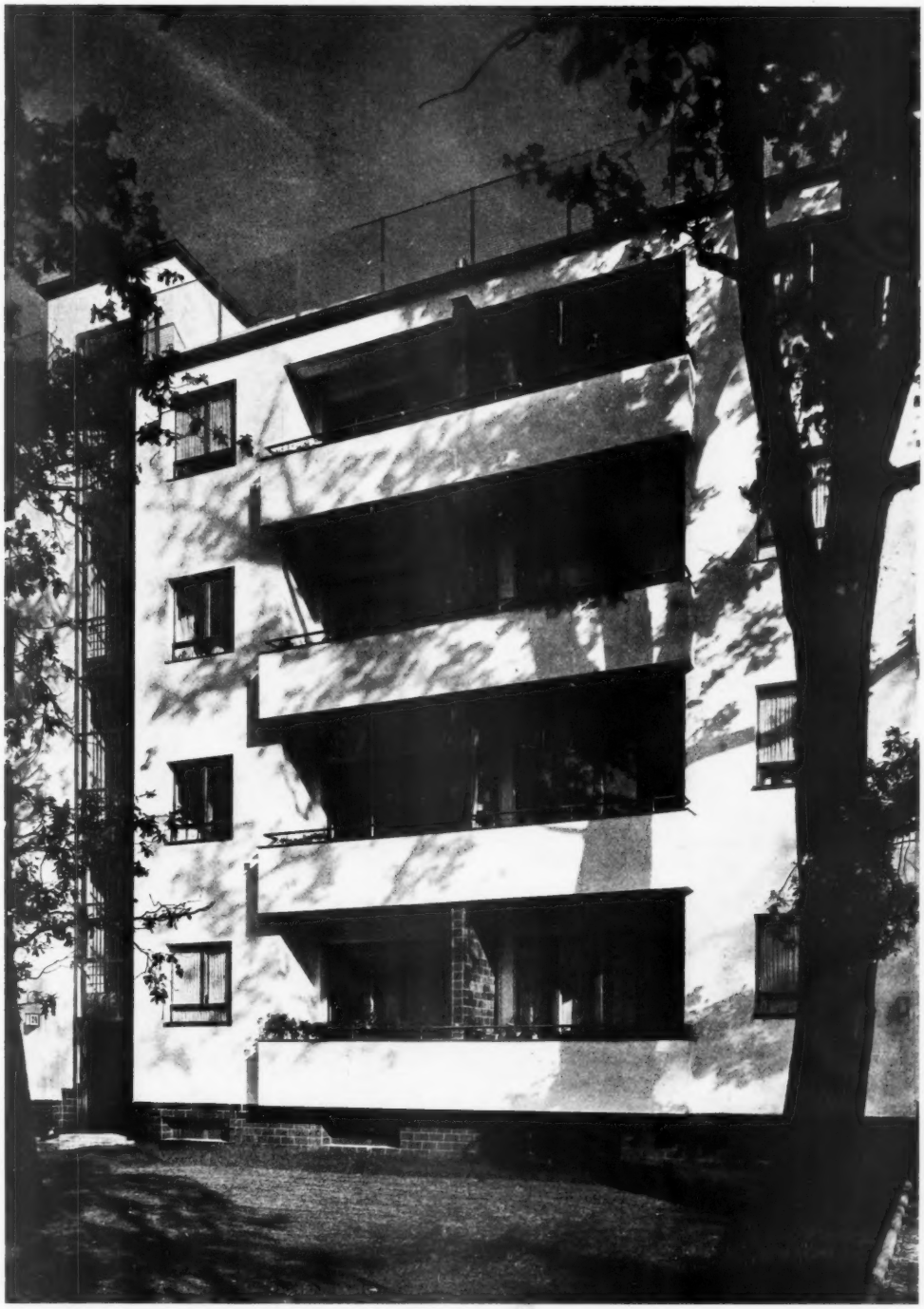
The entrance front of the Administrative Office Building in the Werkbund Exhibition at Cologne in 1914. By Walter Gropius (in collaboration with Adolf Meyer). From "The New Architecture and the Bauhaus."

struction for both, think to achieve modern architecture in one building by omitting the external trimmings incorporated in another.

What then is Prof. Gropius's conception of new architecture and what is the changed attitude to which he believes architects must attain?

Very briefly, this belief is that the most important constituent of contemporary social surroundings today is mass production, with which is coupled standardization, and that the importance of this constituent will go on increasing in the future. Secondly, that architects during the past fifty years have grown more and more out of touch with society by their disregard of this development, and have earned their living by catering for escape from mass production by an architecture of false sentiment, imitation and romance. Professor Gropius believes that if architects are to survive in a rôle of real social usefulness, as opposed to that of social parasite, they must realize these facts. They must study mass production and master the principles of mass production, and, possessed of joint status as master planners and master designers, must then guide society in the fine and reasoned use of these industrial processes.

The first part of *The New Architecture and the Bauhaus* is devoted to amplification of this argument. Social, economic and industrial changes and technical developments in building processes are reviewed in order to emphasize the peculiar fitness of the architect as a leader in the good use of the machine as a means to better social conditions.



A block of two-and-a-half-roomed flats in the Siemensstadt "Seidlung," Berlin (1929). By Walter Gropius. From "The New Architecture and the Bauhaus."

Even those who agree with the author's conclusions might, had he stopped here, suspect him of advocating an impossible Utopia. How, they might have questioned, can the already busy architect master all industrial processes? And how, having achieved the impossible, could he influence their methods in the design of their products?

But the second part of this short book answers these questions, for Professor Gropius did not cease with theory. In his creation of the Bauhaus he attempted to put into practical expression this conception of the architect as a master designer.

The Bauhaus, a "building and design college," had as its basic idea the real unity of all branches of design. In setting about its formation Prof. Gropius says that he tried to solve the "ticklish problem" of combining imaginative design with technical proficiency—a combination, incidentally, which is essential in every good architect.

The task was a huge one, sweeping away as it did the old divisions of Fine Arts, Arts and Crafts, Decorative Arts and all the rest of them. Perhaps the necessary enthusiasm for so large a change, and to animate a staff who should never work independently but always as close collaborators recognizing the importance of each other's work, could only have been obtained in the revolutionary period immediately after a disastrous war. But obtained it was.

The creator of the Bauhaus at Weimar, and later at Dessau, was not

blind to the dangers of the system he strove to secure. Individual genius and individual specialized expression were to be forbidden. Students and staff alike were to devote themselves during their time at the Bauhaus to the co-operative raising of standards of design in common everyday things. Manual instruction was compulsory as providing the best all-round training for eye and hand ; the Bauhaus workshops were deliberately turned into laboratories for improving mass production designs. For, in the view of the author, "Academies" of art had brought about the complete isolation of the artist from society and had drained all industry of vitality in design.

The Bauhaus was out to change all that. And the excellent illustrations of the articles which it produced as type designs for mass reproduction show how well it succeeded in its object.

All students, architects as well as others, had to pass through the same course of study for three and a half years. This course was partly theoretical, covering general design in many materials, and partly practical, working upon the same materials in the Bauhaus workshops or in actual mass production factories. Only after these three and a half years did specially promising pupils pass on to the higher structural and theoretical aspects of architecture.

Thus did the Bauhaus seek to ensure that the young architects it trained should know in thoroughness the meaning, forms and making of the common surroundings of the society they hoped to serve.

Such a course of training and the ideas that lie behind it are not devoid of difficulties, nor even of valid objections. But before the system is condemned the most antipathetic reader should remember that an architecture can be great only when it is truly representative of the society which produces it.

In this very short and excellently illustrated book " modern architecture" is shown as it is ; representing not a fad, novelty, or passing fashion, but an attitude of mind regarding the architect's place in the modern highly industrialized community. The new architecture is not new, for all architecture resembles life. It changes as it develops to meet new conditions, but always retains a sequence and a basic unity. " Modernism " is only the outward sign of the first changes of one more development.

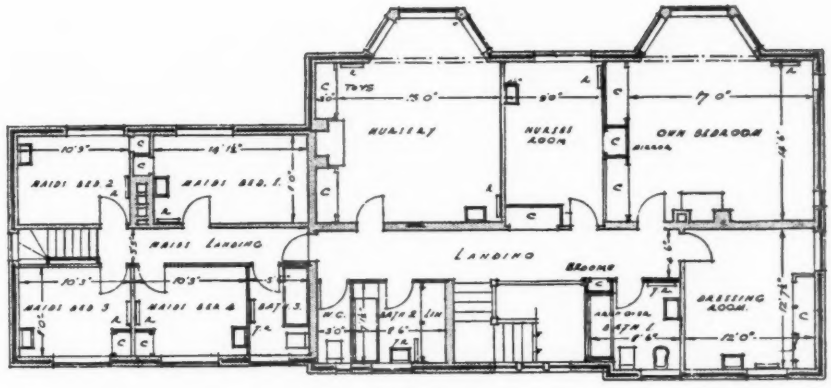
There are times when the busiest architect pauses for what may be called a mental stocktaking. Against self-questionings of the future this book should be kept at hand.

H O U S E A T

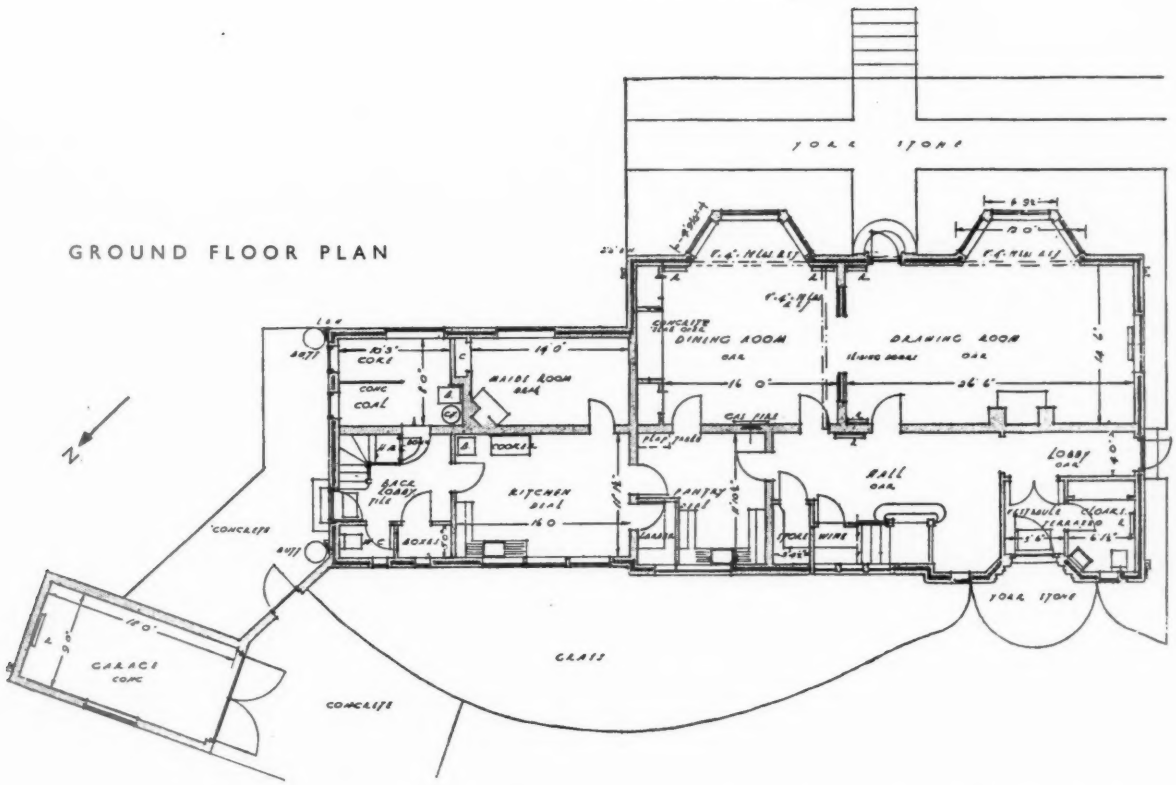
The photographs show : top, a general view of the north-west front ; and, bottom, a detail of the main entrance.

WENTWORTH, SURREY

DESIGNED BY MINOPRIO AND SPENCELY



FIRST FLOOR PLAN



GROUND FLOOR PLAN

SITE.—*This house was designed for a well-wooded sloping site on the Wentworth Estate.*

PLAN AND CONSTRUCTION.—*The requirements were two good living rooms, four principal bedrooms, four maids' bedrooms, three bathrooms, and the planning was so arranged that a study could easily be added at a later date, without disturbance to the existing building. A simple rectangular form and a flat roof were adopted in order to reduce the cost of construction.*

The walls are 11 in. cavity with a facing of rustic bricks, bull-nosed and cow-nosed bricks being used for the mouldings round the doors and windows, on the plinth, and at the main angles of the house. Windows are metal casements, set in painted deal frames and the roof is of 3-ply bitumen felting, laid on insulating board and finished off with half an inch of tarmac. The front door, which is in natural teak, is set back with receding bull-nosed jambs. It has a semi-circular concrete hood covered with copper.

CONTRACT.—*The cost of the work, including drive, fencing and the upper terrace, amounted to £3,560.*

INTERNAL FINISH.—*The living room, which is 26 ft. 6 in. long, has a coal fireplace in Ancaster and Roman stone. The dining room is approached by sliding doors and has a built-in sideboard with cupboards below and china cupboards at each side. The gas fire is of flush panel type. The principal ground floor rooms have oak floors and the staircase is also of oak. The doors are single panel, limed oak.*

SERVICES.—*The central heating and hot water supply is provided by coke boilers. Cooking is done by gas.*

TECHNICAL SECTION: 29

HEATING, AIR CONDITIONING AND MECHANICAL EQUIPMENT

BY OSCAR FABER

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

AND J. R. KELL, M.I.H.V.E.

LOCAL HEATING BY GAS

REFERENCE has already been made (see page 312, February 21) to gas fires, radiators and convectors. These are too well known to require further comment.

A recent development combining the radiation of a gas fire and the air warming of a convector is the "Raytonic" Heater, shown in Fig. 172. Air drawn in at the base passes through passages at the back and comes out warmed through slots at the sides. The products of combustion pass to a flue in the ordinary way and do not mingle with the air in the room. This device is more economical for continuous heating than a plain gas fire, and it may be thermostatically controlled.

Another type of direct heater to which reference should be made depends on high temperature radiation and is shown in Fig. 173. This consists of a refractory surface maintained at bright red heat in a similar manner to the boiler burner, Fig. 171. In high buildings, such as churches or factories, these heaters may be fixed at an angle on the walls, radiating the heat down on to the occupants and producing a feeling of comfort without materially warming the air. They are therefore particularly economical for intermittent use. The products of combustion escape into the atmosphere. Though this may be permissible in high buildings it would be undesirable for low storey heights, for which in any event they are less suitable as the radiation would generally be too intense for comfort.

Considering local gas-fired heaters in general, in many types of buildings, such as modern office blocks, schools, hospitals, etc., it is impossible to discharge the products of combustion into the atmosphere of the room if a healthy condition is to be maintained. This means that a flue is necessary for each heater, carried independently to the roof. Whilst this may be possible where a building is greatly subdivided, it will generally be found to be out of the question with the large floor areas now so common. Further, it has to be remembered that the types of apparatus available for connecting to flues are very local in their heating effect, tending to produce considerable variation in comfort over the area warmed. Low temperature gas radiant systems which would overcome this disadvantage are as yet only in the experimental stage. Thus it must be admitted that direct gas heating has a limited application, its chief field being the warming or boosting of temperature of small rooms and domestic buildings, particularly where used intermittently.

Air heating by gas.—The above statement of the limitation of direct gas heating should be qualified by reference to gas fired unit heaters and gas plenum air heaters, if these can strictly be considered "direct," as the mechanically impelled air is used as a convecting medium. A gas fired unit heater is shown in Fig. 174. This is suitable for factories or public garages where no supply of steam or hot water is available for other purposes, and where space for a boiler or the labour attaching thereto is troublesome. The fan is started or stopped under thermostatic control, the gas supply being regulated similarly, and the products of combustion are discharged through a flue to the roof. Where a plenum system of heating is adopted (as in factories, etc. and to which reference will be made later under "Ventilation") the warming of the air may be accomplished with a gas heater of the type shown in Fig. 175. The cost of gas is the controlling factor here, unless space for a boiler rules other methods out. So far very few cases appear to exist where this type of heater has been used for warming ventilation air, though it is applied extensively to drying and other industrial processes.

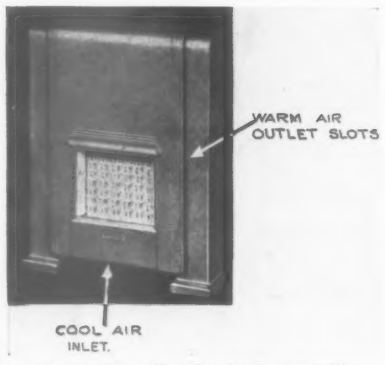


Figure 172. *Gas fire* ("*Raytonic*").

HOT WATER SUPPLY BY GAS

CENTRAL SYSTEM

A gas boiler may take the place of a solid or liquid fuel boiler in a central system of hot water supply with storage cylinder and distributing pipes such as has already been described (page 207, August 8).

The deciding factor as to whether gas with its attendant advantages should be adopted is generally entirely one of cost and will not be referred to again, as the same considerations apply as with heating. It should be borne in mind, however, that hot water supply boilers for solid fuel are generally not so efficiently designed as those for heating, for reasons which have previously been discussed, so that the comparison with gas should often be slightly more favourable to the latter than in the case of heating.

Any of the types of gas boiler referred to above is suitable for hot water supply, either with or without a calorifier according to the design of boiler and properties of the water. In addition there are, however, a number of gas boilers specially designed for hot water supply and directly connected to a cylinder, as illustrated in Fig. 176.

All types are, of course, easily controlled thermostatically from the storage water temperature and such control is essential for maximum economy.

Local gas heated hot water supply systems.—The case for local systems has already been referred to (page 207).

Of the two means of providing a supply of hot water locally at the point at which it is required, i.e., gas and electricity, gas is probably by far the more common, partly on account of its generally lower cost, partly because it has been in vogue much longer, and partly because of its greater flexibility.

In making reference to the lower cost of gas it is only fair to state that in some cases where low rates for electric water heating are quoted gas has very little advantage in this respect. For example, consider a household consuming 100 gallons of hot water at 140 deg. per day or 700 gallons per week.

B.T.U.'s supplied = $700 \times 10 \times 90$ deg. rise = 630,000 B.T.U.'s per week.

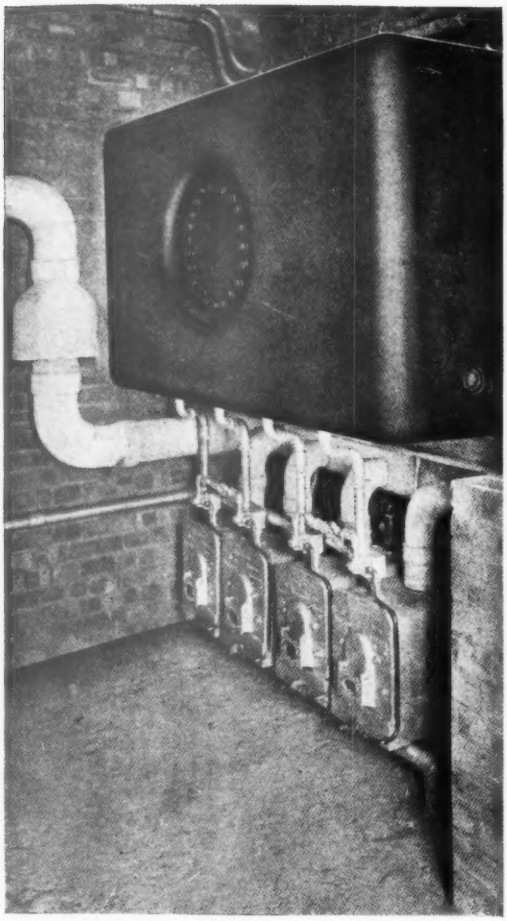


Figure 176. *Gas-fired hot water supply boiler.*

Figure 173. *High temperature gas radiant heaters (Cox's).*

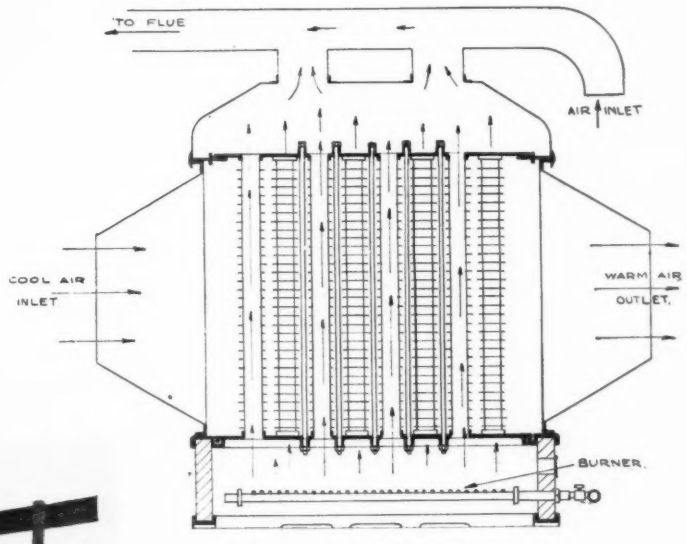


Figure 175. *Gas-fired air heater.*

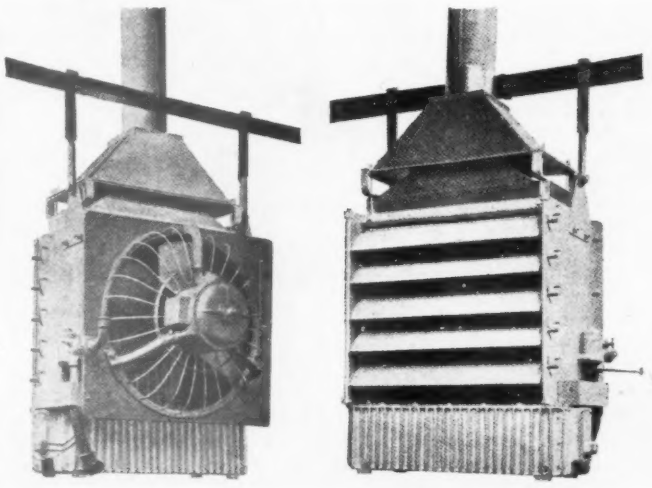


Figure 174. *Gas-fired unit air heater.*

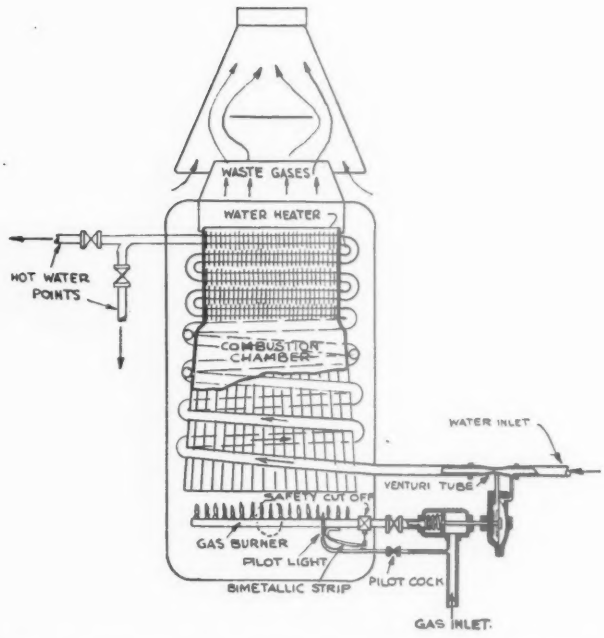


Figure 177. *Diagrammatic section of instantaneous water heater multipoint ("Ascot").*

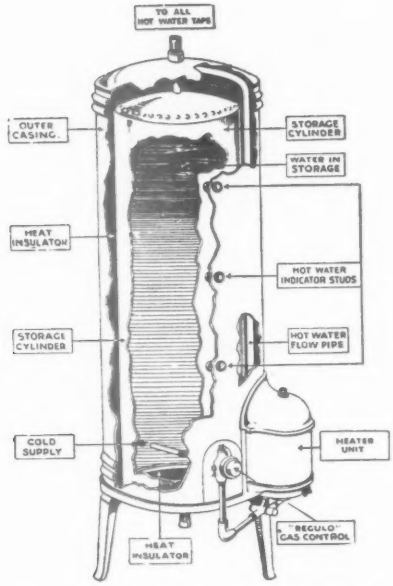


Figure 178. *Gas storage heater ("Sunhot").*

If a *gas* heater of 75 per cent. efficiency is installed the consumption will be :—

$$\frac{630{,}000 \times 100}{100{,}000 \times 75} = 8{\cdot}4 \text{ therms.}$$

Pilot 2 cub. ft./hr. × 168 hrs.

$$= \frac{336 \text{ cub. ft.} \times 500}{100{,}000} = \text{say } 1{\cdot}6 \text{ therms.}$$

Total 10·0 therms.

With gas at 8½d. a therm

10 therms at 8½d. = 7s. 1d. per week.

If the heater is *electric* it will be nearly 100 per cent. efficient and the consumption will be :—

$$\frac{630{,}000}{3{,}415} = 185 \text{ units.}$$

with electricity for water heating at ½d. a unit the cost will be

185 units at ½d. = 7s. 8d. per week.

The above comparative figures do not include radiation losses, which are assumed to be the same in each case.

It will be seen that at the rates chosen (which are fairly common) there is little to choose on a cost basis between the two. With electricity at higher rates than ½d. it clearly cannot compete in cost.

Gas, however, is able to meet sudden demands for large quantities of hot water better than electricity, since the loading of the latter always has to be kept at a minimum so as to reduce the "maximum demand."

Local gas hot water heaters are of two main types, non-storage and storage.

Non-storage heaters, or "Geysers," are too well known to need description. They represent the most convenient method available for supplying large quantities of hot water at a single point on demand. They are not, however, the most efficient method, and there is a definite danger to occupants in unventilated bathrooms if proper attention is not paid to air inlet and flue arrangement, and many people consider they spoil the amenities of the bathroom.

An improved instantaneous heater is the multi-point type, one make of which is shown diagrammatically in Fig. 177. This may be connected to a number of taps, any one of which may draw from the same apparatus. The gas supply is always alight on a pilot flame, and the main burner is turned on automatically as soon as water is drawn off. The ingenious venturi tube device operating a diaphragm gas valve will be noted from the diagram.

Such heaters may be connected from a tank supply or direct to the main, but the former is preferable.

The rate of flow from this type of heater is necessarily restricted, and it is not to be assumed that a good supply may be obtained from more than one tap at the same time.

Whilst suitable for small domestic installations and a variety of similar uses they are not to be advocated where sudden demands for large quantities of hot water are required at a number of points simultaneously. In such case a storage heater is necessary. The non-storage heater having no radiation loss during periods of non-draw off has an advantage over the storage type in overall efficiency, particularly where the periods of draw-off are infrequent. As the demand for hot water becomes more continuous this advantage becomes less important.

Storage Heaters are subdivided into three classes, of low, medium and high consumption and are available in capacities ranging from 12 to 40 gallons.

The most common types are the "Sunhot," "Ruud" and "Equator" respectively. The first is shown in Fig. 178 and the others are similar in appearance.

These are suitable for a range of from 10 to 200 gallons per day at 140 deg. Fahr., and the size and type best suited to the job is a question calling for careful investigation. It is difficult to give here a general method by which such heaters may be calculated, but assistance is always given by the gas companies or the makers, who have considerable experience in the application of these devices to specific cases.

Storage heaters of the types mentioned are very efficiently insulated and enclosed in enamelled jackets so that they may be installed in bathrooms or kitchens. High and medium consumption types should be connected to a flue leading to the outside air, though the low consumption type, it is stated, may be safely installed without one in a well ventilated room.

It may be argued that storage heaters do not come under the category of "local" hot water supply units since they are often installed at a distance from the point of demand. This, strictly, is true, but the division into central and local systems becomes rather fine with this type. In general, however, gas storage heaters show up best when working close to their job and are not suitable for very extensive installations served from one point as with a true central system. In such a case a multiplicity of storage heaters would be required, when obviously they would be "local."

GAS SUPPLY PIPES

In order to determine the size of pipes necessary to supply gas-heated apparatus, it is necessary first to arrive at the volume of gas to be delivered. This depends on the B.T.U.'s per hour output, efficiency and calorific value of the gas thus :—

Cub. ft. per hour =

$$\frac{\text{B.T.U.'s per hour}}{\text{Calorific value of gas per cub. ft.}} \times \frac{100}{\text{percentage efficiency.}}$$

In the case of gas fires, storage and non-storage water heaters, gas cookers, etc., the B.T.U. output per hour and efficiency may not be known, and reference to makers' lists is necessary for the exact consumptions.

For rough purposes an average water heater consumes 1 cub. ft. gas per 0.4 gallon heated through 90 deg. (50 deg. to 140 deg. Fah.). This figure requires care in use as the warming up period of different heaters is variable.

Table LV gives the volume of gas delivered per hour through pipes of various sizes and lengths for a pressure drop of $\frac{1}{10}$ in. between the main and the apparatus connected.

The table is based on Pole's formula

$$Q = 1350\ d^2 \sqrt{\frac{P.d.}{S.L.}}$$

where

Q =cub. ft. gas per hour.
d =diameter of pipe in inches.
P =pressure drop in ins. water.
S =specific gravity of gas (taken at .46 : air=1).
L =length in yards.

If the initial pressure permits, a drop of $\frac{2}{10}$ in. or $\frac{3}{10}$ in. may be allowed, and the volumes delivered according to the table are than increased by multiplying by $\sqrt{2}$ or $\sqrt{3}$ respectively. A drop of $\frac{3}{10}$ in. should be considered maximum for low pressure supplies.

Where a high pressure gas supply is available, pressure drops may be much greater, and the initial pressure in the main becomes important in determining the sizes of the pipes. Such cases are comparatively rare, and the method will not be discussed here.

In the running of gas mains the chief point to be watched is drainage. A steady grade should be provided to a low point where a capped end or syphon box should be provided for drawing off the tarry liquid that collects. Sumps or dips in the pipes should be avoided, as these tend to collect liquid.

Smaller pipes and branches inside the building are as a rule fixed without special care on this point, and no trouble ever seems to arise. It may therefore be said that such piping may be run with impunity in any position found most convenient.

TABLE LV.

GAS PIPE SIZING.

DISCHARGE FROM IRON PIPE IN CUBIC FT. PER HOUR WITH A LOSS OF $\frac{1}{10}$ INCH BETWEEN TERMINAL POINTS.

Length of pipe yards.	Diameter of Pipe.							
	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	3 in.	4 in.
1	82	221	458	790	1,296	2,782	8,537	18,340
5	37	99	205	353	580	1,244	3,818	8,202
10	26	70	145	250	410	880	2,700	5,800
20	18	48	100	180	290	625	1,900	4,200
30	14	40	83	147	238	510	1,550	3,425
40	12	35	78	127	205	445	1,320	2,900
50	11	31	65	112	185	390	1,170	2,600
60	10	28	58	102	173	360	1,100	2,375
70	9	26	55	95	160	330	980	2,225
80	9	24	52	87	147	310	945	2,000
90	8	22	47	83	140	290	880	1,925
100	7	21	45	78	130	275	855	1,800
150	6	17	37	65	106	230	685	1,500
200	5	15	31	56	92	196	600	1,275
250	5	13	28	50	80	175	530	1,150
300	4	12	26	45	75	160	470	1,050
400	3	10	22	39	65	140	420	910
500	3	9	20	35	58	125	370	820

For discharge with 0.2 in. pressure fall, multiply the above by 1.414, and 0.3 in. by 1.732.

LAW REPORTS

ALLEGED COLLATERAL AGREEMENT

Hodges v. *Jones & Co. (Surrey), Ltd., and others.—Chancery Division. Before Mr. Justice Luxmoore.*

THIS was an action which dealt with an interesting point raised by the purchasers of a house on a building estate. Mr. Frank Hodges and his wife, of The Bridge, Surbiton, sued H. C. Jones & Co. (Surrey), Ltd., builders, of Surbiton, and the directors of the company, Mr. H. C. Jones and Mr. E. W. Inwards, in regard to an alleged representation that certain land on the estate would be used only as tennis courts or preserved as an open space. Plaintiffs claimed damages and a declaration.

Plaintiffs' case was that they purchased the house on an estate developed by the defendants and their case was that they had been shown maps on which the land in question was marked as being set apart for tennis courts. They further alleged that there had been verbal representations by the two male defendants that the land would be used entirely for tennis courts or would be kept as an open space. In breach of this plaintiffs said the defendants had erected on part of the land three private garages.

Plaintiffs said as a result of what defendants had done their house had depreciated in value from £1,475 to £1,225.

Defendants by their defence denied that they contracted to construct the tennis courts. All they promised to do was to provide enough tennis courts for purchasers of houses. They denied that they undertook to use the land as an open space, or not to use it for any other purpose. They denied that what they had done had depreciated the value of the plaintiffs' property.

Mr. A. Grant, K.C., and Mr. Holland appeared for the plaintiffs and Mr. Sachs and Mr. Marman for the defendants.

His lordship, after hearing the evidence and arguments of counsel, held that the action failed against all the defendants and he dismissed it with costs. In the course of his judgment his lordship pointed out that the contract for sale by the defendants to the plaintiffs did not refer to the land which the plaintiffs alleged was reserved for tennis courts. As far as he could see there was no written agreement by either of the two individual defendants that the land was to be solely used for tennis courts and for no other purpose. The case put forward by the plaintiffs was that there was a collateral agreement by the two individual defendants that this land was to be used solely as tennis courts, and that that was the main inducement to them to purchase their property. He had gone carefully through the evidence, and he could find no definite agreement that the individual defendants would construct tennis courts as alleged. Further, there was no suggestion as to who would have the right to use the courts or in regard to their maintenance. He had to be satisfied that there was a collateral agreement here. In his opinion there was here no collateral agreement and the action therefore failed. Even if there were such a contract, his lordship could not see how the plaintiffs could claim any relief as against the company, who had an absolute title to the land. There was no entry in the land register restricting the use of the land to tennis courts, and it even went further, and did not prevent the erection of any building on land. He therefore dismissed the action with costs.

ALLEGED UNREASONABLE WITHHOLDING CONSENT TO SUB-LET

Stewart Dawson, Ltd. v. *Piccadilly Hotel —King's Bench Division. Before Mr. Justice Humphreys.*

THIS was an action by Stewart Dawson, Ltd., jewellers, goldsmiths and silversmiths, whose registered office is 19 Hatton Garden, E.C., against the Piccadilly Hotel, Ltd. (formerly called the H.D. Syndicate, Ltd.), for a declaration that the defendants, in refusing to grant plaintiffs a licence to underlet a shop known as No. 73 Regent Street, W., to Messrs. A. Lewis (Westminster), Ltd., tobacconists, had unreasonably, vexatiously, and arbitrarily withheld their consent to such underletting and

secondly they asked for a declaration that plaintiffs were entitled to use the said premises for the purpose of carrying on therein the trade or business of a tobacconist.

On April 27, 1910, the H.D. Syndicate granted the plaintiffs a lease of the premises, No. 73 Regent Street, such premises being part of the building known as the Piccadilly Hotel, Piccadilly, for a term of 84½ years from March 25, 1909.

The lease contained a covenant by the lessees that they would not at any time during the term, without the previous consent in writing of the lessors, use the premises or any part thereof otherwise than for the purpose of carrying on there the trade or business of jewellers, silversmiths and sellers of leather goods, but such licence was not to be withheld unless the lessees decided to use the premises for a noisy or offensive trade, or for a trade or business which was being carried on in the neighbourhood by a tenant of any other shop or shops forming part of the said hotel or building.

The lease also contained a covenant by the lessees that they would not at any time transfer, assign or underlet or part with possession of the premises otherwise than by will, without the consent of the lessors having first been obtained; but such consent was not to be unreasonably withheld.

The plaintiffs asserted that at no material date was the trade or business of a tobacconist carried on by the tenant of any other shop or shops forming part of the hotel or hotel building, but that, on March 22, 1935, the defendants as lessors had wrongfully, by letter, withheld their consent to the plaintiffs underletting the premises to Messrs. Lewis & Co.

Defendants, by their defence, pleaded a denial that they had wrongfully or unreasonably withheld their consent to the plaintiffs underletting to Messrs. Lewis & Co., and in support of their case said that they had for many years been the lessees of the hotel and that at all material times they had carried on in connection therewith the business of a retail tobacconist.

Defendants also pleaded as a defence that in 1934 they let to Salmon and Gluckstein, Ltd., the well-known tobacconists, certain contiguous premises for 21 years, which company had, by leave and licence of the defendants, underlet those premises for the purpose of their being carried on therein a ladies' gown business.

Mr. Trustram Eve, K.C., and Mr. Arthur Capewell appeared for the plaintiffs and Mr. Croom Johnson, K.C., and Mr. Cecil R. Havers for the defendants.

His lordship, in giving judgment, having stated the facts, said that there were two questions to be decided in the case. The first was: had the defendants, in withholding their consent, taken into consideration and account matters which, as a matter of law, they had no right to consider, and the second question was had they acted on reasons which would not have actuated a reasonable person? In his view the answers to these questions were in the negative. It was impossible, continued his lordship, to hold that the defendants had acted unreasonably in refusing the licence the plaintiffs asked for. It was quite possible that Salmon and Gluckstein might want to resume their business in the premises they had underlet to the other people. He accordingly held that the defendants had not acted unreasonably in withholding their consent to the proposed sub-letting by the plaintiffs and the action for a declaration therefore failed.

After discussion the matter was adjourned for the purpose of enabling the plaintiffs, in the meantime, to consider whether they would call further evidence in connection with the question before the Court. For this reason the further hearing was adjourned till next sittings.

ALLEGED NUISANCE FROM A BATHING POOL

Sorrell v. *Middlesex County Council.—King's Bench Division. Before Mr. Justice Hilbery.*

THIS was a motion to prevent nuisance from noise from a bathing pool.

Counsel for the plaintiff said the motion was to restrain the defendant Council from using the swimming bath or pool at defendant's school at Harrow, so as to cause a nuisance by noise to the plaintiff, whose property adjoined the bath. The Council had agreed to give an undertaking till the trial of the action or further orders, which would dispose of the motion. The bath was that of the Harrow County School and till the commencement of the new term the Council undertook that it should only be used from Monday to Friday by past and present scholars between the hours of 10 and 12 in the morning, 2.30 and 4.30 in the afternoon and on Saturdays from 10 to 12 in the morning and not at all on Sundays. After the opening of the school term on September 11 the bath would only be used by present scholars and at certain hours, with certain extensions on week days and not at all on Sundays. There was a fountain which fed the bath and that would only run on week days for nine hours, from 9 a.m. to 6 p.m., and not at all on Sundays. The use of the bath would involve as little noise as possible and megaphones were not to be used by the instructors. On those undertakings there would be no order on the motion, except that the costs of the motion would be costs in the action.

The Council assented to the undertaking and his lordship ordered accordingly.

A SUCCESSFUL APPEAL—QUESTION OF CONSTRUCTION

Cheapside Land Development Co., Ltd. v. *Leacock & Co., Ltd.—Court of Appeal. Before the Master of the Rolls and Lords Justices Romer and Maugham.*

AN interesting point of law was raised by the appeal of Leacock & Co., Ltd., from a judgment, of Mr. Justice Clauson, sitting in the Chancery Division, in favour of the Cheapside Land Development Co., Ltd., over an arrangement to take certain premises at Empire House, St. Martin's le Grand. The Cheapside Land Development Co. sought before Mr. Justice Clauson the specific performance of an agreement by Leacock & Co., Ltd., to take a three years' lease of Empire House. In 1933 Leacock & Co. were in occupation of the whole of Empire House and, desiring to continue in occupation, certain arrangements were made, and as a result the Cheapside Co. wrote Leacock & Co. a letter in which they said they confirmed an arrangement made verbally that on the conclusion of the present term of the lease the Land Co. agreed to enter into a fresh arrangement with Leacock & Co. on the basis of a three years' lease, with a break at the end of the first year if desired, at a rental of £894 for the first year and at £750 for the remaining two years, such rental to be inclusive. Leacock & Co. replied that they agreed the arrangement contained in the letter.

Defendants denied that there was any concluded agreement and the issue before Mr. Justice Clauson was whether that letter and its acceptance constituted an enforcible agreement.

Mr. Justice Clauson held that the letter of the Land Co. and its appended note to sign an attached copy of the letter constituted an agreement binding the parties. The alternative view was: that though the parties had agreed with regard to rent and what the term of the new lease should be, everything else had been left vague, for later settlement. Supposing the latter were the true view, then there was no agreement that the Court could order to be specifically performed. To his mind it was difficult to believe that Leacock & Co. were not binding themselves, but only indicating the basis in which documents were to be prepared. He thought that the parties intended that covenants existing in previous leases should be made part and parcel of the new agreement. He therefore made an order for specific performance by Leacock & Co. for the execution of a new lease.

It was from this judgment that Leacock & Co. now appealed and Mr. Vaisey, K.C., on their behalf argued that the letter was not contractural and that there was no concluded agreement.

The Court allowed the appeal and dismissed the action of the Land Co. with costs.

The Master of the Rolls, in the course of his judgment, said he found himself in disagreement with Mr. Justice Clauson. In his view it was impossible to hold that the document was clear, conclusive and final, and that there was no intention that there should be a later document, when the parties had discussed arrangements. The question was whether the agreement contained the qualities of completeness and certainty to make it an enforcible agreement by the Court. In this case there had been previous leases and it was not possible to say the element of futurity was excluded from the document now before the Court. On the contrary, it appeared to point to the contemplation by the parties that a more precise document would later come into existence. Under these circumstances the appeal would be allowed and the action dismissed with costs.

Lords Justices Romer and Maugham agreed.

Architectural Association

The annual exhibition of water colours, etchings and other drawings by members of the Architectural Association is to be held at 36 Bedford Square, W.C. from October 29 to November 20. All sketches, which should be framed and labelled, must be delivered to the Secretary by October 23.

The A.A. has also arranged a series of five non-technical lectures on "Building London." October 4: "How it Began," by E. R. Jarrett, A.R.I.B.A.; October 18: "The Industrial Age," by W. R. Davidge, F.S.I., F.R.I.B.A.; November 1: Present-day Problems: (*a*) "Life and Work," by R. A. Duncan, A.R.I.B.A.; November 15: (*b*) "Roads and Transport," by J. E. Cowderoy; November 29: "The Future of London," by E. A. A. Rowse, A.R.I.B.A.

TRADE NOTES

The amount of work involved in the Editorship of "Specification" makes it impossible for Mr. F. R. S. Yorke to continue to write these Trade Notes: it has been decided, therefore, that the general editorship of this series shall be in the hands of Mr. Philip Scholberg, with occasional contributions on specialized subjects by other authors, including Mr. Yorke and Mr. W. E. J. Budgen. All notes, other than those by the General Editor, will be initialled by the authors concerned.

A Lockable Sprung Floor

A FULLY sprung floor is seldom desirable in a room which may have to be used for meetings or dinners, and in assembly halls or other public rooms the result is frequently a semi-resilient compromise which is only 50 per cent. efficient for any one purpose.

•

I was interested, therefore, to discover a fully-sprung floor which can be easily locked and converted into an ordinary rigid floor. This is manufactured by Francis Morton Junior & Co., and is designed for use with their "Valtor" spring floor.

•

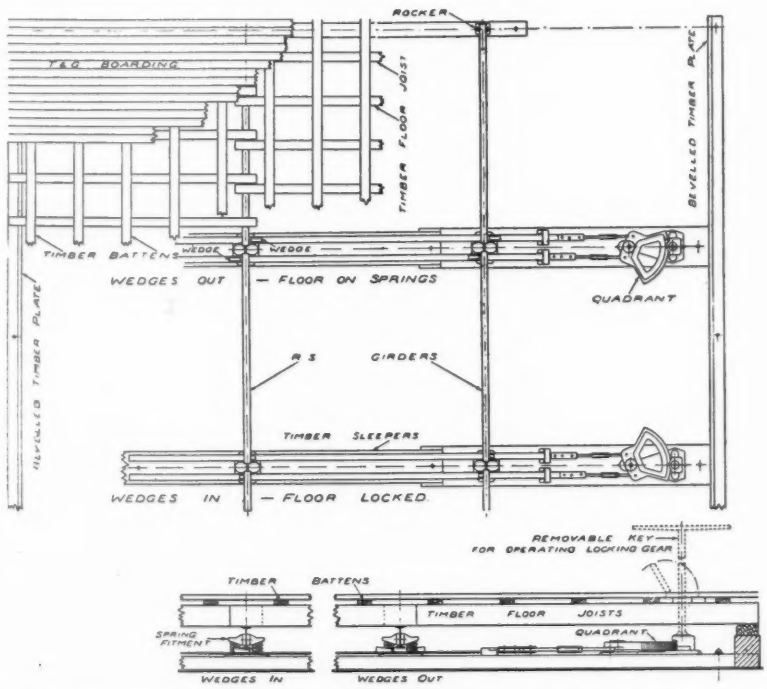
The general construction is more or less self-evident from the adjoining diagram. The normal floor is carried on light rolled steel girders which rest on spring saddles. The gear is divided into sets (the number varying according to the size of the floor), each set operating a row of the spring fitments down the length of the room. A set consists of two lines of flat steel bars passing beneath and at right angles to the girders. At one end, the bars, which run between guides, are connected with a swivel cross-head and at the other with a toothed quadrant engaging with a pinion wheel; the pinion wheel is turned by a removable key through a small hinged cover in the floor. A pair of iron wedges is bolted to the bars (one to each) at every point where they pass under the girders. By turning the key in one direction, the wedges are drawn in under the girders, thus taking the weight of the floor off the springs and substituting a rigid bearing; by reversing the process the wedges are withdrawn and the floor once more rests on the springs.

•

It occurred to me that it should be possible to link the quadrants together, thus locking the whole floor from a single control point, and I find, on enquiry, that this can easily be done, save only on exceptionally large floors, where the load would be too great. One advantage of independent control is that narrow bays parallel with the long axis of the room could be made rigid to take tables and chairs, while the rest of the floor remained sprung.

•

The depth required, from concrete to finished floor surface, is 12 to 15 in., but this can be reduced to 8¾ in. Prices vary a great deal, not only with the depth available, but also with the shape of the room; under favourable conditions and with no restrictions as to depth it varies from 2s. to 2s. 6d. per square foot.



The "Valtor" sprung dance floor, which can be locked solid by means of a series of keys and quadrants (see accompanying note).

Aluminium Alloys

"Literature" in support of any new material or device always proves conclusively that nothing else is worth considering, even for a moment (in spite of which rival manufacturers continue to survive), and it is very encouraging to find that the British Aluminium Company has taken the trouble to reprint a most reasonable paper read by Mr. E. T. Painton, before the Scottish branch of the Institution of Structural Engineers.

•

"In general construction the influence of weight on design is usually of small importance, leading perhaps only towards a few extra cubic feet of concrete for the foundations, and so general is this rule that for the inevitable exceptions the claims of light alloys are often overlooked. It would appear that exceptions do exist, and even in quite normal types of construction a substantial reduction in the weight of the structure itself may be of direct and substantial benefit, resulting in a reduction in cost or alternatively in an increase in effectiveness."

•

Would that all manufacturers were as modest in their claims. The examples given in the reprint deal mainly with bridge and crane work, and the illustration overleaf shows comparative booms for large drag-line excavators. This example is from an actual job, where an increase in length was considered preferable to a saving in weight.

•

The building industry might well consider aluminium for similar purposes. Large jib cranes, for example, mounted at considerable heights, may work at a radius of anything up to 90 ft. The direct benefit of weight reduction in such cases would be supplemented by indirect benefits. The light boom would allow a corresponding lightening of the balancing system, so that the whole weight of the structure is reduced by an amount substantially in excess of the weight reduction of the boom itself, and in consequence the cost of the supporting structure should be materially less.

Synchronous Clocks

I had always assumed that the cost of running a synchronous electric clock was so small as to be almost negligible; so negligible as to be not worth calculating. And now the new Ferranti catalogue gives it at 1d. *a quarter* with current at ½d. a unit.

•

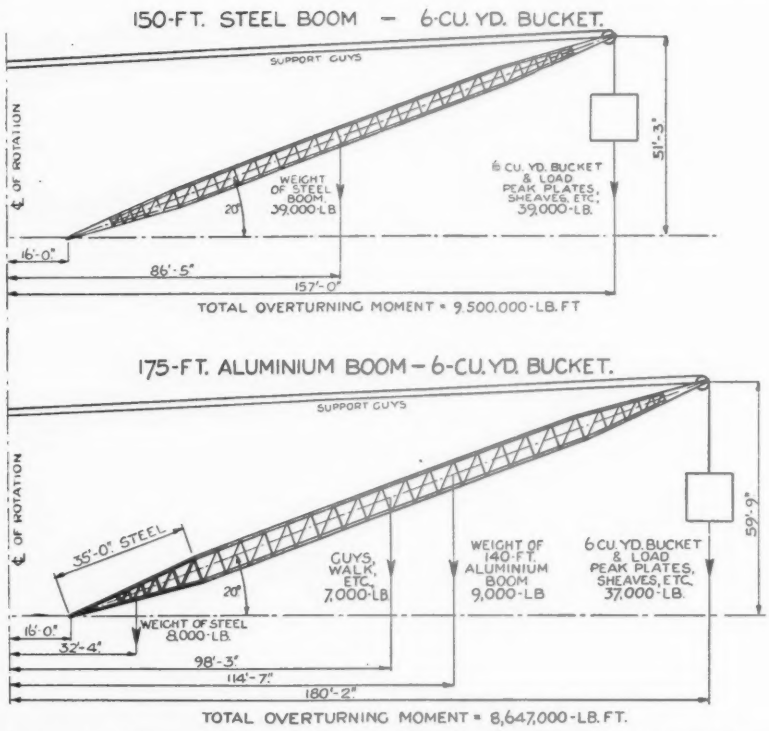
So nobody who dreads a continuously revolving meter need worry very much. As a friend of mine remarked: "It's hardly worth having a wire at all if it carries as little current as that."

•

The most interesting things in the catalogue are the flush clocks for building into panelling, tiled surrounds or mantelpieces; the drum movement and dial are hinged to a metal back plate, and the depth required is only 2½ in. These and several of the wall clocks are pleasant and restrained designs.

•

But the free-standing types. Not, alas, the sort of thing I should like to see in my



A comparison between aluminium and steel booms for drag-line excavation: each boom has approximately the same total overturning moment (see note on previous page).

own house, but I have no doubt that the makers know their public a great deal better than I do.

Obituary

We regret to record the death of Mr. A. W. Dickinson, Chairman and Managing Director of Caxton Floors, Ltd. Mr. Dickinson formed the Company after patenting the Caxton tile in 1924 and, until the date of his illness, had taken a personal and very active part in its administration.

The chairman of the board is now Colonel H. C. R. Thompson, F.C.A., and Messrs. G. Sutcliffe Marsh, A.M.INST.C.E., and J. E. Brittenden have been appointed joint managing directors.

Manufacturers' Items

Samuel Booth & Co., Ltd., send a new booklet describing their Nickelite sanitary fittings for domestic use and for hospital work. Nickelite is a nickel silver or white metal containing 20 per cent. of nickel: it should not be confused with the "white metal" normally produced a few years ago, for the high nickel content makes this material entirely different in colour and durability. It is, it is claimed, far more resistant to corrosion and tarnish than plumbing fixture alloys containing no nickel; it resists the action of soap, while its extensive use for marine fittings is ample testimony to its resistance to the attack of sea water. Further, it is claimed to be unaffected by disinfectants and other chemicals used in hospitals.

●

Messrs. Rhodes, Brydon and Youatt, Ltd., of the Waterloo Engineering Works, Gorsey Mount Street, Stockport, have just issued a new folder (No. 322) devoted to their self-priming pumps. Copies of the folder may be obtained on application to the firm.

THE BUILDINGS ILLUSTRATED

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

Elephant House, Whipsnade (pages 332-335). General contractors, J. L. Kier & Co., Ltd., Sub-contractors :—Engert and Rolfe, Ltd., asphalt; John Elbo, Ltd., cork insulation; Gliksten Doors, Ltd., doors; G. N. Haden and Sons, Ltd., and Duncan Watson (Electrical Engineers), Ltd., electrical installations; Bell Bros. (Manchester 1927), Ltd., filtration plant; Lenscrete, Ltd., glass walling; Pilkington Bros., Ltd., A. Goldstein & Co., Ltd., and Thermolux Glass Co., Ltd., glazing; Williams and Williams, dome roofs, metal windows and doors; Joseph Sankey and Sons, Ltd., metal cills and door frames; Permanite, Ltd., roof covering; Shanks & Co., Ltd., and L. Constad & Co. (1928), Ltd., sanitary fittings.

House at Hatfield (pages 336-339). General contractors, Walter Taylor (Builders) Ltd. Sub-contractors: Merchant Trading Co., Ltd., shutters and insulation; Masonite, Ltd., shutters; Sika-Francois, Ltd., dampcourses and waterproofing materials; G. R. Speaker & Co., Ltd., concrete blocks, partitions; Cement Marketing Co., Ltd., reinforced concrete; United Strip and Bar Mills, steel reinforcement; Mono Concrete Co., Ltd., artificial stone concrete paving; Frazzi, Ltd., special roofings; Vitrea Drawn Sheet Glass Co., Ltd., glass; James Latham, Ltd., wood flooring; Cellulin Flooring Co., patent flooring; Chas. P. Kinnell & Co., Ltd., central heating; General Electric Co., Ltd., electric stoves; Crane, Ltd., radiators; Troughton and Young, Ltd., electric light fittings; Adamsez, Ltd., sanitary fittings; India Rubber, Gutta Percha and Telegraph Works Co., Ltd., rubber stair treads; Dryad Metal Works, Ltd., door furniture; Williams and Williams, Ltd., casements; Lenscrete, Ltd., reinforced concrete and glass window; Venesta, Ltd., doors; James Adams and Son, Ltd., door springs; Joseph Avery & Co., sunblinds; Joseph Sankey and Sons, Ltd., pressed steel door frames; Light Steelwork, Ltd., stair balustrade; Easiwork, Ltd., kitchen equipment; Cork Insulation Co., Ltd., cork tiling in bathroom; Nobel Chemical Finishes, Ltd., paint; A. T. Morse, Sons & Co., Ltd., distemper; Contemporary Woodwork, furniture and built-in fittings; O'Brien, Thomas & Co., Ltd., garage fittings; Synchronome Co., Ltd., clocks; Electrolux, Ltd., refrigerator; Art Pavements and Decorations, Ltd., Biancola tiles; Ideal Boilers and Radiators, Ltd., Ideal boiler; Fairways, Ltd., Hydrokeen plaster.

The living room of a house on the edge of Lake Michigan Architect: John Lloyd Wright. [From a recent issue of the "Architectural Forum."]

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

EDMONTON. *Extensions to Hospital.* Plans for the extension of the North Middlesex Hospital, N., are now being prepared by Mr. W. T. Curtis, County Architect. The estimated cost of the scheme is £500,000.

FINCHLEY. *Flats.* A block of flats is shortly to be erected in Finchley Road, Childs Hill, N.W. The development is in the hands of Messrs. Baldwin & Co., of 707 Finchley Road, N.W.

ILFORD. *Shops.* Plans for the erection of shops in Clayhall Avenue have been lodged with the Ilford Corporation by Mr. E. J. Webster and Ideal Homesteads, Ltd.

LONDON (EAST). *Garage and Shops.* Messrs. F. Bowser & Co. (London), Ltd., propose to erect a new garage and showrooms on the site of Romford Road, London, E. The architect is Mr. R. W. Wilcocks.

SOUTHALL. *Development.* Messrs. Bertram and Curtis are to develop land at the junction of Scotts Road and Johnston Street, Southall.

SUTTON. *School.* The Board of Education has approved plans for the erection of a new secondary school for girls at Sutton, for the Surrey Education Committee. The architects are Messrs. Jarvis and Richards; and the estimated cost of the scheme is £41,500.

WEMBLEY. *Flats.* Work is shortly to commence on the erection of six blocks of flats on a site in North End Road, Wembley, Middlesex, for the Raglan Property Investment Trust, Ltd.

SOUTHERN COUNTIES

BOROCOURT. *Enlargement of the Mental Hospital.* The Bucks., Oxon and Reading Joint Board is to enlarge the mental colony at Borocourt at a cost of £20,880 in accordance with a scheme prepared by the consulting engineers Messrs. John Taylor and Sons.

BOURNEMOUTH. *Houses.* The Corporation is to obtain tenders for the erection of 84 houses on the Kinson estate.

BOURNEMOUTH. *Winter Garden.* The Corporation has approved plans by the borough engineer for the erection of exhibition and sports premises on the Winter Garden site at a cost of £13,000.

HAMBLEDON. *Houses.* The R.D.C. has been authorized by the Ministry of Health to proceed with the initial stages of its scheme for the erection of 135 working class houses in six parishes of the district. The houses are to be erected in the following parishes: Alfold, 6; Chiddingfold, 15; Cranleigh, 18; Dockenfield, 8; Elstead, 20; Hanscombe, 6; Thursley, 12; Whitley, 50. The estimated cost of the scheme is £46,477.

OXFORD. *Shops.* Messrs. P. Chase Gardner & Co. are to erect 19 shops on the Iffley Turn Estate, Rose Hill, Oxford.

OXFORD. *Houses.* Mr. G. H. Simmons is to erect houses on the Banbury Road frontage of the Summertown Farm Estate, Oxford.

PETHAM. *School.* The Kent Education Committee is to erect an elementary school at Petham for about 150 children.

SWANSCOMBE. *Cinema.* Mr. J. Hartley proposes to erect a cinema on a central site in Swanscombe, Kent. The building will provide seating accommodation for 1,250 persons.

SOUTH-WESTERN COUNTIES

CHELTENHAM. *Crematorium.* The Corporation is to consider next month the provision of a crematorium.

MIDLAND COUNTIES

ATHERSTONE. *School.* The Education Committee is to erect a junior school for 300 at Atherstone.

BIDFORD-ON-AVON. *School.* The Education Committee has purchased a six-acre site at Bidford-on-Avon for the erection of a senior school.

COLESHILL. *Police Station.* The County Council has purchased a site at Coleshill for the erection of a police station.

KETTERING. *Cinema.* A cinema, with seating accommodation for 2,000 persons, is to be erected at Kettering, Northants, for the Gaumont-British Picture Corporation, Ltd. The architect is Mr. W. E. Trent.

RUGBY. *Extensions to School.* The Education Committee is acquiring land for the extension of Westlands School, Rugby.

SHEFFIELD. *Plans Passed.* The Corporation has approved the following estate plans: New street off Townhead Road, Dore, for Messrs. R. T. Hinchliffe and Son, Ltd.; new street at Wadsley Bridge for the Duke of Norfolk; new street at Whirlow for Earl Fitzwilliam's Wentworth Estates Corporation.

SKEGNESS. *Extensions.* It is proposed to carry out extensions to the Skegness and District Cottage Hospital, Skegness, Lincs., for the Board of Management. The joint architects are Mr. Lionel G. Pearson, of Messrs. Adams, Holden and Pearson, and Mr. W. F. Wills, of Messrs. John Wills and Sons.

SOLIHULL. *Library.* The Education Committee is in negotiation for a site for the erection of a library at Shirley, Solihull.

SOUTH LITTLETON. *School.* Worcestershire Education Committee is to erect a senior school at South Littleton.

STOKE-ON-TRENT. *Housing Schemes.* Stoke-on-Trent Corporation is negotiating for 19 acres at Hanford and 35 acres at Tunstall for housing schemes.

STOKE-ON-TRENT. *Development.* Messrs. Leake & Co. are to develop an estate off Leek New Road, Sneyd Green, Stoke-on-Trent.

TRENT VALE. *Development.* Messrs. P. Bailey & Co. are to develop the Hillfield Estate, Trent Vale, Staffs.

UPTON-ON-SEVERN. *School.* Worcestershire Eduction Committee is to acquire a site in Upton-on-Severn for the erection of a senior school.

WEST BROMWICH. *Houses.* The Corporation is to erect an additional 100 houses in connection with the slum clearance programme.

NORTHERN COUNTIES

BIRKENHEAD. *Development.* Messrs. Boultons (Prenton), Ltd., are to develop land and provide a shopping centre on an estate in the vicinity of Wirral Way, Birkenhead.

BIRKENHEAD. *Development.* Hamilton Estates, Ltd., are to develop an estate between Upton Road and Beryl Road, Birkenhead.

BLACKPOOL. *Houses.* Plans submitted to the Blackpool Corporation: 12 houses, Charnwood Avenue, for Mr. J. Bain; 12 houses, Waterfoot Avenue, for Messrs. D. R. & R. Siddall; 34 houses, Lindale Gardens, for Mr. R. Bant; 21 houses, Carleton Avenue, for Mr. T. E. Mellor; four houses, Denestone Avenue, for Mr. J. V. Marsh; 21 houses, Warley Road, for Messrs. J. Fielding and Sons, Ltd.

BOOTLE. *Instruction Centre.* Bootle Education Committee is to adapt premises in Marsh Lane as a junior instruction centre at a cost of £2,000.

BOOTLE. *Children's Playground.* The Corporation is to provide a children's playground at the North recreation ground at a cost of £2,631.

BOOTLE. *Pavilion.* The Corporation is to erect a pavilion at the Orrell pleasure grounds, at a cost of £3,400.

EASINGTON. *Pithead Baths.* The Miners' Welfare Committee is to erect pithead baths in Tower Street, Easington.

LEEDS. *Baths.* The Corporation recommends a site in York Street and Somerset Street for the erection of new central baths to replace the Union Street baths, which are likely to be demolished for the market development proposals.

LEEDS. *Crematorium.* The Ministry of Health has approved the plans of the Corporation for the provision of a crematorium at the Cottingley Hall cemetery.

LEEDS. *Branch Library.* The Corporation has instructed the city architect to prepare plans for the erection of a branch library in Chapeltown Road.

LEEDS. *Houses.* Mr. W. D. Metcalfe proposes to erect 20 houses on land at The View, North Park Grove, Leeds.

MANCHESTER. *School.* The Education Committee has acquired a site in Bowker Lane, Crumpsall, for the erection of an elementary school.

SUNDERLAND. *Shops, etc.* Shops, stores, garages, etc., are to be erected at the corner of West Street and Middle Street, Sunderland, for Messrs. Smith, Ltd. The architects are Messrs. W. and T. R. Milburn.

TODMORDEN. *Swimming Baths.* The Corporation is to erect swimming baths and has appointed a committee to inspect such establishments recently constructed in neighbouring towns.

TODMORDEN. *Technical Institute.* The West Riding Education Committee is to erect new new premises for the Todmorden Technical Institute.

WAKEFIELD. *School.* The Education Committee has approved plans for the erection of a school of arts and crafts at a cost of £24,000.

WAKEFIELD. *School.* The Education Committee is to prepare a scheme for the provision of a special school for mental defective children.

WALLASEY. *Bungalows.* The Corporation has instructed the borough engineer to prepare plans for the erection of bungalows for the aged in School Lane.

WALLASEY. *Pavilion.* The Corporation has approved plans by the borough engineer for the erection of a pavilion in Belvidere recreation ground.

WALLSEND. *Houses.* The Corporation has approved the plans of the borough engineer for the provision of another 200 houses on the Coast Road site.

SCOTLAND

ABERDEEN. *School.* Plans for the erection of a new R.C. school at Nelson Street, Aberdeen, have been approved by the Plans and Town Planning Committee of the Aberdeen Town Council. The estimated cost of the building is £36,500.

GLASGOW. *Shops and Garages.* The Glasgow Estates Development Co., Ltd., is to erect two shops, office and 40 garages on the Cardonald estate, Glasgow.

GLASGOW. *Housing.* The Corporation is negotiating for 16 acres at Huntershill and 77 acres at Balornock for housing purposes.

GLASGOW. *Extensions.* The Corporation has authorised the preparations of plans for extensions at the Crookston institution.

GLASGOW. *School.* The Education Committee is to erect an elementary school in Hartlaw Crescent, Hillington.

GLASGOW. *Hospital.* The Corporation is to enlarge the Stobhill Hospital at a cost of £8,000.

GLASGOW. *Hospital Extensions.* The Corporation is to arrange for extensions at the Southern General Hospital at a cost of £14,500 and at the Crookston Hospital at a cost of £36,000.

GLASGOW. *Housing Scheme.* Glasgow Corporation has in contemplation further housing schemes estimated to cost £564,000.

GLASGOW. *Park Improvements.* The Corporation has approved a programme for park improvements, including running tracks and bowling greens at Westhorn, at a cost of £32,000.

GLASGOW. *Police Buildings.* The Corporation has voted an estimate of £8,800 in respect of various police buildings.

GLASGOW. *Schools.* The Education Committee has budgeted for a capital expenditure of £481,600 for school premises during the next 12 months.

GLASGOW. *Welfare Centre.* The Corporation is to provide welfare centre accommodation at Gargadhill and Gorbals at a cost of £14,380.

RATES OF WAGES

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

			I	II
			s. d.	s. d.
A_1	ABERDARE ..	S. Wales & M.	1 5	1 0½
A	Aberdeen ..	Scotland	1 6	1 1½
A_1	Abergavenny ..	S. Wales & M.	1 5	1 0½
A	Abingdon ..	S. Counties	1 4	1 0
A	Accrington ..	N.W. Counties	1 5½	1 1½
A	Addlestone ..	S. Counties	1 4	1 0
A	Adlington ..	N.W. Counties	1 5½	1 1½
A	Airdrie	Scotland	*1 5½	1 1½
C	Aldeburgh ..	E. Counties	1 1½	10½
A	Altrincham ..	N.W. Counties	1 5½	1 1½
B	Appleby ..	N.W. Counties	1 2	10½
A	Ashton-under-Lyne	N.W. Counties	1 5½	1 1½
B_1	Aylesbury ..	S. Counties	1 3	11½
B_1	BANBURY ..	S. Counties	1 3	11½
B_1	Bangor ..	N.W. Counties	1 3	11½
A_2	Barnard Castle	N.E. Coast	1 4	1 0
A	Barnsley ..	Yorkshire	1 5½	1 1½
B	Barnstaple ..	S.W. Counties	1 3½	11½
A	Barrow ..	N.W. Counties	1 5½	1 1½
A	Barry	S. Wales & M.	1 5½	1 1½
B_1	Basingstoke ..	S.W. Counties	1 3	11½
A_2	Bath	S.W. Counties	1 4½	1 0½
A	Batley ..	Yorkshire	1 5½	1 1½
A_2	Bedford ..	E. Counties	1 4½	1 0½
A_2	Berwick-on-Tweed	N.E. Coast	1 4½	1 0½
A_2	Bewdley ..	Mid. Counties	1 4½	1 0½
B	Bicester ..	S. Counties	1 2	10½
	Birkenhead ..	N.W. Counties	*1 7	1 2½
A	Birmingham ..	Mid Counties	1 5½	1 1½
A_1	Bishop Auckland	N.E. Coast	1 5	1 0½
A	Blackburn ..	N.W. Counties	1 5½	1 1½
A	Blackpool ..	N.W. Counties	1 5½	1 1½
A	Blyth	N.E. Coast	1 5½	1 1½
B_1	Bognor ..	S. Counties	1 3	11½
A	Bolton ..	N.W. Counties	1 5½	1 1½
A	Boston	Mid. Counties	1 4	1 0
A_2	Bournemouth ..	S. Counties	1 4½	1 0½
B_2	Bovey Tracey	S.W. Counties	1 2½	11
A	Bradford ..	Yorkshire	1 5½	1 1½
A_1	Brentwood ..	E. Counties	1 5	1 0½
A	Bridgend ..	S. Wales & M.	1 5½	1 1½
B	Bridgwater ..	S.W. Counties	1 3½	11½
A_1	Bridlington ..	Yorkshire	1 5	1 0½
A	Brighouse ..	Yorkshire	1 5½	1 1½
A_2	Brighton ..	S. Counties	1 4½	1 0½
A	Bristol	S.W. Counties	1 5½	1 1½
B	Brixham ..	S.W. Counties	1 2½	11
A	Bromsgrove ..	Mid. Counties	1 4½	1 0½
B	Bromyard ..	Mid. Counties	1 2	10½
A	Burnley ..	N.W. Counties	1 5½	1 1½
A	Burslem ..	Mid. Counties	1 5½	1 1½
A	Burton-on-Trent	Mid. Counties	1 5½	1 1½
A	Bury	N.W. Counties	1 5½	1 1½
A	Buxton ..	N.W. Counties	1 5	1 0½
A_1	CAMBRIDGE ..	E. Counties	1 5	1 0½
B_1	Canterbury ..	S. Counties	1 3	11½
A	Cardiff	S. Wales & M.	1 5½	1 1½
A	Carlisle ..	N.W. Counties	1 5½	1 1½
B	Carmarthen ..	S. Wales & M.	1 3½	11½
B	Carnarvon ..	N.W. Counties	1 3½	11½
A	Carnforth ..	N.W. Counties	1 5½	1 1½
A	Castleford ..	Yorkshire	1 5½	1 1½
A_2	Chatham ..	S. Counties	1 4	1 0
A	Chelmsford ..	E. Counties	1 4	1 0
A	Cheltenham ..	S.W. Counties	1 4	1 0
A	Chester ..	N.W. Counties	1 5½	1 1½
A	Chesterfield ..	Mid. Counties	1 5½	1 1½
B_1	Chichester ..	S. Counties	1 3	11½
A	Chorley ..	N.W. Counties	1 5½	1 1½
B_1	Cirencester ..	S. Counties	1 3	11½
A	Clitheroe ..	N.W. Counties	1 5½	1 1½
A	Clydebank ..	Scotland	1 5½	1 1½
A	Coalville ..	Mid. Counties	1 5½	1 1½
A_2	Colchester ..	E. Counties	1 4½	1 0½
A	Colne	N.W. Counties	1 5½	1 1½
A_2	Colwyn Bay ..	N.W. Counties	1 4½	1 0½
A_2	Consett ..	N.E. Coast	1 5	1 0½
A_2	Conway ..	N.W. Counties	1 4½	1 0½
A	Coventry ..	Mid. Counties	1 5½	1 1½
A_2	Crewe	N.W. Counties	1 4½	1 0½
A	Cumberland ..	N.W. Counties	1 4	1 0
A	DARLINGTON	N.E. Coast	1 5½	1 1½
A	Darwen ..	N.W. Counties	1 5½	1 1½
B_1	Deal	S. Counties	1 3	11½
A_2	Denbigh ..	N.W. Counties	1 4	1 0
A	Derby	Mid. Counties	1 5½	1 1½
A	Dewsbury ..	Yorkshire	1 5½	1 1½
B	Didcot ..	S. Counties	1 3½	11½
A	Doncaster ..	Yorkshire	1 5½	1 1½
B_1	Dorchester ..	S.W. Counties	1 3	11½
A	Driffield ..	Yorkshire	1 4	1 0
A_2	Droitwich ..	Mid. Counties	1 4½	1 0½
A	Dudley ..	Mid. Counties	1 5½	1 1½
A_2	Dumfries ..	Scotland	1 5	1 0½
A	Dundee ..	Scotland	1 5½	1 1½
A	Durham	N.E. Coast	1 5½	1 1½
A_2	EASTBOURNE	S. Counties	1 4½	1 0½
A_1	Ebbw Vale ..	S. Wales & M.	1 5	1 0½
A	Edinburgh ..	Scotland	1 5½	1 1½
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 5	1 0½
A_2	Exeter	S.W. Counties	*1 4½	1 0½
B	Exmouth ..	S.W. Counties	1 3½	11½
A_2	FELIXSTOWE	E. Counties	1 4	1 0
A	Filey	Yorkshire	1 4	1 0
A	Fleetwood ..	N.W. Counties	1 5½	1 1½
B_1	Folkestone ..	S. Counties	1 3	11½
A	Frodsham ..	N.W. Counties	1 5½	1 1½
B_2	Frome	S.W. Counties	1 2½	11
A	GATESHEAD	N.E. Coast	1 5½	1 1½
B	Gillingham ..	S. Counties	1 3½	11½
A	Glasgow ..	Scotland	1 6	1 1½
A_2	Gloucester ..	S.W.Counties	1 4½	1 0½
A_2	Goole	Yorkshire	1 4½	1 0½
A_2	Gosport ..	S. Counties	1 4½	1 0½
A_2	Grantham ..	Mid. Counties	1 4	1 0
A_1	Gravesend ..	S. Counties	1 5	1 0½
A	Greenock ..	Scotland	*1 5½	1 1½
A	Grimsby ..	Yorkshire	1 5½	1 1½
B	Guildford ..	S. Counties	1 3½	11½
A	HALIFAX ..	Yorkshire	1 5½	1 1½
A	Hanley ..	Mid. Counties	1 5½	1 1½
A	Harrogate ..	Yorkshire	1 5½	1 1½
A	Hartlepools ..	N.E. Coast	1 5½	1 1½
B	Harwich ..	E. Counties	1 3½	11½
B_1	Hastings ..	S. Counties	1 3	11½
A_2	Hatfield ..	S. Counties	1 4½	1 0½
B	Hereford ..	S.W. Counties	1 3½	11½
A_2	Hertford ..	E. Counties	1 4½	1 0½
A	Heysham ..	N.W. Counties	1 5½	1 1½
A	Howden ..	N.E. Coast	1 5½	1 1½
A	Huddersfield ..	Yorkshire	1 5½	1 1½
A	Hull	Yorkshire	1 5½	1 1½
A	ILKLEY ..	Yorkshire	1 5½	1 1½
A	Immingham ..	Mid. Counties	1 5½	1 1½
A_2	Ipswich ..	E. Counties	1 4½	1 0½
B_2	Isle of Wight ..	S. Counties	1 2½	11
A	JARROW ..	N.E. Coast	1 5½	1 1½
A	KEIGHLEY ..	Yorkshire	1 5½	1 1½
A_2	Kendal ..	N.W. Counties	1 4	1 0
A_2	Keswick ..	N.W. Counties	1 4	1 0
A_1	Kettering ..	Mid. Counties	1 5	1 0½
A_2	Kidderminster	Mid. Counties	1 4½	1 0½
B_1	King's Lynn ..	E. Counties	1 3	11½
A	LANCASTER ..	N.W. Counties	1 5½	1 1½
A_1	Leamington ..	Mid. Counties	1 5	1 0½
A	Leeds	Yorkshire	1 5½	1 1½
A	Leek	Mid. Counties	1 5½	1 1½
A	Leicester ..	Mid. Counties	1 5½	1 1½
A	Leigh	N.W. Counties	1 5½	1 1½
B	Lewes	S. Counties	1 2	10½
A_2	Lichfield ..	Mid. Counties	1 4½	1 0½
A	Lincoln ..	Mid. Counties	1 5½	1 1½
	Liverpool ..	N.W. Counties	*1 7	1 2½
A_2	Llandudno ..	N.W. Counties	1 4½	1 0½
A	Llanelly ..	S. Wales & M.	1 5½	1 1½
	London (12-miles radius)		1 7½	1 2½
	Do. (12-15 miles radius)		1 7	1 2½
A	Long Eaton ..	Mid. Counties	1 5½	1 1½
A	Loughborough ..	Mid. Counties	1 5½	1 1½
A_1	Luton	E. Counties	1 5	1 0½
A	Lytham ..	N.W. Counties	1 5½	1 1½
A_1	MACCLESFIELD	N.W. Counties	1 5	1 0½
A_2	Maidstone ..	S. Counties	1 4	1 0
A_2	Malvern ..	Mid. Counties	1 4	1 0
A	Manchester ..	N.W. Counties	1 5½	1 1½
A	Mansfield ..	Mid. Counties	1 5½	1 1½
B_1	Margate ..	S. Counties	1 3	11½
A	Matlock ..	Mid. Counties	1 4	1 0
A_1	Merthyr ..	S. Wales & M.	1 5	1 0½
A	Middlesbrough	N. E. Coast	1 5½	1 1½
A_2	Middlewich ..	N. W. Counties	1 4½	1 0½
B_2	Minehead ..	S.W. Counties	1 2½	11
B_2	Monmouth & S. and E. Glamorganshire	S. Wales & M.	1 2½	11
A	Morecambe ..	N.W. Counties	1 5½	1 1½
A_2	NANTWICH ..	N.W. Counties	1 4½	1 0½
A	Neath	S. Wales & M.	1 5½	1 1½
A	Nelson ..	N.W. Counties	1 5½	1 1½
A	Newcastle ..	N.E. Coast	1 5½	1 1½
A	Newport ..	S. Wales & M.	1 5½	1 1½
A	Normanton ..	Yorkshire	1 5½	1 1½
A	Northampton	Mid. Counties	1 5½	1 1½
A	North Staffs ..	Mid. Counties	1 5½	1 1½
A	North Shields ..	N.E. Coast	1 5½	1 1½
A_1	Norwich ..	E. Counties	1 5	1 0½
A	Nottingham ..	Mid. Counties	1 5½	1 1½
A	Nuneaton ..	Mid. Counties	1 5½	1 1½
A	OAKHAM ..	Mid. Counties	1 4	1 0
A	Oldham ..	N.W. Counties	1 5½	1 1½
A_2	Oswestry ..	N.W. Counties	1 4	1 0
A_1	Oxford ..	S. Counties	1 5	1 0½
A	PAISLEY ..	Scotland	*1 5½	1 1½
B_2	Pembroke ..	S. Wales & M.	1 2	10½
A	Perth	Scotland	*1 5½	1 1½
A_1	Peterborough ..	E. Counties	1 5	1 0½
A	Plymouth ..	S.W. Counties	*1 5½	1 1½
A	Pontefract ..	Yorkshire	1 5½	1 1½
A_1	Pontypridd ..	S. Wales & M.	1 5	1 0½
A_2	Portsmouth ..	S. Counties	1 4½	1 0½
A	Preston ..	N.W. Counties	1 5½	1 1½
A	QUEENSFERRY	N.W. Counties	1 5½	1 1½
A_2	READING ..	S. Counties	1 4½	1 0½
B	Reigate ..	S. Counties	1 3½	11½
A	Retford ..	Mid. Counties	1 4	1 0
A_1	Rhondda Valley	S. Wales & M.	1 5	1 0½
A	Ripon	Yorkshire	1 4	1 0
A	Rochdale ..	N.W. Counties	1 5½	1 1½
B	Rochester ..	S. Counties	1 3½	11½
A_1	Ruabon ..	N.W. Counties	1 5	1 0½
A	Rugby ..	Mid. Counties	1 5½	1 1½
A_2	Rugeley ..	Mid. Counties	1 4½	1 0½
A	Runcorn ..	N.W. Counties	1 5½	1 1½
A_1	ST. ALBANS ..	E. Counties	1 5	1 0½
A	St. Helens ..	N.W. Counties	1 5½	1 1½
B_2	Salisbury ..	S.W. Counties	1 2½	11
A_1	Scarborough ..	Yorkshire	1 5	1 0½
A	Scunthorpe ..	Mid. Counties	1 5½	1 1½
A	Sheffield ..	Yorkshire	1 5½	1 1½
A	Shipley ..	Yorkshire	1 5½	1 1½
A_2	Shrewsbury ..	Mid. Counties	1 4½	1 0½
A_2	Skipton ..	Yorkshire	1 4½	1 0½
A_2	Slough ..	S. Counties	1 4½	1 0½
A_1	Solihull ..	Mid. Counties	1 5	1 0½
A_2	Southampton ..	S. Counties	1 4½	1 0½
A_1	Southend-on-Sea	E. Counties	1 5	1 0½
A	Southport ..	N.W. Counties	1 5½	1 1½
A	S. Shields ..	N.E. Coast	1 5½	1 1½
A_1	Stafford ..	Mid. Counties	1 5	1 0½
A	Stirling ..	Scotland	1 6	1 1½
A	Stockport ..	N.W. Counties	1 5½	1 1½
A	Stockton-on-Tees	N.E. Coast	1 5½	1 1½
A	Stoke-on-Trent	Mid. Counties	1 5½	1 1½
B	Stroud	S.W. Counties	1 3½	11½
A	Sunderland ..	N.E. Coast	1 5½	1 1½
A	Swansea ..	S. Wales & M.	1 5½	1 1½
A	Swindon ..	S.W. Counties	1 4	1 0
A_1	TAMWORTH ..	N.W. Counties	1 5	1 0½
B	Taunton ..	S.W. Counties	1 3½	11½
A	Teesside Dist. ..	N.E. Counties	1 5½	1 1½
A_2	Teignmouth	S.W. Coast	1 4½	1 0½
A	Todmorden ..	Yorkshire	1 5½	1 1½
A_1	Torquay ..	S.W. Counties	1 5	1 0½
B_2	Truro	S.W. Counties	1 2½	11
A_2	Tunbridge Wells	S. Counties	1 4	1 0
A	Tunstall ..	Mid. Counties	1 5½	1 1½
A	Tyne District ..	N.E. Coast	1 5½	1 1½
A	WAKEFIELD	Yorkshire	1 5½	1 1½
A	Walsall ..	Mid. Counties	1 5½	1 1½
A	Warrington ..	N.W. Counties	1 5½	1 1½
A_1	Warwick ..	Mid. Counties	1 5	1 0½
A_1	Wellingborough	Mid. Counties	1 5	1 0½
A	West Bromwich	Mid. Counties	1 5½	1 1½
A_2	Weston-s.-Mare	W. Counties	1 4½	1 0½
A_2	Whitby ..	Yorkshire	1 4½	1 0½
A	Widnes ..	N.W. Counties	1 5½	1 1½
A	Wigan ..	N.W. Counties	1 5½	1 1½
B	Winchester ..	S. Counties	1 3½	11½
A_2	Windsor ..	S. Counties	1 4½	1 0½
A	Wolverhampton	Mid. Counties	1 5½	1 1½
A_2	Worcester ..	Mid. Counties	1 4½	1 0½
A_2	Worksop ..	Yorkshire	1 4	1 0
A_1	Wrexham ..	N.W. Counties	1 5	1 0½
A	Wycombe ..	S. Counties	1 4	1 0
B	YARMOUTH ..	E. Counties	1 3½	11½
B	Yeovil	S.W. Counties	1 3½	11½
A	York	Yorkshire	1 5½	1 1½

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

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

CURRENT PRICES

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

WAGES

		s.	d.
Bricklayer	per hour	1	7½
Carpenter	,,	1	7½
Joiner	,,	1	7½
Machinist	,,	1	8½
Mason (Banker)	,,	1	7½
,, (Fixer)	,,	1	8½
Plumber	,,	1	7½
Painter	,,	1	6½
Paperhanger	,,	1	6½
Glazier	,,	1	7½
Slater	,,	1	7½
Scaffolder	,,	1	3½
Timberman	,,	1	3½
Navvy	,,	1	2½
General Labourer	,,	1	2½
Lorryman	,,	1	5½
Crane Driver	,,	1	6½
Watchman	per week	2	10	0

MATERIALS

EXCAVATOR AND CONCRETOR

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

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

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

BRICKLAYER

		£	s.	d.
Flettons	per M.	2	15	0
Grooved do.	,,	2	17	0
Phorpres bricks	,,	2	15	0
,, Cellular bricks	,,	2	15	0
Stocks, 1st quality	,,	4	11	0
,, 2nd ,,	,,	4	2	6
Blue Bricks, Pressed	,,	8	17	5
,, Wirecuts	,,	7	17	6
,, Brindles	,,	7	0	0
,, Bullnose	,,	9	0	0
Red Sand-faced Facings	,,	6	18	6
Red Rubbers for Arches	,,	12	0	0
Multicoloured Facings	,,	7	10	0
Luton Facings	,,	7	10	0
Phorpres White Facings	,,	3	17	3
,, Rustic Facings	,,	3	12	3
Midhurst White Facings	,,	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	,,	21	0	0
Headers	,,	20	10	0
Bullnose	,,	27	10	0
Double Stretchers	,,	29	10	0
Double Headers	,,	26	10	0
Glazed Second Quality, *Less*	,,	1	0	0
,, Buffs and Creams, *Add*	,,	2	0	0
,, Other Colours	,,	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" ,, ,, ,,	,,		1	10
3" ,, ,, ,,	,,		2	1
4" ,, ,, ,,	,,		2	6

MASON

The following d/d F.O.R. at Nine Elms:		s.	d.
Portland stone, Whitbed	F.C.	4	4½
,, Basebed	,,	4	7½
Bath stone	,,	2	10
York stone	,,	6	6
,, ,, Sawn templates	,,	7	6
,, ,, Paving, 2"	F.S.	1	8
,, ,, ,, 3"	,,	2	6

SLATER AND TILER

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

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

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	,, ,,		5
,, ,, 2nds	,, ,,		4
Mahogany, Honduras	,, ,,	1	3
,, African	,, ,,	1	1
,, Cuban	,, ,,	2	6
Oak, plain American	,, ,,	1	0
,, Figured ,,	,, ,,	1	3
,, plain Japanese	,, ,,	1	2
,, Figured ,,	,, ,,	1	5
,, Austrian wainscot	,, ,,	1	6
,, English	,, ,,	1	11
Pine, Yellow	,, ,,	1	0
,, Oregon	,, ,,		4
,, British Columbian	,, ,,		4
Teak, Moulmein	,, ,,	1	3
,, Burma	,, ,,	1	2
Walnut, American	,, ,,	2	3
,, French	,, ,,	2	3
Whitewood, American	,, ,,	1	1
Deal floorings, ¾"	Sq.	18	6
,, 1"	,,	1	1	6
,, 1¼"	,,	1	2	0
,, 1½"	,,	1	5	0
,, 1¾"	,,	1	10	0
Deal matchings ¾"	,,		14	0
,, ¼"	,,		15	6
,, 1"	,,	1	4	0
Rough boarding ¾"	,,		16	0
,, 1"	,,		18	0
,, 1¼"	,,	1	6	0

Plywood, per ft. sup.

Thickness	¼" A	¼" B	¼" BB	½" A	½" B	½" BB	¾" A	¾" B	¾" BB	1" A	1" B	1" BB
Qualities	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Birch 60 × 48	4	2½	2	5	3	2½	7	5	4	8	6	5
Cheap Alder	–	2	1½	–	3½	2	–	–	–	–	–	–
Oregon Pine	–	2½	–	3	2½	–	4	3½	–	5	4½	–
Gaboon Mahogany	4	3½	–	5	4½	–	7	6½	–	8	7	–
Figured Oak	6½	5	–	7½	5½	–	10	8	0	1/–	9	–

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

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

		¼"	½"	1"	1¼"	2"
Tubes, 2'-14' long, per ft. run		4	5½	9½	1/1	1/10
Pieces, 12"-23" long	each	10	1/1	1/11	2/8	4/9
,, 3"-11½" long	,,	7	9	1/3	1/8	3/–
Long screws, 12"-23½" long	,,	11	1/3	2/2	2/10	5/3
,, ,, 3"M-½" long	,,	8	10	1/5	1/11	3/6
Bends	,,	8	11	1/7½	2/7½	5/2
Springs not socketed	,,	5	7	1/1½	1/11½	3/11
Socket unions	,,	2/–	3/–	5/6	6/9	10/–
Elbows, square	,,	10	1/1	1/6	2/2	4/3
Tees	,,	1/–	1/3	1/10	2/6	5/1
Crosses	,,	2/2	2/9	4/1	5/6	10/6
Plain sockets and nipples	,,	3	4	6	8	1/3
Diminished sockets	,,	4	6	9	1/–	2/–
Flanges	,,	9	1/–	1/4	1/9	2/9
Caps	,,	3½	5	8	1/–	2/–
Backnuts	,,	2	3	5	6	1/1
Iron main cocks	,,	1/6	2/3	4/2	5/4	11/6
,, with brass plugs	,,	—	4/–	7/6	10/–	21/–

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

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

SMITH AND FOUNDER—*continued.*

		s.	d.
Rolled steel joists cut to length	cwt.	12	9
Mild steel reinforcing rods, ½"	,,	10	6
,, ,, ⅝"	,,	10	3
,, ,, ¾"	,,	10	0
,, ,, ⅞"	,,	9	6
,, ,, 1"	,,	9	6
,, ,, 1¼"	,,	9	6
,, ,, 1½"	,,	9	6

		½" s.	½" d.	¾" s.	¾" d.
Cast-iron rain-water pipes of ordinary thickness metal	F.R.		8		10
Shoes	each	2	0	3	0
Anti-splash shoes	,,	4	6	8	0
Boots	,,	3	0	4	0
Bends	,,	2	7	3	9
,, with access door	,,		—	6	3
Heads	,,	4	0	5	0
Swan-necks up to 9" offsets	,,	3	9	6	0
Plinth bends, 4½" to 6"	,,	3	9	5	3
Half-round rain-water gutters of ordinary thickness metal	F.R.		5		6
Stop ends	each		6		6
Angles	,,	1	7	1	11
Obtuse angles	,,	2	0	2	6
Outlets	,,	1	9	2	3

PLUMBER

		s	d.
Lead, milled sheets	cwt.	22	0
,, drawn pipes	,,	21	6
,, soil pipe	,,	24	6
,, scrap	,,	13	0
Solder, plumbers'	lb.		9½
,, fine do.	,,	1	0
Copper, sheet	,,		8½
,, tubes	,,		11

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

PLASTERER

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

GLAZIER

		s	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft.	s. F.S.				2½
,, ,, 26 oz. ,, ,,	,,				3
Flemish, Arctic, Figures (white)*	,,				7
Blazoned glasses	,,			2	6
Reeded; Cross Reeded	,,				11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite	,,				6
Crown sheet glass (n/e 12 in. x 10 in.)	,,			2	0
Flashed opals (white and coloured)	,,	1	0	and 2	0
¼" rough cast; rolled plate	,,				5½
¼" wired cast; wired rolled	,,				9½
¼" Georgian wired cast	,,				11
¼" Polished plate, n/e 1 ft.	,,	†10 to ‡1			1
,, ,, 2	,,	†1 2 ,, ‡1			4
,, ,, 4	,,	†2 3 ,, ‡2			6
,, ,, 8	,,	†2 9 ,, ‡3			2
,, ,, 20	,,	†3 7 ,, ‡4			2
,, ,, 45	,,	†3 11 ,, ‡4			7
,, ,, 100	,,	†5 0 ,, ‡5			7
Vita glass, sheet, n/e 1 ft.	,,				1 0
,, ,, ,, 2 ft.	,,				1 3
,, ,, ,, over 2 ft.	,,				1 9
,, ,, plate, n/e 1 ft.	,,				1 6
,, ,, ,, 2 ft.	,,				3 0
,, ,, ,, 5 ft.	,,				4 0
,, ,, ,, 7 ft.	,,				5 0
,, ,, ,, 15 ft.	,,				6 0
,, ,, ,, over 15 ft.	,,				7 6
"Calorex" sheet 21 oz., and 32 oz. rough cast ¼" and ½"	,,	2	6 and 8½	3	6 ,, 1 0
Putty, linseed oil	lb.				3

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

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	8	6
Linseed oil	gall.		2	3
Boiled oil	,,		2	9
Turpentine	,,		4	1½
Patent knotting			14	0
Distemper, washable	cwt	2	6	0
,, ordinary	,,	2	0	0
Whitening	,,		4	0
Size, double	firkin		3	0
Copal varnish	gall.		13	0
Flat varnish	,,		14	0
Outside varnish	,,		16	0
White enamel	,,	1	15	0
Ready mixed paint	,,		13	6
Brunswick black	,,		7	6

CURRENT PRICES FOR MEASURED WORK

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

EXCAVATOR AND CONCRETOR

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

DRAINLAYER

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

BRICKLAYER

	£ s. d.
Brickwork, Flettons in lime mortar	Per Rod 26 10 0
" in cement	" 27 12 6
" Stocks in cement	" 34 0 0
" Blues in cement	" 50 0 0
Extra only for circular on plan	" 2 0 0
" backing to masonry	" 1 10 0
" raising on old walls	" 2 0 0
" underpinning	" 5 10 0½
Fair Face and pointing internally	F.S. 1½
Extra over fletton brickwork for picked stock facings and pointing	" 8
" " " red brick facings and pointing	" 11
" " " blue brick facings and pointing	" 1 4
" " " glazed brick facings and pointing	" 3 6
Tuck pointing	" 7½
Weather pointing in cement	" 3
Slate dampcourse	" 10
Vertical dampcourse	" 1 1

ASPHALTER

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

MASON

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

SLATER AND TILER

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

CARPENTER AND JOINER

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

CARPENTER AND JOINER—*continued*

	s. d.
1½" deal moulded sashes of average size	F.S. 1 9½
2" " "	" 1 11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1½" pulley stiles, 1½" heads, 1" inside and outside linings, ½" parting beads, and with brass faced axle pulleys, etc., fixed complete	3 7
2" " "	" 3 10
Extra only for moulded horns	Each 6
1½" deal four-panel square, both sides, door	F.S. 2 0
2" " "	" 2 8
1½" " but moulded both sides	" 2 4
2" " "	" 3 0
4" × 3" deal, rebated and moulded frames	F.R. 1 0
4½" × 3½" " "	" 1 4
1½" deal tongued and moulded window board, on and including deal bearers	F.S. 1 9
1½" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	" 2 6
1½" deal moulded wall strings	" 2 1
1½" " outer strings	" 2 4
Ends of treads and risers housed to string	Each 1 9
3" × 2" deal moulded handrail	F.R. 1 3
1" × 1" deal balusters and housing each end	Each 2 9
1½" × 1½" " " "	" 2 9
3" × 3" deal wrought framed newels	F.R. 1 3
Extra only for newel caps	Each 6 0
Do., pendants	" 6 0

SMITH AND FOUNDER

	£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt. 16 6
Riveted plate or compound girders, and hoisting and fixing in position	" 1 0 6
Do., stanchions with riveted caps and bases and do.	" 19 0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	" 17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S. 11
Wrot-iron caulked and cambered chimney bars	Per cwt. 1 10 0

PLUMBER

		½" s. d.	¾" s. d.	1" s. d.	1½" s. d.	2" s. d.	4" s. d.
							£ s. d.
Milled lead and labour in flats	cwt.						1 15 6
Do. in flashings	"						1 19 0
Do. in covering to turrets	"						2 6 6
Do. in soakers	"						1 11 0
Labour to welted edge	F.R.						3½
Open copper nailing	"						3
Close " "	"						4
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks		—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	3 9	5 0	8 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—
4" cast-iron ½-rd. gutter and fixing	F.R.						1 0
Extra, only stop ends	Each						1 0
Do. angles	"						1 6
Do. outlets	"						2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.						1 2
Extra, only for shoes	Each						1 3
Do. for plain heads	"						5 6

PLASTERER AND TILING

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

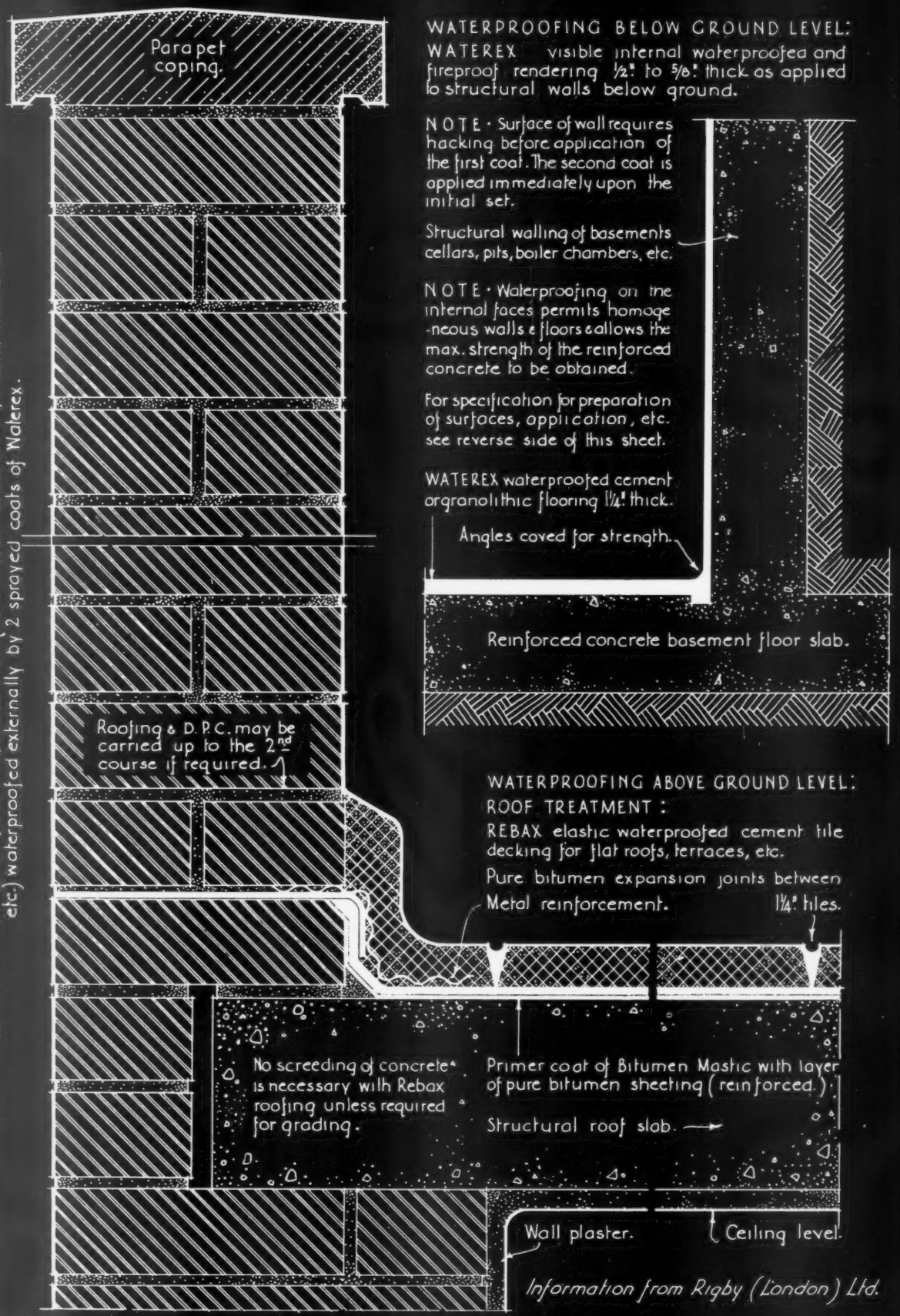
GLAZIER

	s. d.
21 oz. sheet glass and glazing with putty	F.S. 6½
26 oz. do. and do.	" 7½
Flemish, Arctic Figured (white) and glazing with putty	" 1 1
Cathedral glass and do.	" 1 2
Glazing only, British polished plate	" 7
Extra, only if in beads	" 2
Washleather	F.R. 4

PAINTER

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

295. THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION



INFORMATION SHEET: REBAX ROOFING AND WATEREX WATERPROOFING.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1. Oscar A. Bayne

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 253 •

WATERPROOFING AND ROOFING

Type of Product — Rebax Roofing and Waterex Waterproofing

Roofing :

Rebax roofing consists of a bitumen roofing covered with sand and cement tiles laid *in situ*.

Laying :

The concrete floor is first primed with a coat of bitumen primer to seal the surface.

A layer of reinforced pure bitumen sheeting is then laid hot on the roof, being turned up against parapets and walls and the bitumen flashing turned down over it.

On this bitumen sheeting is laid a cement and sand screed, 1¼ in. thick, which is then divided up either in squares or to any required design.

The divisions are usually made to form tiles approximately 12 in. by 12 in., being the maximum size of square recommended. The screed is usually turned up against walls and parapets to cover the flashing and to form a coved finish. This up-turn is reinforced with expanded metal to give extra strength to the angles.

Joints :

Joints between tiles are filled with pure bitumen and finished approximately ¼ in. below the surface of the tile, or as required.

Colours :

The cement tiles may be left the natural colour, or may be coloured with any of the cement colours available.

Price :

The cost of the roofing varies according to the size and type of job and the locality, in general the natural colour roof costs approximately 7s. 6d. per square yard, and the coloured roof approximately 8s. per square yard.

Expansion :

The construction used in this roofing permits all normal expansion and contraction in the roof to take place without damaging the bitumen sheeting of the tile decking, all movement being taken up in the bitumen joints provided for the purpose.

Damage :

Should any tile or a number of tiles become damaged they can be replaced without disturbing the remainder of the roof.

Roof Construction :

Any type of concrete roof is suitable for receiving Rebax roofing, which may be laid direct on to structural concrete, screeding being unnecessary.

Insulation :

The thickness of the cement tile itself provides certain insulating value, but the greater part of the insulating properties of the roof are obtained by reflection, particularly in the lighter colours.

Waterex Waterproofing :

Waterex Waterproofing is a liquid which should be mixed with the cement and sand with water added (see Waterex Mix) for cement renderings to obtain a waterproof rendering.

Preparation :

Before the application of Waterex rendering, all walls should be thoroughly hacked to secure a good bond, and the floor slab examined for its soundness and ability to withstand the water pressure without cracking. Waterex rendering will waterproof any wall or floor which will withstand the water pressure behind it.

Application :

The rendering should be applied in two coats. The first is well worked on to the wall to secure a good bond, and should then be scratched two ways to receive the second coat. The second coat should be applied as soon as the first has taken its initial set.

The second coat should be applied with a wooden float and not finished off with a steel trowel, which is liable to draw the cement to the surface, leaving the rendering weak, with the risk of crazing and hair-cracking.

Waterex Mix :

One part of cement to two parts (by bulk) clean sharp washed pit sand should be dry mixed in the usual manner (sea sand must on no account be used), and 1¼ gallons Waterex added to each 100 lbs. cement used, or 5 pints to every 50 lbs. of cement. It should be mixed thoroughly, and sufficient water added to bring to a proper working consistency.

Quantities :

One gallon of Waterex is sufficient for approximately 4 to 6 square yards on floors and walls respectively.

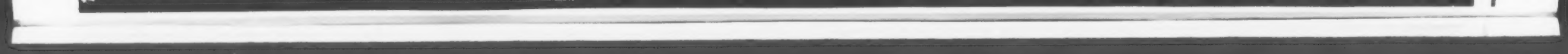
Average thickness on walls ½ in. to ⅝ in.
on floors ¾ in.
in granolithic work, 1 in. to 1¼ in.
(approximately 3 square yards to one gallon Waterex.)

All wall and floor angles should be coved to give additional strength.

Guarantee :

All waterproofing and roofing work carried out by this firm is subject to a five year maintenance guarantee on completion ; this may be obtained in writing.

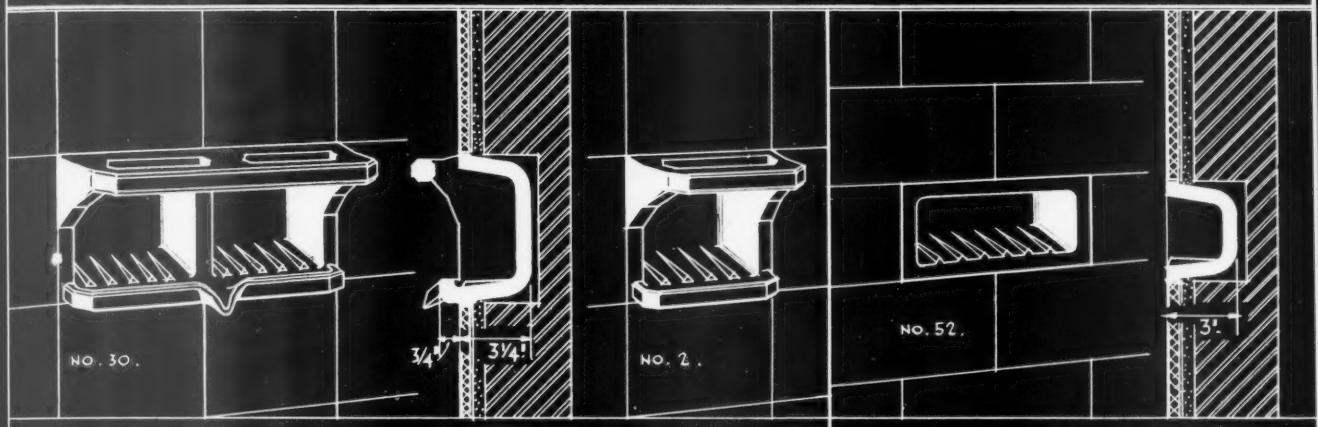
Manufacturer : Rigby (London), Ltd.
Address : 52-54 High Holborn, W.C.1
Telephone : Chancery 8456



292.

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION.

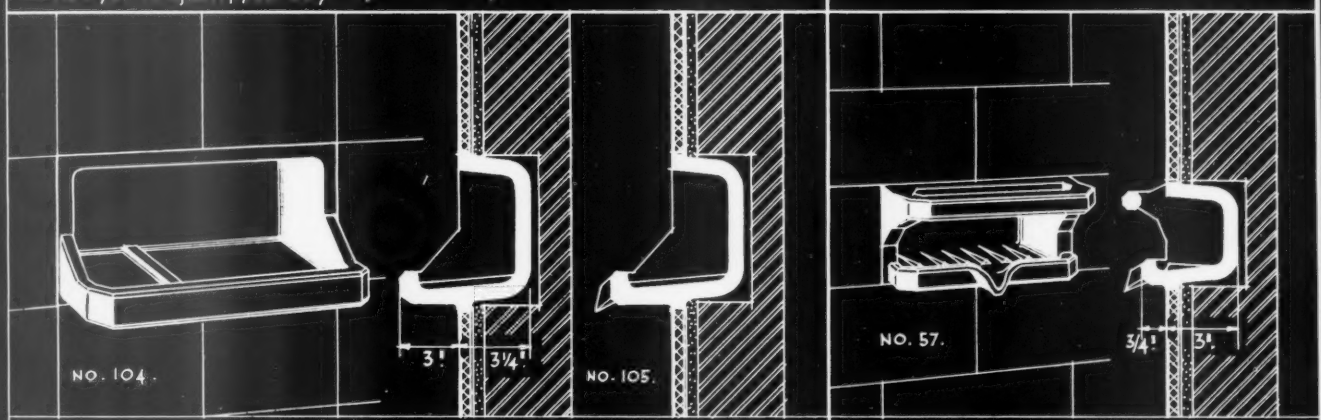
BUILT IN SOAP SPONGE & TUMBLER HOLDERS IN GLAZED EARTHENWARE



DOUBLE : 12" x 6"
NO. 28. Lipless Grip Sponge & Soap Holder.
NO. 29. Plain-lipped " " " " " .
NO. 30. Tongue-lipped " " " " " .
NO. 95. Plain-lipped do, without partition.
NO. 96. Tongue-lipped do, " " .

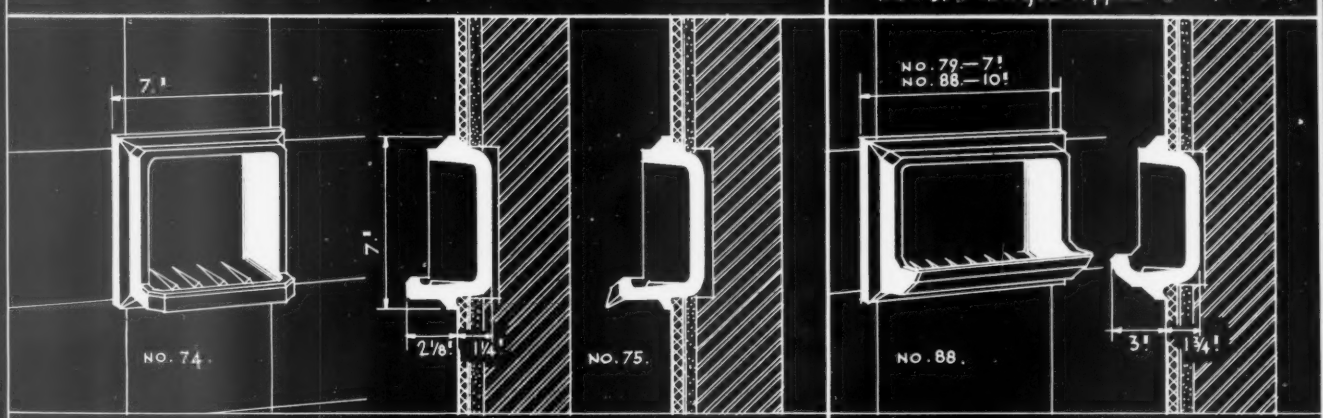
SINGLE : 6" x 6"
NO. 21. Lipless Grip Soap holder.
NO. 2. Plain-lipped, do.
NO. 20. Tongue-lipped, do.

SINGLE : 8" x 4"
NO. 52. Lipless Soap holder.
NO. 53. Plain-lipped, do.
NO. 54. Tongue-lipped, do.



DOUBLE : 12" x 6"
NO. 104. Plain-lipped deep sponge & soap holder.
NO. 105. Tongue-lipped " " " "

SINGLE : 8" x 4"
NO. 55. Lipless Grip Soap holder.
NO. 56. Plain-lipped " " " .
NO. 57. Tongue-lipped " " " .



SEMI-RECESSED, 6" x 6" (Nominal)
NO. 74. Plain-lipped Soap holder.
NO. 75. Tongue-lipped " " .
NO. 78. Plain Fronted Tumbler Holder with flat bottom.

SEMI-RECESSED, 9" x 6" & 6" x 6" (Nominal.)
NO. 79. Sponge holder.
NO. 88. " "

NOMINAL SIZE: The "nominal" sizes given for semi-recessed fittings are the sizes of the wall tiles displaced; the flanges of the fittings overlap the adjoining tiles.

Information from Richards Tiles Limited.

INFORMATION SHEET : BATHROOM EQUIPMENT : RECESSO FITTINGS. 2.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON. W.C.1. Oscar A. Bayne.

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 254 •

BATHROOM EQUIPMENT

OF GLAZED EARTHENWARE

Name of Product : Recesso Fittings

Types Illustrated : Soap, Sponge and Tumbler Holders and Cigarette Receptacles

Description :

Recesso Fittings are a range of receptacles of glazed earthenware, for soap, sponges, toilet-paper, toothbrush tumbler, etc. They are used in bathrooms, cloakrooms, kitchens, in bedroom basin splashbacks, etc. Fixed *in*, not *on*, the wall. They are neat, clean, sanitary and practically everlasting.

Building-in :

The sizes and depths required for building-in are shown on the drawings. The semi-recessed fittings shown are designed for use in thin partitions.

Colours :

The fittings can be supplied in white glaze and in an almost unlimited range of colour glazes, either plain or mottled, bright or matt, to match the manufacturers' wall tiling glazes.

Previous Sheets :

This is the second of a series of four sheets giving details of the full range of Recesso Fittings ; this series supersedes Sheets Nos. 92, 93 and 99, published in 1934, which are now obsolete.

List of Fittings :

Makers' Number		
1.	6×6″	Plain-lipped Soap Holder
2	,,	,, grip Soap Holder
3	,,	Plain Toilet-paper Holder
4	,,	Lipless Soap Holder
5	,,	Hooded Toilet-paper Holder
6	,,	Sponge Holder, without drip hole
6A	,,	,, ,, with ,, ,,
7	6×3″	Lipless Soap Holder
8	,,	Plain-lipped,, ,,
10	,,	Tooth-brush Rack
11	3×3″	Shelf Brackets, for 5″ shelf
12	,,	Towel-rail Brackets, for square rail
12A	,,	Centre Bracket to ditto
15	,,	Tumbler and Tooth-brush Rack
19	6×6″	Tongue-lipped Soap Holder
20	,,	,, grip Soap Holder
21	,,	Lipless ,, ,, ,,
22	6×3″	Tongue-lipped Soap Holder
23	6×6″	Plain-lipped Tumbler Holder
24	,,	Lipless ,, ,,
25	12×6″	,, Sponge and Soap Holder
26	,,	Plain-lipped ,, ,, ,, ,,
27	,,	Tongue-lipped ,, ,, ,, ,,
28	,,	Lipless grip ,, ,, ,, ,,
29	,,	Plain-lipped grip Sponge and Soap Holder
30	,,	Tongue-lipped grip ,, ,, ,, ,,
32	12×6″	Plain-lipped Tumbler and Soap Holder
33	9×3″	Tooth-brush, Tooth-paste and Tumbler Rack
34	6×3″	Tooth-brush and Tooth-paste Rack
36	,,	Plain Soap Dish
38	,,	Grip
39	9×3″	Toilet-paper Holder
40	3×3″	Razor Strop Hook
42	,,	Coat Hook
43	12×6″	Lipless Sponge and Soap Holder, without partition
44	,,	Plain-lipped Sponge and Soap Holder, without partition
45	,,	Tongue-lipped Sponge and Soap Holder, without partition
46	6×3″	Coat Hook
47	,,	Tumbler and Tooth-brush Rack
52	8×4″	Lipless Soap Holder
53	,,	Plain-lipped ,, ,,
54	,,	Tongue-lipped ,, ,,
55	,,	Lipless grip ,, ,,
56	,,	Plain-lipped ,, ,, ,,
57	,,	Tongue-lipped,, ,, ,,
58	,,	Toilet-paper Holder
59	4×4″	Tumbler and Tooth-brush Rack
60	,,	Soap Dish
61	,,	Coat Hook
62	,,	Towel-rail Brackets, for square rail
62A	,,	Centre Bracket to ditto
63	,,	Shelf Brackets, for 5″ shelf
64	,,	Tooth-brush and Tooth-paste Rack
66	3×3″	Used Razor Blade Receptacle
67	6×3″	Towel-rail Brackets, for round rail
67A	,,	Centre Bracket, to ditto
69	3×3″	Shelf Brackets, for 5″ shelf
70	6×6″	Semi-recessed Plain Toilet-paper Holder
71	,,	,, ,, Hooded Toilet-paper Holder
72	6×3″	,, ,, Plain-lipped Soap Holder
73	,,	,, ,, Tongue-lipped ,, ,,
74	6×6″	,, ,, Plain-lipped ,, ,,
75	,,	,, ,, Tongue-lipped ,, ,,
76	,,	,, ,, Plain-lipped grip ,, ,,
77	,,	,, ,, Tongue-lipped,, ,, ,,
78	,,	,, ,, Tumbler ,,
79	,,	,, ,, Sponge Holder
81	6×4½″	Sill Soap Dish
82	4×4″	Gargoyle
83	6×3″	Tongued Soap Dish
86	6×6″	Toilet-paper Box
88	9×6″	Sponge Holder
89	6×6″	Toilet-paper Holder
90	6×4″	Lamp Holder (with 4×4″ Fixing Bracket)
91	6×6″	Soap Dish
93	4×4″	Ash Tray
94	6×6″	,, ,,
95	12×6″	Plain-lipped grip Sponge and Soap Holder without partition
96	,,	Tongue-lipped grip Sponge and Soap Holder without partition
97	8×8″	Toilet-paper Holder
98	4×4″	Double Coat Hook
101	3×3″	Towel-rail Brackets for Round Rail
101A	,,	Centre Bracket to ditto
102	4×4″	Towel-Rail Brackets for Round Rail
102A	,,	Centre Bracket to ditto
104	12×6″	Plain-lipped Deep Sponge and Soap Holder
105	,,	Tongue-lipped Deep Sponge and Soap Holder
107	6×6″	Cigarette End Receptacle
108	4″	Faience Shelf of 4×4″ Units

MIRRORS

16	Oval Mirror,	24×18″
17	Round ,,	19″
92	"Octo",,	21×16″
106	Shelf ,,	19×14″

Name of Manufacturers : Richards' Tiles, Limited

Address : Tunstall, Stoke-on-Trent

Telephone : Hanley 7215-8

London Office : 25 Victoria Street, S.W.1

Telephone : Victoria 9128

Glasgow Office : 53 Bothwell Street, Glasgow, C.2

Telephone : Central 1768