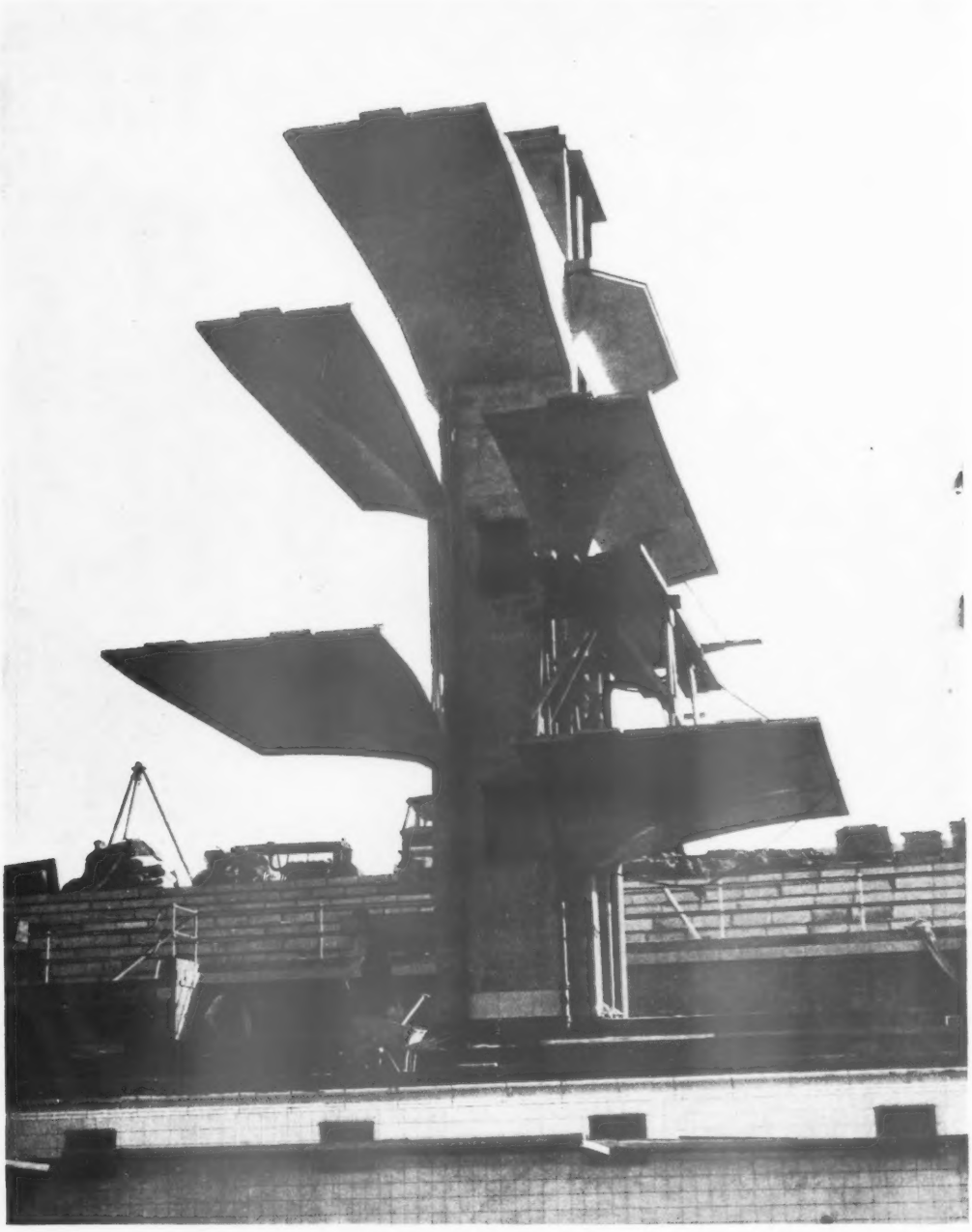
PRESENTED TO THE R.I.B.A.

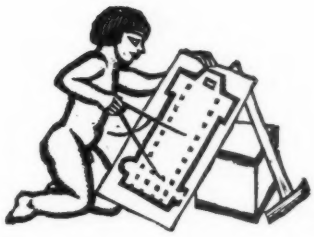
PORTRAIT OF SIR IAN MACALISTER

ON Monday last, at a general meeting of the R.I.B.A., the portrait of the Secretary, Sir Ian MacAlister, M.A. (Oxon.), was unveiled by the President, Mr. Percy E. Thomas, O.B.E. The portrait, which is the work of Mr. Harold Knight, A.R.A., has been presented by members of the Royal Institute and its Allied Societies, and is to commemorate the conferring of the honour of knighthood on Sir Ian and also his twenty-eight years' service as Secretary. A replica of the portrait was presented to Lady MacAlister.



DIVING STAGE AT EDINBURGH

The 32 foot reinforced concrete diving stage at the new Edinburgh swimming baths, which will be completed in April. The cost of the complete scheme will be approximately £90,000.



ARCHITECTURAL EDUCATION

IDEAS on education have undergone a startling transformation in the past ten years. Up to the war, and even for a while afterwards, education was a thing which the man in the street felt to be comfortably static. And schoolmasters were almost universally men of a simple and healthily conservative attitude of mind.

In those days, education was a toughening process to be endured by everyone ; a process of mental acrobatics indoors varied by sudden exposure outside. For the child it was a passive process in several senses. It took place in class rooms of horrible atmosphere and surroundings, was steadily absorbed from books, and presided over by men and women whose job was to teach and who stood little nonsense from the child who was too stupid or too intelligent a subject. And any mention of art or good design was frowned upon as severely as were the grease and smells of the low-grade intelligences upon the " modern side." The results were often those of Mr. Stephen Leacock's two-and-a-half printed pages, kept where a man could lay his hand on his education easily.

As has been said, ideas have changed. Education authorities have realized that the only lasting education is self-education. The teacher has ceased to be a crammer of facts useful in examinations, and becomes a guide to those busy on the process of educating themselves. School days are no longer rigidly divided into hours of learning from different books ; they contain a flexible process aimed at the self-development of every side of a child's character.

With such developments in primary and secondary education, it is natural that advanced and specialized educational methods should also be called in question. And particularly architectural education.

Contemporary methods in architectural education may be said to be assailed from three sides ; from the side of general education just mentioned, by the changes taking place in the society which will eventually employ the student, and by change and increased complication in all aspects of architectural practice.

Examined in the light of these three factors, all of comparatively recent growth, it is hardly possible that architectural education cannot be held wanting somewhere. And the correspondence which has been appearing week by week in this JOURNAL has made many charges.

To enumerate all of these criticisms would be impossible here, even if all of them were considered valid. But, at bottom, it appears that the basis of many of them is a single question : should the schools aim at producing men fully equipped, at least theoretically, to be progressive and thoughtful architects abreast of current social changes, or at producing men trained to be the most useful possible assistants in architectural practice as it now is?

To this question the answer " Both " is no answer. For if the first alternative be adopted by the schools it would necessitate an extension of study by the students—study of law, local government, economics and town planning—which must necessarily trench upon training in more immediately practical and useful accomplishments.

On the other hand, if education is concentrated upon the training of capable assistants for present-day practice, future progress in architecture will be gravely endangered. Much will have to be learnt that will probably be useless in ten years' time ; and after emerging from the narrow, severely practical experience of those first ten years, the young architect may find himself without any wider background of ideas than those learnt at the drawing-board.

It is this choice that now lies before those responsible for architectural education.

In this issue a group of students put forward, as a basis for discussion, an outline policy of architectural education. The opinions expressed are wholly those of the authors, and it is possible that they may be subjected to damaging criticism. But it is significant that these students advocate the widest possible conception of architectural education, risking the danger that students so trained may not command, immediately, such high salaries as assistants as those trained more narrowly to be architectural draughtsmen.

That the authors at least are prepared to take such a risk is clear from their programme. Their attitude, we take it, is that if an architect is not encouraged as a student to see architecture broadly he will never do so in later life.

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

NOTES & TOPICS

HEIGHT OF LONDON BUILDINGS

I HAVE just been looking through the report of the Town-Planning and Building Regulation Committee of the L.C.C. on the height of buildings. This seems to me an exceedingly important document and one which must have a very significant effect on the development and redevelopment of London for a long time.

*

It is rather early to comment on it in detail, but one or two points do stick out. The first is that at last it is recognized that the mass of a building should bear some relationship to the width of the street which it faces, and to the proportion of the site which it covers. The committee has evidently reached these conclusions, firstly on considerations of traffic, and secondly on considerations of light and air.

*

It is proposed to divide London into three zones, and at the end of the report is a table setting out the heights which it is recommended should be allowed in each zone for different classes of buildings, but the council is also recommended to reserve the right to allow greater heights in each zone if it thinks fit.

*

It is not clear exactly what arguments have guided the committee in producing this table and no doubt further light will be shed on it, but at the moment I am puzzled by the differences of maximum height recommended for single family dwellings and other residential buildings.

*

If in zone 1 anyone wishes to build a single family dwelling 80 ft. high, which is the height for other residential buildings, I cannot see any reason for limiting him to 60 ft. I should have thought both needed the same light and air, and single family dwellings even 80 ft. high will create less traffic.

*

Another point of interest is that while 100 ft. is given as the maximum height for commercial and industrial buildings in the central areas, the old Building Act height has not been departed from, as only 80 of the 100 ft. may be sheer.

*

Whatever architects may think of the proposals it will at least be a relief to have some definite guide as to what *will* be allowed.

STIMULATED SCHOOLS

Open competitions, as now held, may have a few drawbacks, but the benefits they bring to the planning of many building types are now universally admitted. So the news of another class of building coming into the field of open competition is a thing that should be celebrated.

*

This week two state-aided schools schemes are advertised for open competition. Open competitions have been held previously for private schools, and sometimes limited competitions for state-aided schools—but *two* open competitions at once promoted by local education authorities is quite out of the ordinary.

*

Architects will be pleased, for schools, we hope, are more frequently built than town halls ; and education committees and their architects will be provided with an excellent check to their own rate of progress.

*

To the outsider such a check, it must be confessed, seems necessary. Over too many schools the shadow of Sir Felix Clay's *Modern School Buildings* lies heavily, unlightened by the twenty years or so that have passed since that great work was first published. A few open competitions ought to have an excellent tonic effect.

SIR IAN MACALISTER

One brighter spot in the R.I.B.A. proceedings on Monday night was the unveiling of the MacAlister portrait.

*

A comparison between the conditions obtaining in almost any architectural sphere of twenty-eight years ago and those today is the only way of appreciating the valuable service Sir Ian has given the profession.

*

By a curious paradox, Sir Ian is known to the rank and file of architects more in the provinces than in London. We see him darting in and out of doors marked " private " at Portland Place and think of him as far too busy to be disturbed by our personal worries.

*

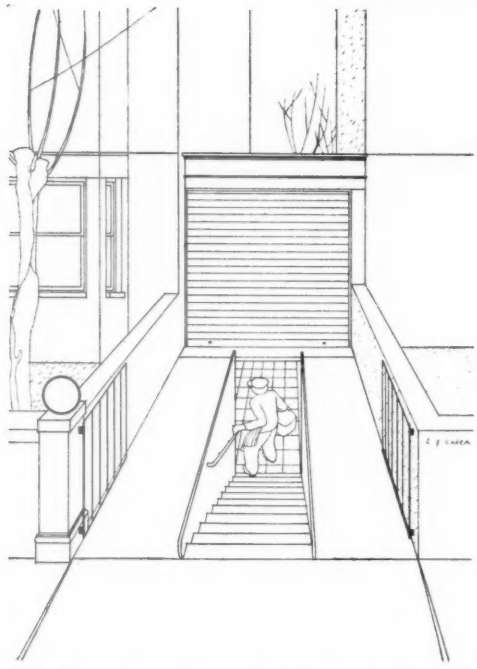
Not so in the provinces. Sir Ian, I have observed, eats an incredible number of dinners with the Allied Societies and after each one he takes the opportunity to meet and talk with everyone available. A portrait is the very least we can do for him.

A MOPIN FILM

The Mopin system film, based on the vast housing block at Drancy, is on at the Building Centre all this week. I saw it on Monday and found it both interesting and disappointing. Interesting, because, although I have read a fair number of technical articles, it's nearly always better to see manufacturing processes being actually carried out. Disappointing because the final grouting up of the separate units, obviously an extremely important factor in any prefabricated system, is hardly shown at all.

*

The explanation is, of course, that the film is really



Garage and service entry. From a house in Chesterford Gardens, N. W.

intended for the general public, and therefore cannot be all that a technical audience needs.

*

I forget how many different prefabrication systems have been produced so far (Fitzmaurice of B.R.S. quotes an almost astronomical figure) and few of them last more than a fortnight or so. The Mopin system still needs a fair amount of improvement in details, but it does at least *work*, and deserves a more technical film to put it across to architects and engineers.

THE KING

During his visit to Glasgow, His Majesty the King gave us once more an indication of his appreciation of the services we render as architects.

*

The King suggested that centralized housing so that men may be near their work should be considered, and mentioned his observations at Vienna.

*

When told by the Lord Provost that Glasgow is contemplating building four-storey flats "on the Viennese principle" next year, the King remarked: "It all depends on your architect."

THE CORONATION

The Coronation next year will probably attract greater crowds of people than any previous public function in this country. Streets will, of course, be decorated, stands erected and a multitude of hours expended in organization.

*

Several promising efforts were made in connection with the Jubilee of last year to decorate our main streets. Few, perhaps, were entirely satisfactory.

*

Is it too much to expect that the street decorations for the Coronation will be treated in a more comprehensive manner? We surely have the talen to produce really appropriate schemes.

STANDARD SPECIFICATIONS

After being mildly offensive about the low standard of some of the British Standard Specifications I feel I ought in fairness to point out that two good new ones are arriving shortly. One on acoustical terms and definitions, and another on clay brick sizes: the last deserves a special pat on the back, for I understand that the north country manufacturers have been long-sighted enough to adapt themselves and their machinery to the standard southern size.

*

But I'm not in the least repentant for past criticisms. If B.S.Ss are ever going to be really useful they must be up to a *uniformly* high standard, not just occasional good ones.

S.P.R.F.

No, I *haven't* made a mistake, this title is merely my anglicized version of the new Ligue Contre l'Enlaidissement de la France, which seems to be trying to combine the objects of our own C.P.R.E. and S.P.A.B.

*

And high time, too, when one remembers the indiscriminate splashing of posters for Michelin, Dubonnet, Esso and others at the beginning of each tiny village.

*

But in the towns? I gather from its programme that the League is going to have a word to say, too, about the design of public statues. Where they can start in Paris I don't know, for every corner of it seems so full of prancing and/or spouting nymphs that there can hardly be room for any more.

*

But good luck to its efforts anyway: I couldn't recognize any architects in the list of the provisional committee, but anything they can do shall have my official blessing.

NEW YORK

The New York lift strike shows that high buildings are less amusing when there aren't any services. Climbing up 50 or 60 flights of stairs, while no doubt very good exercise, must be very wearisome after a hard day's work; and what could one do with a pram, if any?

*

But I can hardly believe that the situation is as bad as an evening paper would have had us believe when it stated that the stairs of the Empire State Building had 10,000 steps. Now the height of this building is 1,250 ft. to the extreme tip of that unnecessary mooring mast, and that works out at $1\frac{1}{2}$ in. risers. Rather slow going for such a progressive country

LONDON RATES

There seems to be a good deal of indignation about the prospective rise of $3\frac{1}{2}$d. in the rates to meet L.C.C. expenditure, but with all the rehousing work and bridges going on I can only wonder that the rise isn't a good deal more.

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

HEIGHT OF BUILDINGS IN LONDON

At a general meeting of the London County Council on Tuesday last the Chairman of the Town Planning and Building Regulation Committee reported that his Committee had had under consideration for some time the question of the height of buildings in London. Extracts from the report presented by the Committee are given below :—

"We have been examining for some time the fundamental principles which will have to be decided as a result of the assumption by the Council under the Town and Country Planning Act, 1932, of general control over development in London. Of these, one of the foremost is the height to which buildings may be erected, and on this we are now in a position to express certain general views. In considering this matter it was obvious to us at the outset that it would not be desirable to prescribe a general standard height to be applied throughout the county ; different areas have different needs, and a suitable standard in one area would not necessarily be fitting for another. We, therefore, came to the conclusion that London would have to be divided into zones in which differing standards of height would be prescribed. The precise delimitation of these zones is a matter of some complexity, as it must bear a relation to the use to which the land is put, which is a matter which we hope to settle as expeditiously as possible."

The Committee suggests that the accompanying table be adopted as a general standard for the control of heights of buildings in determining town-planning applications and preparing town-planning schemes. The table is subject to the following :

"(*a*) (i) No building having a sheer height exceeding 80 ft. ; (ii) dormers, chimneys and similar architectural features being allowed beyond these limits ; (iii) where a building abuts on two streets of different widths, the heights permissible on the wider street being allowed along the narrower street for a distance of 40 ft. from the point of junction ; (iv) the Council reserving the right to permit heights in excess of these standards where it is satisfied that the circumstances justify an increase.

"(*b*) The foregoing standards being applied to those parts of residential and office buildings (i) where lit from internal courts as if the distance across the court were a street width ; and (ii) where lit from side or rear as though the boundary of the site was the centre of a street ; subject to special concessions being made for light wells in appropriate cases.

"(*c*) Special provisions being made for areas in the vicinity of ancient monuments or particular buildings of historic or artistic importance which might be injuriously affected by applying the standards of the zone in which they lie, and for applications affecting properties in those areas to be considered on their merits."

Zone.	Ratio of height to distance from opposite side of street.	Maximum overall height.		
		Single-family dwelling houses.	Other residential buildings.	Commercial and industrial buildings.
		feet.	feet.	feet.
1	1½ : 1	60	80	100
2	1¼ : 1	40	60	80
3	1 : 1	40	40	60

THE ARCHITECTS' DIARY

Thursday, March 12

R.I.B.A., 66 *Portland Place, W.1. Exhibition of "Everyday Things." The Exhibition is open free to the public until March 21. 10 a.m. to 8 p.m. (Saturdays, 10 a.m. to 5 p.m.)*

TIMBER DEVELOPMENT ASSOCIATION, *Exhibition entitled "Timber Through the Ages." At Charing Cross Station, W.C. Until March 21.*

ARCHITECTURE CLUB. *At the Architectural Association, 36 Bedford Square, W.C.1. Supper-discussion : "Registered Architects and the State."* 7.30 *p.m.*

INCORPORATED INSTITUTE OF BRITISH DECORATORS. *At Painters' Hall, Little Trinity Lane, E.C.4. "Practical Modernization." By Howard Robertson.* 7.30 *p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS, *10 Upper Belgrave Street, S.W.1. "Experiments on Stress Distribution in Reinforced Concrete Beams." By R. H. Evans.* 6.30 *p.m.*

GEFFRYE MUSEUM, *Kingsland Road, Shoreditch, E.2. "Looking Forward—Furniture of the Future." By Percy A. Wells.* 7.30 *p.m.*

SOCIETY OF ANTIQUARIES, *Burlington House, Piccadilly, W.1. "The Notgrove Long Barrow, Gloucestershire." By Mrs. Clifford.* 8.30 *p.m.*

INSTITUTION OF MECHANICAL ENGINEERS. *At the Hotel Metropole, Leeds. "Hardening and Tempering of Steel." By W. H. Dearden.* 7.30 *p.m.*

UNIVERSITY OF LONDON, *Gower Street, W.C.1. Special lecture on "The Tradition and Technique of the Chinese Theatre." By Dr. Peng-Chun Chang.* 5.15 *p.m.*

BUILDING CENTRE, 158 *New Bond Street, W.1. Film showing the Mopin system of construction and pre-fabrication at Drancy, Paris. Also March* 13. 6.30 *p.m.*

Friday, March 13

TOWN PLANNING INSTITUTE. *At the Carlton Hall, Caxton Street, Westminster, S.W.1. "The Work of a Planning Consultant." By A. E. Brookes.* 6 *p.m.*

INSTITUTE OF STRUCTURAL ENGINEERS. *Midland Counties Branch. At Stafford. "Welding and Erection of Steelwork for a Three-storeyed Building." By P. L. Robert.* 7 *p.m.*

INSTITUTE OF WELDING. *At the James Watt Memorial Institute, Birmingham. "Influence of Welding on Design."* 7.15 *p.m.*

Saturday, March 14

ROYAL SANITARY INSTITUTE. *At the Town Hall, Ipswich. "The Disposal of House Refuse by Controlled Tipping." By E. McLauchlan. "Baths and Bath Water." By Dr. A. Pringle.* 2.30 *p.m.*

Tuesday, March 17

HOUSING CENTRE, 13 *Suffolk Street, S.W.1. "The Preservation of Urban and Rural Amenities." By Sir Fabian Ware.* 8.15 *p.m.*

SOCIETY OF CHEMICAL INDUSTRY. *At British Industries House, Marble Arch, W.1. "Colours and Pigments used in the Plastics Industry and their Properties." By K. M. Richards.* 7.45 *p.m.*

INSTITUTION OF HEATING AND VENTILATING ENGINEERS, *London and District Branch. At the Borough Polytechnic, S.E.1. "Boiler Firing." By A. T. Lambert.* 7 *p.m.*

ST. PAUL'S ECCLESIOLOGICAL SOCIETY. *At 66 Portland Place, W.1. "Liverpool Cathedral—Its Birth and Development to Date." By E. W. Harvey Piper.* 6 *p.m.*

ARCHITECTURAL ASSOCIATION, 36 *Bedford Square, W.C.1. "Some Snags in Modern Building Methods." By John Wilson.* 8.15 *p.m.*

B.I.F.

The total attendance at this year's British Industries Fair was 308,406, of whom 143,783 visited Castle Bromwich and 164,623 Olympia and the White City.

The number of buyers from overseas who visited the Fair in London was 13,925 and of home buyers 117,277, as compared with 11,713 and 135,320 last year, when the holding of the Fair at different dates in London and Birmingham had the effect of increasing the number of home buyers visiting London at the earlier date. A comparison of this year's London attendance figures with those of 1934, when the Fair was held simultaneously in both centres, shows an increase of 1,917 overseas buyers, 2,938 home buyers and 2,346 of the general public.

NEW LIVERPOOL FLATS

The Liverpool City Council last week adopted the scheme by the Housing Director, Mr. L. H. Keay, for a central rehousing scheme to cost over £1,000,000.

Some 1,400 houses occupying 50 acres in the neighbourhood of St. George's Hall are to be demolished and replaced by 2,100 flats. The population involved is about 5,000. Nearly 2,000 more will be accommodated in the flats.

ARCHITECTS' REGISTRATION COUNCIL

The Architects' Registration Council of the United Kingdom offers for award in July, 1936, two Maintenance Scholarships in Architecture. The Scholarships will consist of a grant for the payment, in whole or in part, of the School fees and necessary subscriptions, instruments, books, etc., and, when necessary, a maintenance allowance not to exceed as a rule £100 a year. The Scholarships will be renewable from year to year until the student has finished his or her School training. They will be available for students of British nationality who could not otherwise afford such training to enable them to attend architectural schools approved by the Council. The Scholarships will be available both for students who have already begun their training and for students wishing to begin their training. They would not normally be granted to students under 17 years of age.

Particulars and forms of application may

be obtained from the Secretary to the Board of Architectural Education, Architects' Registration Council of the United Kingdom, 18 Abingdon Street, Westminster, London, S.W.1.

The closing date for the receipt of applications, duly completed, is April 1, 1936.

CHINESE ART EXHIBITION

The International Exhibition of Chinese Art at Burlington House, London, closed on Saturday last. The total number of visitors to the Exhibition, which was opened in November, was 420,000.

SAVING THE CHILTERNS

The Bucks. County Council is to approach Bedfordshire, Hertfordshire and Oxfordshire County Councils with a view to co-operation in the preservation of the Chilterns from building development and desecration. The L.C.C. is to be asked to make better grants towards the creation of the "green belt" in Bucks.

RANELAGH'S FUTURE

The directors of the Ranelagh Club, Ltd. have refused, as being "microscopic," an offer of £40,000 by a committee of members for the mansion and grounds. It is now considered certain that portions of the estate will be sold as sites for large blocks of flats.

The directors propose to preserve the mansion and 30 acres for a new Ranelagh Club and to make a gift to the public of part of the river frontage.

ROYAL GOLD MEDAL

Intimation has just been received that the King has been graciously pleased to continue the award of an annual Gold Medal for architecture.

At the last Council meeting of the R.I.B.A., Mr. Charles Holden, Vice-President of the R.I.B.A., was elected as a fit recipient of the Gold Medal for the year 1936 and his name has been submitted to His Majesty.

AN ARCHITECT'S WILL

Mr. Edward Monson, of Acton Vale, Acton, W., Diocesan Surveyor to the Bishop of London, left £23,855 (net personalty £16,884).

ANNOUNCEMENTS

Messrs. Paul V. Mauger, A.R.I.B.A., A.M.T.P.I., and Arthur J. May, F.R.I.B.A., of 18, Queen Anne's Gate, S.W.1, have taken over the Architectural and Town Planning practice of the late Edward Unwin, A.R.I.B.A., M.T.P.I.

Mr. Sydney J. Cook, A.I.A.A., has removed his offices to Bank Chambers, 74 Kilburn High Road, N.W.6.

Messrs. John Swarbrick and Son have removed their London office from No. 39 Maddox Street, W.1, to No. 11 King's Bench Walk, Temple, E.C.4. Telephone No.: Central 1400; and their Manchester office has been changed to No. 66 Mosley Street, Manchester, 2. Telephone No.: Central 0455.

Mr. J. D. Hossack, F.R.I.B.A., has entered into partnership with Messrs. A. Marshall Mackenzie and Son, of London and Aberdeen, and will practise from the London office, 52 Seymour Street, W.1.

LETTERS FROM READERS

VINCENT J. ROTHER

ANOTHER BUILDING OWNER

F. PALMER COOK

Architectural Education

SIR,—Mr. Belton in his recent letter overlooks one very important point, namely that the R.I.B.A. does not "produce" a system of education, but merely sets certain minimum conditions which obviously do not fully satisfy even contemporary requirements.

Of the two alternatives held out by Mr. Belton to the students this obviates the first. With regard to the second, any advanced system of education flexible enough to absorb change would certainly not interfere with R.I.B.A. outlook. It would simply satisfy R.I.B.A. conditions in half the period now required, and allow the student to begin his education for architecture.

VINCENT J. ROTHER
London

The Adventure of Building

SIR,—"Building Owner" in his recent letter voices the complaint I have heard before, and as a satisfied owner of an architect-built house he has my sympathy.

I feel the cause of his trouble is that he contracted with a builder of poor financial standing—a common complaint with small cottage property.

In order to complete the building as cheaply as possible, these builders often "forget" to include damp-proof courses over the heads of windows or to throat and bed the sides of the window-frames to the brickwork.

If his architect was in constant attendance on the job these and other items would, no doubt, be rectified.

Some builders, I believe, would like the architect to organize the job for them, and I once heard of a builder of poor financial standing who held over ordering metal casements "until next month" in order to get them charged up on the next month's account.

This is not much consolation to "Building Owner," and on his next adventure he would be well advised closely to investigate the financial position of the lowest tenderer.

ANOTHER BUILDING OWNER
Middlesex

Building Materials

SIR,—As an advertisement of ours was referred to by a correspondent recently, we think that in fairness to ourselves he should know that we include in our mailing list all the students given in the R.I.B.A. *Kalendar*, and therefore they receive automatically all our literature as it is issued.

During the course of the year we receive numerous requests from students for "a complete range of our catalogues," and these are despatched without question.

We should also like our correspondent to know that no requests for sample windows for the use of students at technical and architectural schools are ever turned down, although the cost of making special samples and mounting them in frames amounts to a considerable sum during the year. We know it can be argued that it is good propaganda for the future, but there are other ways in which a manufacturer can obtain publicity with far quicker results.

F. PALMER COOK
(HENRY HOPE AND SONS, LTD.)

COMPETITION NEWS

PARLIAMENT HOUSE, SOUTHERN RHODESIA

Mr. J. R. Adamson, F.R.I.B.A., the assessor of the competition for new Parliamentary House at Salisbury, Southern Rhodesia, has made his award as follows:—

Design placed first (£500): Mr. E. Berry Webber, A.R.I.B.A., of 39 Gordon Square, W.C.1.

Design placed second (£300): Mr. H. G. Porter, A.R.I.B.A., of 79c Belsize Park Gardens, N.W.3.

Design placed third (£200): Mr. G. Grenfell Baines, of 25 First Avenue, Ashton-on-Ribble, Preston.

Design placed fourth (£100): Messrs. Carr and Howard, of 55 Millbank, Westminster, S.W.1.

The designs submitted by the following competitors were commended by the assessor: Mr. H. B. Van der Riet, A.R.I.B.A., M.S.A., of Hill Crest, Natal; Oakes and Jordan, A.R.I.B.A., of 7 Gower Street, London, W.C.1; Mr. W. A. Mellon, of 35 Laurel Grove, London, S.E.20; Mr. Verner O. Rees, F.R.I.B.A., of 33 Bedford Place, London, W.C.1; and Messrs. John Perry and Lightfoot, of

National Mutual Buildings, 17 Church Square, Cape Town.

All the designs submitted will be exhibited at Salisbury and in London in the near future.

ELEMENTARY SCHOOLS, FOLKESTONE

The Folkestone Borough Council invites architects of British nationality to submit, in competition, designs for new public elementary schools, to accommodate 650 children, to be erected at Surrenden Road, Folkestone, Kent. The assessor is Mr. Verner O. Rees, F.R.I.B.A., and the following premiums are offered: £200, £125 and £75. The last day for submission of designs is May 1, 1936; and the last day for questions is March 31, 1936.

Conditions of the competition are obtainable from Mr. J. A. Wilkinson, Clerk of the Folkestone Borough Education Committee, Education Offices, Old Harvey Grammar School, Foord Road, Folkestone (deposit £1 1s.).

NORTH BRITISH ARCHITECTURAL STUDENTS' ASSOCIATION

The results of the two competitions held by the above Association have been announced as follows: Church of England Chapel (Assessor, Mr. H. L. Hicks): First prize (10 guineas), F. Thornton; second prize, C. F. Allan; third prize, G. T. Wilkinson and S. Wilson.

A Control Tower and Waiting-Room for an Aerodrome (Assessor, Mr. R. Bradbury): First prize (10 guineas), G. R. Ingleby; second prize, W. Garner.

The competitions were limited to members of the Association (i.e., members of Schools and/or Allied Societies at Manchester, Glasgow, Edinburgh, Leeds, Sheffield, Hull and Newcastle).

TECHNICAL COLLEGE, ETC., BIRMINGHAM

The Corporation of the City of Birmingham has decided to hold a competition for a new Central Technical College, Commercial College and School of Arts and Crafts. Mr. J. R. Adamson has been appointed to act as assessor and the premiums to be offered will be £750, £500 and £250. Conditions are not yet available.

MUNICIPAL OFFICES, BARKING

Mr. H. V. Lanchester, F.R.I.B.A., has been appointed assessor of the competition for municipal offices for the Barking Corporation. Conditions are not yet available.

SCIENCE BLOCK, SCHOOL AT COVENTRY

Mr. L. H. Bucknell, F.R.I.B.A., has been appointed assessor of the competition (open to architects practising in Coventry) for a new Science Block for the Governors of the Bablake School, Coventry.

CIVIC CENTRE, NEWPORT

The Newport Town Council has decided to offer the following premiums in connection with its competition for a civic centre: First prize, £750; with second third and fourth prizes of £500, £300 and £200 respectively.

ASSEMBLY HALL, SOUTH SHIELDS

Mr. A. J. Hope, F.R.I.B.A., has been appointed assessor of the competition for a proposed assembly hall at Sheffield for the Sheffield Town Council.

THE HARROW COMPETITION

THE DESIGNS REVIEWED

As announced last week, Messrs. C. H. James and S. Rowland Pierce, the assessors of the competition for proposed offices for the Harrow U.D.C., have made their award as follows:

Design placed first (£350): Verner O. Rees, of 33 Bedford Place, W.C.1.

Design placed second (£250): E. D. Lyon and L. Israel, of 3 Paul's Bakehouse Court, E.C.4.

Design placed third (£150): H. Farquharson and D. H. McMorran, of 14 North Audley Street, W.1.

The designs submitted by the following competitors were commended by the assessors: F. Chippindale and J. Needham; R. Nelson Guy; S. G. Livock; and Scott, Shepherd and Breakwell.

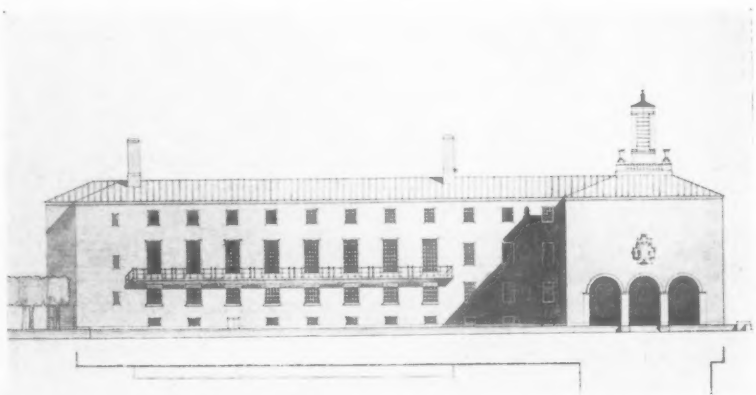
On this and the eight pages following are reproduced the premiated designs, the winner's report, and a review of the competition.

THE new council offices for Harrow Urban District Council, for which Mr. V. O. Rees, F.R.I.B.A., has just been awarded first place, will provide accommodation for the administration of local government for some 100,000 people over an area of just under 20 square miles; the district stretches from South Harrow to Elstree and from the end of Kenton to Pinner. The site which has been chosen is on a portion of triangular shaped ground, and the site is surrounded by semi-detached houses worth about £1,000 each; opposite the main approach is a recreation ground. The promoters placed the building line 100 ft. back from the road and suggested in the competition conditions that there might be further municipal development on the site in future.

Perhaps the most outstanding impression gained from a brief survey of the schemes submitted is the way in which the buildings have been placed on this very curiously shaped site. The fact that the promoters were vague regarding the exact nature of the future development of back of the site may account for some of the more bizarre block plans, but in almost every case very little attempt seems to have been made to provide a building on the front of the site which will allow adequate development of the back of the site. A local government centre, from which such a large area is controlled, is sure to need larger and larger staffs as time goes on. And the question of expansion should be tackled immediately, if the promoters have the idea in their minds that this large site is to be developed in the future for extensions to the present accommodation.

Nearly every competitor has failed to give the correct solution to the problem. A recent contributor to the JOURNAL, writing on the subject of municipal planning, emphasized this problem of expansion very strongly, and the fact that it merits serious consideration is proved by the fact that, quite recently, an addition costing nearly £100,000 to municipal offices was found to be inadequate ten months after work began and while the alterations were still being built. The majority of the plans in this competition are such that it would be very difficult to obtain any efficient additions to them, and most competitors seemed to consider that the promoters had acquired this large site to obtain adequate car-parking space.

The second impression which the schemes give is that, although the programme was for a block of offices for an Urban District Council, which requires no ceremonial or mayoral rooms, yet in no case has the building



Main elevation of the design placed third. By H. Farquharson and D. H. McMorran.
For plans see page 412.

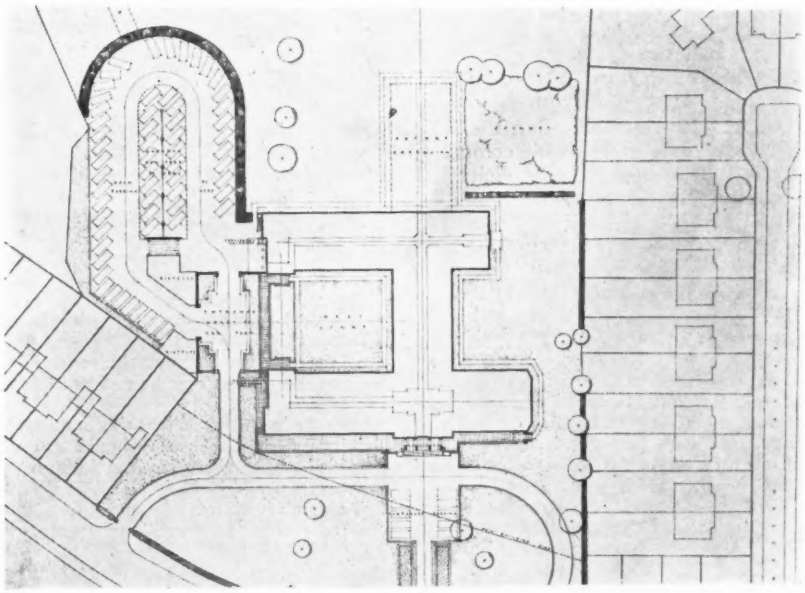
Main elevation of the winning design. By Verner O. Rees.

been designed as an office building; the designs have rather followed the current asymmetrical examples of Hornsey and Slough. No architect who makes a living by building city offices would ever consider designing office buildings with block plans such as many of these. There is no doubt that the divisions of the offices and the allocation of rooms is generally very competent as far as the drawings go, and the manner in which the departments each fit into a floor is slick in the extreme; but such arrangement is largely a matter of theory and rarely holds good when the building is finished or when the inevitable expansion and contraction of new and old departments begins to take place. On such a large free site there was ample opportunity for forming easy and open allocation to the building, and little recognition has been made of this fact.

The elevations in general are designed on lines, which, while they serve to remind us that we are still architects, do not improve on the dignity of our traditional brick and stone buildings.

Mr. Rees submitted a very attractively drawn scheme with a U-shaped plan with additions at each end; the centre court is 80 ft. wide and all the windows to the rooms have an open aspect. Mr. Rees, in his report, emphasized that the factors of special importance which governed the disposition of his plan as (1) compactness and economy in provision of accommodation: (2) easy accessibility of departments from the main approach and avoidance of overlapping of departments on different floors; (3) all rooms should have windows with open aspects. Reasons number 1 and 3 were obvious on account of the small amount of money allowed by the promoters and the spaciousness of the site. Reason number 2 is, in my opinion, more questionable, because, as this article has emphasized before, municipal authorities expand and contract departments, and what is here today may be gone tomorrow. I would hazard the theory that Mr. Rees owes his success to the fact that his scheme allows the back of the site to be developed, and to his very efficient handling of departmental arrangement. He has very wisely designed a council chamber which will allow extra seats to be installed if necessary. The provision of a south balcony outside the dining-room was also a happy idea.

The design placed second was by Messrs. E. D. Lyon and L. Israel, and was a very well presented and competently planned scheme which easily deserved the second place and might have tied with the winner, if such a thing were possible. This scheme was asymmetrical and was one of those plans into which every small unit seems to have been fitted without any effort on the designer's part. The staircases and lavatories are well placed and would allow a very flexible plan should the promoters decide on a different arrangement of departments. The approaches and car parking were very good and the arrangement of the plan on the site allowed adequate access from the front to the back site. The only fault to find with this plan is that if any great expansion of the building should be necessary, it would be difficult to retain that sense of compactness which the plan has at present, and the circulation would be impaired. As in the winning scheme, the departmental planning is excellent, although the authors are still insistent that various



Block plan of the winning design.

departments can be fitted into a floor each. Of the elevational treatment approval is more cautious.

The lantern on this scheme seems slightly self-conscious and would be so cut off by its base that it would hardly be seen from the road. The windows on the right side of the entrance door seem curiously small compared to the windows on the left.

Messrs. H. Farquharson and D. H. McMorran gained the third award, with a scheme which was not as well presented as the first and second and seemed to leave the plan rather cramped in comparison. The disposition of the building and the car-parks on the site seem to give inadequate access to the back of the site. The authors have tucked the rates entrance out of the way, in contrast to the design placed second, which had the courage to make the rates entrance nearly as important as the council suite entrance. In the third scheme the provision for future extension again seems inadequate, and once the small connection between the two wings is filled up, further extension seems difficult.

120 schemes were submitted. Competitors on reading the conditions once apparently thought they were engaged on a ridiculously simple problem, but after reading the conditions half a dozen times and seeing the block plan of the site, their imaginations suffered a sea change which resulted in the many shapes of their plans. They are to be condoled with; the block plan even cast a shadow over the critic, a shadow which even the happiness of the design with "1936" printed on it in letters five inches high, failed to move.

That the best all-round scheme won there can be little doubt—or that the promotors secured a large variety of interesting alternatives. But the moral would seem to remain that the small municipal office is not an easy thing to plan; and that its fine planning may be much more difficult than the huge civic centre whose size itself compels a certain fundamental simplicity of disposition.

THE WINNER'S REPORT

GENERAL CONSIDERATIONS

Factors which seem to be of special importance as regards the disposition of the plan are: (1) Compactness and economy in provision of accommodation; (2) easy accessibility of departments from the main entrance, and avoidance of overlapping of departments on the different floors; (3) all rooms should have windows giving an open aspect.

The plan submitted, of "U" shape with additions at each end, has been adapted to give an open court 80 ft. wide towards the west, so that the windows of the rooms on all sides have an open aspect. This disposition, at the same time, allows the caretaker's department to be placed controlling the entrance to the car park and the boiler room, and the tradesmen's entrance to be off the approach road to the car park.

The main entrance is so placed that immediate access is given to the treasurer's department on the ground floor, and also to the valuation department on this floor.

The main staircase leads directly to the first floor, and the committee suite and council chamber, which are arranged along the south side of the building. By crossing the first floor hall access is obtained to the principal rooms of the clerk's department, and to the secondary staircase leading to the second floor.

The engineer's department occupies the whole of the second floor (with the exception of staff dining-room, kitchen, etc., arranged as one wing over part of the committee suite). The medical officer of health's department is the only one not accessible immediately, and is located at the end of the middle corridor of the plan, 100 ft. from the staircase.

It is considered that the "U" type plan gives reasonable compactness in the provision of floor areas, with not too great a perimeter of outside wall. A room width of 18 ft. has been adopted. Internal angles have been utilized by strong and store rooms, and also for cleaners' stores and men's cloakrooms in such a way that some light and ventilation from windows is available in the latter case.

The south side of the "U" plan, prolonged by the council chamber at its east end, owing to the disposition of departments, permits an arrangement of windows and of solids and voids which, with the portico, gives in a natural way all the architectural interest that is needed.

As to its arrangement on the site, whilst the design is for a building at right-angles with its eastern boundary, and with the line of houses along the cul-de-sac road, it is well clear of the boundaries, and it is intended to override them definitely. The slanting angles of the other boundaries do not seem of sufficient importance to affect the building.

The car park is placed on the west side so that noise should not reach the committee and council suite, and circulation through it should be reasonably convenient. Partially screened by brick walls, as suggested, it should not be too prominent from the roadway.

The high parapet wall round the central hall behind the portico is occupied at roof level by extract plant room on the south side, stairs, lift machinery and tank room on the north, council chamber on the east, and is only a screen for a short length on the west side. In the centre is a well with top-light over the hall and the area giving light to the two staircases on either side of the gallery.

The note in the conditions that a separate entrance from the street should not be provided to the gallery has been interpreted that access would be had normally by main and secondary stairs. As so many as 100 persons are to be seated, an emergency escape stair is arranged on the south side of the gallery connecting to he wide landing of the main staircase. All drawing offices have north light.

The question of levels did not prove so difficult as first appeared. The level chosen for the ground floor is 280.00, which gives a suitable relation of floor to ground over most of the area, and only in the extreme south-west corner does the floor stand much above the ground.

The terrace adjoining the south frontage of the building serves for public access to the rates department, and is intended to serve, on the other side, as a way of approach to the main door for persons leaving their car in the car park. Owing to the general tightness of plan no spare storage has been provided. This was considered to be optional.

The total area of the three floors is 645 sq. ft. short of the grand total asked for (36,450 sq. ft.). Of this shortage about 300 sq. ft. occurs in the treasurer's department and is accounted for mainly by a deficiency of 200 sq. ft. in the largest compartment of all, the rates office.

The rooms throughout are as close to the schedule as it has been possible to make them, given the considerable variety of size required for smaller rooms, i.e., rooms of 150, 200, 250 and 300 sq. ft.

CONSTRUCTION

It would be necessary to have in mind the whole time the need of economical building, and to avoid any feature of undue cost, in view of the considerable amount of accommodation provided for the given sum. It is proposed that the building should be constructed as a steel-frame building with 13½ in. exterior walls in brickwork, and with internal columns along the corridors carrying the floor loads. The brickwork throughout would be of selected hand-made bricks built in hydralized lime mortar. Internally, brickwork would be built with Portland cement. Copings and plinths, which would be used as sparingly as possible, would be in natural Portland stone if cost permitted.

The rectangular shafts of the portico, jambs to first floor windows, etc., of the south elevation, would also be in natural Portland stone.

Floors would be of hollow tile and reinforced concrete construction, and also the staircases which are enclosed in 9 in. brick walls and separated from the corridors by fire-resisting doors. The corridor walls would be in 4½ in. hollow bricks, held at the level of door heads by steel channels, and the space between this level and the ceiling would be glazed with plate glass—a method which gives good light to the corridors. Floors of office rooms would be strip boarding of selected Empire hardwood laid on fillets. Floors of corridors, in general, would be of rubber laid on the screening. Should it be found possible, reconstructed stone would be used for flooring in the main halls and to the main staircase.

In designing the interior finishings, durability of material, the cost and necessity or absence of necessity of future outlay for maintenance or decoration would be carefully weighed. Future paintwork would be eliminated as much as possible. Doors

THE HARROW COMPETITION

would be in pine stained to a silver grey and also the woodwork generally. External doors would be in oak similarly treated, but slightly waxed.

The walls to rooms in general would be distempered, and the corridor walls enamel, painted to a line at the level of the top of doors. The windows would be of sash type throughout, in wood, and painted externally.

The council chamber would have a high dado of grey-toned oak. The acoustical correction of the room would be carefully studied, as also of the committee suite. The floor throughout would be covered with thick carpet.

The car shelter for 20 cars in the car park would consist of a reinforced concrete slab cantilevered, and with, on either side, a row of steel columns, arranged so that two cars could be parked between.

HEATING, VENTILATING, ETC.

Throughout the building reliance would be placed on natural ventilation from the windows for all rooms.

For the council chamber air would be introduced behind the radiators and extracted by means of trunks from openings round the top light and connected to the plant located over the main staircase. This would be the only mechanical ventilation.

A window is provided at the end of the long corridor to give ventilation and some light at the important crossing of the corridors at this end. This seemed permissible, as it would form part of the corridor leading to future extension.

Recent data with regard to allowance of candlepower per square foot of floor area would be considered in the lay-out of electrical services, which normally would be in keeping with the standard now habitually provided in this kind of building.

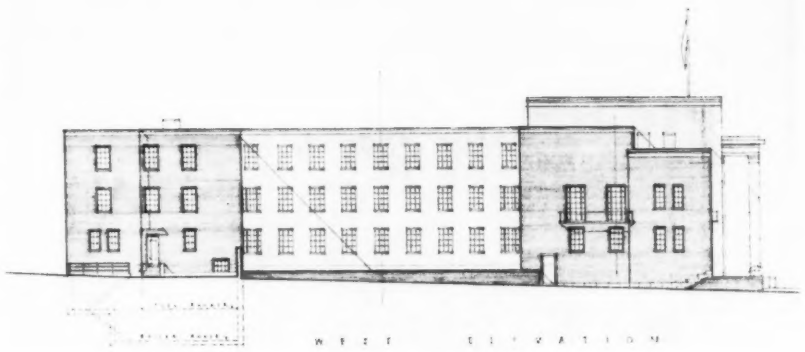
The heating generally would be by hospital type radiators fixed on brackets under the windows, fed from low temperature coke-fired boilers. The fuel store and bunker are so arranged that the boiler could be mechanically stoked; for this reason the boiler room has been sunk considerably below ground level.

The disposition of flow and return pipes would be carefully studied to obtain maximum efficiency, and arranged in ducts which would be readily accessible for repairs. All heating pipes would be properly lagged.

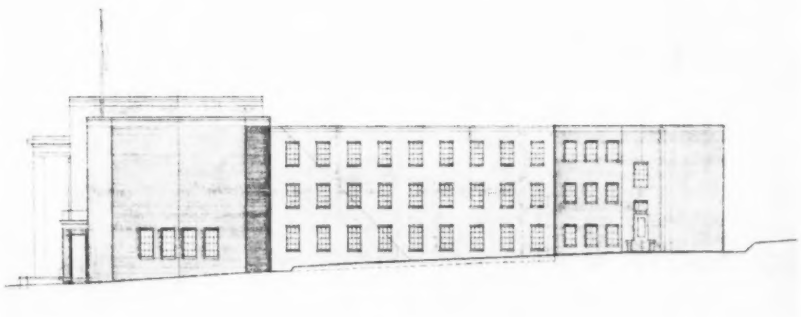
All service pipes would be grouped together as much as possible, and would be arranged in straight ducts serving all floors and covered with unscrewable cover boards.

ESTIMATE OF COST

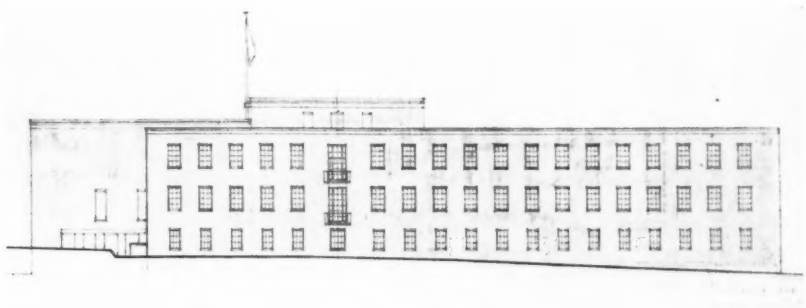
	£
The buildings above ground floor level, 775,418 ft. cu., at 1s. 6½d.	59,772
The buildings below ground floor level, 89,444 ft. cu., at 9d. ..	3,354
The basement, 20,707 ft. cu., at 1s.	1,035
	£64,161
The lay-out, including fences, garages, etc.	3,800
Estimated total cost	£67,961



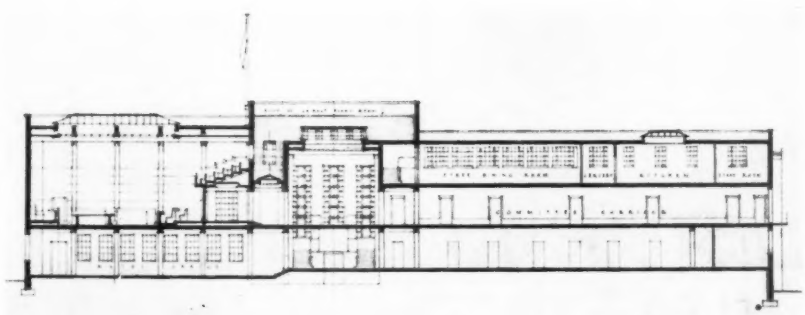
West elevation.



East elevation.

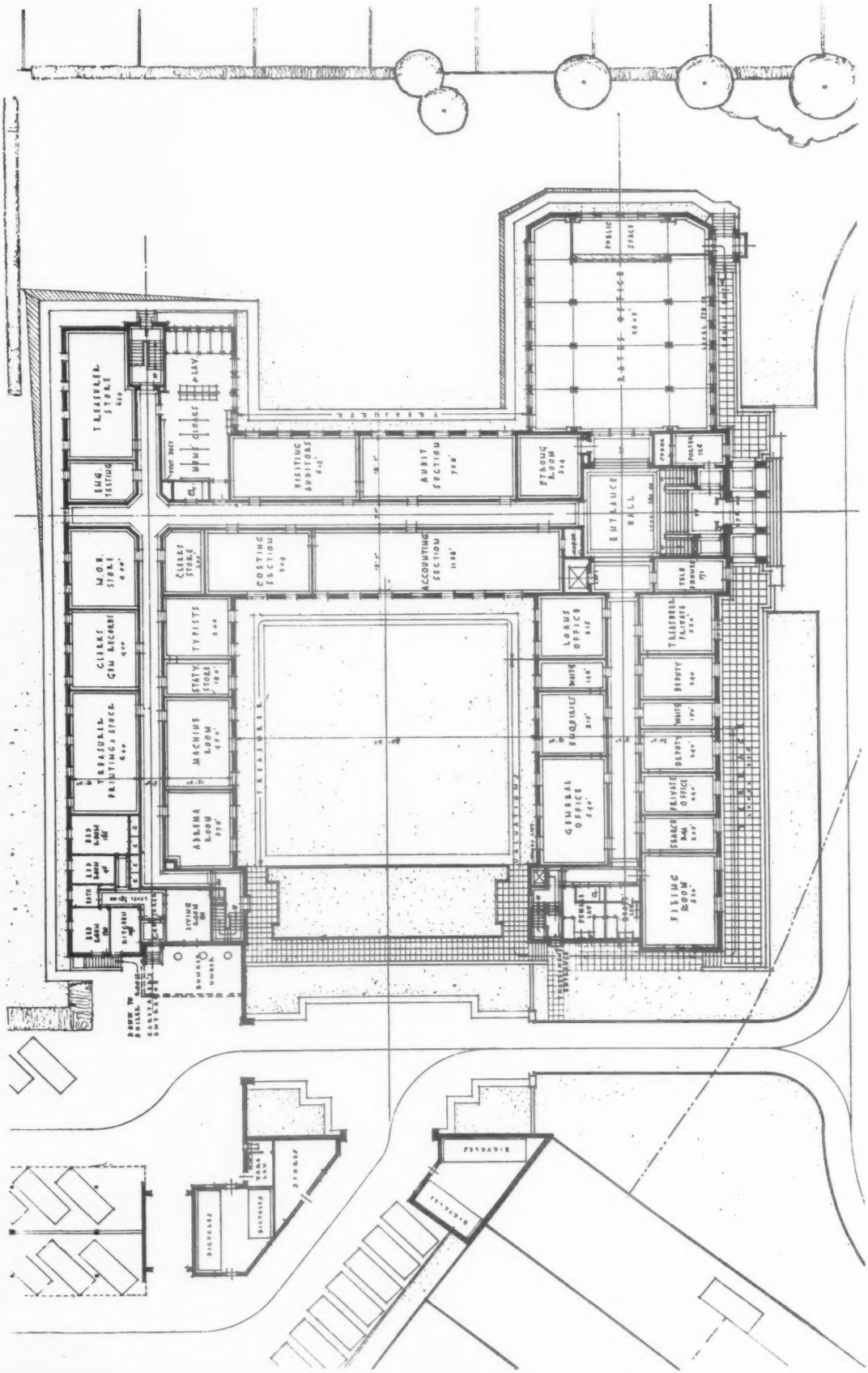


North elevation; below, longitudinal section looking south.

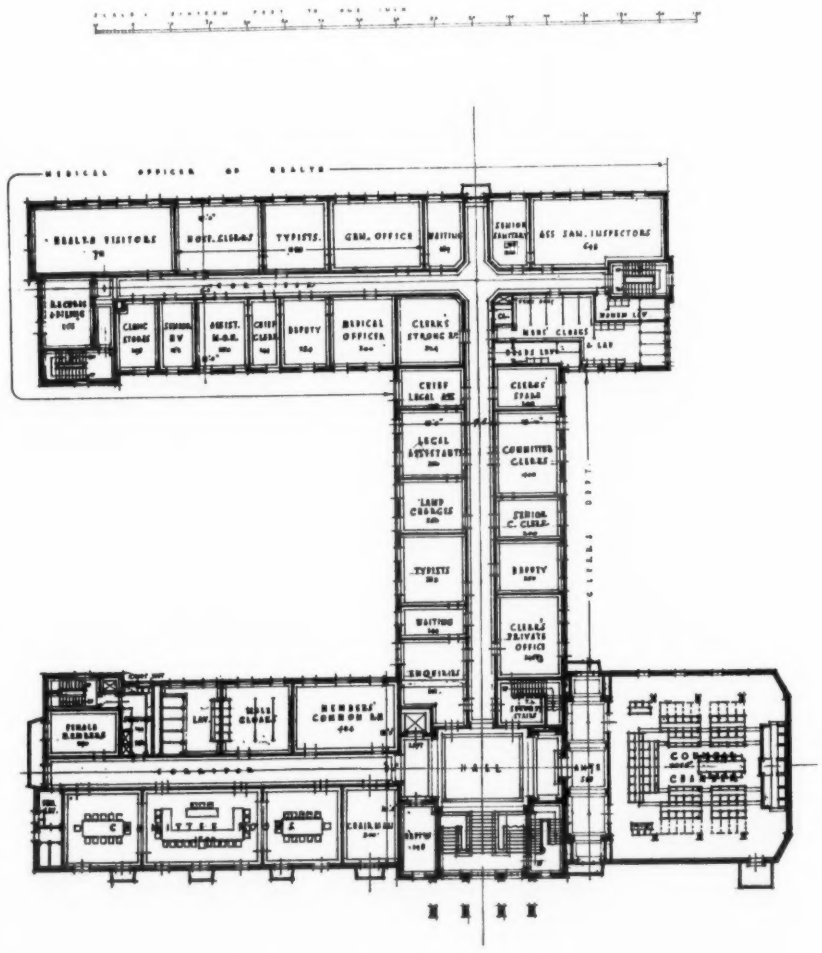


Elevations and longitudinal section of the design placed first, by Verner O. Rees.

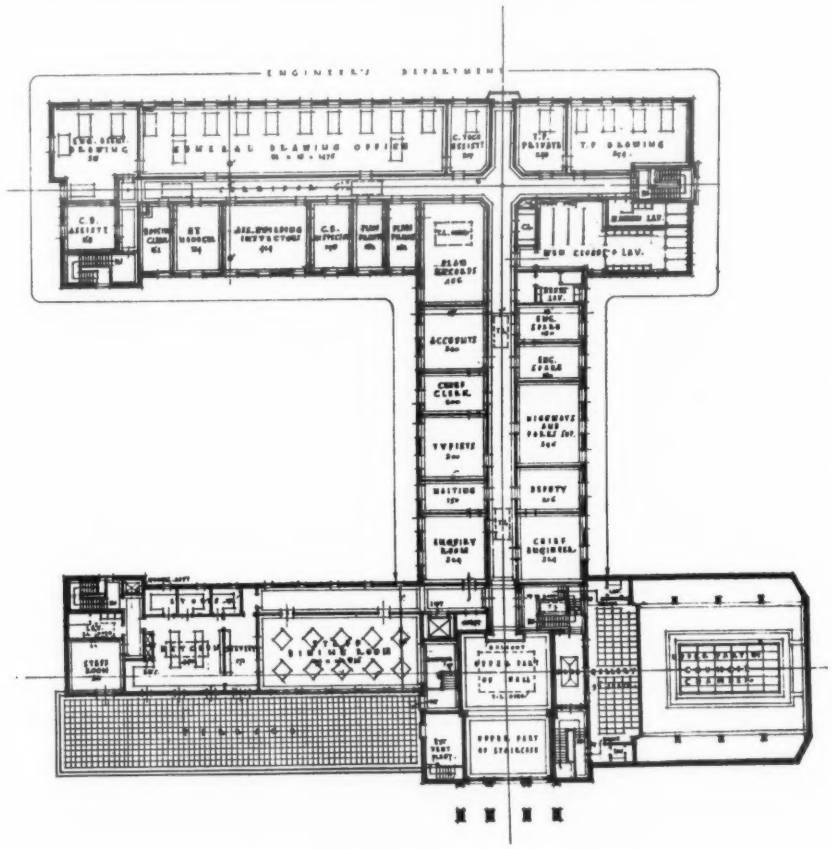
COMPETITION FOR PROPOSED MUNICIPAL OFFICES, HARROW



On this and the facing page are reproduced the ground, first and second floor plans of the first premiated design; elevations and sections are illustrated on pages 405 and 407.



FIRST FLOOR PLAN

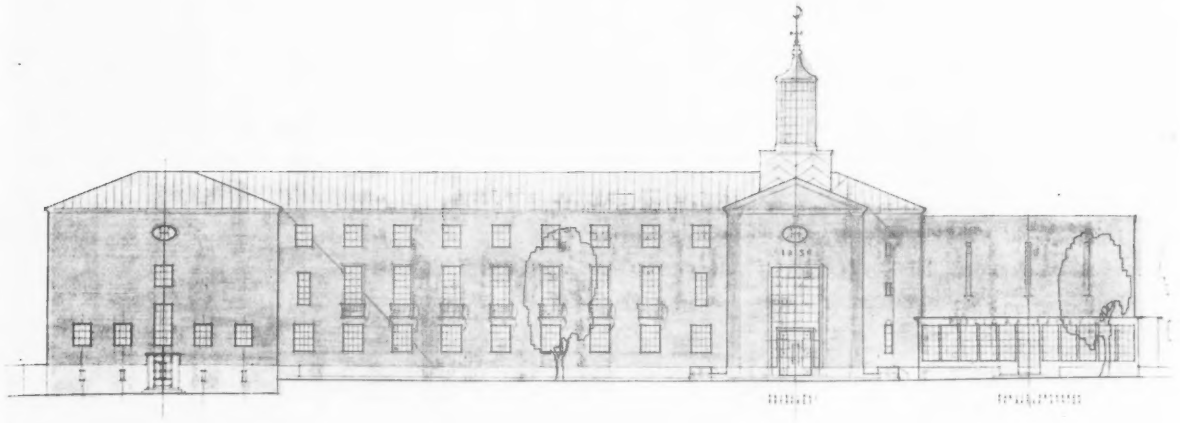


SECOND FLOOR PLAN

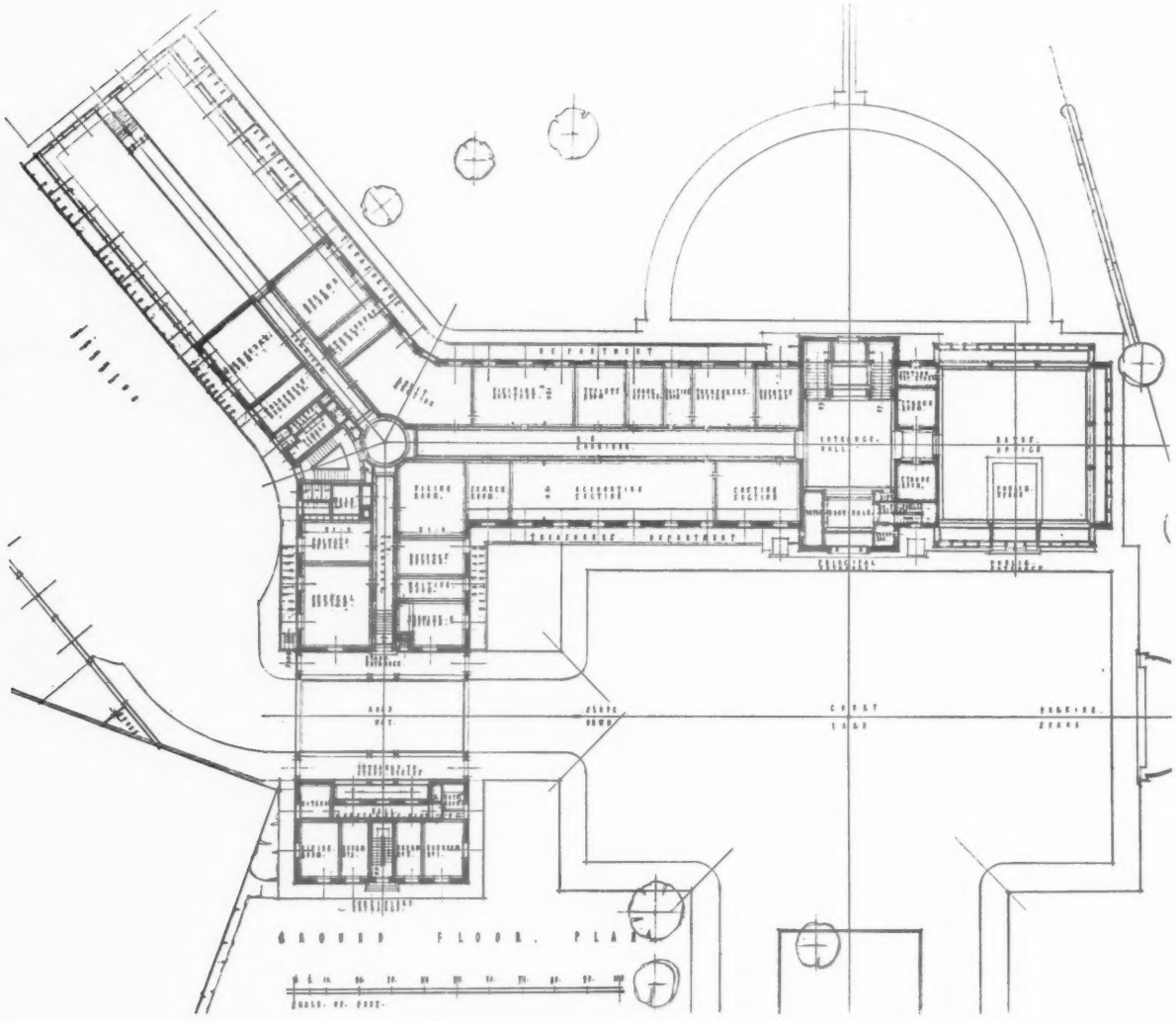
DESIGN PLACED FIRST:

BY VERNER O. REES

COMPETITION FOR MUNICIPAL OFFICES,

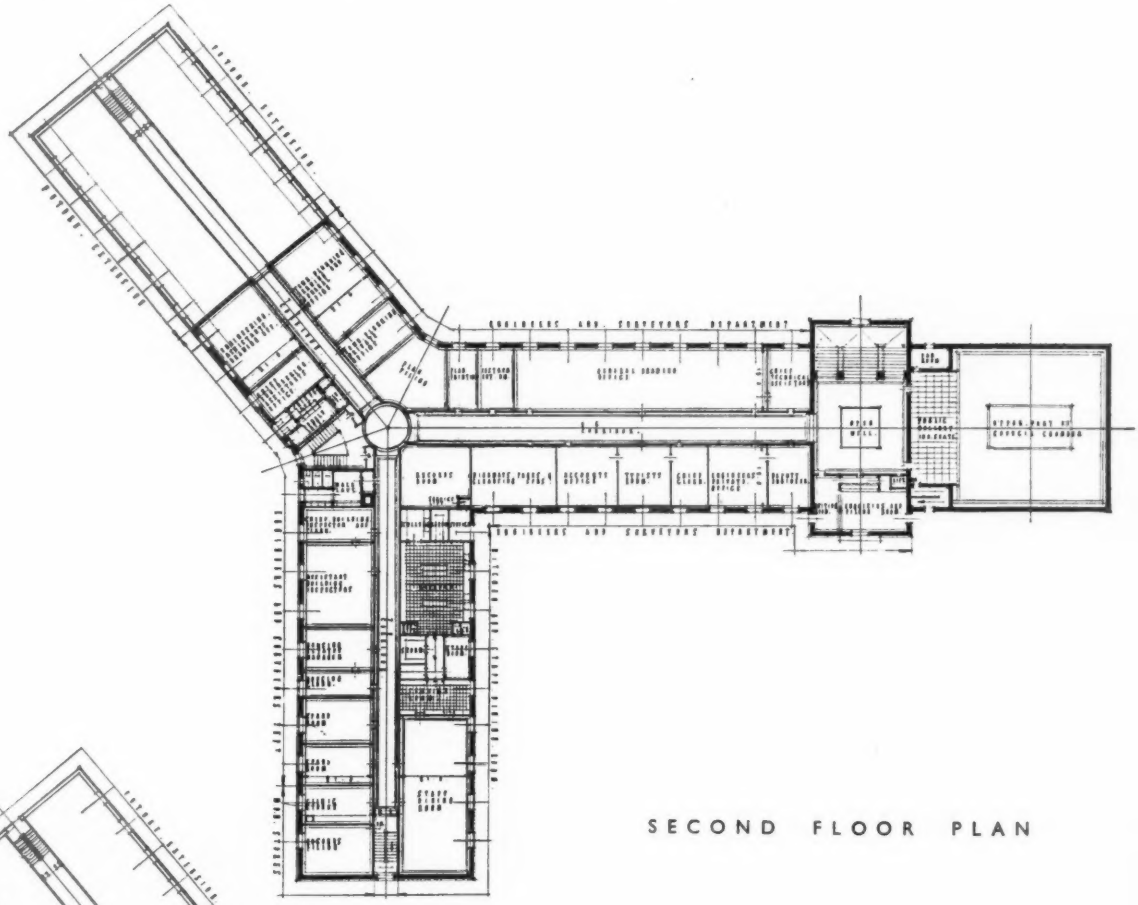


The main elevation.

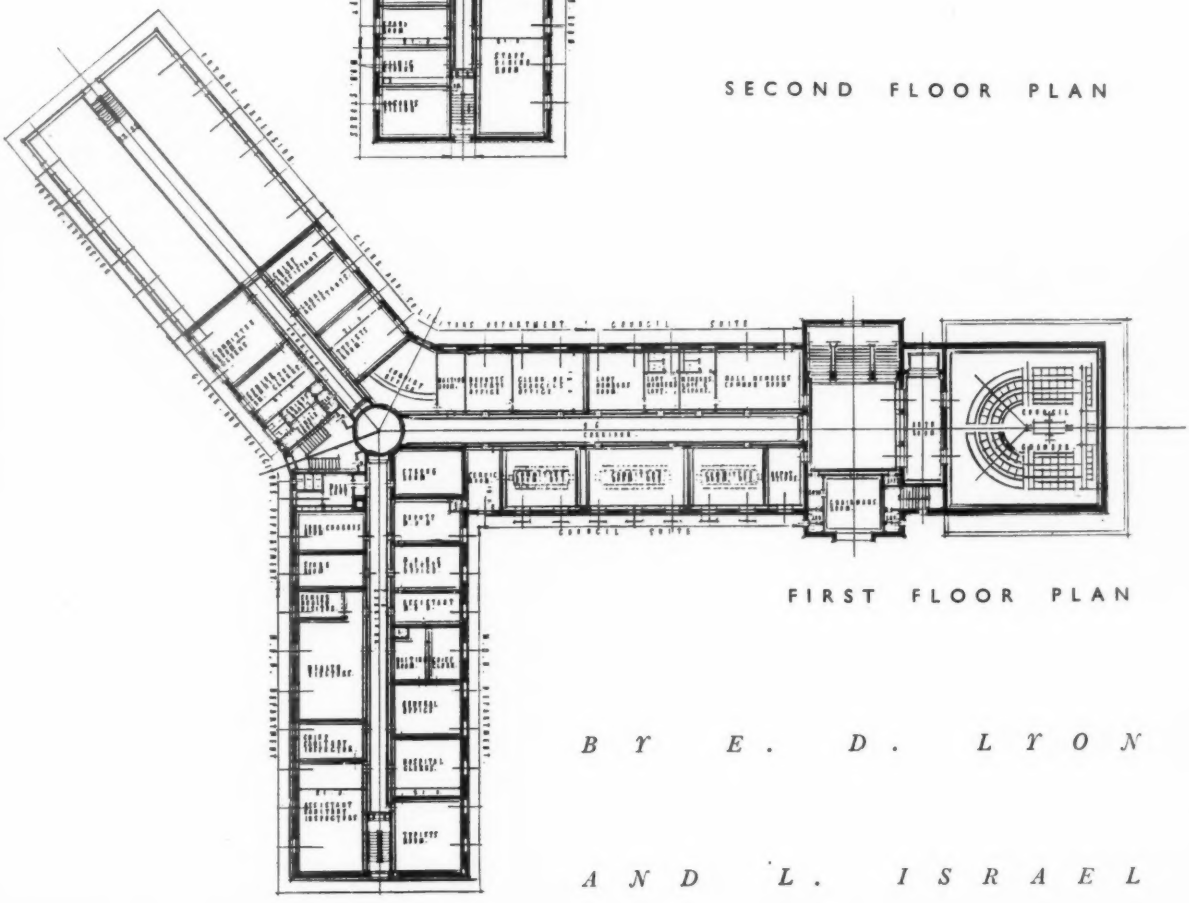


GROUND FLOOR PLAN

HARROW: DESIGN PLACED SECOND



SECOND FLOOR PLAN



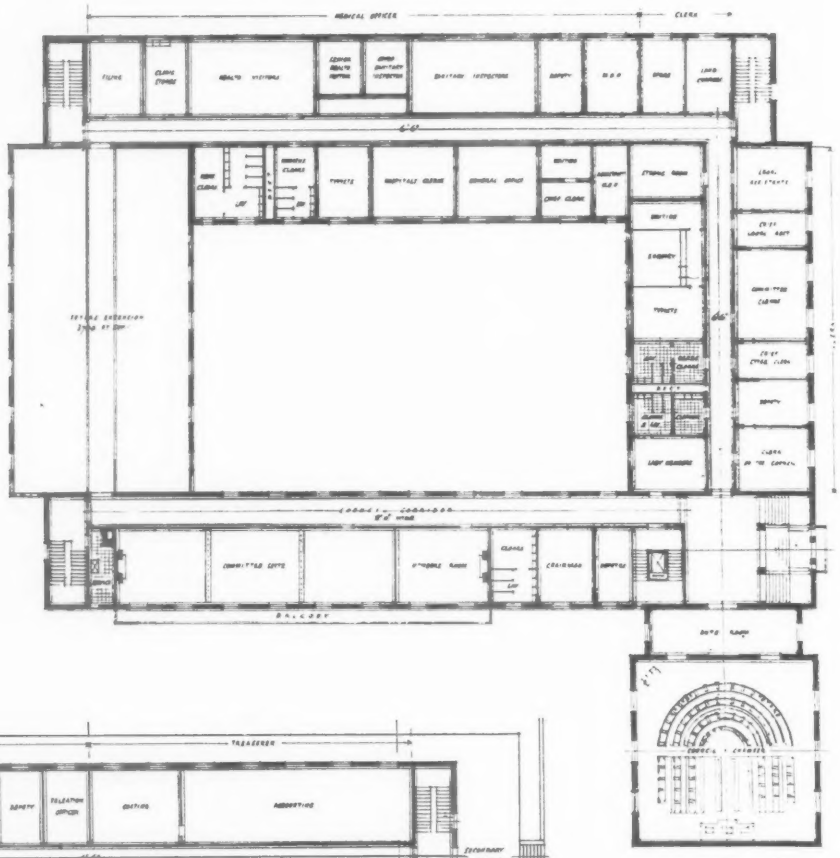
FIRST FLOOR PLAN

BY E. D. LYON

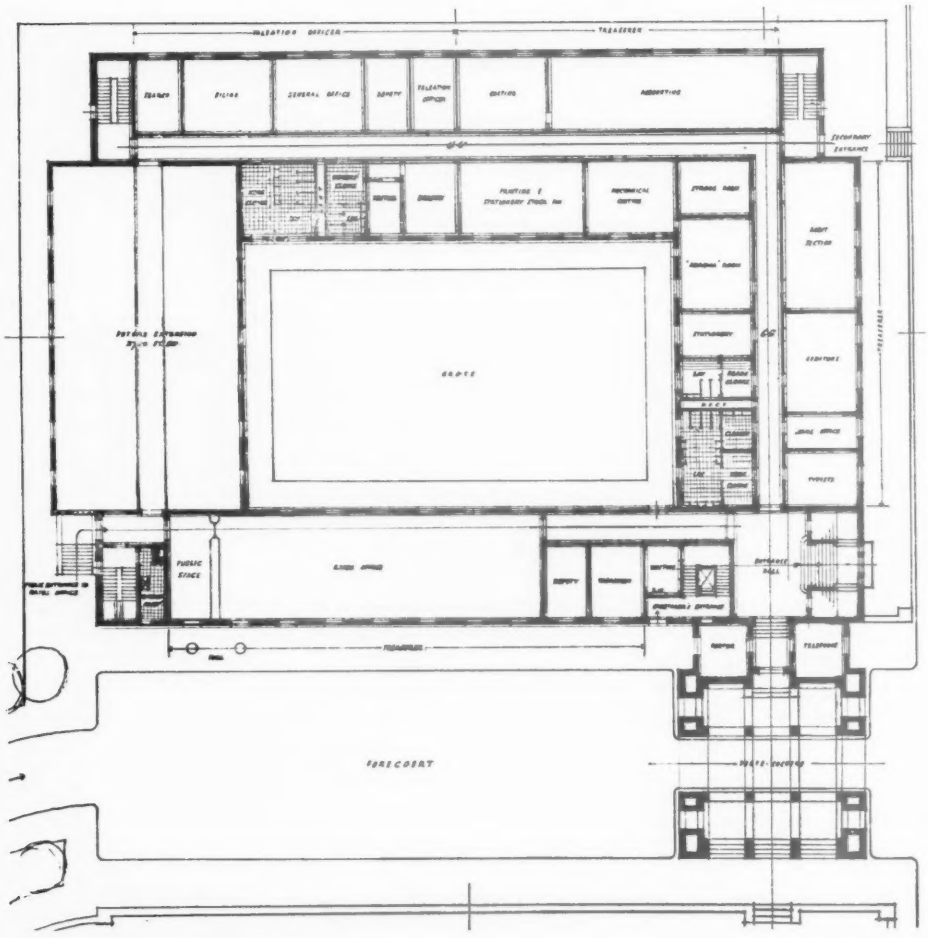
AND L. ISRAEL

COMPETITION FOR MUNICIPAL OFFICES, HARROW

DESIGN PLACED THIRD: BY H. FARQUHARSON AND D. H. McMORRAN



FIRST FLOOR PLAN



GROUND FLOOR PLAN

Ground and first floor plans of the third premiated design; an elevation is reproduced on page 404.

THE ANALYSIS AND PLAN OF CONTEMPORARY EDUCATION FOR ARCHITECTURE

[By A GROUP OF ELEVEN STUDENTS]

Recent correspondence in the JOURNAL *concerning architectural education has resulted in a group of students submitting the following outline of an educational policy. This summary is intended to indicate the reforms which the authors think necessary in order that architectural education may conform more closely with contemporary social requirements. The opinions stated, and suggestions made, are those of the authors alone.*

ANALYSIS AND PLAN

THE GROUP

OVER a year ago eleven architectural students formed themselves into a research group. The purpose at the time was not clear, the reason hardly more than a natural association in the studio. Their interest was undoubtedly architecture, but farther than that little was known or understood.

RESEARCH

With some difficulty a programme of research was built up which covered the field in which ultimately they were to work. After some time, with many dead ends encountered, it was realized that in order to discover what the architect's work was, it was necessary to know what he worked for. The fundamental requirements of a constantly changing society must evidently be made clear.

A PICTURE

With this in mind the group set out to gather information and to build up slowly a picture of contemporary society: Relations, interrelations, conditions, requirements, the individual, the community, the general social structure and the expressions of society in morality, legality, control, etc. It was probably not a complete picture and certainly not too clear, but it served the purpose of defining "contemporary" as applied to the present period.

REVELATION

With this part of the work completed the next step was to decide how far the architect was concerned with all this. What followed was in many ways a revelation.

ARCHITECTURE

It was unanimously decided by the group that architecture could *not* merely concern itself with spatial form; that it must deal with society and social requirements as organic necessity. This was a responsibility which they accepted.

EDUCATION

It was natural that from this point they should turn to their own education to discover whether in some way it prepared them for the responsibility which they must undertake.

ANALYSIS

Once again the group concentrated its efforts on analysis, this time concerned with architectural education. Their results were simply this: that their education was at some point inadequate, but that this inadequacy might be rectified with a little effort. A second research programme was set up, and later the first plan for an educational system was produced. It was not satisfactory and the work was continued. A short time ago another plan was submitted and, although neither satisfied nor finished, the group felt that this plan might be made public. It is presented in the following pages.

JUSTIFICATION?

There has been, surprisingly enough, opposition to this work. The group feels no need of justification for what it has done, but there are some who require it. It is this. These students find themselves in a world of transition, a condition of society which is without a great many of the older standards on which living was sustained. Movement is fast, change is rampant, but through all this there is still the human desire for security and foundation. These young men are seeking such a foundation.

EDUCATION AND VALUE

Education in order to be of value must :—

1. Be basic and flexible enough to follow changing standards without disruption.
2. Make the student aware of his own potentialities and capabilities.
3. Develop the student's ability in expression through developing his sensitiveness to living.
4. Provide the necessary technical training of a contemporary nature which will enable the student to do satisfactory work thoroughly.
5. Give the student a realization of his responsibility.
6. Be the means to development of the student as an individual and a technician.

LIMITATIONS

All work must be done within certain limits. The limitations which control it are not always evident. Some are not easily affected, and many are constantly changing. Together they define the limits. CONCENTRATED EFFORT accomplishes more. LIMITATIONS ARE THE CONCENTRATING FORCE.

Over some of these, taken into account in this plan, we have some measure of influence—with others, culled up by custom, and sometimes intolerance, only time can change.

Those that follow set the limits of our plan. Beyond them there is scientific speculation :—

1. *Secondary Education* presents a certain standard of development. The architectural school can only start from that point. If the standard is low the subsequent education must be retarded. One must follow the other.
2. *The Financial Position* of students and the financial organization of the school set limits of time and extent.
3. *The Availability* of school directors and a staff which has the understanding, ability and personality to direct, lead, and guide, as well as the desire to make it a full time job.
4. *The Isolation* of the school from the profession results in a condition not conducive to student understanding.
5. *The Minimum Requirements* for practice which allow any person who can put pencil to paper to become an architect.
6. The lack of flexibility in public administrative bodies does not help architectural development.
7. *The Present Method of Office Practice* opposes student development past the draughtsmanship stage. A system in which responsibility was distributed on a more co-operative basis might result in more intelligent and finished work.
8. *Professional Ethics* which create distrust between working groups, causing waste and repetition, give an awkward aspect to part of the student training.

These do not complete the list. They illustrate the points of LIMITS.

THE PLAN

The following is the analysis of the plan of education.

No one part may be rightly analysed without considering its relation to all other parts of the plan.

Its value lies in its completeness as a pattern.

The composition of the education for architecture divides itself into three parts, social, physical, sensitivity. Each part, isolated, gives a thorough training in one necessary requirement of the contemporary architect. Combined they form a pattern which in scope and balance provides the basis of training for architecture and the even wider sphere of living from which architecture takes its major importance.

SOCIAL

(*a*) Development of the student mentally to give him the necessary self-reliance and understanding to continue with his own initiative.

(*b*) To develop the sense and relations of the individual, society and civilization.

(*c*) To develop an intimate understanding of contemporary culture and its trend, and the architect's responsibility.

PHYSICAL

(*a*) To show the existence and the potentialities of natural environment.

(*b*) To develop the student's knowledge of the scientific theories which form our understanding and adaptation of natural phenomena, and to facilitate his application of these theories.

(*c*) To apply (*a*) and (*b*) to the particular problem of architecture.

SENSITIVITY

(*a*) To develop an understanding of mood and expression.

(*b*) To develop the sense and relation

of emotion, observation and expression.
(*c*) To stimulate the successful expression of all mood forms.

SUPPLEMENTARY

AIDS TO EXPRESSION

(*a*) Drawing, etc.
(*b*) Critical observation.
(*c*) Writing and analysis.
(*d*) Verbal expression.

These three groups and supplement form a pattern by means of which an education is begun. All its parts are so related that, while they may be separated, it is only in combination that full value is achieved.

STUDY

Maximum efficiency of operation is obtained by intimate and continuous collaboration between staff and student. The straight lecture system is discarded in all but a few advanced subjects. The main purpose of the staff is to stimulate and guide development.

The most important innovation is the lecture-discussion, made possible by the use of the group system.

The following division of method and application is for convenience only. It shows which group, staff or student, assumes the greater influence in the application of the subject, and also that a greater responsibility is placed on the student for his own education.

BALANCE OF INFLUENCE TO STAFF

1. *Lectures.*—Straight lectures are given mainly by specialists and visiting lecturers to students well advanced in the system. Very few of these are given in the early part of the system.

2. *Lecture-Discussions.*—These are lectures of an informal type given round a table to a group of not more than twenty students. This type of lecture forms the greater part of the teaching done by the staff Questioning and discussion here are carried on by both student and staff. Preparation by the student is required for each lecture-discussion. This allows the student to clear up obscure points, does away with unnecessary repetition and increases the pace of work while giving a better understanding of the subject. Compulsory problems are given by the staff on the subject matter. Lecturers on the same subject, depending on the nature of the subject, are often interchanged to vary opinion and discussion.

3. *Examinations.*—Formal examinations are kept to a minimum. The main system of student progress is explained later under the group system. Other methods of examination are those conducted in the manner of questioning verbally, already explained under lecture-discussions. Written examinations are kept to a minimum.

4. *Visits.*—Visits are conducted to supplement the work. One or two members of the staff are in charge of each group of students. Preparation is required for each visit and written reports and discussion follow these.

If the student is accustomed at the beginning of his education to a high standard of work and a certain intensity of development he will accept these naturally as his education progresses.

1. *Major Problems.*—These problems form the focusing point of all the student's work: design, construction, detail, decoration, materials, equipment, contracts, etc.

The major problems are non-competitive.

They have no time limit.

They may be worked individually or in small groups. (This is left to the discretion of the students and the staff.)

The programme is selected and drawn up by the staff and student in close collaboration. The staff is influenced here by its knowledge of the student's capabilities. The programme remains flexible until the final stage is reached.

Research is carried out by the student under the supervision of the staff. The programme may be altered by the results of this research.

Contact is maintained and encouraged between the student, practising architects, specialists and work in the field related to his problem.

Final criticism of the work takes place between the student and the men doing the examining. The student explains and discusses the work with these men.

2. *Minor problems.*—These problems have a time limit. Their object is to develop a rapid analytical faculty and a clear power of expression. They may or may not be competitive, and are solved by individuals or by small groups according to the nature of the problem.

3. *Discussions.*—These are somewhat similar to the lecture-discussions already described. They are not lectures, but simply round table discussions on the work being done, or outside questions of interest to the student. These discussions are led either by the staff or by students from advanced groups. They serve to develop verbal expression, analysis, observation, and are a general parading ground for the student's thoughts and ideas.

1. *Problem Analysis.*—The complete analysis by a student of his major or other problems before his group.

2. *Research.*—This includes general research and reading into the three main divisions of his education, social, physical and sensitivity.

3. *Professional and Industrial Experience.*—Architectural experience in an office, job practice and experience in industrial methods and products.

The student is at all times expected to maintain interest in the practical field of architecture. This interest is stimulated from within the school, but is actually carried on by the student himself.

THE GROUP SYSTEM

The subdivision of students into unit groups for ease of collaboration between students, students and staff, and to provide the requirement of flexibility.

1. Each unit group is composed of from fifteen to twenty students.

2. Two full-time staff members are attached to each group.

3. The group remains as a unit for a period of from four to six months, at the end of which time the group personnel is interchanged.

4. The teaching, advising, and guiding element of each group is augmented by (1) students from advanced groups, (2) full-time staff of other groups, (3) staff specialists, (4) practising architects, technicians in all fields, construction, industry, etc., (5) other visiting lecturers on the social and sensibility sides of the programme.

5. Unit groups have contact with each other through discussion, competitive work, collaboration of staff, and certain general lecture courses.

The progress of each student through the school is largely controlled by his ability. Both the size and time period of each unit group is dictated by this factor, allowing the staff members an intimate understanding of student development.

The method of allotting major problems by conference with the student and staff allows for the special development of each individual.

STAFF

The system depends for its efficiency largely on the choice of staff. The staff must have a thorough understanding of human nature, a capacity for guidance, and a knowledge of their subjects as well as the desired scope of education.

Two members of the staff are in charge of each group.

They should have had a considerable number of years experience in practice and they should be prepared to accept the task of teaching as a full-time job.

They would be assisted in the earlier part of the course by selected students from the advanced groups.

Inside the school, independent of the groups, there will be specialists on the more important subjects. They will constantly be on hand for consultation and lectures. Practising architects, technicians, will be associated with the school for lectures, discussions and criticisms.

The whole will be controlled by an administrative committee of directors and staff, and an executive committee of directors, staff and students.

●

Building: Britain and America

Britain's building boom has impressed Americans who have nothing like it to show in their own country, states *The Index*, a publication issued by The New York Trust Co. "While in recent years building in Great Britain has shown pronounced activity," *The Index* says, "it has been relatively stagnant in the United States."

Building societies, it is pointed out, have played an outstanding rôle in assisting building in Britain. They have provided about 90 per cent. of the necessary money for private building and have lent it on favourable terms. "The prevailing mortgage rate in the United States is 6 per cent. with a general maximum of 11 years for amortization. In Britain, on the other hand, building societies have lowered interest rates to 4½ per cent. and grant mortgages ordinarily running for 20 years. Even President Roosevelt's Federal Housing Administration has only begun to approach the favourable British building society terms."

Another important factor, *The Index* shows, is that while building costs have risen in the United States, they have fallen steadily in Britain, until they are now lower than at any time since the war. In addition, living costs have fallen in Britain while they have risen in America. As a result there has been available in Britain a margin for house purchasing which is not available in the United States.

DESPATCH DEPOT, DRAYCOTT AVENUE, CHELSEA

DESIGNED BY

SLATER AND MOBERLY

CONSULTING ARCHITECTS:

C. H. REILLY AND WILLIAM CRABTREE

GENERAL PROBLEM.—*To provide a central receiving and despatch service depot for the various shops owned by John Lewis and Company. At present the building consists of a basement, a ground and four upper floors. Three more storeys are to be added in the near future to complete the building.*

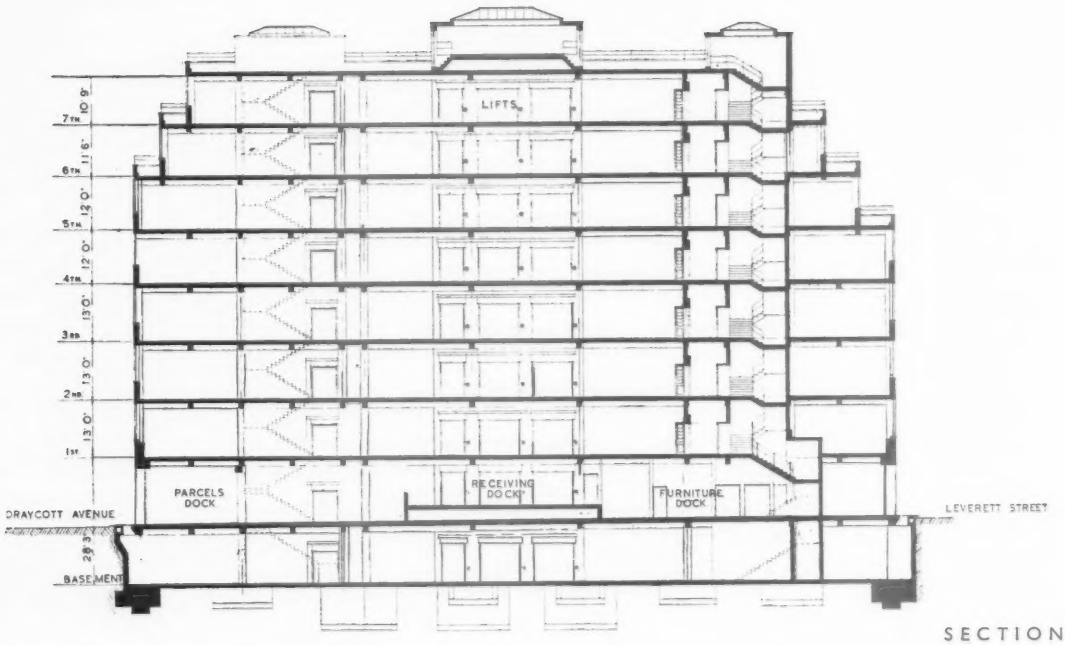
SITE—*An island, with an area of 22,500 square feet, bounded by Draycott Avenue, Green Street, Leverett Street, and Denver Street. Rights of light of adjoining owners dictated the setting back of the upper floors. Of the storeys so far built one only has had to be set back, and that on one side only.*

CONSTRUCTION—*Steel-framed structure, with windows running from stanchion to stanchion and taken up to ceiling level. Beneath the windows are brick panels. The floors are of reinforced hollow tile construction. Internal partitions are of standard units, constructed of wood and glass, and arranged for easy demolition and re-erection. The roofs are flat and covered with asphalt.*

The photographs show two views of the Draycott Avenue front as built.

DESPATCH DEPOT, DRAYCOTT AVENUE, CHELSEA:

CONSULTING ARCHITECTS: C. H. REILLY AND WILLIAM CRABTREE



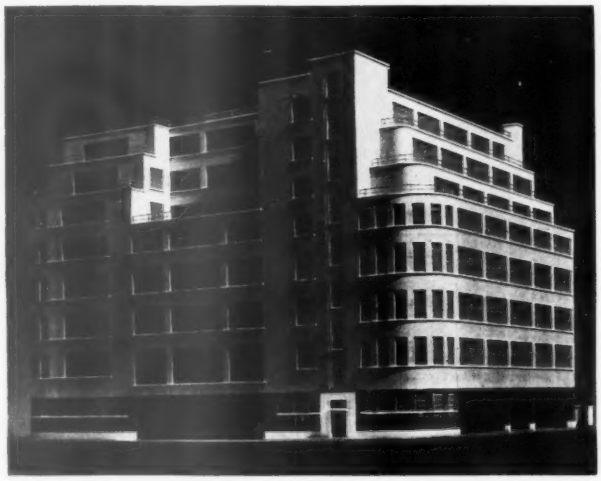
SECTION

PLAN.—*The ground floor consists of open docks on all sides, and is of sufficient strength to allow lorries to cross it. The other floors are used for warehousing, packing, workshops and offices. On three sides of the building the streets are narrow. All external angles of the building, therefore, are rounded to facilitate the passage of lorries.*

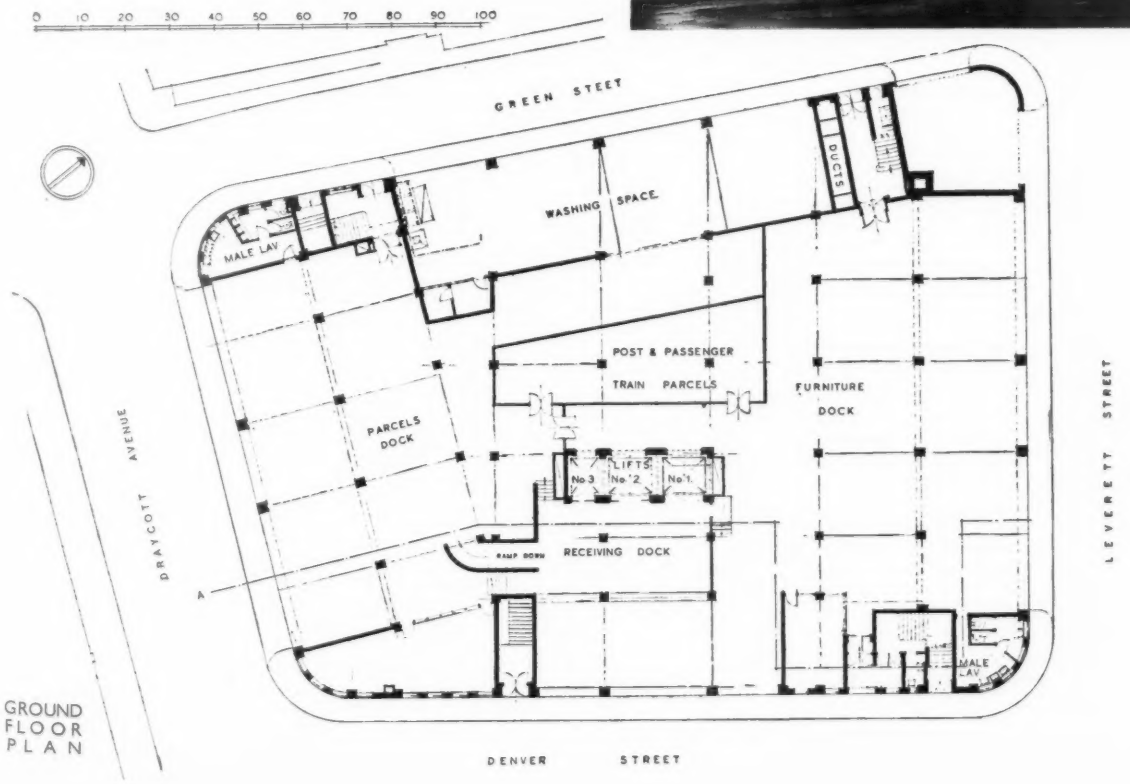
INTERNAL FINISHES.—*Nearly everywhere the interior is finished with paint or distemper applied direct to the concrete and brickwork. The colours were chosen by Mrs. Holford, a former Rome Scholar in Painting, who holds an appointment in the firm of John Lewis and Company to advise on all questions of decoration.*

The illustrations are: above, a view of the model, showing how the building will look when it is finally completed; below, a section through the complete design.

DESIGNED BY SLATER AND MOBERLY



The illustrations are: a view of the model showing the elevations to Denver Street (left) and Leverett Street; right, the Green Street front as built; below, ground floor plan.

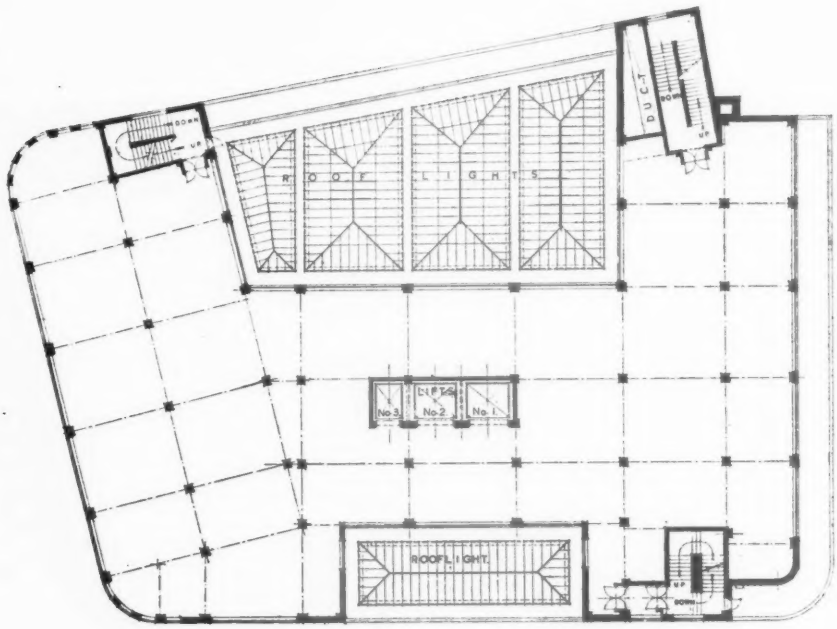


GROUND FLOOR PLAN

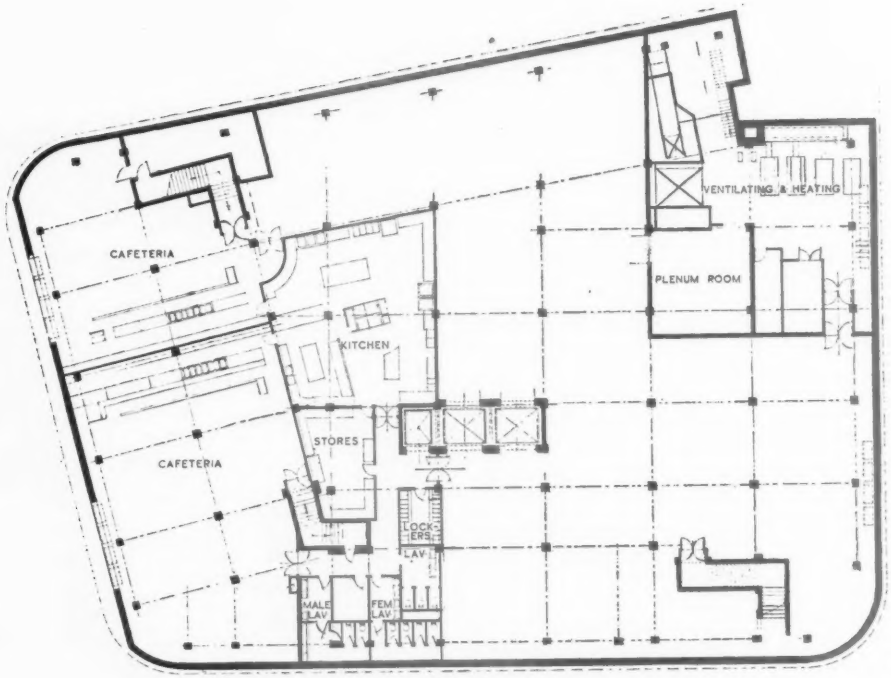
DESPATCH DEPOT, DRAYCOTT AVENUE, CHELSEA

BY SLATER AND MOBERLY

CONSULTING ARCHITECTS: C. H. REILLY AND WILLIAM CRABTREE



FIFTH FLOOR PLAN



BASEMENT PLAN

SERVICES.—*Lift motors are fixed at present roof level, notwithstanding the fact that three storeys are to be added to the building in the near future. It has been found by the architects to be more economical to raise the motors and motor house when the other storeys are added than to put the motors in a permanent position in the basement and raise the lift sheaves. Heating is by hot water radiators, served by boilers with automatic stokers. Ventilation is partly mechanical and partly natural. The mechanical ventilation consists of a combination of plenum and exhaust systems.*

For list of general and sub-contractors see page 428.

15 TOWN HALLS

The Architects' Journal Library of Planning

The Councillor

CALLING THE ARCHITECTURAL TUNE

THE notes on ceremonial arrangements and the committee system of local administration have up to now been given largely from the point of view of the officials in charge of departments, and their attitude does not throw any light on the views of the non-permanent administrators, i.e., the mayor, aldermen and councillors.

The outlook of the permanent officials must be understood, because the data which they only can give is essential to the efficient planning of municipal offices and should leave little doubt in a competitor's mind as to what he can or cannot do in trying to achieve a good administration.

The point of view of the non-permanent administrators is, however, of greater immediate importance to the architect. For the town council, are the promoters of new buildings, and since they pay the piper, they call the tune.

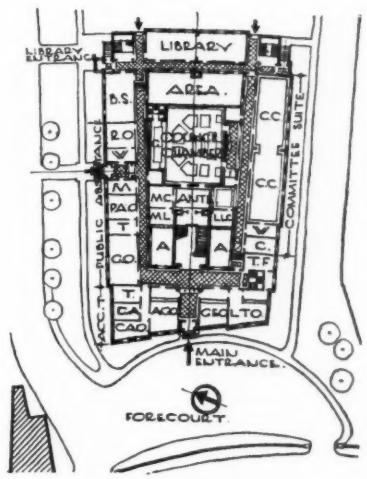
The large share that the council take in drawing up conditions has been largely responsible for the modern competition plan. For better or worse, this must never be forgotten.

The average councillor serving on a committee does not want to waste time when he enters the municipal offices. He likes to be able to find quickly where his particular committee is sitting by glancing at an indicator board in the hall, and he dislikes seeing "Education Committee, 4.30 p.m., Friday, November 13," and knowing that he will have to wander a long way about the building to find a room, which will not have a lobby in which to have a smoke when something uninteresting is being discussed, nor will have private lavatory or cloakroom accommodation.

The committee rooms are, therefore, usually placed together near the council chamber—an ideal arrangement from the councillor's point of view, because in this position he has every comfort and convenience in addition to having his dignity buoyed up by attractive architectural phantasies in marble and fibrous plaster.

The Local Press

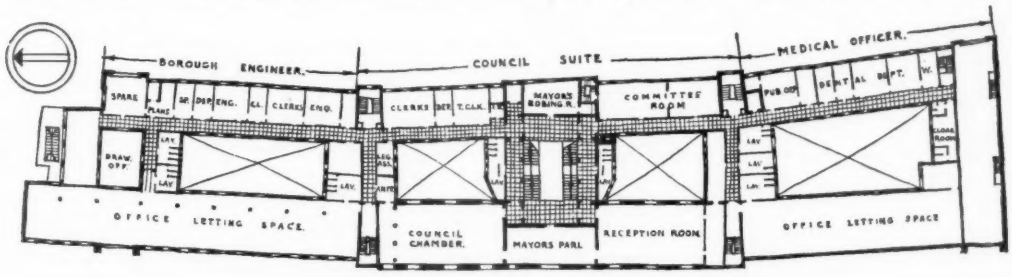
The majority of town councils are divided into politically opposed parties, and it is true to say that a very strong support for these parties is obtained from the widely sold opinion of various partisan newspapers. During committee meetings reporters usually wait about in the lobbies to pick up any scraps of information from committee-men who come out for a smoke, and any information these reporters get is telephoned through as quickly as possible to catch the next edition. The central grouping of the committee rooms is most useful to reporters, since if two or three committees are sitting at the same time, news can be picked



Kendal

KEY TO PLAN

	Accountants	A.	Area
T.	Typists	G.	Gallery
C.A.	Chief Assistant	M.C.	Male Members' Cloaks
C.A.O.	County Accountant's Office	M.L.	Male Members' Lavatories
A.G.O.	Accountants' General Office	L.L.C.	Lady Members' Retiring
G.E.O.	General Enquiry Office		*Public Assistance*
L.T.	Local Taxation	G.O.	General Office
T.F.	Taxation Files	T.	Typist
	Council Suite	P.A.O.	Public Assistance Office
C.	Chairman	M.	Marriages
W.	Waiting Room	W.	Waiting
C.C.	Committee Room	R.O.	Relieving Officer
B.S.	Book Store		



Peterborough

up from all of them without any inconvenience. These machinations of local party politics must not be disregarded in designing the scheme.

The grouping of the committee rooms is not deplored by anyone except the officials who run the departments; the minor clerks who attend committees do not mind the walk because it means an afternoon off from routine. So, although the committee system makes it possible and, from an administrative point of view, far more efficient to have committee rooms near each department in the municipal buildings, the convenience of councillors and the promoters must be studied, and experience has shown that grouping the committee rooms together does work quite well, especially for the councillors.

The problem that now confronts the planner of municipal offices is the segregation of the councillors' rooms from the rest of the offices without cutting off free and quick communication between them.

The Isolation of Council Rooms

One of the golden rules of planning municipal buildings is that non-permanent administrators should have accommodation which is very definitely separated from offices, or public circulation; this is true of the mayor's suite and it is true of the council suite.

Councillors do not like to find members of the public or clerks using their own corridors and lobbies. It cannot be too strongly emphasized that the members' lobby is a semi-private place, very useful for discussing politics and tactics before and during debates in the council and committee rooms.

Present Solutions

The majority of competitors in municipal competitions use either the customary single circulation which has the stairs and the council suite on either side of the main corridor, or, on a wide site, they connect the front block with the back block by the main stairs, keeping the council chamber at the back of the plan and the committee rooms over the entrance front.

Both these systems have their faults. The single corridor system is a troublesome arrangement since the stairs prevent the use of a suite of committee rooms and cause an asymmetrical treatment of the ceremonial rooms, and while the use of forced and illogical symmetry in planning is bad, good balance helps to achieve an effect of dignity and correctness. This single circulation also causes the strange paradox of the grand staircase leading directly to the council chamber at the head of the plan, and, after a great deal of correct preparation of the plan in the shape of members' lobbies, etc., the climax of the plan is lobbied off to prevent indoor traffic noise from causing nuisance. Peninsular planning naturally prevents any ceremonial or grand access from the council chamber to the main stair and all the preparation on plan from the main entrance to the climax seems to have been done for nothing. This criticism seems to apply to all schemes in which the main stair leads directly from the main entrance to the council chamber.

Single circulation has another drawback in that at first floor level, the main office circulation must pass through the council suite, and, in addition to the noise and general inconvenience, any stranger to the building is apt to get lost and stray into rooms that are private.

The method of putting the main stairs in the central light court to connect the front and back blocks of the building is a better arrangement in that it does allow of better planning for the committee and reception rooms, but it also does not disconnect the ceremonial circulation from the office circulation, nor does it isolate the council suite from the offices.

Smaller Schemes

In small schemes, where the mayor entertains very little and does not employ a secretary, the town clerk becomes the mayor's advisor on points of etiquette and procedure, and the mayor's parlour should be placed near the town clerk's room; an arrangement which would not allow the mayor's rooms to be planned as part of the assembly hall.

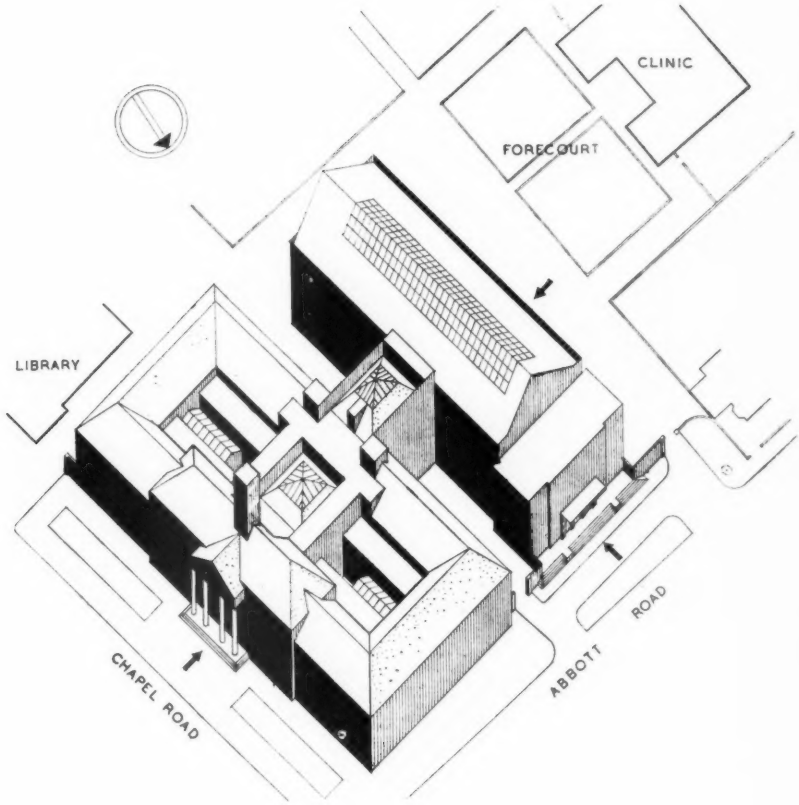
In planning small schemes of municipal offices for competition work it is useless to squeeze a certain department, which the conditions give as so many feet super, into a space, say, between two staircases, and to think that the department is nicely placed in a corner by itself. Municipal administration does not make things as easy as that. Each local government party has pet departments, and, when one is in office, perhaps the health department will be increased and the architect's department decreased. The next party in power will reverse this change, and the areas allowed by the competition conditions will shrink or expand alarmingly. It is far better to plan the office accommodation as one large space capable of being adapted to meet a variety of changes in the size of departments.

17

TOWN HALLS

The Architects' Journal Library of Planning

WORTHING • *By C. Cowles-Voysey*



WORTHING

Municipal Borough on the coast of Sussex. Rapidly growing seaside resort.

POPULATION

1921 Census	*37,050*
1931 Census	*46,224*
1934 (estimated resident population)	*51,580*

RATEABLE VALUE AND RATES

Rateable value (April 1934) ..*£546,549*
Local rates (1934-35) .. *9s. 2d. in the £*

SIZE OF HOUSES

Average size of occupied dwelling (1931) .. .. *5.91 rooms*

PRINCIPAL OCCUPATIONS

N.B.—Persons "Out of work" are included in the occupied. "Unoccupied and Retired" are shown separately.

Figures are from 1931 Census returns and relate to males and females aged fourteen years and over.

Only those occupation-orders in which more than a thousand males or more than a thousand females were placed are shown separately below, and the order "Other and Undefined Workers" has been ignored.

The total of occupied persons of each sex is, however, indicated above the figure for "Unoccupied and Retired."

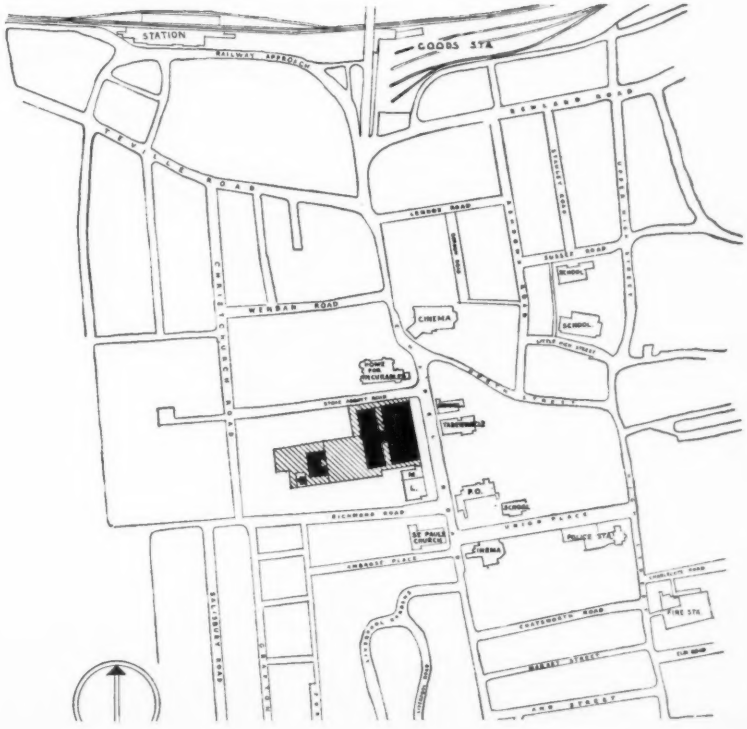
MALES

Agricultural occupations ..	*1,513**
Builders, etc.	*1,031*
Commercial, etc. (excl. clerks) ..	*2,340*
Occupied	*11,980*
Unoccupied and retired ..	*2,916*

**1,322 of these are gardeners and their labourers.*

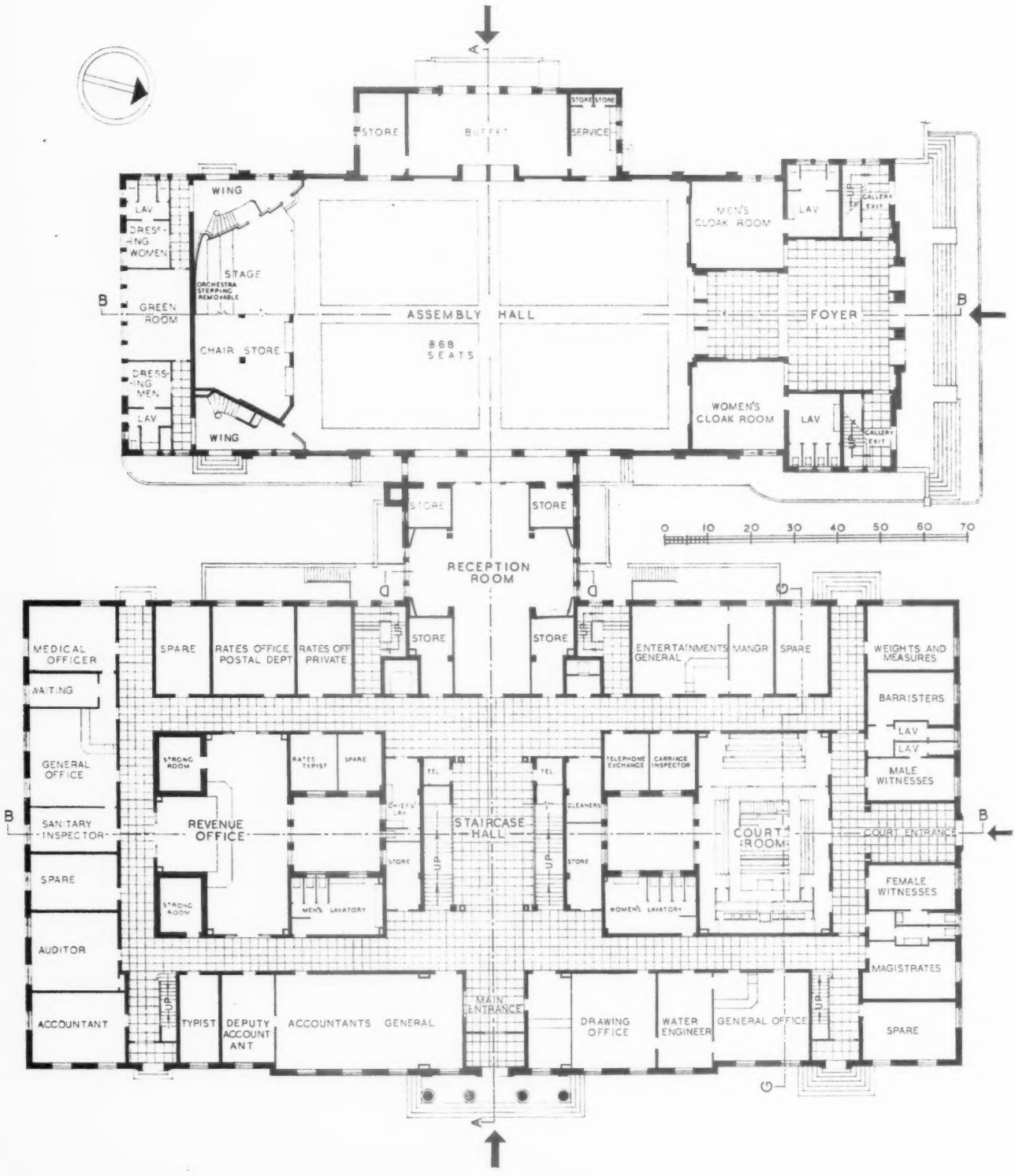
FEMALES

Personal service	*4,764*
Occupied	*7,874*
Unoccupied and retired ..	*16,202*



TOWN HALLS

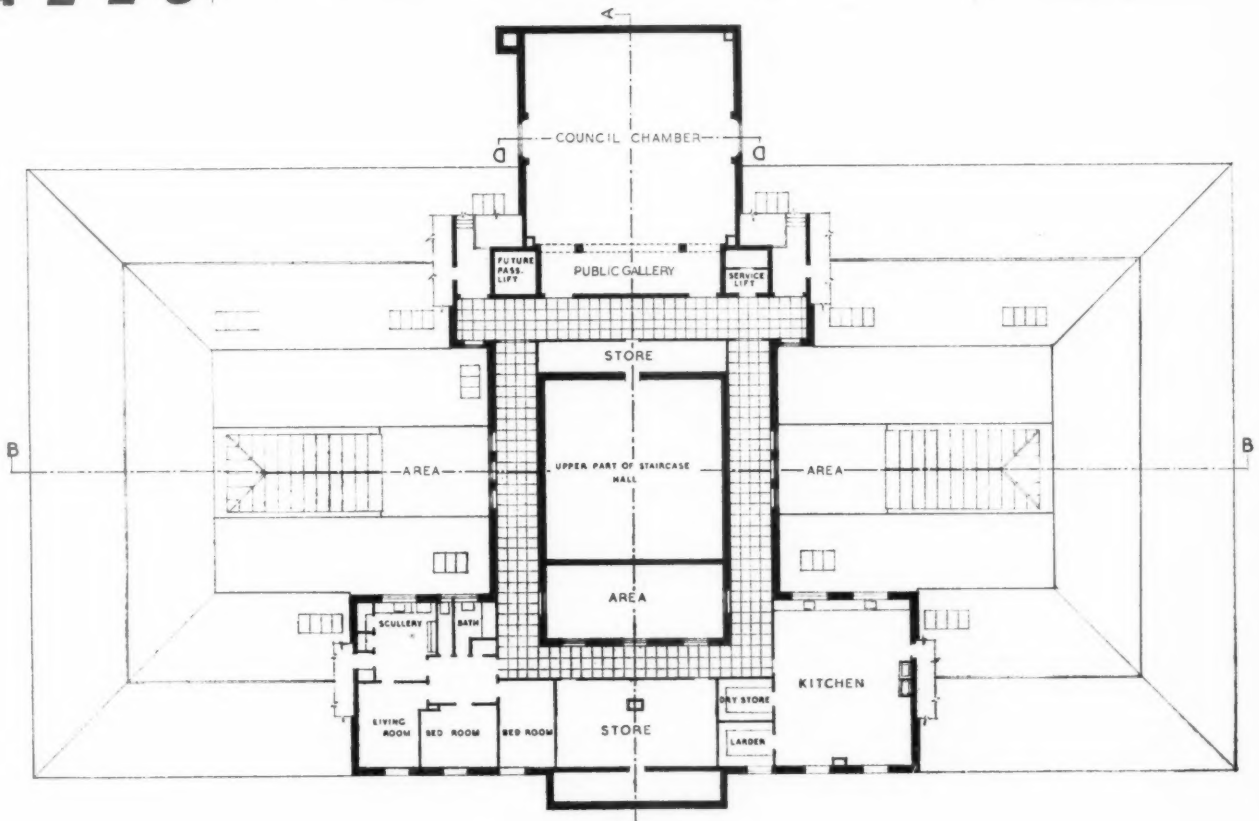
WORTHING • By C. Cowles-Voysey



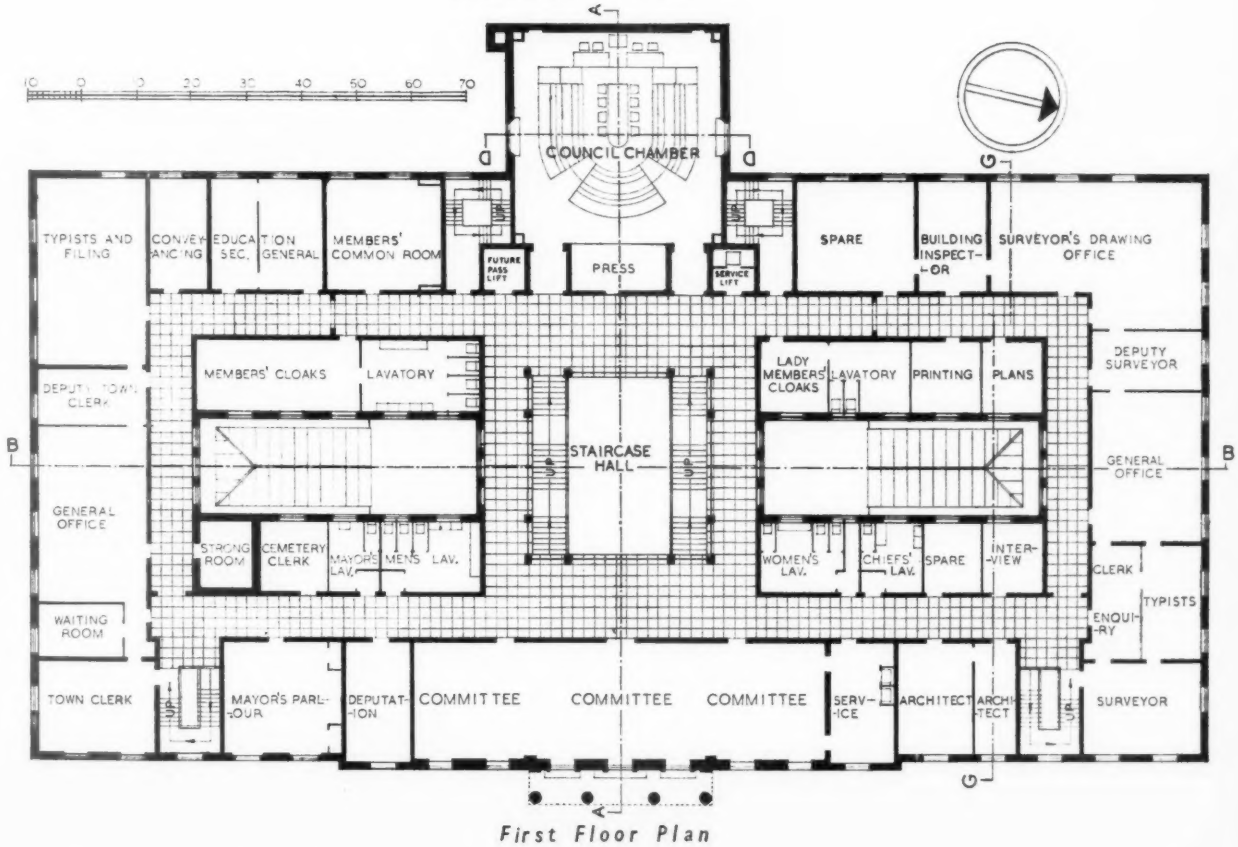
Ground Floor Plan

TOWN HALLS

WORTHING • By C. Cowles-Voysey



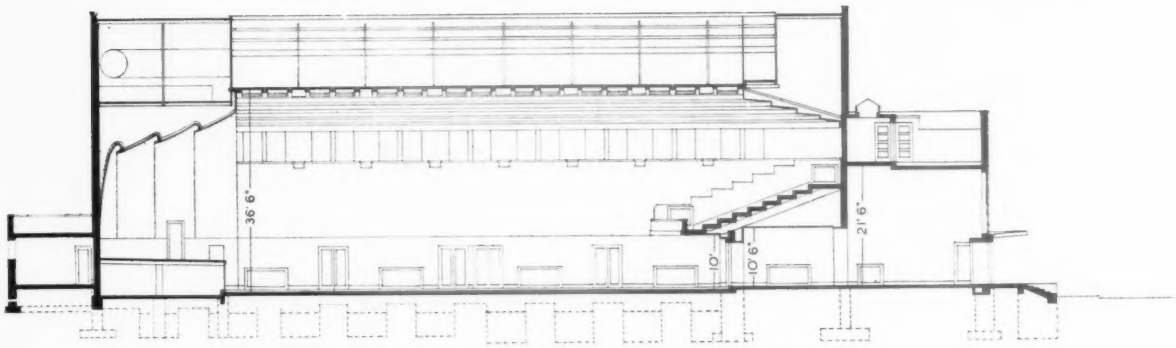
Second Floor Plan



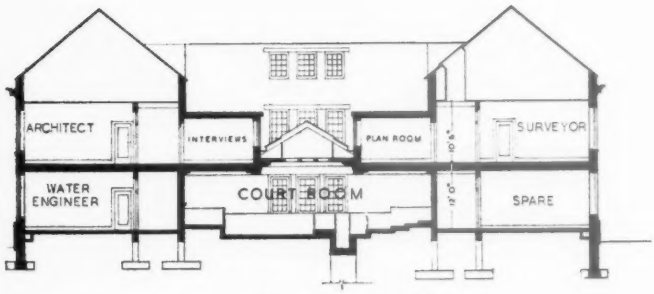
First Floor Plan

TOWN HALLS

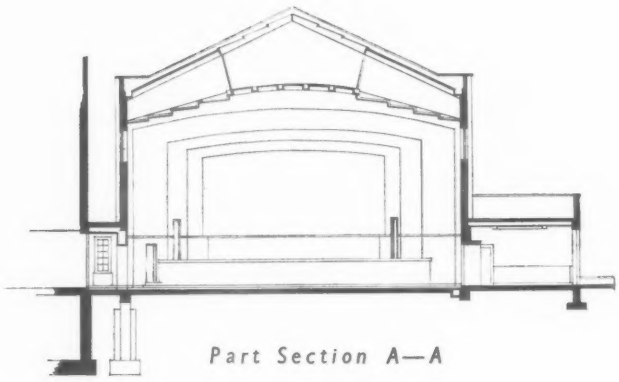
WORTHING • By C. Cowles-Voysey



Section B—B

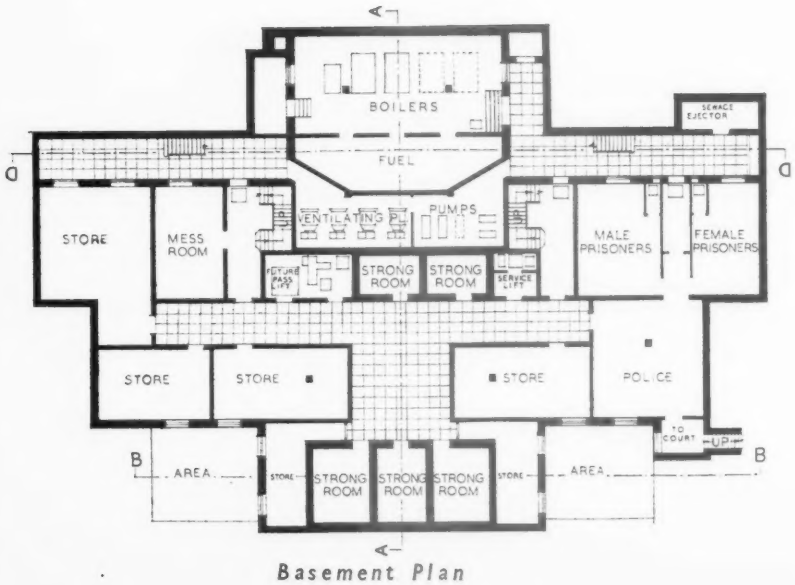


Section G—G

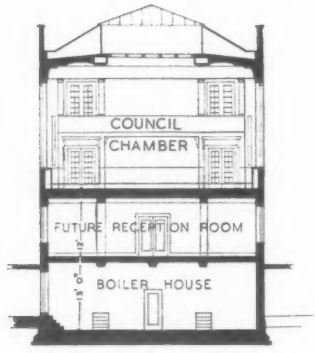


Part Section A—A

10 0 10 20 30 40 50 60 70 80



Basement Plan



Section D—D

R.I.B.A.

BRIDGES

Following are some extracts from a paper entitled "Some Recent Bridges," read by Mr. H. Chalton Bradshaw, F.R.I.B.A., at a meeting of the R.I.B.A., on Monday last.

IT is five years since Mr. Maxwell Ayrton read a paper to this Institute on Modern Bridges. During these five years bridge building has continued on an unprecedented scale both in this country and on the Continent. This is due to the desire to improve communications and, in this country, to the marked increase in road traffic. New conditions have arisen. Heavier loads have to be carried over wider spans, bridges are demanded on sites which formerly would have been regarded as impossible. Steel and concrete have become the generally adopted materials for bridges, and these materials in their turn have given rise to new problems in design.

We in this country have a long tradition in bridge building and no country can boast of more beautiful bridges than ours. Surely then we are justified in demanding that the new bridges shall be more than purely utilitarian structures and that in beauty of design they shall not fall below old standards. Many an old bridge has become an outstanding feature of a town or added interest or beauty to the landscape. In the same way new bridges may make or mar their surroundings. Their siting and sometimes their isolation often give them a prominence far greater than that enjoyed by many an important building. They should be public monuments worthy of the commanding positions they so often occupy.

That the Government is fully alive to the artistic importance of bridges is clear from the advice which the Ministry of Transport offers to public authorities charged with these works. Referring to new bridges, the Minister writes :—

> "So far as the strength of such structures is concerned, certain regulations have been prescribed as a condition of a grant from the Road Fund. But it is possible for a bridge to comply with these regulations and yet fall short of the legitimate expectations of the public in the matters of architectural design and suitability to its surroundings.
>
> "The Minister accordingly urges upon all local authorities contemplating the alteration of ancient bridges or the erection of new ones the great importance of securing at the outset reliable expert advice upon the design—not merely from the standpoint of the stability of the structure but also of its proportions and artistic character. Seeing how long a life may be anticipated for public monuments of this class, it will hardly be questioned that every care should be taken to build bridges and form their approaches in a manner which will display the sound judgment of the days in which we live.
>
> "Mr. Hore-Belisha recognizes that many bridges pleasing in themselves and harmonious with their surroundings have been constructed by highway authorities, but he is also conscious that during the next few years many other bridges will have to be built or reconstructed, and he feels that it would not be inappropriate if he were again to request the attention of highway authorities to the matter. Like his predecessors, when receiving applications for assistance from the Road Fund he will require to be satisfied that the considerations which he has taken the opportunity to emphasize have been taken into account. There is no reason to assume that their observance will add to the cost of construction, and experience confirms that bridges are more frequently criticized for undue elaboration than for well-proportioned simplicity."

This Institute will, I am sure, be grateful to the Minister of Transport and will applaud his advice and encouragement.

Since the end of the eighteenth century, until the last few years architects had ceased to be concerned with the building of bridges. The introduction of iron and steel led to a period in which neglect of æsthetics went hand in hand with increasing technical skill. Architectural talent was too often employed only to dress up or, worse still, to falsify the work of the engineer. This should not, however, be taken to mean that all engineers were indifferent to artistic possibilities (the achievements of such men as Rennie, Telford and Brunel are sufficient to contradict this), but their training tended to make them concentrate wholly upon construction. The result of this divorce of bridge building from architecture is regrettable. The problems connected with bridge design must be of special interest to the architect. His training and appreciation of structural form and of materials should fit him to take some share in such work. On the other hand, the practice which has grown up of evolving bridge designs in three separate and successive stages under the hands of (*a*) the traffic authority, (*b*) the engineer, and (*c*) the architect, has led to the deplorable practice of calling in the last to "dress up" or "treat" a scheme, the lines and composition of which are already fixed. Such a course is hardly likely to produce satisfactory results, for it is essential that architectural considerations should receive attention at the outset. It is obviously quite possible to lay down traffic limitations which will preclude good engineering, resulting in shapes which architecture cannot recognize. I have noticed that often when such an unhappy arrangement of lines and levels has been evolved, the scheme is said to "offer scope for architectural treatment."

At the same time architects would do well to consider what contribution they are able to make to general problems of bridge design. The task of the engineer is governed by considerations of site, subsoil, levels, road and river traffic needs, materials and construction, all of which are his special study and must help to determine the type of structure he will eventually arrive at. Architects who fail to appreciate these vital aspects and who wish to impose some preconceived solution inappropriate to the purpose are those who have done most to convince the engineer that little or no help is to be found in collaboration. It is therefore imperative that the architect should have some sympathetic understanding of engineering science if his contribution is to be of any real value. It is easy to condemn an unsightly bridge off-hand, but how many architects have the knowledge necessary to understand even a part of the problem which may have confronted the engineer or to suggest a more acceptable solution? On the other hand, engineers are far too prone, in this country at least, to make light-hearted use of architectural features which they have not troubled to understand or appreciate. Such misapplied and irrelevant architectural detail has impaired the appearance of many respectable designs. Both architect and engineer have much to learn from each other, and it would be a pity if in such an important matter the question of professional rights should stand in the way of obtaining the best results.

It has been urged that in the design of present-day bridges the way to success lies in the elimination of all that is structurally unnecessary, leaving the bare bones of the design to express their function. To realize that this is no unfailing recipe, it is only necessary to compare some of the purely functional erections of the last century with equally efficient productions which have been influenced by consideration of design. In the best work of all ages its functional character is implicit in the structure and no undue effort is made to emphasize it. Many so-called "functionalist" buildings entirely fail to show how they function. The old bridge builders were not interested in showing *how* their designs worked. They felt no objection to structural redundancies if they thought that they added beauty to their works. In the development of architecture the structural elements of one epoch have often been retained as the decorative adjuncts of the next. This, however, does not justify the attempt sometimes made to give a bridge a structural character that it does not possess or to drag it, in spite of its real form, into some sort of harmony with adjacent historical buildings.

Present practice is divided as to how far forms evolved in stone construction may legitimately be used as decorative adjuncts to structures of concrete and steel. You will see from the slides that many designers feel justified in applying stone voussoirs to concrete arches; some indeed have gone so far as to apply them to concrete beams. Again, false spandril walls are sometimes used to hide arch construction and are sometimes omitted, either actually to lighten the weight on the arch, or in order to give an effect of lightness to the design. Massive pylons are sometimes provided where they are not structurally necessary, and left out where their weight might have served to pin down the thrust of an arch. The introduction of pylons or piers, sometimes reminiscent of old gateways, often

serves to frame the bridge structure or its centre, and can be justified on æsthetic grounds. Some dominant feature at the extremity of a bridge is in many cases a natural way of marking its beginning and end and defining its approaches. In other cases such features may appear irrelevant and a striving after effect. On some sites their omission may give an added feeling of spaciousness and freedom of access.

In every case the design of a bridge must be largely governed by the site and the special peculiarities of the problem. Large scale bridges set in open spaces and rising above or dominating the landscape often present difficulties not comparable with those of smaller structures, which are frequently wedded to small towns and must take their place in an existing architectural setting without disturbing it.

In some instances we find that unity of design, symmetry and balance have had to be sacrificed either on account of river conditions which have imposed varying spans, or of road levels which have involved a sloping parapet. An even more difficult set of conditions is when a bridge has to cross road, river and railway in varying spans. Even such difficulties need not rob a bridge of all æsthetic merit.

IN PARLIAMENT

[BY OUR SPECIAL REPRESENTATIVE]

Road Bridge at Charing Cross

Mr. Hore-Belisha told Mr. Day that he had asked the London and Home Counties Traffic Advisory Committee to review the case for safeguarding the possibility of constructing a road bridge in the neighbourhood of Charing Cross, and he was awaiting its report on the subject.

Housing

Mr. Parker asked the Minister of Health how many local authorities had concluded their surveys of overcrowding under the 1935 Housing Act, and whether he would give for each authority reporting the number of families in its area, the number surveyed and the number living in overcrowded conditions.

Mr. Shakespeare, who replied, said that local authorities were required to submit to the Minister the results of their surveys before June 1. Up to the present he had received statistical reports from 34 authorities. These reports cover 125,180 dwellings, of which 4,087 were found to be overcrowded.

Mr. E. Dunn asked the Minister of Health how many houses had been built in England and Wales under the 1934 Housing Acts with the consent of the Ministry of Health, where the full Government subsidy had been and was now being passed on to private individuals; would he state the amount of the taxpayers' money already paid and the final commitments at the termination of the subsidy period and name the local authorities involved; how many houses have been built under the 1924 Housing Act in England and Wales where, in addition to the Government subsidy under the same Act, the local authorities had made and were now making grants from the local rates for the selfsame houses to private individuals; how much money had been paid; what were the final financial commitments at the termination of the subsidy period, and would he name the local authorities.

Sir Kingsley Wood said that grants had been made under the Housing (Financial Provisions) Act, 1924, to some 260 local authorities in respect of about 14,000 houses erected by private enterprise including societies, trustees and companies as well as individuals, but he had no details of the number of such houses in each category, and the information asked for could only be obtained by inquiry of each of the 260 local authorities concerned.

Mr. Day asked the Minister of Heath whether he would give particulars of the number of cases in which he or his predecessors had exercised the default powers given to him under the Housing Act, 1930.

Sir Kingsley Wood said that it had not been necessary for him or his predecessors to exercise default powers under the Act of 1930.

Unemployment

Mr. Sorensen asked the President of the Board of Trade whether he was aware of the unemployment among masons, who had been unable to secure suitable marble and stone from Italy owing to the operation of sanctions, and whether he intended to propose special arrangements for the compensation of these men and others similarly affected.

Captain Wallace, who replied, said it was not possible to estimate the precise effect of the application of sanctions to Italy on employment among masons in this country.

•

Building Research Station

A lecture entitled "The Building Research Station and its part in some Present-day Problems" was given by Mr. D. E. E. Gibson, M.A., A.R.I.B.A., at a recent meeting of the Sheffield, South Yorkshire and District Society of Architects and Surveyors. Extracts from the paper are printed below:

"The reason for the birth of the Building Research Station was undoubtedly one of dire necessity, as can readily be understood when an examination is made of recent developments in design and construction. At the commencement of this century, the forms of construction were, generally speaking, adapted to suit the materials which were available, and moreover, constructional details which had stood the test of time were available and were common knowledge.

"Conditions have, however, been very much altered in recent years. New forms of construction have been developed to meet modern economic and social requirements, and at present the rate at which new forms of construction are being developed exceeds the rate at which a knowledge of the true values of the new materials can be assimilated by the profession. The use of new materials has resulted in improvements in some directions, but in failures in others. It would appear, from an examination of the numerous new materials, and forms of construction, that they are on the market primarily for one of the following reasons:—(1) To improve the qualities of a building; (2) to provide a cheaper substitute for more expensive forms of construction; (3) to make money for the manufacturers.

"Undoubtedly all these new materials and forms of construction have been developed to meet some requirement in the new scheme of things, and many of them have assisted considerably in putting modern theories into practice. The problem with which any architect is faced is that of selecting the good from the bad, and it is evident, from the number of various types of failures which are reported to the Building Research Station that this often presents a difficulty.

"An intimate knowledge of the new materials, both with regard to their physical and chemical properties, and also to the problems of workmanship which they involve, will be necessary in ensuring a satisfactory result. These are only some of the problems with which the Building Research Station is faced in an endeavour to assist all those who are connected with building. The importance of the work can hardly be disputed when it is considered that the health, comfort and well-being of the whole nation greatly depend upon efficiency in all matters which relate to building.

"The Building Research Station owes much to the pioneer work of the earlier committees set up by the Department of Scientific and Industrial Research. In 1920 the results of previous investigations were co-ordinated by the Building Research Board, and the Building Research Station came into being—first in temporary wooden huts at East Acton, but now in a permanent building at Garston, near Watford.

"In order to enable the Station to make a combined attack on a varying programme of work it was found to be necessary to have a scientific staff, composed of architects, engineers, chemists and physicists, besides library, secretarial and industrial staff, which such an organization requires.

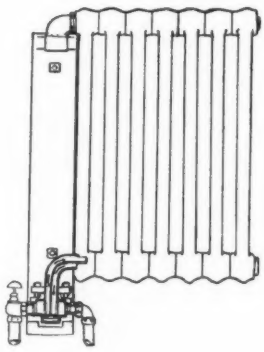
"A description of the organization of the Station may be of interest. The work of the Station is of two types: 1, General Research; 2, Building Industries Enquiries and Special Investigations.

"Following is a description of the Station.

"The importance of having reliable information as to the composition of a material, and whether it is good or bad for its purpose, cannot be overestimated. It is of vital interest to the architect, builder and others, when selecting materials, to know their true values. The information which many manufacturers compose and publish cannot be relied upon. Very often a manufacturer will not state the composition of his material in case somebody else should start to make it. This means that the user cannot use the material intelligently, since the reaction of other neighbouring materials upon it cannot be known.

"Without such information on materials, there can be no hope of a decrease in the number of failures in buildings, and I must say that the toleration of such a state of affairs is our own fault. (I speak now as an architect, and not as a member of the Building Research Station.)

"If every architect, builder, engineer and other user of materials would insist upon a report from the Building Research Station, on any particular material which they may consider using, it would rapidly clear the market of all undesirable materials. A firm whose materials are bad, could not then find any consumers. All new materials would require to be tested before they could be sold, and in a short time, only safe materials would be available."



TRADE NOTES

[EDITED BY PHILIP SCHOLBERG]

Swinging Radiator Fittings

THE part section drawing at the head of these notes shows the general arrangement of a swinging radiator designed particularly for hospital use, where ease of cleaning is important.

•

The flow and return connections to the radiator are made in the combined socket and stuffing box, the lower elbow being divided by an internal web, thus separating the two currents. No water passes through the top fitting, which acts solely as a hinge and a weight-carrier ; both sockets are cast in one with the back plate and are bored in one operation, thus ensuring proper alignment.

•

The fitting is fairly expensive, adding about £3 10s. to the cost of each radiator so fitted, but it has many advantages from the point of view of easy cleaning, and is noted here simply because its use has, so far as I know, been confined to hospitals, whereas it seems that it might well be used in other types of building, in the same way that the simply designed radiator, originally produced for hospitals, has now been largely adopted for private houses, entirely on the grounds of its pleasing appearance and efficiency.

A New Bituminous Roofing

A new roofing has just been placed on the market by the Ruberoid Company, and is being sold under the trade name of Ruberoid Solka roofing. In appearance it is the same as standard Ruberoid, and it is actually manufactured from the same weather proofing materials, but with the difference that the base consists of Solka fibre, which gives added tensile strength to the material.

•

Solka is a highly purified cellulose fibre which by laboratory control can be manipulated to give a new basic felt. Actually this new base absorbs about 40 per cent. more bitumen than ordinary felt, and this extra bitumen content naturally prolongs the life of the roofing.

•

Among other advantages claimed for this new base are improved nail grip and flexibility and a great increase in toughness, rendering it proof against accidental hammer blows and similar maltreatment.

•

Solka is packed in 12-yard rolls 36 in. wide (enough to cover 100 sq. ft.) and the price is 14s. and 17s. 2d. per roll, in 2-ply and 3-ply grades.

Burglar Alarms

I have never taken a great deal of interest in burglar alarms, beyond assuming that they probably work well enough in practice, and it was not until I went down to see the Rely-a-Bell Burglar and Fire Alarm Company that I realized how elaborate and efficient a good burglar alarm system must be.

•

That the closed circuit system is preferable to the open circuit type, which can easily be put out of action with a pair of pliers, seems obvious enough, but the number of special circumstances which have to be catered for are legion. Tenants must, for instance, be prevented from leaving their shop at night without setting the alarm : therefore the alarm must be made to ring at once when the door is finally shut, this ringing only being stopped when the alarm is properly set.

•

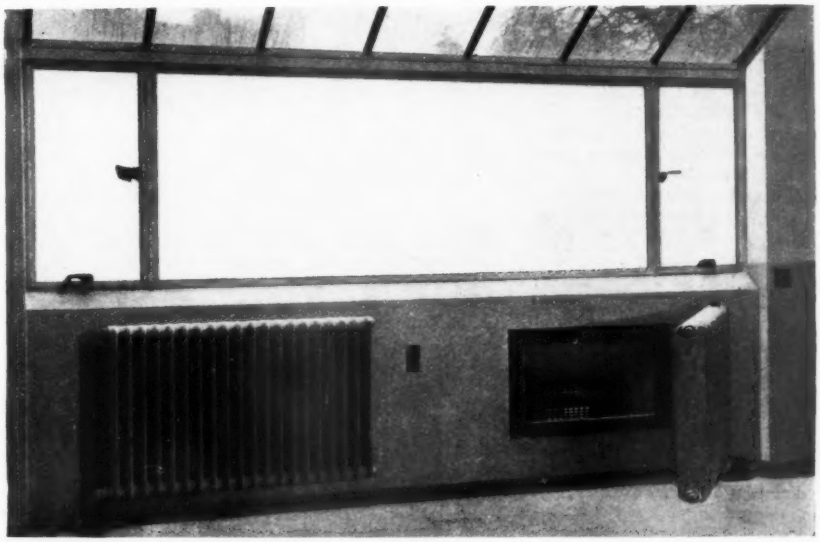
And so on. Every possible combination of awkward circumstances seems to have been visualized and allowed for, and it seems impossible not only for unauthorized persons to get in but also for the alarm to be left in such a way that it will not work.

•

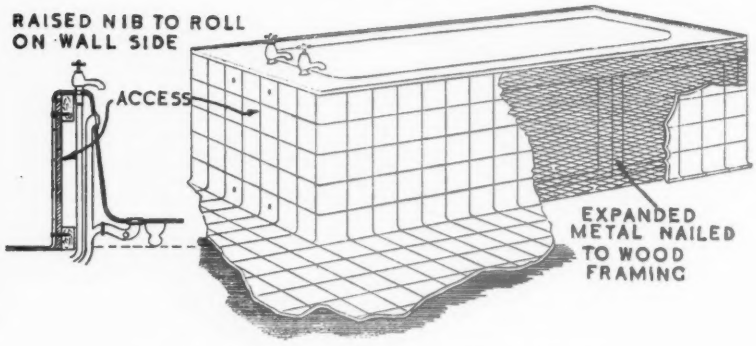
One of the most interesting things of all, however, is the Central Alarm Service, whereby the normal opening and closing of any premises is signalled by land line to the Company's offices, any variations from standard time being promptly reported to the police.

Tile Data

Still the manufacturers of building products of all kinds continue to turn out booklets which contain useful information



Swinging radiators in an operating theatre at Surbiton Hospital, designed by Wallace Marchment. (*See note on this page.*)



A bath tiling detail : see Tile Data note on this page.

as opposed to vainglorious boastings, the latest example coming from Richards Tiles, Ltd., who have reprinted the whole of their series of Information Sheets which have so far appeared in this JOURNAL, and have produced a booklet of some forty pages of well-arranged data.

•

The line drawing on this page is taken from the booklet, and shows a bath tiling detail, with an access panel at the foot. The general data on fixing is clear and concise and there is a commendable absence of repetition.

•

A good booklet which can well go straight on to the reference shelf.

LAW REPORT

DISPUTED CLAIM FOR PANELLING

W. Turner Lord & Co. v. Hutchison—Official Referee's Court. Before Mr. C. M. Pitman, K.C.

THIS was an action by W. Turner Lord & Co., builders, decorators and upholsterers, of Mount Street, W., and Euston Road, N.W., to recover from the defendant, Mr. Thomas H. Hutchison, lessee and occupier of 43 Green Street, Mayfair, £1,499 odd, the balance of an amount alleged to be due to them from the defendant, for work done and materials supplied, and alternatively an amount, due from the defendant to the plaintiffs on accounts stated and agreed by the defendant in March, 1935, less the sum paid by the defendant.

Defendant admitted that the plaintiffs did certain work and supplied certain materials in and about his house, but denied that there was owing from him £1,499. He said of that sum the plaintiffs claimed £1,000 in respect of work done to his dining-room and library, and that the sum of £499 was the balance of the price of other work in the house which the defendant had always been ready and willing to discharge. As to the sum of £1,000 which plaintiffs claimed, defendant admitted that that was the price of work and materials supplied in his dining-room and library, but pleaded that it was an express or implied term of the agreement that the room should be panelled with old pine and should be consistent and harmonious and contemporary, and that all the work should be properly made and fitted and in accordance with the sample panel shown by the plaintiffs to the defendant, and should be of reasonable good design in accordance with the drawings prepared. Defendant now alleged certain breaches and that the plaintiffs had failed to carry out the work to the dining-room and that the value of that work was £400 only. Defendant further alleged that the panelling that had been done was not homogeneous and was made up of odd styles and rails and that there was want of care and that the workmanship was poor. As to the library, the work done and materials supplied by the plaintiffs were, he alleged, valueless. Defendant paid the sum of £400 into court in satisfaction of plaintiffs' claim for £1,000. Defendant set up other legal defences, and set up a counter-claim for damages in certain events.

Plaintiffs in reply denied defendant's allegations. Failure to carry out certain work in the library was due, plaintiffs alleged, to the failure of the defendant to give instructions or access to the room. The work has been completed and approved by the defendant. Defendant had tendered £899, but plaintiffs said that that amount did not represent the prices or the agreed prices for the work. Certain of the work had been carried out by a reputed firm of sub-contractors.

Mr. Sydney Tatchell, F.R.I.B.A., of Bank Chambers, 32 Strand, W.C., giving evidence for the defendant, said he had inspected the work done, and that it was on his advice that the library panelling was taken down. He knew that the plaintiffs were a firm of decorators of high repute and very high standing in the West End. Having regard to the work on the panelling, he considered it unsatisfactory and ought not to be permitted to remain. In his opinion, the panelling in the dining-room was unsatisfactory.

This the plaintiffs denied, and said that the panelling work was done by sub-contractors with the approval of defendant, and that the work was well and properly carried out. Expert evidence was given in support of the plaintiffs' case.

In giving judgment, the Official Referee said the plaintiffs' claim was for £1,499 balance of account for decorating the defendant's house. Defendant had tendered and paid into court £499 in respect of items other than the panelling of two rooms. As to the sum of £1,000 for these two rooms he had tendered and paid into court the sum of £400. The only issue that now came before him was the panelling of the two rooms. He had no reason to doubt that the plaintiffs were a firm of high reputation in the West End and considered that they had just cause for the action. Defendant said he was told pine panelling was equal to samples. The workmanship was to be of the highest class. Defendant visited Spero, of Wandsworth, and selected samples of the panelling he required. Plaintiffs sublet this part of the contract to Spero for £900, and they took this step without the consent of the defendant. Defendant, on the other hand, said the contract was a personal one and ought not to have been sublet. Spero were to supply and fix the panelling, and he thought that defendant acquiesced in that course. The dispute centred around the two rooms. The panelling of these two rooms came from different sources. In one case from the Chinese Mission and in the other from Nethersole Hall, in the country. With regard to the library, defendant alleged that the work was not good workmanship, and he complained of the styles used in the panelling. Defendant said Swedish and American pine had been mixed and was not harmonious.

After dealing with the expert evidence given before him, the Official Referee said he accepted the evidence of Mr. S. Tatchell, who was the defendant's expert. No first-class work was done in the library, and so far as that went he did not accept the evidence given for the plaintiffs. He was satisfied that no damage had been done by the removal of the panelling, and there was no breach of contract by the plaintiffs in this respect.

The result was that he came to the conclusion that there was due to the defendant for library £29, and due to the plaintiffs on the dining-room £500, less £76, which made the amount £433. As to the amount of £1,000, the amount due, he found, was £394. Against this the defendant paid into court £400, which left £5 5s. to be repaid out of court to the defendant. Defendant had succeeded on all issues. Judgment would therefore be for the defendant on the claim and counter-claim. Of the £899 in court, £499 and £394 for panelling, belonged to the plaintiffs, and that sum would remain in court pending the taxation of costs. The remaining £5 5s. would go to the defendant.

THE BUILDINGS ILLUSTRATED

PACKING DEPARTMENT FOR JOHN LEWIS & CO., DRAYCOTT AVENUE, CHELSEA (pages 415-418). The general contractors were the works department of John Lewis & Co. The principal sub-contractors and suppliers included :—

Structure.—H. Young & Co., Ltd., steelwork ; Greenhams, Ltd., demolition and excavation ; Limmer and Trinidad Lake Asphalt Co., Ltd., asphalt ; Cattybrook Brick Co., Ltd., bricks ; W. Benfield and Son, copings and cills ; Haywards, Ltd., patent glazing ; Helical Bar and Engineering Co., Ltd., patent flooring ; Henry Hope and Son, Ltd., steel casements.

Finishes.—Diespeker & Co., Ltd., terrazzo ; Malcolm MacLeod & Co., Ltd., stair-treads ; Decorative Specialists, Ltd., painting.

Equipment.—Waygood-Otis, Ltd., lifts ; Birmingham Guild, Ltd., signs ; Mather and Platt, Ltd., rolling shutters ; Hibberd Bros. (1929), Ltd., joinery ; James Combe and Son, Ltd., central heating and ventilation ; Matthew Hall and Co., Ltd., plumbing ; James Gibbons, Ltd., door furniture.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

BECONTREE. *Shops, etc.* A scheme is in course of preparation for the proposed erection of a music-hall and 60 shops at Becontree Heath, by Mr. D. T. James.

EALING. *Shops.* Mr. R. Vaughan, on behalf of the North-West London Estates, Ltd., is to prepare plans for submission to the T.C. in connection with 28 shops proposed to be erected at Ruislip Road.

EAST HAM. *Houses, etc.* Plans passed by the Corporation: Four houses, Gainsborough Avenue, alterations 91-7 High Street, alterations 221 High Street, and alterations 375 Barking Road, for Mr. R. J. Slater; church, Buxton Road, for Messrs. Newberry and Fowler; reconstruction, Empire cinema, Barking Road, for Mr. W. E. Trent.

EAST HAM. *Maternity Home.* The Corporation is to prepare a scheme for the erection of a Maternity Home in association with the Memorial Hospital.

EDMONTON. *Estate Development.* The New Ideal Homesteads, Ltd., propose to develop the Goodwin Park Estate by the erection of 203 houses.

GREENFORD. *Offices, etc.* Mr. Edgar R. Taylor, 5 Manchester Square, W.1, is the architect in connection with the erection of a joinery works, timber store, offices and garage, at Oldfield Lane.

GREENFORD. *Flats.* Messrs. George E. Clare and Son, 15 College Road, Harrow, are preparing plans for the proposed erection of 80 flats on the Greenford Green House Estate, Oldfield Lane.

NORTHOLT. *Factory.* The Proprietary Agencies, Ltd., propose to erect a factory on the north-east side of Rowdell Road. Plans are to be submitted.

RAVENSCOURT PARK. *Nurses' Home.* A new nurses' home is to be erected at the Royal Masonic Hospital. The architects are Messrs. Burnet, Tait and Lorne.

ROMFORD. *Nurses' Home.* The Essex Public Assistance Committee has received sanction to borrow £34,802 for extensions to the Nurses' Home at Oldchurch hospital.

SOUTHFIELDS. *Flats.* Messrs. Marshall and Tweedy have prepared amended plans for the proposed erection of seven blocks of flats at Colebrook Close, West Hill.

STAINES. *Estate Development.* Messrs. Ross and Dennis have submitted lay-out plans for the proposed development of the Convent Estate, Ashford, which have been approved.

SOUTHERN COUNTIES

ODIHAM. *Cinema.* An application by Mr. P. W. L. Black for permission to erect a cinema on a site in King Street has been approved by the Hartley Wintney R.D.C.

READING. *Extension.* Messrs. C. Smith and Son, Reading, are the architects in connection with the extensions proposed to be carried out to the Kendrick School, at an estimated cost of £5,000.

WORTHING. *Houses, etc.* Plans passed by the Corporation: Ten houses, Offington Drive, for Mr. L. C. Le Maitre; 16 houses, Broomfield Avenue, for B.B.C. Houses, Ltd.; six houses, Loxwood Avenue, for Mr. J. E. Lund; dairy, Sompting Road, for Lillywhite Dairies, Ltd.; three houses, Sea Lane, for Novean Houses (Worthing), Ltd.; seven houses, George V Avenue, for Mr. R. L. Taylor; four houses, Westway, for Mr. G. H. Treacher; seven houses, Southview Drive, for Messrs. A. W. Clements, Ltd.; four houses, Shaftesbury Avenue, for Messrs. Maddison and Brookes; 30 houses, Hollingbury Gardens, for Messrs. H. W. Adams (Worthing), Ltd.; eight shops and houses, Salvington Road, for South Eastern Properties, Ltd.; two houses, Lime Tree Avenue, for Mr. F. Kenton; four houses, Angus Road, for Messrs. Middleton, Cathcart & Co.; two houses, Southdownview Road, for Messrs. Gale and Morris; nine houses, Maytree Avenue, for Mr. F. W. Beach; six houses, Maytree Avenue, for Mr. N. E. Barker; two houses, Robson Road, for Mr. M. R. Fletcher; two shops and houses, Offington Lane, for Mr. F. T. Marshall; six houses, George V Avenue, for Mr. H. M. Potter.

SOUTH-WESTERN COUNTIES

BARNSTAPLE. *Houses.* The Borough Surveyor has prepared revised lay-out plans for the erection of 50 houses on the Vicarage Street housing site.

CAMBORNE. *Factory.* The Milk Marketing Board has secured a site near Camborne for the erection of a butter factory. Building operations are to commence at an early date, and it is hoped to have the factory ready for production by October 1.

CHELTENHAM. *Council Chamber.* The T.C. has under consideration proposals for the construction of a new Council Chamber near the Council's offices.

EASTERN COUNTIES

CHINGFORD. *Schools.* The Essex Education Committee has approved plans for the erection of a senior school in Yardley Lane and a junior school in Whitehall Lane, Chingford, at a cost of £63,000.

CLACTON. *Hotel.* Mr. E. R. Nixby, Clacton, is the architect in connection with the proposed erection of a new hotel at Clacton. The cost is estimated at £12,000.

ESSEX. *Sanatorium.* The Essex C.C. has decided upon an amended scheme for the erection of a sanatorium at Broomfield Court, at a cost of £215,000.

SHEFFORD. *School.* The Bedfordshire C.C. are to erect a school at Shefford, plans for which have been approved.

MIDLAND COUNTIES

DUDLEY. *Extensions, etc.* Plans passed by the Corporation: Alterations, Windmill works, Pear Tree Lane, for Messrs. J. Thompson and Sons, Ltd.; foundry extensions, Cradley Heath, for Valeting Service, Ltd.; works extensions, Harts Hill, for Dudley Drop Forgings Co., Ltd.; zoological gardens, Dudley Castle, for Zoological Society; two houses, Dudley Wood Road, for Messrs. Easthope and Auden; hotel, Wren's Nest Road, for Messrs. Mitchells and Butlers, Ltd.; alterations, Red Lion Inn, Chapel Street, for Messrs. J. Hanson and Sons, Ltd.; shops and flats, 84-7 High Street, for Messrs. A. Preedy and Sons, Ltd.; six houses, Garrett Street, for Mr. J. H. Morgan; eight houses, Priory Close, for Messrs. A. J. Crump and Sons; house, Gervaise Drive, for Miss P. Penfold; six houses, Broadway, for Mr. T. W. Edwards.

DUDLEY. *School.* The Dudley Education Committee is to obtain a site in Bowling Green Road for the erection of an elementary school.

NORTHANTS. *Educational Work.* The Northants Education Committee is to undertake the following programme during the year: Extensions Northampton county school; extensions, schools of boot and shoe manufacturers at Kettering and Rushden; erection of four senior schools, three infants' schools, and numerous improvements at buildings.

NORTHERN COUNTIES

BOLTON. *Technical College.* The Board of Education has now approved the plans of the Bolton Education Committee for the erection of a technical college in Manchester Road.

BOLTON. *Cinema.* The Watch Committee has approved plans, submitted by Mr. John Buckley, for the erection of a cinema in Bradshawgate.

BOLTON. *Extensions.* The Corporation has approved plans by Messrs. Bradshaw Gass and Hope, for extensions at the town hall.

BOLTON. *Houses.* The Corporation is to erect a further 150 houses on the Willows estate at a cost of £48,000.

BOLTON. *Houses, etc.* Plans passed by the Corporation: Five houses, Bradford Road, for Mr. R. J. Tyson; 14 houses, Smedley Avenue, for Mr. William Astley; three houses, Commission Street, for Messrs. J. J. and J. Kilcoyne; extensions, Lincoln Mills, Washington Street, for Messrs. R. Entwistle & Co., Ltd.; bridge over River Croal, Church Wharf, for Mr. R. E. Eckersley; two houses, Albert Road, for Messrs. G. H. Pearse and Son; four houses, Old Kilm Lane, for Mr. A. S. Woods; six houses, Sharples Park, for Messrs. S. J. Hoghkiss, Ltd.

HULL. *Factory, etc.* Plans passed by the Corporation: Factory, south-east Hull area, for Messrs. F. Robinson & Co., Ltd.; works extensions, Tadman Street, for Messrs. T. J. Smith and Nephew, Ltd.; premises, Sykes Street, for Hull Brewery Co., Ltd.; stores extensions, Jameson Street, for Hull Co-operative Society, Ltd.; alterations, King Edward Street, and Charlot Street, for Messrs. M. Burton, Ltd.

HULL. *Development.* The Corporation has arranged for the construction of a road from Sutton Road to Cayton Road, at a cost of £7,000, in connection with the development of land by Messrs. A. I. Windross and Partners on behalf of Garden Village Developments, Ltd.

HULL. *School.* The Hull Education Committee has approved plans for the erection of a senior school at Endyke Lane, at a cost of £19,818.

LEEDS. *Branch Library.* The Corporation has arranged for Mr. F. L. Charlton, architect, to prepare plans for the erection of a branch library at Sheepscar.

LEEDS. *Schools.* The Corporation has approved plans submitted by the Education Director for the erection of schools on the Gipton housing estate.

MANCHESTER. *Employment Exchange.* H.M. Office of Works is to erect employment exchanges in Mill Street and Chapel Street, Manchester.

MANCHESTER. *Slum Clearance.* The Corporation is to deal with clearance areas involving 7,269 houses.

OLDBURY. *Houses, etc.* Plans passed by the Corporation: Two houses, Pound Road, for Mr. J. Strong; shops, Birmingham Street, for Mr. L. E. Hewitt; 16 houses, off Pottery Road, for Messrs. Davis & Co.; 15 houses, Silverlands estate, for Mr. A. G. Woodall; bus depot and offices, Birchfield Lane, for Birmingham and Midland Bus Co., Ltd.; alterations, Hen and Chickens Hotel, Causeway Green, for Showells Brewery; alterations, offices and stores, Langley Road, for Messrs. Wm. Jackson, Ltd.

OLDBURY. *Schools.* The Oldbury Education Committee has decided to erect three schools on the Moat Farm estate.

SHEFFIELD. *Flats and Shops.* The Corporation has approved plans, by the city architect, for the erection of 399 flats in Duke Street and 385 flats and eight shops in Edward Street.

SHEFFIELD. *Shops, etc.* Plans passed by the Corporation: Two shops, City Road, for Messrs. E. Winder & Co.; four houses, Furness Avenue, for Mr. E. E. Elliott; 20 houses, Newlands Grove, for Messrs. J. H. Naylor and Son; offices, West Street, Rockingham Street and Westfield Terrace, for Central Buildings Investment Co., Ltd.; warehouse, Pitsmoor Road, for Messrs. Wilson, Tupholme, Ltd.; rebuilding, Fishermen's Rest P.H., Tinsley Park Road, for Messrs. Whitworth Son and Nephew, Ltd.; four houses and two shops, Halifax Road, for Mr. D. Hurrell; stockrooms, Clarkson Street, for Messrs. J. G. Graves, Ltd.; office and store, Arundel Lane, for Messrs. A. Bridgens, Ltd.; stores, Devonshire Terrace, for Co-operative Society, Ltd.; offices, Derbyshire Lane and Cliffefield Road, for Messrs. W. Malthouse, Ltd.; rebuilding, New Barrack Inn, Penistone Road, for Messrs. D. Gilmour & Co., Ltd.; two houses, Kent Road, for Mr. W. H. Killner; 15 houses, Cloonmore Drive, for Messrs. M. J. Gleeson, Ltd.; 13 houses, Ridhehill Avenue, for Hallewell Estates, Ltd.; eight houses, Stephen Hill, for Messrs. T. and W. L. Simpson; 378 houses, Shirecliffe estate, for Corporation Estates Committee; six houses, Beaucliff Rise, for Mr. A. Yeardley; five houses, Hollinhead Road, for Mr. C. H. Beardow; three houses, Mather Road, for Mr. W. Oates; 10 houses, Highcliffe Road, for Mr. C. Thompson; 105 houses, Northcote Road and four houses, Bishops Court, for Mr. A. Ramsay; 20 houses, off Elm Lane, for Mr. H. Simpson; five houses, Norton Lane, for Messrs. J. Marsh

(Continued on page xxxiv.)

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 6½	1 1½
A	Aberdeen ..	Scotland	1 6½	1 2
A_1	Abergavenny	S. Wales & M.	1 6	1 1½
A_2	Abingdon ..	S. Counties	1 5	1 0½
A	Accrington ..	N.W. Counties	1 6½	1 2
A_2	Addlestone ..	S. Counties	1 5	1 0½
A	Adlington ..	N.W. Counties	1 6½	1 2
A	Airdrie ..	Scotland	*1 6½	1 2
C	Aldeburgh ..	E. Counties	1 2½	11
A	Altrincham ..	N.W. Counties	1 6½	1 2
B_2	Appleby ..	N.W. Counties	1 3	11½
A	Ashton-under-Lyne	N.W. Counties	1 6½	1 2
B_1	Aylesbury ..	S. Counties	1 4	1 0
B_2	BANBURY ..	S. Counties	1 4	1 0
B_1	Bangor ..	N.W. Counties	1 4	1 0
A_2	Barnard Castle	N.E. Coast	1 5	1 0½
A	Barnsley ..	Yorkshire	1 6½	1 2
B	Barnstaple ..	S.W. Counties	1 4½	1 0½
A	Barrow ..	N.W. Counties	1 6½	1 2
A	Barry ..	S. Wales & M.	1 6½	1 2
B_1	Basingstoke ..	S.W. Counties	1 4	1 0
A_2	Bath	S.W. Counties	1 5½	1 1½
A	Batley ..	Yorkshire	1 6½	1 2
A_2	Bedford ..	E. Counties	1 5½	1 1½
A_2	Berwick-on-Tweed	N.E. Coast	1 5½	1 1½
A_2	Bewdley ..	Mid. Counties	1 5½	1 1½
B_2	Bicester ..	S. Counties	1 3	11½
	Birkenhead ..	N.W. Counties	*1 7½	1 2½
A	Birmingham ..	Mid. Counties	1 6½	1 2
A_1	Bishop Auckland	N.E. Coast	1 6	1 1½
A	Blackburn ..	N.W. Counties	1 6½	1 2
A	Blackpool ..	N.W. Counties	1 6½	1 2
A	Blyth	N.E. Coast	1 6½	1 2
B_1	Bognor ..	S. Counties	1 4	1 0
A	Bolton ..	N.W. Counties	1 6½	1 2
A_2	Boston ..	Mid. Counties	1 5	1 0½
A_2	Bournemouth ..	S. Counties	1 5½	1 1½
B_2	Bovey Tracey	S.W. Counties	1 3½	11½
A	Bradford ..	Yorkshire	1 6½	1 2
A_1	Brentwood ..	E. Counties	1 6	1 1½
A	Bridgend ..	S. Wales & M.	1 6½	1 2
B	Bridgwater ..	S.W. Counties	1 4½	1 0½
A_1	Bridlington ..	Yorkshire	1 6	1 1½
A	Brighouse ..	Yorkshire	1 6½	1 2
A_2	Brighton ..	S. Counties	1 5½	1 1½
A	Bristol ..	S.W. Counties	1 6½	1 2
B	Brixham ..	S.W. Counties	1 3½	11½
A	Bromsgrove ..	Mid. Counties	1 5½	1 1½
B	Bromyard ..	Mid. Counties	1 3	11½
A	Burnley ..	N.W. Counties	1 6½	1 2
A	Bursiem ..	Mid. Counties	1 6½	1 2
A	Burton-on-Trent	Mid. Counties	1 6½	1 2
A	Bury	N.W. Counties	1 6½	1 2
A	Buxton ..	N.W. Counties	1 6	1 1½
A_1	CAMBRIDGE ..	E. Counties	1 6	1 1½
B_1	Canterbury ..	S. Counties	1 4	1 0
A	Cardiff ..	S. Wales & M.	1 6½	1 2
A	Carlisle ..	N.W. Counties	1 6½	1 2
B	Carmarthen ..	S. Wales & M.	1 4½	1 0½
B	Carnarvon ..	N.W. Counties	1 4½	1 0½
A	Carnforth ..	N.W. Counties	1 6½	1 2
A	Castleford ..	Yorkshire	1 6½	1 2
A_2	Chatham ..	S. Counties	1 5	1 0½
A	Chelmsford ..	E. Counties	1 5	1 0½
A	Cheltenham ..	S.W. Counties	1 5	1 0½
A	Chester ..	N.W. Counties	1 6½	1 2
A	Chesterfield ..	Mid. Counties	1 6½	1 2
B_1	Chichester ..	S. Counties	1 4	1 0
A	Chorley ..	N.W. Counties	1 6½	1 2
B_1	Cirencester ..	S. Counties	1 4	1 0
A	Clitheroe ..	N.W. Counties	1 6½	1 2
A	Clydebank ..	Scotland	1 6½	1 2
A	Coalville ..	Mid. Counties	1 6½	1 2
A_2	Colchester ..	E. Counties	1 5½	1 1½
A	Colne	N.W. Counties	1 6	1 1½
A_2	Colwyn Bay	N.W. Counties	1 5½	1 1½
A_1	Consett ..	N.E. Coast	1 6	1 1½
A_2	Conway ..	N.W. Counties	1 5½	1 1½
A	Coventry ..	Mid. Counties	1 6½	1 2
A_2	Crewe ..	N.W. Counties	1 5½	1 1½
A	Cumberland	N.W. Counties	1 5	1 0½
A	DARLINGTON	N.E. Coast	1 6½	1 2
A	Darwen ..	N.W. Counties	1 6½	1 2
B_1	Deal	S. Counties	1 4	1 0
A_2	Denbigh ..	N.W. Counties	1 5	1 0½
A	Derby ..	Mid. Counties	1 6½	1 2
A	Dewsbury ..	Yorkshire	1 6½	1 2
B	Didcot ..	S. Counties	1 4½	1 0½
A	Doncaster ..	Yorkshire	1 6½	1 2
B_1	Dorchester ..	S.W. Counties	1 4	1 0
A	Driffield ..	Yorkshire	1 5	1 0½
A_2	Droitwich ..	Mid. Counties	1 5½	1 1½
A	Dudley ..	Mid. Counties	1 6½	1 2
A_2	Dumfries ..	Scotland	1 6	1 1½
A	Dundee ..	Scotland	1 6½	1 2
A	Durham ..	N.E. Coast	1 6½	1 2
A_2	EASTBOURNE ..	S. Counties	1 5½	1 1½
A_1	Ebbw Vale ..	S. Wales & M.	1 6	1 1½
A	Edinburgh ..	Scotland	1 6½	1 2
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 6	1 1½
A_2	Exeter	S.W. Counties	*1 5½	1 1½
B	Exmouth ..	S.W. Counties	1 4½	1 0½
A_2	FELIXSTOWE ..	E. Counties	1 5	1 0½
A	Filey	Yorkshire	1 5	1 0½
A	Fleetwood ..	N.W. Counties	1 6½	1 2
B_1	Folkestone ..	S. Counties	1 4	1 0
A	Frodsham ..	N.W. Counties	1 6½	1 2
B_2	Frome	S.W. Counties	1 3½	11½
A	GATESHEAD ..	N.E. Coast	1 6½	1 2
B	Gillingham ..	S. Counties	1 4½	1 0½
A	Glasgow ..	Scotland	1 7	1 2½
A_2	Gloucester ..	S.W. Counties	1 5½	1 1½
A_2	Goole	Yorkshire	1 5½	1 1½
A_2	Gosport ..	S. Counties	1 5½	1 1½
A_2	Grantham ..	Mid. Counties	1 5	1 0½
A_1	Gravesend ..	S. Counties	1 6	1 1½
A	Greenock ..	Scotland	*1 6½	1 2
A	Grimsby ..	Yorkshire	1 6½	1 2
B	Guildford ..	S. Counties	1 4½	1 0½
A	HALIFAX ..	Yorkshire	1 6½	1 2
A	Hanley ..	Mid. Counties	1 6½	1 2
A	Harrogate ..	Yorkshire	1 6½	1 2
A	Hartlepools ..	N.E. Coast	1 6½	1 2
B	Harwich ..	E. Counties	1 4½	1 0½
B_1	Hastings ..	S. Counties	1 4	1 0
A_2	Hatfield ..	S. Counties	1 5½	1 1½
B	Hereford ..	S.W. Counties	1 4½	1 0½
A_2	Hertford ..	E. Counties	1 5½	1 1½
A	Heysham ..	N.W. Counties	1 6½	1 2
A	Howden ..	N.E. Coast	1 6½	1 2
A	Huddersfield ..	Yorkshire	1 6½	1 2
A	Hull	Yorkshire	1 6½	1 2
A	ILKLEY ..	Yorkshire	1 6½	1 2
A	Immingham ..	Mid. Counties	1 6½	1 2
A_2	Ipswich ..	E. Counties	1 5½	1 1½
B_2	Isle of Wight ..	S. Counties	1 4½	1 0½
A	JARROW ..	N.E. Coast	1 6½	1 2
A	KEIGHLEY ..	Yorkshire	1 6½	1 2
A_2	Kendal ..	N.W. Counties	1 5	1 0½
A_2	Keswick ..	N.W. Counties	1 5	1 0½
A_1	Kettering ..	Mid. Counties	1 6	1 1½
A_2	Kidderminster	Mid. Counties	1 5½	1 1½
B_1	King's Lynn ..	E. Counties	1 4	1 0
A	LANCASTER ..	N.W. Counties	1 6½	1 2
A_1	Leamington ..	Mid. Counties	1 6	1 1½
A	Leeds	Yorkshire	1 6½	1 2
A	Leek	Mid. Counties	1 6½	1 2
A	Leicester ..	Mid. Counties	1 6½	1 2
A	Leigh	N.W. Counties	1 6½	1 2
B	Lewes	S. Counties	1 3	11½
A_2	Lichfield ..	Mid. Counties	1 5½	1 1½
A	Lincoln ..	Mid. Counties	1 6½	1 2
	Liverpool ..	N.W. Counties	*1 8	1 3
A_2	Llandudno ..	N.W. Counties	1 5½	1 1½
A	Llanelly ..	S. Wales & M.	1 6½	1 2
	London (12-miles radius)		1 8	1 3
	Do. (12-15 miles radius)		1 7½	1 2½
A	Long Eaton ..	Mid. Counties	1 6½	1 2
A	Loughborough	Mid. Counties	1 6½	1 2
A_1	Luton	E. Counties	1 6	1 1½
A	Lytham ..	N.W. Counties	1 6½	1 2
A_1	MACCLESFIELD	N.W. Counties	1 6	1 1½
A_2	Maidstone ..	S. Counties	1 5	1 0½
A_2	Malvern ..	Mid. Counties	1 5	1 0½
A	Manchester ..	N.W. Counties	1 6½	1 2
A	Mansfield ..	Mid. Counties	1 6½	1 2
B_1	Margate ..	S. Counties	1 4	1 0
A	Matlock ..	Mid. Counties	1 5	1 0½
A_1	Merthyr ..	S. Wales & M.	1 6	1 1½
A	Middlesbrough	N. E. Coast	1 6½	1 2
A_2	Middlewich ..	N.W. Counties	1 5½	1 1½
B_2	Minehead ..	S.W. Counties	1 3½	11½
B_2	Monmouth .. & S. and E. Glamorganshire	S. Wales & M.	1 3½	11½
A	Morecambe ..	N.W. Counties	1 6½	1 2
A_2	NANTWICH ..	N.W. Counties	1 5½	1 1½
A	Neath	S. Wales & M.	1 6½	1 2
A	Nelson ..	N.W. Counties	1 6½	1 2
A	Newcastle ..	N.E. Coast	1 6½	1 2
A	Newport ..	S. Wales & M.	1 6½	1 2
A	Normanton ..	Yorkshire	1 6½	1 2
A	Northampton	Mid. Counties	1 6½	1 2
A	North Staffs ..	Mid. Counties	1 6½	1 2
A	North Shields	N.E. Coast	1 6½	1 2
A_1	Norwich ..	E. Counties	1 6	1 1½
A	Nottingham ..	Mid. Counties	1 6½	1 2
A	Nuneaton ..	Mid. Counties	1 6½	1 2
A	OAKHAM ..	Mid. Counties	1 5	1 0½
A	Oldham ..	N.W. Counties	1 6½	1 2
A_2	Oswestry ..	N.W. Counties	1 5	1 0½
A_1	Oxford ..	S. Counties	1 6	1 1½
A	PAISLEY ..	Scotland	*1 6½	1 2
B_2	Pembroke ..	S. Wales & M.	1 3	11½
A	Perth	Scotland	*1 6½	1 2
A_1	Peterborough	E. Counties	1 6	1 1½
A	Plymouth ..	S.W. Counties	*1 6½	1 2
A	Pontefract ..	Yorkshire	1 6½	1 2
A_1	Pontypridd ..	S. Wales & M.	1 6	1 1½
A_2	Portsmouth ..	S. Counties	1 5½	1 1½
A	Preston ..	N.W. Counties	1 6½	1 2
A	QUEENSFERRY	N.W. Counties	1 6½	1 2
A_2	READING ..	S. Counties	1 5½	1 1½
B	Reigate ..	S. Counties	1 4½	1 0½
A	Retford ..	Mid. Counties	1 5	1 0½
A_1	Rhondda Valley	S. Wales & M.	1 6	1 1½
A	Ripon	Yorkshire	1 5	1 0½
A	Rochdale ..	N.W. Counties	1 6½	1 2
B	Rochester ..	S. Counties	1 4½	1 0½
A_1	Ruabon ..	N.W. Counties	1 6	1 1½
A	Rugby ..	Mid. Counties	1 6½	1 2
A_2	Rugeley ..	Mid. Counties	1 5½	1 1½
A	Runcorn ..	N.W. Counties	1 6½	1 2
A_1	ST. ALBANS ..	E. Counties	1 6	1 1½
A	St. Helens ..	N.W. Counties	1 6½	1 2
B_2	Salisbury ..	S.W. Counties	1 3½	11½
A_1	Scarborough ..	Yorkshire	1 6	1 1½
A	Scunthorpe ..	Mid. Counties	1 6½	1 2
A	Sheffield ..	Yorkshire	1 6½	1 2
A	Shipley ..	Yorkshire	1 6½	1 2
A_2	Shrewsbury ..	Mid. Counties	1 5½	1 1½
A_2	Skipton ..	Yorkshire	1 5½	1 1½
A_2	Slough ..	S. Counties	1 5½	1 1½
A_1	Solihull ..	Mid. Counties	1 6	1 1½
A_2	Southampton ..	S. Counties	1 5½	1 1½
A_1	Southend-on-Sea	E. Counties	1 6	1 1½
A	Southport ..	N.W. Counties	1 6½	1 2
A	S. Shields ..	N.E. Coast	1 6½	1 2
A_1	Stafford ..	Mid. Counties	1 6	1 1½
A	Stirling ..	Scotland	1 7	1 2½
A	Stockport ..	N.W. Counties	1 6½	1 2
A	Stockton-on-Tees	N.E. Coast	1 6½	1 2
A	Stoke-on-Trent	Mid. Counties	1 6½	1 2
B	Stroud	S.W. Counties	1 4½	1 0½
A	Sunderland ..	N.E. Coast	1 6½	1 2
A	Swansea ..	S. Wales & M.	1 6½	1 2
A	Swindon ..	S.W. Counties	1 5	1 0½
A_1	TAMWORTH ..	N.W. Counties	1 6	1 1½
B	Taunton ..	S.W. Counties	1 4½	1 0½
A	Teesside Dist. ..	N.E. Counties	1 6½	1 2
A_2	Teignmouth ..	S.W. Coast	1 5½	1 1½
A	Todmorden ..	Yorkshire	1 6½	1 2
A_1	Torquay ..	S.W. Counties	1 6	1 1½
B_2	Truro	S.W. Counties	1 3½	11½
A_2	Tunbridge Wells	S. Counties	1 5	1 0½
A	Tunstall ..	Mid. Counties	1 6½	1 2
A	Tyne District	N.E. Coast	1 6½	1 2
A	WAKEFIELD	Yorkshire	1 6½	1 2
A	Walsall ..	Mid. Counties	1 6½	1 2
A	Warrington ..	N.W. Counties	1 6½	1 2
A_1	Warwick ..	Mid. Counties	1 6	1 1½
A_1	Wellingborough	Mid. Counties	1 6	1 1½
A	West Bromwich	Mid. Counties	1 6½	1 2
A_2	Weston-s.-Mare	W. Counties	1 5½	1 1½
A_2	Whitby ..	Yorkshire	1 5½	1 1½
A	Widnes ..	N.W. Counties	1 6½	1 2
A	Wigan ..	N.W. Counties	1 6½	1 2
B	Winchester ..	S. Counties	1 4½	1 0½
A_2	Windsor ..	S. Counties	1 5½	1 0½
A	Wolverhampton	Mid. Counties	1 6½	1 2
A_2	Worcester ..	Mid. Counties	1 5½	1 1½
A_2	Worksop ..	Yorkshire	1 5	1 0½
A_1	Wrexham ..	N.W. Counties	1 6	1 1½
A	Wycombe ..	S. Counties	1 5	1 0½
B	YARMOUTH ..	E. Counties	1 4½	1 0½
B	Yeovil ..	S.W. Counties	1 4½	1 0½
A	York	Yorkshire	1 6½	1 2

* 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	8
Carpenter	,,	1	8
Joiner	,,	1	8
Machinist	,,	1	8
Mason (Banker)	,,	1	8
,, (Fixer)	,,	1	9
Plumber	,,	1	8
Painter	,,	1	7
Paperhanger	,,	1	7
Glazier	,,	1	7
Slater	,,	1	8
Scaffolder	,,	1	4
Timberman	,,	1	4
Navvy	,,	1	3
General Labourer	,,	1	3
Lorryman	,,	1	5½
Crane Driver	,,	1	7
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)	,,	1	19	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	,,	2	5	0
White Portland Cement, in 1 ton lots	,,	8	15	0
Thames Ballast	per Y.C.		6	6
¾" Crushed Ballast	,,		7	0
Building Sand	,,		7	6
Washed Sand	,,		8	6
2" Broken Brick	,,		8	0
¾" ,, ,,	,,		10	3
Pan Breeze	,,		6	6
Coke Breeze	,,		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	d.	6" s.	d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	,,	3	6	5	3
Rest Bends	,,	4	3	6	3
Single Junctions	,,	3	6	5	3
Double ,,	,,	4	9	6	6
Straight channels	per F.R.	1	6	2	6
¾" Channel bends	each	2	9	4	0
Channel junctions	,,	4	6	6	6
Channel tapers	,,	2	9	4	0
Yard gullies	,,	6	9	8	9
Interceptors	,,	16	0	19	6

IRON DRAINS:

		£	s.	d.
Iron drain pipe	per F.R.	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	,,	9	0	15	0
Single junctions	,,	8	9	18	0
Double junctions	,,	13	6	30	0
Lead Wool	lb.		6	—	
Gaskin	,,		5	—	

BRICKLAYER

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

MASON

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

SLATER AND TILER

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

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

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	,, ,,		5
,, ,, 2nds	,, ,,		4
Mahogany, Honduras	,, ,,	1	3
,, African	,, ,,	1	1
,, Cuban	,, ,,	2	6
Oak, plain American	,, ,,	1	0
,, Figured ,,	,, ,,	1	3
,, plain Japanese	,, ,,	1	2
,, Figured ,,	,, ,,	1	5
,, Austrian wainscot	,, ,,	1	6
,, English	,, ,,	1	11
Pine, Yellow	,, ,,	1	0
,, Oregon	,, ,,		4
,, British Columbian	,, ,,		4
Teak, Moulmein	,, ,,	1	3
,, Burma	,, ,,	1	2
Walnut, American	,, ,,	2	3
,, French	,, ,,	2	3
Whitewood, American	,, ,,	1	1

Deal floorings,	Sq.	s.	d.
⅞"	,,	1	6
¾"	,,	1	8
1"	,,	1	8
1¼"	,,	1	5
1½"	,,	1	10
Deal matchings, ⅝"	,,		14
¾"	,,		15
1"	,,	1	4
Rough boarding, ¾"	,,		16
1"	,,		18
1¼"	,,	1	6

Plywood, per ft. sup.

Thickness	¼"			½"			¾"			1"		
Qualities	A	B	BB	A	B	BB	A	B	BB	A	B	BB
	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.)

	⅜"	½"	¾"	1"	1¼"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10	
Pieces, 12"-23" long each	10	1/1	1/11	2/8	4/9	
,, 3"-11½" long ,,	7	9	1/3	1/8	3/-	
Long screws, 12"-23½" long,,	11	1/3	2/2	2/10	5/3	
,, ,, 3" M-½" long ,,	8	10	1/5	1/11	3/6	
Bends	,,	8	11	1/7½	2/7½	5/2
Springs not socketed	,,	5	7	1/1½	1/11½	3/11
Socket unions	,,	2/-	3/-	5/6	6/9	10/-
Elbows, square	,,	10	1/1	1/6	2/2	4/3
Tees	,,	1/-	1/3	1/10	2/6	5/1
Crosses	,,	2/2	2/9	4/1	5/6	10/6
Plain sockets and nipples	,,	3	4	6	8	1/3
Diminished sockets	,,	4	6	9	1/-	2/-
Flanges	,,	9	1/-	1/4	1/9	2/9
Caps	,,	3½	5	8	1/-	2/-
Backnuts	,,	2	3	5	6	1/1
Iron main cocks	,,	1/6	2/3	4/2	5/4	11/6
,, with brass plugs	,,	—	4/-	7/6	10/-	21/-

Discounts:

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

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

SMITH AND FOUNDER—*continued*

		s.	d.
Rolled steel joists cut to length	cwt.	12	9
Mild steel reinforcing rods, ⅜"	,,	10	6
,, ,, ½"	,,	10	3
,, ,, ⅝"	,,	10	0
,, ,, ¾"	,,	9	6
,, ,, ⅞"	,,	9	6
,, ,, 1"	,,	9	6
,, ,, 1¼"	,,	9	6
,, ,, 1½"	,,	9	6

Cast-iron rain-water pipes of ordinary thickness metal	F.R.	3" s.	d.	4" s.	d.
Shoes	each	2	0	3	0
Anti-splash shoes	,,	4	6	8	0
Boots	,,	3	0	4	0
Bends	,,	2	7	3	9
,, with access door	,,	—		6	3
Heads	,,	4	0	5	9
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.	24	6
,, drawn pipes	,,	24	6
,, soil pipe	,,	30	0
,, scrap	,,	16	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.			1

GLAZIER

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

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

PAINTER

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

CURRENT PRICES FOR MEASURED WORK

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

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

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

BRICKLAYER		£ s. d.
Brickwork, Flettons in lime mortar	Per Rod	26 10 0
" " in cement	"	27 12 6
" Stocks in cement	"	34 0 0
" Blues in cement	"	50 0 0
Extra only for circular on plan	"	2 0 0
" backing to masonry	"	1 10 0
" raising on old walls	"	2 0 0
" underpinning	"	5 10 0½
Fair Face and pointing internally	F.S.	1¼
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 9
½" Vertical dampcourse	"	7 9
½" paving or flat	"	6 3
1" paving or flat	"	7 6
1" × 6" skirting	F.R.	1 0
Angle fillet	"	2½
Rounded angle	"	7½
Cesspools	Each	5 6

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 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
¾" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" " " " "	"	1 17 5
1½" " " " "	"	2 3 0
¾" × 2" fir battening for Countess slating	"	9 6
Do., for 4" gauge tiling	"	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
" " " 2 "	"	2 9
" " " 3 "	"	3 3
Stout herringbone strutting to 9" joists	F.R.	10½
1" deal gutter boards and bearers	F.S.	1 2
1½" " " "	"	1 6
2" deal wrought rounded roll	F.R.	8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1½" do.	"	2 10 0
1¾" do.	"	2 17 6
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
3½" do.	"	1 9

CARPENTER AND JOINER—*continued*		s. d.
1½" deal moulded sashes of average size	F.S.	1 9½
2" " " "	"	1 11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1½" pulley stiles, 1½" heads, 1" inside and outside linings, ¾" parting beads, and with brass faced axle pulleys, etc., fixed complete		3 7
2" " " "	"	3 10
Extra only for moulded horns	Each	6
1½" deal four-panel square, both sides, door	F.S.	2 0
2" " " "	"	2 8
1½" " but moulded both sides	"	2 4
2" " " "	"	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" " " "	"	1 4
1½" deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1½" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
1½" deal moulded wall strings	"	2 1
1½" " outer strings	"	2 4
Ends of treads and risers housed in string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1½" × 1½" " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

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

PLUMBER		£ s. d.
Milled lead and labour in flats	cwt.	1 18 6
Do. in flashings	"	2 2 0
Do. in covering to turrets	"	2 7 6
Do. in soakers	"	1 13 3
Labour to welted edge	F.R.	3½
Open copper nailing	"	3
Close "	"	4

		½" s. d.	¾" s. d.	1" s. d.	1½" s. d.	2" s. d.	4" s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks		—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	3 9	5 0	5 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—
4" cast-iron ½-rd. gutter and fixing						F.R.	1 0
Extra, only stop ends						Each	1 0
Do. angles						"	1 6
Do. outlets						"	2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on						F.R.	1 2
Extra, only for shoes						Each	1 3
Do. for plain heads						"	5 6

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

GLAZIER		s d.
21 oz. sheet glass and glazing with putty	F.S.	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 beds	"	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

STRONG, easy to fix, because it is cast in one piece, the B.I.A. (Melt-ON) Ear is the most practical eared pipe you can specify.

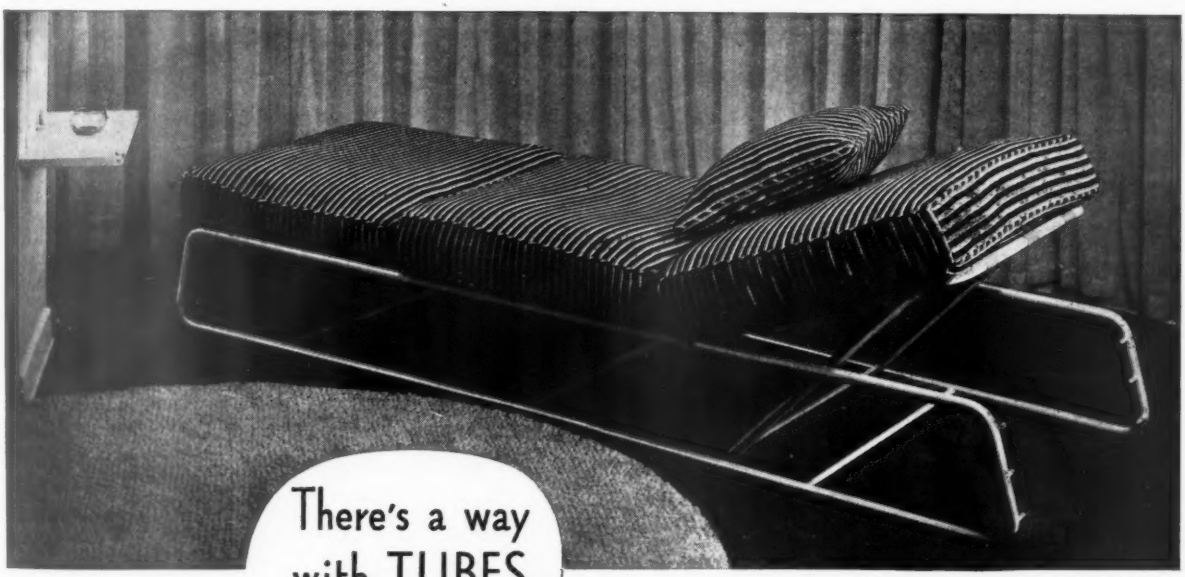
Hundreds and thousands are being sold because they *do* cut building costs. Obtainable through the usual trade channels, in either projecting or flat ear design.

BIA

THE B·I·A (MELT-ON) EAR

The strongest eared pipe made

B.I.A. (*Patents*) LTD., *Associated with the British Ironfounders Association,* 145 ST. VINCENT STREET, GLASGOW, C.2



Designed by Wells Coates.

There's a way with TUBES..

. . . and it's often the happiest way. Tubes are such versatile things; ready and willing to do any bidding; and doing it all with uncommon ease and grace. Get to know all about tubes. Their strength, their cunning, their endless clever ways. Please make full use of the Technical Design Department of

TUBE PRODUCTS LTD. Oldbury, Birmingham

T.A-13
G

Building News—(Continued from page 429)

and Son ; 14 houses, Bramley Drive, for Messrs. E. and H. Oliver ; 202 flats, Bradfield Road, for Mr. Krausz ; two houses, East Highgate, for Mr. M. W. Spencer ; 20 houses, Capel Street, for Mr. W. Haywood : 34 flats, Queen Mary Road, for Graves Trust ; five houses, Ben Lane, for Messrs. J. Copley and Sons ; club and house, Eastern Avenue, for Park Labour Club, Ltd. ; 56 houses, Ripley Street, for Mr. D. Topliss.

WARRINGTON. *Houses, etc.* Plans passed by the Corporation : Two houses, Chester Road, for Messrs. Woosey and Walton ; works extensions, Wilderspool Causeway, for Fynnan Salt Co. ; 15 houses and two shops, Liverpool Road, for Mr. O. C. Williams ; 32 houses, Chester Road, for Holywell Building Co., Ltd. ; cinema (revised), Buttermarket Street, for Messrs. Drury and Gomersall.

SCOTLAND

DUNDEE. *Office Extension.* The Dundee Harbour Trust has approved a scheme, costing £10,000, for extending the office accommodation at Harbour Chambers.

ST. ANDREWS. *Houses.* The T.C. has approved a scheme for the proposed erection of 160 houses by the end of 1938. St. Andrews architects are to be approached on the matter.

BUILDING CONTRACTS OPEN

Unless the contrary is expressly stated, all deposits required for bills of quantities, etc., are returned on receipt of bona-fide tenders. The words "Fair Wages Clause," inserted in certain paragraphs, signify that persons tendering must conform to a fair wages clause in the contract, which requires them to pay the rates of wages current in the district. Application for plans and particulars should be made to the address given at the end of each entry.—ED., *A.J.*

READING : BATHING STATION

March 12.—Erection of buildings in connection with a bathing station on the south bank of the River Thames to the west of Scours Lane, Reading, for Reading B.C. The Borough Surveyor, Municipal Buildings, St. Laurence's Churchyard, Reading, Berkshire. Deposit £1 1s.

LEICESTER : SCHOOL

March 16.—Erection of proposed new buildings at Imperial Avenue, for the Newarke Secondary School for Girls, for Leicester E.C. J. O. Thompson, A.R.I.B.A., Education Department, Newarke Street, Leicester. Deposit £2 2s.

SHEFFIELD : FLATS

March 16.—Erection of 20 flats and nine maisonettes (site "A") and 24 flats and 11 maisonettes (site "B") on the Duke Street area. W. G. Davies, City Architect, Town Hall, Sheffield. Deposit £2.

SHEFFIELD : HOUSES

March 16.—Erection of 148 non-parlour type houses on the Arbourthorne Estate—building scheme No. 8. W. G. Davies, City Architect, Town Hall, Sheffield. Deposit £2.

LEEDS : SCHOOLS

March 17.—Various trades required in the erection of the Coldcotes Council Schools (four departments), for Leeds E.C. Fred Broadbent, F.R.I.B.A., Architect, Room 120, Civic Hall, Leeds, Yorks. Deposit £2 2s.

ROCK FERRY, ETC. : POST OFFICES, ETC.

March 18, *etc.*—Commissioners of Works, etc., invite tenders before 11 a.m. on (1) March 18, for alterations and additions to Rock Ferry Sorting Office (drawings, etc., on view at Birkenhead Head Post Office) ; (2) March 18, for the erection of Barnsley Telephone Exchange (drawings, etc., on view at Barnsley Head Post Office) ; (3) March 17, for extension of Clacton-on-Sea Post Office and Telephone Exchange (drawings, etc., on view at Clacton-on-Sea Head Post Office). Room 65D, Third Floor, H.M. Office of Works, London, S.W.1. Deposit £1 in each case.

HAYWARDS HEATH : HOUSES

March 18.—Erection of 30 houses, for the Cuckfield R.D.C. G. Plummer, Surveyor, Oaklands, Haywards Heath. Deposit £2 2s.

CAMBRIDGE : HOUSES

March 20.—Erection of 74 houses and eight flats in Fairfax Road. C. H. Kemp, Town Clerk, The Guildhall, Cambridge. Deposit £2 2s.

SELBY : HOUSES

March 20.—68 non-parlour three-bedroom type houses and 10 non-parlour four-bedroom type houses, for the U.D.C. The Surveyor, 5, New Lane, Selby. Deposit £1 1s.

KEIGHLEY : ALTERATIONS

March 23.—Whole or separate tenders for alterations at Keighley police station, for the West Riding Standing Joint Committee : (1) builder ; (2) joiner ; (3) slater (4) plumber ; (5) plasterer ; (6) electrician. The West Riding Architect, County Hall, Wakefield.

SPILSBY : COTTAGES

March 23.—Erection of cottages at Stickney, Friskney; Skendleby, Orby, Little Steeping and Thorpe St. Peter, for the R.D.C. Two cottages are to be erected in each of the foregoing parishes except at Thorpe St. Peter, where six cottages are to be built. J. E. Bolt, Surveyor, Council Offices, Spilsby. Deposit £1 1s.

YEOVIL : HOUSES

March 23.—Erection of 128 houses and 12 flats at Lower Larkhill La., Yeovil. The Borough Surveyor, Municipal Offices, Yeovil. Deposit £1 1s.

KINGSBRIDGE : HOUSES

March 28.—32 houses at Rack Park, and construction of roads, sewers, footpaths and fences, for the U.D.C. E. Gellender, Surveyor, Town Hall, Kingsbridge. Deposit £3 3s. for houses and £2 2s. for roads, etc.

WISBECH : ALTERATIONS

April 3.—Alterations and extensions at the High School for Girls, Wisbech, for the Isle of Ely C.C. R. D. Robson, County Architect, County Hall, March. Deposit £3.

TENDERS ACCEPTED

Extensions at the factory at Walton-on-Thames, Surrey, for Amalgamated Dental Co., Ltd., 5 Broad Street, W.1. : F. and H. F. Higgs, Ltd., of Cobham, Surrey. Plans by Charles J. Smith, A.M.I.S.E.

New church of St. John, at Grosvenor Avenue, Warrington, Lancs., for Parochial Council of Parish Church : H. Fairclough, Builder, of Howley, Warrington. (Plans by William and Segar Owen, L.R.I.B.A.)

New hotel at Haweswater for the Manchester Corporation : P. A. Baines and Son (Northern), Ltd., of Sandes Avenue, Kendal. (Plans by William Ellerton, of Messrs. Graves and Ellerton.)

Hostel for working class men at Holborn for the Newcastle-under-Lyme T.C. : T. S. Hedley and Sons, Ltd., of Pool Dam, Newcastle-under-Lyme.

Seventy houses at Highfields, Dursley, for the Dursley U.D.C. : Channing and Osborne, of Highbridge Road, Burnham-on-Sea. (Plans by L. W. J. Collins.)

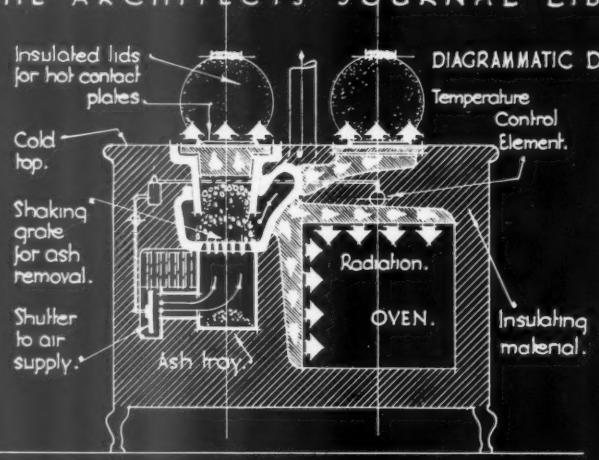
Extensive alterations and additions to the Queen's Head Hotel, Gateshead, for J. Aitchison & Co., Ltd., 70 St. Mary's Place, Newcastle-on-Tyne, 2 : Walter Willson (Contractors), Ltd., of 90 Grey Street, Newcastle-on-Tyne. (Plans by Percy L. Browne and Son.)

Swimming baths at Birtley, Co. Durham, for the Birtley T.C. : Stephen Eastern, Ltd., Milburn House, Newcastle-on-Tyne, 1.

205 non-parlour type houses on Finch House Estate, Liverpool, for the Liverpool C.C. : Tyson's (Contractors), Ltd., of Dryden Street, Liverpool, 5. (Plans by the Director of Housing.)

106 houses on the racecourse site for the Spennymoor, U.D.C. : A. Elcoat, of Darlington Road, Durham. (Plans by Hays and Gray.)

DIAGRAMMATIC DETAILS OF VARIOUS TYPES OF COOKER.

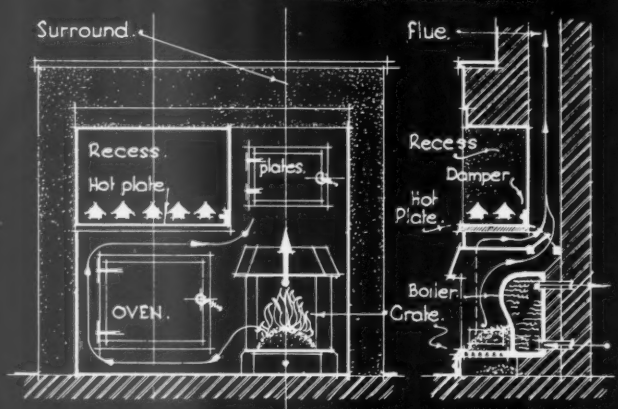


CROSS SECTION THROUGH THERMAL STORAGE & CONDUCTION TYPE COOKER.

THERMAL STORAGE COOKERS depend on transmission of heat by conduction and burn anthracite or coke.

THE FUEL is placed in the firepot and falls by gravity on to the grate as the fire burns combustion being controlled by a thermostatic valve regulating air supply to the fire.

THE FIREPOT is constructed of heavy castings which conduct heat from fire. Further conducting bridges are attached to the firepot and convey heat by conduction to the boiling plates and ovens from whence it is radiated. To prevent radiation from the sides of conductors and firepot all interstices are packed solid with insulating material. Boiling plates are covered when not in use, with insulating lids.



ELEVATION, AND SECTION THROUGH GRATE & RECESS OF COMBINATION GRATE TYPE COOKER.

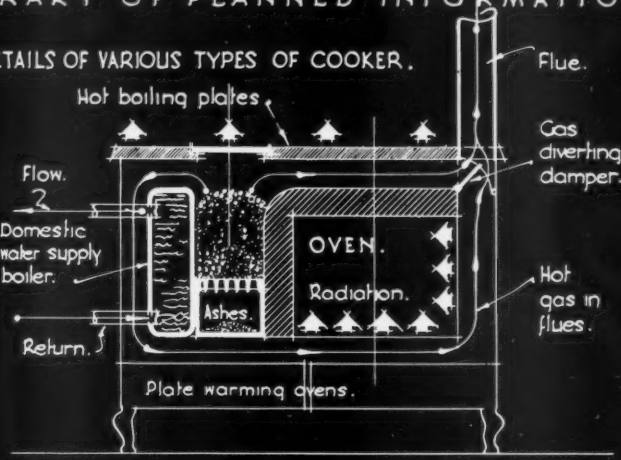
COMBINATION GRATE type cookers combine an open coal fire with an oven, hot plates and domestic boiler.

An arrangement of dampers deflects the hot gases from the fire under the boiler and hotplates and around the oven for cooking purposes.

When cooking is not required the damper is readjusted for the fire to burn straight up the chimney in the ordinary way.

Information from The Coal Utilisation Council, in association with the Coal-burning Appliance Makers' Association.

CROSS SECTION THROUGH FLUE GAS HEAT DISTRIBUTION TYPE COOKER.



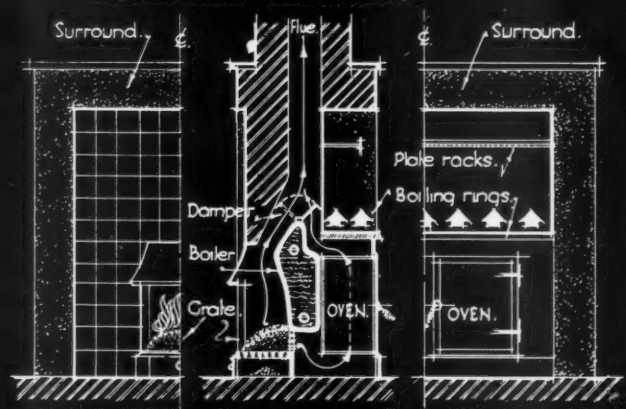
COOKERS depending on transmission of heat by hot gases burn a wide range of fuels, from anthracite to bituminous coals.

COMBUSTION is controlled by hand-operated air-valves and by a butterfly damper in the smoke stack. In some instances thermostatic control is applied to ovens. Heat is conveyed to the hot plate and oven by flues which conduct hot gases to their under surfaces.

DOMESTIC WATER supply boilers are usually incorporated and these are situated round one side of the fire.

DAMPER is arranged so that the hot gases can be brought up underneath the hot plates or diverted around the boiler and ovens.

NOTE: Various makes of this type of cooker are designed to burn continuously.



HALF ELEVATION, CROSS SECTION & HALF REVERSE ELEVATION OF BACK TO BACK GRATE TYPE COOKER.

BACK TO BACK grate type cooking appliances are similar in operation to the combination grate type at left. They differ only in having the oven and hot plates at the back of the fireplace and in being arranged to build through the solid thickness of the chimney breast dividing two rooms.

With these cookers one room is provided for cooking with a hot plate and oven, and the fireplace provides an open fire in the room adjoining. A damper provides for the deflection of hot gas under the boiler hot plate and oven when cooking is required.

INFORMATION SHEET: COOKING APPLIANCES BURNING SOLID FUEL.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON. WC1. Oscar A. Bayne.

Supplement to THE ARCHITECTS' JOURNAL for March 12, 1936

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 325 •

AUTOMATIC FIRING WITH SOLID FUEL

The diagrams and notes given on this Sheet are explanatory for typical cases.

A technical staff is available for further information on problems relating to solid fuel, its uses and equipment—free to Architects and the general public.

Applications should be made to any of the Council's Offices.

The Coal Utilisation Council is a non-profit making organisation supported by the coal producers and distributors.

Technical Information from the Coal Utilisation Council

Address : British Industries House, Marble Arch, W.1
Telephone : Mayfair 0511

Branches :
South Wales and South Western: c/o Monmouth and South Wales Coal Owners Association, Institute of Engineers, Park Place, Cardiff
Telephone : Cardiff 5084

Midland : Essex House, 27 Temple Street, Birmingham, 2
Telephone : Midland 3736

North Eastern : 38-39 Pearl Chambers, East Parade, Leeds, 1
Telephone : Leeds 23616

North Western : 38 Deansgate, Manchester, 3
Telephone : Blackfriars 4081

Scottish : 81 Mitchell Street, Glasgow, C.1
Telephone : Central 146

Information on appliances from The Coal-burning Appliance Makers' Association, British Industries House, Marble Arch, W.1.

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

COLEMANOID INTEGRAL WATERPROOFING AND HARDENING LIQUID :

DESCRIPTION & PROPERTIES.

Colemanoid is a liquid chemical compound for integrally waterproofing all forms of Portland cement concrete.

When added to the gauging water used to hydrate the mix, it produces a dense hard concrete impervious to moisture and water and to the penetration of heavy oils, acid or alkali solutions, etc.

CHEMICAL ACTION.

The addition of Colemanoid liquid to a mix speeds up the setting of the cement and increases the tensile and compressive strength of the concrete

Colemanoid has no discolouring effect, nor does it contain acids, fillers or other materials injurious to the cement or to the reinforcement.

USES.

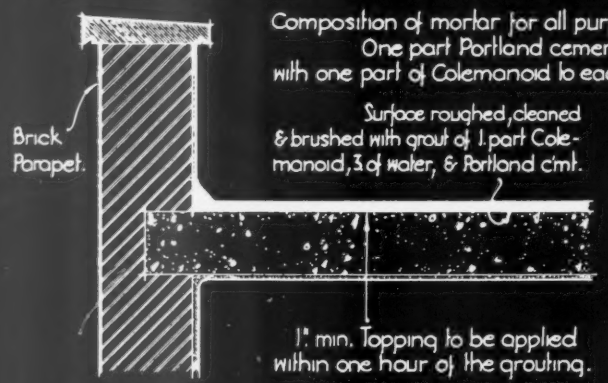
Waterproofing mass concrete and cement renderings; waterproofing & hardening cement floor- and roof-toppings.

Making renderings impermeable to acids, oils, etc; pouring concrete in frosty weather (up to 12° frost). Waterproofing the backing & setting to stone, marble, brick, tile and all other kinds of masonry construction.

NOTE · For typical specifications, mixing proportions, costs, etc. see material on the reverse side of this sheet.

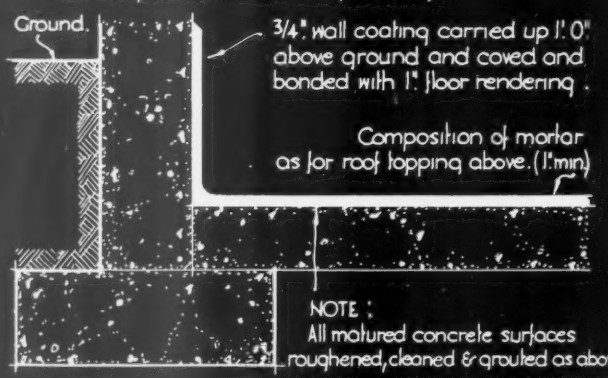
DETAILS SHOWING APPLICATION OF COLEMANOID FOR VARIOUS WATERPROOFING PURPOSES.

1. Mortar topping to roofs.

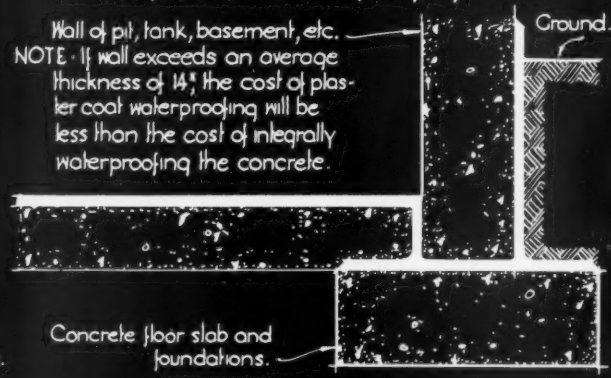


2. Setting & pointing masonry, tile, brick, etc.

3. Internal plaster coat waterproofing.



External plaster coat waterproofing.



4. CONCRETE FLOOR HARDENING & WATERPROOFING :

Preparation of floor.

All base surfaces should be thoroughly roughed, cleaned, dampened and grouted as for roofs, and the 1" topping applied within one hour of the grouting.

Note : If base slab is still green, a monolithic bond is obtainable without the necessity of grouting.

Composition of topping.

1 part Portland cement to 2 of clean hard sharp sand of coarse grain and silicate character (or 2 parts finely graded crushed granite) gauged with 1 gallon of Colemanoid to each 10 gallons of mixing water.

Excessively oily conditions require 1 gal. Colemanoid to 6 of water.

Application and finish.

The topping is applied direct to the grouted base surface while still damp and floated & trowelled to the desired finish without the use of driers.

Any desired colour finish for interior floors may be obtained by adding a small proportion of mineral oxide to the dry mix.

Information from The Adamite Company Limited.

INFORMATION SHEET · INTEGRAL WATERPROOFING & HARDENING CONCRETE.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 · Orca A. Bayne

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 326 •

WATERPROOFING

Product : Colemanoid Waterproofing Liquid

General :

As stated in this Sheet, Colemanoid is a waterproofing liquid which is a chemical solution, and not a liquid with solids in suspension.

The liquid has four main uses :—

(*a*) for producing waterproof mass concrete,
(*b*) for producing waterproof renderings,
(*c*) for producing waterproof slurries,
(*d*) for hardening cement finishes.

Waterproof mass concrete is required in a variety of positions such as basements, tanks, swimming pools, etc.

Waterproof renderings also have a variety of uses, some of which are shown on this Sheet.

Waterproof slurries are generally used for bedding of tiles, stonework and other facing materials.

Hardened cement surfaces are usually used as floor and dado finishes.

Waterproofing Liquid :

The following points are of importance in any consideration of Colemanoid :—

(1) Since it is added to the gauging water, the liquid is more readily distributed evenly throughout the mix than are powder compounds.

(2) The ready mixing of the liquid with the gauging water represents a saving in labour cost.

(3) The addition of the liquid increases both the tensile and compressive strength of a concrete.

(4) The addition of the liquid produces a concrete impervious to the penetration of moisture, heavy oils, acid solutions.

(5) The addition of the liquid produces a concrete resistant to the action of frost before setting takes place.

GENERAL SPECIFICATIONS

Mass Concrete :

Waterproofing.—One gallon of Colemanoid should be incorporated in every 15 gallons of gauging water used to hydrate the concrete mix. This is equivalent to 1 to 1½ gallons of Colemanoid to every cubic yard of concrete—the amount depending upon the size, grading and composition of the aggregate.

Anti-Freezing.—For laying mass concrete in frosty weather, 1 gallon of Colemanoid to every 9 gallons of the gauging water should be used, which is equivalent to 2½ gallons for every cubic yard of concrete—the exact amount depending upon the size, grading and composition of the aggregate. For renderings applied in frosty weather, 1 gallon of Colemanoid to every 6 gallons of the gauging water should be used, which is equivalent to 1 gallon of Colemanoid for every 72 ft. super of rendering, ¾ in. thick.

Renderings and Toppings :

Preparation of Surfaces.—Before the application of a Colemanoid mortar rendering or topping all base surfaces should be thoroughly roughed and cleaned and a grout consisting of one part of Colemanoid to three parts of water, with sufficient Portland cement to give the mixture the consistency of a heavy paint, should be brushed on to the roughened surface, the topping to be applied within an hour after the base surface has been treated with the grout. All aggregates should be well graded and washed, the sand to be of a sharp, coarse, siliceous nature.

Renderings :

Waterproofing.—One gallon of Colemanoid should be incorporated with every 10 gallons of gauging water used to hydrate the mortar mix. This is equivalent to 1 gallon of Colemanoid for every 120 ft. super, ¾ in. thick.

Acid and Oil Resistance.—For making concrete renderings impermeable to the attack of acids, mineral and vegetable oils, alkalies, etc., one part of Colemanoid to every six parts of the gauging water should be used. This is equivalent to 1 gallon of Colemanoid to every 54 ft. super, 1 in. in thickness.

Floor Hardening.—For floor toppings 1 gallon of Colemanoid should be incorporated with every 10 gallons of gauging water used to hydrate the mortar mix. This is equivalent to 1 gallon of Colemanoid for every 90 ft. super, 1 in. in thickness.

Note : Floor toppings in which Colemanoid has been incorporated can be used for steel-wheeled trucks within 72 hours of laying without any danger of the floors dusting or wearing.

Cost :

The cost of waterproofing concrete, renderings and toppings may be taken for general estimating purposes as follows :

Cost of waterproofing ¾ in. rendering, 9d. per square yard.

Cost of waterproofing 1 in. floor topping, 1s. per square yard.

Cost of waterproofing mass concrete, 12s. 6d. to 15s. per cubic yard.

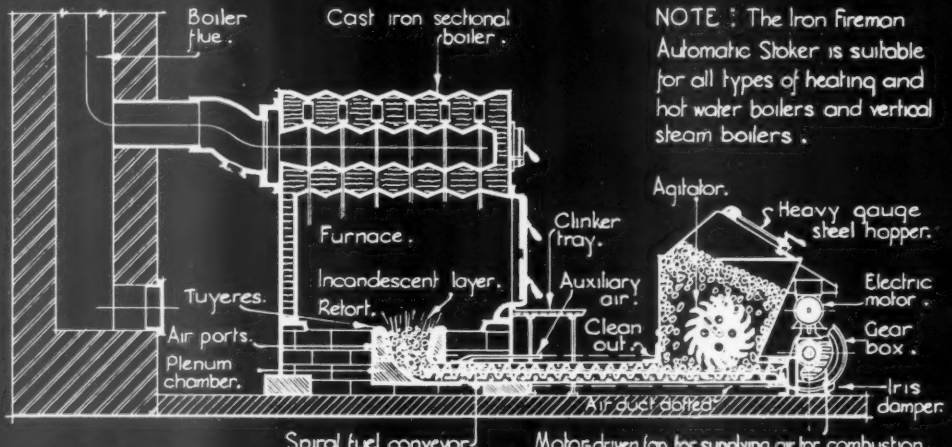
Manufacturers : The Adamite Company, Ltd.

Address : Manfield House, Strand, W.C.2

Telephone : Temple Bar 6233-4-5

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

TYPES OF IRON FIREMAN AUTOMATIC STOKER :



NOTE : The Iron Fireman Automatic Stoker is suitable for all types of heating and hot water boilers and vertical steam boilers.

OPERATION · (typical)

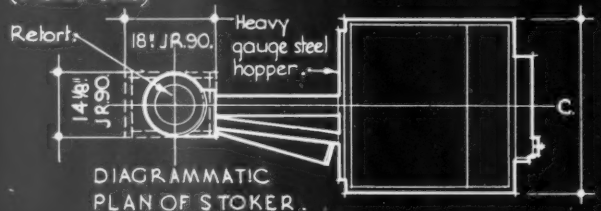
The bituminous coal is conveyed by a motor operated spiral conveyor from the hopper to the retort fixed in the boiler or furnace. In the retort the bituminous coal is forced upwards by the pressure from below. As it approaches the tuyeres the heat from the unbroken incandescent layer of fuel drives off the hydro-carbons which are mixed with the air entering through the air ports.

All mechanism thermostat controlled.

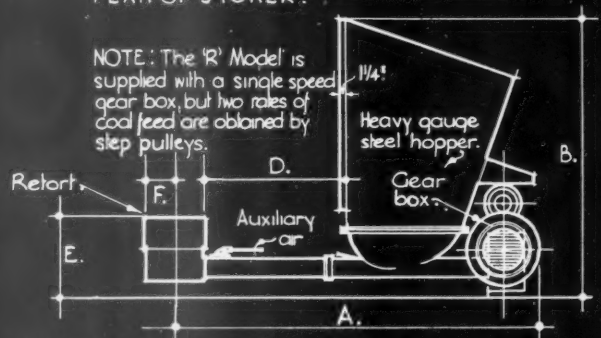
DIAGRAMMATIC TYPICAL LONGITUDINAL SECTION OF BOILER AND STOKER.

R. MODEL IRON FIREMAN {SHORT or LONG} STOKER.

(Smallest size.)



DIAGRAMMATIC PLAN OF STOKER.

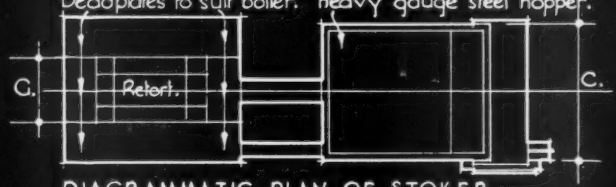


DIAGRAMMATIC SIDE ELEVATION OF STOKER.

Nº 5A. SIZE IRON FIREMAN {SHORT or LONG} STOKER.

(Largest size.)

Deadplates to suit boiler. Heavy gauge steel hopper.



DIAGRAMMATIC PLAN OF STOKER.

DIAGRAMMATIC SIDE ELEVATION OF STOKER.

HAND FIRING · With hand-firing it is impossible to maintain even heat or boiler pressure. Temperatures fluctuate widely.

IRON FIREMAN FIRING · Temperatures do not fluctuate when Iron Fireman does the firing. Heat or boiler pressure is dependable & steady.

TABLE SHOWING SIZES OF .B.- SERIES STOKERS.

TYPE.	A Short.	A Long	B.	C.	D Short.	D Long.	E.	F.	B.T.U's. PER HOUR.
R. MODEL.	5'9"	7'3"	4'7⅜"	2'10"	2'1"	3'7"	1'0½"	6½"	200,000.
DELUXE 40.	5'10"	7'4"	4'7⅜"	2'10"	2'1⅜"	3'7⅜"	1'3"	6½"	375,000.
JUNIOR 60.	5'10"	7'4"	4'7⅜"	2'10"	2'0¾"	3'6¾"	1'3"	7"	600,000.
JUNIOR 90.	6'0¼"	7'6¼"	4'7⅜"	2'10"	2'2½"	3'8½"	1'3½"	7½"	800,000

TABLE SHOWING SIZES OF .A.- AND .C.- SERIES STOKERS.

A. SERIES.	A Short.	A Long.	B.	C.	D Short.	D Long.	E.	F.	G.	B.T.U's. PER HOUR.
Nº 2.	6'6"	8'6"	4'0½"	2'4"	1'8½"	3'8½"	1'5½"	10"	1'2"	1,250,000
Nº 3.	6'9"	8'9"	4'0½"	2'4"	1'8½"	3'8½"	1'5½"	1'1"	1'2"	2,000,000.
Nº 4.	8'1"	9'1"	4'0½"	2'4"	3'8½"	4'8½"	1'6¾"	1'3"	1'6¾"	2,730,000.
C. SERIES.										
Nº 4A.	10'3"	11'3"	5'6¾"	2'4"	4'3¾"	5'3¾"	1'7⅞"	1'7"	1'6"	4,420,000
Nº 5.	10'6"	11'6"	5'6¾"	2'4"	4'1¾"	5'1¾"	1'10¾"	1'11"	1'8"	6,725,000.
Nº 5A.	10'6"	11'6"	5'6¾"	2'4"	4'1¾"	5'1¾"	2'0"	1'11"	1'8"	9,250,000

Information from Ashwell & Nesbit, Ltd.

INFORMATION SHEET · UNDERFEED STOKERS FOR SMALL BITUMINOUS COAL · SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 · Oscar A. Bayne.

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET
• 327 •
AUTOMATIC STOKERS

General :

The illustrations on the front of this Sheet show the typical arrangement and sizes of the Iron Fireman automatic underfeed stoker, for use with any type of heating and hot water boiler and many types of steam boiler.

Operation :

All sizes of stoker are designed to burn small bituminous coal, the fuel being automatically conveyed from a steel hopper in front of the boiler directly to the firepot. A motor rated at 1/6th to 7½ H.P., according to the size of the stoker, is employed to operate the spiral conveyor, and at the same time to supply forced draught to the plenum chamber of the retort. The correct amount of air required for complete combustion of the fuel is regulated by means of an automatic air volume regulator fitted to the air duct.

Capacities :

Iron Fireman stokers are obtainable in a wide range of capacities, varying from an output of 90,000 up to 9,250,000 B.T.U.'s per hour, with hopper capacities of 150 lbs. to 1,200 lbs. of coal. Models for anthracite consumption are also available, with outputs ranging from 140,000 to 472,000 B.T.U.'s.

Hoppers are constructed of heavy gauge steel and models of up to 500 lbs. capacity are fitted with dust-tight lids. All other sizes have open tops as standard, but can be fitted with covers if desired.

Controls :

Operation by electric control box and time switch (except for the smallest size stoker) is standard for all models, governed either thermostatically or by boiler pressure. The time switch is designed to operate at predetermined intervals to prevent the fire from going out when the stoker has been cut out for long periods by the room thermostat. It is also used to operate the stoker intermittently when the normal or maximum capacity of the boiler or furnace is not required, i.e., during the night or during weekends.

Safety Device :

To protect the mechanism and electrical equipment, a safety shear pin, and also a slipping clutch, are provided in the event of foreign objects being caught in the feed worm. It is easily accessible and can be replaced in a few minutes. The foreign object causing the stoppage can then be removed through the clean-out door situated at the beginning of the worm tube, the machine being designed so as to direct such objects to this point.

Clinker Removal :

The incombustible minerals in the coal, which are usually raked out as ash, and carry away considerable quantities of unconsumed carbon, are allowed to remain in the combustion chamber, where they fuse and form into clinker around the firepot, being removed at intervals of 24 hours or more.

Costs :

Prices of Iron Fireman stokers vary from £57 to £450, depending on capacity.

Manufacturers : Ashwell & Nesbit, Ltd.

Registered Office and Works : Barkby Lane, Leicester

Telephone : Leicester 27151

London Office : 12 Great James Street, W.C.1

Telephone : Holborn 9105