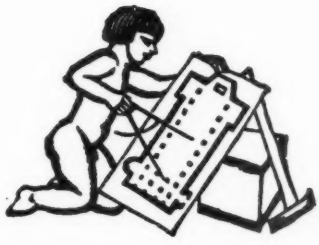
ST. GEORGE'S HOSPITAL COMPETITION

WINNING DESIGN: BY W. H. WATKINS AND PARTNERS

A PERSPECTIVE, by Mr. J. D. M. Harvey, of the winning design in the competition for the reconstruction of St. George's Hospital. The premiated designs are reproduced on pages 315–319 of this issue.
Above, authors of the winning scheme: left to right: A. S. Gray, W. H. Watkins, F.R.I.B.A., and F. L. Hannam, A.R.I.B.A.

OBERAMMERGAU

A house in Oberammergau, Bavaria. With the exception of the door surround all the decorative treatment is in paint on plaster.



THE HIRE-PURCHASE HOUSE

THE attention paid to the Borders' Case, in which Mr. Justice Bennett pronounced a reserved judgment last week, shows plainly that high feeling exists between many tenant-purchasers of houses and the building societies and building firms concerned.

It is certain that some additional actions between tenants and building societies will shortly be heard, there are rumours of more, and quite considerable numbers of tenants on estates in the Home Counties are withholding payments due to building societies.

This state of affairs is serious. The public has a liking for mud-slinging, and if it is granted an opportunity to do so is not likely to be discriminating. Very little mud-slinging would be necessary to damage all builders and all building societies and do great harm to the whole building industry. If it is possible to avoid this damage by removal of its first causes, it is in the interests of all parties to remove them at once.

To get to the root of the present disputes it is necessary to go back for a moment to the beginning of the post-war housing boom : for it was then that the boom in building societies also began. At that time it was realized that the average Englishman liked to own his own house, that a well-built house was an excellent security for a mortgage, and that the majority of the public could be trusted to repay advances in punctual instalments. In these favourable circumstances a great deal of business was done to everyone's satisfaction.

The trouble started when applicants for 75 per cent. advances on houses costing £1,200 or £1,500 began to grow scarce. To attract purchases of lower income groups the prices of houses had to come down, and the advances, expressed as a percentage of the cost prices of houses, had to go up. During the strenuous competition that followed, the inevitable took place. The houses were, in some cases, badly built and were obviously no longer first-class security for advances which, rising steadily, reached 90 or 95 per cent. of cost price. Nor was this all. Tenants of the £1 or 15s. 6d. a week houses were not all of impeccable financial standing and might damage their houses and then disappear on a quarter day : in some cases they did.

A number of building societies then developed the system of "collateral security" for their own protection. Under this system the purchaser still secured a high advance. But instead of paying to the builder the whole of the sum involved, the building society retained a portion of it for its own protection—either permanently or for a term of years.

At first sight there appears nothing very wrong in this practice. And if the houses concerned are well built there is nothing wrong. But should they be badly built it can become very dubious indeed, in common sense if not in law.

Consider : if a purchaser is told that a society of large resources has had a house inspected by its surveyor and is prepared to advance 95 per cent. of its cost price, he will reasonably believe it to be a good house. If subsequently it turns out to be a bad house he can expect no help from a society, itself amply protected by "collateral security," in putting it right. Lastly, if a society takes "collateral security" on enough houses it can become—by the law of averages—almost unconcerned what its houses are like, while having every inducement to represent to each intending purchaser that it is exactingly careful over every detail of their construction and finish.

In times of keen competition this state of affairs can clearly lead to abuse. And in a proportion of the houses built in the last few years abuses have arisen. These houses may be only a few hundreds among the two millions which have been built since the war with the help of building societies and to the satisfaction of purchasers. But the ill-feeling generated by them may do enormous harm.

An effective remedy is not easy to find. Some societies already declare that they take "collateral security" and require the purchaser's written consent to this practice. But for purchasers who do not bother to understand what they sign and never obtain independent legal or architectural advice this protection is not enough. The only sure remedy is to re-establish beyond question the interest of building societies in good building.

The Bill which Miss Ellen Wilkinson obtained leave to introduce last Tuesday will enable a purchaser to claim damages from a society if a house which its surveyor has approved subsequently proves to be badly built.

This is a severe step, but it is difficult to think of a more effective one. The Bill would probably cause a temporary fall in house purchase and some permanent reduction in the percentage of advances offered. But if it protected the public while teaching it that good building costs money and is money well spent, it would make a permanent improvement to the judgment, and the appearance, of the country.

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

NOTES & TOPICS

COMPETITIONS

ST. GEORGE'S—the competition of a decade—and Newcastle—the competition of several generations—are both out in the same week: almost on the same day. They are illustrated in this issue.

*

Every architect, whether he ever competes or not, will be interested in the results. And inevitably the present competition system will come in for a fresh outburst of criticism which will probably be unfair both to assessors and winners.

*

The truth is that the profession is caught in a cleft stick over competitions; and no one has suggested a practical way of releasing it.

*

Architects want open competitions. Promoters know what *they* like—they like the magnificent and the grand. Those who were assessors in the early days after the war thought that if the promoters did not generally get what they wanted the competition system would come to a standstill. So they gave them what they wanted. And as the winners of those competitions became assessors themselves, they tended to favour the plan-forms and elevations which had brought them fame; and anyway they played for safety.

*

The result has been that big competition technique has remained almost stationary. Men who use the latest methods of construction, and give office or ward accommodation the best possible lighting, aspect and ventilation in their ordinary practices, abandon both when entering for competitions.

*

The "Swinton," the "Worthing" and the "County Hall" plans—on these variations are played again and again in municipal competitions. I do not wish to detract from the skill required—it is skill of a high order; but it is one which is becoming more and more remote from modern building technique *and* from what the people of a large city or the patients in a hospital really need.

Nowadays, unless a man of such personality as Mr. T. S. Tait or Mr. W. G. Newton is billed as assessor, no one under forty dreams of entering for a big competition without their tongue in their cheek and a sad feeling in their middle. This cannot go on indefinitely.

BUILDING SOCIETY AND PURCHASER

The Bill which Miss Ellen Wilkinson has obtained leave to introduce under the "Ten Minute Rule" is one which means a lot to architects.

*

Its terms, and the problems it aims at solving, are, I am told, described on the previous page in this issue. I think everyone will agree that the position is not a happy one.

*

If it is true—as I have on good authority—that nearly 3,000 tenant-purchasers on estates near London are now withholding mortgage payments, the building societies concerned must be losing anything between £125,000 and £200,000 a year. And far more threatening is the damage to future business which the present dispute must be creating.

*

It is doubtful whether any measure which does not plainly give building societies a substantial interest in the structural soundness of the houses on which they make advances, will restore the confidence of borrowers.

*

But since collateral security plays a great part in mortgage advances nowadays, why try to get rid of it? I would suggest that the building societies should voluntarily indemnify the purchasers from defects arising from faulty materials or workmanship for a period of one year, or two years.

*

This use of collateral security—as a joint protection for purchaser and society—could not be objected to.

AN OCCASION AT THE R.I.B.A.

I remember a previous occasion at the R.I.B.A. when Mr. Summerson filled a large audience with admiration for the thoroughness with which he had investigated a subject before giving them the benefit of his learning. Last Monday the subject of his paper was in a sense an extension of that of his earlier one, Nash. For although its title was "The Contribution of the Great Landowners to the Architecture of London," it appears that the credit that is often given to the landowner belongs more justly to the great speculators—builders, capitalists or architects—of which Nash was by no means the least.

*

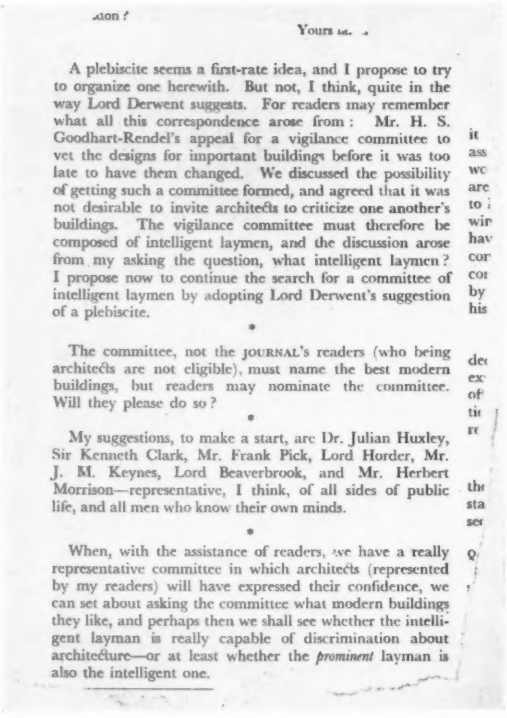
Mr. Summerson, though much of the work he discussed would have lent itself to high praise, wisely left enthusiasm to those whose mission it is to enthuse and confined himself to an objective recital of the facts he had studied. He was most informative, and for once an R.I.B.A. sessional paper was a real contribution to factual scholarship, instead of only to opinion.

*

The discussion that followed was handicapped in the way any discussion must be when the lecturer is the only man in the room who can give chapter and verse for his arguments, and the only one with authority to express an opinion.

*

Mr. Robert Byron was restrained in the presence of the Secretary to the Ecclesiastical Commissioners; and Professor Richardson was his usual jocular self.



...sion ?

Yours ...

A plebiscite seems a first-rate idea, and I propose to try to organize one herewith. But not, I think, quite in the way Lord Derwent suggests. For readers may remember what all this correspondence arose from: Mr. H. S. Goodhart-Rendel's appeal for a vigilance committee to vet the designs for important buildings before it was too late to have them changed. We discussed the possibility of getting such a committee formed, and agreed that it was not desirable to invite architects to criticize one another's buildings. The vigilance committee must therefore be composed of intelligent laymen, and the discussion arose from my asking the question, what intelligent laymen? I propose now to continue the search for a committee of intelligent laymen by adopting Lord Derwent's suggestion of a plebiscite.

*

The committee, not the JOURNAL's readers (who being architects are not eligible), must name the best modern buildings, but readers may nominate the committee. Will they please do so?

*

My suggestions, to make a start, are Dr. Julian Huxley, Sir Kenneth Clark, Mr. Frank Pick, Lord Horder, Mr. J. M. Keynes, Lord Beaverbrook, and Mr. Herbert Morrison—representative, I think, of all sides of public life, and all men who know their own minds.

*

When, with the assistance of readers, we have a really representative committee in which architects (represented by my readers) will have expressed their confidence, we can set about asking the committee what modern buildings they like, and perhaps then we shall see whether the intelligent layman is really capable of discrimination about architecture—or at least whether the *prominent* layman is also the intelligent one.

THE VIGILANCE COMMITTEE

This week's candidates for the above (see my previous explanation of what it is all about, reproduced above) are :

*

Mr. E. McKnight Kauffer (pioneer educator of public taste), Mr. John ("Ghastly Good Taste") Betjeman, Mr. John Herbert (of Eton College), Sir Alexander Gibb (scholar of note as well as engineer of distinction), Mr. Clive Bell (who knows significant form when he sees it), Mr. Fordham Flower, Lord Esher (chairman, S.P.A.B.), Mr. Harry Strauss, M.P. (champion of the D.I.A.), and Mr. David Low (champion of almost everything else—including democracy and the old-fashioned kind of Colonel, but probably architecture as well).

*

More names, please, before next week; including, if possible, some women. Remember, no architects.

C.P.R.E. AND CAMPS

A thoroughly sensible memorandum, just issued by the C.P.R.E., emphasizes the importance of a single national scheme for the regional distribution, purchase and development of all evacuation camp sites. Only in this way, it maintains, can sites be used to the best purpose, and without inflation of land values.

*

Other good suggestions: The first camps should be widely distributed over the country so that a *regional* organization can be built up on the basis of practical experience. Suitable sizes are camps for 300 to 500 persons for school or holiday use, 700 to 1,000 for evacuation use. "A thorough, competent and skilled architect should be given full responsibility and wide discretion for the lay-out and design of each individual camp." And, of course: "No damage to the landscape beauty, the farming efficiency and the general amenities of the countryside."

*

Yes. And let's see that this single national scheme links up evacuation *and* A.R.P. shelters. If at the same time we work on the still more urgent plan to prevent the root cause of war, we'll have the basis for a regional planning scheme and the beginning of a healthy nation.

ONE-NIGHT THEATRE

In the midst of the A.R.P. desert, with Whitehall propping up its basements and local authorities not knowing whether to burrow underground or put up wooden huts on hillsides, the news of a scheme for converting the courtyard of the Foreign Office into a one-night theatre, in honour of President and Madame Lebrun, blows in like a zephyr laden with distant spices.

*

Not many of us nowadays have the chance of being architect for State fun-and-games. But who more fitting to be our twentieth-century Inigo than Sir Edwin Lutyens, who is to be consulting architect for the theatre?

A STEEL FRAME

Next to Scotland Yard, on the Embankment, there is a steel frame. There is nothing very extraordinary about it at first glance. Of six floors or so, well put together, it has a bridge launching out towards the old building bearing the inscription: "Dawnay British Steel."

*

But it has been there, just like that, for a very long time. Certainly it has been like that, rusty, rather forlorn, since October: I believe, for much longer.

*

As I pass it a lot my patience has become exhausted. Can anyone tell me what is going to happen next—with dates?

PLASTER CRACKS

"The ignorance of many architects on plaster is only matched by their insufferable conceit," hits out editor of *Plastering Craft*. We are further accused of "shockingly loose specifications," and lack of practical training.

*

It will be seen at once that this monthly is no conventional trade organ, full of dreary technicalities and photographs of works' outings. There is even a human page, called "Just For Fun," though my own choice for this would be the correspondence columns.

*

Here plasterers, having rendered and floated, really set to. Bro. Morris writes to say that it's all very well to "brag up" Telling Bros. for running 100 contracts simultaneously, but he doesn't go on to the job with his eyes shut, and in his view he does not think it is good for the men who put the money in his pocket (whatever that means). Mr. MacEwen writes to ask where Mr. Telling got his gold watch from, anyway? (Imagine Mr. Falkner writing to ask Professor Reilly where he got his watch from—I know you *almost* can.) Mr. Telling replies that it was handed down from a past generation, and he *did* lay 1,100 yards of 1 in. paving in 36 hours without a break, "and had to walk home after doing so. Although I laid it myself with five labourers waiting on me, I had two men following me up trowelling same off."

*

Now then, Mr. MacEwen, where did you get *your* watch from? That, I suppose, would be Telling.

ASTRAGAL

POINTS FROM THIS ISSUE

THE ARCHITECTS' DIARY

Thursday, February 23

ARTISTS' INTERNATIONAL ASSOCIATION.—*Fourth Annual Exhibition. At the Whitechapel Art Gallery. Until March 7. 12 noon to 9 p.m. Sundays: 2 p.m. to 5 p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS, 11 *Upper Belgrave Street, S.W.1.* "*Stresses in Concrete Road Slabs.*" *By F. N. Sparkes.* 6.30 *p.m.*

INSTITUTION OF CIVIL ENGINEERS. *At the Grand Hotel, Sheffield.* "*Economic Design of Steel Structures.*" *By H. C. Husband.*

Friday, February 24

ROYAL INSTITUTION, 21 *Albemarle Street, W.1.* "*The Collapse of Ancient Civilizations: A Study of Archæological Evidence.*" *By Stanley Casson.* 5 *p.m.*

BIRMINGHAM AND FIVE COUNTIES ARCHITECTURAL ASSOCIATION. *At 8 Newhall Street, Birmingham.* "*Modern Furniture.*" *By Gordon Russell.*

INSTITUTION OF STRUCTURAL ENGINEERS. *South Wales and Monmouthshire Branch. Annual Dinner. At Cardiff. Western Counties Branch. Branch Supper. At Bristol.*

BUILDING CENTRE, 158 *New Bond Street, W.1.* "*Gas Installation and Equipment.*" *By R. N. Le Fevre.* 5.30 *p.m.*

Monday, February 27

HOUSING CENTRE, 13 *Suffolk Street, S.W.1.* "*Housing in Sweden.*" *By Max Lock.* 6 *p.m.*

Tuesday, February 28

HOUSING CENTRE, 13 *Suffolk Street, S.W.1. Luncheon:* "*The Architect and Public Policy.*" *By Allan Collingridge.* 1 *p.m.*

ARCHITECTURAL ASSOCIATION, 36 *Bedford Square, W.C.1.* "*Recent Archæological Discoveries in Asia Minor.*" *By Prof. J. L. Myres.* 8.30 *p.m.*

Wednesday, March 1

ARTISTS' GENERAL BENEVOLENT INSTITUTION. *At Burlington House, W.1. Annual General Meeting.* 4.30 *p.m.*

R.I.B.A., 66 *Portland Place, W.1. Exhibition of* "*Road Architecture: the Need for a Plan.*" *To be opened by Herbert Morrison. Until March 30. 10 a.m. to 8 p.m.*

ST. GEORGE'S HOSPITAL

Dr. H. V. Lanchester, F.R.I.B.A., and Mr. T. A. Lodge, F.R.I.B.A., assessors of the competition for the reconstruction of St. George's Hospital, have made their award as follows:

First premium (£500): Messrs. W. H. Watkins and Partners, F.R.I.B.A., Trafalgar House, Waterloo Place, S.W.1.

Second premium (£300): Messrs. D. Carr and W. F. Howard, AA.R.I.B.A., 30 Rutland Square, Edinburgh.

Third premium (£200): Messrs. Bradshaw Gass and Hope, FF.R.I.B.A., 19 Silverwell Street, Bolton.

ASSESSORS' REPORT

We have now made a careful study of the 50 designs submitted by competitors, and the result of this has been to confirm the impression that the accommodation scheduled in the instructions is slightly in excess of what could be satisfactorily provided for on the site, taking into consideration the restrictions demanded by the L.C.C. and the other authorities. This has resulted in the problem of planning having proved too difficult for the majority of the competitors, and even the very brilliant designs which take the leading positions do not provide solutions which are satisfactory in various minor details.

We are therefore basing our decision on the type of design offering the scheme which best meets the demands of the Hospital, but would point out that the definite improvements would be practicable by provision elsewhere than on the site of accommodation not essential to the requirements of such a hospital and its medical school.

We have no hesitation in awarding first place to design No. 29, which is superior to all the others in nearly every important feature. The entrances are well provided for by the adoption of a through route from north to south bisecting the site, and the ward units are particularly well placed and well planned, but even its design would benefit by reconsideration of some of the details, and the possibilities referred to in the second paragraph would be helpful in this respect, as the author has not found it possible to include quite all the accommodation scheduled, and has also slightly larger area on the first floor than specified in the L.C.C. regulations. While large balconies to the wards are not indicated, open "rest rooms" are substituted. This design fulfils particularly well in its architectural treatment Note 1 on page 6 of the instructions. We think that the author's specification is rather more economical than would be desirable for a building of this type, and that the estimate of cost should not be less than £700,000.

The second premium is awarded to design No. 42, in which the ward units are disposed in a similar way to No. 29. Many features in this design are very well handled, especially the service organization, but the provision for access from outside is less liberally treated than in the case of the design placed first. In this design the provision of full accommodation involved the provision of an additional floor, partly above the specified height.

The third premium goes to design No. 19, which is of a different type and has many good points. The entrances and lower floor are generally well planned, but the ward units are not so well arranged as in the design previously mentioned, and the organization of services would be less satisfactory.

COST

Following is the winners' estimate of the cost of the scheme:

Demolition, £3,000.

Total cubic capacity, 5,545,032 cubic ft., at 2s. 3d. = £623,816; extras, £106,000; total, £729,816.

THE DESIGNS REVIEWED

AT the time of going to press it had only been possible to form a general impression of the designs submitted. The assessors' report was not available, nor were the names of all the competitors known.

Those who might have expected a daring solution to the hospital problem will be disappointed. The accommodation required in relation to the size of the site and the restrictions with regard to entrances and exits, overlooking from the surrounding buildings and questions of architectural appearance, subordinate the consideration of the hospital as such. But within these limitations the winning scheme is as satisfactory a solution as could be expected, and certainly the best of those submitted from the standpoint of traditional hospital design in this country.

The general impression conveyed from the designs is that the restrictions imposed upon the competitors have intimidated them, as evidenced by inhibited planning and expressionless elevations.

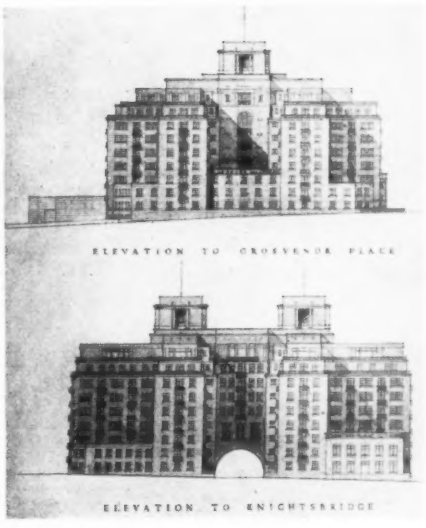
The upper floors are in most cases well treated according to the plan forms empirically adopted, but confusion is rife in the lower floors. There are examples of almost every possible approach and methods of circulation—but there are singularly few schemes that have adopted even a clear and simple circulation of traffic, patient and visitor.

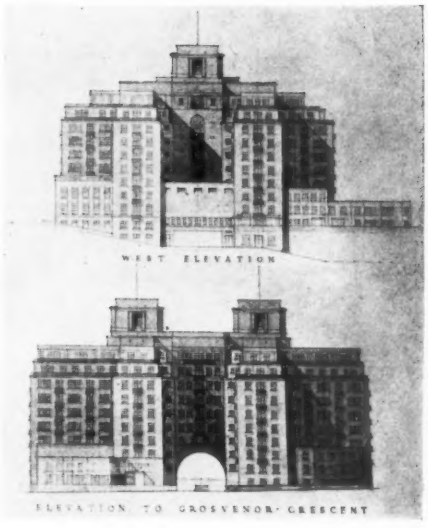
The outstanding feature of the first design is its dramatic method of circulation provided by a carriage-way running through the centre of the site from Knightsbridge to Grosvenor Crescent and giving access to a car park below. Patients' entrances are on one side of the road, administration and visitors on the other. The second design has approaches to various departments on all sides of the site. Most of the other schemes have variations of these two methods, though it must be said that there is a far greater prevalence of multitudinous entrances than the more direct method of adopting a single gyratory system. There are as many systems of internal vertical circulation as there are of entrances to the site—from the centralized vertical unit embodying patients, visitors, staff and food lifts to the diffusion of circulatory points at the four corners of the site. The winning design has carried its division of patients and administrative circulations at road level through the building with the result of considerable clarity of circulation in the floors above. The second premiated scheme has a very similar system of vertical circulation. Bolder contributions to hospital circulation are

lacking except in one or two of the designs submitted.

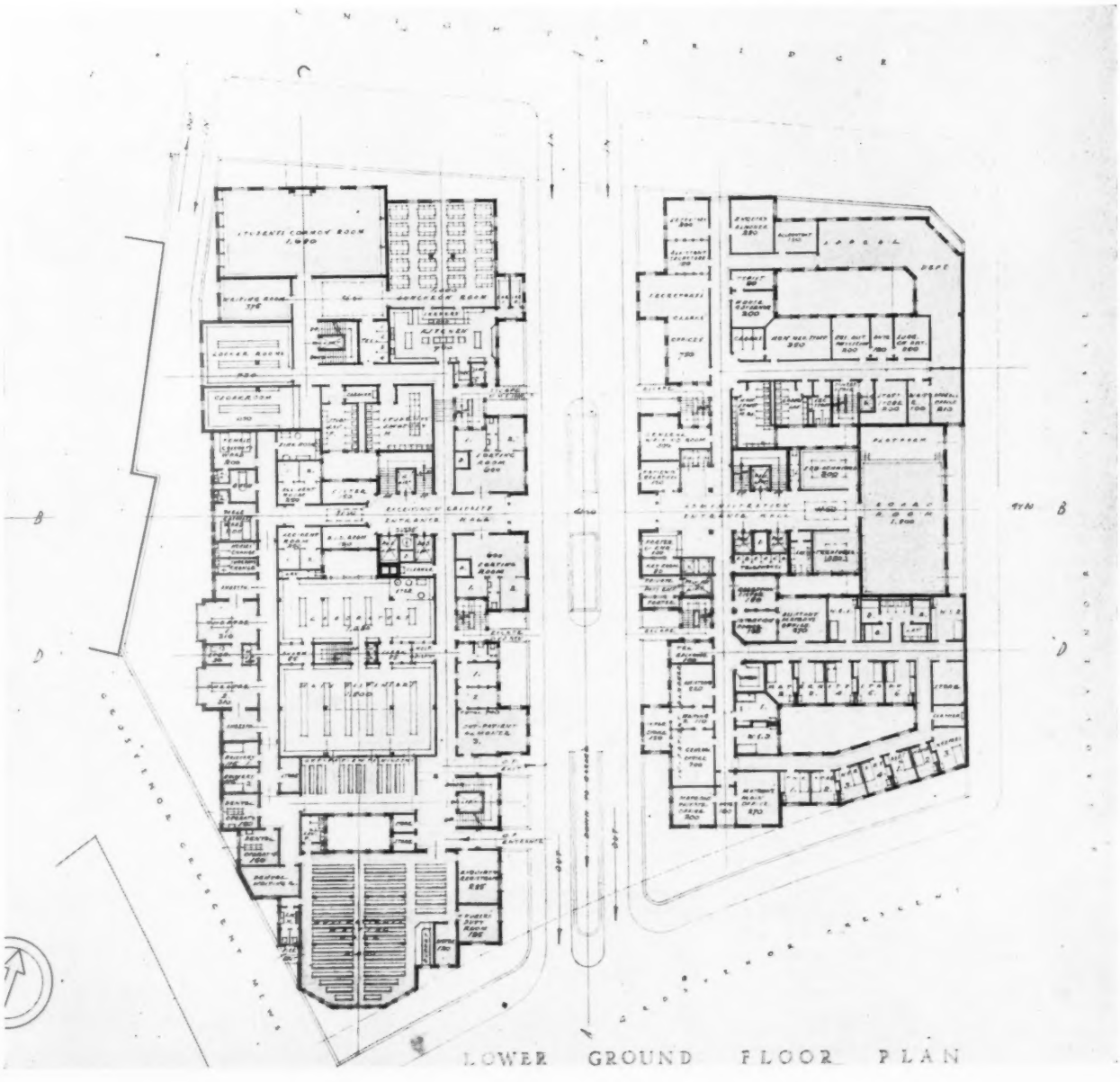
The winner has evolved a plan shape which satisfies the ward requirements as well as the requirements of much of the other accommodation, and in so doing has produced a greater simplicity in the lower floors than in the lower floors of other schemes. Many competitors on the other hand preferred to be uncompromising about the ward floors, which resulted in a general disproportion in the distribution of the accommodation.

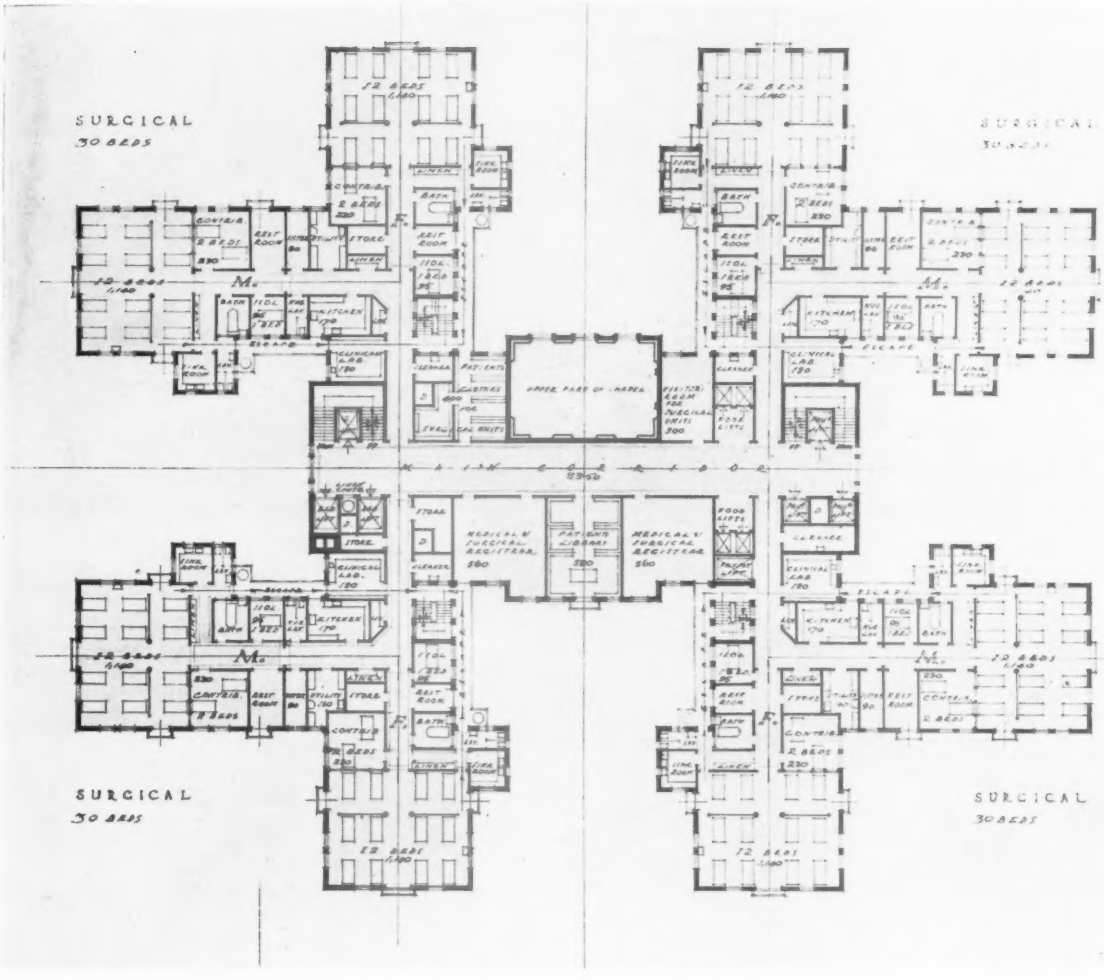
The inter-relation of the various ward





WINNING DESIGN: BY W. H. WATKINS AND PARTNERS





Third Floor Plan

WINNING DESIGN: BY W. H. WATKINS AND PARTNERS

units and departments has been satisfactorily considered in only a few instances. The position of surgical theatres on the topmost floor is generally adopted in the designs submitted, but the relationship between them and the wards is on the whole poor. The winning scheme has surgical wards on the third floor, orthopædic and psychiatric wards on the fourth, medical wards on the fifth, obstetric wards on the sixth, private patients on the seventh, operating theatres and isolation wards on the eighth floor. In only one of the schemes submitted does the author appear to have considered the vertical relationship of ward units in anything like its correct form.

The variety of ward patterns presented in the competition is arresting—from the few that considered aspect and orientation essential to some schemes that had wards opening on to enclosed courts. A number of ward patterns are illustrated.

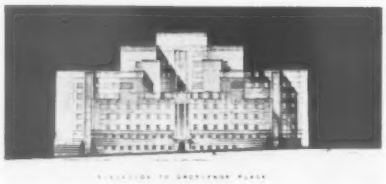
As the conditions asked, balconies have been provided wherever possible. Few competitors have any. The winner has none.

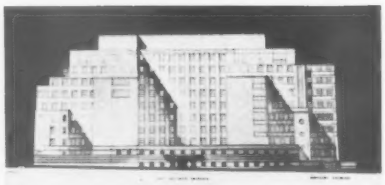
Most schemes have been hard-put-to-it to rationalize their designs with an ordered method of rebuilding. Both the winning scheme and the one placed second scored heavily on this point. Both have a building that can be erected in complete stages without being dependent upon the existing hospital.

There was only about 4½ hours available for examining the designs before the JOURNAL went to press, therefore the detailed examination of schemes which so important a competition demands was not possible, but the more the schemes were examined the greater appear the claims of the first scheme to be the best.

Just before the JOURNAL went to press the writer had a further opportunity of examining the winning designs.

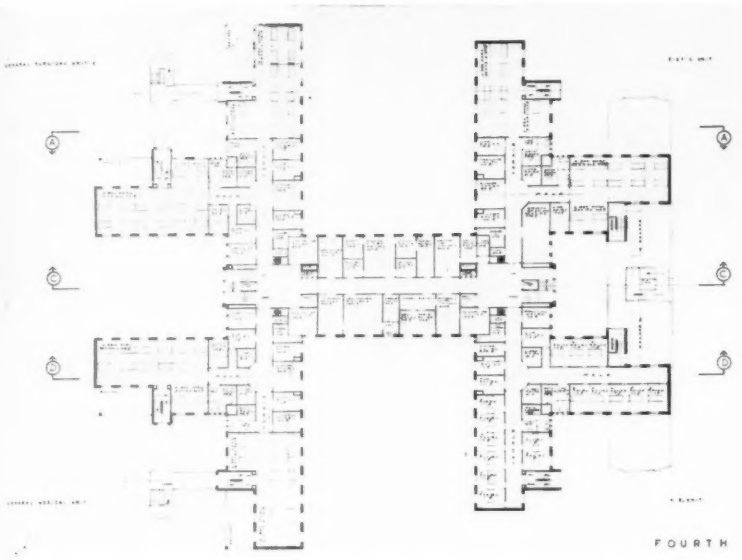
And, considering the many limitations imposed on competitors, he believes the planning of this scheme to be of very great merit ; while the report which accompanied it was easily the most thorough, convincing and perfectly produced document of the kind which he has seen.

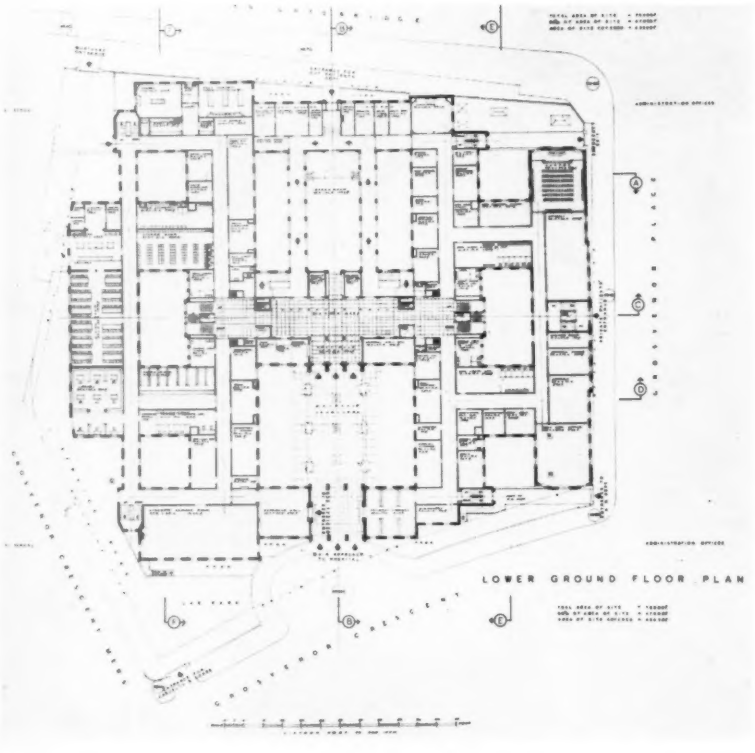




D E S I G N P

BY D. CARR A



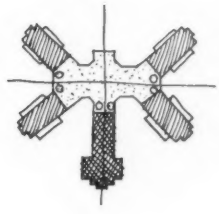


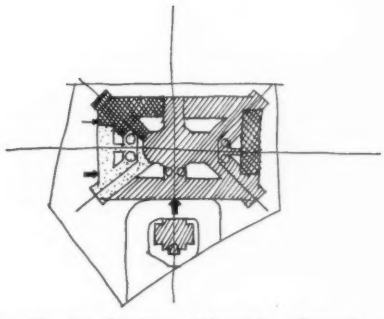
PLACED SECOND

AND W. F. HOWARD

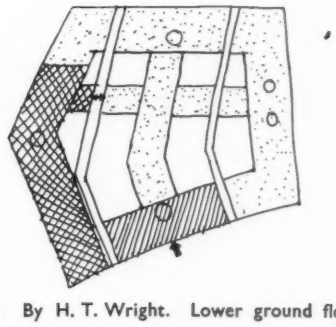
OTHER SCHEMES SUBMITTED

Below and on following pages are sketches showing floor layouts by some of the non-premiated competitors.





No. 18. By Septimus Warwick. Ground and fourth floor plans.

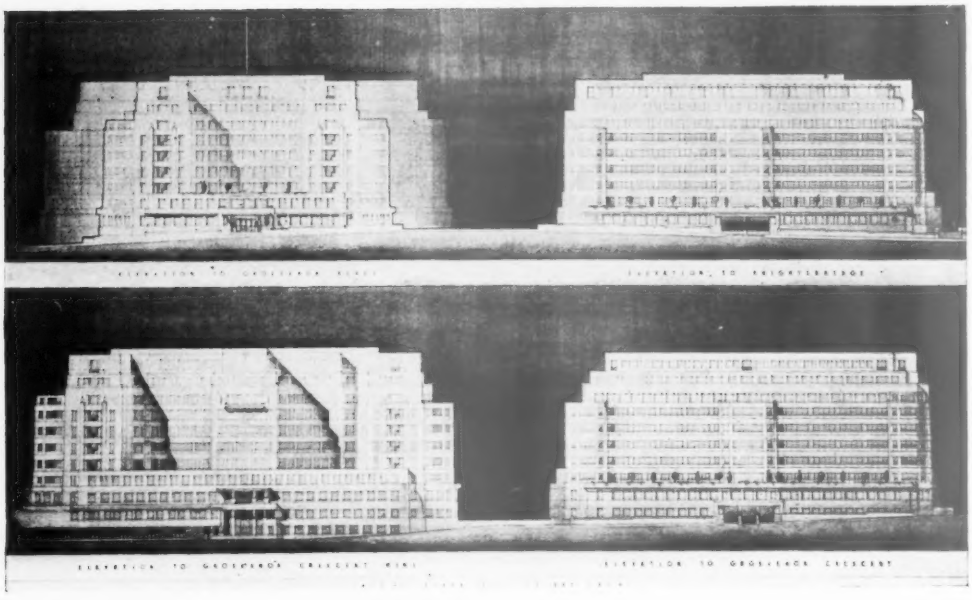


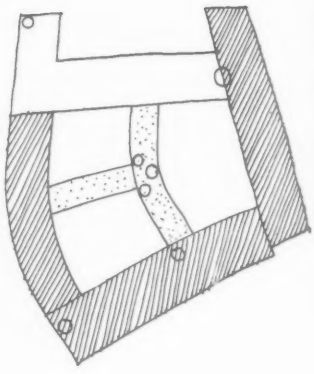
No. 1. By H. T. Wright. Lower ground floor plan.

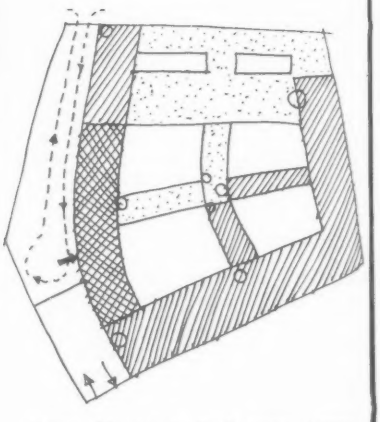
KEY TO SKETCH PLANS

ENTRANCE FLOOR:
OUTPATIENTS DEPT.
ADMINISTRATION
CASUALTY DEPT

TYPICAL WARD FLOOR:
WARDS
ANCILLARIES
RESIDENTS' & NURSES' QUARTERS



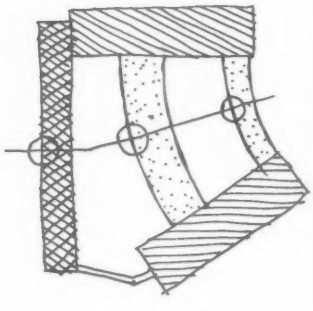


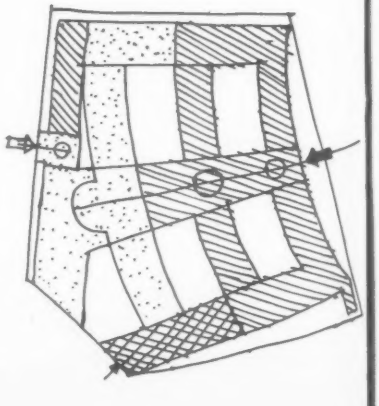


Above : No. 11. By D. A. Jones. Lower Ground and Fourth Floor plans.

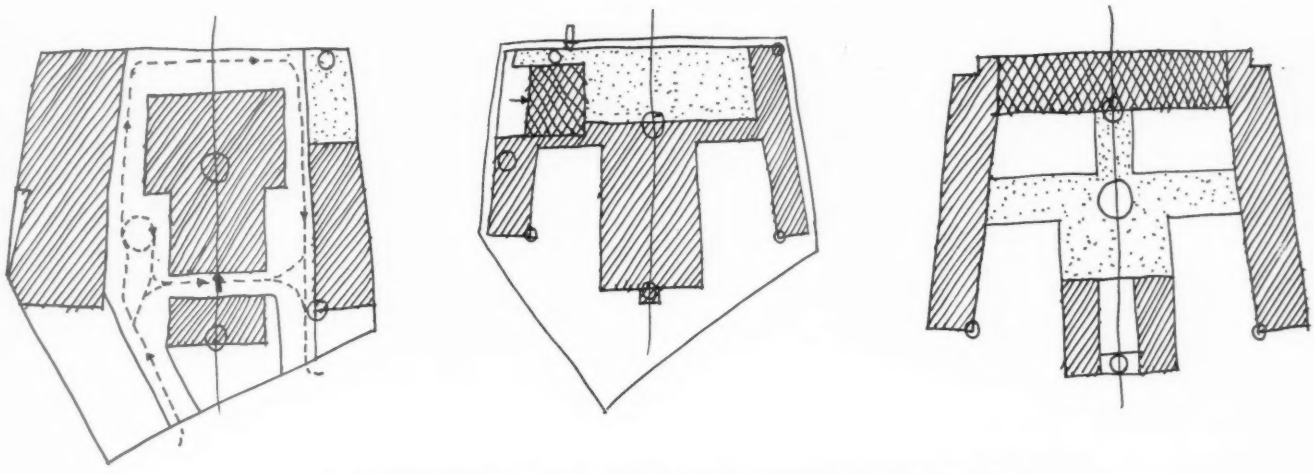
Below : No. 27. By J. Douglas Mathews & Son. Lower Ground and Fourth Floor plans.

Ground Floor plan

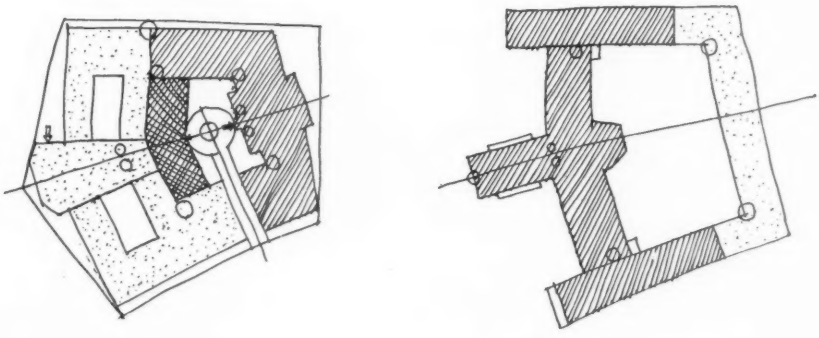




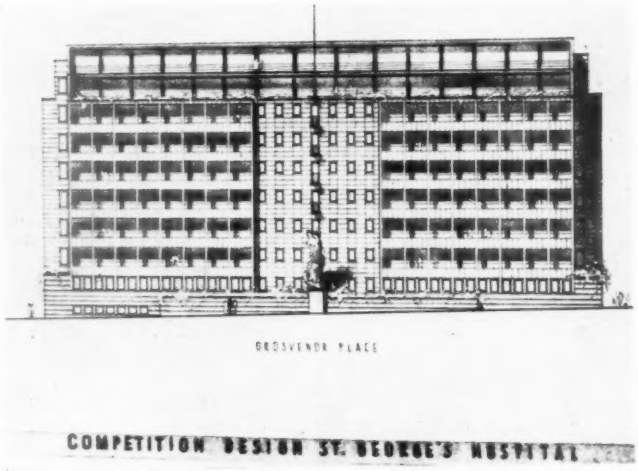
DESIGN PLACED THIRD: BY BRADSHAW GASS AND HOPE

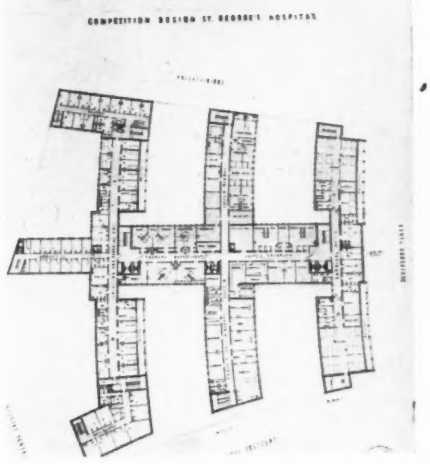


No. 35. By Connell, Ward & Lucas. Lower Ground, Ground and Fourth Floor Plans.



No. 47. By B. W. R. Thomas. Lower Ground and Fifth Floor Plans.





Elevation to Knightsbridge and typical upper floor plan by Erich Mendelsohn and Hannes Schreiner.

NEWS IN BRIEF

● The Committee of the Slough Hospital invites architects to send in their names for a competition for a new hospital at Slough. Those desirous of competing should state their experience and qualifications to the assessors, Messrs. Adams, Holden and Pearson, FF.R.I.B.A., 26 Torrington Square, London, W.C.1. It is the intention of the Committee to select not more than ten architects to compete, and a sum of £30 will be paid to each competitor.

● The New Zealand Institute of Architects Gold Medal and Diploma is awarded annually for a building of exceptional merit erected within the area of the New Zealand Institute of Architects. The award is made by the R.I.B.A. London Architecture Bronze Medal Jury, to whom the drawings and photographs of the buildings nominated are submitted. The award for the year 1938 has been made in favour of the Public Library, Whangarei, designed by Messrs. A. P. Morgan, A.R.I.B.A., and Mr. H. L. Massey, A.R.I.B.A., of Auckland, New Zealand.

●

● The British Council for Cultural Relations with other Countries has received the following cable from Montevideo. If there is any British architect who would like to take advantage of the offer described in Mr. Millington Drake's cable, will they put themselves in touch with Mr. A. S. White, Secretary of the South American Committee of the British Council, 3 Hanover Street, W.1? The minimum return fare for one person, 2nd class, is £45; average 2nd class, £59; 1st class, up to £120.

Chief Architect municipality today spontaneously offered complete hospitality British architect wife this Uruguayan summer autumn for say forty days enabling them benefit very economical return fares

condition receiving same hospitality from them this summer England. Would give his own studio back garden including independent bath flatlet equipment place seaside garden suburb Montevideo quite delightful. Architect key man recommend acceptance possible sailing very economically comfortably second class Roymail 17 February or 11 March staying here approximately four weeks.

Millington Drake.

● The report of the demolition sub-committee of the Central Housing Advisory Committee of the Ministry of Health is now obtainable from H.M. Stationery Office, price 4d. The sub-committee was appointed by Sir Kingsley Wood in February, 1938, to investigate the administration of the statutory provisions relating to the demolition of individual unfit houses in rural areas, having regard to the importance of giving full consideration to the possibilities of reconditioning and to advise whether and, if so, how, the administration of these provisions can be improved.

● A competition for the new £150,000 Hutcheson's Boys' Grammar School, which is to be erected on a 10-acre site near Crossmyloof Station, Glasgow, is to be arranged by Hutcheson's Educational Trust. This was revealed recently in Glasgow by Mr. John M. Biggar, chairman of the trustees, when he referred to the new school at the annual dinner of the Hutcheson's School and Club Trust.

● The Minister of Health has approved an order made by the Slough Town Council under section 17 of the Town and Country Planning Act, 1932, for the preservation of Observatory House, Slough, on account of its special historic interest. The effect of the order is that the buildings cannot be demolished without the consent of the council. The present owner of the house, the Rev. Sir J. C. W. Herschel, Bart., desires that the house should be preserved.

● The Hull School of Architecture is this year holding the sixth annual congress of the Northern Architectural Students' Association on March 2-4.

● Mr. P. G. Marshall, A.R.I.B.A., has been appointed senior assistant on the permanent staff of the Coventry City Architect's Department. He was formerly with the Southgate Borough Council.

● Artists' General Benevolent Institution. Annual General Meeting is to be held at the Royal Academy on March 1 at 4.30 p.m.

● Mr. Berkeley L. Moir, DIP.ARCH. (LPL.), A.R.I.B.A., at present working for the Admiralty, Whitehall, has been appointed to the post of architectural assistant on the temporary staff of the county engineer's department of the Surrey County Council at Kingston-upon-Thames.

● Mr. Samuel Hutton, the Wakefield Housing Architect, was last week appointed to the newly-created position for a period of twelve months only, of city engineer, surveyor, and architect.

● Mr. Leslie H. Kemp, A.R.I.B.A., has terminated his agreement with Union Cinemas, Ltd., and has resumed private practice at 10 Great James Street, Bedford Row, W.C. Telephones : Holborn 9868-9 and 9860.

● Mr. H. T. Rushton, L.M.I.A.A. is now in practice at No. 18 Hand Court, High Holborn, W.C.1, and would be pleased to receive trade catalogues.

● A West of England and Cornwall branch of the Faculty of Architects and Surveyors was inaugurated at Torquay recently.

● The Property and Works Committee of the Aberdeenshire County Council has agreed to a scheme of allocation of the five years' housing programme totalling 1,184 houses among five Aberdeen city architects and one county architect, but has remitted the question of next year's allocation to a sub-committee for possible revision.

● The new address of the Croydon office of Messrs. Riches and Blythin, A.R.I.B.A., is 77 Park Lane, Croydon. Telephone No. as before : Croydon 6520.

● The seventeenth International Congress for Housing and Town Planning is to be held at Stockholm from July 11 to July 15 next. Details of the congress are obtainable from Mrs. Paul Schäfer, secretary of the International Federation for Housing and Town Planning, 47 Cantersteen, Brussels.

● Royal Institute of the Architects of Ireland. Mr. R. H. Byrne has been appointed vice-president of the Institute for the year 1939, and the following members have been elected : As Members : Messrs. J. S. Deane, Brendan J. Ellis, P. F. McDonnell, T. P. McGahon, R. J. Roycroft, F. C. Strahan, and R. S. Scally. As Students : Messrs. H. G. Ashton, W. G. M. Crockett and J. W. H. Woodhams.

NOTES FROM A RECENT MEETING OF THE R.I.B.A. COUNCIL

The R.I.B.A. Alfred Bossom Travelling Studentship.—The Board reported that Mr. Alfred Bossom, the donor of the R.I.B.A. Alfred Bossom Travelling Studentship, had expressed the wish that the character of the prize should be changed. The Council approved the recommendation of the Board that, in accordance with Mr. Bossom's proposals, the R.I.B.A. Alfred Bossom Travelling Studentship as at present offered for award should be discontinued, and that instead R.I.B.A. Alfred Bossom Research Fellowships for Post-Graduate Research should be created. The regulations for the award of these Fellowships were approved by the Council and will be published shortly.

The Owen Jones Studentship.—On the recommendation of the Board, the conditions governing the award of the Owen Jones Studentship were revised. The revised conditions will be published shortly.

The R.I.B.A. Archibald Dawnay Scholarships.—The Board reported that it had approved the programmes of study submitted by the following R.I.B.A. Archibald Dawnay Scholars : Messrs. N. B. Dant, T. E. Fennell, R. D. Hammett, G. F. Horsfall and J. R. M. Poole.

Parliament Square.—On the recommendation of the Town Planning, Housing and Slum Clearance Committee, the Council authorised the Chairman of that Committee to send a letter to *The Times* urging that every effort should be made to preserve the site in Parliament Square as an open space.

National Planning.—On the recommendation of the Public Relations Committee and the Town Planning, Housing and Slum Clearance Committee, it was agreed to write to the Chairman of the Royal Commission on the Geographical Distribution of the Industrial Population and to the Minister of Health expressing approval of the essential recommendations in the report of the National Survey and National Planning Committee of the Town Planning Institute published in May, 1938, particularly that urging that a Planning Commission should be appointed.

The National House-Builders' Registration Council.—The Secretary reported the receipt of the following letter from the National House-Builders' Registration Council :

The National House-Builders' Registration Council,
13 Russell Square,
London, W.C.1.

Dear Sir,—I am directed by the Chairman of the National House-Builders' Registration Council to inform you that the following resolution was passed at the meeting of the Council held on the 13th December :

"That the National House Builders' Registration Council, being a body established with a view to securing improvement in the standard of construction of houses built for sale as a speculation and in order to protect the interests of purchasers of this class of property, to which alone its activities extend, desires to emphasize that no measures taken by it in pursuance of the above objects do or are intended to constitute anything in the nature of an encroachment upon the proper sphere of employment of the architect in private practice, for which reason work done under contract for *bona fide* building owners is specifically exempted from the provisions of the scheme operated by the Council, and that moreover it is the consistent policy of the National House Builders' Registration Council to give the fullest support to all endeavours directed towards the improvement of the standards of planning and design observed in housing schemes undertaken by private enterprise, and in particular where those endeavours are directed to encouraging house builders and estate developers to make ample and increasing use of the services of the architectural profession in order that this end may be achieved."

Yours truly,
GILBERT F. ARMITAGE,
Secretary.

The Secretary, the Royal Institute of British Architects.

Appointments. Architectural Education Committee of the University of London. Professor A. B. Knapp-Fisher (F.) ; Mr. Hubert Lidbetter (F.). *Royal Sanitary Institute Health Congress, Scarborough*, 1939. Mr. C. W. C. Needham (F) (President of the York and East Yorkshire Architectural Society).

R.I.B.A. Air-Raid Precautions Committee. A representative of the Institution of Civil Engineers.

Special Committee of the Council to consider and report on Joint Membership of the R.I.B.A. and the Allied Societies and the Financial Relationship between the R.I.B.A. and the Allied Societies. London Members : The President, the hon. secretary, the hon. treasurer, and Messrs. E. Stanley Hall (F.), A. H. Moberly (F.), and Stanley A. Heaps (L.). *Provincial Members :* Messrs. Percy Thomas (F.), James R. Adamson (F.) (chairman of the Allied Societies' Conference), C. G. Soutar (F.) (vice-chairman of the Allied Societies' Conference), A. L. Roberts (F.), J. L. Denman (F.), Norval R. Paxton (A.).

Special Committee to consider the Problem of Refugees. Mr. E. C. Bewlay (F.), Mr. R. F. Jordan (F.), Mr. Kenneth Cross (F.)*, Mr. H. G. Spencely (A.),* Mr. Michael Waterhouse (F.).* (* Representing the Practice Committee.) Mr. H. Chalton Bradshaw (F.),† Mr. F. R. Yerbury (HON. A.).† († Representing the Foreign Relations Committee.)

R.I.B.A. Architecture Bronze Medals : Manchester Society of Architects : Jury of Award. Professor W. G. Holford (A.). *Science Committee.* Mr. S. N. Cooke (F.) in place of Mr. Howard Robertson (F.).

Reinstatements. The following ex-members were reinstated : As Associates : Oscar Alexander Beattie, Spencer Grey Wakeley Hunt, Barbara Kollerstrom and Maud Amy Margaret White. As Licentiate : Leslie Charles Fairbairn.

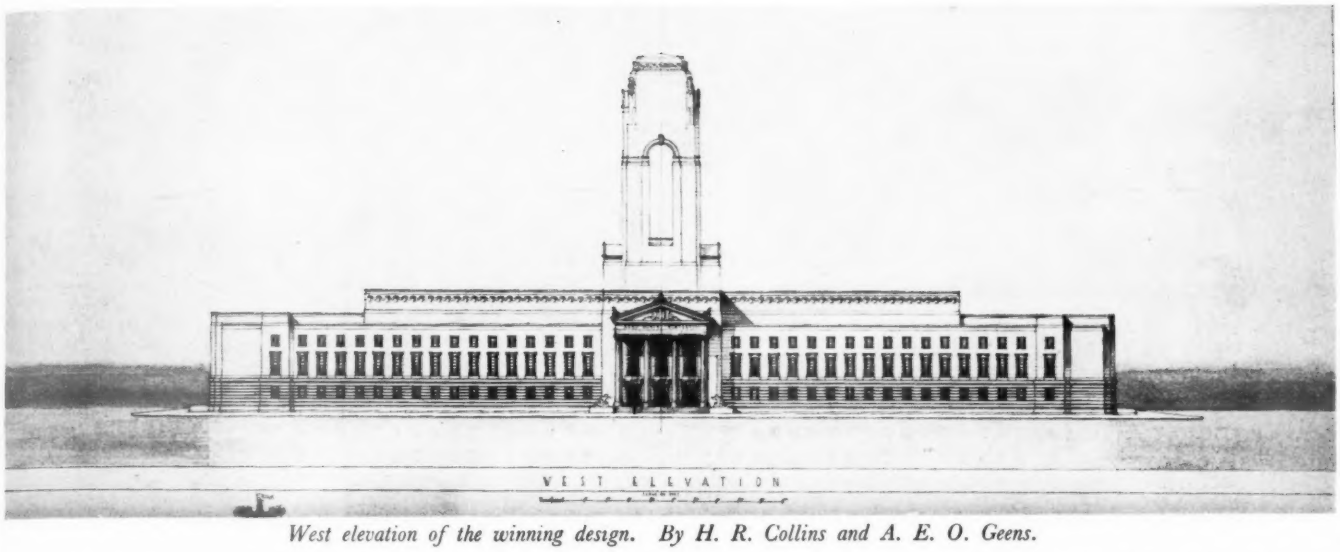
Resignations. The following resignations were accepted with regret : Messrs. Alfred Hill (A.), Reginald Selby Perry (A.), Arthur Henry Baily Beauchamp (L.), Alfred Cowman (L.), and Edwin Fallding Green (L.).

Transfer to the Retired Members' Class. The following members were transferred to the Retired Members' Class : As Retired Fellows : Messrs. Hugh Byron, Arthur James Driver, Wilberforce Ernest Hazell, William Thomas Sadler, James Smith, Thomas Townend, and Horace White. As Retired Licentiates : Messrs. John Barlow-Smith, William Gannon and Frederick Joseph Tomline.

R.I.B.A. EXAMINATIONS

The R.I.B.A. Examination Board in India has arranged to hold the R.I.B.A. Final and Special Final Examinations in Bombay from April 14 to April 22, 1939. The last day for receiving applications, which should be sent to the Hon. Secretary of the R.I.B.A. Examination Board in India, "Gustad Chambers," Sir Pherozeshaw Mehta Road, Fort, Bombay, is March 14.

THE NEWCASTLE COMPETITION



West elevation of the winning design. By H. R. Collins and A. E. O. Geens.

The award of the assessor, Mr. Verner O. Rees, was announced at last week's meeting of the City Council, as follows :

(1) First (£750) : Messrs. H. R. Collins and A. E. O. Geens, Regent Chambers, 15 Westover Road, Bournemouth.

(2) Second (£500) : J. L. Gleave, Esq., School of Architecture, College of Art, Edinburgh.

(3) Third (£300) : Messrs. Herbert Jackson and Reginald Edmonds, 24 Bennett's Hill, Birmingham, 2.

The premiated designs are illustrated and reviewed on this and the following three pages.

Right : Authors of the winning scheme. Mr. H. R. Collins (seated) and Mr. A. E. O. Geens.

REVIEW OF THE PREMIATED DESIGNS

NOWADAYS the large municipal competition exists in a world of its own. If we want them to continue—as we do—we must just admit that promoters' passion for grandeur is still too strong for the profession.

The big municipal competition scheme has become out of touch with ordinary social conditions, has a most slender connection with contemporary architecture, and not much connection with architecture of any kind.

There are three possibilities open to the man who goes in for one of these large competitions :

1 : He can concentrate the grandeur on the Council Chamber and Council Suite and design the office accommodation as simple, perfectly lighted and ventilated, businesslike blocks—all openly grouped.

2 : He can compromise a little and, by drawing the units closer in an H or double cross form, give more apparent grandeur without much disadvantage to those who will work in the building.

3 : He can go all out on the grandeur, and by using variations of the " County Hall " or " Worthing " plan get a monumental compactness which is still most promoters' idea of the finest architecture. Lighting, aspect and ventilation in this case take a humbler seat.

There is no good mincing matters : you just have to study the Assessor and take your chance.

At Newcastle only the three premiated schemes are so far on view. But the critic saw one or two other schemes before submission, and gives his sympathy to those who chose alternatives 1 or 2. No. 3—compact grandeur—has it.

If this third conception of a town hall is accepted (and it is after all merely a matter of opinion if it is not), the premiated schemes are of great merit. And it is in terms of this compact planning that the following notes are made.

The Winning Design

The winners have produced an extremely compact and well-arranged scheme, particularly on the first floor, where the Council Chamber, ante room, grand staircase (surmounted by the tower), crush hall, and the reception room, are grouped together in a manner which could hardly be improved upon.

The main entrance, entrance hall, staircase and the large rates hall are on the central axis and are very well thought out, particularly so in regard to the rooms which must be near the rates hall.

This plan is lighted internally by two areas, having buildings on all four sides, and another enclosed area will be necessary when the future extensions are built.

The ground-floor corridors of the front block will have no light or ventilation other than borrowed light ; and there are some rooms in the interior of this block which will have no natural light or ventilation at all.

This is the price one has to pay for the really admirable arrangement of the first floor of this main building referred to above.

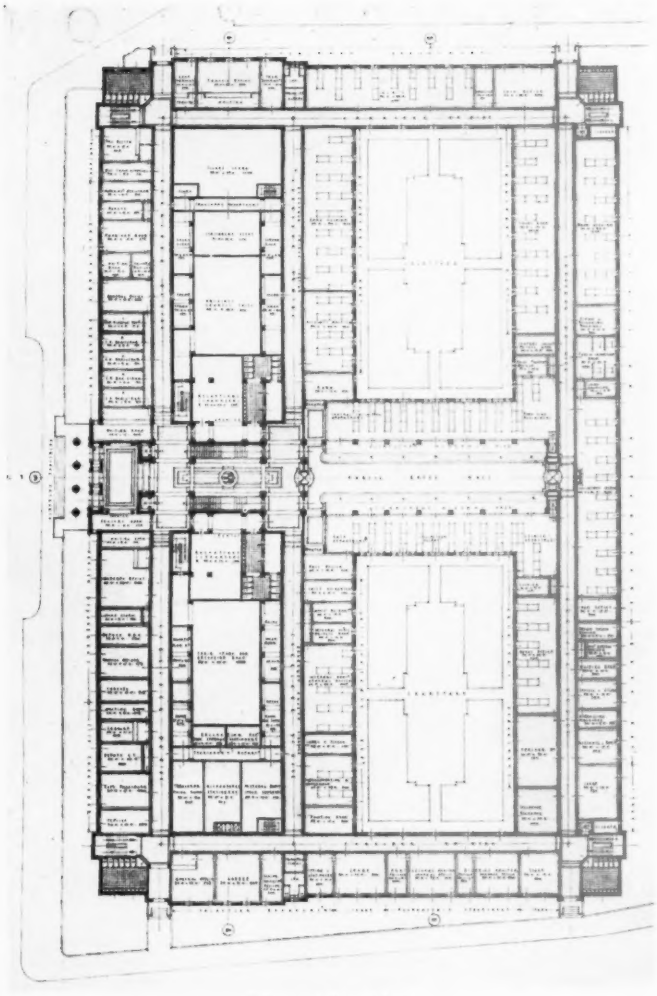
Many of the most important rooms, such as the committee rooms, members' rooms, smoking room, lady members' room and members' robing room, are lighted from an internal area—a large one it is true but still surrounded by buildings on all four sides. This also must have required some courage.

In fact, this plan is a very courageous one indeed and has resulted in a compactness and economy quite impossible in an open plan, and its authors are to be congratulated on having got away with it.

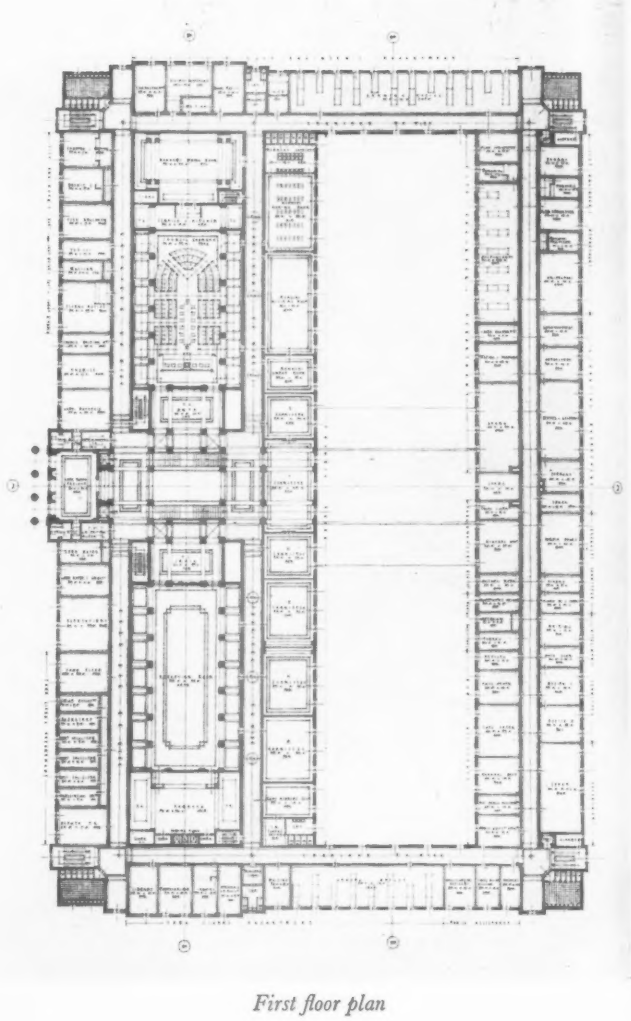
The Elevations

The elevation to the west (the principal one) consists of a Greek portico admirably indicated by the half-inch scale detail, surmounted by a tower very well designed, flanked by two very long ranges of windows and the wings.

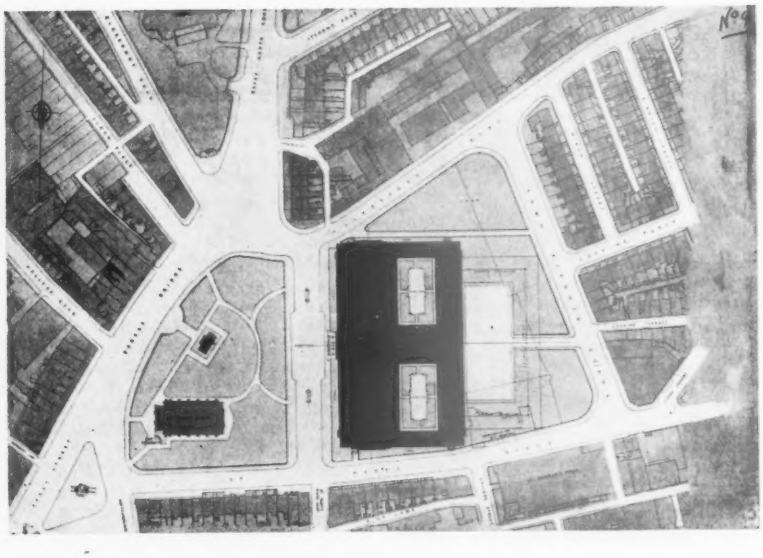
The ceremonial rooms are carried up to



Ground floor plan



First floor plan



WINNING DESIGN BY H. R. COLLINS AND A. E. O. GEENS

form an ornamental frieze which will be very effective.

The longitudinal section through this block is a most satisfying piece of work, and the manner in which the Council Chamber, ante-room, staircase, the tower, crush hall and the reception room are arranged is excellent.

THE SECOND DESIGN

This design has one enclosed internal area only from which important rooms are lighted and ventilated.

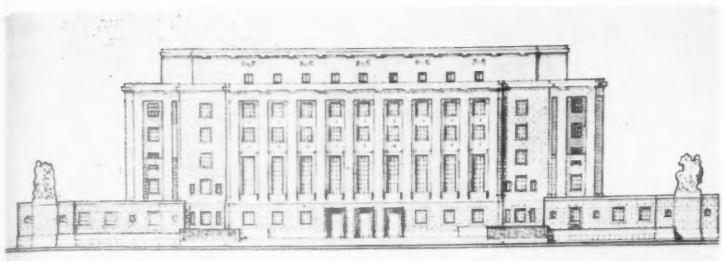
Had it not been that some rooms on the ground floor had to be lighted and ventilated from very small (although shallow) internal areas, this scheme might, in the writer's opinion, have deserved a higher place.

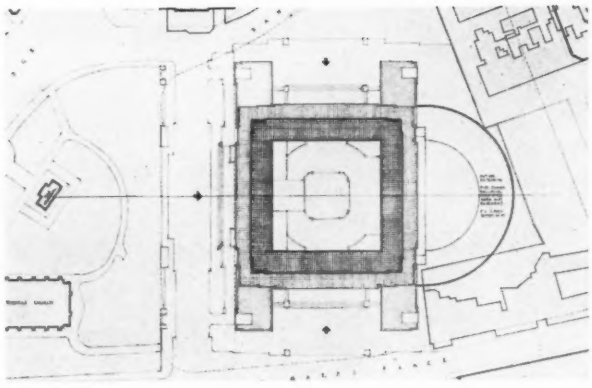
It is a most interesting scheme, and its treatment displays imagination of a very high order.

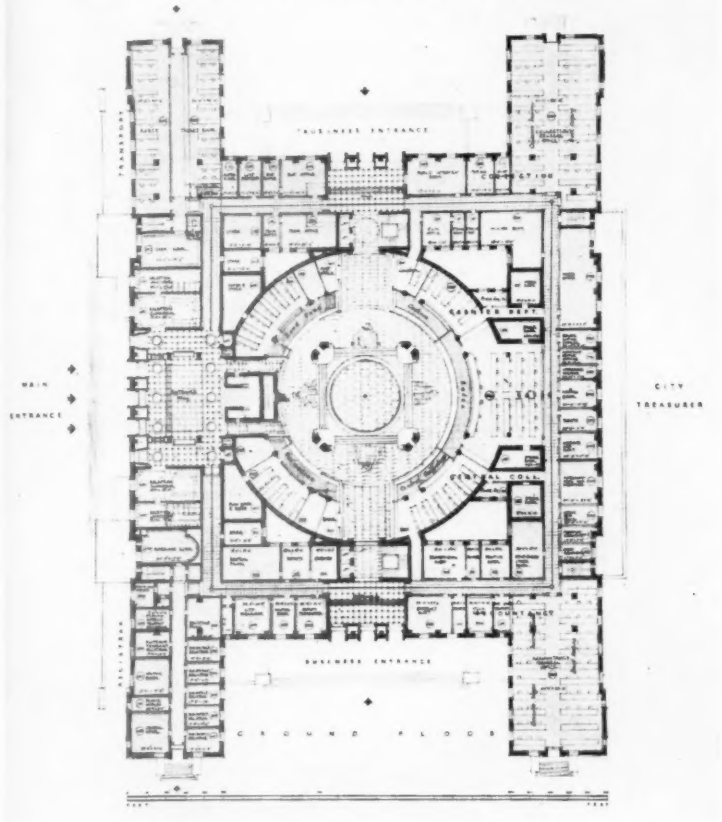
The plan has two long ranges of buildings, one facing west and the other east. These are joined together by north and south blocks, deeply recessed. A large internal area is thus formed which contains the rates hall in rotunda form, lighted from the top all round, with the Council Chamber over it in the centre. Four small lighting areas are left at the angles, and this is the weakness of an otherwise very original and brilliant layout.

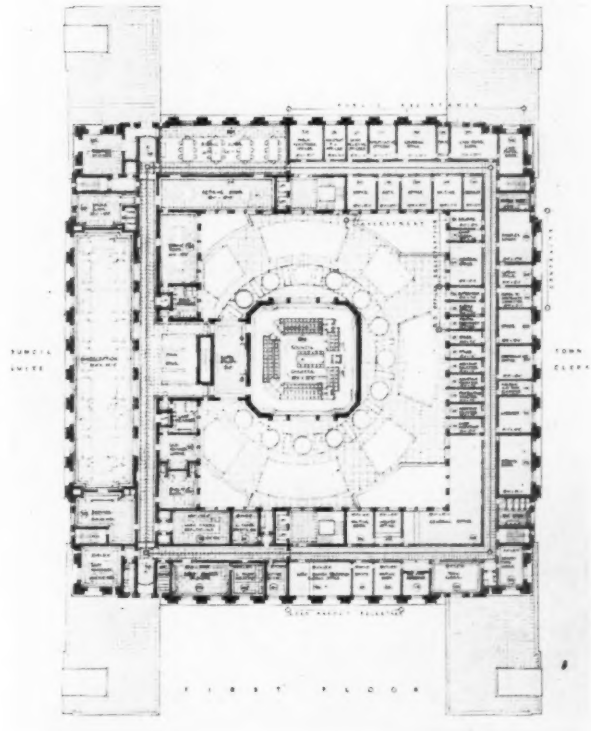
The main entrance, entrance hall and grand staircase are well planned, and the Council suite is well arranged on the west front. The projecting wings on the north and south fronts are kept low, being only one storey high, and two groups of sculptured statuary are very cleverly placed at either end of the west front, the whole composition forming a most imaginative design.

Weak points in this scheme are inevitable, such as the inadequate height of the greater









DESIGN PLACED SECOND: BY J. L. GLEAVE

part of the large rates hall, and the lighting of the rooms next the rates hall on the ground floor; on the other hand, the Council Chamber, grand staircase and the reception room are particularly well arranged.

THE THIRD DESIGN

This design has an immense grand staircase hall stretching along the whole west front, leading up to the Council Chamber on the extreme north and to the reception room on the extreme south. The large rates hall is in the centre, on very similar lines to the second award, but almost square on plan.

This is in some respects the best scheme of the three. It has a simplicity and directness which is most attractive, and which must have made a strong appeal to the Assessor.

It has, however, the faults which all schemes must have which enclose an area on all four sides—inadequate light and ventilation to the rooms and corridors facing that area, especially on the ground floor.

The four small areas at the ends of the staircase hall are a pity, and the reasons for them appear to be a defect in planning.

The longitudinal section through the front block is particularly well thought out, and the Council suite is very well arranged on the first floor.

The main elevation is well balanced and carefully designed, but it is not so successful or so satisfying as the other two schemes.

Extracts from the

WINNERS' REPORT

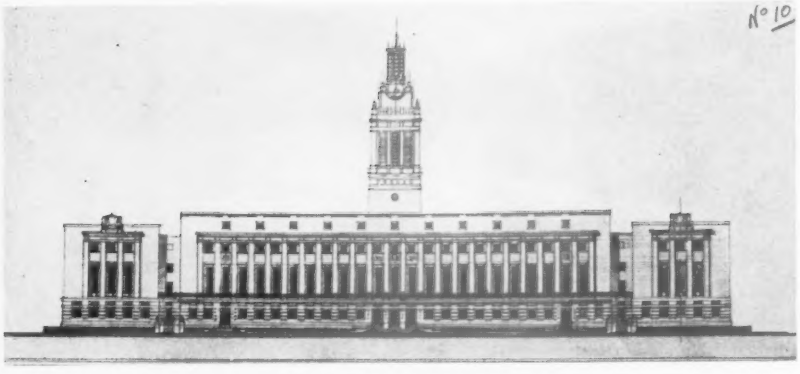
Plan.—In view of the magnitude of the scheme and the ancient traditions of the city the planning has been conceived on monumental lines with a very strict regard to constructional economy and an avoidance of wastefulness which in buildings of similar magnitude in the past are so distressingly apparent.

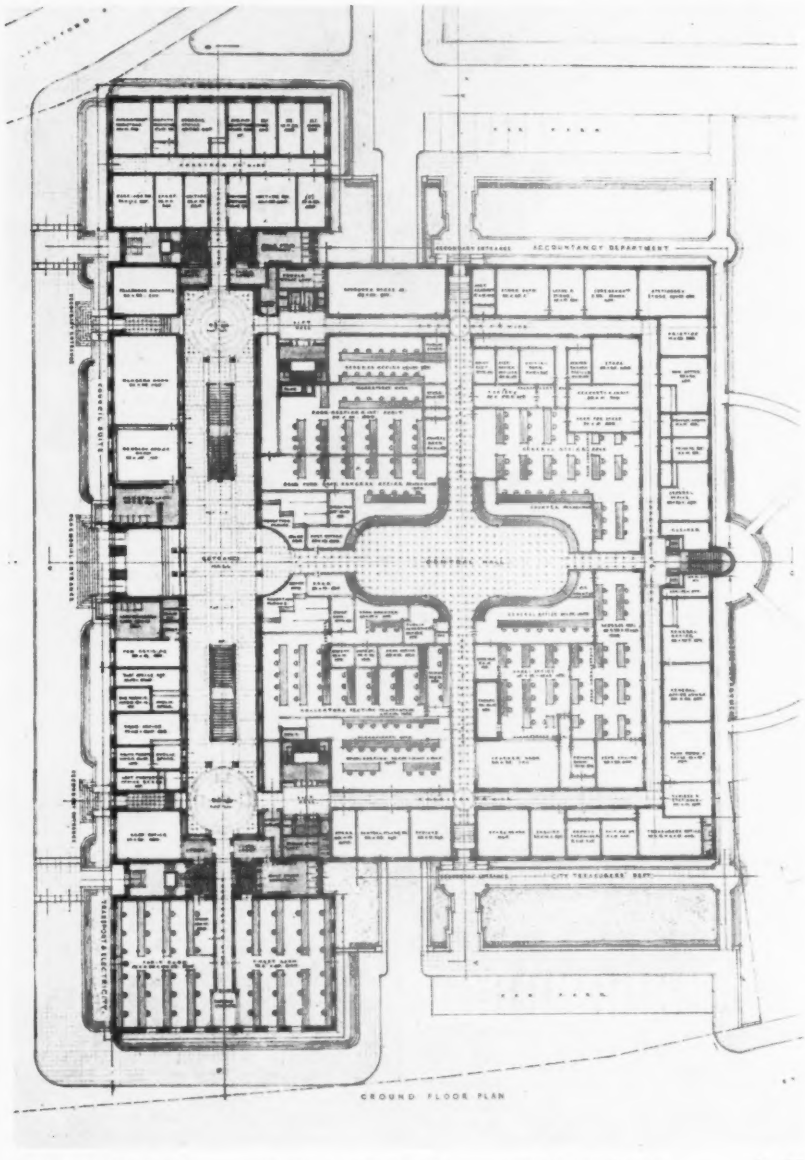
The Council Suite.—In view of its importance the council and committee suite has been given the key position to the whole design. It is wholly on the first floor and approached by a ceremonial dual staircase in stone immediately under the great tower, from whence it would be flooded by daylight from a lofty height. The whole of the committee suite rooms are in one continuous line flanked by a 9 ft. wide committee corridor. All these rooms are segregated and without interference with or from the main outer circulation. All the committee rooms face east; none of the committee rooms, members' room, etc., are built over, and thus additional vertical height to each of them can be achieved without reference to a whole office floor which would otherwise result if these rooms were placed anywhere in the main circulation. The principal committee rooms may form an integral part of the large reception room if and when desired retaining segregation of the whole and non-interference with the office circulation.

Because of its supreme importance the Lord Mayor's parlour has been given the dominant position behind the main portico of the west elevation, and the remainder of the rooms, forming the Lord Mayor and Lady Mayoress' suite, subtend from this central unit.

The Exterior Elevations.—The conditions and instructions are pleasantly clear in their suggestive notes on this subject. That they are to be faced with local stone and should reflect the "magnitude and importance of the services undertaken under the national system of local administration," and also should express "the grandeur of the architectural programme" is a very definite lead of great assistance to competitors.

Whilst it may possibly be thought that the modern movement in architectural expression has arrived at the end of a period marked by hesitations and anachronisms which more than justify a complete release from the idioms of the Renaissance, it is felt that the ancient traditions of the City of Newcastle-upon-Tyne should





DESIGN PLACED THIRD: BY H. JACKSON AND R. EDMONDS

receive a consideration which would not be applicable to a modern borough without such tradition.

Therefore a building, having its masses built up monumentally, making restrained use of the modern idiom based on classic motifs, would appear to be the most ideally suitable for the very large civic building under consideration. To this end the Ionic order has been made use of, but in no tentative manner, so that a massing-up of the elevations should portray serenity, breadth and restraint without playing tricks with the accepted proportions of the order.

The principal view of this building will be from the very wide open space extending along the whole of the west elevation, and the grouping of the masses has been so arranged as to give external expression, and, indeed, emphasis, to the three dominant units in the planning—that is to say, the Lord Mayor's parlour, the council chamber and the reception room. The former occupying the dominant position under the portico with the council chamber and reception room massed up in symmetrical balance to right and to left of it as a natural extension along the cross axis of the building which has its great tower above the intersecting point of the main and cross axis lines of the whole composition.

Construction.—The form of the design is on the principle of the enclosed plan and whilst the external elevations would be wholly of local stone a not inconsiderable saving in cost may be made by facing the internal elevations to the great courtyards with light silver-grey bricks in harmony with the colour and texture of the stonework.

All floors and staircases would be of fireproof construction. The floors of entrances, main staircases, main staircase hall, etc., would be in dressed stone and all corridor floors in terrazzo. The floor of the reception room would be in narrow oak boards supported on spiral springs which could be locked rigid when not required for dancing. The floors of council chamber, committee rooms, Lord Mayor's suite, etc., in oak, and the remainder of the floors in rift sawn pine from British Columbia.

The walls of main entrance halls, main staircases, first floor ceremonial hall, etc., would be lined with local stone in shallow rusticated courses.

Flat roofs covered with standard rock asphalt on cork underlay. All common joinery in red cedar from Western Canada. Doors and principal joinery in English oak throughout.

The committee rooms, council chamber, Lord Mayor's parlour, etc., etc., would be panelled in various hardwoods from English and Empire sources.

The building generally would be steel-framed throughout.

The whole of the partition walls in the offices are designed on the equal-unit basis in conjunction with the structural steelwork and would be structurally independent. They would be of pumice block or similar construction so that departmental re-arrangement could be carried out if and when necessary in the future with a minimum of disturbance.

Heating and Ventilation.—The boiler-house is situated slightly below basement level in a central position at the rear of the building with easy access for delivery of coke, etc.

The larger rooms, such as the council chamber, the reception room, committee rooms, members' room, public rates hall, muniment rooms, etc., would be ventilated and heated by a special air-conditioning plant adjacent to the boiler-house and would form the subject of a special study.

Future Extensions.—The instructions to competitors provides on page 16 therein that the building is to be so designed as to be complete in its present form on all sides, but that proposals are to be indicated on the block plan only as to how a wing or wings containing approximately 50 per cent. increase of the departmental office accommodation can be added without injury to the general grouping.

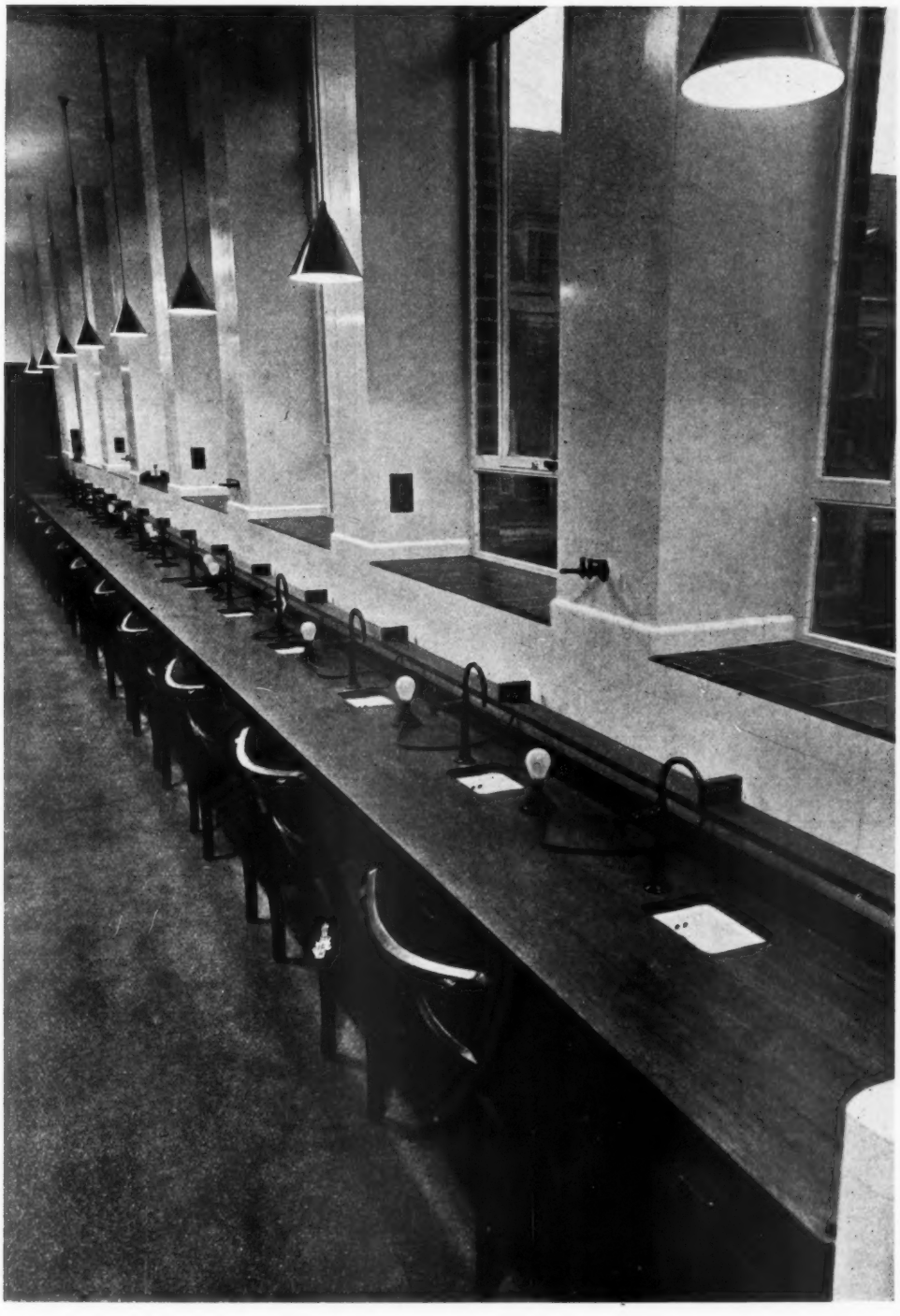
Such proposals as those referred to are clearly indicated on the block plan, and these future extensions, on a basis of 20 ft. wide departmental offices, show a total of 63,900 ft. sup. future office accommodation spread over the ground, first and second floors. This total is slightly above the 50 per cent. increase referred to in the conditions and instructions and is made up of 21,300 ft. sup. on each of the three floors referred to. Should this future extension block be required to carry basement stores also, a further 21,300 ft. sup. could be accommodated therein.

SUMMARY ESTIMATE OF COST

	£
The superstructure above ground floor level : 3,221,932 ft. cube at 2s. 4d. ..	375,890
The foundations and basement rooms, etc., from footings up to ground floor level : 829,070 ft. cube at 1s. 3d. ..	51,816
Cost of layout of forecourt and lay-out of site not occupied by buildings, say	4,000
Total, excluding visible part of tower	431,706
The tower above main top parapet level : 145,332 ft. cube at 2s. 6d. ..	18,165
Grand total	449,871

WORKING DETAILS : 727

LABORATORY BENCH • SCHOOL OF ANATOMY, CAMBRIDGE • STANLEY HALL & EASTON AND ROBERTSON

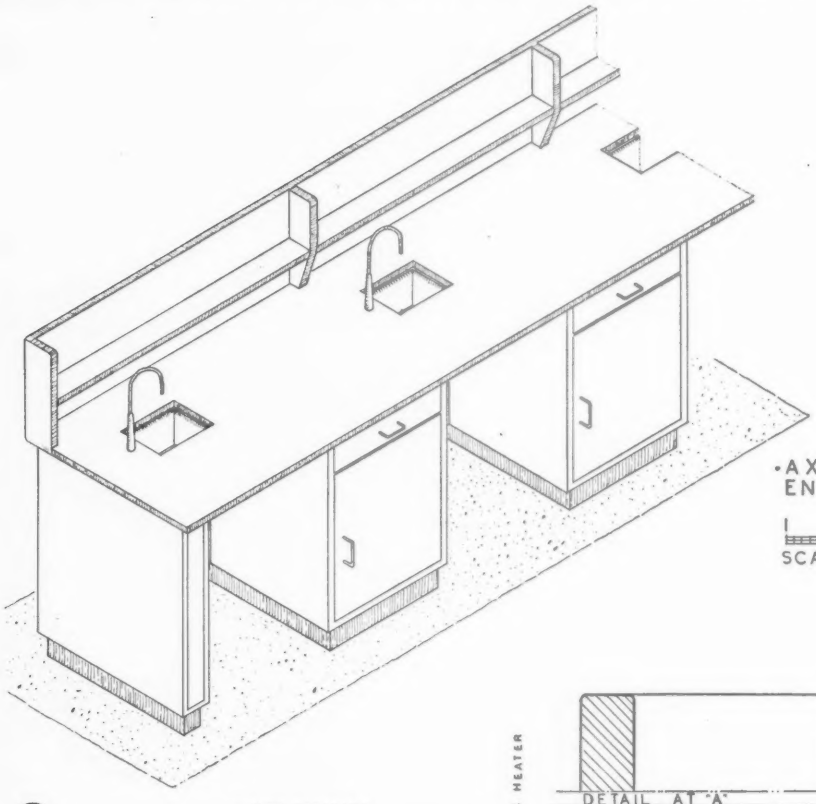


In the principal departments each student is provided with a fitting, containing a sink and points for gas, water and light. In the comparative anatomy department, the services are accommodated horizontally in the backs of the rows of fittings, descending to the floor at the end of each row.

The benches have a continuous teak top, and the cupboards under are in oak. The wall behind the fittings is tiled up to cill level. Detachable access panels to the horizontal service pipe duct occur at each fitting. Details are shown overleaf.

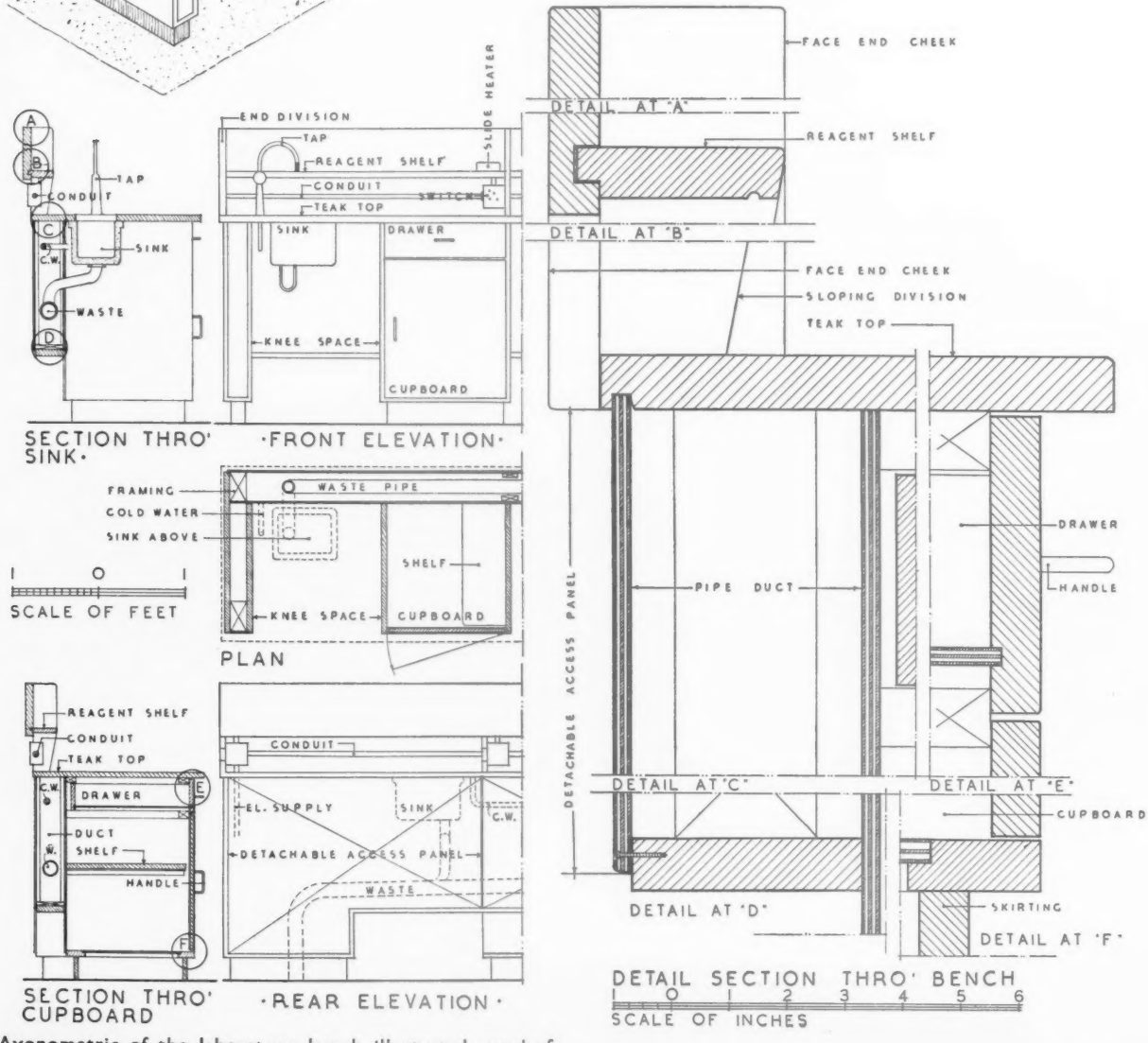
WORKING DETAILS : 728

LABORATORY BENCH • SCHOOL OF ANATOMY, CAMBRIDGE • STANLEY HALL & EASTON AND ROBERTSON



·AXONOMETRIC SHOWING END UNIT & TYPICAL UNIT·

1 0 1 2 3
SCALE OF FEET



Axonometric of the laboratory bench illustrated overleaf.

The Architects' Journal Library of Planned Information

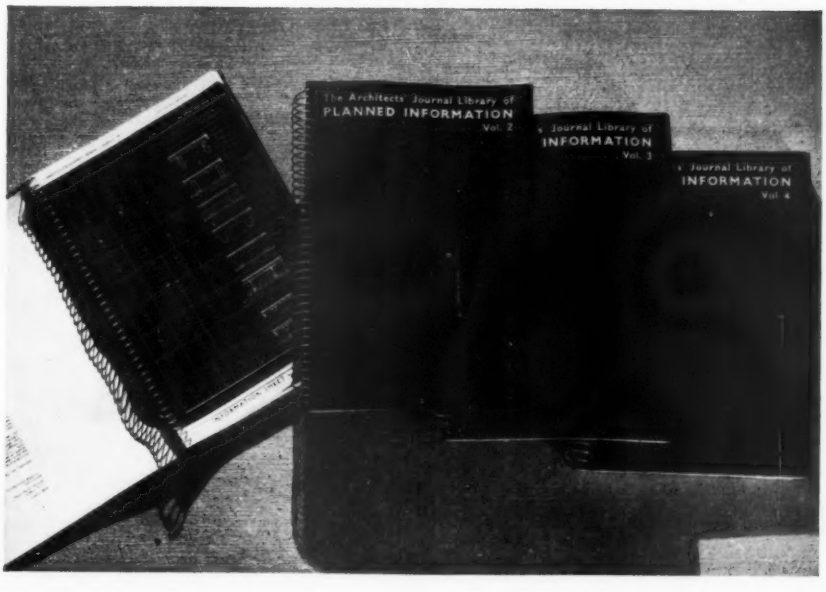
INFORMATION SHEET

SUPPLEMENT

SHEETS IN THIS ISSUE

707 Furniture Layout

708 Plan Elements



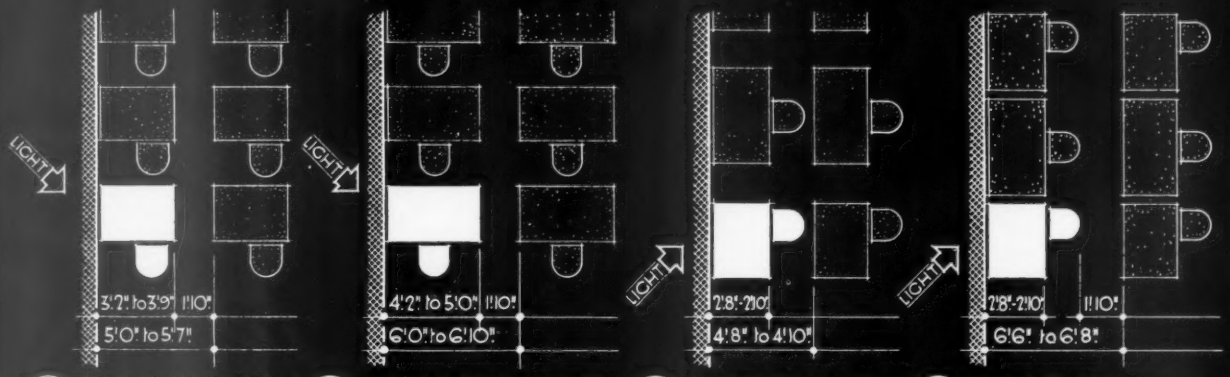
All the Information Sheets published in The Architects' Journal Library of Planned Information since the inception of the series to the end of 1937 have been reprinted and are available in the four volumes illustrated here. Price 21s. each.

Sheets issued since Index :

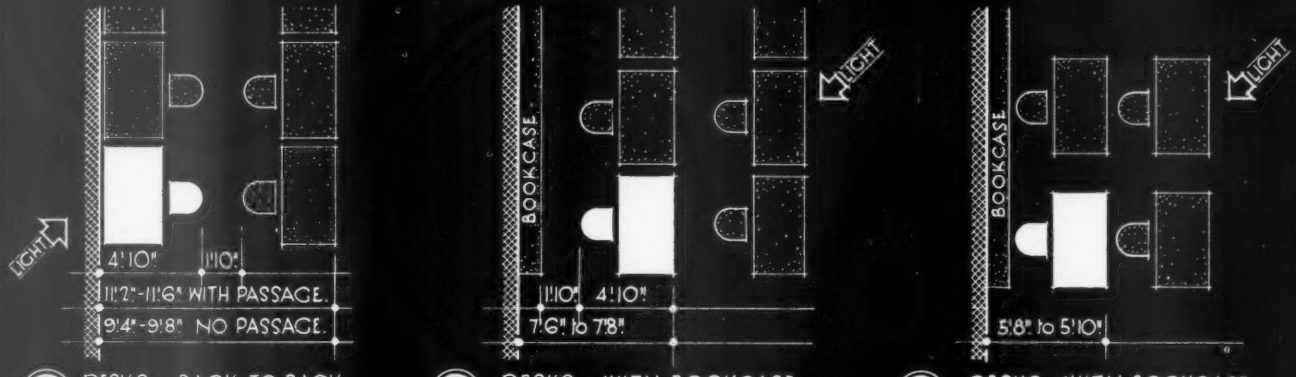
701 : Tile Hanging
702 (420 revised) : Fixing Insulating Board
703 : Sheet Metals
704 : Plan Elements
705 : Metal Work
706 : Plan Elements

864

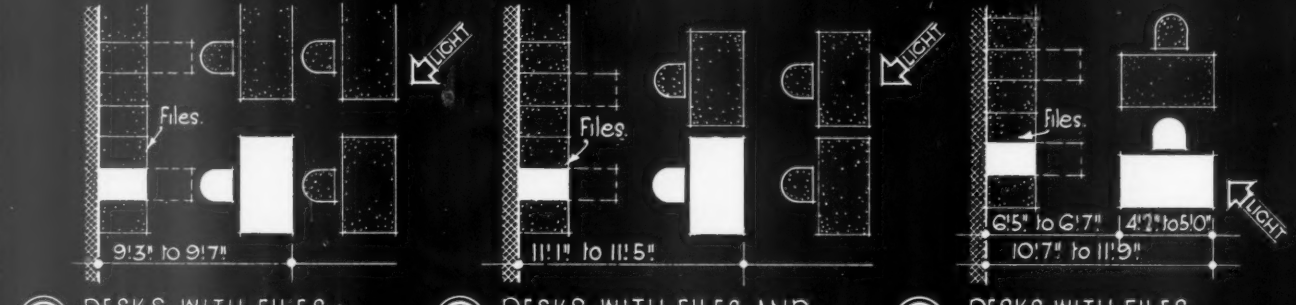
THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION



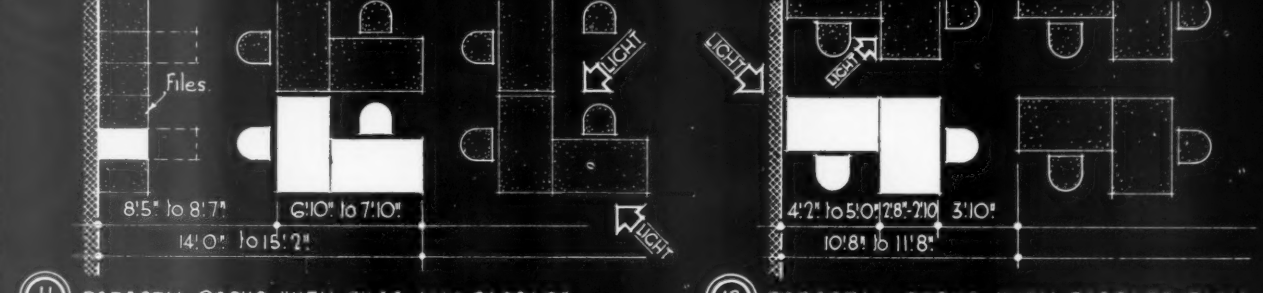
1. TYPIST'S TABLE WITH PASSAGE.
2. DOUBLE PEDESTAL DESK WITH PASSAGE.
3. TYPIST'S TABLE & DESK · NO PASSAGE.
4. TYPIST'S TABLE & DESK · WITH PASSAGE.



5. DESKS · BACK TO BACK WITH PASSAGE.
6. DESKS · WITH BOOKCASE AND PASSAGE.
7. DESKS · WITH BOOKCASE NO PASSAGE.



8. DESKS WITH FILES · NO PASSAGE.
9. DESKS WITH FILES AND PASSAGE.
10. DESKS WITH FILES AND PASSAGE.



11. PEDESTAL DESKS WITH FILES AND PASSAGE.
12. PEDESTAL DESKS WITH PASSAGE ONLY.

INFORMATION SHEET : LAYOUT OF OFFICE FURNITURE & FITTINGS.

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

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 707 •

FURNITURE LAYOUT

Subject : The Lay-out of Office Furniture

General :

This Sheet sets out a number of arrangements of office desks and filing cabinets with the necessary clearances and passage ways.

Sizes of Furniture :

Both office desks and chairs vary enormously in size, but the general size of desk assumed (2 ft. 6 in. by 4 ft. 6 in.) represents a general average size for clerical workers. The chair on which the diagrams are based is 18 in. wide and measures 18 in. from the edge of the desk to the back of the chair *when occupied*.

Smaller chairs are used but are less common ; large chairs are used mainly for more important individuals for whom more space must be allowed. The furniture sizes are then not a controlling factor.

Clearances :

The side and back clearances allowed should be considered as comfortable minima ; they can be reduced if necessary, but this should not be done if it can be avoided. In many offices a more generous allowance is considered essential.

Passage Ways :

The passage ways given are intended only for normal access to desks—if they are to be used for much traffic to and from desks or for through traffic to other departments, then the width should be increased accordingly.

Spacing of Desks :

The spacing of desks shown in the diagrams is controlled by the space allowances considered necessary. In practical work this spacing will depend to a large extent upon the window spacing unless artificial light is to be used continuously. This becomes an important factor wherever the solids between windows are large in relation to the window width, unless top light is available.

Lighting :

Unless top lighting or shadowless artificial lighting is used the direction of light for all clerical work should be from the front-left as indicated on the drawings. The proper lighting of clerical desks is not merely a question of comfort but an important factor in the accuracy of the work done.

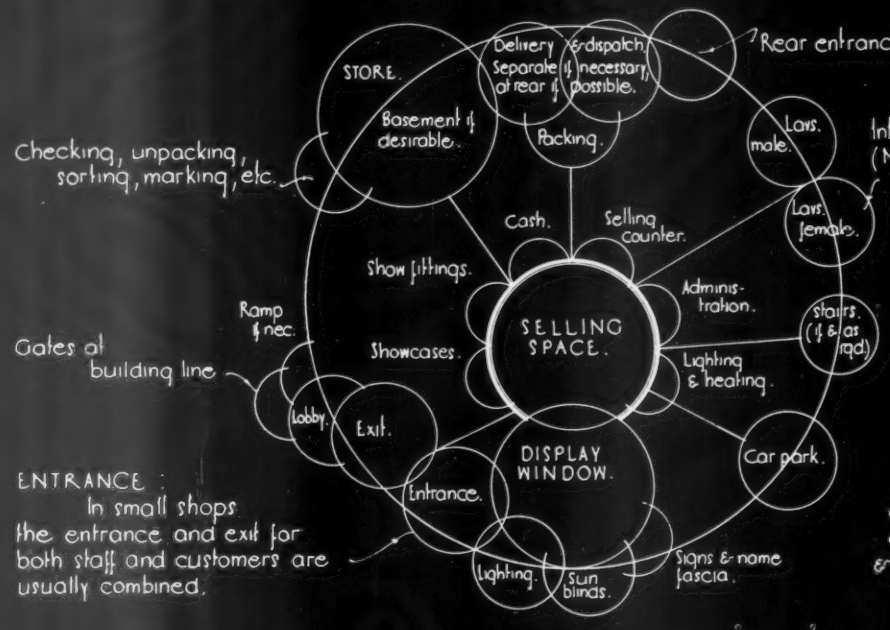
Where filing cabinets are included in the general office lay-out, they should be so placed that the light falls on to the face of the cabinets.

859.

859.

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

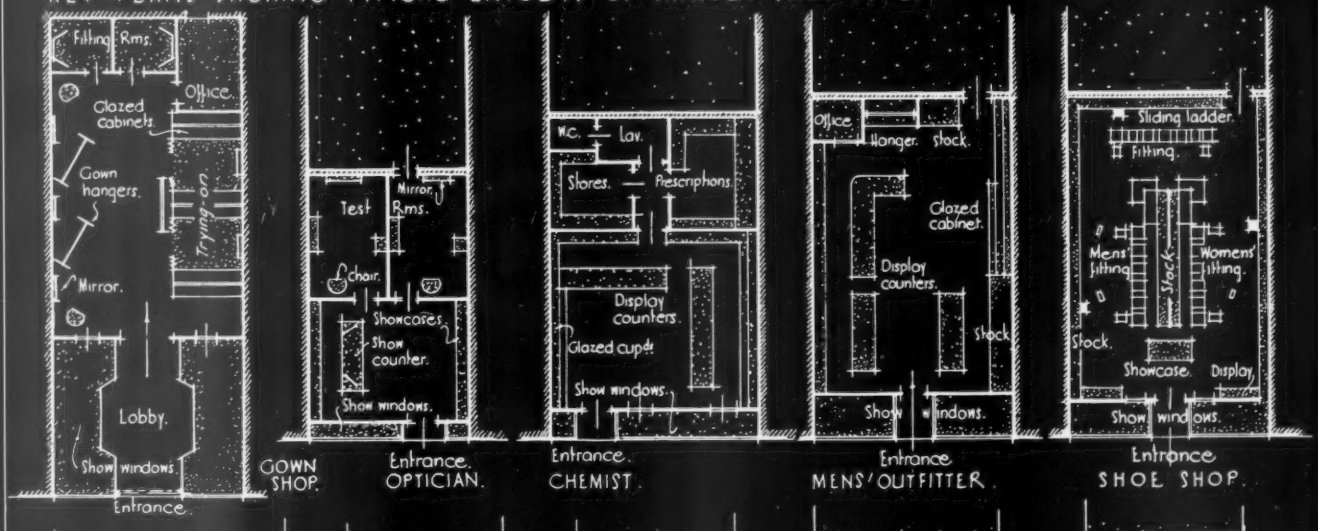
DIAGRAMMATIC SCHEDULE OF ELEMENTS OF A TYPICAL SUBURBAN OR SMALL TOWN SHOP.



ENTRANCE: In small shops the entrance and exit for both staff and customers are usually combined.

The position of the circles does not necessarily indicate the position or size of the elements in relation to each other. Where the circles interlock, however, it is considered desirable that the different items should be in close proximity: e.g. delivery & dispatch should be near store.

KEY PLANS SHOWING TYPICAL LAYOUTS OF VARIOUS SHOP TYPES:



INFORMATION SHEET: ANALYSIS OF PLAN REQUIREMENTS: No 3: SMALL TOWN SHOPS.

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

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 708 •

PLAN ELEMENTS

Subject : Small Shops

General :

This is the third of a series of Sheets analysing the plan requirements of various buildings or departments, and deals with suburban or small-town shops for retail selling. The regulations of local authorities affect these requirements to some extent, as the regulations covering either planning or equipment may differ from district to district.

Site :

The siting of shopping areas and of individual shops is usually controlled by purely commercial considerations, but wherever possible the following factors should be taken into account :

(*a*) Vehicular and pedestrian traffic circulation.

(*b*) Potential customers and their normal movements : e.g. such movements in a central town of a given district will be entirely different from those of a "dormitory" town.

(*c*) The relation of the site to the main centres of transport for both goods and passengers.

(*d*) The aspect of the site ; in some trades the position of the shopfront in relation to the direction of direct sunlight is most important.

(*e*) Access for both receiving and delivery if required.

Entrances and Exits :

Corner entrances are not usually desirable. Entrances should be without steps if possible, and doors are best set back from the building frontage so that a lobby is formed between the pavement traffic and the shop itself. Collapsible gates or doors on the building line are essential if the lobby is deep or the shopfront open.

Rear access is generally necessary, and may be combined with a yard or secondary road for goods delivery and dispatch.

Plans :

The key plans are diagrammatic only and are intended as a guide to some of the normal requirements. No sizes are given, but the fittings themselves and the relationship between equipment and open spaces are approximately to scale.

(*a*) *Gown Shop.*—Floors of the windows should be low and the lobby large. Mirrors should be numerous and the fitting-rooms able to accommodate customer, friend and fitter. The showroom and fitting-rooms should preferably be close-carpeted.

(*b*) *Optician.*—The floor of the showcase should be about 3 ft. above the pavement. Counter and showcases should be glazed. 20 ft. or a simple fraction of this distance is required between the testing mirrors and chairs, and the testing room should be finished a dark colour. Artificial ventilation is desirable.

(*c*) *Chemist.*—The show window should be 2 ft. to 3 ft. deep and its floor about 3 ft. above the pavement. Counters should be high at the front only. The prescription-room should be well lighted and ventilated, with shelves for chemical bottles and space for glazed balance cupboard, sink and drainer, Bunsen burner, sterilizer, poison cupboard, etc.

Weighing machines should be provided, and possibly a small darkroom.

(*d*) *Men's Outfitter.*—Display counters should be about 3 ft. 2 in. high, and should have provision beneath for paper, string and envelopes for small articles. Stock fixtures are designed in multiple units to suit the size of the particular stock to be contained. Hat cabinets should be glazed, with drawers under.

(*e*) *Shoe Shop.*—An island showcase should screen the main island stock shelves which divide the fitting areas. The paydesk and wrapping benches, etc., may be placed at the end of the main island shelves. Stock shelves should reach from floor to ceiling. Portable floor mirrors may be provided. Show windows should be enclosed with the floor about 2 ft. above the pavement.

(*f*) *Greengrocer.*—If vegetables, fruit and flowers are sold, the sections should be separated. Show windows should be open-backed and are usually provided with suspended glass shelves. Vegetable bins should have lift-out fronts or other means of cleaning.

(*g*) *Pastry Cook.*—The show window should be open-backed and the floor about 2 ft. above the main floor, with box-assembling shelf and sloping adjustable cake shelves. Lined bread hoppers and biscuit tins are usually accommodated beneath the serving counters. A separate entrance and fuel store are required if the bakehouse is attached.

(*h*) *Fishmonger.*—The shop is usually open-fronted and provided with either a rolling shutter or a large sliding sash. The main slab for the display of fish is usually fitted 2 ft. to 2 ft. 6 in. above the floor and may be up to 4 or 5 ft. wide from front to back. It should be sloped towards the front and be provided with an adequate drainage channel. It should be of a hard, impervious, easily cleaned material such as glass or marble, with as few joints as possible.

The walls and floor of the shop should be finished with hard, sanitary, easily cleaned materials, and internal angles should preferably be coved.

A large cold-store or refrigerators should be provided, and mechanical ventilation is necessary unless the natural ventilation is exceptionally good.

(*i*) *Provisions.*—If the size of the shop permits, it should be divided into a bacon department and a general department, each with a show window. Ample storage and accommodation must be provided in the shop itself, and space for bacon slicer, butter slab, coffee grinder. Each department should have one wooden and one hard counter. A cold-store or refrigerators must be provided.

(*j*) *Butcher.*—The show window is usually open-fronted with either a sliding sash or a roller shutter. The display slab should be from 2 ft. to 2 ft. 6 in. above the pavement with hooks and rails above.

The wall behind the counter is usually equipped with rails and hooks, and space should be provided for refuse bins, chopping tables, usually a sausage machine, a large cold store and large delivery doors.

Mechanical ventilation is required unless the natural ventilation is exceptionally good.

Previous Sheets :

The first two Sheets in this series dealing with planning are Nos. 704 (bedrooms) and 706 (petrol filling stations).

Notes from the Building Research Station on*

MORTAR FOR BRICKWORK

THREE years ago a note was published in this series on mortars for brickwork. In spite of its wide circulation in the technical press, numerous enquiries on the subject continue to be received, and to meet this continuing demand the present rather more comprehensive note has been prepared.

There are prevalent misconceptions of the functions of mortar in brickwork. A common idea is that mortar is used to bind bricks firmly together, and it is therefore often concluded that the mortar having the highest tensile strength is the best. This view is fallacious for two reasons :—

(i) Brickwork is not normally subjected to any tensile stress. In designing a tall factory chimney, no account is taken of the possible development of tensile strength on the windward side : the work is designed to obtain its stability by the action of gravity, and to resist compressive stress only, as all brickwork should be. A system has recently been developed in Austria in which bricks or blocks are simply laid on strips of slightly resilient padding, there being no tensile strength in the joints whatever.

(ii) The mortars which exhibit the highest tensile strength are not necessarily those which adhere most strongly to all types of bricks. A high tensile strength in the mortar is valueless unless there is good adhesion to the bricks on each side.

The true functions of mortar are to provide a means of building up from single units a mass of brickwork capable of withstanding a certain degree of compressive stress and exhibiting a reasonable resistance to the penetration of rain. To these requirements must be added that of durability. The characteristics of brickwork mortar are dictated by these requirements.

For providing resistance to the penetration of rain, preference is often given to the densest types of mortar. This is a mistake. Experience shows that penetration of rain almost always occurs, not through the bricks or through the mortar, but through imperceptible hair cracks between the mortar and the bricks. Other channels through which penetration often occurs are poorly-filled vertical joints (at right angles to the wall face) and headers in 9-in. work when very porous bricks are used. The mortars which are in themselves very dense and impervious do not necessarily adhere best to all types of bricks. It follows that though a high tensile strength in mortar is not essential, a high degree of adhesion between brick and mortar is highly desirable. The ruling consideration in this connection is not strength but weatherproofness.

Characteristics Desirable in Mortar.

A good mortar for brickwork is one which :—

(*a*) Is easily workable, standing up well on the trowel but spreading easily out on the bricks ; good workability and plasticity are required to enable vertical joints to be thoroughly filled.

(*b*) Stiffens up quickly as the bricks are laid, enabling work to proceed without delay.

(*c*) Adheres strongly to the bricks.

(*d*) Develops a sufficient compressive strength in the masonry.

Evidently since the properties of the bricks are involved in (*b*), (*c*) and (*d*) above, the same mortar will not be equally suitable for all kinds of bricks, but a composition must be selected which will suit the particular bricks used. Where high strength is not necessary, the choice will fall on a mortar of the highest possible degree of workability, but where strength is important, it may be necessary to use a strong mortar, say plain cement mortar, at some sacrifice of ease in laying. Where engineering bricks are used, a strong mortar must be used, say 1 part of cement to 2½ parts of clean, well graded sand, for the use of a weak mortar will obviously defeat the object of using engineering bricks, which is to carry high loads. The use of a highly plastic white lime mortar might be inconvenient with an engineering brick, or with any unit which had negligible absorption, such as glass blocks, for the first stage in the hardening of such mortar depends on abstraction of water by the unit, and so the work might be delayed. On the other hand, a plain cement mortar is very difficult to use with highly absorptive units, even if they are wetted first, for the water in the mortar may be abstracted so rapidly that the film of cement in contact with the unit never sets properly and a channel is formed for penetration of rain. Mortars made from lime, or containing a high proportion of lime, are better in such cases, for they lose water less readily and so help to ensure good adhesion.

A general principle of wide application, which will usually lead to a wise choice of mortar, is that mortar should be compounded so that its strength is similar to, but somewhat less than, that of the unit it binds.

Materials for Mortar.

The quantity of mortar used in a brick building is so great that considerations of transport cost will usually dictate the choice of materials, and local types will be used. This will involve the advantage that the mortar materials will be thoroughly familiar to the operatives, who will be able to use them skilfully and to the greatest advantage. The danger of importing materials from a distance is that the architect or builder is never sure that the local operatives understand how to handle them. Fortunately, a variety of combinations can be used to produce mortars not essentially different.

Portland Cement.

The quality of the various brands does not differ significantly as regards mortar making. Where a particularly white joint is required, white Portland cement should be used.

The setting process with Portland cement starts as soon as water is added, whether the mortar is used alone or mixed with lime. Any mortar in which cement is used should, therefore, be used up within about four hours, or the value of the cement will be reduced.

Limes.

The limes used in building work show a continuous gradation in properties between the pure white (high calcium limes) and the eminently hydraulic ("Lias limes") but it is convenient to divide them into three main groups, viz. :—

(*a*) High calcium lime.
(*b*) Semi-hydraulic lime.
(*c*) Eminently hydraulic lime.

The limes may be sold either unslaked, or as dry hydrates slaked to a dry powder at the works. In the latter case, the manufacturers should be asked to give a guarantee of soundness.

A parallel series of limes exists which contain magnesia and are called magnesian limes, but there are few magnesian limes sold in this country which correspond with classes (*b*) and (*c*) above.

"*White Lime*" (more correctly defined as "high calcium lime.")

This is available in two forms :—

(*a*) Lump lime, which is slaked to putty on the job. Slaking presents few special difficulties.

(*b*) Hydrated lime, i.e., in the form of a dry powder, prepared in the lime works. This needs no slaking on the job, but some builders prefer to make it up into mortar or putty and leave it for a few days before use.

These limes possess no hydraulic setting power. Any large mass of putty or mortar in a heap or pit will gradually improve in workability, but will not harden. The mortar immediately stiffens when it dries or when moisture is abstracted from it by contact with a brick. True hardening is very slow. A proportion of cement is commonly added when building with these limes today. This enables the work to be carried up more quickly. A high degree of workability is a general characteristic of the white limes when slaked to putty. The dry hydrates are also reasonably plastic. The combination of the plasticity of the lime with the hydraulicity of Portland cement yields a mortar of excellent characteristics.

"*Grey Lime*" (more correctly defined as semi-hydraulic limes).

These limes, of which greystone lime is an example, occupy a position intermediate between the high calcium and the eminently hydraulic limes. When slaked to putty they approach the high calcium limes in plasticity, though some interference with their hydraulic properties is almost certain. If a strong mortar

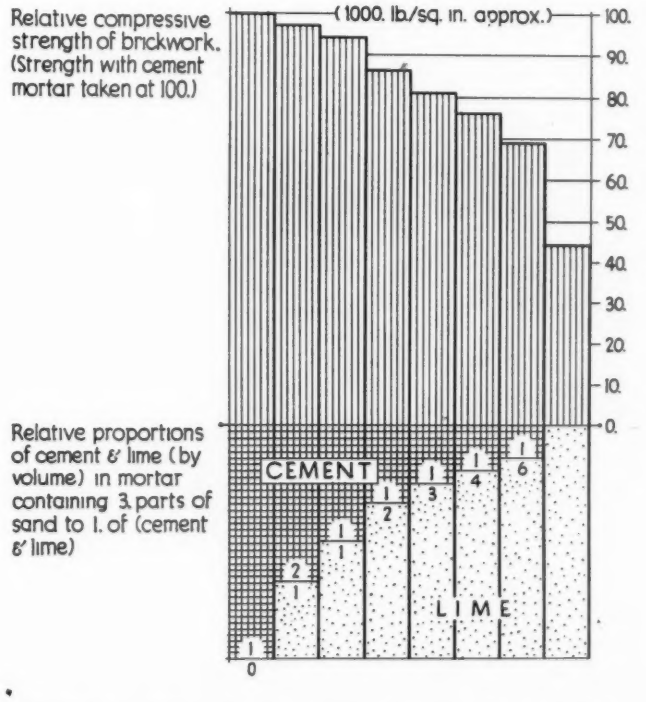


FIGURE 1. Effect of mortar composition upon the strength of Fletton brickwork. (Compressive strength of bricks 2685. lb. per sq. in.)

* Crown Copyright reserved.

is required, it is then advisable to gauge with cement.

When dry-hydrated in the lime works this difficulty of the destruction of hydraulic power in slaking is overcome. These dry hydrates can be used with confidence to yield a mortar of fair workability and moderate strength. In very cold weather or when increased strength is desired, a gauging of cement should be used. A similar effect to dry hydration can be produced by slaking in a pile, covered with sand.

Eminently Hydraulic ("Lias") Lime.

Eminently hydraulic limes resemble Portland cement in composition, but are burnt at a lower temperature. They contain free lime, but not enough to slake readily with evolution of heat. They differ from limes of the previous class in attaining their strength much sooner, and in not being usually so plastic or workable. These limes may be slaked on the job or purchased as dry hydrates. In the former case they are usually slaked with a minimum of water and in such a manner as to conserve heat, e.g., in a pile covered with sand. To facilitate slaking they are often sold in powder form, but should then be carefully distinguished from the dry-hydrated limes in this class. The latter only require to be *mixed* with sand and brought to a plastic condition with water. They are then immediately ready for use. Hydraulic lime, suitably slaked, is an ideal mortar for many classes of bricks, since it combines good workability with a moderate strength. (See under Sands, below). Hydraulic lime should not be gauged with cement as a general rule.

Magnesian Lime.

British magnesian limes in general resemble in their characteristics the white limes already discussed, though there are one or two of them which contain hydraulic constituents. It is generally considered that the magnesium oxide they contain aids the hardening of the lime so that, after a period, a magnesian lime mortar will be harder than the corresponding high calcium lime mortar. Magnesium oxide does not hydrate as readily as calcium oxide and for this reason, precautions are taken in slaking to conserve heat, very like those applied with hydraulic limes. This is to obviate risk of unsoundness.

A summary of the characteristics of limes from the point of view of their use in mortar for brickwork is given in Table 1.

Choice of Mortar Composition for Various Classes of Bricks.

It has been pointed out that mortars should be compounded to suit the characteristics of the bricks used. This adjustment cannot be by any means precise, and quite a wide range of compositions will be suitable in many instances. The following suggestions should be regarded as indicative merely and not as precise recommendations.

Bricks can be divided according to their strength into three classes, which roughly conform with the grading according to absorption. The composition of suitable mortars is shown in Table 2.

NEW WARDS, GLAN-

GENERAL—*The new block is a detached one-story addition to the main hospital and replaces a 25 year-old building of timber construction.*
SITE—*On a rather steep hillside.*
CONSTRUCTION AND FINISHES—*Steel-framed with brick-cavity walls, cement rendered and colour-washed externally, and brick or sound-proof internal partitions. Ward floors are covered with linoleum; corridors with a patent asphalt solution, and the day-room with wood blocks. The duty-room and lavatory floors are finished in terrazzo-mosaic. The flat roof is covered with asphalt laid to falls. All windows are steel casement.*
COST—*£14,600.*
Above, a view from the south.
The general contractors were Watts and Webb; for list of sub-contractors, see page 349.

Stronger or weaker mortars can be used with each of the first two classes, and the corresponding approved loadings are given in the Model By-Laws.

Methods of Preparation.

Mortars containing lime and cement may be made from the dry-hydrated limes simply by mixing in the required proportions and then adding water, but it is often convenient and more economical to base the mortar on lime-sand coarse stuff. The lime in this will usually have been wet-slaked and have developed its maximum plasticity. A (roughly) 1 : 3 : 12 mix will be obtained by merely adding 1 part of cement to 10 or 12 of coarse stuff. If a stronger mortar is desired, say 1 : 1 : 6, it will not be enough to add cement alone, for assuming the coarse stuff is 1 : 3 the addition of 1 part of cement to 3 parts of coarse stuff will give a 1 : 1 : 3 mix which will be far too rich and very uneconomical. To correct the ratios 3 volumes of sand must be added also.

Effect of Mortar Composition on Strength of Brickwork.

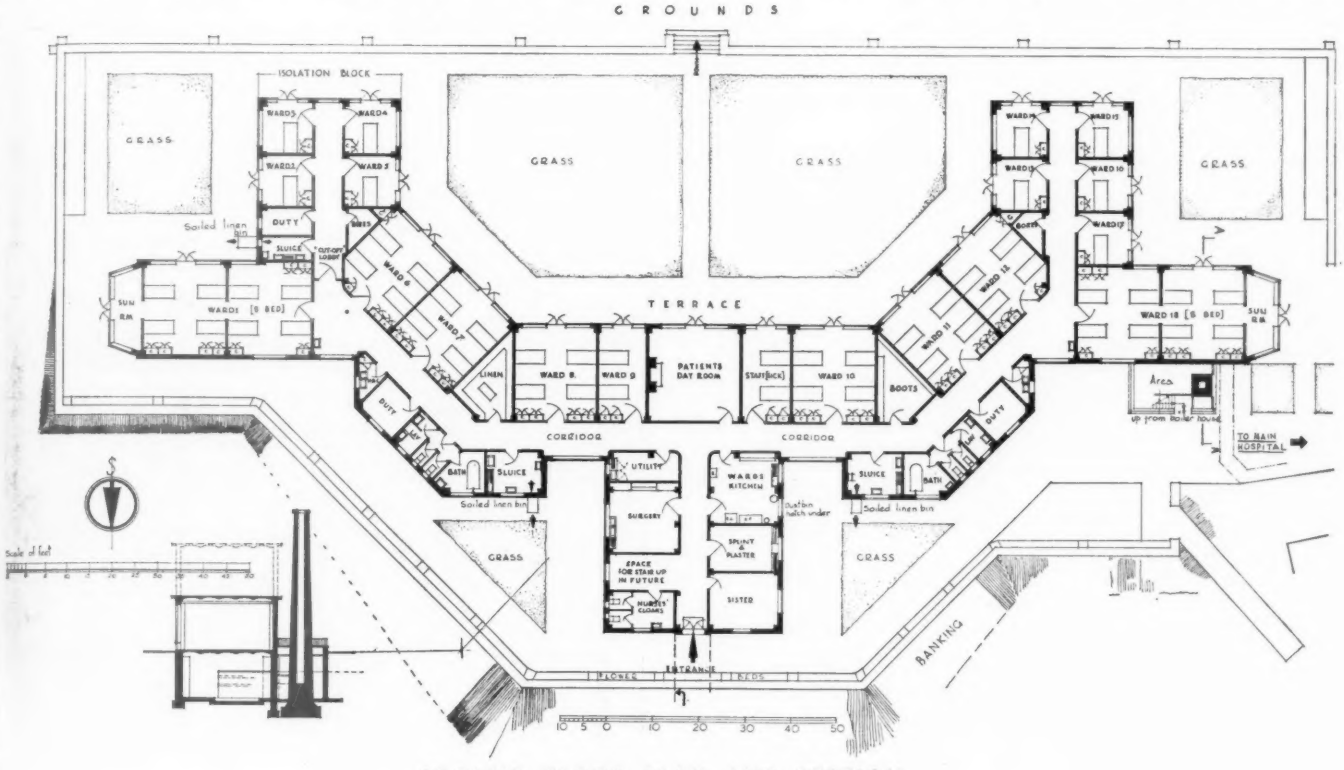
The strength of brickwork, built with bricks of intermediate strength, is not so much influenced by the strength of the mortar as is often supposed. A mortar containing quite a high proportion of lime may give results hardly inferior to those with cement. As strength is often not the prime consideration, and in view of the importance from the point of view of weatherproofness of having well-filled joints and good adhesion, the advantages of the "gauged" or "compo" mortars will be apparent. The effects of mortar composition on the strength of brickwork have been most thoroughly studied in the case of fletton bricks (crushing strength 2,500–3,000 lb. per sq. in.). A series of results obtained are represented diagrammatically in Figure 1.

Crushing strength of brick in lb. per sq. in.	Composition of Mortar (parts by volume)	Maximum permissible pressure (uniformly distributed) in tons per sq. ft. of overall area of wall or pier according to Model By Laws
1,500–3,000 (Examples: Flettons, gaults, ordinary stocks, Class A Sand Lime Bricks).	1 cement 3 lime 12 sand or 1 hydraulic lime 2½ sand	5·5
3,000–5,000 (Examples: Some flettons, hard stocks, some red wire cuts, many "Special purposes" sand lime bricks).	1 cement 1 lime 6 sand	10
over 5,000 (Examples: All clay engineering bricks).	1 cement 3 sand	16

TABLE 2

ELY HOSPITAL, NEAR CARDIFF

BY T. ALWYN LLOYD IN ASSOCIATION WITH J. A. HALLAM



GROUND FLOOR PLAN AND SECTION

Sands.

The foregoing discussion has been confined to the cementitious constituents of mortar, but some reference must be made to the characteristics of sand. Fortunately, the requirements for sand for brickwork mortar are not stringent, the position being far different in the case of sand for concrete; nevertheless, there are several points deserving attention.

(1) Well graded sand (by which is meant one containing proportions of all grain sizes) will yield a workable mortar with less lime and cement than sand which consists of grains which are all of one size. Fine sands of uniform grain size should be avoided if possible.

(2) Sands must be chosen with care when using hydraulic lime. Very fine sands will yield a joint which can be rubbed away, unless a rich mix is used. Loam interferes with the set of hydraulic lime and cement, and this may be serious in the case of the lime owing to its relatively feeble hardening properties. Sand for hydraulic lime should be clean and well-graded. A mix of 1 : 2½ or 1 : 3 will be suitable.

(3) The presence of a *small* proportion of loam (2–5 per cent.) need not be objected to in cement or compo mortars. The loam or clayey material will act rather like lime, making the mortar more workable. An excess of loam or clay may be objectionable as it will increase the liability to shrinkage. If the sand is heavily loaded with clay and silt, it will be advisable to reduce the lime in the mix to compensate for it. The reason is as follows. Suppose that a 1 : 1 : 6 mix is required. If a sand is used containing 10 per cent. of the loam, the true proportions are :—

1 part cement.
1 part lime.
$\frac{6}{10}$ part loam or clay.
$5\frac{4}{10}$ parts sand.

Assuming the clay to be in some respects equivalent to the lime, the mix is roughly 1 : 2, which is rather too rich in fine material. Also the ratio of lime and clay to cement is 1·6 to 1,

	(1) High Calcium (stone lime, white chalk lime)	(2) Semi-Hydraulic (grey-stone lime)	(3) Eminently Hydraulic ("Lias Lime")	(4) Portland Cement (white or grey)
Plasticity..	Very high	Good	Fair to poor	Less than (1) or (2)
Hydraulic strength ..	Nil. Stiffens on abstraction of water, and then hardens very slowly and gradually by absorption of carbon dioxide from the air.	Setting takes up to 3 weeks. Low early strength. Moderate final strength.	Setting takes place in a few days. Moderate final strength.	Higher hydraulic strength than any lime. Strength is attained earlier and final strength is far higher.
Permeability (of mortar)	High	High	Moderate	Very low
Suitability for gauging with cement.	Highly suitable	Suitable	Usually unnecessary, often undesirable.	——
Method of slaking ..	Run to putty	Run to putty or slake in pile if hydraulic strength required.	Slake in pile	——
Period of storage ..	As long as possible	Brief period, 1–2 days if to be used alone. If slaked longer gauge with cement.	Varies according to type. Not more than 1–2 days or hydraulic strength will be impaired.	Must be used up within a few hours after mixing. Prepared mortar becomes more workable up to 4–6 hours storage, but strength will be "killed" if kept longer.

TABLE 1
Characteristics of Lime and Cement affecting their Use in Mortar for Brickwork.

not 1 to 1 as was desired and the mortar will, therefore, be much weaker than was intended. Experienced craftsmen instinctively make adjustments to meet difficulties of this sort, and this doubtless accounts for the many examples of good work performed with most unpromising materials. Where the element of skill is lacking, the most rigid specification cannot prevent trouble.

LETTERS

Borough Engineers

SIR,—Professor C. H. Reilly has very gallantly given me his consent to address to him in your columns the two following questions :

(1) In his book *Scaffolding in the Sky*, Professor Reilly refers (p. 304) to the fraud perpetrated by borough engineers who claim the credit for the work of architects working under them.

Question : Why should not criticism, like charity, begin at home? Why should borough engineers be blamed for a practice so universally rife amongst architects themselves? Is it not up to architects to set a decent standard amongst themselves before they start blaming other people?

(2) Professor Reilly also makes the suggestion (*ibid.* p. 305) that architects should be more *generous* in permitting the truth to be known about the work done by their assistants.

Question : Is it *generous* of an architect not to tell lies about the work of his assistants? Is there any reason to call *generous* a standard of behaviour that should be a mere matter of course amongst gentlemen?

In common with all the members and students of the R.I.B.A., I have received recently a letter from the Hon. Treasurer. It asks for monetary support in reducing the debt incurred by the Institute in respect of its sumptuous new headquarters.

Am I to take this appeal as something seriously intended, or treat it as a piece of ill-chosen humour? I have several reasons for being in doubt. For instance, I cannot see why, if the appeal is serious, no attempt has yet been made to reconstitute the Council on lines representative of the interests of the members of the R.I.B.A. as a whole. The existing constitution is deliberately planned to place control in the hands of Fellows and ignore the rest.

But if such a change is too much to ask, perhaps the Hon. Treasurer (if he *is* serious) may care to undertake an answer to the two following questions :

(3) How should an assistant, who is a member of the Institute, act in circumstances (admittedly very common) where he finds his own original contributions to architectural design being passed off in the technical Press under the name of another member of the Institute, who happens to be either his employer or his principal?

(4) Is the existence of such facts as point to the asking of the foregoing question in accordance with the declared purpose of the Institute's Charter, namely, *the general advancement of Civil Architecture?*

The law is quite clear in its pronouncements :

(*a*) A salaried architectural assistant (i.e., an architect working under a contract of service, either actual or implied) in the absence of any specific agreement to the contrary, has no copyright in his work.

(*b*) There is no copyright in mere information.

(*c*) It is merely a point of information to state who is the author, or part author, of an architectural design.

(*d*) Therefore the right to control or

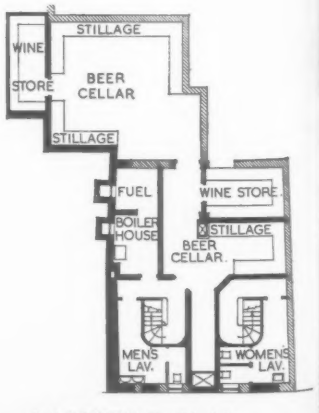
FORESTERS ARMS, NE

DESIGNED BY *ED*

PROBLEM—*The clients desired to maintain as large a shop as possible at the front and to use the remainder of the ground floor for drinking space and service. They also required tenant's accommodation on the first floor and men's and women's lavatories in the basement.*

SITE—*Entirely enclosed on three sides, with the exception of a small yard and a passage in the adjoining property on one side.*

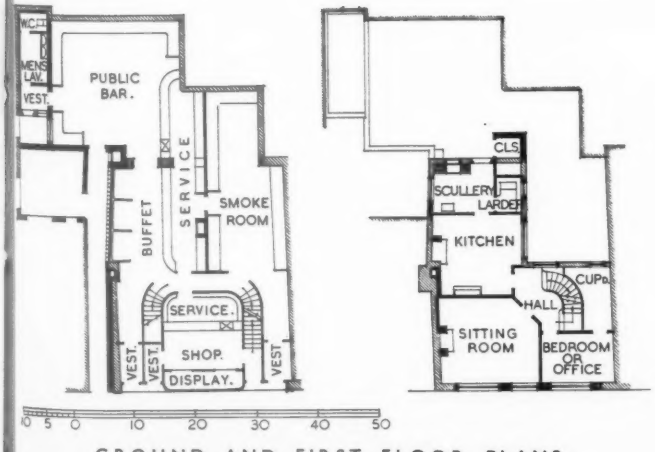
CONSTRUCTION AND EXTERNAL FINISHES—*The existing front wall and roof were maintained, brickwork being cut away where necessary for windows, doors, etc., and then faced-up with a patent hammered granite finish. The shopfront is stainless steel, and the windows are steel casements. There is a faience cornice and coping. All other new works completed in usual domestic construction.*



BASEMENT PLAN

NEWCASTLE-UNDER-LYME, STAFFS.

EDWARD FORSTER AND GREAVES



GROUND AND FIRST FLOOR PLANS

INTERNAL FINISHES—*All walls are plastered and painted and the floors are finished in rubber. Ceilings in the public bar and smoke-room are of fibrous plaster. The counters and back fittings are framed in soft wood with plywood finish, relieved with painted bands. The counter tops are of fire- and stain-proof glazed asbestos. A considerable part of the decorative scheme is of various glasses in walls and roof lights.*

SERVICES—*A central-heating plant in the basement serves the public rooms by pipes and radiators.*

The general contractors were Stephen Heath and Son; for list of sub-contractors, see page 349.

coerce such a statement can be no part of the property in a copyright, and there is nothing in law to justify anybody in detaching an assistant from his identity of authorship with whatever of original design he may contribute in the course of his employment.

MALCOLM MACTAGGART

Stay North, Young Man

SIR,—In reply to your request for information re incomes, I have tabulated below particulars of my position at present.

Location : West Scotland.
Age : 25.
Qualifications, etc. : Diploma of Arch. 4 years' office experience.
Salary : £182 per annum.

"STAY NORTH?"

Paddington Housing

SIR,—I refer to "Astragal's" note in your current issue, under the heading "Paddington Housing."

I do not see why the Borough Engineer's architectural assistants need be brought into the picture at all.

Does Astragal want to upset the architectural labour market by making a world of "uppish" assistants?

By all means let the work be done by them, but for goodness sake let such a fact be kept quiet.

Once it is admitted in public that architectural staffs consist of anything more than hack draughtsmen, there may be no end to it.

The suggestion of calling in a first class experienced architect is an admirable way out of the difficulty; he, not being an engineer, need be under no necessity to suffer the divulgence of any indebtedness to his staff.

W. T. HOOPER

R.I.B.A.

Follcwing are extracts from the paper entitled "The Great Landowner's Contribution to the Architecture of London," read by Mr. John Summerson at last Monday's meeting of the R.I.B.A.

THE great landowner's contribution to the architecture of London has been relatively small; disproportionate, I mean, to the immense acreage built upon or to the prodigious wealth which that acreage has yielded. In few instances—I might say none—has a great landlord assumed a dominant, creative rôle in the development of his land. Always he has been a partner in transactions initiated and largely directed by other interests. The enlightened aristocrat, laying out his London estate with lordly generosity, is a myth. His part was passive and can only be identified in relation to a complicated system of motives and methods.

First, I am going to tell you the story of Covent Garden Piazza—the first and the greatest direct contribution of a landowner to London's architecture.

COVENT GARDEN

In giving London the first of its great squares, I do not think Francis Russell, fourth Earl of Bedford, was out to make a stir in the world of architecture. He was not, like Arundel or Pembroke, a connoisseur. And neither was court prestige his object; for he was no courtier. Quite the reverse. In the crisis of 1628 he supported the Commons in their struggle for the Petition of Right, and in the following year a suspicion of having circulated a certain pamphlet led to his arrest and prosecution in the Star Chamber. The charge was dropped, but it may have been this uncomfortable incident which induced the Earl to leave politics for a while and turn his hand to the less hazardous task of developing his Strand estate. Less hazardous, but not without its embarrassments, for since Elizabeth's time building around London had been in the nature of a crime.

The building of the Piazza, however, was entirely above board for the good reason that, in 1630, a licence to build it was made out on King Charles I's own instructions. Now if Francis Earl of Bedford was, as I have suggested, not particularly interested in the new architecture, King Charles I, you will remember, was; and an interesting thing I have learnt about the Covent Garden scheme is that it was influenced to a great extent by the personal desires of the King. I gather from a paper in the Duke of Bedford's archives that the monumental character of the layout and elevations was made an express condition of the granting of the licence to build. We are told that, in the formation of the Piazza, "many ancient buildings were demolished and other new buildings erected *by special direction of the . . . King and his Council* with much ornament and beauty and to a vast charge."

Considering his politics, I cannot think that the Earl of Bedford was a favourite with his sovereign and it is obvious that Charles was playing a malicious and characteristically high-handed game. You can call it a fair bargain—or you can call it Royal blackmail. Bedford wanted to improve his income by breaking the law. Charles wasn't particular about the law, but wanted an Italian Piazza, and perhaps rather relished the idea of having one of his political critics pay for it. So Bedford got his licence and, in exchange, he had not only to pay a large sum in cash but to put into execution a grandiose scheme designed by the King's surveyor.

Both church and houses were begun in 1631 and the whole scheme was about four years building.

Now, what I would emphasise about the Covent Garden building is that it is something of a freak. It is alone not only as an expression of court culture effected through court influence in an arbitrary way, but as an example of a landlord undertaking a complete residential unit at his own expense and at his own risk—the landlords of the next century, as we shall see, spent little and risked nothing. But the whole conception of the Piazza was foreign; its prototypes are the residences built by French Henri IV, thirty years earlier, for his court—the Place Royale and the Place Dauphine. Nothing of the sort had ever been tried in England and nothing, after Covent Garden, was tried again.

Where the architecture of the great estates is concerned, speculative building is of radical importance, and I must try to give you an idea how the speculative system worked in the seventeenth and eighteenth centuries. I invite your criticisms and comments on my somewhat tentative exposition.

Speculative building activity is a product of the Renaissance town, and I suggest that it was an extension of the practice, familiar in mediæval times, of dividing up old houses into cheap tenements for the poor. The Covent Garden Piazza and William Newton's speculation in Lincoln's Inn Fields mark important advances, and with the appearance of Nicholas Barbon in the Restoration period, the process is perfectly developed and did not change essentially till relatively modern times.

In the period extending from the late seventeenth to the early nineteenth century we find, broadly speaking, two kinds of speculator. There is the *tradesman* speculator and there is the *capitalist* speculator. The tradesman may be a bricklayer, carpenter, plasterer or glazier, or any other sort of building craftsman. The capitalist may be a professional building promoter or an architect, or simply a member of the investing public, advised by his attorney. But of him you will not see much in the neighbourhood of London, where small freeholds are the exception and where the great landlord, holding his estate in tail or in trust, is dominant. It was because the landlords around London could not normally alienate their property that the long building lease became the rule—the lease, that is, at a fixed ground rent, for a period of (usually) 60 or 99 years—the ground rent being remitted during the first one, two or even five years in consideration of the lessee's building a house which, at the termination of the lease, would become the property of the lessor. In the eighteenth century this system was, I believe, peculiar to London; it was rendered possible only by the pressing demand for houses within a small radius of Westminster and by the impregnable position of the landlords, who found themselves with no alternative but the satisfactory one of eating their cake over a period of 99 years and having it afterwards at enormously enhanced value.

The capitalist speculator worked on a much bigger scale and interposed himself between the landlord and the tradesman or small investor. Here it was originally Barbon who set the pace. He would buy a dozen acres of land—perhaps the site of an old Tudor palace—lay out streets, divide them into narrow plots, sell them to tradesmen at so much a foot front and, where he could not find a customer, build himself. Barbon was able to deal in freeholds, but his successors had to attack the great phalanx of entailed and trust properties outside London and that, I think, was the reason why no speculator of Barbon's calibre appeared for something like 60 years after his death. When the later type of capitalist did come to the front he adapted the Barbon technique to the new conditions.

Such, in broad outline, was the economic machine which ploughed up the green fields around ancient London and left them brown with houses.

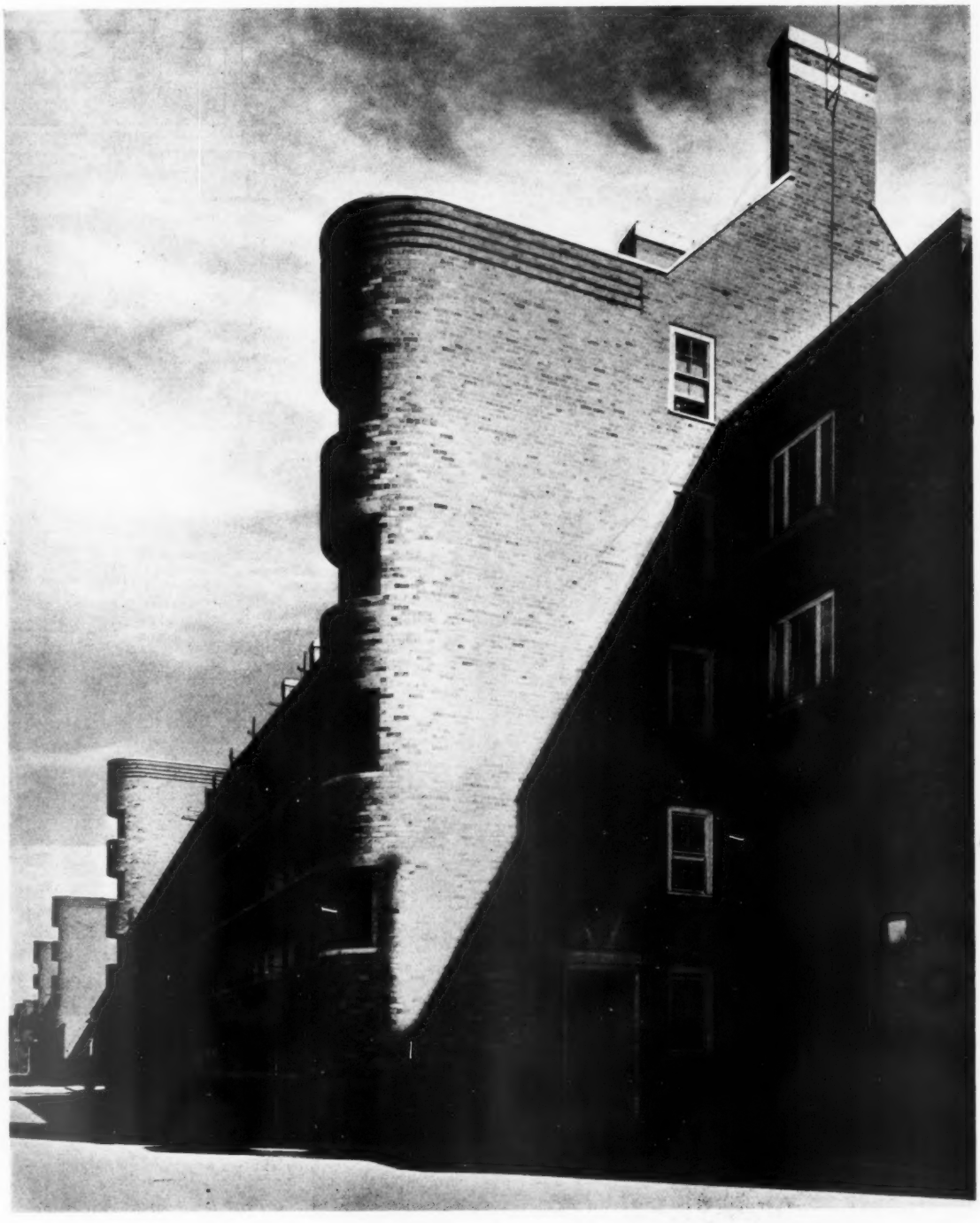
Now, obviously, the variations in this process of speculative building—and you will gather from what I have said how capable of variation it was—had a profound effect upon architecture. A street or a square let off directly to small builders and investors, plot by plot, would stand a poor chance of achieving uniformity, let alone artistic distinction. But the same street or square built by a capitalist out to make architectural amenity a selling point might be something worth sending to the Royal Academy—especially if the capitalist was also an architect or employed an architect or was made to work under architectural control. It was in the later eighteenth and early nineteenth centuries that the architect-surveyor really came into his own. By then there were sufficient big speculators in the market to make it feasible to design large architectural units with the confidence that they would be taken by substantial men and built at one time.

BLOOMSBURY

The building of a new residential quarter on the Bedford estate had been in the air as early as 1766, when the fourth Duke proposed the erection of a "Bedford Square" planned on the model of the King's Circus at Bath. Nothing came of this, and the Duke died in 1771. His heir was an infant. The dowager, however, was an able and business-like lady who was not one to let things slow down; and her executive was somebody equally energetic—Mr. Robert Palmer, principal agent to the estate. Palmer was responsible for the conduct of this great speculation and appears to have invested some of his private fortune in mortgages to the builders, Robert Crews and William Scott. Times were bad; the American War had induced a severe slump and but for Palmer's far-sighted gamble Bedford Square would never have got finished. But finished it was by about 1780. I wish I could tell you for certain who designed it. Thomas Leverton has always been put forward as the obvious man. He was a builder's son from Essex, where Palmer had some property interests, and I dare say Palmer got him in to do the technical side of the business. He certainly designed several of the houses and he *may* have controlled the elevations of the square, but I think it is rash to set him down as the author of the design, which does not particularly resemble his other works.

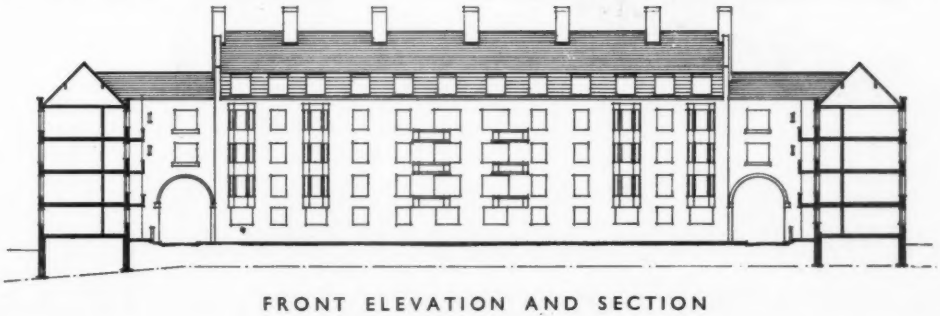
WORKING-CLASS FLATS, LIVERPOOL

BY L. H. KEAY: ASSISTANT, F. H. MORLEY

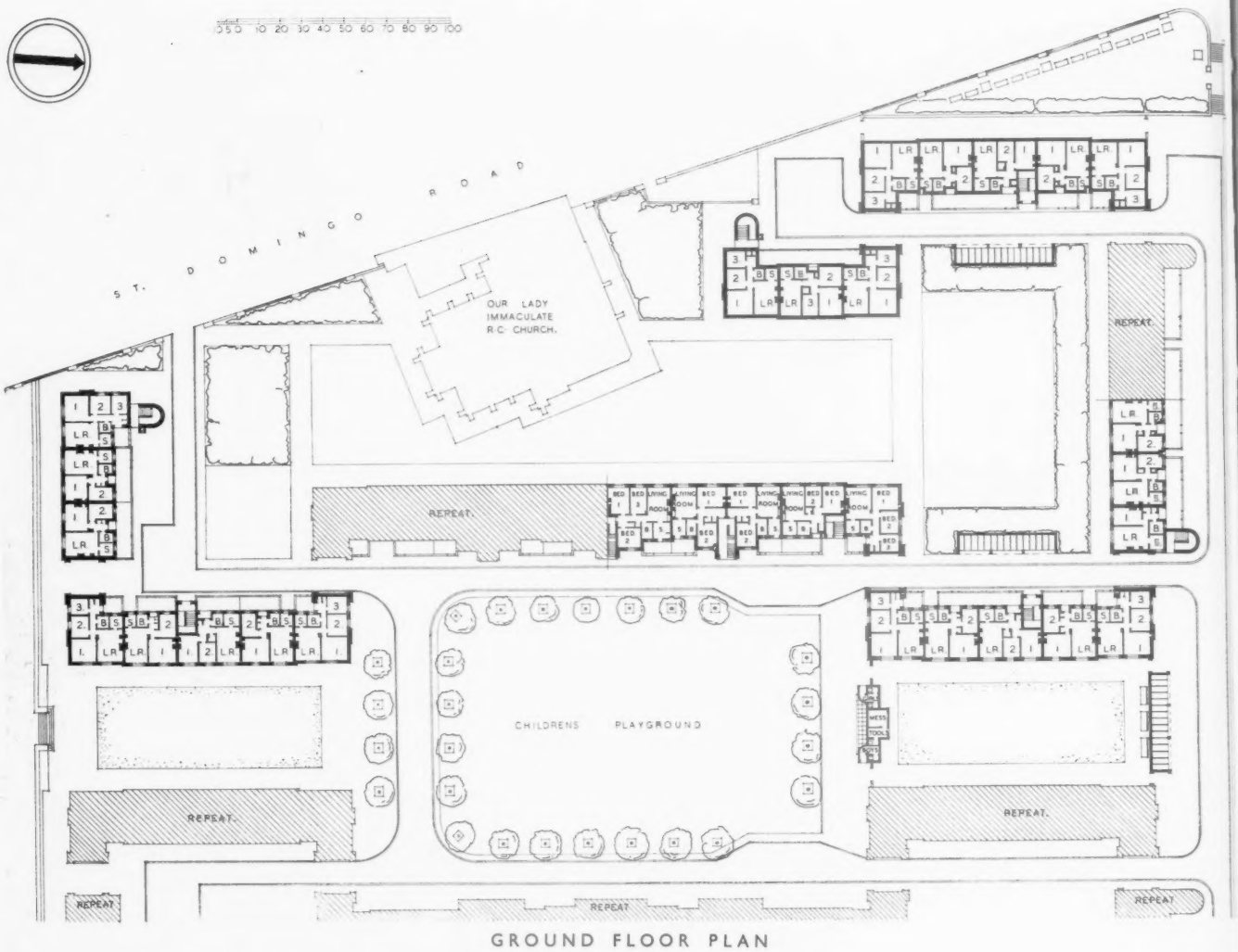


PROBLEM—*Owing to the continuing tenancy of the buildings on the southern portion of the site, the new buildings had to be built in two parts. The first part was begun in October, 1936, and completed last June. The second part was begun last October and is still in course of construction.*

Above, the front to Penrose Street.



FRONT ELEVATION AND SECTION



GROUND FLOOR PLAN

SITE—*The site was previously occupied by St. Edward's College and its playing fields. It is triangular in shape with a short base on the north side to Penrose Street; the south-east and south-west boundaries face, respectively, Beacon Lane and St. Domingo Road.*

PLAN AND ACCOMMODATION — *The buildings are five-storeys in height except at the angles, which are four-storeys. Access to the majority of flats or upper storeys is by continuous balconies served by common stairways. Living rooms and principal bedrooms are planned to overlook either a planted court, lawn or other open space, and generally face east, west or south. Accommodation: First portion, 194 flats; second portion, 154; total, 348.*

Left, a view from Penrose Street.

WORKING-CLASS FLATS, LIVERPOOL • BY L. H. KEAY: ASSISTANT, F. H. MORLEY

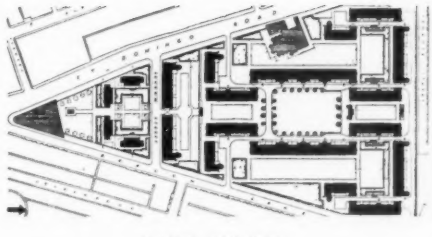
CONSTRUCTION AND EXTERNAL FINISHES—*External walls, 14 in. brick; main division walls, 9 in. brick; internal partitions, 4½ in. brick. Floors: 8 in. thick reinforced concrete construction with central columns; lintols and balconies also in reinforced concrete. Roofs, timber construction, felted and tiled. Elevations are faced with local light wave golden brown rustics, mixed with medium multi-coloured flat-pointed in light coloured mortar except to the backs, where colour-washed sand lime facings are used between continuous balconies. Dressings are in artificial stone with a Portland stone finish. Roofs: hand-made sand-faced plain tiles. Windows: wood double-hung sashes in cased frames.*

INTERNAL FINISHES—*Living-rooms and bedrooms: plaster, distempered in varying tints; woodwork is painted in bright colours with gloss finish.*

SERVICES—*Electric lighting and small capacity plug points. Gas points serve gas boiler and cooker in scullery. Domestic hot water is supplied from a back boiler in the living-room range.*

The general contractors were Tysons (Contractors), Ltd.

For list of sub-contractors, see page 349.



SITE PLAN

WORKING-CLASS FLATS, LIVERPOOL • BY L. H. KEAY: ASSISTANT, F. H. MORLEY

A. R. P. REPORT

BY THE INSTITUTION OF

STRUCTURAL ENGINEERS

REVIEWED BY DOUGLAS H. GREEN

In October last Parts I and II of the Institution of Structural Engineers' Report on air raid precautions were published. These two parts of the Report were issued as an immediate publication of urgency, leaving Parts III and IV to be compiled later. The complete Report contains two additional parts, namely, Part III—Air Raid Shelters and Part IV—New Buildings. In Parts III and IV certain matters have been dealt with more comprehensively and it has been found necessary to revise Parts I and II in the light of subsequent information which has now been received. Below the Report is reviewed by Mr. Douglas H. Green, Managing Director of the Trussed Concrete Steel Company and a member of the committee responsible for the Report.

THIS Report*, just published, can be obtained on application to the Secretary of the Institution of Structural Engineers, 11 Upper Belgrave Street, S.W. Everyone who is interested in the subject of Air Raid Precautions should obtain a copy, because it really does contain sound and useful information on every type of shelter.

The present report incorporates Parts I and II which were published during the September crisis, in which certain amendments and improvements have been made, and adds Part III, Shelters, and Part IV, New Buildings.

Apart from the excellent technical data much of which is new, the report also deals with some interesting new principles and new lines of thought. In the first place it very properly stresses the distinction between various types of buildings, which it divides into two broad categories : those liable to collapse under the blast and concussion of a direct hit, and those which would only suffer local damage. It is important to bear this distinction in mind when discussing buildings in relation to A.R.P. and, in view of this, it would appear that one of the first tasks to be tackled—and one in which a comparatively small expenditure would bring the quickest result—is to make a complete survey of every building. A plaque indicating which of the two categories applied to the structure could be affixed to each building so that it could readily be seen by the passer-by both by day and by night. A building liable to collapse should on no account be used as a shelter ; even basements in such buildings may be quite unsuitable unless selected and strengthened by competent engineers. On the other hand, a building which is not liable to collapse should form a good protective shelter in almost any part of it, even before additional protective measures can be taken. Such a survey is, of course, not sufficient in itself but would be a useful prelude to further defensive measures and would aid the population to acquire an instinct for taking cover. The distinction between these two classes of buildings is not easy to ascertain and requires a specially trained structural engineer, but the report gives a general demarcation as between the framed building and those with weight-carrying walls. The latter may, of course, be very greatly helped by the bracing action of cross-walls and reinforced concrete floors.

Another distinctive feature of this report is the clear indication that it gives that shelters can be made " direct-hit " proof at no prohibitive cost, and it lays down sound working rules for the design of such shelters for particulars of which the report should be studied.

The authors of the report have been most careful to confine themselves to structural matters, avoiding wherever possible either politics or policy, but it is apparent that the science of A.R.P. is intimately connected with many subjects that depend upon policy. As an example of this may be mentioned the probable length of time that can be expected between the warning and the attack, and it is quite clear that this factor must affect the nature and disposition of the shelter to be provided. It is, of course, extraordinarily difficult for the authorities to lay down any rules for guidance on this subject but some idea of its importance may be gathered from a few simple considerations. It is quite possible that towns such as London, Birmingham and Liverpool could be given as much as 30 to 40 minutes' warning of planes crossing the Channel. On the other hand, it must be quite clear that all these towns could not be disturbed by a warning simply because an enemy plane is sighted over the sea. Although at the beginning of a war people would tend to stay for long periods in their shelters, experience from recent wars would indicate that after a time they would reduce their stay to a minimum, and any large percentage of false alarms would soon cause the warnings to be ignored. It must be remembered that a modern bomber travels at about 240 miles per hour, or 4 miles per minute, and it is unlikely that an observer could be reasonably sure which town was the objective until the planes were within, say, 10 miles or at the most 15 miles of the town, i.e. a period of from 2½ to 4 minutes. A study of the map indicates that there are few places in England where a warning of more than 5 minutes could be expected and, in densely populated areas, it is difficult to see how more than 2½ minutes could be allowed, unless some form of " amber " warning could be introduced.

It would appear, therefore, that in positioning our shelters and designing the entrances thereto, the necessary facilities should be provided to ensure that the most tardy of the prospective occupants would be able to get within the shelter in 4 minutes for isolated towns and 2 minutes for densely populated areas.

A careful study of the recent bombing in Spain and China, together with the 1914–18 experiences, has proved that the greatest casualties are suffered by people standing in the open, particularly in streets. Although these casualties would be very considerably reduced if people could be persuaded to lie down, nevertheless it would appear that *any* refuge is better than remaining in the streets. The next most serious casualties are caused through people being caught by the falling debris of collapsing buildings. The casualties from direct hits or splinters are relatively small. It is of the utmost importance for the streets to be evacuated and it is obvious that those caught in the streets must be provided with refuge in buildings, unless suitable shelters could be made within about a two-minute radius.

There can be no doubt that a trench is the cheapest and most quickly constructed form of refuge and, if out of the range of falling debris, should be at least 90 per cent. safe.

When giving consideration to refuge in buildings other than those liable to collapse, it would appear that the ground floor is unsuitable because, first, it may contain large window and door areas and, secondly, ground level would be nearer to the explosion of a bomb than other levels. Apart from the ground floor, the most careful consideration fails to differentiate. Providing the roof is splinter-proof, the top floor may prove to be as safe as, if not safer, than the basement because a miss is a miss whereas the basement may be affected by a bomb exploding beneath the roadway. Naturally, within the building those areas should be preferred which are away from unprotected windows or not in close proximity to heavy bodies, tanks, chimney stacks, etc., which may become dislodged.

A word might be said as to the relative merits of mined shelters and of surface structures as bomb-proof protection. Apart from the comparative cost, which depends on the circumstances and no water conditions, it must be borne in mind that the long entrances to a mined dugout are not bomb-proof until the lower levels are reached although this may not be to the knowledge and appreciation of the occupants, whereas in a surface structure they are safe as soon as the threshold is passed.

* The report is obtainable from the Institution, price two shillings.

Secondly, there is the fatigue and danger consequent on large numbers of people descending 50 feet of stairway in unfavourable conditions. Mined shelters formed very comfortable quarters for soldiers during the last war, but they may not be so suitable for the civilian population.

In constructing new and independent shelters, or in the strengthening of existing buildings to enable them to be used as shelters, there are one or two lines of thought which may be worthy of consideration by the designer. First, there can be no stage between a shelter that is just splinter and blast-proof and one which is completely bomb-proof, and any excess over the requirements for the former which does not achieve the latter may be wasted effort and expense. Tests have proved that a well-built structure of splinter-proof material will also be blast-proof, by which is meant it will not be thrown down or damaged by the blast, even when bombs fall in close proximity. Should a bomb hit such a shelter it will penetrate—nor will that penetration or the effect thereof be stopped—until the standard of complete proofness has been achieved.

The flat roofs of shelters could have a lower degree of protection against splinters and blast than walls because such a roof cannot be hit by "live" splinters and the effect of "lazy" splinters is very slight, even the largest can be kept out by, say, 4 ins. of concrete. A roof to a shelter should, therefore, be kept down to such a thickness. To pile earth on top will not make it more splinter-proof, will certainly not make it bomb-proof, and can only add to the debris under which people will be buried should a partially-direct hit occur.

Consideration should also be given to the desire that some people have for getting as far below ground as possible. For example, a trench that is cut into the ground 4 feet, using the excavated soil to build up a splinter-proof parapet, is a protection against anything but a direct hit. It is not rendered any more splinter-proof if sunk another two or three feet into the ground, whilst this entails more work, longer entrances, less facility for getting in and out, more trouble with water, and, again, more certainty of being properly buried. The remarks already made about the roofs of shelters also apply to trenches. Very careful thought should be given as to whether it is worth while covering in trenches at all. In no case are they suitable for long occupation and an open trench is more likely to remain "sweet," can be entered from any position, and is much less liable to the effects of blast which, in a heavily covered trench, may travel for long distances. The risk of a direct hit from falling splinters is almost negligible, but should certain people prefer the comfortable feeling of overhead cover, even with its consequent disadvantages, then this could be met by covering 50 per cent. only of such trenches. Another advantage of an uncovered trench is that it can readily be seen whether it is full up or where the vacant space is and would obviate panic-stricken people having to run from one entrance to another until they can find space for themselves.

Similar remarks apply to all shelters that are only splinter proof, and careful thought can discover very little virtue in sinking these deeply into the ground unless the bomb-proof depth is reached at some 40 to 50 feet. If they are splinter-proof, and of a compact shape to make them blast-proof, they are as good on the surface as beneath it. Probably the most economic way of making such shelters is to found them some two or three feet below the surface, using the spoil to heap up against the external walls as a pad to reduce shock. It is suggested that adequate light and air should always be provided in a shelter in order to assist the feeling of well-being of the occupants. Nothing leads more quickly to panic than that feeling of suffocation which so many frightened people have when in a dark and stuffy atmosphere.

In considering existing buildings it must be remembered that bombs do not drop vertically but at an angle varying from about 17 to 25 degrees from the vertical. Thus a bomb hitting the centre of the roof of a 40-feet wide building would probably pass out of the building at the fifth floor lower down or, alternatively, a bomb hitting the wall of a building on the fifth floor would reach to the centre of the basement. It is considered that an ordinary 500 lb. semi-armour piercing bomb would penetrate at least five or six ordinary fireproof floors (and probably a considerably greater number of timber floors) before exploding. From this it would appear that in the average multi-storey building a semi-armour piercing bomb would burst at the ground floor or thereabouts. The instantaneous or graze-burst bomb would, of course, burst on the roof or walls wherever it landed. All these factors must be taken into consideration when selecting a shelter in a building.

Another important consideration for multi-storey buildings is that the lifts must obviously be put out of action during an air raid, as no lift attendant could be expected to cope with the rush of people. It must be visualized, therefore, that all the occupants would use the staircases and the effect noted of the stream of people from the upper floors meeting those from the lower floors. This applies particularly if the basement is selected as a refuge, and it might so happen that those from the upper floors would never reach their refuge owing to the congestion on the staircase, which would in all probability be augmented by people rushing out of the street into the building without any knowledge of the local geography.

Summarizing the considerations that have been outlined here, it would appear that in the case of an air raid the average villa house should be evacuated for the steel shelters that are being provided, or, alternatively, for the communal trenches in the gardens; that ample trench accommodation must be provided for those people caught in the streets, or, alternatively, other accommodation envisaged in the neighbouring buildings; that buildings in many parts of our big towns require the most detailed survey, as some may be safe and others death-traps; that multi-storey modern buildings of framed construction from which all excrescences, such as heavy cornices, etc., have been removed, form as safe a refuge as can be expected; that where staffs have to remain at work in danger zones completely bomb-proof accommodation, carefully designed by specially trained architects and engineers, should be provided. Many millions must be expended on the provision of shelters, but the fullest and quickest return would be obtained from a skilled survey of existing buildings. There can be no one solution to the problem of A.R.P. Every form of refuge must take its proper place. The complete rehousing of our entire population in bomb-proof shelters is unthinkable, but there are many cases in which this is necessary and desirable. These comments have not been made with the intention of recommending any one type of shelter or excluding any other. It is hoped that they contain lines of thought which will assist the architect in using to the best advantage this most helpful publication of the Institution of Structural Engineers.

"Road Architecture" Exhibition

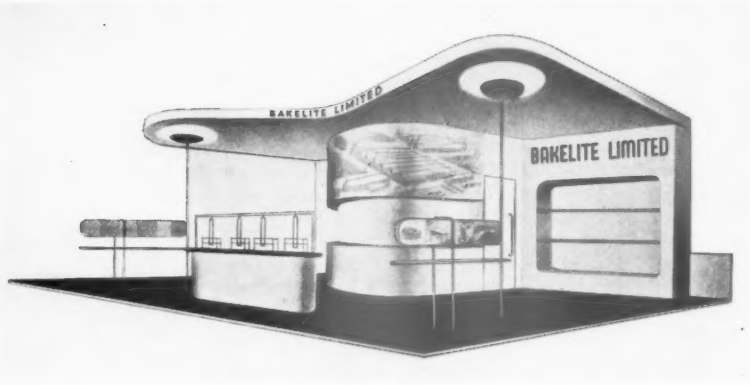
Mr. Herbert Morrison, M.P., is to open on Wednesday, March 1, an exhibition entitled "Road Architecture; the Need for a Plan," at the R.I.B.A. This is the R.I.B.A.'s major exhibition for 1939, and will deal with the combined problem of roads and buildings.

It will first illustrate and analyze the growing evils of haphazard building development, traffic congestion, destruction of amenities, spoiling of the countryside and the present lack of collaboration between road users and building users. It will then review what is being done in this and other countries, and suggest what might be done. The organizers believe that the growing waste and muddle of haphazard building and the congestion and dangers of the road can be stopped. The main theme of the exhibition will be that only comprehensive national planning can effect a thorough cure.

An entirely new national road policy will be shown to be a necessary first step in easing traffic flow and in creating a framework for orderly development of residential and industrial areas. The necessities of national defence make the need for such a policy still more urgent. Throughout the exhibition the organizers have had in mind the needs of the ordinary man as a dweller in town or country and as a road user for business or pleasure.

The exhibition is being prepared by a group of architectural, town-planning and traffic experts in collaboration with the British Road Federation and other bodies. It will consist of numerous photographs, diagrams and models arranged to tell a connected story. Admission to the exhibition will be free to the public from 10 a.m. to 8 p.m. (Saturdays, 5 p.m.) on weekdays, from Thursday, March 2, to Friday, March 31, inclusive.

A new documentary film entitled "Roads Across Britain" will be shown daily during the exhibition, at 3 p.m., 4.30 p.m., 6.30 p.m., and 7.15 p.m.



A perspective of the Bakelite stand.

B.I.F. BIRMINGHAM

On Monday last the annual British Industries Fair opened in London (Earls Court and Olympia) and Birmingham. At Earls Court are exhibited products of the Dominions, India, Burma and Colonies, textiles, furniture, etc.; at Olympia, the lighter industries of the United Kingdom; and, at Birmingham, the hardware, metal and engineering industries. Below, we review some of the principal exhibits on view at the Birmingham "Heavy Industries" section of the Fair, which is open daily, except on Sunday, from 10 a.m. to 6 p.m. until March 3.

EXHIBITS on view on the stand (Cb. 620) of Aiton & Co., Ltd., include samples of high-pressure pipework used in the modern high-pressure high-temperature plant, on which is incorporated an Aiton corrugated pipe, together with a section through a series of these corrugations; steel alloy stud bolts for use with high-temperature high-pressure joints; forged steel steam traps for similar working conditions; and cast-iron pipes of which the firm are able to undertake the design and manufacture of any shape up to 72-in. bore.

•

Locksheet steel lining is patented in this country and is manufactured by W. G. Allen and Sons (Tipton), Ltd., who are the sole concessionaires in the British Isles. It is on view on their stand, D. 728. It is of Continental origin, and was developed specially for lining tunnels and roads in mines. Of recent years it has become evident that the material has enormous potentialities as lining for air raid shelters. The firm manufacture it in two standard sizes, which make tunnel-shaped shelters of 6 ft. 6 ins. wide by 7 ft. 6 ins. high and 13 ft. wide by 9 ft. high, respectively. The shelters thus formed can be made in standard lengths which are multiples of 27 ins. The smaller size is made from 14 s.w.g. copper-bearing or rust-resisting steel sheets, ⅛-in. sheets being used for the larger size.

•

Guildstone fireplaces are prominently displayed on the stand (A. 629) of Allied Guilds, Ltd. Other exhibits include: Guildstone garden ornaments, fibrous plaster enrichments, plastercraft ventilator grilles, hanging signs, and cast lead panels.

•

The exhibits shown by Allied Ironfounders, Ltd., on Stand Ca. 601 include: Modern cabinet gas cookers with Thermotrol oven regulators, C-R gas fires giving 70 per cent. efficiency, high-class self-lighting gas fires and portable gas fires and space heaters.

•

Joists, sections, steel sheet piling, tank, ship, boiler and loco frame plates, billets, blooms, slabs, bars, etc., are on view on the stand (D. 613-512) of Appleby-Frodingham Steel Co., Ltd.

•

Ascot Gas Water Heaters, Ltd., are showing, on Stand Ca. 405-304, a complete range of instantaneous gas water heaters for domestic purposes. On view are single-point bath and sink heaters, multi-point heaters serving bath, basin and sink, instantaneous boiling water appliances and other new developments.

•

On Stand B. 307-206, Ashwell and Nesbit, Ltd., are showing the following exhibits: Iron fireman, automatic stokers for heating and domestic boilers, core stoves, annealing ovens and circular flue boilers, steam cooking apparatus, trench covers, semi-rotary pumps and iron and brass founders.

•

The type E. Mill, a new pulveriser, is prominently displayed by Babcock and Wilcox, Ltd., on Stand D. 401-300.

•

Bakelite, Ltd., are exhibiting, on Stand Cb. 408, Bakelite synthetic resin products, moulding materials, varnishes, lacquers, cements, spirit and oil soluble resins, laminated sheet, rod and tube, silent gear material and laminated bearings.

•

The selection of Bell fireplaces exhibited on Stand B. 521 of A. Bell & Co. include designs in entirely new materials introduced to the market for the first time. These materials are described as Muresque stone and rustic faience, both of which are suitable for fireplace work.

•

The following products are displayed by Benham and Sons, Ltd., on Stand B. 310: Nevastane sink and drainer units made of Firth-Vickers Staybrite stainless steel, Nevastane plate racks, mixing taps, access traps and undersink cupboards.

•

On the stand (Cb. 209) of Berry's Electric, Ltd., there is exhibited a complete range of the firm's domestic heating apparatus, including the Magical and Chameleon fires, modern and period light fittings and low tension heavy switchgear.

•

Stationary batteries of a large variety of types are shown by Britannia Batteries, Ltd., on Stand Cb. 608. These include open-type cells with "short-first-charge" plates, sealed types which are supplied fully charged and ready for immediate use, cells having double glass boxes which avoid interruption of the circuit in case of a box being damaged, cells in lead-lined wood boxes and small cells used for private telephone installations, meter testing, clock circuits and similar duties.

•

S. O. Bowker, Ltd., are showing, on Stand Cb. 317, a complete range of Tenby wiring systems and accessories. The exhibits include: Bakelite ceiling roses and switch plates, brass and rubber brushes, porcelain connectors, Tenby Luxe switches, Tenby Pilot switches and switch plugs.

•

On Stand Ca. 604 Bratt Colbran, Ltd., are showing a complete range of gas fires and heaters for industrial and domestic purposes, and fireplace surrounds in wood, marble, tiles and glass.

•

Aluminium and its alloys in all standard forms are on view on the stand (D. 615-514) of the British Aluminium Co., Ltd.

•

Information concerning electricity supply facilities in Great Britain and Northern Ireland can be obtained at the British Electrical Development Association's Bureau (Cb. 407-306).

•

The British Gas Federation has, on Stand Ca. 611 and 514, a full-sized conveyor bright annealing furnace at work. The gas tube principle of gas firing which is used in the bright annealing exhibit is one which is just being developed. It takes the place of the muffle system of firing, and is used only where the load must be kept separate from the products of combustion. It does not therefore affect the use of open-fired gas furnaces which are standard practice for most ordinary heat treatment purposes as well as for forging and billet-heating, and even for clean annealing. The gas tube, or radiant tube, is a heat-resisting metal tube, in this case about 1½-in. in diameter, inside which the gas and air are burned.

•

A complete range of electric wires and cables for all purposes is exhibited by British Insulated Cables, Ltd., on Stand Cb. 401-300.

•

Demonstrations of profiling of steel and of up-to-date welding techniques are being given by the British Oxygen Co., Ltd., on Stand D. 411-312.

•

British Thermostat Company's stand (Cb. 700) is in the electrical section, and has been designed to afford a setting for a number of panels on which are mounted examples of Teddington automatic controls for heating, air-conditioning, refrigerating and industrial installations.

•

British Thomson-Houston Co., Ltd., are showing on Stand Cb. 505-404 Mercra and Sodra electric discharge lamps, Mazda lamps of all types including special projector lamps, B.T.H. street lighting lanterns, and B.T.H. industrial fittings.

•

Demonstrations of heating, cooling, drying, ventilating, filtering, humidifying and air-conditioning equipment, using steam, hot water or electricity for heating medium and water brine or direct expansion refrigerant for cooling, are being given by British Trane Co., Ltd., on Stand B. 321.

•

A complete range of the Goblin electric cleaners and the new low priced Popular electric washer is being displayed and demonstrated daily on the stand (Cb. 205) of the British Vacuum Cleaner and Engineering Co., Ltd.

The latest design of Britannia vehicle tubular cell battery. (Exhibited by Britannia Batteries, Ltd.)

Selfstoke boilers, coke fires, Thermidair heaters, unit heaters, gas, steam and water boilers are shown on the stand (Ca. 709-606) of the Brockhouse Heater Co., Ltd.

●

W. P. Butterfield, Ltd., have two stands. On D. 106 they are showing stainless steel pans of all descriptions and aluminium tanks ; and, on A. 501 they exhibit galvanized dust bins, galvanized hot water tanks, galvanized cisterns, etc.

●

The stand (Cb. 401-300) of the Cable Makers' Association displays some of the most interesting research and test work constantly undertaken by members of the Association.

●

Callender's Cable and Construction Co., Ltd., are exhibiting, on the stand of the Cable Makers' Association (see note above), a complete range of electric wires and cables which may be used for all purposes.

●

A complete range of the Devon Fire faience and tile fireplaces, wall tiling and floor quarries is displayed by Candy and Co., Ltd., on Stand B. 507-406.

●

Electrical cooking and heating appliances, comprising fires, cookers, tubular heaters, irons, etc., are displayed by Carron Co., on Stand Cb. 721. On Stand D. 701 they are showing their aluminium and brass castings.

●

Cellactite and British Uralite, Ltd., have on view (B. 623-522), the following exhibits : Cellactite asbestos protected metal roofing and roof ventilators, Urastone incorrosible flues, ducting, fittings, Kimoloboard incombustible fireproof and A.R.P. panelling, Asbestone British asbestos cement sheeting and Uralite all-asbestos fireproof building sheet.

●

Cellon, Ltd., exhibit (Stand B. 529) their Cerric cellulose finishes for wood, metal, leather, etc. ; Cerrux synthetic finishes (air-drying or stoving) ; Cerrex anti-corrosive primers, etc.

●

A selection of storage batteries for various electrical purposes is on view on the stand (Cb. 307) of the Chloride Electrical Storage Co., Ltd.

A range of new designs is displayed by Claygate Brickfields, Ltd., on stand B. 513.

●

The stand (B. 607-506) of the Coal Utilisation Council has been organized to provide information regarding the use of solid fuel (coal, coke or anthracite) for domestic, central heating and industrial purposes, and to demonstrate the advantages of modern coal-burning appliances.

●

The Cochran vertical boiler, 7 ft. diameter under steam, is featured by Cochran & Co., Annan, Ltd., on Stand A. 209.

●

Bison air raid shelters (patents applied for), formed by in-situ reinforced concrete construction, sunk into desired position, are on view on the stand (B. 215a) of Concrete, Ltd.

●

Constructors, Ltd., are showing (Stand Cb. 609-508) the following exhibits : Steel office and factory equipment, cycle parks, strong room doors, clothes and bathing lockers, desks, filing cabinets, and adjustable steel shelving.

●

Sectional heating and hot water boilers are featured by Crane, Ltd., on Stand B. 619. Other exhibits include radiators for domestic and hospital purposes.

●

Electric wires and cables for all purposes are displayed by Crompton Parkinson, Ltd. (Derby Cables, Ltd.) on Stand Cb. 401-300.

●

Various exhibits showing advanced construction of cylindrical boilers, heat exchangers, gas separators and other heavy steel pressings are displayed by Edwin Danks & Co. (Oldbury), Ltd., on Stand D. 401-300.

●

Darnot Stoves are exhibiting, on Stand B. 215, two sizes of the Darnot slow-combustion radiator which are now in production. This radiator has been developed for factories, works, garages, etc. Briefly, its construction is steel plate fire box and ash pan lined with special dove-tailed fire-brick, on top of which are eight interchangeable scientifically-designed radiating sections. These sections are made from special high-heat-resisting grey iron, and the wall thickness is only $\frac{1}{4}$ in., thus to ensure the complete extraction of heat. The burning gases are forced to take a circular and upward course through these sections, and in passing from one section to another strike the bottom faces of very large air-radiating ducts. The top and bottom faces of these ducts are finned to raise the efficiency of radiation.

The exhibits of the Davis Gas Stove Co., Ltd., on Stand Ca. 503-402, include : Alpine New World Regulo-controlled gas cookers, Davis water heaters, Health Ray gas heaters for infra-red irradiation, Panella build-in and High Beam gas fires.

●

The exhibit (Stand D. 511) of the Dunlop Rubber Co., Ltd., comprises examples of the firm's industrial and mechanical rubber goods, driving and elevator belting, hose, etc.

●

Earle Bourne & Co., Ltd., are showing, on Stand D. 500, brass and copper in strip, sheet, tubes, sections, ornamental tubes and mouldings, radiator sheets, plates and tubes and brass and copper film.

●

Elsan non-flush sewerless chemical closets for bungalows, works, aeroplanes, A.R.P. shelters, etc., are displayed by Elsan Manufacturing Co., on Stand B. 616.

●

Esse heat storage cookers, Esse water heaters, Esse heating stoves, Esse steam cooking equipment and Esse cooking utensils, are on view on the stand (B. 609) of the Esse Cooker Co.

●

Tubular lamps of all types are prominently displayed by Evenlite Tube Lamps Developments, Ltd., on Stand Cb. 110.

●

The exhibits of Evered & Co., Ltd. (Stand Ca. 504) include : Modern gas lighting fittings, ventilating ceiling lights, pendants and brackets.

●

Steel shelving, storage equipment, racking, bins, lockers, cupboards, and tables are on view on the stand (B. 509-408) of Evertaut, Ltd.

●

The chief exhibits on the stand (Ca. 207) of Ewart and Son, Ltd., are the new Empire multi-point and the No. 25 and No. 30 single-point gas water heaters. The heating capacity of the Empire is $3\frac{1}{2}$ gallons per minute raised 40 deg. Fahr. The exterior is of white porcelain enamel, and it is fitted with safety thermo cut-out, constant gas governor and automatic lighter.

●

A comprehensive range of the stoves manufactured by Falk, Stadelmann & Co., Ltd. is on view on their Stand A. 611.

●

Special alloy steel for all purposes are displayed by Thos. Firth and John Brown, Ltd., on Stand D. 619-518.

●

A perspective of the stand of S. O. Bowker, Ltd.

Fireplace surround in Muresque stone and rustic faience exhibited by A. Bell & Co.

On stand A. 505 Firth Vickers Stainless Steels, Ltd., fabricated goods in Staybrite steel together with various examples of finished and polished stainless steel sheets, stair treads and many details such as bolts, nuts, screws, etc.

●

Flavel Streamline cookers of various types are on view on the stand (Ca. 406) of Sidney Flavel & Co., Ltd. Exhibits include : Elf wall-type cooker, Radiant-Panel gas heaters, built-in and independent gas fires, Metro gas-ignited coke-fires, and Metro-log gas fire.

●

Gas apparatus for domestic use is shown by Fletcher, Russell & Co., Ltd., on Stand Ca. 503-402.

●

Fox & Co., Ltd., exhibit, on Stand D. 613-512, alloy electric and special steels, bars, and ingots.

●

Geo. H. Gascoigne & Co., Ltd., are showing, on Stand D. 733, their malleable Ke-Klamps for steel tubular construction, ½-in. to 2-in. nominal bore.

●

A complete range of the products of the General Electric Co. is on view on Stand Cb. 515-414. Exhibits include : Domestic electric appliances, fires, refrigerators, cookers, aerodrome and aircraft lighting apparatus, and Osram electric lamps of all types.

●

Pulsynetic electric impulse clocks are featured by Gent & Co., Ltd., on Stand Cb. 513. Other exhibits include bells and buzzers, in wood, Bakelite and metal-cased, and bell indicators in wood and metal-clad.

●

On Stand Cb. 601, John Harper & Co., Ltd., are showing a range of inset gas fires and flueless heaters. The new No. 3160 and No. 3161 heaters are being featured. Their compact over-all dimensions and special system of internal baffles, whereby the outer case is kept cool and the warm air is projected forward through louvres, make these heaters suitable for fitting in draughty halls and passages. The baffles keeping the outer case cool minimise the risk of discoloration of the walls. Both these heaters are designed in colours to harmonize with modern schemes of interior decoration.

●

G. A. Harvey & Co. (London), Ltd., show, on Stand B. 327, their perforated metals of every description. The exhibits include ornamental grilles and ventilating panels, woven wire gauze in all meshes and gauges, sheet metal and steel platework, steel equipment and gilled tubes. An exhibit of particular interest is Harco patent metalace. This is a recent achievement in wire-weaving. In ordinary weaving, whether of wire, cotton or silk, the strands run at right angles to each other. By means of specially designed machinery the firm have produced, additional strands are incorporated diagonally with the result that woven designs of a very ornamental character are obtained. This new material is suitable for a variety of purposes, including radiator covers, ventilation panels, grilles and stone guards for motor cars.

●

The following exhibits are on view on the stand (B. 407) of O. C. Hawkes, Ltd. : Glossite bathroom cabinets, splashbacks, tables, stools, chairs, linen boxes, mirrors, illuminated cabinets and Vitrolite and mirror splashbacks.

●

Electric wires and cables for all purposes are exhibited by W. T. Henley's Telegraph Works Co., Ltd., on Stand Cb. 401-300.

●

A comprehensive range of patent roof glazing is shown by Hills Patent Glazing Co., Ltd., on Stand B. 611. The exhibits also include : sliding and folding doors and windows, lantern lights (glass and metal), metal windows and steel doors and partitions.

●

Following are some of the exhibits displayed by Henry Hope and Sons, Ltd., on Stand B. 415-314 : metal windows and factory sash ; patent glass roofing, standard lantern and skylights ; ventilator operating gear ; pressed steel doors—revolving, sliding and hinged—and hardware and rainwater heads.

●

Hope's Heating and Lighting, Ltd.'s heavy duty mechanical stoker suitable for single or double flue internal fire tube boilers is prominently displayed on Stand B. 316.

●

The Hotpoint Electric Appliance Co., Ltd., are showing, on Stand Cb. 507, the following exhibits : electric cleaners, cookers, fires, water heating equipment and general domestic electric appliances.

●

The Hurry Water Heater Co. (Stand Ca. 307) show water heaters, all types, and circulators and storage heaters for domestic and industrial purposes, gas fires and radiator and panel heaters.

●

On stand D 403-302 I.C.I. (Metals), Ltd., show brass and other alloys of copper in the form of plates, sheet, strip, wire, rod and sections ; strip and sheet in copper and its alloys in various sizes and gauges, and a selection of rods and extruded sections which indicate the wide range of the Company's products. A comprehensive display of tubes of various sizes and qualities is staged on the stand. The condenser tubes for S.S. " Queen Mary," in cupro-nickel, were supplied by I.C.I. Metals, Ltd., and similar tubes are now being supplied for her successor, S.S. " Queen Elizabeth," by the same firm.

Imperial Chemical Industries, Ltd., have two stands—D. 305 and D. 204. The former is devoted to the firm's degreasing process and the latter displays the Cassell process of heat treatment of metals.

●

Electric wires and cables for all purposes are displayed by the India Rubber, Gutta Percha and Telegraph Works Co., Ltd., on Stand Cb. 401-3

●

The exhibits on the stand (B. 213) of Konkerwind, Ltd., include: Konkerwind pre-cast stone, artistic chimney terminals to fit all flues, Tudor paving tiles and Konquest cabinets.

●

Three of their latest type auto-trucks are being exhibited by R. A. Lister & Co., Ltd., on Stand D. 202. The trucks on view are a rail truck with a 24-inch gauge, designed particularly for use in gravel pits and quarries and in contracting, though not limited to these industries, a truck with an elevating platform for carrying stillages, and a truck with a swivel-tipping body and with pneumatic tyres.

●

Matthews and Yates, Ltd., are showing, on Stand D. 102, their Multivane slow speed fan with laminated casing, paddle blade fan, electric propeller fans, unit heaters and copper gilled pipe heater.

●

The main exhibit on the stand (B. 322) of Mirrlees, Bickerton and Day, Ltd., is the Mirrlees-Combustioner, firing a Ruston No. 7 Thermax vertical boiler in which the steam pressure is automatically maintained by means of a thermostat which stops and starts the stoker according to the needs of the boiler. The water level in this boiler is also automatically maintained. Another exhibit is of a similar stoker, which is applied to an Ideal sectional boiler, fitted with thermostats arranged to maintain the water in the boiler and heating system at any desired temperature.

●

Heat insulating materials including 85 per cent. magnesia Newtempheit are fully displayed by Newall's Insulation Co. (branch of Turner and Newall, Ltd.) on Stand D. 521.

●

North British Rubber Co., Ltd., show the following products on D. 737-634 : Rubber transmission and conveyor belting, hose, tubing, sheet, mechanical rubbers, rubber flooring and matting, industrial footwear, and rubber road blocks.

●

A comprehensive range of gas cookers, fires, radiators and water heaters, including the firm's latest design in gas cookers — the Renown—is shown by Parkinson Stove Co., Ltd. (Stand Ca. 500).

●

Sir Isaac Pitman and Sons, Ltd., display, on Stand Cb. 202, a complete range of building, electrical, general engineering and commercial books.

●

Prior Burners, Ltd., are showing (Stand B. 303-202) the following products : horizontal boiler fired by automatic stoker, air heater fired by automatic stoker and industrial furnace fired by automatic stoker.

●

Radiation, Ltd., are showing (Stands Ca. 503 and 402) a Grosvenor suite of sixteen externally-heated ovens, sixteen solid boiling hotplates, three stockpot stands and a bain marie, complete with potrack and polished aluminium hood. All ovens and hotplates, and the bain marie, are fitted with pilot lights ; eight ovens are fitted with Regulo control, and all sixteen have foot operated mirrors so that the chef can adjust the gas rate while he looks at the burner; and all ovens have fall-down doors strong enough to bear a man's weight.

A selection of the numerous products of the Rawlplug Co., Ltd., is on view on the firm's stand (Cb. 210).

•

Revo Electric Co., Ltd., are showing (on Stand Cb. 405-304) the following products: electric cookers, fires, boiling plates, street and industrial lighting equipment, etc.

•

Cold drawn seamless steel tubes in all grades are exhibited by Reynolds Tube Co., Ltd. (Stand D. 623-522). The exhibits include high strength, light alloy seamless tubes and extruded rods, bars and sections, and seamless tubes in Barronia metal.

•

Rheostatic Co., Ltd. (Stand Cb. 411 and 310), show thermostats for electric water heaters, cookers and room heaters, and complete controls for automatic firing apparatus and central heating, electric valves, relays and thermal safety devices.

•

Richmonds Gas Stove Co., Ltd., are exhibiting the following on Stand Ca. 503-402 : Regulo controlled New World gas cookers, high Beam gas fires, gas radiators, gas-operated hot water apparatus and large cooking apparatus for hotels and boarding houses.

•

Riley Stoker Co., Ltd., have two stands. On D. 218 they are showing automatic stoker equipment suitable for central heating and vertical and horizontal steam boilers and for small water tube boilers; also for heating boilers in private houses. On Stand D. 222 they have on view automatic stokers for all types of boilers.

•

Robbins & Co. have on view on Stand B. 308 a comprehensive selection of their products, including their hob grates, curbs, coal boxes, etc.

•

Rowland's Electrical Accessories, Ltd., are this year staging (Stand Cb. 102-103) what they claim to be the largest exhibit of lighting fittings which has ever been put forward at any British Industries Fair (the total floor area is over 1,400 sq. ft.). The exhibit is split into two sections. On one stand they display a comprehensive range of industrial, commercial and floodlighting fittings, while on the second stand they exhibit lighting effects, dealing principally with the various degrees of colour corrected mercury lighting. A number of identical displays are being shown in specially-designed cubicles.

•

The Ruberoid Co., Ltd., have on view on Stand B. 311 bitumen roofings for every type of roof and building, also Ruberoid for large buildings, Starex and Pluvex for smaller buildings, bitumen dampcourses, slaters' felts, etc.

•

Steel storage equipment, shelving, bins, cupboards, lockers, benches, stackpans, racks, partitioning, filing cabinets, desks, tables, tubular furniture, motor houses, pressed steel pulleys, pressings, bright bolts, nuts, drawn steel, and structural steelwork are displayed by Rubery Owen, Ltd., on Stand D. 703-602.

•

Steel pressings of every description are featured by Joseph Sankey and Sons, Ltd., on Stand B. 621. Other exhibits include wheels and axles, barrow bodies, foundry ladles, bath panels, Sankey-Sheldon steel furniture, partitions, doors, miners' lockers, architectural metal trim door frames, and hot water radiators.

•

Serck Tubes, Ltd., manufacturers of solid drawn tubes in brass, copper, aluminium, bronze, gilding metal and phosphor bronze, are showing a complete range of their products on Stand D. 608.

•

Exhibits displayed by Simplex Electric Co., Ltd. (Stand Cb. 415-314), include: Creda electric cooking, heating and water heating appliances, and Simplex electrical installation equipment.

Smith and Wellstood, Ltd., are showing, on Stand B. 609, the No. 2 B.J. Esse heating stove—a new style in a popular size to heat some 2,500 cu. ft. Following the success of the No. 3 B.J. Esse introduced at the 1938 Fair, Betty Joel has designed the exterior of the No. 2 B.J. Esse, which has all the constructional features of the Jeunesse stove, and is available in modern coloured enamel and metal finishes. Other Esse exhibits include: Esse heat storage cookers, water heaters and the new Esse steam cooking equipment marketed by the Esse Cooker Company (Proprietors: Smith and Wellstood, Ltd.).

•

The Spiral Tube and Components Co., Ltd., have on view on their stand (D. 713) their radiators for internal combustion engines, air heaters (plenum type), unit heaters, using steam or water, and cooling coils for refrigerators.

•

Pland stainless steel sinks and sink units with cabinets and fittings, sound deadened, ribbed or plain for flats and small houses to hotels and institutions are on view on the stand (B. 208) of the Stainless Steel Sink Co., Ltd.

•

Working exhibits of Stanton-Wilson, Stanton screwed-gland, Stanton roll-ring and Stanton mechanical pipe joints are being shown by the Stanton Ironworks Co., Ltd., on Stand B. 717-626.

•

The following exhibits are on view on the Stelcon (Industrial Floors), Ltd.'s stand (D.207): Stelcon anchor steel plates for heavy duty industrial floors and Stelcon bicycle parking blocks made of precast concrete with recess designed for front wheel of bicycle.

•

Stent air raid shelters and trench liners for Government trenches, precast tiles, standard paving and kerb and Impervious cast stone are some of the exhibits displayed by Stent Precast Concrete, Ltd., on Stand B. 601.

•

St. Helens Cable and Rubber Co., Ltd., are showing, on Stand Cb. 401-300, a complete range of electric wires and cables for all purposes.

•

New exhibits being shown by James Stott & Co. (Engineers), Ltd., on Stand Ca. 709-608 include: A gas-operated pressure steamer with multi-compartments all operated from one generator, and the Stott auto-fry fish and chip range, being a chip range with thermostatic control to the pans.

•

Taylor Rustless Fittings Co., Ltd., are showing, on Stand B. 208, their stainless steel fittings for architectural work, shops, etc., door furniture, tram and bus fittings, butchers' fittings, polished bar, strip, castings, etc.

•

Anglepoise lamps, Anglepoise mirrors, cycle accessories and door springs are some of the products on view on the stand of Herbert Terry and Sons, Ltd., on stand B. 424.

•

John Thompson (Kennicott Water Softeners), Ltd., who claim to be the world's largest actual manufacturers of water-treatment plant, are showing a full range of their products on Stand B. 601a.

•

John Thompson (Wolverhampton), Ltd., have on view, on Stand D. 513-410, the following exhibits: Economic boiler, all welded construction, La Mont boiler, Triumph mechanical stoker, automatic stoker, stainless steel steam jacketed pan and pipework.

•

The "22" cooker is shown, together with the new double oven model, by Triplex Foundry, Ltd., on Stand B. 405-304. Combination cooking and water heating grates are also on view.

•

Electrically welded steel tubes ⅜ in. to 3⅝ in. o.d., 22 to 8 S.W.G., for engineering, motor cycle, electrical, furniture and sanitary trades, are on view on the stand (D. 517) of Tube Products, Ltd.

•

Turner's Asbestos Cement Co. (branch of Turner and Newall, Ltd.) are exhibiting, on Stand Ca. 301, asbestos-cement building materials, tiles, slates and all roofing accessories, rainwater, soil and pressure pipes, moulded goods such as flue pipes and ventilators and an extensive range of decorative wall finishes and fire-resisting materials for all purposes.

•

The United Steel Companies, Ltd. (D.613-512) have the same site as last year, being situated on one of the main avenues. The most striking feature of the stand is the extent to which stainless steel figures in the construction. The outside walls and doors of the lounge consist of satin finished stainless steel sheet, and the six display counters are surrounded by bold strips of stainless steel. The whole stand is dominated by an illuminated tower bearing the United Steel Companies' emblem, also fabricated in stainless steel. The stainless steel used is the Silver Fox new process stainless steel. On the same stand the United Strip and Bar Mills (Branch of the United Steel Companies, Ltd.) show hot-rolled steel strip, various qualities in coils and straight lengths and various finishes.

•

The Universal Asbestos Manufacturing Co., Ltd., have the following exhibits on view, on Stand B. 518 : Reinforced flat troughing and decking, reinforced and ordinary asbestos-cement corrugated sheets, Twin-Twelve sheets, and Watford tiles.

•

The latest models of Valor heaters, boilers, cookers, ovens, stands and accessories and Valor steel equipment for offices and works are being exhibited by the Valor Co., Ltd., on Stand B. 401.

•

Plymax—metal-faced plywood—is exhibited the form of complete units, on the stand in (D. 725) of Venesta, Ltd.; office partitions, w.c. compartments, doors and bench tops, sample sheets of Plymax and Venesta plywood are also on view.

•

Wilsons and Mathiesons, Ltd. (Stand Ca 503-402) are exhibiting : High Beam gas fires, Carlton New World gas cookers, gas heated radiators, large cooking equipment, gas heated wash boilers and instantaneous water heaters (gas heated).

•

John Wright & Co., Ltd., exhibit, on Stand Ca. 503-402 : Regulo-controlled New World gas cookers, High Beam gas fires, gas radiators, gas-operated hot water apparatus and large cooking apparatus for hotels and boarding houses.

•

Hand lift trucks, skid platforms, plant handling trucks, stacking machines, ball bearing spur geared chain blocks and open spur geared chain blocks are being exhibited by the Yale and Towne Manufacturing Co. on Stand D. 417-313.

•

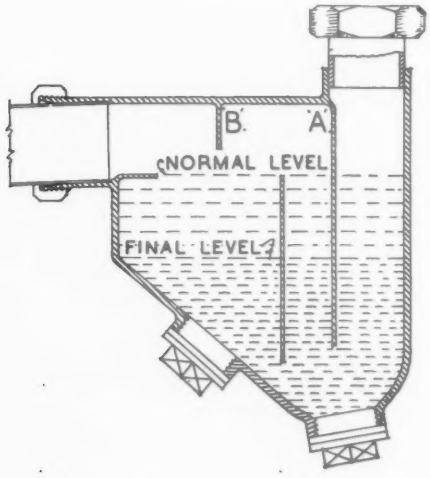
Yorkshire fittings for hot and cold water, heating, gas wastes and engineering services are displayed by the Yorkshire Copper Works, Ltd., on Stand B. 723-632.

•

W. C. Youngman, Ltd., are showing, on Stand D. 200, Leda bathroom furniture and fittings, including chromium-plated towel airers, lavatory stands, showers and mixers, white enamelled cabinets, stools, toilet tables, etc., and a wide range of bathroom accessories.

•

Specimens of engineering, architectural, electrical, building and domestic ironwork, rust proofed by the sherardizing process, are displayed on the stand (D. 732) of the Zinc Alloy Rust-Proofing Co., Ltd.



TRADE NOTES

[*By PHILIP SCHOLBERG*]

Re-Sealing Traps

THE introduction of the one-pipe system in plumbing has produced a whole lot of different designs for re-sealing traps, though the need for them was really quite as great with the old two-pipe system. The earlier types produced by Greenwoods were very effective but a little untidy, and present designs are now quite neat and easy to clean. The latest people to produce a trap of this type are Kay & Co., whom most people know as the manufacturers of Kontite patent compression joints. Their design is known as the Seltite, and there is a section of it at the head of these notes. Under the influence of a partial vacuum a mixture of air and water is sucked up to the top of the trap at A, and the projecting rib at B deflects the water downwards again in a fine spray so that a large proportion of the water returns to the body of the trap and does not pass into the waste. The depth of seal left under tests by the Building Research Station varied from 2 to 3 ins., and the tests showed "that an effective seal was maintained in the trap under all conditions imposed by the tests which were sufficiently severe in every case to break the seal of an ordinary S trap." Outlets are fitted with Kontite joints for use with 19, 18, or 17 gauge copper tube in the 1¼-in. size and with 18 or 17 gauge tube in the 1½-in. and 2-in. sizes. The traps are made of cast gun-metal and are available in the ordinary cast finish, or polished, or chromium-plated. It is suggested that the trap will be to a large extent self-cleaning, but two eyes are fitted in convenient positions so that any necessary cleaning should be quite easy.—(*Kay & Co. (Engineers), Ltd., Bolton Brass Works, Bolton.*)

Dining-Room Furniture

Isokon have just produced a new range of dining-room furniture which includes a rather interesting table measuring 4 ft. 6 ins. by 2 ft. 3 ins. and weighing only 21 lb. The top is made of a single sheet of birch and the legs are walnut, the bearers running from one leg to the other only across the short edge of the table. The whole thing is therefore very flexible, and one leg can be lifted about 6 ins. without any of the other legs moving at all, so that a floor would have to be pretty uneven before the table would wobble. To go with this table there are some walnut and birch chairs which are designed so that they can be put away in stacks, six chairs being quite easily carried by one person. Prices are £4 14s. 6d. for the table and £2 2s. for a chair, but the same things in birch only are about 20 per cent. cheaper. Both of these designs are the work of Marcel Breuer. The chairs are quite comfortable and do not give you the feeling of insecurity which is all too usual with designs like this. For the table I am not sure that a radiused edge is a very good thing because people tend to put cups and saucers down half-way over the curved edge and then the whole thing falls off. The thinness of the birch top gives a flexibility which is a little worrying if you are accustomed to the more solid type of furniture, but there is no real reason why this flexibility should be any disadvantage in actual use.

•

Mr. Harry Mansell has designed a sideboard to go with the table and chairs and this sells at £15 15s., which seems to me quite enough, but sideboards always seem to cost about twice what I expect, though I can think of plenty of other firms who hardly ever make a sideboard for less than £40 or £50. This one is well made and has in the left-hand cupboard a thin wood strip fixed at one end and running right round the back. You pull on the free end of this strip and the bottles at the back are thus pulled forward to the front—an amusing idea which looks great fun in the show-room, but of which I have had no practical experience. This furniture can be seen at most of the architecturally-minded London shops, and Heal's are at the moment having a special display of it.—(*Isokon Furniture Company, Isokon Flats, Lawn Road, London, N.W.3.*)

Automatic Stokers

Since the tax on fuel-oil was started seven or eight years ago, more and more firms have been producing automatic stokers for use with solid fuel. Mirrlees, Bickerton and Day now have a large range which covers most industrial sizes, and they have also a small domestic model arranged for an output of 17, 34 or 50 lb. of coal per hour with a hopper capacity of 400 lb. The design is basically very much the same as most other stokers with the usual motor-driven worm for the coal feed and centrifugal fan for the air supply. A shear pin is fitted in the drive to the worm, so that damage will be prevented if lumps of metal or other obstructions should happen to get into the hopper. The manufacturers have the good sense to supply a number of spare shear pins with each stoker, and will doubtless collect plenty of goodwill as a result. Spare pins of the right diameter and the right degree of hardness will certainly not be found in the average household, or even at the ironmonger's round the corner. The same firm also makes motor-driven water circulators for use in the larger type of heating system.—(*Mirrlees, Bickerton and Day, Hazel Grove, Stockport.*)

Linings for A.R.P. Shelters

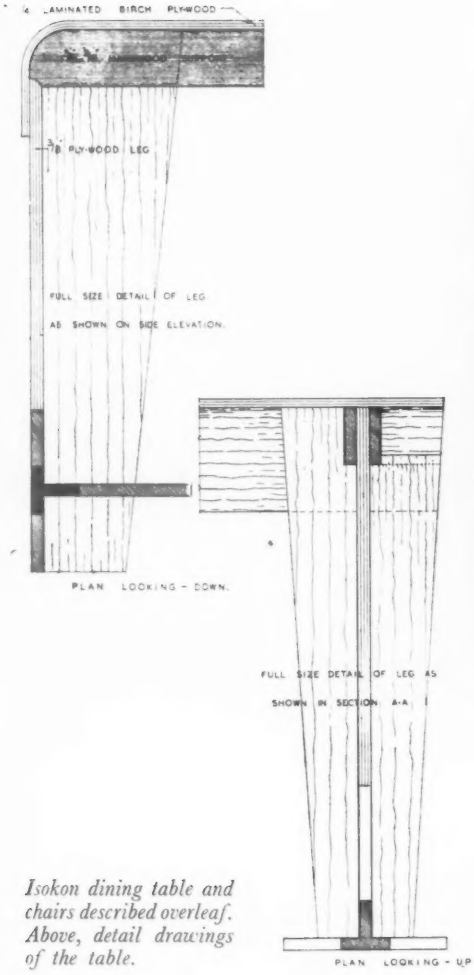
There is not enough space available in these notes to discuss the virtues or otherwise of trenches, surface shelters, sub-surface shelters, deep shelters and all the other things which are still being argued over by people who know a lot more about them than I do. Braithwaites' pressed steel shelter linings are therefore dealt with purely because this firm has evolved a sensible method for using their standard 4 ft. square pressed steel tank plates. These units are small enough to be worked into almost any plan and, used with special closing pieces, they give a shelter a minimum of 7 ft. wide in the clear with 7 ft. 6 in. head-room. "For general purposes" plates $\frac{5}{16}$-in. thick are recommended, general purposes here meaning dry ground or where sand-bags are used for protection. For water-logged sub-soil or for completely buried shelters, ¼-in. plates are better. The shelter would normally have a concrete foundation, but a steel bottom should be provided if water is likely to approach Andersonian level. A jointing compound can be used between the plate flanges if the shelter is to be gas-proof. In a small shelter the ends cannot be built up from standard plates, and these can be closed by special flat plates suitably stiffened or flanged. Any necessary air-locks or emergency exits could also be built up from standard plates.

•

Braithwaites have built some hundreds of thousands of storage tanks with these plates, and as we all know that they are capable of keeping the water in, it is reasonable to assume that they would also keep it out. For details about splinter penetration, see official handbooks and pray that any future enemy will play fair and keep to the splinter size assumed by the Home Office.—(*Braithwaite & Co., Engineers, Ltd., Horseferry House, London S.W.1.*)

Hospital Switches

Some months ago I referred to a report on the danger of explosions in operating theatres, and it was then stated that although there was not very much danger to be expected from switches, it was none the less probably better to use a sparkless type. One firm is already making a small mercury switch, and a further unit has now been produced by Wandsworth Electrical Co., the price of these being 8s. 8d. each. The switch has the ordinary type of operation, and the mercury is in a sealed glass tube which can quite easily be removed if replacements are ever necessary. The switch is, of course, dead silent, but in an operating theatre it is doubtful whether this point is of any great importance. Since most anæsthetic mixtures are heavier than air, the danger of explosion from switches is probably fairly remote provided that the switch is mounted at about shoulder height on the wall. None the less, in any hospital or dental clinic where anæsthetics are used the extra cost of these switches may be well worth while as an insurance against the unexpected sort of things that always seem



Isokon dining table and chairs described overleaf. Above, detail drawings of the table.

to happen. — (*The Wandsworth Electrical Manufacturing Co., Ltd., Imperial Works, Kenyon Street, Birmingham, 18.*)

"All Electric" House Costs

It is obviously impossible to make any hard and fast rules about the relative costs of heating by electricity as opposed to gas or coal, but I have recently come across an actual example of a small speculatively-built house at Ilford, and the figures for this may be of some interest. The selling price of the standard house was £590, and the plan included two reception rooms, a hall, small kitchen, three bedrooms and bathroom, with the more or less usual equipment of gas cooker, hot-water supply from the dining-room fireplace, and open fireplaces with tiled surrounds and gas points. Before moving in, the new owner decided to use as much electricity as possible, keeping an open fireplace only in the sitting-room. The extra cost of the necessary wiring, fires and other equipment came to £25 2s. 6d., of which £13 10s. was spent on a twelve-gallon water-heater Saving in cost owing to the omission of flues and sundry equipment was £20 17s. 6d., thus giving a net extra cost of £4 5s. 0d.

Running costs, with current first at ½d. and later at ¼d. per unit plus a small standing charge, worked out over a period of two years at an average of just under 4s. 4½d. per week, this figure including the cost of fuel for the sitting-room fire. The owner says that " owing to prejudice " he has not been able to obtain exact cost figures from his neighbours, but he gathers that they average about 1s. a week for lighting at 3½d. a unit, 3s. 6d. a week for gas, and 2s. 6d. a week for coal in the summer and 7s. 6d. in the winter. Averaging this out, he estimates that his neighbours spend about 8s. 6d. a week over the year, with the additional disadvantage of a red-hot dining-room when baths are needed in the summer. 3s. 6d. a week for gas sounds a little high, but whatever the actual figure may be, and allowing, too, for a certain amount of pro-electric prejudice, the figures do seem to show that electricity can sometimes provide a fairly considerable saving. Tenants should, however, remember not only to buy the essential pound of candles, and possibly a Primus as well, but also where they have put them.

THE BUILDINGS ILLUSTRATED

NEW WARDS, GLAN-ELY HOSPITAL, CARDIFF (pages 334-335). Architect: T. Alwyn Lloyd, in association with J. A. Hallam. General contractors: Watts and Webb. Sub-contractors and suppliers included: J. G. Proger and Sons, Ltd., heating, internal plumbing and sanitary appliances; Dawnays, Ltd., structural steelwork; J. Williams and Sons (Cardiff), Ltd., steel windows and doors; Western Trinidad Lake Asphalte Co., Ltd., Colorphalt floors; Hallett Flooring Co., wood block floors; Mosaic and Terrazzo Co., Ltd., terrazzo flooring; Self-Sentering Expanded Metal Co., Ltd., and British Emulsions Co., Ltd., flat roofs and ceilings; Economic Electrical and Mechanical Engineering Co., electric wiring, bells and signals; Lithalun Products Ltd., sound-proof partitions; Vitreflex, Ltd., stove enamelled rainwater goods; Nobles and Hoare, Vincomel paints; Laminated Wood Products, Ltd., Oras flush doors; Nettlefold and Sons, locks and ironmongery.

THE FORESTERS ARMS, NEWCASTLE-UNDER-LYME (pages 336-337). Architects: E. Forshaw and Greaves. General contractors: Stephen Heath and Son, who were also responsible for the demolition, excavation, foundations, plumbing and joinery. Sub-contractors and suppliers included: Limmer and Trinidad Lake Asphalt Co., Ltd., asphalt; British Reinforced Concrete Co., Ltd., reinforced concrete; John Stubbs, Ltd., granite and marble; Hathernware, Ltd., terra-cotta; Power's and Deane, Ransome's, Ltd., structural steel; Lenscrete, Ltd., glass; Silvertown Rubber Flooring Co., rubber stairtreads; Wm. Truswell and Son, central heating, boilers and ventilation; George Hollins and Sons, Ltd., grates; Painter and Madew, Ltd., electric wiring; L. G. Hawkins, Ltd., electric light fixtures; E. Henshall & Co., Ltd., sanitary fittings and tiling; Cork Insulation Co., Ltd., stair-treads; E. P. Waltho, Ltd., door furniture; Doodson and Bain, Ltd., casements, window furniture, metalwork, shop fittings and signs; W. Hill and Son, plaster and decorative plaster; Leyland Paint and Varnish Co., Ltd., decorations; Carryer Bros., Ltd., fixed seating; Lewis's, Ltd., tables and chairs; Smith, Major and Stevens, Ltd., lifts.

FLATS AT SIR THOMAS WHITE GARDENS, LIVERPOOL (pages 339-341). Architect: L. H. Keay. Architectural Assistant, F. H. Morley. General contractors: Tyson's (Contractors), Ltd., who were also responsible for the joinery. Sub-contractors and suppliers included: Trussed Concrete Steel Co., Ltd., reinforced concrete; Ravenhead Brick Co., Ltd., bricks; Pearson Bros. and Campbell, Ltd. artificial stone; Blockleys, tiles; Wm. Altham, tiles (laid by); F. McNeill & Co., Ltd., (Lion brand) roofing felt; J. Fitzgerald & Co., Ltd. glass; Henry Hope & Sons, Ltd., steel door frames; Brunswick Restoration Co., Ltd., lightning conductors; Workwell Range and Triplex Foundry Co., grates; Wm. Morris and Bro., Ltd., gasfitting and plumbing; Hall and Stinson, Ltd., electric wiring; Baxendale & Co., Ltd., sanitary fittings, door furniture and window furniture; Northern Cement Construction Co., Ltd., stairtreads; Pollick Bros. (London), Ltd., plaster; Shaws Glazed Brick Co., Ltd., mantels; Wm. Rowlands & Co., shrubs and trees.

Copies of the loose supplement containing the labour rates for the principal towns and districts throughout the country can be obtained from the JOURNAL, price 2d. to cover postage.

PRICES

The complete series of prices consists of four sections, one section being published each week in the following order :—

1. Current Market Prices of Materials, Part I. (published last week)
2. Current Market Prices of Materials, Part II.
3. Current Prices for Measured Work, Part I.
4. A. — Current Prices for Measured Work, Part II.
   B — Prices for Approximate Estimates.

IMMEDIATELY below, Messrs. Davis and Belfield mention the principal changes which have occurred in the last month. Similar notes, and the deductions that may be drawn from them, will be published on this page each month.

NOTES ON PRICE CHANGES

Prices generally remain at about the same level. Such changes as have occurred are marked as indicated below.

O. A. DAVIS, F.S.I.

PART 2

Prices vary according to quality and quantity ordered.

Those given below are average market prices and include delivery in the London area, except where otherwise stated, but do not include overhead charges and profit.

CURRENT MARKET PRICES OF MATERIALS

BY DAVIS AND BELFIELD

JOINER

Prices are for standards in one delivery; when less than a standard is required, or special lengths, add £1 per standard

Joinery Timber

				Per standard £ s. d.	Per foot cube s. d.
3″×9″	Scantling	2nd	Archangel	42 0 0	5 1¼
3″×9″	,,	3rd	,, ...	28 10 0	3 5½
2″×9″	,,	2nd	,, ...	47 10 0	5 9½
2″×9″	,,	3rd	,, ...	28 10 0	3 5½
●3″×8″	,,	2nd	,, ...	34 0 0	4 1½
✱3″×8″	,,	3rd	,, ...	23 10 0	2 10¼
●2″×8″	,,	2nd	,, ...	37 0 0	4 6
✱2″×8″	,,	3rd	,, ...	23 0 0	2 9½
●3″×7″	,,	2nd	,, ...	33 10 0	4 0¾
✱3″×7″	,,	3rd	,, ...	22 10 0	2 8
●2″×7″	,,	2nd	,, ...	36 10 0	4 5¼
2″×7″	,,	3rd	,, ...	22 10 0	2 8¾
2″×6″	,,	u/s	,, ...	22 0 0	2 8
1¼″×11″	,,	3rd	,, ...	38 10 0	4 8
1¼″×9″	,,	u/s	,, ...	34 10 0	4 2¼
1″×9″	,,	2nd	,, ...	47 10 0	5 9½
1″×9″	,,	3rd	,, ...	35 0 0	4 3
1″×11″	,,	2nd	,, ...	50 0 0	6 0¾
1″×11″	,,	3rd	,, ...	39 10 0	4 9½
1¼″×9″	,,	2nd	,, ...	47 10 0	5 9½
1¼″×9″	,,	3rd	,, ...	35 10 0	4 3¼
1¼″×11″	,,	2nd	,, ...	50 0 0	6 0¾
1¼″×11″	,,	3rd	,, ...	41 0 0	4 11¾

● **Items marked thus have risen since January 26.**

JOINER—(*continued*)

Flooring

		7/8″	1″	1¼″
Yellow deal, plain edge in batten widths ..	per square	19/9	22/6	✱27/6
Ditto, T. & G.	per square	20/3	23/–	✱28/–
Ditto, T. & G. narrow widths	per square		21/6	28/–
✱T. & G. rift sawn B.C. pine in 4″ widths ..	per square		30/–	42/6
T. & G. random grain in 4″ widths	per square		18/6	

Wall Linings

Deal Match Boarding :—

1″ × 6″ T.G.B.	per square	24/–
1″ × 4½″ T.G.V.	per square	23/6
¾″ × 6″ T.G.B.	per square	18/–
¾″ × 4½″ T.G.V.	per square	17/–
⅝″ × 6″ T.G.B.	per square	14/9
⅝″ × 4½″ T.G.V.	per square	13/9
½″ × 4½″ T.G.V.	per square	11/3

Asbestos-Cement :—

5/32″ Semi-compressed flat building sheets, grey	per yard super	1/3¾
3/16″ Ditto	per yard super	1/4½
¼″ Ditto	per yard super	1/11
¼″ Metal reinforced flat building sheets	per yard super	3/4

Prices are for orders of less than 1 ton.

✱ **Items marked thus have fallen since January 26.**

CURRENT PRICES

BY DAVIS AND BELFIELD

JOINER AND STEEL AND IRONWORKER

JOINER—(*continued*)

Wall Boards :—

Asbestos-cement wall board (in sheets 8′ 0″ × 4′ 0″ only) under 5,000 feet super	per foot super	–/2¾
Asbestos-cement stipple glazed sheets (in sheets 8′ 0″ × 4′ 0″ only)	per yard super	7/6
Ditto, plain white glazed sheets (in sheets 8′ 0″ × 4′ 0″ only) ..	per yard super	8/6
Marble glazed sheets (in sheets 8′ 0″ × 4′ 0″ and 4′ 0″ × 4′ 0″)	per yard super	7/6

	300 yards	300–1,000 yards	1,000–2,000 yards	Over 2,000 yards
½″ Fibre board ..	2/–	1/10½	1/9	1/7

		25-75 yards	150–300 yards	Over 600 yards
⅜″ Fireproof plaster board	per yard super	2/2	1/10	1/6
¼″ Ditto	per yard super	2/–	1/8	1/4
Joint tape (approx. 250 feet run)	per roll	..	..	1/6
Joint filler	..per lb.	..	..	–/4

Plywoods :—

	4 m/m	5 m/m	6 m/m	9 m/m	15 m/m
Birch (A) per square	18/9	23/6	—	37/–	—
„ (B) per square	15/6	—	21/–	30/6	43/–
Japanese figured oak (A.A.) per square	33/6	—	39/3	65/–	—
Austrian oak, figured one side, plain oak reverse (A.A.) per square	—	—	86/3	92/6	—
Australian walnut, finely figuredoneside(boards 72″ × 36″) per square			¼″ 67/6	⅜″ 85/–	
Sycamore, figured one side (ditto) per square			75/–	85/–	
Honduras mahogany, figured one side (ditto) per square			75/–	—	
Honduras mahogany, finely figured (boards 84″ × 36″) per square			125/–	—	

Prices are for complete bundles.

Blockboards :—

Alder :—

Thickness		Boards 60″×183″	Boards 72″×183″
½″	per square	59/3	59/3
⅝″	per square	66/3	66/3
¾″	per square	72/6	72/6
⅞″	per square	79/–	79/–
1″	per square	85/6	85/6
1¼″	per square	99/6	99/6
1½″	per square	114/6	114/6
1¾″	per square	128/–	128/–

Birch :—

Thickness		Boards 60″×84″ & 54″×72″	Boards 60″×140″
½″	per square	43/9	47/3
⅝″	per square	50/–	54/–
¾″	per square	55/3	59/6
⅞″	per square	60/–	64/–
1″	per square	67/6	72/3

Prices are for complete bundles.

Hardwoods

Joinery Quality.

English oak	per foot cube	15/–
American oak (plain)	per foot cube	10/–
„ „ (quartered)	per foot cube	12/–
Australian Silky Oak (plain) ..	per foot cube	11/–
„ „ „ (quartered) ..	per foot cube	12/6
Walnut, European	per foot cube	18/–
Teak, Rangoon	per foot cube	15/–
„ African	per foot cube	12/–

JOINER—(*continued*)

Mahogany, Honduras	per foot cube	13/6
American whitewood	per foot cube	9/–
Birch	per foot cube	8/–
Cedar (aromatic)	per foot cube	16/–
Japanese oak (plain)	per foot cube	10/–
„ „ (quartered)	per foot cube	12/–
Austrian oak (plain)	per foot cube	10/6
„ „ (quartered)	per foot cube	14/–

Sundries

Slaters or sarking felt	per yard run	–/6
Roofing felt	per yard run	–/8
Bituminous hair felt	per roll	33/–
All rolls 25 yards long by 32″ wide.		
Cork slabs, 1″ thick (3′ 0″ × 1′ 0″)	per foot super	–/4½
„ 2″ thick (3′ 0″ × 1′ 0″)	per foot super	–/8
Slagwool	per cwt. (approx.)	12/–
Building paper in rolls of 100 yards, 1-ply, 60″ wide (B.I.80 and L.G.I.80)	per roll	67/6
Ditto, 2-ply, 60″ wide (B.I.80)	per roll	135/–
Ditto, 2-ply, 60″ wide (B.I.20)	per roll	202/6
"Cabots" Quilt :—(Ex Works Twelve roll lots delivered carr. free.		
Double ply .. per roll 42/–	per half roll	23/6
All rolls 28 yards long by 36″ wide. Special terms for quantities.		
Cut steel clasp nails, 1″ per cwt. 30/6	4″ per cwt.	21/6
„ „ floor brads, 2″ „ 20/9	3″ per cwt.	19/9
Bright oval wire nails 1″ „ 32/9	4″ per cwt.	21/6
Scotch glue	per cwt.	65/–

Floor Clips :—

		£ s. d.
One leg floor clip	per 1,000	8 8 0
2″ short leg floor clip	per 1,000	8 8 0
2″ Regular floor clip	per 1,000	8 15 0
3″ „ „	per 1,000	9 0 0
2″ Regular ceiling clip	per 1,000	8 15 0
Single leg ceiling clip (7½″)	per 1,000	10 10 0

Special terms for quantities.

STEEL AND IRONWORKER

Steelwork

		£ s. d.
✱Basis price for rolled steel joists sections 5″×3″ to 16″×6″, in 10 ft. to 50 ft. lengths	per ton	12 10 0
Extras on above for :—		
9″ × 7″ Section	per ton	0 5 0
4″×3″, 5″×2½″, 10″×8″, 12″×8″, 14″×8″ and 16″×8″ to 20″×7½″ sections inclusive	per ton	0 10 0
3″×1½″, 3″×3″, 4″×1¾″, 4½″×1¾″ and 24″ × 7½″ sections	per ton	1 0 0
✱Channels, angles and tees	per ton	13 10 0
✱Mild steel plates	per ton	13 10 0
✱Screw bolts	per ton	31 0 0

Fabricated Steelwork

		£ s. d.
✱Joists cut and fitted	per ton	16 10 0
Stanchions, ordinary sections with riveted caps and bases	per ton	20 0 0
Stanchions, compound	per ton	23 0 0
✱Plate girders	per ton	24 10 0
Framed roof trusses, 25′ 0″ span	per ton	25 0 0
„ „ „ 60′ 0″ span	per ton	23 0 0

These prices are approximate, and definite quotations should be obtained.

Prime Galvanized Corrugated Iron Sheets

(Ex London Stocks)

	10 cwt. lots £ s. d.	Less quantity £ s. d.
4 to 9 fts. 18 or 20 gauge, 8/3″ corrugations .. .. .. per ton	18 15 0	19 15 0
10 fts. 18 or 20 gauge, 8/3″ corrugations	19 5 0	20 5 0
4 to 9 fts. 22 or 24 gauge, 8/3″ corrugations .. .. .. per ton	19 5 0	20 5 0
10 fts. 22 or 24 gauge, 8/3″ corrugations	19 15 0	20 15 0
4 to 8 fts. 26 gauge, 8/3″ corrugations ..	20 10 0	21 10 0
9 fts. 26 gauge, 8/3″ corrugations ..	21 0 0	22 0 0
10 fts. 26 gauge, 8/3″ corrugations ..	21 10 0	22 0 0

✱ Items marked thus have fallen since January 26

CURRENT PRICES

BY DAVIS AND BELFIELD

PLASTERER, PLUMBER AND INTERNAL PLUMBER

PLASTERER

Plaster and Cement

		1-ton loads	5-ton loads	
Sirapite (coarse)	per ton	70/–	64/–	
„ (fine)	per ton	78/–	—	
Victorite No. 1	per ton	85/–	78/6	6-ton loads
„ No. 2 or non sweat	per ton	80/–	73/6	
Thistle (browning, haired and pink finish)	per ton	70/–	64/–	
Thistle (fine)	per ton	78/–	—	
Pink plaster	per ton	66/–	—	
White plaster	per ton	78/–	—	
Keene's pink	per ton	112/6	—	
Keene's white	per ton	117/6	—	
Super Carbo	per ton	—	47/6	4-ton loads
Carbo-setting	per ton	—	57/6	

	1 ton upwards £ s. d.
Cullamix No. 2 cream (rendering mixture) per ton	5 10 0
„ No. 3 cream „ „ per ton	5 10 0
Snowcrete mixture „ „ per ton	5 5 0

Sundries

		Less than 150 yds.	Less than 300 yds.	Over 300 yds.
Sharp washed sand	per yard cube		8/–	
Cow hair	per cwt.		40/–	
Goat's hair	per cwt.		55/–	
½″ laths	per bundle		2/–	
¾″ laths	per bundle		2/4½	
Expanded metal lathing, 9′ 0″ × 2′ 0″ ¾″ mesh × 26 gauge	per yard super		–/11	
Lath nails (galvanized) 1½″ × 14 gauge ..	per cwt.		48/6	
„ (bright wire) „ „ ..	per cwt.		27/–	
¾″ Plaster board ..	per yard super	1/–	–/11	–/10
1½″ Galvanized nails ..	per lb.		–/5	
Scrim cloth in 100-yard rolls	per roll		2/3	

Wall Tiles

Commercial quality.	
Ivory, white, etc., glazed 6″ × 6″ × ⅜″ ..	per yard super 9/9
Angle beads (1½″ wide)	per yard run 1/2¾
„ „ (1″ „)	per yard run –/10
Rounded edge tiles	per yard run 2/6½
Coloured enamelled bright glazed, 6″ × 6″ × ¾″	per yard super 14/3
Angle beads (1½″ wide)	per yard run 1/4¾
„ „ (1″ „)	per yard run –/11¼
Rounded edge tiles	per yard run 2/7
Eggshell gloss enamelled, 6″ × 6″ × ⅜″ ..	per yard super 15/–
Angle beads (1½″ wide)	per yard run 1/7¼
„ „ (1″ „)	per yard run 1/0¾
Rounded edge tiles	per yard run 2/8½

PLUMBER

Lead

✱3½ lbs. and upwards milled sheet lead in quantities of 5 cwts. and upwards ..	per cwt. 22/6
Add if cut to sizes	per cwt. 3/–
Lead ternary alloy, No. 2 quality extra over sheet lead	per cwt. 7/–
✱Allowance for old lead delivered to merchant	per cwt. 13/–

Cast Iron Rainwater Goods (Painted or Unpainted)

The following prices for rainwater pipes and gutters are subject to 20 per cent. trade discount, and the prices of the fittings are subject to 5 per cent. and 20 per cent. trade discount.

Rainwater Pipes

	2″	2½″	3″	3½″	4″	4½″	5″	6″
Round pipes per yard	2/8½	2/9¾	3/7¾	4/0¾	4/9½	6/1¾	7/2¼	9/2
Shorts, 2′ 0″, 3′ 0″ and 4′ 0″ extra per yard	–/3¾	–/3¾	–/3¾	–/3¾	–/3¾	–/5	–/5	–/5
Bends .. .. each	1/9	2/–	2/6	3/–	3/7	5/–	6/6	8/5
Offsets, 4½″ and 6″ projection .. each	2/2	2/8	3/–	3/5	4/4	6/3	7/6	9/10
Offsets, 9″ projection each	2/10	3/2	3/9	4/8	5/7	7/6	8/10	11/2
Branches, single each	2/7	3/1	3/9	4/4	5/3	7/6	8/5	13/1
Shoes .. .. each	1/6	1/9	2/–	2/8	3/–	4/4	5/5	7/6

PLUMBER—(*continued*)

Square and rectangular pipes.

3″ × 3″	per yard 6/9½
3½″ × 3½″	per yard 8/4
4″ × 2″ or 2½″	per yard 7/4¾
4″ × 3″	per yard 7/4¾
4″ × 4″	per yard 9/0¾
4½″ × 3″	per yard 8/5¼
5″ × 3″ or 3½″	per yard 9/7

Gutters

	3″	3½″	4″	4½″	5″	6″
Half round gutters per yard	1/9¼	2/1	2/1	2/2¼	2/4¾	3/7¾
Shorts 2′ 0″, 3′ 0″ and 4′ 0″ extra .. per yard	–/2½	–/2½	–/2½	–/2½	–/3¾	–/3¾
Angles and nozzle pieces each	1/5	1/7	1/9	2/–	2/2	3/1
Stop ends .. .. each	–/5	–/5	–/7½	–/9	–/10½	1/–
Ogee gutters per yard	2/1	2/3½	2/4¾	2/6	2/9¾	3/10¼
Straight back and shorts 2′ 0″, 3′ 0″ and 4′ 0″ extra .. per yard	–/2½	–/2½	–/2½	–/2½	–/3¾	–/3¾
Angles and nozzle pieces each	1/11	1/11	2/–	2/4	2/8	3/3
Stop ends .. .. each	–/6	–/7½	–/9	–/10½	1/–	1/3

Mild Steel Rainwater Goods

The following prices are subject to 12½ per cent. trade discount.

24 Gauge rainwater slip jointed pipes.

	2″	2½″	3″	3½″	4″
Galvanized round pipes with ears per 6′ 0″	2/7½	3/1½	3/9	4/3	4/9
Painted round pipes with ears per 6′ 0″	2/7½	3/–	3/4½	3/10½	4/3
Painted or galvanized short lengths with ears, extra each	–/6	–/6	–/6	–/6	–/6

18 Gauge Gutters.

	3″	3½″	4″	4½″	5″	6″
Galvanized half round gutters .. per 6′ 0″	2/–	2/3	2/4½	2/9	3/–	3/7½
Painted half round gutters per 6′ 0″	1/6	1/9	2/–	2/3	2/6	3/–
Painted or galvanized short lengths extra .. each	–/3	–/3	–/3	–/3	–/3	–/3

Asbestos-Cement Rainwater Goods

The following prices are subject to 10 per cent. trade discount.

Rainwater pipes.

Prices are for 6′ 0″ lengths, and 10′ 0″ lengths in 2″, 2½″ and 3″ diameters. Short lengths up to 2′ 0″ are charged as one yard. From 2′ 0″ to 4′ 0″ charged as 1½ yards. From 4′ 0″ to 6′ 0″ charged as 2 yards. Over 6′ 0″ charged as 10′ 0″.

Round pipes.

2″	per yard run 1/10
2½″	per yard run 2/0¾
3″	per yard run 2/5¾
3½″	per yard run 2/11½
4″	per yard run 3/4¾
4½″	per yard run 4/10¼
5″	per yard run 5/9¼
6″	per yard run 7/1¾

Gutters.

Short lengths of gutter up to 2′ 0″ charged as 1 yard; from 2′ 0″ to 4′ 0″ as 1½ yards, and over 4′ 0″ as 2 yards.

	3″	4″	4½″	5″	6″	8″
Half round gutters per yard run	1/3¾	1/6¾	1/7¾	1/11	2/8	3/3½
Ogee gutters per yard run	—	1/11	2/0¾	2/5¾	3/0¼	3/11½

INTERNAL PLUMBER

✱Lead pipe in coils, 5 cwts. and upwards ..	per cwt. 22/–
✱Lead soil pipe	per cwt. 25/–
Add if ribbon marked	per cwt. –/3
Lead ternary alloy, No. 2 quality extra over lead pipe	per cwt. 7/–
Plumber's solder	per cwt. 95/–
Tinman's solder	per cwt. 122/–

Drawn lead traps with brass screw eye, 6 lbs.

	1″	1¼″	1½″	2″
S. trap .. .. each	1/7	1/10	2/3	3/3
P. trap .. .. each	1/5	1/6	1/10	2/8
Extra for 3″ deep seal .. .. each	–/6	–/6	–/6	–/6

✱ Items marked thus have fallen since January 26.

CURRENT PRICES

INTERNAL PLUMBER

BY DAVIS AND BELFIELD

INTERNAL PLUMBER—(*continued*)

Screwed and Socketed Steel Tubes and Fittings for Gas, Water and Steam, etc.

Tubes.		½″	¾″	1″	1¼″	1½″	2″
Tubes 2 ft. long and over	per ft.	–/5½	–/6¾	–/9¼	1/1	1/4½	1/10
Pieces 12″ to 23½″ long	each	1/1	1/5	1/11	2/8	3/4	4/9
Bends	each	–/11	1/2	1/7½	2/7½	3/2	5/2
Fittings.							
Elbows, square ..	each	1/1	1/3	1/6	2/2	2/7	4/3
Elbows, round ..	each	1/2	1/5	1/8	2/4	2/10	4/8
Tees	each	1/3	1/7	1/10	2/6	3/1	5/1
Crosses	each	2/9	3/3	4/1	5/6	6/7	10/6
Sockets, plain ..	each	–/4	–/5	–/6	–/8	–/10½	1/3
Sockets, diminished	each	–/6	–/7	–/9	1/–	1/4	2/–
Flanges	each	1/–	1/2	1/4	1/9	2/–	2/9
Caps	each	–/5	–/6	–/8	1/–	1/3	2/–
Plugs	each	–/4	–/5	–/6	–/8	–/10	1/3

Fittings and flanges and tubes ordered in long random lengths are subject to the following trade discounts :—

	Tubes	Fittings	Flanges
Gas	62½%	53½%	57½%
Water	58½%	50%	52½%
Steam	56½%	46½%	47½%
Galvanized gas	53½%	46½%	47½%
,, water	48½%	42½%	42½%
,, steam ..	43½%	38½%	37½%

Brasswork. Best Quality

		½″	¾″	1″
Chromium plated screw-down bibcocks, screwed for iron ..	per dozen	38/–	62/–	109/–
Ditto, with screw ferrule	per dozen	47/3	74/–	116/–
Ditto, with capstan head lettered, screwed for iron ..	per dozen	44/6	66/–	118/9
Ditto, with screw ferrule	per dozen	53/9	86/–	137/–

		Brass Screwdown Stop Cocks with Unions both Ends	Brass Screwdown Stop Cocks with Screwed Ends	Brass Screwdown Stop Cocks with Male Screwed End and Iron Unions
½″	per dozen	41/9	47/3	38/6
¾″	per dozen	65/9	71/6	59/6
1″	per dozen	99/–	107/3	92/3
1¼″	each	14/–	14/9	13/3
1½″	each	22/6	23/6	20/9
2″	each	43/9	45/3	41/9

		½″	¾″	1″
Portsmouth pattern ball valve for low pressure, screwed for iron ..	each	4/3	6/–	12/5
Ditto, with flynut and union ..	each	4/8	6/10	14/–
High pressure ditto, screwed for iron	each	3/11	6/–	12/5
Ditto, with flynut and union ..	each	4/8	6/10	14/–

		2″	2½″	3″	4″
Socket thimble sloping shoulder	per dozen	11/–	14/3	16/10	24/6

		1½″	2″	2½″	3″
Flanged ferrule thimble ..	per dozen	8/–	9/9	14/9	17/5

		½″	¾″	1″	1¼″	1½″	2″
Union joints for lead and iron ..	per dozen	8/3	11/3	15/5	28/2	46/9	101/2
Single nut short boiler screws ..	per dozen	6/6	9/9	15/9	23/–	36/3	66/–
Double nut boiler screws	per dozen	9/–	10/6	16/6	24/9	47/6	75/9
Belfast sink wastes stamped brass with brass plug diameter of outlet 2″	per dozen						19/10

Galvanized Mild Steel Open Top Cisterns riveted with internal angle iron at top and corner plates

The following prices are subject to 15% and 20% trade discount :—

		14-gauge £ s. d.	12-gauge £ s. d.	⅛″ plate £ s. d.	3/16″ plate £ s. d.
50 gallon capacity	each	2 5 11	2 14 5	3 1 7	7 0 8
100 ,,	each	3 8 9	4 2 11	4 16 9	9 10 8
200 ,,	each	6 6 9	6 19 5	7 18 3	13 1 0
500 ,,	each	12 6 0	13 16 1	15 16 3	22 6 9
1,000 ,,	each	—	21 9 4	24 19 5	34 15 4

INTERNAL PLUMBER—(*continued*)

Galvanized Hot Water Tanks, fitted with handhole cover.

The following prices are subject to 15% and 20% trade discount :—

Capacity		16-gauge tested to a pressure of 1 lb. per sq. inch = 1½ ft. head of water £ s. d.	14-gauge tested to a pressure of 3 lbs. per sq. inch = 4½ ft. head of water £ s. d.	12-gauge tested to a pressure of 7½ lbs. per sq. inch = 10 ft. head of water £ s. d.	⅛″ plate tested to a pressure of 10 lbs. per sq. inch = 15 ft. head of water £ s. d.
20 gallons	each	2 0 3	2 3 11	2 7 8	2 12 9
40 ,,	each		3 1 7	3 9 0	3 16 8
			Tested to a pressure of 5 lbs. per sq. inch = 7½ ft. head of water		Tested to a pressure of 7½ lbs. per sq. inch = 10 ft. head of water
60 ,,	each		4 19 3		5 5 5
80 ,,	each				7 5 7
100 ,,	each				8 4 5

Screwed flanges or bosses

½″	¾″	1″	1¼″	1½″	1¾″	2″	2¼″	
1/8	2/–	2/4	2/11	3/4	3/9	4/8	6/9	Extra per flange or boss.

2½″	3″	3½″	4″	4½″	5″	6″
8/4	14/3	16/9	19/3	26/11	30/1	45/1

Galvanized Hot Water Cylinders, Mild Steel Riveted throughout, without Manhole, with usual number of flanges

The following prices are subject to 15% and 20% trade discount :—

Capacity		16-gauge tested to 5 lbs. pressure = 10 ft. head of water £ s. d.	14-gauge tested to 15 lbs. pressure = 30 ft. head of water £ s. d.	12-gauge tested to 20 lbs. pressure = 40 ft. head of water £ s. d.	⅛″ plate tested to 25 lbs. pressure = 50 ft. head of water £ s. d.
20 gallons	each	1 18 7	2 2 8	2 8 4	2 15 4
40 ,,	each	2 10 11	2 16 8	3 6 1	3 15 0
65 ,,	each		4 8 7	5 1 8	5 16 1
75 ,,	each		5 1 7	5 15 0	6 11 4
85 ,,	each			6 10 8	7 11 9
100 ,,	each				8 2 5

Cast Iron Soil Pipes and Connections, L.C.C. 3/16″ metal.

The following prices for soil pipes are subject to 20% trade discount, and the prices of the fittings are subject to 20% and 5% trade discount.

		2″	2½″	3″	3½″	4″	5″ ⅛″ metal	6″ ⅛″ metal
Minimum weights in lbs. per 6′ 0″ length		24	30	35	41	46	78	92
Pipes coated or uncoated	per yard run	3/10½	4/0¾	4/5¾	5/–	5/8½	11/8	14/0½
Double sockets extra	each	–/11½	–/11½	–/11½	–/11½	–/11½	1/0½	1/0½
Short lengths extra 2′, 3′ and 4′	per yard run	–/3¾	–/3¾	–/3¾	–/3¾	–/3¾	–/5	–/5
Single spigot branch cast on pipe	each	4/3	4/5	4/7	4/9	4/11	7/6	9/3
Single socket branch cast on pipe	each	10/9	11/–	11/3	11/6	11/9	16/–	19/–
Bends, standard angles	each	3/1	3/5	3/9	4/8	5/3	9/4	12/9
Large radius bends	each	4/–	4/4	5/–	6/–	7/–	13/–	16/9
Inspection bends raised flange door, 4 gunmetal bolts	each	16/1	16/11	17/9	18/8	19/3	31/10	36/9
Swannecks 4½″ and 6″ projection	each	3/9	4/4	5/11	6/10	7/11	14/11	20/1
9″ ditto	each	5/–	5/7	6/10	7/11	9/4	17/1	22/10
12″ ditto	each	5/11	6/10	7/11	9/8	10/7	19/1	27/1
Single branch with two sockets. T pieces. T pieces diminishing two sockets, inverted two sockets.	each	3/9	4/8	5/7	6/6	7/6	15/10	21/8
Parallel branch pieces not exceeding 6″ centres. Y pieces. Anti-syphon branches with curved arm.	each	4/10	5/11	6/10	7/11	8/11	—	—
Double branch pieces, three sockets	each	5/11	7/–	7/11	9/–	10/3	20/3	27/3
Inspection branch pieces double oval access door, 2 gunmetal screws	each	12/11	14/–	14/11	16/6	17/9	29/2	36/2
Long branch pieces	each	5/–	6/–	7/3	8/6	9/9	19/–	25/–

CURRENT PRICES

BY DAVIS AND BELFIELD

COPPERSMITH AND ZINCWORKER, GLAZIER AND PAINTER

COPPERSMITH AND ZINC WORKER

Copper

Hot rolled copper sheeting in 1 cwt. lots, all gauges to 24 wire gauge	per lb.	–/9½
Copper tube, seamless solid drawn	per lb.	1/0¾
Copper wire, 10 and 12 gauge	per lb.	–/9½
Copper nails, 1″ and up	per lb.	–/11

Fittings for Copper Tubes

Compression Type :	½″	¾″	1″	1¼″	1½″	2″	2½″
Straight coupling each	1/1½	1/4¾	2/0¾	2/8	3/9¾	5/7¾	14/–
Obtuse elbow each	1/10½	2/2½	3/3	4/1½	7/1½	10/5¾	—
Tees each	2/1½	2/5½	4/–	5/9½	9/3	13/1½	19/3½
Crosses each	3/–	3/4¾	5/2½	6/8¾	10/11½	15/3	26/4¾
Reducing coupling each	—	1/4¾	2/0¾	2/8	3/9¾	5/7¾	14/–
Bends each	1/7½	1/11½	2/11	3/8¾	6/7½	9/10¾	14/1
Brass stop cocks each	3/11½	5/10¾	8/7½	15/11¾	22/3¾	37/8¾	—

Extra for Polishing 25%; Chromium plating 50%; Nickel plating and polishing 50%.

Capillary Type

Straight coupling each	–/7½	–/10½	1/3¾	1/8½	2/3¾	3/4½	5/9
45° elbow each	1/3¾	1/8½	2/4½	3/2	4/9	7/1½	11/1
Tees each	1/5½	1/7¾	2/8	3/11½	5/7½	8/3¾	12/8
Crosses each	1/10½	2/0½	3/4½	4/9	7/2½	10/6	18/2½
Reducing coupling each	—	–/6½	–/8¾	1/0¾	1/7	2/9½	4/4½
Bends each	1/7	1/11	2/9½	3/9½	5/11½	8/3¾	11/10½
Pillar tap connection each	1/–	1/5½					

Extra for Polishing 15%; Chromium plating 40%; Nickel plating 27½%.

Zinc

	Quantities of less than 3 cwts.	Quantities of more than 3 cwts.	Quantities of more than 5 cwts.
Sheet zinc, 10 gauge and up per cwt.	33/–	32/6	32/–
		5 sheets and under	12 sheets
8 gauge zinc safe hole perforated sheets, size 8′ 0″ × 3′ 0″ per sheet		4/11½	4/2½
7 gauge ditto per sheet		4/4½	3/9
6 gauge ditto per sheet		3/11	3/4¾

GLAZIER

Sheet Glass cut to size (ordinary glazing quality)

		In squares not exceeding 2 ft.	4 ft.	5 ft.	Over 6 ft.
18 oz. clear sheet	per foot super	–/2½	–/2¾	–/3	–/3½
24 oz. ditto	per foot super	–/2¾	–/3¾	–/4	–/4⅜
32 oz. ditto	per foot super	–/4	–/5⅞	–/6⅞	–/7⅞
Obscured sheet glass net extra		–/1½	–/1½	–/1½	–/1½
¼″ figured rolled glass, white	per foot super	–/6½			
¼″ ditto, normal tints	per foot super	–/9½			
Hammered, double rolled, Cathedral white	per foot super	–/6			
Ditto, normal tints	per foot super	–/8½			

Thick Drawn Sheet Glass cut to size

		In squares not exceeding 1 ft.	2 ft.	3 ft.	4 ft.	6 ft.	8 ft.
1/16″ thick	per foot super	–/9	–/11	1/–	1/2	1/3	1/4
⅛″ thick	per foot super	–/11	1/–	1/3	1/5	1/7	1/9
		In squares not exceeding 12 ft.	20 ft.	45 ft.	65 ft.	90 ft.	100 ft.
1/16″ thick	per foot super	1/6	1/7	1/9	—	—	—
⅛″ thick	per foot super	1/10	2/2	2/4	2/8	3/–	3/–

For selected glazing quality add 10 per cent. to the above prices.

British or Foreign Polished Plate Glass cut to size

Ordinary ¼″ Substance In Plates not exceeding		Glazing for Glazing Purposes	Selected Glazing Quality	Silvering Quality
1 ft. super	per foot super	●1/1	●1/4	1/7
2 ,,	per foot super	●1/5	●1/7	1/10
3 ,,	per foot super	1/10	2/1	2/6
4 ,,	per foot super	2/6	2/9	3/2
6 ,,	per foot super	✱2/9	✱2/10	✱3/3
12 ,,	per foot super	✱2/11	✱3/2	✱3/8
45 ,,	per foot super	✱3/1	✱3/10	✱4/2
65 ,,	per foot super	✱3/4	4/3	4/11

●Items marked thus have risen since January 26.

GLAZIER—(*continued*)

British or Foreign Polished Plate Glass cut to size—(contd.)

Ordinary ¼″ Substance In Plates not exceeding		Glazing for Glazing Purposes	Selected Glazing Quality	Silvering Quality
90 ft. super	per foot super	✱3/7	4/8	5/1
100 ,,	per foot super	✱3/9	4/10	5/4

Plates exceeding 100 ft. super or 160 in. long or 104 in. wide at higher prices.

The usual thickness of polished plate glass is about ¼″, but if required of special thickness for glazing purposes add to the above for :—

		Plates up to and including 4 ft. super	All plates over 4 ft. super
1/32″ to 5/32″	per foot super	–/2	–/4
1/16″ to 3/16″ exact	per foot super	–/2	–/3
3/16″	per foot super	No extra	–/1½
½″ bare	per foot super	,,	–/1½
¼″ exact	per foot super	–/2	–/2
5/16″ to ⅜″	per foot super	No extra	–/4½
⅜″ exact	per foot super	–/2	–/6

Special quotations should be obtained for other qualities and thicker substances.

Silvering

	Ordinary Quality on Polished Plate, Thick Drawn Sheet, Patent Sheet and Plain Sheet	On Embossed or Decorative Work
12 ft. super or 90 in. long per ft. super	9d.	1/4
20 ft. ,, or 100 in. long per ft. super	10d.	1/4
45 ft. super } or 110 in. long per ft. super	1/–	1/5
50 ft. ,, }	1/0½	1/6
55 ft. ,, } or 120 in. long per ft. super	1/1	1/6½
60 ft. ,, }	1/1½	1/7
65 ft. ,, } or 130 in. long per ft. super	1/2	1/8
70 ft. ,, }	1/3	1/9½
75 ft. ,, } or 140 in. long per ft. super	1/4	1/11
80 ft. ,, }	1/5	2/0½
85 ft. ,, } or 150 in. long per ft. super	1/8	2/5
90 ft. ,, }	1/11	2/9½
95 ft. ,, } or 160 in. long per ft. super	2/2	3/2
100 ft. ,, }	2/5	3/8

For silvering on fluted sheet, figured rolled and cathedral, add 4d. a foot to the prices set out in the first column for polished plate, etc.

Silvering bent glass, double or more, according to bend.

For plates over 100 ft. super add 3d. per ft. super for every 5 ft. or part of same.

Plates over 160 in. long at special rates.

Stripping for re-silvering, add 8d. per ft. super.

Wired Glass Cut to Sizes

¼-in. Georgian rough cast	per ft. super	10d.			
	In squares not exceeding	1 ft.	2 ft.	3 ft.	4 ft.
¼-in. Georgian polished plate	per ft. super	2/6	2/8	2/10	3/2
		8 ft.	12 ft.	20 ft.	30 ft.
¼-in. Georgian polished plate	per ft. super	3/8	3/10	4/2	4/6

Supplied in sizes up to 110 in. long and up to 36 in. wide.

For cutting to allow for wires in adjacent pieces to be "lined up," add 4d. per foot super.

PAINTER

White ceiling distemper	per cwt.	11/6
Washable distemper	per cwt.	60/–
Petrifying liquid	per gallon	4/6
Ready mixed white lead paint (best) 5-cwt. lots, in 14 lb. tins	per cwt.	66/–
White enamel	per gallon	25/–
Aluminium paint	per gallon	20/–
Stiff white lead, genuine English stack process, 1-ton lots, in 1-cwt. kegs	per cwt.	49/3
Driers	per cwt.	36/–
Linseed oil raw (5-gallon drums)	per gallon	3/–
,, boiled ,, ,,	per gallon	3/3
French polish	per gallon	11/6
Knotting	per gallon	16/–
Oil stain	per gallon	12/–
Varnish, oak	per gallon	10/–
,, copal	per gallon	16/–
,, flat	per gallon	20/–
Turpentine, genuine American, 5-gallon lots	per gallon	3/3
Creosote, 1-gallon lots	per gallon	1/4
Putty	per cwt.	13/–
Size	per firkin	3/6
Best English quality gold leaf, 23 carat	per book	2/4½
Extra thick, ditto	per book	3/6

✱Items marked thus have fallen since January 26.