THE ARCHITECTS' JOURNAL

standard contents

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

No. 2939] [VOL. 113

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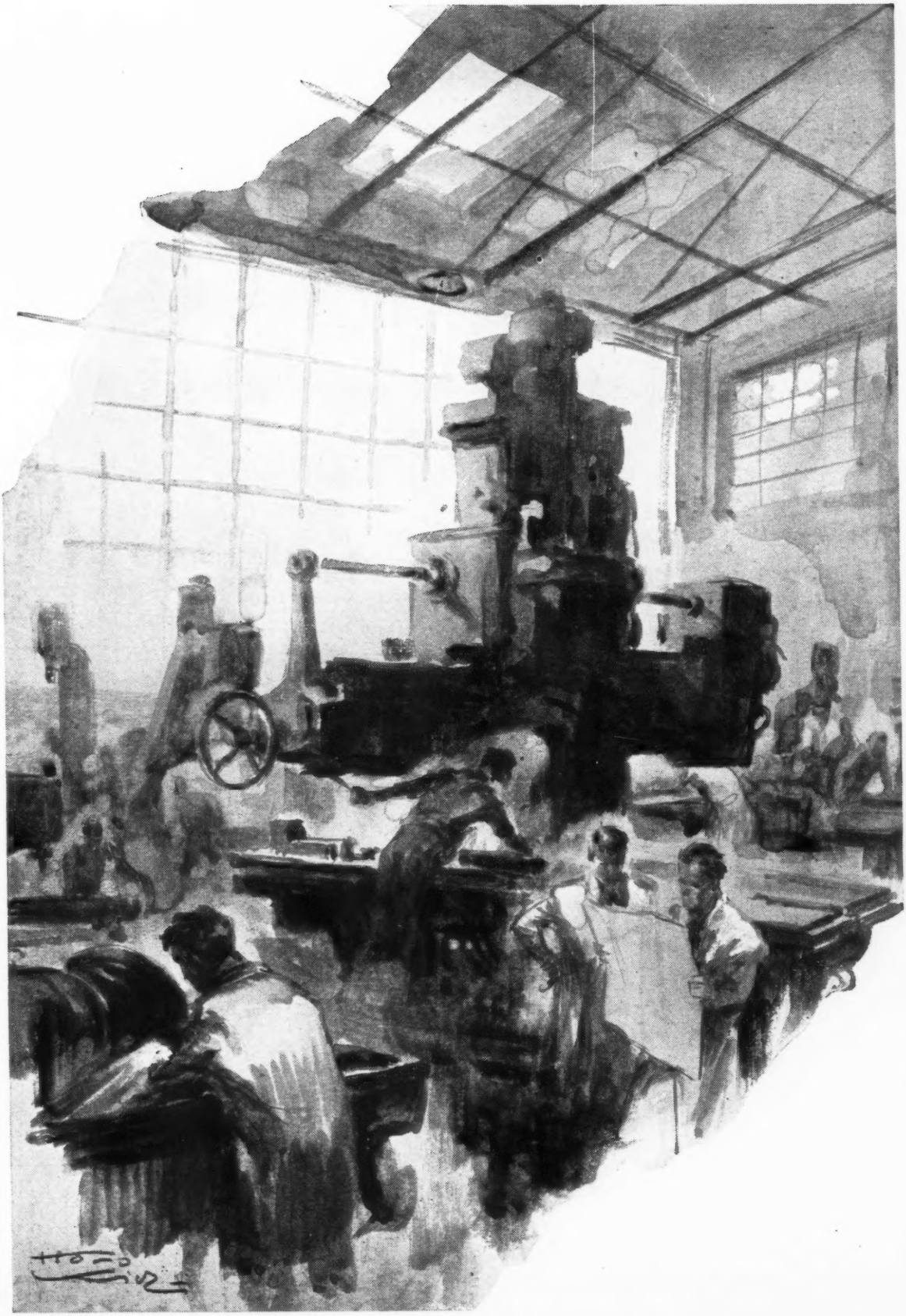
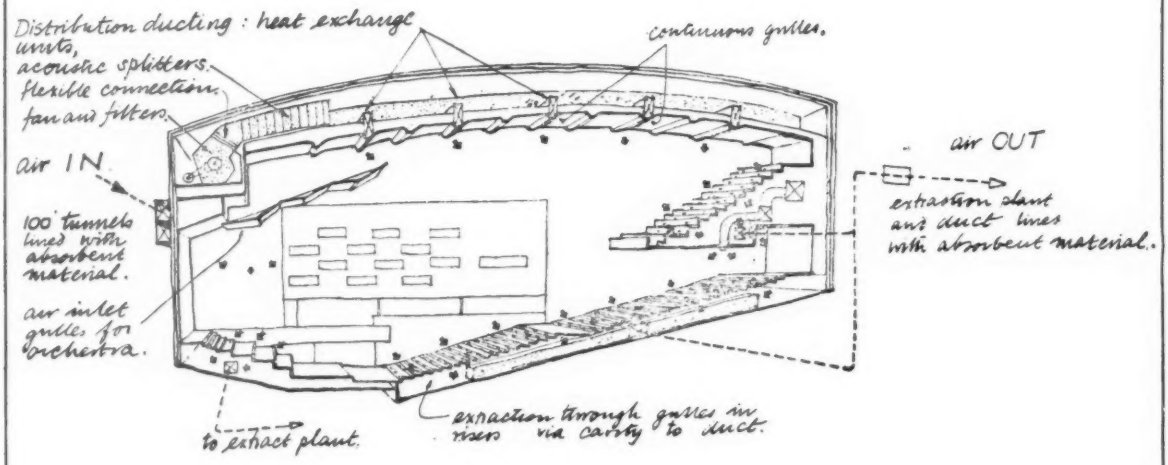
Registered as a Newspaper.

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

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. Marlborough Whitehead, "Dyneley," Cassiobury Hill Avenue, Berkhampstead, Herts.	
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5721
ABT	Association of Building Technicians. 5, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James' Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
APRR	Association for Planning and Regional Reconstruction. 34, Gordon Square, W.C.1.	Euston 2158-9
ArchSA	Architectural Students' Association. 34/36, Bedford Square, W.C.1	
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Welbeck 9738
ASB	Architectural Science Board of the Royal Institute of British Architects, 66, Portland Place, W.1.	Langham 5721
AScW	Association of Scientific Workers. 15, Half Moon Street, Piccadilly, W.1.	Grosvenor 4761
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BATC	Building Apprenticeship and Training Council. Lambeth Bridge House, S.E.1.	Reliance 7611, Ext. 1706
BC	Building Centre. 9, Conduit Street, W.1.	Mayfair 8641/6
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 17, Amherst Road, Ealing, W.13.	Perivale 6869
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Flaxman 7766
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Glasgow Central 2891
BIAE	British Institute of Adult Education. 29, Tavistock Square, W.C.1.	Euston 5385
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Chancery 7772
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Millbank, S.W.1.	Whitehall 5140
BRS	Building Research Station. Bucknalls Lane, Watford.	Garston 2246
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. 28, Victoria Street, S.W.1.	Abbey 3333
BTE	Building Trades Exhibition. 4, Vernon Place, W.C.1.	Holborn 8146/7
CABAS	City and Borough Architects Society. C/o Johnson Blackett, F.R.I.B.A., Borough Architect, Town Hall, Newport, Mon.	Newport 3111
CAS	County Architects Society. C/o F. R. Steele, F.R.I.B.A., County Hall, Chichester.	Chichester 3001
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Sloane 5255
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611
CDA	Copper Development Association. Kendals Hall, Radlett, Herts.	Radlett 5616
CIAM	Congrès Internationaux d'Architecture Moderne. Doldertal, 7. Zurich, Switzerland.	
COID	Council of Industrial Design. Tilbury House, Petty France, S.W.1.	Whitehall 6322
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.	Sloane 4280
CUJC	Coal Utilization Joint Council. 13, Grosvenor Gardens, London, S.W.1.	Victoria 1534
CVE	Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.	Reading 72255
DGW	Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1.	Reliance 7611
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
DOT	Department of Overseas Trade. 35, Old Queen Street, S.W.1.	Victoria 9040
EJMA	English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1.	Regent 4448
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 8, Buckingham Palace Gdns., S.W.1.	Sloane 2837
FASSC	Federation of Association of Specialists and Sub-Contractors. 5, Arundel Street, Strand.	Temple Bar 6633
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.	Sloane 1002
FDMA	The Flush Door Manufacturers Association Ltd. Trowell, Nottingham.	Ilkeston 623
FLD	Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.	Ulverston 201
FMB	Federation of Master Builders. 26, Great Ormond Street, Holborn, W.C.1.	Chancery 7583
FOB 1951	Festival of Britain 1951. 2, Savoy Court, Strand, W.C.2.	Waterloo 1951
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Whitehall 3902
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Langham 4041
FS (Eng.)	Faculty of Surveyors of England. Buckingham Palace Gdns., S.W.1.	Sloane 2837
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. 27, Grosvenor Place, S.W.1.	Sloane 2844
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 75, Eaton Place, S.W.1.	Sloane 5615
ICA	Institute of Contemporary Arts, 17-18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215





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Heating the Royal Festival Hall

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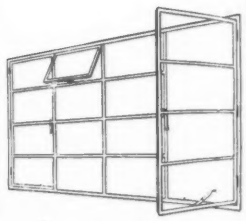

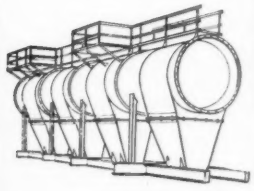

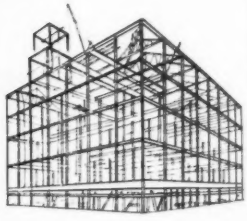

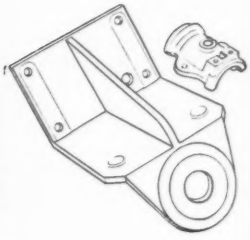

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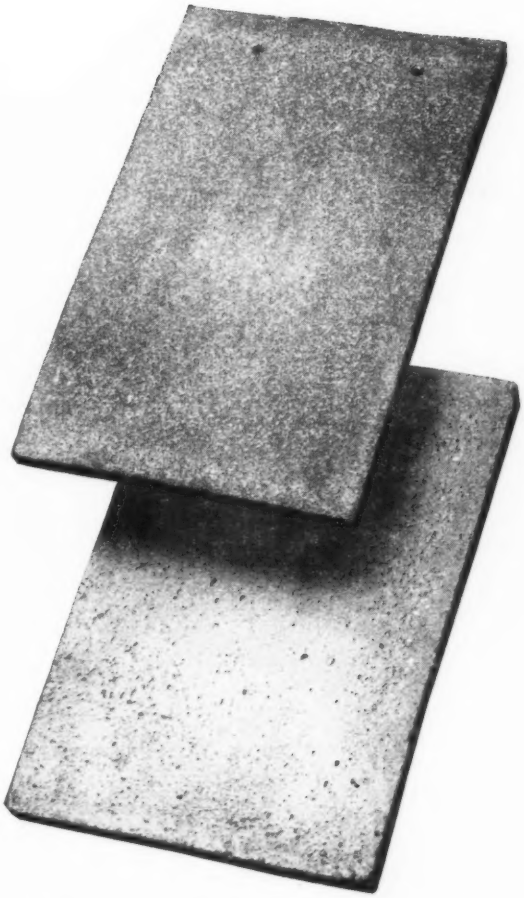

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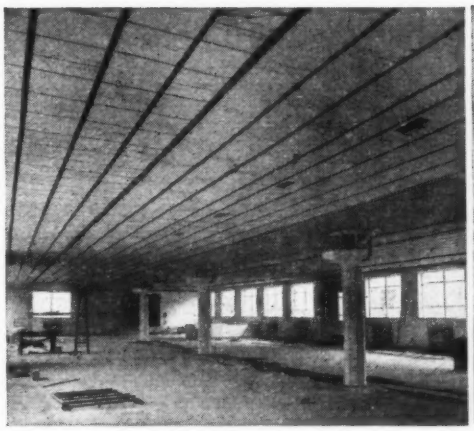

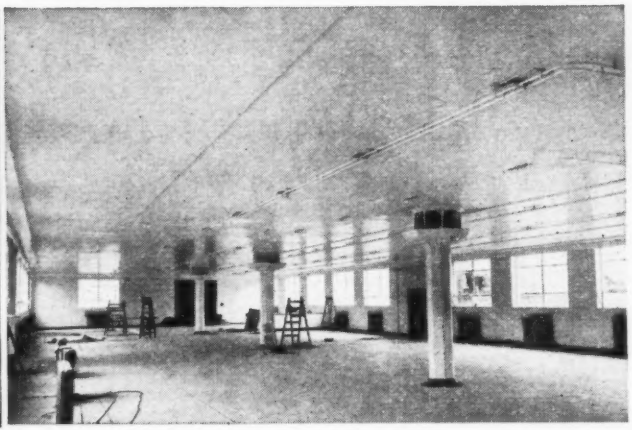

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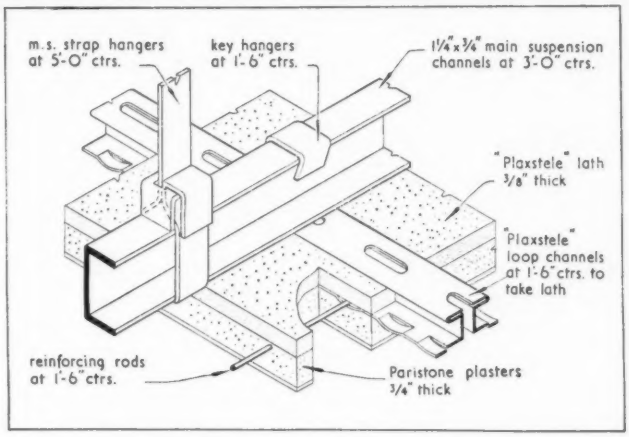

The photographs show
a large area of PLAXSTELE *ceiling before and after plastering, decorating and fixing strip lighting.*

The isometric sketch shows
the general assembly of the component parts.

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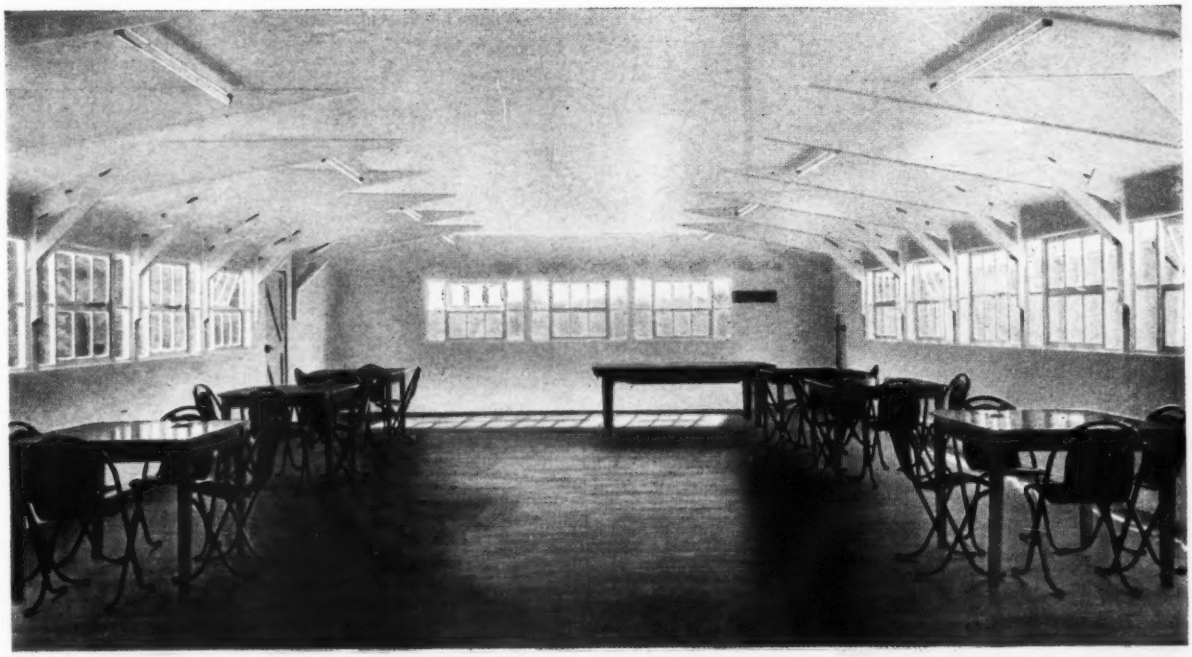

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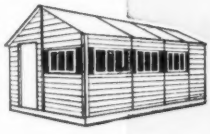

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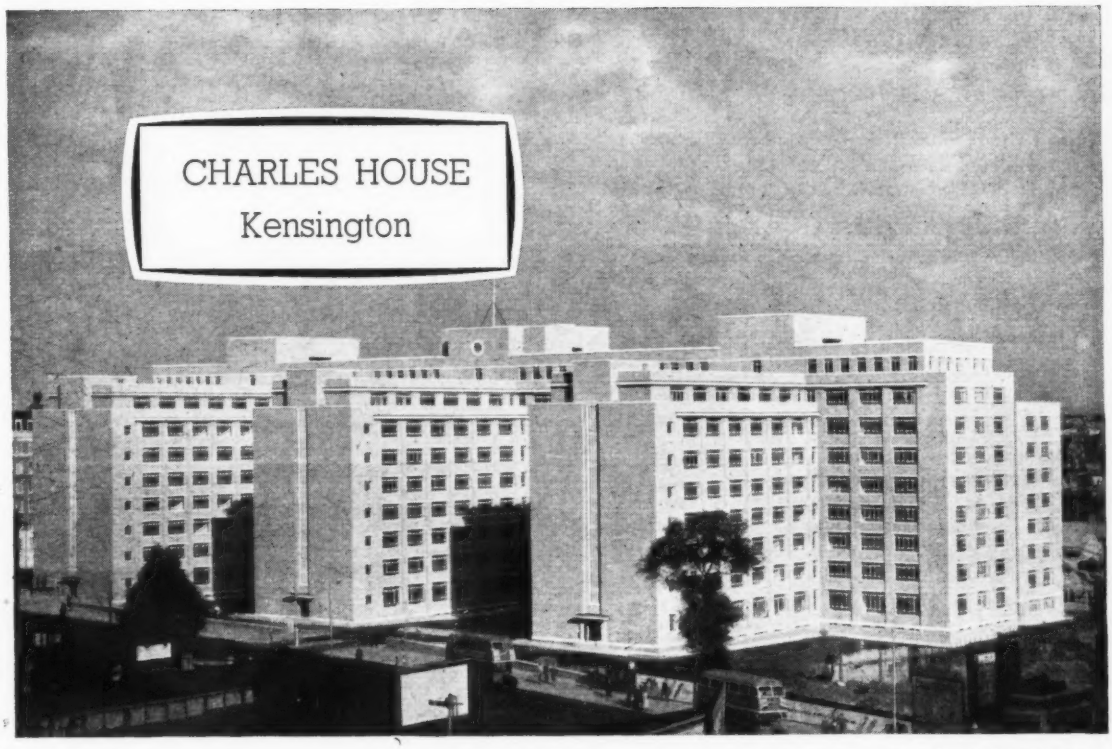

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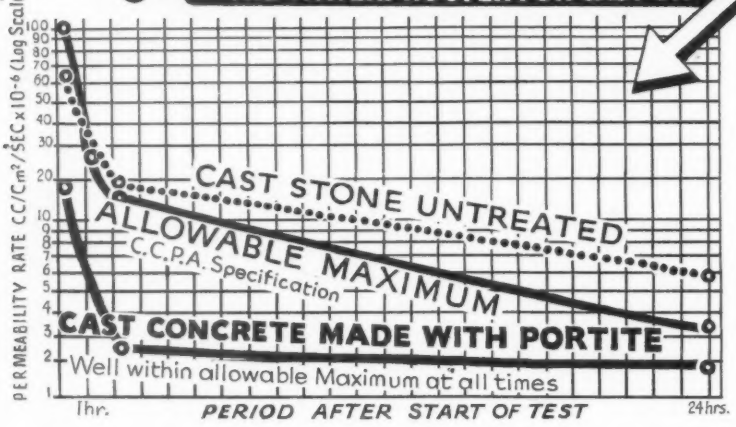

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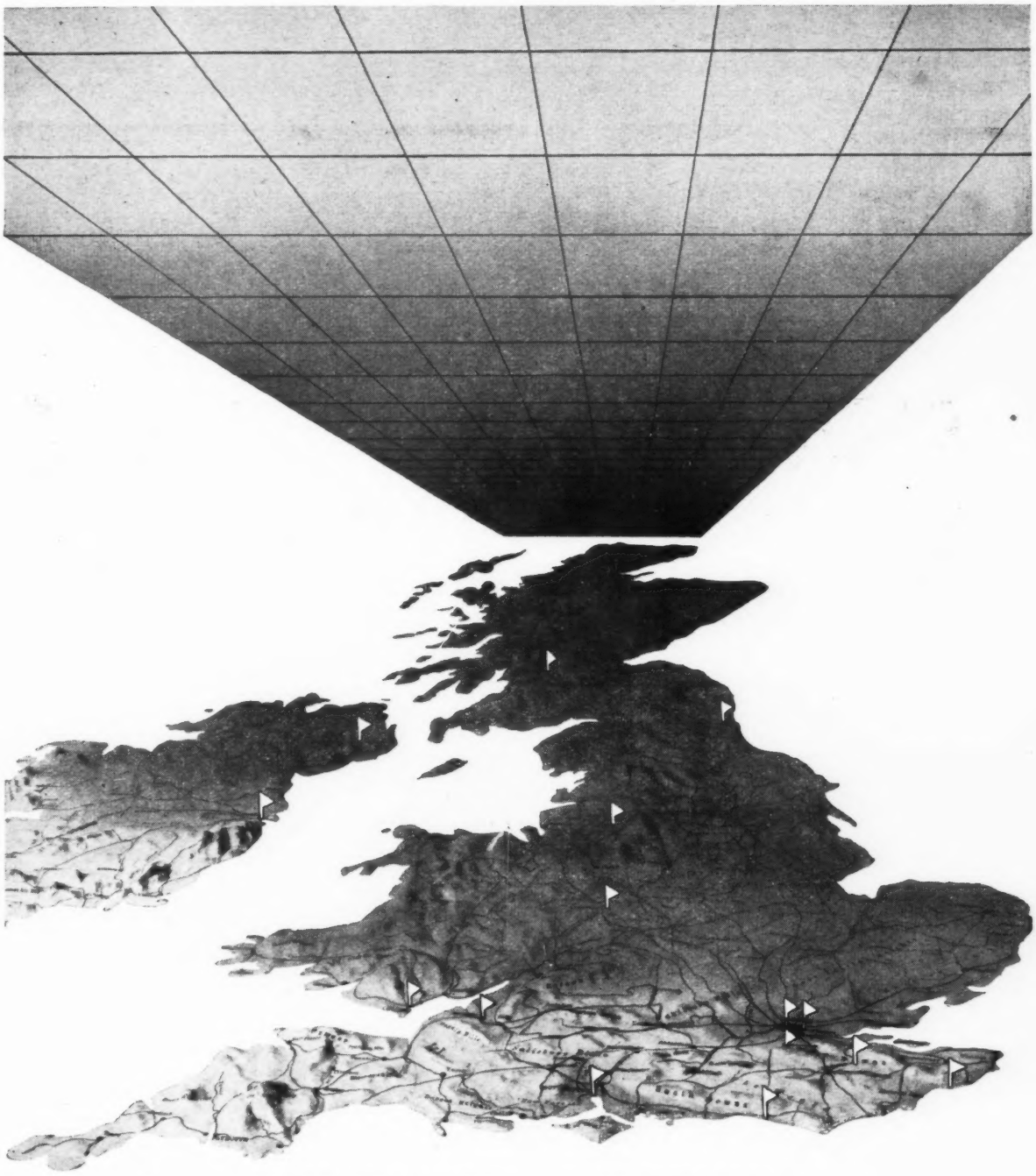

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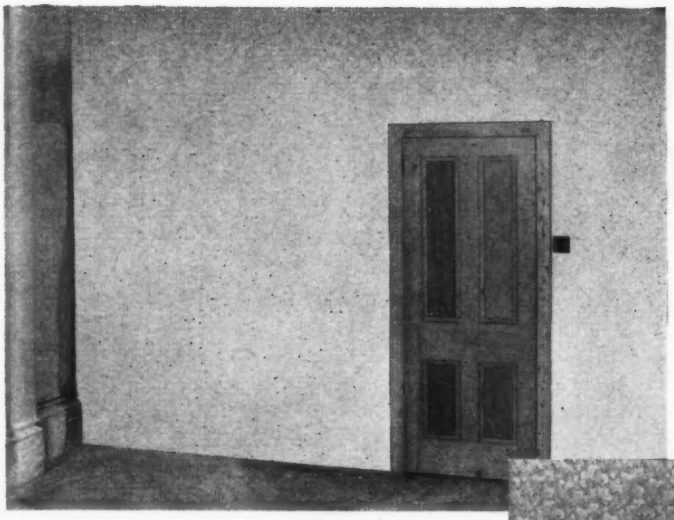

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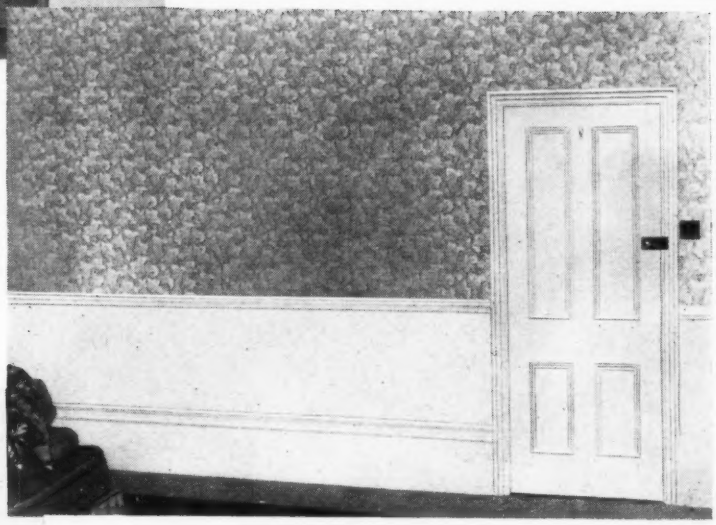

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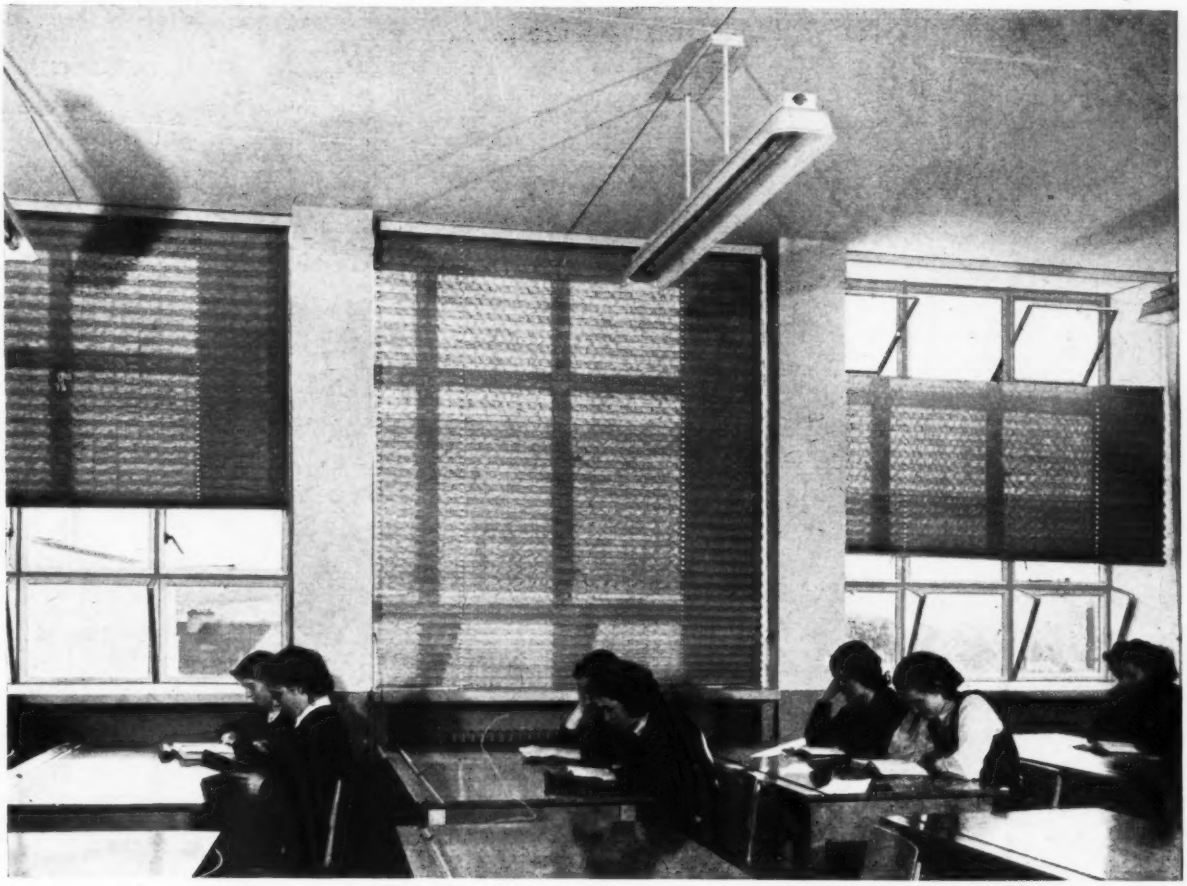

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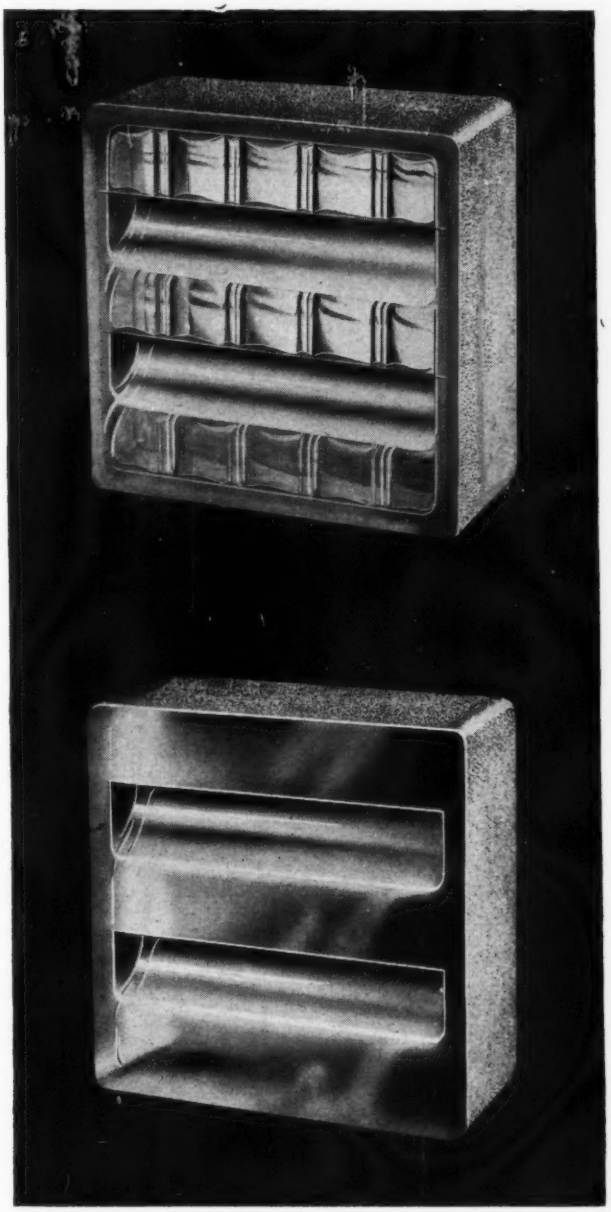

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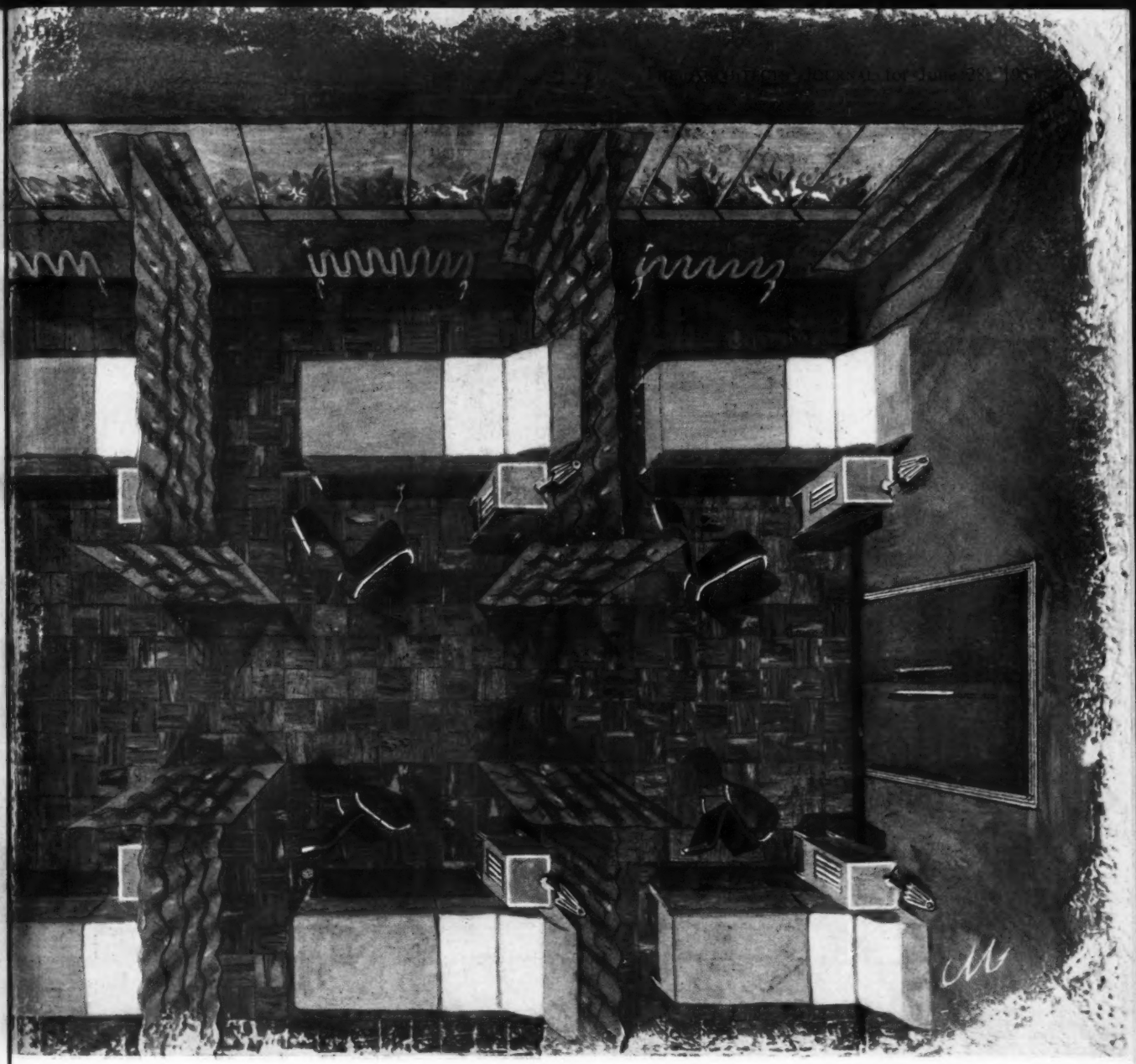

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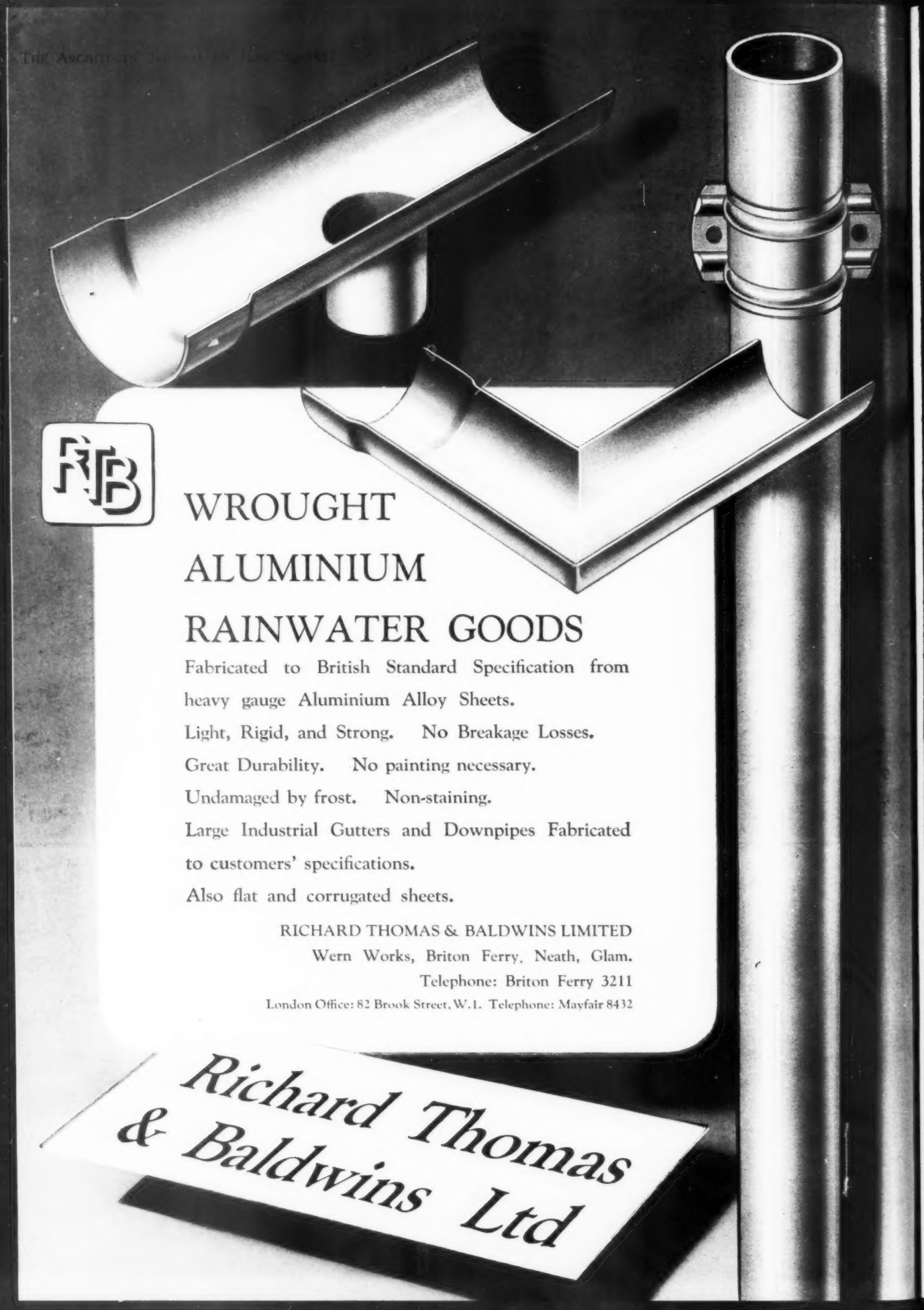

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THE ARCHITECTS' JOURNAL

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CIAM IN ENGLAND

It wasn't really England's turn to be the meeting place of the eighth CIAM Congress, as the Bergamo meeting two years ago has been the only one since the congress met at Bridgwater in 1947. But because it is Festival Year CIAM is to meet in England again—this time at Hoddesdon, from July 7 to 14.

*

The subject is the *core* of the village, town to city in its various aspects—social, architectural, legislative and what not; full of topical issues for us, who are at this very moment trying to rebuild the cores of some of our bombed cities and at the same time are trying to establish active cores in the new towns to give them a self-sufficient character and prevent their becoming mere dormitories.

The principal speakers at the congress will include Le Corbusier, Gropius, Giedion and Sert. A lot of useful ideas should come out of the discussions and out of the examination of the projects for town centres in their own countries that the delegates from sixteen or so countries will bring with them. Visits have been arranged to the Hertfordshire schools, Harlow new town, Cambridge—and, of course, the South Bank exhibition. It will be wonderful to have at last, in the exhibition, some modern architecture we can proudly show off to foreign architects with no apologies or reservations whatever.

KNOWS HIS UNWINS

I didn't notice it, and obviously you didn't (if you have been) or I would have heard all about it by now. But when E. J. Carter (late RIBA Librarian and now of UNESCO) went round the Dome of Discovery on the South Bank Exhibition he made his own pet discovery. In the section devoted to atom power and under the caption of Joseph J. Thompson (discoverer of electron in 1897 and later the ever more mysterious isotope) is a photograph of Sir Raymond Unwin (discoverer of—well, you know what.) In such an architecturally exciting exhibition it is pleasant to find an architect represented even if, as Bobby Carter pointed out to Hugh Casson, he has to be smuggled in under someone else's name.

BUNS AND CHINA

Most of my readers will—quite reasonably—dismiss with amused contempt the little piece of architecture that has gone up in the middle of Sloane Square for the duration of Chelsea week. It takes the form of an Olde Style Chelsea Bunne Shoppe—see photograph on page 813. But let them not, while deploring the architectural taste with which the idea has been carried out, overlook the value of the idea itself.

*

The array of little tables, set out on the pavement, adorned with gaily coloured umbrellas, looks delightful and transforms an open space that is normally a useless and depressing expanse of paving. May I suggest to the Chelsea Borough Council that they make a café on these lines a permanent feature of Sloane Square (at least in the summer) but get a modern architect to design it; perhaps the architect of one of the cafés on the South Bank. At least one of them is, I know, a Chelsea resident.

*

After buns, the next most famous Chelsea product is china, and no one interested in this should miss the Festival exhibition of Chelsea china that has just opened at the Royal Hospital. There are some splendid specimens, many lent from the royal and other important collections. They are mostly products of the porcelain factory which operated in Justice Walk from 1745 until it moved to Derby before the end of the century; but there is also some delightful lustre pottery by William de Morgan, who had his kilns in Cheyne Row a hundred years later.

*

When visiting the exhibition, don't fail to observe the rooms it occupies. They are in the east wing of the Hospital, in a part not usually seen by the public. They are not very exciting architecturally but are interesting as presenting a cross-section of Chelsea Hospital's architectural history. The

suite of three rooms are in what was originally the Light Horse Ward and later became the Pay Office. The first is more or less as Wren left it and has his own panelling, the second was remodelled by Sir John Soane (his characteristic reeded mouldings can be seen in the door panels) and the third was redecorated by the Adam brothers (it has a typical Adam fireplace) during the time when Robert Adam was surveyor to the Royal Hospital.

THE MISSING BUILDING

The City of London has had the good idea of publishing a small booklet* to describe the progress that has been made in reconstruction since the end of the war; partly, one gathers, for the multitude who will visit the City this year, and partly to accompany the exhibition of bomb damage photographs and reconstruction plans now to be seen at the Royal Exchange.

*

Unfortunately, praise is compelled to stop short at the idea. The booklet is written in a way that makes the kindest reader begin to count the cliches; the text gives the impression that a number of the most important of the reconstruction proposals are being chiselled away; and one cannot say that this impression is lessened by the accompanying photographs of buildings now under construction in the City.

*

It is all very depressing. The *Plot Ratio* proposals of the Holden-Holford Plan (which are a variant of the Floor Space Index Control of MOTCP) are generally accepted as the great contribution of the past decade to central area planning. They have been as thoroughly worked out on paper as anything can be. The government is causing the erection, directly or indirectly, of 20 or 30 big buildings in London—some in the City. Yet the government has never yet said "we are *going to have* one building group at least designed *exactly* on these principles. We are going to show that in one case at least we act on the advice we are constantly stuffing down everyone else's throat."

*

This is most depressing, since it is not as if the government could not rise to such heights. Look at the South Bank. Does one need to say more. Dr. Dalton?

* Rebuilding the City of London Booklet printed by order of the Corporation of London. May 1951

This Chelsea Bun House was erected in Sloane Square for Chelsea Week. Astragal comments on it on page 811.

THROWING LIGHT UPON IT

With rather touching care the journalist who prepared the photograph of a mural on page 820 of this issue has done his best to eliminate the extraneous objects which surround it. Championing the whole naked truth, in true Fleet Street style, I managed to purloin another photograph of the mural and I reproduce it here, in its entirety.

*

It demonstrates, to my mind, an interesting stage in the development of contemporary wall painting. So often these consist merely of greatly enlarged versions of ordinary framed works of art quite unrelated to the architectural surroundings in which they are painted. In this instance, the artist, F. H. Baines, has taken care that, in addition to relating the colours used with those used in the building, the painting is positioned so that it can be seen from the hall as one passes into the building. And in two of the scenes depicted the painted rooms are lit from openings

This mural in a school dining room at Cassiobury, Watford, by F. H. Baines, is commented on by Astragal under the heading of "Throwing Light Upon It." (See also photograph on page 820.)

Bronze Medal for Pimlico Flats

The jury appointed by the RIBA to award the London Architecture Bronze Medal for the period of three years ending December 31, 1950, has chosen the Westminster City Council's Housing Scheme at Pimlico, designed by A. J. P. Powell and J. H. Moya. Two blocks of flats were completed during 1950. (Above is the west façade of one of the blocks, Chaucer House.) The 30 acre site for this housing scheme (director of housing: John Hughes) is being developed in four sections, and will eventually consist of about 1,600 flats. The design and layout of the flats was the subject of a competition in 1945-46. The Chaucer House block was described and illustrated, with an article on the district heating scheme to be used, in the JOURNAL on December 7, 1950.

in walls nearest to a real window, thus adding, particularly in the lower portion, to the three dimensional sense. While not necessarily advocating the *tromp d'oeil* effects achieved by Rex Whistler, is it not reasonable, in work which is frankly striving for three dimensional effect, to pay some attention to the details which impinge upon the wall? The arbitrary cutting of the roof joist and of the hand rail into this picture, and the rigid framing by floor, ceiling and columns, to my eyes, beg for careful consideration in the composition and treatment if the full possibilities of *wall* painting are to be utilized.

THE DOGS DO BARK

New magazines have a way of putting all their riches in the first number, after which the second is a sad comedown. ASTRAGAL, whom long experience has made highly suspicious of everything, cautiously waited for the second number of the enterprising Royal College of Art student magazine *Ark* before making any comment on it, but he is now pleased to report that it does not stick to the rules. The second number is much better than the first—which is saying a lot.

*

Beautifully printed in several colours, it deals with various aspects of domestic art—glass, furniture, fabrics and so on; also, rather surprisingly, stained glass, which is courageously and convincingly recommended as a secular form of decoration. Authors are a judicious mixture of students and staff. A splendid half-crown's worth.

*

ASTRAGAL also welcomes the ninth number of *Plan*. After several seasons in the hands of the AA students, this journal of the Architectural Students' Association has now passed to the Birmingham students, whose first effort, if in some ways less controversial, is highly serious and very thoroughly edited. Main articles are on modulor, social science and anatomical research as applied to the design of school furniture. These are all a real contribution to their subject, and should be useful to many besides students.

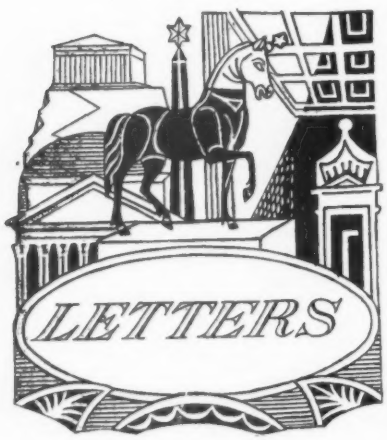
ASTRAGAL

The Editors

"THE PROSPECT BEFORE US."

ARCHITECTS will have read, with grave concern, the announcement made by the Chancellor of the Exchequer last Thursday, that, as a result of "the heavy demands of the defence programme," there is to be a " decline in the amount of civil investment, which must be expected to fall still further in 1952 and 1953." This means fewer licences for ordinary civil purposes, no more office buildings or places of entertainment, less expenditure on schools, university buildings, hospitals and agricultural buildings. Worse still, with regard to the reconstruction of blitzed towns and cities, Mr. Gaitskell said, " It is clear that during the next two years it will not be possible to do much." Housing, we are assured, is not to be cut; but can we be certain of this? It is all very well for Mr. Gaitskell to say that the housing programme will be maintained at 200,000 a year, but on the basis of the housing returns for the first quarter of this year, it is already down to 175,000. Indeed, Mr. Gaitskell admits that, " if in a particular locality there is a great scarcity of labour . . . it may be taken from housing and put on defence". So this target of 200,000 houses (it might as well be faced), is just a pious hope.

How, then, will these cuts affect the architectural profession? According to the statement to the House, " Architects, engineers and technical staff are urgently required " for planning defence work. The Government is hoping that employers (i.e., private architects) will release staff to take up posts with the various ministries concerned. It may well be that they will be glad to do so, for some architects think that this latest statement will be the last nail in the coffin of private practice. Certainly the position is a lot worse than it appears at the moment, for the true position of the private architect is obscured by the temporary boom caused by this Festival Year. Not only has there been the work directly concerned with it, but large numbers of firms, particularly shops, have timed improvements and renovations to coincide with the Festival. How, on the other hand, will these cuts affect the building industry as a whole? Mr. Gaitskell is assuming that " output should continue to rise by about 5 per cent. a year." If this really is the case, it will be an achievement of which the industry can be proud. But the Chancellor warns us that " There will, in 1951, be no increase in the supplies of plant and machinery available," upon which increased productivity depends. Moreover, sudden changes in the building programme will upset all the previous plans; materials must be re-allocated and one can foresee endless local shortages, bottlenecks and delays which will play havoc with any efficient schedule. What, then, will become of these increases in productivity? From every aspect the position would appear to be extremely serious and merits the closest attention from all concerned.



W. Davidson

Whole-house Warming

SIR,—It was interesting to note from Mr. Mawson's letter in the JOURNAL for April 12, that he describes the forced warm air system in his house as "supremely satisfactory" in spite of the shortcomings of this particular installation.

The Stanmore Experiment, which my company carried out before standardizing and marketing their whole-house warming systems, proved that low level discharge of warm air is essential for maximum uniformity of temperature distribution. The vertical temperature gradient with low level discharge was 3 to 6°F. and for high level discharge 8 to 20°F. The high level discharge in Mr. Mawson's installation would account for the air appearing "different from fresh air," since a blanket of very warm air under the ceiling causes a feeling of oppressiveness. Another disadvantage associated with the high level discharge system is the excessive shrinkage of the ceiling joists and cracking of the plaster board as a result of the dissipation of heat from the duct carried between the joists. With low level discharge the whole of the warm air for the ground floor rooms is carried in ducts formed in the solid ground floor, or in insulated metal ducts under a wood and joist floor.

Mr. Mawson's installation does not appear to be correctly balanced, and moreover, the fan is noisy. These are faults which can be remedied by attention to design.

Against the faults in his installation Mr. Mawson weighs the advantages of whole-house warming by the forced warm air system—a "beautifully warm house even in the coldest weather; automatic control; labour saving; freedom from dust; increase of useful space in house; and concludes that whole-house warming is much to be preferred to the background plus topping up method."

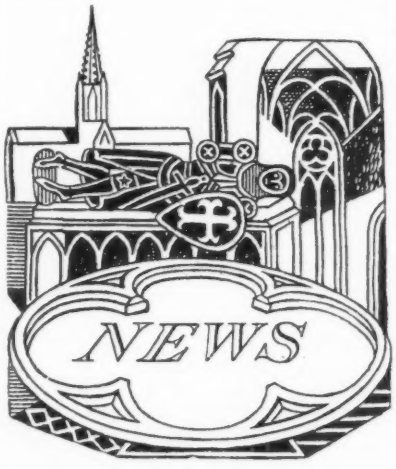
The cost of running Mr. Mawson's gas-operated whole-house warming system is 14s. per week, and this is not high for a completely automatic service. For those who cannot afford this charge the solid fuel operated alternative will give reduced operating costs with very little increase in the attention required.

W. DAVIDSON.

London.

The EDITORS reserve the right to shorten letters from readers. Whenever possible, however, they are published in full.

Two views of the information and recreation room designed by Charles Kenrick, and opened recently for the staff of Unilever House, the London Headquarters of the Unilever Companies. Situated in a basement the room is artificially lit and ventilated, the louvred wall above being the opening of the extract duct.



RIBA

Officers for 1951-1952

Following is a list of officers of the RIBA Council for the year 1951-1952 after the recent elections:—

President: A. Graham Henderson (Glasgow). *Past-presidents:* H. S. Goodhart-Rendel and M. T. Waterhouse. *Vice-presidents:* N. R. Paxton (Leeds) (Chairman of the Allied Societies' Conference). (Three to be appointed by the Council on July 3.) *Honorary Secretary:* (To be appointed by the Council on July 3, 1951.) *Honorary Treasurer:* (To be appointed by the Council on July 3, 1951.)

Members of Council: C. H. Aslin (Hertford), V. Bain (Leeds), H. Bennett (Leeds), Hugh M. Casson, Anthony M. Chitty, D. Clarke Hall, J. Murray Easton, R. E. Enthoven, P. G. Fairhurst (Manchester), Professor W. G. Holford, L. C. Howitt (Manchester), T. Cecil Howitt (Nottingham), A. B. Knapp-Fisher, S. Rowland Pierce, R. H. Sheppard, C. G. Stillman, G. Grey Wornum, F. R. S. Yorke.

Associate Members of Council: Hon. Lionel G. B. Brett (Oxford), Professor R. Gordon Brown (Hong Kong), H. T. Cadbury-Brown, R. A. H. Livett (Leeds), R. H. Matthew, P. F. Shepheard, Ralph Tubbs, R. H. Uren, J. Lewis Womersley (Northampton).

Licentiate Members of Council: S. V. Goodman (Bedford), F. C. Wakeford (Henstridge, Somerset), S. L. Whitehouse (Birmingham).

Representatives of Allied Societies in the United Kingdom or the Irish Free State. (1) Six Representatives from the Northern Province of England: P. C. Newcombe (Northern Architectural Association), William Cecil Young (Manchester Society of Architects), F. J. M. Ormrod (Liverpool Architectural Society), Colin Rowntree

(York and East Yorkshire Architectural Society), C. E. Horsfall (West Yorkshire Society of Architects), Robert Cawkwell (Sheffield, South Yorkshire & District Society of Architects & Surveyors).

(2) Five Representatives from the Midland Province of England: G. B. Cox (Birmingham & Five Counties Architectural Association), A. E. Herbert (Leicestershire & Rutland Society of Architects), P. B. Dunham (Northamptonshire, Bedfordshire and Huntingdonshire Association of Architects), T. N. Cartwright (Nottingham, Derby and Lincoln Architectural Society), E. C. R. Sandon (East Anglian Society of Architects).

(3) Six Representatives from the Southern Province of England: J. A. Powell (Devon and Cornwall Architectural Society), Lieut.-Col. Eric Cole (Wessex Society of Architects), F. A. C. Maunder (Berks, Bucks, and Oxon Architectural Association), R. A. Thomas (Hampshire and Isle of Wight Architectural Association), D. F. Lumley (Essex, Cambridge and Hertfordshire Society of Architects). One representative to be nominated by the South-Eastern Society of Architects.

(4) Four Representatives of Allied Societies in Scotland: nominated by the Council of the Royal Incorporation of Architects in Scotland: T. S. Cordiner (Glasgow), Lieut.-Col. Alexander Cullen (Inverness), Lockhart W. Hutson (Hamilton), W. H. Kininmonth (Edinburgh).

(5) One Representative of Allied Societies in Wales: J. W. Bishop (South Wales Institute of Architects).

(6) Two Representatives of Allied Societies in Ireland: Francis McArdle (Royal Institute of the Architects in Ireland), R. H. Gibson (Royal Society of Ulster Architects).

Representatives of Societies in Alliance with the Royal Institute Overseas: A. J. Hazelgrove (The Royal Architectural Institute of Canada), L. Sylvester Sullivan (Representative in the United Kingdom) J. D. Cheesman (The Royal Australian Institute of Architects), T. C. Howitt (Nottingham) (Representative in the United Kingdom), M. K. Draffin (New Zealand Institute of Architects), R. H. Uren (Representative in the United Kingdom), (To be appointed) (The Institute of South African Architects), (To be appointed) (Representative in the United Kingdom), (To be appointed) (The Indian Institute of Architects), (To be appointed) (Representative in the United Kingdom).

Representative of the Architectural Association (London): A. R. F. Anderson.

Representative of the Association of Architects Surveyors and Technical Assistants (now the Association of Building Technicians): K. J. Campbell.

Chairman of the Board of Architectural Education: K. M. B. Cross.

Chairman of the RIBA Registration Committee: Denis Poulton.

Two Representatives of the RIBA Salaried and Official Architects' Committee: (To be appointed).

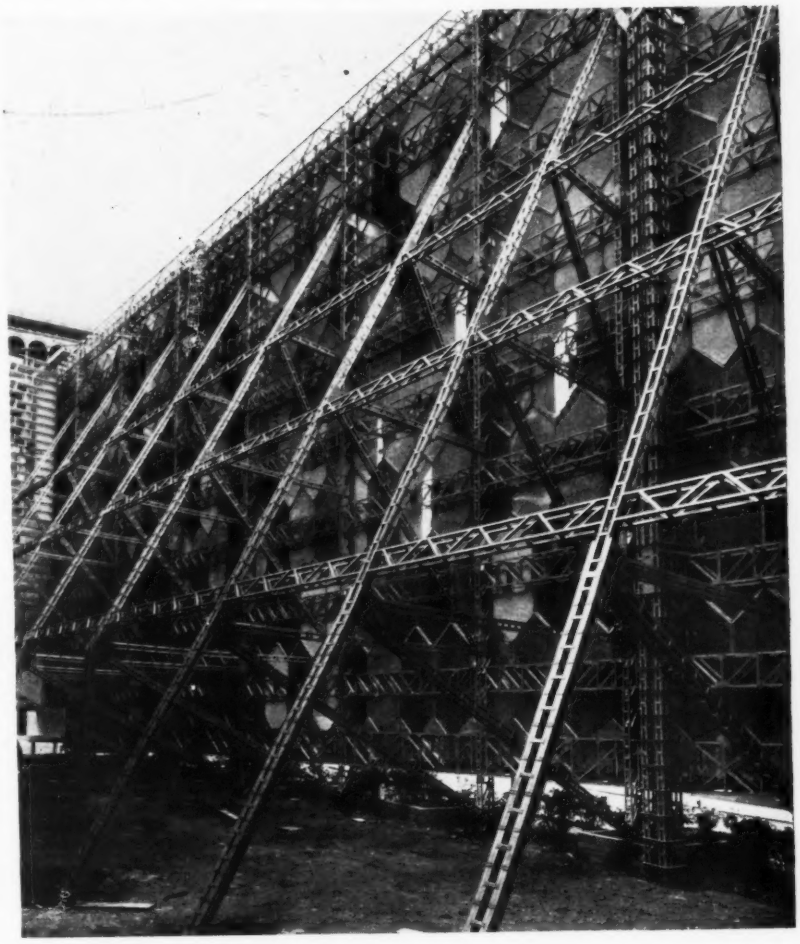
Chairman of the RIBA Allied Societies' Conference: N. R. Paxton (Leeds).

CHURCH REPAIR

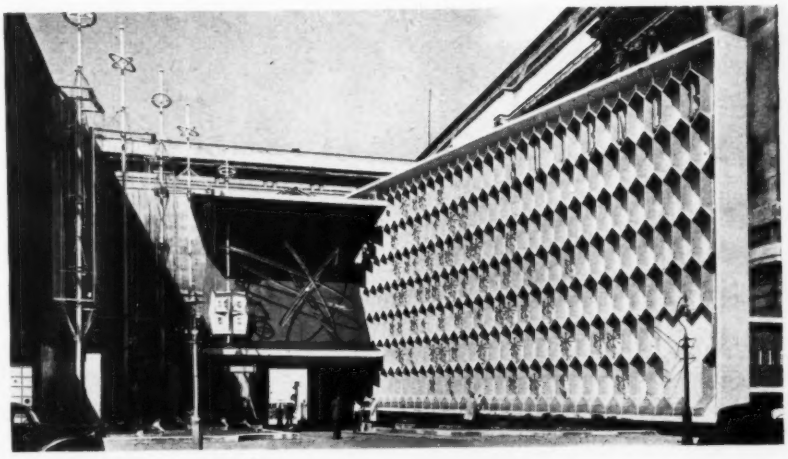
Action Taken by Assembly

On June 19 the Church Assembly considered a Report on the repair of churches prepared by the Central Council for the Care of Churches. The report pointed out that the majority of dioceses have a large number of ancient churches of architectural interest in a condition demanding extensive and immediate repair. Neither parish nor diocese could meet the cost of the work unaided. As no comprehensive assessment of immediate needs is available, the report suggests that a commission should be set up, and a survey made.

FLEXIBLE PREFABRICATION SYSTEM IN USE



The hexagonal screen (100 ft. long and 45 ft. high) which forms part of the exhibition design by Brian Peake for the Science Museum at South Kensington, and is seen to the right of the photograph below, was constructed by the method of building invented and patented by architect Robert Henderson. The Meccano-like frame, which was fabricated and erected in six weeks, is shown above. The basic component in this system of erection is a channel in extruded aluminium of one inch square section, with holes punched in it. The holes enable two to five channels to be joined by connecting keys at any point on a module of three inches. Assembly of this structural frame can be done entirely with a hammer. The system has been described and illustrated in JOURNAL *Information Sheets 25.A1, 2, 3, 4, 5 and 6.*



In his speech to the assembly the Archbishop of Canterbury commented on the report. He said that the only satisfactory survey would be that carried out by architects. The probable cost of this would be £200,000 and take two years. This would amount to about 10 or 15 guineas a church. Dr. Fisher said that the repairs needed to put a church into good repair could be divided under two headings. First, the cost of ordinary, year by year, work, and, secondly, the cost required for overtaking arrears and specially important defects which may be unexpectedly revealed. Already the Church is spending £500,000 a year on ordinary maintenance work and at the same time is providing nearly one million pounds a year to cover the second category of repair work. In the next five year period the Church would require approximately £1,500,000 a year. He maintained that the initiative for repair work should come from the parish to which the church belonged, but that, in addition, there should be a system of compulsory regular inspection so that the Church should have expert knowledge of immediate needs.

Sir Eric Maclagan moved a resolution to appoint a commission to advise the assembly. He said that a nation-wide system of inspection was desirable. With regard to seeking State help, it was felt that it should not be lightheartedly rejected. The assembly received the report and passed the resolution of Sir Eric Maclagan for the appointment of a commission.

On the same day the House of Commons turned down a proposed new clause in the Finance Bill to exempt from death duty money bequeathed for repair of churches. The Chancellor of the Exchequer promised to consider whether there was a way in which the government could provide some help in this matter.

SCR

New Soviet Building Methods

Prestressed concrete is being used extensively in the USSR. said Prof. Bernal in a lecture which he gave last Thursday to a meeting arranged by the Society for Cultural Relations with the USSR. Many factories there are manufacturing prestressed structural units.

Prof. Bernal was in the Soviet Union in March, 18 months after his last visit, and he was surprised at the changes which had taken place in Soviet building methods during that short period. There is much less bricklaying being done; instead, large, 8-ft. by 4-ft., prefabricated panels are being used. These panels, which are about 18 in. thick, consist of an outer facing of stone, a core of aerated concrete and an inner skin of plaster, ready decorated. They are handled by cranes and jointed with a special, hydrophobic cement.

Another important development, which impressed Prof. Bernal, was the use of 2-storey covered gantries, completely enclosed, with windows and central heating. These are moved up the building as the work proceeds and their use makes it possible for work to go on throughout the year, with no reduction in tempo, in spite of the severe Russian winter.

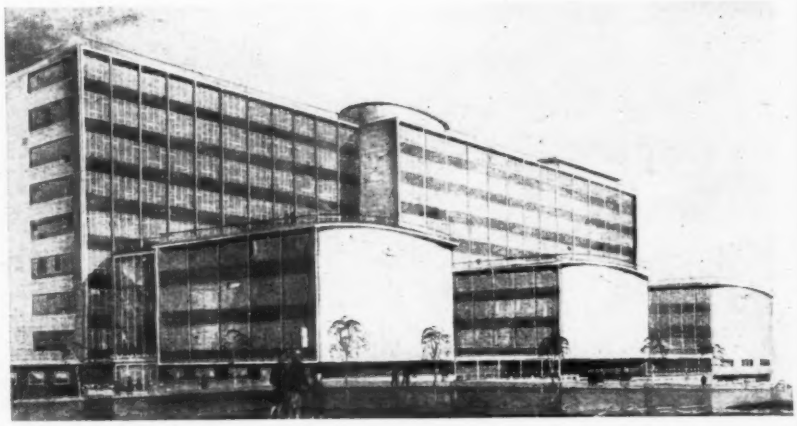
(A full, illustrated report of Prof. Bernal's lecture will appear in next week's Technical Section.)

BRITISH RAILWAYS

Station at Carpenders Park

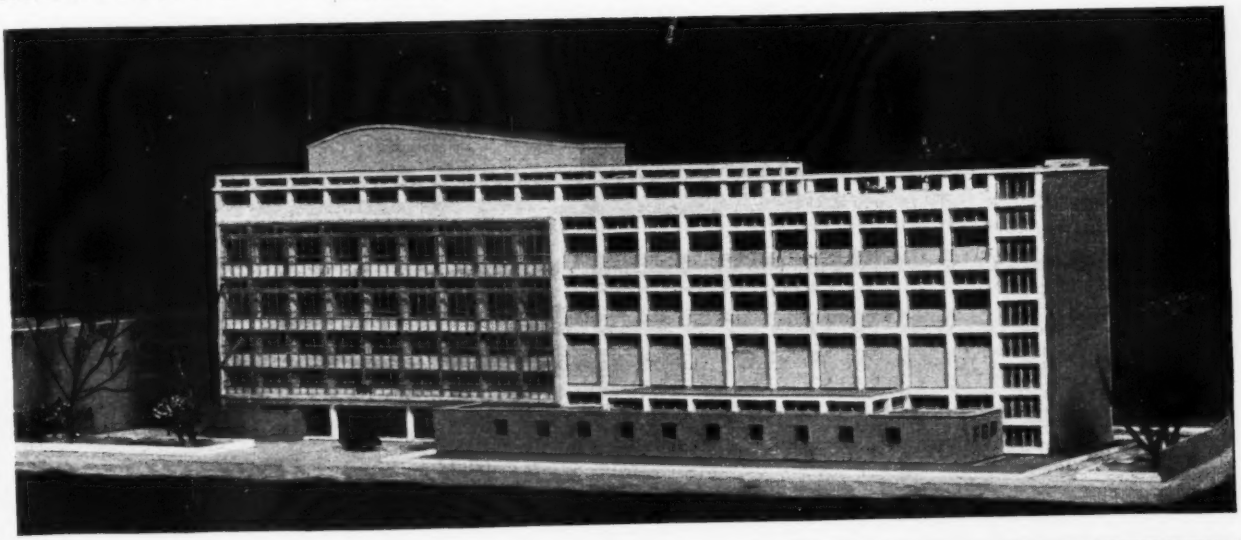
Plans for a £90,000 passenger station at Carpenders Park, between Bushey and Hatch End on the Watford electric line of the London Midland Region, have been approved

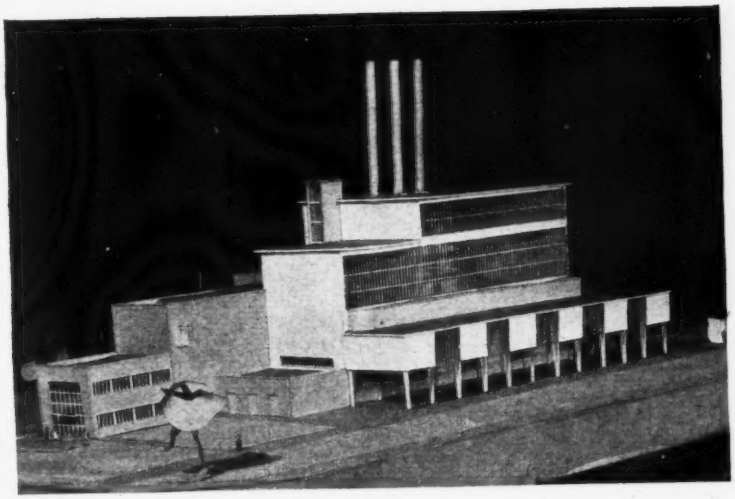
BUILDINGS DESIGNED BY THE CHIEF

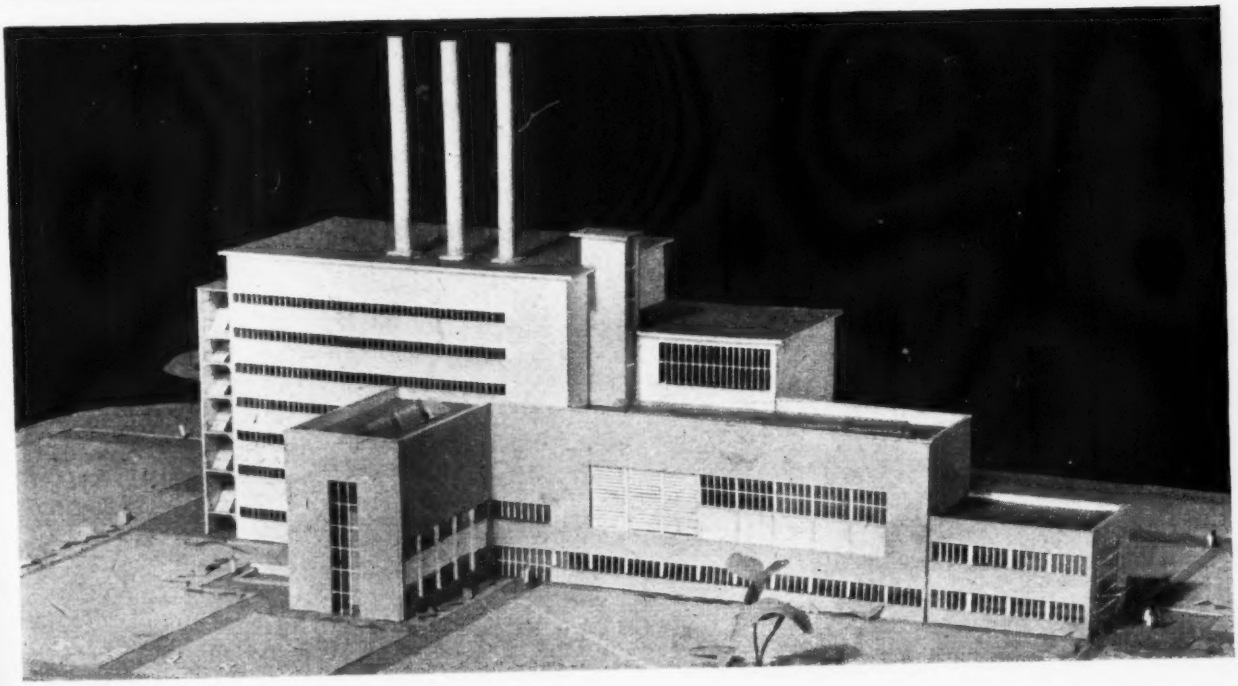


The photographs on this and the opposite page are of perspectives and models on show for the first time, on the DGW stand at the MOW Modern Building Exhibition at Chester (open till June 30). They show projects and buildings under construction, designed by architects of the Chief Architect's Division of the MOW. This page : above, project for a telephone manager's office to be erected in Birmingham (architect in charge—J. Russell). This building will accommodate staff at present housed in an adjacent telephone exchange. It will be of fireproof construction, faced with natural stone. Below, project for a telephone repeater station in the centre of Nottingham (architect in charge—J. Russell). This scheme includes a covered market at ground floor level. When erected, the entire building, except for offices on the top floor, will house telephone apparatus. Opposite page :—top, telephone exchange and repeater station, which will form part of the re-development of Coventry's civic centre (architect in charge—J. Russell). The building will have a fire-resistant frame, faced with stone slabs, but the ground floor and blank end walls will be of local stone in random courses. Centre left, standardized RC grain silo (architect in charge—E. Bedford). Several of these silos, each with a capacity of 2,500 tons, are under construction for the MOF, which will use them for storing home-grown wheat harvested by combine harvesters. Centre right and bottom, research building under construction at Harwell (architect in charge—J. M. Curry), consisting of large experimental area, three-storey laboratory block and two-storey office block. Steel framed, with RC floors and galleries, the building will be clad mainly with asbestos cement sheeting and vertical patent glazing.

ARCHITECT'S DIVISION OF THE MOW







by the Railway Executive. The work on the site will be started as soon as possible. A British Railways handout solemnly states that the new station has been designed by the architect of the London Midland Region *in a contemporary manner.* It will be located centrally between the housing estates on either side of the line.

TB FUND

£50,000 Wanted for Students' Centre

Thirteen thousand pounds has been raised by students for the British Student Tuberculosis Fund since the beginning of the year. The aim of the Fund is to set up a £50,000 centre where students recovering from tuberculosis may continue with their studies, while remaining under expert medical care. It is hoped that £20,000 will be raised by students. A public appeal is now being made for the remainder of the sum needed.

The address of the British Student Tuberculosis Fund is Room 309, Tavistock House South, Tavistock Square, W.C.1.

GEORGIAN GROUP

Treasurer Reports on Dilapidations at Antigua

The honorary treasurer and acting secretary of the Georgian Group, A. W. Acworth, draws attention to the decay into which Nelson's Dockyard at English Harbour, Antigua, has fallen in his report to the Colonial Office on "Buildings of Architectural or Historical Interest in the British West Indies, Colonial Research Studies No. 2," (HMSO: 4s., illustrated).

American tourists pay sixpence to see this "dilapidated relic of British naval power," says the report. Mr. Acworth estimates that it would cost between £25,000 and £50,000 to restore the dockyard. He suggests that in addition to the need for raising a fund for restoration the 6d. entrance fee to the dockyard should be increased to 2s. 6d., a leaflet should be issued describing Nelson's connection with the dockyard, and a medal should be struck to be sold to dollar tourists for 12s. 6d. as a memento.

Mr. Acworth's architectural tour of the West Indies was partly financed by the Colonial Office and sponsored by the British Council, the Georgian Group and the Jamaica Historical Society.

MOLGP

Committee to Revise Model Building Byelaws

The Minister of Local Government and Planning, Hugh Dalton, has appointed a committee to help in the revision of the department's model byelaws, which are issued for the guidance of local authorities in framing under the Public Health Act byelaws governing the erection of new buildings.

The periodic revision of the model byelaws is designed to take account of new developments in building methods and materials, and the appointment of an advisory committee for that purpose follows the practice adopted in 1936 in preparing the model byelaws issued after the passing of the public health act of that year.

The chairman of the new committee is S. F. Wilkinson, Under Secretary, MOLGP. The other members are:—E. Taberner, Association of Municipal Corporations; P. Cutbush, BSI; D. C. Mallam, FASSC; C. L. a'Court, FBI; S. D. Studd, IAAS; Sir Roger Gaskell Hetherington, ICE; J. Chadwick, Institution of Municipal Engineers; L. E. Kent, ISE; H. E. Comben, NFBTE; J. J. Grogan, NFBTO; C. S. White, RIBA; G. Biscoe, RICS; L. Parker, Rural District Councils Association; Rees J. Williams, RSI; H. R. H. Smith, Urban District Councils Association; A. Scott, MOLGP; H. J. Ryan, MOLGP. C. R. Poole has been appointed secretary.

LLOYD WRIGHT IN ITALY

Report from Jaqueline Tyrwhitt

The Frank Lloyd Wright exhibition in Florence is contained in 17 rooms on an upper floor of the Strozzi Palace (built at the end of the fifteenth century and inhabitated by the Strozzi family until 1926). It covers 10,000 square feet of space and contains huge photographs, plans and drawings of over 100 buildings and 14 models as well as the large model of Broadacre City (12 feet square). Also—most interesting of all—24 original drawings dated from 1889 to 1949. The exhibition was sponsored by the City of Florence under the inspiration of Professor Carlo Ragghianti, art historian of the University of Pisa, who hopes that this will be only the first of a series of exhibitions of the works of great modern individualists. Gropius and le Corbusier are next on his list. The exhibition was designed by Oscar Stonorow and financed by Arthur Kauffman (head of Gimbel Brothers and cousin of Edgar Kauffman of the Kauffman house) of Philadelphia, where it was first shown last January. It is said to be going to be shown again in Zurich, Paris, London and Munich.

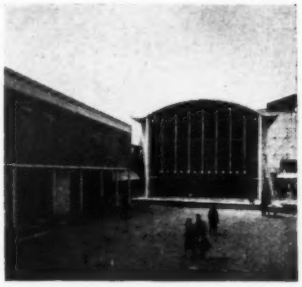
The Florentine showing of this exhibition was due to be formally opened on June 16 by the president of the Italian Republic in the presence of Frank Lloyd Wright himself. The illness of the president caused this to be delayed—although Mr. Wright turned up on the appointed day to find that panels were still in process of being assembled in many of the rooms, though in others all was ready for the final introduction of organic nature—in the form of pine branches and general greenery. This, together with quotations from Walt Whitman, Louis Sullivan and the Master himself, will continually remind the visitor of Wright's fervent belief that his "organic" architecture is closely akin to the workings of nature.

The monster photographs are mostly familiar, and all the obvious buildings appear. But one is also shown an aspect of Wright's work that can have a far more

This mural was designed by F. H. Baines for Belmont Avenue School, Cassiobury, Watford, designed by County Architect, C. H. Aslin. The painting, which is 16 ft. × 8 ft., represents the members of the United Nations and shows some of the products of these nations

SOUTH BANK EXHIBITION ARCHITECTS: NO. 4 : W. W. WELLS COATES

Designed TV Pavilion (below, left of picture), Telekinema, and interiors of Royal Pavilion. Born Tokio, Japan. Double course BA, BSc (Engineering), McGill University. War service : 1915-1919. *Completed BA, BSc course Canada,* 1919. 1922 *: entered University of London for Research Degree PhD (Engineering). Private practice, London* 1928, *after working in architects' offices in Paris, New York and London. Early work : BBC studios, Broadcasting House; Cresta shops. Founded MARS Group* 1933. *In charge of fighter development, RAF,* 1940-45. *OBE (Military)* 1944. *Became RDI same year. Work since resumption of private practice* (1945) *includes TV studios (BBC), work as consultant to Hawksleys for prefabs, hotel projects, West Indies, and housing projects, Canada.*



NO. 5 : R. D. RUSSELL AND R. Y. GOODDEN

Designed Lion and Unicorn Pavilion (right of photograph). R. D. Russell (right in picture):— 1924-1927 *: trained at AA.* 1928-1934 *: with Gordon Russell Ltd.* 1934-1936 *: staff industrial designer, Murphy Radio Ltd.* 1936-1942 *: consultant industrial designer in private practice.* 1942-1946 *: engaged on camouflage of ships with RNVR.* 1946 *: resumed private practice.* 1944 *: appointed RDI.* 1948 *: appointed professor in charge of School of Wood, Metals and Plastics, Royal College of Art. R. Y. Goodden :—* 1926-1931 *: AA.* 1932-1939 *: consultant industrial designer and private architect working on glass, silver and pottery and a few houses.* 1940-1945 *: radar operator with RAF and camouflage of ship for RNVR.* 1945 *: resumed private practice.* 1947 *: appointed RDI.* 1948 *: appointed professor in charge of School of Silversmithing and Jewellery and Department of Industrial Glass, Royal College of Art.*

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fruitful influence upon the European scene than his lavishly spacious houses. These are Wright's early projects for multi-family dwellings and his recent projects for recreation centres. The models and drawings of the 10-storey St. Mark's Tower and the related scheme for the Bowery in New York (1929) still have power to excite one. The huge model of Broadacre City may have nothing to do with the European way of life, but it is full of interest and lively possibility. A series of drawings (1949) for a Play Resort in Holywood Hills for Huntingdon Hartford is one of the most adventurous schemes shown—and bears a fascinating relationship to a sketch scheme for Wollf Lake Resort of 1895. Three circular saucers splay out at different levels from a central tapering stone tetrahedron. The circles each have glass roofs in the form of a saucer dome. One contains a cinema, one a restaurant and dance-floor, one a huge lounge. In the solidly built core are services and club rooms. Below is a circular bathing pool from which a curved cascade of water overflows to a yet lower level. Even more grandiose is a scheme for Pittsburgh in which the central feature is an enormous circular structure, 10 storeys high, around which cars travel on a spiral ramp (the old Museum project) to a circular roof garden, complete with golf course, in the centre of which a fountain spouts upwards from a huge glass basin. Below this great inverted glass dome is an ice hockey rink surrounded by tier upon tier of spectators. Below that is a concert hall, cinemas and a number of club rooms.

Schemes such as these may be fantasies—the stuff that dreams are made of—but from such dreams ideas may spring that can inspire our community architecture of the future.

NFBTE

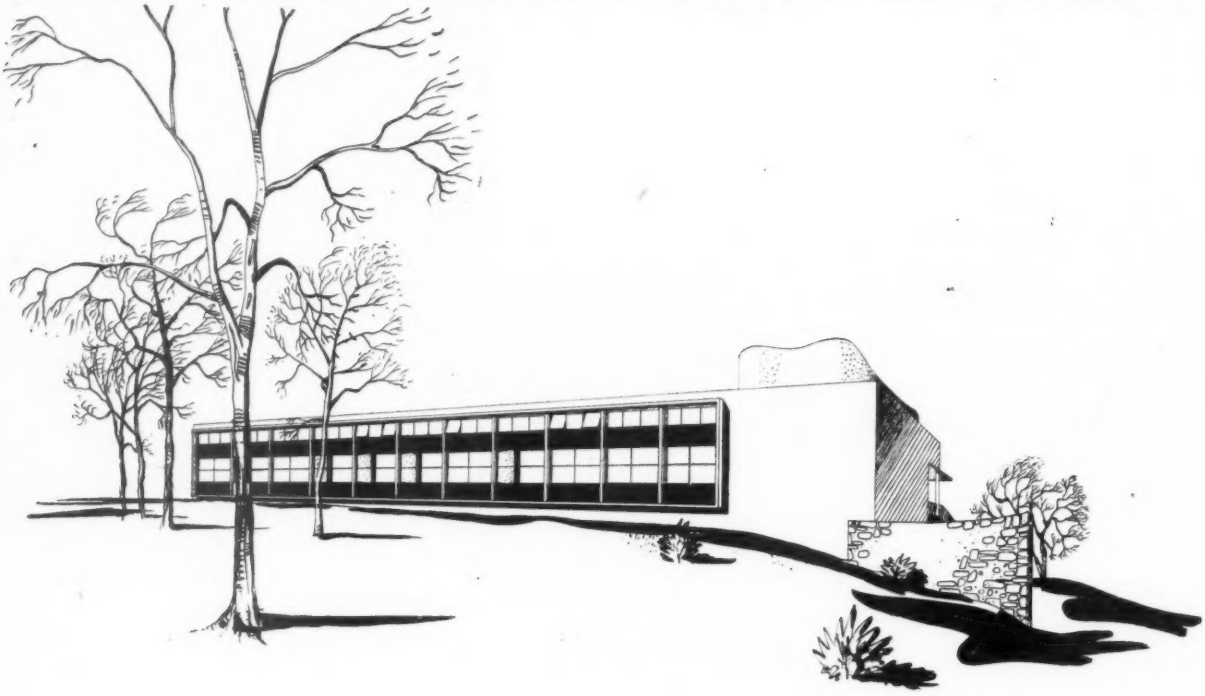
Pensions for Builders

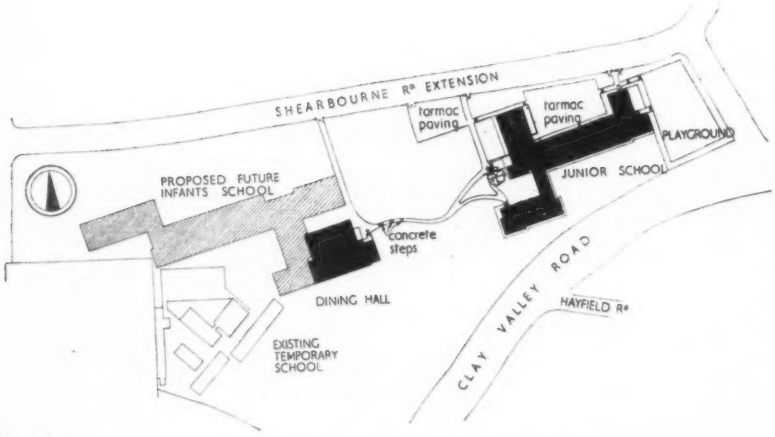
The NFBTE has set up a staff pension fund, through which employment in the building industry becomes a pensionable career. Employers wishing to provide pension and life assurance benefits for their staffs can become contributing employers to the fund. All contributing employers within the scheme constitute a single group, and contributions to the trustees of the fund are all determined by the same basic rates, applicable equally to all firms.

Individual employees, according to their salary class, pay the same weekly contributions to the fund and enjoy the safe benefits. There is no loss of pension rights when an employee transfers his service from one employer to another within the scheme. The benefits of the scheme have been secured by policies of insurance and the administrative expenses of the fund are borne by the Federation as part of its service.

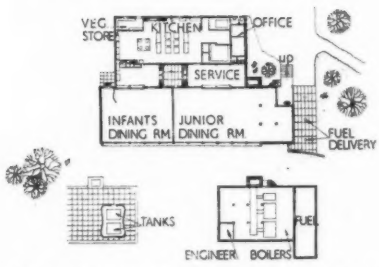
A pamphlet outlining in clear and concise form the scope of the staff pension scheme, is obtainable from the secretary to the trustees of the staff pension fund of the NFBTE, 82 New Cavendish Street, London, W.1.

PROPOSED COUNTY PRIMARY SCHOOL AT ORPINGTON



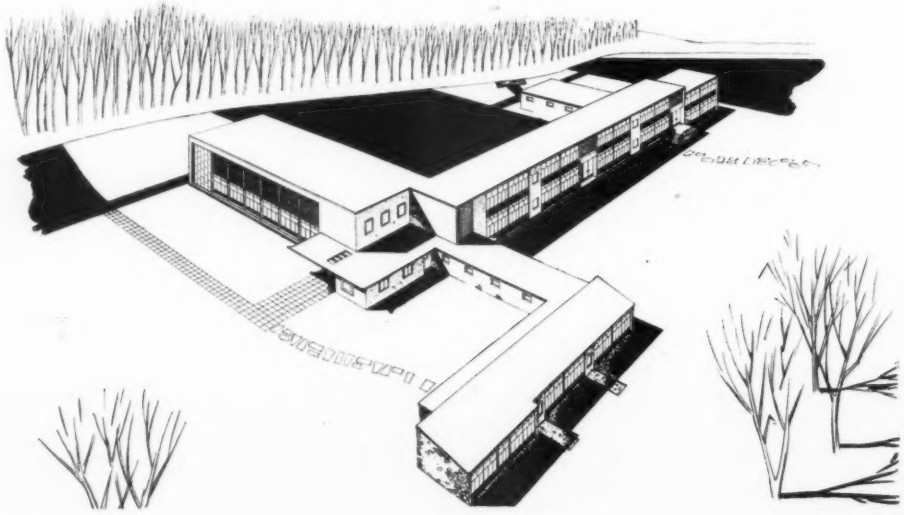


Site plan

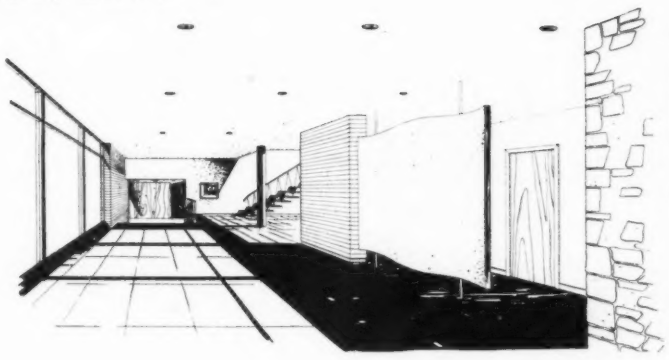


Plans of dining hall block [Scale: $\frac{1}{64}$" = 1' 0"

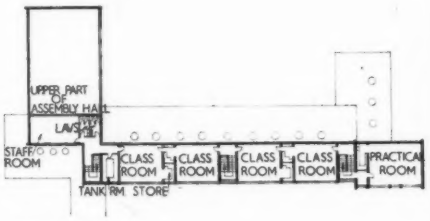
Gollins, Melvin and Partners have designed this school, for the Kent Education Committee, to be built on the slope of a hill overlooking the LCC housing estate at St. Paul's Cray. They were required to plan a county primary junior school with 13 teaching spaces, an assembly hall, an administration wing and a separate central kitchen with junior and infants' dining room; the latter capable of extension when an infants' school (one storey) is built later. Above: dining hall block, looking north-west. Below: the junior school, looking north-east. Top of opposite page, main entrance hall, and



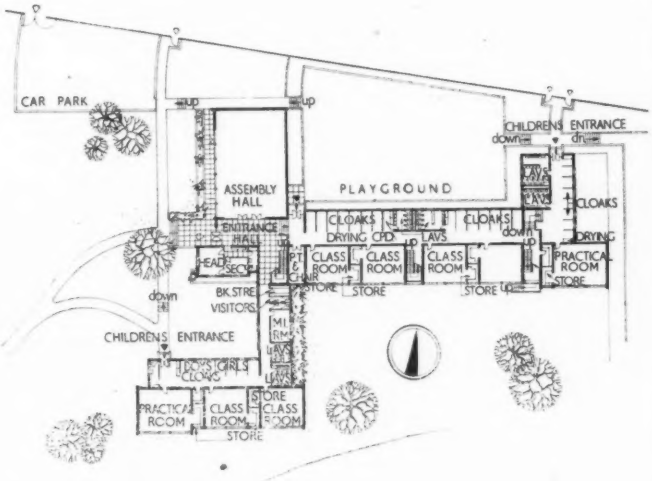
POVEREST, KENT



bottom, main entrance of junior school. Construction: part load bearing, part steel frame. Walls: 11-in. cavity and 1-ft. 1½-in. solid brickwork.



First floor plan



Ground floor plan [Scale: 1/16" = 1' 0"]

MOLGP

New Recommendations on District Heating

The Working Party set up by the MOH in March, 1948, to consider district heating in relation to public water supplies recommends in its interim report (HMSO: price 6d.) that all district heating schemes should be designed to supply heat and hot water by the indirect rather than by the direct method. The main criticism which the report makes of the direct method is that it is likely to cause a heavy increase in water consumption. If the direct method were adopted, there might also be difficulties in determining where the responsibility lay between water undertakings and district heating authorities for the quality of water delivered at the consumers' taps.

The Working Party hope to deal with other aspects of district heating in a further report.

RIBA

Institute Members must not Compete

The RIBA point out that members and students of the Institute and of its Allied Societies must not take part in the competition for Houses at Maldon Hall Estate for the Maldon Borough Council, Essex. The conditions of this competition are not in accordance with the published regulations of the Royal Institute for architectural competitions.

DIARY

Festival of Britain Exhibition. Town Centre, Crawley. (Sponsor, Crawley Development Corporation.) Daily (except Sundays) 10 a.m. to 6 p.m.

The Architecture of North Africa. G. E. Kidder Smith. 34, Bedford Square, W.C.1. (Sponsor, AA.) 8 p.m. JULY 5

Modern Theatre Architecture. Exhibition. At St. Mary's Hall, Coventry. Daily. UNTIL JULY 5

Exhibition of Contemporary Architecture (Members' Work). Herbert Gallery, Coventry. (Sponsor, Coventry Society of Architects.) Monday to Friday, 10 a.m. to 8 p.m. Saturdays, 10 a.m. to 5 p.m. UNTIL JUNE 30.

FOB Exhibition of Architecture. At Lansbury, Poplar. Weekdays, 10.30 a.m. to 8 p.m. Sundays, 12.30 p.m. to 8 p.m. UNTIL SEPT. 30

FOB South Bank Exhibition. Daily 10.30 a.m. to 11.30 p.m. Sundays, 12.30 p.m. to 11 p.m. UNTIL SEPT. 30

Harlow New Town Festival Exhibition. At Harlow. Monday to Friday: 10 a.m. to 4.30 p.m. Saturdays: by special arrangement. (Sponsor, Harlow Development Corporation.) UNTIL SEPTEMBER

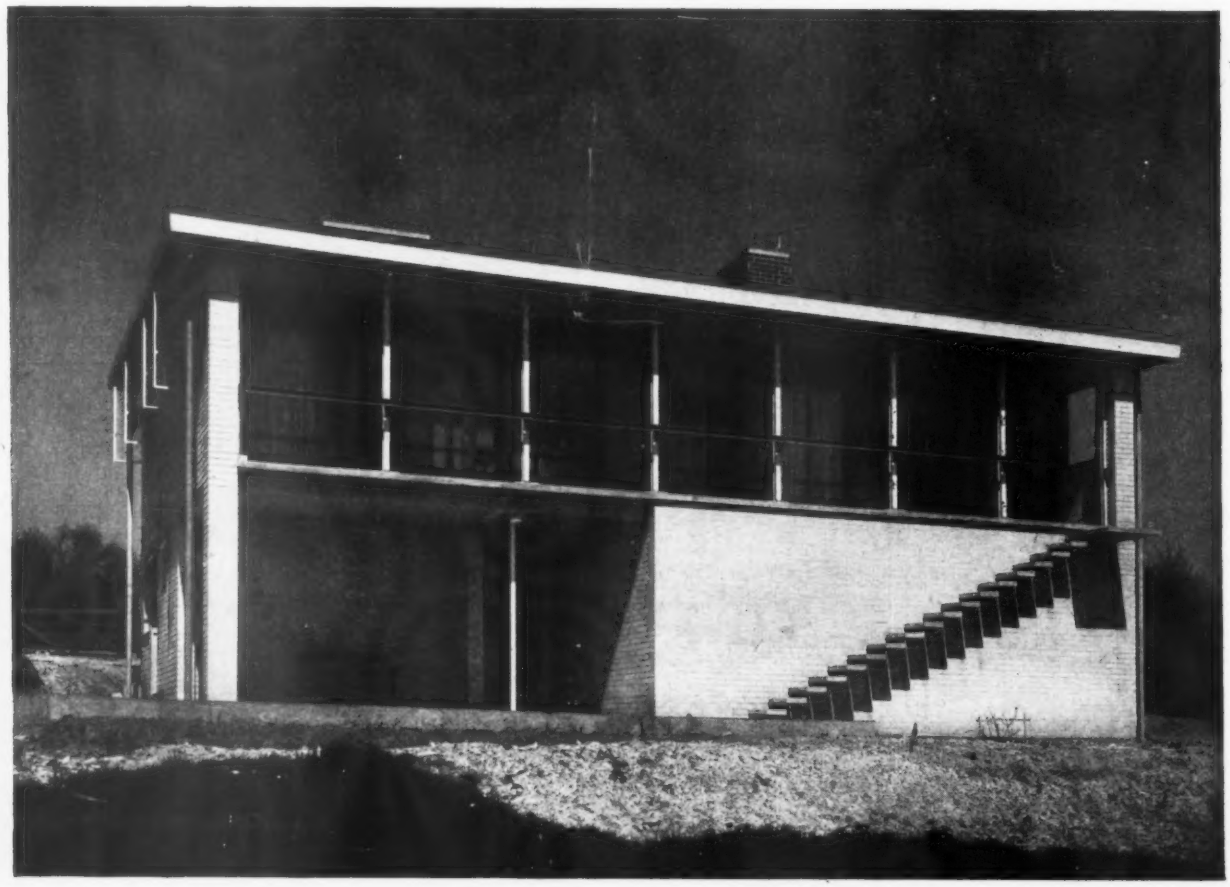
"Living Traditions" Exhibition. At Royal Scottish Museum, Edinburgh. 10 a.m. to 10 p.m. Sundays: 2 p.m. to 6 p.m. UNTIL SEPT. 15

HOUSE AND SURGERY

at PUNNETT'S TOWN, HEATHFIELD, SUSSEX
designed by BERTRAM CARTER
senior assistant KENNETH BROWN

This house has been specially designed for the needs of a doctor with a country practice and the necessity to provide a surgery, waiting room, garage, etc., on the ground floor prompted horizontal sub-division. The site is 500 ft. above sea level and lies seven miles to the north of Pevensey level. To the south-west are the Downs and Beachy Head, and to the east the hilly farmlands around Battle.

View from the south.

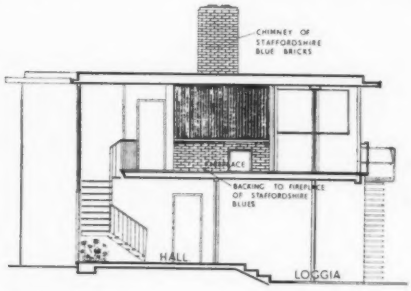


Right, the north facade, showing the tall window lighting the hall and staircase and the front door.

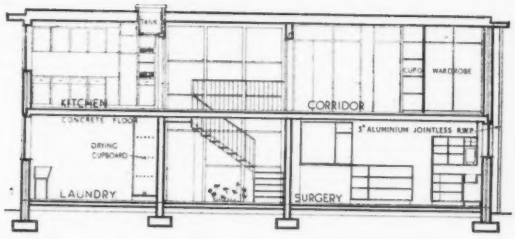
SITE.—The site is triangular. There is a fall of some 30 ft. to the south and the southern boundary is a main road at a drop of 8 ft. from the site level.

PLAN.—The living-room accommodation was built in the form of a first-floor flat as the ground floor was needed for surgery, waiting room, garage, etc. Other rooms on the ground floor are an entrance hall, a laundry and a cloakroom. The first-floor flat consists of one large room with a kitchen on one side and a bathroom, and two bedrooms leading off from the other side. The southern side of the flat, which faces the view already mentioned, is a sliding, double-glazed partition. Access is provided from here to a balcony and to steps leading to the garden.

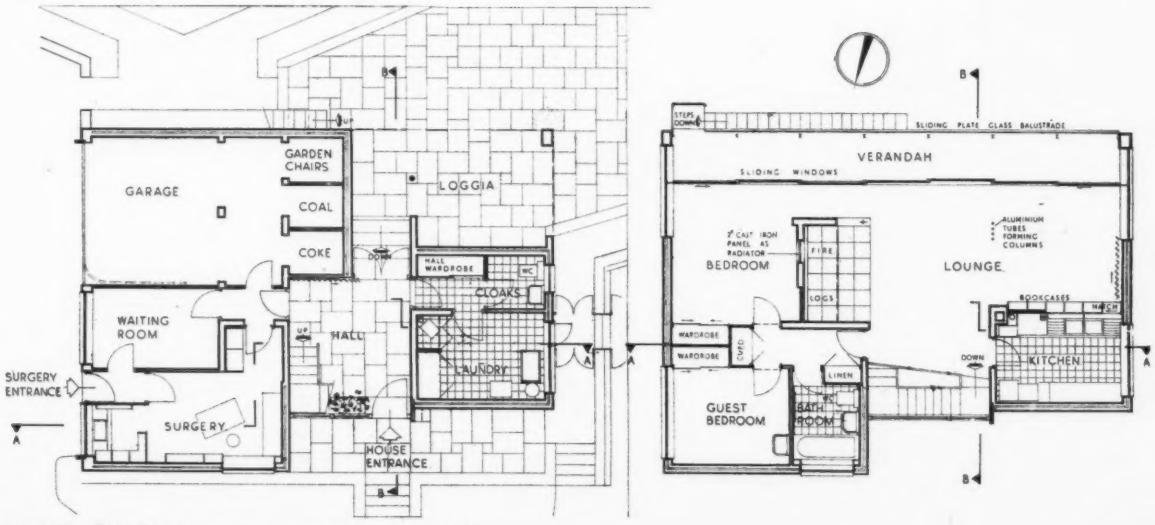
CONSTRUCTION.—The house was first designed for monolithic hollow walled concrete, but was redesigned for brick. (After Hailsham Council had opposed the designs for this building when they were first put forward, an appeal was made to the MOTCP. The appeal was successful, but the Ministry insisted that brick should be used instead



Section B-B



Section A-A



Ground and first floor plans [Scale: $\frac{1}{8}$" = 1'0"]

Above, the front door and main staircase from the hall. Above, right, the large north window from the lounge. Below, looking south through the loggia.

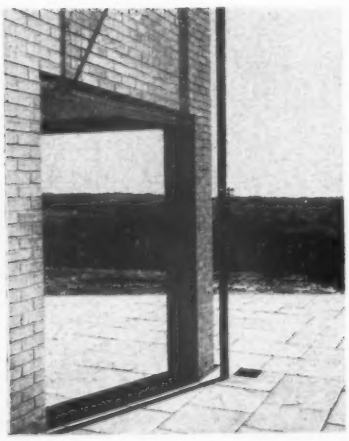
HOUSE AND SURGERY

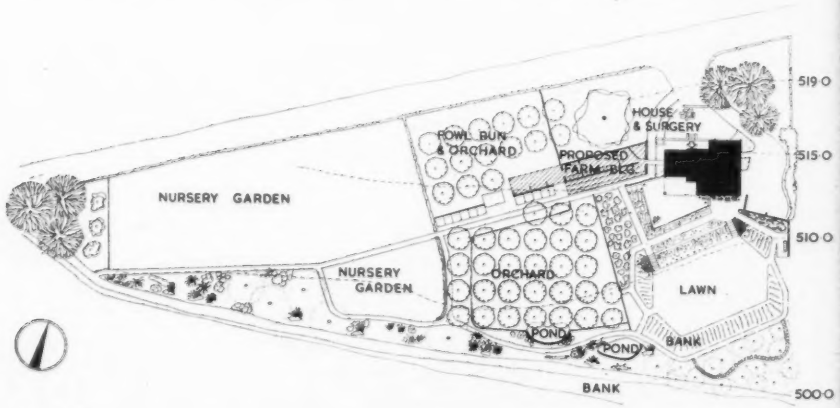
at PUNNETT'S TOWN, HEATHFIELD, SUSSEX

designed by BERTRAM CARTER

of crushed brick aggregate.) The 11-in. cavity walls, which are load bearing, support a concrete floor and a flat timber roof. It was not practicable to provide a pitched roof—though this is a requirement of the Hailsham Council—for the depth of the house was too great in relation to its length. As there are often strong winds in the valley where the house is situated the flat roof had to be anchored with ½-in. steel rods to the concrete floor structure. Inner walls not formed by fitments are of brick.

FINISHES.—The sand lime bricks on the east, north and west sides of the house form vertical lines to offset the horizontal lines of the south side which are caused by the balcony and the glazing screen. (The sliding glass balustrade for the latter is not yet in position.) The north staircase window and the balcony window are double glazed in teak frames. Other windows have standard steel frames. Internally, the walls are of fair-faced, sandstone brick. Most are distempered pale grey. Some walls and recesses are coloured or papered. Walls in bathroom, kitchen, surgery and waiting room have paint on plaster. Curtains and fitments are used decoratively. Four polished aluminium scaffold poles form a column supporting a steel joist





Site plan

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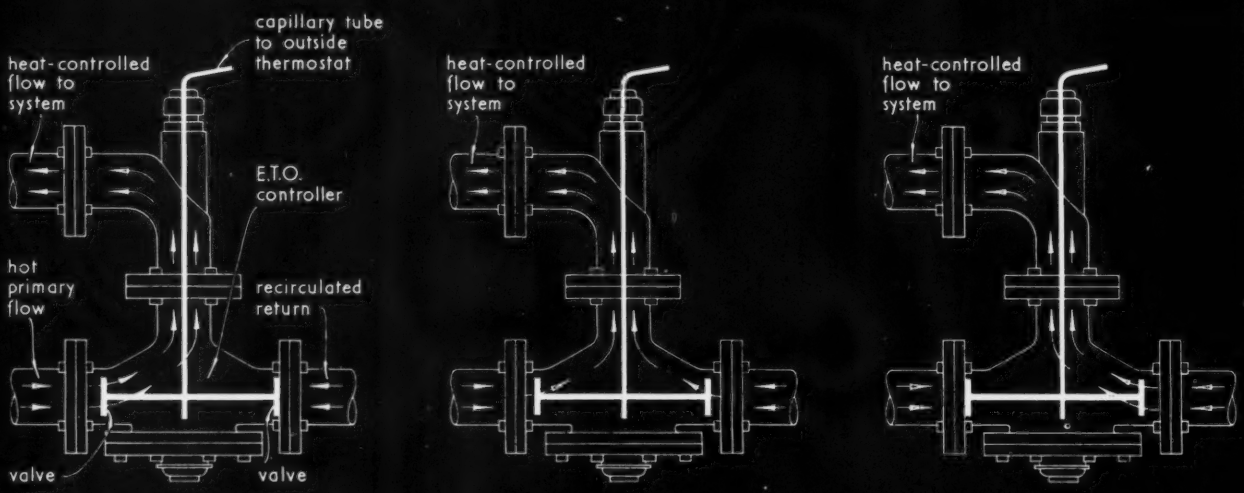
SPACE HEATING | THERMOSTATIC CONTROL

29.A1

The Architects' Journal Library of Information Sheets 317. Editor: Cotterell Butler, A.R.I.B.A.



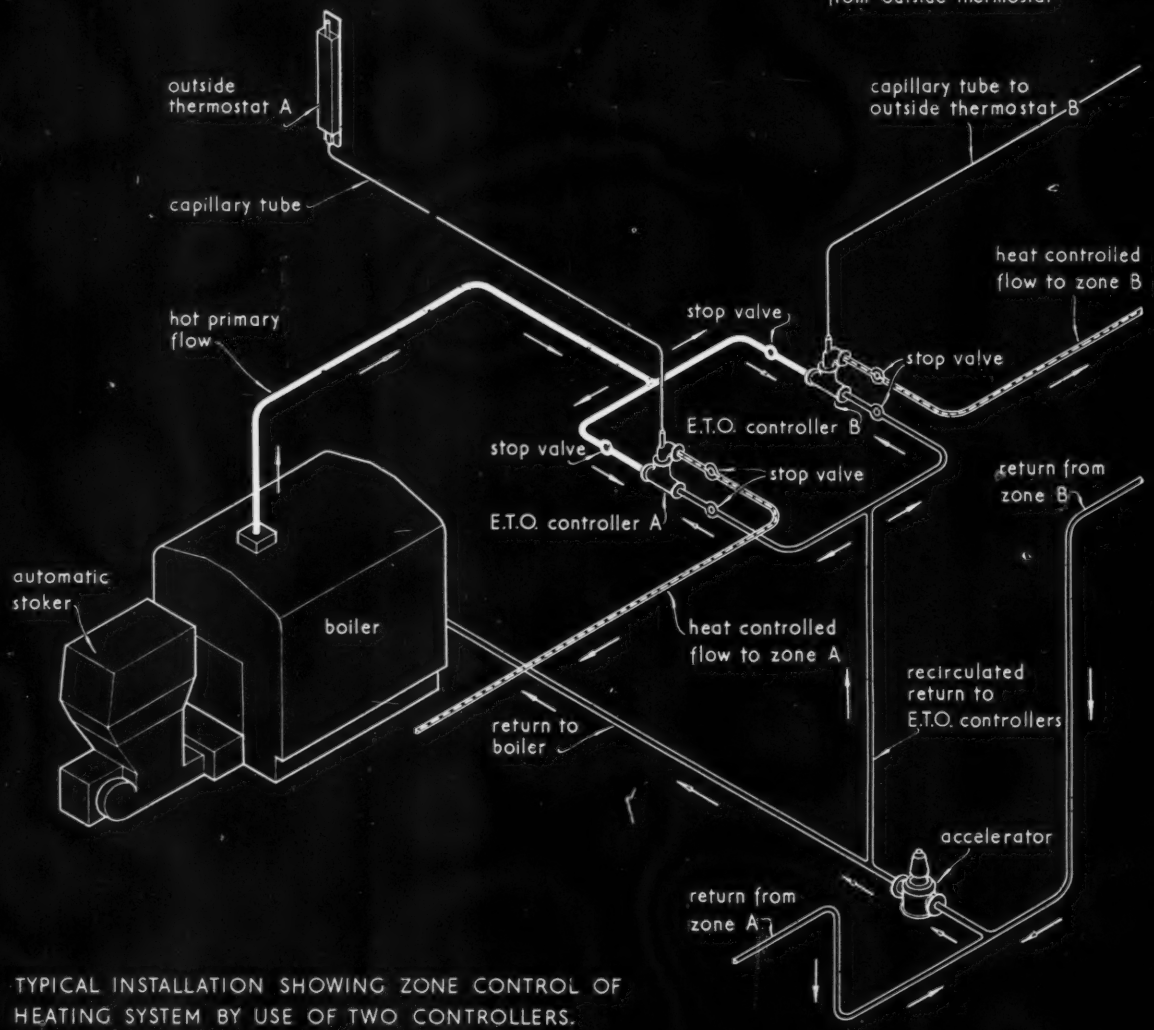
maximum hot primary flow

part hot primary flow, part recirculated return

maximum recirculated return

note: the valves may take up any intermediate position giving differing percentages of hot primary flow in accordance with impulse received from outside thermostat

DIAGRAMS SHOWING CONTROL OF HEATED WATER TO SYSTEM.



TYPICAL INSTALLATION SHOWING ZONE CONTROL OF HEATING SYSTEM BY USE OF TWO CONTROLLERS.

·SARCO· E.T.O. CONTROLLER FOR HOT-WATER HEATING SYSTEMS. Manufacturer: Sarco Thermostats Ltd.

29.A1 'SARCO' E.T.O. CONTROLLER FOR ACCELERATED HOT-WATER HEATING SYSTEMS

This Sheet describes an external temperature operated heat control for accelerated hot-water heating systems. The upper drawings on the face of this Sheet show, diagrammatically, the principle of operation and the lower drawing shows a typical installation in which the heating circuit is divided into two separate flows serving different zones of a large building, each flow being fitted with an E.T.O. Controller. Zone control is the ideal since it counteracts the different rates of heat loss due to varying aspects of the sides of the building, but present-day economic conditions usually dictate the use of one circuit and in such cases overall control of the building can be carried out effectively by one Controller.

The Controller can be applied to all types of low pressure hot-water heating system provided there is pump circulation and that there is reasonable control of water temperature at the heat source. The whole arrangement is entirely self-operating and changes in outside temperature act directly upon the Controller. Each Controller is made to suit the characteristics of the particular heating system.

Description

The Controller consists of a blending valve which is connected to the source of hot-water supply and the flow and return pipes of the heating system. The blending valve is operated by a liquid-expansion type of thermostat which is controlled by a thermostat fitted outside the building and connected thereto by a capillary tube.

Operation

The Controller maintains a circulation of hot water at a temperature appropriate to the outside temperature. Variations in the flow temperature are made directly by the outside thermostat in anticipation of the effect indoors of any external temperature changes. The time lag is so small that it may be disregarded, as, by the time the inside of the building is beginning to feel the change in heat loss conditions, the heating surfaces are already receiving flow water at a temperature to meet these conditions.

Dimensions

Blending valve : The valve is available in four sizes to take 2 in., 3 in., 4 in., and 6 in. internal diameter hot-water pipes. It measures 2 ft. high overall by 1 ft. 0½ in. to 1 ft. 1¾ in. (dependent on pipe diameter) over the side flanges. A minimum clearance of 1 ft. 8 in. at the top and 9 in. at the bottom should be provided.

Outside thermostat : This measures 2 ft. 10 in. high by 5 in. wide and projects 2 in. from the wall face. It must be fitted in a vertical position.

Flow Temperature Gradient

The rate at which heat is given off by a radiator is dependent on the difference between the mean temperature of the water inside the radiator and the temperature of the room, which is in turn governed mainly by the outdoor temperature.

The variation in flow temperature is not, however, directly proportional to the variation in outside temperature. Tests with the normal column-type cast-iron radiator show that the transmission of heat varies to the 1·3 power of the difference between the radiator surface and the room temperature. This figure of 1·3 varies with different types of heating surface ; e.g., in a cabinet-type heater with a small heating element in a metal surround, the transmission may vary as much as the 1·5 power of the temperature difference.

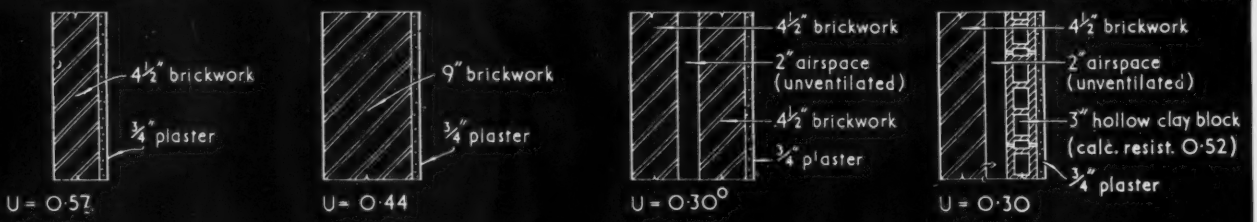
In calculating the flow temperature required for a given size of heating surface, but with varying transmission, it is found that the flow temperature gradient is represented by a logarithmic curve. The E.T.O. Controller is designed to take account of this logarithmic variation of heat transmission.

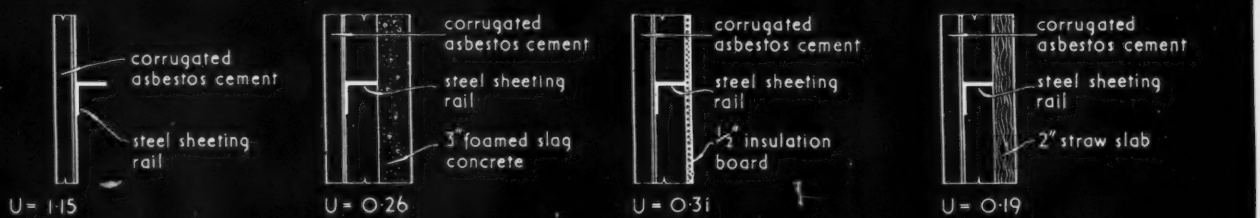
Compiled from information supplied by :

Sarco Thermostats Ltd.
Head Office : Cheltenham, Glos.
Telephone : Cheltenham 5175-5176
Telegrams : Sarco Cheltenham.
London Office : 28, Victoria Street, S.W.1.
Telephone : Abbey 6101 and 3832.

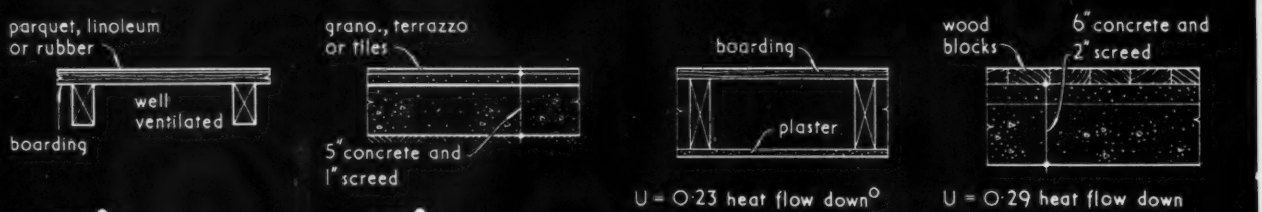
THERMAL INSULATION | GENERAL DATA

The Architects' Journal Library of Information Sheets 318. Editor: Cotterell Butler, A.R.I.B.A.

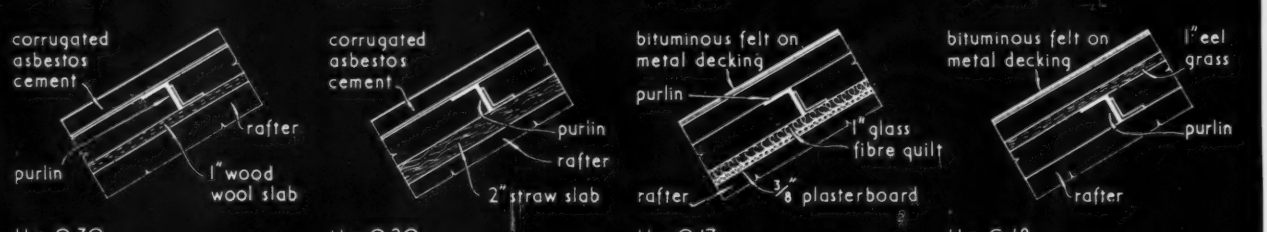




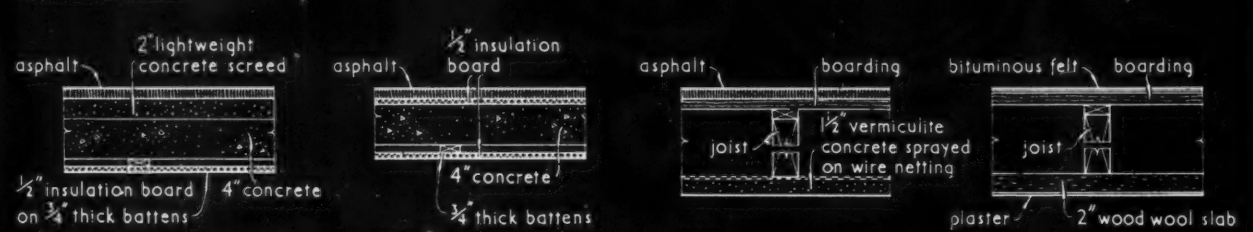
WALLS.



FLOORS.



PITCHED ROOFS.



FLAT ROOFS.

• empirical U values
° detailed calculations on reverse

CALCULATION OF THERMAL TRANSMITTANCE (U) FOR STRUCTURES: TYPICAL EXAMPLES.

Compiled from information supplied by Structural Insulation Ltd.

28.A3 CALCULATION OF THERMAL TRANSMITTANCE (U) FOR STRUCTURES: TYPICAL EXAMPLES

This Sheet, the third of a group on thermal insulation, sets out a selection of typical wall, floor and roof constructions with their thermal transmittances and gives examples of how these are calculated. The factors involved in the basic formulæ required for the calculation of thermal transmittance coefficients (U) are set out diagrammatically on Sheet 28.A1. Sheet 28.A2 tabulates the thermal conductivity and resistivity of various building materials.

Calculation

In order to calculate the thermal transmittance of a composite construction it is necessary to find the thermal resistance of each individual layer of material by dividing its thickness (in inches) by the thermal conductivity value for that particular material. The sum of these resistances plus those of any air spaces gives the surface to surface resistance of the construction. To this figure the resistances of the internal and external surfaces must be added to obtain the total air to air resistance. The reciprocal of this figure will give the thermal transmittance coefficient (U).

The U values given on the face of this Sheet have been calculated by the above method with the following exceptions:

Floors on the ground: The U values have been taken from the publication of the Institution of Heating and Ventilating Engineers, *The Computation of Heat Requirements for Buildings*, which states: "Until more data are available on losses through floors of different areas the following empirical coefficients should be used. The full temperature difference between indoors and outdoors should be taken. Allowance has been made for the fact that the underside temperature will be higher than the outdoor temperature."

Tiled pitched roofs: These are too complex to be treated accurately by computation and the thermal transmittance must be obtained by direct measurement. The values given have been taken from the above publication.

Asbestos-cement roof incorporating aluminium foil: This again is best determined by experiment. The value given is a generally accepted one.

Examples

In calculating the figures given on the face of this Sheet and in the worked examples below the constants used have been taken from Sheets 28.A1 and 28.A2. Where air spaces occur in corrugated sheet constructions the following resistances have been used. Air space formed between corrugated material and lining in close contact: 0·5. Air space (minimum ¾ in.) formed between corrugated material and lining not in close contact: 0·9.

11 in. Cavity Wall, Traditional Construction

	Thickness (L)	Conductivity (k)	Resistance
External surface (plane)	—	—	0·30
4½ in. brick	4½ in.	8·4	$\frac{L}{k} = \frac{4·5}{8·4} = 0·54$
Air space	—	—	1·00
4½ in. brick	4½ in.	8·4	$\frac{L}{k} = \frac{4·5}{8·4} = 0·54$
Plaster	½ in.	3·3	$\frac{L}{k} = \frac{0·75}{3·3} = 0·23$
Internal surface (plane)	—	—	0·70
		Total resistance (R) =	3·31

$$U = \frac{1}{R} = \frac{1}{3·31} = 0·30$$

Intermediate Wood Floor on Joists, Plaster Ceiling

Heat flow downwards

(*a*) Boarding and plaster

	Resistance
Upper surface	0·85
1 in. timber	1·15
Air space	1·00
¾ in. plaster	0·23
Lower surface	0·85
R =	4·08
U =	0·25

(*b*) Boarding, joists and plaster

	Resistance
Upper surface	0·85
8 in. timber (1 in. floor + 7 in. joist)	9·20
¾ in. plaster	0·23
Lower surface	0·85
R =	11·13
U =	0·09

Using formula on Sheet 28.A1 final U value for structure = $\frac{1}{8} \times 0·09 + \frac{7}{8} \times 0·25 = 0·23$.

Heat flow upwards

Substituting surface resistances of 0·60 for 0·85 in (*a*) and (*b*) above U = 0·26

Further Information

Structural Insulation Ltd. maintain a technical department for the preparation of thermal insulation and heat loss calculations which is available to advise on problems dealing with this subject generally.

Flat Roof: ¾ in. Asphalt, ½ in. Insulation Board, 4 in. Concrete, ½ in. Insulation Board on Battens

	Resistance
External surface (plane)	0·25
¾ in. asphalt	0·09
½ in. insulation board	1·35
4 in. concrete	0·40
Air space	1·00
½ in. insulation board	1·35
Internal surface (plane)	0·60
R =	5·04
U =	0·20

Formula for Calculating Combined U Value of Roof and Ceiling

where Rc = total air to air resistance of ceiling

Rr = total air to air resistance of roof

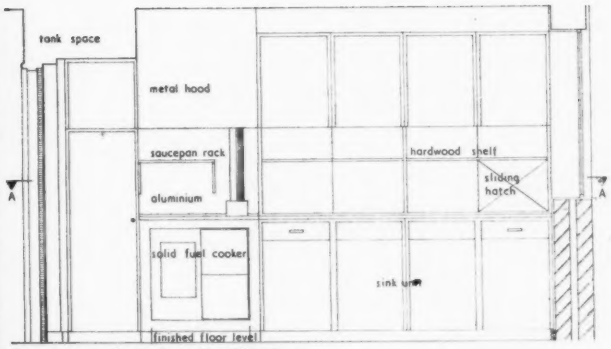
θ = pitch of roof

$$\text{combined U} = \frac{1}{Rr \cos \theta + Rc}$$

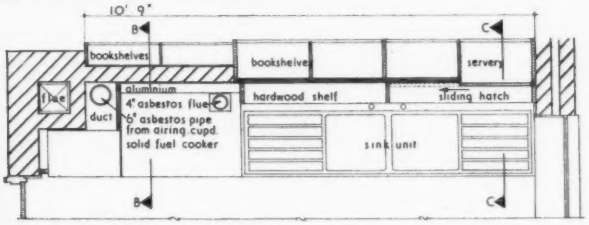
Note: This formula is based on the ceiling area. When making heat loss calculations the combined U value should, therefore, be used in coniunction with the ceiling area and not the roof area.

Compiled from information supplied by:

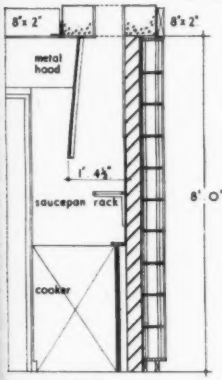
Structural Insulation Ltd.
Address: 5, Queen Anne's Gate, London, S.W.1.
Telephone: Whitehall 4176/7.
Telegrams: Thermecon, Parl, London.



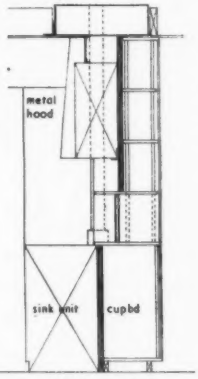
Elevation of south wall of kitchen



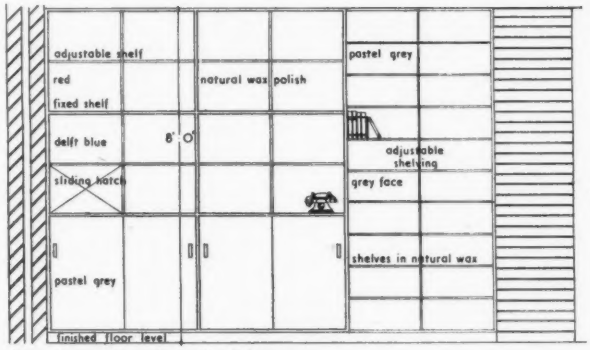
Plan at level A-A [Scale: ½" = 1' 0"]



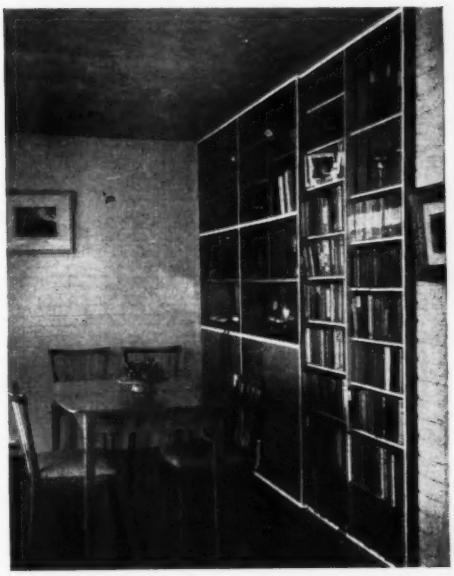
Section B-B



Section C-C



Elevation of north wall of lounge

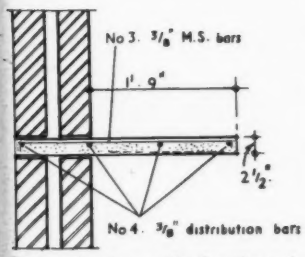


Above, bookcase fitting on the north wall of the lounge. Below, outside staircase on the south facade.

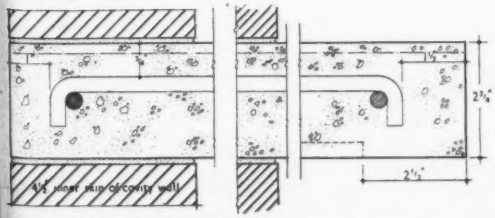
and serve to divide the living and dining areas. The partition between the kitchen and the dining area is formed by equipment and units. Sheet aluminium is used between lower and upper kitchen fitments. The staircase is of the open tread type in teak; balusters are sycamore dovetailed into the string. The architect was assisted by Geoffrey Dunn in the choice of a colour scheme to blend with the furnishing.

SERVICES.—Ground floor boiler for hot water and radiators in hall, surgery, etc. 2-ft. square cast-iron back on rollers in steel channels at back of fire, forms radiator in best bedroom.

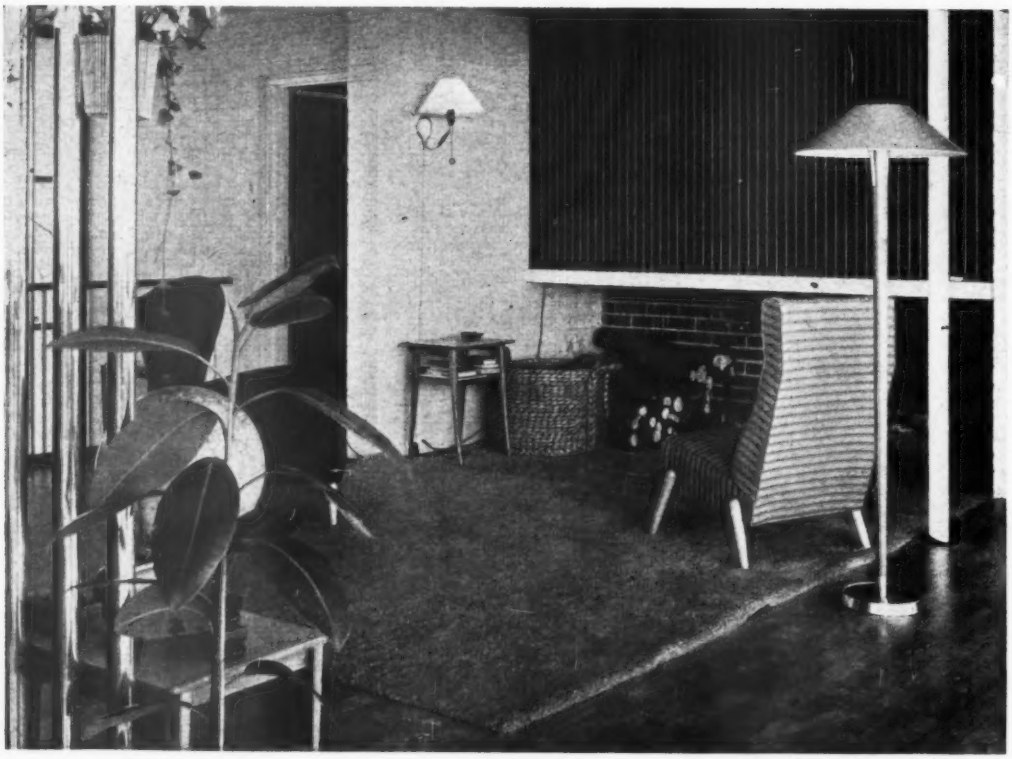
The general contractors are William Sands & Son. For sub-contractors see page 840.



External staircase. Section through wall and step [Scale: ½" = 1' 0"]



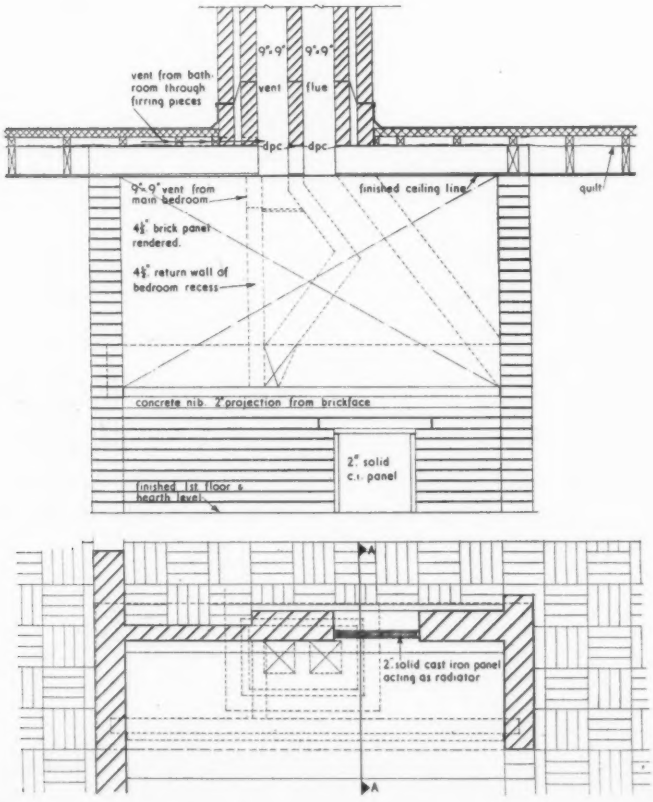
Longitudinal section of step [Scale: 3" = 1' 0"]

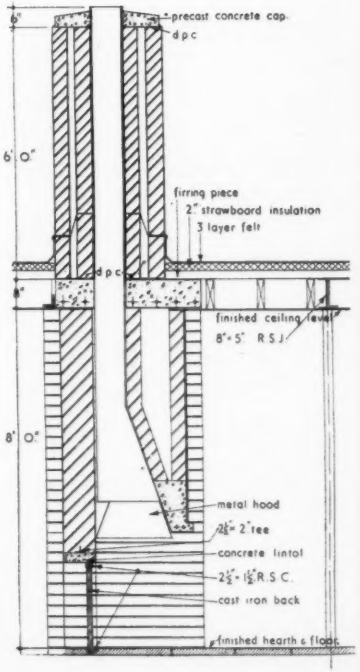


Fireplace in the first floor lounge.

HOUSE AND SURGERY

at PUNNETT'S TOWN, HEATHFIELD, SUSSEX
designed by BERTRAM CARTER





Plan, elevation and section of fireplace (Scale: ¼" = 1' 0")

SHOE SHOP

in NEW GEORGE STREET, PLYMOUTH
designed by ELLIS E. SOMAKE
assistant architect R. W. FREEBORN

The new store for Messrs. Dolcis replaces the firm's Plymouth shop, which was completely destroyed by enemy bombing, and forms a part of the Abercrombié scheme for the replanning of the city. It is situated on the north side of an enclosed service courtyard facing New George Street, and was designed by the staff architect of the Dolcis Shoe Co. A mural, specially commissioned for this shop and designed by Victor Freeborn, occupies one wall of the children's department on the first floor.

The road facade looking south-east.

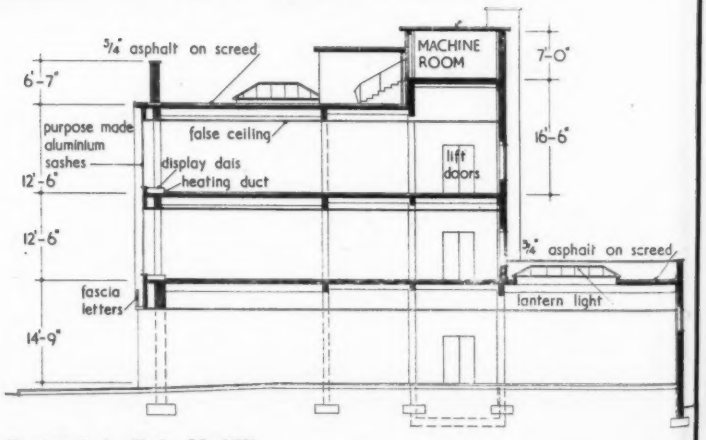
The north façade facing New George Street, looking west.

SHOE SHOP

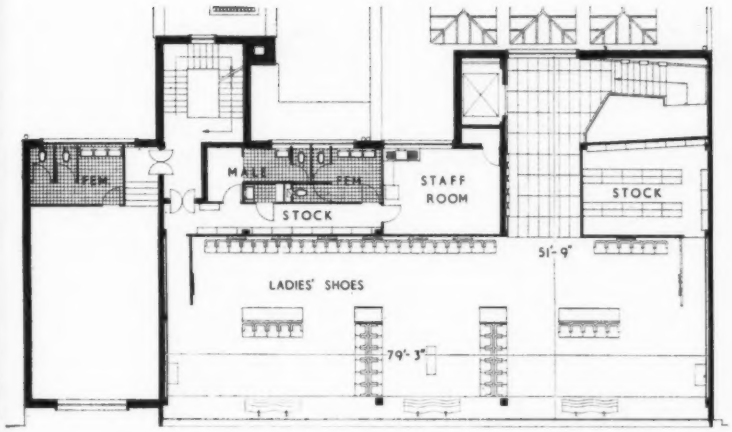
in NEW GEORGE STREET, PLYMOUTH
designed by ELLIS E. SOMAKE

PLAN.—The local authority decided that access to the enclosed courtyard should be located on one side of the Dolcis site, and this necessitated either stopping the building short of the carriageway or bridging over and setting back the plane of this part of the façade behind the frame of the main elevation, which was the course chosen. The building has been subdivided into three parts, with Messrs. Dolcis retaining a major part of the building for their use.

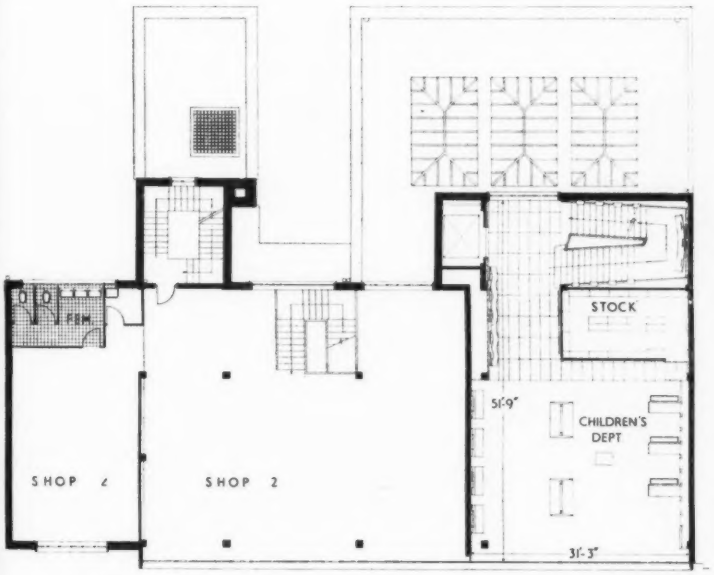
CONSTRUCTION.—A reinforced concrete frame



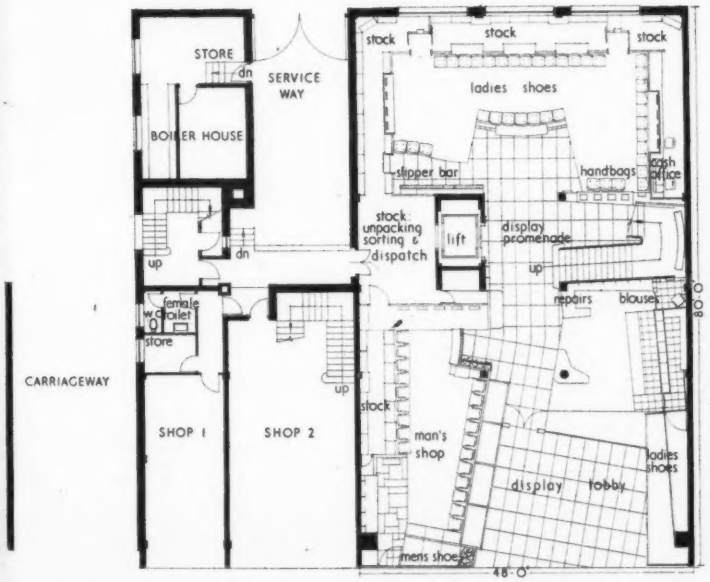
Section A-A [Scale: 1/2"=1'0"]



Second floor plan



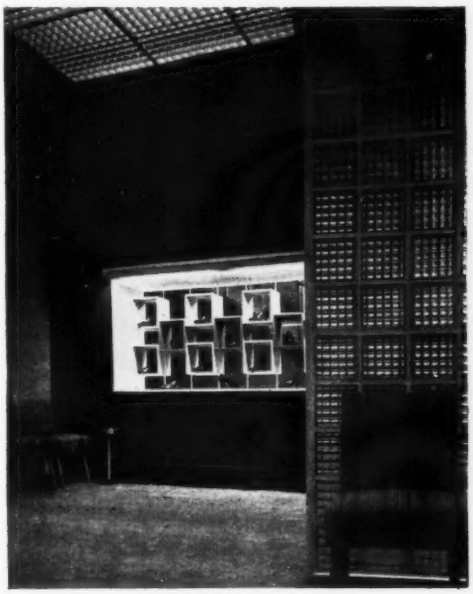
First floor plan



Ground floor plan [Scale: $\frac{1}{24}$" = 1' 0"]

has been used in conjunction with continuous reinforced concrete slabs. The front line of columns has been set back 3 ft. from the building line, and the boxed-out portion of the north elevation is hung on cantilevered RC spandril panels. External walls are 13½-in. non-load-bearing brickwork.

FINISHES.—The materials used on the main façade are reconstructed unpolished Clipsham stone panels between glazing, the whole contained within a frame of reconstructed polished Portland stone, and the recessed portion is faced with 2-in. golden brown bricks with flush joints. The continuous sashes are of purpose-made natural aluminium. The rear elevation is faced with 2⅝-in. flint lime

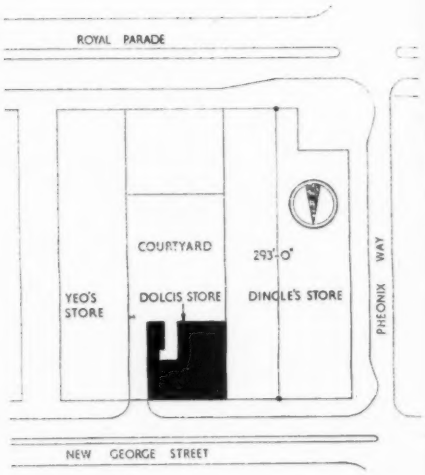


Above, the ladies' department. Below, men's department, both on the ground floor.

Man's shop from its own separate entrance.

SHOE SHOP

in NEW GEORGE STREET, PLYMOUTH
designed by ELLIS E. SOMAKE

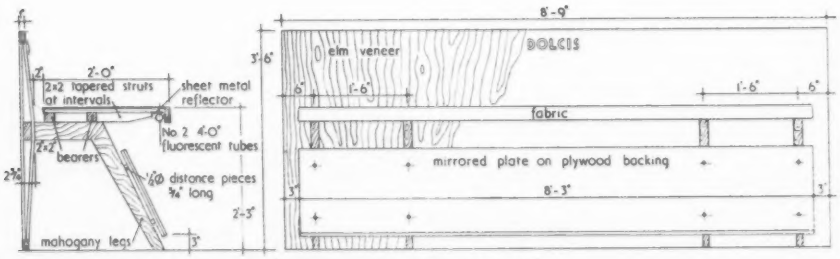


bricks. Floors are covered with fitted carpets in the sales areas, linoleum in the stock areas, wood blocks in staff areas and red quarry tiles in lavatories. Walls are of fair-faced brickwork and false ceilings are suspended by steel hangers. In the first floor children's department a feature imitating railway carriages has been introduced.

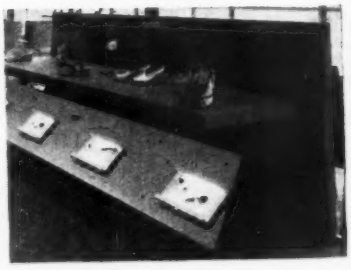
SERVICES.—Heating is by a gas-fired low-pressure hot water system using convectors, baseboard heaters and coils with thermostatic control. Areas above false ceilings are used as sealed ducts through which air is drawn by cased extract fans.

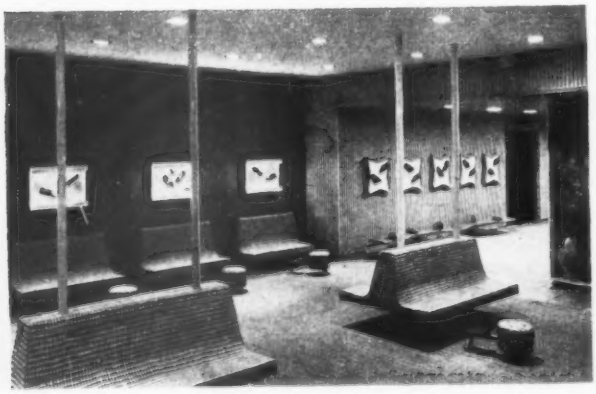
The general contractors were A. N. Coles (Contractors), Ltd. For sub-contractors, see page 840.

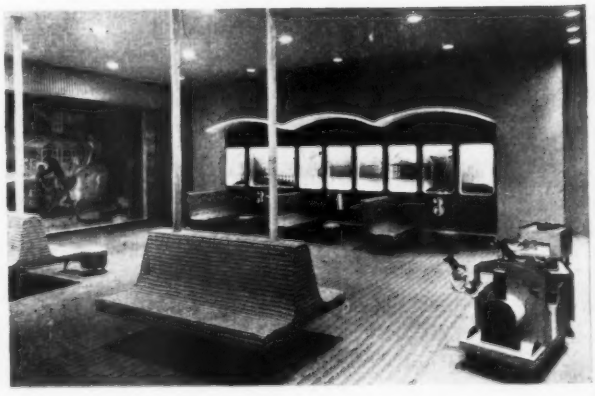
Below, mirror display fitting on second floor. Bottom left and right, children's department on the first floor.



Section and elevation of mirrored display fitting [Scale : ½" = 1'0"]







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TECHNICAL SECTION

Final results of the full scale sound insulation experiments at Abbots Langley will not be available for several years, but William Allen, the architect in charge of the experiments, recently made a statement of the results obtained and the conclusions reached to date. Below, the experiments are described and the results and conclusions summarized.

SOUND INSULATION EXPERIMENTS AT ABBOTS LANGLEY

For the last 100 years standards of sound insulation have steadily declined. Almost the last flats built, in which the degree of sound insulation is up to the standard recommended by the BRS, were the Scottish tenements of the mid-nineteenth century, with walls up to 2 ft. thick and massive timber joists.

Mass is an important factor in preventing the passage of direct sound, yet, as engineering technique has improved, the fabric of our multi-storey buildings has become lighter. Table I indicates how this has affected sound insulation:

TABLE I

PROPORTION OF TENANTS COMPLAINING OF NOISE FROM ADJOINING FLATS OR HOUSES

Semi-detached houses ..	1 in 4
Old-fashioned flats	1 in 3
Modern flats	2 in 3

It is known that in some modern reinforced concrete blocks of flats nearly three-quarters of the tenants complain of noise.

BRS EXPERIMENTS

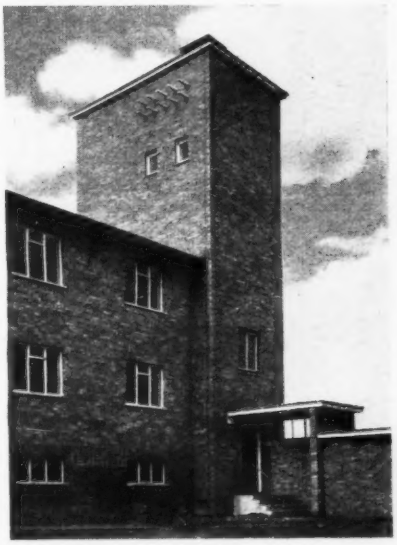
Scientists at the BRS have been working on the problem of providing adequate sound insulation for nearly 25 years and the experiments now in progress are the most extensive ever to be undertaken in any part of the world.

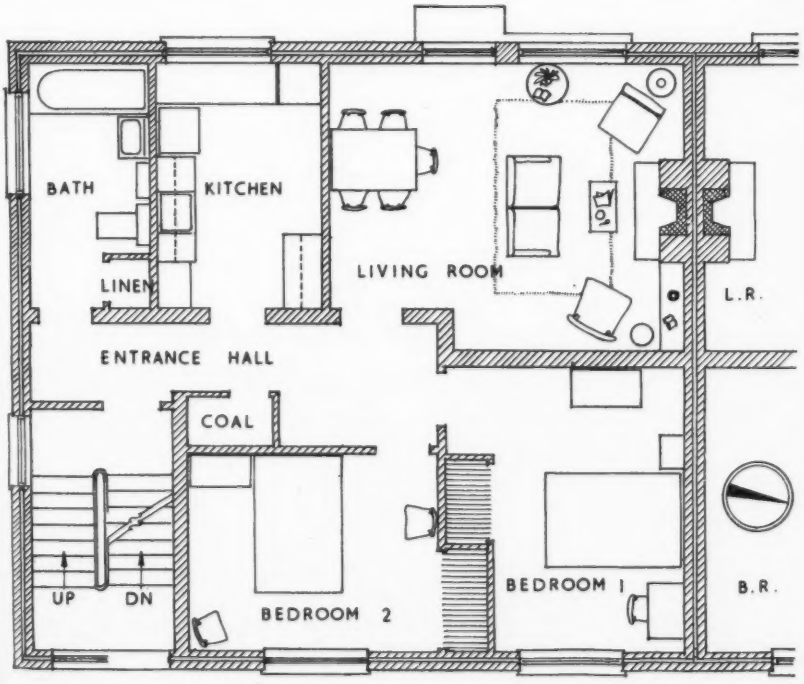
Progress in this field was held up for many years by the absence of instruments or technique with which to measure the transmission of sound *via* indirect paths; although it has long been realised that indirect paths transmit at least as much noise as do direct paths. However, a new technique of measurement has been developed by a distinguished team of German scientists, working under contract to the BRS, and it is now possible to determine what proportion of the noise entering a room reaches it by each path.

THE MEASUREMENT OF INDIRECT SOUND TRANSMISSION

An unusual item of equipment is used for the purpose. It is a "hydrophone"—an instrument used extensively during the war for the underwater detection of submarines. Its purpose is to set up vibrations and it is used as follows:

A controlled source of sound is set up in





Above, the experimental flats. Top, north end of the "box frame" block; centre, balconies of load-bearing brickwork block; bottom, an entrance to the "box frame" block. Left, plan of typical flat.

[Scale: ⅛" = 1' 0"]

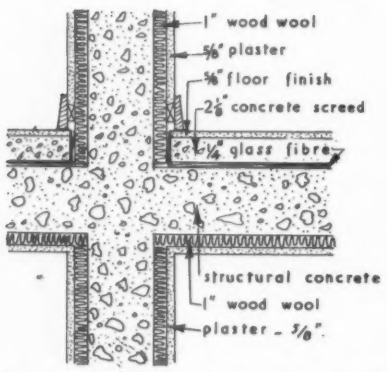


Fig. 1. Detail showing wood wool slabs used as permanent shuttering and sound insulation in the block with concrete box frame.

a room and in the room below two measurements are taken—firstly, the noise level, and, secondly, the degree of vibration of each of the walls. The source of sound is then stopped and hydrophones are attached to the walls of the room until the same degree of vibration is reached as was caused by the original source of sound. The noise level, now being caused only by vibration, is measured a second time. This second figure, when compared with the first, indicates the proportion of the sound which reaches the room *via* the indirect path, *i.e.*, in this case, *via* the walls.

THE EXPERIMENTAL FLATS

At Abbots Langley, 3 blocks of flats are being erected by the MOW's mobile labour force. Designed by a group of architects working at the BRS *, each block of flats is built on a different structural system.

The first is of load-bearing brickwork. It contains two groups of four flats, one having timber and the other concrete floors, both designed to limit the transmission of impact and airborne sound.

Because of the acute shortage of softwood, light welded steel joists with wooden flanges were used for the timber floors. To the undersides of these an ordinary plasterboard ceiling was fixed and skim coated. Insulation was provided by sand pugging, to the extent of 10 lb. per sq. ft., and a layer of bitumen-bonded glass fibre between the joists and the tongued and grooved floor boarding.

* Anthony Pott (the leader of the group), Stanley Meyrick, Anthony Atkinson, Guy Oddie, Helen Hope, Barbara Martin and Russell Finmore. William Allen and H. R. Humphreys, of the Station staff acted as acoustical consultants under the scientific direction of A. T. Pickles and Peter Parkin. Engineering consultants were Ove Arup and Partners (for reinforced concrete) and Brian Colquhoun and Partners (for steelwork, heating and hot water).

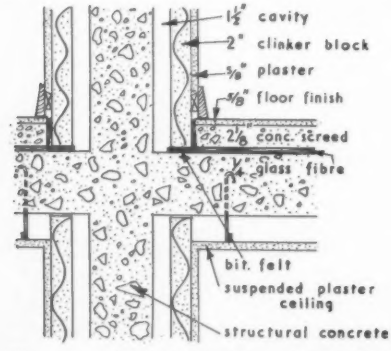


Fig. 2. Detail showing disassociated linings used in part of the block with concrete box frame.

The concrete floors are all of ordinary reinforced concrete slabs with floating finishes. In this case the bitumen-bonded glass fibre was laid on the structural slab and turned up against the base of the wall. It was then covered with waterproof building paper, and with chicken-wire mesh to reinforce the floating screed.

In both groups of this load-bearing block, cavity party walls are used to limit direct transmission, and strips of bitumen felt dampproof coursing were built in at successive floor levels to act as sound insulating membranes. Their effect is to break the continuity of the brick-and-mortar bonding, thus limiting vibrations of the wall to that part of it exposed to the original sound.

The second block of flats has a reinforced concrete "box-frame"—a system of construction which has had quite a vogue since the end of the war. External walling is of self-supporting 4½-in. facing brickwork tied to the ends of the concrete cross walls. The inner lining consists of 2-in. thick wood wool slabs built on the edges of the floors and plastered. There is a 2-in. wide cavity between inner and outer leaves.

This block contains three groups of flats, each with a slightly different type of treatment. One of the groups has no special sound insulating measures, and is intended to provide a datum against which to assess the effectiveness of the treatments tried out in the other two. The stability of this form of structure depends largely on its continuity, and it is, therefore, not practicable to interrupt the paths by which sound may travel in the structural members by introducing discontinuities of the kind used in the load-bearing block. Instead, the principle of preventing sound vibrations reaching the structure is adopted. In one of the treated groups in this block, the concrete dividing walls have 1-in. thick wood wool slabs applied to them as permanent shuttering. (See Fig. 1.) The undersides of floor slabs were treated similarly and the floor finishes were floated on glass silk in the same way as those of the concrete floors of the first block. Thus the walls, floors and ceilings are lined with sound insulating materials which are intended to prevent the transmission of any significant degree of sound energy to the structure for onward transmission to other parts of the building.

In the second treated group of this block, the lining of the structure is acoustically disassociated from it (see Fig. 2), and in this way a greater degree of discontinuity is introduced. Floating floors are again used, but living room ceilings are suspended on light metal hangers from the structural slab, and 2-in. thick lightweight concrete blocks, built 1½ in. clear of the structural walls, form the inner walls of the rooms.

The third block of flats, not yet completed, has a steel frame. It is designed as would be the top 3 storeys of a tall block of flats, except that four different methods of framing have been used.

RESULTS

The insulation provided is, in all cases except two, designed in accordance with BRS recommendations. But, as has already been reported*, the timber joist floors have failed to provide the degree of insulation expected as a result of laboratory tests. The new method of testing indirect transmission, described above, has provided the reason. Although a timber joist floor can be insulated to reduce adequately the direct transmission of sound, it does not stabilize the walls sufficiently, as does, for example, a concrete floor. Hence, it is the indirect transmission which is responsible for the poor results obtained with the timber joist floors.

* "Measurements of Sound Insulation in Houses and Flats," by P. H. Parkin and H. R. Humphreys. RIBA Journal, August, 1950.

RECOMMENDATIONS

Although the problem of reducing indirect transmission with timber floors is receiving considerable attention at the BRS, it has been stated that timber floors cannot, at present, be brought up to the required standard by any practical method and their use between flats is definitely condemned.

Very often where local authorities have used them, on grounds of economy or for other reasons, there have been so many complaints of noise that the local authority has had to spend a disproportionate amount of money in trying to bring them up to a reasonable standard.

On the other hand, the tests at Abbots Langley have confirmed the effectiveness of floating floors on a concrete sub-floor, cavity party walls and discontinuous construction.

COST

Noise is the most important cause of friction between neighbours and the main objection to flat life. The BRS is, therefore, aiming at a high standard of sound insulation—probably the highest in the world. Yet the cost is not great. The difference in cost between a 9-in. party wall and an 11-in. cavity wall is only a pound or two, whilst the cost of sound insulation treatment in flats, costing between £2,000 and £3,000, represents only an additional 1 or 1½ per cent.

As tests are completed, the Abbots Langley flats are being occupied and the tenants, who may be rotated as are the tenants of the houses used for heating experiments, will be asked for their comments on the effectiveness of the various insulating treatments. This will provide a human check on the test results.

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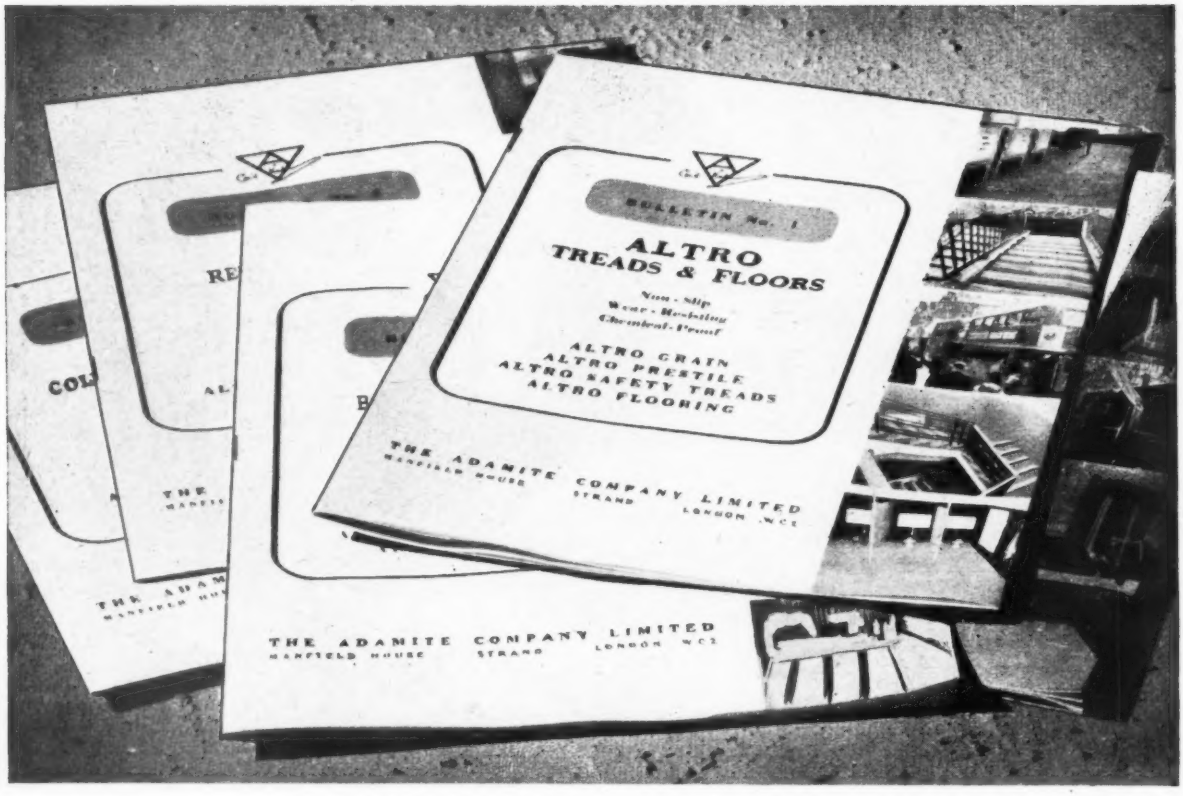

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The diagrams on this page and on page 836 compare graphically, and in the light of recent heating research, the efficiency and performance of 6 domestic heating appliances. The commentary is by the* JOURNAL'S *editor No. 15—the specialist in Heating and Ventilation.*

A COMPARISON OF DOMESTIC HEATING APPLIANCES

Of recent years, the shortage and cost of fuel has stimulated research in domestic heating appliances, the aim being to provide better standards, and to reduce the consumption of fuel.

Most domestic solid fuel is consumed in room heaters, with water heaters next, and cookers a long way behind. The greatest potential saving is, therefore, in room heaters. For some years to come, the majority of these must burn bituminous coal; there being 10 times as much coal available for domestic purposes than there is coke.

For each type of appliance, standardized test methods have been evolved, whereby efficiency figures can be deduced. In the case of room heaters, this is expressed by stating the amount of heat given out by radiation and convection as a percentage of the potential calorific value of the fuel consumed. This may be termed the "test bench" efficiency.

In the diagrams, which show six different types of heater, test bench efficiencies are given, where applicable, for both coal and coke. In addition, average figures for the various heat losses are shown.

Attention is drawn to the amount of air which each type of appliance usually takes from the room into the flue. Although this is not normally measured in "bench tests," it has an important bearing on the actual performance of the appliance. The air removed from the room has to be replaced with cold air from outside, through doors, windows or flooring. This air has to be heated through at least 20°F. on a day with outside air at 40°F. and, therefore, if two appliances of nominally equivalent efficiency are compared, the one which takes more air from the room will have to burn more fuel than the other in order to provide the same standard of comfort, and, even then, the large volume of air moving across the room may reduce the comfort zone to a small area round the fire. Other factors may give rise to excessive ventilation, but the extent to which an appliance draws air from the room has a strong effect on fuel consumption. Some authorities assume an additional requirement of 1,500 BThUs/hr. when an ordinary open fire is used in a room of average size, to compensate for excess ventilation. This is the amount of heat needed to

* These diagrams are reproduced from the Quarterly Gazette of the British Coal Utilisation Research Association Leatherhead, Surrey. The commentary is based on an article, "*Some Essential Facts about Domestic Heating*," which appears in *Gazette*, No. 12.

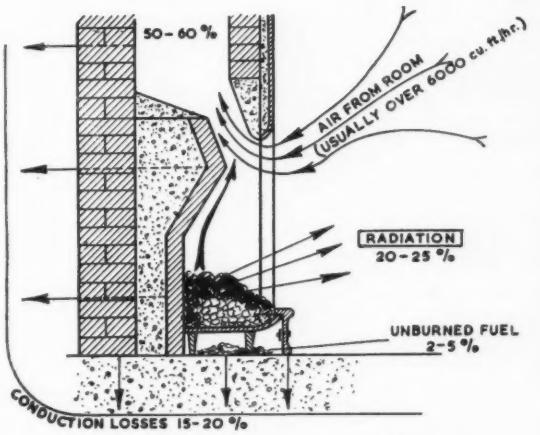
"A" Stool bottom open fire (burning coal).

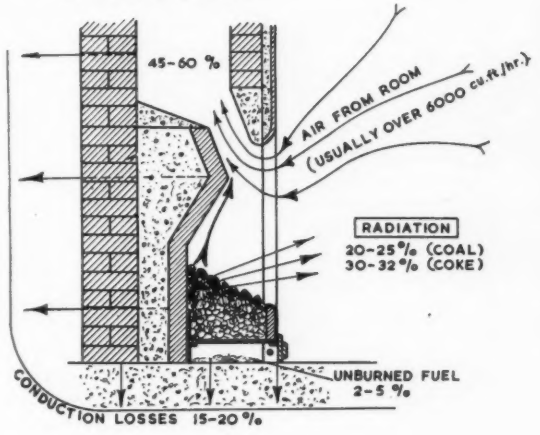
"A" and "B" give lowest test bench efficiencies and draw off large volumes of air from the room. Open fires, when installed in good flues and in rooms with plenty of gaps between windows, doors and floor-boards, may cause air flow up the flue of double the quantity shown in the diagrams.

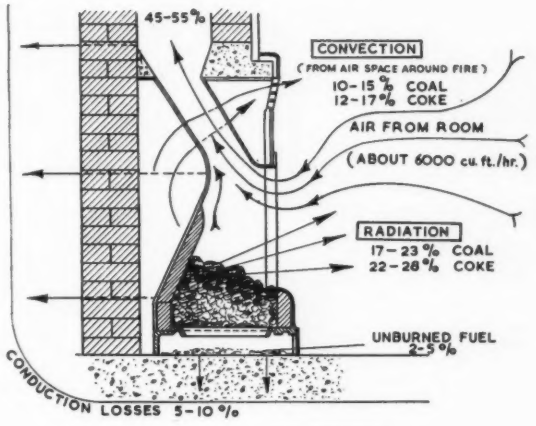
"B" Coke grate (burning coal or coke).

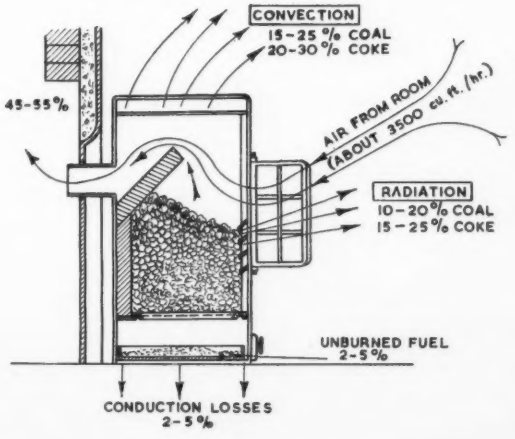
"C" Convector open fire (burning coal or coke). Higher test bench efficiency by virtue of convection or "warm air" heating from exposed exterior of appliance. N.B. special types of convector fire reduce room ventilation by bringing air to fireplace from under floor and direct from outside; this is only partially successful.

"D" Open-close stove (burning coal or coke). When fire doors open, reduced size of flue outlet controls air flow; when doors closed, no excessive room ventilation.









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SPURGEON'S ORPHANAGE, BIRCHINGTON

It was mainly because of its extreme lightness that copper was chosen to roof the latest extension block of Spurgeon's new Orphanage at Birchington-on-Sea.
Under the aegis of Messrs. Woodroffe, Buchanan & Coulter, the architects, and Messrs. Rice & Sons Ltd., the general contractors, our workmen laid about thirty cwt. of our light gauge patent copper roofing sheet on to two half-inch thicknesses of insulation board, which were, in their turn, fixed directly to the roof trusses.
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No job is too large nor too small (we have carried out contracts varying from £5 to the £6,000 Royal Festival Hall) and we will be happy to discuss copper or zinc roofing problems with you at any time you may care to fix.

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raise 3,750 cu. ft. of air through 20°F., and represents a reasonable assumption.

It should be appreciated that where solid-fuel appliances are used, a considerable quantity of heat is transferred to other parts of the house, especially upstairs and to rooms adjacent to the flue. The amount of heat so transferred depends on many factors, especially on whether or not the flue is on an inside wall, but it is often found that "house efficiency" (Dr. Weston calls it "system efficiency" see AJ, April 12, 1951) is greater than the "test bench" efficiency of the individual appliance.

Although most of the closed stoves (see "F") on the market are not suitable for using bituminous coal, research at BCURA and elsewhere may eventually lead to the development of improved types capable of consuming effectively a wide range of fuels.

The chart below shows the savings in fuel made possible by the use of efficient appliances. In practice, of course, only a proportion of the benefits of increased efficiency is reflected in a direct saving of fuel; the remainder appearing as an increase in heating standards.

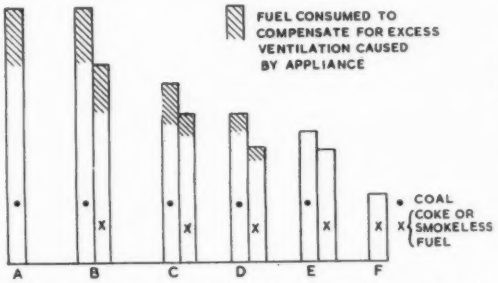
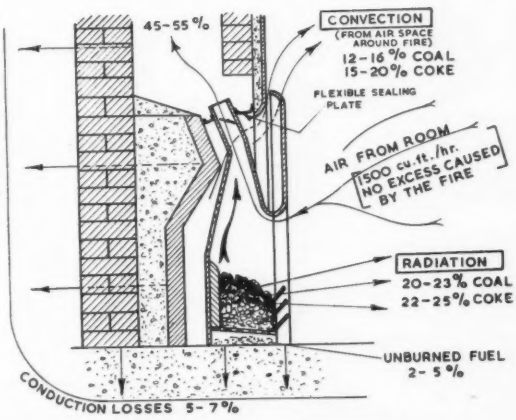
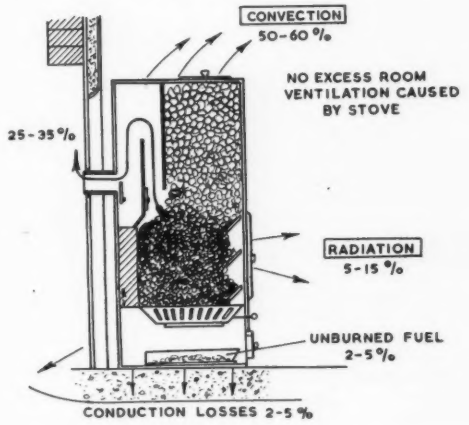


Chart showing relative fuel consumption needed by appliances A-F, to maintain similar heat conditions.

"E" Adaptor fire with restricted throat. Compromise between open fire and stove, suitable for adapting existing fireplaces. Convection heating improves test bench efficiency, and design of throat excludes unnecessary air flow.



"F" Closed stove (burning smokeless fuel). Highly efficient appliance; does not cause excessive air flow, hence heat output fully effective. Most existing stoves of this type unsuitable for use with bituminous coal.



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

INFORMATION CENTRE

10.85 design : building types
BRIDGE ARCHITECTURE

The Architecture of Bridges. Elizabeth B. Mock. (The Museum of Modern Art, New York [USA], 1949. $5.00.)

A plea for close collaboration between architects and engineers. Not a technical treatise, but a "picture book" of absorbing interest. 128 pp., 170 plates.

This book contains an impressive collection of photographs and sketches of bridges, from ancient times to the present day. The reader need not bother about structural theory—this is covered by a few sketches and a page and a half of elementary explanations! The four main materials used for bridge building are dealt with in separate chapters—stone, timber, metal and reinforced concrete. New techniques are discussed, and mention is made of the use of continuous structures, rigid frames, light alloys, laminated timber and welded steel.

Robert Maillart's bridges are given the prominent place they deserve in any book on bridge architecture. With his three-pin arches of reinforced concrete he introduced new shapes into bridge construction in Switzerland, but these forms do not seem to have found favour in other countries.

The author has some strong words to say about the "decorator-architect" who "seeks to embellish the engineer's indifferent structure with some kind of external styling." Her choice of illustrations is her strongest argument, and the striking contrast of good and bad bridge architecture is shown in both the concrete and the steel examples. Miss Mock also explains how the relative costs of materials and highly skilled labour in different countries affects bridge design. She is right in saying that the American engineer works under a handicap, for American materials are too cheap. The most logical and the most beautiful bridges are usually to be found in countries where materials are scarce and expensive. Pre-war bridges in Switzerland, Sweden, Germany are excellent examples of modern bridge architecture and, in the last few years, Freyssinet's prestressed concrete bridges in France show the inventive spirit once again flourishing on scarcity of materials.

Nevertheless, British examples of architectural merit are well represented, including some of those which made British bridge builders world-famous. Impressive sketches and photographs, including the Firth of Forth bridge, the tubular Britannia bridge, Brunel's Saltash bridge, the Clifton suspension bridge at Bristol and Telford's Menai Straits suspension bridge. London's new Waterloo bridge is discussed at length, and architectural beauty is even claimed for our good old Bailey bridge.

The modern tendency to use straight line steel plate girders for long spans has led the author to talk of "Nazi plate girder bridges" (p. 117). It would be a mistake to give the Nazis credit for this tendency. Long span plate girders became popular before their time and, more than any other single factor, the advent of welding made this possible.

Bridge design is bound to attract more architects in future. Designers and bridge building firms will either closely collaborate with independent architects, or have their own architectural staff, as has been the practice on the Continent. The result of such intimate collaboration can be seen in some beautiful designs submitted in recent competitions, *e.g.*, for a new Rhine bridge at Cologne (see 20.196:28.6.51), or for an all-welded 250-ft. span bridge in USA. The design of bridges offers ideal training for the architect. "A fine bridge is fine architecture" as the author says. And her book, with its excellent illustrations and some provocative statements, will be equally welcome to architects and engineers.

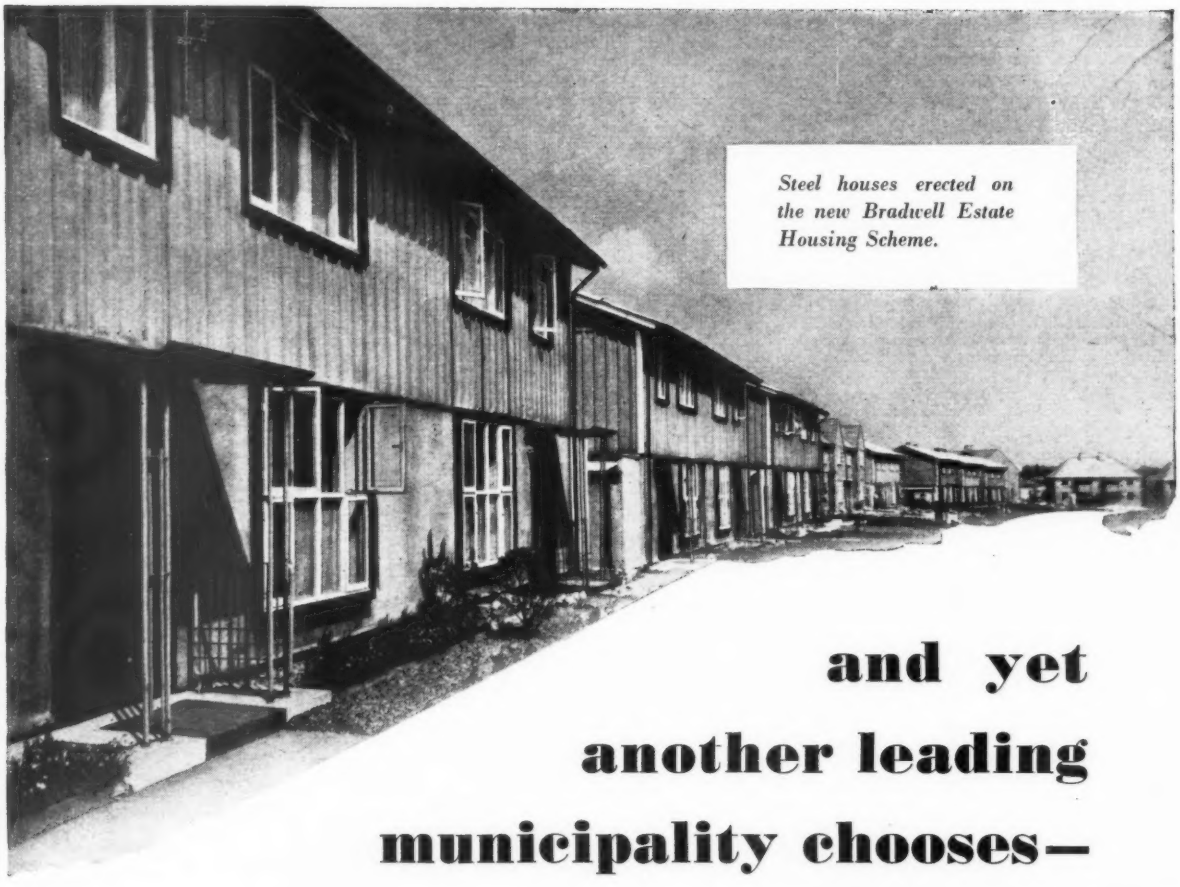
18.79 construction: theory
PRESTRESSING WITH GLASS FIBRES

Apply Prestress with Glass. (Eng. News Record [USA]. March 1, 1951. p. 45.)

New idea for prestressing concrete. Possible alternative to high-tensile steel.

Other materials besides steel have been used for reinforced concrete (see 18.54: 24.8.50, which described tests with wood reinforcing rods in Hungary).

It is known that glass fibres are extremely strong in tension. Even in cords, and in strands made up from fibres, the ultimate tensile strength may be about 400 tons per sq. in. of net cross section, as compared with, say, 100 tons per sq. in. for cold-drawn high-tensile steel wires as are usually used.



Steel houses erected on the new Bradwell Estate Housing Scheme.

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As Britain's post-war housing programme goes ahead, every day provides further evidence of the preference for PARKINSON. A further example is at Newcastle-under-Lyme, Staffs, where the Council have specified PARKINSON modern Gas Cookers for incorporation in the new Bradwell Estate Housing Scheme.

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The new Rhine bridge at Cologne-Deutz. Riveted plate girders, continuous over the river piers, with a centre span of 605 ft. See 20.196.

Other advantages claimed for glass reinforcement are the low modulus of elasticity, less than one half of that for steel, which reduces the danger of prestress being lost due to shrinkage in the concrete; the high resistance of glass to acids and high temperatures; and there is practically no plasticity in glass fibres—they stretch elastically until they break and no residual strains occur. Against these advantages a number of weaknesses of glass in practical application have to be taken into account. The matter is still in the stage of academic discussion, and the possibilities have yet to be explored by experiments. Moreover, the retention of physical properties of the fibre over long periods under conditions of strain has to be assumed.

18.80 construction: theory

FIRE ESCAPE

Escape from Fire. B. G. Phillips. (E. & F. N. Spon, Ltd. 1951. 16s.)

Deals solely with escapes and risk to occupants. Comprehensive general survey of problem but few definite facts.

This book is written with a sense of authority which shows the author to be very familiar with his subject. It refers to existing legislation, especially the Public Health Act and Factories Act. It appears to be directed primarily towards officials who may be responsible for passing plans and controlling the safety of buildings. Its information is mostly of a rather general nature, describing principles and explaining various points which must be watched. It does not provide ready made answers of direct help to architects. To some extent this lack of direct detailed information is probably inevitable because the escape problems of buildings are so varied that each case must be considered separately.

19.120 construction: details

ASPHALTE ROOFING

Application of Mastic Asphalte Roofing. (Natural Asphalte Mine Owners and Manufacturers Council. 1951.)

25 page brochure of admirably clear diagrams of details of application of mastic asphalte to roofs.

20.196 construction: complete structures

COLOGNE BRIDGE DESIGN

Wettbewerb Zum Wiederaufbau Der Rheinbruecke Koeln-Muelheim 1948/49 (Competition for the reconstruction of the bridge across the Rhine at Cologne-Mülheim). K. Schaechterle & W. Rein (Springer-Verlag, Berlin [Germany], 1950.)

A competition for the design of a 1,000-ft. span bridge, dominated by architectural considerations. Architects' sketches reproduced. 108 pp., 180 illus.

Ever since the times of Cæsar the building of bridges across the Rhine at Cologne has taken a prominent place in the history of engineering. When the war broke out in 1939 there were seven Rhine bridges in service at, or near Cologne. Four of them were destroyed by the allies' bombing, the other three by the Germans as they retreated. The allied armies built some temporary bridges in 1945 and the first permanent road bridge was completed in 1948. It took the place of the beautiful chain suspension bridge at Köln-Deutz, destroyed in 1945, using its river piers to support a new continuous plate girder bridge of riveted construction, impressive in its slenderness and simplicity of outline (see illustration).

Now the destroyed suspension bridge at Köln-Mülheim (centre span—1,030 ft. and side spans—300 ft. each) is to be replaced. Many of the 58 designs entered for the competition are quite remarkable in conception and detail. Architects obviously played a decisive rôle in the preparation of the designs. Their sketches, which accompany this report, indicate the great importance attached to their work in a competition of this kind. Their names are given with each design. There were continuous beams of the full-web and lattice girder type, many arches and "Stabbogen" designs, and 22 suspension bridges. The final choice was a suspension bridge, using about 8,000 tons of steel.

The architect will find it interesting to compare the æsthetic qualities of so many contrasting designs prepared for the same purpose.

This feature answers any question connected with building confidentially and free of charge. Questions to the Technical Editor, The Architects' Journal, 9, 11 and 13, Queen Anne's Gate, S.W.1.

QUESTIONS AND ANSWERS

3047 WIND PRESSURE AND STABILITY

Q *I enclose drawings (see below) of a hall and would be glad to have your opinion as to its stability against wind pressure. Would further spread of the concrete foundation to the stanchion be necessary? I am satisfied with the stability of the roof.*

The building is about 77 ft. long with steel roof trusses and stanchions at 11-ft. centres; the latter being built into the 15½-in. cavity brick walls, having 2-ft. 4-in. brick butts, projecting 4½ in. at each stanchion.

The site is moderately exposed.

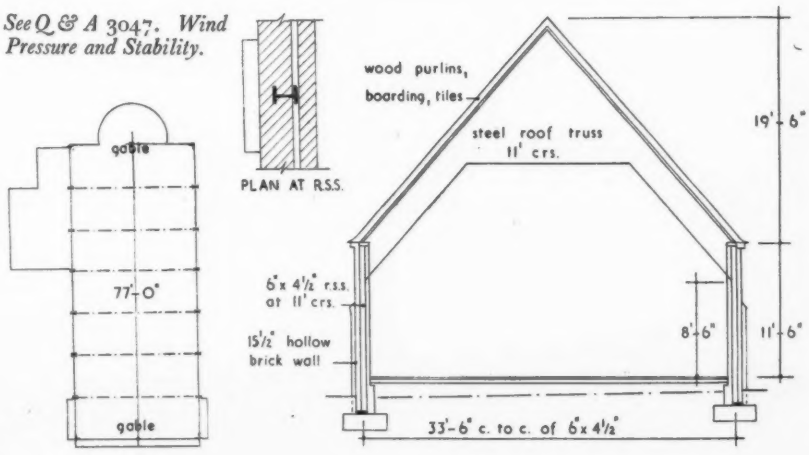
A Unit wind pressures vary according to geographical location and degree of exposure. Neither the type of connection between the steel roof trusses and the steel stanchions, nor the type of subsoil on which the structure is to be built has been indicated.

But, assuming hinged connections at the eaves, the stanchions are to be designed as 14-ft. long cantilevers and the foundation blocks must be capable of producing the necessary restraint without exceeding the permissible subsoil pressure.

If the subsoil is poor, it may be more economical to provide the steelwork with rigid corner joints (for which the space seems to be available, according to the enquirer's sketch). The two-pin portal frames thus formed would produce vertical and horizontal reactions only, and the size of the foundations could be much smaller, with an appreciable saving in total cost.

A rough calculation seems to indicate that the steel stanchion is not sufficiently strong.

See Q & A 3047. Wind Pressure and Stability.



This feature covers both the production and marketing of new materials and designs of equipment, as well as the general trend of developments within the Building Industry.

THE INDUSTRY

By Brian Grant

AC SWITCHGEAR

In the new MEM catalogue the principal items are two completely new ranges of switchgear known as Memspel and Memspan. These are switch fuses and splitters which have been designed specifically for single pole and neutral duty on AC circuits. In the past most of the gear for this work has been adapted from the older double-pole designs but these types have been completely re-designed, the switch mechanism and fuses being placed side by side and the operating lever brought out to the front of the switch, where it is shrouded in a deep recess to prevent breakage or accidental operation.

All external fixings and hinges have been avoided and appearance is good in both the steel-cased Memspel and the all-insulated covers of the Memspan range. Both ranges are produced with fuse carriers of the rewirable type or to take HRC cartridges. *(Midland Electric Manufacturing Co. Ltd., Tyseley, Birmingham, 11.)*

SLATING AND TILING

The excellent little booklets on slating and tiling produced by Langley London have already been noted in these pages, the latest effort being a third edition which is an improvement in that it includes extra technical data on such things as dentil course treatment, secret gutters and illustrations of plain tile hanging. The tables giving covering capacities are now very much fuller. This is an excellent booklet, which provides essential and easily understood data for the student, and should remind the practising architect of a number of things which he may have forgotten. *(Langley London Ltd., 92, Borough High Street, London, S.E.1.)*

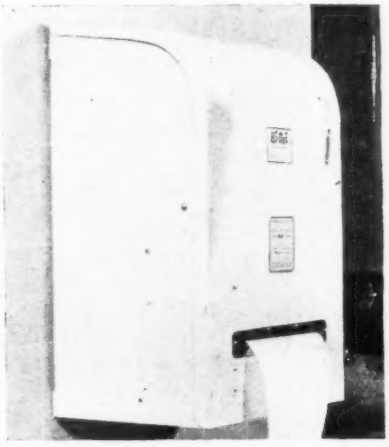
SUBMERSIBLE FLOODLIGHTS

Over 600 floodlights, of a submersible type designed by the G.E.C., are being used on the South Bank site for illuminating fountains. They are of fairly recent design and measure only 12 in. high by 8 in. diameter. They are made on the diving bell principle—consisting of an external cylinder, closed at the top by a sheet of ⅜-in. armourplate glass, inside which is fitted a second cylinder, closed at the bottom. This inner cylinder forms the lamp chamber, and water is prevented from entering by the pressure of the air which is trapped under the top cover when the unit is placed under water. The metal box, housing the connector, is sealed to prevent air from the inside of the unit escaping along the cable.

A 150-watt spotlight reflector lamp, with an internally-silvered bulb, is used in the floodlight, and is held at such an angle that the beam is about 15° from the vertical. Lamp replacement is easy because there is no watertight joint to break and reseal when access to the lamp chamber is required. The floodlights are sufficiently compact for a number of them to be spaced round the jets of a fountain, and varied colour effects can be obtained by adding colour filters and connecting groups of units to individual, motor-driven dimmers. *(The General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.)*

HAND DRYING

Another fitting to be seen on the South Bank, but inside the Concert Hall, is the Towelomatic, illustrated below. This is a device which, if you put a penny in the slot, provides you with two paper towels. These machines are installed on loan and free of charge, and the towelling comes in 26s. rolls—enough to provide over 400 pairs of towels. It must seem illogical, but, although I feel no particular resentment at having to give sixpence to the cloakroom attendant who runs a basin of water for me and gives my coat a perfunctory brush, I should be infuriated at having to pay a penny for a towel. Even British Railways provide them free (though they are always used up by the time I arrive). However, proper towels are expensive and too easy to steal, and clean absorbent paper is certainly better than a roller towel on Friday, which has been getting steadily dirtier since Monday. This machine is, I'm sure, a sensible solution



The Hi-Dri Towelomatic—a paper towel dispenser.

to a difficult problem. *(Hygienic Products (Great Britain) Ltd., 11, Grosvenor Gardens, S.W.1.)*

LIGHTING EQUIPMENT

There are plenty of subsidiary rooms in factories and office buildings where adequate lighting can be provided by a single lamp in a batten holder on the ceiling, but what is, potentially, a neat layout is usually marred by the conduit boxes which take the holders. Nettle Accessories have just produced a neat solution to this problem by making a surface mounting cover or pattress for use with their ceiling fittings. It is fitted over the conduit box and held in position by the lampholder and, as the illustration (bottom right) shows, the contours of both units blend to form a common reflector face. There are knock outs to take both ⅜-in. and ½-in. tube, so that surface conduit need not look at all unsightly. *(Nettle Accessories Ltd., Harper Road, Wythenshawe, Manchester.)*

CISTERN VALVE FLOATS

At the Plastics Exhibition, now over, I noticed two cistern valve floats which appear to be useful alternatives to copper, now that

GEC submersible, 150-watt floodlight as used for illuminating the fountains on the South Bank.

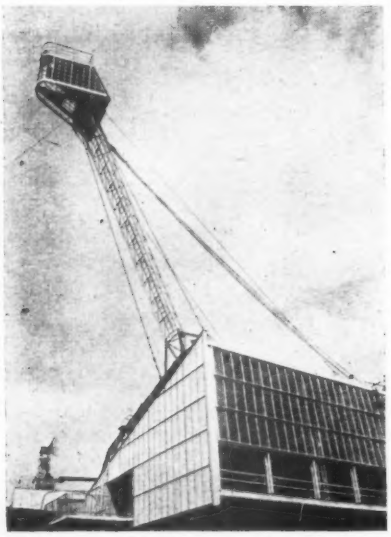
that metal has become so precious. The first is made of Onazote, an expanded rubber compound which is full of tiny air cells and should float more or less indefinitely, since there is no metal to corrode. This float has been on the market for some years, and seems to be successful in practice. The other float is made by the plastics division of E. K. Cole Ltd. and is of transparent plastic moulded in two halves and cemented together. The fact that the plastic is transparent makes it possible to see any water inside it, should it chance to leak, and also enables the factory to make certain that the joint has been properly cemented. Both these models are comparable in price to the usual copper ball. *(The Expanded Rubber Co. Ltd., Mitcham Road, Croydon, Surrey, and E. K. Cole Ltd., Southend-on-Sea, Essex.)*

WATER SUPPLIES BY MOLE PLOUGH

Mention has already been made in these notes* of the laying of copper water service pipes by mole plough instead of by trenching. This has been done both by I.C.I. and the Yorkshire Copper Works. I.C.I. Plastics have been for some time producing water service pipes in Alkathene, and they are now laying these pipes, too, by mole plough. *(I.C.I. Ltd. (Plastics Division), Nobel House, Buckingham Gate, London, S.W.1.)*

* AJ, June 16, 1949, p. 553, and AJ, Jan. 26 1950, p. 135.

Nettle Accessories' surface mounting cover for use with standard batten lighting fittings.



This unusual view of the Transport Pavilion on the South Bank shows the radar mast, 32 ft. long, of tubular steel, which supports the radar "scanner" at the required height of 100 ft. above ground level. A radar "picture" of the portion of the Thames "scanned" can be seen by visitors to the exhibition. [The Transport Pavilion was designed by Arcon; consulting engineers: Felix J. Samuely in collaboration with Dr. H. Gottfeld, whose name was inadvertently omitted when the Transport Pavilion was illustrated in the AJ *of May 24, 1951.]*

Buildings Illustrated

House and Surgery at Punnett's Town, near Heathfield Sussex. (Pages 824-828.) Architect: Bertram Carter, F.R.I.B.A. Senior Assistant: Kenneth Brown. General Contractors: William Sands & Son. General Foreman: W. Thompson. Sub-Contractors: Bricks, Sevenoaks Brick Works Ltd.; structural steel, John Every & Co.; roofing felt, McNeill & Co. Ltd.; partitions, Holoplast Ltd.; glass, James Clarke & Eaton Ltd.; patent glazing, "Insulite," Pilkington Bros. Ltd.; woodblock flooring, Beves & Co.; patent flooring, Semtex, Ltd.; central heating, E. Vernon; stoves, S. E. Haward & Co. Ltd.; electric wiring, E. Wood; electric light fixtures, H. G. Dunn & Sons, Ltd.; plumbing, E. Vernon; sanitary fittings, John Bolding & Sons Ltd.; door furniture, Yannedis Ltd.; casements, Williams & Williams Ltd.; bells, General Electric Co. Ltd.; sunblinds, Venetian Vogue, Ltd.; wallpapers, John Line & Sons Ltd.; furniture, and garden furniture, H. G. Dunn & Sons, Ltd.; water-softening plant, Permutit Co. Ltd.

New Store for Dolcis, New George Street, Plymouth. (Pages 829-832.) Architect: Ellis E. Somake, F.R.I.B.A., DIP.ARCH.(LOND.). Assistant Architect: R. W. Freeborn, A.R.I.B.A. Quantity Surveyors: Gardiner and Theobald. Consulting Engineers: Malcolm Glover and Partners. General Contractors: main building, A. N. Coles (Contractors) Ltd.; shopfittings and interiors, Courtney, Pope Ltd. Sub-contractors: artificial stone, terrazzo pavings, Kendells Stone & Paving Co.; ironmongery, Comyn Ching Ltd.; metal balustrades, etc., Grundy Arnatt Ltd.; metal windows, Crittall Manufacturing Co. Ltd.; skylights and rooflights, Luxfer Ltd.; steel reinforcements, Constel Structures Ltd.; roller shutters, Haskins Ltd.; lifts, Waygood-Otis Ltd.; sanitary fittings, W. N. Froy & Sons Ltd.; electrical installations and special footstools, Courtney, Pope Ltd.; heating & ventilation installations, Rosser & Russell Ltd.; carpets & drapes, F. G. Minter (Decorations) Ltd.; chairs & footstools, G. A. Sawyer Ltd.; mural, Victor Freeborn, A.I.D.; cash tubes, Lamson Engineering Co. Ltd.; paints, Thomas Parsons & Sons Ltd.; false ceilings, Tomei & Sons, Ltd.

Announcements

A comprehensive exhibition of Wedgwood pottery, the first for more than a hundred years, is on view in the London showrooms of Josiah Wedgwood & Sons, Ltd., at 34, Wigmore Street, London.

Roy Gibson, A.R.I.C.S., has changed his address to 14, Mortimer Road, Ealing, W.13. (Tel.: Perivale 6965.)

Corrections

In our issue for June 14 Astragal announced that W. H. Colts Ltd. had sponsored the talk by O'Neill Ford to be given at the Waldorf Hotel today. The company's name is, in fact, W. H. Colts (London) Ltd.

In our issues on the South Bank Exhibition and the Royal Festival Hall we omitted to mention that "Stonite" external renderings were used on the York Road Screen (South Bank Exhibition) and on the Royal Festival Hall.

wheels within wheels

The Gibson cartwheel clock was specially designed for the Country Pavilion at the Festival of Britain. The slave movement which operates the hands, is housed inside the hub of the wheel, and is part of the Master Clock impulse system which controls all the 133 clocks and Time Recorders throughout the exhibition. In the planning of new buildings it is necessary to include accurate timing systems, *unaffected by power cuts*. Baume & Co. Ltd., specialize in electrically operated timing systems and will make clocks to any design.

Designed by F. H. K. HENRION, F.S.I.A.

Baume & Co. Ltd. CLOCK AND WATCH MAKERS FOR MORE THAN A CENTURY

LONDON and LA CHAUX-DE-FONDS

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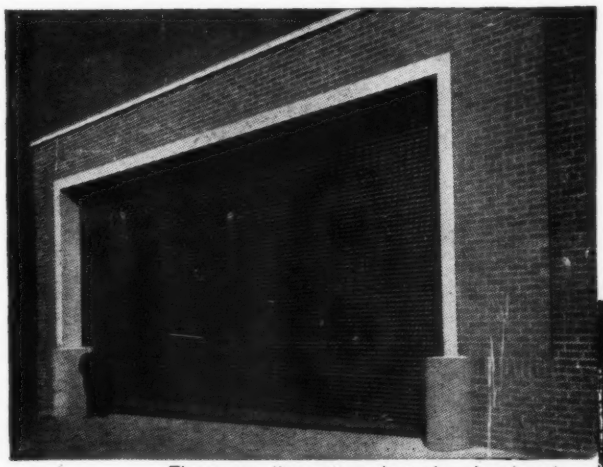

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HAND OR POWER OPERATED

IN STEEL OR ALUMINIUM

for Factories, Warehouses, Storerooms, Loading Bays, Garages—in fact any opening that must remain obstruction-free, but can be closed easily and swiftly, and give full protection from theft and weather.

These two illustrations show the closed and half-open views of a recently fitted Rolling Shutter. The size of the opening is 18 feet high by 30 feet wide. It had to be obstruction-free. Roller Shutters Ltd. provided the perfect answer, at the same time making special allowance for the rise in the road.

TO FIT ANY SHAPE OR SIZE OF OPENING

ROLLER SHUTTERS LIMITED
239-242 GREAT LISTER STREET, BIRMINGHAM, 7
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CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcements

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

LONDON COUNTY COUNCIL.

Applications are invited for positions of ARCHITECTURAL ASSISTANT (salaries up to £580 basic a year) in the Housing and Valuation Department. Commencing salaries will be determined according to qualifications and experience. Engagement will be subject to the Local Government Superannuation Acts, and successful candidates will be eligible for consideration for appointment to the permanent staff on the occurrence of vacancies.

All rates of pay up to £600 a year (basic) are at present subject to an addition of 10 per cent.

Successful candidates will be required to assist in the design, layout and preparation of working drawings for housing schemes, cottages and multi-storey flats), and will be employed in the Housing Architect's Division.

Forms of application may be obtained from the Director of Housing, The County Hall, Westminster Bridge, S.E.1 (stamped addressed envelope required and quote reference A.A.1). Canvassing disqualifies. (816) 2615

NEWCASTLE REGIONAL HOSPITAL BOARD.
ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments on the permanent headquarters staff of the Board's Architect in Newcastle. The appointments relate to the section of the staff which is concerned with practical architectural work throughout the Region.

To Architectural Assistants who wish to gain experience of hospital practice the appointments offer an excellent opportunity for doing good-class work full of interest and variety and in a developing Service.

The appointments are :—

ARCHITECTURAL ASSISTANT. (Grade A.P.T., IV, £480 to £525 p.a.)

Applicants should have passed the Intermediate Examination of the Royal Ingtitute of British Architects and be studying for the Final Examination. Good general experience in design and construction are essential, and a knowledge of hospital work is desirable.

TWO GENERAL ARCHITECTURAL ASSISTANTS (Grade A.P.T., III, £450 to £495 p.a.)

Applicants must produce evidence of having had a sound architectural training and should have passed or reached the standard of the Intermediate Examination of the Royal Institute of British Architects. Some practical experience in an architect's office is essential.

Evening study-facilities are available at the University of Durham, King's College, Newcastle-upon-Tyne.

The appointments will be subject to the provisions of the National Health Service (Superannuation) Regulations, 1947. Successful candidates will be required to pass a medical examination.

Applicants should state: (1) Name and full address; (2) age and whether married; (3) professional qualifications; (4) experience; (5) present appointment and salary; (6) war service; (7) date available if appointed, and (8) names and addresses of three referees.

Applications are to be received by the undersigned not later than the 6th July, 1951.

E. B. JENKINS,
Secretary.

"Dunira," Osborne Road,
Newcastle-upon-Tyne, 2.
11th June, 1951. 2869

COUNTY COUNCIL OF THE COUNTY OF LANARK.
HOUSING DEPARTMENT.

Applications are invited for the following appointments :—

(*a*) FIRST ASSISTANT ARCHITECT. Salary scale (£810 to £860 per annum).

(*b*) ARCHITECTURAL ASSISTANT. Salary A.P.T., Grade VIII (£735 to £810 per annum).

Applicants for (*a*) should be Fellows or Associates of R.I.B.A., and have experience of the design and construction of large housing developments. Applicants should also have administrative experience and be capable of taking control of Architectural staff.

Applicants for (*b*) should be Fellows or Associates of R.I.B.A., and have experience in the preparation of working drawings for housing developments.

The appointments will be subject to the provisions of the Local Government Superannuation (Scotland) Act, 1937, and successful applicants will require to pass a medical examination.

Canvassing, directly or indirectly, will be a disqualification.

Applications, stating age, particulars of appointments,experience and qualifications, together with names and addresses of three referees, to be lodged with S. McColl, A.R.I.B.A., F.R.I.A.S., County Housing Architect, 23, Beckford Street, Hamilton, not later than 7th July, 1951.

WM. C. BROWNLIE.
County Clerk.

Lanarkshire House, 191, Ingram Street,
Glasgow, C.1. 2899

CITY OF OXFORD.
CITY ARCHITECT AND PLANNING OFFICER'S DEPARTMENT.

Applications are invited for the undermentioned posts on the Permanent Staff of the City Architect and Planning Officer's Department :—

(*a*) SENIOR ASSISTANT SURVEYOR (ESTATES AND PROPERTY PURCHASES). Grade VII, A.P.T. Division (£685×£25 (3)—£760 p.a.).

Applicants must be capable of preparing surveys, plans, specifications and schedules of dilapidations, and have had experience in the negotiation of purchases, sales and lettings in connection with the City Property and Estates.

Applicants must have passed the Final Examination of the Royal Institution of Chartered Surveyors (Valuations and/or Estate Management sub-division), and possess a sound knowledge of recent legislation, including the Town and Country Planning Act, 1947.

(*b*) SENIOR ARCHITECTURAL ASSISTANTS. Grade VI, A.P.T. Division (£645×£20 (2)×£25 (1)—£710 p.a.).

Applicants must be Registered Architects, capable of preparing sketch designs, full working drawings, specifications, etc., and competent to undertake educational, housing, and general architectural work.

It may be possible to assist the successful applicants in finding housing accommodation.

(*c*) SENIOR PLANNING ASSISTANT. Grade VI, A.P.T. Division (£645×£20 (2)×£25 (1)—£710 p.a.).

The successful applicant will be required to carry out work in connection with the preparation of the Development Plan and planning administration in the City, and must have passed the Final Examination of the Town Planning Institute.

The appointments will be subject to the National Conditions of Service, the Local Government Superannuation Act, 1937, and the successful candidates will be required to pass a medical examination.

Further details of the duties and Application Forms, which must be used in applying for the posts, may be obtained from E. G. Chandler, A.R.I.B.A., A.M.T.P.I., City Architect and Planning Officer, Town Hall, Oxford.

When writing for Forms, applicants must state clearly for which post they wish to apply, and these forms must be returned to the City Architect and Planning Officer not later than 7th July, 1951.

HARRY PLOWMAN,
Town Clerk.

Town Hall, Oxford. 2850

BOROUGH OF BEXLEY.
BOROUGH ENGINEER'S DEPARTMENT.

Applications are invited for the following posts :—

ASSISTANT ARCHITECT (GENERAL). Salary within Grade A.P.T., VI (£645-£710 per annum), plus London "weighting" allowance (£30).

ASSISTANT ARCHITECT (GENERAL). Salary within Grade A.P.T., Va (£600-£660 per annum), plus London "weighting" allowance (£30).

ARCHITECTURAL ASSISTANT. Salary within Grade A.P.T., III (£500-£545 per annum), plus London "weighting" allowance (£30).

Forms of application with Conditions of Appointment may be obtained from the Borough Engineer and Surveyor, West Lodge, Bexleyheath, to whom completed applications must be returned by noon, Saturday, 14th July, 1951.

Canvassing, directly or indirectly, will disqualify.

W. WOODWARD,
Town Clerk.
2888

MINISTRY OF WORKS.

ARCHITECTURAL ASSISTANTS are required for drawing office duties at Aldermaston, near Reading, Berks.

Candidates should have had a recognised Architectural training and fair experience.

Hostel accommodation adjacent to the site is available for men at a reasonable cost, and there is a possibility of housing being available in the near future.

Salary on range £320 to £545 per annum, according to age and experience.

Apply in writing, stating age and full details of experience, to Chief Architect, Ministry of Works, Abell House, John Islip Street, London, S.W.1, quoting reference WG10/BP., on envelope and application. 2878

BOROUGH OF BARNES.
APPOINTMENT OF PERMANENT ARCHITECTURAL ASSISTANT (GRADE III).

Applications are invited for the above-menticned appointment on the salary scale of £500×£15—£545, plus London weighting allowance.

Applicants should have passed the R.I.B.A. Intermediate Examination and have had three years' approved experience.

Applicants who have partly completed the above examination will be considered, but if appointed will be placed on a lower grade until the required qualifications are obtained.

Applications, giving the names of three persons to whom reference can be made, should be addressed to the undersigned not later than Friday, 13th July, 1951.

The Council is unable to provide housing accommodation.

W. R. SHEPHERD, A.M.I.C.E., A.M.T.P.I.,
Borough Engineer and Surveyor.

Municipal Offices, Sheen Lane,
London, S.W.14.
19th June, 1951. 2922

CITY OF COVENTRY.
ARCHITECTURAL AND PLANNING DEPARTMENT.

Applications are invited for the appointment of TWO QUANTITY SURVEYING ASSISTANTS on Grade A.P.T., II, of the National Scales.

Applications, on forms to be obtained from the undersigned, should be received by me not later than 14th July, 1951.

D. E. E. GIBSON,
City Architect and Planning Officer.

1a, Warwick Road, Coventry.
20th June, 1951. 2927

CITY OF NOTTINGHAM.
CITY ENGINEER'S DEPARTMENT.

Applications are invited for the following positions :—

(*a*) SENIOR ARCHITECTURAL ASSISTANTS. Grade VIII (£735-£810).

(*b*) MAINTENANCE SURVEYOR. Grade A.P.T., VI (£645-£710).

(*a*) Senior Architectural Assistants :

Candidates should be Associate Members of the Royal Institute of British Architects, with considerable experience in the design of public buildings, particularly schools.

(*b*) Maintenance Surveyor :

The person appointed will be responsible to the City Engineer for maintenance work on a wide range of public buildings in the City. He should have extensive experience in making estimates of the cost of repairs, in preparing bills of quantities for this class of work, in supervision of carrying it out, and the control of staff.

The positions are permanent ones, and the successful applicants will be required to pass a medical examination, and deductions will be made from their salaries for superannuation purposes.

Applications are to be made on forms to be obtained from R. M. Finch, Esq., O.B.E., M.I.C.E., City Engineer and Surveyor, Guildhall, Nottingham, to whom they should be returned not later than 14th July, 1951.

T. J. OWEN,
Town Clerk.

Guildhall, Nottingham. 2906

DERBYSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for appointments of ARCHITECTS, on A.P.T., Grade V, and ARCHITECTURAL ASSISTANTS, on A.P.T., Grade II.

Applications to reach this office not later than 10th July, 1951. Forms to be obtained from F. H. Crossley, St. Mary's Gate, Derby.

28th June, 1951. 2912

METROPOLITAN BOROUGH OF LEWISHAM.
APPOINTMENT OF ASSISTANT ARCHITECTS.

Applications are invited for the appointment in the Borough Architect's Department of (*a*) a SENIOR ASSISTANT ARCHITECT, salary scale A.P.T. Division, Grade VIII (£735×£25—£810 per annum), and (*b*) an ASSISTANT ARCHITECT, salary scale A.P.T. Division, Grade IV (£530×£15—£575 per annum), or Grade V (£570, rising to £620 per annum), according to the qualifications of the successful candidate. London "weighting" varying between £10 and £30 per annum, according to age, is applicable to each salary.

Applicants for (*a*) must possess an approved University degree in architecture, or be Associates of the Royal Institute of British Architects, with at least eight years' experience (excluding the period spent in theoretical training), or possess a University degree in architecture in addition to being Associates of the Royal Institute of British Architects, with at least seven years' experience (excluding the period spent in theoretical training).

Applicants for (*b*) should have passed the R.I.B.A. Intermediate Examination, or its equivalent at one of the recognised Schools of Architecture, and have had at least two years' practical experience, or be a Registered Architect.

Preference will be given to candidates with wide housing experience, including the design and construction of multi-storey flats.

The appointments will be subject to the Rules and Regulations of the Council from time to time in force relating to Officers; to the National Scheme of Conditions of Service; to the provisions of the Local Government Superannuation Act, 1937; to termination by one month's notice on either side, and to the successful candidates passing satisfactorily a medical examination by the Council's Medical Officer of Health.

Forms of application may be obtained from the undersigned, to whom they should be returned accompanied by copies of not more than three recent testimonials, in an envelope endorsed with the name of the post applied for, so as to be received not later than Saturday, the 14th July, 1951.

Canvassing, either directly or indirectly, will be a disqualification.

ALAN MILNER SMITH,
Town Clerk.

Lewisham Town Hall, Catford, S.E.6.
19th June, 1951. 2905

COUNTY BOROUGH OF READING.
BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of a SENIOR ASSISTANT ARCHITECT, Grade VI (£645-£710 p.a.). Applicants for this post must be Associates of the Royal Institute of British Architects.

Applications should be received by the Borough Architect, Town Hall, Reading by Saturday, the 21st July, 1951, from whom Application Forms can now be obtained.

G. F. DARLOW,
Town Clerk.

Town Hall, Reading.
29th June, 1951. 2913

CARDIGANSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT—ABERAYRON.

Applications are invited for the post of ARCHITECTURAL ASSISTANT. Salary A.P.T., Grade III (£450-£495).

Applicants should preferably have passed the Intermediate Examination of the R.I.B.A. and should have good general experience in Architectural work.

The commencing salary will be fixed in accordance with the successful candidate's training and experience.

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

Applications (no forms), endorsed "Architectural Assistant," stating age, qualifications, details of experience, previous and present appointments, present salary, and the earliest possible date when available, together with two recent testimonials and the names of two referees, are to be delivered to the undersigned on or before 4th July, 1951.

The Council regret that they are not in a position to assist in finding living accommodation.

J. E. R. CARSON,
Clerk of the County Council.

Cambrian Chambers,
Aberystwyth, Cardiganshire.
18th June, 1951. 2904

DORSET COUNTY COUNCIL.

Applications are invited for the appointment of a SENIOR ASSISTANT ARCHITECT, A.P.T., Grade VII (salary £685×£25—£760 per annum), in the County Architect's Department.

Candidates must be Associate Members of the R.I.B.A. and have had a wide experience in architectural work undertaken by a Local Authority, especially in the design and erection of educational buildings. Experience in the control of a small section of staff will be considered an advantage.

Application forms may be obtained from, and must be returned to, the Clerk of the County Council, County Hall, Dorchester, by the 7th July, 1951. 2907

AMENDED ADVERTISEMENT.
URBAN DISTRICT COUNCIL OF TETTENHALL.

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT, on the staff of the Engineer and Surveyor, at a salary within Grade Va (£600-£660) and Grade VI (£645-£710) of the A.P.T. Division of the National Grade of Salaries. The salary will be fixed by the Council, according to the qualifications and experience of the successful applicant.

The applicants must be suitably qualified and with good experience in connection with design of houses and estate development, and should be competent to prepare plans and specifications in connection with same.

The Council will give consideration to the provision of suitable housing accommodation to the successful applicant if required. Applications, setting out details of qualifications and experience, accompanied by one copy testimonial and the names of two persons to whom reference can be made, should be sent to J. W. Mason, M.I.Mun.E., M.T.P.I., Engineer and Surveyor, not later than Saturday, 7th July, 1951. Canvassing, directly or indirectly, will be a disqualification.

JOHN HINCKES,
Clerk of the Council.

Council Offices, Upper Green,
Tettenhall, Staffs. 2897

LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Applications are invited for positions of ARCHITECT, Grade III (£550-£700) and TECHNICAL ASSISTANT (up to £580) for architectural work on new housing, schools and other public buildings. The positions are superannuable, and the above rates are subject to an addition of 10 per cent. on the first £600 and 7½ per cent. on any remainders. Application forms from the Architect, The County Hall, S.E.1, enclosing stamped addressed foolscap envelope and quoting AR/EK/A. Canvassing disqualifies. (514) 3914

LONDON TRANSPORT EXECUTIVE.

Applications are invited for vacancies on the temporary staff of the Architect's office as set out below :—

The commencing salary within the ranges indicated will be determined according to age, qualifications and experience.

The appointments are subject to a medical examination.

ASSISTANT ARCHITECTS (Ref. F/EV 181).

Applicants must be Chartered or Registered Architects of a good standard of architectural training and experience, and be capable of preparing schemes and working drawings with minimum supervision.

Salary range : £650-£750 per annum.

ARCHITECTURAL ASSISTANTS (Ref. F/EV 182).

Applicants must have a good background of architectural training, with office experience, and be capable of preparing schemes and working drawings under supervision of an Assistant Architect.

Salary range : £538-£602 per annum.

Applications, giving full details of age, present salary, professional and other qualifications and experience, and quoting the appropriate reference number, should be sent within 14 days of the appearance of this advertisement, to the Staff Officer, London Transport Executive, 55, Broadway, S.W.1. For acknowledgment enclose addressed envelope. 2937

HIS MAJESTY'S COLONIAL RESEARCH SERVICE.

Applications are invited for the post of DIRECTOR (SENIOR PRINCIPAL SCIENTIFIC OFFICER) of the West African Building Research Organisation, which is to be established to serve the needs of the four British West African Territories (Nigeria, Gold Coast, Sierra Leone and the Gambia). The organisation, which will cover all fields of building research, will probably have its Headquarters in the Takoradi area, Gold Coast, and its scope will, in the first instance, be confined to building questions (as opposed to engineering). The first duty of the Director, on appointment, will be to draw up, in consultation with the four Governments concerned, a scheme for the establishment and future work of the Organisation, including estimates on which future expenditure will be based.

Candidates, who must hold a good honours degree in science or civil engineering, or equivalent qualification, must possess considerable experience in research, and have held a post which would qualify them to initiate, direct and supervise investigations into building problems with which the Organisation will be called upon to deal.

The salary will be in the scale of Senior Principal Scientific Officer, £1,500×£75—£1,750 per annum, plus overseas reserch allowance, at the rate of £125 on a salary of £1,500; £100 on a salary of £1,575, and £75 on salaries of £1,650-£1,750. In addition a temporary cost-of-living allowance is at present payable to officers serving in West Africa. The allowance in the Gold Coast is 15 per cent. of basic salary. If furnished Government quarters are provided a rent of 10 per cent. of basic salary (maximum charge £150) will be charged. Outfit allowance of £60. Free passages on appointment and on leave for selected candidate and his wife and children under 13 years. Superannuation will be provided under the Colonial Superannuation Scheme. Forms of application may be obtained from the Under-Secretary of State, Colonial Office, Research Department, Sanctuary Buildings, Great Smith Street, Westminster, S.W.1. 2924

MINISTRY OF WORKS.

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

Salary : Architectural Assistants, £300-£525 per annum. Starting pay will be assessed according to age, qualifications and experience. These rates are for London; a small deduction is made in the Provinces.

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

Apply in writing, stating age, nationality, full details of experience, and locality preferred, to Chief Architect, Ministry of Works, Abell House, John Islip Street, London, S.W.1, quoting reference WG10/BC. 2914

COUNCIL OF THE COUNTY OF ABERDEEN.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for appointment as ASSISTANT QUANTITY SURVEYOR. The salary scale applicable to the appointment is £520, rising by annual increments to £660 per annum.

The County Council will make housing accommodation available to the successful candidate within a reasonable time if required.

Candidates should have passed the Intermediate Examination of the Royal Institute of Chartered Surveyors (Quantities Division).

The appointment is subject to the Local Government Superannuation (Scotland) Act, 1937, and the successful candidate will require to pass a medical examination.

Conditions of appointment and forms of application are obtainable from the undersigned, and should be returned completed not later than Friday, 13th July, 1951.

Canvassing of members of the Council, directly or indirectly, in connection with the appointment shall disqualify the candidate.

CHAS. HORNAL,
County Clerk.

County Buildings, 22, Union Terrace,
Aberdeen.
20th June, 1951. 2930

SOUTH-EAST METROPOLITAN REGIONAL HOSPITAL BOARD.

Applications are invited for the post of SENIOR ARCHITECTURAL ASSISTANT in the Regional Architect's Department (A.P.T., Grade VII (£635×£25—£710 per annum), or A.P.T., Grade VIII (£685×£25—£760 per annum)), both plus London weighting allowance of £30 a year.

Candidates should be Members of the Royal Institute of British Architects, should be suitably experienced in hospital work, be capable of carrying to completion any scheme under the Board's Architect; of assisting in an advisory capacity in relation to Consultants and with research.

The post is superannuable under the National Health Service (Superannuation) Regulations, 1950.

Applications, stating age, present salary, qualifications and experience, and the names and addresses of two referees, should reach the Secretary, 11, Portland Place, W.1, not later than 11th July, 1951. 2926

BOROUGH OF WILLESDEN.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

APPOINTMENT OF ARCHITECTURAL STAFF.

Applications are invited for the following appointments :—

(1) ARCHITECTURAL ASSISTANT, Grade A.P.T., VI. The appointment will, in the first instance, be on the Temporary Establishment, with prospects of transfer to the Permanent Establishment.

Candidates must be Associates of the Royal Institute of British Architects or hold an equivalent qualification. Preference will be given to those having a general knowledge and experience of Architectural work in the service of a Local Authority.

(2) ARCHITECTURAL ASSISTANT, Grade A.P.T., V. The appointment will be on the Permanent Establishment. Candidates must be Associates of the Royal Institute of British Architects or hold an equivalent qualification, and preferably have a general knowledge and experience of Architectural work in the service of a Local Authority.

(3) ARCHITECTURAL ASSISTANT, Grade A.P.T., III. The appointment will be on the Permanent Establishment. Candidates must have served Articles of Pupilage or have worked in an architectural office for a minimum period of three years, and have passed the Intermediate Examination of the Royal Institute of British Architects or its equivalent at one of the recognised schools of architecture.

These three appointments will be terminable by one month's notice on either side and are subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidates will be required to pass a medical examination.

Applications, stating age, qualifications and experience, accompanied by copies of not more than three testimonials, should be addressed to the undersigned, endorsed "Architectural Staff," not later than 10 a.m. on Monday, 16th July, 1951.

It will be necessary for the successful candidates to provide their own housing accommodation as the Council is not in a position to assist.

Canvassing, directly or indirectly, will be deemed a disqualification.

(Sgd.) R. S. FORSTER,
Town Clerk.

Town Hall, Dyne Road, Kilburn, N.W.6.
18th June, 1951. 2903

CHESTER-LE-STREET RURAL DISTRICT COUNCIL.
SENIOR ARCHITECTURAL ASSISTANT.

Applications are invited for the permanent appointment of a Senior Architectural Assistant, on the staff of the Council's Housing Architect and Planning Officer.

Applicants should have had some previous experience in the preparation of layout plans and house type plans for housing schemes, and membership of the Royal Institute of British Architects will be an advantage.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and the National Joint Council Scheme of Conditions of Service for Local Government Officers.

Salary will be in accordance with qualifications and experience as determined by the National Joint Council for Local Authorities Administrative Services.

The Council cannot undertake to provide housing accommodation for the successful candidate.

Applications must be made on the prescribed form of application, which can be obtained from the undersigned, and must be delivered to the under-mentioned not later than 12 noon, Saturday, the 14th July, 1951.

R. C. BELL,
Clerk of the Council.

Union Offices, Chester-le-Street,
Co. Durham.
18th June, 1951. 2898

AMENDED ADVERTISEMENT.
CARDIGANSHIRE COUNTY PLANNING COMMITTEE.

APPOINTMENT OF PLANNING ASSISTANT.

Applications are invited for the post of Planning Assistant in the County Planning Department, at a salary in accordance with A.P.T., Grade V (£520-£570).

Applicants should have passed at least the Intermediate Examination of the T.P.I., R.I.B.A., R.I.C.S., or equivalent examinations, should be experienced in the preparation of Development Plans and Planning Surveys, and experience in the supervision of staff is essential. The appointment will be subject to :—

(i) National Joint Council Conditions of Service.
(ii) The provision of the Local Government Superannuation Act, 1937.
(iii) The passing of a satisfactory medical examination.
(iv) One month's notice in writing on either side.

The Council cannot undertake to provide housing accommodation for the person appointed.

Applicants should give particulars of age, education, technical training, qualifications, experience, present salary, present and previous appointments, which together with the names of two referees must reach the undersigned not later than noon on Tuesday, 10th July, 1951.

J. E. R. CARSON,
Clerk of the County Council.

Cambrian Chambers, Aberystwyth.
16th June, 1951. 2903

BOROUGH OF HEMEL HEMPSTEAD
SENIOR ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of Senior Architectural Assistant, in the Borough and Water Engineer's Department, at a salary in accordance with A.P.T., Grade V (£570-£620), of the National Joint Council's Scale, commencing at £600 per annum. Candidates should be Registered Architects. The appointment will be subject to the Local Government Superannuation Acts, to the National Conditions of Service from time to time in force, and to the passing of a medical examination, and will be terminable by one month's notice in writing on either side. Application forms may be obtained from Mr. A. H. Turner, A.M.I.C.E., Borough and Water Engineer, Market Square, Hemel Hempstead, Herts., and should be returned not later than the 11th July. Canvassing will disqualify, and applicants must state whether to their knowledge they are related to any member of the Council or to any senior officer of the Corporation.

C. W. G. T. KIRK,
Town Clerk.

Town Hall, Hemel Hempstead, Herts.
20th June, 1951. 2921

BOROUGH OF LUTON.
BOROUGH ENGINEER'S DEPARTMENT.
SENIOR ARCHITECTURAL ASSISTANT.

Applications are invited for the post of Senior Architectural Assistant (A.P.T., Grade VII, £685 × £25—£760 per annum). Applicants should be A.R.I.B.A., and have extensive Municipal experience, especially in housing and/or school works. Housing accommodation will be made available to the successful candidate if required.

The appointment will be subject to the Local Government Superannuation Act, 1937, to the National Scheme of Conditions of Service, and to the successful candidate passing a medical examination.

Applications, appropriately endorsed, giving details of age, qualifications, experience, previous posts, present appointment and salary, and accompanied by names of three persons to whom reference may be made, should be sent to the Borough Engineer, Town Hall, Luton, not later than first post on Monday, the 16th July, 1951. Canvassing will disqualify. Applicants must disclose whether they are related to any member or senior officer of the Council.

W. H. ROBINSON,
Town Clerk.

Town Hall, Luton.
23rd June, 1951. 2941

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.
CITY ARCHITECT'S DEPARTMENT.

The City Architect will be pleased to hear from Architects possessing a contemporary outlook and considerable aptitude in matters of architectural design and construction, who are keen to participate in the development of a large programme of normal housing and extensive schemes involving multi-story flats.

Vacancies exist on the establishment for Associate Members of the R.I.B.A., on Grades A.P.T., V, VI, VII, VIII and IX, and for Student Members of the R.I.B.A., on Grades A.P.T., III and IV.

The appointments will be subject to the National Conditions of Service as adopted by the City Council, to the provisions of the Local Government Superannuation Act, 1937, and to one month's notice on either side. Successful candidates will be required to pass a medical examination.

Applicants may state a preference (if any) for work on "normal housing" or "multi-storey flats." They should give the following information:—(1) Grade applied for; (2) age; (3) particulars of training; (4) qualifications; (5) experience; (6) present appointment; (7) past appointments; (8) copies of two recent testimonials or names and addresses of two persons to whom reference may be made.

Applications should be addressed to George Kenyon, A.R.I.B.A., A.M.T.P.I., City Architect, 18, Cloth Market, Newcastle-upon-Tyne, 1, not later than 21st July, 1951

JOHN ATKINSON,
Town Clerk.

Town Hall, Newcastle-upon-Tyne, 1.
22nd June, 1951. 2940

WEST SUSSEX COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments at salaries in accordance with the National Scales of salaries:—

(*a*) SENIOR ASSISTANT ARCHITECT. Grade VIII, A.P.T. Division (£735 to £810 per annum).

(*b*) SENIOR ASSISTANT ARCHITECT. Grade VI, A.P.T. Division (£645 to £710 per annum)

(*c*) ASSISTANT MAINTENANCE INSPECTOR-ENGINEER. Grade III, A.P.T. Division (£500 to £545 per annum).

Further particulars should be obtained from the County Architect, County Hall, Chichester, to whom detailed applications must be submitted not later than Tuesday, 17th July, 1951.

T. C. HAYWARD,
Clerk of the County Council.

County Hall, Chichester.
19th June, 1951. 2925

LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Applications are invited from qualified Architects with experience in contemporary design for a position of ARCHITECT, Grade II (£700-£840) in General (Constructional) Division of Architect's Department. This division designs and erects new buildings other than schools and housing. Position superannuable. Above rates are subject to an addition of 10 per cent. on first £600 and 7½ per cent. on remainder.

Application forms, to be returned by 31st July, 1951, obtainable from Architect to the Council, County Hall, S.E.1, enclosing stamped addressed foolscap envelope, and quoting AR/EK/G. (745)
2833

WORSLEY URBAN DISTRICT COUNCIL.
APPOINTMENT OF QUANTITY SURVEYOR.

Applications are invited for the above position in the Engineer and Surveyor's Department.

The salary will be fixed within the range of Grade VI (£645-£710 per annum) to Grade VII (£685-£760 per annum) of the A.P.T. Division of the National Salary Scales, according to experience and qualifications, and should the successful candidate be married the Council would, if necessary, assist in providing housing accommodation.

Applicants must be Associates of the R.I.C.S. (Quantities Section) and have had considerable experience in the taking-off and preparation of Bills of Quantities in connection with houses, shops, etc., and the measuring up and checking of accounts for such work.

The Council has in preparation, and under construction, large scale Neighbourhood Units which will total 4,000 to 5,000 houses and other buildings, and good experience is offered in the post of Quantity Surveyor.

The post is nominally temporary, but the present programme of work is expected to take at least 7 years to complete without any additions thereto.

The post is subject to the Superannuation Acts, and the applicant must satisfactorily pass a medical examination therefor. One month's notice will be given or required to terminate the appointment at any time.

Applications, endorsed "Quantity Surveyor," should be sent to the undersigned on or before the 14th July, 1951.

HAROLD LOMAX,
Clerk of the Council.

Town Hall, Walkden, Manchester.
22nd June, 1951. 2943

CITY OF NORWICH.
CITY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments :—

(*a*) ASSISTANT ARCHITECT (permanent), in Grade VI of the A.P.T. Division (salary £645-£710 p.a.).

(*b*) ARCHITECTURAL ASSISTANT (permanent), in Grade IV of the A.P.T. Division (salary £530-£575 p.a.).

(*c*) TEMPORARY CLERK OF WORKS, at a salary of £10 per week.

For (*a*), applicants to have a recognised professional qualification, be thoroughly experienced in educational works, and be capable of taking charge of a section.

For (*b*), candidates to have good general architectural training and experience, should have passed the Intermediate Examination or its equivalent.

Appointments (*a*) and (*b*) will be subject to one month's notice on either side and to the provisions of the Local Government Superannuation Act, 1937." The successful candidates will be required to pass a medical examination.

For (*c*), preference will be given to candidates who have had good training and experience in general building works. The appointment will be subject to one week's notice on either side.

Housing accommodation can, in certain circumstances, be made available.

Candidates who, to their knowledge, are related to any member or officer of the Council, shall, when making application for the appointment, disclose the relationship in writing to the Town Clerk. A candidate who fails to do so shall be disqualified for the appointment and, if appointed, shall be liable to dismissal without notice.

Canvassing of members of the Council or of any committee, directly or indirectly, shall disqualify a candidate for the appointment.

Applications, stating age, training, experience, qualifications and other relative information, together with copies of three recent testimonials, and endorsed for (*a*) Assistant Architect, for (*b*) Architectural Assistant, and for (*c*) Clerk of Works, must be sent to the City Architect, City Hall, Norwich, to arrive not later than Monday, 9th July, 1951. 2928

LONDON ELECTRICITY BOARD.
ASSISTANT QUANTITY SURVEYORS.

Applications are invited for the above positions in the Construction Branch of the Chief Engineer's Department at Lesco House, Stamford Street, S.E.1.

Applicants should be experienced in the preparation of Bills of Quantities in all their stages, measurement of variations and re-measurement of Contracts, and will work under the direction of a Chartered Quantity Surveyor.

The posts have been graded under the National Joint Board aggreement of the 17th February, 1950, as Grade V (Schedule C). Salary range : £607 19s. to £814 16s. per annum inclusive, the commencing salary being dependent upon qualifications and experience. This grading is subject to the approval of the District Joint Board and confirmation by the National Joint Board.

Application forms obtainable from Establishments Officer, 46, New Broad Street, E.C.2, to be returned duly completed within 10 days from the appearance of this advertisement. Please enclose addressed foolscap envelope and quote Ref. EST/V/1216/A on envelope and all correspondence. 2929

GLENROTHES DEVELOPMENT CORPORATION.

Applications are invited from suitably qualified persons, under 45 years of age, for the appointment of SENIOR ARCHITECT (Housing). The salary scale is £800-£950, with placing according to qualifications and experience.

Applicants should be Corporate Members of the R.I.B.A. and should have had experience of the design and construction of large housing developments.

The Corporation will give every assistance in securing housing accommodation.

The post will be superannuable under the Local Government (Scotland) Act, 1937, and the successful candidate will require to pass a medical examination. No canvassing.

Applications, with details of age, qualifications and experience, together with copies of three recent testimonials, must reach the Secretary, Glenrothes Development Corporation, Woodside, Glenrothes, by Markinch, not later than 13th July, 1951. 2942

Partnership

4 lines or under, 12s. 6d.; each additional line, 2s.

PARTNERSHIP available in long established General Practice, town and country, in North-West. Both architectural and surveying experience desirable. Replies in confidence to Box 2827.

CHARTERED STRUCTURAL ENGINEER AND SURVEYOR, with established practice in Horsham and London, seeks Partner or Partnership in another practice with view to amalgamation. Work embraced includes reinforced concrete and structural steelwork design, architectural work, surveys and valuations. R. D'Arcy Swainson, M.I.Struct.E., F.I.A.S., F.I.S.E., M.R.San.I., 18, East Street, Horsham. 2948

Tenders for Contracts

6 lines or under, 12s. 6d.; each additional line, 2s.

NOTTINGHAM AND DISTRICT TECHNICAL COLLEGE.

The Joint Education Committee require Contractors' tenders for their main new building on or about the 1st November, 1951.

The building is a light steel framed structure, some ten stories high, at an estimated cost of approximately £500,000.

The Committee will select a short list of tenderers of equal standing, and those who wish to be considered should submit applications to me not later than the 31st August, 1951.

Applicants must state their recent work of this character, and give some indication that their organisation is capable of dealing with this problem at the present time.

The Architects for the scheme are Cecil Howitt & Partners, Nottingham.

F. STEPHENSON,
Clerk to the Joint Education Committee.
Education Office, South Parade,
Nottingham. 2923

Architectural Appointments Vacant

4 lines or under, 7s. 6d.; each additional line, 2s.

BIRMINGHAM.—Architects require keen ASSISTANT; qualified or approaching R.I.B.A. Final; commercial and industrial work. Watson, Johnson & Stokes, Victoria Square. 2465

A R.I.B.A./A.R.I.C.S. (age 30-35) wanted in busy London office in the Temple area. Architectural ability should be predominant. Forward full particulars of previous experience and salary required to Box 2599.

ARCHITECTURAL ASSISTANT required in Slough office. Intermediate or Final standard. Box 2738.

ASSISTANTS required in Architects' Department of large commercial organisation, London office. Sound all-round training in the profession essential, including supervision of work. Excellent opportunities for men of initiative. Apply in writing, giving details of experience, age and salary required, to Box No. 618/1, Foster Turner & Everetts, Ltd., 11, Old Jewry, E.C.2. 2826

SENIOR ASSISTANT required for Norfolk office. Single. Car driver. Not necessarily qualified, but must be office trained and a good Draughtsman. Salary £500, rising to £600 per annum. Reply, with full details of experience, to Box 2829.

URGENTLY required, qualified ARCHITECTURAL ASSISTANT, with post-war knowledge of schools and hospitals. Good prospects. Salary according to experience. Gotch, Saunders & Surridge, F./A.R.I.B.A., Bank Chambers, Kettering. Telephone : Kettering 3165/6. 2870

A SENIOR ARCHITECT urgently required for Liverpool practice by London firm of Architects. Administrative experience essential. Salary up to £1,000 per annum, depending on qualifications and experience. Please write, giving full details and particulars, to Box 2873.

ARCHITECTURAL ASSISTANT, with experience, required for general practice. Reply, stating experience and salary required, to Thomas Worthington & Sons, 178, Oxford Road, Manchester, 13. 2854

ARCHITECTURAL ASSISTANTS required. Capable of work up to Intermediate standard R.I.B.A. Permanent and well paid positions will be offered to experienced men. Write fully to Chief Staff Architect, Ilford, Limited, Romford, Essex. 2862

ASSISTANT ARCHITECT, view early Partnership. Old-established business, North-West town. Qualified, not over 40. Box 2863.

ASSISTANT ARCHITECTURAL DRAUGHTSMAN. Duties to consist of preparation of plans of alterations and additions, tracing, etc., in conjunction with Building Surveyors. Canteen facilities available. Alternate Saturday morning free. Write, giving full details of experience, salary required, to The Surveyor, Pickfords, 205, High Holborn, W.C.1. 2795

ARCHITECT'S ASSISTANT required (age 20 to 26). Accurate draughtsman. Good knowledge of construction and with office experience. Apply W. A. Cessford Ball, F.R.I.B.A., 205, Lavender Hill, S.W.11. 2911

ARCHITECTURAL ASSISTANT required for general private practice. Interest in contemporary design and previous office experience desirable. Salary by arrangement. S. Morrison, A.R.I.B.A., Derwent House, 39, Full Street, Derby. 2896

ARCHITECTURAL ASSISTANT required. Varied practice. Salary £390 to £442, according to experience. Welch & Lander, FF.R.I.B.A., 38, Gloucester Place, W.1. Welbeck 6551. 2900

SENIOR ARCHITECTURAL ASSISTANT, with office experience, required for Architect's department of medium sized Brewery in the Midlands. Permanency for suitable applicant. State age, experience, and salary required, to Box 2901.

JUNIOR ARCHITECTURAL DRAUGHTSMAN required for Architect's department of Midland Brewery Company. Permanency for suitable applicant. State age, experience, and salary required, to Box 2902.

SENIOR and JUNIOR ASSISTANTS required for interesting new work. Good salaries in accordance with qualifications. J. Brian Cooper, F.R.I.B.A., 177, Corporation Street, Birmingham, 4. 2909

ARCHITECTURAL ASSISTANT required by Industrial Estate Developers in N.W. London. Experience of factory and office buildings desirable. Send full details of experience and salary required to Box 2751.

QUALIFIED and/or experienced ARCHITECTURAL DRAUGHTSMAN required for large practice. Pleasant 2 B.R. flat available. R. & D. Hall, F./A.R.I.B.A., Masonic Buildings, Bangor, N. Wales. 2931

ARCHITECTURAL ASSISTANT, Intermediate or higher standard, required for industrial projects. R.I.B.A. scale of salaries. Application invited to Box 2916.

ARCHITECTURAL DRAUGHTSMAN (age 25/35 years) required by City Surveyors. Salary £550-£650 p.a., with good prospects. Give details of qualifications and experience. Box 2947.

ARCHITECTURAL DRAUGHTSMAN AND SURVEYOR required. Age 30/50 years, with experience of Design and Supervision of Construction of Commercial and Industrial Buildings in London area. Salary £700 p.a., with increase on evidence of ability to accept full responsibility for large and interesting developments. Box 2946.

EAST Midland Firm of Private Architects require additional Qualified and Partially Qualified ASSISTANTS. Each Assistant directly responsible to Principal. Bonus and pension schemes in operation. Extremely interesting and varied work. In replying please state age, married or single, experience, and approximate salary required. Box 2944.

ARCHITECTURAL ASSISTANT required by London Architect to work in South Birmingham. Previous experience of industrial work an advantage. Salary £500 to £600, according to experience. Apply F. Leslie Hasker, A.I.A.A., 55, Queen Anne Street, W.1. 2915

ARCHITECT'S ASSISTANT required. Intermediate to Final standard. Write, giving full particulars of previous experience and salary required, to Graham Crump & Denis Crump, F./A.R.I.B.A., 43, George Street, Croydon. 2918

Architectural Appointments Wanted

ASSISTANT (34), 6 years' office experience, completing full-time course for A.R.I.B.A. next month, requires position in southern coastal area. Salary about £600 p.a. Box 2895.

FINAL STUDENT (24), with site experience, completing full-time 5-year Architectural course, desires progressive position in small office, London area. Available from 9th July. Box 180.

SENIOR ARCHITECTURAL ASSISTANT (30), single, school and office trained, seeks position where initiative and organising ability is required. London or South. Box 181.

YOUNG LADY, Intermediate R.I.B.A. standard, with 3½ years' experience, desires position in London office. Box 186.

ASSOCIATE, school trained, with 5 years' varied office experience, seeks interesting post in busy practice. London, West of England or Eire preferred. Write Box 184.

CHARTERED London Architect (38) seeks position of responsibility in West Country practice offering possibility of early partnership. Comprehensive experience, accustomed to taking charge, keen to find increased scope for initiative. Box 183.

ASSOCIATE (30), school and office trained, varied general experience, contemporary outlook, seeks responsible progressive position with prospects, in North Country practice. Write Box 182.

QUALIFIED Woman Architect (24), 2 years' experience, requires position as ASSISTANT. Oxford, Southampton, or 100 mile radius London. Box 185.

Other Appointments Vacant

4 lines or under, 7s. 6d.; each additional line, 2s.

LEADING Designer Electrical Fittings requires personal ASSISTANT. Knowledge working drawings essential. Age 30-40. Salary according to qualifications. Box 2917.

Services Offered

4 lines or under, 7s. 6d.; each additional line, 2s.

OUTSTANDING ACADEMY DRAWINGS now being completed, further Commissions can be undertaken by Perspectivist, Winston Walker, F.R.I.B.A., A.A.Dipl., Dipl.T.P., A.R.Ae.S., 107, Sloane Street, S.W.1. Telephone SLOane 1412. 2175

QUANTITY SURVEYORS offer services to Architects: Taking off, working up, preparing bills, specifications and schedules, settling difficult Builders' accounts, measuring works on sites (London or Provinces), valuations for interim certificates, etc. Leonard & Partners, 350, Camberwell New Road, S.E.5. 'Phone Brixton 5040. 2872

R.I.B.A. Calculations of Simple Structural Members and Theory of Structures. Postal Tuition. Apply D. A. Fowler, Dip.Arch.(Abdn.), F.R.I.B.A., 22, Oakwell Mount, Leeds, 8. 12ae

ARCHITECT AND SURVEYOR, own office and car, offers all services to busy Firms in South England. Specialist in Country House Conversions, Land and Property Surveying, and Planning Problems. Strictest confidence. Box 2823.

STUDENT R.I.B.A. seeks spare-time work. Drawing, Schedules, Models, etc. Neat draughtsman. 5 years' office experience. Box 2938.

SPARE-TIME work required by a competent and reliable Student R.I.B.A. Midlands, Leicester and London. Box 2939.

EXPERT TRACING SERVICE.—Speedy, careful, inexpensive work. For potential new customers one drawing traced free as a specimen. 'Phone Runcorn 3041. Box 2936.

TWO Architects, Dipl.Arch., A.R.I.B.A., desire evening and week-end work. Working Drawings, Perspectives, Models, etc. London area and Surrey. Box 2935.

MODELS.—Architect (London area), skilled and experienced in this work, is able now to undertake two or three models. Box 2933.

FREE-LANCE WORK.—Architect, with 15 years' varied experience, can take part-time work of any type. London or Home Counties. Box 2534.

A R.I.B.A. (London area) offers service evenings and week-ends. Car owner. Please reply Box 2919.

A R.I.B.A.—Willing to prepare a number of Sketch and Finished Perspectives. Please reply Box 2920.

For Sale or Wanted

4 lines or under, 7s. 6d.; each additional line 2s.

ADDITIONAL Office Accommodation required in Bloomsbury district of London. Full particulars to Box 2910.

WESTMINSTER firm of Architects require overflow accommodation—3 rooms, about 700 sq. ft. in all. Reply to Wornum & Playne, 19, Queen Anne's Gate, S.W.1 2932

Miscellaneous

4 lines or under, 7s. 6d.; each additional line, 2s

A. J. BINNS, LTD., Specialists in the supply and fixing of all types of Fencing, Gates and Cloakroom Equipment. Harvest Works 99-107, St. Paul's Road, N.1. Canonbury 2661.

WINKFIELD MANOR NURSERIES, ASCOT, lay out Rock and Formal Gardens and Labourless "Allweather" Tennis Courts. Eight Chelsea Gold Medals since 1947. Contractors to the Festival of Britain. Winkfield Row 393. 1716

FRENCH POLISHERS.—Wm. Burton's, for every style of polishing, 26, Foulser Road, Upper Tooting, S.W.17. BAL. 3968. 2517.

FENCING FOR ALL PURPOSES. Supplied and erected; established 100 years. Parker, Winder & Achurch, Ltd., 80, Broad Street, Birmingham, 1. Telephone: Midland 5001.

INSURANCE

ARCHITECTS' Indemnity Insurance effected Please write for Proposal Form to E. J. SAXBY, Incorporated Insurance Broker 37a, Carfax, Horsham, Sussex. Tel. 990. 2039

NAMEPLATES.—Classical Lettering Designed and Engraved by Austin Luce & Company, 336, Station Road, Harrow, Middlesex. Send for estimate and sketch. (Tel.: Underhill 0100.) 2353

CHARTERED ARCHITECT, with contemporary outlook, designer of large scale industrial and other schemes, with practice and staff in City, desires Amalgamation with busy firm. Box 2945.

Educational Announcements

4 lines or under, 7s. 6d.; each additional line, 2s.

R.I.B.A. EXAMS.—Mr. L. Stuart Stanley, M.A., F.R.I.B.A., M.T.P.I., Distn. in T.P. (Tutor in the School of Arch. Lon. Univ.), and Mr. G. A. Crockett, B.A., A.R.I.B.A. (Medallist), A.M.T.P.I., F.R.S.A., prepare Students by correspondence tuition. Stuart Stanley & Crockett, 10, Adelaide Street, Strand, W.C.2. TEM. 1603/4.

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