The Architects' JOURNAL for June 23, 1955

THE ARCHITECTS' JOURNAL

standard contents

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

NEWS and COMMENT
Diary
News
Astragal's Notes and Topics
Letters
Societies and Institutions

TECHNICAL SECTION
Information Sheets
Information Centre
Current Technique
Questions and Answers
Prices
The Industry

PHYSICAL PLANNING SUPPLEMENT

CURRENT BUILDINGS

HOUSING STATISTICS

Architectural Appointments Wanted and Vacant

No. 3147] [VOL. 121

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★ 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 implicit 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," Castle 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
ArchSA	Architectural Students' Association. 34/36, Bedford Square, W.C.1.	
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Langham 8738
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. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 105, Uxbridge Road, Ealing, W.5.	Ealing 9621
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Fremantle 8494
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
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. Whitehall Gardens, Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
BRDB	British Rubber Development Board. Market Buildings, Mark Lane, E.C.3.	Mansion House 9383
BRS	Building Research Station. Bucknalls Lane, Watford	Garston 2246
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. British Standards House, 2, Park St., W.1.	Mayfair 9000
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., Civic Centre, Newport, Mon.	Newport 65491
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.	Abbey 7080
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.	Sloane 4280
CUC	Coal Utilization Council. 3, Upper Belgrave Street, S.W.1.	Sloane 9116
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
DPT	Department of Overseas Trade. Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
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. 68, Gloucester Place, W.1.	Welbeck 9966
FASS	Federation of Association of Specialists and Sub-Contractors, Artillery House, Artillery Row, S.W.1.	Abbey 7232
FBBDO	Fibre Building Board Development Organization, Ltd. 47, Princes Gate, Kensington, S.W.7.	Kensington 4577
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.	Chancery 7583
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
GBPA	Gypsum Building Products Association, 11, Ironmonger Lane, E.C.2.	Monarch 8888
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. C/o R. H. Davies, F.R.I.B.A., 44, Lowndes Street, S.W.1.	Belgravia 3081
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

Dicky bird's eye view of Bill Bravington

Our 'Candid Camera' gives an architect's eye view of Bill Bravington★, Williams & Williams Birmingham Area Manager. Mr. Bravington is a Special Policeman in his spare time and therefore accustomed to hiding his feelings beneath a blank expression and a large black notebook. But get him on Williams & Williams service, his on-the-spot estimators, draughtsmen and fixers and his enthusiasm is apt to run away with him. And watch out when talking with Bill Bravington. He is an enthusiastic photographer himself, and may have a candid camera concealed in *his* lapel.

★ **Mr. W. G. Bravington, Williams & Williams Ltd., 21 Stratford Road, Shirley, Birmingham (Shirley 3064).** *Other offices at Belfast* (23762). *Bristol* (38907). *Bromley* (*Ravensbourne* 6274). *Cardiff* (27092). *Crawley* (2200). *Glasgow* (*Douglas* 0003). *Hertford* (3969). *Leeds* (21208). *Liverpool* (*Central* 0325). *London* (*Sloane* 0323). *Maidstone* (51750). *Manchester* (*Blackfriars* 9591). *Norwich* (24393). *Newcastle-upon-Tyne* (21353). *Nottingham* (52131). *Reading* (50291). *Sheffield* (51594). *Southampton* (26252).

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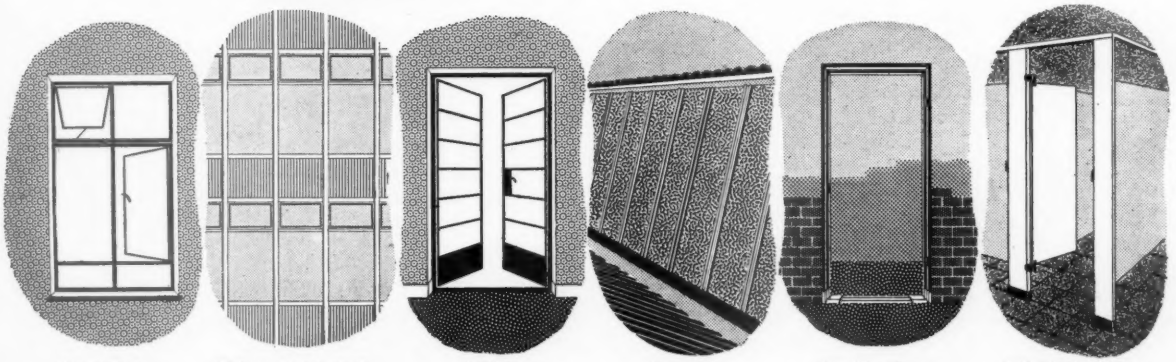

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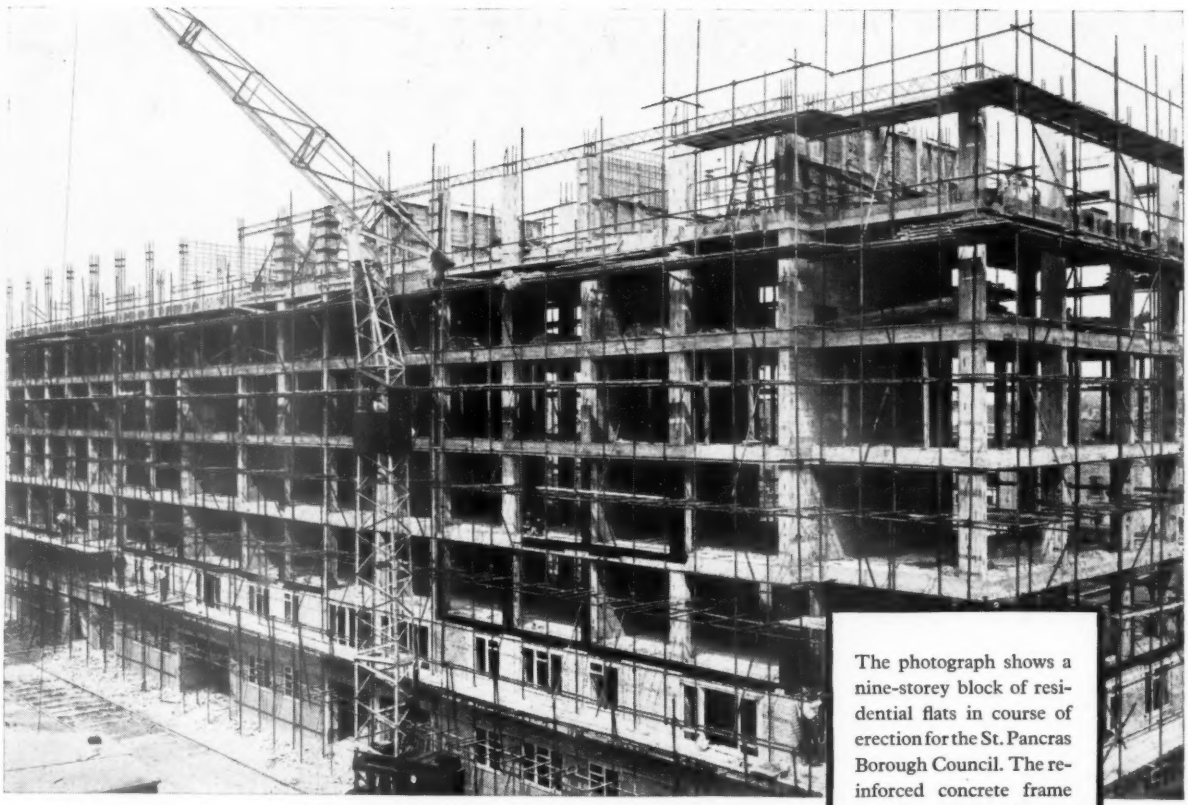

Architects : Norman & Dawbarn. Contractors : St. Pancras Borough Council, Building Department.

The photograph shows a nine-storey block of residential flats in course of erection for the St. Pancras Borough Council. The reinforced concrete frame was carried out in our patent FRAMEWELD system.

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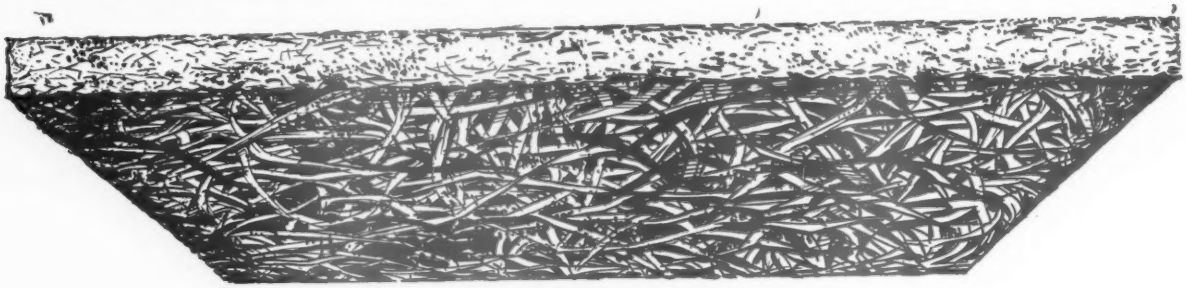

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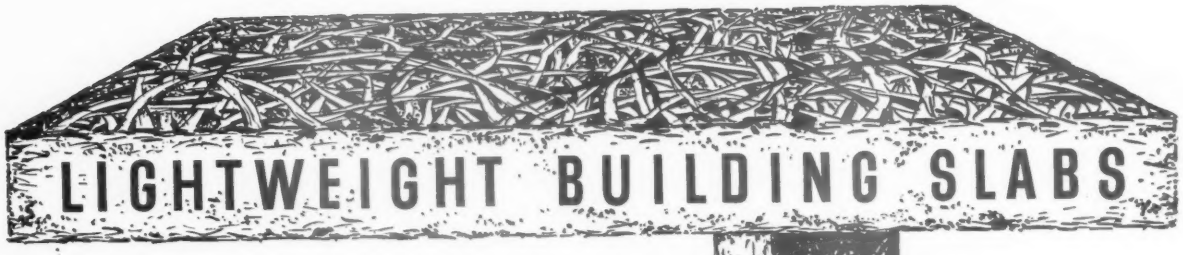

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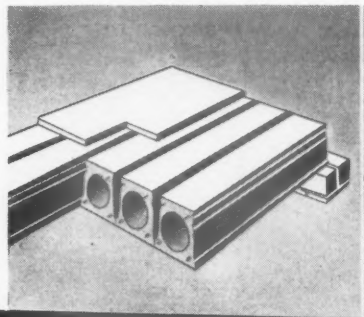

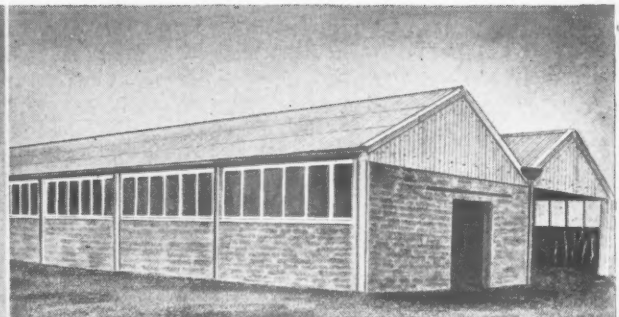

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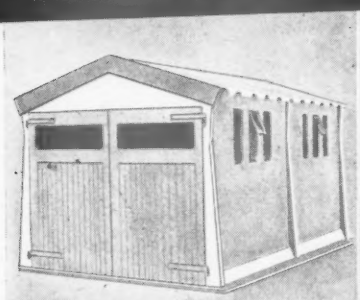

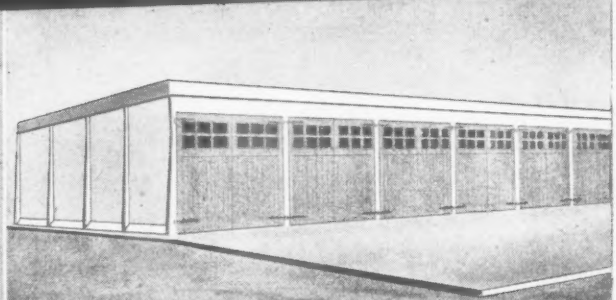

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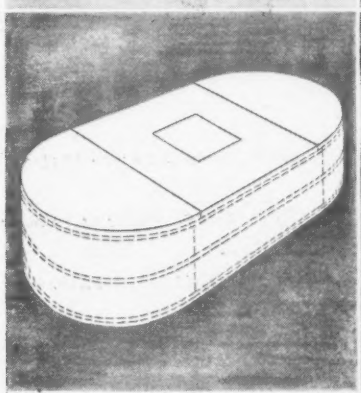

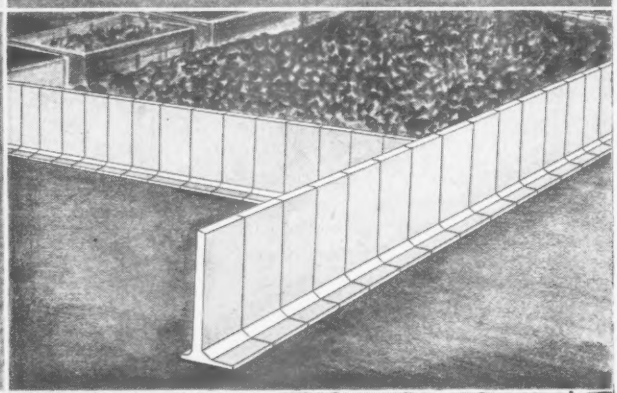

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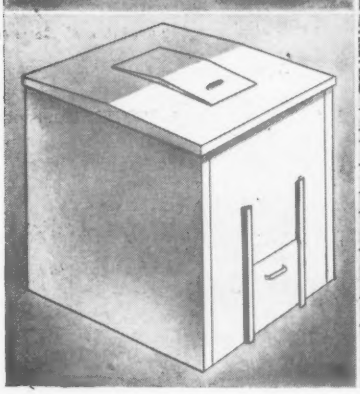

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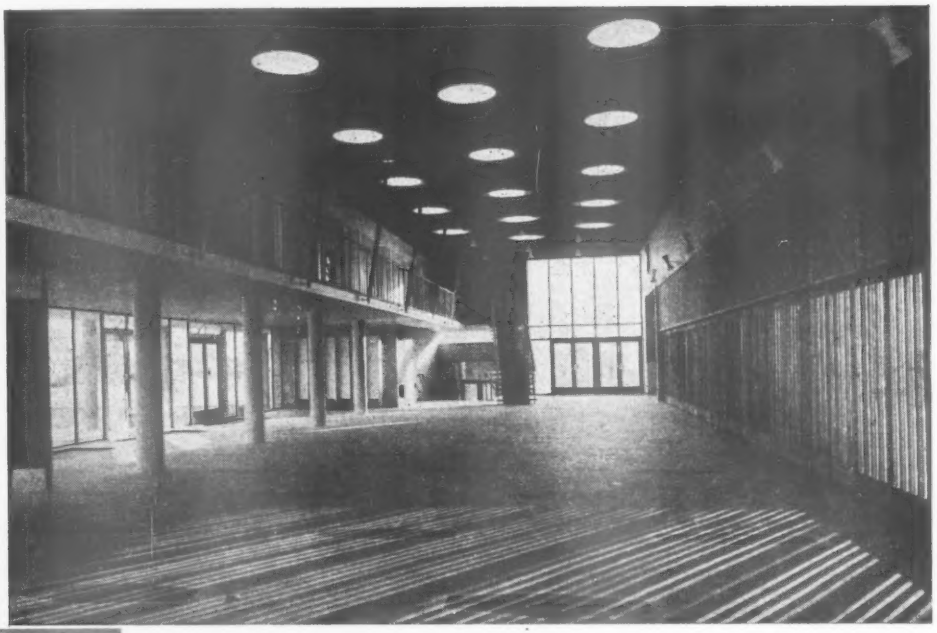

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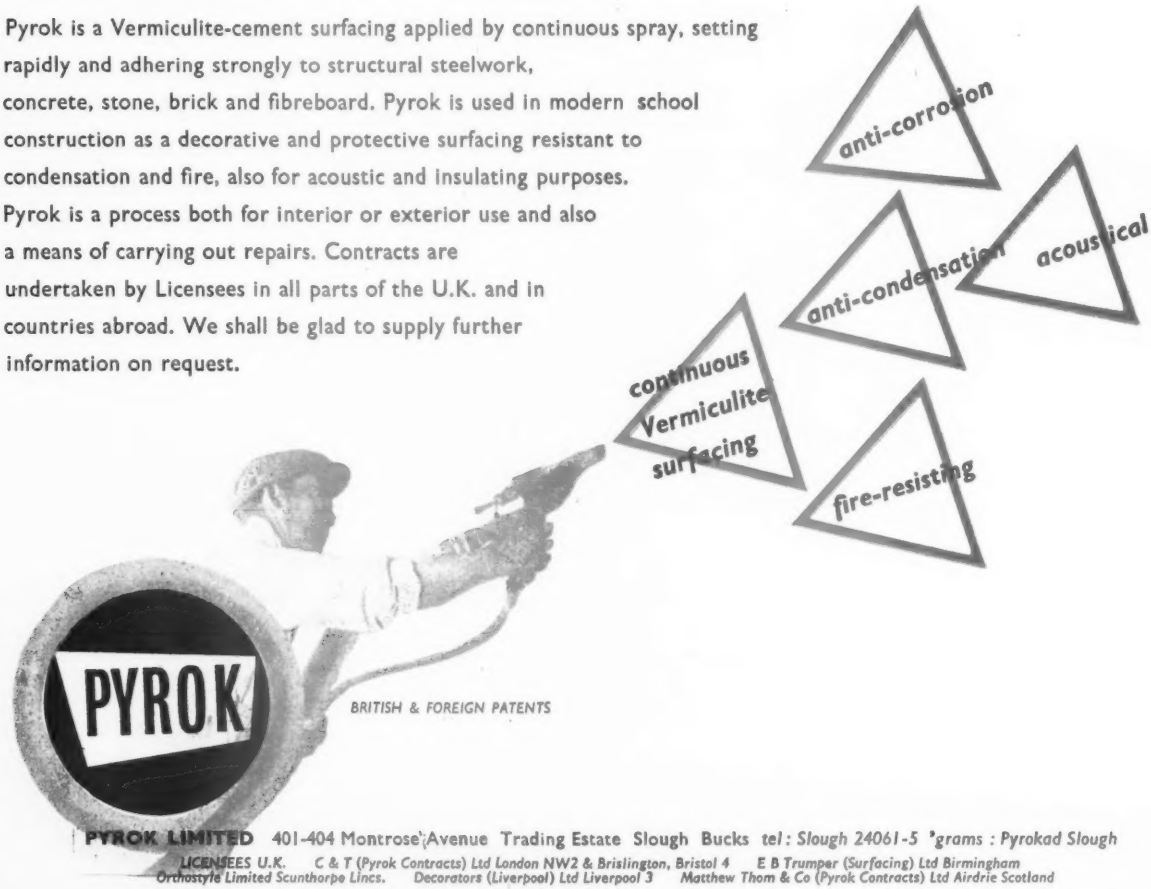

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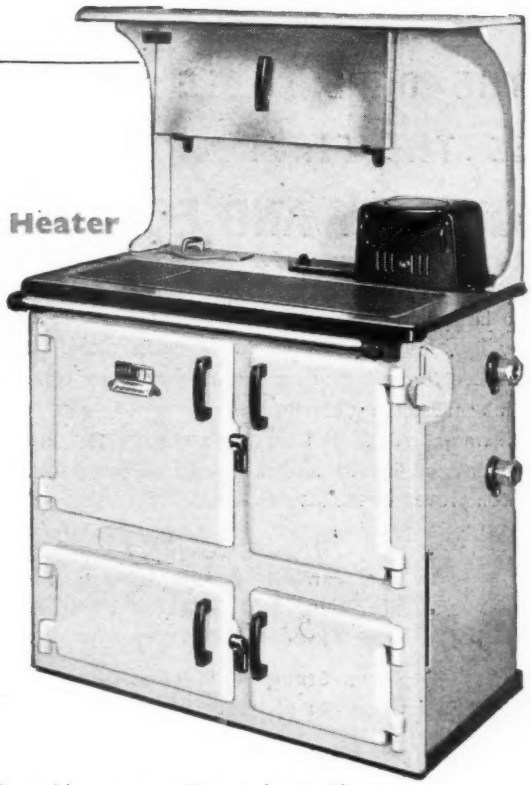

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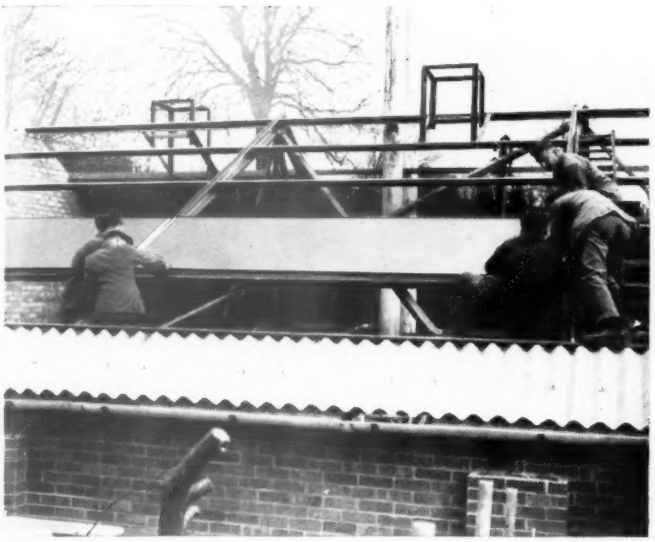

STRAMIT
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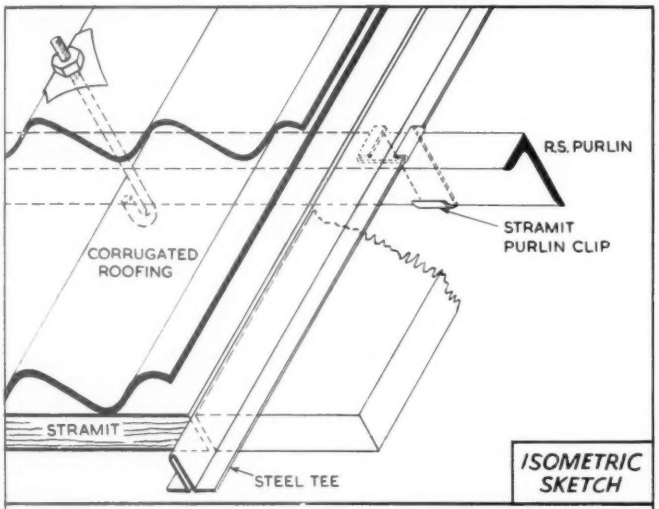
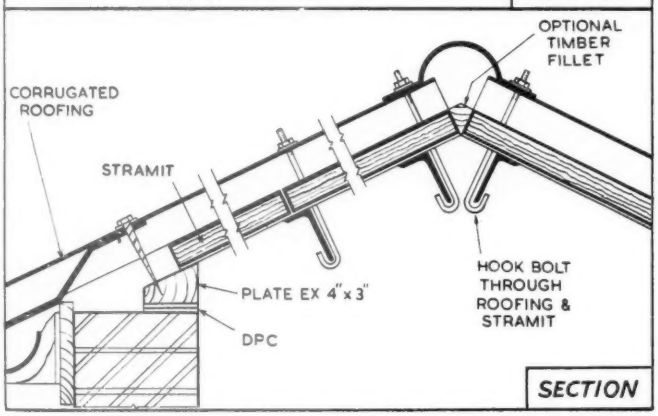
U

—the measure of heat-loss through a construction, in B.Th.U's per hour, over one square foot of its area, when the temperature-difference between its two sides is 1° F.





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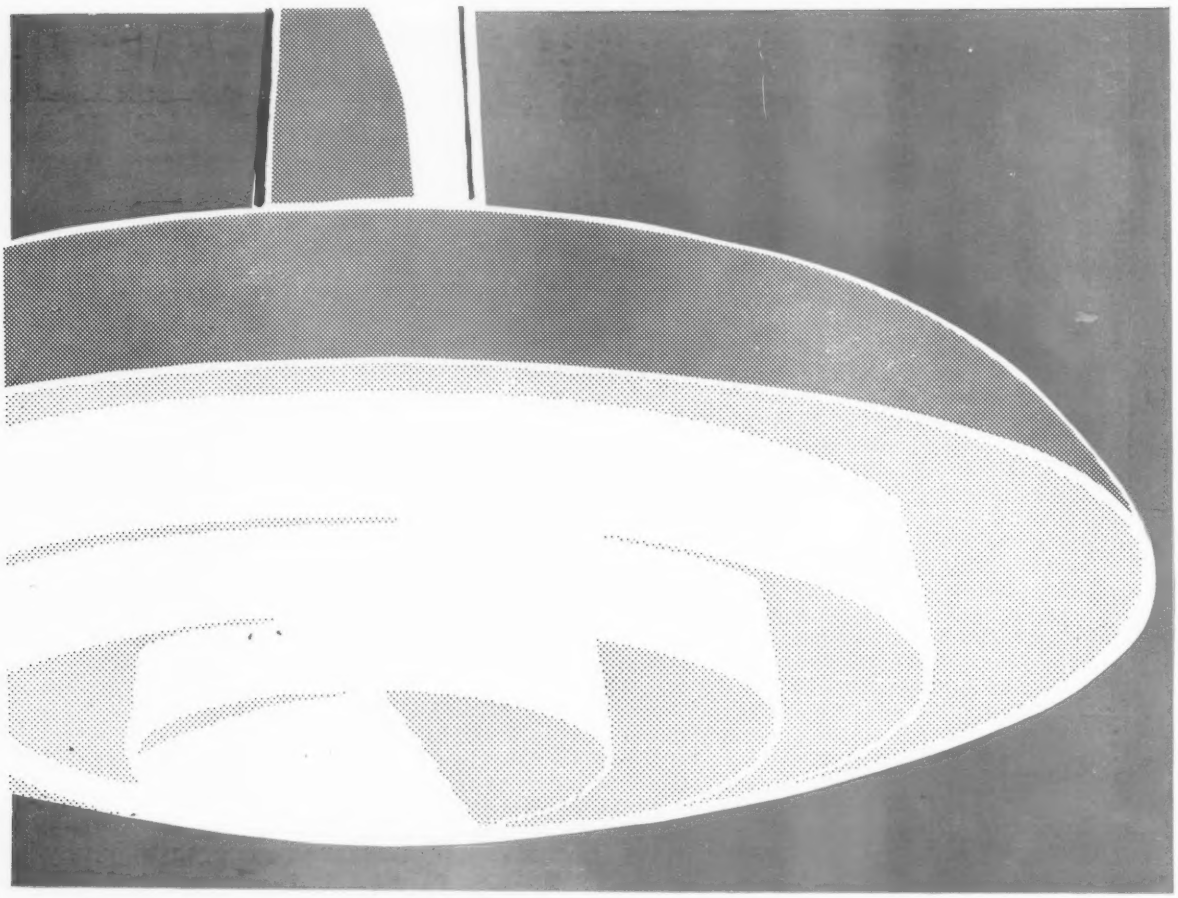

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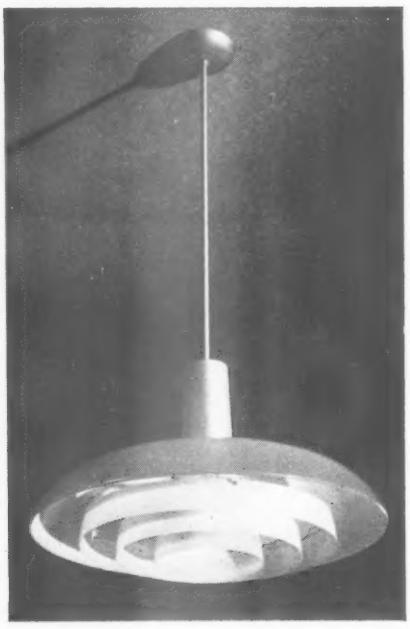

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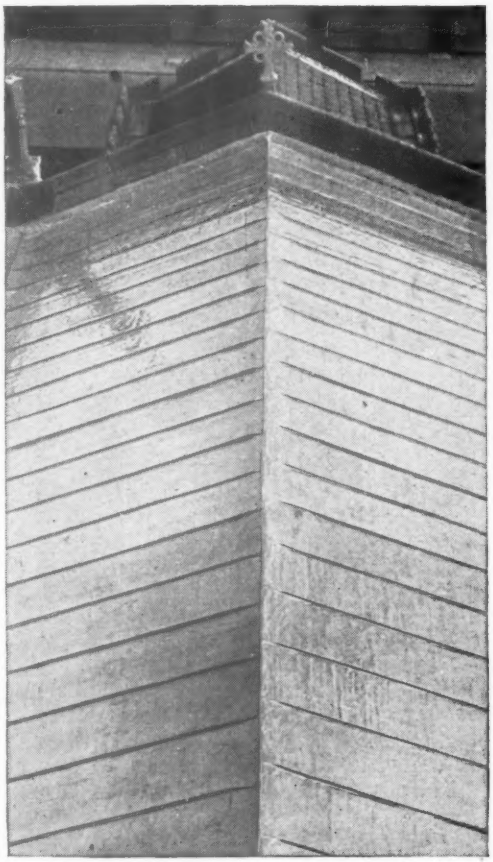

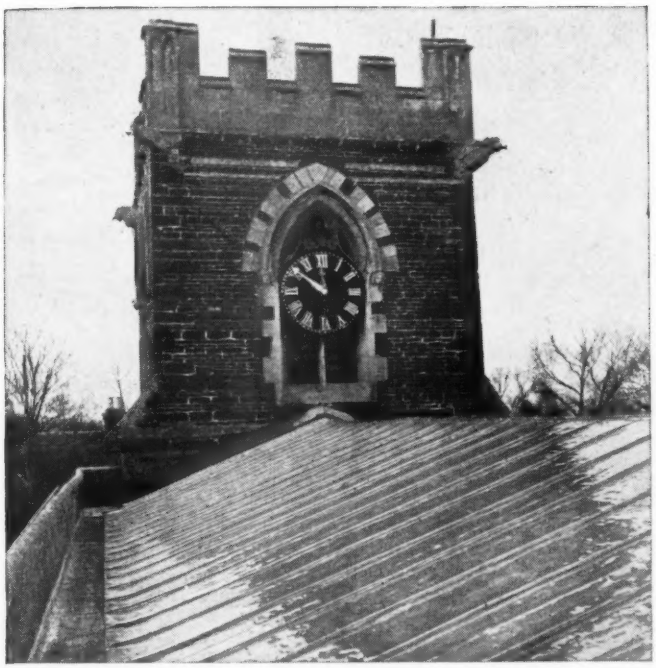

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Roofing Contractors: Norman & Underwood Ltd.
Details: Tempsford Church, Bedfordshire. Roofing to nave and aisles, and flashings in 20 s.w.g. Super Purity Aluminium.

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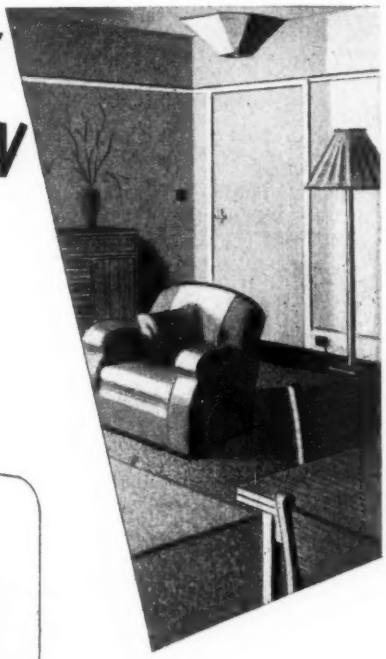

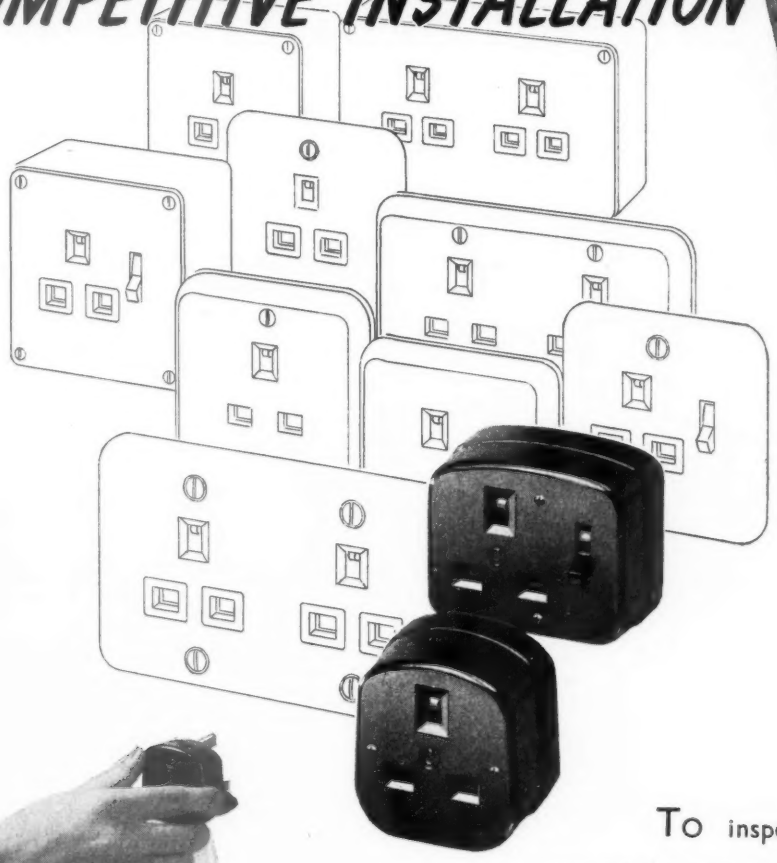

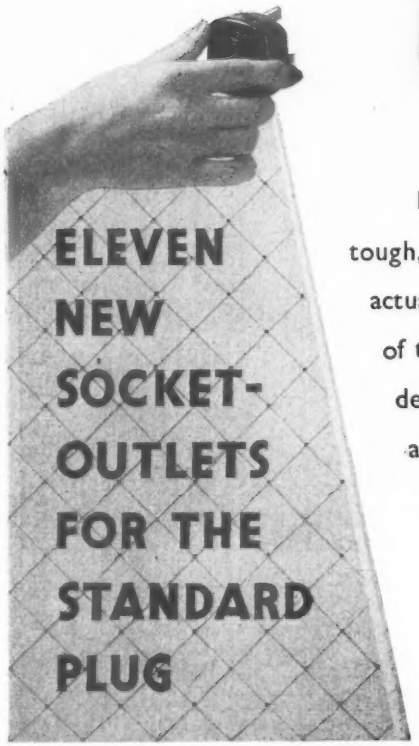

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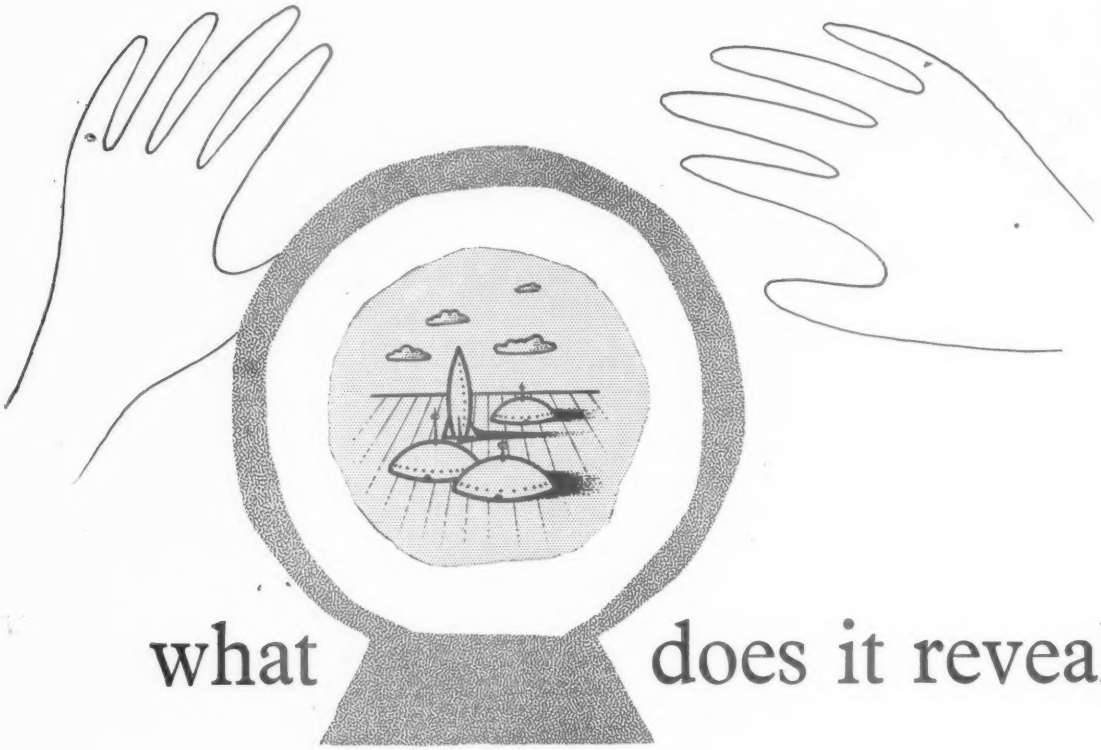

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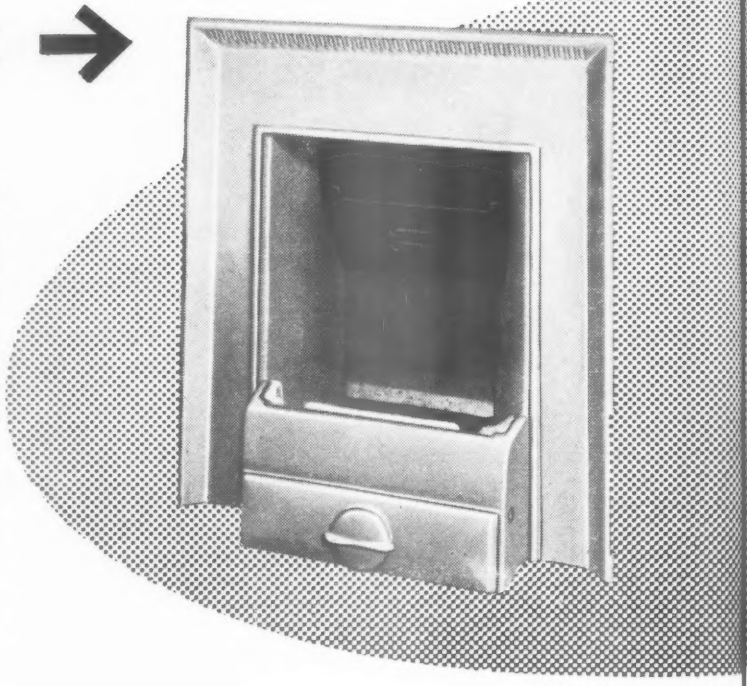

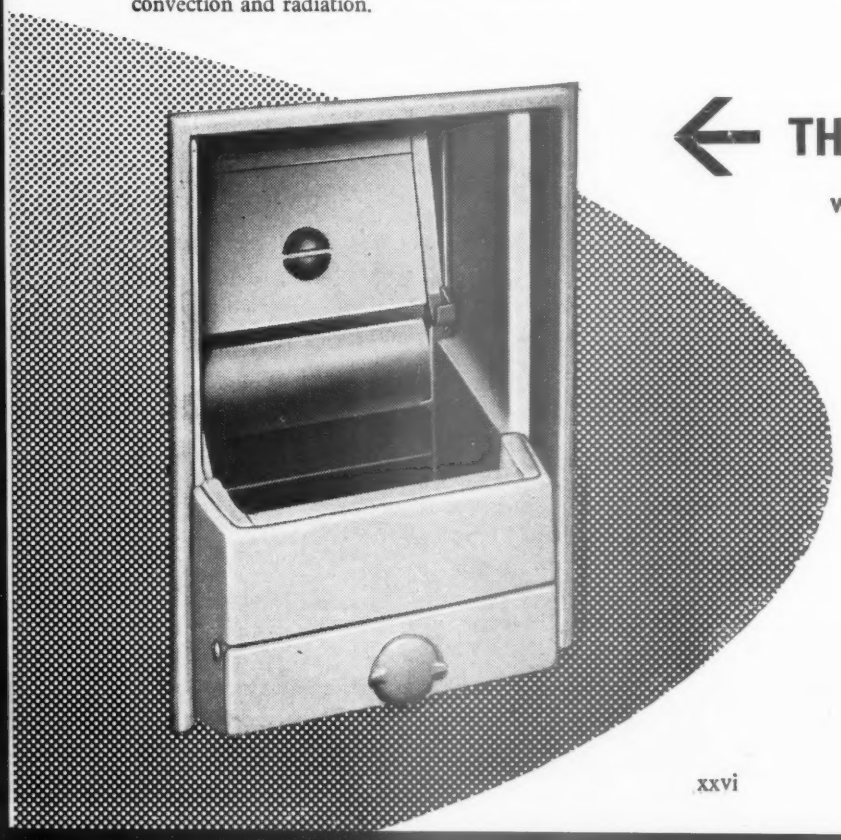

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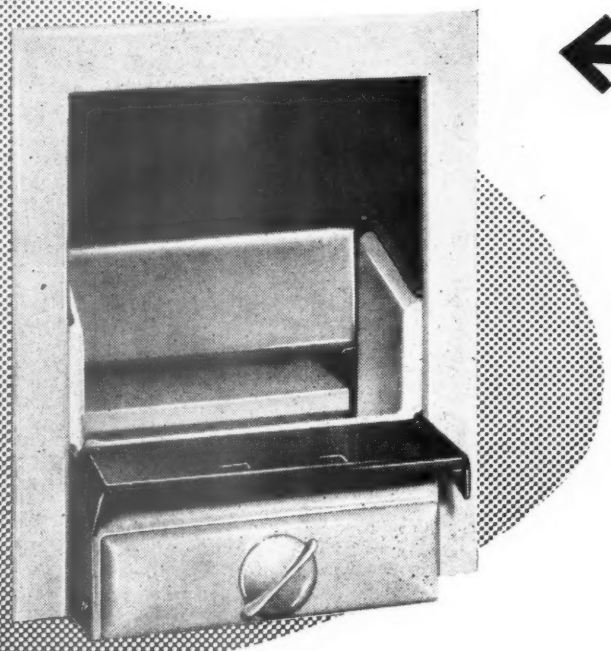

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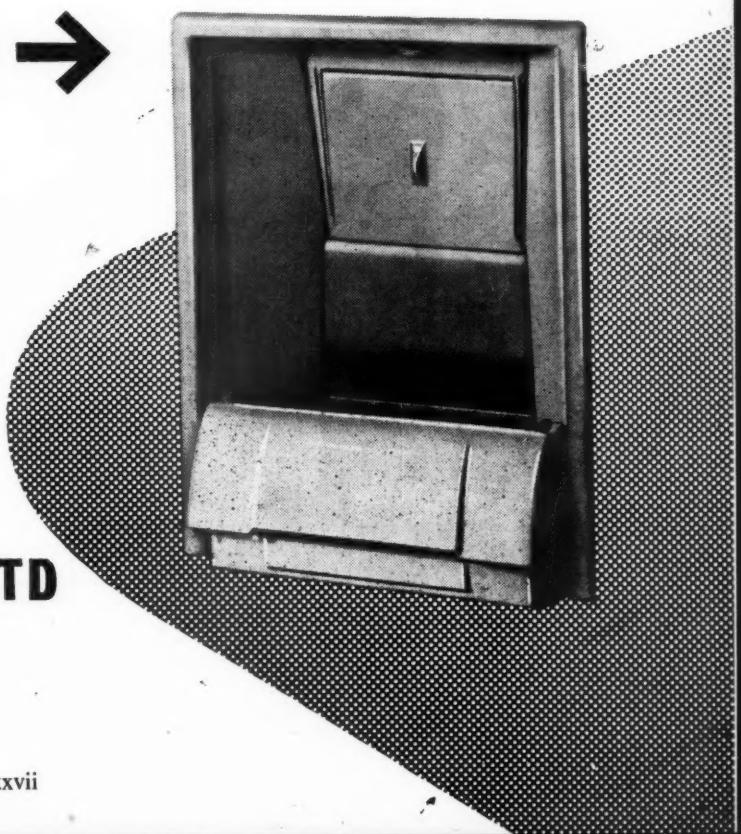

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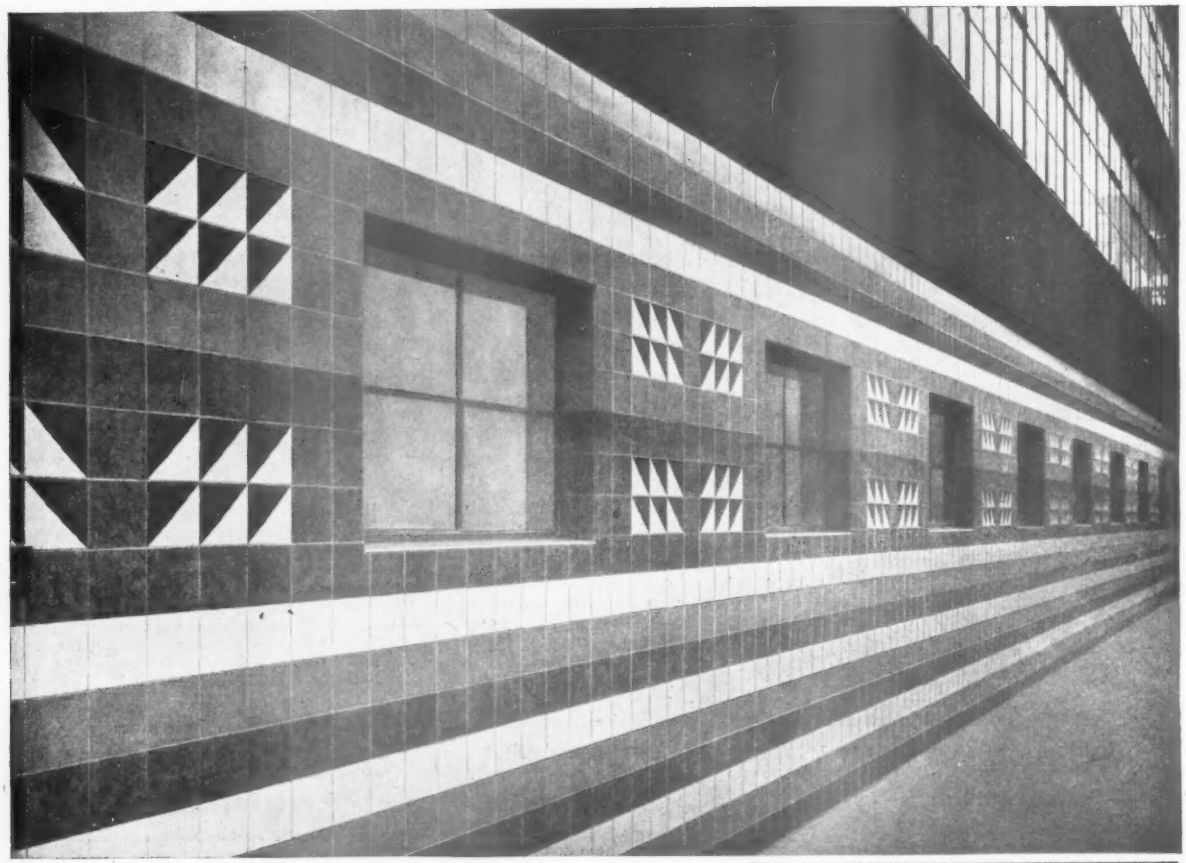
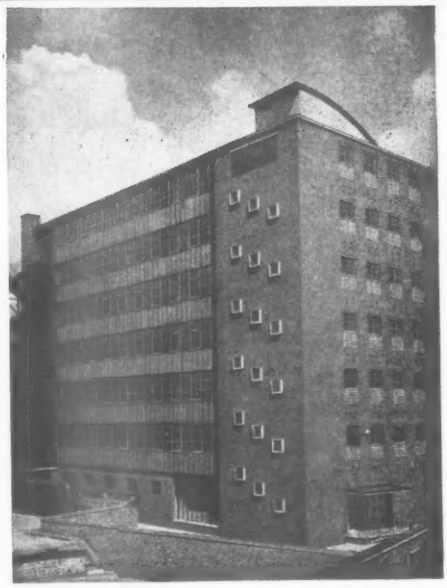
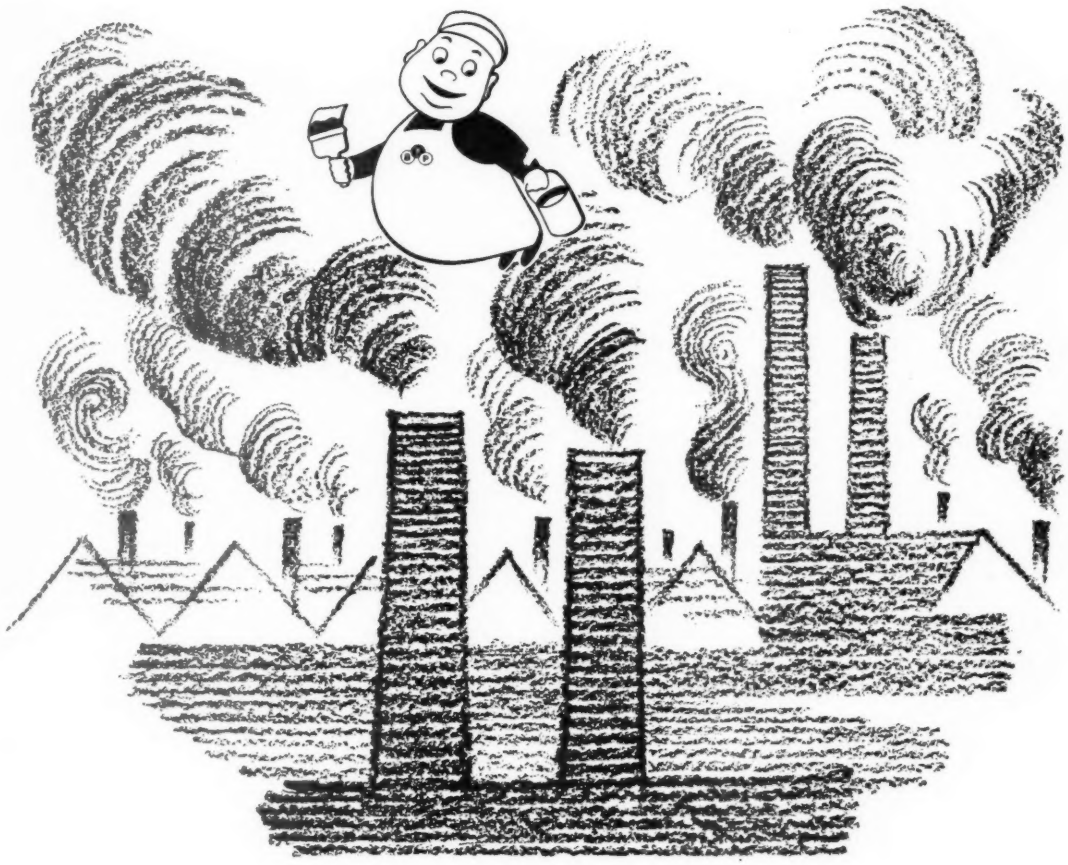


18/20 Crucifix Lane, S.E.1. *Architect:* Edward H. Eames, A.R.I.B.A.

The choice of facing materials for this warehouse in Crucifix Lane presented a problem. The site is in close proximity to London Bridge Station and it was felt that any material, such as brick, would soon become black irrespective of its original colour. The problem was resolved economically by the use of pre-cast exposed aggregate slabs. The aggregate was densely packed with very little cement surface visible, resulting in a comparatively self-cleansing surface. The ground storey is tiled with attractive hand printed frostproof tiles. This is another of the fine modern buildings constructed by Ford & Walton.





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ELECTRIC LIGHTING

KITCHENS—FLUORESCENT LAMPS—MIRRORS

Most rooms in a house or flat can be lighted in a variety of ways according to the tastes of the owner, but specific lighting problems having a functional basis also arise, and these should be considered from a technical point of view. Some of these cases which may affect detailed planning and design, are considered below.

Kitchen Lighting

The most important requirements with regard to artificial lighting in the kitchen are :

(a) No-one working there should ever have to work in a shadow.

(b) The light provided should, as far as possible, be well distributed over the working areas, including cooker and sink.

(c) The lighting intensity should be at least equal to that generally provided for reading and sewing.

(d) There should be freedom from glare, not only from the lights themselves, but also from reflecting surfaces such as walls, table and counter tops.

Positions of Lighting Fittings in the Kitchen

A single source of light is rarely adequate for lighting even a small kitchen, although it may suffice if the room is less than 50 sq. ft. in area and the light is carefully placed immediately above the working area. As a general rule, two ceiling fittings placed diagonally as TFC in Fig. 2 should be provided, supplemented by local lighting to sink, cooker or preparation counter as rendered necessary by the size or shape of the kitchen. The fittings used should be of the totally enclosed diffusing type which are not likely to cause glare. If wall tiling is to be used above counter height, matt-glazed tiles are preferable to the standard highly glazed article. Working surfaces which are white or highly reflective may also cause glare by reflection.

If fluorescent lamps are used, reflected glare is less, and a central position in a small kitchen is usually satisfactory owing to the larger size and excellent light distribution of these lamps. In other cases they should be placed as shown in Figs. 1 and 2. A fluorescent lamp with filament (or tungsten) ballast control, as described in L.2, has been used in the kitchen in Fig. 2; the ballast lamp has been separated from the fluorescent lamp to give light to the cooker and adjacent counter, each lamp thus performing a separate duty, but controlled by the same switch. This type of control is at present only available for 4 ft. 40 watt fluorescent lamps. The fluorescent lamp, preferably with a diffusing fitting, may be fixed to the ceiling, and the filament ballast lamp used in an enclosed general diffusing fitting in the normal way.

Another possibility is to mount the fluorescent lamps behind valances (see below and Fig. 3); these may be incorporated in the design of the upper cupboards, extended across a recess or window, or continued for the full length of a wall, according to circumstances. Smaller tubular or fluorescent lamps can conveniently be used to light dark areas formed by corners or overhanging cupboards if the general lighting is insufficient for the purpose, as is sometimes the case in old or converted kitchens.

Fluorescent Lamps

Although fluorescent lamps have been used in kitchens for some time, they are rarely found in other rooms, mainly owing to the limited colours available and the bulk and cost of the fittings which contain them. The situation has been changed by the recent introduction of the De-Luxe Warm White lamp, which gives a light closely approximating in appearance and colour rendering to that of filament lamps, and which is more generally acceptable.

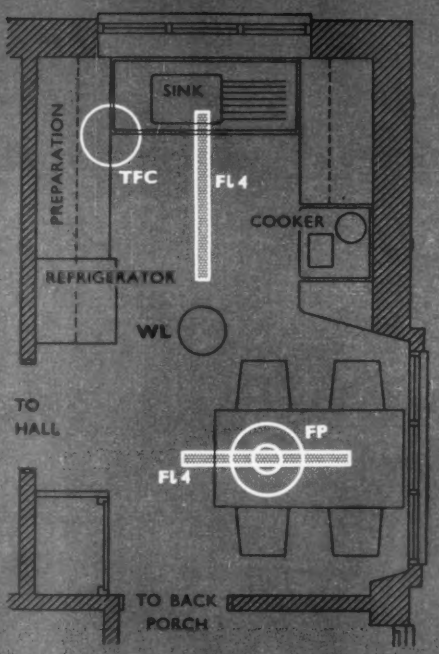


Fig. 1 Dining kitchen lighting

SCALE: 4 FEET EQUALS 1 INCH

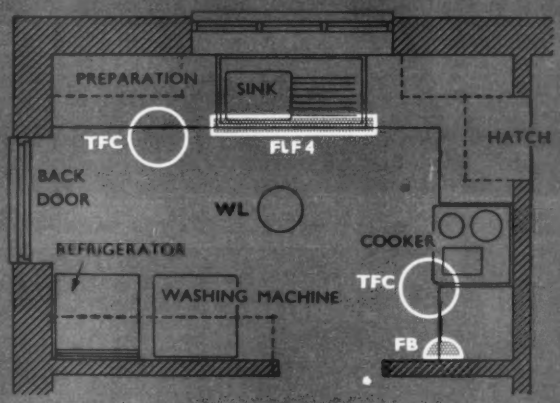
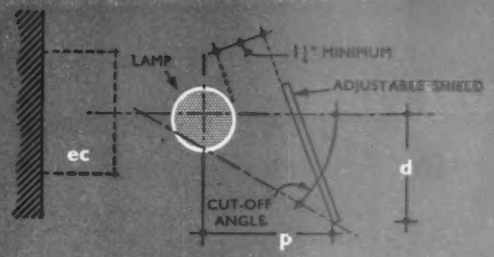


Fig. 2 Working kitchen lighting

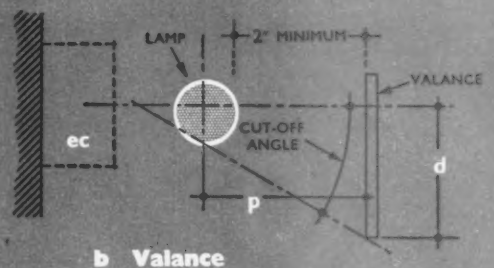
SCALE: 4 FEET EQUALS 1 INCH

WL Wrong light position
TFC Filament ceiling fitting totally enclosed
FP Filament lamp pendant fitting
FL4 4ft. fluorescent fitting
FLF4 4ft. fluorescent fitting filament ballast
FB Filament ballast lamp

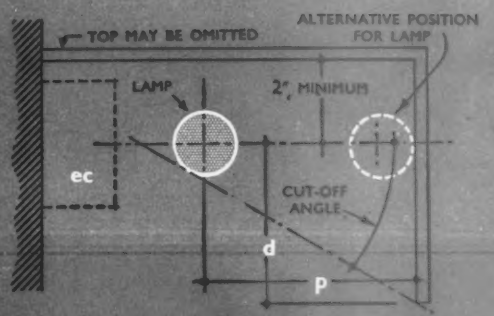
L. 4



a Adjustable shield



b Valance



c Pelmet

Fig. 3 Shielding of fluorescent lamps

The cut-off angle is determined by the need to prevent the lamp from being seen from any normal position; the relationship between p, d and height of lamp above floor level decides the cut-off angle. As p decreases and d increases the useful light is reduced: ec denotes equipment channel. The alternative position of lamp is for curtain lighting.

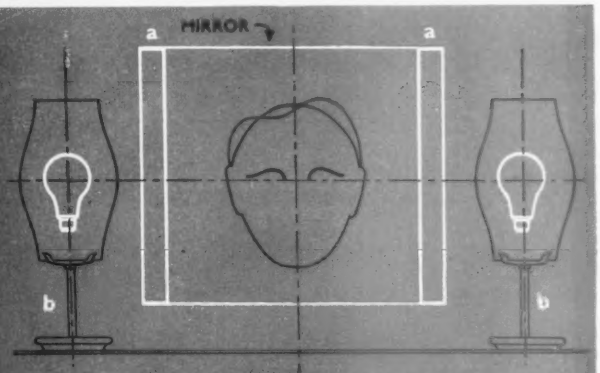


Fig. 4 Mirror lighting

a Tubular lamps in plane of mirror, preferably behind diffusing glass

b Table lamps in diffusing shades

In the living room, bedroom and hall, where their special qualities can be a valuable asset, fluorescent lamps can be employed in a simple and dignified way by screening with shields and valances to distribute the light as required. These shields are unobtrusive and economical, and easily made of plywood or sheet metal. Fig. 3 illustrates the functional requirements of typical installations of this type.

Whether normal or filament ballast control is used, the control gear (or ballast lamp) can be placed wherever convenient nearby, e.g. in the upper part of a cupboard, or in a separate lighting fitting, according to the type of circuit used. This enables the size of the screen to be reduced to the minimum necessary to screen the lamps from view, and makes it possible to use them in conjunction with bookcases, writing or work tables, in recesses or at the head and foot of stairs, as well as in the more familiar sites above windows.

Mirror Lighting

Though often attempted, mirror lighting, as generally carried out, is not always satisfactory. It is essential that the mirror lights should shine on the face of the person using the mirror, *not* on the mirror itself. They should give a clear diffused light of low brightness, and should not be seen reflected in the mirror. The best positions in connection with a dressing table are on either side, as nearly as possible in the plane of the mirror face and at the eye level of the person customarily using it. Tubular lamps, wall or table lamps in these positions (see Fig. 4), will be satisfactory provided that the other requirements given are satisfied. Overhead lamps are virtually useless for mirror lighting. Dressing table and bed-head lights should always be additional to the general bedroom lighting, and are best served from socket outlets conveniently placed : see DI.1.

Cupboards and Lofts

The lighting of a cupboard interior becomes necessary when it is too deep or too far from the general illumination for its contents to be easily distinguished or handled. A small filament lamp inside above the door, operated by an automatic door switch recessed into the frame on the hinge side, will solve this problem efficiently and economically in many instances.

Lighting is necessary in the roof space if it contains the cold water storage cistern or is used for storage : control should be taken from the floor below or by an automatic switch operated by the trapdoor. Place the lights so that the water cistern and stopcocks are clearly illuminated and use either fully-earthed or all-insulated equipment.

Early Consideration Necessary

It is strongly recommended that more detailed consideration is given to the lighting requirements when the plans and specification are being prepared. Electricity is the life-blood of modern building and adequate accommodation must be provided in the structure to receive its arteries. In particular, the number and positions of socket outlets and outlets for " built-in " lighting fittings, screens, valances, etc., require to be known before detailing begins, if the best results are to be achieved.

As discussed in DI.1 and DI.2, ring circuits with universal 13 amp. socket outlets enable the requirements of a modern household to be economically met, and facilitate later additions as and when they become necessary.

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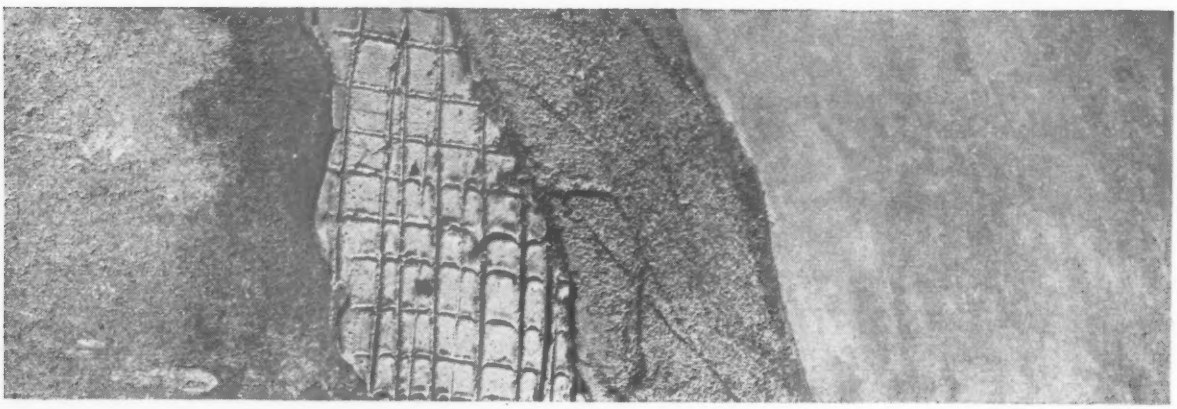

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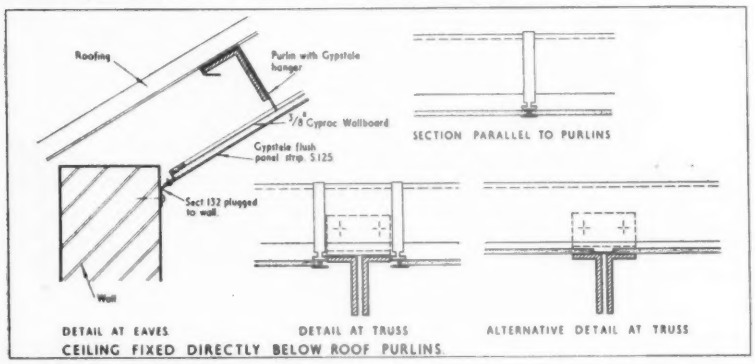

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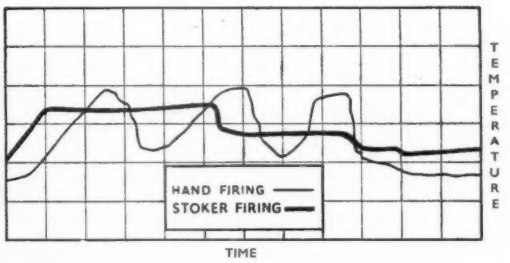

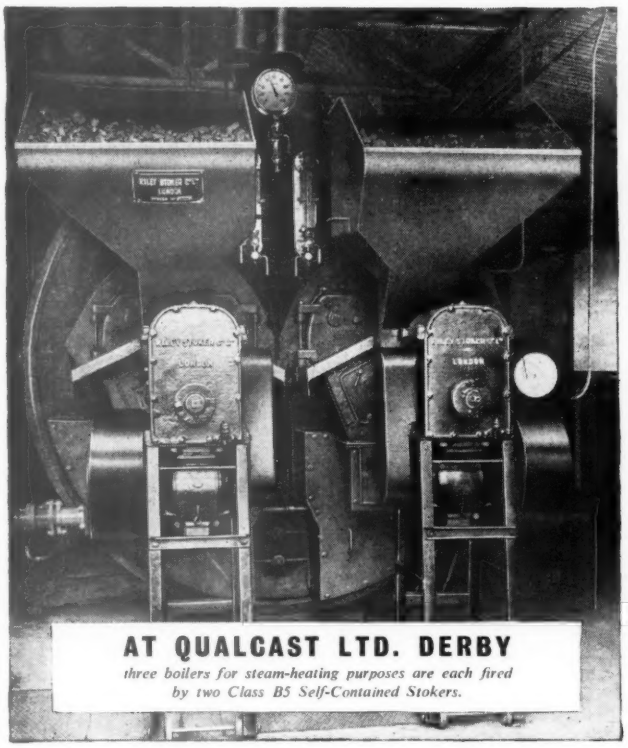

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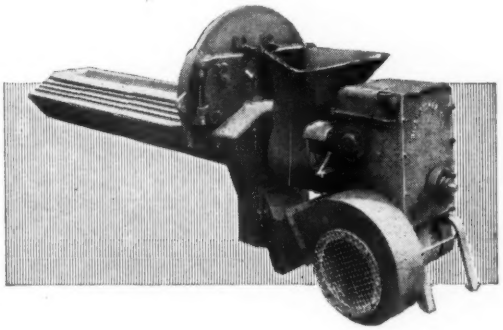

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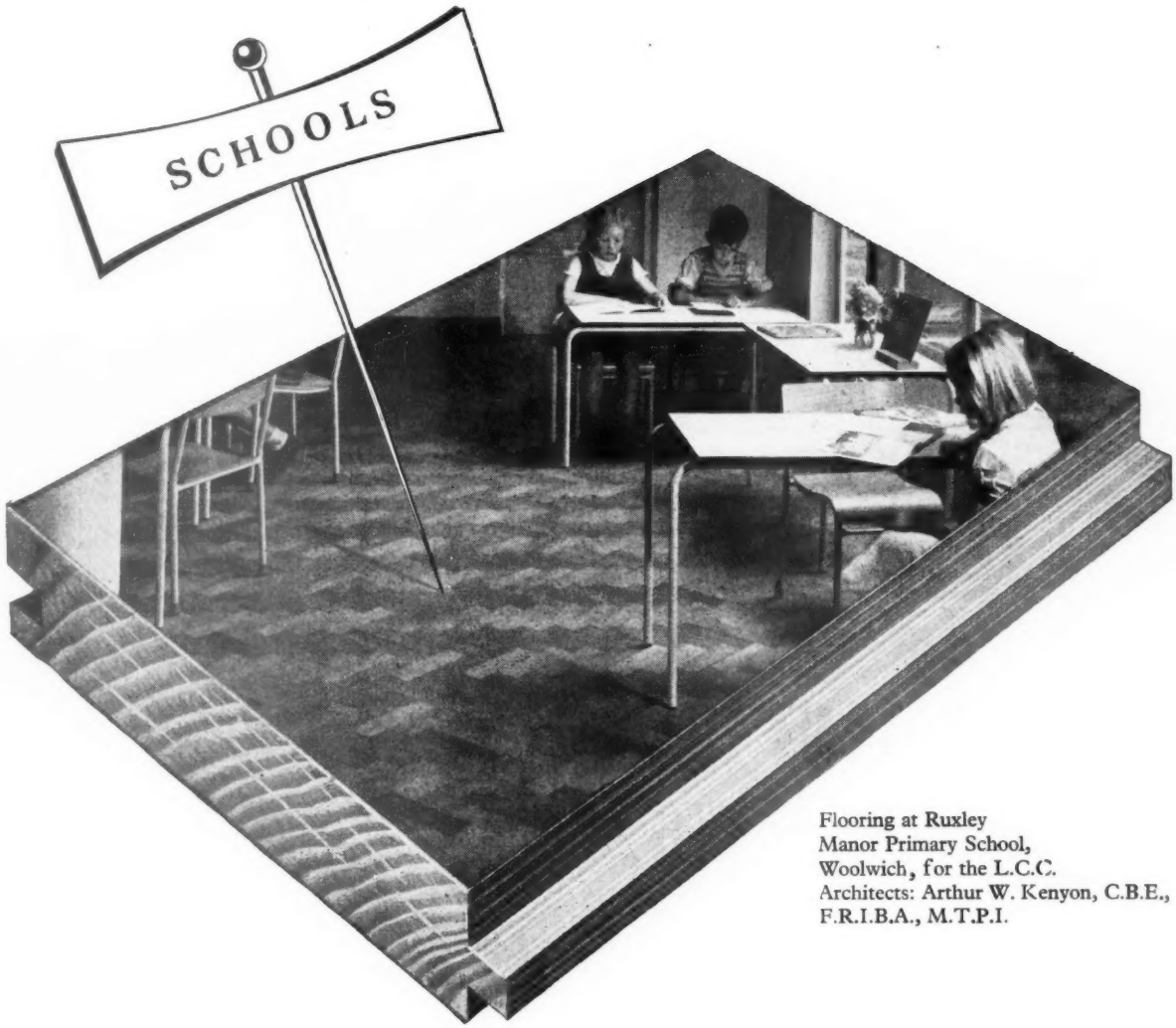

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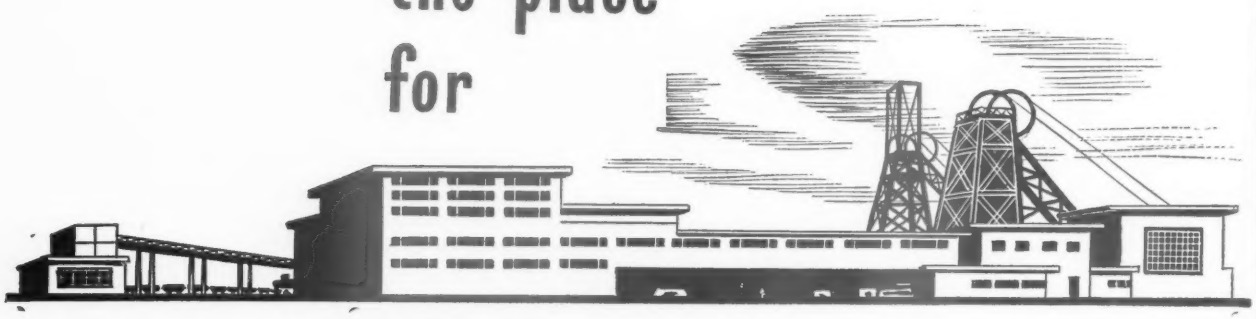

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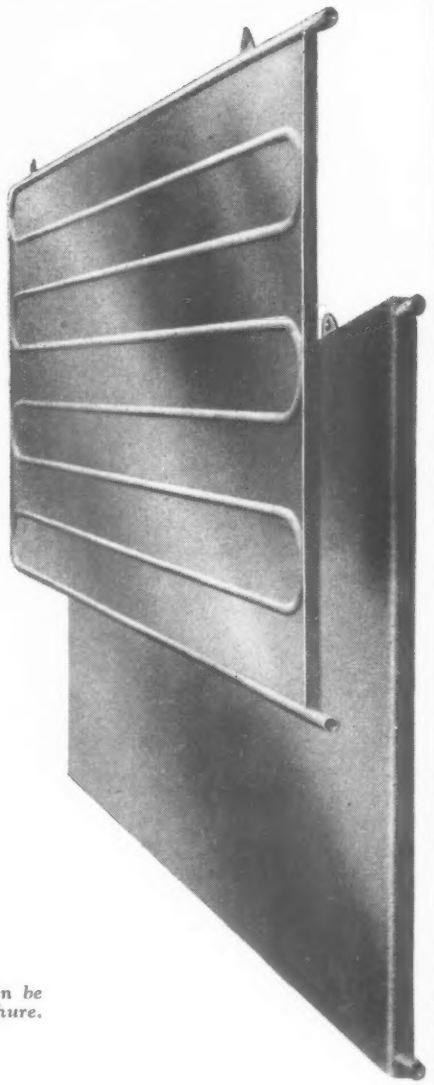

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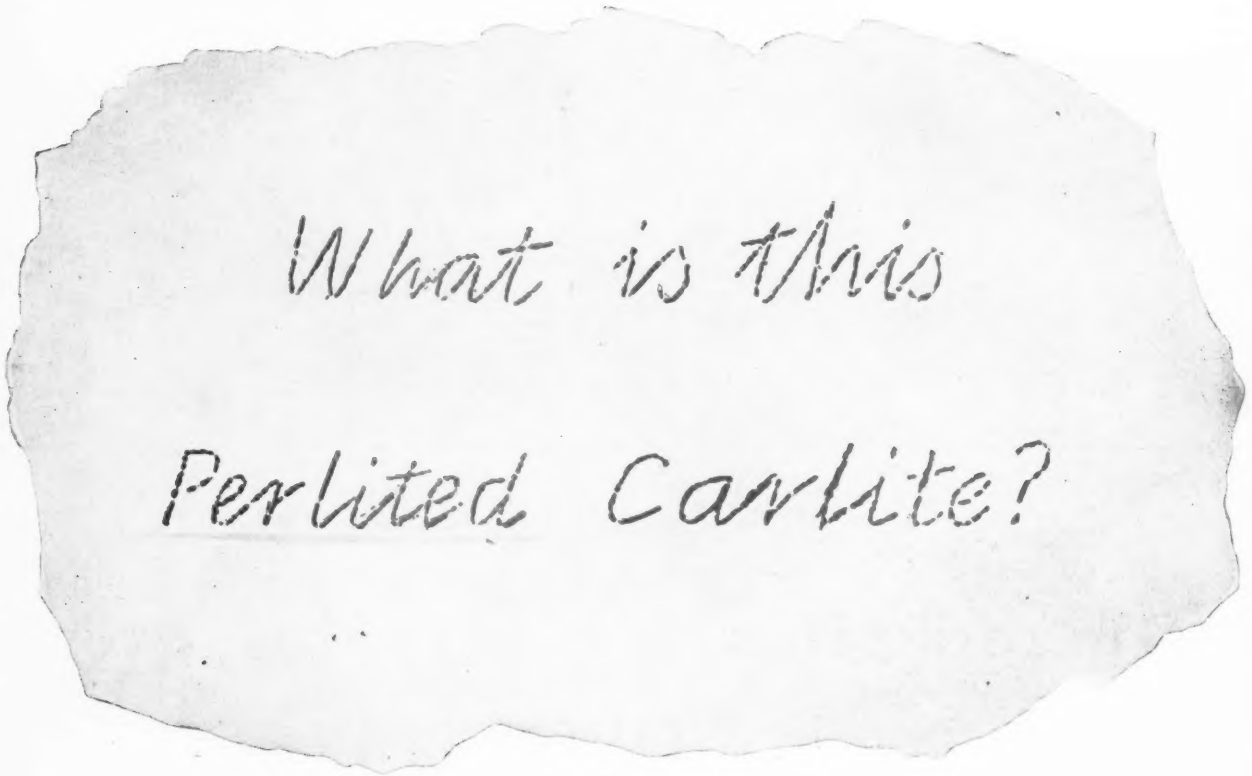

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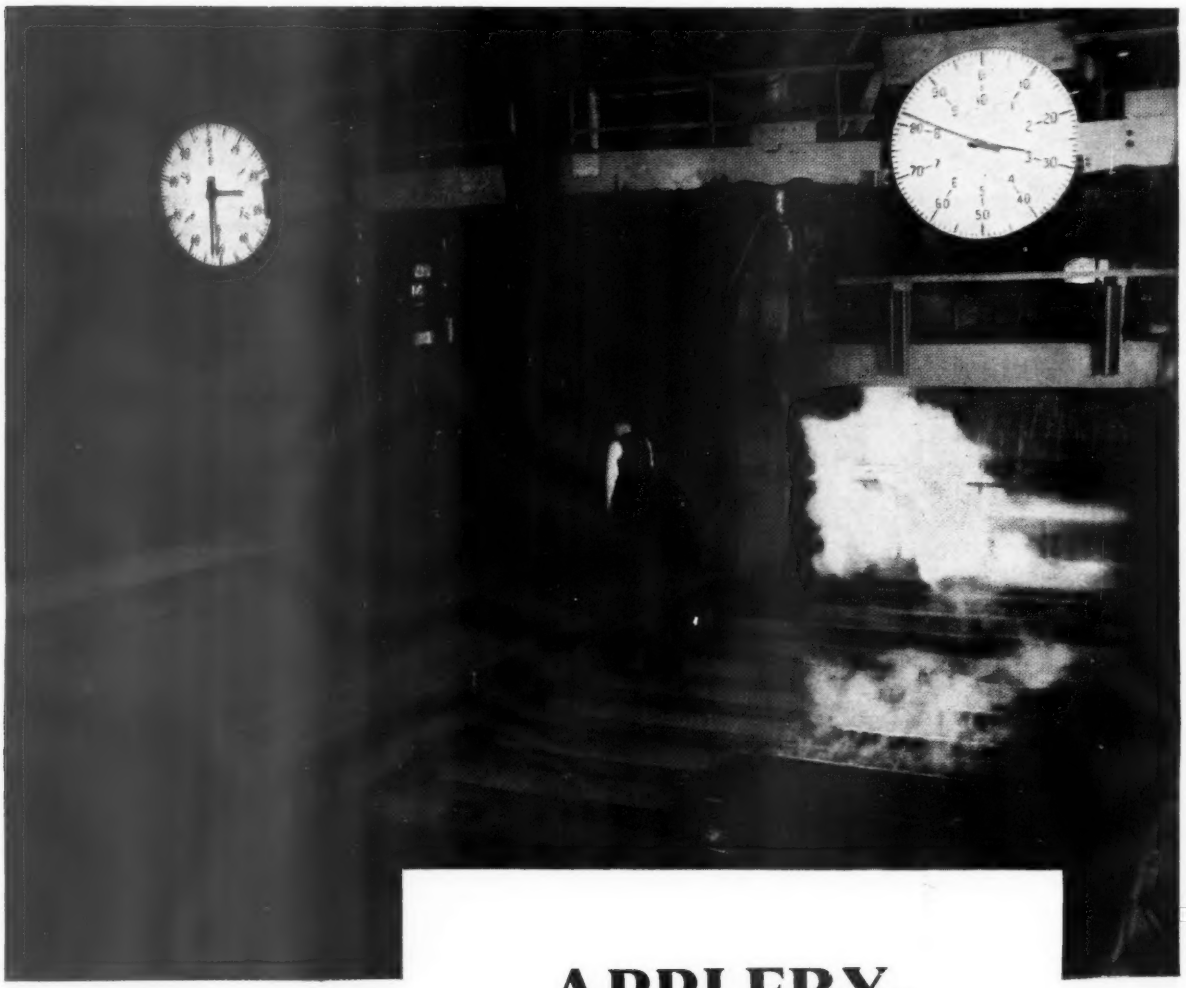

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THE ARCHITECTS' JOURNAL

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HARROGATE AGAIN

ASTRAGAL'S spy in Harrogate has followed up his brief, enthusiastic note about the discussions at the British Architects' Conference (reported in this issue) with some remarks about the festive side of the event.

*

This, he says, was "excellently organized; only the visit to Harewood House was a flop. For some unaccountable reason," he continues, "our visit coincided with about three bus-loads of members of women's institutes from Wigan or some such place, and the tour of the house took on the character of a queue for the one-and-threepennies on Saturday night at the local. I did not succeed in getting to the tea tent which I believe had already been looted by the Lancashire Amazons. At one stage I attempted to short-circuit the tour by joining the outward-bound crocodile, but was heavily repulsed. It is possibly sour grapes, but Harewood House seemed to me one of the least attractive of country houses, whatever Carr, R. Adam and Chippendale and Barry had done to it. It has little charm and is excruciatingly badly arranged."

*

ASTRAGAL, dear reader, must draw a veil over his Spy's report of the Conference dinner—all, that is, except for his report of C. H. Aslin's sharp rejoinder to the Bishop of Ripon, who pleaded for "not-too-modern" churches. "You can't have them cheap," said Mr. Aslin, "*and* not too modern."

*

Why is it that the clergy show this sublime ignorance about architecture?

STUDIES IN MEGALOMANIA

The MOW held a Press conference last week to mark the release of a small Press handout describing the work of its Advisory Council on Building Research and Development over the past year. Sir George Gater, the chairman, pointed out that he knew nothing about the subject, but even so, the representatives of the daily Press tried to be interested. This evidently surprised the MOW, for obviously no exciting story had been prepared to capture the journalists' attention and, consequentially, ASTRAGAL looked in vain for a report of the conference in the next morning's papers.

*

When it was pointed out that the bulk of the building industry should become more conscious of the advantages to be derived from research, one journalist suggested research should be made into the psychology of small builders and architects. This was greeted with the usual guffaws, but it is really quite a sound suggestion. Everyone is familiar with the modern young architect who never accepts anyone else's research and insists on solving a problem by starting all over again from square one. This attitude is forgivable—indeed essential—in the research architect of acknowledged brilliance. But it is time-wasting when held by the mediocre mind which is unduly inflated by the assurance of his school staff that all architects are great creative artists wedded to originality for originality's sake.

AT THE RIBA

When the results of the RIBA Council election were announced last week President Aslin wondered aloud what guided the voters in their choice. So does ASTRAGAL. Obviously they are not guided by studying comments made from the JOURNAL'S hustings (May 19); nor are they solely in favour of modern architects. Perhaps the voting is done by wives and secretaries? The elected, whose names appear on page 849, certainly have charm. In any event, the number of voting papers received was less than usual—4,000 out of 14,000 sent out—a shamefully low proportion which proves that the bulk of the profession is busy, well-off, smug, complacent, and bored to tears with professional politics—and, judging from the number of spoiled voting papers, illiterate and stupid too.

*

The bulk is also bored with sociology

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and architecture, judging from the fact that only 80 or so attended the talk by Charles Madge which followed the announcement of the election results. As some of the 80 were sociologists, or associates being formally admitted to the RIBA, the number of voluntary architect-members of the audience must have been very small indeed. As at the Bronowski lecture, the inadequacy of the learned profession as participants in the ensuing discussion was largely covered up by the sociologists. Altogether it was a chastening evening—save for a demonstration of the perennial effervescence and brilliance of Professor Abercrombie, who proposed a vote of thanks.

*

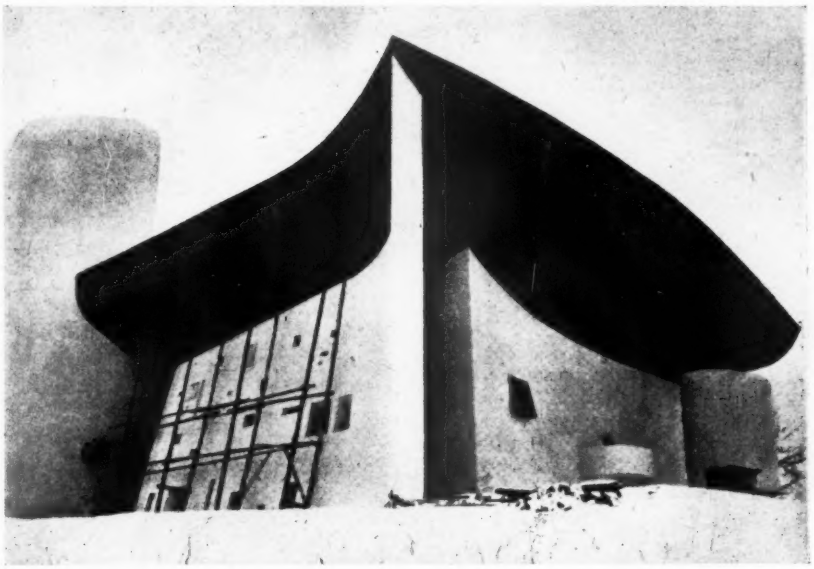
It would be little more than rude to try and comment in a paragraph or two on the lecture itself. A most notable ear-dinger was Professor Madge's reference to housing which, he said, was "a need . . . so compelling that we are still meeting it in ways which we know by experience to be wrong—like the great post-war housing estates around London for example—and which are only aggravating the problems we already have on our hands."

*

If you object that this is not the architect's fault, but the planner's, and therefore the fault, ultimately, of the sociologists who advised the planners, you had better get hold of a copy of the talk and work carefully through Professor Madge's exposition of the relationship between architecture and sociology. Note particularly his observations on the way buildings affect people, and his implied comparison between structures that outlast their aesthetic effectiveness, and aesthetics that are more permanent than the structures into which they are built.

*

And then think again.



Corbusier's church, at Ronchamp: see note below.

SHAPE WITHOUT REASON

A wild jerking of the grape-vine has signalled that Le Corbusier's most extraordinary building to date—more extraordinary than even his giant refuse bin at Marseilles—is due to open on the twenty-fifth of this month. The structure in question is *Notre-Dame-du-Haut*, at Ronchamp, near Besançon, and one notices that the grape-vine says *open*, not *consecrate*. In view of the appearance of the church, seen above, ASTRAGAL supposes it is quite on the cards that the Pope—as in the case of Niemeyer's chapel at Pampulha—may decline to have it consecrated, though the strong pro-modern faction in the French hierarchy might just manage to out-balance the traditionalists.

*

Whether or not it is acceptable to the Church, it is clearly a most remarkable building, with its great curved, sharp-edged forms, very much in Corb's latest sculptural manner. No doubt some die-hards will decry it as a frivolous performance, because it is not rectangular, but ASTRAGAL, for one, is

These pictures show the living-room (below) and the study (right) in the furnished flat which is the British exhibit at the Halsingborg Exhibition, Sweden. This exhibit is a replica of one of several types of flat built at Ham Common (and also to be built at Blackheath) to the designs of Eric Lyons. (See AJ for April 14.) The flat was chosen as Britain's exhibit by Michael Pattrick, at the invitation of the COID, who also asked Mrs. Jo Pattrick to choose the furnishings. For other pictures of the Halsingborg Exhibition, see pages 840 and 844. A report of the Exhibition will, it is hoped, be published in next week's issue.

The Halsingborg Exhibition

H 55, an international exhibition of architecture, industrial design, home furnishings and crafts, was opened at Halsingborg, Sweden, on June 10. Photographs of exhibits, which are laid out along a pier in the harbour (as shown above), will be found on the previous page, and on pages 844 and 845. We hope to publish more photographs, and a report on the exhibition (which will remain open until August 28) in next week's JOURNAL.

prepared to let old masters mess around if they want to, and to put up extraordinary shapes because they feel like putting up extraordinary shapes. Not so some of the master's English supporters, who feel that Corb must always be right for the right reasons and have, apparently, already worn their brains to the bone working out respectable acoustical and proportional excuses for *Notre-Dame-du-Haut*.

MORE PASMORE

Before we leave the subject of shapes, let me remind you that the Redfern Gallery is currently showing recent constructions, and less recent paintings, by that architect among artists, Victor Pasmore. Wild claims have been made for Pasmore constructions, without much visible justification, and to ASTRAGAL'S eye they never really looked like the mass - producible masterpieces they were supposed to be, but now he does seem to be getting somewhere with them.

*

In recent ones—which are said to be built by a craftsman to the artist's designs, and painted by Pasmore afterwards—groups of narrow vertical slats tend to gather on either side of the central division of a symmetrical baseboard, opaque or transparent, like slab-blocks forming up at a decent distance from a traffic artery, with an effect that is richer, yet more architecturally disciplined, than we have seen before.

*

As to the claims that they are machine-like, someone seems to believe them, for an unknown finger had traced the word "Dirty" in the dust on a horizontal surface of one, for all the world as if it was the top of a car bonnet.

THE WRITING ON THE WALL

If you ever thought of defining your profession, you would have some difficulty in finding a less flattering description than the one suggested by the IUA's Working Committee. "An architect," says the Committee," "is one who . . . vitalizes those places frequented by men."

ASTRAGAL

The Editors

VICTORY CONSOLIDATED

THE precedent set at Canterbury, two years ago, and triumphantly confirmed last year by William Allen and Edward Mills that the annual British Architects' Conference is a serious affair has been followed once again by the speakers at this year's conference at Harrogate. The discussions which developed from the excellent papers of Sir Thomas Bennett and David Woodbine Parish is reported on pages 850—860 of this issue, and shows that, despite a certain disjointedness, architects were interested in the subject and anxious to contribute ideas based on their own experience. Nevertheless it is impossible to feel satisfied that this conference represents the standard to be expected from a national conference of the profession. Quite apart from the over-emphasis on recreation—the garden party, once again, was a flop—it is to be wondered whether the greatest use is made of the work put into the conference by the principal speakers in order to educate the non-conference attending bulk of the profession.

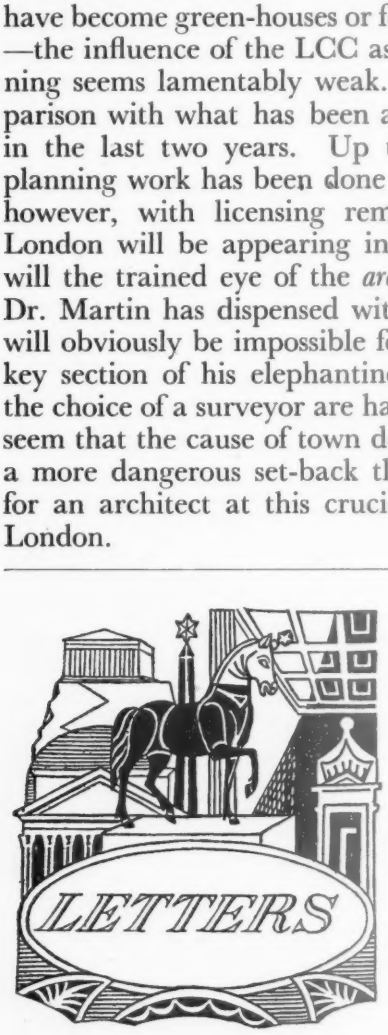
There was recently formed a standing committee for RIBA Conferences. We do not know of any report it may have made, but we suggest that the following two points might be considered when planning future conferences. First, that the British Architects' Conference should be the national culmination of a preceding series of three or four smaller conferences. These smaller conferences could be based on Allied Societies, as now, but the social events could be dispensed with, and the time taken up instead with discussions between the principal speakers for the eventual main conference and the rank and file of the profession. These smaller conferences would not only be more economical, but they would occur more often, thus livening the tempo of Allied Societies and injecting new blood and new ideas into the local Societies with greater frequency than at present. The smaller size would enable subjects to be studied at greater detail, and could also form the proving ground for the arguments put forward at the principal conference.

The second point to consider is the invaluable one of public relations. Architects, unlike doctors, dentists and lawyers, who can safely rely on the frailties of mankind to bring the public to their parlours, have to depend on subtle publicity; on proving, by performance, their worth and indispensability in the face of rival designers or a public which may be indifferent to good design. Architects' conferences are occasions when architects can put ideas across to the general public or the particular client. Subjects should be chosen which are either calculated to provide good "copy" for the national press, or to provide the opportunity for clients and architects to exchange view points. It is generally recognized that worthwhile architecture will not be achieved without a discerning client, and what more speedy and mutually beneficial way of

reaching an understanding between architect and client than by frank informal discussion at small conferences.

THE LCC'S BACKWARD STEP

The successor to architect Arthur Ling as Senior Planning Officer to the LCC is a surveyor. A more efficient member of the surveying profession than L. W. Lane, the new Senior Planning Officer, would be hard to find; nevertheless the appointment is a most disturbing development. No one, and least of all Dr. Leslie Martin and the LCC, can look upon the bulk of the rebuilding of the central areas of London with equanimity and confidence. Apart from one or two relatively small areas—the South Bank and Lansbury, for instance, which have become green-houses or forcing frames for good townscape—the influence of the LCC as a positive creator of good planning seems lamentably weak. Particularly is this so in comparison with what has been achieved by the LCC in housing in the last two years. Up to now the bulk of the LCC's planning work has been done on paper. From now onwards, however, with licensing removed, the pattern of the new London will be appearing in three dimensions. At no time will the trained eye of the *architect planner* be more necessary. Dr. Martin has dispensed with the services of a deputy, so it will obviously be impossible for him to give more time to this key section of his elephantine department. The reasons for the choice of a surveyor are hard to understand. But it would seem that the cause of town design could hardly have received a more dangerous set-back than the substitute of a surveyor for an architect at this crucial moment in the rebuilding of London.



Allen E. Souter, A.R.I.B.A.

"Poacher"

J. G. Bodart

G. E. Bessey, Director of Research, Chalk, Lime and Allied Industries Research Association

"Asdic"

Otto Koenigsberger, London School of Hygiene and Tropical Medicine

Douglas Irvine

Poaching *Is* Justified

SIR,—Mr. Jeffrey Webb's letter, which you published in your issue for May 12, adds to the unwarranted smear campaign which seems to be carried on by some private architects against their colleagues in public offices.

I use the word "colleagues" advisedly, because it appears to be generally forgotten that privately- and publicly-employed architects alike are members of the same profession.

The implication in Mr. Webb's letter that assistants in public offices regularly carry on private work in office hours is insulting in the extreme, and is a charge which cannot be upheld by any evidence.

No one would pretend that there are not a few "black sheep" who will stoop to using their employer's time for their own gain, generally in contravention of their terms of engagement, just as there are, undoubtedly, private men who do not give their clients a square deal. But most public offices are far too busy and understaffed for the assistants to have time for private work, even if they wanted to do it in office time.

Of course, salaried assistants carry out private work, but it is carried out in their own time and not to the detriment of the service that they give to the public and to their employers.

I see that the avowed object of one of the now famous (or infamous) "splinter groups" of private architects is to prohibit private work being carried out by salaried architects.

This suggestion, if it could be implemented, would be an intolerable incursion upon the liberty of the individual and is as ridiculous as suggesting that no architect in private practice should carry out work that would normally be done by a public office. After all, even this is logical from the public official's point of view, because if all public work were done privately, he would be out of a job.

One of the few remaining avenues to the establishment of a private practice is by the acceptance of private commissions, out of office hours. And, anyway, does the amount of work done in this way really represent a serious threat to the private practitioner? Mr. Webb appears to be worried about the competition that the erstwhile salaried assistants will present when they set out on their own; I wonder why?

Let this petty bickering amongst ourselves cease and rather let us all, no matter how employed in the profession, convince the rest of the community, by the value of the work that we do, that architects are necessary members of modern society and not the expensive and slightly eccentric luxuries that the public seem to have considered us in the past.

ALLEN E. SOUTER.

Crawley.

SIR,—The very point which Mr. Hunt makes in his letter (AJ, May 26)—that of the impossibility for an employed architect who takes on building work to look after it properly without neglecting the interests of his employers—makes his own fears ridiculous. To attempt two jobs at the same time clearly precludes any employed architect—however neglectful—from accepting private work of any magnitude. As soon as a large commission materializes he forsakes his employment for private practice.

Small houses constitute 99 per cent. of this private work, and very often it is just such work which enables the would-be private practitioner to make a start. If these pitiful commissions were not taken up by employed architects they would not go to a private practising architect, but to a speculative builder.

By joining any such society to prevent what he considers to be poaching, the private architect is signing his own death warrant. Indeed, it is difficult enough to make a start on one's own, and only those who are prepared to slave away without respite until they are in a position to drop the financial security of a salary can ever hope to achieve full independence. Why do the more fortunate members of the profession attempt to penalize those very colleagues who are their embryonic allies?

The efficiency of every architect, regardless of how many jobs he tackles, lies in his conscience. Let Mr. Hunt search his own before throwing brickbats.

"POACHER."

London.

Letter From A Layman Who Won't Be Fooled

SIR,—An article in the May issue of "Homes and Gardens," under the title "Building your New Home," is written by a member of the Institute of Registered Architects.

The author first lists some of the services rendered by the architect, and then adds:

"For these services the architect charges in accordance with the scale of fees laid down by the Royal Institute of British Architects. They are calculated as a percentage of the cost of the work, on a sliding scale. For a job costing £4,000, the fees would amount to £240."

Unfortunately, at least two of the services mentioned—for instance, advice on the choice of a site and taking care of application to the local authorities—are shown in the RIBA scale of charges under the heading, "Services not included in the Percentage."

Nevertheless, this paragraph is in essence true, as the author refers to fees and not to costs, but it is also typical of the way in which so many architect's clients are misled.

I do not need to do here the detailed costing of an architect's bill on a £4,000 house as your readers can do this far better, but few of them will challenge me if I say that the total cost of having an architect on such a house is unlikely to be much under £350.

J. G. BODART.

Kent.

Privately-Sponsored Research

SIR,—You commented, in your editorial of May 26, on the suggestions of the Advisory Council of the DSIR that the building industry should itself contribute more towards research and thus augment the work of the Building Research Station. Few of those connected with the architectural profession, the building industry, or building materials, would differ from your view of the false economy of restricting the BRS activities, of their essential value and importance, or of the unique advantages of the BRS for tackling common problems.

Nevertheless, there is much to be said for direct participation in research by industry itself, particularly in those industries made up to a great extent of small firms which cannot afford individually to employ scientific or qualified technological staffs. The research associations have proved most valuable for this purpose and have the advantages of being in direct touch with all their members, so that on the one hand the staffs are fully aware of the industry's problems and on the other hand the members are kept informed on new knowledge and developments. There are many problems and possibilities for research and development with building materials and components which can be dealt with more conveniently by an organization of this type than by a government research station. A research association sponsored by part of the building materials industry can thus usefully augment the work of the BRS and, by proper collaboration, can be of value not only to its own members but also to the architectural and building community.

It is with this in view and with a knowledge of the valuable work done by other research associations that an association has been formed by the Chalk Lime Industry, and has since been joined by members of the Sand-Lime Brick Industry.

G. E. BESSEY.

London.

Beware of "Designers"

SIR,—The last few words in your recent editorial entitled "Education" state—"the differences between university and part-time training which, if allowed to continue much longer, will tend to result in the training of two grades of architect—a most dangerous possibility."

I would suggest that in some areas this is well on the way already.

Gradually the schemes prepared by persons who are architects in all but name are increasing in size and numbers. The men I refer to are not the spare time week-end draughtsmen and builders' clerks, who have always been with us, and I suppose always will be, but a new phenomena—bred out of the Architects Registration Acts. They are ex-assistants from private architects' offices who are now practising for themselves, with the complete set-up and practice of an architect, but are most careful never to use the designation "architect."

They practice under various names, such as "Building Designer," "Building Draughtsman," or simply as "Surveyor." They are usually ex-chief assistants. They are competent men, they give good service, and as a demand exists for them, their numbers will, no doubt, gradually increase as Registration continues to be progressively harder to attain by the non-university or college man.

In my humble opinion this state of affairs is being brought about by the unnecessarily high standard required for Registration and the right to use the designation "architect" by linking it to the RIBA Final Examination or a university degree.

Already the standard required by the Final is far in excess of what is required to design, I should estimate, about 80-90 per cent. of the buildings erected in this country, and it is quite obvious that it will soon reach the stage where, unless one can attend a university, it will be impossible to attain ARIBA status and Registration.

What will happen to the keen and ambitious man who cannot afford to attend a university? After his years of training, through home study, the local technical college, and practical experience, he becomes quite capable of designing in the 80-90 per cent. sector mentioned above—which includes all the usual everyday work—houses, shops, hotels and public houses, offices, halls, garages and filling stations, estate development, etc., and he will then be faced with the alternatives of remaining an assistant all his days, or venturing forth into private practice under one of the names previously mentioned. I suppose if he is worth his salt he will do the latter.

In time, no doubt, the public will get used to the "Building Designer," after all—the "Industrial Designer" now has a recognized place. We might sometime in the future even have an Institute of Building Designers!

The answer to all this is clear, the standard required for Registration by means of the RIBA Final is far too high, and the ARCUK should conduct an independent examination purely for admission to the Register and use of the designation "architect." It should be such as to ensure a good standard of design and construction in the 80-90 per cent. section mentioned, which can be attained without full time attendance at a university.

The only alternative, in my opinion, is the most dangerous possibility mentioned in your editorial that you will have two types of architect—with one having to call themselves "Building Designers," "Surveyors," or some similar name, as they were unable to attend a university, but probably doing most of the work.

"ASDIC."

The Orient Expressed

SIR,—In your JOURNAL for May 19 you published, under the title "The Orient Expressed?" elevations of several designs submitted in a limited international competition for a bank in Baghdad. The "entrants were advised to express the spirit of Baghdad in their designs."

What is striking about the drawings you published is not so much the success or failure of the competitors in following this, to say the least, debatable advice, but the apparent lack of understanding of climatic needs which most of these elevations reveal. Methods of design and construction which can produce comfort or permit economical air-conditioning in a hot and dry climate such as that of Baghdad have been thoroughly investigated. They include neither glass curtain walls nor shell concrete domes.

Unless architects who want to build in tropical countries take the trouble of acquainting themselves with the results of these investigations, they will produce neither "interpretations of the Oriental spirit," nor anything as efficient and satisfying as a Hertfordshire school.

OTTO KOENIGSBERGER.

London.

Why A Would-be Client Can't be

SIR,—My wife and I have decided to build a house, or buy a house, and have been making many enquiries, and have come to the following conclusions.

The Conservatives have given us a lot of guff about a property-owning democracy. It seems to be another way of saying that they intend driving all but the wealthy into the clutches of the spec. builder. This is evident from the price of land which the landed noveau riche charge for plots, and the fact that many of the plots are also owned by builders, who either insist on being arbiters of the building to be erected, or else insist on erecting it themselves. In this area a "cheap" plot costs about £750, which generally must be raised by the prospective house owner, since options on plots are rare. On the other hand, to buy a house outright, only 5 per cent. or 10 per cent. of the total cost has to be found by the purchaser.

The high price of land makes any additional costs unwelcome, so that one is not willing to employ a full-time architect.

Even if an architect is employed there is very little guarantee that his estimate of what the house will cost will bear any resemblance to what the builder will demand. There is no doubt that some of the estimates offered by builders are so excessive that only a fool, or someone living on an expense account would be able to afford any one of them. I believe the spec. builder is doing so well out of the present housing policy that he has no desire to build architect-designed houses, or if he does he is going to make quite certain that he makes a good bit more than a fair profit on the deal.

The majority of persons living in well-designed houses are the inhabitants of housing estates erected by the more intelligent councils. Such tenants are not likely to leave their houses for something for which they will have to pay more. This means that the majority of persons have never lived in a well-designed house.

Our own probable solution will be to erect a factory-made house, most likely of timber construction. We have discovered that there are several firms making such houses in this country, and that many of them are of very good design. However, we have still to buy the land outright, and although we may just be able to scrape together enough cash to do so, how many persons who now buy spec. builders' houses are able to do this?

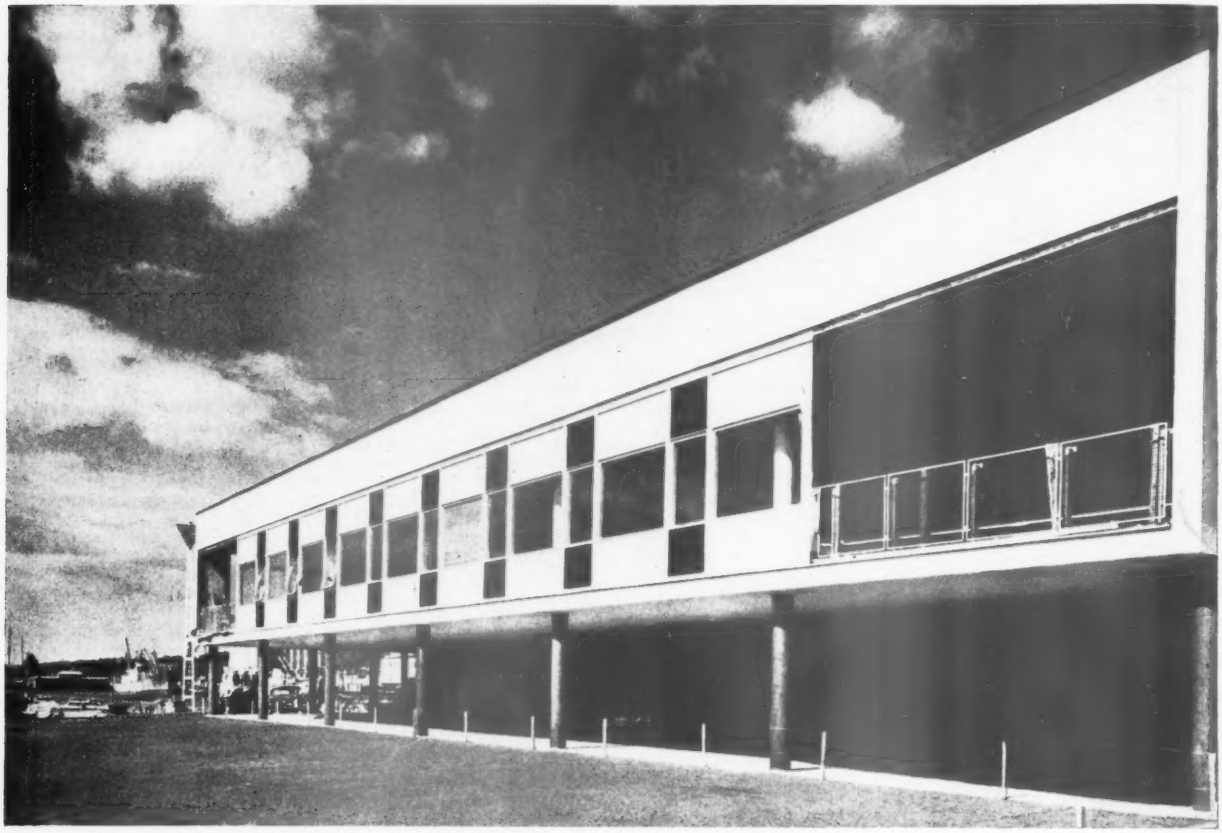
Your JOURNAL, and all others I have seen, have been very reticent about the prefabricated building industry. To what extent is this because you fear that an increase in prefabricated houses will mean less work for the architect? If you have any such fears I do not think that they are justified, because at present architects are not being employed by the spec. builder to any great extent, and it is doubtful if, under the present regime, they ever will. The prefab.—or, to use a more toney phrase to suit inhabitants of residential districts—factory-made houses are designed by architects, and you might be content with these crumbs.

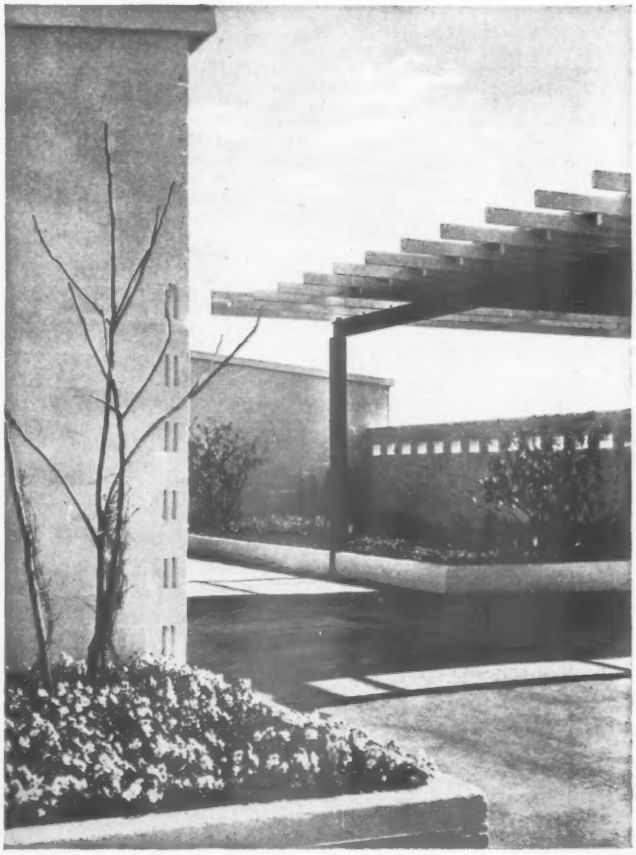
I wish you luck in your attempts to force builders to employ architects, but I do not think you have the slightest chance of being successful.

DOUGLAS IRVINE.

Surrey.

H55: INTERNATIONAL EXHIBITION OF ARCHITECTURE AND





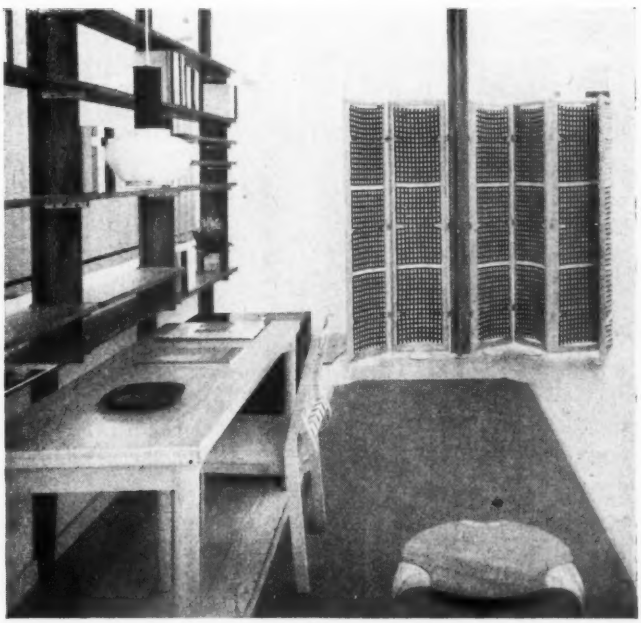
H55, the international exhibition of architecture, industrial design, home furnishings and crafts, is now on view at Halsingborg, Sweden. When it closes it will leave behind one permanent building—the Parapet restaurant (top), designed by Bengt Gate. This restaurant is at the end of the pier in Halsingborg harbour on which the exhibits are laid out. (The pier is shown on page 840). The photograph above, which was taken from the deck of the shipping

INDUSTRIAL DESIGN AT HALSINGBORG, SWEDEN

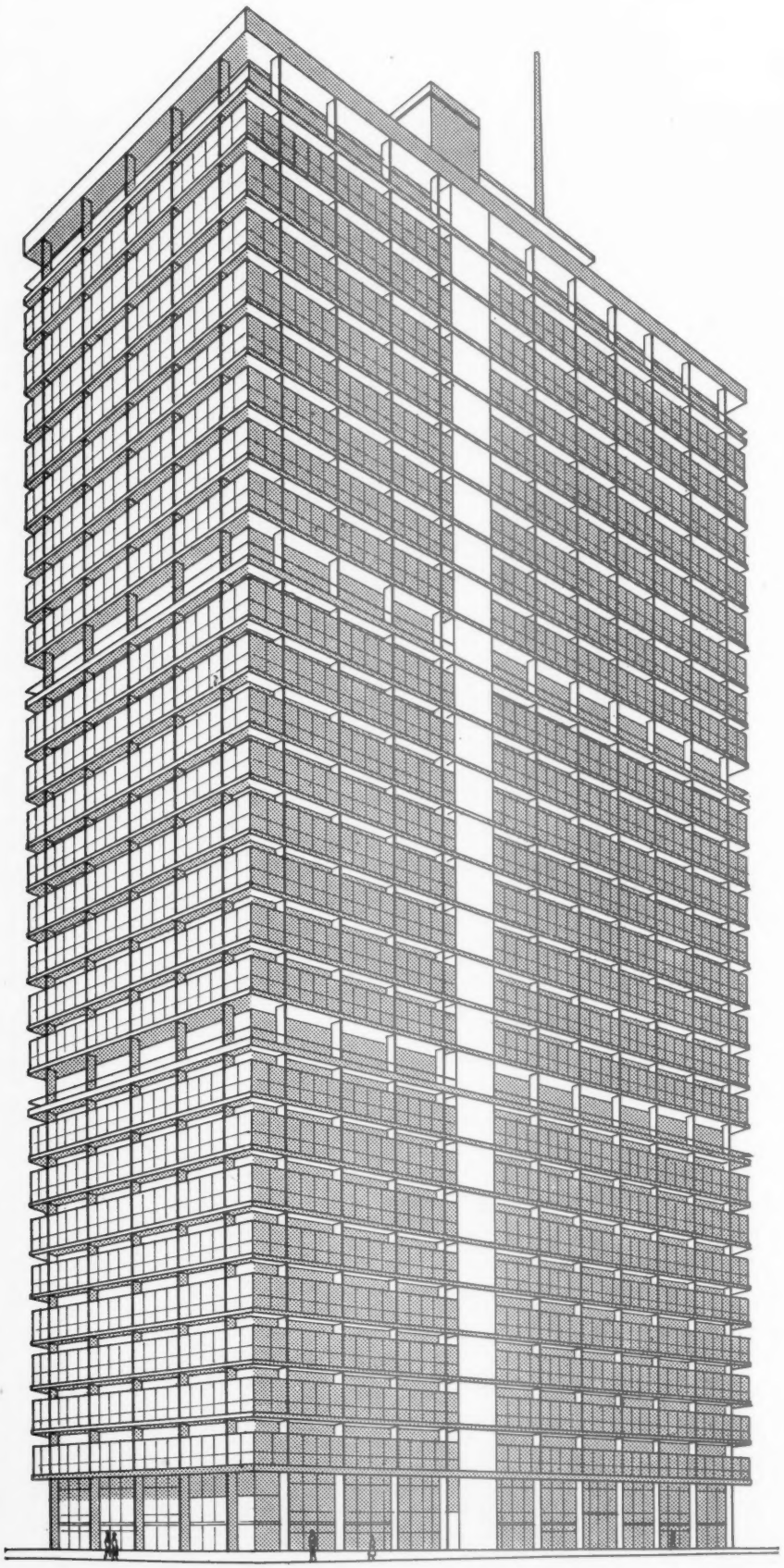
pavilion, shows the harbour and the town beyond it. Previous page, right: part of the series of terrace gardens (with screen walls and pergolas, which link the exhibition pavilions. On the right: part of the exhibition of Swedish house types, which are mostly prefabricated structures. Below left: Yogi Kasajima, the architect of one of the most interesting furnished flats exhibited (Japanese), talking to a Danish designer, Paul Torjusent. Below right: Yogi Kasajima, sitting at one of the low tables with which the Japanese flat is furnished.

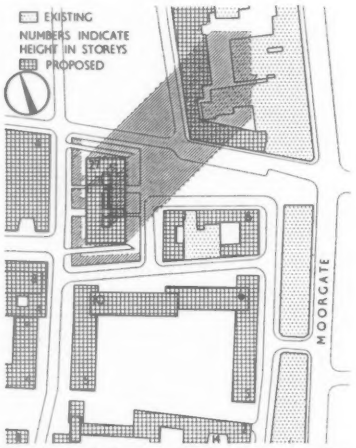
Bottom right: a corner of one of the rooms in the Finnish flat, by Alvar Aalto. Bottom left: Finnish furniture designed by the same architect. A JOURNAL *correspondent, who will, we hope, be sending us an illustrated report of the exhibition for next week's* JOURNAL, *tells us that the British exhibit—a flat designed by Eric Lyons (see page 839) and furnished for the COID by Jo Pattrick—is drawing*

bigger crowds than any of the other nations' furnished flats. "It is," he says, "a great success, with enough personality of its own to distinguish it clearly from the rather pure and stereotyped Scandinavian good taste that generally prevails. The best of the others are the Japanese and the Swedish. The most disappointing is the German. But the German and Swedish are the only ones besides the British that have kept to the rules and reproduced an actual existing flat. The rest are really a suite of rooms designed for exhibition purposes."



TWENTY-SEVEN STOREY OFFICE BLOCK FOR



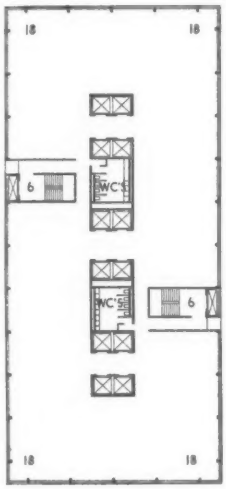


Site plan relating to city development plan

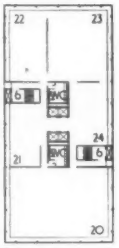
This 27-storey office block has been designed for a site just to the west of Moorgate, in the city of London, by Erno Goldfinger and H. T. Cadbury Brown: assistant architect, R. H. J. Geary. A central core of lifts and lavatories pierces the 27 storeys. In addition a group of four lifts serves the ground floor and the ninth floor, and another serves the ground floor and the eighteenth floor. (The ninth and eighteenth floors, where there will be continuous balconies around the building, will house offices for important executives). Because there is only one lift core above the eighteenth floor there is more space on the highest storeys for offices—so these floors will give the most favourable letting returns. The building, which will stand in an open excavated area, will have direct pedestrian access (across bridges) from pavements on either side of the block. The lower ground (or basement) floor will be approached from road level (by vehicles only) by ramps. Car parking facilities will be provided both above and below ground. On the top floor there will be a restaurant which, because of its height and fine

THE CITY OF LONDON

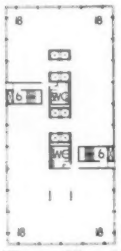
KEY
Ground and Lower Ground Floors
1. Piazza
2. Street parking
3. Ramps to vehicle approach level
4. Vertical circulation platform
5. Pedestrian bridges
6. Fire escape stairs and lift
7. Void
8. Three-level showroom
9. Ramp to intermediate garage level
10. Perimeter parking basement
11. Oil storage
12. Boiler room
13. Pump room
14. Lift pits
15. Storage
Upper floors
16. Lift motors and tanks
18. Rentable office space
20. Restaurant
21. Cocktail bar
22. Oyster bar
23. Kitchen
24. Preparation and servery



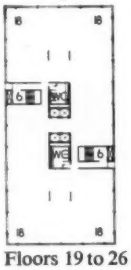
Typical plan floors 1 to 9
[Scale : $\frac{1}{64}$" = 1' 0"]



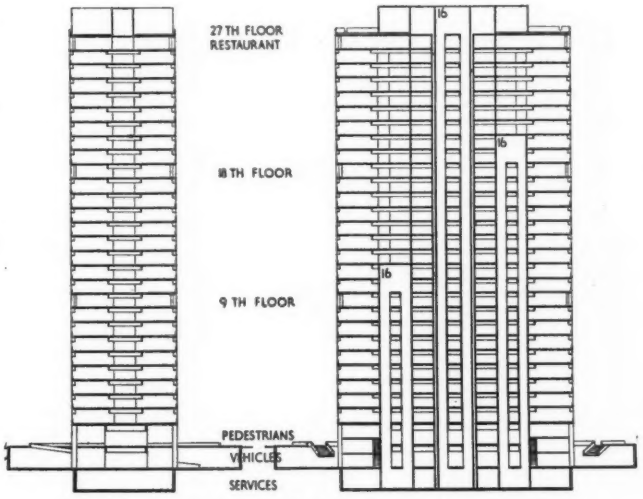
Restaurant floor



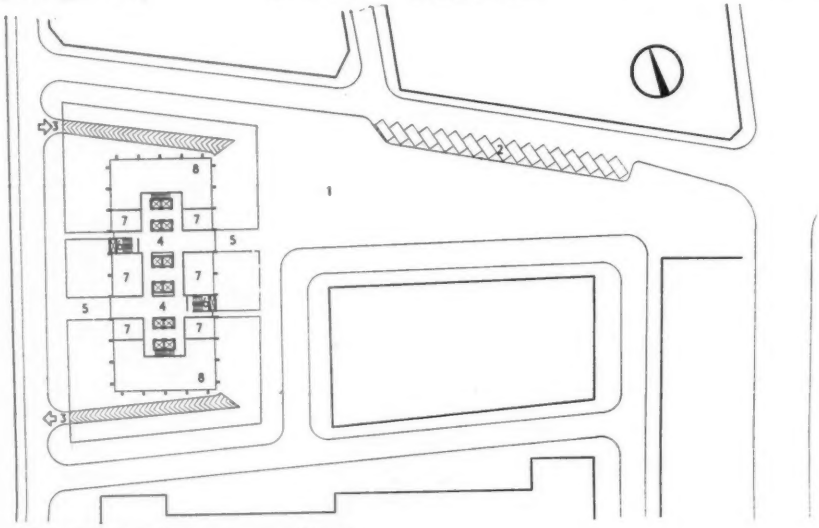
Floors 10 to 18



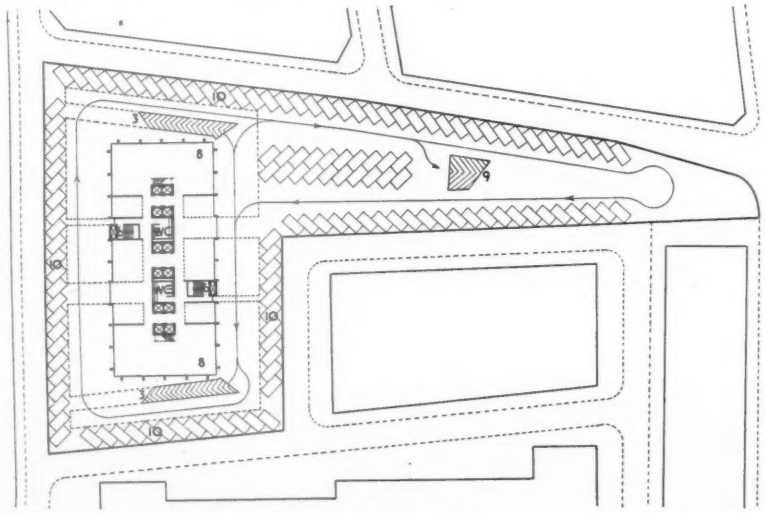
Floors 19 to 26



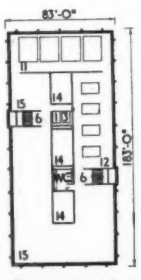
Typical cross and longitudinal sections [Scale : $\frac{1}{128}$" = 1' 0"]



Plan at ground, pedestrian approach level



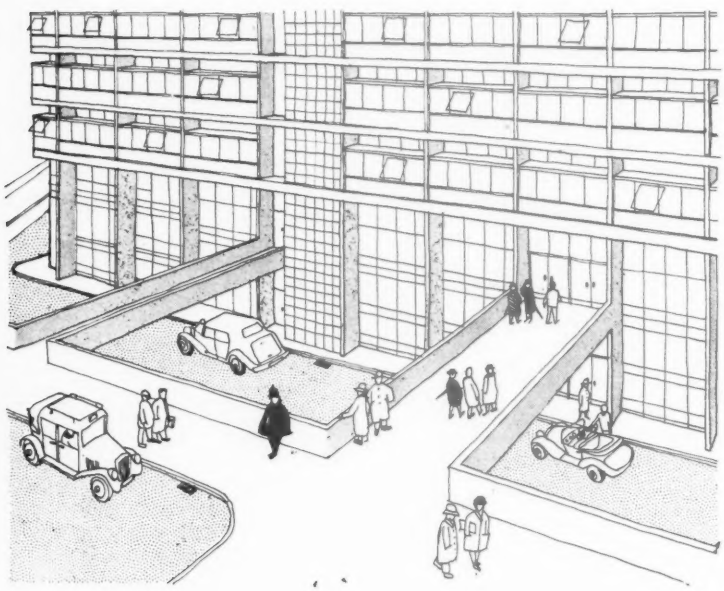
Plan at lower vehicle approach level [Scale : $\frac{1}{128}$" = 1' 0"]

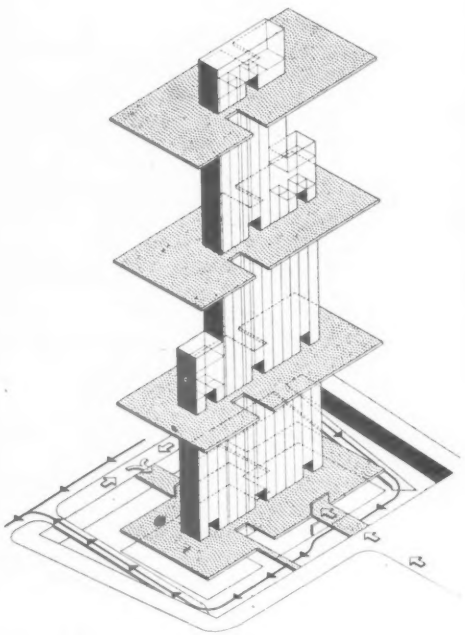


Basement plan

all-round views, will be expected to draw customers in the evening as well as at lunch time. Inside the external walls the usable floor areas will be divided up as follows: 1st to 11th floor, 79 per cent. lettable area and 21 per cent. vertical and horizontal circulation, lavatories, services, etc.; 12th to 20th floor, 82 per cent. and 18 per cent. respectively and 21st to 26th floor, 85 per cent. and 15 per cent. respectively. Because the block will have to relate to buildings considerably lower, the architects designed the facades "with depth and contrast of light and dark as an alternative to a hard, shiny box." The main central core is to be of reinforced concrete: from this core at each floor level, will be cantilevered a ring beam. From each ring beam, precast prestressed floor units will span to the perimeter framework, which will have main column supports at 16 ft. 6 in. centres. The whole structure will stand on a box foundation formed by the basement. The lowered ceilings formed by the ring beams will contain ducts, and ceilings in the offices

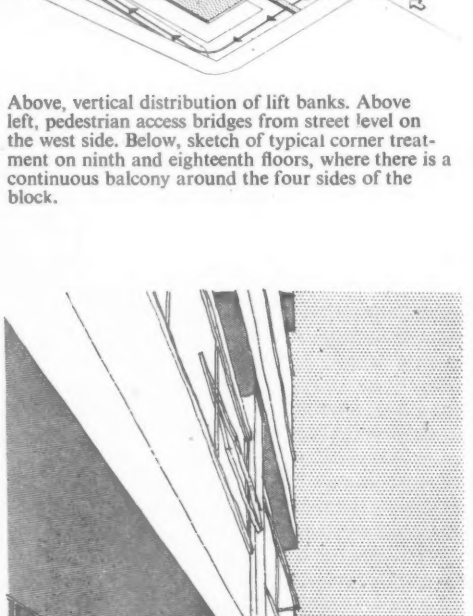
PROPOSED OFFICES IN MOORGATE, LONDON, E.C.2





Above, vertical distribution of lift banks. Above left, pedestrian access bridges from street level on the west side. Below, sketch of typical corner treatment on ninth and eighteenth floors, where there is a continuous balcony around the four sides of the block.

will be without beams. A 2-ft. 9-in. module is used throughout the building. In addition to the central core of lifts there will be two combined escape stairs and firemen's lifts, planned on each long face of the block, to comply with fire regulations. These lifts are to be available for normal passenger traffic except on the sounding of an alarm, when they will automatically be disconnected from this service and return to the ground floor for the use of the fire brigade. The structure of the escape stairs and lifts will form a wind brace to the central core. Heating will be provided by boilers in the basement, with calorifiers at three levels on the upper floors. These calorifiers will serve panel heating in the floors of the building. Water supply will be from tanks on the roof, with reduction valves at lower levels; there will be no storage on intermediate floors. All offices will have high recessed windows, which the architects considered necessary to give the protected ventilation required in high buildings. There will be horizontal sliding windows in the main area of glazing. The whole of the facade will be accessible from opening windows for cleaning and maintenance. Reflection of daylight to the rear of offices will be provided by the top of a horizontal member placed near the top of all windows (shown in the sketch, top left). This horizontal member, which will also protect those working near the face of the building from strong light was designed by Erno Goldfinger many years ago and is said to have been used with success in various buildings.



RIBA

The New Council

The newly-elected members of the RIBA Council are E. Maxwell Fry, F. R. S. Yorke, J. Murray Easton, C. G. Stillman, Edward D. Mills and Gordon T. Tait. They were nominated by the Council. The last three gave their views on matters of interest to the profession (in reply to a JOURNAL questionnaire) in our issue for May 19. Mr. Murray Easton was unable to contribute his views as he was not in the country at the time, but Mr. Yorke was "too busy" to comment, and Mr. Fry wrote: "should I be elected to the Council I would prefer to hear the views of the Council before making any comments."

The new associate members of the Council are Peter F. Shepheard, J. L. Womersley and Tom Mellor. They were all nominated by the Council. The first two replied to the JOURNAL'S questionnaire, and their opinions can be found in the JOURNAL for May 19. Mr. Mellor, however, wrote that he "would certainly want to know more about the detail work of the RIBA and about the views of different sections of the profession before coming to any decision."

The new licentiate member of the Council is R. W. Toms, who was one of the few privately-nominated candidates to reply to the JOURNAL'S questionnaire.

Readers may like to be reminded of their other representatives on the RIBA Council, so here is a complete list:

Members of the Council. Professor Sir Patrick Abercrombie, Dr. R. Bradbury, Lionel Brett, Sir Hugh Casson, J. Murray Easton, A. G. Sheppard Fidler, E. Maxwell Fry, Professor R. J. Gardner-Medwin, Frederick Gibberd, Leonard C. Howitt, Dr. J. L. Martin, Edward D. Mills, Richard H. Sheppard, Basil Spence, C. G. Stillman, Gordon T. Tait, Ralph Tubbs, F. R. S. Yorke.

Associate Members of Council. W. A. Allen, G. Grenfell Baines, Eric Bedford, D. E. E. Gibson, P. E. A. Johnson-Marshall, S. A. W. Johnson-Marshall, Tom Mellor, Peter F. Shepheard, J. L. Womersley.

Licentiate Members of Council. B. H. Cox, G. H. Morris, R. W. Toms.

F. Charles Saxon is a vice-president and three others are to be appointed on July 5. The honorary secretary and the honorary treasurer will also be appointed on that date.

The president is, of course, C. H. Aslin, and the past-presidents are Sir Howard Robertson and Sir Percy Thomas.

Bronze Medals Awarded

The RIBA's London Architecture Bronze Medal for 1954 has been awarded to the Ackroydon Estate, Wandsworth, designed by the LCC Architect's Department (Architect to the Council: Dr. J. L. Martin).

The RIBA Architecture Bronze Medal awarded for the three-year period ending December 31, 1954, in the area of the Essex, Cambridge and Hertfordshire Society, has been made in favour of the Harrowfield Boys' Secondary School, Harold Hill, Essex, designed by Richard Sheppard & Partners.

Action to be taken on Conference Proposals

The RIBA is to take action on a resolution which G. Grenfell Baines prepared, but did not have time to propose, for the British Architects' Conference at Harrogate.

In his resolution he asked for the formation of: "(1) a published cost information service; (2) a joint research council to co-ordinate research and development work; (3) a joint council on education and training; (4) a joint committee to investigate the simplification of elements—particularly bills of quantities; (5) a joint committee of architects and house-builders to investigate the minimum amount of design information required to produce the maximum improvement in house-building design; and (6) an inspection service for the maintaining of quality standards in building—a service preferably within the industry, but possibly a government service."

ABT

Press Asked to Suppress Ex-member's Accusations

The ABT held an open meeting at the BC last week to discuss the representation of salaried architects. "Under 50 turned up," writes an editor, "such is the interest in the subject, at least when discussed by the ABT, but in the audience, rather surprisingly, were RIBA secretary C. D. Spragg, W. R. F. Ellis, the deputy secretary, and assistant secretary David Benton. If they were there to discover whether the profession felt strongly on this issue, or to assess the maturity, restraint and influence of the ABT, they cannot have been much impressed.

"Kenneth Campbell spoke first, and he is incapable of making a bad speech; indeed one could listen to him for hours, but he was limited by the fact that the subject was old and well-worn, at least within the limited vision of a trade unionist. Guy Oddie, who followed, had been asked by the ABT to speak as one providing an independent view. This he did, on the lines of his speech at the RIBA's AGM. He then gave two reasons why he left the ABT. One reason he later withdrew, and the Press were asked to suppress any reference to it, on the grounds that the reason given could lead to the hampering of the career of a member of the ABT. If this reason has any basis of fact it should, of course, be investigated by the RIBA, who must never allow a member to be victimized in this way. The other reasons Mr. Oddie gave for leaving the ABT was that it had at some time unfairly censored a report prepared by a group of its members which was to be submitted as evidence to a Royal Commission. The report had criticized both employers and employees. The ABT had cut out the criticism of employees.

"This charge was unanswered at the meeting; if correct, it exposes the weakness of the trade union approach which concerns itself only with fighting for what it can get out of others, and not with ensuring that its members provide efficient service in return. Secretary Shrosbree did, however, put the case for the ABT—preaching, one should guess, largely to the converted, deploring theorists and procrastinators—such as the AJ—who want more information before taking action. He also pointed out that the ABT had no political affiliation, no political funds, and challenged anyone to prove that the ABT had shown political bias since 1949.

"Several other worthy speeches were made, and the meeting ended with a great show of friendliness, backslapping, and an appeal to the Press to be decent chaps."

YORK

Windmills, Theatres and Fires

Windmills, Theatres and Fires will be among the subjects talked about at the York Summer School of Architectural Study next month.

The School's programme includes the following talks:—"The English Windmill," by Rex Wailes; "Recording Old Theatres," by Richard Leacroft; "Some Famous Fires and Their Influence on the Design of Building," by Eric Bird; "Ideas and Landscape," by G. A. Jellicoe; "The English Garden Tradition," by Brian Hackett; "Regency Architecture," by Clifford Musgrave; "The Stained Glass of York Minster," by the Dean of York; "Blots on the Landscape," by Professor J. A. L. Matheson; "James Paine: His Place in 18th Century English Architecture," by Norman Lynton.

The School (July 30 to August 13) will be open to students in schools of architecture recognized by the RIBA, and others, on the recommendation of their tutors. Preference will be given to students who wish to make measured studies in preparation for the RIBA Intermediate Examination, or its equivalent.

The fee is £14. A few non-resident members will be admitted for £5 5s. Applications should be made, on a form obtainable from the York Institute of Architectural Study, St. Anthony's Hall, York, by June 27.

ARCUK

What you Mustn't Do

ARCUK's Discipline Committee found that an architect was carrying on business as an estate agent and was also secretary to eleven companies engaged in estate development. As he had ceased to practise as an architect the Committee decided there had been no breach of the Code of Professional Conduct. But they asked him to resign from the Register "in order to avoid misunderstanding." He has done so.

An architect who is consulting architect to a company for which his wife is a director and to another company in which his wife holds half the share capital has been told by ARCUK's Discipline Committee that they are "not satisfied that he has been carrying on his practice in a strictly professional manner." This rebuke has been administered in spite of the fact that the architect produced documents to show he was not managing the companies.

UK AND USSR

Exchange of Specialists

At a recent series of housing meetings in Geneva, organized by the Economic Commission for Europe, the delegates of the UK and the Soviet Union announced plans for exchanging housing and building specialists this summer.

BRITISH ARCHITECTS

Readers will remember that until last year the JOURNAL'S *Editors complained, after each British Architects' Conference, that there was too little conferring at this annual excuse for high-jinks on expense accounts. In* 1954, *when the Conference was held at Torquay, the Editors had no cause to complain, for the high-spots of*

Scenes at the informal reception at the Hotel Majestic, Harrogate, on June 8. *Top: left to right, R. S. Shapley (Leeds), William Allen (BRS), Mrs. R. A. Gerrard (Both), E. D. Jefferiss Mathews (vice-president RIBA), David Booth (President of the Berks., Bucks. and Oxon. Arch. Association), Mrs. Booth.*
Centre, left: left to right, Col. Polson Hall (Inverness), Mrs. Bowman, Frederick Bowman (Chester le Street), John Holt (Regional Hospital Board, Edinburgh).
Centre, right: left to right, Raymond Walker (London), C. W. C. Needham (York), Dr. W. A. Singleton (Manchester), T. M. Alexander (Liverpool), W. H. Glen Dobie (President of Liverpool Arch. Society), L. W. Alexander (Liverpool). Above: delegates entering the Royal Hall, Harrogate, to hear the papers by Sir Thomas Bennett and D. E. Woodbine Parish. Left to right, A. Metcalfe (Leeds), G. Stoor (Leeds), D. A. Brooks (Wakefield), R. M. Brooks, D. B. May (Leeds).

THE ORGANIZATION OF THE BUILDING INDUSTRY AND THE ARCHITECT'S RESPONSIBILITIES

At the inaugural meeting on June 9, *Sir Thomas Bennett and D. E. Woodbine Parish read shortened versions of their papers, which had already been circulated to conference visitors and printed in the* JOURNAL *of June* 9. *To start the discussion G. Grenfell Baines and A. G. Sheppard Fidler gave prepared addresses. Below is a condensed report of some of the contributions:*

G. Grenfell Baines (Preston) " . . . . a cost information service must be established and published . . . ."

G. GRENFELL BAINES: We have heard from Sir Thomas Bennett in a way and directly from Mr. Woodbine Parish that we are workers in the building industry. I am pleased to hear it because I have long felt that about myself, and long wondered why circumstances under our control tend to place us outside the industry, not only in our actions but more important, in our thinking. That is the first point I want to make. My second point is a personal view about Conferences. I am sure, like me, you do not like to waste your time. You have come here, I suppose, to learn and to contribute to the pool of learning and not to endure generalizations, or be regaled by dazzling exposures of how to suck eggs.

CONFERENCE AT HARROGATE

the event were the papers and discussions on "Materials and Techniques," which led to the formation of an RIBA industrial liaison sub-committee. This year's papers were equally the high-spots of the Conference. They may well be as useful as last year's proved to be, for it was clearly the wish of the gathering at Harrogate that we should stop talking *about the need for pre-planning and better organization, and* do something *about those things.*

The platform at the Royal Hall at the opening session on "The Organization of the Building Industry and the Architect's Responsibilities." Left to right: A. G. Sheppard Fidler, G. Grenfell Baines, Hubert Bennett, C. H. Aslin, Sir Thomas Bennett, D. E. Woodbine Parish.

For this Conference to be worthwhile, it must end all the talk about collaboration with the industry and begin to really practise the work of doing it. I would like to see practical proposals for collaboration with the industry.

Last year's Conference was, to some extent, an easier one to grasp. The subject was materials and their behaviour in a climate we know only too well to be changeable. This year we have a more elusive subject, a slippery (with no offence to builders!) subject to grasp, the human material with which we build the structure. The essential matrix which is the beginning of the ultimate monument to our joint endeavour, the structure of builders in the sense of the client/architect/builder partnership, how it will behave in the social and economic scheme today. I see that structure buckling on insecure economic foundations and sagging under the strain of aesthetic adventures too tense for the client and builder, although they have been known to recover from that strain, and so I think the first responsibility of the architect is to inspire a sense of partnership. Not merely to pay lip service to this, but by complete co-operation and tolerance, to get everyone to feel that they are really contributing, that that creative part of them, which is in everyone, is contributing to the job as a whole. That is rather fundamental, I know, but this problem can be tackled both fundamentally and in detail on things as they stand. I am not a fundamentalist and I believe the basis of a building service, the key basis, is design. I mean design in the fullest sense, and one of the lessons of Sir Thomas Bennett's paper is that we have got to realize that economics is a factor in design, that must rank with the other three—the useful, the beautiful and the buildable. Architects have got to recognize that and bring to bear the same instinct of economics on the other three. The industry, in my view, is overloaded; that is inevitable. The demand is well beyond its capacity and we must accept and cope with it. So our responsibility, in this situation, of high social pressure and difficult economic circumstances, is that we really must design down to the bone, but we can get plenty out of it as far as poetry is concerned. It must not be imagined that because we concern ourselves with the business side, the economic side, we are in any way likely to harm architecture or ourselves, spoil our capacity to produce the vital spark.

Sir Thomas mentioned in his paper that there should be no variations in the ideal contract, no changes of mind. I am quite sure that more than half of the troubles of the industry and the profession are caused by hurried thinking at the start. Insufficient information is obtained from the client, it is not passed on to the quantity surveyor or the builder, and the job starts without that basis of understanding which is essential to the ordering of materials, programming and the rest. We have got to be forthright with our clients about the time factor. That does not mean we have to sit back and take it easy and take too much time over it, but nevertheless, we must persuade our clients that it is good business to give time for the production of adequate information; that point cannot be stressed too much. The American client tells us he doesn't mind how much time we spend to get the job lined up because he

Visitors at the civic reception and dance at the Royal Hall, Harrogate. Right: Sir Thomas and Lady Bennett. Below: delegates and their wives taking the floor. In the bars and the buffet those who do not dance were continuing the discussion of the morning's meeting, although more was heard about the "Organization of the Building Industry" than about "The Architect's Responsibilities."

doesn't pay us very much after all. It was when the big money went out to the builder that he wanted the time factor considered. That is a good business factor to pass on to a client who wants to rush us in starting. One of the reasons our clients do not start soon enough is that they are uncertain about the costs, and a suggestion I would like to make is that we do establish a cost information service, we could collaborate with the industry to do it, and the other professions, and keep it up to date and publish it and give it publicity. It could go in with the stocks and shares and the fat stock prices and the rest; it could be a news item, and I do not see why we cannot overcome the difficulties of giving basic costs for building types. I am sure with that information, the architect would have more authority when quoting costs to clients, which would mean less disillusionment and disappointment when the job costs more than the architect or client expected.

Sir Thomas has asked where the quantity surveyor should be; my answer is, most of his time in the architect's office. We use a quantity surveyor as a co-designer in the very early stages; he is one of the most useful men to bring the economic factor into the plans. Sir Thomas has brought up the question of consultants and the use of them. We have found that a combination of the consultant service with a specialist service which has the know-how and the knowledge of materials is the best of both worlds. We have done it with two big jobs. I am convinced it is the right thing to do. We employ the consultant as a co-designer and call in the specialist, the consultant checks the calculation and design and helps us at this stage with our responsibilities as designers, and we get the best theoretical and practical advice we can. Sir Thomas has hinted in his paper that we should be forthcoming about fees in this respect. I do not think there is any difficulty about that. Where we use the design service from a specialist, we take a 2 per cent. reduction in the fee; it is all allowed for in the professional code.

I have a little more time just to discuss the responsibility of the building industry to the architect. We have heard Mr. Woodbine Parish say that designers are outside the executive side of the industry. True. This does not obtain in many other industries. True again. I have often wondered if we could not give a better building service if we were part of it, in it, and employed by it. We could be under certain conditions. The first one is status; our status would have to be high. We should have to be at least directors; but the other, and more important, factor is one of safeguarding quality. An enormous amount of trouble is given to architects by bad workmanship due to poor supervision in the industry itself. There is no real system of inspection within the industry and I do not think it should be the architect's job to be a policeman, as so many clients expect it, and as some quite immoral builders have suggested to me. They say, you are supervising, you should have noticed it. For anyone to suggest he does good workmanship only if

policed is a sign of very low morale to say the least of it. We must be safeguarded on quality and it is up to the industry to establish its own system of inspection.

Regarding status and quality, I think the RIBA should encourage any experiment where the designer collaborates directly with the contractor. The implications of that, of course, are negotiated tenders.

I see no harm in negotiated tenders. Sir Thomas suggests competitive tenders as the only way of keeping prices up to scratch. If we had a price exchange system, constantly reporting basic cost of buildings back to the public, I think we could take care of this question of price; it would become a matter of competition, a combination of designers and contractors to put in the best basic prices. There would always be an authoritative check.

To recap: as workers in the industry we are first of all responsible for the design for our clients of usable, economic and beautiful buildings and, for the builders, a buildable building. To that end, we want a balanced, a composite training in schools and for post-graduate study. Here I suggest travelling symposia to help people in the provinces. It is up to us to increase the capacity by accepting the problems of using manufactured components. I am not suggesting we should wrap up our buildings in school uniform, which some people seem to be rushing to do, but we can, I am quite sure, by using many more manufactured components, up to the economic limits, help to spread the capacity of the industry. We must be realistic about costs and time requirements, all of us together, not have the architect round the corner saying—I can do it quicker and cheaper when he knows he cannot. We must be realistic with our clients.

I would like to see the Institute initiate joint bodies in research, for price information, for education and for the simplification of documents. I understand there is joint machinery in existence. I think it needs a few more connecting rods and a few cranks to get the rust off the wheels and would like to think this Conference shows the beginning of moves through the RIBA and the power to really start the machine in motion.

A. G. SHEPPARD FIDLER emphasized the importance that Sir Thomas gave to "time" and "money," and drew attention to the client's pressure on the architect and the restricted time he has for designing compared with the pre-war period. He noted the greatly increased volume of work now in the hands of local authorities, suggesting that this, together with the increasing technical complexity of building work, calls for technical collaboration with specialists at an early stage. He followed this with a cautious plea for selective tendering. Referring to the negotiated contract, he said: "It is difficult to see how this manner of working could become generally acceptable to the local authorities because of their strong adherence to the tendering principle; in fact, I think it essential that there should be a check on contractors' prices and the competitive system ensures that this is so."

G. NOEL HILL: I would like first to add my compliments to Sir Thomas and Mr. Woodbine Parish for most interesting papers. They are largely factual but I think if one reads them correctly they are very critical. If we do consider they are critical, and I think they are, particularly critical of the profession—we cannot afford to be complacent and go away from this Conference and do nothing about it.

I have picked out three points and made them into questions: (1) Do we, as architects, always assess the relative values of different types of construction? (2) Does our advice always result in the use of the most economic constructions, and (3) to what extent are architects responsible for the present conditions of contracting which have resulted in the builder losing contact with the workmen?

I think the last one is the most important and the answer to that provides the answers to the other two. I consider that architects are largely responsible for the present unsatisfactory conditions of contracting, unsatisfactory for the builder, and consequently, the cost of building is higher than it need be irrespective of the increase in the cost of labour and materials. This is quite something to say but I am going to prove my point before I have finished. The architect calls the tune and I think the trouble is we are calling far too many tunes. If you consider the difficulties to the general contractor who is tendering in his area to a number of private architects and a number of local authorities, he is called upon to tender for a variety of jobs throughout the area, all with different forms of construction, very often with proprietary articles he may know nothing about. We expect the contractor to organize under these conditions. The answer is, of course, he just cannot, and this has to be paid for.

We set out a few years ago to try to reduce the number of tunes we were calling, to see if we could bring down the cost of schools, and we simplified our requirements so that the builder had the job to himself, at least until the roof was on and after that, he had complete control of all the specialists. The result was a tumbling down in the level of tenders. I suggest, Mr. President, that my contribution is that we should go back and consider the tunes we are calling.

SIR THOMAS BENNETT: Mr. Noel Hill raised two, if not three, points of real interest. The first—Do we or can we properly assess the relative costs and suitability of different methods of construction? I think that is a point upon which we might possibly ask the Building Research Station whether they are able to give us standard information of some kind, constantly issued and renewed every quarter or six months. I am constantly being compelled to carry out analyses in my own office. We wanted tenders for schemes in reinforced concrete, and in structural steel, for the same building at the same time from the same set of contractors. It was a block of flats about eight storeys high, not necessarily very suitable for reinforced concrete. To the surprise of most of us, on a tender of £384,000, we had £33,000 saving on a reinforced concrete building; the three or four lowest tenders all reflected a similar saving. It does not mean this is conclusive in any way whatever, but this exact comparison is often difficult to get and it may be the profession could be supplied with standard comparisons of some sort which could be regarded as a useful guide.

Then there is the question of what is the reason for the divorce of the contractor from the workmen, and to what extent is the architect responsible. Clearly the reasons are very numerous, not the least of which is the middle-thirties contractors' efforts to get work which made them tender for jobs all over the country instead of within their normal circle of action. Other contributing factors are undoubtedly the fact that the specialist contractor needs specialist workmen that he can send about, and the cost of certain straightforward building operations like painting, have proved to be more economic when carried out by painting contractors than by the contractor himself. No other industry tries to work with a scratch collection of workmen.

D. E. WOODBINE PARISH: So much has been said and so many points have been made that we would like to get down to, perhaps, the fundamental point behind all industries, and that is, how one can create a wholesome atmosphere in which people are going to work happily and contentedly. I believe that the building worker is taken far too much for granted by the profession. You believe there are people waiting to carry out your work and your wishes without taking very much interest in them as individuals. Sir Richard Coppock has referred to the "hiring and firing of workers by the hour." Of course, one cannot hope to get a great deal of loyalty from an individual who is on that tenuous basis; for the contractor, a lack of continuity, the desire to secure sufficient work to see the order books full for the purpose of providing security—these are all problems with which we are daily beset in building companies. The negotiated contract, which has been mentioned on a number of occasions, may merely be a means of finding a solution to this problem of greater continuity; of work for the permanent staffs of builders, the operatives, the craftsmen, who work with those firms. It is the incredibly haphazard, catch-as-catch-can efforts to secure work in the false belief that economies are effected, which produce a hypothetical and often wrongly stimulated sense of competition. So much depends on the selection of the firm which is going to do the work, and the sub-contracting firms—the ability of those people to come together as a team under the direction of a dynamic individual in the form of an architect. If there is no good leadership from the architect, you cannot get it at any other level at all. It must come from the top, the ability to give people a sense of belonging to something which is well worthwhile, fulfilling a need for which somebody else is going to pay. What the building is going to look like on the glossy pages of the technical journals may be significant,

Scenes at the garden party at Harewood House, near Harrogate. Top: left to right in the group in the foreground: Mrs. Sheridan-Shedden, J. R. Sheridan-Shedden (Birmingham), Mrs. Sheppard Fidler, A. G. Sheppard Fidler (Birmingham), Mrs. Steele, Alex Steele (Edinburgh). Above: C. H. Simmons (Shrewsbury), Mrs. Simmons, Mrs. Hill, G. Noel Hill (Lancashire). Right: Col. R. A. Jensen (London), Mrs. Jensen, C. A. Richards (War Office). The setting for the garden party was rather bleak, the weather was cold, and the delegates coincided with a mass visit by Women's Institutes. But the band played doggedly on, and tea and cakes were to be had in the marquee—in knee-high grass.

but it is trivial in comparison with the immense amount of effort, love and care people are going to put in for a considerable period of time to produce fine buildings. They are not only concerned with the big problems but the homes in which people are going to live, the way they are set out, the care and thought that go to the smallest details. It may be argued that there is not time or opportunity, and that it is going to cost too much to deal with all these things, but it is an attitude of mind which, when it is grasped by the architect, will filter its way right down even to the fellow who perhaps makes a cup of tea for the architect when he visits the site.

H. S. Oddie (Messrs. Costain, Liverpool): "The building industry is flushed with a high temperature."

H. S. ODDIE (COSTAIN): I am a Director of the smaller and older firm in Liverpool and also have the distinction of being Senior Vice-President of the Institute of Builders which is all too little known in the world today.

I have read with great interest and I am most indebted to your body for allowing me to have the papers, and I think that the fact that I am on this rostrum at this moment is proof, and the fact that my good friend and deadly rival, Mr. Woodbine Parish, is on your platform, is striking evidence of the relationship within the industry. Sir Thomas has referred to the revolution of this century. Well, it is rather more than 40 years since I entered the building industry and I have experienced all these social changes, and these technical changes which confront us, and frankly, I think the building industry is outwardly prosperous—bigger and better motor cars, bigger and better overdrafts—but it is sick; it is flushed with a high temperature, with advanced tuberculosis, with all sorts of ills in its bloodstream. It is in a gathering such as this and what will come of it that we can remedy the thing.

Sir Thomas, in his paper, very properly, I think, referred to the necessity for the fullest information to be made available at the right time. If I appear critical, I have to prove my case by giving you one of the extreme examples of this need. The last contract I visited yesterday afternoon is a contract between £500,000 and £600,000 in value. We have had 400 drawings, archi-

tect's drawings, not specialist drawings, and many of them are subject to revision. That is wrong: that is a contract which could and ought to have been finished in 18 months and will have taken about 21 months and I expect there will be more and more revisions. I am going to quote a reinforced concrete building; before we had reached the first floor, we had 37 revisions to the reinforcing details reaching us at the time we were pouring the concrete. Too many revisions and too late.

As a builder, I echo Sir Thomas's remarks, that it is fundamental that the fullest information should be known to us at the time of tendering; how quantity surveyors can possibly produce intelligent and related bills of quantities when all too frequently the working drawings are not available passes my comprehension. Your drawings are not always intelligible to us, and sometimes I wonder they are intelligible to those who produce them!

Your working drawings must be clear enough for the man who is really going to construct that part of the job for which he is responsible; otherwise this interest which Mr. Woodbine Parish has emphasized will be lacking; unless the man can feel it is something with which he can identify himself, you are going to lose the spirit of teamwork which is fundamental. The team I envisage is the team in which all have equal parts—the architect's part is no greater than that of the most humble labourer in their own relationship. It is essential, if we in this industry are to serve the community, that we should be able to give you intelligent tenders. For you to find there is a supply of tenders reaching well established builders' offices, I think it would be a good thing if in the regions your architects' societies could give advance notice; if there were a "diary of events to come," I think you would get some intelligent tenders.

I echo what has been said about selective tendering. I have been a member of a local authority for a good many years and I have preached that gospel and I think everyone here could do that. Indiscriminate tendering is bad. You get casual tenders, or, quite frankly, tenders which are not tenders at all. If you have the confidence, and instil in your clients the necessity for trusting your selection of a short list, you will get on. My industry supports the principle of competitive tenders but on a selective basis. By that, of course, I do not mean I should refuse to go back to Liverpool with a negotiated tender in my pocket. But it is essential that we should have our information, bills of quantity, etc., properly prepared. Competitive tenders, by all means.

Something has been said about education in the papers; I do not think sufficient. I ask this body, your noble body, to give encouragement to the Institute of Builders, have faith in the fact that we have principles which inspire us, which are as high as yours. In the not too distant future, we hope to establish, and I think we can claim the right to be the convener of, a Board of Building Education; and when that day dawns, it will be a happy thing for your Institute, the Royal Institute of Chartered Surveyors, and all other appropriate bodies, to join in bringing us all together, in the junior ages, to an education common to all at the stage before we branch out either to design or to the executive side. So that there would be a better understanding and young architects—and there are some fine young architects in the offices which I visit—will not just look at the building from the angle of a glossy picture in a journal or from the drawing board angle. These are things we have got to inspire in the young people. We must, as Mr. Woodbine Parish has said, get off our pedestal; we must bring in the craftsman and the unskilled man in the building industry, treat him with the respect he deserves, recognize him. Go out on to your jobs, as you do, I am sure, talk to the men doing the job, let them know that the architect recognizes their work.

You are entitled to ask what we are doing, as an industry or as a firm. In my own company, which is a provincial one, we have had for many years, a distribution of part of the profits to men from the labourer level upwards, co-partnership on a loose basis; when the profits are there, they share them. We have a supplementary pension scheme as well as the contributory one. When a man has grown old in our service, we remember him. These are the things which are essential to get that continuity of employment which is essential if we are going to have the best expression of the things you are seeking. In a higher sense, my company in London, along with other companies of similar size, have recently established work study groups. I need not explain this, it speaks for itself. We have a system of pupillage, a system of entry and training for management which my Institute is designedly suited for and going to take a great part in. On Merseyside, we are taking at the moment, under the auspices of the British Productivity Council, a pilot survey of six firms, six contractors, six architects, six quantity surveyors, and we are visiting—that team is visiting each of the six contractors, and at the end of each session—next Saturday it is my turn to be the host—we shall be able to dissect and analyse the things we have seen. These are reconnaisance visits; later, each firm will create a team which will go here, there and everywhere, unrestricted, to examine and learn, and eventually, all of those ideas will be sifted, the knowledge which has been gleaned will be brought to the top in the form of a report which I am sure will be available to the RIBA and certainly will be available to the industry generally. That sort of thing seems to me essential and desirable for the better economy of the industry. We are in great danger of pricing ourselves out of existence. All this facade behind which we live—and there is in this modern world a facade, I think some of the modernity of architecture is only an expression of the restlessness of our age (I am sorry, I am almost tempted to talk on architecture, and I don't know anything about it because I have not even lectured on the subject) but I think it is up to us in this industry to force upon building owners the necessity for decisive action, to try to evolve a system of penalizing them if they change their minds. I think it almost right, if a client frivolously changes his mind, to make him pay double the day-work charges for it. You may laugh, but quite frankly, day-work charges on minor variations do not, in the long run, pay a builder. The builder makes his profit by earning the profit he first envisaged in the shortest space of time. Do please insist upon your building owner—I think sometimes we are not firm enough with him; we are not servants, only in the highest sense, we are not suppliants for his patronage. I think with local authorities I should be rough with them.

Rex Procter, F.R.I.C.S. (*Leeds*): *". . . if client and architect went abroad when the contract began, the saving would pay for their holiday . . ."*

REX PROCTER: I am a quantity surveyor and so, of course, I am a simple sort of man. I fully agree with Mr. Grenfell Baines when he says that half the problems which arise in the building industry are due to a lack of pre-contract preparation; I suffer from it all the time. You have heard Mr. Oddie say that alterations take place during the construction of the work; it is quite common in my job for us to start taking off a bill of quantities and, halfway through to go back to the beginning and start taking off again because of the alterations. You have to get back to what the client wants and it may be that the client is not prepared to give the time for pre-contract preparation. You can either tell the client that he must do what you want and give you time, or you must do what he wants and get something out when he wants it. Although competitive traditional tendering is undoubtedly the best way of performing a contract, you cannot do that unless you have enough time for proper pre-contract preparation. If you cannot get that time, then you must adopt some alternative method, whether it be a fixed fee contract or a competitive schedule of rates or a negotiated tender, but we have heard committee after committee say that lack of pre-contract preparation is the root of our problems. It has been discussed ad nauseam and there is no point in discussing it any further because it does not make the client any more willing to meet that problem. After all, most of the work today is local

authority work, and they generally work to starting dates and committee dates, they fix you in time and give you problems you must overcome within the means at your disposal. I spend a lot of time on arbitration, and I should think that in half these arbitrations, the dispute arises because the decisions which the architect should have made were not made at the time that they should have been. You all know that job after job comes in with alteration after alteration; we have dealt with 500 alterations, 500 variation orders. If that sort of thing happens it is because decisions have not been made at the right time, they were not made early enough. I suggest the profession should put its own house in order.

The third thing is that information does not come at the right time. Sir Thomas said that, before a job starts, the contractor should have the drawings and specifications. I suggest that the drawings and specifications should be ready before the quantity surveyor starts. That is a very unusual state of affairs. I was recently on a building brains trust, and one of the questions put to us was: "If the client went abroad at the beginning of the job, would the saving on the job be sufficient to pay for his holiday?" We decided it would not because his holiday would be such a long one. It was suggested that the saving might be sufficient if the client was accompanied by his architect.

I would therefore leave this with you: that you have got to satisfy your client. Have the job properly prepared before the work starts. If you cannot get that, you have got to satisfy him some other way, such as the fixed fee or competitive schedule of prices, but in that event the client must be told that the method of contracting upon which you are engaging is one that, in the long run, would probably cost you more money and might not save you any more time.

M. B. TETLOW: For some years, it has been my lot to play a supervisory part in the erection of houses on a very large scale. I find, on reading Sir Thomas's very excellent paper, that my mind very naturally turns to that part of his paper which was labelled House Building, and I find these words: "As a whole this section of the industry appears to be very highly organized, very highly efficient . . ."

Well, I am very glad indeed that Sir Thomas thinks that. Last year, more than 50 per cent. of the building labour employed on new works was employed on housing in some form or another. If Sir Thomas's remarks are correct then the building industry is at least very highly organized in at least 50 per cent. of its work.

I think Sir Thomas's words are no doubt correct when he refers to flats. The building of flats is more nearly approaching other forms of big building work and architectural work than is the building of houses. In the building of houses in cottage form, I think it is true that many contracts are ill-prepared, many drawings are hopelessly insufficient and much of the building work is not as good as one would like to have it. Only recently, I came across a contract of a sizeable local authority housing scheme where the bill for extras for the work was nearly 50 per cent. of the original contract price. I agree it was an instance of difficult land where much of the work came into the category of site levelling, not within the contract price, but it is an indication that contracts are not properly organized at the beginning.

My second point is this: the national policy at the present moment is towards an increase in the building of private and speculative houses, and in that work, we have a pre-war history which is anything but a happy one. Here I would like to appeal particularly to the building side to ensure that those responsible, namely the clients and the builders, do bring in the architect on their work, and that we do not enter upon a phase of large-scale private enterprise in speculative building of the character which we had before the war: ill-designed and shoddy. Here there is need for the co-operation between the architect and the builder on a scale far greater than ever existed before.

SIR THOMAS BENNETT: Dealing with Mr. Procter's point that working drawings are not complete when the contract commences. There are still many contracts which, for various reasons, must be started without complete drawings. The profession needs to perfect some proper technique by which that work can still be carried on with first class organization, and if it is done by all concerned with real intelligence and ability, it does not necessarily follow that the work is more costly. One point Mr. Procter did not mention, and which I think is vital, is that the client is then dependent upon the estimate and not the tender to guide him as to total expenditure. And that is a matter for a highly skilled quantity surveyor in the form of records of costs of parallel buildings and an assessment by the architect and quantity surveyor combined of the specific conditions as to locality, time, conditions in the industry and the probable rise or fall of cost during the progress of the contract. The technique, and how you run an efficient contract on insufficient drawings, is quite as much part of our duty as how to run it when we have complete drawings.

As to alterations, there are alterations of a frivolous kind but there are other alterations in developing techniques in highly industrialized buildings. I think we want to give some study as to how to deal with the right management of alteration.

The fourth point mentioned is the question of open tendering, which is tied up with the point Mr. Grenfell Baines mentioned—quality of buildings. Do not let us be ashamed of the fact that there are many qualities of buildings, and it is one of the curious things in this industry that almost identical specifications produced by us can be tendered for by builders with a knowledge of the different type of quality they are expected to produce. We can have ordinary shop specifications, not very different from bank specifications and we know we will have two different sorts of building when finished. The builder will know it; we shall exercise that curious difference to judgment as we pass through the contract and that, of course, is the real difficulty of open tendering. One builder is going to give you a totally different quality of building from the remainder. While talking of that, I would like to mention another thing. The building industry is finding out how to bonus on output but not on *quality* building and I am sure that is a lesson it has got to learn. In my brief excursion into boots and shoes, I found that other industries have discovered how to bonus on time plus quality.

SECOND SESSION: JUNE 10

SIR THOMAS BENNETT: The speakers yesterday emphasized the commencement of contracts with complete drawings and specifications, if necessary bills of quantity. There was some reference to—but not, I think, enough—one of the major questions that this Conference would like to see started on its way to solution—the correct method of using or obtaining the knowledge we need from consultants or sub-contractors who are specialists in some aspect of building. I think it would be of greater advantage if a number of speakers could tell us what, in their offices, they do with regard to using the knowledge needed of this character. Whether they employ a consultant and pay him; whether they have staff or departments which supply that knowledge; whether they have used successfully sub-contractors who include design within the sub-contracts they issue, and if so, what safeguards they demand to make sure the client does not pay too much for the services that are rendered and also, whether the client is aware that these services are rendered.

In many cases, contractors dismiss nominated sub-contractors as being children of the architect, and people they cannot control. This aspect of the matter again, I think, would gain enormously if various members of this Conference were to give their experience of whether that is, in fact, a widespread criticism of building management. We have also a criticism from certain people that we should leave the builders to tender for sub-contract work; do they in fact produce as good a sub-contractor as if you appointed them yourself?

We have not yet heard any reference to the standard of supervision, knowledge and experience, which one of our principal controllers exercises on jobs—namely the Clerk of Works. There is a good deal to be said for the view that the Clerk of Works has not changed sufficiently quickly or sufficiently completely in background and ability, that he is still a bit too much a watchdog to the builder, and insufficiently a part-collaborator of the architect. While it is still legally necessary for the Clerk of Works to be employed and paid by the client, yet he is the servant of the architect. In engineering, the resident engineer is very important and a key person on the engineering contract. Have we succeeded in making the Clerk of Works similarly important and a key person?

These are some of the pertinent questions

of organization which the Institute can only learn about and issue proposals about if members of this Conference give widespread experience from their own offices. These are the sort of things we hope to hear from everybody here today.

D. E. WOODBINE PARISH: I would like to agree most whole-heartedly with all Sir Thomas has said with regard to making something really constructive of today's discussion. One thing that I think has been fully realised and to which reference was made by one or two speakers yesterday, is the impact that planned management could have on the whole conduct of building work. Management is a subject which has only recently, within the last five decades, really been taken to pieces and analysed. The process of scientific management, the breaking down and the assessing of work and how it is achieved is something which in the building industry we have not really yet addressed ourselves to. We live in water-tight compartments too much, we think in water-tight compartments too much, it is something which has got to be done totally and collectively, if any member is missing, the whole will fail, or fail in part, and perhaps industry collectively, the professions, industrial and commercial sides, have got to come together to examine and analyse and synthesize this whole process of assembly management. There has not been a great deal of fun and pleasure in the day to day grind, not nearly so much fun as there was many years ago, and somehow we have got to find that secret of pleasure in what we do, because by finding that—and we shall find it when we come together and get rid of the feeling of stratification, the overtones of status which exist, the lack of common decencies and courtesies between all sections of the industry—when we find the secret of that, I believe a great deal of what is being discussed and talked about here will disappear into thin air. I believe you cannot be realistic unless you have a fairly wide streak of idealism in your outlook, and I do not detect it in a very great deal that happens in the industry. There was a spark missing yesterday in quite a lot that was said, although what was said was quite sound. There was a narrowness and a singleness of purpose in some of the things said.

We have not yet addressed ourselves, in the industry, to the question of work study; method study, maybe, but work study, no. And work study is something we have got to address ourselves to. It is the whole process of how work is achieved—how buildings are put up; work study in the drawing office, work study in our day to day conduct of the commercial features of our industry, work study in connection with education. In the syllabus of the RIBA examination, management is ruled off in two or three short lines and yet it is a key feature of your work as architects, the ability to manage, manage people, people who are going to put together three-dimensionally your ideas which are only on paper. Work study is an art and a science that has got to be understood.

G. GRENFELL BAINES: I am very pleased indeed to have this opportunity of expressing second thoughts, which are as good as second wind. I too felt that yesterday everyone who came forward had a contribution to make but they were rather like the wicker mats George Stephenson put down on Chat Moss. This morning I would like to see the hard bright rails of where we are going laid down. I feel that design is the key basis of a better building service, it is not just something that comes first and then building contract operations come after; it is really something that runs right through and I want to make it clear. Mr. Woodbine Parish has been very brave in the way he has spoken about the spirit in the industry; I admire him because architects are hard-bitten as a rule. They have been idealists and experience tends to harden them somewhat. I think he has been very brave and he has established the need for a spirit of partnership in the whole enterprise, the spirit which I would like to see come from the joint committees that I hope we are going to form as part of the positive moves towards fuller and more effective and practical collaboration with the industry.

I think the reason why we do not have Clerks of Works of calibre is plain and clear. They are not paid sufficient, the job is not made worthwhile and their status on the job is poor. We have got to persuade the client to pay for a good Clerk of Works; we must take great interest in the way they are trained, indeed in the way in which a lot of people in the industry are trained: the men who have to carry out our ideas.

Mr. Oddie has the same feeling as Mr. Woodbine Parish on the question of a better spirit of trust, and I hope that other members will have something to say about that particular point, not in general but how it can be developed and exploited to the full. I was very glad Mr. Procter confirmed that he could take off quantities better when he had more information, and while I agree with Sir Thomas that there are people who must start jobs and we must rack our brains to find out how little information can produce the maximum effect, clients must be told: "You must wait till we have done it—why grumble when we are giving you our time, you are paying for it?" Mr. Tetlow mentioned collaboration with speculative builders on house design. I think we architects must realize that builders themselves are designers of some calibre, particularly the speculative house-builder. They have the artist-craftsman complex—indeed, I suspect some are frustrated architects by the way they send their sons to architectural schools, but we must recognize that point, and take them in as co-designers. I hope the Institute may be arranging a joint committee of registered house-builders and architects to find out what minimim of information is necessary to produce maximum improvement in the design of speculative houses.

Mr. Woodbine Parish has plugged the management question and I do hope he will tell us, before the Conference ends, something of how this is going to affect us as architects. We all know that if you get a good builder and the architect does his job, the present set-up works smoothly. I would like to understand more about management.

I have spoken about hard bright rails to begin with; I do hope they are going to be laid down. The resolution I would like to see from this Conference is that we might decide to ask the Council of the RIBA to take immediate steps to strengthen and extend the joint machinery for working with the building industry and the allied professions. I have a list of things here they might investigate which I will not retail now.

A. G. SHEPPARD FIDLER: I can see that management is of paramount importance in the case of a big contracting firm where programming and ordering must be the most tricky business we could imagine, but I cannot see, myself, that a small builder, capable of building ten or twenty houses, can possibly be as interested, nor is it so important for him to be interested, in this large subject of management.

On the question of teamwork, surely there is a limit to the point at which an architect can actually interfere with the way in which a building is built. He may consult with the contractor, however he is appointed, at an early stage, can ask questions about where he is going to start first and where he is going to place his materials, and check with him when he has ordered steel and windows in order to ensure the contract goes smoothly, but beyond that, surely, there is a point at which the contractor may turn round and say: You told me to do this and look where I am now! Surely it is the contractor's job to run his contract—the architect to advise, perhaps, but to make it clear he is the adviser, only. We are limited by our code of professional practice from stepping over that line and I do not see how complete and true teamwork is going to come while that is so. Perhaps one way in which the architect could help this collaboration is by visits to the site. Where you have got half a dozen jobs you can probably make a programme and get round and see them once a week, if only for a few minutes. I would like to have a little bang at the builders here because I have found in the industry there is a very great lack of desire to experiment. The change in the equipment of a building is colossal, yet we still have this silly nonsense about one man waiting for someone else to knock a hole in the wall and so on. I have found that, in the attitude of mind of many contractors, they are still longing for what they call "the good old days."

Then again, there is a great difficulty in creating a real team spirit among men on the job when so many sub-contractors appear for such a short time. I have found this in my own experience, and particularly so I think in the central areas of England, and I believe, further north, where there is great use of labour-only gangs.

I agree with what has been said about the Clerk of Works. I find that a very great deal of senior assistants' time has to be spent on a job doing work which really

should be done by the Clerk of Works. I should like to make one point about selective tendering. As you know, the Ministry of Works has accepted the principle of selective tendering, but when this matter was discussed by the Association of Municipal Corporations, which is the Association of Local Authorities, after a great deal of discussion, it was decided that if local authorities wished themselves to use the system of selective tendering, then it is quite in order for them to make their own rules and proceed on those lines. It is left to local option. I very much agree with Mr. Noel Hill about calling too many tunes, but I believe that, by the development of a measure of standardization and co-ordination, the individuality of style which we, I think, sadly need today, will largely go.

HOWARD LOBB: suggested the need for some scheme of classifying builders according to quality and capabilities. He said: "The integrity of the architect is accepted, but not that of the builder." Referring to the importance of the operatives and foremen identifying themselves with the job he quoted his experiences on the Festival of Britain site. A few weeks before opening date, when work was behind schedule, they stopped work for a day and invited the men and their wives to come as visitors. The interest that was stimulated—particularly through the wives—caused a dramatic improvement in output in the final weeks.

SIR THOMAS BENNETT: Replying to Mr. Howard Lobb's point about classification of contractors: we all know how brilliantly he himself realized the human relation problem on the South Bank which would otherwise never have opened.

As far as classifying contractors is concerned, the Ministry of Works attempted to do this during the war and it was my duty to control a schedule of all contractors then working in the country, with the jobs they had in progress, the volume of work compared with their resources and the question of classifying them became an acute problem. The most important lesson that was learnt was, that there is much more team work than is normally believed as between architects, engineers and contractors. Many committees said: It is no good you telling us A, B or C is a good contractor, so far as our personnel is concerned, for work of this speed and vital character; we must have the contractors we know, the personnel on their staff that we know, and that applies a considerable way down the scale.

The second point is, every office of any magnitude ought to have its own list of contractors and ought to be prepared to stand up against charges of favouritism, etc. I think we have got a responsibility to contractors. So far as lists are concerned, I am sure it is the experience of those controlling large numbers of contracts that firms, often of standing, vary considerably over a few years as a result of the loss of some key man on their staff, and their standard of work goes down, so if you ever had a list, you ought to be continually revising it. I also think we have got to bear in mind this question of the rising firm it would be difficult to put into the lists if they became standardized. I see many objections to the issue of official lists and many objections to large offices, at least, *not* having recognized lists with qualifications.

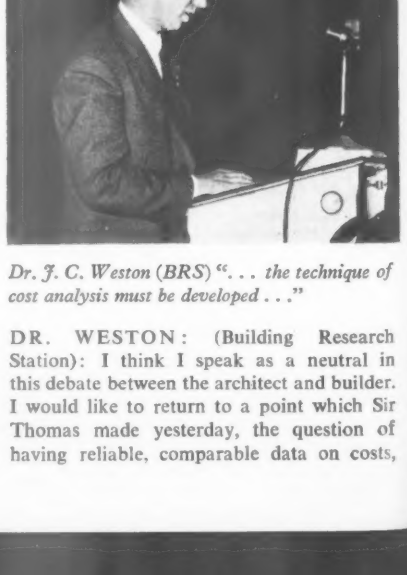
There is one final thing; far too many firms rely far too much on the individual foreman being the fellow who runs the job. The management at head office do not exercise sufficient general management; they appoint a foreman and leave him.

D. E. WOODBINE PARISH: May I give a counterpart to the last few words of Sir Thomas. We find exactly the same thing, that the architect does not visit the site, that we are left with an assistant, or an assistant-assistant, who comes down to jobs and who has no authority to make any decisions, but wastes time, and builds up a good deal of ill-will.

Human relations, the personal contacts between all levels in the architect's office and in the builder's office, the ability to get on christian name terms, the fact that you are going to do another job together, and going through a series of experiences again, has an immense effect for good in contracting. I had a very happy experience recently and will tell you about it because it was refreshing. We were entrusted with what was quite an important but not very large job and the letter of instructions that came to us from the architect ran to eight pages. It ran to 47 paragraphs, all of which were carefully numbered. And in it we received the most lucid instructions as to what was to be done with the various personnel in the architect's office who were dealing with the job, their names, etc., and expressed the hope that I might meet the principal and introduce our various supporting representatives. This was done and it is one of the happiest jobs I have been associated with in post-war years. It was not a roll of drawings with a letter saying that some of them are going to be amended but may be of interest just to get the job started, that the bills of quantities are only provisional and that the job will be remeasured and the specification is in the hands of the printers, but would we sign the contract in the meantime! If that is not *lousy management*, I don't know what is!

We have our classification of architects as well! I said this once at the Royal Institute and will say it again. For some architects my basic prices have to be advanced by as much as 5 per cent. I know I shall not get the details; I know I shall be interfered with from the time I am fool enough to get on to a job under the control of an individual of that kind, and I know perfectly well it will be hell's own delight getting a final certificate. On the other hand, I am delighted to have the opportunity to discount my prices by as much as 2½ per cent. for those individuals who really deliver the goods. Sir Thomas says it is important that the architect should take the chair at site meetings. Maybe, I think it is rather nice if you have joint chairmen because you have got to have both sides equally represented. Admittedly, the architect is the titular head, but the individual who has the commercial responsibility, who is the agent and a party to the contract (and the architect is not a party to the contract, he is only agent in the terms of the contract), should take a very leading part in the conduct of site meetings. Mr. Lobb has brought up this business of the architect's integrity always being accepted, but as soon as he has been appointed the question of integrity begins to get rather smirched. I have been privileged for six or seven years to be chairman for the National Committee for the Training of General Foremen, and we have done a good deal in seven years. I would suggest with very great force that the Royal Institute has got a fundamental problem in the training of Clerks of Works, which they have got to face up to.

To go back to the point Mr. Lobb was asking, specific direction as to what I meant by management. There is a book published by the Stationery Office, "Education for Management," which was published in 1947, and it laid down the syllabus for the education and training of those people who were going to accept managerial responsibility. It has now become more or less a standard document for syllabuses in management training throughout the commercial colleges in this country. I recommend this document to the Royal Institute and to the Board of Architectural Education because there is quite a substantial amount of this document which should find its way into the syllabus of the training of architects since they are managers. There are still one or two people talking about architects and relations with the building industry; they are *part of the building industry* and we should go away with that one firm thought in our minds, that without architects there is no building industry, and the other way round. They are indivisible, one and the same; once that is home, then we shall see a future horizon where we are jointly responsible for management.



Dr. J. C. Weston (BRS) ". . . the technique of cost analysis must be developed . . ."

DR. WESTON: (Building Research Station): I think I speak as a neutral in this debate between the architect and builder. I would like to return to a point which Sir Thomas made yesterday, the question of having reliable, comparable data on costs,

for different forms of construction. This is a subject which we at the Building Research Station are giving a good deal of attention to. In our studies on productivity and costs, we are concerned not only with economic comparisons of different forms of construction and with the best ways of building them, but with anything which has anything to do in the end with the cost of the job.

It is difficult to speak in terms of average conditions; as we have heard this morning there are many factors which may cause variation in price, one of the newer ones being the relevant information of the architect. We have, for example, found in our surveys on productivity in house-building a range of about 3:1 in the man hours of the best contractors to the worst, for building similar houses, which is the same sort of range reported recently in school building. I think we can, in the industry, take a little consolation in the fact that the same range has been found in other industries too. Clearly such wide variations are bound to be reflected in the price you get for a job. It is by no means certain that a contractor will be equally efficient on all types of work, he may have special experience on one particular form of construction and that may well affect the price on that form of construction relative to some other. Where you are dealing with new forms of construction, this is particularly the case and the contractors' estimates are at best "guestimates." The only thing to do is to observe how the job is actually built and collect production data in actual practice. We have been looking recently at the costs of multi-storey flat building and there is a particularly interesting example arising there, in flats having load-bearing concrete walls. We looked at the price of the superstructure excluding finishes and fittings, and found an enormous range of about 2:1 between the cheapest and the dearest. Some of this range does arise from differences in contractors' efficiency and in their pricing but we have, in these cases, had a very big variation in the actual amount of material in the buildings. There were three times as much concrete in the load-bearing walls of the most expensive building as in the cheapest, the range was, in fact, from about 10 c.y. up to about 30 and that was directly related to the price range of about 2:1. I mention these very big variations only to emphasize the danger of basing comparisons on two individual examples; such comparisons may tell you a good deal about the designer or contractor but little about the system of construction. The way out of this difficulty is to collect information from a number of contractors and designers and that is precisely what we are doing. But you have in your own hands the possibility of collecting a great deal of cost information; this, I think, applies particularly to the official architects and the larger authorities who have a programme which involves repeating certain building types, for example, schools or housing, and for which they can collect data over a period of time. Such data have got to be in the form suitable for this purpose and the priced bill of quantities is not a particularly suitable form. We have got, I think, to come to what is becoming known as Cost Analysis; that is, to have priced data in which the individual elements of the building, the walls, floor, roof, etc., are separately shown. I do not think there is any great difficulty in getting the information in this form providing one has the goodwill and collaboration of the quantity surveyor. I think, in fact, it is essential, if we are to have cost and price data available as a basis for future decisions, we must develop the technique of cost analysis. Only then can cost become, along with function and aesthetics, one of the design considerations, which can, at all stages of design, be properly taken into consideration.

W. ALLEN (Building Research Station): I want to speak particularly on the question of the follow-up of a Conference. You can feel at a Conference like this, with the force and the impulse, that if nothing happens, you have an almost incipient frustration. It seems to me clear that, when you have a Conference which has discussed a subject so seriously, and produced so many points which are individually of real consequence, it is to a very large extent, or should be, the business of the Council and the Committees of the Institute to take action so far as is practicable as a result of the points. I would like to suggest, therefore, that within the administration of the Institute, a review should be made of the principal points, which appear suitable for action by the Institute and that this is presented in some form to the Council, and that Council should issue its feelings to the Committee who should review the points under consideration. I speak with some experience of the Science Committee which, as a result of last year's meeting, did in fact take several specific courses of action which appeared desirable. A result of one of these has been the formation of an Industrial Liaison Committee. You may remember, last year, a number of criticisms were made of the kind of building materials we are provided with. Quite a number of industries have responded by saying, in effect: Tell us more of what you want and we will see what we can do to provide it. There has too often been no means of direct communication; and as a result, the Science Committee has suggested the Building Industry Liaison Committee, which is shortly going to begin to work. We are letting it be informal at the start because we want to feel our way deliberately in this respect towards something effective. So I am very glad that so many of the Chairmen of the principal committees of the Institute are here, and at the same time, I do not think that one can depend only on casual reporting from the Conference in that form, through the Chairman. For all we know, the chairman may not be the chairman next year, and there is this particular point of what the Board of Architectural Education might do about management. It is quite clearly something which must be passed direct back to them with an instruction.

Turning to the contracting side, I have been surprised how little has been said about the problem of the smaller builder who, I think, represents the bulk of industry, the chaps who form firms from five or six men up to about 60 or 70. We have heard from Mr. Oddie that one hopes the struggling small builder will become the big builder of the future. My feeling about the little builder and the medium-sized builder is that (this is personal rather than official) there are a certain number who go broke, and this is an acute embarrassment but it reflects a symptom of their incapacity to realize the basis of reasonable organization. I remember one builder with whom I have had some contact at a critical time. He did not realize, through inadequate office accounting, that the houses he was building for a local authority at the rate of 50 a year were costing him £200 more than the Council was paying, and it took him two or three years to find that out. Eventually he was in debt to a considerable sum; that was sheer incompetence. I have met so many builders where the idea of cost organization consists of one costing clerk paid about £400 a year, and they hope to do estimating and administration of purchasing, and keep an idea of what a job is costing from week to week. It is impractical and impossible. I would like to know whether it is possible to take any steps to teach chaps the basis of management, teach them it will pay them to pay the right sort of chaps the right price to get their office organized properly.

This is a side-issue but it has continually recurred—this business of efficiency on the designing side. Dr. Weston mentioned it again. I recall one building which I had occasion to look at rather carefully not very long ago, and it was extremely instructive as to a great many of the ills which face us on design. It was a building of 100,000 sq. ft. and one design was prepared, and later an alternative design was prepared. The alternative put upon the site 4,000 sq. ft. more space and wrapped it up in 10,000 sq. ft. less wall, it gave a great deal more flexibility for the future, and this was very important in this particular class of building and is an important aspect of sound investment in any building today, and what is more, it improved the administration of the building. Administration of the building costs money and the money can be stated in equivalents of capital. You can take it that £1,000 of money spent in the administration or running of the building per year represents from £10,000-£20,000 of capital, depending upon the rate at which you amortise it. Look every time at the number of people involved in running a building to see whether you, by design, can cut down the number required, and point out to your clients it may be worth spending more money in order to do this, because in this particular case it was clearly going to be possible to reduce two particular administration people for the control of the floor space. This was going to save about £1,500 a year in administration. It represented a high proportion of the cost of the building and that is the kind of point we have to bear in mind. We have, in fact, always to bear in mind that the job today so often, so commonly, is to make more from less, quicker and better.

ARTHUR LING: I want to make

two points: firstly, I want to direct your attention to the other partner in the whole process of building. Mention was made of the client yesterday, but I think we have rather forgotten him.

The client of the private architect will take various forms as a number of clients, and if the architect makes a mistake on one job, it doesn't immediately and directly affect the confidence of all his other clients; it takes time to travel—it may not travel at all. But the architect in public practice, he may have a very trying time if he makes a mistake because his client is with him all the time. With a local authority it is possible to start pre-planning stages much earlier than it is if you work as a private architect, and I think it is important to look a little earlier in this whole process of building to see where it begins. It really begins with the local authority in deciding what the rates are going to be, or it goes back to the government and what their policy is; I think there is a great anomaly between the planning side, who decide to develop plans that are five-year plans, and the executive building sides who work on a yearly basis; that makes the schools programme particularly difficult, when they only decide on a yearly basis. How can you get proper replanning when only a year's work is allocated? Although one cannot take politics out of building altogether, we might ask governments if they can offer a sort of average programme so that we can look a longer period ahead in which to prepare programmes, to think about different methods and techniques, and not take the risk, as architects in public practice have to, of starting drawings and sometimes working drawings, before the government has approved the particular project.

The other point is about costs. I do not think we have really studied the problem sufficiently yet, and I think the vagueness about costing at the moment is holding back quite a lot of new advances in building techniques and materials. The first time a contractor tries out new methods, he is not going to pass the benefits of it immediately on through the architect to the client. It is a risk for him, and only he knows exactly the results of those new methods. He has got to tell you on the same basis as previous work on old methods. I think there is a case for experiment. At the LCC where they are working with a contractor for a block of flats, the contractor is working for a particular defined profit so that the experiments can go on on the site with new techniques without the contractor standing the risk of all those new techniques. If there is any saving in time and labour, then it is shared by all.

We have heard a lot recently about identical tenders. Is it an example of supreme mismanagement? (I would like to think it is this) or is it a protest by the tenderers against the whole system of tendering? After all, if all are in the same category of building—in the A category, say—and if those who are responsible for estimating the job are equally competent and they all use advanced techniques, why should not the price come out exactly the same? It seems to me it really goes back to the point that one can measure the materials in a job; what one cannot measure is the time and the labour, and I think if one carried out some experiments on the basis I suggested, whereby the contractor has a definite profit (it could be compared with fixing architects' fees)—it would be a good thing if a number of the first class contracting firms did, throughout the country, have a few experimental jobs so that the whole business of cost could be re-assessed: not treating these jobs as ones in which they are in the general line of business, but as re-assessment jobs on costs. It is obvious we can save a certain amount of money and when they do put in tenders for the next jobs, they can take cognisance of that, and clients will get a better job for their money.

Finally Jefferiss Mathews, vice-president RIBA, proposed a vote of thanks which was seconded by R. A. H. Livett.

The conference dinner at the Hotel Majestic (Friday, June 10). Above: left to right, Mrs. and Mr. G. H. Thurston, County Architect, Norfolk. Mrs. and Mr. C. J. Tomkins, deputy City Architect, Norwich. Mr. and Mrs. Humphrey Boardman (Norwich). Below: the president responds to the toast of the RIBA, left to right, Lady Bennett, Sir Thomas Bennett, Ald. H. J. Bainbridge (Chairman, West Riding County Council). Mrs. C. H. Aslin, Mrs. R. J. Riley, Cllr. R. J. Riley (Mayor of Harrogate), C. H. Aslin, Ald. Sir James Croysdale (Lord Mayor of Leeds).

rs. and deputy esident . H. J. Riley, Mayor

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president hich was

WORKING DETAIL

SHOWCASES IN PASSENGER CONCOURSE: LONDON AIRPORT

Frederick Gibberd, architect

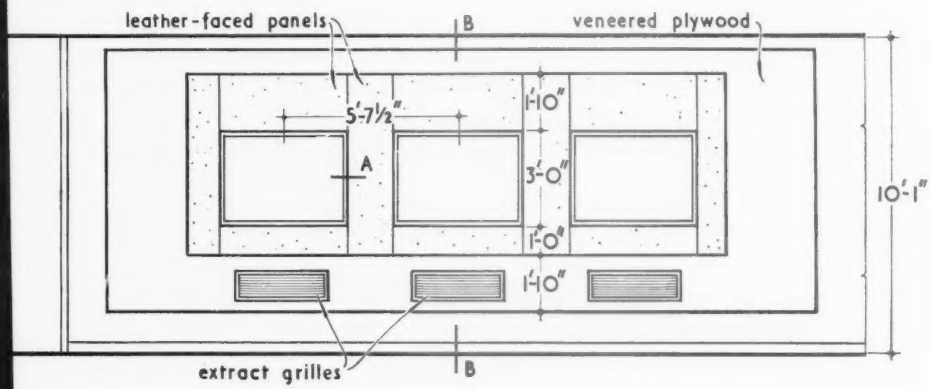
The window fronts are openable. They are top-hung and ride on a pair of quadrants which slide between the sides of the showcases and the intervening brick piers. They are secured by a mortice cupboard lock, the escutcheon of which can be seen projecting through the surround. This surround is covered with full-grained cowhide, dyed dark blue. The main panel is veneered in figured teak.

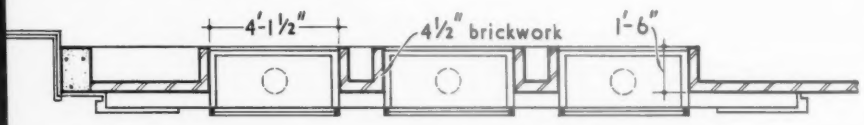
WORKING DETAIL

FURNITURE AND FITTINGS: 49

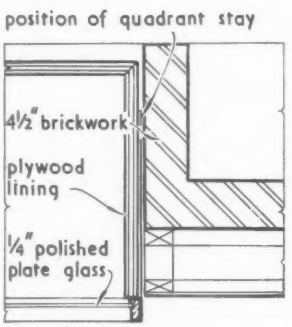
SHOWCASES IN PASSENGER CONCOURSE: LONDON AIRPORT

Frederick Gibberd, architect

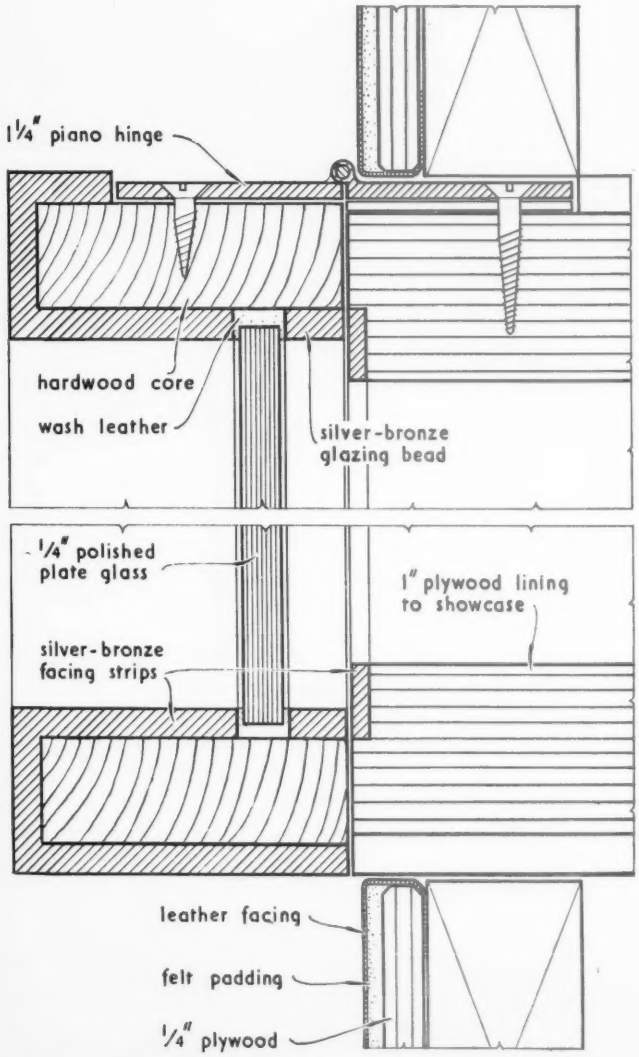




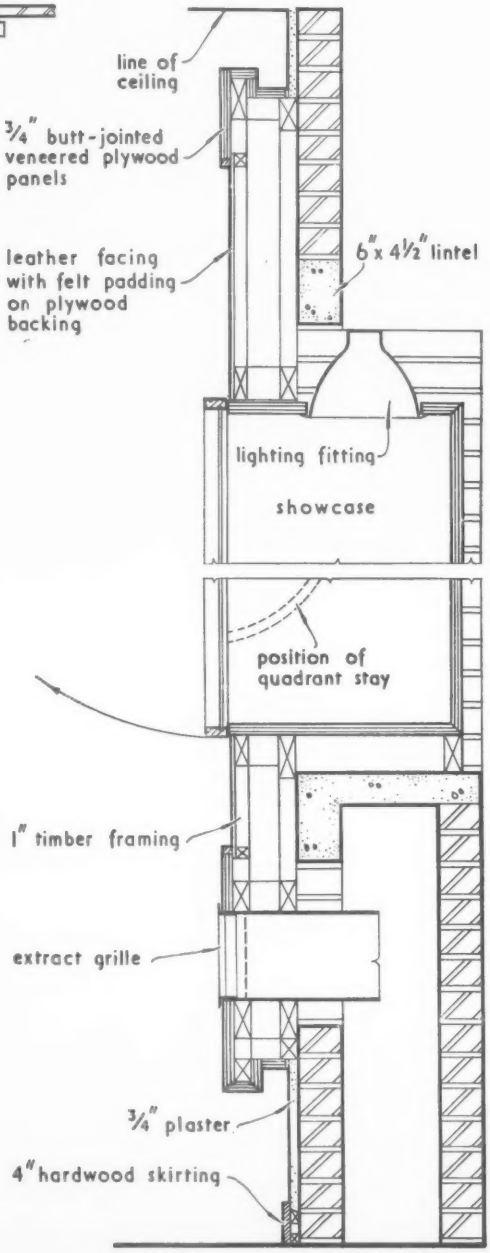
KEY ELEVATION AND PLAN. scale 3/16" = 1'-0"



SECTION AT 'A'.



PART SECTION B-B. scale full size



SECTION B-B. scale ¾" = 1'-0"

WORKING DETAIL **ROOFS AND CEILINGS: 26**

MONITOR ROOF: FACTORY AT HARLOW NEW TOWN

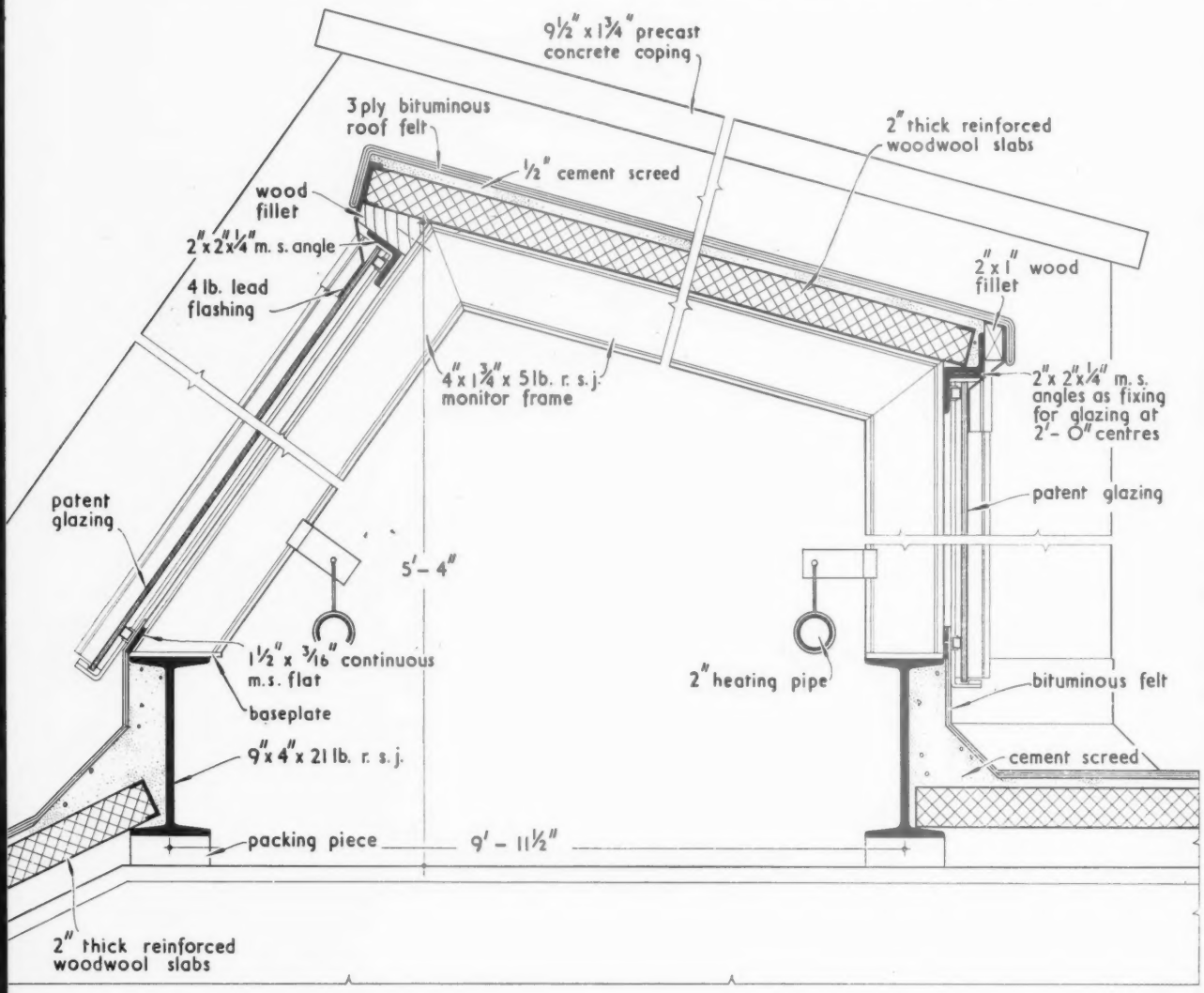
Frederick Gibberd, architect-planner, Harlow Development Corporation ; G. T. Goalen, senior architect (industrial development)

The sloping glazed surface faces towards the north. Heating pipes run at the foot of each line of glazing to prevent downdraughts onto the floor space below.

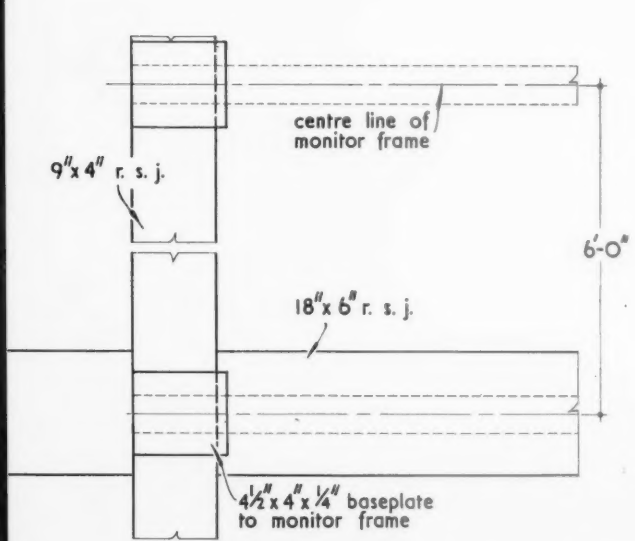
WORKING DETAIL

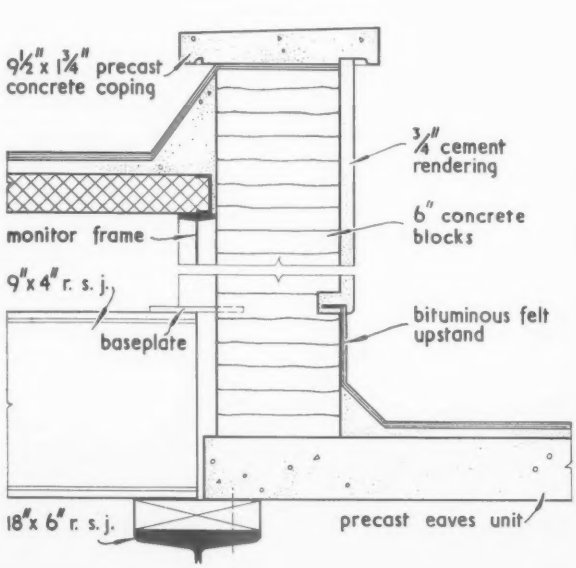
MONITOR ROOF: FACTORY AT HARLOW NEW TOWN

Frederick Gibberd, architect-planner, Harlow Development Corporation : G. T. Goalen, senior architect (industrial development)



VERTICAL SECTION THRO' MONITOR. scale 1½" = 1' - 0"





SIDE ELEVATION OF MONITOR FRAMES scale ½" = 1' - 0" VERTICAL SECTION THRO' END OF MONITOR

TECHNICAL SECTION

On June 3, J. Nixon Browne, Joint Under-Secretary of State for Scotland, opened some eight-storey flats at Kirkcaldy in which the living rooms and halls are heated by electrical under-floor panels. These are " topped up " by orthodox electrical radiators. The South of Scotland Electricity Board has installed this heating system in an attempt to improve on the running costs of the all-electric house in the Abbots Langley experiment of 1948/50.* The under-floor heating permits the use of off-peak electricity at 7d. per unit, and on this basis (and allowing for " topping up ") it is calculated that the average weekly cost of space heating over the year will be 9s. 3d. for a three-apartment flat (729 sq. ft.) and 7s. 9d. for a two-apartment flat (484 sq. ft.). If these figures are borne out in practice, and if the tenants like the heating provided, the venture will help to make good the claims of J. W. Moule, the Deputy Chief Commercial Officer to the Board, whose enthusiastic presentation of this method of heating at last year's EDA Conference met with a certain amount of scepticism.

* See AJ, December 2, 1948 and April 12, 1951.

This week's special article

7 PRACTICE
site labour studies in school building

The number preceding the week's special article or survey indicates the appropriate subject heading of the Information Centre to which the article or survey belongs. The complete list of these headings is printed from time-to-time. To each survey is appended a list of recently-published and relevant Information Centre items. Further and earlier information can be found by referring to the index published free each year.

Since the MOE's new Bulletin is of special interest to our Guest Editors they have asked J. H. W. Barry, A.M.I.C.E., a management consultant with experience in the building industry, to review it on their behalf. While welcoming the Bulletin, Mr. Barry suggests that more comprehensive records than those advocated would make the studies still more useful.*

* Building Bulletin No. 12, " Site Labour Studies in School Building." HMSO. 3s. 6d.

The latest MOE Building Bulletin is addressed to education authorities. For the architect it breaks new ground, and he may at first sight conclude that it is really a builder's affair.

The Bulletin shows the amount of site labour expended on 50 school building contracts (38 primaries and 12 secondaries). The labour, in man-hours, days or months, is shown for the whole contract, for each trade and for each element (external walls, roof, foundations, etc.). The results span an astonishing range.

But the primary aim of the Bulletin is to demonstrate the method used to get these figures. We are accustomed to think of research as something conducted only by Ph.D.'s in laboratories, but these results all came from a clerk of works' report form. Thus it is within the scope of an architect and a co-operative clerk of works to collect site labour figures; the use of the figures

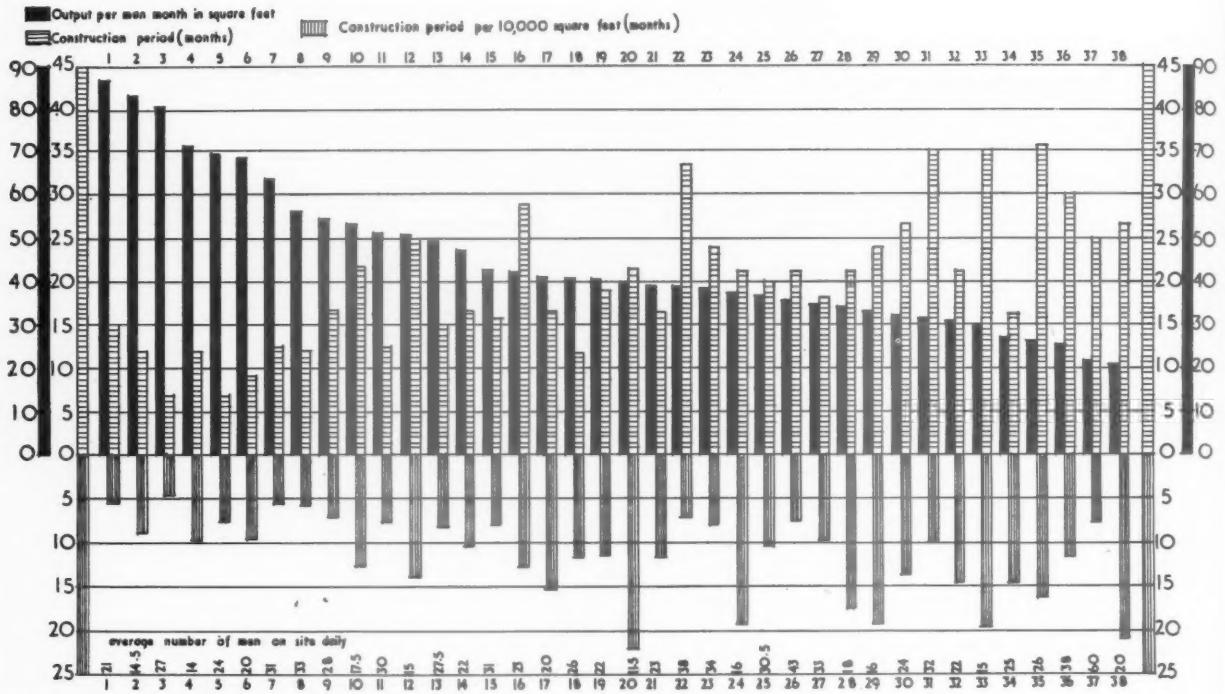
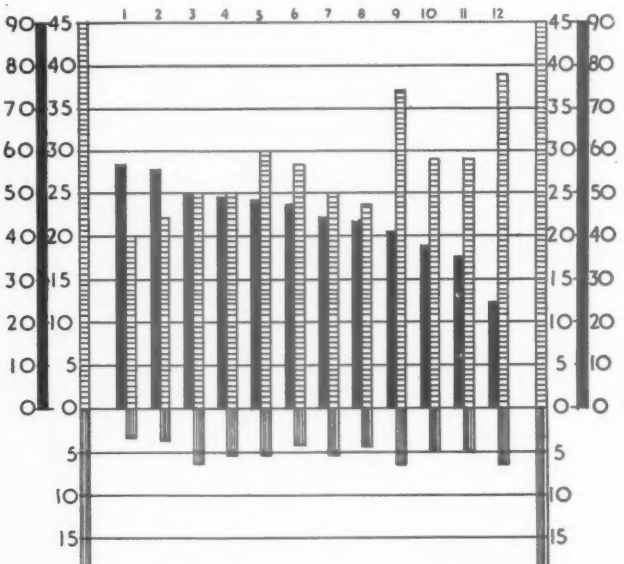


Fig. 1, above. Analysis of labour output on 38 primary schools, arranged in descending order of output rates in square feet floor area per man month (solid black columns). Fig. 2, below. Analysis of labour output on 12 secondary schools.



when you have got them is explained later in this review.

The Bulletin groups the major factors affecting organization and rate of construction under three main headings:

1. *Labour content*: The amount of work required is conditioned by (*a*) location, (*b*) ease or difficulty of working the site, (*c*) delays caused by unexpected soil problems, (*d*) the site layout, (*e*) the complexity of the building, (*f*) type of construction, (*g*) provision of mechanical equipment for transport, erection and assembly.

2. *Labour force*: The number of men, by trades, required to perform this work. Its size, composition and effectiveness depend on (*a*) the work content itself, (*b*) the availability of labour, (*c*) its maintenance as a properly balanced unit, (*d*) its morale.

3. *Operational time*: "Operational time" is taken as the net working time required by the labour force, and depends on: (*a*) planning of procedures before site work starts, and avoidance of delays during construction, (*b*) timely provision of drawings, specifications and schedules, (*c*) early selection of contractors and materials suppliers, (*d*) the care taken in materials' handling, checking, replacement and storage, (*e*) managerial and supervisory control at all levels, (*f*) planning for seasonal weather effects.

The Bulletin suggests the expression of these groups in measurable terms and defines "rate of output" as

$$\frac{\text{labour content}}{\text{labour force} \times \text{operational time}}$$

Floor area is used as the constant in comparing rates of output since it is a convenient measure of the accommodation provided. Thus the above equation gives man-hours (or months or weeks) per 10,000 f.s. of floor area, 10,000 being a convenient unit for the purposes of this study.

The rate of output could be applied as (*a*) gross rate—total labour expenditure incl. external works, (*b*) net rate—labour expenditure on building proper, (*c*) elemental rate—labour expenditure on a building element, *e.g.*, roofing, painting, lighting.

The results of this form of analysis are shown graphically (Figs. 1 and 2), with the schools arranged in descending order of gross output rates and the construction time in calendar months is set against each.

PRIMARY SCHOOLS

Two facts are abundantly evident from the graph. First, the astonishing variation from highest to lowest output per man-hour, no less than 320 per cent. Second, the even spread of the 38 schools. This gives us an idea of the national average.

The highest output rates were obtained with standardized prefabricated structures; this conclusion, applying to 13 out of 15

cases, is tempered with the remark that "there is evidence that the authorities who elected to use prefabricated components were often those who also concerned themselves with the problems of pre-site planning, supervision and site control." Twenty out of 23 schemes with lower output rates relied mostly on brick construction, and more definite conclusions were drawn: "there is evidence that the rate of output was affected precisely because of the limitations and demands of this form of construction." Summing up, the Bulletin concludes that "in general, so far as concerns projects using prefabricated components, the more recent the mid-date point of building the higher is the rate of output . . . It can fairly be concluded that the recent development of standardized prefabricated components has succeeded in raising substantially the rate of output . . . Similar improvement is not discernible in those projects which used traditional methods and materials."

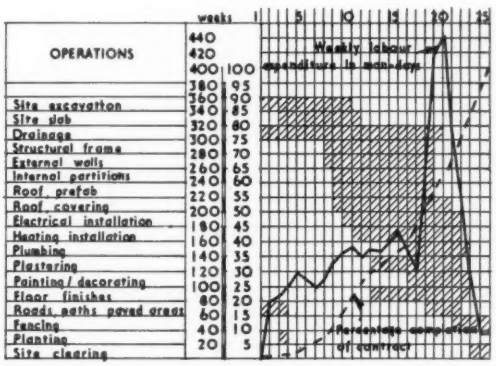
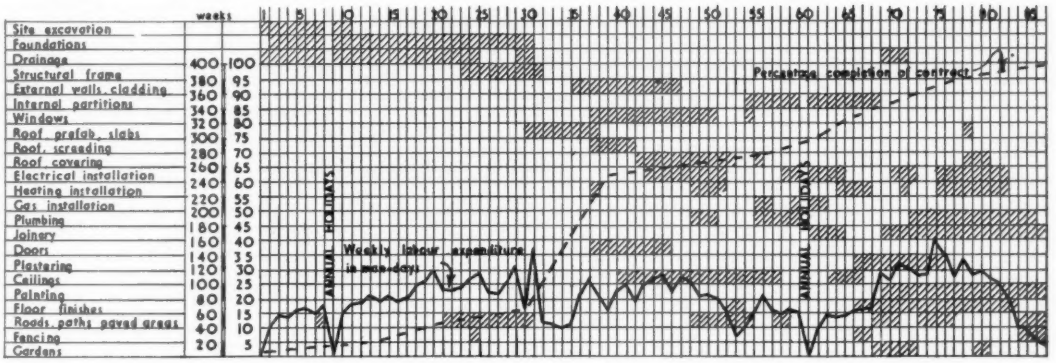


Fig. 3, right. Progress chart showing operational and non-operational times for primary school no. 3 (see Fig. 1) with an output rate of approximately 81 sq. ft. super floor area per man month. Fig. 4, below. Progress chart for primary school no. 24 (see Fig. 1) with an output rate of approximately 37 ft. super floor area per man month.



SECONDARY SCHOOLS

The differences in output rate, construction period and average daily labour force are substantially smaller than in the primaries, though still marked. But attention is drawn to two points:

(*a*) The highest rate of 57·7 sq. ft./man-month was high for primary schools in 1949 and was, in that case, followed by increased technical efficiency in 1952/53; with the aid of site labour studies, similar improvements are foreshadowed for secondary school construction.

(*b*) Seven out of eight schemes with low output rates used brick extensively, but projects No. 6 and 9, using loadbearing brick walls, compare favourably with steel-framed designs. The Bulletin concludes that "it is the element 'external wall' which is the dominant one in determining the general rate of building and that, where external walls are constructed of brick . . . a restraint is put on the rate of construction, not only because (it) relies upon small units erected by hand by essentially 'wet' processes and is thus inherently slow, or because bricklayers are rarely as plentiful as required, but also because the . . . process of erecting the external walls holds back the follow-on elements, trades and processes."

Analysis of labour expenditure by trades revealed (*a*) the large contribution made by plasterers, painters and decorators towards the completed building; (*b*) the extraordinary range of elemental output rates per 10,000 f.s. floor area between highest and lowest values, for example:

	Primary Schools. Per cent.	Secondary Schools. Per cent.
Superstructure	700	200
Heating installation	900	400
Electrical installation	250	225
Painting and decorating	300	330

As the superstructure consumes only about one-third of the total labour expenditure, increased efficiency in the other phases, such as those above, is therefore essential, and possible.

The pattern of site operations can be presented in chart form.

Its shape is influenced by the sequence of operations (*a*) as planned, and (*b*) as achieved.

Monthly operational and non-operational times are plotted for the different facets of construction. Two of the charts are reproduced. Fig. 3 shows compact sequence, dovetailed operations, a labour force rapidly built up to a peak, and work on services started at the earliest moment. In contrast, Fig. 4 shows a contract which was virtually out of control, with spasmodic attacks on different construction elements by a fluctuating labour force. The general trend was

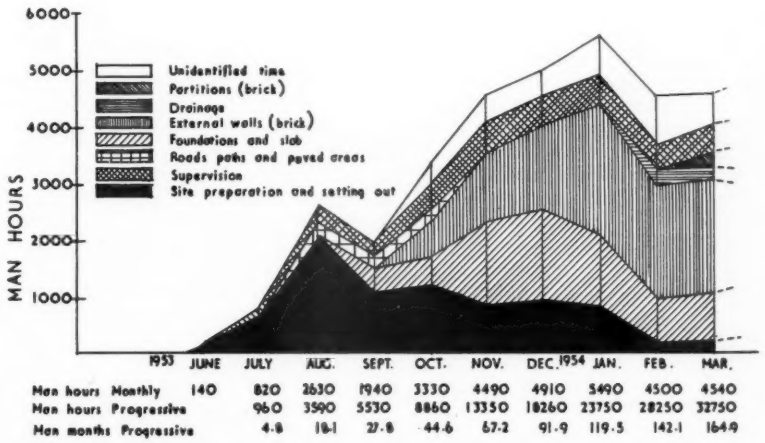


Fig. 5. "Geological" chart of first 10 months of a recently-completed secondary school contract. The labour expenditure on each element is plotted vertically each month. Hence the top outline represents variation in total labour expenditure from month to month. Likewise the variations in thickness of any particular stratum represent the variation in labour expenditure on that element.

for compact operational patterns and steadily built up labour to go with high output rates, and *vice versa*.

LABOUR PLANNING

The Bulletin advocates labour expenditure records in the form of "relief" or preferably "geological" charts (see Fig. 5) and suggests their usefulness, (*a*) as a basis for calculating the gross/net output rates for each element on the completion of work, (*b*) as a means of comparing total and elemental labour expenditure on different projects, after a common period of time from their respective starting dates, (*c*) as an indication of planning sequence.

This theme is developed in the last part of the Bulletin and the two-fold use of site labour studies is emphasized:

1. The means of labour analysis they provide, leading to
2. The more positive function of labour planning.

The importance of planning based on analysis of information collected is stressed as the most potent aid to technical efficiency. Building owner, architect and contractor alike can benefit from analysis and planning in all their decisions. At the design and programming stages "site labour planning can help by clarifying the likely consequences of alternative courses of action," including "the time when the building can be taken into use as a school." Given an average elemental output rate, a target period and the floor area, the average daily labour force required to build that element is calculable. If that number of men is unobtainable, either the construction period must be extended or an alternative method of construction sought. On a broader basis, site labour planning would (*a*) influence not only detailed design but design policy, when alternative courses of action could be properly weighed up, (*b*) reveal the strength and composition of the labour force required at various times to meet the completion date. Both architect and contractor must satisfy themselves that the stipulated manpower is realistically estimated and that adequate supervision exists. In an Appendix, a daily Clerk of Works Report form is suggested for the collection of site labour information. The Report (*a*) has a more extensive list of trades, (*b*) differentiates between skilled and semi-skilled workers, (*c*) records normal hours, overtime, total hours, and lost paid time, (*d*) records the nature and location of the work done by each trade. To simplify (*d*), the Bulletin recommends that the architect provides the clerk of works with a coded list of site operations, standardized as far as possible between projects, *e.g.*, roads would always have the same cypher. The reports would be returned weekly to the architect for analysis, either currently on or completion of the project, of

1. Total labour expenditure.
2. Labour expenditure by trades.
3. Labour expenditure by operational elements.
4. Gross and net rates of output.
5. Elemental rates of output.

As the total labour force engaged on school building is unlikely to increase, shortened construction periods must be achieved by greater productivity.

CONCLUSIONS AND CRITICISM

The Bulletin aims at analysing and comparing facts, and within certain limitations the method used is acceptable. But some of the conclusions seem contradictory. The Bulletin says that if the lower-than-average jobs in the sample were raised to the average level, the site-labour saving would be sufficient to build about 25 additional schools each year. Yet it also says "There is evidence that the rate of output was affected precisely because of . . . this form of construction (brick)." If the use of brick imposes a limit on output, it is difficult to see "average output rate" as a criterion.

"Rate of output" as here defined is unrelated to the true *work* content and presupposes that the whole labour force employed gave of its best. Surprisingly the Bulletin, beyond a fleeting reference, takes no cognizance of incentive bonus schemes. Did the undisclosed evidence point at a link between high output rates and presence of such schemes?

The use of mechanical plant is similarly treated. "Horsepower per elbow" plays a very important part in construction and requires consideration. Yet in the proposed Clerk of Works Report no provision is made for plant records. The output of a 7/5 concrete mixer is less than that of a 10/7, but the number of men working with it may be the same. Was there a link betwen high output rates and the amount of plant used? Did the average daily labour force on projects with similar output rates vary with the amount of plant used?

The reader is taken, in simple steps, to the definition of technical efficiency or rate of output, and its units of measurement. The emphasis is on analysis and comparison of past and future labour expenditure. It does not take account of the forces affecting efficiency. The formula dealing with man-months is only a skeleton—flesh and blood are missing. Sixty men took 25 months to build 31,068 sq. ft. of school at the rate of 21 sq. ft./man-month. Who can tell from that whether or not (*a*) the level of management and supervision was poor, (*b*) the level of work performance was low, (*c*) there were interruptions due to materials shortage, labour difficulties, weather conditions, (*d*) overtime was worked?

Management, supervision, performance—these constitute the nerve centres of labour expenditure at all levels and at all stages. "There is evidence that the authorities . . . were often those who also concerned themselves with problems of pre-site planning . . . etc." This evidence is vitally important. It must be disclosed, the problems pinpointed, their solutions demonstrated. The Ministry offers a tool for architects, contractors and others to use, but it blunts the edge. The boldness of a method of assessment which sweeps aside differences of building design and methods is not repeated in the "marketing" stage. It is precisely *because* the Ministry has access to all the information available that it should give determined guidance to local administration with its necessarily more limited experience. Instead, confidence is lacking throughout. It is missing from the discussion of the units of measurement adopted: ". . . for elements, such as 'external walls' . . . the actual surface area of the walls . . . offers a better guide to the labour content. If desired, elemental rates of output can be calculated on this basis. . . ." Even if this were true—and with the wall thickness unspecified it is not—the justification for the proposed method is (*a*) that it makes a clean sweep through a mass of unwieldy detail, (*b*) that it is uniform throughout the country (the Bulletin recognizes this), and (*c*) that it could form an overall basis of comparison if the analysis included the other factors mentioned.

Confidence is missing from discussion of the conclusions drawn. Attention is repeatedly directed to the paucity of existing site records. This may be the reason why, despite the definition of "rate of output," the output charts deal in calendar months instead of operational months. But to what extent does the picture remain realistic? What are the proportions of non-operational time, in the sample? What were its causes and how far can it be reduced?

The overriding conclusion reached is that "these admittedly few examples, however, confirm a general conclusion reached on wider evidence provided by site labour studies that during the period 1949-1953 there was in general no marked improvement in the rate of output in school building as a whole, and that, if a slight upward trend is now occurring, it is due mainly to the lift given by the increasing number of prefabricated systems of construction in use rather than to a general improvement in technical efficiency in the average project." There is need for a more definite statement unencumbered by doubts. If indeed the potential and practical output rate of prefabricated systems exceeds that of traditional methods, and cost, maintenance and expectation of life are comparable, this should be quite positively stated.

There is a ring of complacency about the Bulletin which, one hopes, is unintended. The great bulk of the secondary school programme lies ahead in 1955-60, and we have seen that it took four years, in the case of primary schools, to reach the level of efficiency demonstrated in the sample. The latest school in that sample was completed in the last quarter of 1953: the analysis of records and "tentative conclusions" are published 18 months later. Obviously, if results are to be achieved by the new method, collation of facts collected, analysis and publication must be speeded up to be of other than "post-mortem" use.

A great opportunity is missed in the discussion of elemental output rates. Later on in the Bulletin, the possibility of making *post hoc* analyses in the architects' offices is discussed. This attitude is complacent and therefore dangerous. It is not only the bare facts that need recording. If they are unsatisfactory, the circumstances that caused them must never be repeated—*anywhere*. But they

will never be recaptured in *post hoc* dissection. A doctor does not let his patient die before he diagnoses. The only real way of using such records is to compare them weekly with a target, to find out *why* results achieve, exceed, or fall short of, that target, and to take full advantage of the facts revealed. The Bulletin gives the means of stating a target and improving its accuracy by constant watch on current results in the light of (*a*) project planning, (*b*) project management, (*c*) elimination of inefficiency in the design of elements, superstructure, heating, lighting, etc., (*d*) labour performance.

It represents an honest attempt to fill a vital gap in the information available for the planning of future school construction and introduces what is evidently a new way of thinking, into the architect's field. Despite occasional lack of precision it is gratifying to see that the problem is being tackled. At any rate, a start has been made, even though future experience may necessitate some modifications. In order that this experience may be shared by all concerned, the need for methodical and complete records cannot be over-emphasized. The onus for their upkeep lies on the architect, through the Clerk of Works with the co-operation of the contractor. To be successful, the proposed procedure requires that no event in the history of a project, from conception to completion, is left to chance, or "accepted" without question. Why? how? when? where? to what purpose? who? must be applied at every step. The answers will benefit all concerned if they go beyond the architect's office and are immediately channelled to a national collating centre for analysis of information and circulation of conclusions. Only in this way can the repetition of past mistakes be avoided. But it is on the collection of data that the scheme depends, and it is to be hoped that local authorities will follow the lead given by the Ministry.

INFORMATION CENTRE

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.

10.132 design: building types
CATHOLIC CHURCHES

Church Building and Furnishing: the Church's Way. J. O'Connell. (Burns Oates & Washbourne Ltd. 21s.)

A large number of Catholic churches have been built since the war. Their quality has not been lower than that of those built between the wars, but there is as yet no sign that the architectural problem which they pose has been solved. This book is a careful presentation of the Canon Law requirements prepared by a priest who himself has some experience of church building. As such it is an invaluable guide to user requirements for any architect who has a church to build. Father O'Connell takes the view that you have only to follow the Canon Law closely for a good church to result: but though there is no case for disregarding Canon Law, experience shows that meticulous fulfilment does not *of itself* ensure a satisfactory building. What is needed, surely, is that exact technical appraisal which has proved so rewarding in school design. We want to know, for instance, what reverberation time a church should have, for on this depends, in the long run, the degree of the congregation's sharing in the liturgy.

Father O'Connell appears satisfied with the long rectangular plan shape, probably because tradition has been satisfied with it. But the limitations of traditional technique gave no alternative, and today there is surely a strong case for a plan which approximates to a square. This would give a church a different appearance from what we have been accustomed. Father O'Connell's quotations from the Congregation of Sacred Rites on the subject of aesthetics give the impression that this may prove a bigger stumbling block than good sense would seem to allow.

To sum up, this book is excellent so long as it is taken as a point of departure and not as a point of arrival.

11.41 materials: general
BUILDING BOARDS

Board Materials. (Wood: April, 1955.)

A collection of articles dealing with wood-based building boards. The first is on hardboards as shuttering for concrete and is of a rather general nature. A brief one deals with the decoration of fibreboards on ceilings and walls and another brief article covers sectional interlocking partitions. There are also articles on hardboard for floors, chipboard for floors and other purposes, on surface coated decorative boards, on metal fixings and on flush doors with board facings. All the articles are illustrated but most are rather brief and therefore only of a fairly general nature.

15.132 materials: applied finishes, treatments
FLOORING TILES

Thermoplastic Flooring Tiles, sometimes known as "Asphalt" tiles. BS 2592: 1955. (British Standards Institution. 2s. 6d.)

Describes material and quality with dimensions and tolerances. Tests for deflection, resistance to impact, resistance to indentation and resistance to curling.

19.183 construction: details
BRICKWORK

Strength and Stability of Walls. BRS Digest No. 75. (HMSO. March, 1955. 3d.)

With the increasing tendency to calculate strength of brickwork, this Digest is useful in setting out the basis for the methods of calculation given in BS Code of Practice CP. 111.

It explains the relationship between strength of mortar, bricks and brickwork and the table shows that for all types of mortar mixes a 1:3 ratio between "cementing material" and sand gives the strongest result and also makes clear the fact that except in very high strength work an appreciable proportion of lime can be included in the mix without much reduction below the strength of a straight cement: sand mortar.

The effect of restraint on brickwork is discussed and also the problems of eccentric loading. Cavity walls, support from lateral walls and the combination of walls and piers are mentioned briefly.

In the post-war years the use of both dense and lightweight concrete blocks has increased and the cases where cavity walls have such blocks for the inner leaf are discussed. A table gives safe thickness for both solid and cavity walls of two-storey houses built in either *in situ* concrete or precast concrete blocks for a range of concrete strengths.

22.75 sound insulation and acoustics
GLOSSARY OF TERMS

Glossary of Acoustical Terms. BS 661: 1955. (British Standards Institution. 6s.)

This is a revision of a 1936 BS. Useful to know about, but of value chiefly to the specialist.

23.210 heating and ventilation
CONVECTOR FIRES

Field Tests to Evaluate the Performance of Free Standing Convector Fires with Restricted Throats. Report by Davison, Kimber and Tulett. Journal of The Institute of Fuel. (March, 1955.)

Architects should by now be well acquainted with the defects of the old open fire—its rapacious appetite for air and the steep temperature gradients it produces. But the alternative, the closed convector stove, was never really popular, and there was thus a need for an appliance with the appearance of the former but the performance of the latter. The English are good at compromise and two or three years ago such a device duly appeared on the market and promptly enjoyed flourishing sales. This free standing convector fire has now been tested in occupied houses by BCURA with results which seem to match direct experience. Thirty-nine households took part, 27 of them using the open fire for the first and the convector for the second period of the test, the remainder acting as a "control" group by retaining the open fire throughout. One difficulty was that of comparing the effects of appliances with very different heating characteristics. For this, a "comfort efficiency unit" was devised, which is the area of the room at or above an equivalent temperature of 65 deg. F., per pound of fuel burnt. On this basis the convector is some 60 to 70 per cent. better than the open fire, while its fuel consumption is 21 per cent. less. There is also a marked difference in airflow up the chimney, 2,200 cf/m. against 6,000, figures which correspond to air velocities in the room of 20 f/m. for the convector and 60 f/m. for the open fire (those howling draughts!).

We now want a comparison of the free standing convector with the openable closed stove, to see what we gain by not seeing the fire.

The Guilford Hotel overlooks the sea at Sandwich Bay, Kent. All the bedrooms have fitted basins and many have private bathrooms. The heating system in the hotel is oil-fired.

THE GUILFORD HOTEL HAS 50 BEDROOMS

It is heated entirely by oil fuel

THE GUILFORD HOTEL, Sandwich Bay, Kent, is a large modern hotel with 50 bedrooms. It stands high above the Bay, where sea breezes often blow up into gales. But the external temperature holds no terrors for either staff or guests, because the hotel has an oil-fired heating system. This warms the whole building, quickly and thoroughly, and keeps the temperature constant indefinitely. It is worth remarking that the hotel is very popular with golfers at the nearby Princes Golf Club, where the Club House also has an oil-fired heating system.

The advantages of this most efficient form of heating are very great. Besides the extra comfort, there is extra cleanliness. As for maintenance, there is hardly any at all. No stoking. No ash to clear out. The system virtually runs itself. And there is no difficulty about adequate and prompt supplies of fuel.

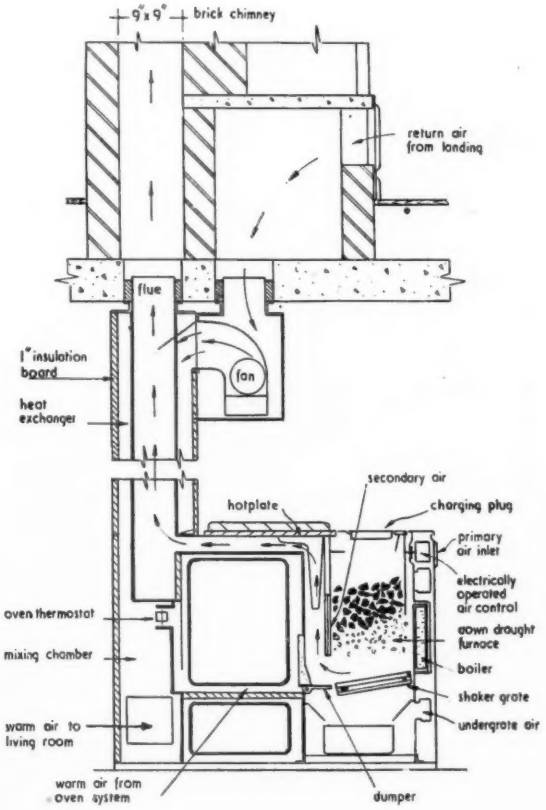
These benefits of oil-fired heating are just as important in many other public buildings. In blocks of flats and offices, in factories and schools, in hospitals and churches, there is every reason for using this simple, labour-saving, automatically controlled heating system. Oil fuel has been used with great success in many largish private houses, too.

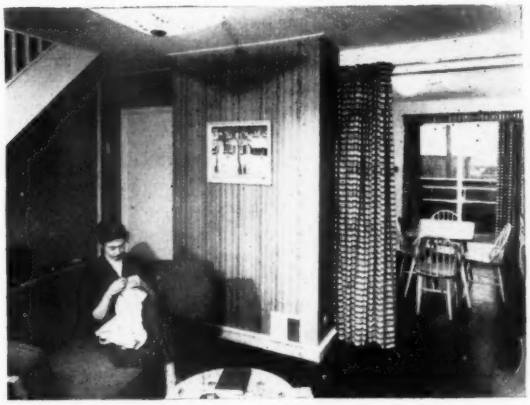
If you are designing any building of this nature you may find it well worth your while to consider installing oil-fired heating. For detailed information of a technical nature please write to Shell-Mex and B.P. Ltd., Fuel Oil Dept. 12F, Shell-Mex House, Strand, London, W.C.2. A representative will be glad to get in touch with you and go into the matter. This will, of course, place you under no obligation.

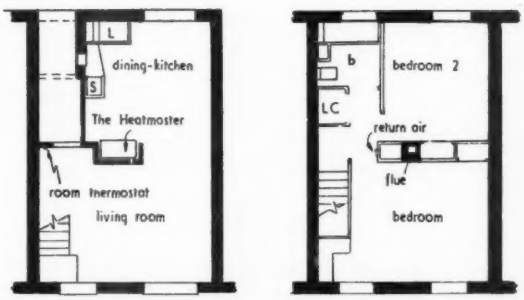
COMBINED COOKING, SPACE AND WATER HEATING

Results have now been published of the tests carried out by Radiation Ltd., on the prototype "Heatmasters" installed in a block of five maisonettes (floor areas, each about 704 sq. ft.) built over shops in Earl Street, Coventry (Architect: D. E. E. Gibson, lately City Architect and Planning Officer). The "Heatmaster" is a solid-fuel cooker and water-heater incorporated with a heat exchanger in the flue. A fan draws air from the landing on the upstairs floor and forces it across the heat exchanger and out into the rooms. The fire box is so designed that it can operate on the up-draught principle when burning coke and on the down-draught principle when burning bituminous coal. A room thermostat controls the space-heating by controlling the fan: an oven-thermostat controls the oven heat by controlling the primary air supply to the furnace. Below, the "Heatmaster" seen from a kitchen; below right, a view from a living-room. The tests showed that satis-

factory results for all three services were maintained at a cost of 12s. 6d. *per week, using coke, and* 11s. 5d., *using coal. The full economies of this equipment cannot be established until the list price is known.*







First floor Second floor

THE INDUSTRY

From the Industry this week Brian Grant reports on two new wood preservatives, soil compaction, a five foot bath and a new range of oil-fired boilers.

WOOD PRESERVATIVES

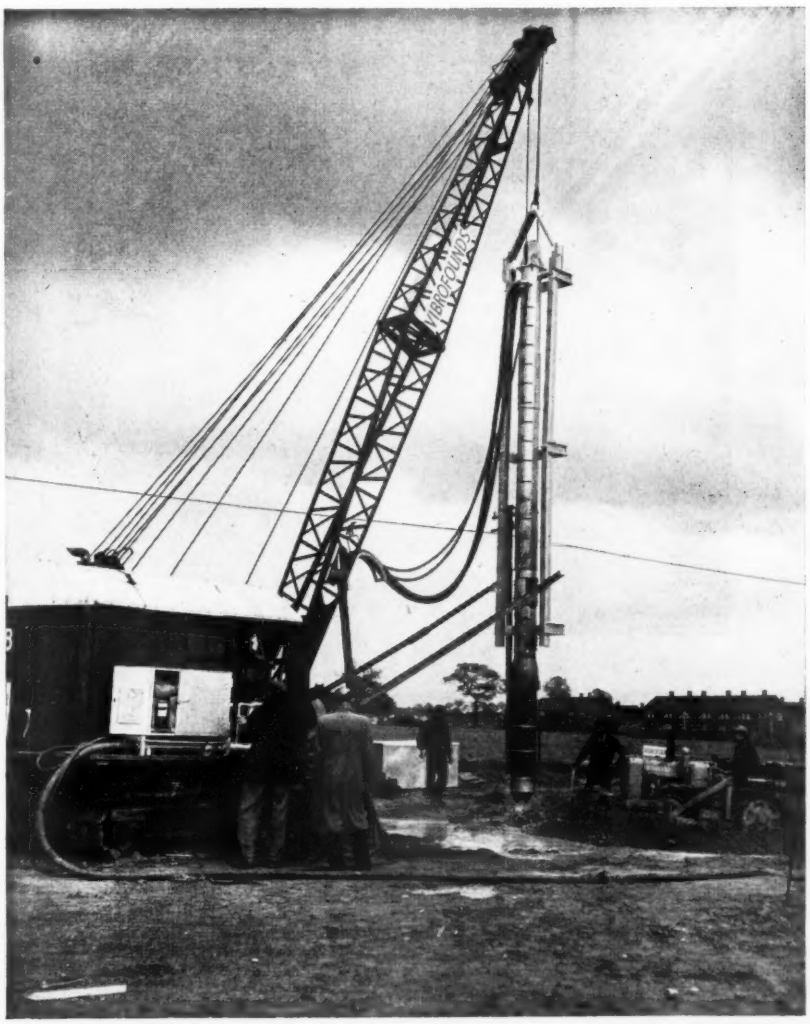
Two organic solvent type wood preservatives are now being produced by the Standard Disinfectant Co. as well as their existing tar type preservative, Brunolinum. The new preservatives, Brunophen Grade I and II, contain 5 per cent. of pentachlophenol. Brunophen No. I is a general duty preservative for use when a colourless product is needed and a relatively slow drying time is not a disadvantage. It is not recommended for timber which is subsequently to be painted, polished, varnished or glued. Grade II is a quick-drying preservative suitable for use indoors or where the treated wood will subsequently have to be painted or polished. The smell is less persistent than that of Grade I and it may thus be preferred for the treatment of wood affected by dry rot or insect attack in the rooms and cellars of an occupied building. Both preservatives contain 5 per cent. of pentachlophenol which is extremely toxic to dry rot fungus and other wood-rotting agents, as well as to most of the common wood-destroying insects, such as the furniture beetle, death watch and the house longhorn; it is also very effective against termites. (*The Standard Disinfectant Co., Ltd.*, 23, *Sloane Street, London, S.W.*1.)

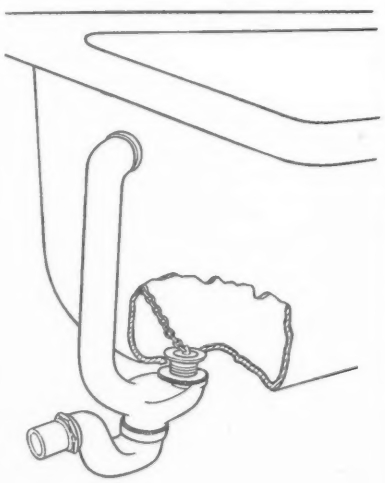
SOIL COMPACTION

The soil compaction technique known as Vibroflotation was evolved in Germany before the war and is now being developed over here by British companies. The process involves mechanical vibration and at the same time saturation with water, and allows granular soils such as silt, sand or gravel to be compacted to any desirable depth below the surface of the ground: load bearing capacity is thus increased and at the same time permeability is decreased. When granular soils are of low density, piles will have to be very long in order to develop the skin friction required to take the intended working load, or may even have to be driven as point bearing piles until they reach suitably dense strata. If the soil can be properly compacted, however, the angle of friction will be considerably increased so that bearing piles can be replaced by friction piles of much shorter length, or friction piles themselves can be considerably reduced in length. Coarse gravel can, in fact, become so dense that it becomes impossible to drive piles beyond a few feet.

The compaction is carried out by a Vibroflot machine, which consists of an electrically powered vibrator about 15 in. in diameter and 6 ft. long, to which is attached a further 6 ft. of follow-up pipe. Water supply at a pressure of about 70 lb. per square inch is also needed. The machine is lifted by crane and suspended over the point to be compacted. The Vibrator is started and the lower water jet is opened to provide a saturated mass of soil, into which the machine will sink with its own weight at a rate of about 1 ft. in from 10 to 20 seconds. When the machine has reached the depth required for consolidation the water supply to the bottom jet is cut off and an upper jet is opened. The amount of water issuing from these upper openings is much less than from the bottom jet and its downwards flow helps to carry the soil along the sides of the machine to the bottom of the hole. The increase in density of the soil as compaction proceeds is indicated by the power consumption of the electric motor of the Vibrator, and is shown on a recording ammeter. (This recorder can be seen mounted on the panel on the side of the crane in the photograph.) When the peak motor load has been reached the vibrator is raised stage by stage and compaction normally proceeds at a rate of about 40 to 60 seconds per foot. Each operating point produces a compacted column of soil up to 10 ft. in diameter, and by arranging the points of compaction so that these columns overlap, a fully compacted subsoil of any area or depth can be produced. Compaction depths of from 12 to 40 ft. are usual and 35 to 50 ft. can be reached if necessary, but a minimum thickness of about 8 ft. is desirable if the process is to be economical. The method has a wide range of potential uses for such work as airport runways and roads, concrete for dams or coastal protection, as well as in the compaction of building foundations. It is of particular advantage in preventing settlement from vibratory loads such as machinery and traffic. Further uses are for the compaction of concrete and for the consolidation of pre-packed aggregate and granular strata into which grout has been injected and also for similar processes using chemical consolidation. The process can also be used effectively under water. (*Vibrofounds Limited, Ruislip Road, Southall, Middlesex.*)

The Vibroflot soil compaction machine in action.





Top, the new Compac bath by Allied Ironfounders; above, sketch showing the combined waste and overflow fitting. Below, a Perkins oil-fired boiler.

RADIATOR INFORMATION

Gulf Radiators Ltd. have produced two new folders which give all the essential data about their panel and their column radiators. The tables give the heating surface in square feet of the various lengths and heights of radiator and also in relation to the number of sections of which they are composed. Both leaflets also contain instructions about radiator brackets, accessories and fixing methods. (*Gulf Radiators Ltd., Penarth Road, Cardiff.*)

NEW 5-ft. BATH

The photograph on the left shows the new Compac bath which has been designed particularly for lower cost housing. The overall length is only 5 ft. and this allows bathroom floor areas to be kept to a minimum; nevertheless the internal length of the bath is only 3 in. shorter than the standard Magna bath. The saving in length has been achieved by placing the taps on the side of the bath at the waste end, an arrangement which has the further advantage that the plumber can make his connection much more easily than if the taps were—as they normally are—at the end of the bath. The bath is designed to take a combined waste and overflow fitting and the underside of the roll of the bath is arranged to take a panel without the need for any of the usual wooden framing: the panel is fitted with small steel brackets which can be screwed to the floor. Both these features help to reduce fixing time. The depth of the bath is 1½ in. less than standard, but the actual water depth is the same because the overflow is correspondingly higher. The water capacity at a given depth is about 10 per cent. less than the Magna bath.

This design should be useful for housing schemes where cost must be kept at a minimum and also for conversion jobs where the bathroom has to be fitted into an old house and space is limited. (*Allied Ironfounders Ltd., 28, Brook Street, London, W.1.*)

OIL FIRED BOILERS

The photograph bottom left shows one of the new Perkins range of oil-fired boilers which have been designed to burn diesel oil. For domestic purposes two sizes are produced, with outputs of 45,000 and 76,500 B.Th.U. per hour. The boilers may be used either with a natural draught burner and a chimney stack, or with forced draught, provided by a 25-w. motor, and a simple flue pipe exhaust. The boilers are of the water tube type to give rapid heat transfer and are controlled by the usual thermostat: they also have the usual safety devices such as controls to cut off the oil supply if the flame should be extinguished. Prices are £45 and £78 for the two natural draught models, the forced draught models each costing £20 more. (*Perkins C.M.E. Ltd., Mansfield Road, Derby.*)

Readers requiring up-to-date information on building products and services may complete and post this form to the Architects' Journal, 9, 11 and 13, Queen Anne's Gate, S.W.1

ENQUIRY FORM

I am interested in the following advertisements appearing in this issue of "The Architects' Journal." (BLOCK LETTERS, and list in alphabetical order of manufacturers names please.)

.....

.....

.....

Please ask manufacturers to send further particulars to :—

NAME .....

PROFESSION or TRADE

.....

ADDRESS .....

.....

23.6.55

Announcements

PROFESSIONAL

Messrs. Richard Brown, Chartered Architects and Planning Consultants, members of the Grenfell Baines Group, have moved to 123, Victoria Road, Darlington, Co. Durham.

Mr. Robert C. Carvell, L.R.I.B.A., has moved to 20, Marshall Place, Perth (telephone, Perth 650) and will be pleased to receive trade catalogues.

Mr. Keith L. Abbott, A.R.I.B.A., DIPL.ARCH., has moved to Ivanhoe, Lampit's Hill, Corringham, Stanford-le-Hope, Essex (telephone number, Stanford 2454.)

Messrs. Covell & Matthews (Mr. R. G. Covell, F.R.I.B.A., and Mr. A. E. T. Matthews, A.R.I.B.A., A.M.P.T.I.) have now moved to 34, Sackville Street, Piccadilly, W.1 (telephone number REGent 2291/3.)

Mr. J. Hewitt Mitchell, A.R.I.B.A., has moved to 137, Streatham Hill Road, S.W.16 (telephone number, STReatham 8077.)

TRADE

Mr. J. H. Hawkey has been appointed General Manager of Sir W. A. Rose & Co. Ltd., one of the Berger Group of Paint Companies.

Messrs. Almin Ltd. (Associated Light Metal Industries) have moved to Almin House, Stoke Poges, Bucks. Telephone: Slough 25061/4.

Following the retirement of Mr. C. E. Taylor, Messrs. Hathernware Ltd., Industrial Ceramic Engineers, of Hathern, near Loughborough, Leicestershire, have appointed Mr. N. Tanner to the Board.

Mr. E. F. Knight, who has been a Joint Managing Director of the Manchester Slate Co. Ltd., for 28 years, has retired through ill-health, and Mr. Ernest Hillson continues as Managing Director of the Company.

Corrections

We have been asked to point out that Peter Bosanquet, as well as Lionel Brett, was responsible for offices and flats at St. John's College, Oxford. Mr. Bosanquet's name is missing from the catalogue of the Royal Academy Summer Exhibition in which a perspective of the buildings is shown, and it was therefore also omitted from the JOURNAL for May 5, in which the perspective was reproduced.

In the JOURNAL for April 14 two names were omitted from a list of sub-contractors (page 522) for a house in Totteridge Lane, Herts. They were: Heals Contracts Ltd. (Fitted Furniture and Furnishings) and Thermalite Ltd. (concrete blocks for internal skin of external walls).

On page 701 of the JOURNAL for May 26, we wrongly reported that the architects of the laboratories in Lower Mortlake Road, Richmond, were A. Llewellyn Smith & A. B. Waters, F./F.R.I.B.A., in association with Kenneth Anns, F.R.I.B.A. The laboratories were, in fact, designed by Kenneth Anns, and A. B. Waters (Llewellyn Smith & Waters) is consultant architects to C.A.S. (Industrial Developments) Ltd., for whom the laboratories were built by C.A.S. (Contractors) Ltd. and subsequently leased to Electronic Instruments Ltd.

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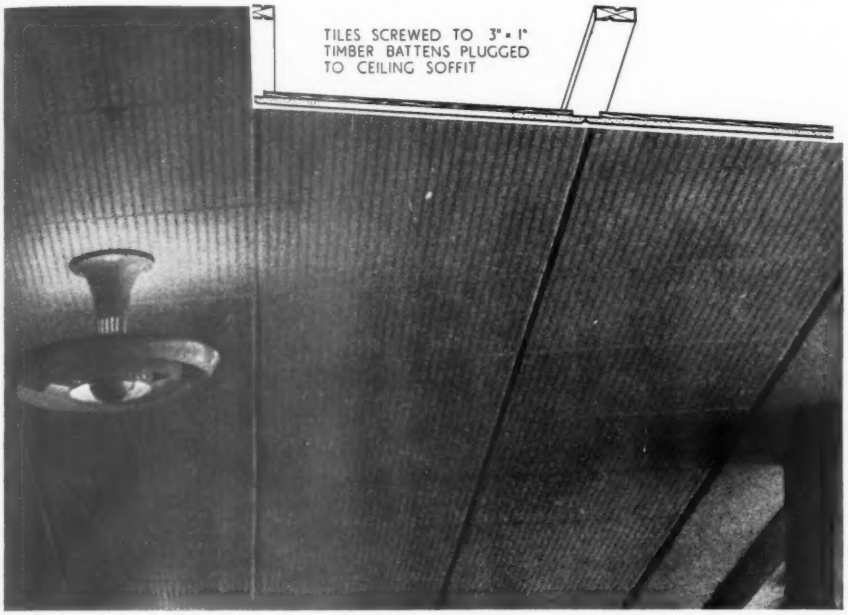

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Frequency (Cycles per second)	125	250	400	500	1000	2000
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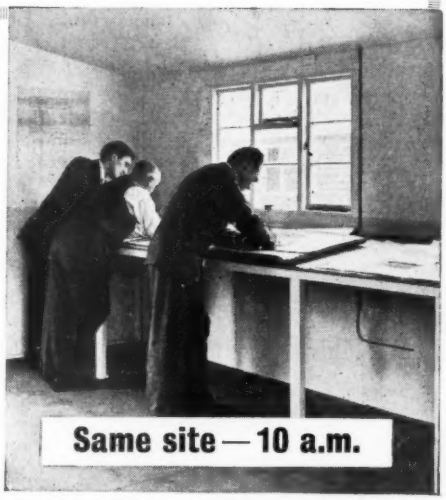

At 8 a.m. on a bare building site a contractor's agent waited for the site offices essential for the efficient administration of a large contract. By 10 a.m. he and his staff were busy working in spacious, well equipped Terrapin offices. The exceptional speed with which Terrapin Mobile Buildings can be erected is due to their unique method of pre-fabrication. Each unit is assembled, **right down to the last fitting,** before it leaves the factory. As a result a standard unit 410 sq. ft. in area can be erected ready for occupation **in one hour.** The units can be used singly or coupled together to form site offices, dormitories, dining halls, ablutions, etc. And they can be moved from site to site **without disassembly or removal of their internal fittings.**

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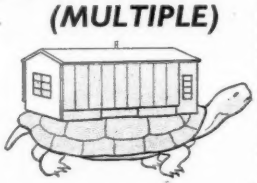

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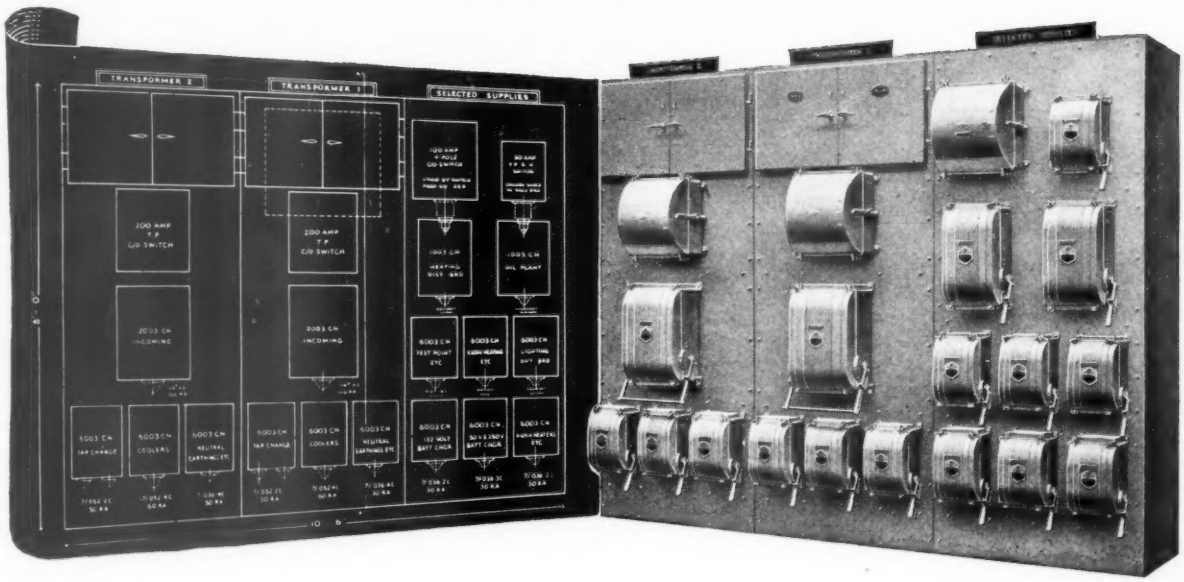

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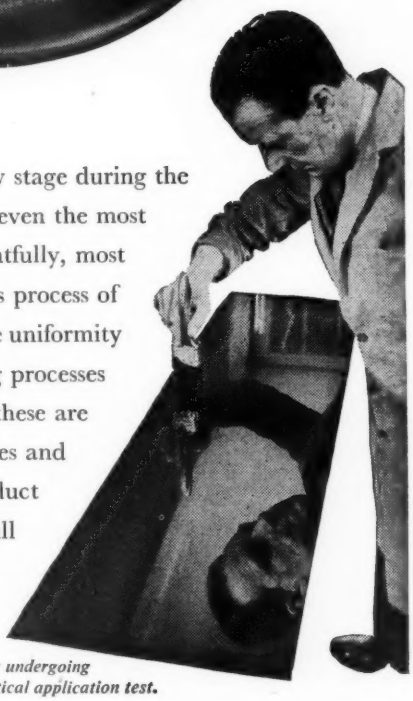
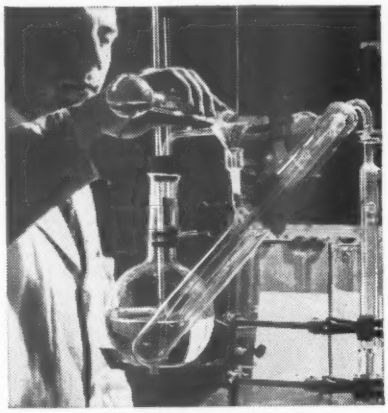


Brushing paint undergoing practical application test.



Chemist carrying out raw material analytical work.

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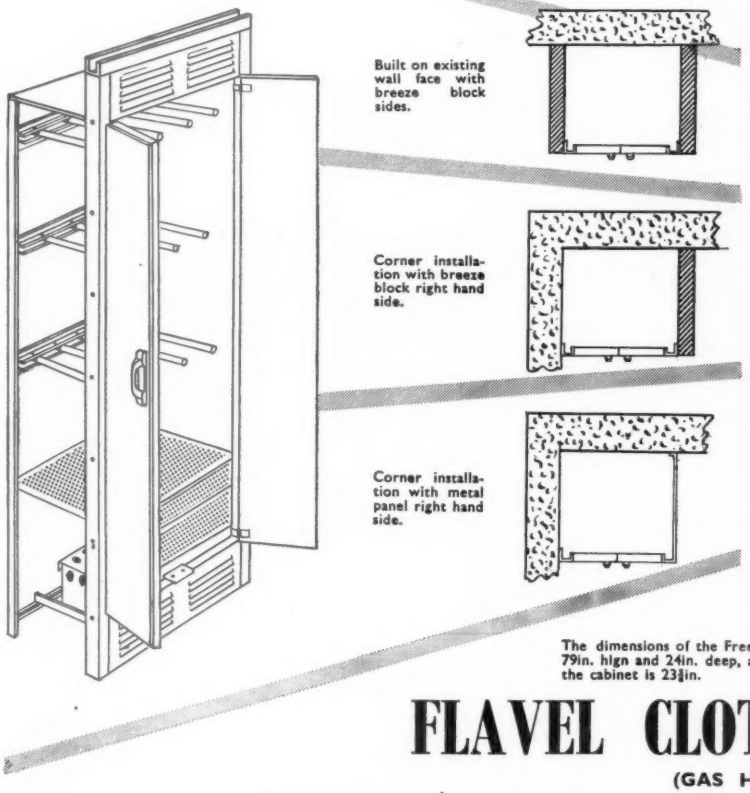

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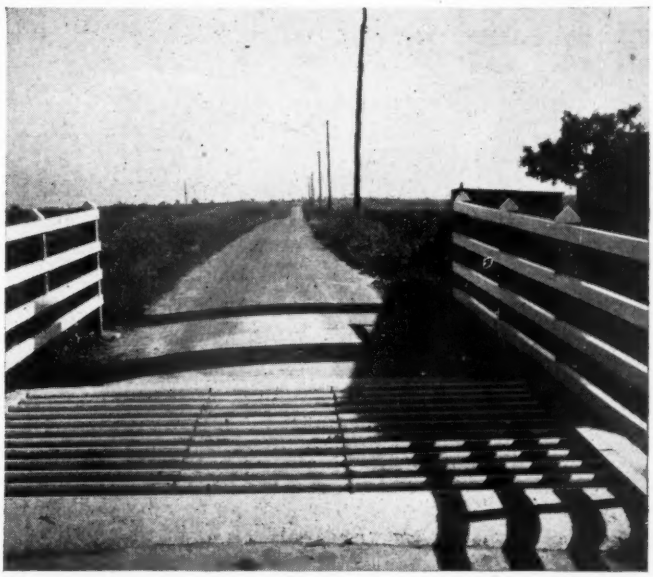

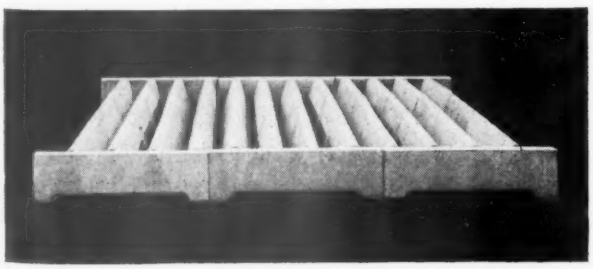

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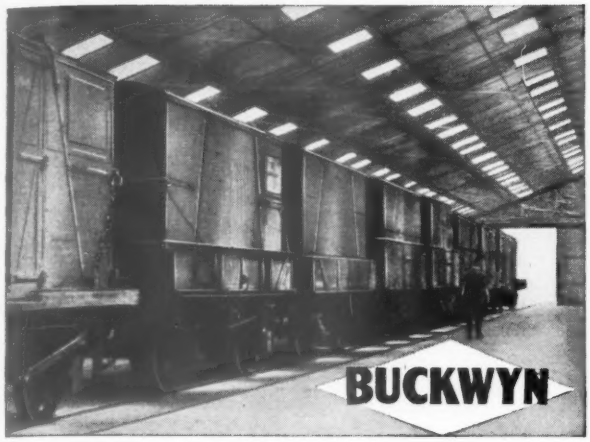

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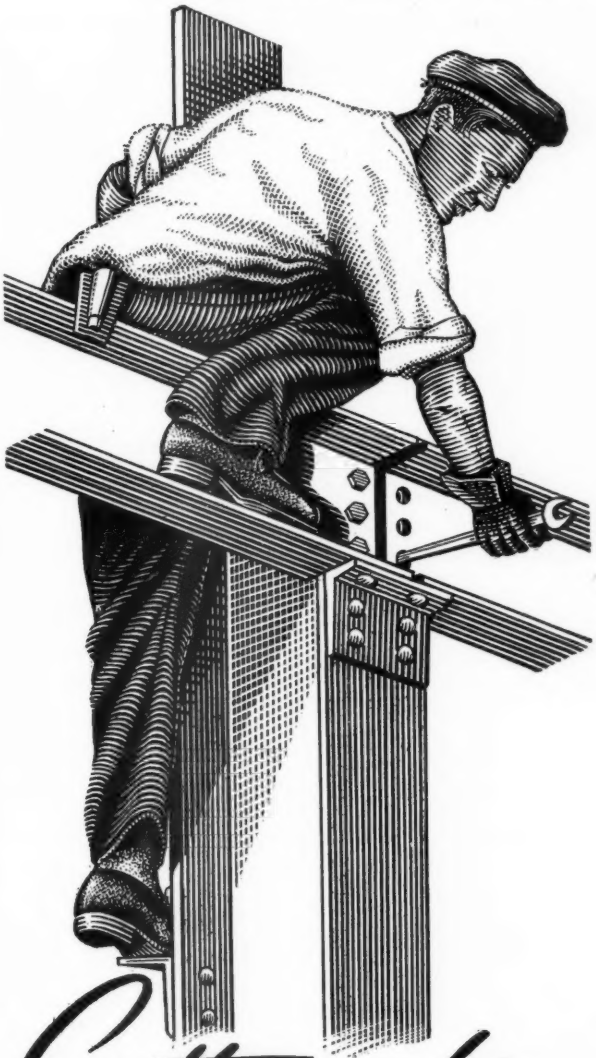

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Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post on Friday morning for inclusion in the following Thursday's paper.

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.

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

MINISTRY OF WORKS require ARCHITECTURAL ASSISTANTS for drawing offices in London, Edinburgh and various provincial offices, with at least 3 years' training, some experience in an architect's office, and of Inter. R.I.B.A. standard. London salary, £442 to £695 per annum; rates elsewhere slightly less. Starting pay according to age and experience; prospects of promotion and permanency. State age and full details of training and experience to E. Bedford, Esq., C.V.O., A.R.I.B.A., Chief Architect, Ministry of Works, 20 (F), Abell House, John Islip Street, London, S.W.1. 1020

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The posts are pensionable. Alternate Saturday morning leave. Canteen facilities available.

Application forms from the County Architect, Bishopgarth, Westfield Road, Wakefield. 1350

SURREY COUNTY COUNCIL.

Applications invited for the following vacancies:—

(1) ASSISTANT ARCHITECT, Grade V, £750×£30—£900 p.a., plus London allowance. Should be Associate Member R.I.B.A.

(2) ARCHITECTURAL ASSISTANT, Grade I, £500×£20—£580 p.a., plus L.A.

(3) ASSISTANT QUANTITY SURVEYOR, Grade IV, £675×£30—£825 p.a., plus L.A. Should be Associate Member R.I.C.S.

Full details and present salary, accompanied by copies of three recent testimonials, to County Architect, County Hall, Kingston, as soon as possible. 1375

COUNTY BOROUGH OF WOLVERHAMPTON.
APPOINTMENT OF SENIOR ASSISTANT ARCHITECT.

Applications invited for above appointment in Borough Engineer's Department. Salary Grade A.P.T. V (£750 to £900 per annum).

Candidates should be Associate Members of the Royal Institute of British Architects.

Superannuable post Medical examination, N.J.C. Conditions of Service, terminable by one month's notice on either side.

Housing accommodation can be made available if necessary.

Applications stating age, qualifications, training and experience, with the names of not less than two persons to whom reference may be made, should be addressed in envelope endorsed "Senior Assistant Architect," to Borough Engineer, Town Hall, Wolverhampton, by Wednesday, June 29th.

A. G. DAWTRY,
Town Clerk.

Town Hall,
Wolverhampton. 1485

GLOUCESTERSHIRE COUNTY COUNCIL.
COUNTY PLANNING DEPARTMENT.

Applications are invited for the following appointments:—

(*a*) TECHNICAL ASSISTANT, A.P.T., Grade IV (£675—£825).

(*b*) TECHNICAL ASSISTANT, A.P.T., Grade I (£500—£580).

Applicants for (*a*) will be required to work in connection with schemes under the Town Development Act, 1952, and should be experienced in housing and town centre layouts and development. He should be a Corporate Member of an appropriate professional body. Applicants for (*b*) must have passed the Intermediate Examination of the Town Planning Institute or equivalent, and should have an architectural inclination.

The posts are superannuable, subject to medical examination. The National Joint Council's Scheme of Conditions of Service will apply.

Applications, stating age, qualifications and experience, together with copies of three testimonials, or names of referees, to reach the County Planning Officer, Upton Lane, Barnwood, Gloucester, not later than 5th July, 1955.

GUY H. DAVIS,
Clerk of the County Council.
1357

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

Applications are invited for the appointment of an ARCHITECTURAL ASSISTANT on the established staff.

Salary in accordance with Grade, A.P.T., I, £500 to £580 per annum, London weighting additional. Applicants should have attended a full time course of Architecture and to have passed the R.I.B.A. Intermediate Examination or its equivalent; experience in Municipal architectural work would be an advantage. The appointment is subject to the National Scheme of Conditions of Service, the provisions of the Local Government Superannuation Acts, and to a satisfactory medical report. Applications, endorsed "Architectural Assistant," stating age, qualifications, former Local Government service, present and previous appointments and experience, length of notice required to terminate present appointment, and the names of three referees, must be forwarded to the Borough Engineer and Surveyor by the 11th July, 1955. Candidates must disclose in writing to the undersigned if, to their knowledge, they are related to any member or senior officer of the Council. Canvassing disqualifies.

FRANCIS J. O'DOWD,
Town Clerk.
Town Hall, Wimbledon, S.W.19. 1353

BIRMINGHAM REGIONAL HOSPITAL BOARD.

ARCHITECTURAL STAFF APPOINTMENTS.
(Donald A. Goldfinch, E.R.D., F.R.I.B.A., Dip.T.P.—Architect to the Board.)

(*a*) ARCHITECTURAL ASSISTANTS (2) required for large new hospital project. £480 × £20 (7) × £25 (2)—£670; point of entry according to experience, maximum £560. Inter.-R.I.B.A. essential.

(*b*) ASSISTANT ENGINEERS (2)—£640 × £25 (4) × £30 (4) × £35 (2)—£930, according to age and experience. A.M.I.H.V.E. desirable.

(*c*) ASSISTANT QUANTITY SURVEYORS (2) —£640 × £25 (4) × £30 (4) × £35 (2)—£930. Final R.I.C.S. or recognised qualifications of I.Q.S. or I.A.A.S. and experience in taking off and preparing bills of quantities and settling final accounts essential.

(*d*) DRAUGHTSMAN—£390 (aged 21 and over) × £20 (2) ×£25 (6)—£580. Suitable training, including three years' technical experience, in architectural or engineering trade essential. Duties include drawing work on instructions of architectural and engineering staff.

(*e*) JUNIOR—Male £170 (aged 16), maximum £400 (aged 25): Female £165 (aged 16), maximum £330 (aged 25) (salaries under revision—equal pay to be implemented). Required for general duties but expected to study for training as quantity surveyor. Office recognised by R.I.C.S.

All appointments superannuable—Apply, naming three referees, to Secretary, 10, Augustus Road, Birmingham 15, by 11th July, 1955. 1506

BOROUGH OF LEYTON
(Non-County Borough in the County of Essex; population 105,183; R.V. £782,902.)

Applications are invited for the appointment of TWO GENERAL ARCHITECTURAL ASSISTANTS Established Posts Nos. P21 and P22, Grade A.P.T. II (£560—£640 per annum) plus London Weighting Allowance, according to age, which at 26 years is at a maximum of £30.

Candidates should have passed the Intermediate Examination of the R.I.B.A. and must have had good experience in the design and construction of houses, flats and municipal buildings.

Alternate Saturday mornings free of duty and canteen facilities available.

Details of appointments and form of application may be obtained from Mr. H. D. Peake, M.Sc.(Eng.), Borough Engineer and Surveyor, Town Hall, Leyton, E.10, to whom they should be returned not later than Monday, 11th July, 1955.

D. J. OSBORNE,
Town Clerk.

Town Hall,
Leyton, E.10
13th June, 1955. 1505

PADDINGTON BOROUGH COUNCIL.

Require ASSISTANT QUANTITY SURVEYOR (APT III—£630 to £755 p.a., £10 p.a. less if under age 26). Final R.I.C.S. (Quantities Section) or at equivalent stage of qualification Following experience essential—taking off, working up, abstracting, billing; dealing with final accounts; negotiations with contractors; interim and final measurements for certification purposes; and ability to control junior assistants.

Applications stating age, qualifications, past and present appointments, experience, names of three referees should reach the undersigned by 9th July, 1955 (quoting A.218).

Town Hall, W. H. BENTLEY,
Paddington Green, W.2. *Town Clerk.*
1522

CAERNARVONSHIRE COUNTY COUNCIL.
ASSISTANT ARCHITECT.

Applications invited for appointment of ASSISTANT ARCHITECT, A.P.T. III-IV (£600 rising to £825).

Further particulars and forms of application from Clerk of County Council, Caernarvon. Closing date 16th July, 1955. 1521

ARCHITECTURAL ASSISTANT required by Hayes & Harlington U.D.C. Salary within A.P.T. II, i.e., £560 × £20—£640 per annum, plus London Weighting (up to 20 years £10, 21—25 years £20, 26 years and over £30 per annum). Candidates must have passed the R.I.B.A. Inter. Exam. Good knowledge of construction and ability to prepare drawings from preliminary sketches essential. Particulars of appointment and application forms available from the undersigned which when completed must be returned by 4th July, 1955.

GEORGE HOOPER,
Clerk and Solicitor.

Town Hall,
Hayes, Middlesex. 1475

SALOP COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of an ASSISTANT ARCHITECT. Salary grade £650 × £25—£775 p.a. Preference will be given to candidates who have qualified at a School of Architecture and have completed their National Service.

A separation allowance not exceeding 30s. a week will be paid to a married officer taking up this appointment, together with third-class return railway fare once a month to visit his family, such allowances to be limited to a period of six months or until such time as the officer is able to obtain accommodation for himself and his family in Shropshire, whichever is the earlier.

Conditions of Appointment and forms of application obtainable from County Architect, Column House, London Road, Shrewsbury, returnable with three testimonials, not later than 5th July, 1955. 1473

MIDDLESEX COUNTY COUNCIL—COUNTY PLANNING DEPT.

PLANNING ASSISTANTS required, Grade III (£630—£755 p.a. if 26 years or over). Capable of undertaking statistical and territorial analysis. Preference for qualifications in Town Planning, Geography, Economics; other appropriate qualifications considered. Experience in town planning desirable. Prescribed conditions. Application forms from County Planning Officer, 10, Gt. George Street, S.W.1, returnable by 5th July (quote Q665 AJ). Canvassing disqualifies. 1479

ARCHITECTURAL DRAUGHTSMAN required by the undermentioned Board, now engaged on large building projects, including the new general hospital at Welwyn. Applicants must have had suitable training, including three years' technical experience in architectural drawing. Salary £380 (age 21 and over) × £20 (3) × £25 (2) × £20 (4)—£570, plus London Weighting, £20—£30. Commencing salary at minimum of scale.

Apply giving age, qualifications and experience with names of two referees to Secretary, North West Metropolitan Regional Hospital Board, 11a, Portland Place, W.1, by 4th July. 1478

COUNTY BOROUGH OF HUDDERSFIELD.
BOROUGH ARCHITECT AND PLANNING OFFICER'S DEPARTMENT.

Applications are invited for the following appointments:—

(*a*) TWO ASSISTANT ARCHITECTS, Grade A.P.T. V—£750—£900.

(*b*) ASSISTANT QUANTITY SURVEYOR, Grade A.P.T. IV—£675—£825.

(*c*) ASSISTANT QUANTITY SURVEYOR, Grade A.P.T. II—£560—£640.

For posts (*a*) preference will be given to Associate Members of the Royal Institute of British Architects and for posts (*b*) and (*c*) to Members of the Royal Institute of Chartered Surveyors.

The posts are subject to the National Scheme of Conditions of Service, as adopted by the Council and to medical examination.

Housing accommodation will be provided, if required.

Applications with the names of two referees should reach S. M. Richmond, F.R.I.B.A., A.M.T.P.I., Borough Architect and Planning Officer, High Street Buildings, Huddersfield, not later than the 27th June, 1955.

Canvassing directly or indirectly will disqualify.

HARRY BANN,
Town Clerk.

Town Hall,
Huddersfield. 1433

DERBYSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

1. Vacancies for ARCHITECTS exist on the undermentioned scales:—

(*a*) £900 × £40 to £1,100 per annum (Grade VII).
(*b*) £825 × £35 to £1,000 per annum (Grade VI).
(*c*) £750 × £30 to £900 per annum (Grade V).
(*d*) £675 × £30 to £825 per annum (Grade IV).
(*e*) £650 × £25 to £775 per annum (Special Grade).
(*f*) £560 × £20 to £640 per annum (Grade II).
(*g*) £500 × £20 to £580 per annum (Grade I).

Attractive work is available in all sections of the Department.

2. Vacancies for LAND SURVEYORS exist on A.P.T. Grade I (£500 × £20 to £580 per annum).

National Joint Council Conditions of service. Pensionable posts. Canvassing disqualifies. Further details and application forms from The County Architect, County Offices, St. Mary's Gate, Derby—returnable by 2nd July, 1955. 1432

CITY COUNCIL OF NAIROBI.
APPOINTMENT OF TOWN PLANNING AND BUILDING INSPECTION STAFF.

Applications are invited for the following appointments in the City Engineer's Department of the Council.

(*a*) ASSISTANT CITY PLANNING OFFICER at a consolidated salary of £1,690 × £50—£1,990 per annum, plus special temporary allowance which is at present £136 per annum on the minimum of the scale and £162 per annum on the maximum.

(*b*) BUILDING SURVEYOR at a consolidated salary of £1,390 × £40—£1,590 × £50—£1,790 per annum plus special temporary allowance which is at present £110 per annum on the minimum of the scale and £146 per annum on the maximum.

Commencing salary to be determined in each case in accordance with qualifications and experience of the successful candidate.

Applicants for appointment (*a*) will be required as occasion arises to deputise for the City Planning Officer and must be Members or Associate Members of the Town Planning Institute and hold an additional qualification in architecture, engineering or surveying. They should have had experience in the office of a Local Planning Authority, particularly in the preparation of a development plan.

Applicants for appointment (*b*) will be required to take charge of the Building Inspection Section of the Department. Applicants should hold the qualification of A.R.I.C.S. (Building Surveyor's Section) and have had considerable experience in the work of a Building Inspection Section in a large municipal authority.

These appointments are permanent established posts subject to a probationary period of not less than six months' service and to review at the end of 4 years' service.

The successful applicants will be entitled to 26 working days paid leave per annum. They will be allowed to accumulate such leave up to a maximum of thirteen weeks for the purpose of overseas leave and will be permitted to proceed overseas for such leave at their own expense.

Membership of the Staff Superannuation Fund is compulsory, the members rate of contribution being 7½ per cent. of consolidated salary.

Membership of the European Employees' Medical Scheme is compulsory for staff at the confirmation of the appointment. Details of the scheme will be available to applicants interviewed.

The successful applicants will be required to pass a medical examination before they are appointed.

Applications, stating age, qualifications and experience together with copies of certified testimonials, should be addressed to the Establishment Officer, P.O. Box 5037, Nairobi, so as to reach him not later than 16th July, 1955.

Canvassing either directly or indirectly will be a disqualification.

JOHN RISEBOROUGH,
Town Clerk.

Town Hall,
Nairobi.
8th June, 1955. 1440

IMPERIAL WAR GRAVES COMMISSION require a WORKING FOREMAN OF WORKS for West Africa with headquarters at Lagos, Nigeria. Salary within range £497—£605 per annum according to age (minimum age 28) and experience. Variable Foreign Service Allowance payable in addition which for a married man (unaccompanied by wife) is about £500 per annum. Duration of appointment approximately two years from September, 1955. Time in West Africa will be limited to two tours of about eight months per year. Leave given at the rate of seven weeks per annum, being taken between tours, remaining service being spent in a near European country. Candidates should possess a knowledge of stonework construction and be able to drive. Apply Appointments Officer, Wooburn House, Wooburn Green High Wycombe, Bucks. 1422

IMPERIAL WAR GRAVES COMMISSION require a CLERK OF WORKS for their United Kingdom District (Northern Region) with headquarters at Harrogate. Duration of employment will be for a minimum of one year. Salary within the range £575—£660 per annum, according to age (minimum age 28) and qualifications. Candidates should be able to drive and should have had some experience of construction in stone.

Apply to Appointments Officer, Wooburn House, Wooburn Green, High Wycombe, Bucks. 1423

LANCASHIRE COUNTY COUNCIL.
PLANNING ASSISTANTS, A.P.T. Grade IV (£675—£825) and Special Scale (£650—£775), required at Liverpool, Bury and Manchester. Applicants should be qualified architects, engineers or surveyors; planning experience desirable but not essential. Applications, stating grade and office applied for, giving age, qualifications, present appointment, experience, etc., and two referees to the County Planning Officer, East Cliff County Offices, Preston by 6th July, 1955. 1427

LINDSEY COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Vacancies on the permanent staff for—

(*a*) Two QUALIFIED ASSISTANT ARCHITECTS A.P.T. IV—£675—£825, or Special Grade £650—£775, according to experience.
(*b*) QUALIFIED ASSISTANT QUANTITY SURVEYOR, A.P.T. V—£750—£900.
(*c*) HEATING ASSISTANT A.P.T. III—£600—£725.
(*d*) ELECTRICAL ASSISTANT A.P.T. II—£560—£640.

N.J.C. Conditions of Service. Canvassing will disqualify. Candidates must disclose in writing whether to their knowledge they are related to any member or Senior Officer of the Council.

Applications giving age, qualificatons, experience, and names of two persons to whom reference can be made to be sent to the undersigned not later than 30th June, 1955.

A. RONALD CLARK, A.R.I.B.A., A.M.T.P.I.,
County Architect.

County Offices,
Lincoln. 1516

COUNTY BOROUGH OF DERBY.
BOROUGH ARCHITECT'S DEPARTMENT.

(*a*) TWO JUNIOR ARCHITECTS, Salary General Division (£275 at 20 rising to £400 or £475); A.P.T. I (£500—£580); or A.P.T. II (£560—£640), according to qualifications.

(*b*) ONE JUNIOR QUANTITY SURVEYOR, Salary A.P.T. II £560—£640. Qualifications: R.I.C.S. Intermediate Examination standard. Experienced in abstracting and billing, measuring on site, preparation of final accounts and taking off quantities for small building works.

Permanent superannuable appointments, subject to one month's notice and to medical examination.

National Conditions of Service.

Forms of application obtainable from and to be returned to the Borough Architect, The Council House, Corporation Street, Derby, not later than 4th July, 1955.

Canvassing disqualifies.

G. H. EMLYN JONES,
Town Clerk.

9th June, 1955. 1514

URBAN DISTRICT OF EAST BARNET.

Applications are invited for the following permanent appointments:—

(*a*) SENIOR ASSISTANT ENGINEER—Grade A.P.T. IV (£675—£825 per annum).
(*b*) ASSISTANT ENGINEER—Grade A.P.T. III (£600—£725 per annum).
(*c*) ASSISTANT ARCHITECT—Grade A.P.T. III (£600—£725 per annum).
(*d*) PARKS SUPERINTENDENT—Grade A.P.T. II (£560—£640 per annum).
(*e*) ENGINEERING ASSISTANT—Grade A.P.T. I (£500—£580 per annum).
(*f*) TWO DRAUGHTSMEN—Grade A.P.T. I (£500—£580 per annum).

All salaries will be increased by London Weighting of £20—£30 per annum, according to age.

Housing accommodation will be provided for appointments (*a*), (*c*) and (*d*), if necessary.

Conditions of Appointments and Forms of Application, returnable by 6th July, 1955, may be obtained from the Engineer & Surveyor, Town Hall, Station Road, New Barnet, Hertfordshire. 1513

CITY OF WAKEFIELD.
APPOINTMENT OF SENIOR QUANTITY SURVEYOR.

Applications are invited for the above superannuable appointment in the City Engineer's Department on Grade A.P.T. IV commencing at £765 per annum.

Candidates must be members by examination of the R.I.C.S. or the I.Q.S., and have had experience in large scale Local Authority housing, schools and other municipal buildings.

Applications, stating age, qualifications, appointments and experience, with the names of two referees, to be sent to me not later than the 6th July, 1955.

Housing Accommodation will be considered.

W. S. DES FORGES,
Town Clerk.

Town Hall, Wakefield. 1512

CORPORATION OF LONDON require for City Planning Office: (*a*) PLANNING ASSISTANT, Civic Design Section, at salary, dependant on qualifications, between £816 5s. and £1,000 for design of comprehensive redevelopment schemes: preference given to members R.I.B.A. with contemporary and progressive approach and recent experience in three-dimensional planning of central areas willing to assist in preparing small scale models.

(*b*) JUNIOR ASSISTANT salary £6 13s. 11d. to £7 0s. 3d. for general duties in drawing office, including filing and binding drawings, stencil lettering.

Applications with details of experience, present position, age and referees to City Planning Officer, 55/61, Moorgate, London, E.C.2, within fourteen days. 1480

HEMEL HEMPSTEAD DEVELOPMENT CORPORATION.

SENIOR ARCHITECT.—Salary scale £715—£975 p.a. Must be A.R.I.B.A. and should have experience in commercial and/or domestic architecture.

SENIOR ASSISTANT ARCHITECT.—Salary scale £715—£835 p.a. Must be A.R.I.B.A. and experienced in commercial and/or domestic architecture.

ASSISTANT.—Salary scale £520—£685 p.a. Inter. R.I.B.A. essential.

JUNIOR ASSISTANT.—Salary scale £260—£455 p.a. Applicants should have some drawing office experience and be studying for the Inter. R.I.B.A. examinations.

Other applications from persons with experience but not yet qualified for the Senior or Assistant grades will be considered for appointment to other grades with slightly lower salary scales.

Conditions of service similar to those in Local Government.

Housing Accommodation may be available.

Applications, giving age, education, qualifications and experience, and names of two referees, should reach the General Manager, Westbrook Hay, Hemel Hempstead, by 24th June. 1511

COUNTY BOROUGH OF GATESHEAD.
BOROUGH ENGINEER'S DEPARTMENT: ARCHITECTURAL SECTION.

Applications are invited for the following appointments, which are subject to N.J.C. Conditions:—

ARCHITECTURAL ASSISTANTS.—Grade A.P.T. IV (£675 × £30—£825) if registered and Corporate Members of the Royal Institute of British Architects; or Special Grade (£650 × £25—£775) if unregistered but have passed Parts 1 and 2 of the R.I.B.A. Final or Special Final examinations or equivalent and have had at least five years' experience, including the period spent in theoretical training.

Posts pensionable, subject to medical examination and one month's notice on either side.

Applications, on forms obtainable from the Borough Surveyor, Swinburne Street, Gateshead, 8, must be returned to him by 4th July, 1955.

C. D. JACKSON,
Town Clerk.

Town Hall,
Gateshead, 8.
11th June, 1955. 1510

METROPOLITAN BOROUGH OF STOKE NEWINGTON.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the above permanent appointment in the Borough Engineer and Surveyor's Department; A.P.T.II (£560—£20—£640) plus London Weighting. Step on grade according to qualifications and experience. N.J.C. Conditions. Medical Examination.

Application forms obtainable from the Town Clerk, Town Hall, Stoke Newington Church Street, London, N.16, to whom they should be returned by Monday, 11th July, 1955. 1483

BEDFORDSHIRE COUNTY COUNCIL.

Applications are invited from suitably qualified ARCHITECTURAL ASSISTANTS for the following vacancies in the County Architect's Department:—

A.P.T. Grade IV (£675 to £825 per annum).
A.P.T. Grade II (£560 to £640 per annum).
A.P.T. Grade I (£500 to £580 per annum).

Application forms can be obtained from the County Architect, Shire Hall, Bedford, and should be returned by 4th July, 1955. 1484

GOLD COAST GOVERNMENT.

Applications are invited for post of ARCHITECT. Qualifications: Must be an Associate Member of the Royal Institute of British Architects. Membership of the Town Planning Institute and post-graduate experience in the School of Tropical Architecture, Department of Architecture, London University, will be an advantage. Preference will be given to candidates who have had experience in the Housing Department of either a United Kingdom or Overseas Local Authority. Duties: Candidate will be required to prepare layouts for new estates to provide for composite neighbourhoods, to design and improve on house types and undertake the detailing connected therewith in close consultation with the Engineers and Management Staff.

Terms of Service: The appointment will be on contract/gratuity terms for one tour of 18 to 24 months in the first instance. Salary will be in the range £1,030—£2,020 per annum (consolidated) according to age, qualifications, and experience. A gratuity at the rate of £37 10s. for each completed three months of satisfactory service will be payable on final termination of the contract.

Free passages on first appointment and on leave will be provided for the officer and his wife once, each way during each tour of service. Officers will normally be required to travel by air. Free air passages will also be provided for a maximum of three children under 13 years of age.

Vacation leave with pay: seven days for each month of service. Furnished quarters available at low rental. Income Tax at local rates. Kit allowance on first appointment £60 to £30, according to salary (if no recent tropical experience). It is possible to arrange for superannuation rights of candidates in local government service to be frozen.

Intending candidates should apply in writing to the Adviser on Recruitment, Gold Coast Office, 13, Belgrave Square, London, S.W.1, for a form of application. 1486

COUNTY BOROUGH OF READING. Applications invited for the appointment of ASSISTANT ARCHITECTS who have passed Parts I and II, R.I.B.A. Final or Special Final Examination or their equivalent. Salary range £650 × £25—£775, according to experience. Posts permanent and appointment subject to N.J.C. Conditions. Housing accommodation will be considered. Application forms, to be returned not later than Friday, 8th July, 1955, obtainable from Borough Architect, Town Hall, Reading. 1443

SCOTTISH GAS BOARD—EDINBURGH DIVISION.
DRAUGHTSMAN/TECHNICAL ASSISTANTS. Applications are invited for the position of DRAUGHTSMAN/TECHNICAL ASSISTANTS of the Scottish Gas Board, Edinburgh Division.

Applicants should have experience of surveying and in the layout and design of Building and Engineering structures and should hold or be studying for the Higher National Certificate of the Institution of Civil Engineers or in Building or a similar qualification. The salary paid will be according to qualification and experience.

Applications giving details of training, qualification and experience, together with the names of two referees, should be sent to the undersigned not later than July 2nd, 1955.

The successful candidate will be required to pass a medical examination and will be subject to the Board's Superannuation Scheme.

DAVID BEAVIS,
Divisional Controller.

15, Calton Hill,
Edinburgh, 1. 1444

HERTFORDSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.
Applications are invited for the following :—

(*a*) CHIEF ASSISTANT ARCHITECTS (Section Leaders).—Salary, Grade "A" £1,063 15s.—£1,228 15s. Commencing salary to be fixed in accordance with qualifications and experience.

(*b*) ASSISTANT ARCHITECTS—Salary, Grade V—£750—£900.

Previous Local Government experience not essential. Applications stating precisely which post is applied for, and giving detailed particulars of experience, qualifications, etc., and names of three referees, to County Architect, County Hall, Hertford, Herts. not later than first post 4th July, 1955. 1446

NATIONAL COAL BOARD—EAST MIDLANDS DIVISION.
ARCHITECT'S DEPARTMENT, MILTON STREET, NOTTINGHAM.
Applications are invited for the following permanent and superannuated appointments. Superannuation rights under Local Authority Schemes are transferable.

S.V. 412, ARCHITECT, Grade I. Salary £900 × £35—£1,200.

Candidates must be Corporate Members of the R.I.B.A. and have had considerable experience in the design and construction of all types of buildings, preferably in the industrial field. Experience in the supervision and administration of large contracts and control of staff is essential.

S.V. 413, ARCHITECTS, Grade II. Salary £600 × £25—£650 × £30—£900.

Candidates should be Corporate Members of the R.I.B.A.

S.V. 414, ARCHITECTURAL ASSISTANTS, Grade I. Salary £525 × £25—£650 (exceptionally to £800).

Candidates should be of R.I.B.A. Intermediate standard and have had not less than 3 years' subsequent practical experience.

S.V. 415, ARCHITECTURAL ASSISTANTS, Grade II. Salary £440 × £20—£540.

Candidates should have passed or be studying for the Intermediate Examination of the R.I.B.A.

Facilities are granted in certain circumstances to Assistants for part-time study at the Nottingham School of Architecture.

The grade and point of entry into the above salary scales will depend on the qualifications and experience of the applicant.

Applications, stating age, education, qualifications, present appointment and salary, should be submitted within 14 days of publication to :—

THE SECRETARY,
National Coal Board,
East Midlands Division,
Sherwood Lodge, Arnold, Notts.

Envelopes and applications should be marked with the appropriate "S.V." reference number. Original testimonials should not be sent. 1244

CITY OF STOKE-ON-TRENT.
CITY ARCHITECT'S DEPARTMENT
Applications are invited for the following vacancies :—

(*a*) ASSISTANT ARCHITECTS—Special Scale £650—£775.

(*b*) ASSISTANT QUANTITY SURVEYOR (Temporary staff), Grade IV (£675—£825).

Applicants for posts (*a*) should have passed Parts I and II of the R.I.B.A. Final or Special Final or their equivalent at a recognised School of Architecture; (*b*) should have passed the Final examination of the R.I.C.S.

Applications, stating date of birth, details of training and previous experience and enclosing COPIES of two recent testimonials, should be forwarded to J. R. PIGGOTT, T.D., F.R.I.B.A., City Architect, Kingsway, Stoke-on-Trent, by Thursday, 30th June, 1955.

HARRY TAYLOR,
Town Clerk.
1462

SITTINGBOURNE AND MILTON URBAN DISTRICT COUNCIL.
EXPERIENCED ARCHITECTURAL ASSISTANT required.

Salary within Special Grade or Grade IV of A.P.T. Scale—£650 to £825 per annum. Applications to the Clerk, SITTINGBOURNE AND MILTON URBAN DISTRICT COUNCIL, to be received not later than 10 a.m. on 1st July, 1955. 1493

GOVERNMENT OF MAURITIUS.
ASSISTANT ARCHITECT—GOVERNMENT ARCHITECT'S OFFICE.
To be in charge of a Section in the Architectural Department and responsible for the preparation of sketch designs, working drawings, specifications for and supervision of building works.

Appointment on contract for 3 or 4 years in the salary scale £643 10s. to £1,291 10s. per annum according to qualifications and experience. A temporary variable cost of living allowance is also payable. On satisfactory completion of contract a gratuity will be payable at the rate of £150 to £200 per annum.

Free passages are provided for the officer, his wife and up to 3 children. Vacation leave is granted at the rate of 4 days in respect of each completed month of resident service.

Candidates must be A.R.I.B.A. with preferably a Degree or Diploma in Architecture and have had experience covering Educational, Medical and Health, Public and Domestic buildings.

Apply in writing to the Director of Recruitment, Colonial Office, Great Smith Street, London, S.W.1, stating briefly age, qualifications and experience and quoting reference No. BCD 112/52/04. 1455

NATIONAL COAL BOARD—WEST MIDLANDS DIVISION.
Applications are invited for the post of ARCHITECTURAL ASSISTANT Grade I, salary scale £525 × £25 to £650, at Himley Hall, Dudley, Worcs.

Applicants should have passed the Intermediate Examination of the Royal Institute of British Architects and have had not less than three years' subsequent practical experience, and should be able to prepare sketch plans and working drawings under supervision and have a sound knowledge of building construction.

Applications to the Divisional Establishment Officer, National Coal Board, Himley Hall, Dudley, Worcs. 1454

CENTRAL ELECTRICITY AUTHORITY
EAST MIDLANDS DIVISION.
Applications are invited for the following positions within the Division :—

TWO SENIOR DRAUGHTSMEN (ELECTRICAL) GENERATION (CONSTRUCTION) DEPARTMENT.
Vacancy No. 97/55/*AJ*

Candidates should have experience in the preparation of layouts and diagrams for the installation of E.H.T. and L.T. switchgear, transformers, E.H.T. and L.T. cables; knowledge of protective gear systems would be an advantage.

The salary will be in accordance with Grade 5 (£640 × £20—£740 per annum) of Schedule D of the Natonal Joint Board Agreement.

Closing date for receipt of applications, 27th June, 1955.

TWO SENIOR DRAUGHTSMEN (MECHANICAL) GENERATION (CONSTRUCTION) DEPARTMENT.
Vacancy No. 96/55/*AJ*

Candidates should have experience on one or more of the following :—

(i) Design and layout of Power Station equipment, including turbo-alternators, boiler plant, coal and ash plant and general station auxiliaries.

(ii) H.P. and L.P. steam and feed pipework. Condensing plant and feed heating systems.

(iii) Conveyor plant, coal handling systems and material handling of station auxiliary equipment.

Salary will be in accordance with Grade 5 (£640 × £20—£740 per annum) or Grade 4 (£750 × £20—£850 per annum) of Schedule D of the National Joint Board Agreement.

Closing date for receipt of applications—27th June, 1955.

SENIOR DRAUGHTSMAN (CIVIL) CONSTRUCTION DEPARTMENT.
Vacancy No. 99/55/*AJ*

Candidates should have experience in the preparation of detail drawings and in the design of one or more of the following subjects :—

Reinforced concrete structures;

Piled and slab foundations for heavy components;

Cable subways, Bridges and Culverts.

The Salary will be in accordance with Grade 4 (£750 × £20—£850 per annum) or Grade 5 (£640 × £20—£740 per annum) of Schedule D of the National Joint Board Agreement.

Closing date for receipt of applications—4th July, 1955.

These appointments will be pensionable within the terms and provisions of the Central Electricity Authority and Area Boards Superannuation Scheme.

Applications should be submitted on the official form A.E.6/ACT which may be obtained from the Divisional Establishments Officer, Central Electricity Authority, P.O. Box 25, Barker Gate, Nottingham, and should be returned to the undersigned by the date stated. Please quote Vacancy Number.

L. F. JEFFREY,
Divisional Controller.

9th June, 1955. 1509

INVERNESS COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.
Applications are invited for appointments as undernoted :—

(1) JUNIOR ARCHITECTURAL ASSISTANT.
(2) ARCHITECTURAL ASSISTANT.

Candidates for (1) above should have completed their period of 5 years' architectural apprenticeship and have had experience as a junior assistant. Salary scale A.P.T. Grade I, £515—£560 per annum.

Candidates for (2) above must be Associate Members of the Royal Institute of British Architects and preferably should have experience in Local Authority housing and educational work. Salary scale A.P.T. Grade V, £665—£715 per annum, with placing according to experience and qualifications. Housing accommodation may be made available, if required.

The posts are subject to the Local Government Superannuation (Scotland) Acts.

Applications, stating age, particulars of professional training, experience and qualifications, together with the names of three persons to whom reference may be made, should be lodged with the undersigned within 14 days from the publication of this advertisement.

R. WALLACE,
County Clerk.

County Buildings,
Ardross Street, Inverness. 1428

STEVENAGE DEVELOPMENT CORPORATION.
CHIEF ARCHITECT'S DEPARTMENT.
Applications are invited for posts as ASSISTANT ARCHITECTS on N.J.C. Salary Scale A.P.T. VI (£825 × £35—£1,000 p.a.). Commencing salaries will be fixed according to qualifications and experience.

Candidates should be fully qualified Architects with experience of large-scale building contracts.

Housing accommodation will be available in due course in appropriate cases.

Applications, giving details of qualifications, experience and the names of two referees should be sent to the Chief Administrative Officer, Aston House, Nr. Stevenage, Herts, not later than Thursday 30th June, 1955. 1424

CITY OF PORTSMOUTH.
CITY DEVELOPMENT OFFICER'S DEPARTMENT.
Applications are invited for the appointment of DEPUTY CITY DEVELOPMENT OFFICER at scale salary £1,150—£1,228 15s. per annum. A car allowance is payable.

Applicants must be Associate Members of the Town Planning Institute, and should preferably hold a recognised qualification in Architecture, Engineering or Surveying.

The work of the Department includes the administration of the City Development Plan, the guidance of Urban development, Housing layout, Redevelopment of war damaged and substandard housing areas, the accommodation of Overspill, and the location of Industry.

Applications stating age, present position, qualifications and experience, together with names of three referees, must be delivered to the undersigned, marked "City Development Appointment," not later than 14th July, 1955.

Canvassing will disqualify.

V. BLANCHARD,
Town Clerk.

City Council Chambers,
Portsmouth. 1472

LANCASHIRE COUNTY COUNCIL.
LANDSCAPE ARCHITECTS, A.P.T. Grade III (£600—£725) and Grade IV (£675—£825), required at Preston. Applicants should possess A.I.L.A. or equivalent. Salary according to qualifications and experience. Duties include the preparation of landscape proposals for new and existing development, land reclamation schemes, mineral workings and tips. Applications, stating post applied for, giving age, qualifications experience, present appointment etc., and two referees, to County Planning Officer, East Cliff County Offices, Preston, by 29th June, 1955. 1508

NATIONAL COAL BOARD—WEST MIDLANDS DIVISION.
Applications are invited for the post of ARCHITECT Grade II (salary range £600 to £900) at Fenton, Stoke-on-Trent, subject to satisfactory experience, the starting point on the scale will not be below £740 per annum.

Applicants should be A.R.I.B.A.

The office is engaged on a large programme of varied and interesting work of an industrial nature and offers scope for applicant with a progressive outlook. Flat accommodation can be rented.

Applications to the Divisional Establishment Officer, National Coal Board, Himley Hall, Dudley, Worcs. 1448

CITY OF PETERBOROUGH.
QUANTITY SURVEYOR'S ASSISTANT.
Applications are invited for the above appointment in the Department of the City Engineer and Surveyor on Grade A.P.T. I, £500—£580 per annum.

Consideration is being given to the provision of a house, if required, to the successful applicant.

Forms of application may be obtained from the City Engineer, Town Hall, Peterborough, to whom they must be returned not later than 1st July, 1955.

C. PETER CLARKE,
Town Clerk.

Town Hall,
Peterborough.
9th June, 1955. 1461

COLLEGE OF TECHNOLOGY, BIRMINGHAM.
DEPARTMENT OF BUILDING AND CIVIL ENGINEERING.

Applications are invited for appointment as full-time ASSISTANT (Grade "B") in Structural Engineering and associated subjects.

Candidates should hold one or both of the following qualifications:—

(*a*) B.Sc.(Eng.) with structural engineering subjects.

(*b*) A.M.I.Struct.E.

Industrial experience is essential and ability to teach structural engineering with an architectural bias will be advantageous.

The successful candidate will be required to commence duties on 1st September, 1955, or as soon as possible thereafter.

Salary will be in accordance with the Burnham (Further Education) Scale for Assistants Grade "B" (Men) £525 × £25 (final increment £20) to £820, with additional graduate and training allowances where applicable. In fixing the commencing salary, account will be taken of teaching and industrial experience.

Further particulars and form of application may be obtained from the Registrar, College of Technology, Suffolk Street, Birmingham, 1, on receipt of a stamped addressed foolscap envelope. Completed forms should be returned not later than two weeks after the appearance of this advertisement.

K. R. PILLING,
Clerk to the Governing Body.
1491

COUNTY OF CORNWALL.
APPOINTMENT OF COUNTY ARCHITECT.

Applications are invited from Registered Architects for the whole-time appointment of COUNTY ARCHITECT at a salary within the scale of £2,200 × £100 (2) × £50—£2,450. Travelling and subsistence allowances will be payable in accordance with the regulations of the Council.

The person appointed will be responsible for all the Council's architectural work, and similar duties on behalf of the Cornwall Combined Police Authority and the Standing Joint Committee.

Applications, together with the names of three persons to whom reference may be made, should be received by me not later than 9th July, 1955.

E. T. VERGER,
Clerk of the County Council.
County Hall, Truro.
10th June, 1955. 1459

BOROUGH OF WALTHAMSTOW.
BOROUGH ARCHITECT, ENGINEER & SURVEYOR'S DEPARTMENT.
ASSISTANT QUANTITY SURVEYOR.

Applications are invited for the appointment of ASSISTANT QUANTITY SURVEYOR on Grade II, A.P.T. Division (£590—£670 inclusive of London Weighting).

Applicants for the appointment must have had at least two years' recent practical experience.

Applications, with names of two persons for reference, should be received by the undersigned not later than Saturday, the 2nd July, 1955, endorsed "Quantity Surveyor."

G. A. BLAKELEY,
Town Clerk.
Town Hall, E.17. 1458

COUNTY BOROUGH OF BOURNEMOUTH.
BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments:—

(A) ASSISTANT ARCHITECTS (Two Posts)—Salary Grade—Special Scale £650—£775 p.a.

(B) ARCHITECTURAL ASSISTANT—Unestablished Post—Salary Grade A.P.T. II £560—£640 p.a.

Applicants for posts (A) must be fully qualified (by examination) members of the R.I.B.A., have experience of architectural works required by Local Authorities and be conversant with the Education Building 1944 Act. For post (B) applicants must have had one year's experience after passing the Inter. R.I.B.A. Examination.

Successful candidates will be appointed at present salary if within the incremental scale. Application forms and further particulars from Borough Architect, Town Hall, Bournemouth. Completed applications, with copies of three recent testimonials, must reach the undersigned by 10 a.m., 9th July, 1955.

A. LINDSAY CLEGG,
Town Clerk.
1463

BOROUGH OF CHATHAM.
APPOINTMENT OF ASSISTANT ARCHITECT.

Applications are invited for the appointment of Assistant Architect within New Grade £650 × £25—£775, commencing at £700 per annum.

The person appointed is required for the redevelopment of central areas and other works offering considerable scope and applications from persons with several years experience subsequent to their initial training only will be considered.

Applications, with copies of two testimonials or the names and addresses of two referees, should be delivered to the Borough Engineer and Surveyor, Town Hall, Chatham, by Friday, 22nd July, 1955.

The appointment will be subject to the National Scheme of Conditions of Service; to the provisions of the Local Government Superannuation Acts and the candidate satisfactorily passing a medical examination. The appointment will be terminable by one month's notice on either side.

Housing Accommodation will be available if required. 1495

LONDON COUNTY COUNCIL—ARCHITECT'S DEPARTMENT.
APPOINTMENT OF SENIOR GROUP OFFICER, PLANNING DIVISION (Salary £1,575 × £75—£1,875).

The Senior Group Officer is Deputy to the Senior Planning Officer and, in addition to his duties in that respect, has charge of a group dealing with planning policy as a whole and coordinating its application. The Planning Division consists of a professional and technical staff of over 200, and an administrative staff under the direction of a Principal Clerk. The Council's town planning activities include the periodical review of the Development Plan, civic design problems in reconstruction areas, and the examination of the Council's own development proposals and of all applications by private applicants and other public authorities. The position requires proved ability as a planner (preferably with architectural qualifications) and outstanding organising ability.

Application form, returnable by July 4 from Architect (AR/EK/SGO/2), The County Hall, S.E.1. (889) 1487

COUNTY BOROUGH OF EAST HAM.
HOUSING DEPARTMENT.
SENIOR ARCHITECTURAL ASSISTANT (A.P.T. IV).

Applicants should be Associates R.I.B.A. and have had experience in Housing work of a local authority. Salary £675 × £30—£825 plus London Weighting.

Further details and form of application (returnable by 13th July, 1955) from the Town Clerk, Town Hall, East Ham, E.6. 1490

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

Applications are invited from fully qualified Architects for the post of SENIOR ARCHITECTURAL ASSISTANT on the permanent staff of the City Architect and Planning Officer's Department.

Candidates must be Associates of the Royal Institute of British Architects and Registered Architects, capable of preparing sketch designs full working drawings, specifications, etc., and competent to undertake educational, housing and general architectural work for a Local Authority.

Salary within the range £675—£30 (5)—£825 per annum (Grade IV, A.P.T. Division).

It may be possible to assist the successful applicant in finding Housing Accommodation.

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

Form of application and conditions of appointment may be obtained from the City Architect and Planning Officer, Town Hall, Oxford, to whom completed forms must be returned not later than 2nd July, 1955.

HARRY PLOWMAN,
Town Clerk.
Town Hall,
Oxford. 1460

MINISTRY OF EDUCATION require ARCHITECTS in their Architects' and Building Branch. Salary on scale £1,035 by eight increments to £1,355 (men), and £945 (women) increasing by eight annual increments to men's maximum by 1961. Work is of two kinds. First consists mainly in consulting with Architects engaged in the design of educational building projects for Local Education Authorities and in advising the Ministry on the suitability of these projects. Second consists of study in principle and detail of the design and construction of educational buildings and of their services, fittings and furniture. Architects appointed will at first be employed on the former type of work, but there is interchange between the two groups. Candidates should preferably be between the ages of 30 and 40. Though not essential, experience in the design and construction of educational buildings would be of advantage, whether gained in a public or a private office. Application forms from M.L.N.S., Technical and Scientific Register (K), 26, King Street, London, S.W.1, quoting ref. J 106/5A. 1497

BOROUGH OF SOLIHULL.
CLERKS OF WORKS (BUILDING) A.P.T. Grade II (£560 × £20—£640).

Applications are invited for the above appointments in the Architects Section of the Borough Engineer and Surveyor's Department, where additional staff is needed for an expanding programme of work on housing and public buildings.

Applicants should have been apprenticed in the building trade and have had considerable experience as craftsmen and general foremen.

The appointments will be subject to the provisions of the Local Government Superannuation Acts, the National Scheme of Conditions of Service and one month's notice on either side.

Applications giving full details as to age, present position and salary, qualifications and experience, together with the names and addresses of two referees, should be delivered to the Borough Engineer & Surveyor, 90, Station Road, Solihull, not later than Friday, July 1st, 1955.

In appropriate cases, housing accommodation will be made available as soon as possible.

W. MAURICE MELL,
Town Clerk.
Council House,
Solihull. 1504

BOROUGH OF DAGENHAM.
ARCHITECTURAL ASSISTANT—GRADE A.P.T. II.

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT, Grade A.P.T. II. Salary £560 to £640 per annum, plus London Weighting (£20 at age 21—26 years and £30 at age 26 and over). Applicants must hold intermediate A.R.I.B.A. or similar qualification.

Forms of application, together with further details of the post are obtainable from the Borough Engineer and Surveyor. Closing date for applications 9th July, 1955. Canvassing disqualifies.

KEITH LAUDER,
Town Clerk.
Civic Centre,
Dagenham. 1498

COUNTY BOROUGH OF HASTINGS.
SENIOR ASSISTANT ARCHITECT (A.P.T. IV —£675—£825).

Applications are invited for the above post in the Housing Section.

The appointment will be subject to the National Scheme of Conditions of Service, the passing of a medical examination and to one month's notice in writing on either side.

Housing Accommodation available if required.

Applications, stating age, qualifications (which must include A.R.I.B.A. or equivalent), present and previous appointments and salary, accompanied by copies of not more than three testimonials, should be forwarded to the Borough Engineer, 37, Wellington Square, Hastings, not later than 8th July, 1955.

Canvassing will be a disqualification.

N. P. LESTER,
Town Clerk.
Hastings. 1502

MINISTRY OF EDUCATION.
ASSISTANT QUANTITY SURVEYOR required in Development Group for the preparation of bills of quantities and final accounts for education buildings in new and conventional constructions, and to assist in planning and controlling the costs of development projects.

Age 25 or above. Preference to corporate members R.I.C.S. within scale £675—£1,035 plus extra duty allowances of 8 per cent. Starting salary according to age.

Applications with details of age, training, qualifications and experience, to the Secretary, Ministry of Education, Curzon Street, W.1, not later than 2nd July, 1955. 1496

EBBW VALE URBAN DISTRICT COUNCIL.
ARCHITECT'S DEPARTMENT.

Applications are invited for a permanent ARCHITECTURAL ASSISTANT (Grade A.P.T.II) Salary, £560—£640.

Applicants should have passed the Intermediate Examination of either the Royal Institute of British Architects or the Royal Institution of Chartered Surveyors (Building Sub-Division).

The appointment will be subject to (1) the provisions of the Local Government Superannuation Acts, 1937 and 1953, (2) National Conditions of Service, (3) the successful applicant passing a medical examination, and (4) to one month's notice in writing on either side.

The Council will provide housing accommodation.

Applications, stating age, qualifications and experience, together with the names and addresses of two referees should be delivered to the undersigned not later than Thursday the 30th June, 1955.

Canvassing disqualifies.

HOWARD J. WILLIAMS,
Acting Clerk of the Council.
District Council Offices,
The Walk,
Ebbw Vale, Mon.
7th June, 1955. 1526

EBBW VALE URBAN DISTRICT COUNCIL.
APPOINTMENT OF TEMPORARY ASSISTANT ARCHITECT.

Applications are invited from Registered Architects, preferably corporate Members of the R.I.B.A., for the above appointment in the Architect's Department.

The person appointed will be engaged mainly upon duties in connection with preliminary work for the development of a new Civic Centre.

The salary will be in accordance with the Scales for Architectural Assistants A.P.T. Grade II(c) £650 × £25—£775 per annum.

The appointment is intended to be for the duration of the scheme and will be for a minimum period of three years, subject to satisfactory service, and will be subject to the National Conditions of Service as adopted by the Council, to the provisions of the Local Government Superannuation Acts, to three months' notice on either side and to the successful candidate passing a medical examination.

The Council will provide housing accommodation if required.

Applications stating age, particulars of training, qualifications, experience, past and present appointments, together with the names and addresses of two referees, must be received not later than 2nd July, 1955.

Canvassing will disqualify.

HOWARD J. WILLIAMS,
Acting Clerk of the Council.
District Council Offices,
The Walk,
Ebbw Vale, Mon.
7th June, 1955. 1525

Architectural Appointments Vacant

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

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

ARCHITECTURAL ASSISTANT: Intermediate approaching final. Commercial and industrial work; large-scale contracts. Watson, Johnson, Stokes. Victoria Square. Birmingham. 4895

OPENING for QUALIFIED ARCHITECTS as Assistant Designers with an expanding firm of new traditional builders. Must have good general practical knowledge and a keen interest in new building methods. A prospect exists for working overseas. Starting salaries range between £650 and £750 according to experience, with an increase after six months' satisfactory service. Messrs. Reema Construction, Ltd., Milford Manor, Salisbury, Wilts. 9235

ARCHITECTURAL STAFF, all grades, wanted, interesting and varied work of contemporary character; light and airy offices. Apply J. Seymour Harris & Partners, 4, Greenfield Crescent, Edgbaston, Birmingham, 15. 8786

ARCHITECT'S ASSISTANTS required (1 Senior and 2 Juniors) for West End Office. Write, stating full particulars and salary required. to Box 8725.

ARCHITECTURAL ASSISTANT required in small private office. Intermediate to Final standard. Write, stating experience and salary required, to: A. F. Bennett, 35, Queen's Gate Mews, London, S.W.7. 9266

RONALD WARD & PARTNERS require several capable ARCHITECTURAL ASSISTANTS with contemporary outlook and willing to use own initiative. Salary range £400 to £800. Interesting and varied work, home and abroad. Congenial working conditions. Apply 29, Chesham Place, S.W.1. Telephone Belgravia 3361. 7023

SENIOR ASSISTANT required in busy practice in West End. Age about 30 years, qualified with several years' experience and capable of running contracts. Box 9968.

JUNIOR and INTERMEDIATE ARCHITECTURAL ASSISTANTS required urgently in London Office with widely varied practice. Good salaries, 5-day week. Lewis Solomon, Son & Joseph, HOL 5108 or 7082. 8481

ARCHITECTURAL ASSISTANT required by Major Oil Company undergoing expansion, for its Sheffield office. Applicants should be of Intermediate standard, and must be capable of carrying out work on the design and re-modelling of service stations. Social Club, Pension and Life Assurance scheme, generous sickness benefits. Write, giving full details of experience, age and salary required, to Box 9262, quoting Ref. A.A. 588.

REQUIRED for progressive London office, ARCHITECTURAL ASSISTANT. Intermediate stage or above, some office experience. Please write for interview. Box 1019.

CO-OPERATIVE WHOLESALE SOCIETY, LTD. ARCHITECT'S DEPARTMENT, BIRMINGHAM. APPLICATIONS are invited for the following appointments in a newly formed Branch Office to be opened in July. Interesting and varied commercial and industrial projects:—

(*a*) SENIOR ASSISTANT ARCHITECT, with experience in Store and Shop design.

(*b*) ASSISTANT ARCHITECTS, capable of preparing working drawings and details from preliminary sketches.

Salaries offered up to £915 (*a*) and £745 (*b*), according to experience, with prospects of upgrading.

Applications, stating age, experience, qualifications and salary required, to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, 4. 9851

REQUIRED by West End London Architects, YOUNG ASSISTANT with good practical experience of detailing. Keen interest more important than qualifications. Box 1233.

ARCHITECTURAL ASSISTANTS required urgently for London office. Intermediate stage or above, and with practical experience, particularly in traditional domestic and other work. Please write stating age, experience, and salary required to Box 9896.

CO-OPERATIVE WHOLESALE SOCIETY, LTD. ARCHITECT'S DEPARTMENT, MANCHESTER. APPLICATIONS are invited for the following appointments:—

(*a*) SENIOR ASSISTANT ARCHITECTS, with experience of work on commercial and industrial projects.

(*b*) ASSISTANT ARCHITECTS, capable of preparing working drawings from preliminary sketches.

Salaries offered up to £915 (*a*) and £745 (*b*), according to experience, with prospects of upgrading.

Applications, stating age, experience, qualifications and salary required, to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, 4. 9852

RILEY & GLANFIELD require Male ASSISTANT. Maximum salary £700 p.a. Voluntary overtime paid time and a half. Work: church, industrial, housing and public house. Telephone CHA. 7328. 1073

CO-OPERATIVE WHOLESALE SOCIETY, LTD ARCHITECT'S DEPARTMENT, LONDON. APPLICATIONS are invited from the following :—

(*a*) ASSISTANT ARCHITECTS of Inter. R.I.B.A. standard;

(*b*) WORKER-UP with experience of commercial/industrial buildings.

The salary range offered for the above appointments is up to £745, per annum according to age and experience, with prospects of up-grading.

Applications stating age, experience, qualifications and salary required to W. J. Reed, F.R.I.B.A., Chief Architect, Co-operative Wholesale Society Ltd., 99, Leman Street, London, E.1. 1210

ASSISTANT required in modern office, interesting position with scope. Opportunity for working on his own initiative with good prospects for advancement. Boissevain & Osmond, 65, Portland Place, W.1. Langham 7406. 1215

EXCELLENT opportunities occur in the Drawing Office of North & Partners for work in connection with large, medium and small contracts throughout Great Britain. Salary range £500—£850. Pension scheme Reply: North & Partners, Maidenhead 3131. 1300

ARCHITECTS in Home Counties require first-class ARCHITECTURAL ASSISTANTS/DRAUGHTSMEN experienced in contracts in the region of ½ million. First-class opportunities for enthusiastic and capable assistants. Reply to Box 1301.

GOLLINS, MELVIN, WARD & PARTNERS, 15, Manchester Square, W.1, require SENIOR and JUNIOR STAFF. Competent working drawings essential. Opportunity to work on contemporary buildings. Write or telephone WELbeck 9991. 1267

ASSISTANT ARCHITECT and ARCHITECTURAL ASSISTANT required for the London Head Office of a major oil company. The work is in connection with large-scale development of service stations, involving the design of new and the re-modelling of existing stations. ASSISTANT ARCHITECT should preferably be an Associate Member of the R.I.B.A., capable of supervising staff and controlling work through all stages of development. Must hold current driving licence. ARCHITECTURAL ASSISTANT (Male or female)—intermediate standard of R.I.B.A. Capable of handling jobs with a minimum of supervision. Work will involve a high standard of presentation and an understanding of contemporary design. Pension and Life Assurance Scheme. Generous sickness benefits; luncheon voucher scheme; Social Club. Write, giving full details, stating age, experience and salary required, to Box 1296, quoting Ref. RO/AA 713.

ARCHITECTURAL ASSISTANT required immediately in small private office. Intermediate Standard. Write, stating experience and salary required to Geoffrey Shires, A.R.I.B.A., 5z, Artillery Mansions, Victoria Street, S.W.1. 1349

ARCHITECTURAL ASSISTANTS (Senior and Junior) required in busy office handling a wide variety of interesting work including commercial, domestic, school and brewery projects. Please apply stating experience and salary required to Portess & Richardson, Lloyds Bank Chambers, Peterborough. 1348

REQUIRED URGENTLY in busy London office SENIOR ARCHITECTURAL ASSISTANTS Opportunities for working on own initiative for experienced and capable men. Salary £850-£900 or according to ability. Good prospects. Pleasant office conditions. Full details to Box 1347.

ASSISTANT required, with experience of Specifications, Sub-contracts, final accounts materials and specialists' fittings, also knowledge of construction and draughtsmanship. Write, giving particulars of age, experience, and salary required, to Box 708, c/o 7, Coptic Street, W.C.1. 1346

ARCHITECTURAL ASSISTANTS required immediately, London office. Good salary and prospects. Write, with particulars of age, qualifications, experience, and salary required, to Box 707, c/o 7, Coptic Street, W.C.1. 1345

ARCHITECT'S ASSISTANT, Intermediate Standard, required in the Architect's Department of a London Brewery Company. Write with full particulars to Box 1344.

ARCHITECTS' ASSISTANTS required for Staff Architects' Department at Head Office of Dolcis Shoe Co. Inter R.I.B.A. or equivalent standard required, keen interest in contemporary store design and enthusiasm for hard work. Canteen, Sports/Social Club and non-contributory pension scheme. Please apply in writing to Dolcis Shoe Co., 7-13, Great Dover Street, S.E.1. 1343

ARCHITECTURAL ASSISTANT required, of R.I.B.A. Intermediate standard, to work on large development schemes. If necessary, provision of a house would be considered. Write, stating age, qualifications and salary required, to E.M.A., Cadbury Bros., Ltd., Bournville, Birmingham. 1390

ARCHITECT'S ASSISTANTS required by Manchester firm of Architects. Some previous office experience desirable, and not less than Intermediate R.I.B.A. standard. Write, stating age, experience, qualifications, and salary required. Box 1385.

SALARY of £900—£1,000 offered by West End firm for a SENIOR ARCHITECTURAL ASSISTANT. Knowledge of school and hospital work an advantage. Write, giving full details of age, experience, etc., to Box 1365.

ARCHITECTURAL DRAUGHTSMAN, preferably having some knowledge or experience of acoustics, is required by a company of repute to prepare ceiling plans, layouts and designs in connection with this interesting and specialised type of work. Applicants could, with advantage, reside in the South London area, and should forward full details, which will be regarded as confidential, of age, experience, and present salary, to Advertiser, Box 950, c/o Winter Thomas Co., Ltd., 31, Great Queen Street, London, W.C.2. 1363

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Alphabetical Index to Advertisers

	PAGE
Acrow (Engineers), Ltd.	lxviii
Air Control Installations, Ltd.	lxxxv
Alexandria Trading Corpn., Ltd.	lxxxvii
Allen, W. G., & Sons (Tipton), Ltd.	xlviii
Allied Ironfounders, Ltd.	xxvi, xxvii
Anderson Construction Co., Ltd.	—
Architectural Press, Ltd., The	lxviii
Associated Lead Manufacturers, Ltd.	—
Banister, Walton & Co., Ltd.	xii
Batley, Ernest, Ltd.	lxxxi
Bawn, W. B., & Co.	xlvi
Boulton & Paul, Ltd.	xxxii
B.P. Fuel, Ltd.	lix
Braby, Fredk., & Co., Ltd.	xxii
Briggs, William, & Sons, Ltd.	xxxvii
British Aluminium Co., Ltd., The	xix
British Constructional Steelwork Association	liv
British Electrical Development Association	xxxv, xxxvi
British Lead Mills, Ltd.	lxxxviii
British Plaster Board, Ltd., The	xxxviii
British Titan Products Co., Ltd.	xxxi
Broads Manufacturing Co., Ltd.	lxxvi
Buckwyn Constructions, Ltd.	lxxxi
Cafferata & Co., Ltd.	xxiii
Canadian Government	—
Carlisle Plaster & Cement Co., The	l
Carron Company	xv
Carter & Co., Ltd.	xlix
Cellon, Ltd.	lxxiii
Cement Marketing Co., Ltd., The	v
Church & Co. (Fittings), Ltd.	xcvii
Churchhouse, C. M., Ltd.	lxxxii
Clarke Ellard Engineering Co., Ltd.	xxix
Compactom, Ltd.	lxii
Concrete, Ltd.	lvii
Copperad, Ltd.	lxxxiv
Courtney, Pope (Electrical), Ltd.	lvi
Crabtree, J. A., & Co., Ltd.	xxi
Crane, Ltd.	xliii
Croft Granite Brick & Concrete Co., Ltd.	lxxxviii
Doulton & Co., Ltd.	lxx
Durasteel, Ltd.	xcv
Eastwoods, Ltd.	—
Econa Modern Products, Ltd.	xcvii
Ellis School of Architecture	xcv
Evode, Ltd.	lxxxiv
Falk, Stadelmann & Co., Ltd.	xviii
Farmer, S. W., & Son, Ltd.	lxviii
Fibreglass, Ltd.	lviii
Findlay, Alex., & Co., Ltd.	xlii
Finlock Gutters, Ltd.	lxiv
Fisher & Ludlow, Ltd.	xxv
Flavel, Sidney, & Co., Ltd.	lxxv
Ford & Walton, Ltd.	xxx
Freeman, Joseph, & Sons, Ltd.	—
Furse, W. J., & Co., Ltd.	xcv
Gas Council, The	lxxii
General Electric Co., Ltd., The	liii
Gimson & Co. (Leicester), Ltd.	xcv
Greenwoods & Airvac Ventilating Co., Ltd.	xiii
Gyproc Products, Ltd.	xliv
Hall & Kay, Ltd.	—
Hammer, Geo. M., & Co., Ltd.	lxxix
Hangers Paints, Ltd.	lxxiv
Harris & Sheldon (Electrical), Ltd.	vi
Harvey, G. A., & Co. (London), Ltd.	—
Hicksons Timber Impregnation Co. (G.B.), Ltd.	lx
Higgs & Hill, Ltd.	—
Hill Aldam, E., & Co., Ltd.	lxxiv
Hille of London, Ltd.	lxxxviii
Hills, F., & Sons, Ltd.	xvi
Hills (West Bromwich), Ltd.	—
Hollis Bros., Ltd.	xli
Holoplast, Ltd.	—
Hope, Henry, & Sons, Ltd.	lxiii
Imperial Chemical Industries, Ltd.	—
International Paints, Ltd.	—
Invisible Panel Warming Association, The	lxxx
Ioco, Ltd.	—
Jones, T. C., & Co., Ltd.	vii
Lead Sheet & Pipe Council	—
Lever, James, & Sons, Ltd.	lxxxi
Lion Foundry Co., Ltd.	lxxxvii
Lovell & Hanson, Ltd.	lxx
Lumenated Ceilings, Ltd.	—
Marley Tile Co., Ltd., The	—
Mason, Joseph, & Co., Ltd.	ix
McCarthy & Sons, Ltd.	xcv
Metal Sections, Ltd.	lxxix
Metropolitan-Vickers Electrical Co., Ltd.	ii
Midland Electric Manufacturing Co., Ltd.	lxxi
Midland Joinery Works, Ltd., The	lxxviii
Mills Scaffold Co., Ltd.	xcviii
Minikscale, Ltd.	xcv
Moler Products, Ltd.	ii
Morris, M. A., Ltd.	lxi
Morris Singer Co., Ltd.	xxxiii
National Association of Roofing Tile Manufacturers	lii
National Federation of Clay Industries, The	xxviii
New Day Electrical Accessories, Ltd.	lxxxv
Norwood Steel Equipment, Ltd.	—
Pegiers, Ltd.	lxxxvi
Petradene, Ltd.	lxvii
Prodorite, Ltd.	—
Pyrok, Ltd.	xiv
Radiation Group Sales, Ltd.	—
Raines & Porter, Ltd.	lxxvi
Rapid Floor Co., Ltd., The	xi
Rawlings Brothers	xcvi
Richardson & Starling, Ltd.	lxxxi
Riley Stoker Co., Ltd.	xlv
Robertson Thain, Ltd.	lxvi
Ronuk, Ltd.	lxxxii
Ruberoid Co., Ltd., The	—
Salter, T. E., Ltd.	lxxvii
Sanderson, A., & Co., Ltd.	xx
Schlesinger, W. F., & Co., Ltd.	viii
Seco, Ltd.	xl
Semtex, Ltd.	—
Silent-Gliss, Ltd.	xcvii
Sommerfelds, Ltd.	xcv
Storry Smithson & Co., Ltd.	lxxii
Stramit Boards, Ltd.	xvii
Surrey Concrete, Ltd.	x
Tarmac, Ltd.	lxxvii
Taylor, Robt., & Co. (Ironfounders), Ltd.	—
Teleflex Products, Ltd.	lxxx
Terrapin, Ltd.	lxix
Thornton, A. G., Ltd.	xcvii
Timber Development Association, Ltd.	xlvii
Treetex, Ltd.	—
Tretol, Ltd.	lxv
Troughton & Young (Lighting), Ltd.	—
Twisteel Reinforcement, Ltd.	—
United Kingdom Provident Institution	lx
United Steel Companies, Ltd., The	li
Vulcan Products, Ltd.	xxxix
Walker Bros., Ltd.	lxxxiii
Walker Crosweller & Co., Ltd.	xxiv
Ward & Co.	xcv
Ward, Thos. W., Ltd.	xxxiv
Wareing Brothers, & Co., Ltd.	lxxxiii
Waring & Gillow Ltd.	lxxxvi
Wheatly & Co., Ltd.	lv
Williams & Williams, Ltd.	iii
Woolaway Constructions, Ltd.	—

For Appointments (Wanted or Vacant), Competitions, Open Drawings, Tracings, etc., Education, Legal Notices, Miscellaneous, Property, Land and Sales see lxxxix, xc, xci, xcii, xciii, xciv, xcv.

PAGE

lii

xxviii
lxxxv

lxxxvi
lxvii

xiv

lxxvi
xi
xcvi
lxxxi
xlv
lxvi
lxxxii

lxxvii
xx
viii
xl

xcvii
xcv
lxxii
xvii
x
lxxvii

lxxx
lxix
xcvii
xlvii

lxv

lx
li
xxxix
lxxxiii
xxiv
xcv
xxxiv
lxxxiii
lxxxvi
iv
iii

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