

THE ARCHITECTS' JOURNAL



Standard contents

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

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Wanted and Vacant

No. 3138]

[Vol. 121

THE ARCHITECTURAL PRESS

11 and 13, Queen Anne's Gate Westminster,

W.1. 'Phone: Whitehall 0611

Price 1s. 0d.

Registered as a Newspaper.

★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ie one week, Ig to Z the next. In all cases where the town is not mentioned the word LONDON is 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, Berkhamstead, 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. Dolderal, 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. (Temporary address) 96, Madrid Road, S.W.13. Riverside 6437	
FASS	Federation of Association of Specialists and Sub-Contractors, Artillery House, Artillery Row, S.W.1. Abbey 7232	
FBBDO	Fibre Building Board Development Organisation, 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. 27, Grosvenor Place, S.W.1.	Sloane 2844
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 75, Eaton Place, S.W.1. Sloane 5615	
ICA	Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, W.C.2.	Temple Bar 7576
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215

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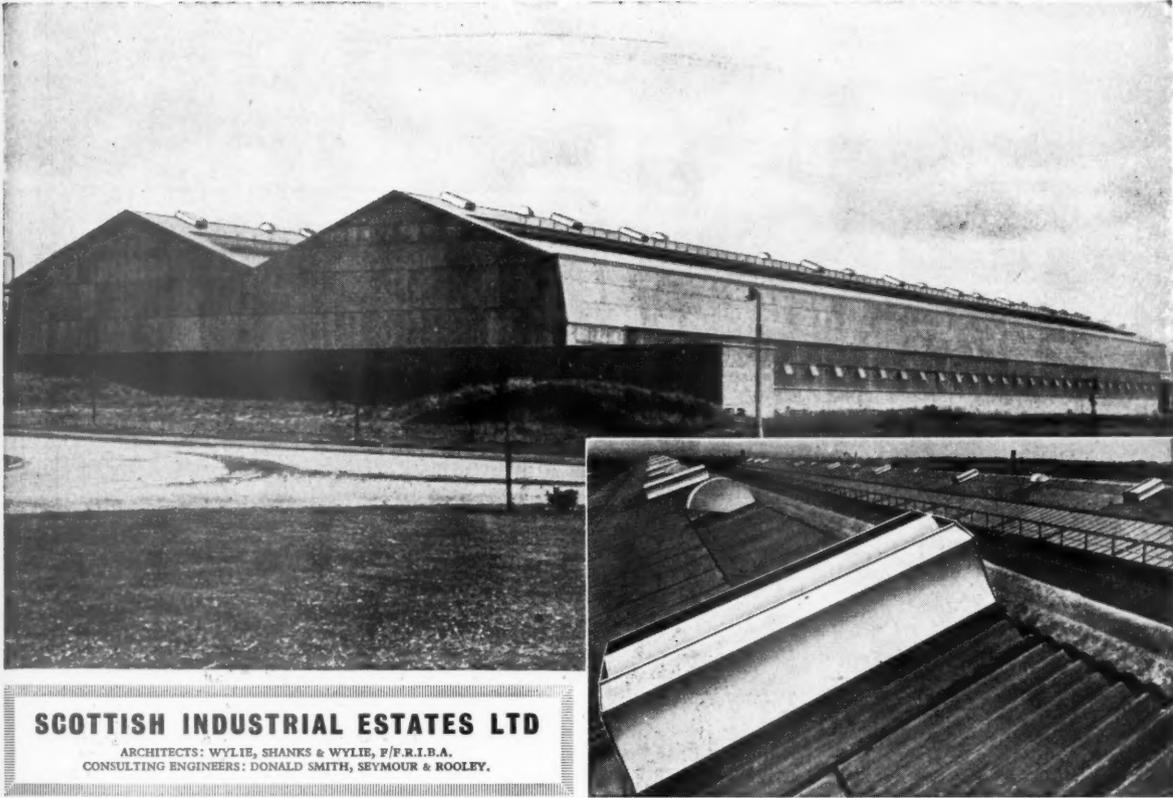
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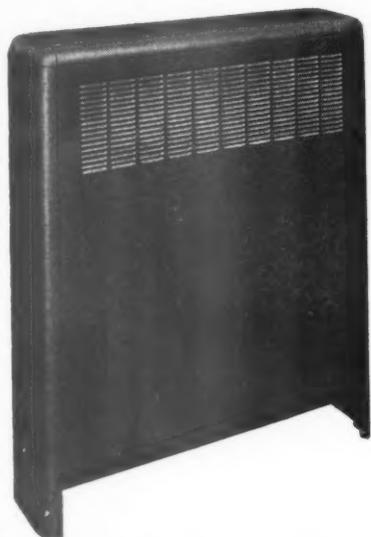


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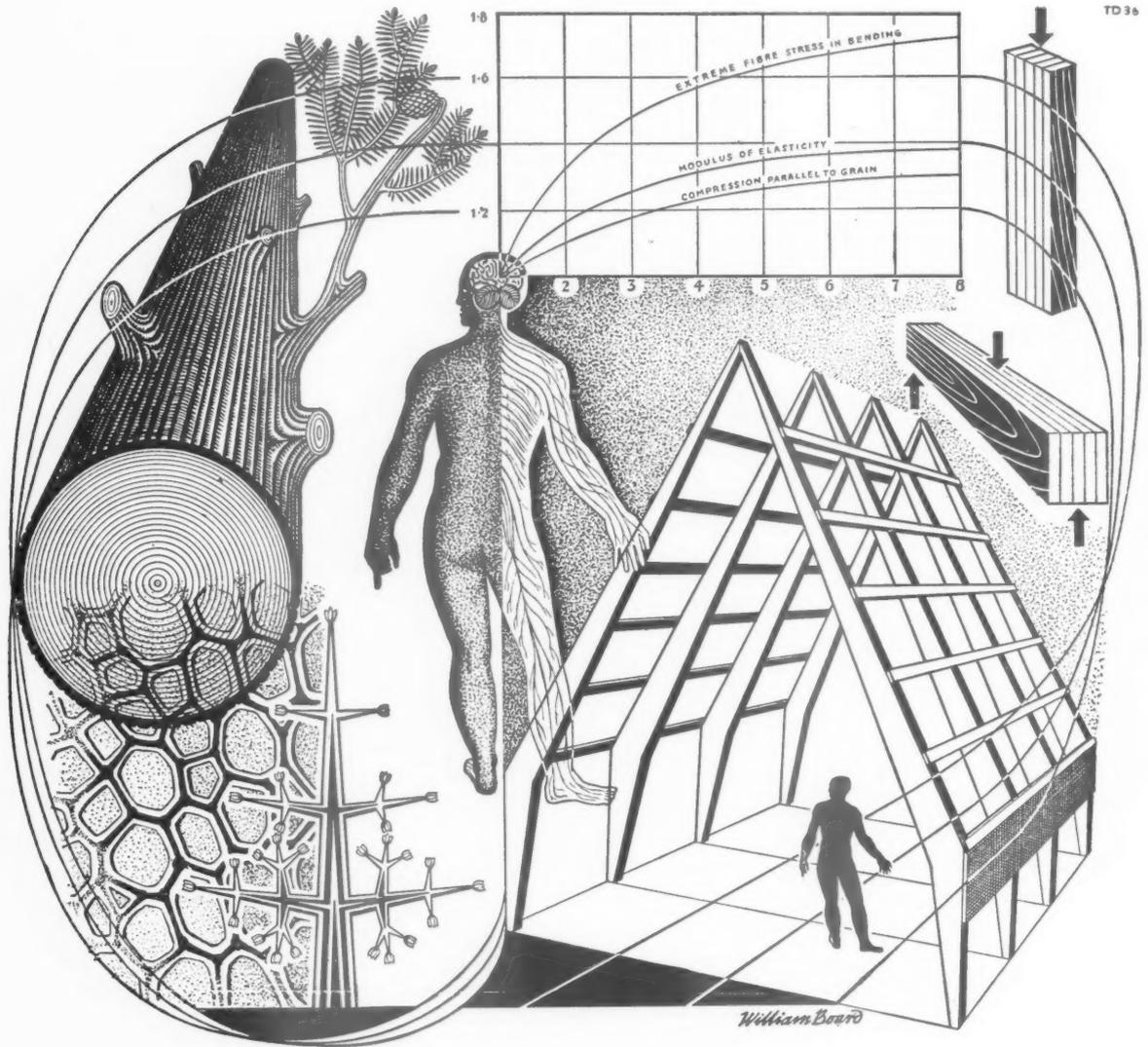
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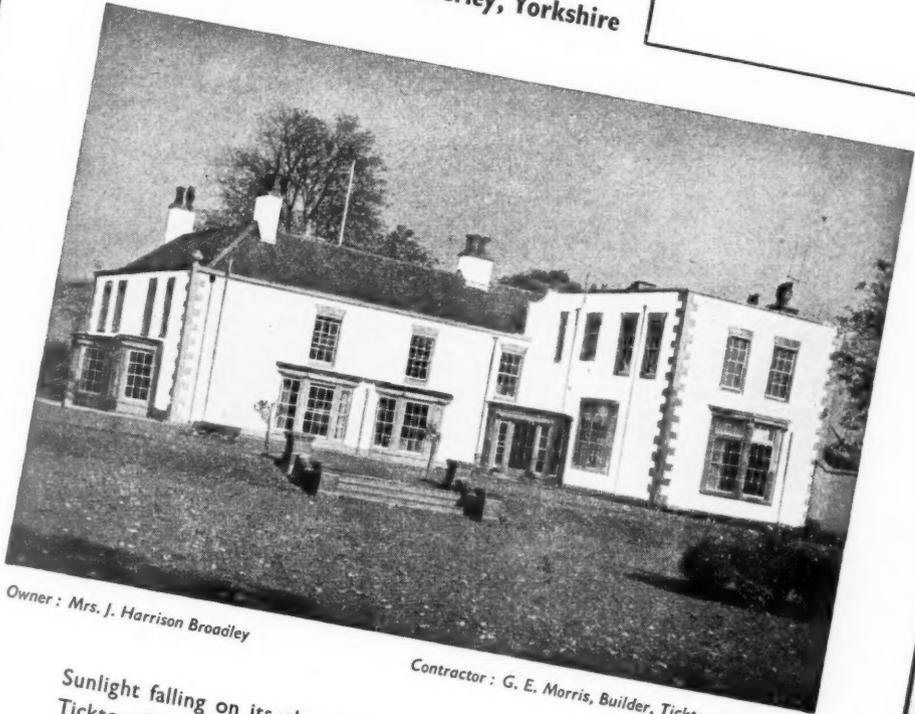
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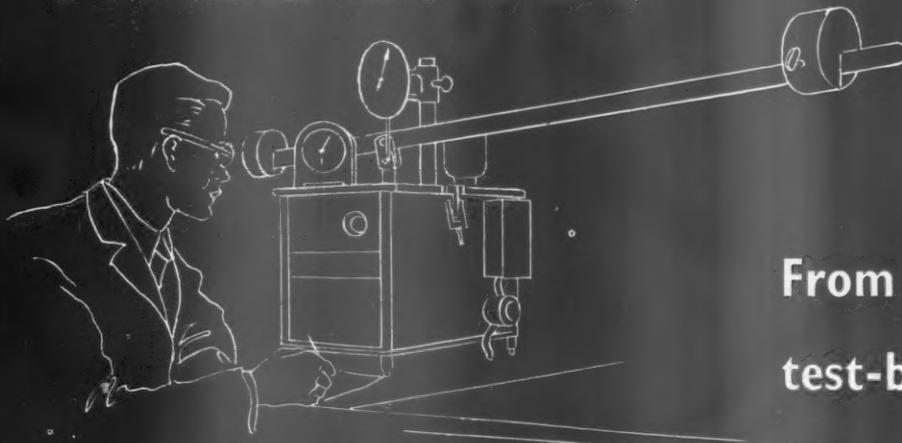
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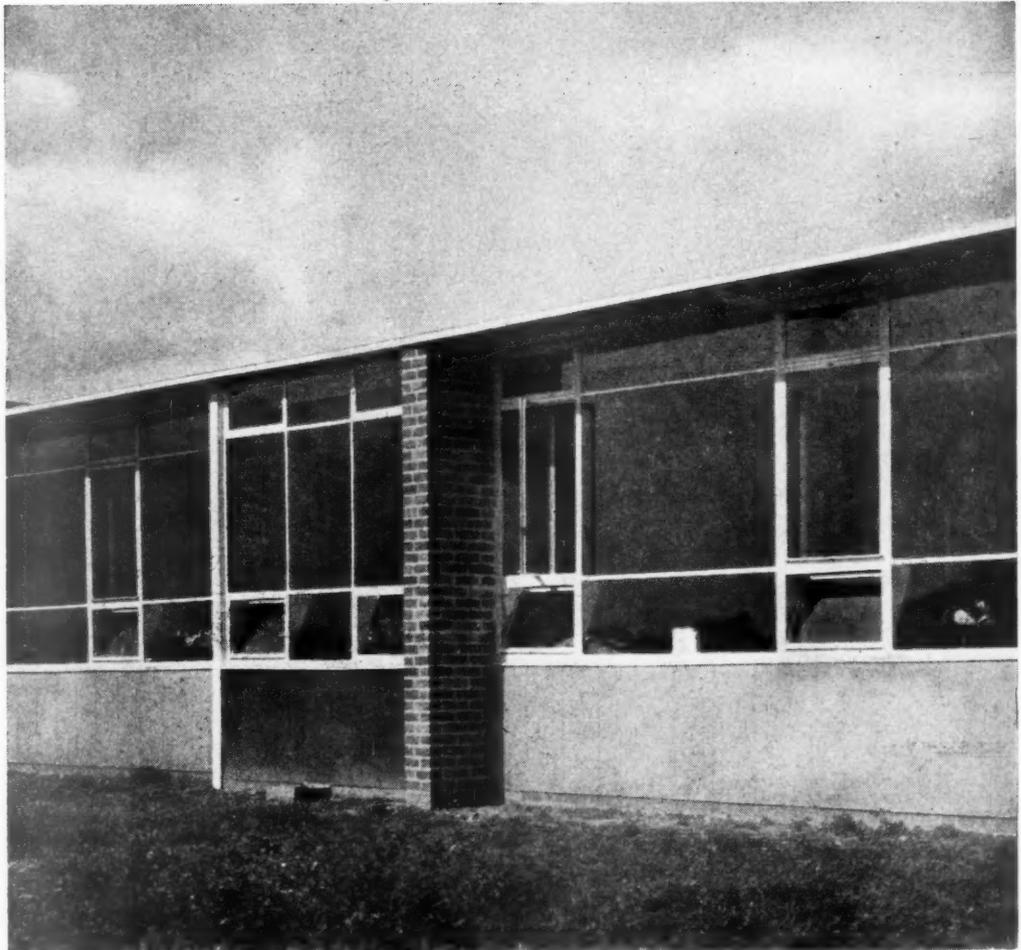
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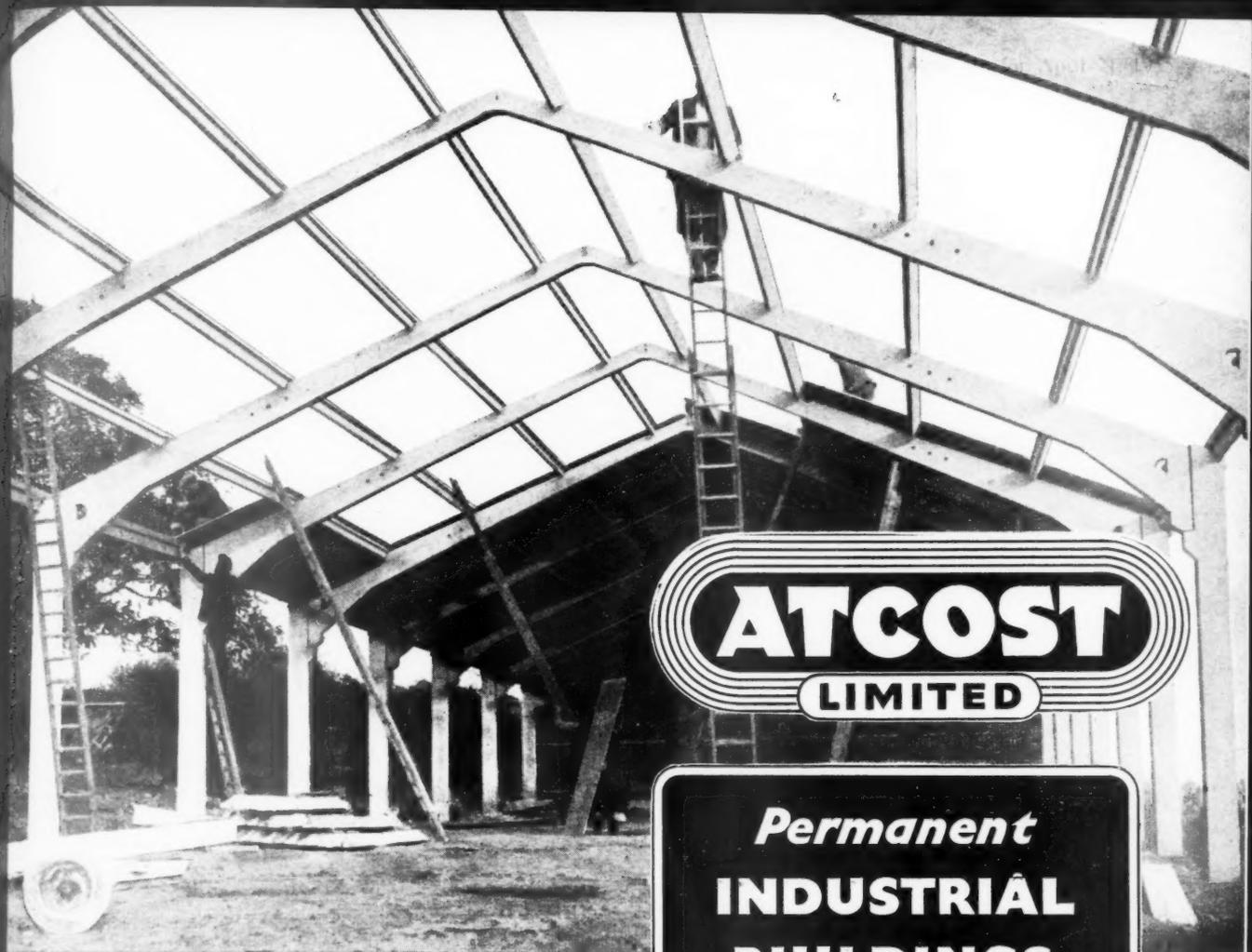


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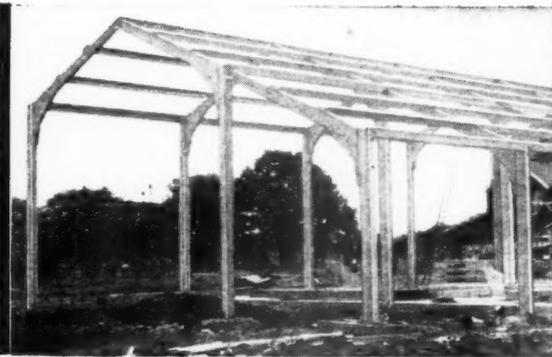
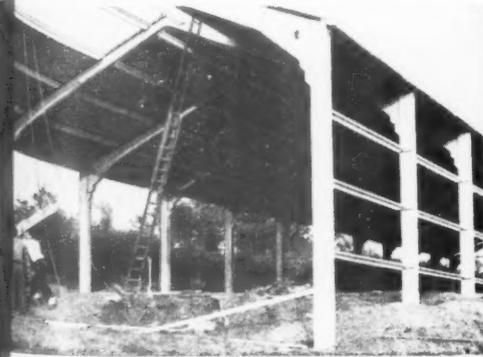
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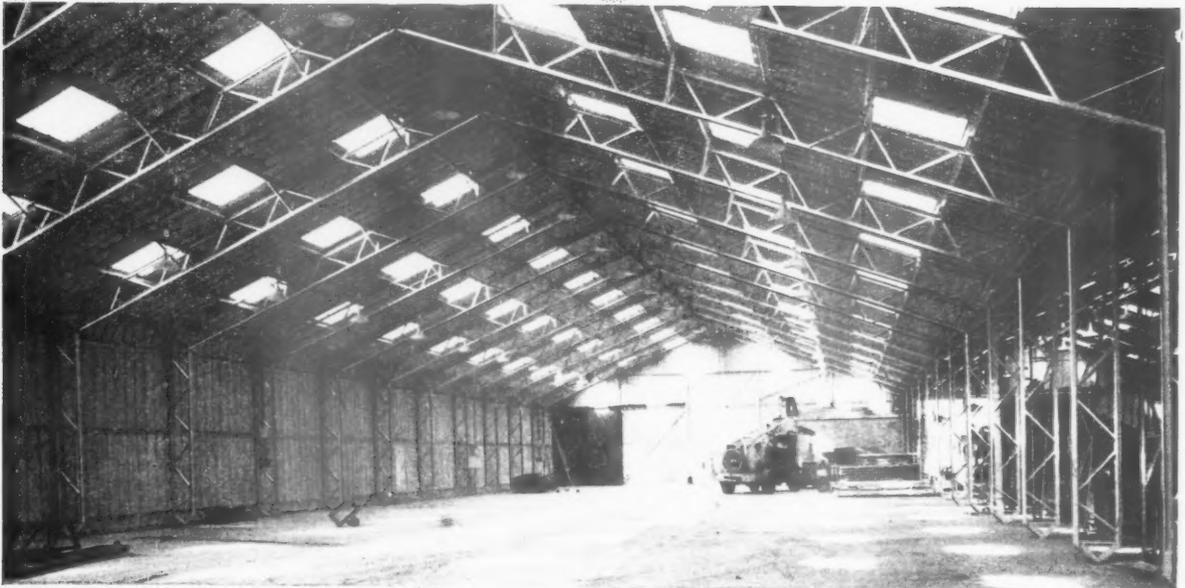
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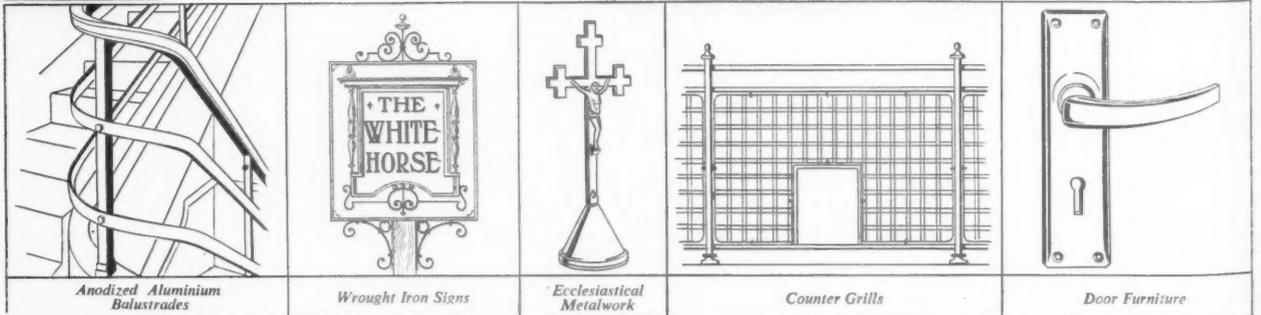
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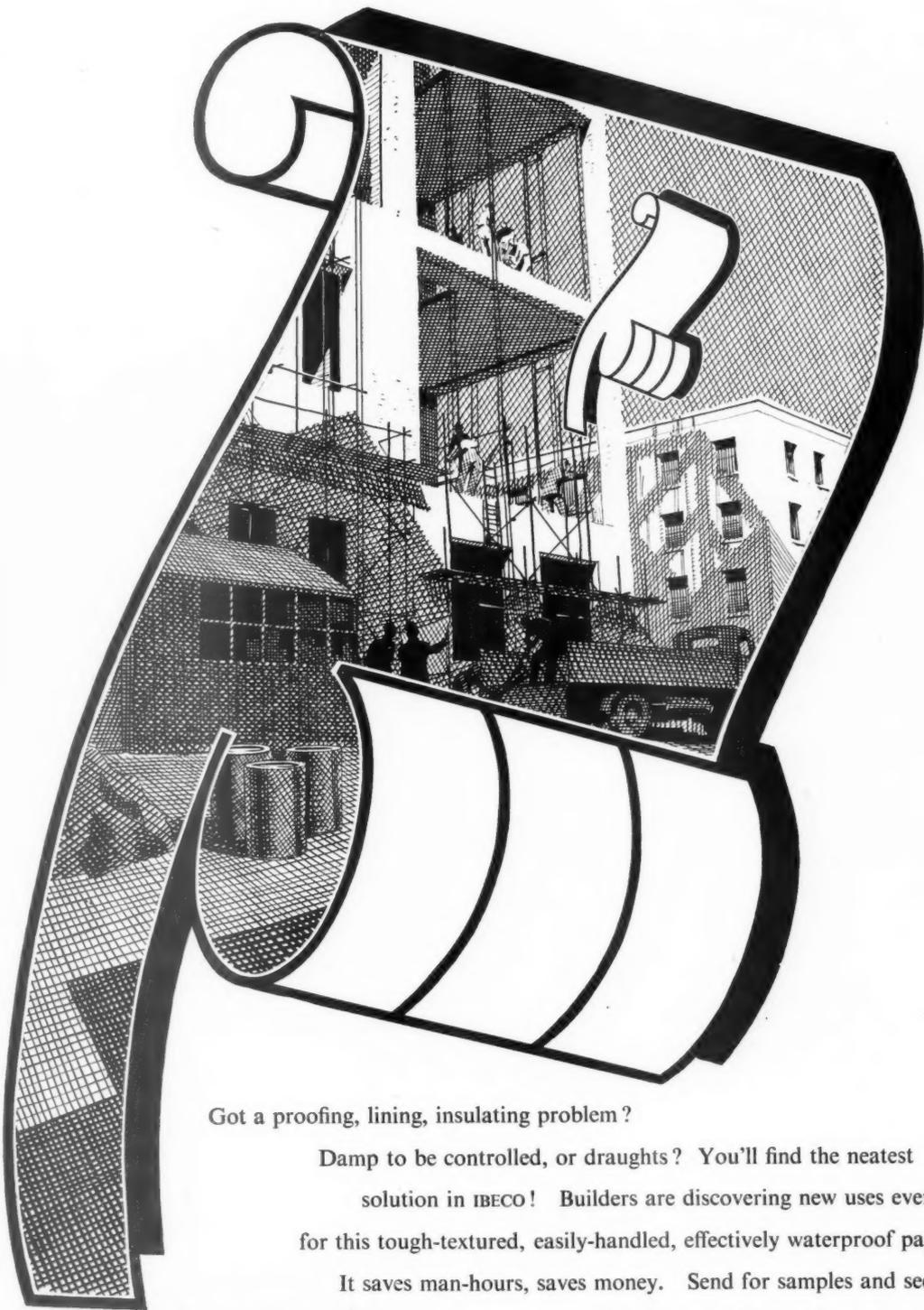
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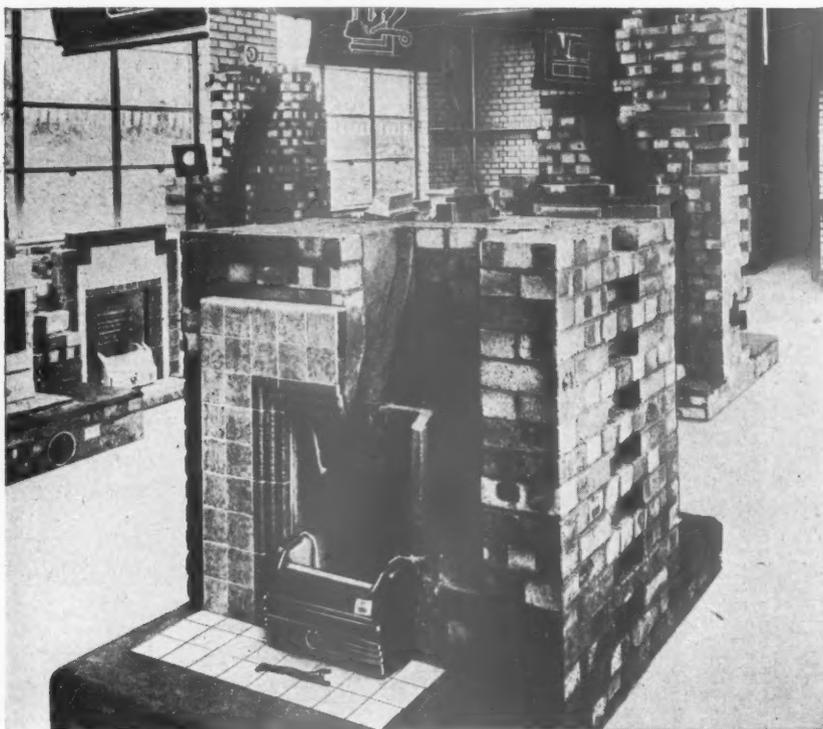
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Practical help for architects and builders

At the Coal Utilisation Council Training Centre in London, courses are held for builders' staffs on the correct fixing of modern solid-fuel appliances. Similar Coal Utilisation Council courses are also arranged at many Technical Colleges.

Are you getting the full facts on the case for solid fuel?

The Coal Utilisation Council's chief aim is to secure the efficient use of solid fuel in British homes. Not simply in the interests of coal, but in the interest of the private consumer and the community, for, as the Simon Report says, "solid fuel, burned in efficient appliances for continuous heating of rooms or of water, costs the householder about half as much as gas or electricity and uses about half as much coal".

What the C.U.C. is doing to help

Every six months the C.U.C. issues a list of Recommended Domestic Solid-Fuel Appliances. All appliances on this list have been tested to ensure a high standard of efficiency, durability and economy. In the interest of your clients and your firm, it pays to consult this list when recommending domestic solid-fuel appliances for any purpose.

Because recommended solid-fuel appliances must be correctly installed, if they are to be fully efficient, the C.U.C. also provides a service of instruction on installation for architects' and builders' staffs, and all authorities concerned with building or converting houses. Two-day courses on fixing are held at the C.U.C. Training Centre in London. For builders' staffs unable to attend these, special one-day courses are held at Technical Colleges in various parts of the country.

In both cases, the instruction is given by experts, with plenty of practical demonstrations. Direct enquiries on the scope of these training courses should be made to the C.U.C. at the address below—or to any of the C.U.C. Information Centres which appear on the right.

C.U.C. Information Centres

- Birmingham**
2 Burlington Passage, New Street (Midland 5133)
- Bristol**
5 Broad Quay, City Centre (Bristol 21227)
- Cambridge**
24 St. Andrew's Street (Cambridge 55274)
- Cardiff**
9 Castle Street (Cardiff 28266)
- Glasgow**
341 Bath Street, C.2 (Douglas 8294)
- Leeds**
99 Albion Street (Leeds 3-4371/2)
- London**
The Building Centre, 26 Store Street, W.C.1 (Museum 5400)
- Manchester**
257 Deansgate (Blackfriars 2852)
- Newcastle upon Tyne**
18 Saville Row (Newcastle 21666)
- Nottingham**
4 and 6 St. Peter's Gate (Nottingham 47000)

Important C.U.C. Publications

- "List of Recommended Domestic Solid-Fuel Appliances"
- "Warmer Homes with Solid Fuel"
- "Make your House Cosier in Winter" (Insulation booklet)
- "Fuel Stores for Houses and Flats"
- "Architectural Design Data" (Fuel handling and storage for larger buildings)

For complimentary copies of the above apply to the Publications Dept., C.U.C., 3 Upper Belgrave Street, London, S.W.1.

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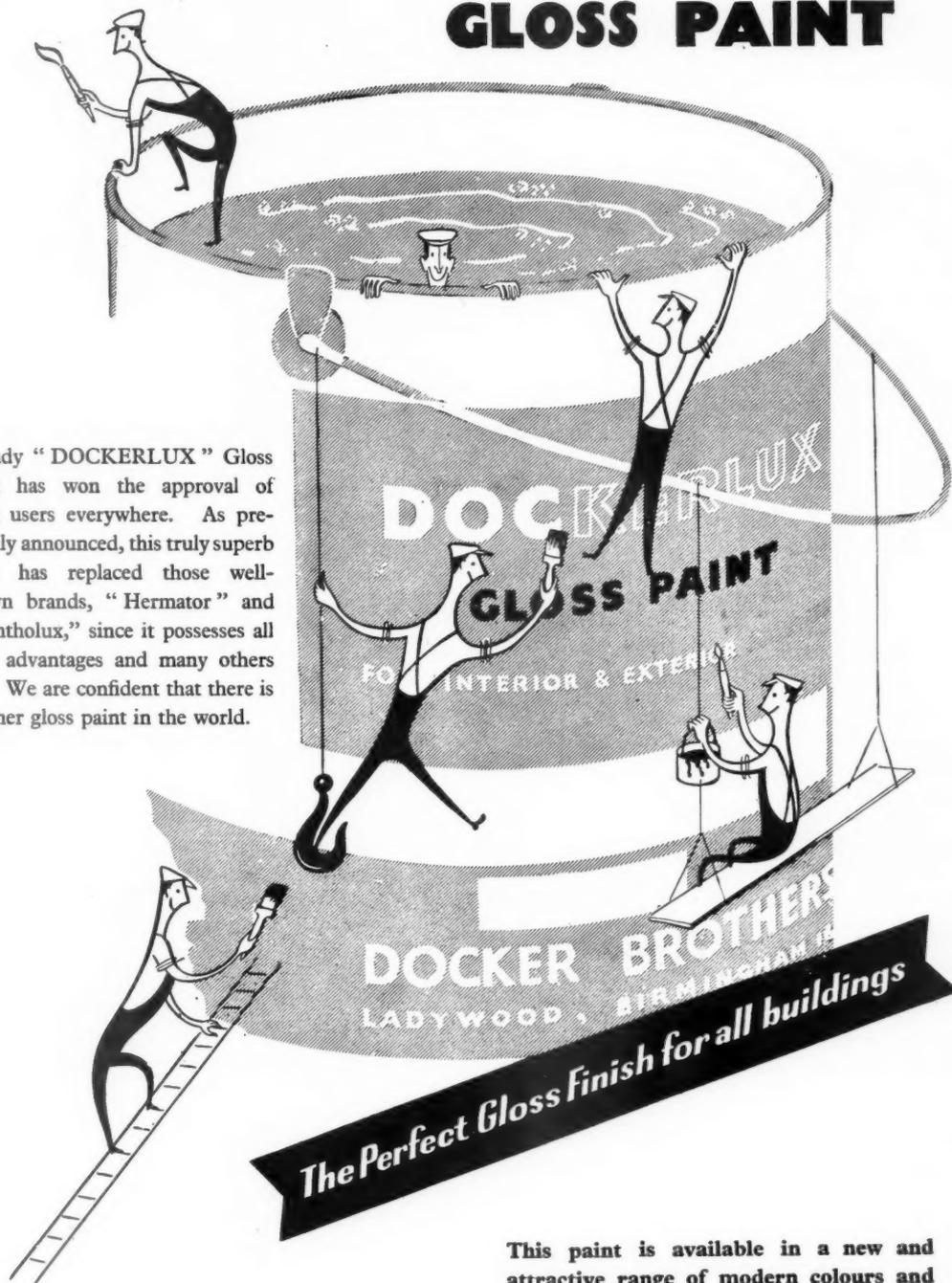
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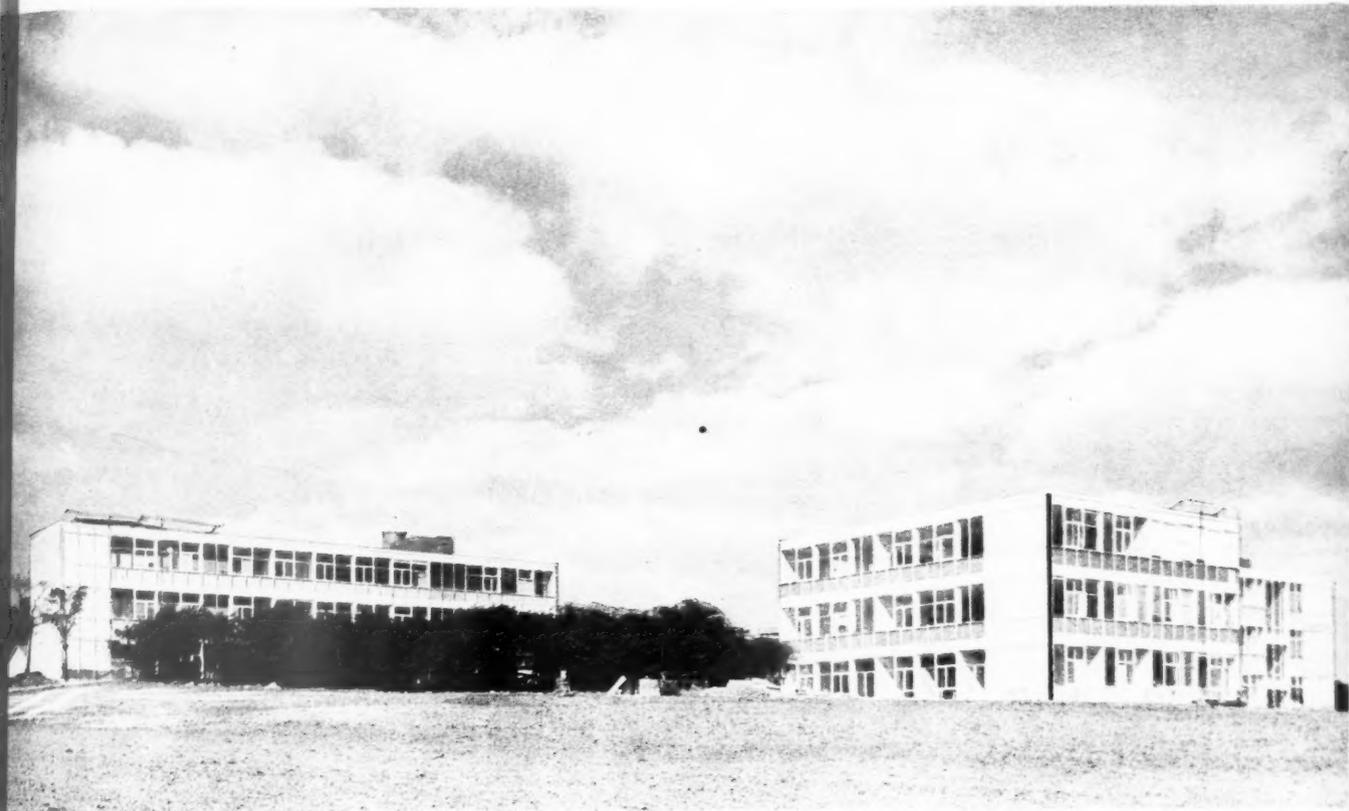
London Office: 10 ST. SWITHIN'S LANE, LONDON, E.C.4. TEL: MANSION HOUSE 9811





VISIT OU

HILLS



Illustrated above : —Hulfield Secondary Modern School for Girls, Sheffield. Architects Co-Partnership in collaboration with J. L. Womersley. A.R.I.B.A., A.M.T.P.I. City Architect.

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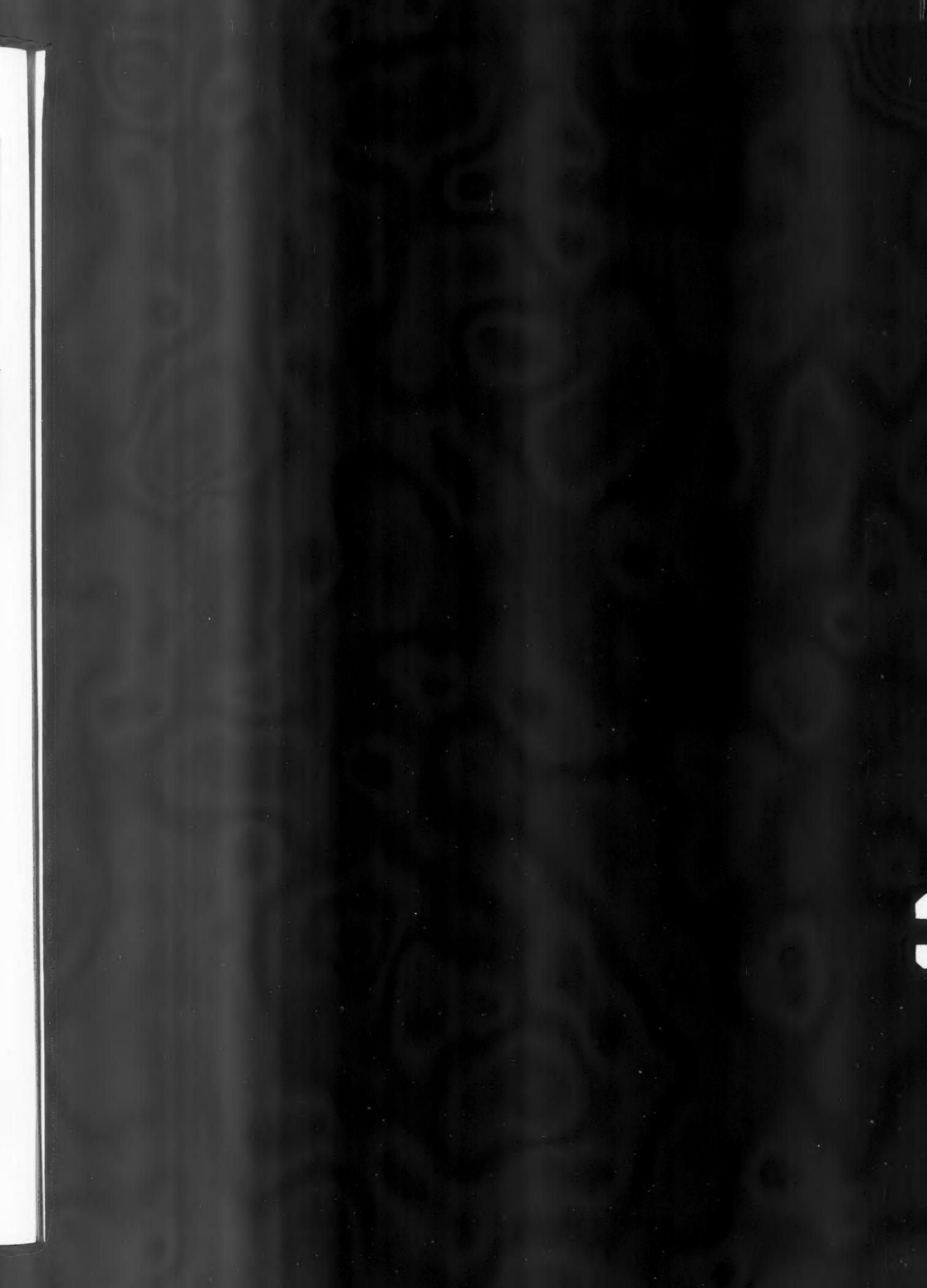
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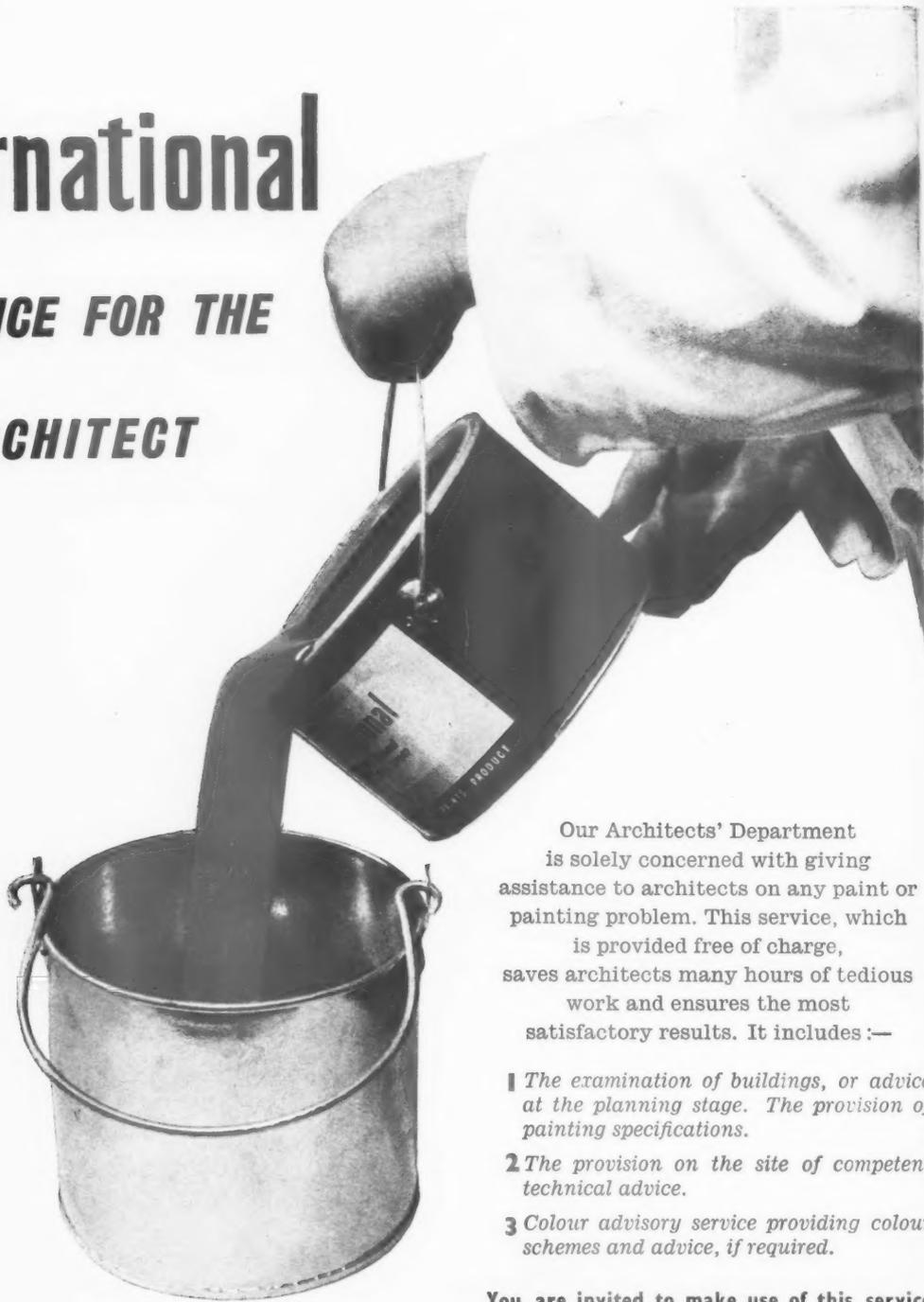
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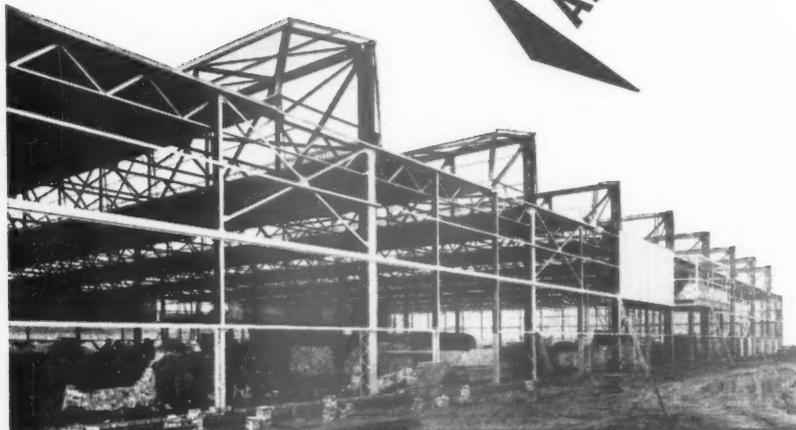
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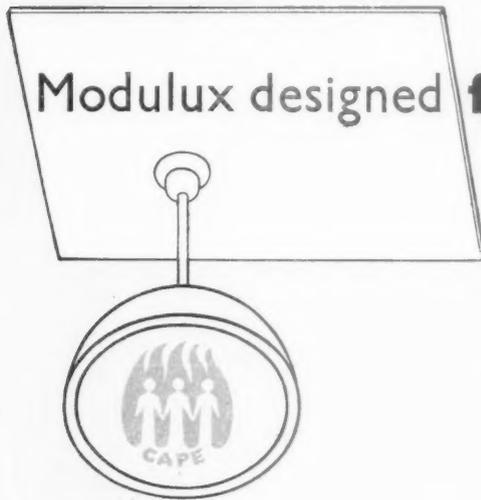
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Data Sheet A.S.2 gives fixing and other details for steel framed multi-storey buildings where distances between beams necessitate subsidiary grids for panel suspension. Data Sheet A.S.3 is related to a 40-inch planning module. Write for your copies.



"Asbestolux" ceiling at the Chaddesden Secondary Modern School, Derby. (40" module)

Architects : Architects Co-Partnership

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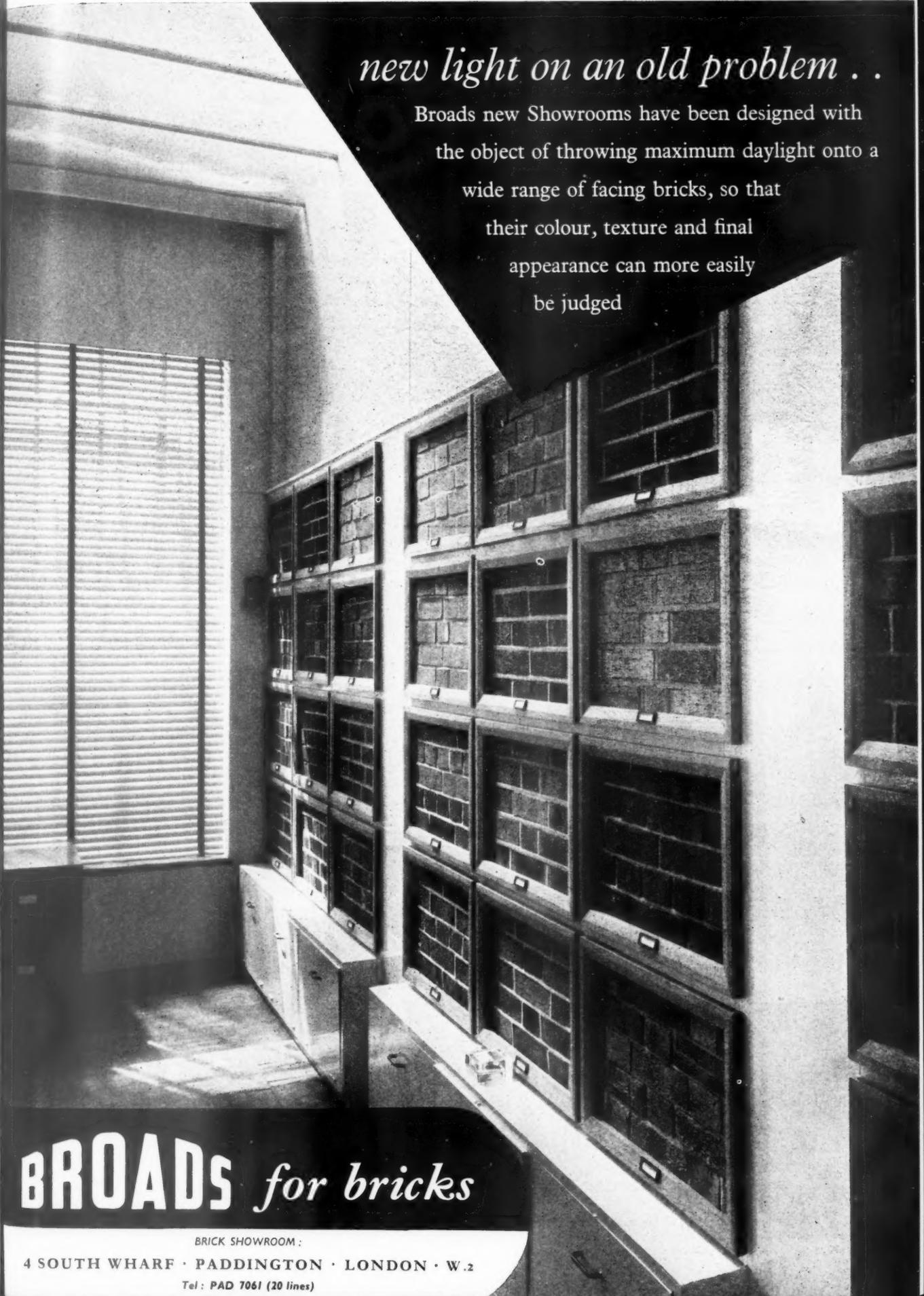
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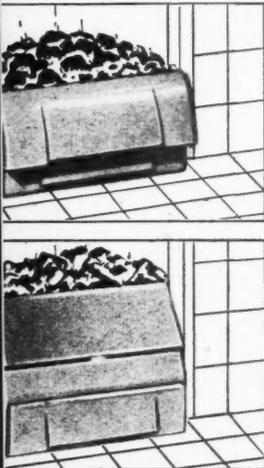
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The No. 50 LOWBURN continuous burning fire with boiler flue set

Choice of two detachable extension pieces



1. Standard. With extension piece down, the fire burns more efficiently and with less trouble than any ordinary open fire.

With extension piece up, the fire will stay alight for ten hours or more. It can be left to burn unattended and no live fuel can possibly fall out on to the hearth.

2. Trivet. If desired the combined hook-on trivet and extension piece, as illustrated, can be supplied instead of the standard fitment.

The combined hook-on trivet and extension piece is shown in position for overnight burning.

If the boiler is not used to provide domestic hot water, 45 sq. ft. of radiation surface (including unlagged piping) can be heated.

Hot Water System. The recommended size of cylinder is 30 gallons (direct or indirect).

The No. 25 Lowburn, a continuous burning fire without boiler, is also available. For further information about the No. 50 or 25 Lowburn Fires, write to the Housing Division of:

NOTES:

2 inches lower than average continuous burning fire of this type — and very pleasing to the eye. Low costs — to buy to install, to run.

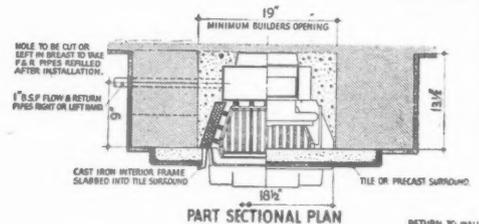
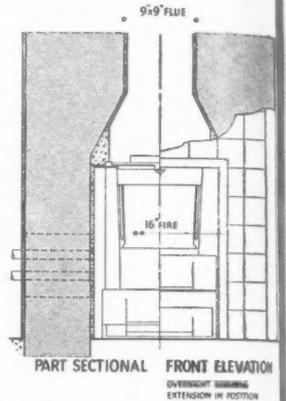
The No. 50 Lowburn Fire is an approved appliance. It burns for 10 hours without attention on all recommended fuels including coke.

The difference the low front makes

The maximum radiant heat is directed at the lowest possible level.

It is economical because a few lumps of fuel—not a whole scuttle full—are enough to give a cheerful blaze.

INSTALLATION DETAILS



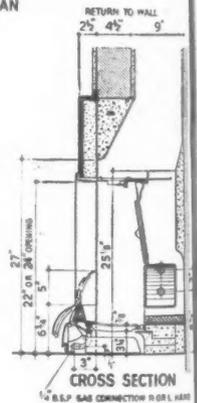
SPECIFICATION:

Vitreous enamel cast iron front with extension for overnight burning. Firebrick lined fire box, removable bottom grate and adjustable air inlet in fire front.

Wrought welded or copper boiler with 1 in. side tappings right or left hand, and cast iron self-contained boiler flue and damper. Operating tool and mild steel ashpan. With or without gas ignition burner.

The unit can be supplied prepared for, but without boiler.

Colours.—Beige Mottle or Black, Allustre A2, Alisheen Black, Bramble, Bronze or Copper.



Gas Ignition Burner Connections: 1/4 in. B.S.P. on either hand.

Fuel Consumption:

Average figures are:—

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Minimum or overnight rate 1/2 to 2/3 lb. per hour

Space Heating Capacity: Full heating up to 1,500 cu. ft.

Boiler Output: Maintainable maximum 9,000 B.Th.U. per hour. Provided the system is compact the boiler can heat a towel rail in addition to supplying domestic hot water.

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Choosing an Emergency Lighting System?

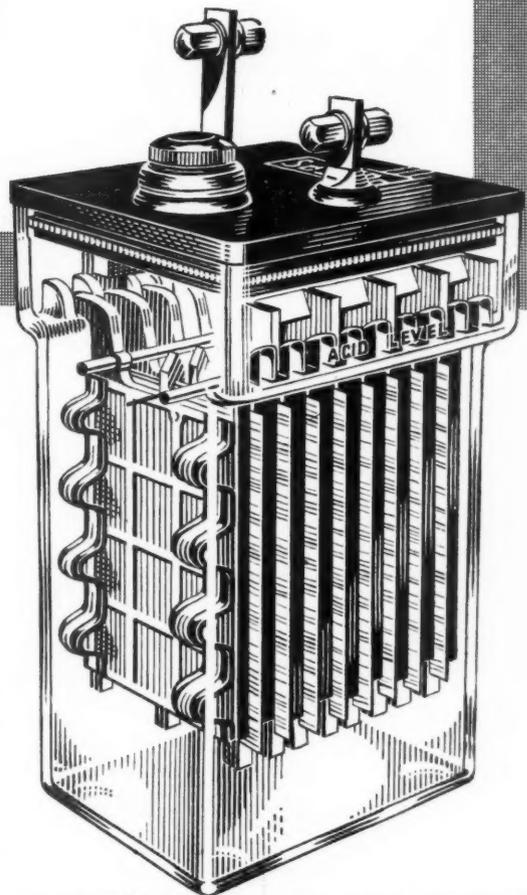
Specifying an emergency lighting system is a specialist job—and specialists are there to give you advice if you make use of the P. & G. 3-Point Service.

THE P & G SERVICE INCLUDES:

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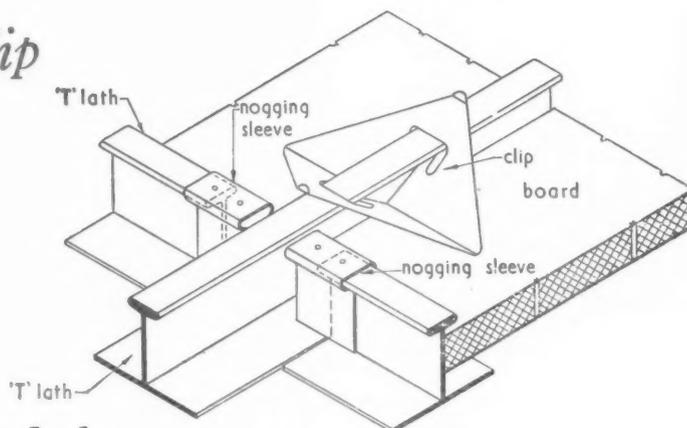
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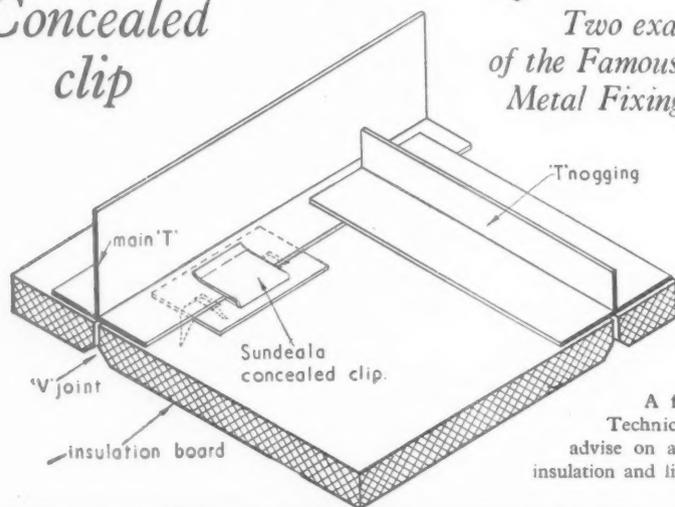
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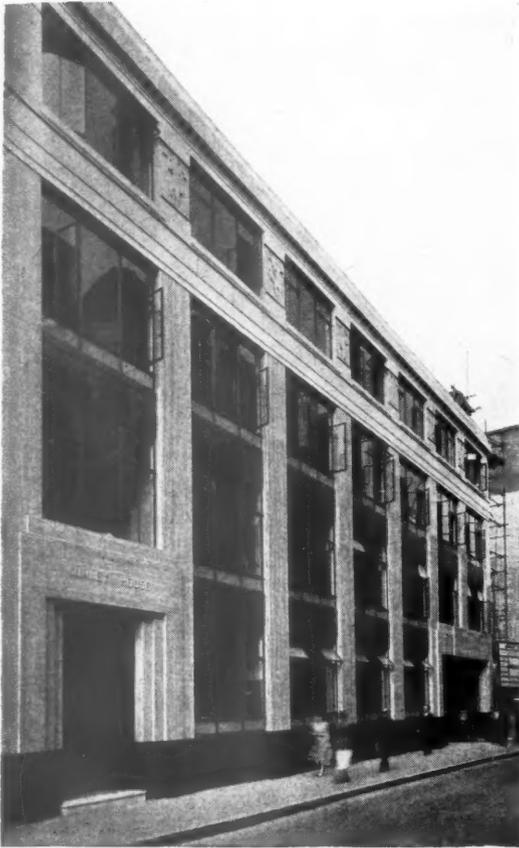
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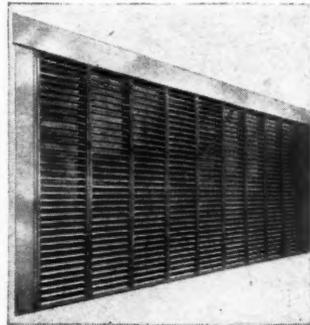
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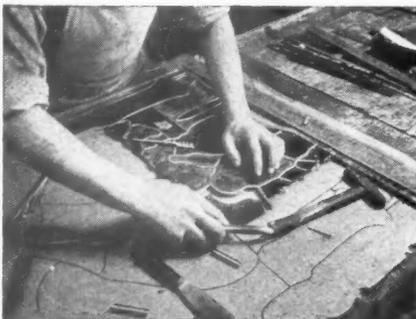


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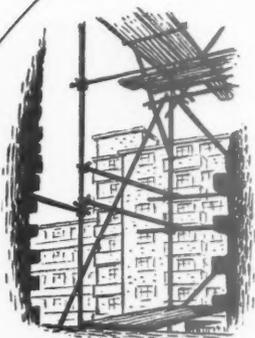
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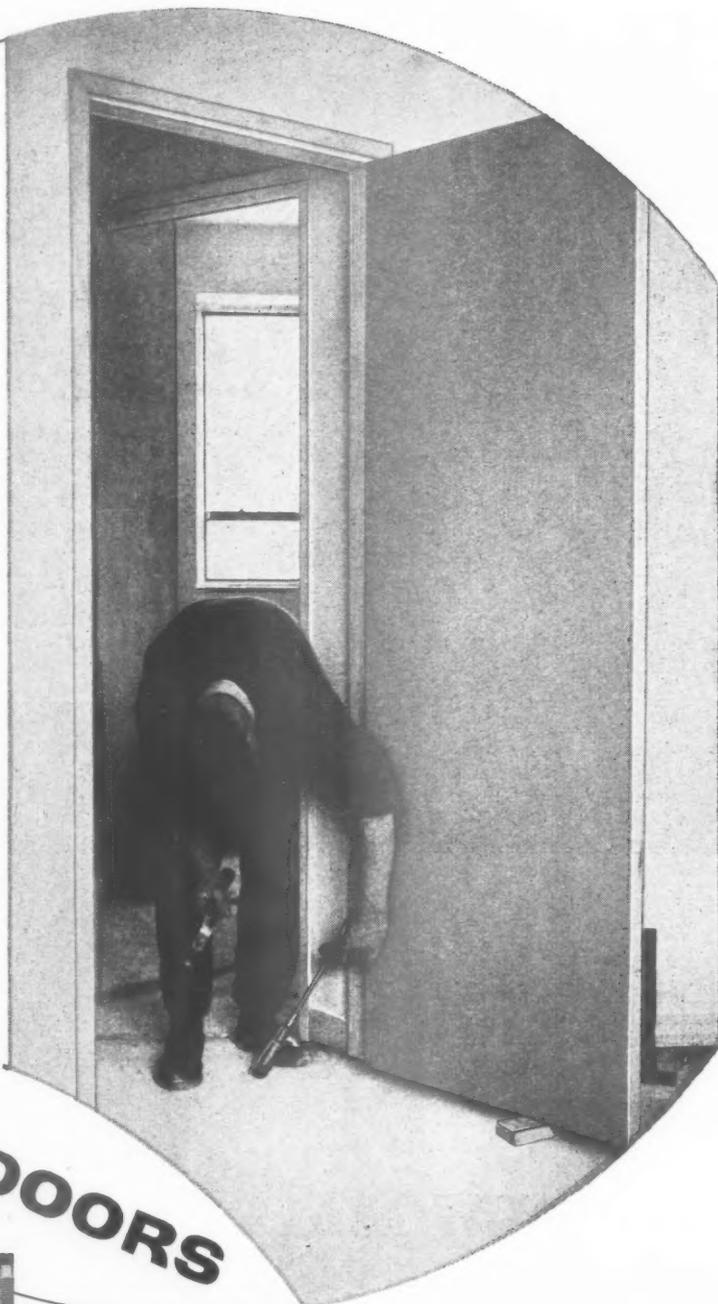


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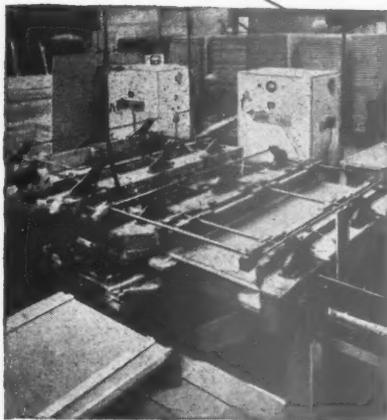


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maintenance**



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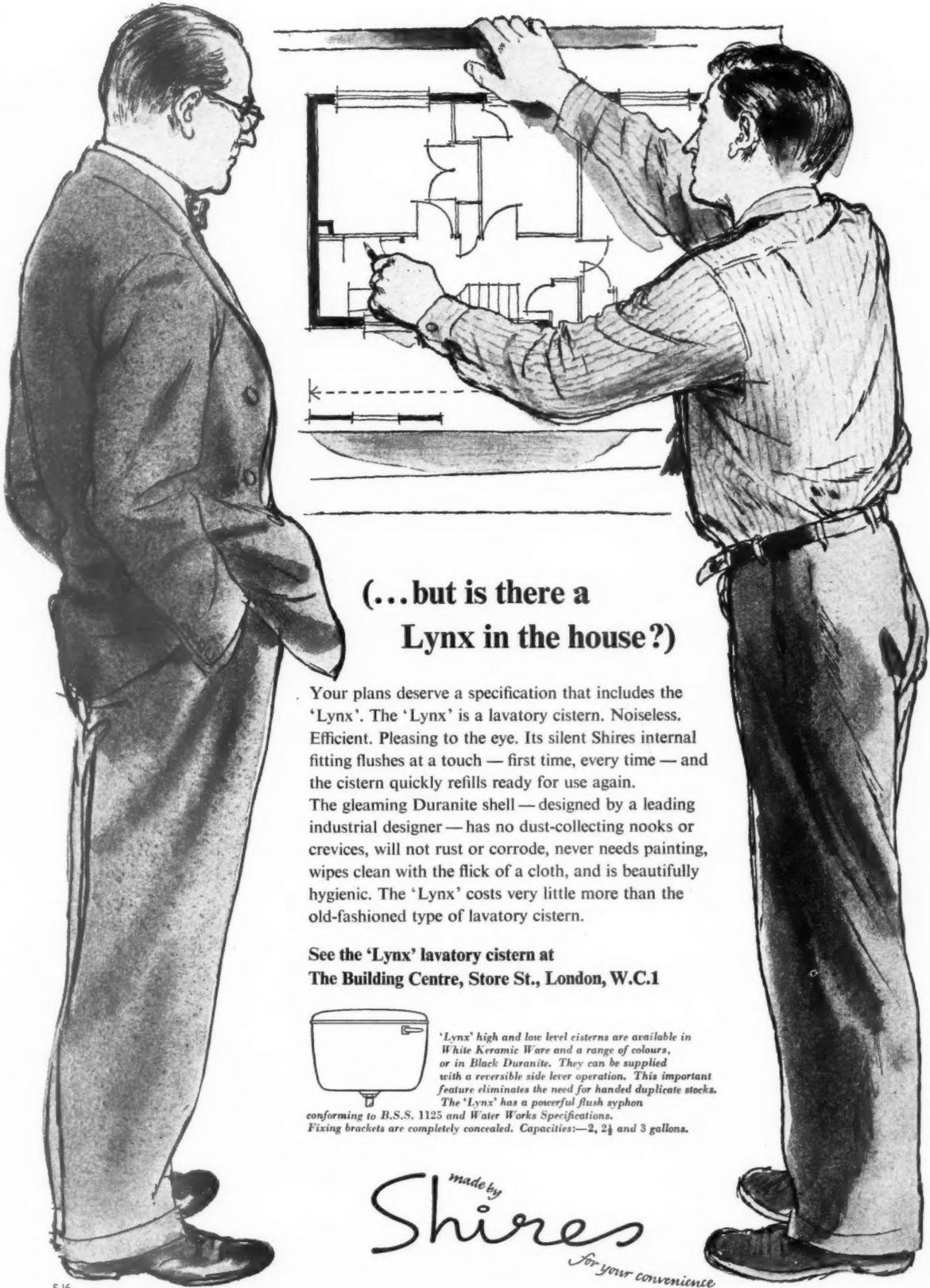


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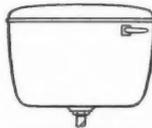


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Lynx in the house?)**

Your plans deserve a specification that includes the 'Lynx'. The 'Lynx' is a lavatory cistern. Noiseless. Efficient. Pleasing to the eye. Its silent Shires internal fitting flushes at a touch — first time, every time — and the cistern quickly refills ready for use again.

The gleaming Duranite shell — designed by a leading industrial designer — has no dust-collecting nooks or crevices, will not rust or corrode, never needs painting, wipes clean with the flick of a cloth, and is beautifully hygienic. The 'Lynx' costs very little more than the old-fashioned type of lavatory cistern.

**See the 'Lynx' lavatory cistern at
The Building Centre, Store St., London, W.C.1**



'Lynx' high and low level cisterns are available in White Ceramic Ware and a range of colours, or in Black Duranite. They can be supplied with a reversible side lever operation. This important feature eliminates the need for handed duplicate stocks.

The 'Lynx' has a powerful flush syphon conforming to B.S.S. 1125 and Water Works Specifications. Fixing brackets are completely concealed. Capacities:—2, 2½ and 3 gallons.

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for your convenience

S.16

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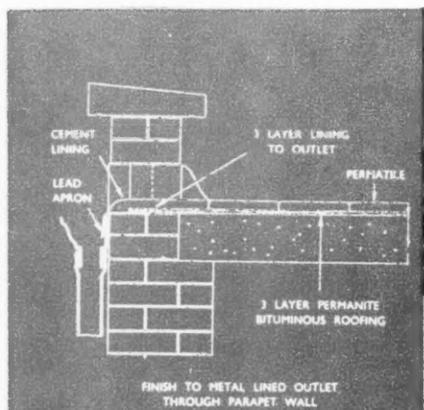


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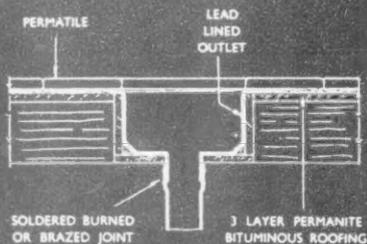




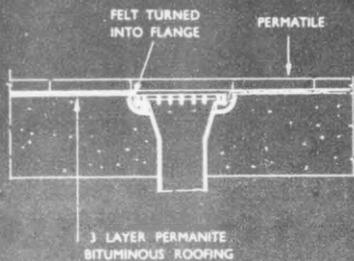
"PERMATILE" BUILT-UP FELT ROOFING



West Kent Technical College, Tunbridge Wells
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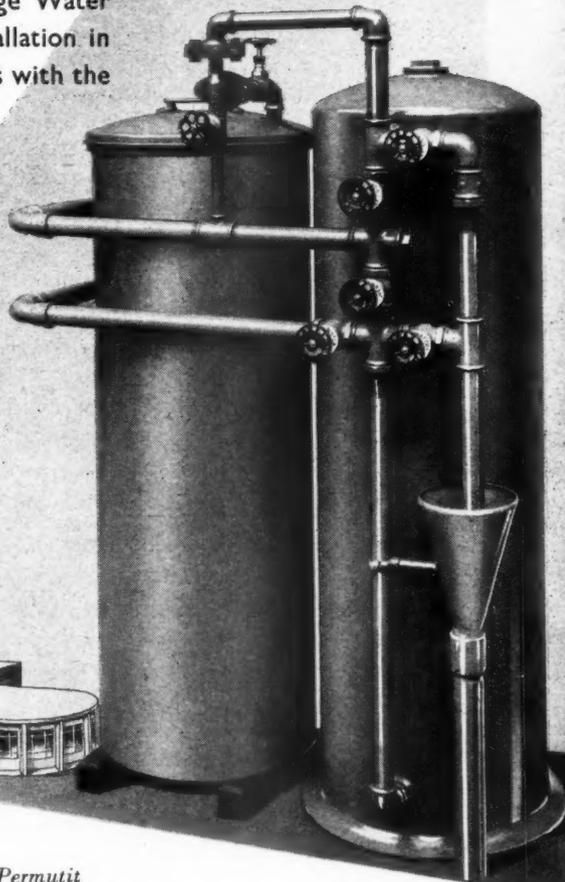
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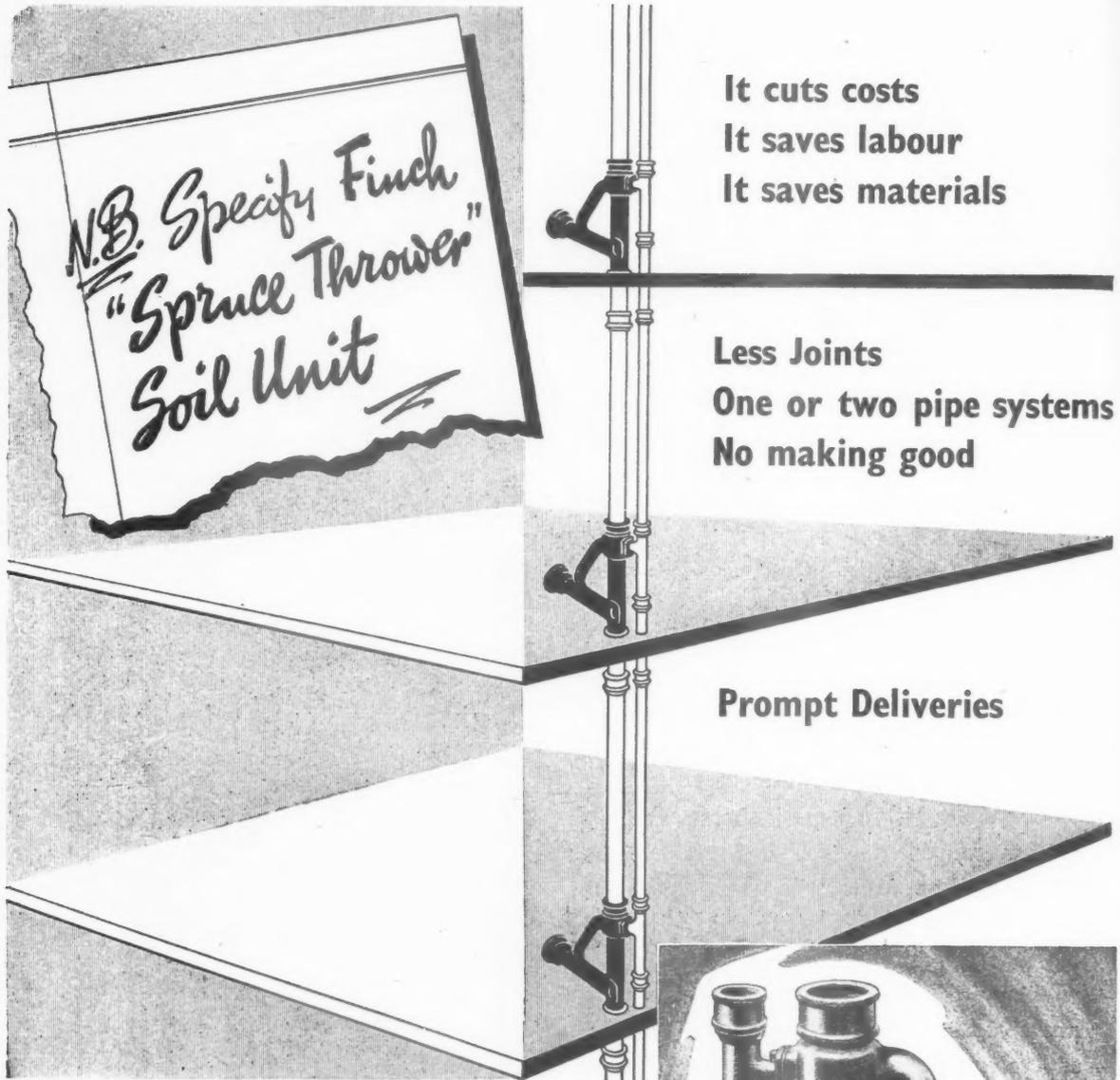
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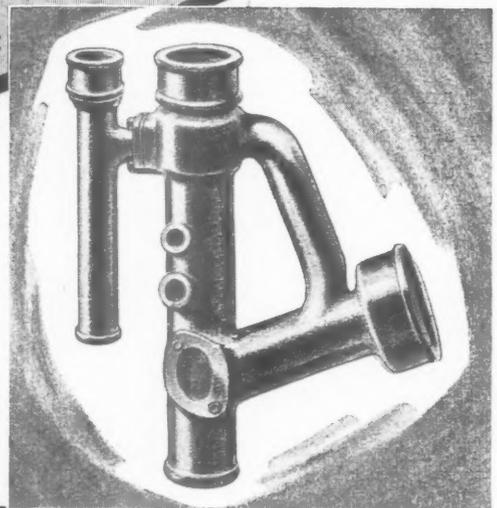
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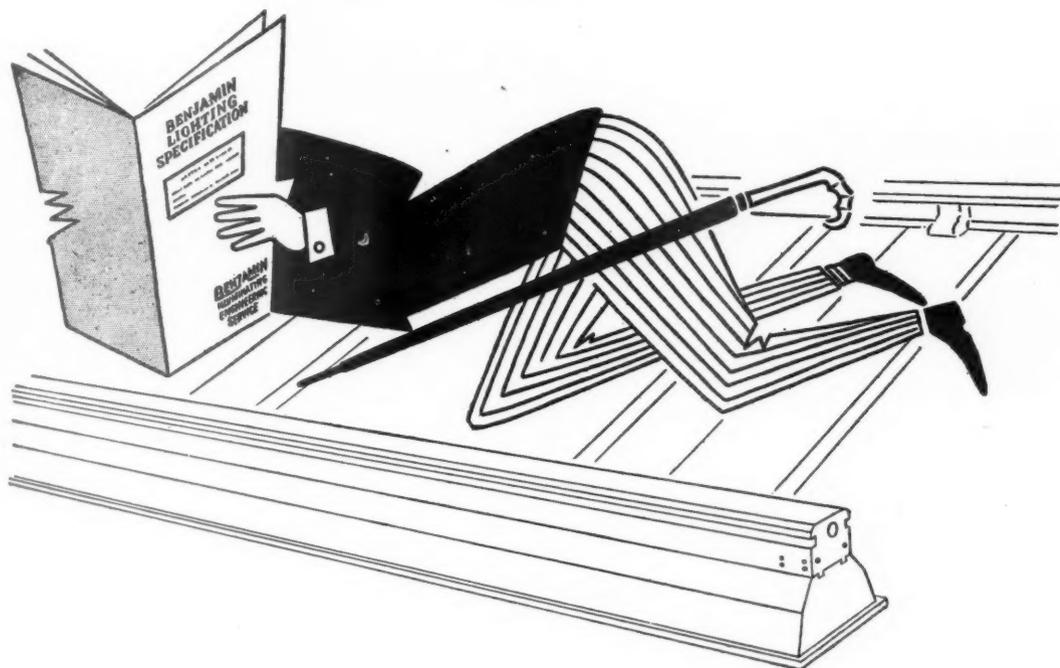


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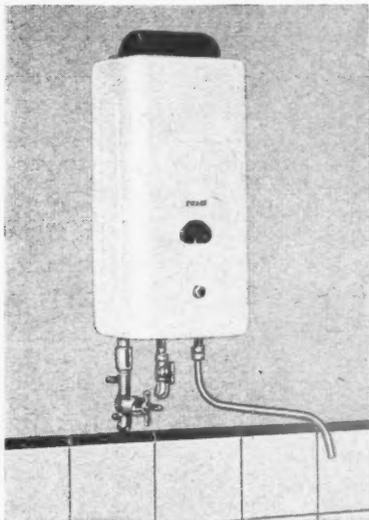
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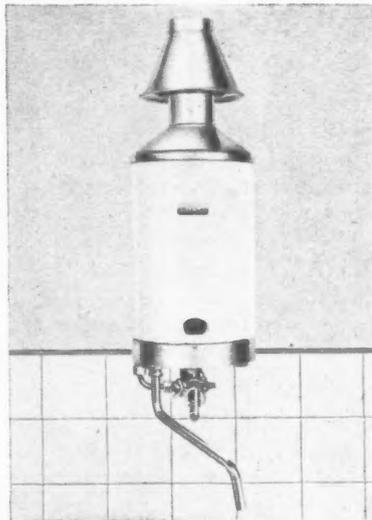
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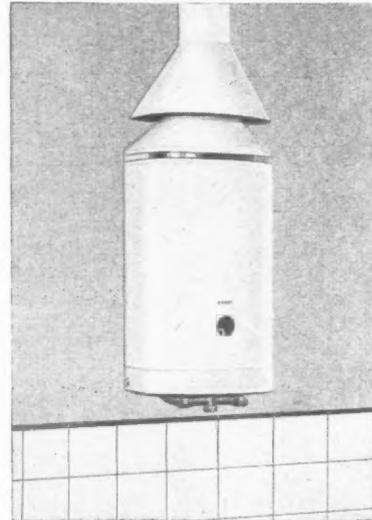
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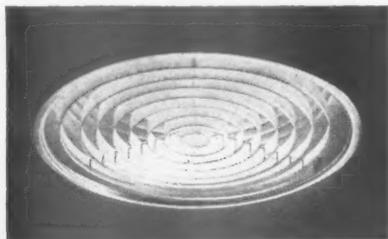
"3.75" is ideal for most jobs... has, in countless cases, provided the right answer—inside cost estimate!

He can, of course, supply *all* your flooring needs, in whatever grade of rubber you desire. Tiles are made in a wide variety of sizes and shapes in a range of colours that allows the greatest flexibility of planning and design. Who is this man? Forgive us, we should have told you earlier but got rather carried away. He's our representative. The man from Runnymede Rubber. The man with *all* the answers.

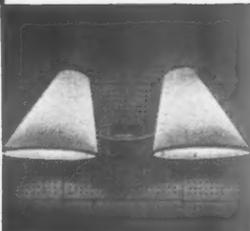
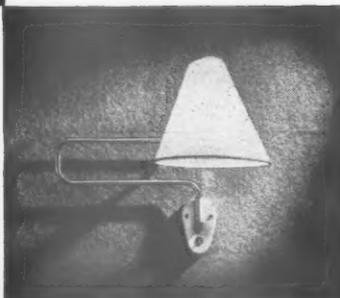


★ Runnymede rubber flooring was chosen for London Airport. The floors of the Main Immigration Hall, Cloakroom etc., in the new S.E. Face Passenger Handling Building (reviewed in this issue) have been covered with one of Runnymede's popular gauges. The flooring design, in marbled grey with interlacing strip of bright red, blends well with the modern furnishings and interior decoration of this new Hall.

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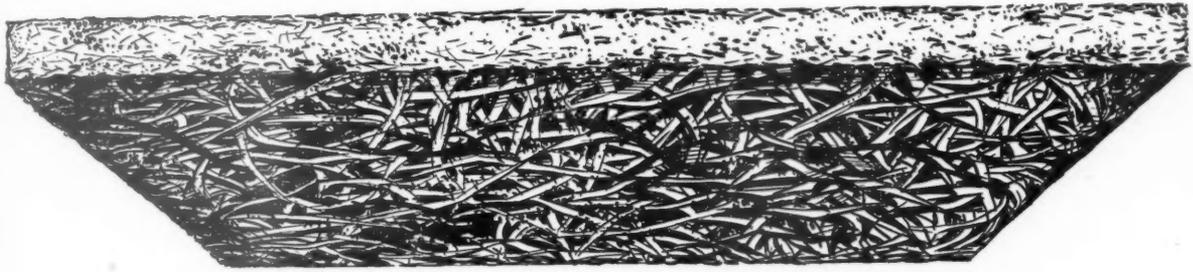
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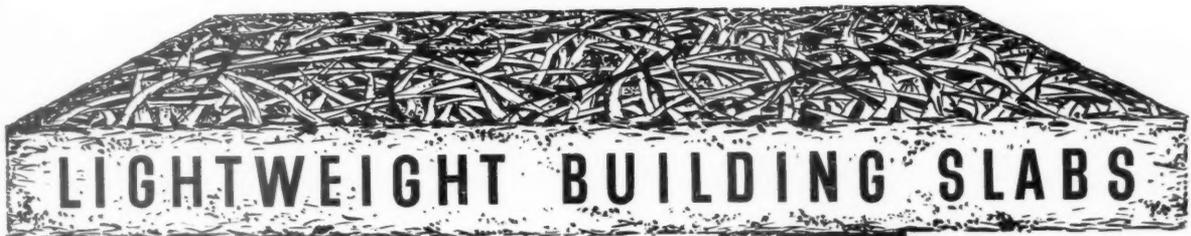
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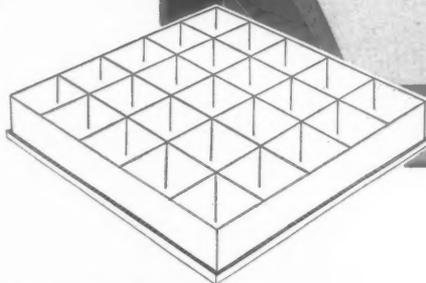
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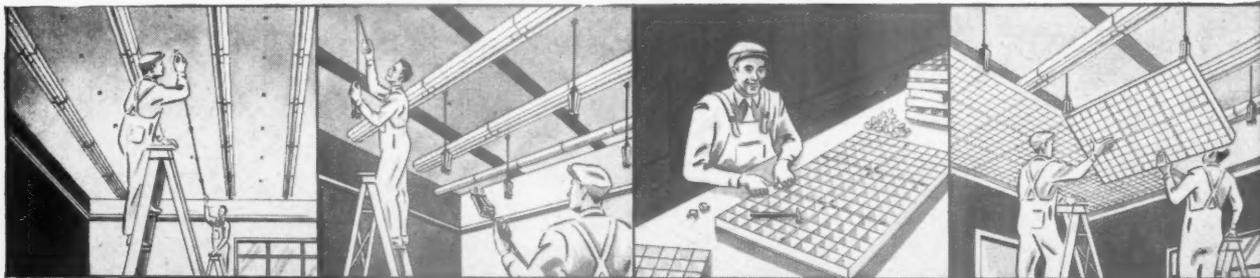
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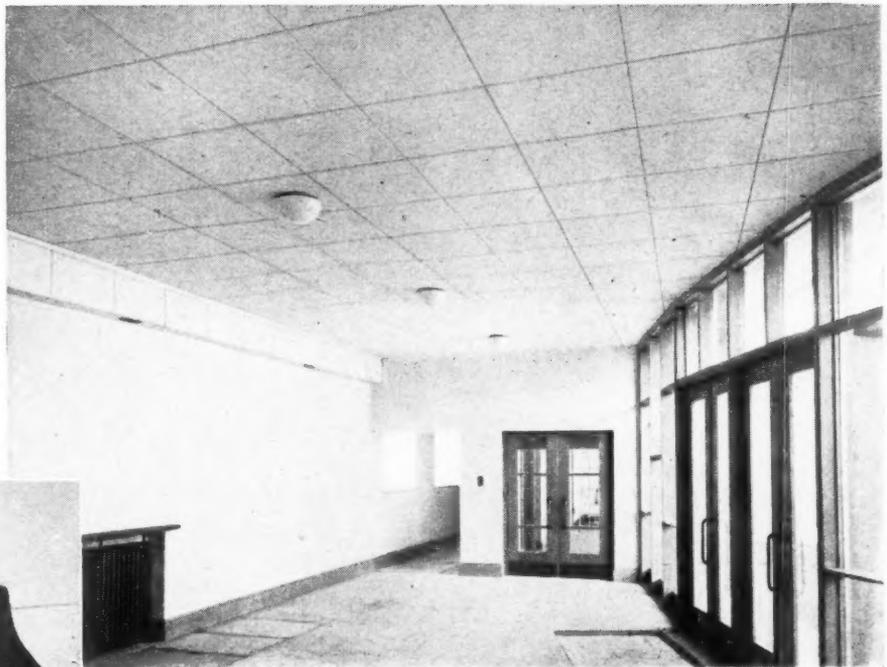
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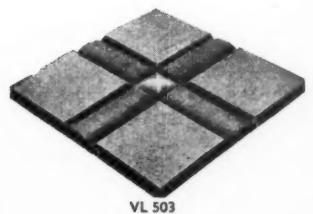
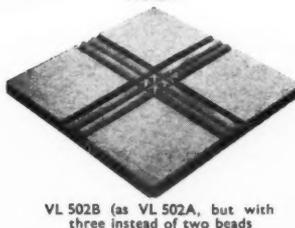
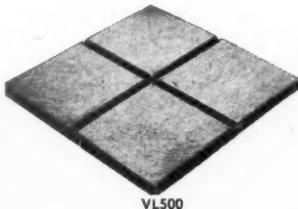


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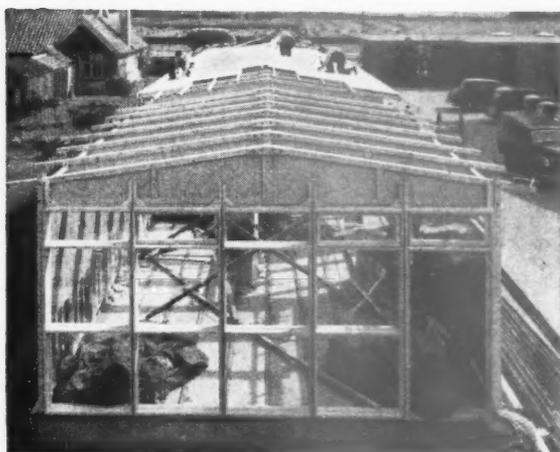
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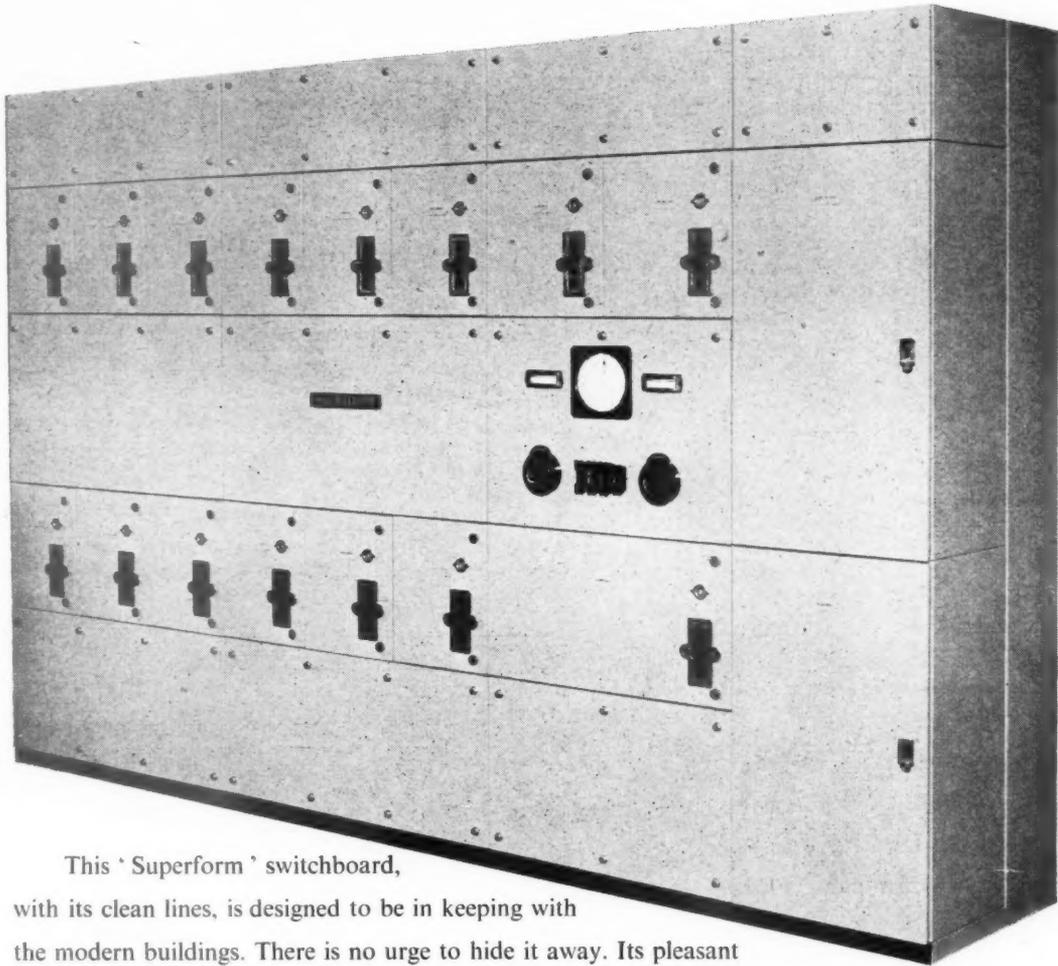


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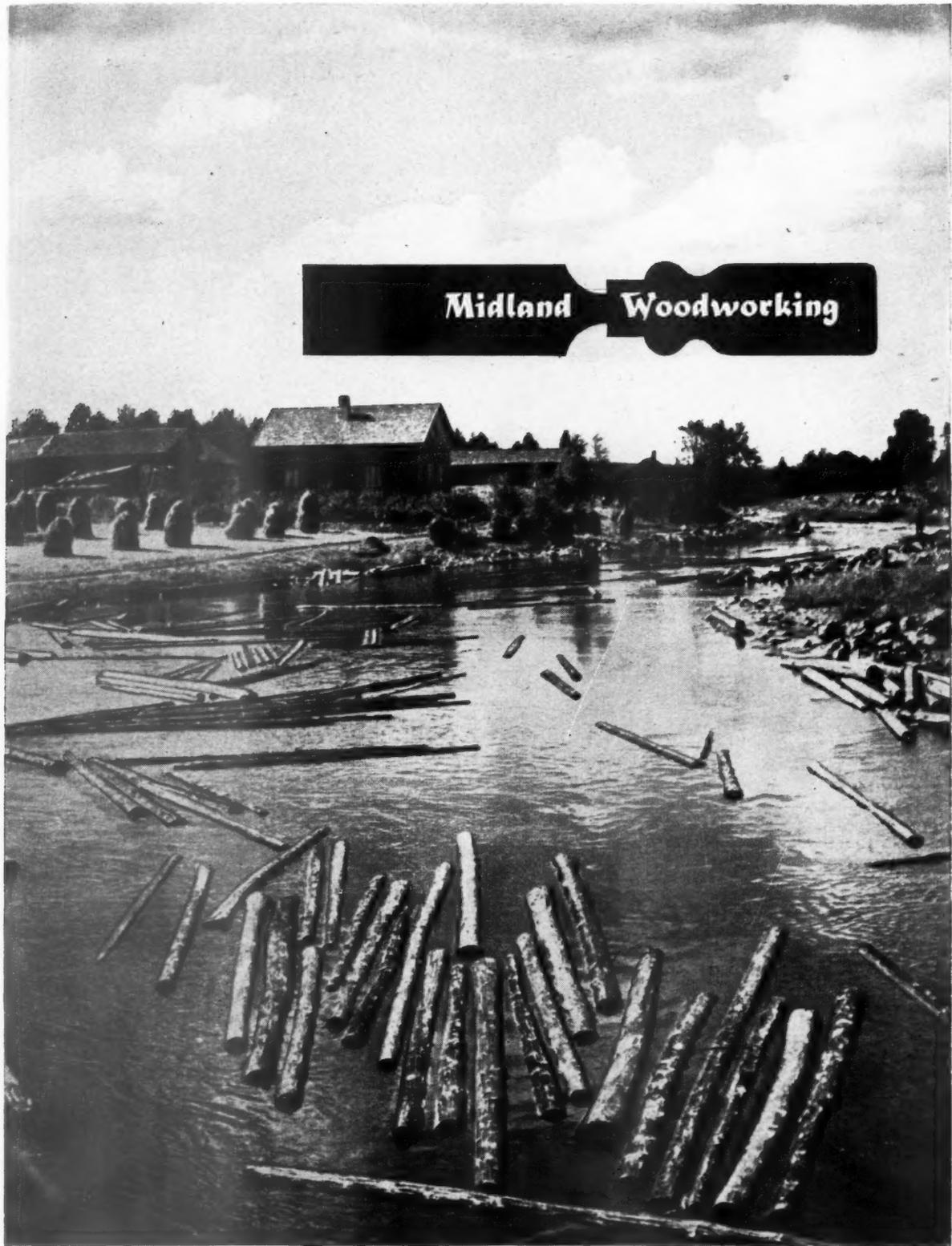
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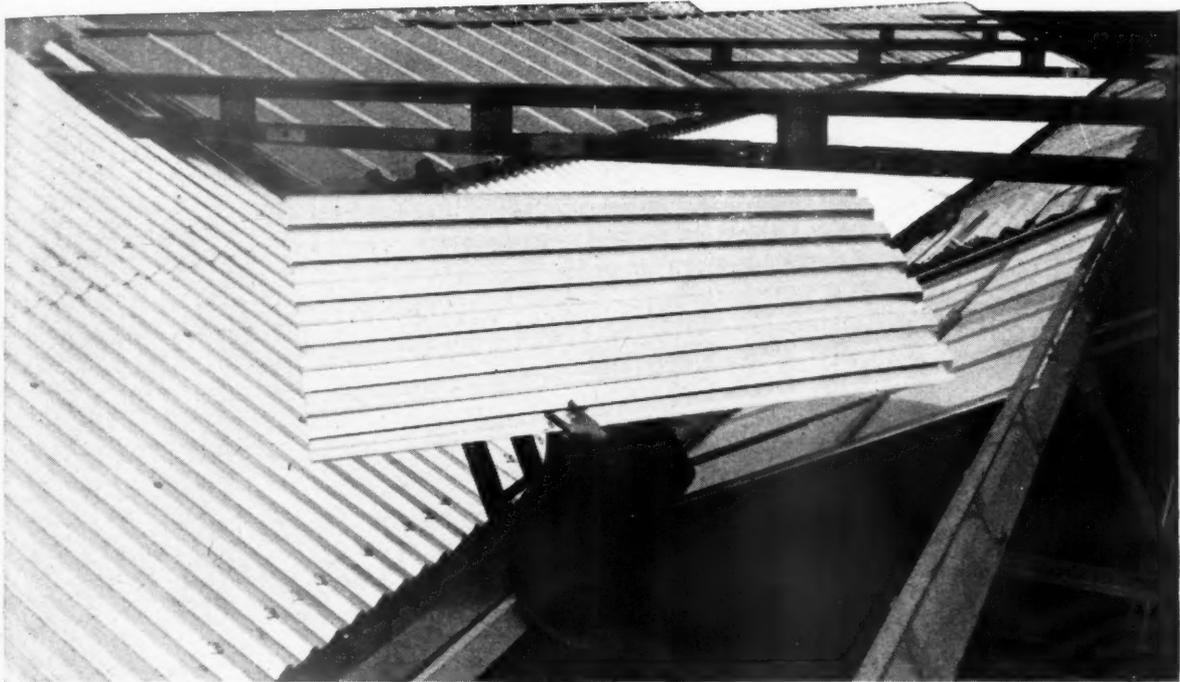
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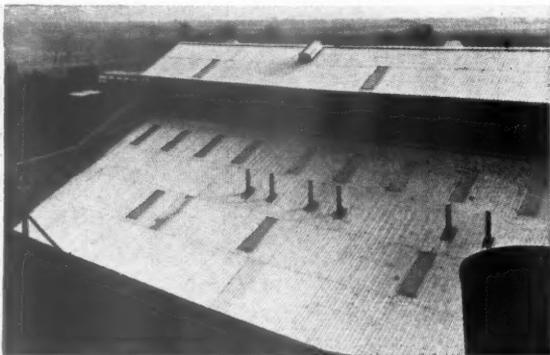
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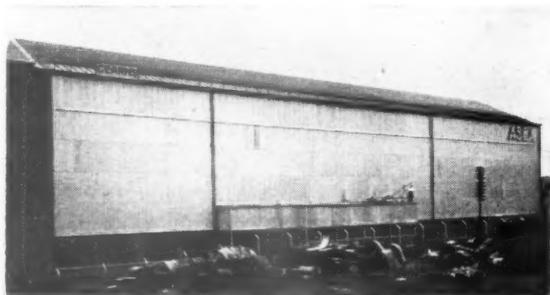
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A roof at the Huddersfield works of Messrs. W. H. Heywood & Co. Ltd., being covered with Noral 'Industrial' sheet.



This roof at the British Sugar Corporation Ltd., Selby, Yorks. was recently clad with Noral 'Industrial' sheet by Industrial Engineering Ltd.



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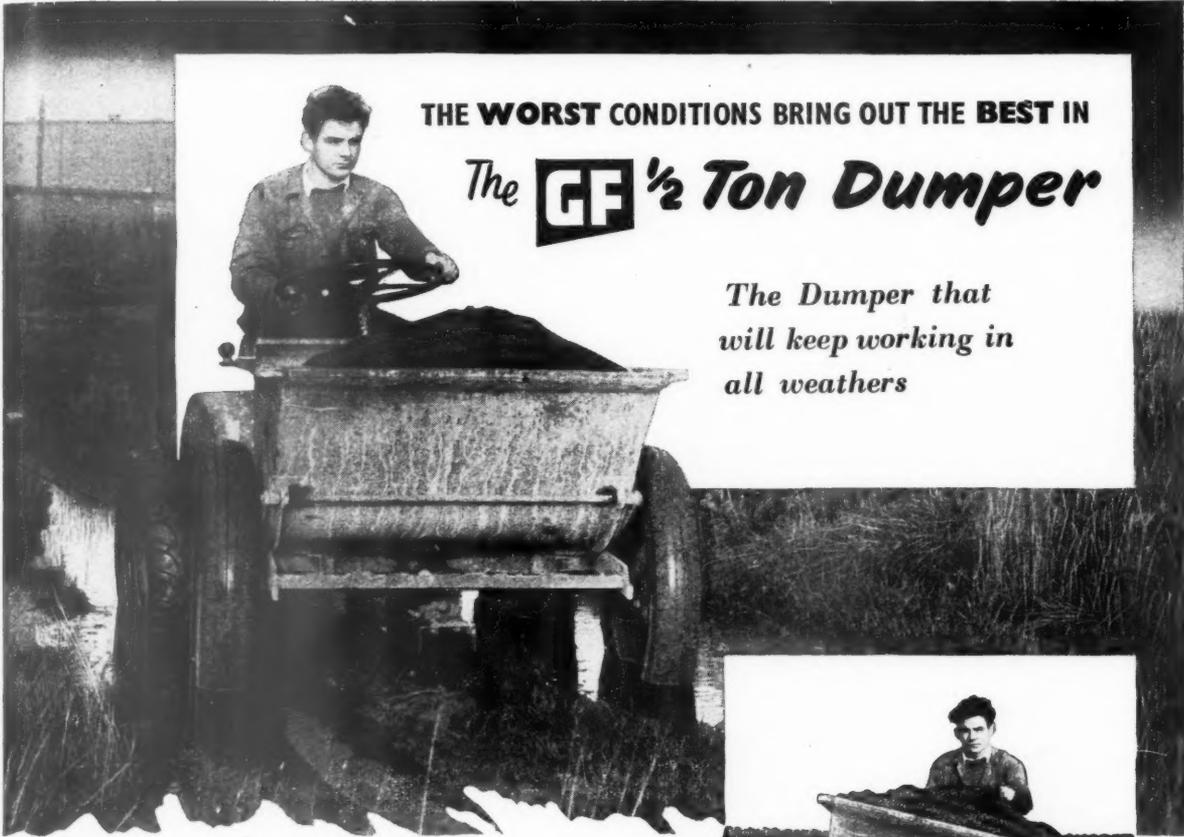
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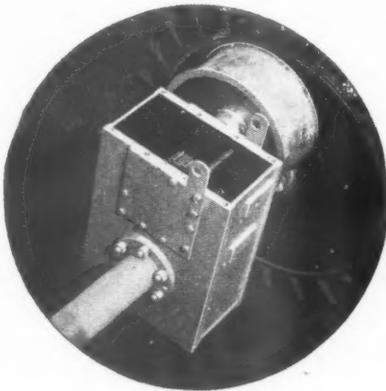
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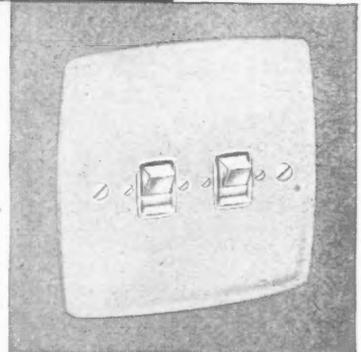
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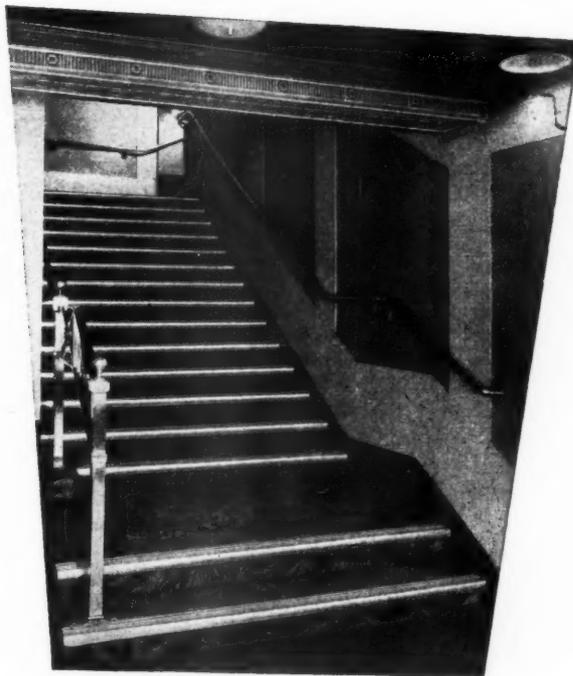


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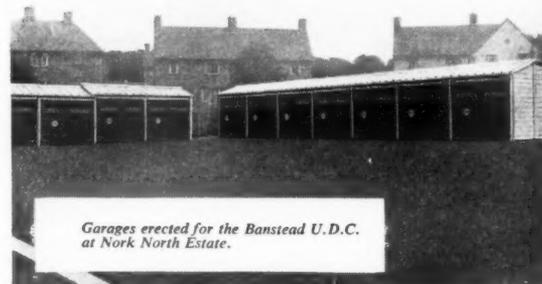
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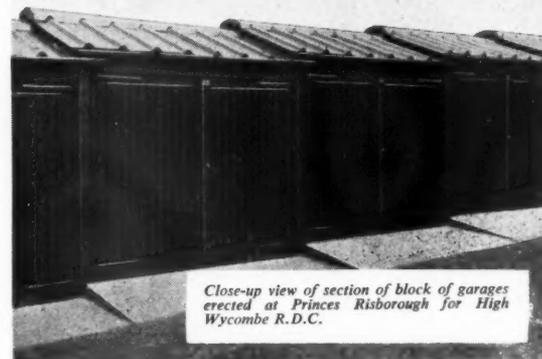
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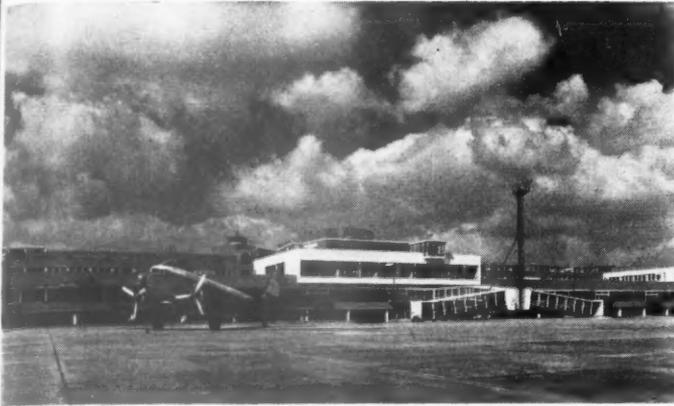
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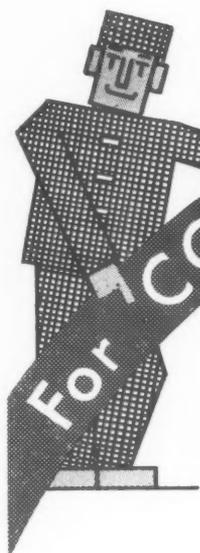
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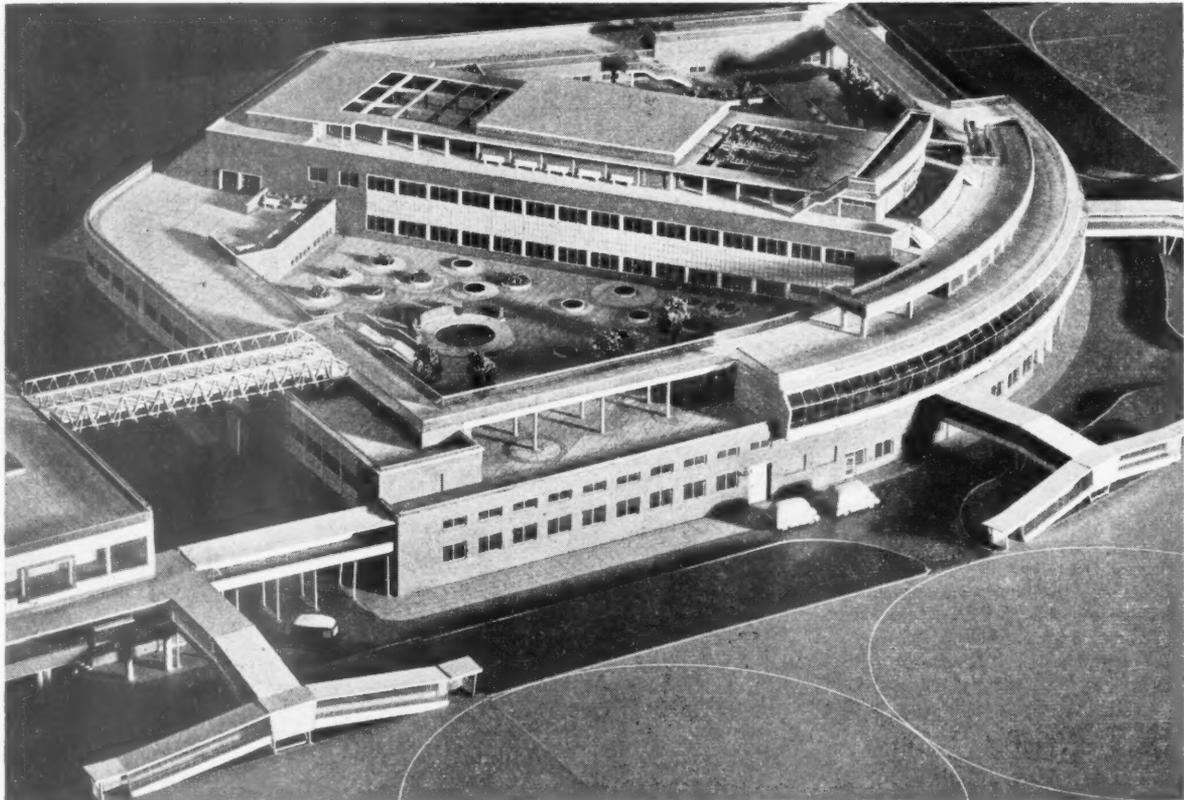
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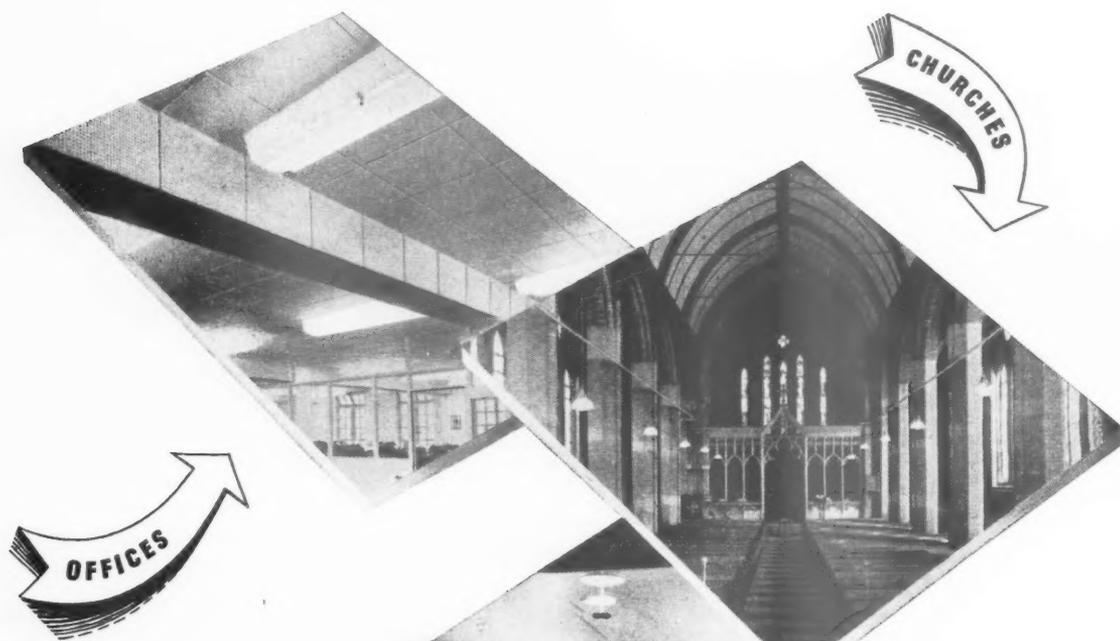
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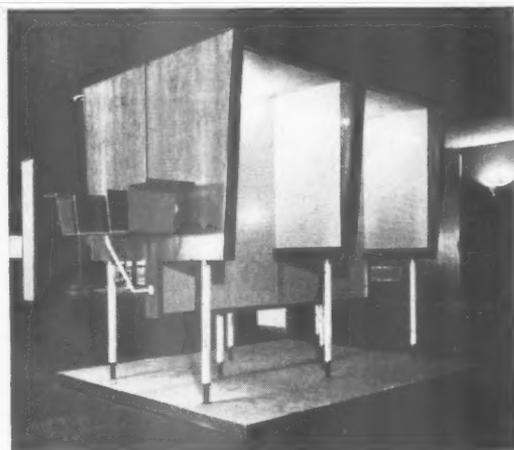
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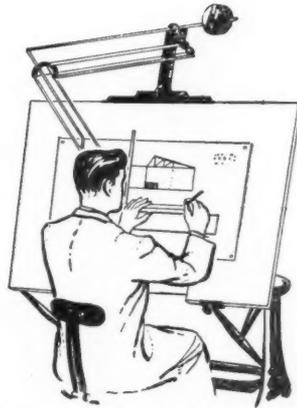


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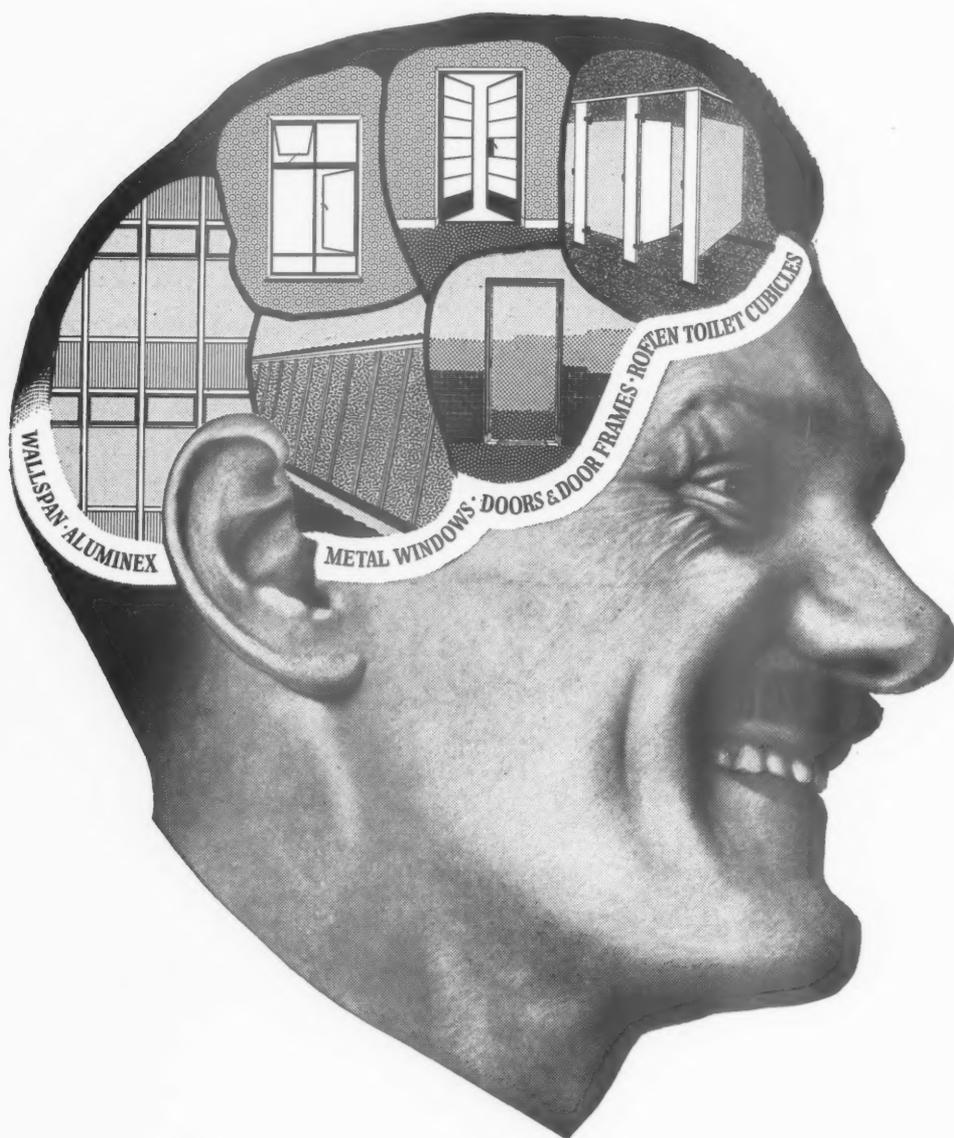
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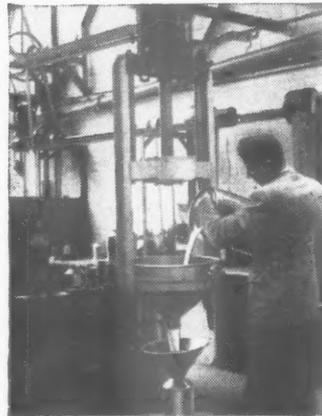
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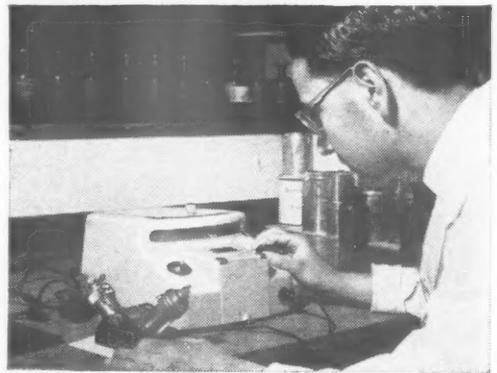


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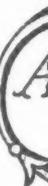
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No. 3138 April 21, 1955 VOL. 121

Subscription rates: by post in the U.K. or abroad, £2 10s. 0d. per annum. Single copies, 1s.; post free, 1s. 3d. Special numbers are included in Subscriptions: single copies 2s., post free 2s. 3d. Back numbers more than 12 months old (when available), double price. Half yearly volumes can be bound complete with index in cloth cases for 25s. 0d.; carriage 1s. extra.



THE CITY'S CITY ARCHITECT

ASTRAGAL views with mixed feelings the announcement (see last week's JOURNAL) of the decision by the Corporation of the City of London to appoint its own City Architect. Will he be simply another respectable façade to enable the City to pretend it is interested in good design, just as Dr. Holden and Professor Holford provided a fine façade for the City's indecisiveness on planning? Is he to be just one more stiff hurdle for private architects and the LCC to overcome? Or will the post be given to a really enlightened, enterprising chap: someone who will be able to give the City—and the country—the lead in commercial and office building and layout, which the

country already has, or is beginning to have, in school and hospital design?

The trouble may be, of course, that the Corporation's reputation for short-sighted commercialism is such that many of the best men for the job—and there are few enough of them—will be reluctant to apply for it. Particularly if the architect is not allowed to do the research and development work which forms such an essential part of the country's better public architectural offices.

THE AA RECEPTION

A colleague tells me that an improvement in circulation at the AA reception last week went unrecognized by many architects and their wives, who assumed from long familiarity with the building that they could find their own way around it, and had to be guided gently back into line by a host of uniformed gentry. The event was, as always, largely a quiet, near-family party—though perhaps a little quieter than usual. The principal entertainment of the evening—a Tchekov trifle, "The Anniversary"—was a surprise to my informant, who had heard glowing accounts of the work of Section AA, the AA's dramatic society. The players, he said—and he is an irascible, intolerant chap—were guilty of amateurish make-up, gross over-acting and frequent inaudibility, but he was less irritable about the professional entertainers—Richard Waring and Jimmy Thompson. This couple, he said, must have aroused a slight, enjoyable sense of nostalgia among those not-so-young ex-AA pantomime boys who once thought they could do that sort of thing so wittily themselves—with a little

more practice and a less scathing accompanist.

There were the usual welcome non-architectural exhibitions—aircraft models, Victorian song covers, and some more excellent bird paintings by President Peter Sheppard, for a King Penguin book. An exhibition entitled "A Selection of AA School Work" consisted, somewhat surprisingly, of only one student's work. This was part of a painstaking study by Sheila Gibson for a Bernard Webb Studentship of Byzantine Mosaics. The effect of the careful drawings and masses of photographs was overwhelming, particularly in the absence of any analytical description—but no doubt there was a good reason for this. But the main purpose of these evenings, of course, is to see the old familiar faces, all, or nearly all, of whom were there.

STREETS AHEAD

There seems to be little doubt that street-decks are the idea of the moment, as far as high-density re-development is concerned. The Sheffield scheme, which was illustrated in the JOURNAL a week or two ago, is one of several recent schemes, but it is the only one which seems likely to be built, unless a rumoured LCC project, still in its very early stages, also goes through.

The present revival of this idea of multiple circulation levels—itsself as old as the Modern Movement—seems to owe something to the Smithsons' scheme (unplaced) for the Golden Lane competition of 1952, to which the Sheffield project appears to be fairly closely related. The idea with the Smithsons was not merely circulation, however, but an attempt to give people

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back the life and bustle of the streets—something which is lost in schemes of isolated high-rise blocks, in spite of various pious hopes about the social function of lift-shafts—and provision was made for shops and so forth at all deck levels.

COVENTRY HOTEL

After the pseudo semi-regency of the Westbury Hotel in Bond Street, whose architect—Michael Rosenauer—was out to “amuse the sophisticated” it is refreshing to learn that the Hotel Leofric, soon to be opened in Coventry, is as “modern as tomorrow.” That phrase, taken from the hotel owners’ handout, could, of course, be frightening by itself, as could other descriptions from the handout—“sophisticated rendezvous” . . . “a new conception in drinking comfort” . . . “the charming atmosphere which women love”; but the sketches by Robert Sevant, which accompany the descriptions, are much more than reassuring. (Three are reproduced on this page.)

*

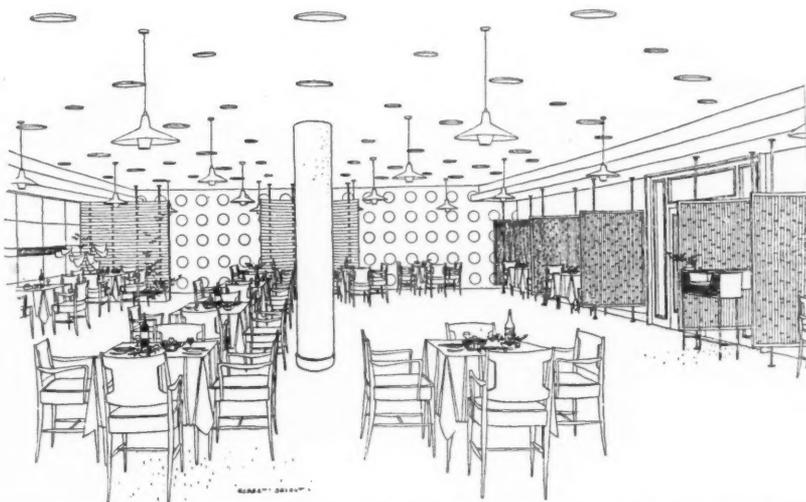
ASTRAGAL doffs an enthusiastic hat to Ind Coope and Allsopp, both for being such enlightened clients to the architects on their staff, and for producing a well-designed preview booklet to cheer us up as we try to forget the sadness of Michael Rosenauer’s Bond Street joke. He is also prepared to lift it an inch or so for the inventor of the dignified term, Precinct Snack Bar.

WELL DUNN

People who want to buy or build a house of contemporary design—the sort that Professor Richardson would call a “match-box or packing case” (he was at it again last week: see page 529)—will be astonished to hear that one building society has been enlightened enough to produce a brochure with a contemporary building (by Eric Lyons) on its cover. They will not be so astonished when they hear that the Society’s director is Geoffrey Dunn, the furniture designer, of Bromley.

*

Not only is the brochure of the Bromley Building Society attractive to look

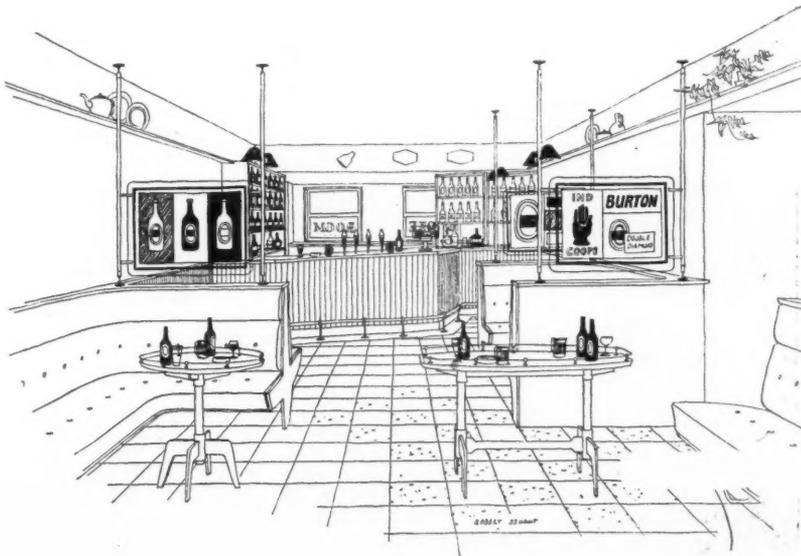


The Hotel Leofric, Broadgate, Coventry, which will be opened soon, makes a pleasant contrast to that other new hotel—the Westbury, in Bond Street, which was illustrated in last week’s JOURNAL. The interior design was by the staff architects of Ind Coope and Allsopp, W. J. Witham and A. G. Drew. Above, the French Restaurant, on the first floor. Below right, a typical bed-sitting room. See note, “Coventry Hotel.”

at: it also tells intending borrowers what is what more clearly than the literature of many societies ASTRAGAL has seen in the past. Congratulations to Mr. Dunn and to his fellow town-folk associated with the society. It is encouraging to know that if you can get a decent design passed by your local town planning committee, there is at



The White Lion public house is situated under the same roof as the Hotel Leofric, but has a separate entrance. The main bar is shown below.





Business or Pleasure

The Board of Survey, which was formed to consider the future of canals, has recommended that only one-third of them should be retained. If their recommendation is accepted vast stretches of attractive or potentially attractive waterways will stagnate, and the work of many people who have fought for their preservation and maintenance will have come to nothing. Robert Aickman, the founder of the Inland Waterway Association, has criticized the Board of Survey's report. It is, he says, based on wrong terms of reference. Although the Board was formed to examine ways of "ensuring how maximum economic advantage could be derived from the existing system of canals in this country," the terms of reference were later changed and the Board considered only the possible *commercial* use of canals. Mr. Aickman points out that his Association considers that the whole system of canals should be merged into an integrated network, under the direction of a single national authority. This authority would operate canals not only for commerce, but also for pleasure-boating, angling, the provision of water supplies and the handling of land drainage. The Association feels that an independent survey should be made to see if such an authority could be set up. Eric de Mare's pictures here come from his book, *Canals of England* (Architectural Press, 18s.) in which he discusses the great possible uses of canals both for business and pleasure.

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least one building society that will give you a sympathetic ear.

GROUPE ESPACE

A handout headed "Space Group" has proved not to be an invitation to a planet pioneering jaunt, but merely an invitation to sign on the dotted line, and to put down the odd guinea or two as a subscription to the English Branch of the organization known to persistent exhibition-goers like ASTRAGAL as *Groupe Espace*.

There was a time when this *Groupe* seemed nothing more sinister than just another exhibiting society in the Paris Art-world, but it seems to be growing up into a kind of Abstract International, with cells all over Europe, a complicated hierarchy of command, a party line, and—inevitable consequences—resignations and splinter groups.

Its main aim—closer collaboration between architects, painters and sculptors—is entirely praiseworthy, but its architect-members are to collaborate only with one kind of painter and sculptor, viz., Non-Figurative, and to judge from the testimony of renegades from the English *Groupe*, collaboration takes place only on the receipt of orders from Paris.

ASTRAGAL finds all this air of conspiracy and playing at politics pretty old stuff, with more than a whiff of Thirties-Revival about it, but is willing to concede that the *Groupe* has done one good thing in England—the renegades, the English splinter, or whatever one likes to call them, constitute a remarkably distinguished grouping of the brighter, younger architects, painters, sculptors, collagists and what-have-you, whom no-one before *Groupe Espace* had ever managed to get together in one collaborative unit. Freed from expert Parisian art-dogma, the splinter has not splintered itself, but remains active and in one piece, and (one hears) may stage a remarkable manifestation of just what can be achieved by collaboration between architects and artists before another twelve months is out.

ASTRAGAL

POINTS FROM THIS ISSUE

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London airport buildings : described and illustrated	page 533
A simplified floor heating system	page 551

The Editors

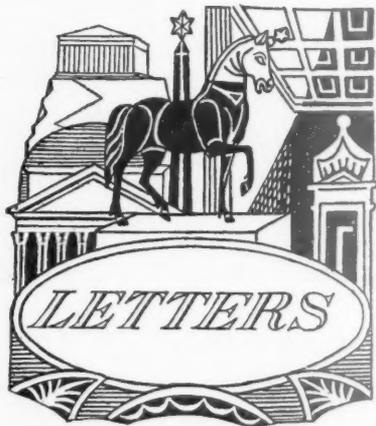
EDUCATION

THE slow and steady growth of facilities for architectural education is emphasised by what at first sight might appear a relatively minor event. It is reported in the yearbook of the Truro Branch of the Devon and Cornwall Society of Architects that the first classes in architecture in Cornwall were started last year. There are about fifteen students, attending a one day a week course at the Cornwall Technical College at Redruth. The syllabus covers both external, intermediate and final RIBA exams. This brings the total of schools not recognized for exemption from the RIBA exams to fifty-five. The plight of the youth—waiting to become an architect—who lives in a country area is often acute. His best hope still is to become articled to a private architect, and to endeavour to study in his spare time for his exams—possibly, if he is conveniently placed, with the help of a part-time course such as has been started, so admirably, in Redruth. The chances of qualifying are not high, and the time taken to reach final standard is usually greatly in excess of the whole-time school course of five years. It has been said that with the number of local authority grants available any architectural student worth his salt could readily get a grant for one of the recognized schools. Nevertheless, a large number of articled-pupils still exist, although it is generally admitted that the whole-time, or the part-time, recognized school course is better educational value than any length of time as a mere articled pupil.

Why then, are there so many? (It is not known, of course, just how many there are, but there must be some hundreds of them, judging from casual enquiries made). The answer to the supply lies, of course, in the demand. Many architects running small country or small town practices are dependent on articled pupils to solve their staffing problems. They could not afford (they would claim) to pay for a fully-qualified man to carry out the largely hack office work of this type of practice. The only qualified man in this type of practice is usually the principal, and he is where the qualified man is most in demand—interviewing clients or out on the job. Although the articled pupil is not highly paid, nevertheless he is frequently much better off financially than if he were a whole-time student. He is also saved the mental strain of whole-time study, and, provided that he establishes his worth in the office, he can often stay on and become a most valuable (but non-architect) member of the staff.

Should this loose and casual method of entry into the profession, or into the fringes of it, be allowed to continue? The answer is hard to give. At the moment the article pupil really satisfies a need, and, at the same time satisfies himself. That he may be no credit to the rest of the profession is not his concern. Nor does the private architect always ensure that his pupils have the standard of general education which will enable them to enter for their exams, so anxious is he to acquire cheap labour.

One thing, however, does become obvious. The two extremes of entry into the profession one by means of a five-year university course, the other by means of an indefinite period of article pupilage, and external exams are becoming farther and farther apart, as the standards of the university courses steadily rise, and the quality of the architects who accept pupils diminishes. It is hard to see how any reconciliation between these extremes can ever be achieved. As we have already announced, it is our intention to publish shortly a special article on the more advanced trends in architectural education today. This article will serve to emphasise 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.



Better Houses Wanted

SIR,—The following appeared in the "Scottish Daily Express" of March 24.

Lord Elgin, president of Dunfermline Building Society, told members last night: "Many private houses built between the wars are not pleasing to look at.

"Cannot something better be achieved in the post-war revival of private building?"

Straws in the wind? Let's hope so, and I trust that you will keep up the good work you are doing in this vital matter.

ROBERT G. R. BROWN.

Edinburgh.

Should Ads Show Prices?

SIR,—An indication of the price range in advertisements would certainly appeal to me, as I have fallen into the habit of looking for this information in trade pamphlets and immediately consigning to the waste paper basket the majority that omit to give it.

R. G. R. Brown, A.R.I.B.A.

R. N. Vanes, F.R.I.B.A.

H. A. Brockman, L.R.I.B.A.

S. A. Hurden, F.R.I.B.A.

S. M. Palmer

A. H. Mitchell, A.R.I.B.A.

Ian G. Hampson, A.R.I.B.A.

Thanks to Mr. Bendell for raising this question in your issue of March 31.

R. N. VANES.

London.

Galic Symbol

SIR,—I was delighted to see your pictures of the Westminster Bluecoat school (AJ, March 24), but before you press further for the removal of the public convenience shown please note that it is the only one in London, so far as I know, which may be used by Frenchmen. Even in your picture one can just descry the beginning of the phrase "Pour les hommes" beneath the usual word and pointing finger. Vive l'Entente Cordiale.

Sussex.

H. A. BROCKMAN.

Astragal's Mistake....

SIR,—I am concerned to see the type of house, referred to on page 423 of your issue of March 31 last, recommended by ASTRAGAL as being the desirable result of builders being enlightened enough to employ an architect.

One or two builders of my acquaintance, who read the JOURNAL with interest and have always advocated the use of architects by private clients for new houses, have expressed their amazement at such an example being published, which they consider is detrimental to the object in mind—namely, to foster the employment of architects. I must say that I, and no doubt many others in our profession, agree with them.

S. A. HURDEN.

London.

....Or Was It?

SIR,—As a mere municipal planner and one of those often credited by ASTRAGAL with having little or no knowledge of design and architectural matters, I can only hope he has made a mistake at the foot of page 423 of your issue for March 31, or has he? On a second reading I note he does not commend the design on the right.

The only thing I can say in favour of the design on the right is that it does not attempt to be Tudorbethan. Otherwise it confirms, in my opinion, what I have said before, that employment of an architect does not of itself guarantee good design.

S. M. PALMER.

Bucks.

Back-Patting for the AJ

SIR,—About twelve months ago we inserted an advertisement in your JOURNAL, and you will be glad to know that the replies, which were excellent, exceeded our optimistic expectations; as a result we have brought out five qualified men from the UK to augment our capable and happy team here. The response was a creditable testimony to your JOURNAL's good coverage, and possibly a recognition of the good name which New Zealand has and of the opportunities available here for capable qualified men.

A. H. MITCHELL.

Wellington, C.I.

Don't Reproach Critics

SIR,—I am grateful to Mr. G. S. Pester for his having troubled to reply to my recent letter (April 14), if only in that his observations demonstrate several commonly-held fallacies—some, perhaps, due to misinterpretation concerning the nature of criticism. Before referring to that specifically, however, I should like to comment in detail on three of the points Mr. Pester made in his letter.

First: "One architect attacking another (adds) to the confusion of public opinion." This, I submit, is completely erroneous. Surely, confusion in the lay mind is created by observing a complacent acceptance of the neo-Georgian by those who teach modern theory, and endeavour to wean the public from its adherence to such designs as we have recently seen. It is quite useless to—as it were—deplore outmoded solutions in one breath, and in the next, shush into silence criticism of a project, because it is architect-designed.

Second: "Stabilization of creative ability comes to all architects in... varying degree." Does it? Wright, Mies, and Spence, whose works are widely diverse in character, show no such signs of intellectual atrophy. None of the projects from such minds is tired, or effete, or obsolete. It may well be argued that these men are exceptional, and it is unfortunately true; nevertheless, the term "all architects" must be held to embrace the giants, as well as the dwarfs.

Third: And this, I think, is at the root of Mr. Pester's disapproval of my letter—we come to the question of "party loyalties." The use of collective nouns in argument can lead, very easily, to logical pitfalls. I am advised to have more consideration for "the profession." Nothing is said about

the lack of Mr. John Taste's satiric picture, practised in 1930—a good architect, sider that fession of tegrity of are, of c from suffi The qu always p not too l to more t At the emphasis impression raise the manly th It is ge ing to b art shoul backgrou produced "if" ad style, an are comp my work demned affect th iota. Is it no who pro what it it?

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the lack of consideration to Architecture. Mr. John Betjeman's "Ghastly Good Taste" contains amongst other things, a satiric picture of the cult of Professionalism, practised with such adroitness in the 1930's—a period when the production of good architecture was at its lowest. I consider that upholding the dignity of a profession involves much more than an integrity of social and business life. These are, of course, indispensable; they are far from sufficient.

The question of moderation in criticism always poses a problem. Not too much—not too little—but just right—is applicable to more things than shaving-cream, I admit. At the same time, a deliberate over-emphasis is often required—to create an impression it is sometimes necessary to raise the voice slightly, however ungentlemanly this may be.

It is generally agreed, though I am willing to be corrected on this point, that an art should reflect the social and economic background of the period in which it is produced. If one accepts this, and I say "if" advisedly, then neo-Georgian as a style, and neo-Georgianism as a philosophy, are completely indefensible. The fact that my work twenty years hence may be condemned as "neo-contemporary" does not affect the validity of that contention one iota.

Is it not better to level reproach at those who produce bad design—be the reason what it may—than at those who condemn it?

IAN G. HAMPSON

Middlesex.



RIBA

London Society "Deplored"

The proposal, by S. H. Statham and David Steven, that a London Society of Private Architects should be formed (see last week's JOURNAL), has not been received well by the RIBA Council. At a recent meeting it was said that "the profession must be regarded as a single entity composed of members whose ultimate interests in the advancement of architecture are identical, and that any move which might give government authorities and the public generally an impression of divided counsels is unwise and likely to impair the influence of the profession when making representations on matters of importance. They consider that the RIBA and the Allied Societies provide adequate machinery for the discussion and solution of all problems which may arise, and they deplore the tendency of a minority of members to take up membership of other bodies, especially those which require no qualification by examination for admission to membership."

Exhibitions

The RIBA is planning three exhibitions: one on the drawings of Cyril Farey (to be held in the Members' Room in the autumn); one on "Pulverized Fuel Ash Building Products" (to be held in October) and one on "Architectural Methods Applied to the Preservation of Ancient Monuments and Historic Buildings" (to be held in December).

The fuel ash products exhibition is being prepared by the British Electricity Authority, in consultation with the RIBA and the BRS.

The ancient monuments exhibition, which is being prepared by the MOW, will show something of the special problems which arise in the preservation of old buildings and techniques evolved by the Ministry's architects.

The 1957 Conference

The British Architects Conference in 1957 (July 10-13) will be held at Oxford. The hosts will be the Berks, Bucks and Oxon Architectural Association.

Election Biographies

Biographical details of candidates for RIBA council elections will be sent out in future with voting papers.

We would remind readers that something more ambitious than biographical notes of candidates will be published, at election time, in the JOURNAL. We shall ask candidates—as we did last year—for their views on matters that are uppermost in architects' minds.

Village Halls: Education Minister's Views on Design

The president of the RIBA, C. H. Aslin, recently asked the Minister of Education to consider the advantages of employing qualified architects on the building of village halls which are being subsidized by the government. The Minister, Sir David Eccles, sent the following reply:—

"I quite agree with you that we should all strive to ensure that the villages achieve good standards of design, and that this is more likely to be achieved if qualified architects are employed.

"Sound advice in the early stages of the preparation of a scheme is also important, and I am glad to know that something is being done to provide this. The National Council of Social Service, with whom the Ministry co-operate very closely in dealing with village halls, issued two pamphlets last year, one on the site and building, and the other on the interior.

"They are also issuing a revised version of their 'Notes of Construction' which have been brought up to date. The Ministry's architects can help too, since arrangements have been made for them to see plans at an earlier stage than was often possible in the past. Finally, all applications are sent to the Ministry through local education authorities, and I hope that they will do their best to assist the local village hall committees to achieve good standards."

RESTORATION

"The Little Georgian House"

Last week Professor A. E. Richardson, the President of the Royal Academy, unveiled

a bronze plaque on "the Little Georgian House," in Euston Road, St. Pancras. The plaque, which was put up by the borough council, commemorates the restoration of this late Georgian building by a firm of car dealers who own the property and buildings around it.

"This is a memorable occasion," said Professor Richardson, "and one which proves that St. Pancras is interested in the arts. That, indeed, is nothing new, for 150 years ago it provided homes for Royal Academicians. John Constable, from 1822 until his death in 1837, lived at No. 76, Charlotte Street which had previously been occupied by Joseph Farington, R.A., while Joseph Nollekens, R.A., in the year 1770 leased No. 9, Mortimer Street, the property of Francis Milner Newton, R.A.

"The Little Georgian House has been magnificently restored, and I would pay a tribute to those who have undertaken the restoration. What has this house seen during the 160 years of its existence? It has witnessed the laying-out of Regent's Park, and the appearance of London's first omnibus—Shillibeer's—that ran from the 'Yorkshire Stingo' at Paddington, along the New Road (now Euston Road) to the Bank, the fare being one shilling. It saw the building of Holy Trinity Church, Kentish Town, and the inauguration of the Birmingham service by the London & Birmingham Railway on September 17, 1838.

"Furthermore, this remarkable example of rather late Georgian architecture was itself the home of the celebrated engineer and inventor, John Braithwaite, who not only cast the statue of Queen Victoria's father which stands in Portland Place, but constructed the first locomotive engine—'The Novelty'—that ran at the rate of a mile a minute.

"These are but a few of the incidents in the story of the Little Georgian House. When it was built the green countryside stretched from here to the Parliament Hill Fields and to the secluded villages of Hampstead and Highgate. It is possible that Cowper would have classed this little house of 1790 as 'a country villa,' and it remains for your delight and your enjoyment in a world of modern architectural match-boxes and packing-cases. (Laughter.) I have not the same eloquent command of language as that of my predecessors in office, but my opinions can be just as strong as theirs—you just wait till the Academy Banquet and see! (Louder laughter.)

"The man in the street is entitled to see beautiful and pleasing things, and to enjoy them. Let our thanks go forth, therefore, to the directors of Car Mart Ltd. who proclaim today, 'We trade in cars, but we like fine art, and this Little Georgian House is for the free enjoyment of each passer-by.'"

DIARY

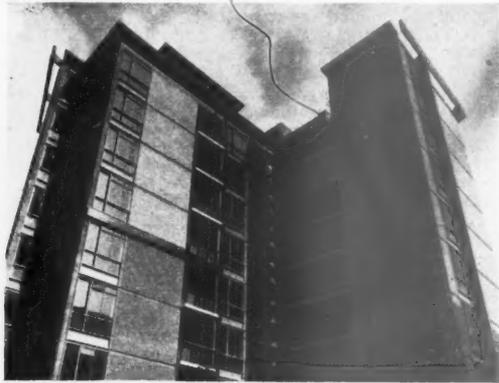
The Parking Problem in Town and Country. Talk by C. D. Buchanan. At an ILA General Meeting. At the HC, 13, Suffolk Street, S.W.1. 6.15 p.m. APRIL 21

Building The City. By Colin Boyne. Executive Editor of the ARCHITECTS' JOURNAL. BBC Third Programme. 9.55 p.m. APRIL 25

Photographs and Drawings by Richard Neutra. Exhibition arranged by the Society of Student Architects. At the Polytechnic, Little Tichfield Street, W.1. Monday to Friday 10 a.m.-5 p.m. UNTIL APRIL 29

Mexican Architecture. Exhibition at the RIBA, 66, Portland Place, W.1. Monday to Friday 10 a.m.-7 p.m. Saturday 10 a.m.-5 p.m. UNTIL MAY 2

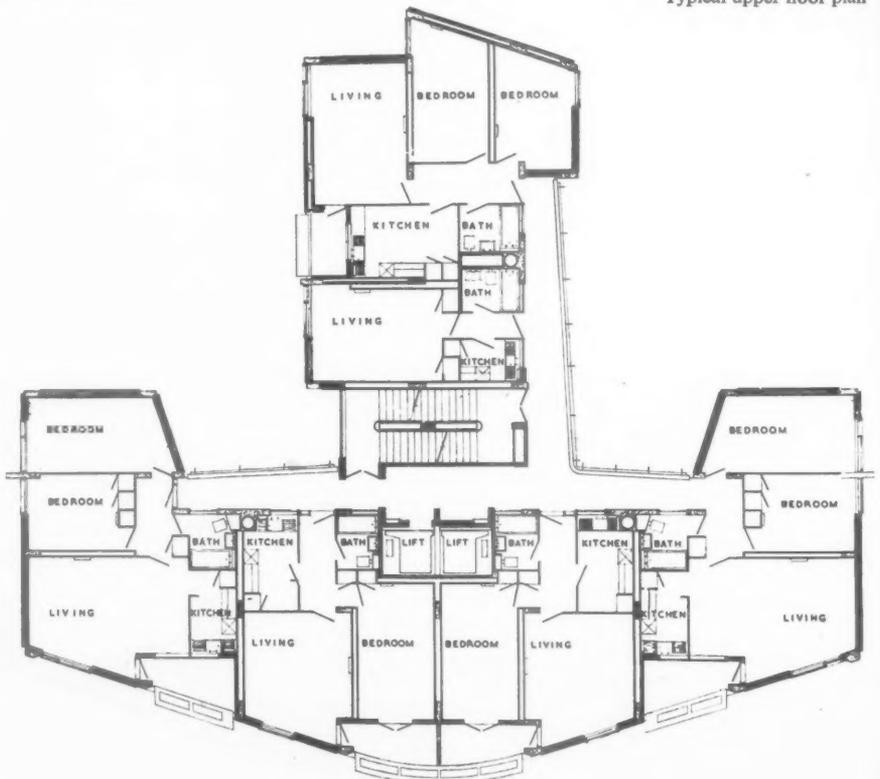
BUILDINGS IN THE NEWS



Medway Court, a nine-storey block of flats at the junction of Judd Street and Leigh Street, St. Pancras, was designed by Denis Clarke Hall. This block, which contains the 2000th flat to be built in the Borough of St. Pancras since the war, houses forty-six flats (seven with one room, sixteen with two rooms and twenty-three with three rooms). Shops are being built on the ground floor, and the complete building scheme will include an underground car park (for about 30 cars), a petrol filling station, a garden and another nine-storey block of flats. The photograph above right shows the flats from the south-east, and above is part of the west and north facades. Flats of different sizes are distributed evenly on all floors, but the eighth where there are only two 2-room and two 3-room flats, the remaining space being used as a children's play-room during the day and a tenants' meeting room in the evenings. Each of the lifts stops at the basement and the ground floor, and then at alternate floors above. Private balconies are large enough to accommodate a pram or deck chairs. Three refuse chutes are provided on each floor. Heating is by gas fires and radiators; there is a choice of gas or electric cooking; all flats have points for radio, television and telephone and hot water is supplied by gas heaters. The quantity surveyors were Clevely and Bass. The general contractors were Gee, Walker and Slater Ltd.

Flats at Judd Street, St. Pancras

Typical upper floor plan



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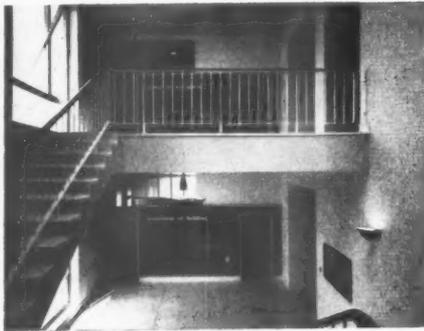


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**Technical College,
Plymouth**

The scheme for Plymouth Technical College includes seven blocks of buildings on a site of 28 acres, set aside as a cultural precinct. The first of these blocks, which contains the departments of civil, mechanical and marine engineering, radio and electrical engineering, building, bakery and navigation is now completed. The College is being designed in the City Architect's Department. H. J. W.



Stirling, City Architect, F. Napp, Deputy City Architect, A. C. Harris, chief assistant architect, M. Cook, principal assistant architect, E. Blight, senior assistant, Vivien Toms, assistant architect. The building and engineering block, which cost £204,310, was opened last month by the chairman of I.C.I. Ltd. Above, the south facade and main entrance; left, part of the main staircase. The building is steel framed; main windows are in a stone frame, with reconstructed stone mullions and transoms. Spandrel panel under windows are faced with quartzite. Below the string course, at first floor level, external walls are faced with Portland stone.



This week we print more readers' letters about costs, and comments on them by our Guest Editors. The views of Yeoman and Edwards are particularly interesting, for they differ greatly from those of the quantity surveyors whose letters were published last week.

COST ANALYSIS: READERS COMMENTS

SIR: With reference to the JOURNAL'S team of Guest Editors who are considering methods to be employed in the Building Industry with a view to reducing Building costs. We can think of a few headings which we submit to you, and which if employed in the Building Industry will result in considerable reduction in Building costs.

1. Before tenders are sought from Builders, the Architect and Building Owners should have completely made up their minds as to what form the building should take in every detail which affects construction and all

the necessary details should be prepared at that stage.

2. The quantities should be prepared from drawings which are agreed between the Architect and Building Owner, and no provisional items should appear in Quantities at all.

3. Where Specialists' work is necessary in the contract, complete tenders for this work should have been obtained by the Architect so that the Sub-Contracts can be entered into as soon as the Main Contract is ready for signing.

4. Opportunities should be given more extensively than at present to General Contractors to price for Specialists' work such as Concrete floors and Concrete staircases, Wall tiling, etc.

5. Specialists' work should be, in many instances, the subject of the General Contractor obtaining the prices from the Sub-Contractor against proper Specifications and Quantities, and not as at present, Architects obtaining Specialist prices which contain design and literally no competition takes place.

We think the above will be sufficient for the Guest Editors to digest and consider, and if that procedure is more widely followed than at present, and becomes general practice, we are confident that wholesale reductions can be made in the Building Industry.

R. O. LLOYD, F.I.O.B.
LLOYD & CROSS LIMITED.

COMMENT: *We agree with Mr. Lloyd certainly as regards the value of complete and precise drawings and bills, but we think that consultation at the design stage between the architect and the contractor as well as*

the architect and the specialist, has also a contribution to make towards reducing building costs. The problem is how to achieve this contribution.

SIR: We congratulate you on the recent series of articles by your Guest Editors. It is pleasant to read of a group, consisting of members from all sides of the Industry, which actually speaks with one voice, especially when the subject discussed is the admittedly difficult one of cost.

We conceive it to be one of the Quantity Surveyor's functions to be a "cost expert." This is to say that he should be able to advise the Architect and Building Owner on the cost of proposed work at each of the following stages:

- (1) Calculation of requirements (pre-sketch plan).
- (2) Sketch-Plan.
- (3) Development of Working Drawings.
- (4) Acceptance of Tender.
- (5) Progress of Contract (i.e., pricing of variations before Variation Orders are issued).

We would say the average practising Quantity Surveyor feels reasonably competent to advise at Stages (4) and (5). At Stage (3), he is usually afraid that the lowest Tender will exceed his original estimate—and his fears are too often well-founded! His work at Stage (2) he will say is "crystal-gazing." At Stage (1) he is rarely consulted at all.

There will, of course, be exceptions. For example, a Surveyor working with an Architect who specializes in one type of building and method of construction should be reasonably accurate in his estimates.

In these days, however, methods of construction—both design and site execution—and costs of labour and material change frequently. Hence the principals of many firms find it difficult to compile sufficient up-to-date and detailed information on which to base accurate advice on costs in the early stages of development of a scheme. And, of course, such information is the only proper basis for advice.

Speaking as such principals, therefore, we shall be very grateful to you for publishing any cost data in any form. The particular form you have chosen, however, seems to us to have great merit and we are ourselves now analysing recent contracts on these lines.

We have till now written from our own viewpoint, but we believe that these articles should also directly (as well as indirectly) benefit your Architect readers, both by informing them of the costs of forms of construction and types of finish unfamiliar to them, and also by showing them the advantage of consulting their Quantity Surveyor colleagues at the inception of a scheme.

YEOMAN & EDWARDS, A/A.R.I.C.S.

COMMENT: *We welcome this letter and agree with its assessment of the quantity surveyor's position. With regard to the last paragraph, we think that early consultation will only be of value if surveyors replace "crystal gazing" with a technique providing systematic cost advice.*

SIR: As Costing Assistant to a concern spending perhaps three million pounds per annum on building and civil engineering work, I was particularly interested in the account of the "Office Building."

Your readers may be interested in the practice of my office of preparing preliminary estimates. Once the Board decide to go ahead with a project, an abbreviated estimate is prepared at speed with only the minimum information. The work is sectionalized, so that the inevitable variations may be adjusted with ease, the booking of measurements is reduced to a minimum, and measurements and pricing are all contained on the same sheet, somewhat like the Scottish Scroll system, or "Measuring By Trades."

The work is adequately covered, neither measurements, quality, nor prices are cut too fine, each section carries a contingency sum, and the aggregate is given to the Board. Later, the actual Bill of Quantities are found in practice, to meet the hurried estimate, within very narrow limits indeed.

The bills are carefully priced out, on rates taken from our own recorded analysis, and adjusted where necessary as sound experience dictates. These rates do not include head office charges, neither are contingencies attached.

Two cash columns are included in the bills, one for the actual cost, and one for the estimated cost, and a number of blank bills are sent out with the originally priced bill.

An instruction is sent for the work to be measured and costed weekly and a return made showing the actual cost against the estimated one together with a list made monthly showing items that exceed by a certain percentage measurements or price.

From then onwards everyone becomes cost conscious, and as it is possible to know by mid-week how each contract stands financially for the previous week, there is a great effort to control the cost.

In practice this simple system works like a charm, and it is no unusual thing to see a bridge estimated at, say, £15,000 actually costing within £50 of the amount.

R. G. SNELL, costing assistant.

COMMENT: *The method mentioned by Mr. Snell appears to meet one of the problems of cost control—namely that rates used in estimating shall be related to actual costs. We shall deal with the problem of "feedback" of cost information in a later article.*

SIR: I would like to pass on my opinions about Cost Analysis. They are as follows:

It may not be generally known that the War Department for very many years has circularized to the whole of its Works Areas detailed results of building costs, both contract and final account prices, for buildings erected for the use of the Army in this country and abroad. These are listed under types of buildings, construction, finishes and their location; and the assistance which they provide in assessing the probable cost of new, similar buildings is practically valueless, even where "Standard War Office Designs"

are used. In making this comment I must add that my experience of War Office work extended over a period of nearly ten years both as a civilian and as a Works Officer in the Royal Engineers.

The complexity of modern buildings, the multiplicity of available materials, the introduction of specialists for practically every aspect of building, the availability of labour in varying parts of the country, etc., is such that I for one refuse to advise my clients on possible cost by any other method than that of an approximate estimate applicable only to the job in mind.

I think that personal experience of all rates used is an outstanding requirement for successful estimating and that a pool of prices will in no way be conclusive.

Three cardinal points for safeguarding costs are (1 and 2) to return without delay to traditional construction and fixed price contracts and (3) for the Architectural profession to stand firm on the question of time when requested by the client to get the building started. In connection with (1) the type of building such as the Hertfordshire County Council uses for schools is not the answer to cheaper building because of:

- (a) The specialized nature of its frame and cladding;
- (b) Very little is yet known about its durability;
- (c) It is not a quick method of construction because the main contractor is entirely at the mercy of his nominated suppliers, and
- (d) There are too many fiddling pieces of work to be done in constructing these buildings.

(I mention the Herts. Schools because having had experience of them I am not impressed.) Regarding (2) fixed price contracts are essential because until the Contractor has to negotiate contracts for the supply of materials at a fixed rate he has no incentive to keep material costs at a steady level or to encourage competitive tendering by his suppliers. Insofar as (3) is concerned, hurriedly conceived plans and lack of detailed drawings before the Bills of Quantities are prepared mean variations during the progress of the work and that means, almost inevitably, increased cost.

I could continue to expound on this subject with reasons and personal opinions at length but I have, I think, written enough to show you that in my opinion the way to reduce costs is not by cost study. I would advocate again that it is to be obtained by what the Building Productivity Team report stressed, i.e., thorough planning, down to the last detail, before commencing quantities and also add, traditional construction, fixed price contracts and consultation of quantity surveyors of wide and varied experience rather than reference to a library of miscellaneous, general, information.

L. H. LOCKLEY, A.R.I.C.S.

COMMENT: *To return exclusively to traditional construction may be justified in some cases for local reasons but for many of the buildings that society now needs, traditional methods would not be possible. Any comments, Herts?*

TERMINAL BUILDINGS

at LONDON AIRPORT, MIDDLESEX

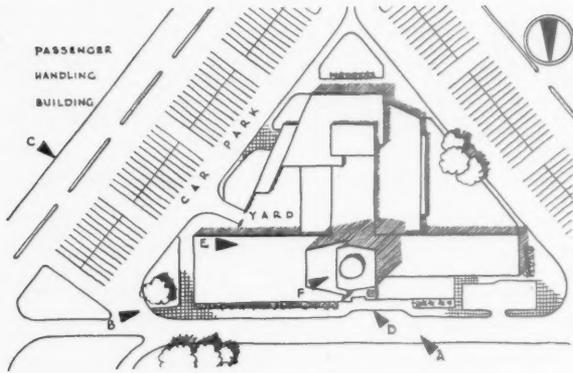
I. CONTROL BUILDING

designed by FREDERICK GIBBERD, partner-in-charge, R. J. DOUBLE assistant architect, R. HYNE, responsibility for construction, Director-General of Works, Air Ministry consulting engineers, structural, SIR WILLIAM HALCROW and PARTNERS, heating and ventilating, G. H. BUCKLE and PARTNERS, electrical, EWBANKS and PARTNERS quantity surveyors, RYDER HUNT and PARTNERS

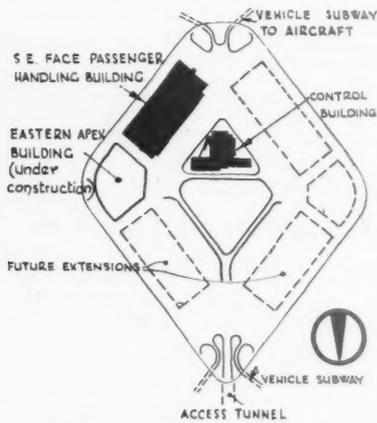
London Airport, the main base of BOAC and of BEA, comprises six main runways, three maintenance areas, a temporary terminal area on the northern boundary and the permanent central terminal area now under development. Access from Bath Road to this 158-acre diamond-shaped central site is gained by a tunnel under the runways. In 1950, the architect was appointed to design the central terminal area buildings. The first three units to be developed were the control building in the centre, a passenger-handling building on the south-east face (both illustrated in this issue) and an airline-operation building, with public amenities, at the eastern apex of the diamond, which will be completed next December. The architect was unable to obtain the clients' permission to provide the JOURNAL with a cost analysis for the terminal buildings.

Model of part of the terminal area from the south-west. The control building is on the left.





Key plan showing photographic viewpoints



Site plan, terminal area



The photograph left, from viewpoint A on key plan (top left) shows the control tower from the north-west. The wing on the left houses the telecommunications, and the one on the right houses, at ground level, the medical section and, at first floor level, administration offices. The continuous vertical glazing lights the staircase landings. The ground movement control room on the fourth floor has inclined glazing. The projecting windows above it, on the sixth floor, are of the approach control room. The bay window at the third floor level is to the commandant's office. The reveals to the staircase landing windows are painted lime green. This colour, which is also used on other windows, is similar in tone to the red facing-brick, and gives a sense of unity to the building.

Above, viewpoint B: The control tower is seen beyond the telecommunications wing in the foreground. The main construction is a steel frame encased in concrete with 11-in. brick cavity walls. The panels between the windows on the two wings are faced with artificial stone. The Control Building (illustrated on pages 533 to 539) commands an all-round view of the runway and taxiway systems. All aircraft movements to and from the airport, as well as the movements of all vehicles will be under control from this building. The radio and radar technical facilities, when completed, will be the most advanced and comprehensive in the world. This building also contains the central administration offices, medical and police centre and the airport staff catering facilities.

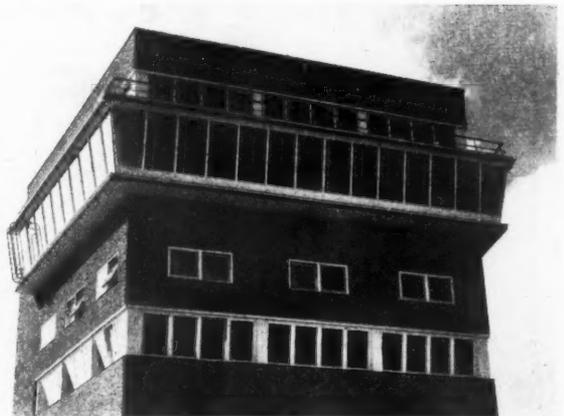
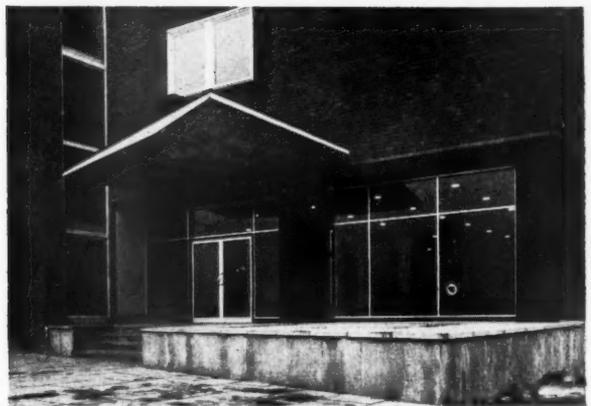
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Above, the wing (to the south of the tower)—viewpoint C—contains the airport staff catering facilities. The low block of w.c.s in the foreground screen the service yard. Dome lights to the kitchen are seen on the roof behind. Above the kitchen, on the first floor, are offices; and the block at the end of the wing contains, on the ground floor the staff canteen and, on the first floor, the restaurant. The flat roofs are constructed of pre-cast concrete slab units. These have a lightweight screed and are finished with asphalt and marble chippings.

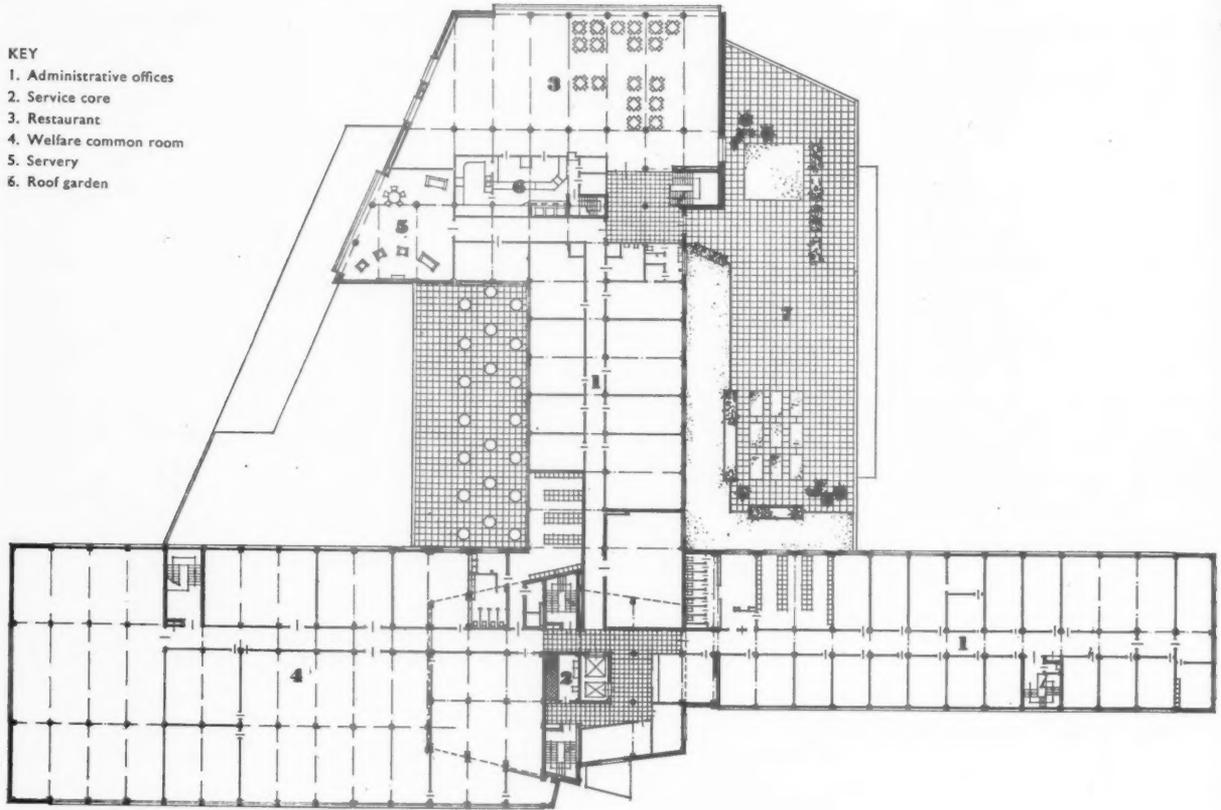
Right: the concrete canopy over the entrance doors (viewpoint D) is supported from a massive cantilevered, reinforced-concrete beam. Glazing is set in metal frames and the two columns are faced externally with figured black marble. A panel of glazed blue tiles, on the external brick return, extends past the glazing into the entrance hall. Holes have been left in the paving to the raised terrace for later planting.

Below right: this close-up of the eastern face of the top of the control tower (from viewpoint E) shows the inclined windows of the ground movement control room on the fourth floor and the projecting windows of the approach control room on the sixth floor. The glazing to these two rooms consists of double $\frac{1}{2}$ -in. plate, with external panes of anti-sun glass, to reduce solar heat. Viewed externally, they are seen to be strongly tinted green but appear colourless from within. The double-glazing reduces sound from aircraft, and also minimizes heat loss, as all control rooms are air-conditioned. The windows, which are inclined from the vertical to reduce reflections, will be illustrated as a Working Detail in a later issue of the JOURNAL.



KEY

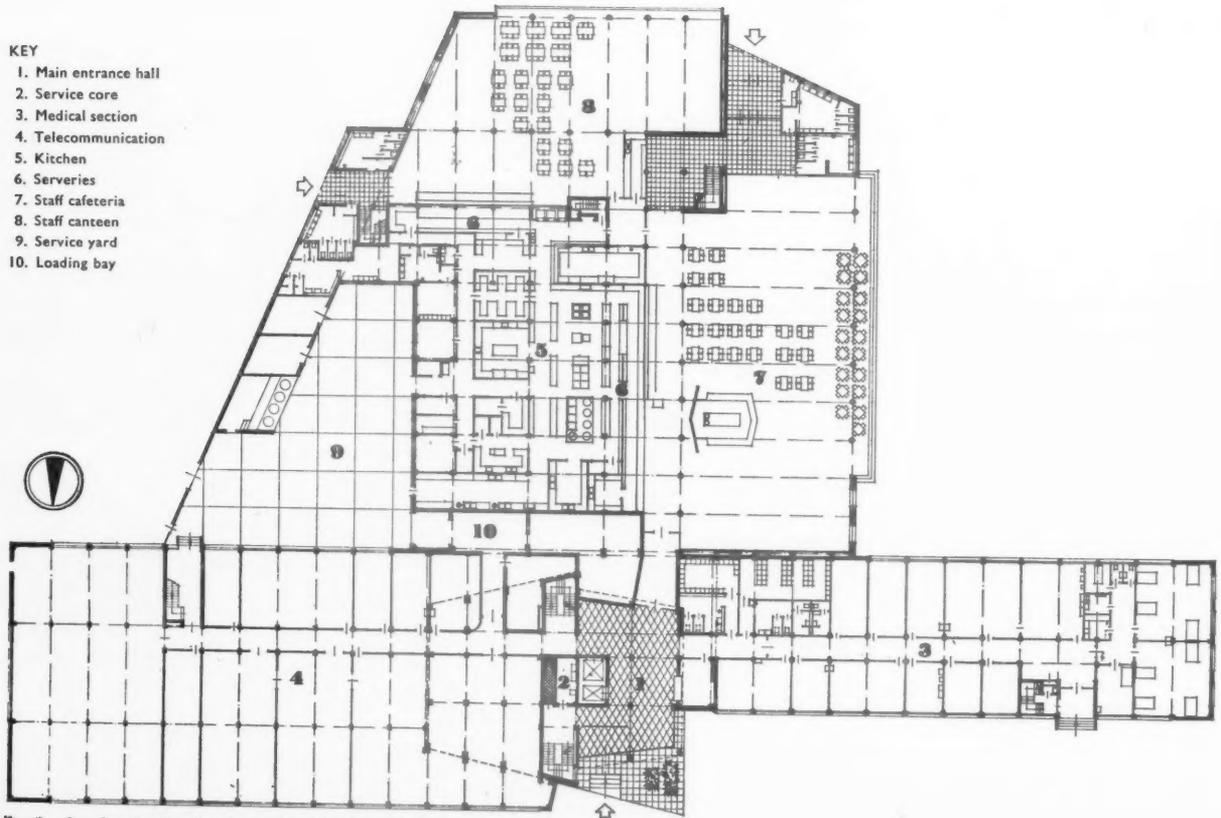
- 1. Administrative offices
- 2. Service core
- 3. Restaurant
- 4. Welfare common room
- 5. Servery
- 6. Roof garden



First floor plan

KEY

- 1. Main entrance hall
- 2. Service core
- 3. Medical section
- 4. Telecommunication
- 5. Kitchen
- 6. Serveries
- 7. Staff cafeteria
- 8. Staff canteen
- 9. Service yard
- 10. Loading bay



Ground floor plan



Fourth floor



Third floor



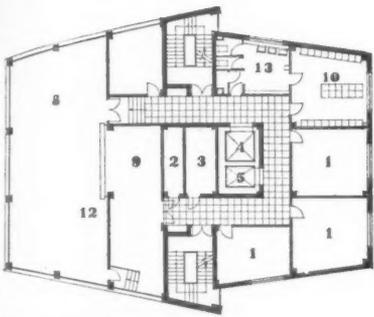
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Second floor

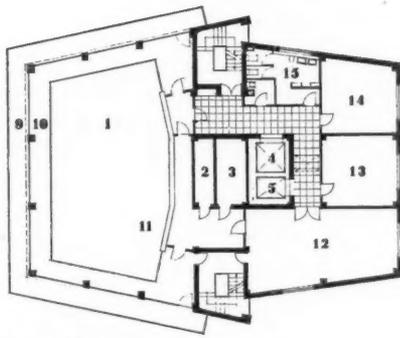
- KEY, Second floor
- 1. Admin
 - 2. Cable
 - 3. Ventil
 - 4. Goods



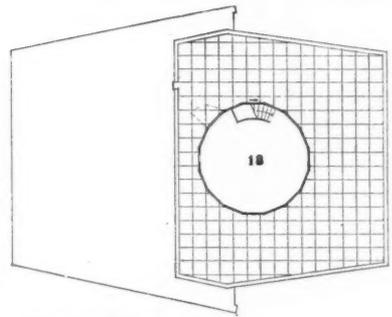
Above tower scanning which below other external treated



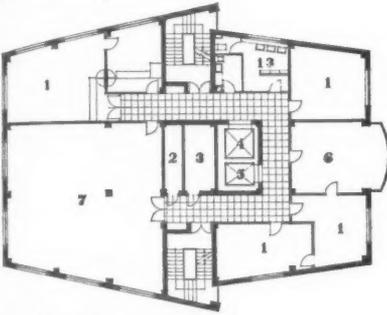
Fourth floor plan



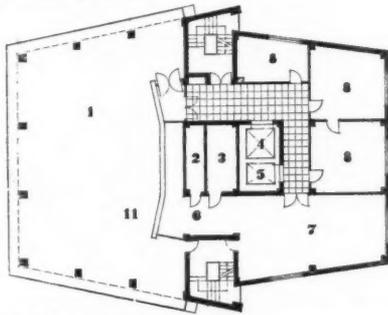
Seventh floor plan



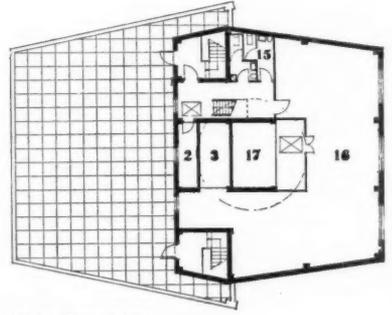
Ninth floor plan



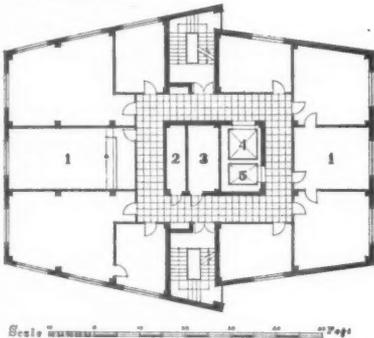
Third floor plan



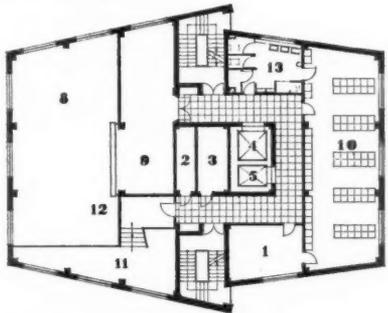
Sixth floor plan



Eighth floor plan



Second floor plan



Fifth floor plan

KEY, sixth to ninth floors

- 1. Approach control room
- 2. Cable duct
- 3. Ventilation duct
- 4. Goods lift
- 5. Passenger lift
- 6. Radar display
- 7. Wireless telegraphy
- 8. Offices
- 9. External balcony
- 10. Gallery
- 11. "Tote" display
- 12. "Tote" equipment
- 13. Library
- 14. Male rest room
- 15. Lavatories
- 16. Ventilation plant and tanks
- 17. Lift motor room
- 18. Aerodrome control room

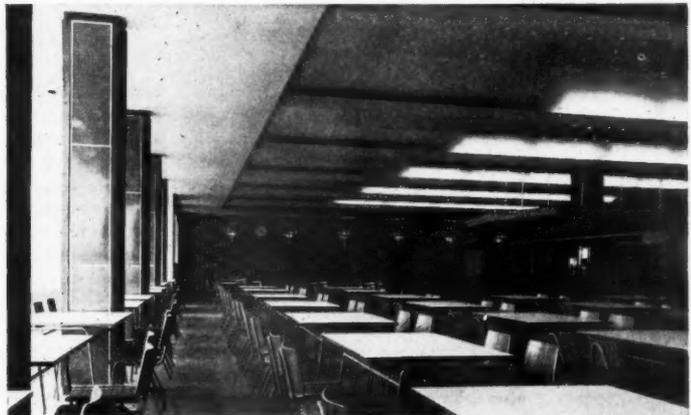
KEY, Second to fifth floors

- 1. Administrative offices
- 2. Cable duct
- 3. Ventilation duct
- 4. Goods lift
- 5. Passenger lift
- 6. Commandant's office
- 7. Conference room
- 8. Ground movement control room
- 9. Control equipment
- 10. Lockers
- 11. Gallery
- 12. Map board
- 13. Lavatories



Above, this glazed penthouse on the roof of the control tower is the aerodrome control room. Access to the radar scanner on the roof and to the aerials is by a steel ladder which is controlled hydraulically, so that it can be lowered below the 360° range of vision. The glazing, as with the other two control rooms, is also double 1/4-in. plate, with external panes of anti-sun glass. The windows will be illustrated as a Working Detail in a later issue of the JOURNAL.

Below, the ground floor staff cafeteria is on the west side of the south wing. The servery counter opposite the windows is trimmed with stainless steel, and a free standing tea bar, backed with a glazed white tiled screen, neatly defines the circulation to the servery counter. The white fibrous plaster ceiling has concealed lighting troughs which give a level of illumination of 4-5 ft. candles. On the walls, dark grey and lemon yellow colour is used, with a wallpaper designed by the architect. The floor is finished with wood blocks.



CLIENT'S BRIEF: his stated requirements

A building was required to control all aircraft, and all ground vehicles, within the airport approaching and departing from the airport, movements area. It was also to contain the

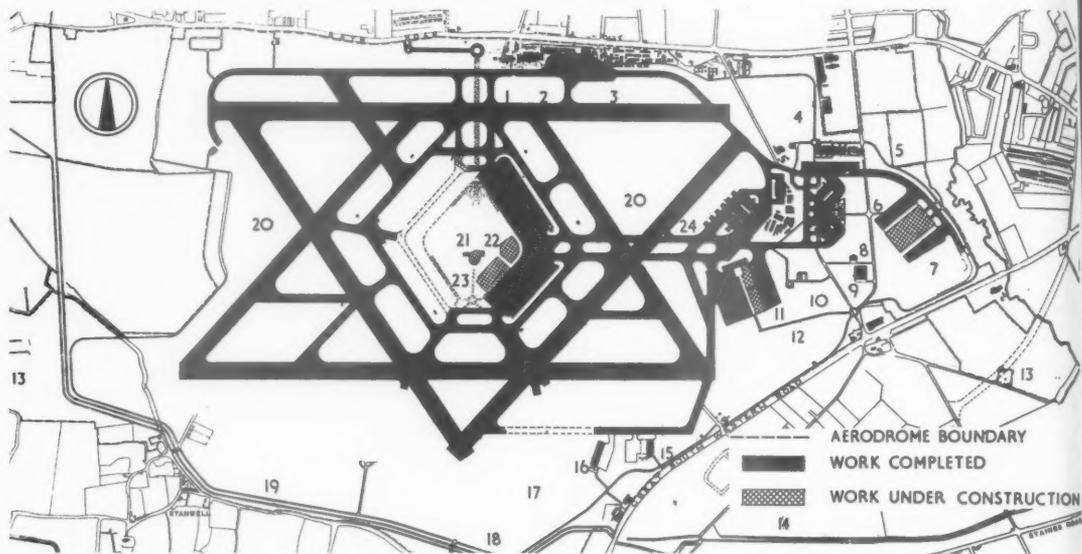
Central Administration office, the medical and police centres, and the staff catering facilities.

SITE: topography, surroundings, access, planting

The site, at the southern end of the diamond formed by the runways and aircraft standings, is quite flat. It is connected with the rest of the airport and with the Bath Road, by

the main access tunnel. This is 2,000 ft. long and 86 ft. wide, containing two separate 20-ft. carriageways, two separate cycle tracks and two pedestrian paths. The site of the

whole airfield has been cleared of existing buildings, planting and top soil. The islands formed by the access roads around the Control Building are to be turfed.



Site plan

KEY

- | | | | |
|-------------------------|------------------------------------|------------------------------------|---|
| 1. Flying control | 8. BOAC workshops | 14. Duke of Northumberland's River | 20. Runways |
| 2. Passenger building | 9. BOAC stores | 15. Pan-American hangar | 21. Control building now completed |
| 3. Freight sheds | 10. Petrol installation | 16. 3-bay alloy hangar | 22. Eastern Apex building |
| 4. BEAC freight shed | 11. BEAC hangar | 17. No. 2 Maintenance Area | 23. Passenger handling building now completed |
| 5. Link trainer offices | 12. No. 1 Maintenance Area | 18. Airport beacon | 24. Temporary hangars |
| 6. Temporary BI hangars | 13. Stormwater balancing reservoir | 19. No. 3 Maintenance Area | |
| 7. BOAC hangar No. 2 | | | |

PLAN: general appreciation

The plan was developed from the main requirement for an aerodrome Control Room, approximately 122 ft. from the ground, with a clear view of the whole runway system over the other buildings in the Control Terminal Area. Further control rooms were required at lower levels and accommodation to house all the telecommunica-

tions equipment, airfield lighting controls, etc. These requirements were resolved into three wings, with a tower at their fulcrum. The east wing contains the telecommunications, the west wing, medical and police, and the south wing, all the airport staff catering facilities, with a staff cafeteria, an industrial canteen and a restaurant.

The kitchen yard is screened from the road by a single-storey block of w.c.'s and refuse stores. A central services core rises the full height of the tower, containing the lifts, ventilation trunking and pneumatic tube and cable duct. Beneath all control rooms, there are false floors, in which run the cables and tubes from the vertical duct.

MAIN CONSTRUCTION

LOADBEARING ELEMENT: The steel frame, which is in a column grid of 12 ft., is everywhere encased in concrete, except within the Aerodrome Control room, where it is exposed. The beam spans are multiples of 12 ft., 18 ft. and 24 ft. Riveted connections are used throughout.

FOUNDATION TYPE: The column bases are taken down to mass concrete foundations in all parts, varying in depth according to the underground subway constructions, which carry all the services between the buildings. The facing brickwork, which covers the steel frame, is built on deep reinforced-concrete walls below ground level, which, in turn, bear at either end upon the column base foundations. The sub-soil over the whole site is gravel, at approximately 5 ft. depth.

OUTER WALL TYPE: This is 11-in. cavity non-loadbearing brickwork with artificial stone facings in the window panels of the east and west wings. The stone facings are cramped back to a thin concrete wall behind. The choice of

brickwork as facing material was determined for its low maintenance and its English characteristics.

EXPANSION JOINTS: All wings are disconnected from the tower by expansion joints.

ROOF TYPE: All roofs are flat and are covered with asphalt and marble chippings. **Material:** Pre-cast concrete slab units, with a lightweight foamed screed for insulation and surfaced with asphalt. **Finish:** The asphalt is finished with marble chippings as protection from solar heat. The roof over the staff cafeteria can be converted later into a roof garden.

FLOOR STRUCTURE TYPE: a. Reinforced-con-

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DUCTION

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WORKING DETAIL

PASSENGER BRIDGE: LONDON AIRPORT

Frederick Gibberd, architect



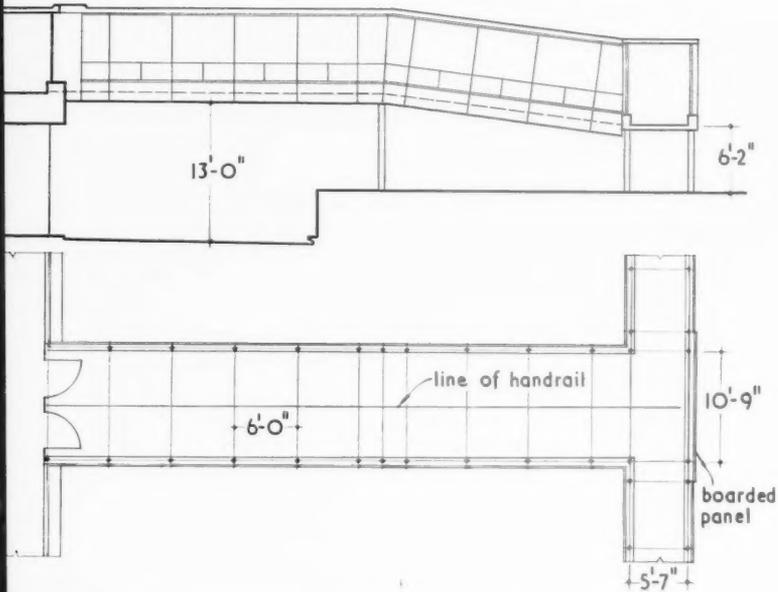
The glazing bars are screwed to lugs and fixing pieces, welded to the columns which support the roof. The pressed metal eaves fascia is secured to the metal angles framing the roof by means of secret clips.

WORKING DETAIL

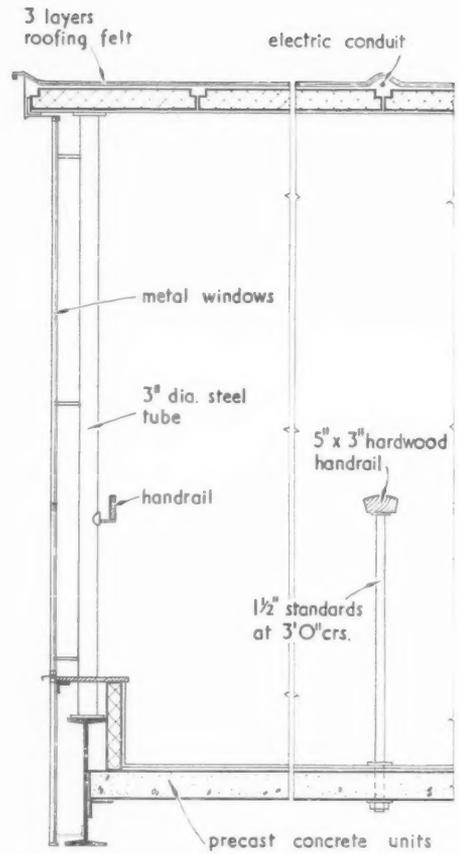
PASSENGER BRIDGE: LONDON AIRPORT

Frederick Gibberd, architect

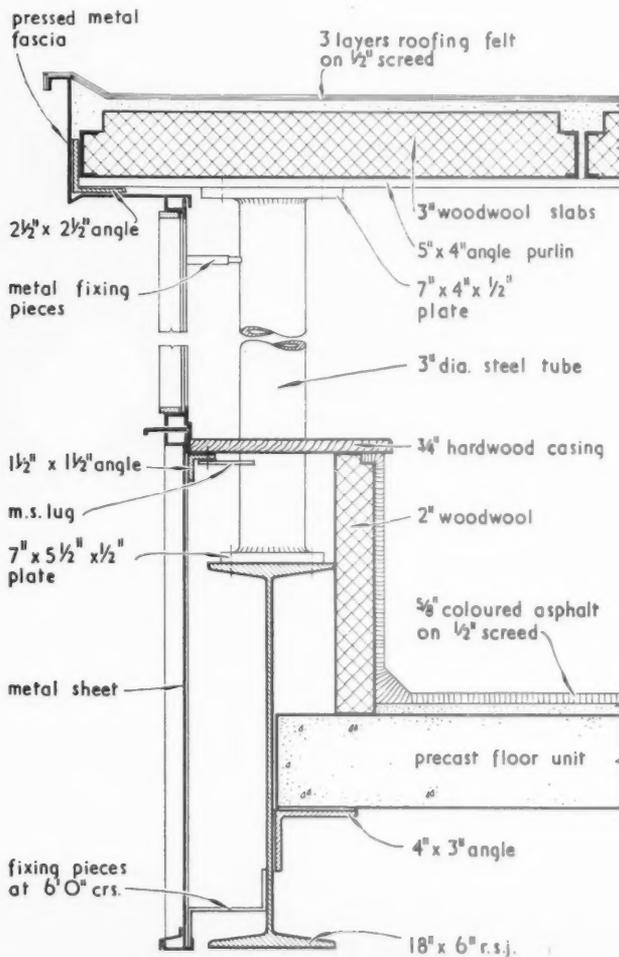
COVERED WAYS AND CANOPIES: 13



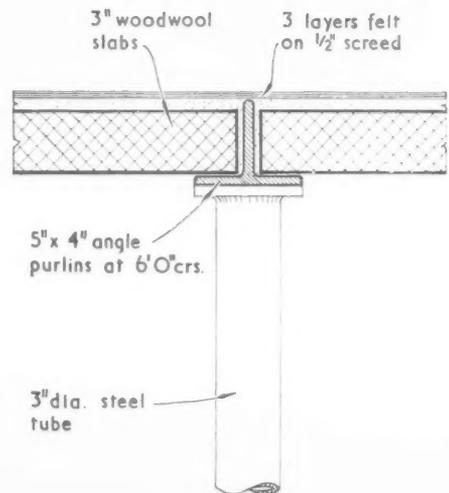
PLAN AND ELEVATION OF RAMP. scale $\frac{1}{16}''$ to $1'-0''$



SECTION OF RAMP. scale $\frac{1}{2}'' = 1'-0''$



SECTION AT EAVES AND SOFFIT. scale $\frac{1}{2}'' = 1'-0''$



SECTION OF PURLIN. scale $\frac{1}{2}'' = 1'-0''$

WORKING DETAIL

CEILING OVER PASSENGER CONCOURSE: LONDON AIRPORT

Frederick Gibberd, architect

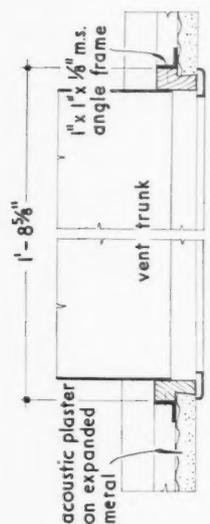


Fibrous plaster panels, each approximately 6 ft. square, are "wadded" to a grillage formed of light steel angles. The alternate slotted panels contain a bitumen-bonded glass silk slab in an envelope of fine muslin-like glass fibre tissue. The ceiling was designed so that the glass silk slab could be laid on the panels after they had been painted in order that the paint would not damage the acoustic properties of the slabs. The fluorescent lights in the troughs are serviced from above, through traps in the ceiling, to avoid obstruction of the concourse below.

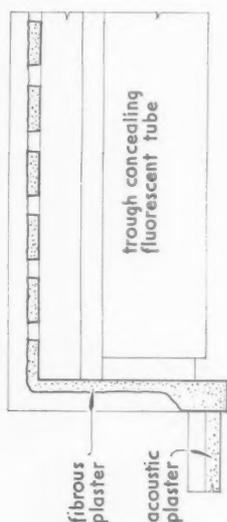
WORKING DETAIL

CEILING OVER PASSENGER CONCOURSE: LONDON AIRPORT

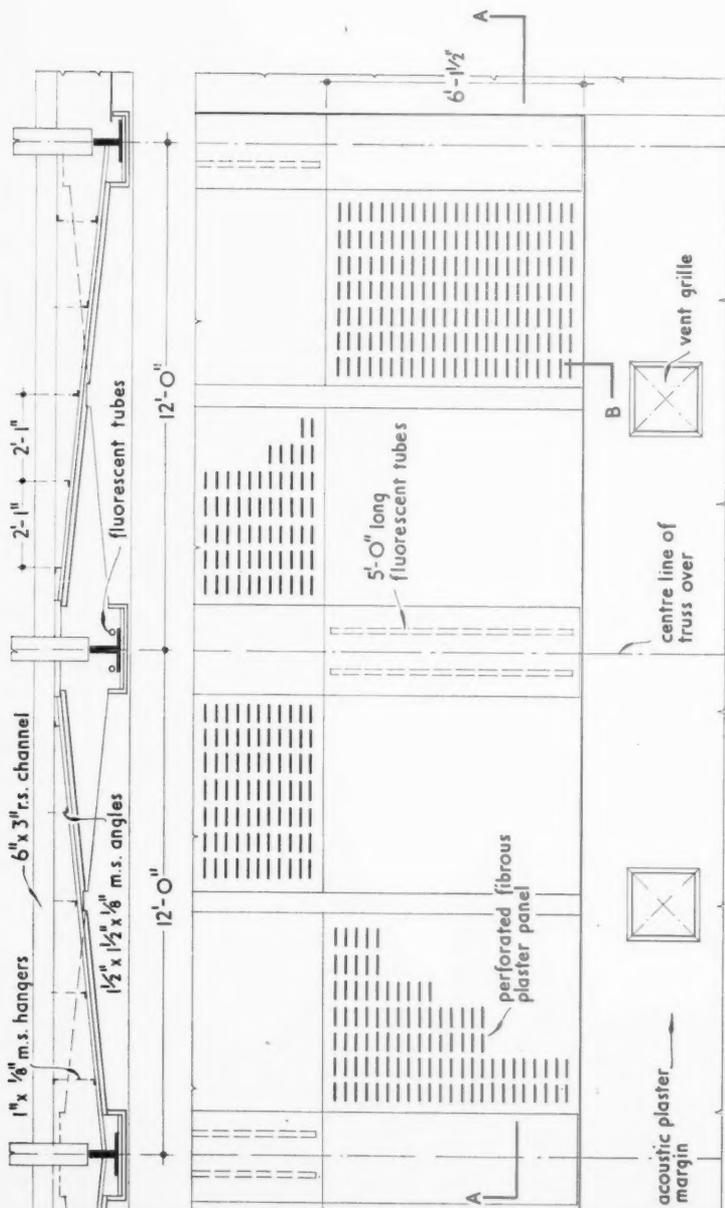
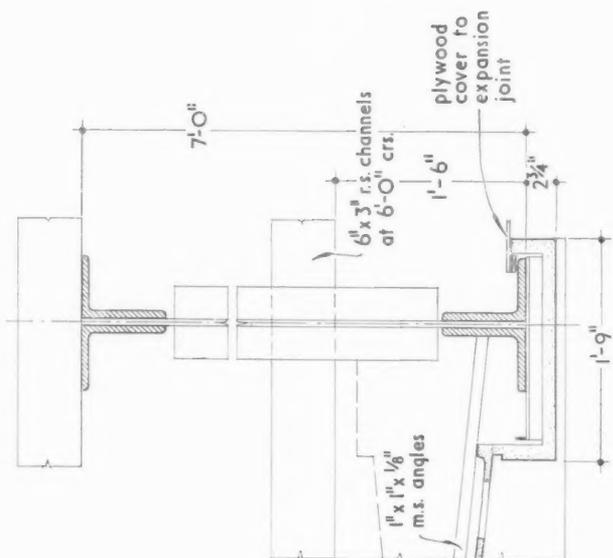
Frederick Gibberd, architect



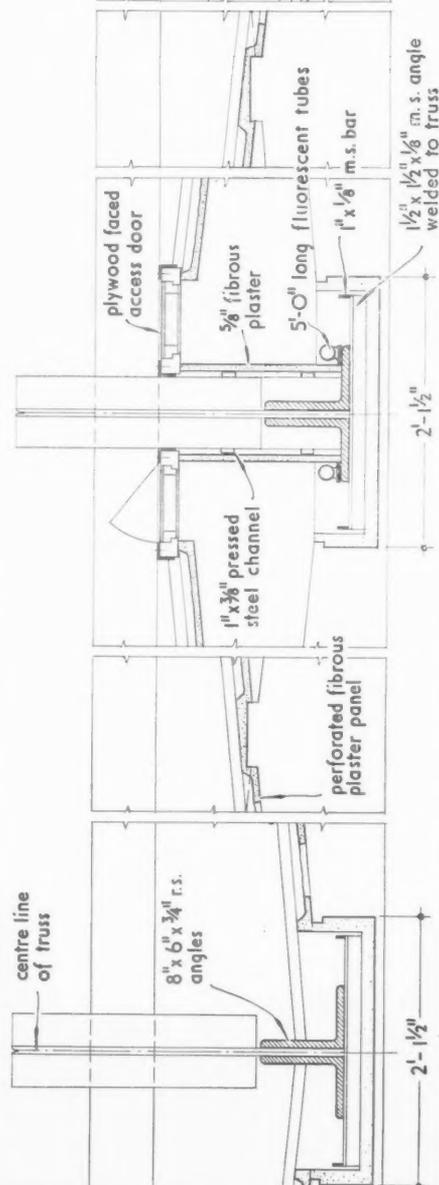
SECTION THRO' VENT GRILLE.



DETAIL AT B. scale $\frac{1}{2}'' = 1'-0''$



KEY SECTION AND PLAN LOOKING UP. scale $\frac{1}{4}'' = 1'-0''$



DETAIL SECTION THRO' SUSPENDED CEILING AT A-A. scale $\frac{3}{4}'' = 1'-0''$

2

crete slabs. *b.* Pre-cast concrete floor units with r.c. to special-shaped sections and trimming to holes. *Location:* *a.* Tower. *b.* Wings. *Material:* Trussed concrete floor units. *Finish:* 1:3 cement-sand screed for floor finish. *Reason:* The pre-cast concrete floor units were used for speed of erection.

INTERNAL WALL TYPE: 4½-in. brick, 4-in. hollow clay blocks and metal movable partitions.

ARTIFICIAL LIGHTING

SOURCE AND FITTING TYPE: *a.* Special recessed twin tube flush with ceiling with egg-crate diffusion. *b.* Similar fitting in panel ceiling incorporating heating elements and concealed lighting. *Location:* *a.* Offices generally. *b.* Offices in tower and staff cafeteria. *Illumination level:*

Location: All parts. *Finish:* brickwork and hollow clay blocks are plastered and the metal partitions are painted. *Reasons:* Hollow clay blocks were chosen for their inert properties, thus minimising plaster cracking, which would result from any movement. Removable partitions in the offices give flexibility in planning.

CEILING TYPES: False ceilings are fixed in all rooms except plant and equipment rooms.

Material: *a.* Removable fibreboard. *b.* Panel ceiling incorporating heating elements (removable). *c.* Removable acoustic metal. *d.* Fibrous plaster (staff cafeteria). *Finish:* *a.* Emulsion paint. *b.* Special paint. *c.* Special paint. *d.* Emulsion paint. *Reasons:* All ceilings in tower equipment rooms had to be removable to give access to pipes, ventilator ducts, wiring, pneumatic tubes, etc.

NATURAL LIGHTING

WALL GLAZING: *a.* Double ¼-in. plate in proprietary double glazed windows. *b.* Anti-sun glass to outside pane. *Location:* *a.* Offices. *b.* Control rooms. *Reasons and comments:* *a.* To

reduce heat loss and reduce sound level from aircraft. *b.* To reduce sound and solar heat as all control rooms are air conditioned.

are interconnected with all the control requirements and details are not available. A stand-by electrical plant is located in the block screening the kitchen yard, which would come into use in the event of electrical failure.

WIRING, SWITCHING AND POWER SUPPLY: These installations are very complicated as they

HEATING AND VENTILATION

HEAT EXCHANGER TYPE: The entire heating source is a central boiler house serving the three separate buildings. The high-pressure hot water is piped in underground subways. *Type:* Horizontal calorifier. *Location:* East wing. *Air change rate:* Generally 6 changes per hour, with up to 30 changes per hour in all three control rooms, which also includes refrigeration for the latter. (The windows are permanently closed.)

Oil fired. *Reason for choice:* An essential factor in choosing oil was its low smoke discharge and ease of transportation.

ROOF GLAZING TYPE: Cast glass dome lights. *Location:* kitchen, stores, etc. *Reasons and comments:* They provide a high standard of natural lighting, in deep, or internal rooms.

WATER HEATER TYPE: High pressure hot water vertical calorifier (with some electrical heaters in the tower). *Location:* East wing. *Fuel type:* High-pressure hot water. *Reason for choice:* Use was made of the same heat source as the heating.

Location: East wing. *Materials:* Steel. *Capacity:* 3,000 gallons.

BOILER TYPE AND CAPACITY: Mains boilers, economic type. *Fuel type:* Oil. *Stoking method:*

HOT WATER STORAGE TYPE: Vertical calor-

PIPES AND JOINTING TYPES: Copper fittings. *Location:* All parts. *Electric installation method:* Booster heater in upper part of tower.

COLD WATER STORAGE: Sectional steel tanks. *Location:* Tower and south wing. *Capacity:* Tower 1,200 gallons; south wing, 4,200 gallons. *Comments:* There is a further underground storage in central area.

SPECIAL ACOUSTICAL TREATMENT

SOUND ABSORPTION MATERIAL: *a.* Panel ceilings incorporating heating elements. *b.* Acoustic tiles. *c.* Acoustic metal ceilings. *d.* Cork floors. *Location:* *a.* Tower and control rooms. *b.* Ground movement control room. *c.* Tele-

printer and telephone exchanges. *d.* Control rooms. *Comments:* The need for carefully designed acoustical treatment was important in control and teleprinter rooms.

SOUND INSULATION: Double glazing. *Location:* All offices and control rooms. *Comments:* The high standard achieved was necessary due to aircraft noise.

SOIL WASTE

TYPE OF SYSTEM: Separate. A one-pipe system was used throughout the whole building. *Materials:* Cast iron. *Method and comments:* In west wing, cast-iron drains run in underground subway.

RAINWATER DISPOSAL TYPE: Internal pipes. *Location:* All parts of building. *Materials:* cast iron.

LIFTS TYPE: One high speed passenger, and one goods lift, in core of Tower. *Capacity speed:*

100 ft. per minute. *Relation to traffic circulation:* Sited in core of Tower and related to central circulation hall on each floor. *Motor room position:* In the head of the Tower but immediately below the aerodrome control room from which it is specially sound insulated.

FIRE

STRUCTURAL PRECAUTIONS: All structural steelwork (except that in the aerodrome control rooms) is encased in concrete. Special self-closing doors on fusible links cut off the tower

from the wings. *Grade of protection:* Airport standard. *Apparatus, sprinklers, etc.:* Hose reels and extinguishers placed to serve all parts.

PLANNING PRECAUTIONS, ACCESS FOR

FIGHTING: Normal standard of access as considered satisfactory by Airport Fire Chief. *Means of Escape:* Two staircases, one on either side of the tower, with fire resisting doors.

COLOUR

PAINT TYPES: *a.* Emulsion paint. *b.* Oil paint. *c.* Heat resisting paint. *Where used:* *a.* All plastered walls and fair faced brickwork. *b.* To all joinery and metalwork. *c.* Radiators.

COLOUR TREATMENTS: The Aerodrome and Approach Control rooms have special colour schemes, mainly in shades of blue. Yellow proved unusable, because of colour reflections in the

radar screens. Elsewhere, colour has been used with restraint, low key colours highlighted with small areas of lemon yellow in the cafeteria, etc.

TIME SCHEDULE

Drawings: Commenced at the end of 1950. *Contract signed:* Foundations and steelwork, Octo-

ber, 1951; Main Building Contract, December, 1952. *Work commenced:* Immediately on sign-

ing contracts. *Work completed:* August, 1955. *Type of Contract:* Air Ministry Standard.

TERMINAL BUILDINGS

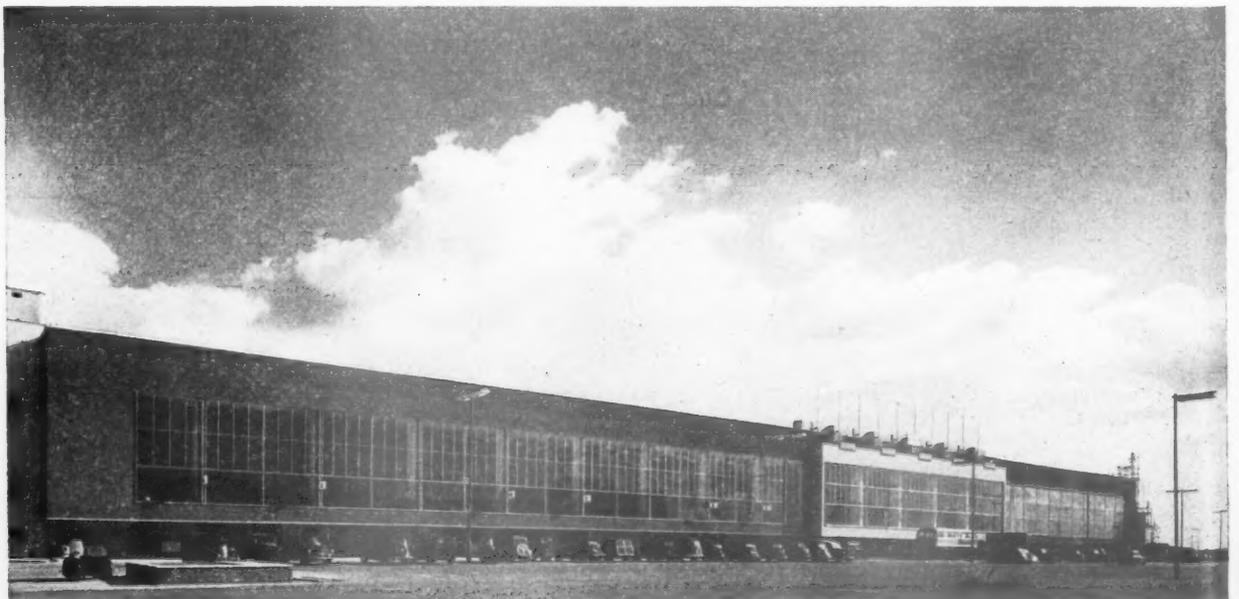
at LONDON AIRPORT, MIDDLESEX

2. PASSENGER HANDLING BUILDING

designed by FREDERICK GIBBERD, partner-in-charge, R. J. DOUBLE
assistant architect, G. W. D'UNTON, responsibility for construction, Director-General of Works, Air Ministry
consulting engineers, structural, SIR WILLIAM HALCROW and PARTNERS
heating and ventilating, G. H. BUCKLE and PARTNERS, electrical, EWBANK and PARTNERS
quantity surveyors, E. C. HARRIS and PARTNERS

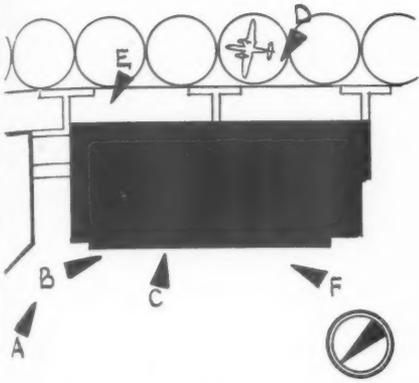
This building was designed to handle three types of incoming and outgoing passengers, and their luggage: (1) Passengers travelling on overseas routes subject to clearance through customs, health and immigration formalities; (2) passengers travelling from one country to another, via London Airport, who do not officially enter this country and therefore do not pass through customs, etc.; (3) passengers travelling in internal services within the UK. The building also provides facilities for spectators, storage of bonded spare parts, baggage stores and minor maintenance work on aircraft.

From viewpoint A: The north-west, or "land-side," face of the passenger-handling building.



Key plan

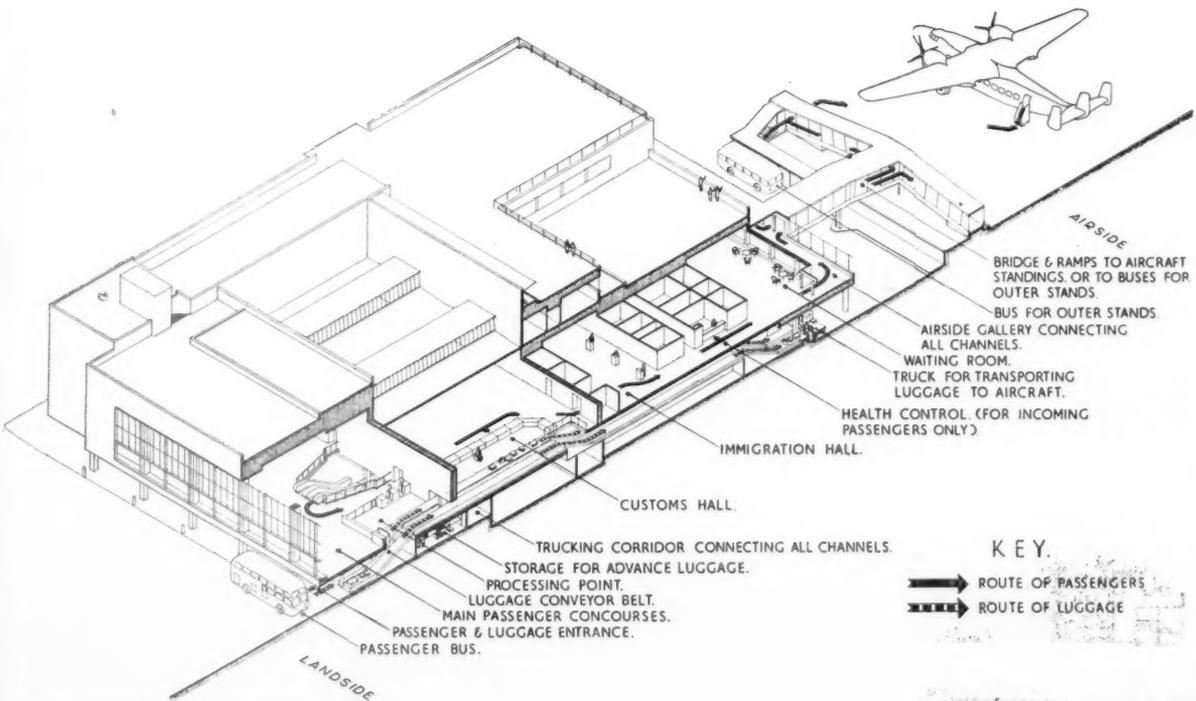
Isome



Key plan

The following photographs are arranged in the sequence which the passenger follows, from his point of arrival by bus to the awaiting aircraft.

Right: viewpoint B on key plan. The numbered indicator boards, which project from the glazing to mark the entrances to passenger channels, are of sheet aluminium over a metal angle-frame. The numbers are fired on to obscured glass.



Isometric sketch of typical reversible channel



Typical entrance doors (viewpoint C) to one of the passenger channels. The doors are of hardwood with metal trims. On the left are the vertical-sliding steel shutters which give access to the conveyor-belt for the luggage of passengers using this channel. The walls are dressed with artificial stone slabs.

KEY

Ground floor

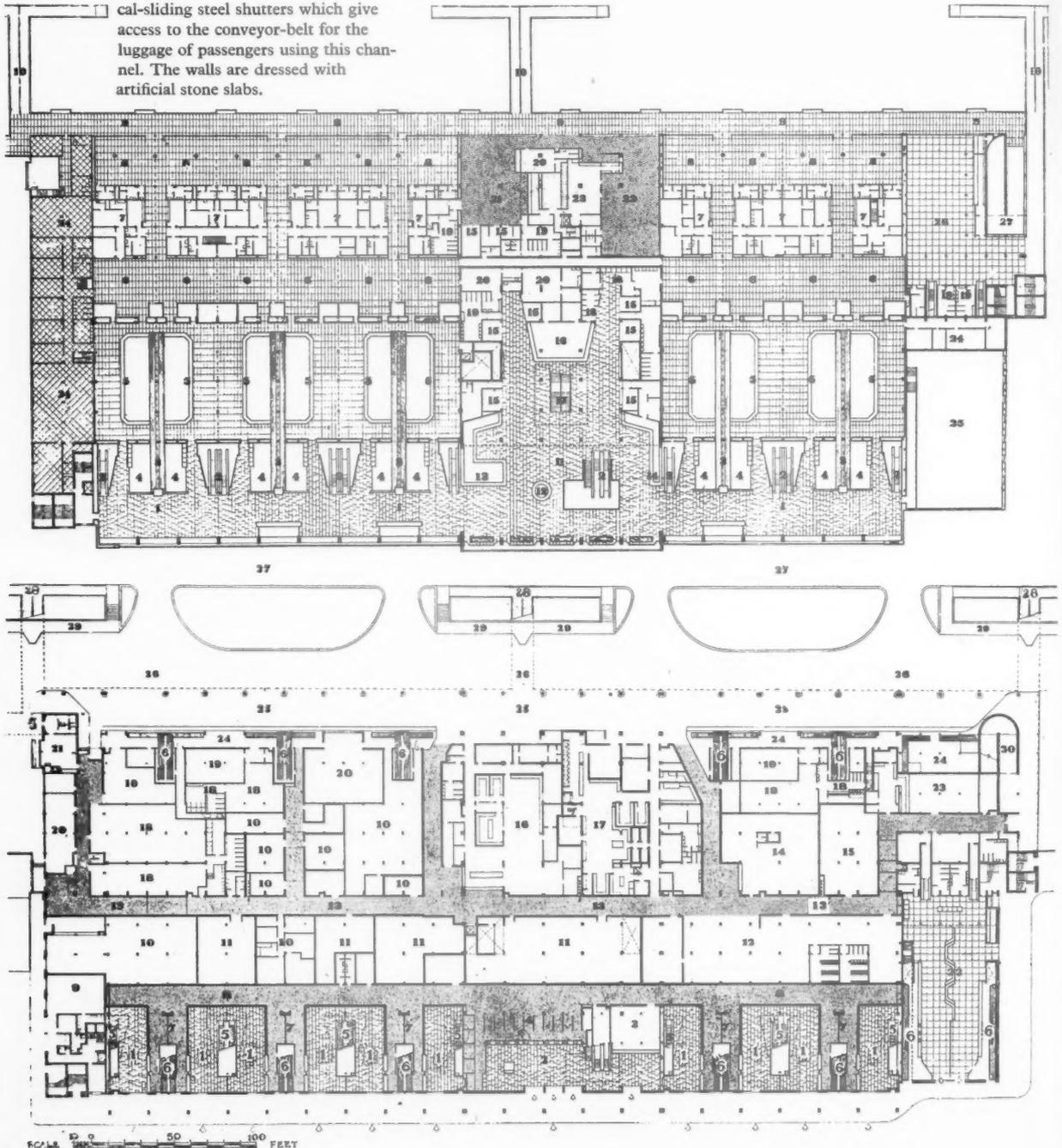
1. Passenger entrance halls to channels
2. Central passenger entrance hall (passengers in advance and by own transport)
3. Left luggage
4. Advance luggage
5. Escalators to main concourse
6. Luggage conveyor belts
7. Bins for advance luggage
8. Luggage trucking corridor
9. Bus drivers' common room
10. Stores
11. Heating, ventilation and electrical plant rooms
12. Aircraft equipment stores
13. Service corridor
14. Bonded stores
15. Control centre
16. Kitchen for preparation of meals in aircraft (BEA)
17. Kitchen for preparation of meals for restaurant
18. Outside staff lockers and drying rooms, etc.
19. Outside staff common rooms
20. Offices
21. VIP's reception room
22. Concourse for services not subject to customs control
23. Staff canteen
24. Luggage loading bank
25. Service road
26. Apron circulation road

27. Inner aircraft stands
28. Bridges and ramps from first floor to aircraft stands
29. Layby for buses to outer aircraft stands
30. Ramp from airside gallery for buses to stands

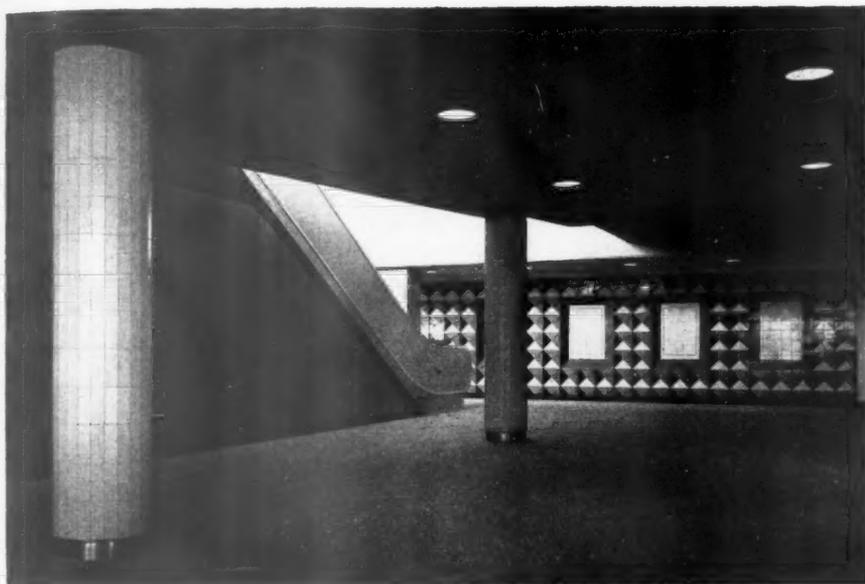
13. Airline companies counters
14. Buffet
15. Shops
16. P.O. cables, car hire, etc.
17. Staircase to balcony lounge
18. Telephones
19. Lavatories
20. Nursery
21. Transit passengers' lounge
22. Transit passengers' restaurant
23. Servery
24. Offices
25. Upper part of internal services waiting room
26. Internal services waiting room
27. Ramp down to buses for the outer aircraft stands

First floor

1. Main concourse
2. Escalators
3. Conveyor belts
4. Processing points
5. Customs hall
6. Immigration hall
7. Health control
8. Waiting rooms
9. Airside gallery
10. Bridge and ramps to aircraft stands
11. Centre concourse
12. Information bureau

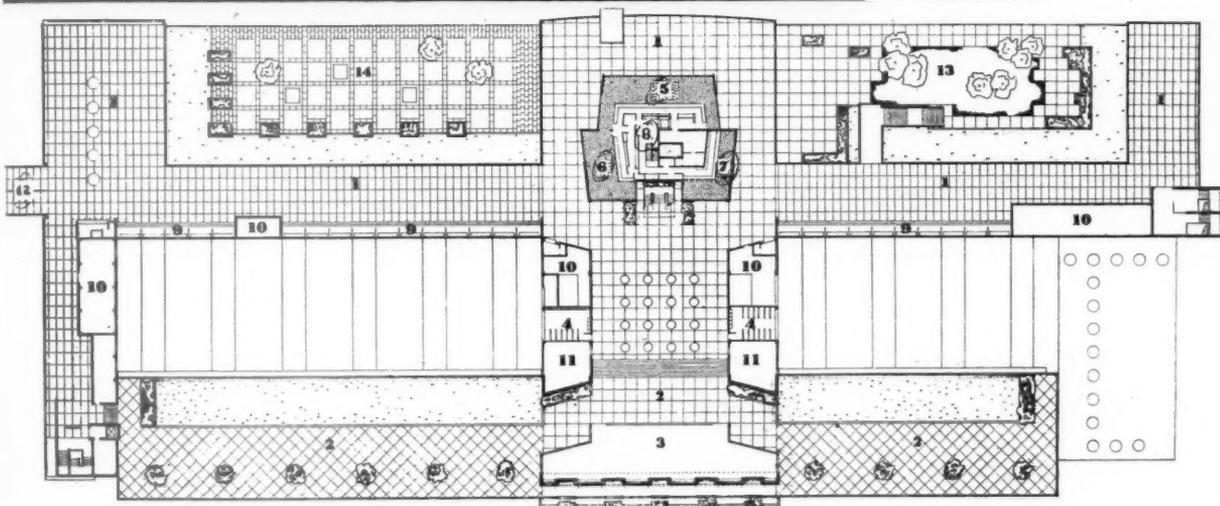


Ground floor and first floor plans



The escalator seen on the left of this picture of a passenger entrance hall gives access to the passenger concourse which is at first floor level. The patterned, glazed tiles on the facing wall were designed by Peggy Angus. The floor finish is 12-in. x 12-in. terrazzo tiles. The ceiling has acoustic tiles.

- KEY—Third Floor
1. Spectators' roof terraces
 2. Spectators' roof gardens
 3. Children's playground
 4. Lavatories
 5. Cafeteria
 6. Tea bar
 7. Licensed bar
 8. Serveries
 9. Raised covered seats for spectators
 10. Ventilation plant rooms
 11. Tank rooms
 12. Bridge to Eastern Apex building
 13. Beer garden
 14. Roof garden ("waving base")



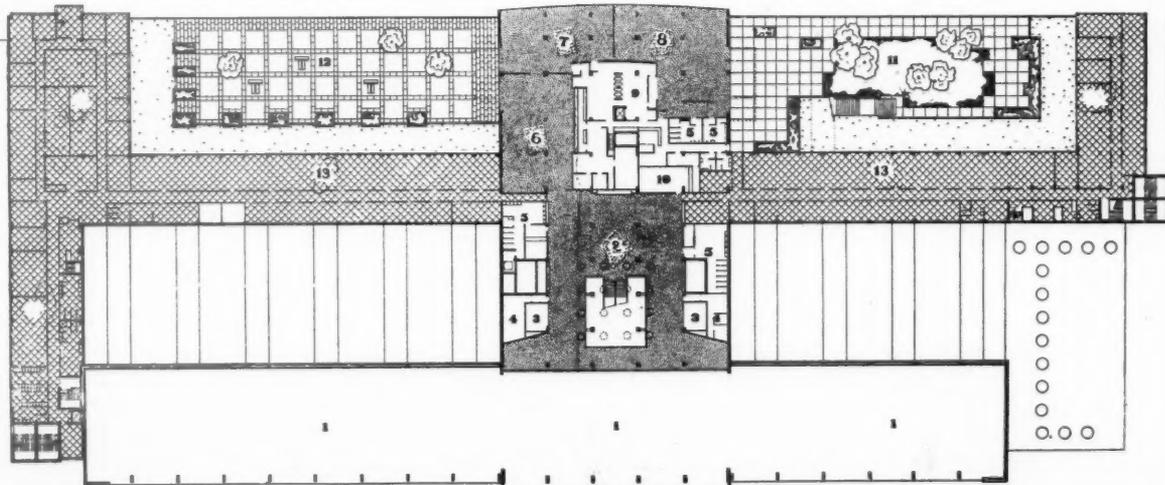
Third floor plan. Roof garden

- KEY
Second floor
1. Upper part of concourse

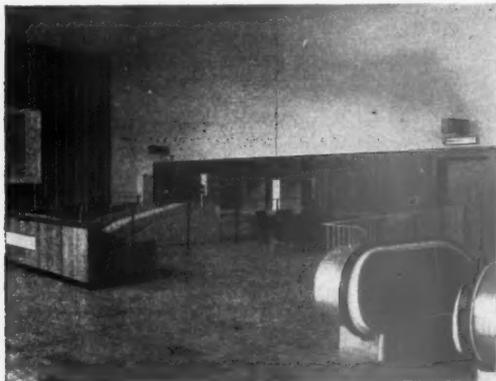
2. Balcony lounge
3. Shops
4. Hairdresser
5. Lavatories
6. Lounge and buffet

7. Restaurant
8. Spectators' restaurant ("waving base")
9. Servery
10. Staff snack bar

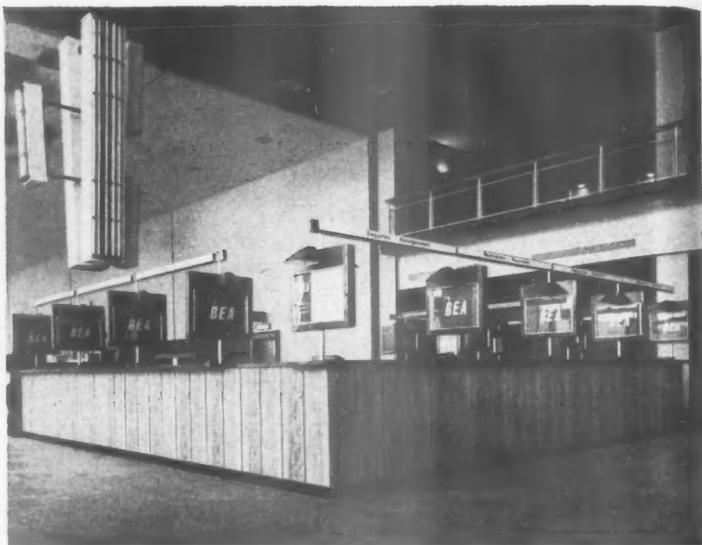
11. Beer garden
12. Roof garden ("waving base")
13. Offices



Second floor plan



The north-east end of the main concourse. In the foreground is the escalator from a passenger entrance hall. Luggage conveyor belts can be seen in the background. The floor is paved with Derby Dean limestone. The balustrading has brass rails and balusters, with black painted standards. The rear wall is painted grey, and the doors through to the customs hall are of polished hardwood. The fibrous plaster ceiling is painted white.



Above: A view of the enquiries counter of the airline companies. At the top left of the picture is a group of five loud-speakers.

Below: The main concourse from the second-floor balcony-lounge. The passenger hall, at ground floor level,

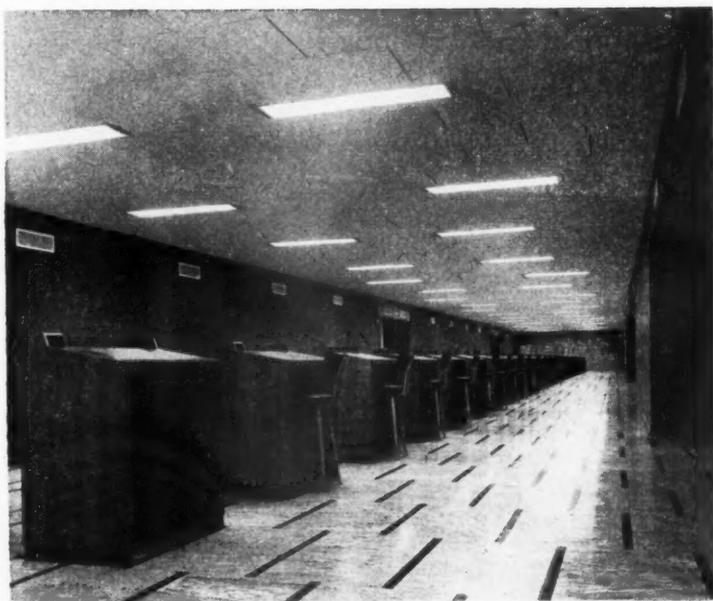
can be seen through the escalator well. Just beyond the well is an information bureau. One of the counters of the airline companies (illustrated above) can be seen projecting into the main concourse. Beyond it are the six escalators and luggage-conveyor-belts.





Above: The customs hall. The luggage, which arrives from below, is carried through the hall on a conveyor belt. The exposed, welded-steel frames and the edge-reinforced wood-wool ceiling are painted grey. The floor is finished with brown tiles, made from compressed wood chippings. The rear wall is painted grey-green.

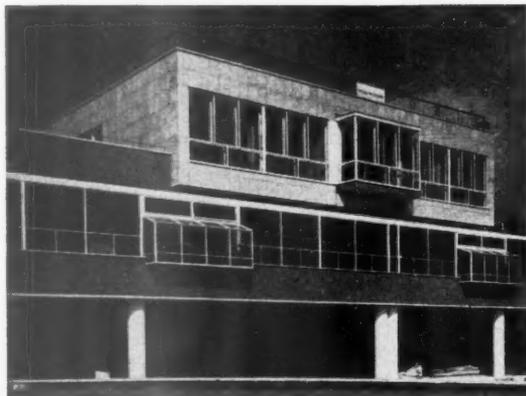
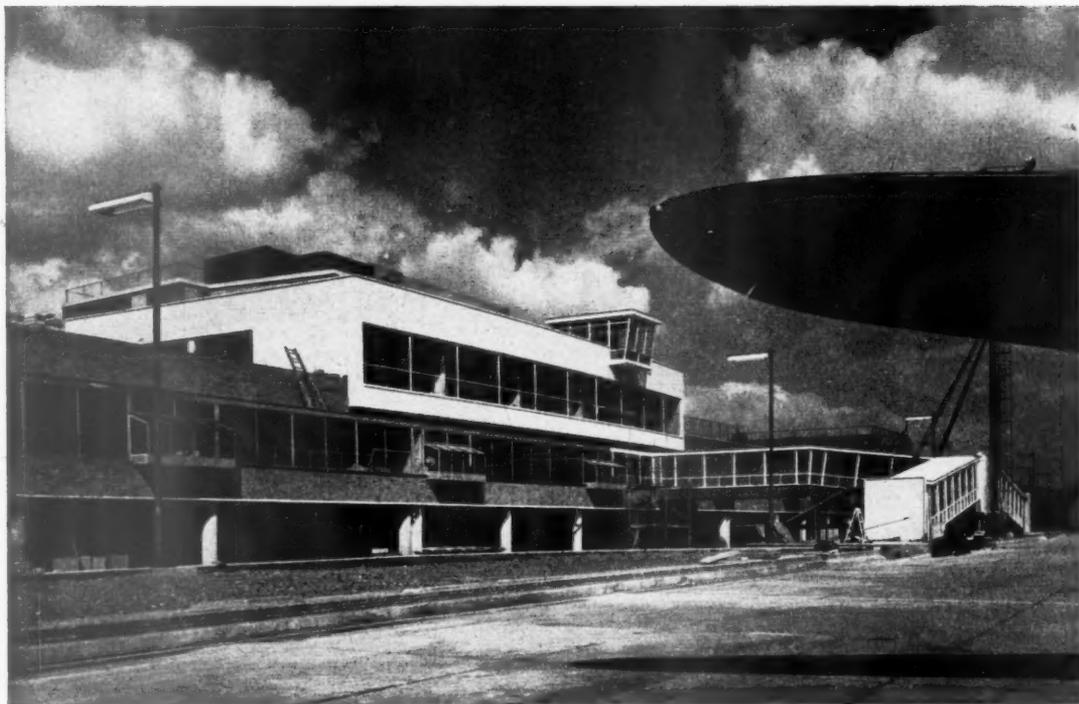
From the customs hall, the passengers move on to the immigration hall (right). The ceiling here is finished with fibre-board tiles. The floor finish is rubber.





Opposite page, top: The north-eastern waiting room. Beyond the windows is the "airside" gallery. The metal panels of the suspended ceiling incorporate heating elements. The floor is finished with cork tiles. The wallpaper on the end wall was designed by the architect. The wall on the right is painted brown.

Opposite page, bottom: From the "air-side" gallery which runs the full length of the south-east face building, three bridges lead down to the aircraft standings. There are twelve cantilevered windows for potted plants. The ceiling is of exposed, edge-reinforced, wood-wool slabs. The floor is finished with clay tiles.



The top photo, from viewpoint D, shows the projecting conservatories which are seen opposite from inside, and the central bridge leading down to the aircraft standings. The mast right of the bridge carries floodlights. The artificial, stone-faced block above the bridge contains restaurants; above this block are the spectators' roof terraces. The bridges and the ramps have steel framing, woodwool ceiling panels and felt roofs. The steelwork

and the floodlight towers are painted light blue. The glazing frames are painted white, and the boarded panels screening the exits are painted lemon-yellow internally, and white externally.

From viewpoint E: The block faced with artificial stone (above left), above the north-east end of the "air-side" gallery, is the end of the office wing. It encloses and protects the roof garden and "waving-base" which are

to the left of the picture.

The photo (above right) of the roof garden and "waving-base" was taken from the roof of the office block seen in the preceding photograph. Stone paving alternates with brick paving and turf. At the end of the terrace is a restaurant, with spectators' terraces on its roof. The small, enclosed viewing-pavilion is cantilevered over the restaurant roof.



Top: The buffet lounge and bar, in the centre block, on the second floor. The suspended ceiling is finished with removable, acoustic-metal panels. The floor is carpeted.

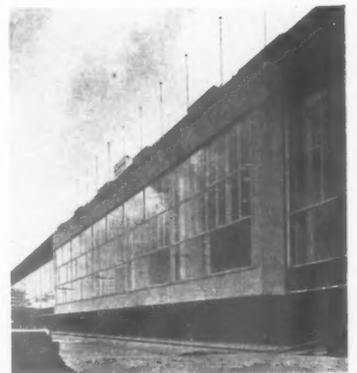
Above: Public restaurant on the second floor level. Recessed ceiling lighting-fittings and bracket-fittings on

the columns provide an artificial level of illumination of five foot candles.

The projecting part of the window-wall (right) defines the centre concourse. It is faced with artificial stone slabs. The parapet at this point is broken by a series of five flower boxes. The flat roof behind accommodates the children's playground.



Above: In the central passenger entrance hall on the ground floor is this general enquiry kiosk. It is constructed of metal angles, faced with marble slabs (below counter level) and glazed above.



CLIENT'S BRIEF: his stated requirements

A building to handle passengers travelling by air complete with accommodation for all the customs and immigration formalities. It had to provide a high degree of amenity for the pas-

sengers, their friends, and also public spectators. The building had also to accommodate Airline company offices, bonded stores, and to have provision for preparing aircraft meals. It is

anticipated that in the year 1956-57, four million passengers will be handled.

SITE: topography, surroundings, access, planting

The building is sited on the south east face of the central diamond formed by the runway

pattern. Other details are as for the Control Building.

PLAN: general appreciation

It was considered that despite the complex requirements a very simple plan was needed for circulating the passenger and his luggage through the building as quickly as possible. Ten circulation channels were therefore planned with

a centre channel for amenities. Six channels are sited north-east of the centre, and four to the south-west, so that they can be used in pairs for handling loads from, or to, the largest aircraft. A special channel was included which

by-passed the customs formalities for passengers travelling within the United Kingdom. This was sited at the south-west end of the building.

MAIN CONSTRUCTION

LOAD BEARING ELEMENT: *a.* A steel frame with riveted connections encased in concrete. *b.* An exposed steel frame. *Location:* *a.* All main parts. *b.* Customs hall and roof of main hall. *Beam spans:* multiples of 12 ft. 0 in., 18 ft. 0 in. and 24 ft. 0 in. *Column grid:* Main grid of 12 ft. 0 in. with expansion joints dividing the whole building into units. *Reasons:* A steel frame was chosen for speed of construction and flexibility to cover changing requirements. This latter point proved vital as many alterations were made to the requirements during the course of construction. The adoption of a steel frame enabled a contract for foundations and steelwork to be let sixteen months before the main building contract. Work on the foundations and the steelwork was thus completed during the preparation of working drawings and Bills of Quantities.

FOUNDATION TYPE: Mass concrete foundation blocks to stanchions, and reinforced concrete walls below ground level spanning between these blocks to carry the load from the facing brickwork. *Sub-soil:* The sub-soil was found to be gravel at approximately 5 ft. 0 in. *Depth:* Varied, according to subway construction.

OUTER WALL TYPE: *a.* 11-in. cavity brickwork, non loadbearing. *b.* 11-in. cavity brickwork with

artificial stone facing. *c.* Complete window walls. *Location:* *a.* Offices. *b.* Centre channel. *c.* Main concourse, airside gallery and bridges. *Material:* *a.* facing brickwork. *b.* Artificial stone facing. *c.* Steel and aluminium glazing. *Reasons:* Brick was used because of its low maintenance and English characteristics.

ROOF TYPE: *a.* Flat construction, pre-cast reinforced concrete slab units. *b.* Woodwool slabs with edge reinforcement. *Location:* *a.* All main parts. *b.* Customs Hall, airside gallery and bridges. *Materials:* *a.* Precast reinforced concrete slab units. *b.* Light-weight screeds. *Finish:* *a.* Roof paving of asbestos tiles, concrete tiles, brick and York stone paving. *b.* Three-ply bituminous felt finished with marble chippings. *Reasons:* The precast slab units were used for their speed of construction. The unusually heavy roof loading due to spectators and roof gardens, etc., necessitated careful design. Flat roofs were used over the main parts as they provided excellent roof gardens and spectators viewing terraces. The customs hall had a monitor roof to meet the high natural lighting requirement.

FLOOR STRUCTURE TYPE: Precast r.c. slabs, with r.c. slabs for special sections were used throughout. *Finish:* Sand and cement screed

for various floor finishes. *a.* Derby Dean lime stone in concourse. *b.* Terrazzo in ground floor passenger halls. *c.* Rubber floors in immigration halls. *d.* Cork tiles in airside waiting rooms. *e.* Carpets in restaurants and buffets, etc.

INTERNAL WALL TYPE: *a.* 4½-in. brick. *b.* 4-in. hollow clay block. *c.* metal removable partitions. *Finish:* *a.* Plaster with fair-faced brickwork in stores. *b.* Plaster. *c.* Stone enameled. *Reasons:* Brickwork and clay blocks were chosen as they minimized movement and subsequent plaster cracking. The removable partitions give flexibility in office planning.

CEILING TYPES: False ceilings to all parts except the ground floor stores, plant rooms, customs halls, airside gallery and kitchens. *Materials:* *a.* Fibrous plaster in the main concourse. *b.* Metal removable panels incorporating a heating element. *c.* Removable acoustic tiles. *d.* Removable fibre board. *Finish:* *a.* Emulsion paint. *b.* Special paint. *c.* Emulsion paint. *d.* Emulsion paint. *Reasons:* As access is required to all false ceilings for pipe ducts, wiring, ventilating ducts, pneumatic tubes, etc., removable panels were used. There is a void between the trusses over the fibrous plaster ceilings to the main concourse, with access from an external gallery.

ARTIFICIAL LIGHTING

SOURCE AND FITTING TYPE: *a.* Concealed fluorescent, recessed fitting, and modern chandeliers. *b.* Special continuous industrial fluorescent. *c.* Bracket fitting and recessed ceiling fitting. *d.* Recessed fluorescent with eggcrate diffusers. *Location:* *a.* Main concourse. *b.* Customs hall. *c.* Restaurants and lounge buffet.

d. Immigration hall and offices. *Illumination level:* *a.* 5-7 foot candles. *b.* 15 foot candles. *c.* 5 foot candles. *d.* 12 foot candles. *Comments:* A system of catwalks within the void formed by roof trusses over the main concourse gives access to all concealed and recessed lighting fittings. The special chandeliers are lowered

by winches for maintenance.

WIRING, SWITCHING AND POWER TYPES: The whole system is linked with the very complex electrical requirements and details are not available.

NATURAL LIGHTING

WALL GLAZING: *a.* ¼-in. and ½-in. plate. *b.* Double ¼-in. plate, in metal frames. *c.* Double ½-in. plate in wooden frames. *Location:* *a.* Main concourse, airside gallery and bridges. *b.* Offices. *c.* Offices. *Reasons and comments:* *a.* The complete window wall was used to heighten the dramatic effect, and to be in scale with the

main concourse which it had to light. *b.* Double glazing reduced the aircraft noise and gave extra thermal insulation.

ROOF GLAZING TYPE: *a.* Cast glass dome lights. *b.* Monitor roof with patent double glazing. *Location:* *a.* Centre channel and offices.

b. Customs hall. *Reasons and comments:* *a.* Natural light required in internal rooms. *b.* To reduce sound and to increase the thermal insulation, whilst giving a very high level of illumination.

HEATING AND VENTILATION

HEAT EXCHANGER TYPE: Low pressure hot water converted from high pressure hot water in horizontal calorifiers. *Location:* Ground floor control heating chambers. *Temperatures:* a. 65° in offices and public rooms. b. 60° in airside gallery. *Air change rate:* Generally six changes per hour, in all rooms except offices. The ventilation plant for the concourse is housed in the void formed by the roof trusses over.

HEATING METHOD IN PUBLIC ROOMS AND OFFICES: a. Main concourse. b. Customs hall. c. Restaurants and buffet lounges. d. Offices. *Method:* a. Floor heating coils under Derby

Dean paving. b. Floor heating coils under wood composition tiles. c. Metal ceiling panel incorporating heating elements and floor heating under carpets. d. Radiators.

BOILER TYPE AND CAPACITY: High pressure hot water, economic type in central boiler house outside site area (serves the three terminal buildings). *Fuel type and stoking method:* Oil, automatic. *Reasons for choice:* The principal reasons were the low smoke discharge from oil burning, ease of transport and economy.

WATER HEATER TYPE: High pressure hot water

calorifiers. Thus using the same source as is used for heating. *Location:* Ground floor central heating chamber.

HOT WATER STORAGE TYPE: Vertical calorifiers. *Location:* Ground floor central heating chamber. *Materials:* Galvanised steel.

PIPES AND JOINTING TYPES: Copper, with Yorkshire fittings.

COLD WATER STORAGE: Sectional steel tanks. *Location:* Tank rooms on roof. *Materials:* Steel. *Comments:* The capacity is low, but there is a special underground storage in centre diamond.

SPECIAL ACOUSTICAL TREATMENT

SOUND ABSORPTION MATERIAL: a. Slatted fibrous plaster with absorbent blanket and

acoustic plaster. b. Removable metal panels (with heating elements incorporated). c. Fibre

board ceiling. *Location:* a. Main concourse. b. Restaurant and centre channel. c. Offices.

SOIL WASTE

TYPE OF SYSTEM: One pipe system over the whole building, using copper tubes and Yorkshire fittings.

DRAIN TYPES: Separate system in all parts. *Materials:* Cast iron, and stoneware encased in concrete under building.

RAINWATER DISPOSAL TYPE: All internal cast iron pipes, separate system. Special mud traps had to be incorporated on the roof terraces to take the drainage from the gardens.

LIFTS TYPE: a. Goods lifts. b. Food lifts.

Capacity speed: a. 1,800 lb., speed 80 ft. per minute. b. 112 lb., speed 100 ft. per minute.

RELATION TO TRAFFIC CIRCULATION: a. In kitchen core serving all floors, one in Customs Hall to ground floor, one in office block, serving all floors. b. All located in kitchen area. *Motor room positions:* There are 14 escalators between the ground floor and the main concourse, which have a carrying capacity of 6,000 persons per hour.

CONVEYOR BELTS: Twelve conveyor belts for passengers' luggage operate through the building. Each belt is 3-ft. 6-in. wide, with a 3-ft. clear height maintained along its travel. Speed is 66 ft. per minute. The belts are controlled by switches, and all switch positions are interconnected by telephone. Electric eyes are also incorporated. The inclined sections are surfaced with rubber.



The starting point for one of the luggage conveyor belts on the north west, or landside, of the building. The control box and telephone is above and to the right of the belt.

FIRE

STRUCTURAL PRECAUTIONS: All steelwork, except in the Customs Hall and to the roof over the main concourse, is encased in concrete. *Grade of protection:* Airport special standard.

Apparatus, sprinklers, etc.: Special self-closing fire doors operate on fusible links. Hoses and extinguishers are placed at points to serve all parts of the building.

MEANS OF ESCAPE: There are four self-contained escape staircases for spectators, from the roof areas, two at each end of the building.

COLOUR

PAINT TYPES: a. Emulsion paint. b. Oil paint. c. Wax polish. *Where used:* a. On all plaster surfaces and fair-faced brickwork. b. On all softwood joinery and metal. c. On all hardwood joinery.

DESCRIBE COLOUR TREATMENTS: All colour schemes were developed in conjunction with wallpapers, designed by the architect, and furniture, which was either designed by or chosen by the architects. Colour is used to

identify various departments when circulating along a channel.

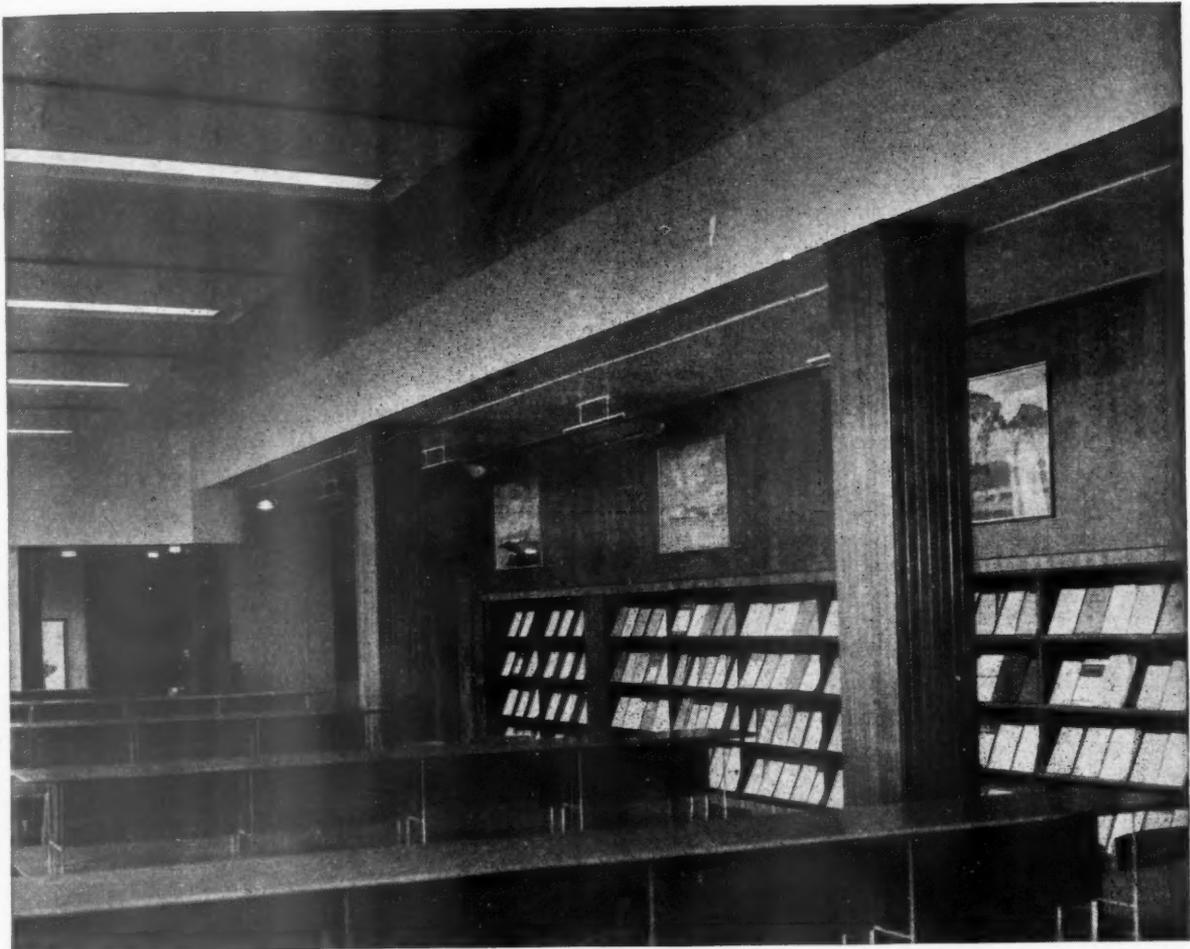
TIME SCHEDULE

Drawings: Commenced end of 1950. *Contract signed:* Foundations and Steel Act, 1951. Main

building contract, December, 1953. *Work commenced:* Immediately. *Work completed:* Six

channels and centre area, April, 1955. *Remainder* October, 1955.

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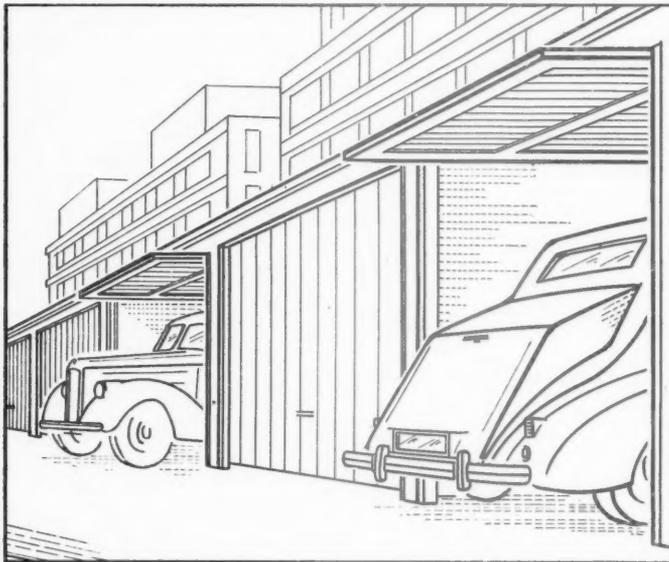
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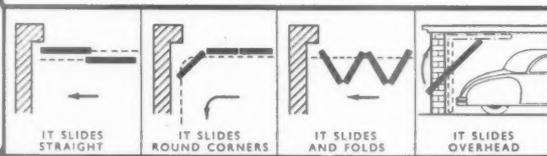
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TECHNICAL SECTION

At a recent lecture given to a branch of the Institute of Industrial Administration, BEDA's Lighting Officer, W. Robinson, roundly attacked over-windowed factories. His main point was that by artificial light these windowed areas read as vast black patches which make glare conditions inevitable. Granted that neither architects nor most building users are likely to want to forgo their glass, the answer would seem to be some form of light-reflecting blinds. As things are, few managements are sensitive enough to the need for good lighting conditions at night to contemplate the expense, and it is therefore for the architect to put the case to them. Another point mentioned by Mr. Robinson—which makes a useful footnote to our article on industrial lighting (April 7)—is that fittings which are ventilated have a longer life than those which are not. He therefore recommended fittings with full top openings which let as much as 30% of the light upwards and allow convection currents to help keep the fittings clean.

This week's
special article

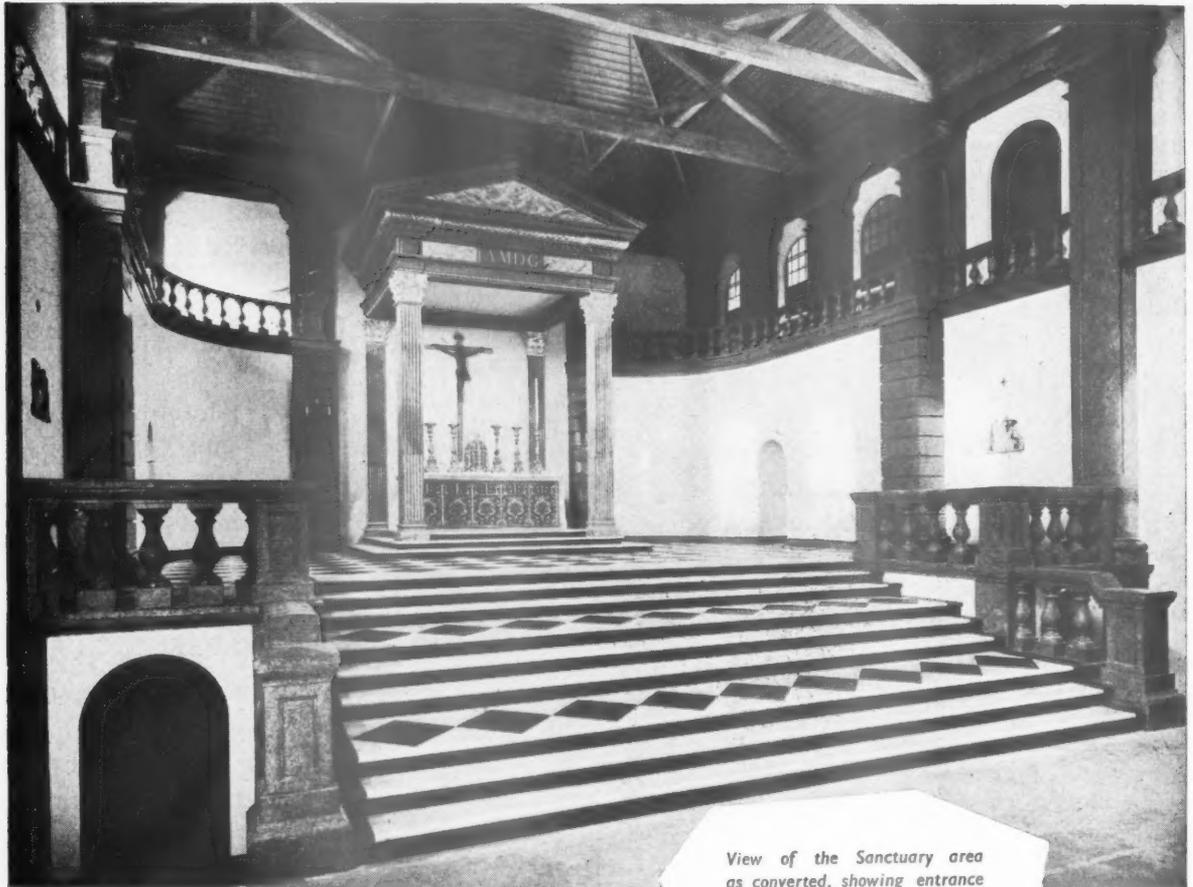
HEATING AND VENTILATION simplified floor heating

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.

It is now two years since William Allen wrote his last article on domestic floor heating in the JOURNAL (February 19, 1953). Yet there are still few examples in this country of under-floor heating in houses. One reason is doubtless resistance to this type of heating on the part of heating engineers and contractors—a resistance which we believe to be unjustified. Subsidiary reasons are the complexity of forced flow systems and the experience that some panel installations are unable to provide all heating requirements during very cold spells. This week William Allen returns to the subject by discussing an installation designed by an architect (W. A. Shirbon) for a small house in Scarborough. This installation is simplified by the use of gravity feed instead of a pump and makes use of radiators for topping up.

The most usual floor heating for houses in this country is obtained by hot water forced through panels of small bore pipes by a small pump. The temperature of the water is controlled by a mixing valve of much the same type as for shower baths, and the pump is made to deliver water according to the needs of the house by a thermostat control.

In the JOURNAL for February 19, 1953, there were descriptions of several houses with systems of this kind, but in one single-storey house illustrated a simpler system was used. It had no pump, but relied instead upon gravity flow. No mixing valve was used—it would have hindered flow too much—and the bore of pipes in the panels, as well as of



View of the Sanctuary area as converted, showing entrance to crypt on left. There is a similar entrance on the right.

18th Century Tennis Court Converted to Chapel

During the conversion of the 18th century indoor Tennis Court into a chapel for the Jesuit Theological College at Heythrop Hall, Enstone, in Oxfordshire, additional accommodation was provided by excavating under the Sanctuary area and forming a crypt to contain six small chapels. A further nine side chapels were added on the north and south walls having their entrances in the main building. Owing to the slope of the land this involved excavation into the subsoil on the north side.

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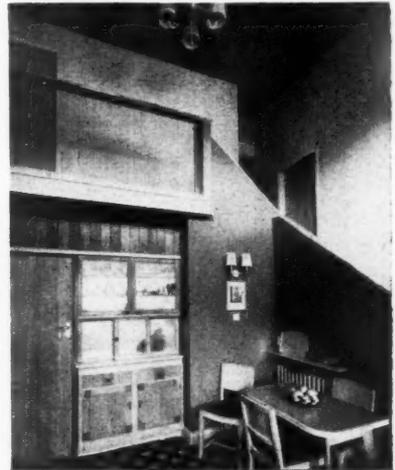
*Descriptive booklet and the Specification
No. 5A, worked to in this case will be sent on request.*

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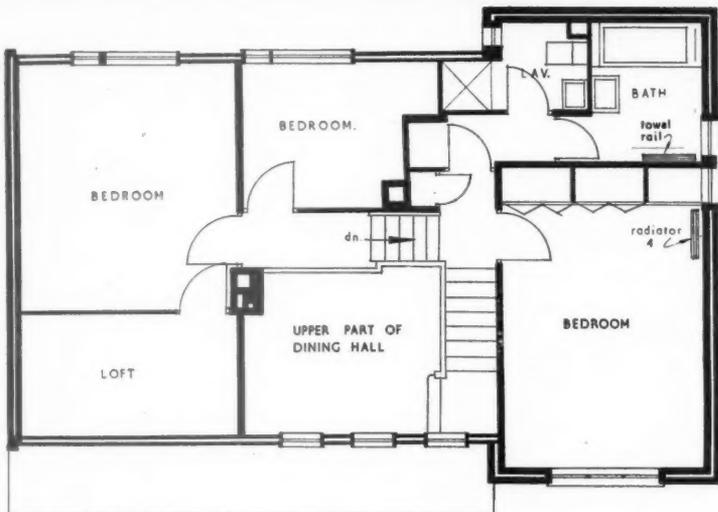
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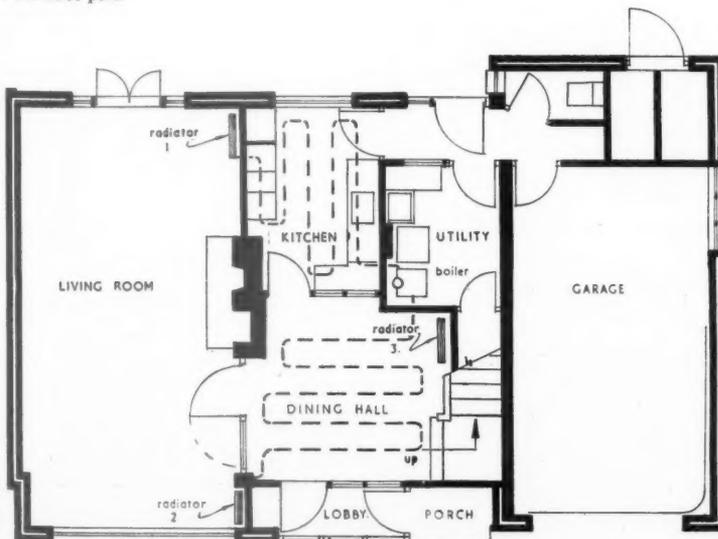
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Left: general view of the house at Scarborough; above: the two-storeyed dining hall.



First floor plan



Ground floor plan [Scale: 1/4" = 1' 0"] (approx.)

the main flow and return was, of course, larger than is normal—again to reduce resistance to circulation. The panels were of 1/2 in. bore, as compared with 3/8 in. or 1/2 in. as commonly used for forced circulation.

A criticism that has been made of floor heating generally is that in very cold weather the air is sometimes a trifle cool and makes one feel a little restless. "Warm structure and cool air" is a good rule for comfort without fugginess, but like many good things, it can be carried too far. The cure, where there is no fireplace, seems to be either to do some ceiling and/or wall warming, as the Americans often do, or to supplement the system with one or two well-placed radiators to help warm the air.

This has been done with some of the forced-flow systems, but in a house in Scarborough which W. A. Shirbon has recently designed there is a successful combination of floor panels and radiators in a gravity flow system. This appears to be a useful step towards simplification combined with flexibility, because the radiators can be used without the floor panels if desired, and this will give an easy adaptability to changing weather conditions.

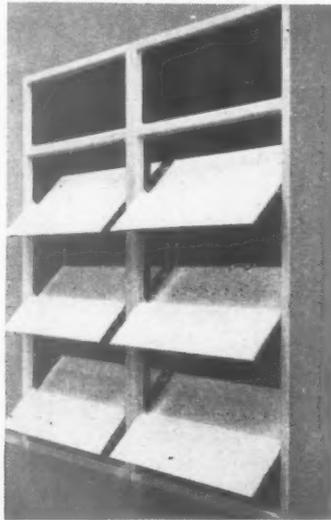
If the diagram on page 553 is studied it will be seen that the system comprises four radiators, a towel rail, and only two panels. The ratio of panels to radiators is rather smaller than might have been expected because floor-heating is omitted in the living room; instead there is a convector fire unit with hot air ducts to two of the bedrooms. The panels were deliberately used where the living-room fire could not be seen.

If one were doing full house heating by panels and radiators, experience with forced flow systems suggests that a good balance to work on would be two or three strategically-placed radiators as Mr. Shirbon has used, with panels in all the main areas. In other words, the combination would probably be biased more towards floor heating and would be used for the main period of

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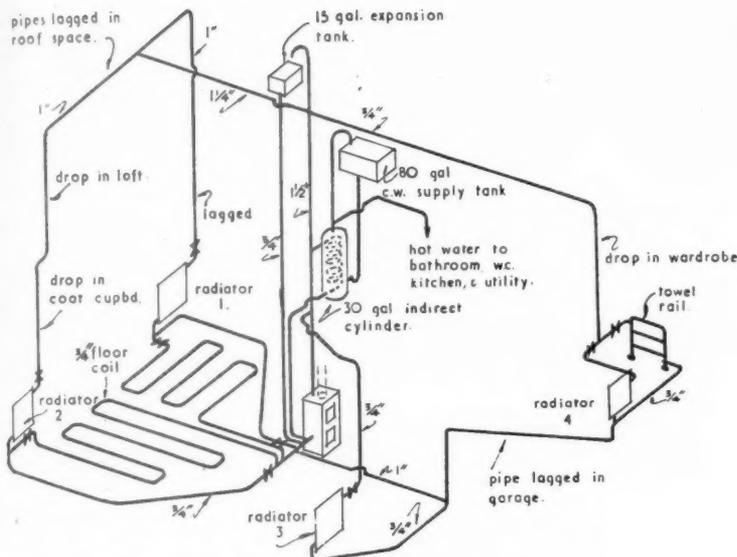
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Circuit diagram of heating of the Scarborough house

cold weather, because two or three radiators alone would suffice for the considerable periods of mild autumn and spring weather we experience in Britain.

Both Mr. Shirbon and the designer of the gravity flow system in the single-storey house illustrated in the *JOURNAL* for February 19, 1953, were able to set their boilers conveniently below the normal ground level. Perhaps this was important in the single-storey design but it seems unlikely to be essential in two-storey buildings, especially if the return tapping for the boiler is not too far off the floor.

The house itself is on rising ground overlooking the harbour at Scarborough. The plan permits an "open" use of the ground floor and the combined dining-room and stair-hall is open also to the upper storey. To conserve heat, windows were restricted on the walls exposed towards the sea, large panes were double-glazed, and the back and front doors were both lobbied. Roof and walls have a good "U" value. The contract price for the house was £3,200, including site work.

Details of the heating design follow.

THE CIRCUIT

The diagram circuit shows a 1 1/2-in. flow main from the boiler, serving an indirect 30-gal. cylinder and rising to the roof, where it divides, becoming in one direction a 1 1/2-in. lead across the roof space, dividing in turn into two 1-in. pipes which drop to serve two living-room radiators and two associated panels of 1/2-in. bore M.S. class C quality seamless pipe. One panel is 60 ft. and the other 40 ft. in length, with pipe spacings of 18 in. in the first case and 15 in. in the second. All returns are gathered into a 1 1/2-in. pipe to go back into the boiler.

In the roof the second part of the system is entirely in 1/2-in. pipe leading, in a conventional manner, to two radiators and a towel rail, and thence back to the boiler.

The circuit was designed on the assumption

that water would reach the radiators at about 150 deg. F. and enter the panels at about 120 deg. F. There is 140 sq. ft. of radiator surface, expected to claim about 18,000 B.Th.U.'s, and the panels were expected to take only about 3,000 B.Th.U.'s. The boiler is rated to supply 42,000 B.Th.U.'s, and the remainder of its capacity was expected to be used up by the cylinder.

DESIGN OF THE PANELS

The panels were laid at the bottom of the concrete slab, over 18 in. of hardcore, and the slab was topped by a 1 1/2-in. screed of lightweight concrete plus 1/2 in. of cement and sand topping into which colouring and a hardener were added. The pipes were thus between five and six in. below the finished surface. Fitted carpets were used over the concrete, except in the kitchen where cork-backed p.v.c. tiles were used. It was anticipated that the panels would give a temperature of about 80 deg. F. at the concrete surface. The cost of the panels, fitted with valves, was £14.

CONCLUSION

In practice the house has proved to be comfortable and economical to run. Air temperatures of 60-65 deg. F. are maintained in cold weather, and on top of the carpet and the p.v.c. tiles the surface temperature readings were about 70 deg. One purpose in putting the pipes so far down was to ensure uniformity of temperature at the floor surface, but the architect now feels that sufficient uniformity could have been obtained with the pipes nearer the surface, or with a thinner screed, and that the floor temperature would then have been nearer the intended 80 deg. F. In fact, unless measurements are made with the correct equipment it is difficult to determine the exact surface temperature; it is probable for instance that an ordinary thermometer reading of 70 deg. F. would mean a true surface temperature appreciably higher.

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.

2.138 planning: general PLANNING ACT, 1954

A Guide to the Town and Country Planning Act, 1954. David M. Lawrance and Philip H. White. (Estates Gazette Ltd. 17s. 6d.)

This small book, written by a barrister and a surveyor who both have a specialized interest in the subject and published by the *Estates Gazette*, for whom the subject is bread-and-butter, is essential for the practising architect's library. It is not a book that he can read through and remain sane—for you would not expect this of a scholarly description of how you unscramble an omelette—but it is an invaluable standby for reference. Claims for compensation have a way of being unique: nevertheless most of the possible variations must surely be accounted for in the rich but lucid sequence of practical examples.

21.44 construction: miscellaneous ATOMIC DEFENCE

The Bomb, Survival and You. Fred N. Severud and Anthony F. Merrill. (Reinhold Publishing Corporation, New York. \$5.95).

The question of defence against the atom bomb is bedevilled by the fact that the guardians of the bomb are unwilling to tell even their own populations exactly how devastating the bomb can be. Those who wish to go into the subject are therefore virtually thrown back on two three-volume reports on the Hiroshima and Nagasaki bomb damage which were prepared by the US Strategic Bomb Survey in 1947 but which have only recently been taken off the secret list. Since these volumes are very hard to obtain, the writers of this book (an engineer and a journalist) have presented a sort of technical digest of the salient facts emerging from them. The bombs of 1945 are, of course, primitive when compared with their descendants of today, but the havoc they wrought has value in making clear the nature and pattern of atomic attack.

The first fact which arises from this evidence is that you cannot protect everyone absolutely: you can only limit the scope of damage and loss. But that you can do this is something.

The effects of an atom bomb may be divided up into those which travel at the speed of light and those which travel at the speed of sound. The first of these includes the light flash, the gamma ray flash, and what is called the primary heat flash, and the second includes the shock wave, the ultra-violet and infra-red waves and the drag force



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which follows the shock wave. This fact is important since it is the shock wave in the second group which does the structural damage and the interval between the two gives those who have seen the flash some kind of opportunity to take cover. Of the first group of effects, the gamma ray flash is the most lethal: those directly under the Hiroshima bomb would have needed a protection equivalent to 30 inches of concrete to survive—a condition, incidentally, which is easily fulfilled in the lower storeys of a multi-storey building. Granted that all cannot be protected, it is interesting to note that American civil defence authorities reckon the equivalent of 20 inches of concrete as a reasonable average measure of defence against gamma rays. When it is remembered that the outside walls will account for part of this it will be seen that additional shelter in the body of a building will not have to be impossibly thick to provide the balance. Though, we may ask, since the gamma rays are in the first flight of effects, who will have sufficient warning to take refuge there?

It is, however, the shock wave, and more specifically the secondary effects of the shock wave in the form of flying glass and masonry, which causes the greatest proportion of deaths from the bomb. The fact that for most people within range there is a very appreciable time lag before the shock is felt is the key to atomic defence. The ease with which an enemy can explode a bomb

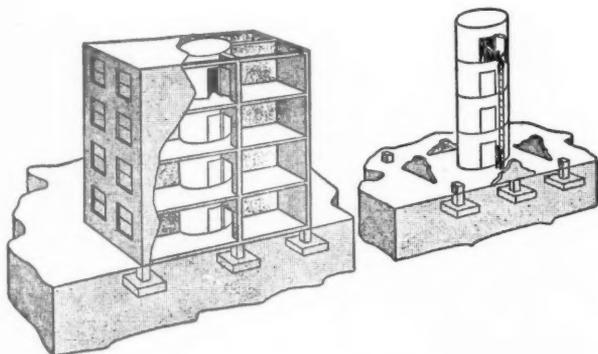
makes it probable that there will be no alert like those of the last war and that there will be no opportunity to get to relatively distant shelters. To be any use shelter must be inside the building: and not only inside but on the same floor as those who must use it. Defence, therefore, takes the form of small places of refuge within a building accompanied (if the building is worth it) by such strengthening of the structure as will ensure that the main frame at least will withstand the shock wave.

The cardinal principle to be observed, apparently, is not to resist the shock but to allow it rapid entry. Buildings which present a broad impenetrable front to the direction will be smacked down, where those which present a narrow front like a tower, or which the shock may easily penetrate, will stand. This principle was vividly illustrated at Hiroshima, where the structure of sheds clad in an easily shattered material like asbestos cement sheets remained standing, while sheds clad with tougher metal sheeting were flattened to the ground. Another illustration of the same principle is the case of many multi-storey buildings with basements. The shock (or wave of over pressure) met with little resistance in entering the upper storeys and therefore left the upper floors unscathed, but as it was prevented from getting quick entry into the basement it stove in the ground floor. A characteristic modern building with light cladding and light partitions offers admir-

able resistance to sideways blast. For provided the main vertical structure is strong enough, the floors themselves present tremendous resistance to lateral pressure.

Provided the main structure can be deemed secure against collapse, shelter can be easily provided by strengthening corridors. Where the structure is not strong enough (and anything short of steel or reinforced concrete frame must be so classed) shelter must be built up inside the building, but wholly independent of the structure. This leads naturally to the conception of a round or oval reinforced concrete tower built up on its own foundation and with access on every floor. The shock which crumbles the building will flow easily round this tower, which with luck should remain standing. Another suggestion that the writers put forward is to choose the strongest part of the structure (say the junction of two load-bearing walls) and to strengthen the surrounding elements with prestressing cables.

This book is only the beginning of a long (and presumably agonized) debate: the most we can say of the proposals put forward in it is that there is a sense of realism about them. When building owners begin to feel that they wish to take out this kind of investment there is as yet no other source to which architects can refer for ideas.



A suggested form of blast-proof shelter tower for construction within non-resistant structures.

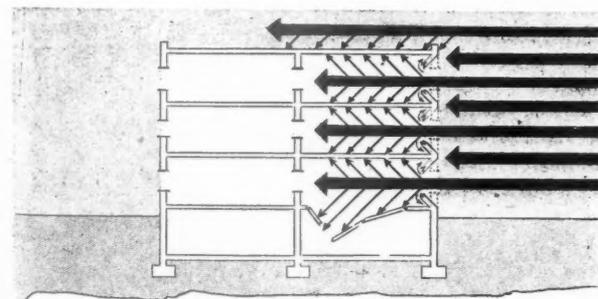
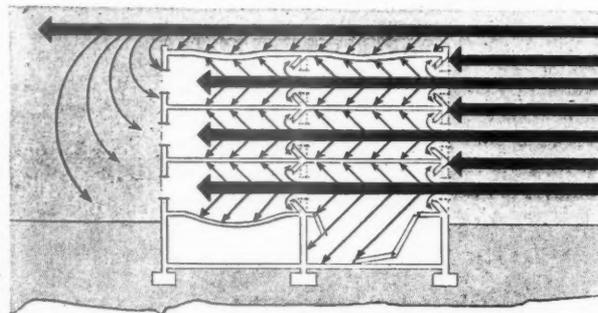


Diagram showing the impact of blast pressure in a building. Note the tendency of blast to break into spaces (here the basements) where it is denied easy access.



Buildings Illustrated

London Airport, Bath Road, Middlesex, Control Building. (Pages 533-539). Architect: Frederick Gibberd, C.B.E., F.R.I.B.A., M.T.P.I.; Partner in charge of Terminal Buildings: R. J. Double, A.R.I.B.A.; Assistant Architect for Control Building: R. Hyne, A.R.I.B.A.; Responsibility for Construction: Director-General of Works, Air Ministry; Consultant Engineers: (Steelwork and Foundation, Structural and Reinforced Concrete) Sir William Halcrow & Partners; (Heating and Ventilation), G. H. Buckle & Partners; (Electrical), Ewbank & Partners; Quantity Surveyors: Ryder Hunt & Partners; General Contractors: (Building Work), Taylor Woodrow, Ltd.; (Steelwork), Redpath, Brown & Company Ltd.; (Foundations), Taylor Woodrow Construction Ltd. Sub-contractors: terrazzo paving, The Arcanum Terrazzo & Stone Co. Ltd.; metal windows, Aygee Ltd.; removable metal partitions, The Ayrshire Dockyard Co. Ltd.; steel and wood roller shutters, G. Brady & Co. Ltd.; aluminium roofing to aerodrome control room, Frederick Braby & Co. Ltd.; artificial stone, Cooper Wettern & Co. Ltd.; fibre board false ceilings, John Dale Ltd.; waste plumbing, Dent & Hellyer Sanitation Ltd.; decorations, Decorative Specialists Ltd.; fire doors and screens, Durasteel Ltd.; electrical installation, Electrical Installations Ltd.; special joinery, Eustace & Partners; lifts, The Express Lift Co. Ltd.; fibrous plaster ceilings, David Esdaile & Co. Ltd.; kitchen equipment, The Falkirk Iron Co. Ltd.; sanitary fittings, B. Finch & Co. Ltd.; ironmongery, James Gibbons Ltd.; external ventilation louvres, Greenwood & Airvac Ventilating Co. Ltd.; wood block flooring and cork flooring, Horsley, Smith & Co. (Hayes) Ltd.; metal staircase, Haywards Ltd.; double glazed "Carda" windows, Holcon Ltd.; dome lights, T. & W. Ide Ltd.; cable racking, Johnson & Phillips; under-floor telephone ducting, The Key Engineering Co. Ltd.; pneumatic tubes, The Lamson Engineering Co. Ltd.; steel balustrading, The Morris Singer Co. Ltd.; bronze metal skirtings and aluminium entrance doors and screens, H. H. Martyn & Co. Ltd.; terrazzo W.C. partitions, The Mosaic & Terrazzo Precast Co. (Staines) Ltd.; special mounting for lift motors, Metalastik Ltd.; heating & ventilation, The Norris Warming Co. Ltd.;

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London Airport, Bath Road, Middlesex. S.E. Face Passenger Handling Building. (Pages 540-550.) Architect: Frederick Gibberd, C.B.E., F.R.I.B.A., M.T.P.I.; Partners in charge of Central Terminal Buildings: R. J. Double, A.R.I.B.A.; Associate Architect for Building: G. W. Dunton, A.R.I.B.A.; Responsibility for Construction: Director-General of Works, Air Ministry; Consulting Engineers: (Steelwork and Foundation, Structural and Reinforced Concrete), Sir William Halcrow & Partners; (Heating and Ventilation), G. H. Buckle & Partners; (Electrical), Ewbank & Partners; Quantity Surveyors: E. C. Harris & Partners; General Contractors: (Building Work), Taylor Woodrow Ltd.; (Steelwork), Redpath, Brown & Co. Ltd.; (Foundations), Taylor Woodrow Construction Ltd.; Sub-contractors: painting, J. & B. Abbott (Contractors) Ltd.; special metal windows, Aygee Ltd.; special joinery, D. Burkle & Son Ltd.; external ventilation louvres, Frederick Braby & Co. Ltd.; mirrors, James Clark & Eaton Ltd.; special patterned and coloured tiles, Carter & Co. (London) Ltd.; artificial stone, Cooper Wettern & Co. Ltd.; fire resisting doors, Curfew Doors & Shutters Ltd.; metal hangers, Clark, Hunt & Co. Ltd.; cork insulation, Cork Insulation & Asbestos Co. Ltd.; acoustic false ceiling, Horace W. Cullum & Co. Ltd.; strong room door, The Chatwood Safe & Engi-

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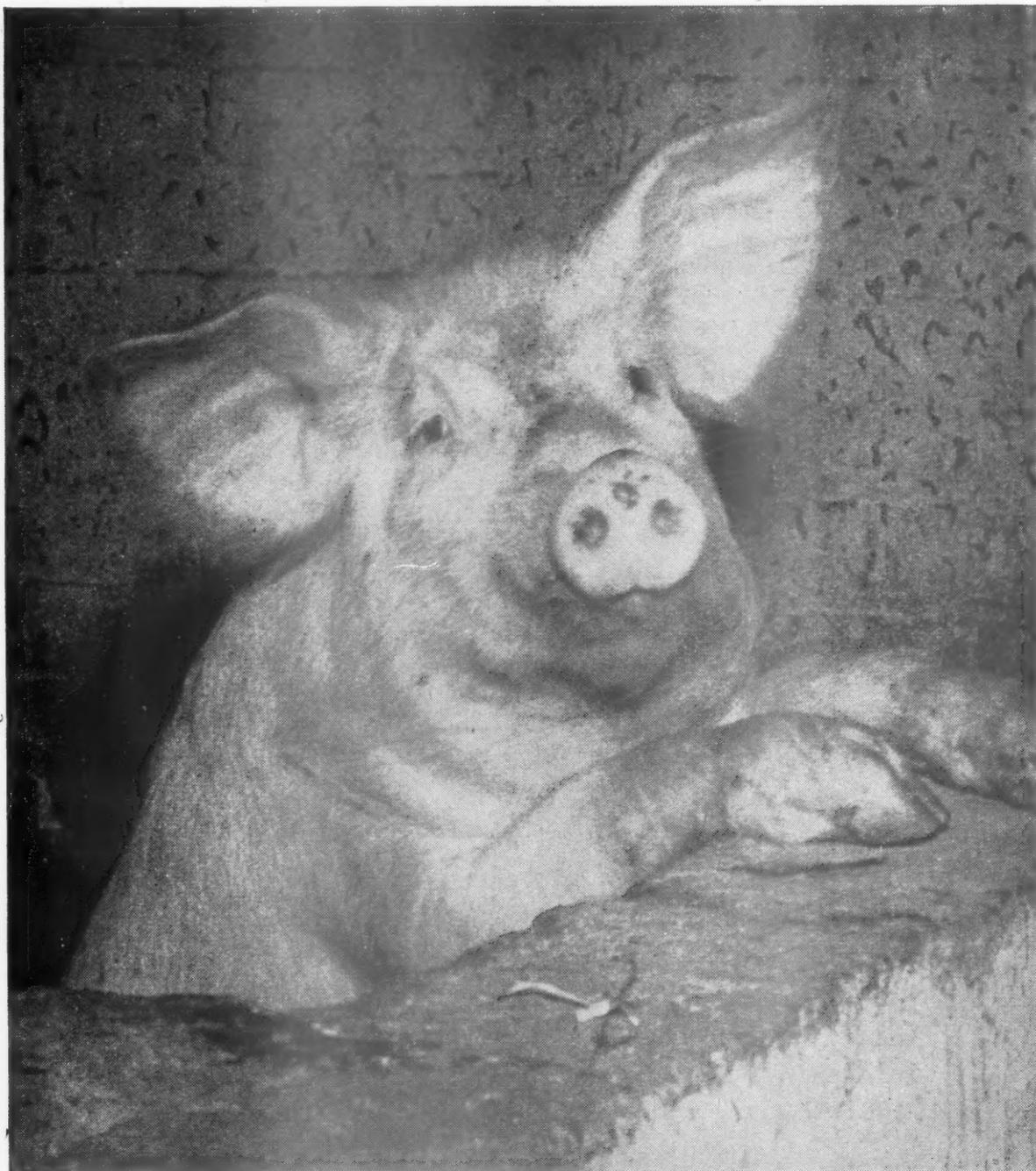
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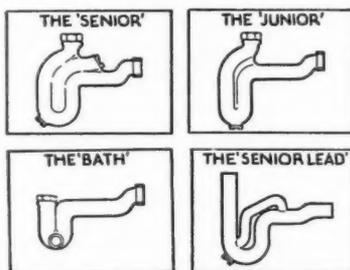
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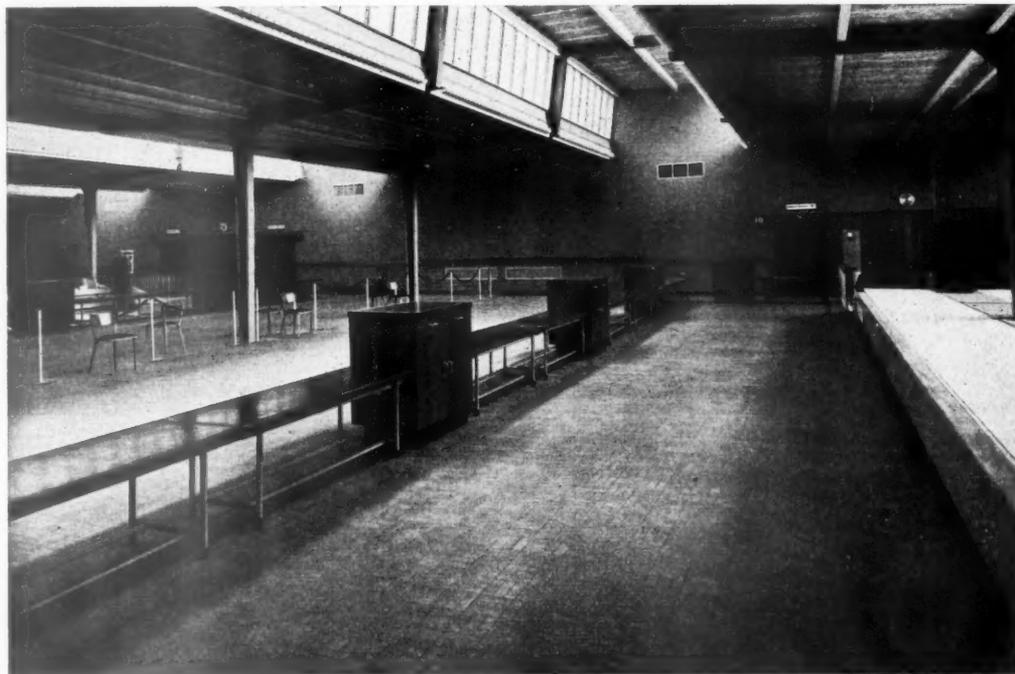
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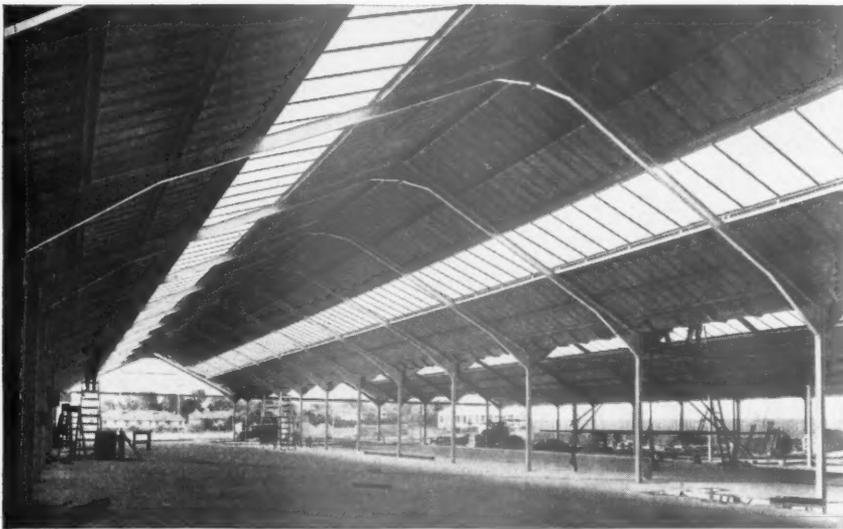
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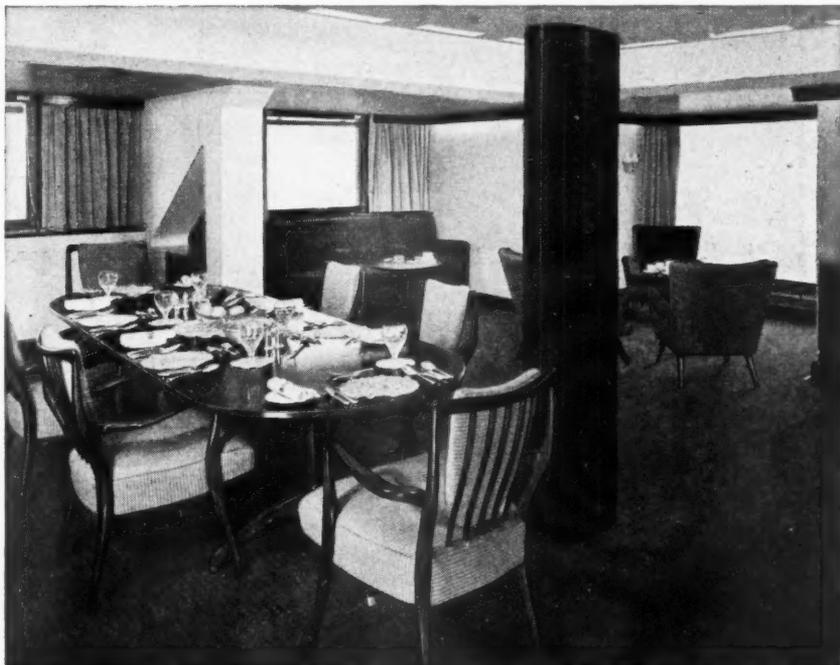
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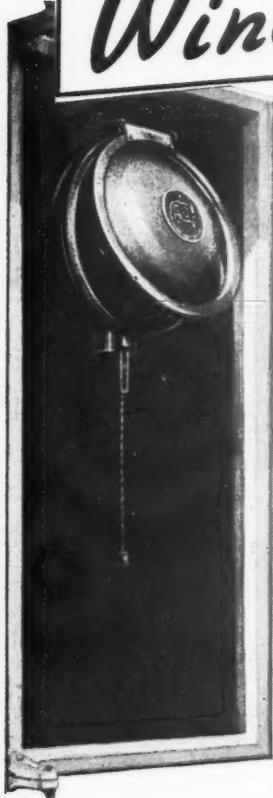
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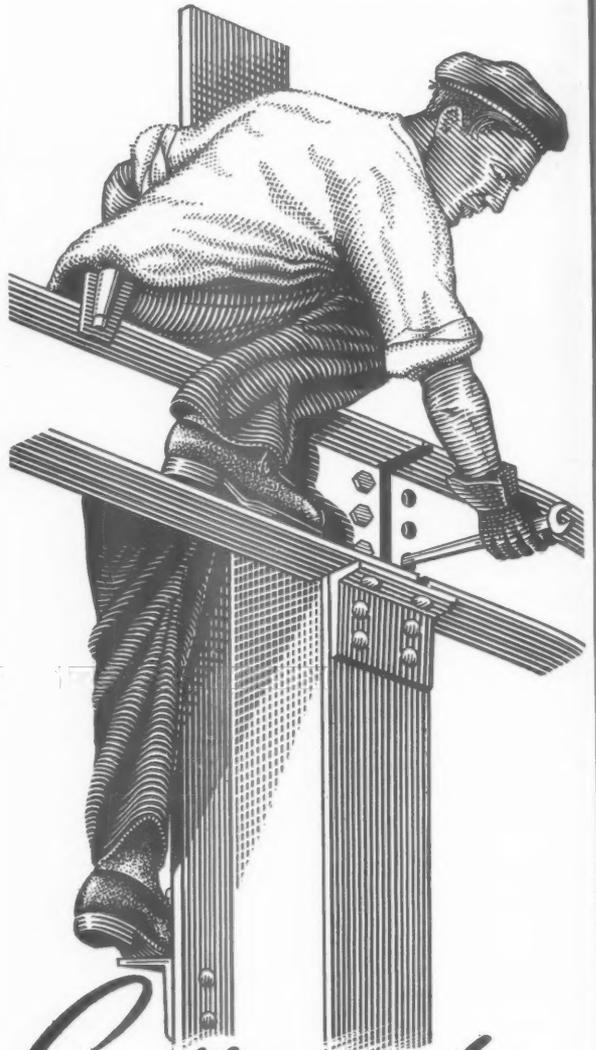
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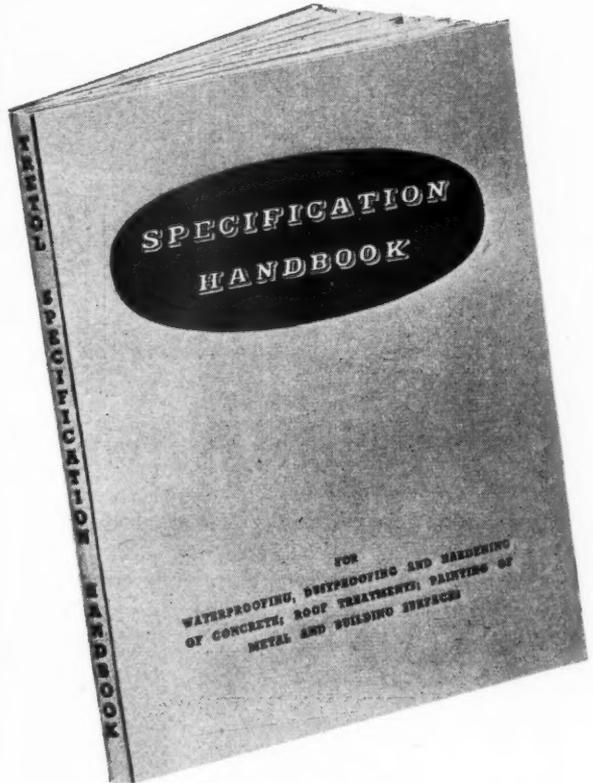
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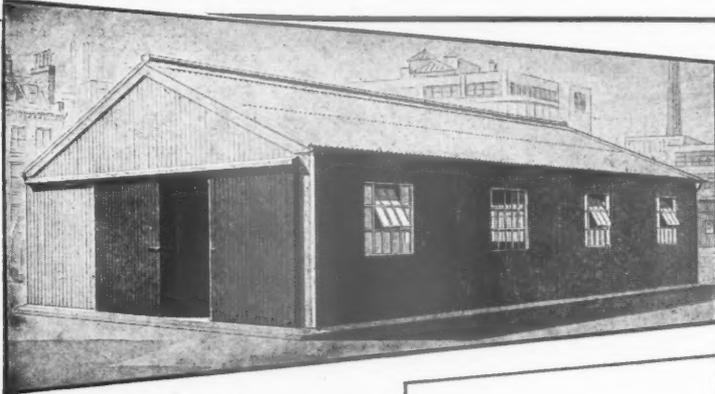
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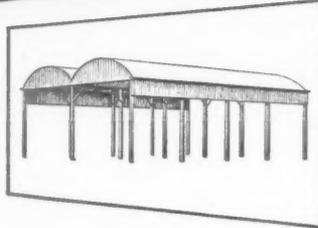
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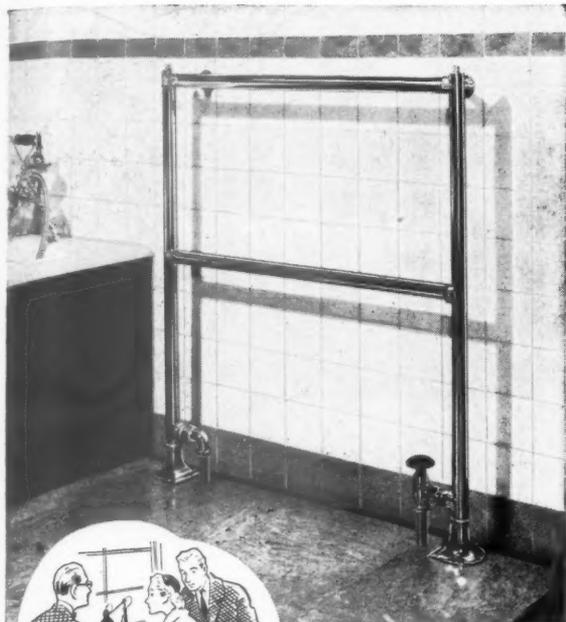
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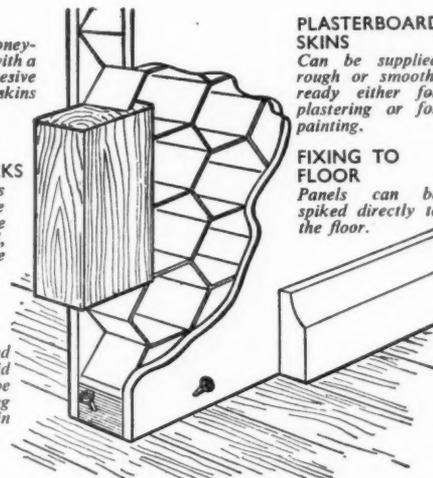
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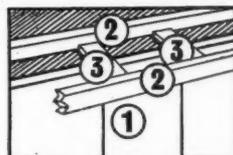
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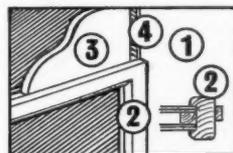
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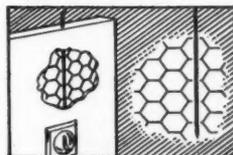
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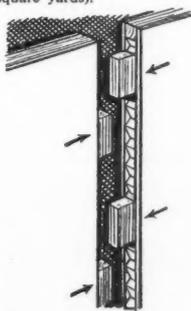
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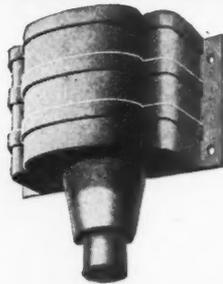
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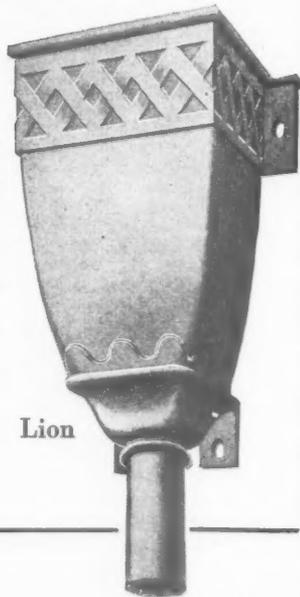
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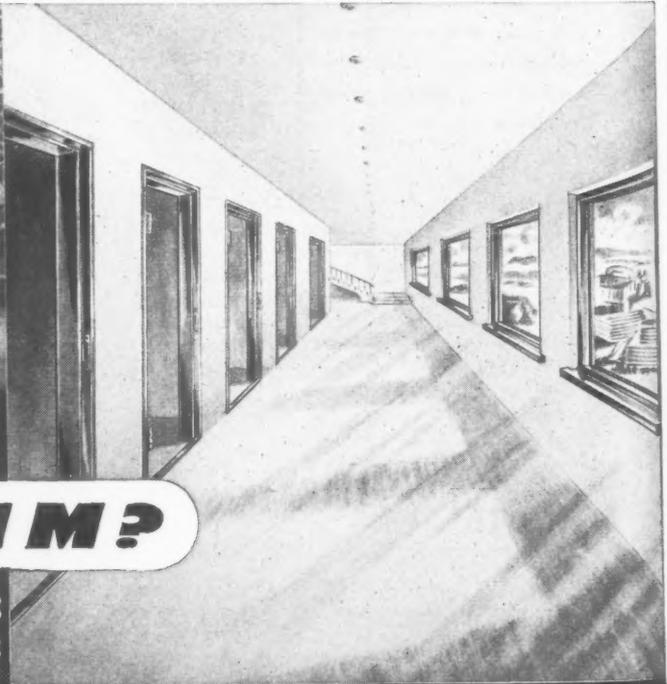
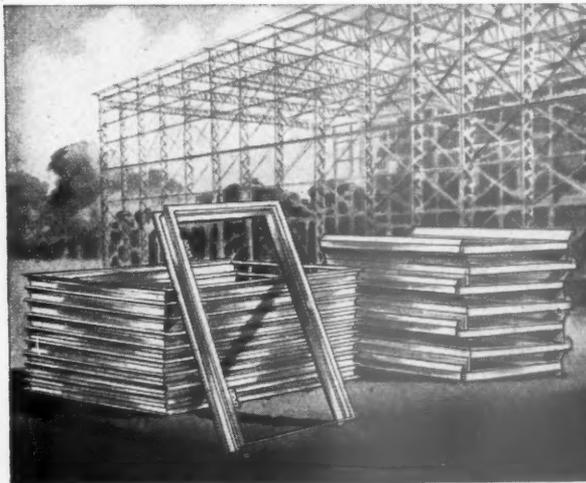
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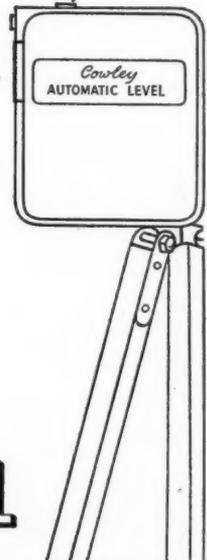
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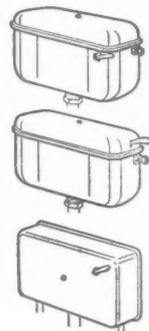
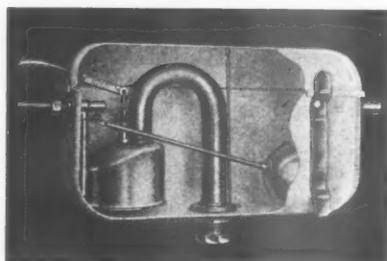
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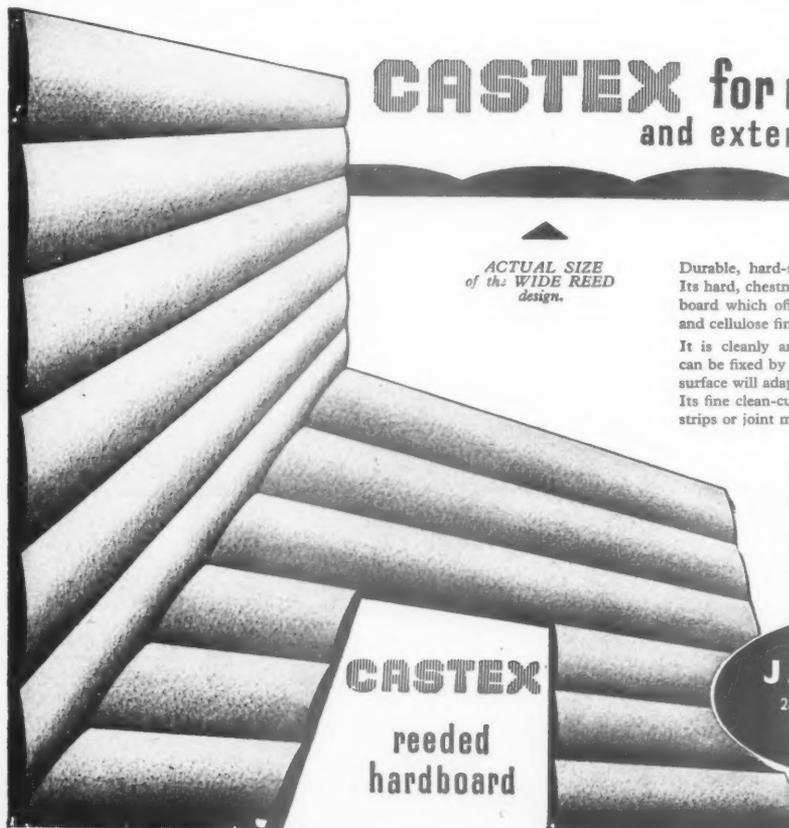


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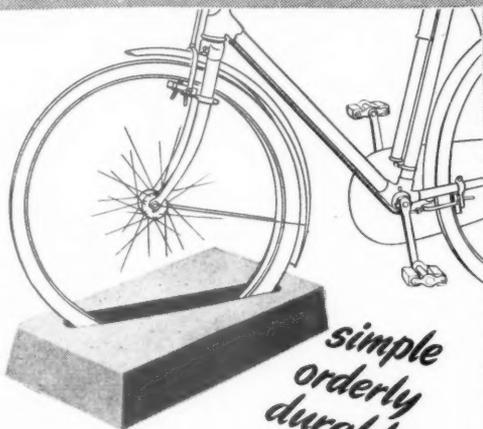
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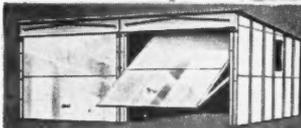
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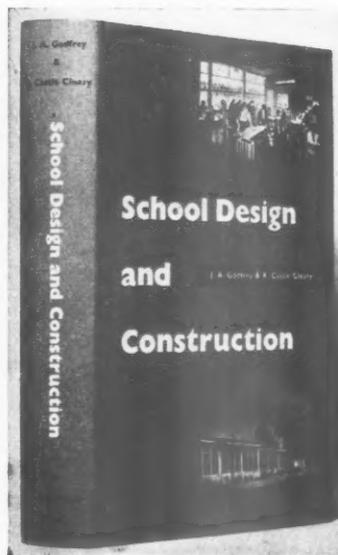
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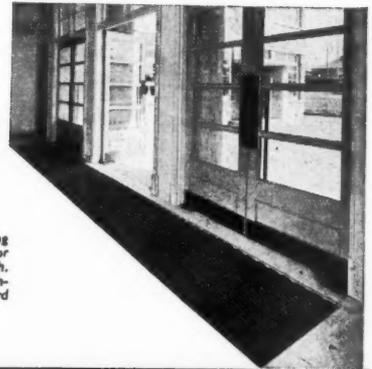
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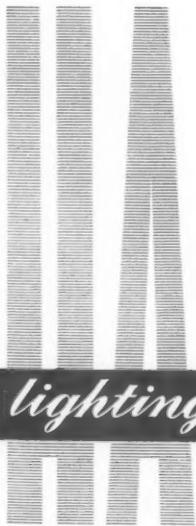
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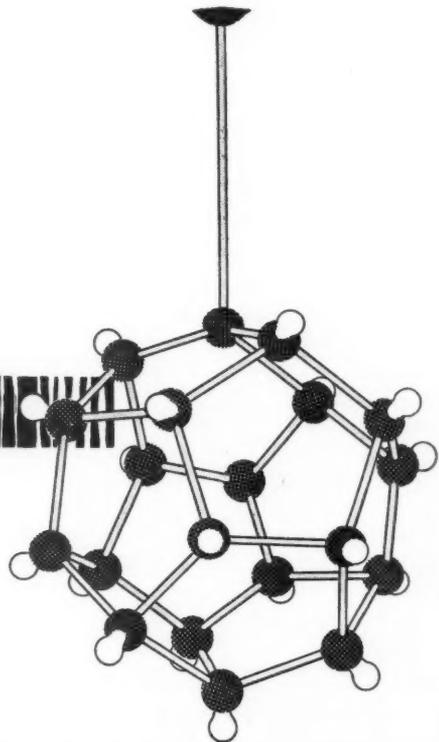
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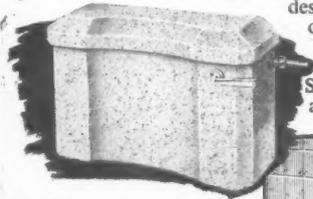
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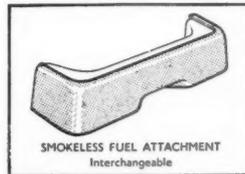
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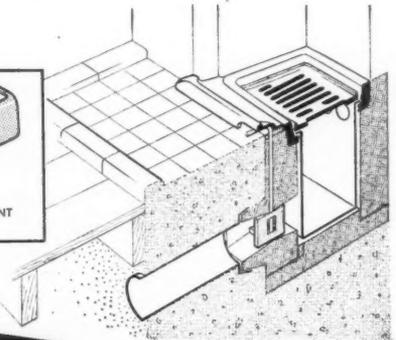
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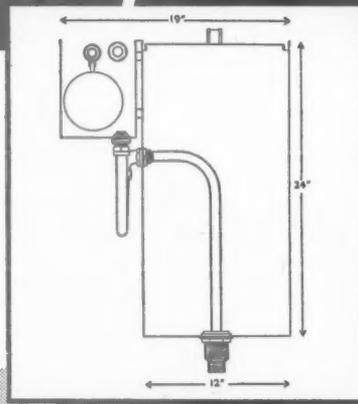
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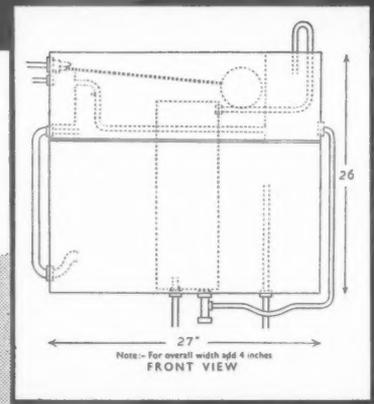
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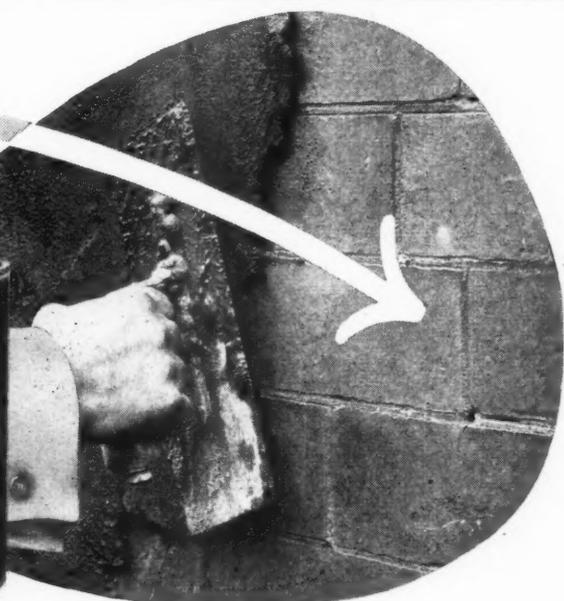
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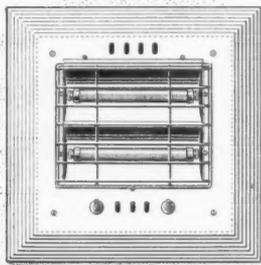
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CLASSIFIED ADVERTISEMENTS

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

Public and Official Announcements

25s. per inch; each additional line, 2s.
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 exempted from the provisions of the Notification of Vacancies Order, 1952.

LONDON COUNTY COUNCIL ARCHITECTS' DEPARTMENT.
Vacancies for ARCHITECTS, Grade III (up to £292 10s.), and ARCHITECTURAL ASSISTANTS (up to £739 10s.), in Schools, Housing, and General Divisions.

Particulars and application forms from Architect (AB/BK/A/2), County Hall, S.E.1. (1058) 2205
A.I.B. MINISTRY Works Designs Branch requires in London and Provinces (with liability for overseas service) ARCHITECTURAL ASSISTANTS experienced in planning/preparation of working drawings and details for permanent and semi-permanent buildings. Salaries up to £810 P.A. for men and £690 for women. Starting pay dependent upon age, qualifications and experience. Extra duty allowance or overtime payable. Posts non-pensionable with long term possibilities. Natural born British subjects only. Write stating age, qualifications, employment details including type of work done to Ministry of Labour, 236, Walworth Road, London, S.E.17, quoting Order 81/AA. 8506

CORPORATION OF GLASGOW ARCHITECTURAL AND PLANNING DEPARTMENT.

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ASSISTANT CIVIL ENGINEERS
ASSISTANT HEATING AND VENTILATING ENGINEERS.
Applications are invited from suitably qualified persons, salary on a scale £545-£915 with placing according to age, qualifications and experience. The posts are pensionable subject to medical examination. Forms of application may be obtained from the Principal Administrative Officer, 20, Trongate, Glasgow, C.1.

A. G. JURY,
City Architect and Planning Officer. 9119

HERTFORDSHIRE COUNTY COUNCIL COUNTY ARCHITECTS' DEPARTMENT.

Applications are invited for the following:—
(a) CHIEF ASST. QUANTITY SURVEYOR, Grade VII, £900-£1,100.
(b) ASSISTANT QUANTITY SURVEYORS, Grade V, £750-900.
(c) ASSISTANT QUANTITY SURVEYORS, Grade IV, £675-825.
(d) ASSISTANT QUANTITY SURVEYORS, Grade II, £560-640.

Previous Local Government experience not essential.

Applicants must give full particulars of qualifications, training and experience, and state clearly which post is applied for.

Applications, with names of two referees, to County Architect, County Hall, Hertford, Herts., not later than 2nd May, 1955. 9401

STEVENAGE DEVELOPMENT CORPORATION CHIEF ARCHITECT'S DEPARTMENT.

Applications are invited for post as ASSISTANT ARCHITECT on N.J.C. salary scale A.P.T. VI £825 x £35 to £1,000 p.a.

Applicants should be fully qualified architects with experience of large scale building contracts. Housing accommodation will be available eventually in an appropriate case.

Applications giving details of experience and names of two referees should be sent to the Chief Administrative Officer, Aston House, nr. Stevenage, Herts., not later than Thursday, 5th May, 1955. 9479

BOROUGH OF CHATHAM APPOINTMENT OF ASSISTANT ARCHITECT.

Applications are invited for the appointment of ASSISTANT ARCHITECT within New Grade £650 x £25-£775, commencing at £650 per annum. The person appointed is required for the re-development of central areas and other works offering considerable scope.

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, 29th April, 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. 9440

DENBIGHSHIRE COUNTY COUNCIL.

Applications are invited for the following appointments in the County Architect's Department, Wrexham:—

(a) Two ASSISTANT ARCHITECTS, A.P.T. Grade IV (£675 to £825).

(b) Two ASSISTANT ARCHITECTS, A.P.T. Grade III (£600 to £725).

(c) Two ASSISTANT ARCHITECTS, A.P.T. Grade II (£560 to £640).

(d) Two ASSISTANT ARCHITECTS, A.P.T. Grade I (£500 to £580).

(e) One ASSISTANT QUANTITY SURVEYOR, Special Grade (£650 to £775).

(f) One LANDS & BUILDINGS SURVEYOR, Special Grade (£650 to £775).

(g) One ASSISTANT ELECTRICAL ENGINEER, A.P.T. Grade II (£560 to £640).

(h) One ASSISTANT HEATING ENGINEER, A.P.T. Grade II (£560 to £640).

Further details and application forms may be obtained from the undersigned to whom the completed application forms are to be returned by 30th April, 1955, except post (h), which shall be returned not later than 7th May, 1955.

W. E. BUFTON,
Clerk of the County Council.

County Offices, Ruthin. 9443

BOROUGH OF LEYTON.
Applications are invited for the appointment of a TEMPORARY CLERK OF WORKS to supervise general building works at an inclusive salary of £12 10s. 0d. per week.

Candidates should be suitably experienced to perform the duties of Clerk of Works appertaining to the supervision of contracts, preparation of reports, measurement of works, etc.

Details 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 Friday, 6th May, 1955.

D. J. OSBORNE, Town Clerk. 9517

THURROCK URBAN DISTRICT COUNCIL (Engineer and Surveyor's Department) require an ARCHITECTURAL ASSISTANT, A.P.T. IV (£675-£825 p.a.), to work under the Architect to the Council.

Candidates should be Associates of the Royal Institute of British Architects and must be experienced in design, preparation of drawings, specifications and supervision of various building and architectural work undertaken by a Local Authority. The appointment is pensionable and travelling allowance in accordance with National Scales payable in respect of 8 h.p. car. Housing accommodation if necessary may be provided for the successful candidate if he lives more than 20 miles from Thurrock.

Applications, endorsed "Architectural Assistant, A.P.T. IV," with copies of three recent testimonials to Clerk of the Council, Council Offices, Grays, Essex, by Tuesday, 3rd May, 1955. Canvassing disqualifies and applicants must disclose relationship to any Member or Senior Officer of the Council. 9516

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

CITY ARCHITECTS' DEPARTMENT.
The City Architect will be pleased to receive applications for vacancies in his Department on the following salary grades:

(a) A.P.T. Division, Grade IV (£675-£825);
(b) A.P.T. Division, Grade III (£600-£725);
(c) A.P.T. Division, Grade II (£560-£640).

The appointments will be subject to the provisions of the Local Government Superannuation Act, 1953, and to one month's notice on either side. Successful candidates will be required to pass a medical examination.

Candidates for posts (a) and (b) should be fully qualified architects with an appreciation of good design and possessing sound experience.

Applications, stating position applied for, age, particulars of training, qualifications, experience, present and past appointments, together with copies of two recent testimonials or the names and addresses of two persons to whom reference may be made, should be addressed to George Kenyon, A.R.I.B.A., A.M.T.P.I., City Architect, 18, Cloth Market, Newcastle-upon-Tyne, 1.

JOHN ATKINSON, Town Clerk. 9511

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD.

APPOINTMENT OF ARCHITECTS.
Applications are invited from Architects in practice with suitable experience for the following major schemes of hospital development on which the Board wish building to commence within the next two to three years:—

1. Hillingdon Hospital, Uxbridge, Middlesex—150 beds and ancillary departments for a new 800-bed hospital.

2. Slough, Bucks.—New hospital of 300 beds.

3. Royal Northern Hospital, Holloway Road, N.7.—Out-patient department, 30 beds and other services.

Applicants should give some details of the hospital and other work undertaken by them in recent years, and it is essential that they should be in a position to carry out the work within the period stated.

Applications should be submitted to the undersigned by not later than 30th April, 1955.

A. J. BENNETT, Secretary. North-West Metropolitan Regional Hospital Board, 11a, Portland Place, W.1. 9495

COUNTY BOROUGH OF MERTHYR TYDFIL.

BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the above appointment on the permanent staff in accordance with A.P.T. Division, Grade IV—£675 x £30—£825.

Housing accommodation will be provided if required.

Applicants should have had experience in the preparation of plans, specifications, etc., for architectural work (including schools) usually undertaken by a local authority.

Appointments will be subject to the National Conditions of Service, the Local Government Superannuation Acts, a medical examination, and to termination by one month's notice on either side.

Applications stating age, training, qualifications and experience, past and present appointments and present salary, together with three copies of recent testimonials, must be received by the undersigned not later than 14th May, 1955.

Canvassing directly or indirectly will be deemed a disqualification. T. S. EVANS, Town Clerk.

Town Clerk's Office, Town Hall, Merthyr Tydfil. 9562

14th April, 1955.

COUNTY OF LINCOLN—PARTS OF LINDSEY.

Vacancy for Two ASSISTANT ARCHITECTS, qualified A.R.I.B.A. Salary Special Grade £650 rising to £775, or A.P.T. Grade IV £675 rising to £825, according to experience. N.J.C. Conditions of Service. Canvassing with disqualification. Candidates must disclose in writing whether, to their knowledge, they are related to any Member or Senior Officer of the Council.

Allowance of 25/- per week and return for home bi-monthly may be paid up to six months to married men unable to find housing accommodation.

Applications giving age, qualifications, experience and names of two persons to whom reference can be made to be sent to the undersigned not later than 27th April, 1955.

A. RONALD CLARK, A.R.I.B.A., A.M.T.P.I., County Architect. 9569

County Offices, Lincoln.

CITY AND COUNTY OF BRISTOL CITY ARCHITECT'S DEPARTMENT.

Applications invited for following staff appointments:

(a) Senior ASSISTANT ARCHITECTS—Grade III (£600 x 25 to £725 p.a.) or Special Scale (£650 x 25 to £775 p.a.) according to qualifications, etc.

(b) ASSISTANT ARCHITECTS—Grade II. (£560 or 20 to £640 p.a.).

(c) ASSISTANT ARCHITECTS—Grade I. (£500 or 20 to £580 p.a.).

(d) ASSISTANT QUANTITY SURVEYOR—Grade I (£500 x 20 to £580 p.a.).

Applicants for (a) must be Associate Members of R.I.B.A. or equivalent, or qualified in accordance with para. 28 of National Conditions of Service, and have experience in design, construction, and contract administration. For appointment (b) applicants should have passed R.I.B.A. Intermediate Examination or equivalent, or qualified in accordance with para. 28, and have good experience including preparation of working drawings, details, etc. For appointment (c) preference given to applicants who have passed the R.I.B.A. Intermediate Examination or equivalent, or qualified in accordance with para. 28, and have suitable experience. For appointment (d) preference given to applicants who have passed the R.I.C.S. Intermediate Examination or equivalent, or qualified in accordance with para. 28, and have had suitable experience.

Housing accommodation available, if necessary, at economic rent.

Further particulars and application forms obtainable from me. Applicants must state post for which they are applying. Completed application forms to be received by 29th April.

J. NELSON MEREDITH, F.R.I.B.A., City Architect, The Council House, College Green, Bristol, 1. 9568

COUNTY BOROUGH OF DEWSBURY BOROUGH ARCHITECT AND BUILDINGS SURVEYOR'S DEPARTMENT.

Applications are invited for the Temporary Appointment of ARCHITECTURAL ASSISTANT in the above Department at a salary in accordance with A.P.T. Grade II (£560-£640 per annum), the commencing salary to be fixed within the scope of this grade. The period of the appointment will be approximately 1 1/2 years.

The appointment will be subject to one month's notice on either side and to the provisions of the Local Government Superannuation Acts. The successful candidate will be required to pass a medical examination.

Applications stating age, education, qualifications, full particulars of training and experience, together with copies of two recent testimonials, should be sent to the undersigned not later than Monday, 2nd May, 1955, in envelopes endorsed "Architectural Assistant."

A. NORMAN JAMES, Town Clerk. 9567

Town Hall, Dewsbury. 7th April, 1955.

BOROUGH OF MACCLESFIELD.
Applications are invited for the appointment of ARCHITECTURAL ASSISTANT in the Borough Architect's Department.

Applicants should have passed the Intermediate Examination of the R.I.B.A. and the salary will be within the new A.P.T. Grade II (£560-£640) according to experience.

Details and form of application may be obtained from the undersigned to whom it should be returned by 2nd May, 1955.

The successful applicant may, if suitable, be placed temporarily on the new A.P.T. Grade III during the absence of another officer.

W. ISAAC, Town Clerk.
Town Hall, Macclesfield. 9510
14th April, 1955.

NATIONAL COAL BOARD.
WEST MIDLANDS DIVISION.
Applications are invited for the post of ARCHITECTURAL ASSISTANT, Grade I (salary scale £225 x £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, West Midlands Division, Himley Hall, Dudley, Worcs. 9506

EBBW VALE URBAN DISTRICT COUNCIL.
ARCHITECT'S DEPARTMENT.
PROPOSED NEW CIVIC CENTRE.
APPOINTMENT OF 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 the new Civic Centre which will incorporate Municipal Offices and Public Hall in addition to other buildings.

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

The appointment is intended to be for the duration of the scheme, 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 and to three months' notice on either side. The successful candidate will be required to pass a medical examination.

Applications, stating age, particulars of training, qualifications, experience, past and present appointments, together with the names and addresses of two referees to whom reference may be made, should be addressed to the undersigned to reach him not later than Saturday the 30th April, 1955.

Canvassing will disqualify.
H. J. WILLIAMS,
Deputy Clerk of the Council.
District Council Offices, The Walk,
Ebbw Vale, Mon. 9505

CITY OF BELFAST.
APPOINTMENT OF ARCHITECTS.
CITY SURVEYOR'S DEPARTMENT.

Applications are invited for positions of ARCHITECTS, Class II, in the Architectural Section of the City Surveyor's Department. Candidates must be Registered Architects.

Salary: £550 x £25-£950 per annum (minimum linked to age 26, one increment for each year up to age 32).

The Section is at present engaged in the design and construction of covered Swimming Baths, Sports Pavilions, School Health Clinics, Welfare Homes, a Crematorium, Branch Libraries and alterations and renovations to existing buildings. Assistants are entrusted with works according to their ability and large works are shared with senior assistants, thus considerable opportunity is given for gaining experience in this wide variety of work and in the architectural procedure pertaining thereto. Opportunities for promotion to a higher grade arise as vacancies occur.

Superannuation contributions for these posts will be payable at the rate of approximately 6 per cent. of remuneration.

Preference will be given to suitably qualified ex-Service candidates. Canvassing in any form will be a disqualification.

Application Forms are obtainable from the City Surveyor, Room 39, City Hall, and completed applications must reach the undersigned not later than 12 noon on Saturday, 30th April, 1955.

JOHN DUNLOP, Town Clerk.
City Hall, Belfast, P.O. Box 234.
6th April, 1955. 9500

CITY OF WAKEFIELD.
CITY ENGINEER'S DEPARTMENT.
ARCHITECTURAL ASSISTANT (AMENDED GRADE A.P.T.II).

Applications are invited for the permanent appointment of an Architectural Assistant on amended Grade A.P.T.II (£560-£640).

Applicants should have passed the R.I.B.A. Intermediate Examination and should have municipal experience.

Applications giving age and full particulars of experience together with the names of two referees to be sent to the undersigned not later than Wednesday, the 27th April, 1955.

W. S. DES FORGES, Town Clerk.
Town Hall, Wakefield. 9565

EASTERN ELECTRICITY BOARD.
CHILTERN SUB-AREA.
SENIOR DRAUGHTSMAN: SUB-AREA HEADQUARTERS.

Applications are invited from suitably qualified candidates for the position of SENIOR DRAUGHTSMAN in the Chilterns Sub-Area Engineering Department.

Candidates should have had a good technical training and experience in preparation of plans and detailed drawings of Building and Civil Engineering Work including Sub-stations, Service Centres, Workshops, Offices, etc.

The salary will be in accordance with Grade 5, Schedule D of the National Joint Board Agreement within the range £640-£740, and future salary and conditions of service will be in accordance with agreements made from time to time by the appropriate negotiating bodies.

The successful candidate will be required to contribute to a superannuation scheme and may be required to undergo a medical examination.

Applications by letter stating age, education, qualifications and experience with details of present appointment and salary should be submitted to the Manager, Chilterns Sub-Area, Eastern Electricity Board, Prebend Street, Bedford, within 14 days of the appearance of this advertisement. 9491

CITY OF MANCHESTER.
CITY ARCHITECT'S OFFICE.
Applications are invited for the following appointments:—

PERMANENT STAFF—
(a) SENIOR ASSISTANT QUANTITY SURVEYOR. Salary Grade A.P.T. V, £750/£900 per annum. Applicants must have had considerable experience as a senior assistant in the preparation of Bills of Quantities and Specifications, Interim Valuations and settlement of final accounts for all classes of local authority building work.

(b) SENIOR ASSISTANT QUANTITY SURVEYOR. Salary Grade A.P.T. IV, £675/£825 per annum. Applicants must have had considerable experience in the preparation of Bills of Quantities and Specifications, Interim Valuations and settlement of final accounts for all classes of local authority building work.

(c) ASSISTANT QUANTITY SURVEYOR. Salary Grade £650/£775 per annum. Applicants should have had at least five years' experience in the preparation of Bills of Quantities and Specifications, Interim Valuations and settlement of final accounts for all classes of local authority building work.

(d) DISTRICT BUILDING SURVEYOR. Salary Grade A.P.T. II, £560/£640 per annum. Applicants must have passed the Building Surveyors' examination of the R.I.B.A. or hold equivalent qualifications; be conversant with the Model Building Bye-laws and have a knowledge of the Factories, Public Health and Town Planning Acts. They should also have had experience in the supervision of building works and the treatment of dangerous buildings.

TEMPORARY STAFF—
(e) SENIOR ASSISTANT ARCHITECT. Salary Grade A.P.T. IV, £675/£825 per annum. Applicants must be A.R.I.B.A. with some years' office experience.

Further particulars and forms of application may be obtained from the City Architect, Box No. 488, Town Hall, Manchester 2. The completed form to be returned to the same address by 30th April, 1955. Canvassing is prohibited. 9498

WEST SUSSEX COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments:—

(1) CHIEF ASSISTANT ARCHITECT at a salary in accordance with A.P.T. Grade VII (£900 to £1,100 net annum).

(2) ASSISTANT STRUCTURAL ENGINEER at a salary in accordance with A.P.T. Grade VI (£825 to £1,000 net annum).

(3) ASSISTANT ARCHITECTS at a salary in accordance with A.P.T. Grade V (£750 to £900 per annum).

(4) ASSISTANT ARCHITECTS (non established posts) at a salary of £860 per annum.

(5) ASSISTANT HEATING ENGINEER (non established post) at a salary of £860 per annum.

Further particulars should be obtained from the County Architect, County Hall, Chichester, clearly stating for which post particulars are required, and details of applications should be submitted to reach him not later than first post on 9th May, 1955.

T. C. HAYWARD,
Clerk of the County Council.
County Hall, Chichester.
6th April, 1955. 9492

SOUTHAMPTON C.B.C. requires, under N.J.C. conditions of service:

(a) ASSISTANT ARCHITECT, Special Grade £650/£775.

(b) ARCHITECTURAL ASSISTANT, Grade A.P.T. II £560/£640.

Applicants must possess the appropriate qualifications and experience for Special Classes of Officers under N.J.C. conditions of service and have had experience in Municipal housing estate development and administration of contracts.

If housing accommodation is required, state requirements.

Apply with copies of two testimonials to the Borough Engineer, Civic Centre, Southampton, by Monday, 9th May, 1955. 9573

URBAN DISTRICT COUNCIL OF CORBY.
DEPARTMENT OF THE ENGINEER AND SURVEYOR.

SENIOR QUANTITY SURVEYOR.
Applications are invited for the above appointment at a salary in accordance with new Grade A.P.T. V (£750-£900), commencing at £750 per annum.

Applicants must have passed the final R.I.C.S. (Quantities Section) examination and be thoroughly experienced in the preparation of Bills of Quantities, adjustment of variations and settlement of final accounts. Previous experience of substantial contracts for local authority housing is desirable.

The provisions of the Local Government Superannuation Acts, 1937-1953, will apply to this appointment.

Housing accommodation will be made available to the successful candidate, if married.

Forms of application may be obtained from the undersigned, and completed forms must be received not later than by the first post on Saturday, the 30th April, 1955.

G. B. BLACKALL,
Clerk of the Council.
Council Offices, Corby, Northants.
7th April, 1955. 9499

BOROUGH OF LEYTON.
Applications are invited for the appointment of GENERAL ARCHITECTURAL ASSISTANT, Grade A.P.T. II (£550-£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.

Details of appointment 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 Friday, 6th May, 1955.

D. J. OSBORNE, Town Clerk.
Town Hall, Leyton, E.10. 9498

SALOP COUNTY ARCHITECTS' DEPARTMENT.
SENIOR ASSISTANT ARCHITECT required; salary A.P.T. Grade V. (£750 to £900 p.a.). Applicants must be Members of the R.I.B.A.

A separate allowance of not exceeding 30/-d. 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 6th May, 1955.

CITY OF BIRMINGHAM.
CITY ARCHITECT'S DEPARTMENT.

Applications are invited for appointments as ARCHITECTURAL ASSISTANTS on the Special Classes Scale, £650/£775 per annum, for duties in connection with either Schools or General Civic Buildings. Commencing salary will be according to capabilities and experience.

Applicants must have passed Parts I and II of the Final R.I.B.A. Examination, or hold an equivalent qualification.

The posts are permanent, superannuable, subject to a medical examination, and to one month's notice on either side.

Applications, stating age, present position and salary, qualifications and experience, and type of work preferred, together with the names of two persons to whom reference can be made, should reach the undersigned by not later than 30th April, 1955.

Canvassing disqualifies.
A. G. SHEPPARD FIDLER,
City Architect.
Civic Centre, Birmingham, 1. 9540

BOROUGH OF HARTLEPOOL.
APPOINTMENT OF DEPUTY BOROUGH ENGINEER AND SURVEYOR.

Applications are invited for the above appointment from persons with architectural experience at a salary in accordance with Grade A.P.T. IV (£675 x £30(5)-£825), commencing salary to be dependent upon qualifications and experience.

The successful applicant will be responsible to the Borough Engineer and Surveyor for the architectural section of the Department.

Housing accommodation will be provided. The appointment is subject to the Local Government Superannuation Acts and to the National Joint Council Scheme of Conditions of Service and will be terminable by one month's notice on either side. The successful applicant will be required to pass a medical examination before appointment.

Applications, stating age, present and previous appointments, qualifications and experience, together with the names and addresses of two referees, should be received by the undersigned not later than Wednesday, 27th April, 1955.

L. O. WILLIAMS,
Town Clerk.
Borough Buildings, Hartlepool. 9542

DEVON COUNTY COUNCIL require ASSISTANT PLANNING OFFICER, A.P.T. V. Should be A.M.T.P.I. and have had considerable Development Plan and Town Map experience. Closing date 4th May, 1955. Particulars from Director of Planning, "Bellair," Topsham Road, Exeter. 9574

GLENROTHES DEVELOPMENT CORPORATION.

Applications are invited from suitably qualified persons for the post of ASSISTANT CHIEF ARCHITECT (Other Buildings). Salary £1,030 × £50 to £1,180 per annum with placing according to experience.

Applicants should be Corporate Members of the E.I.B.A. and should have had considerable experience in the design and construction of public buildings.

The Corporation will provide a house to let, if required. Medical examination under Superannuation Scheme.

Further particulars will be obtained from the Secretary, Glenrothes Development Corporation, Glenrothes, Fife, with whom applications giving details of age, qualifications and experience must be lodged not later than 30th April, 1955.

9571
COUNTY BOROUGH OF GREAT YARMOUTH. APPOINTMENT OF SENIOR ASSISTANT ARCHITECT.

Applications are invited for the above appointment in the Borough Engineer's Department at a salary in accordance with Grade A.P.T. IV (£675-£825) of the national scale.

Applicants should be A.R.I.B.A. with office experience, which is essential to this position and preference will be given to candidates with wide administrative experience in the handling of large contracts. Housing accommodation will be offered by the Council if required.

The appointment will be terminable by one month's notice on either side, subject to the provisions of the Local Government Superannuation Acts, and passing a medical examination. Applications stating age, qualifications, education and training and appointments held, giving the names of two referees, should be enclosed in an envelope endorsed "Senior Assistant Architect" and sent to reach me by the 6th May, 1955.

Candidates must disclose in writing whether they are related to any officer or member of the Council. Canvassing disqualifies.

FARRA CONWAY, Town Clerk.

Town Hall, Great Yarmouth. 9544
6th April, 1955.

COUNTY BOROUGH OF BARROW-IN-FURNESS. ARCHITECTURAL STAFF.

Applications are invited for the following permanent posts:—

1. SENIOR ARCHITECT, Grade V—£750-900 p.a.
2. ASSISTANT ARCHITECT, Grade IV—£675-825 p.a.
3. ARCHITECTURAL ASSISTANT, Grade II—£500-640 p.a.
4. QUANTITY SURVEYOR, Grade V—£750-900 p.a.

In each case the commencing salary will be fixed according to the qualifications and experience of the successful candidate.

In respect of appointments 1, 2 and 4, it is possible that the Council will allocate Corporation houses subject to the merits of the cases being satisfactory to the interviewing committee.

The Department works a five day week. Further details of the post, conditions of appointment and forms of application may be obtained from the Borough Engineer & Surveyor to whom completed applications must be returned not later than Wednesday 4th May, 1955.

LAWRENCE ALLEN, Town Clerk.

Town Hall, Barrow-in-Furness. 9526

NORTHERN IRELAND HOSPITALS AUTHORITY. SENIOR ASSISTANT ARCHITECT.

Salary—£875×30—£1,025 per annum. Application forms and particulars may be obtained from the Secretary, Northern Ireland Hospitals Authority, Victory Buildings, 44/46, Queen Street, Belfast, to whom completed forms should be sent so as to arrive not later than 5 p.m. on Tuesday, 3rd May, 1955.

9577
CITY OF CARDIFF. APPOINTMENT OF ARCHITECTURAL ASSISTANTS.

Applications are invited for the following appointments in the City Surveyor's Department:—

- (a) Architectural Assistant (Education) A.P.T. Grade V (£750-£900 per annum).
- (b) Architectural Assistant (Housing) A.P.T. Grade III (£600-£725 per annum).

Candidates should possess the minimum qualifications and experience prescribed by the National Joint Council for Local Authorities' Administrative, Professional, Technical and Clerical Services for posts in the above-mentioned Grades.

General Conditions of Appointment may be obtained from the undersigned.

The Council will assist in providing housing accommodation for a period for the successful applicants.

Applications, accompanied by the names and addresses of three referees and endorsed "Architectural Assistant (Education) A.P.T. Grade V or Architectural Assistant (Housing) A.P.T. Grade III" as the case may be, must be delivered to me not later than the 4th May, 1955.

S. TAPPER-JONES, Town Clerk.

City Hall, Cardiff. 9530
April, 1955.

BEESTON AND STAPLEFORD URBAN DISTRICT COUNCIL. JUNIOR ARCHITECTURAL ASSISTANT.

Grade II. (£560-£640). Applications are invited for the above appointment, N.J.C. Conditions of Service.

Applications, naming two referees, to the Surveyor, Town Hall, Beeston, Nottingham, by 2nd May, 1955.

H. D. JEFFRIES, Clerk of the Council.

Town Hall, Beeston, Nottingham. 9554

COUNTY COUNCIL OF NORTHUMBERLAND. COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the post of JUNIOR ARCHITECTURAL ASSISTANT from those who have passed the R.I.B.A. intermediate examination and have some practical experience. Salary (A.P.T. Grade I—£500-£580 or A.P.T. Grade II—£560-£640) according to qualifications and experience.

The appointment will be subject to one month's notice on either side and to the provisions of the Local Government Superannuation Acts. The successful candidate will be required to pass a medical examination.

Applicants should be able to prepare working drawings for minor improvements and alterations to buildings, and to make surveys and on a level, also to prepare specifications, etc., for minor works.

Application stating age, qualifications and previous experience, accompanied by recent testimonials should be forwarded to the County Architect, County Hall, Newcastle-upon-Tyne, not later than Saturday, 30th April, 1955.

SKIPTON URBAN DISTRICT COUNCIL. (a) ONE BUILDING AND QUANTITY SURVEYING ASSISTANT. (b) ONE ENGINEERING ASSISTANT.

In both cases N.J.C. Service Conditions. Salary, £650×£25-£775 (Grading of Special Classes of Officers).

Housing accommodation available, if required. For post (a) the duties will consist mainly of the supervision of Housing and other Contracts (There is also a Clerk of Works); measurement of work done and settlement of Contractors' final accounts; and the preparation of Bills of Quantities.

Applicants for post (b) should have good general experience in Municipal Engineering, and a knowledge of Housing Estate Development is desirable. The appointments will be subject to one month's notice on either side.

Apply, giving age, qualifications, full record of experience and names of three referees to Mr. K. B. Robinson, B.Sc. (Eng.), A.M.Inst.C.E., Engineer and Surveyor, Town Hall, Skipton, by first post, Monday, 9th May, 1955.

L. E. SMITH, Clerk to the Council.

THE NORTH WESTERN ELECTRICITY BOARD. APPOINTMENT OF THIRD ASSISTANT ENGINEER (BUILDING MAINTENANCE) SUB-AREA ENGINEER'S DEPARTMENT.

KENDAL. The successful candidate will be responsible to the Second Assistant Engineer (Architecture & Building) for the programming and execution of all building maintenance and should have had considerable experience as a Building Inspector. Experience in the preparation of layout and details drawings and some knowledge of building quantities will be an advantage.

Salary Scale: £755×15-£900 p.a. Grade J.10. N.J.B. Conditions.

Applications to Sub-Area Manager, No. 6 Sub-Area, The North Western Electricity Board, Castle Green, Kendal, by 30th April, 1955.

APPOINTMENT OF SENIOR DRAUGHTSMAN (BUILDING) SUB-AREA ENGINEER'S DEPARTMENT, HAZEL GROVE.

Applicants should have experience in the preparation of working drawings for the construction of electricity substations, service centres and offices, etc. Some knowledge of quantities and the preparation of specifications will be considered an advantage.

Applicants should have reached the standard of the H.N.C. in building. Salary Scale: £640×20-£740 p.a. Schedule D. Grade 5. N.J.B. Conditions.

Application forms can be obtained from the Sub-Area Manager, No. 7 Sub-Area, The North Western Electricity Board, Chapel Street, Hazel Grove, to be returned to him by 30th April, 1955.

COUNTY BOROUGH OF CROYDON. APPOINTMENTS.

(a) ARCHITECTURAL ASSISTANT—Experienced in Local Authority housing work. Salary: A.P.T. II £560 × £20-£640 p.a. plus London weighting (£30 p.a. at age 26 and over).

If the successful candidate is unable to obtain reasonable living accommodation, the Corporation will endeavour to assist.

(b) ARCHITECTURAL ASSISTANT—General experience. Salary: A.P.T. I, £500 × £20-£580 p.a. plus London weighting.

Applications (on forms from the Borough Engineer, Town Hall, Croydon) must be submitted to him by the 28th April, 1955.

E. TABERNER, Town Clerk.

Town Hall, Croydon. 9548

BOROUGH OF BEDFORD. ASSISTANT ARCHITECT GRADE A.P.T. IV.

Applications are invited for the above appointment at a salary within Grade A.P.T. IV (£675-£825).

Applicants should be Associate Members of the Royal Institute of British Architects and preference will be given to those with experience in the design of multi-storey flats and civic buildings in addition to general housing work.

Housing accommodation will be provided if required. Forms of application may be obtained from the undersigned to whom they should be returned not later than 30th April, 1955.

F. W. DAWKES, Borough Engineer & Surveyor, B.Sc. (Eng.), A.M.I.C.E.

Newnham House, M.I.Mun.E., A.M.T.P.I. Horne Lane, Bedford. 9555

MANCHESTER CITY ARCHITECT'S OFFICE.

Applications are invited for the appointment on the permanent staff of an ARCHITECTURAL ASSISTANT. Salary Basic Grade £650/775 per annum. Applicants must have passed parts 1 and 2 of the E.I.B.A. Final examination or its equivalent and have had at least five years' experience including the period spent in theoretical training. Further particulars and forms of application may be obtained from the City Architect, Box No. 488, Town Hall, Manchester, 2. The completed form to be returned to the same address by 7th May, 1955. Canvassing is prohibited.

COUNTY BOROUGH OF DARLINGTON. APPLICATIONS ARE INVITED FOR THE APPOINTMENT OF PRINCIPAL ASSISTANT ARCHITECT, in The Borough Architect's Department; salary grade, A.P.T. VI, £825-£1,000 per annum.

Full particulars and conditions obtainable from The Borough Architect, Central Buildings, Darlington. Closing date: 12th May, 1955.

ARCHITECT'S DEPARTMENT. GENERAL DESIGNER required to assist in a Section concerned with Exhibitions, furniture design and colour schemes. Inter. E.I.B.A. exam. and training in design necessary. Salary up to £739 10s. 0d. Application forms, returnable by 31st May, 1955, from Architect (AR/EK/F&D/2), The County Hall, S.E.1. (504) 9536

CITY OF BIRMINGHAM. CITY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments:—(a) QUANTITY SURVEYOR—Grade A.P.T. IV (£675-£825 per annum); (b) ASSISTANT QUANTITY SURVEYOR—Grade A.P.T. III (£600-£725 per annum); (c) ASSISTANT QUANTITY SURVEYOR—Grade A.P.T. II (£560-£640 per annum); (d) ASSISTANT QUANTITY SURVEYOR—Grade A.P.T. I (£500-£580 per annum).

Applicants for Grade A.P.T. IV must have passed the Final Examination, and for Grades A.P.T. I, II and III the Intermediate Examination of the R.I.C.S. (Quantity Section), or held equivalent qualifications. The commencing salary in any grade will be according to capabilities and experience.

The posts are permanent, superannuable, subject to a medical examination and to one month's notice on either side.

Applications, endorsed with the heading of the post, stating age, present position and salary, qualifications and experience, together with the names of two persons to whom reference can be made, should reach the undersigned not later than 30th April, 1955.

Canvassing disqualifies. A. G. SHEPPARD FIDLER, City Architect.

Civic Centre, Birmingham, 1. 9541

NEWCASTLE REGIONAL HOSPITAL BOARD. REGIONAL ARCHITECTS' DEPARTMENT.

Appointments of (a) ONE ASSISTANT ARCHITECT and (b) ONE ARCHITECTURAL DRAUGHTSMAN.

Applications are invited for the following permanent (superannuable) appointments on the Headquarters Staff of the Regional Architect, Philip H. Knighton, M.B.E., A.R.I.B.A.

(a) ONE ASSISTANT ARCHITECT. Applicants must be Registered Architects and experience of the design and construction of public buildings will be an advantage. Commencing salary within Grade £625 to £890 according to length of practical experience since becoming a Registered Architect.

(b) ONE ARCHITECTURAL DRAUGHTSMAN. Commencing salary £380 at age 21 or over (subtract £20 for each year below 21) × £20(3) × £25(2) × £20(4)-£570. Applicants should have had previous experience in an architect's drawing office and be neat and expeditious draughtsmen.

The posts offer opportunity for gaining all-round general as well as hospital experience and for doing good-class work in a department which is to have a considerable share in the recently-announced national expansion of the hospitals-building programme. Evening study facilities are available at King's College of Durham University in Newcastle.

Applicants should state training, experience, whether married, present post and salary, war service (if any) date available and names of three referees of whom at least two should be architects. Applications are to be forwarded to the Secretary by 6th May, 1955.

"Dunira," Osborne Road, Newcastle-upon-Tyne, 2. 9450

CARDIGANSHIRE COUNTY COUNCIL.
Applications are invited for the following appointments:—
1 ASSISTANT ARCHITECT, Grade A.P.T. IV (£675-£825). Applicants should be members of the R.I.B.A. Applicants should be members of the R.I.B.A.
1 ARCHITECTURAL ASSISTANT, Grade A.P.T. III (£500-£725). Applicants should have passed the R.I.B.A. Intermediate Examination.
Commencing salary will be in accordance with qualifications and experience.
The appointment is in the County Architect's Department, County Hall, Aberaeron.
Application forms can be obtained from the County Architect and these must be returned to the undersigned by not later than the 30th April, 1955.

J. E. R. CARSON,
Clerk of the Cardiganshire County Council,
Swyddfa'r Sir,
Aberystwyth. 9441

COUNTY BOROUGH OF EASTBOURNE.
ASSISTANT ENGINEER—Special Grade: £650 × £25-£775 p.a.
Applications are invited for the above appointment.
Full particulars of age, present position and salary, qualifications and experience, together with the names of two referees, to be sent to the undersigned by Monday, 2nd May, 1955.

R. WILLIAMS, B.Sc., A.M.I.C.E.,
Borough Engineer & Surveyor,
2/4, Saffrons Road, Eastbourne. 9539

SOUTH-EAST METROPOLITAN REGIONAL HOSPITAL BOARD.
Vacancies for:—
(a) ASSISTANT ARCHITECT—Salary rising from at least £645;
(b) SURVEYOR'S CLERK (Quantity Surveying section)—Salary, according to age, rising from approximately £400.
Applications by 16th May, 1955. Details from Regional Architect, 10, Hallam Street, W.1. 9572

The Metropolitan Borough of **HAMPSTEAD** require a temporary **ARCHITECTURAL ASSISTANT, Grade A.P.T. III (£600-£725 plus London weighting).** Candidates should be qualified in accordance with the Charter. Medical examination. No housing provided. Applications suitably endorsed, giving three referees, to the Town Clerk, Town Hall, Haverstock Hill, N.W.3. Closing date: 29th April, 1955. 9527

COUNTY OF LEICESTER.
(a) SENIOR ASSISTANT ARCHITECTS, £750-£900; **(b) SENIOR ASSISTANT ARCHITECT, £675-£825;** **(c) ASSISTANT QUANTITY SURVEYOR, £675-£825.**

Candidates for (a) and (b) must be Registered Architects experienced in design and construction of modern buildings and capable of carrying through projects from inception to completion; for (c) be experienced in preparation of specifications, bills of quantities and settling final accounts. A.R.I.C.S. preferred. Apply by 7th May, on form obtainable from County Architect (c), 123, London Road, Leicester. 9488

SENIOR DRAUGHTSMEN (two) required in the Architectural and Construction Section of the Engineer's Department of the Birmingham and District Sub-Area. Applicants should have had a thorough technical training and practical experience in the design of new buildings and alterations to existing buildings, and be capable of preparing complete working drawings for a variety of types of large and small buildings. Appropriate qualifications desirable.
Salary within the range £510/£530 or £640/£740 per annum (N.I.B. Schedule "D," Grades 6 or 5).
Applications in writing, stating age, qualifications, experience, present position and salary, endorsed "Building and Civil Engineering Draughtsman" should be forwarded within 14 days to Emil Braathen, Sub-Area Manager, Midlands Electricity Board, 14, Dale End, Birmingham, 4. 9487

LONDON COUNTY COUNCIL, ARCHITECTS' DEPARTMENT.
Vacancies for ARCHITECTS Grade III (up to £892 10s. 0d.) with experience in working drawings and specifications for alterations, adaptations and improvements.
Particulars and application forms, returnable by 4th May, from Architect (AR/EK/M/2), The County Hall, S.E.1. (473) 9478

CITY OF PORTSMOUTH, ARCHITECTS' DEPARTMENT.
Applications are invited for the following appointments:—
(a) ASSISTANT ARCHITECT, Grade IV (£675-£825)
(b) ASSISTANT QUANTITY SURVEYOR, Grade I (£500-£580).
Applicants for (a) must be Associates R.I.B.A., with wide experience of municipal buildings, including schools, and for (b) must be experienced in abstracting and dealing with sundry accounts.
Applications, setting out in tabular form, name, age, qualifications, present post and salary, previous posts with dates, details of experience, with names of two referees, must be delivered to the undersigned not later than 10 a.m. on Monday, 9th May, 1955.
Canvassing will disqualify.

V. BLANCHARD,
Town Clerk,
City Council Chambers,
1, Clarence Parade,
Portsmouth. 9578

URBAN DISTRICT OF FELTHAM.
TWO TEMPORARY ARCHITECTURAL ASSISTANTS required. Salaries within the new Grade A.P.T. IV (£675 × £30-£825 per annum), plus London "weighting." Applicants must be suitably qualified.

Forms of application, obtainable from the undersigned, must be returned, accompanied by copies of two testimonials, not later than 6th May, 1955. Canvassing directly or indirectly will disqualify and applicants must disclose, in writing, whether to their knowledge they are related to any member of or the holder of any senior office under the Council.

M. W. COUPEL,
Clerk of the Council,
Council Offices,
Feltham, Middx. 9584

BOROUGH OF ILFORD, BOROUGH ENGINEER'S DEPARTMENT.

TWO ASSISTANT ARCHITECTS, Grade A.P.T. II/III, £560-£725 p.a., plus London Weighting. The point of entry in the scale will be fixed, having regard to qualifications and experience, but not exceeding £620 p.a., plus London Weighting. Candidates must be members of the R.I.B.A. and have a thorough knowledge of architectural works.
The Council is prepared to consider, if necessary, the provision of housing accommodation in connection with these appointments. Appointments supernumerary and subject to medical examination.
Application forms obtainable from the Town Clerk, Town Hall, Ilford, Essex, on receipt of stamped, addressed envelope, should be returned not later than 14th May, 1955. Applicants should clearly state the position in respect of which application forms are required. 9579

BOROUGH OF RAMSGATE, APPOINTMENT OF ARCHITECTURAL ASSISTANTS.

(a) One ARCHITECTURAL ASSISTANT (Permanent), Grade A.P.T. III (£600-£725).
(b) One ARCHITECTURAL ASSISTANT (Temporary), Grade A.P.T. III (£600-£725).
Applications are invited for the above-mentioned appointments.

Applicants should have the qualification of A.R.I.B.A. and be experienced in all types of Local Authority work, including preparation of working details, &c.
Housing accommodation can be made available. Applications endorsed either "Architectural Assistant (Permanent)" or "Architectural Assistant (Temporary)," stating age, qualifications and experience, and giving the names of two persons to whom reference may be made, must be received by the Town Clerk, Municipal Buildings, Ramsgate, by not later than Friday, 13th May, 1955. Canvassing will disqualify. 9580

BOROUGH OF BASINGSTOKE, BOROUGH ARCHITECTS' DEPARTMENT.

Applications are invited for the appointment of an **ARCHITECTURAL ASSISTANT, A.P.T., Grade II (£560-£640).**
Applicants must have reached the standard of the Intermediate Examination of the R.I.B.A. and have had good experience in Housing of Contemporary Design.
The appointment will be subject to the provisions of the Local Government Superannuation Acts 1937 to 1953 and to the National Conditions of Service and the successful candidate will be required to pass a medical examination.
Applications, stating age, qualifications and giving details of education and experience, together with copies of two recent testimonials, are to be submitted to the Borough Architect (Eric Almond, D.Phil. Arch., A.R.I.B.A.) Municipal Buildings, Basingstoke, not later than the 6th May, 1955.
Candidates must state if housing accommodation is required.

MEIRION O. JONES,
Town Clerk,
Municipal Buildings,
Basingstoke.

NEWBURN URBAN DISTRICT COUNCIL, SURVEYOR & ARCHITECTS' DEPARTMENT.

Applications are invited for the following appointments:—
(1) TECHNICAL ASSISTANT, Grade A.P.T. II (£550/£640). Applicants should have passed the Intermediate Examination of the Institution of Municipal Engineers or Royal Institution of Chartered Surveyors.
(2) ARCHITECTURAL ASSISTANT, Grade A.P.T. II (£550/£640). Applicants should have passed the Intermediate R.I.B.A. Examination or its equivalent.
Commencing salary will be in accordance with qualifications and experience.
The appointments will be subject to the National Scheme of Conditions of Service; to the provisions of the Local Government Superannuation Acts; one month's notice, and to passing a medical examination.
Applications, giving full particulars, together with the names and addresses of two referees, in envelopes endorsed "Architectural Assistant" or "Technical Assistant," should be sent to me not later than 16th May, 1955.

THOMAS SHAW,
Clerk of the Council,
Council Offices,
Newburn,
Newcastle-upon-Tyne, 5.
16th April, 1955. 9585

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 18-49 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

IMPERIAL CHEMICAL INDUSTRIES, LTD., WILTON WORKS, near Redcar, requires ARCHITECTURAL ASSISTANTS in connection with the further development of the new chemical factory at Wilton.

Candidates should be experienced in the preparation of working drawings of canteens, laboratories, and other similar buildings.
Preference will be given to applicants possessing at least R.I.B.A. (Inter.).
Appointments are to the permanent staff, 5-day/39-hour week, with first-class working conditions, including Pension Fund and recreation facilities.

Write for application for employment form to the Staff Officer, Imperial Chemical Industries, Ltd., Wilton Works, Middlesbrough, Yorkshire, or apply to the nearest Employment Exchange quoting advertisement reference ICIX/198/e. 9581

BUILDING SURVEYING ASSISTANT (about R.I.C.S. Final Standard) with at least two years' practical experience required by City firm of Chartered Surveyors & Architects. 3925

ARCHITECTURAL ASSISTANT: Intermediate approaching final. Commercial and industrial work; large-scale contracts. Watson, Johnson, Stokes, Victoria Square, Birmingham. 4896

ARCHITECTURAL ASSISTANT required for a busy practice covering North West England. Box 9136.

URGENTLY required, ASSISTANT for responsible position in general practice with interesting work in hand over a large area. Salary directly related to ability. Accommodation available if required. Martindale and Jackson, F./A.R.I.B.A., Cathedral Chambers, Castle Street, Arlehol. 9133

SALARY up to £793, according to experience for ASSISTANT in first class City Office. Box 9169.

ARCHITECTURAL ASSISTANT required, intermediate stage or above, some office experience. Write for interview. Box 8770.

"THE ARCHITECTS' JOURNAL" requires a **DRAUGHTSMAN**, to assist in the preparation of drawings for Working Details and Information Sheets. Good draughtsmanship, a knowledge of building construction, and a keen interest in the above type of work are necessary. Write to the Editor (Information Sheets), 9, Queen Anne's Gate, S.W.1, stating age, architectural training, and experience. 901

MESSERS. NORTH & PARTNERS are seeking an **ASSISTANT** with general experience in surveys of existing properties and building sites. As the practice extends throughout the whole of Gt. Britain the successful applicant must be prepared to travel. Ability to assist generally in the drawing office would be an added advantage. Salary according to experience. Reply to North & Partners, Maidenhead. 8307

CECIL Howitt & Partners, Architects, 81, Andrew's House, Mansfield Road, Nottingham, require **JUNIOR ARCHITECTURAL ASSISTANTS**, preferably Inter. R.I.B.A. standard. Please apply in writing, giving full details and stating salary required. 6705

ARCHITECT, OR EXPERIENCED ASSISTANT, REQUIRED BY "THE ARCHITECTS' JOURNAL." Ability to write fluently and well, and a sound knowledge of construction and contemporary building techniques essential. Will be expected to write reports on buildings, supervise the production of technical architectural drawings, commission and sub-edit technical articles and assist production. Please reply to The Editor, "The Architects' Journal," 9, Queen Anne's Gate, S.W.1. 902

REQUIRED in Chief Architect's Department at Head Office of Multiline Store in London.
(a) JUNIOR ARCHITECTURAL DRAUGHTSMAN or **ASSISTANT** with good basic experience to prepare sketch plans, working drawings and give general assistance. **(b) JUNIOR SHOPFITTING DRAUGHTSMAN** for Store Fixtures and Fittings. Write, with details of experience and salary required, to Box 9194.

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A.R.I.B.A., single, newly qualified, for busy office in Gold Coast, West Africa. Accommodation (incl. feeding) and car provided. Salary by arrangement. Engagement for two years in first instance, with liberal leave, and air passages paid. Opportunity for partnership in growing practice for right type who must be prepared to work hard and get on well with Africans. Interviews in London. State when available. Apply with full particulars and photograph to Box 9519.

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SAMUEL MORRISON AND PARTNERS require ASSISTANT ARCHITECTS of intermediate and final standard, with or without experience. Work includes interesting contemporary schools, factories, shops and houses in various parts of the country, industrial design and the development of prefabricated structures. Salaries comparable to Local Authority scales; interview expenses paid. Good office accommodation in pleasant surroundings. St. Aikmound's House, Belper Road, Derby. 9344

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NATIONAL COAL BOARD—EAST MIDLANDS DIVISION.
ARCHITECTS DEPARTMENT, MILTON STREET, NOTTINGHAM.

APPLICATIONS are invited for the following permanent and supernumerary appointments. Superannuation rights under Local Authority Schemes are transferable.

S.V. 3.7—Architects Grade II.
Salary £450 + £25—£650 + £30—£900. Candidates should be Corporate Members of the R.I.B.A.

S.V. 3.8—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. Facilities are granted in certain circumstances to Assistants for part-time study at the Nottingham School of Architecture.

S.V. 3.9—Quantity Surveyor Grade I.
Salary £900 + £35—£1,200. Candidates should be Corporate Members of the R.I.C.S. with considerable experience.

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

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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. 9324

£500—£700 per annum salary offered for ASSISTANT to take part in large-scale development and remodelling of petrol filling stations, service stations, garages and workshops, etc. Must be capable of working independently. Should be of intermediate standard. Work will involve original design, site visits and a high standard of presentation. Five-day week, good pension and life assurance scheme, sickness benefits and free luncheon vouchers. Social Club. Write, giving all details, stating age, experience and salary required to Box 9325, quoting Ref V 593

QUALIFIED ARCHITECT interested in Church and School work required. Salary dependent on qualifications and experience. Some practical building experience necessary. Ring Thomas F. Ford & Partners (VIC. 4853) for appointment. 9420

ARCHITECTURAL ASSISTANT required, experience up to Final or Intermediate standard in preparation of working drawings, details, specifications, for South West London office. Apply in writing, giving full particulars of experience, age and salary required. to Box 9098.

INTERMEDIATE standard ASSISTANT required for general practice, Central London Area. Five-day week. Telephone John A. Goschalk, Chartered Architect, Welbeck 0893. For appointment, or write brief details to Box 9157.

ARCHITECT with varied practice requires capable ASSISTANT. Good draughtsman with knowledge of construction. Reply with details of age, experience and salary expected, to A. W. J. Mullins, L.R.I.B.A., 78, Thorpfare, Woodbridge, Suffolk. 9393

ARCHITECTURAL ASSISTANTS required for West End office. Salary £350—£700 p.a. according to experience and ability. Scherzer and Hicks, 19, Cavendish Square, W.1. 9395

SENIOR ARCHITECTURAL ASSISTANT required. R.I.B.A. Final standard, for varied London practice. Write, giving particulars of age, experience, salary required, etc. Box 9391.

ARCHITECTURAL ASSISTANT of R.I.B.A. Intermediate standard required for Architect's Dept. of Contractors and Estate Developers in the outer London South Eastern area, engaged on private estate development, shops and light industrial premises. Salary up to £500 per annum according to experience. JUNIOR ASSISTANT also required. In care reply, stating age and experience, to Box 9399.

ASSISTANT SURVEYORS experienced in the preparation of detailed drawings and surveys required by Davis Estates, Ltd., 346/350, Kiburn High Road, London, N.W.6. Apply giving details of past employment and salary required. 9462

NEW ZEALAND ARCHITECTURAL PRACTICE, mainly in commercial and industrial work, requires **ADDITIONAL SENIOR ASSISTANTS**, preferably qualified A.R.I.B.A. with some experience since exams., either single or married although accommodation easier for single men. Good opportunity enterprising and capable man considering emigration. Commencing salary £750/£900 according to capabilities. Two years' assured engagement and passage money assistance for right man, subject certain conditions. Apply airmail, with snapshot and personal and experience details, plus small working drawing recent work, to Mitchell & Mitchell & Partners, P.O. Box 157, Wellington, C.I. New Zealand. 9446

SENIOR and INTERMEDIATE ARCHITECTURAL ASSISTANTS required. Five-day week. Write or telephone, giving full particulars, including age and salary, to Hasker & Hall, Architects, 13, Welbeck Street, W.1 (WELbeck 0061). 9445

ARCHITECTURAL ASSISTANTS required, approaching or at Intermediate stage. Salary up to £500 per annum according to ability and experience. D. Piskett Marshall, F.R.I.B.A., 59, Gordon Square, W.C.1. MUSEum 7176/7. 9423

SENIOR and JUNIOR ARCHITECTURAL ASSISTANTS required by architects in City of London for varied commercial and industrial works. Write, stating age, qualifications and salary required to Box 9432.

ASSISTANT QUANTITY SURVEYOR required by Manchester firm of Architects, experienced taker-off. Write, stating age, experience, qualifications and salary required. Box 9428.

BUILDING SURVEYOR required by Manchester firm of Architects for preparation of Specifications, Bills of Quantities for small jobs, approximate estimates, valuations for interim and final certificates, and assisting in administration of contracts. Write stating age, experience and salary required. Box 9429.

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ARCHITECT'S ASSISTANT required by Manchester firm of Architects, R.I.B.A. Intermediate standard or beyond, with some previous office experience. Write stating age, experience, qualifications and salary required. Box 9431.

ARCHITECTURAL ASSISTANT about Intermediate R.I.B.A. standard required for Manchester firm of Architects and Surveyors. Good prospects. State age, salary and experience. Box 9427.

SENIOR ARCHITECTURAL ASSISTANTS required immediately to work on large City office blocks. Final standard with 5 years' office experience. Salary £650—£900. Apply in writing, to Campbell Jones & Sons, Chartered Architects, 9, Dowgate Hill, E.C.4, or telephone CEN. 7748. 9425

THE Girls' Public Day School Trust require an **ASSISTANT ARCHITECT**, preferably qualified and experienced in the design of extensions and adaptations of School Buildings. Apply in writing to the Secretary, G.P.D.S.T., Broadway Court, Westminster, S.W.1. 9449

RONALD WARD & PARTNERS require several **ARCHITECTURAL ASSISTANTS**. Apply 29, Chesham Place, Belgrave Square, S.W.1, or telephone BELgravia 3361. 7023

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

REQUIRED for Architects' office. Central London area, young qualified ASSISTANTS interested in design and construction. Write, stating experience and salary required. Box 9395.

CLIFFORD TEE & GATE F.F.R.I.B.A. require **SENIOR and JUNIOR ASSISTANTS** in their Westminster Office on Research Laboratories and other interesting projects. Please apply to 5, Buckingham Palace Gardens, S.W.1. (Stoane 2296). Five-day week. 8660

ARCHITECTURAL ASSISTANT required in the West End Office of Percy Bilton Ltd. Salary about £500—£600 according to experience. Work would entail preparation of drawings, details and specifications for wide range of buildings including houses, flats and offices. Write giving experience and other useful information to Staff Architect, Percy Bilton Ltd., 113, Park Street, W.1. 8902

SENIOR ASSISTANT required in pleasant Midlands private office for interesting and varied work. Should be qualified and experienced, capable of supervising staff and taking full responsibility. Good salary and prospect of partnership. Please write stating full particulars and salary required. Box 9373.

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

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

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.

MEN required in Ellesmere Port area for Drawing Office work. Structural or Architectural experience necessary. No age limit; the older man is especially welcome. 5-day week, salary from £1108. to £15. State age and experience to Box 9661.

EXPERIENCED SHOPFITTING DRAUGHTSMAN required in Chief Architect's Department at Leicester Head Office of multiple store. Progressive and interesting position. Apply, giving details of age, experience and salary required, to Box 9559.

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Chartered Architect requires a reliable qualified ASSISTANT for a well established Country practice North of London. Capable of preparing plans, details and specifications from sketches. Salary £600 plus bonus. Reply stating age, qualifications, experience, etc., to Box 9552.

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ARCHITECTURAL ASSISTANTS required with office experience, preferably industrial or schools. Salary by arrangement. Llewellyn Smith & Waters, 103, Old Brompton Road, S.W.7. 9128

SENIOR and JUNIOR ARCHITECTURAL ASSISTANTS required for London and Watford offices engaged on large commercial and industrial projects. 5-day week. Good salaries offered. Box 9563.

YOUNG married couple, ARCHITECTS or ASSISTANTS, would be considered for appointment to two posts in private office in Channel Isles. Possibility purchasing small town house at about £600, if desired. Salaries up to £480 p.a. each, according to qualifications. Applications also considered from friends or individual candidates. Apply quoting OSS 18/2, 3, Overseas Technical Service, 5, Welton Crescent, Harrow, Middx. 9664

NORTH Wales, general/private practice require qualified **ARCHITECTURAL ASSISTANT** in thirties, with experience of such practice. Prospects good. Flat available. Full details. Box 9675.

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FIRST class men seeking stimulating opportunities in Scotland are invited to apply to Walter Alison & Hutchison, F.R.I.B.A., F.R.I.A.S., 27, Kirk Wynd, Kirkcaldy. Five who require **SENIOR and JUNIOR ARCHITECTS** for school and hospital work in their Kirkcaldy and Edinburgh offices. Salary range £450—£800, according to age, flair and brains. 9676

RICHARD SHEPPARD & PARTNERS require ASSISTANT ARCHITECTS. Sense and Sensibility equally important. Write stating experience and salary required to 16, Bedford Place, W.C.1. 9468

ARCHITECTURAL ASSISTANT required by North Essex branch Office to take charge of Drawing Office engaged on architectural and engineering projects. Must be good draughtsman with sound knowledge of construction. Salary £500-£700, according to experience. Write stating age and experience to Box 9463.

F. W. WOOLWORTH & CO. LTD.—ARCHITECTS' ASSISTANT required in Chief Architects Office, London. Write giving details of experience and salary required, to H. Winbourne, F.R.I.B.A., Chief Architect, F. W. Woolworth & Co. Ltd., 1/5, New Bond Street London, W. 1. 9477

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THREE well trained ASSISTANTS not below R.I.B.A. (Inter.) Standard and with some years' office experience of good class work required at once in Architect's Department in City. Salary according to age and experience and with good prospects of permanency. Box 9473.

ARCHITECTURAL ASSISTANT required of R.I.B.A. Intermediate or Final Standard. Give details of qualifications, age, experience and salary required to: R. & D. Hall, Architects, Masonic Buildings, Bangor, N. Wales. 9472

IMPERIAL CHEMICAL INDUSTRIES LIMITED has a vacancy for an ARCHITECTURAL ASSISTANT to work in their London offices. Candidates should be Associate Members of the R.I.B.A. between the age of 25-35 and should have a thorough knowledge of architectural works, particularly in regard to the design and construction of offices, canteens, laboratories, housing and warehouses. Applications stating age, qualifications and experience, should be sent to Head Office & Regions Staff Dept. (GDC), Imperial Chemical Industries Limited, I.C. House, Millbank, S.W.1. 9470

EDWARD D. MILLS requires ASSISTANT; Inter. Standard. Interest in contemporary design essential. Apply 15, Carlisle Street, Soho Square, London, W.1. 9469

ASSISTANT required with sound knowledge construction; interest in good design, capable draughtsman; for varied interesting industrial and commercial projects. "Contemporary" outlook. Office experience essential. Salary £600-£750 p.a. David Stern, 24, Gloucester Place, W.1. HUN: 0451. 9467

ARCHITECTURAL ASSISTANTS of Final and Intermediate standard required for Bristol Office. Varied and interesting work; good salary; contributory pension scheme. Write giving age, experience and salary to W. H. Watkins, Gray, F.R.I.B.A. and Partners, 1, Clare Street, Bristol, 1. 9465

YOUNG ASSISTANT, up to inter.-R.I.B.A. standard, required to assist Staff Architect in small Drawing Office of a Multiple Combine with branches throughout Great Britain. Able to work with the minimum of supervision. Occasional travelling may be involved. Apply stating age, previous experience, and salary required, to Box 9464.

J. M. AUSTIN-SMITH & PARTNER require ARCHITECTURAL ASSISTANT, Intermediate or Final standard with some office experience. Apply giving full particulars to 29, Sackville Street, W.1. 9485

COMPANY ARCHITECT to N.W. Brewery requires experienced ASSISTANT to act as his Deputy. The position is permanent and pensionable. Familiarity with licensed work desirable but not essential. Applications stating age, experience, qualifications and salary required to: Fergus H. Frost, A.R.I.B.A., Company Architect, The Birkenhead Brewery Co. Ltd., 73, Oxton Road, Birkenhead. 9485

ARCHITECTURAL ASSISTANTS. Applications are invited from persons with good experience up to R.I.B.A. inter. for appointments in South West England with designers and manufacturers of new traditional buildings. Full particulars of qualifications, age, experience and salary required to Box 9484.

SHREWSBURY—SENIOR and JUNIOR ASSISTANTS required in Branch Office. Appreciation of contemporary design desirable, together with efficient construction and draughtsmanship. Apply in writing, giving experience and salary required, to Angus McDonald & Partners, Chartered Architects, 1, Unity Street, College Green, Bristol, 1. 9480

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ARCHITECTURAL ASSISTANTS, R.I.B.A. Inter. to Final stage for Chelmsford office. Commencing salaries from £450 to £600. Interesting work, mainly schools. Applications in writing, please, with full details to:— R. A. Boxall, A.R.I.B.A., 81, Moulsham Street, Chelmsford. 9482

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ARCHITECTURAL ASSISTANT—British Insulated Callender's Cables Ltd., invite applications from candidates with experience up to Intermediate standard in the preparation of working drawings and details for factory type single and multi-storey buildings, offices and laboratories from Architects sketches. Remuneration will be in accordance with age and experience and the post is permanent and superannuated after normal probationary period. Applications should be submitted in writing, quoting reference P/86/55, to: Staff Officer, B.I.C.C. Ltd., Prescot, Lancs. 9515

FIRM of architects with strong contacts and considerable existing and future commissions desire to contact QUALIFIED ARCHITECT with good general and private experience, with a view of appointment to replace senior partner, who will shortly be retiring from full active practice. Reply—letters only—to W. L. Gallant & Co., 28, East Parade, Leeds, 1. 9513

ARCHITECT, 45, with extensive knowledge of design, development and research in prefabrication and new building technique, requires position with building firm or industrial concern which offers scope for utilising his wide experience in this field. Box 9512.

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GREENFELL BAINES AND HARGREAVES, Chartered Architects, require ARCHITECTURAL ASSISTANT with not less than two years' Office experience. Please reply, giving age, full particulars of qualifications and experience, and stating salary required, to 12, Guildhall Street, Preston. 9508

ARCHITECTURAL SENIOR ASSISTANTS required by London Architects. Peppy stating experience and ability to Box 9507.

BRITISH RAILWAYS. VACANCY for JUNIOR BUILDING SURVEYOR. Capable of preparing drawings, specifications, etc., for small building projects. Preference will be given to applicants who have passed the First Examination of the Royal Institution of Chartered Surveyors or similar body and completed their military training. Commencing salary according to minimum scale for age: 20-£315; 21-£340; 22-£355; 23-£380, etc. Good opportunities for advancement. Apply by letter to Estate & Rating Surveyor, British Railways, Western Region, 125, Westbourne Terrace, Paddington, London, W.2, giving educational attainments. 9532

ARCHITECT, with Private Practice in Liverpool, requires SENIOR ASSISTANT, qualified R.I.B.A., to take complete charge of work from design to site erection. Salary by arrangement. Opportunity for partnership, subject to mutual agreement. Box K603, Lee & Nightingale, Liverpool. 9545

ARCHITECTURAL ASSISTANT wanted. Competent draughtsman. Full particulars to Vallis & Bird, Frome. 9466

ARCHITECTS' ASSISTANTS, with experience and ability, required immediately, for busy office engaged on variety of work. Apply, stating age, experience and salary required, to: Quirk & Lee, Chartered Architects, 11, Waterloo Place, Leamington Spa. 9543

GOODDAY & NOBLE require an ASSISTANT of Intermediate to Final standard with a minimum of 2 years' office experience. Apply in writing, stating salary required to 2, Cadogan Place, S.W.1. 9535

ARCHITECTURAL ASSISTANT wanted at once for busy office; must have R.I.B.A. Intermediate, previous experience and enthusiasm. Salary £400-£550, according to capability. Apply in writing, giving full particulars. Antony Lamb, A.R.I.B.A., A.M.T.P.I., Ottery St. Mary, Devon. 9533

ARCHITECTURAL ASSISTANT required immediately by London firm of architects. Salary £600 to £700, according to experience. Reply stating age, qualifications and experience to Box 9504.

UNIVERSITY OF SHEFFIELD. ARCHITECTURAL ASSISTANT (SENIOR) required for Surveyor's Office. Capable of preparing Surveys, Working Drawings, detailing and supervision of alteration work of jobs from £500 to £20,000. Commencing salary £750 plus child allowances. Superannuation scheme. Send details of age, experience and qualifications to the Bursar, The University, Sheffield, 10. 9503

WANTED urgently by Yorkshire Architects—ASSISTANT, about Intermediate standard, must be good draughtsman. Reply with full particulars to Box 9502.

ARCHITECTURAL ASSISTANT required between Intermediate and Final Standard, solely for Brewery and Bottling Factory. Pension Scheme. State age and salary required. Apply: Chief Architect, Friary Brewery, Guildford, Surrey. 9494

QUALIFIED ARCHITECTURAL ASSISTANT with at least three years' experience, preferably industrial, minimum salary £700 p.a. 5-day week. Edgbaston, Birmingham. Apply Box 9493.

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. 9481

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ARCHITECTS ASSISTANTS (all grades) required by large firm of London Architects. Apply Box 9529.

ARCHITECTURAL ASSISTANT required immediately for Singapore or Borneo office. Fully qualified, preferably single. Salary, Singapore pound sterling two thousand one hundred per annum; Borneo pound sterling one thousand four hundred with furnished house. Air passage paid. First contract four years, with six months' paid leave and first class sea passage to U.K. Subsequent contracts three years, with similar leave allowances. Applications by Air Mail immediately, stating age, qualifications, experience, earliest available, to Palmer and Turner, P.O. Box 771, Singapore. 9531

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HOPSON HILL & PARTNERS have vacancy for one Intermediate standard ASSISTANT. Write giving age, experience and salary required, to 2, Leyton Green, Harpenden, Herts. 9523

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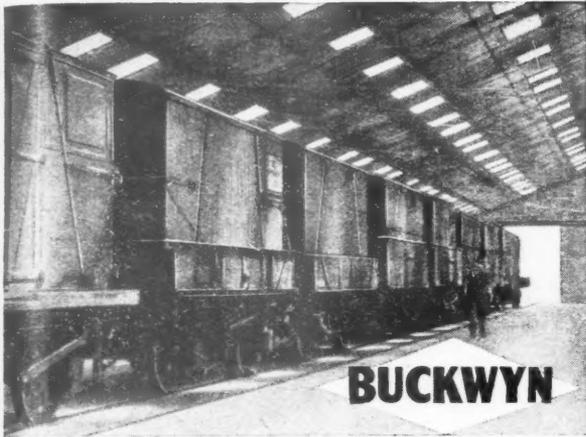


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