The Architects' JOURNAL for November 12, 1959

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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THE ARCHITECTURAL PRESS

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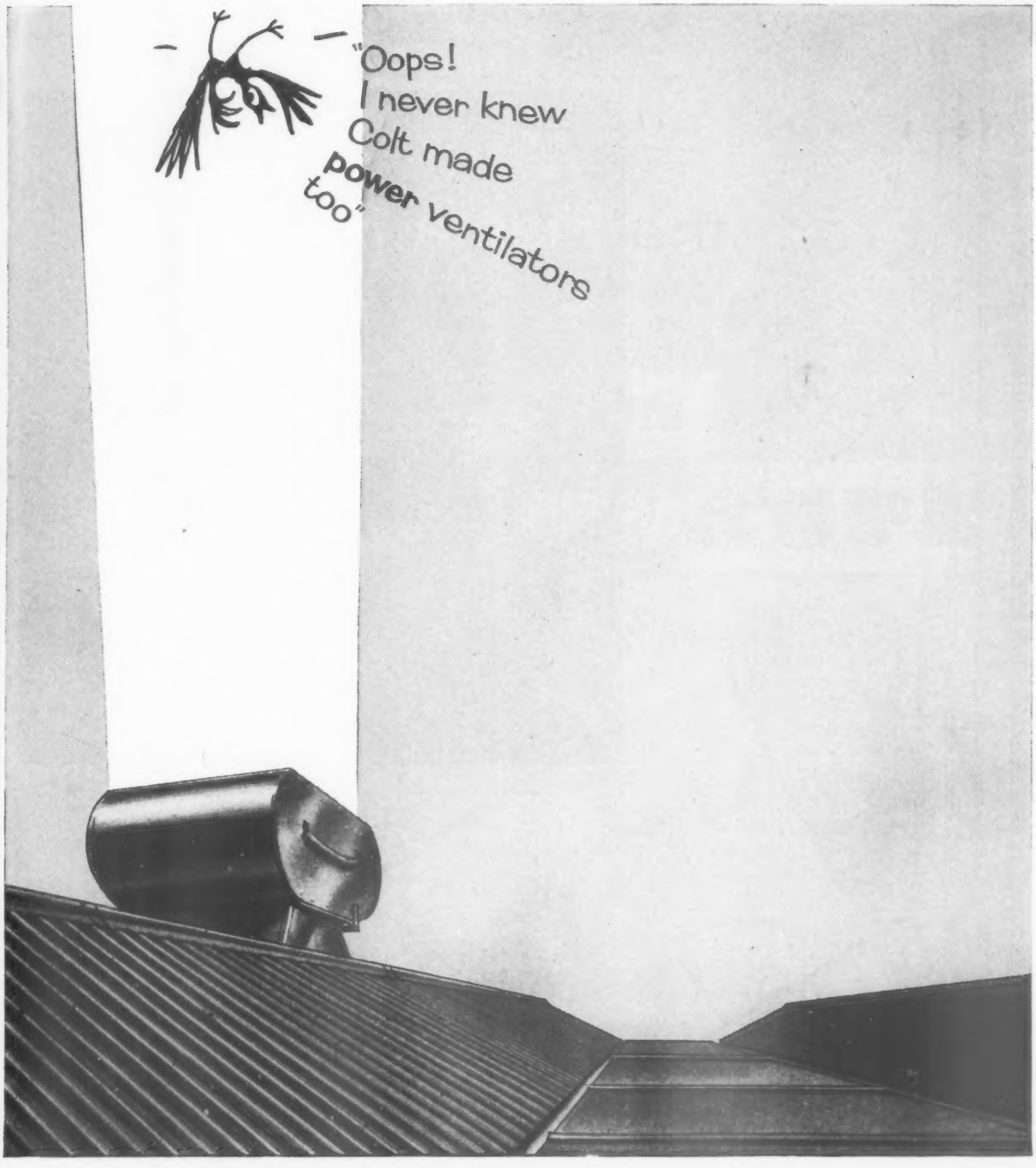
★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ii one week, Il to Z the next. In all cases where the town is not mentioned the word LONDON is implicit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

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. L. Stevenson, College of Art, Hope Street, Liverpool 1.	Royal 1826
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5533
ABT	Association of Building Technicians. 1, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James's Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Langham 5861
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
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
BE	Building Exhibition. 11, Manchester Square, W.1.	Hunter 1951
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
BRS	Building Research Station. Bucknalls Lane, Watford.	Garston 4040
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
CABAS	City and Borough Architects Society. C/o S. A. G. Cook, A.R.I.B.A., Borough Architect and Director of Housing, Town Hall, High Holborn, W.C.1.	Holborn 3411
CAS	County Architects' Society. C/o S. Vincent Goodman, F.R.I.B.A., Shire Hall, Bedford.	Bedford 67444
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Belgravia 6661
CDA	Copper Development Association. 55, South Audley Street, W.1.	Grosvenor 8811
COID	Council of Industrial Design. 28, Haymarket, S.W.1.	Trafalgar 8000
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.1.	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
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
EJMA	English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1.	Regent 4448
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 68, Gloucester Place, W.1.	Welbeck 9966
FASS	Federation of Associations of Specialists and Sub-Contractors, 14, Bryanston Street, W.1.	Welbeck 1781
FBBDO	Fibre Building Board Development Organization Ltd. (Fidor), Stafford House, Norfolk Street, W.C.2.	Covent Garden 3008
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	Regent 0221
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. 33, John Street, W.C.1. Tel.: Chancery 7583 (6 lines)	
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 4341
GPDA	Gypsum Plasterboard Development Association. 11, Ironmonger Lane, E.C.2.	Monarch 8888
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. 2, Chester Street, S.W.1.	Belgravia 3081
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 29, Belgrave Square, S.W.1.	Belgravia 3755
ICA	Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. 1, Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, Victoria Embankment, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215
IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266
IHVE	Institution of Heating and Ventilating Engineers. 49, Cadogan Square	Sloane 1601/3158
IIBDID	Incorporated Institute of British Decorators and Interior Designers. 100, Park Street, Grosvenor Square, W.1.	Mayfair 7086



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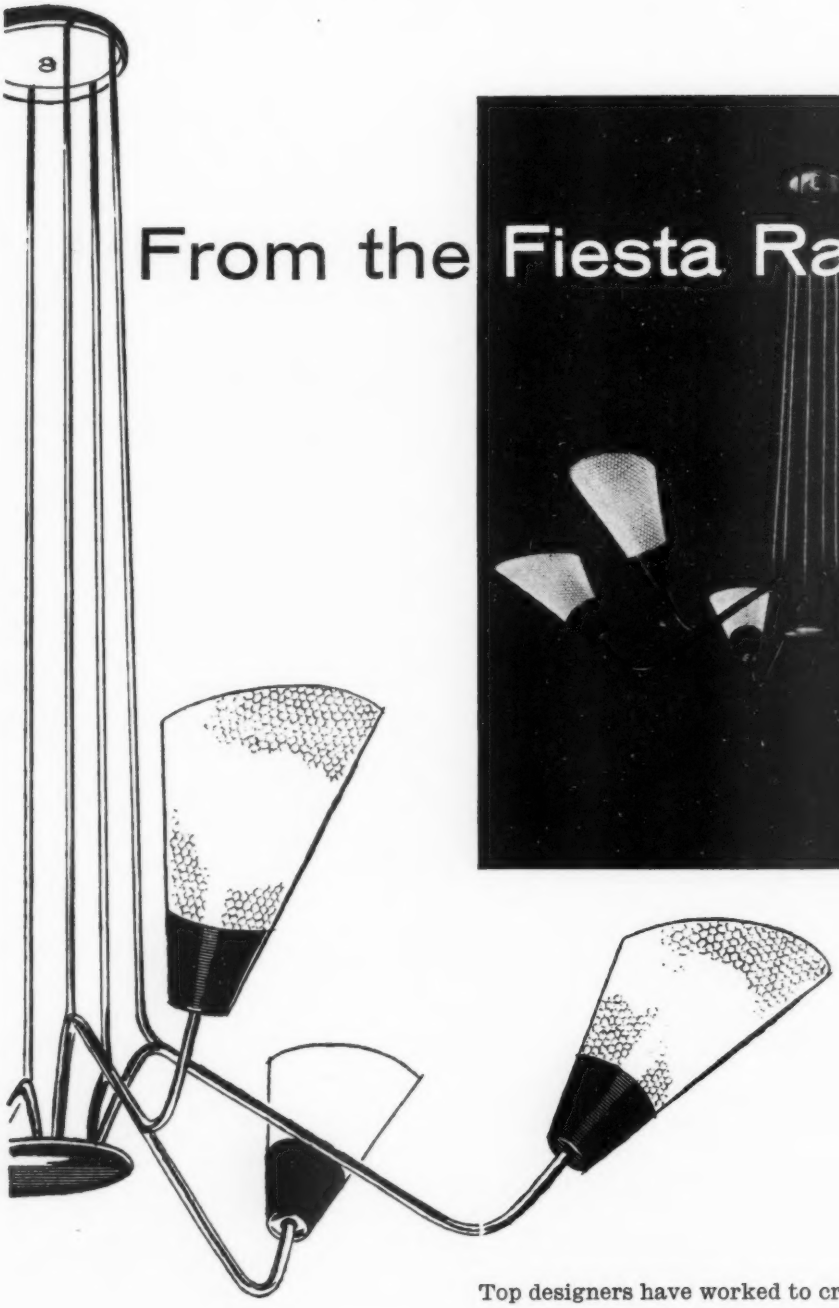

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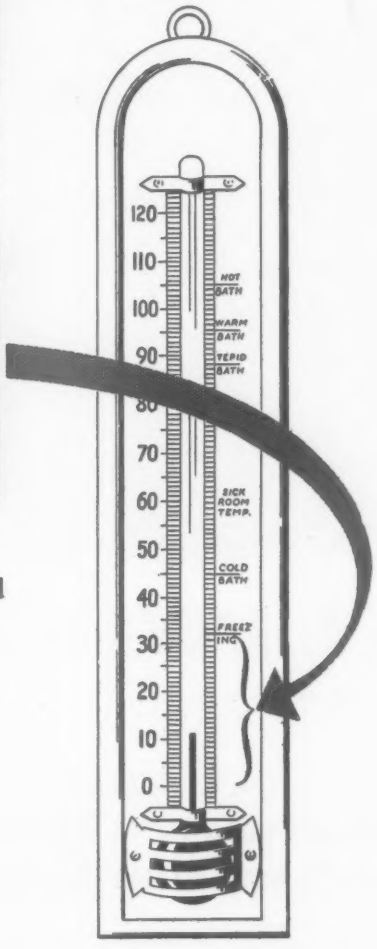

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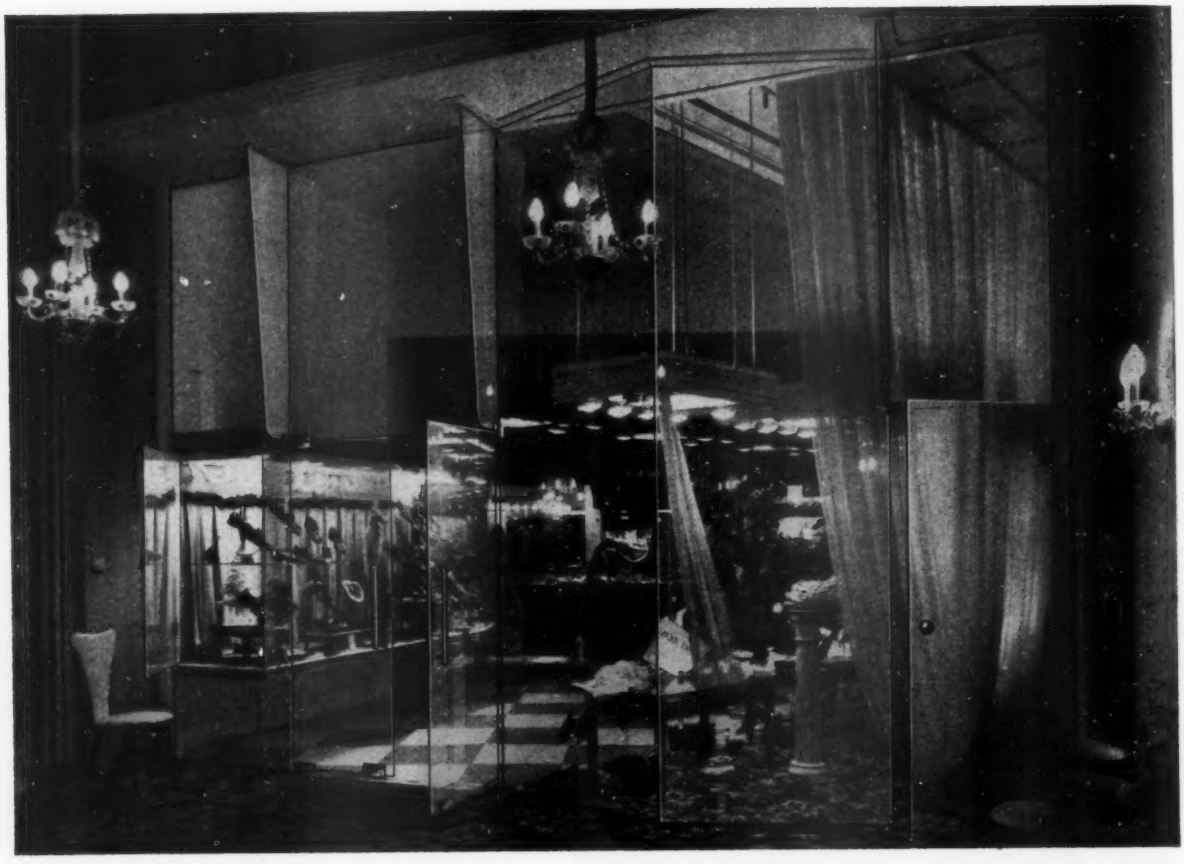

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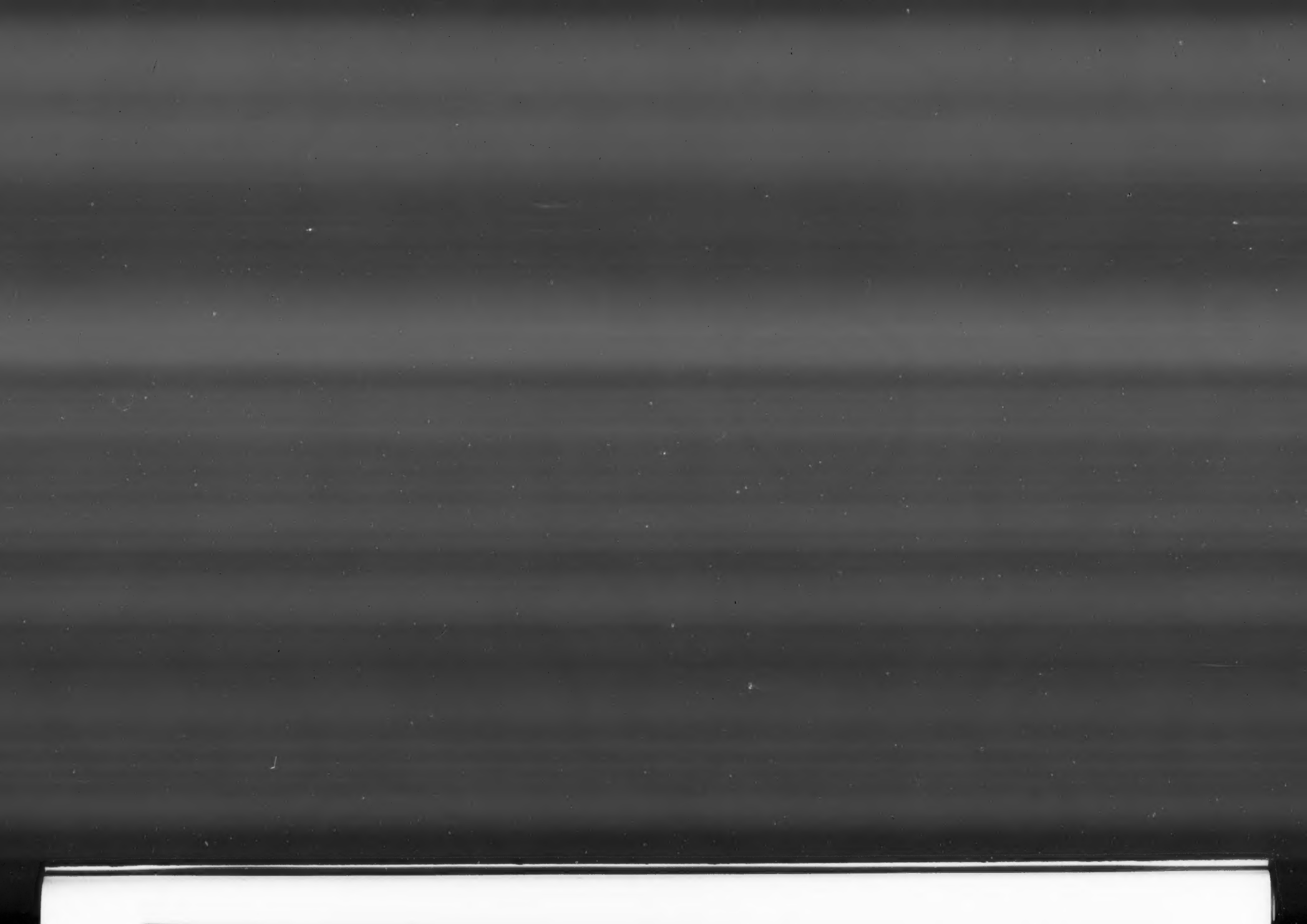

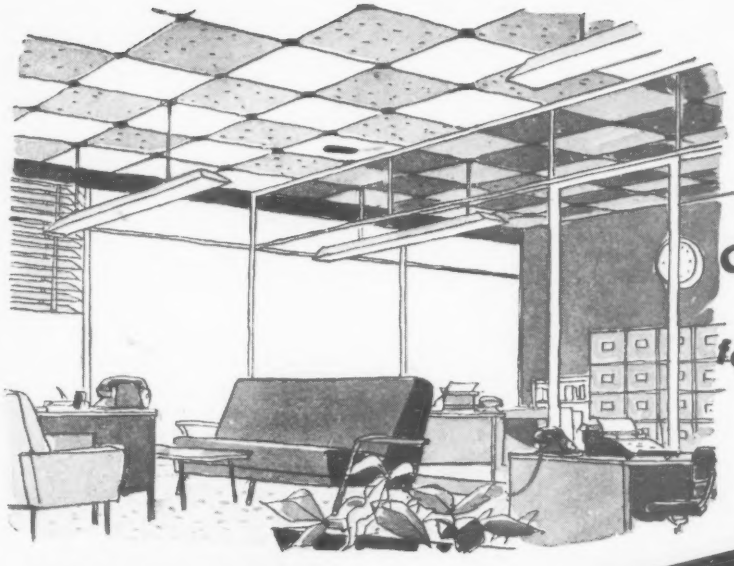

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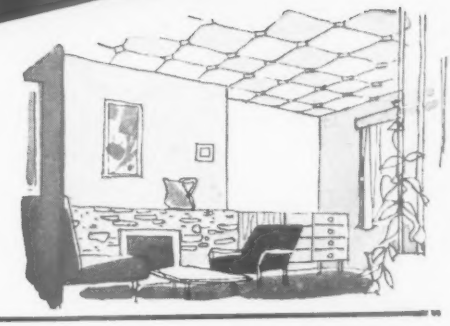

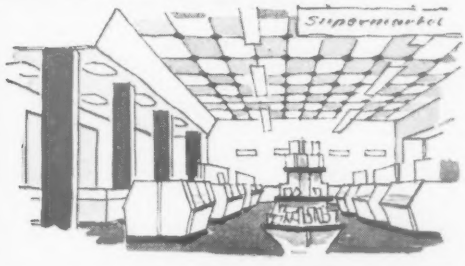

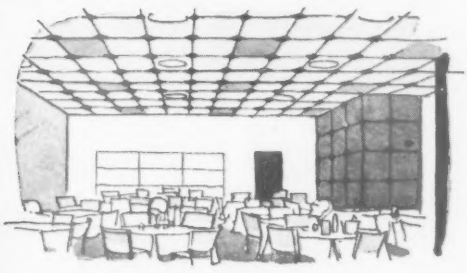

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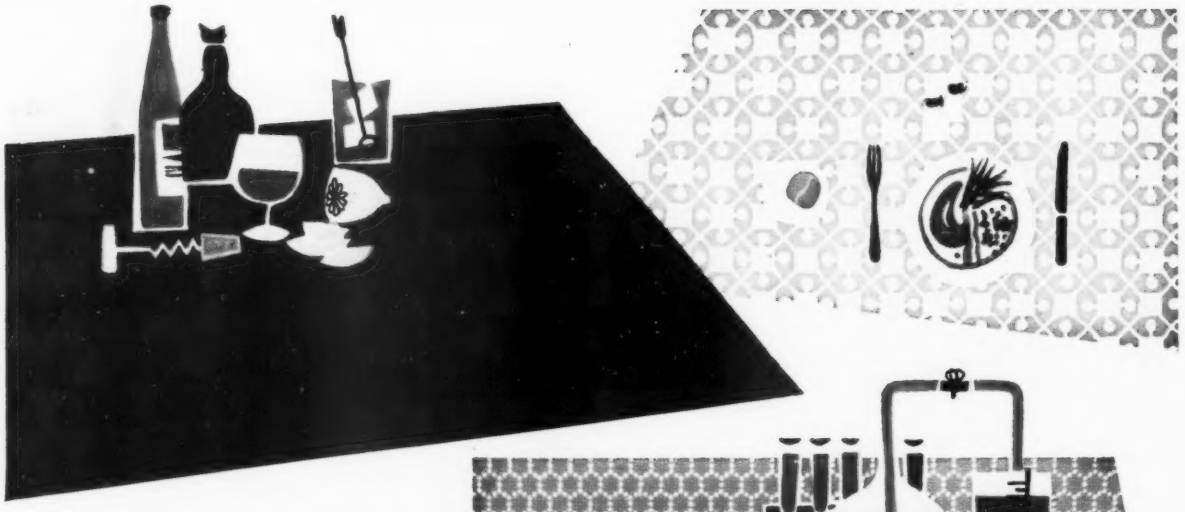

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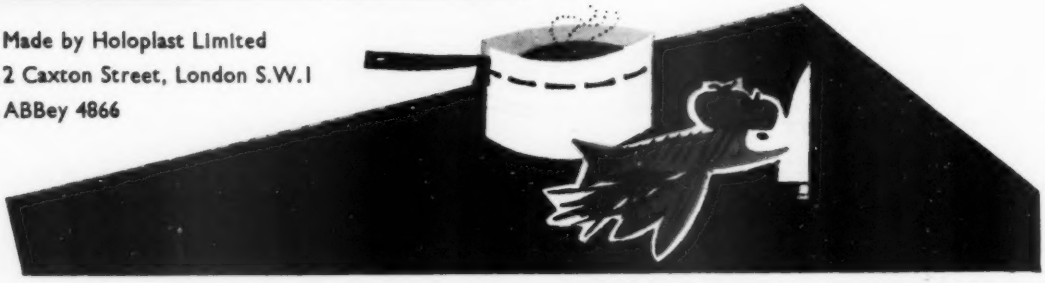

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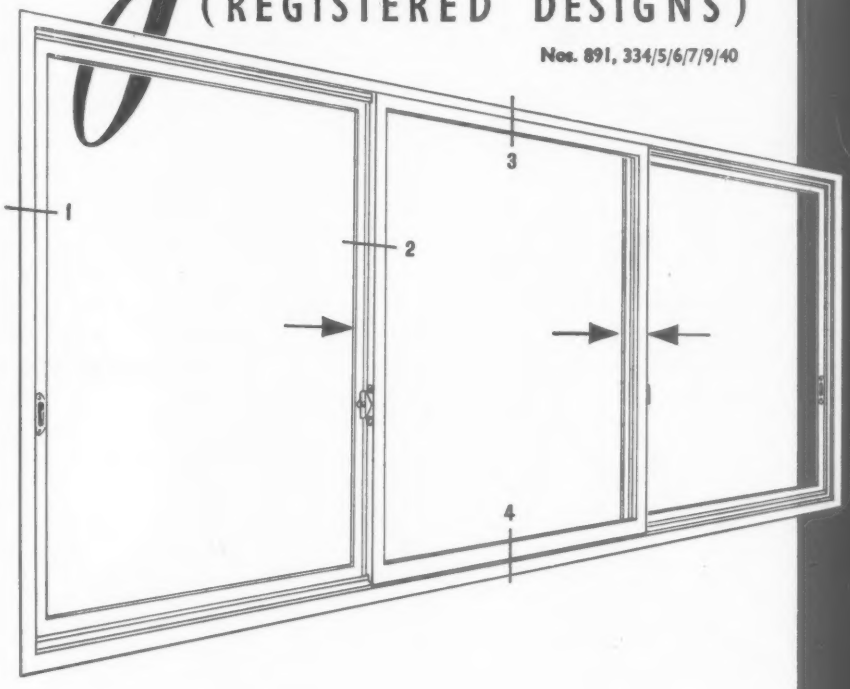

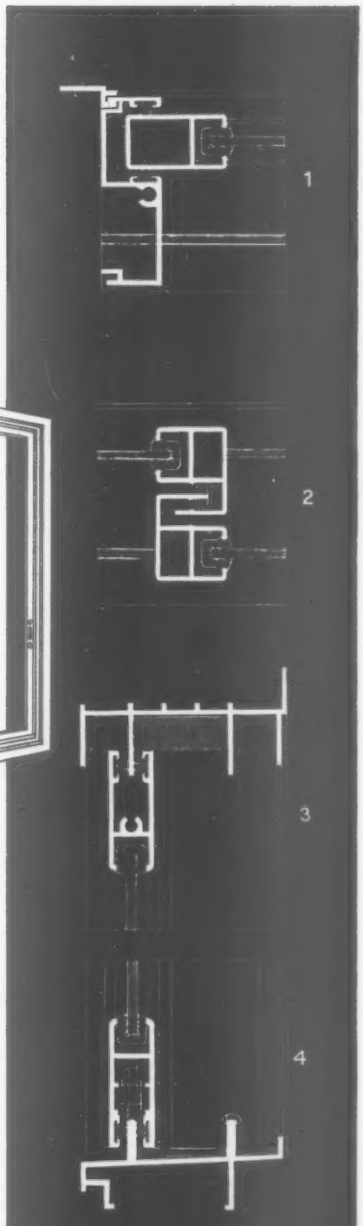

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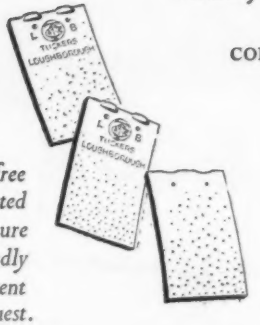

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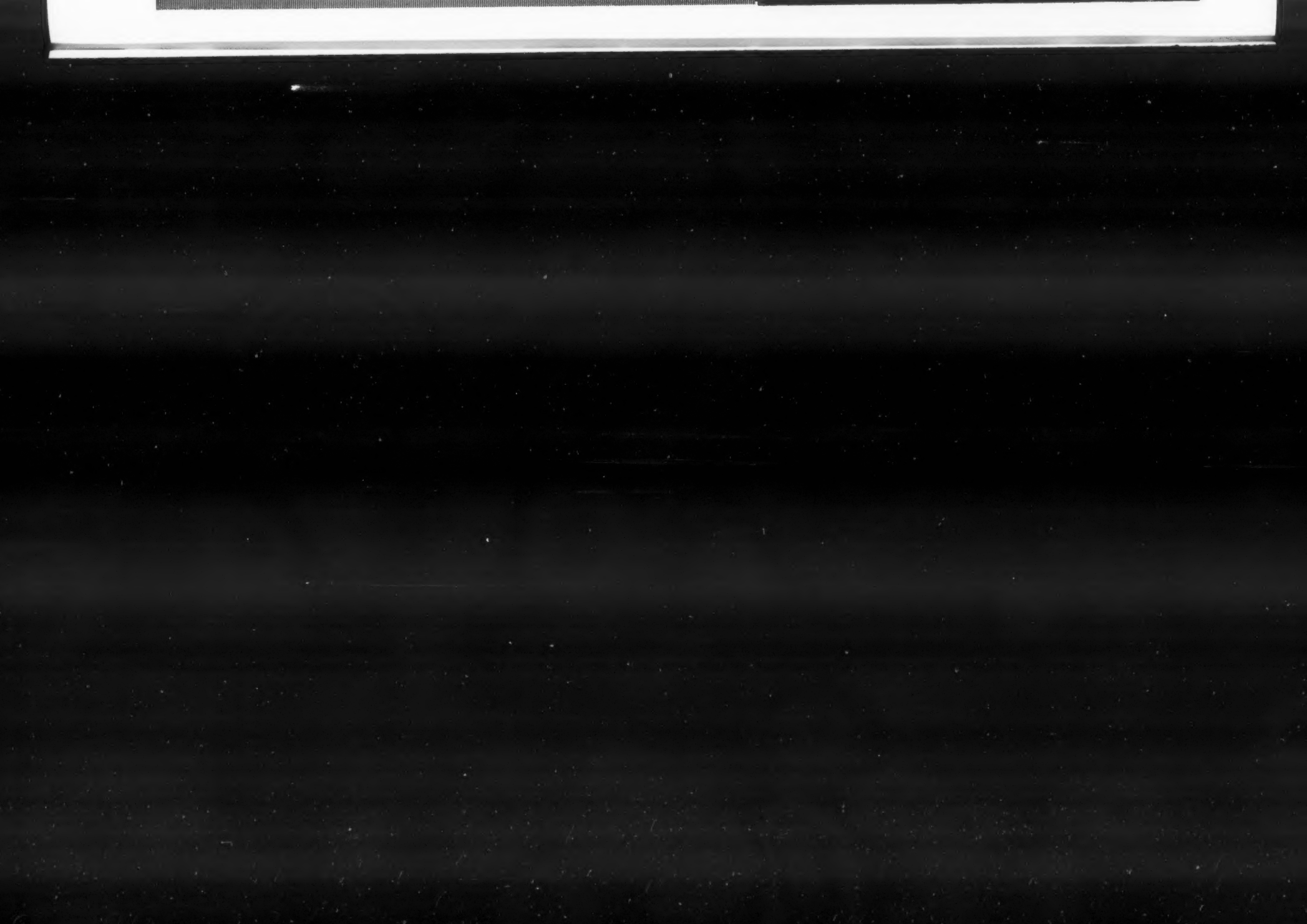

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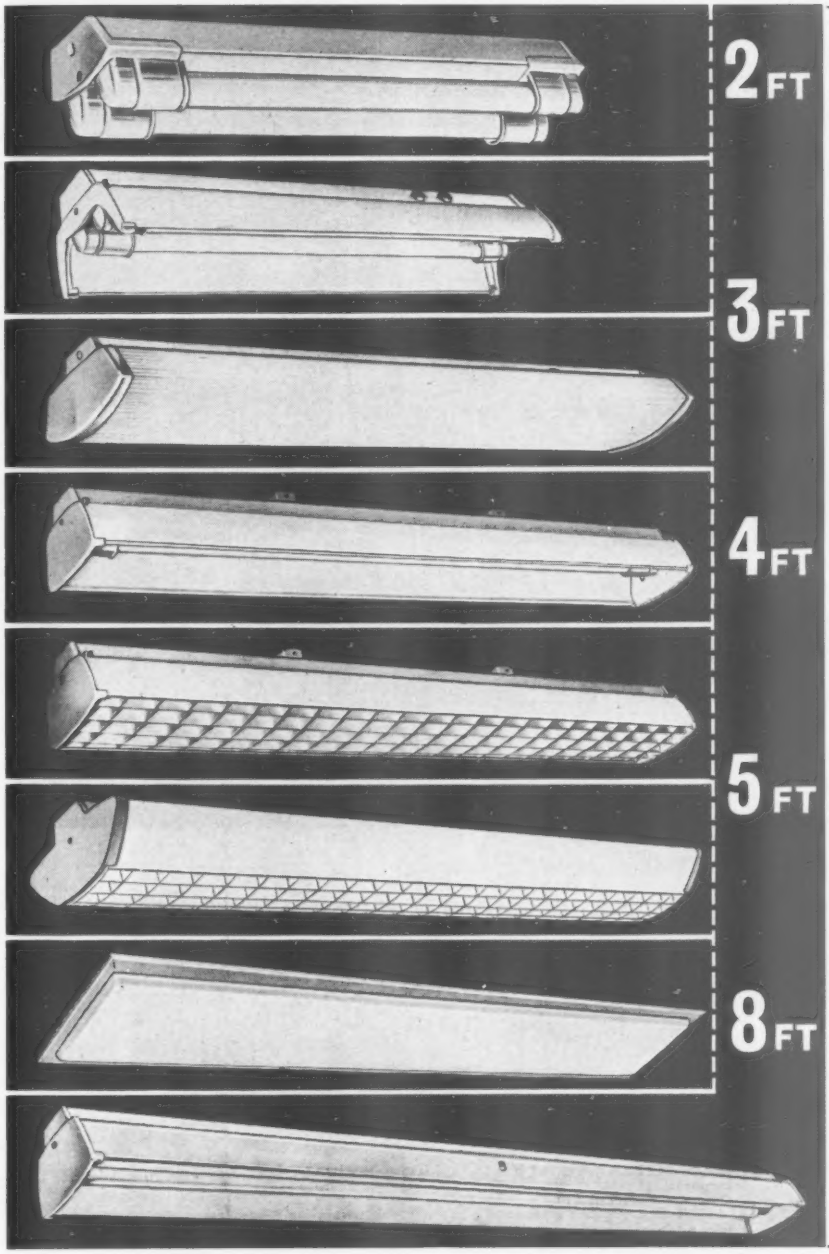

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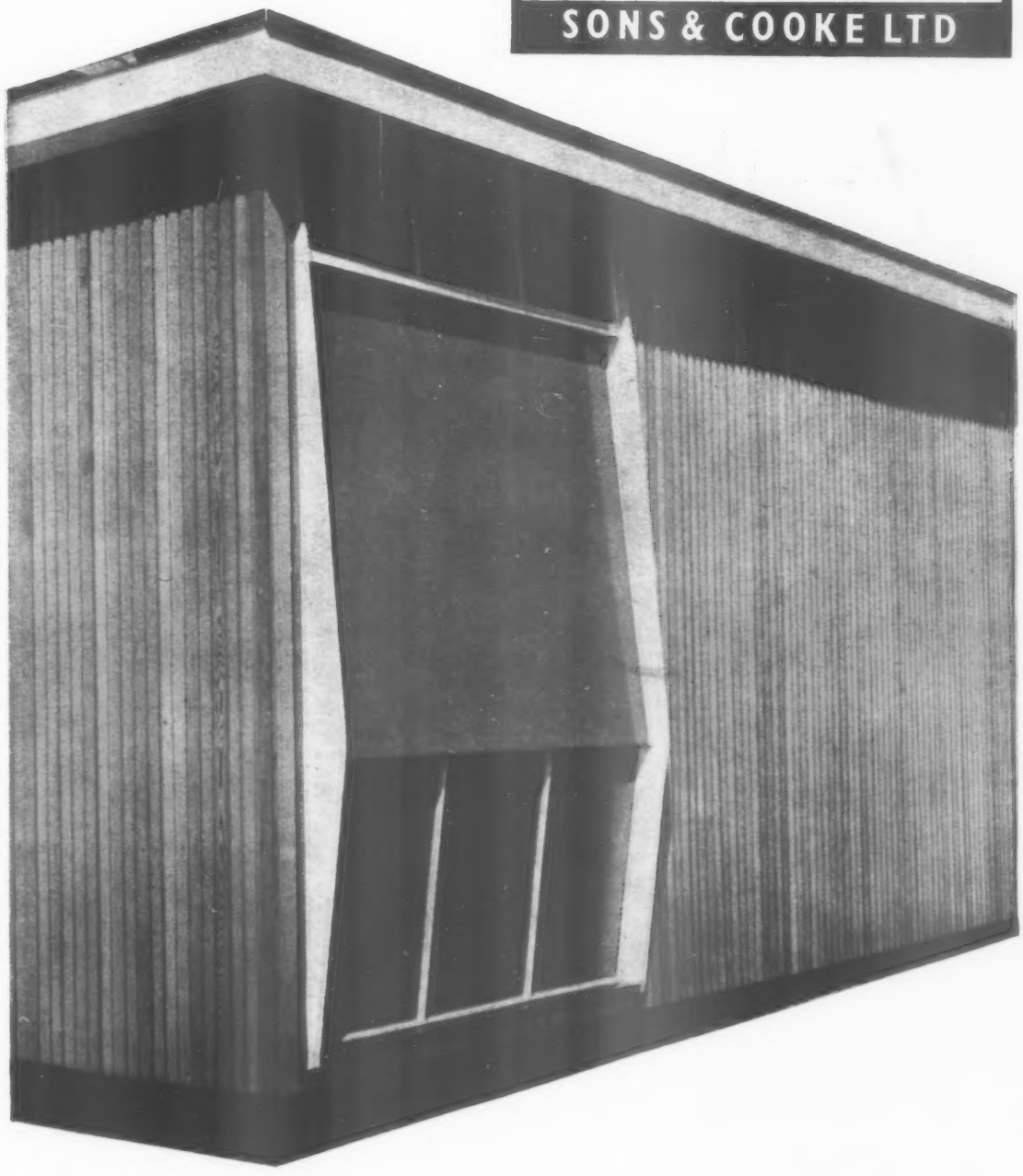

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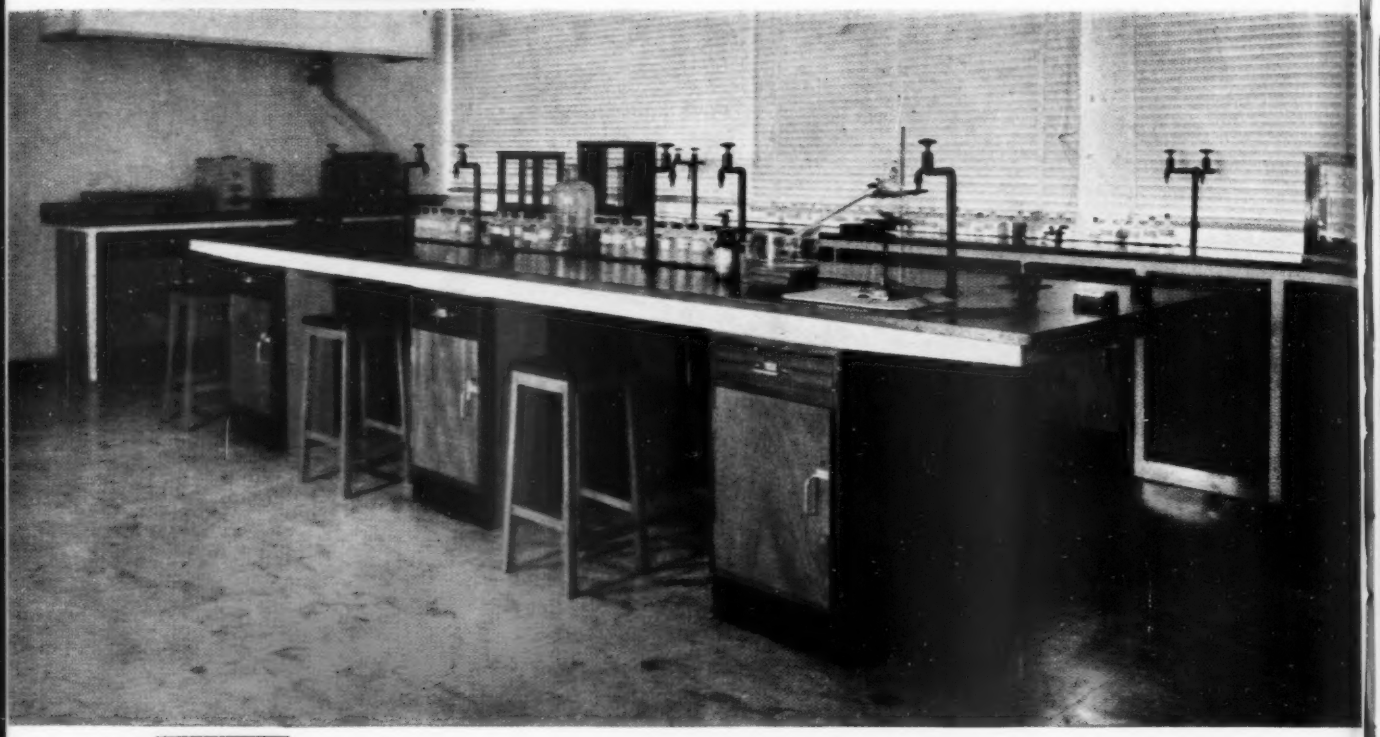

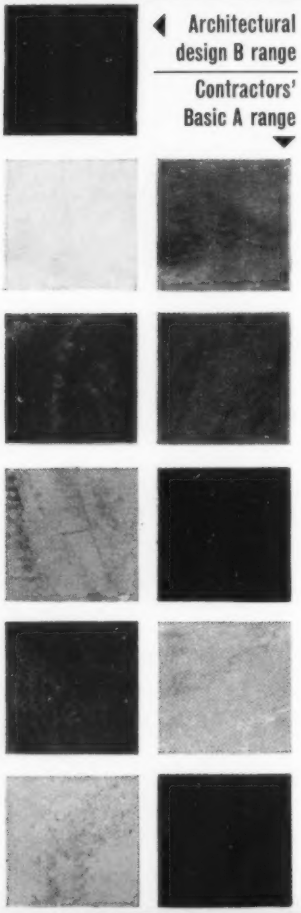

◀ Architectural design B range

Contractors' Basic A range ▼

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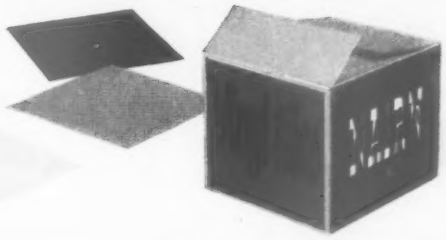
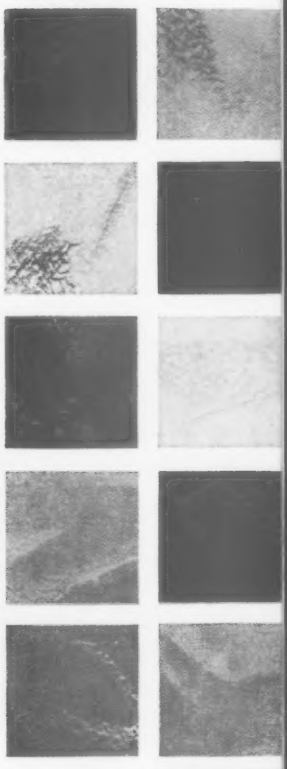
range of Vinyl tiles



CONTRACTOR—S. & S. FLOORS LTD. *The dental surgery of a forces base in the north of England. This floor covering of Mermaid 3.2 mm Nairn Vinyl tiles is easy to clean and therefore hygienic. It is also unaffected by antiseptic cleaning agents.*

CONTRACTOR—A. B. DALZELL LTD. *The kitchen of a family home at Wimbledon. This attractively designed floor is laid with 2.0 mm Nairn Vinyl tiles.*



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domestic use

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These Nairn 2.0 mm Vinyl tiles can be laid at room temperatures above 65°F. without tile-heating equipment, and this greatly simplifies the laying of the smaller domestic installation.

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All tiles conform to the appropriate draft British standards for vinyl (asbestos) floor tiles, and each batch is thoroughly tested both physically and chemically in the Michael Nairn laboratories. An important feature of Nairn Vinyl tiles is their resistance to the various forms of spillage encountered in kitchens, canteens and workshops. Liquids such as ammonia, detergents mild acids, bleach and washing soda have little or no effect on them.

NAIRN TECHNICAL ADVISORY SERVICE

Technical representatives based at our area offices are at your service to give advice or information on all matters concerning floor covering materials. If you wish to consult one of these representatives, please write to or telephone any of the following offices:

MICHAEL NAIRN & CO. LTD. *P.O. Box 1, Kirkcaldy, Scotland Kirkcaldy 2011 (10 lines)*
LONDON EC1: *131 Aldersgate Street. Monarch 3211 (8 lines)*
BIRMINGHAM 2: *65 Temple Row. Midland 5989 (2 lines)*
BRISTOL 4: *349 Bath Road. Bristol 77840*
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GLASGOW C5: *113 Centre Street. South 1011 (3 lines)*
NEWCASTLE-ON-TYNE: *41 Grainger Street. Newcastle 22807*

THE ARCHITECTS' JOURNAL
(Supplement) November 12, 1959

TOMO double-glazing at London Airport

Administrative and operations offices for aviation fuel supplies at London Airport, half of which are occupied by Shell-Mex & B.P. Ltd. and the other by Esso Petroleum Co. Ltd. Architect: Frederick Gibberd, C.B.E., F.R.I.B.A., M.T.P.I.

We think you'll agree that the appearance of these attractive offices at London Airport is enhanced by their TOMO double-glazed WINDOWS. But that's only a small part of the story. TOMO double-glazing also offers excellent thermal-efficiency values, remarkable sound-reduction properties, finely-controlled ventilation and total indoor window-cleaning.

On the subject of thermal efficiency, we should like to refer you to the report of a recent B.R.S. test quoted on the right. It speaks volumes.

When you work within whistling distance of aircraft, sound reduction becomes a matter of vital importance. Here TOMO WINDOWS score heavily. The total reduction in sound level depends finally, of course, on the thickness of glass employed and the space between panes. Using 32-ounce glass spaced at 1⅞in., TOMO double-glazing gives a reduction of approximately 40 decibels and will, we hope, save Shell-Mex and Esso personnel not a few headaches in the future.

One last point, TOMO double-glazed WINDOWS are suitable for inward or outward opening and can be top-hung, bottom-hung, side-hung or pivot-hung. Any further information you may require will be gladly supplied.

BUILDING RESEARCH STATION TESTS

When a standard-production TOMO WINDOW Wall-Unit (8ft. by 8ft.) was tested at the Building Research Station, Garston, the mean thermal transmittance of the complete unit was found to be 0·31 B.Th.U./sq. ft./h./°F. This is equal to the thermal transmittance of a traditional 11in. cavity brick wall! This impressive result was further improved to 0·29 when the TOMO pleated blinds, fitted between the panes, were lowered. The U-value of the window-area only was found to be 0·38 which, with TOMO pleated blinds down, became 0·35. At 0·38, TOMO double-glazed WINDOWS are substantially (29%) better than the U-value of 0·47 quoted for conventional double windows in the I.H.V.E. Guide to Current Practice, 1955.

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and see our range of products which includes a new Stock-size TOMO double-glazed 'Picture' Window, horizontal-pivot hung, to the BSS644 overall size 5' 11¼" wide × 4' 0½" high. Made from best quality softwood, ready-primed; £25 net ex-works.

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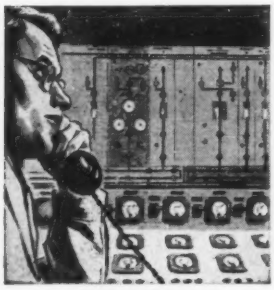
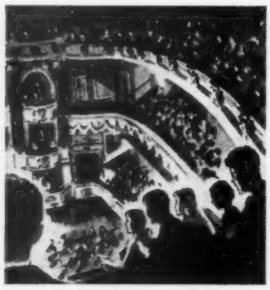


SWITCHGEAR OPERATION



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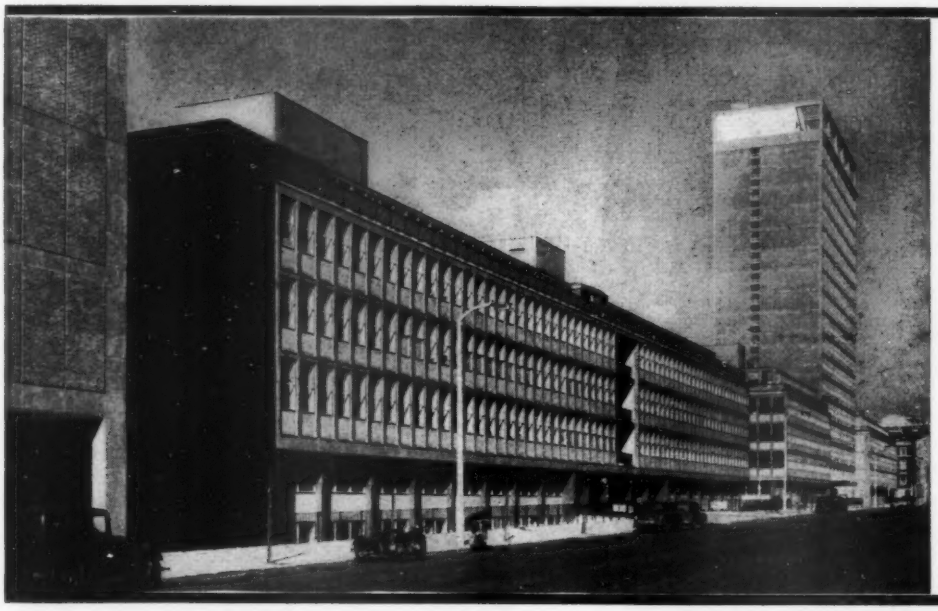

Despite the fact that this is one of Britain's tallest office blocks, it was up and occupied in the fantastically short time of 19 months.

Offices at Paddington.
Architects:
C. H. Elsom and Partners
Architect in charge:
F. P. Softley, A.R.I.B.A.

And she'd probably say that this is her favourite office block—the famous Eastbourne Terrace development at Paddington—it contains no less than 2,698 aluminium double-hung windows by Williams & Williams. This is the largest aluminium sash window contract carried out recently in this country.

The scheme occupies 1,000 feet of frontage along Eastbourne Terrace. The component buildings have been planned in varying sizes and heights to give each its own identity

WILLIAMS & WILLIAMS ALSO DID

THE WALLSPAN CURTAIN WALLING

(The Wallspan clads the combined staircase and bridge structures which link the tower with the wings.)

AND THE PURPOSE MADE BALUSTRADING

(2,050 feet of balustrading encircle the cornice of the wings. The rails are of aluminium, the upstands of steel for extra strength.)

and to make for flexibility in letting.
All this has been done without sacrificing the unity of the design—partly by the consistent use of Williams & Williams double-hung windows.

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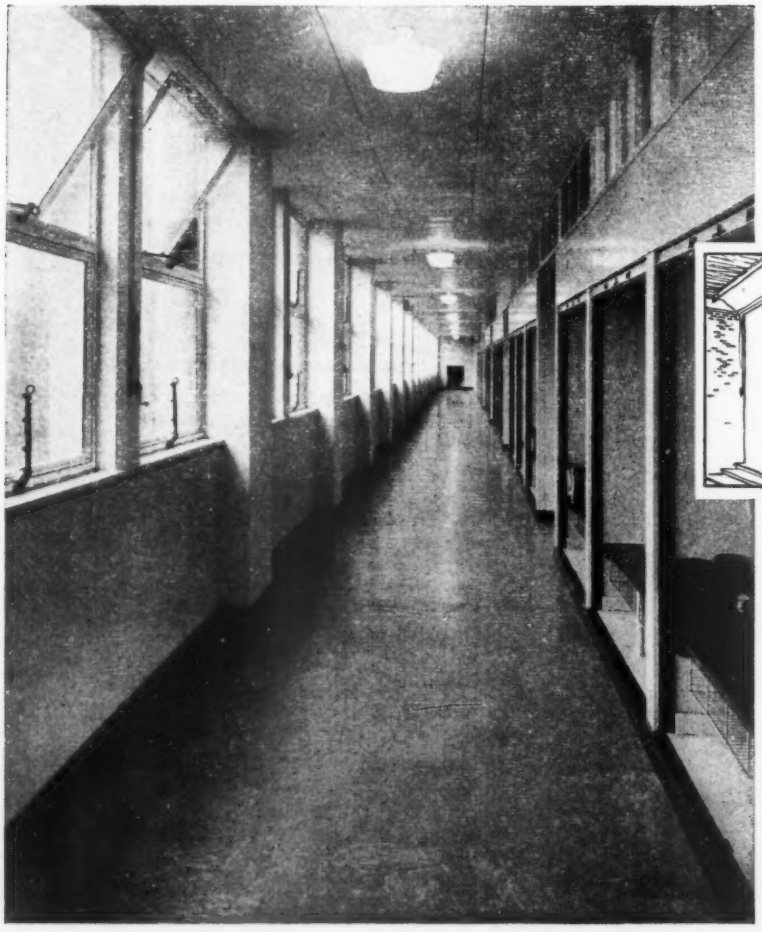

Inside the New Institut Francais building, in which 1,700 yards of ¼" Runnymede Rubber Flooring have been laid.

Architects:
MONSIEUR JACQUES LAURENT IN ASSOCIATION WITH HECTOR O. CORFIATO & PARTNERS

General Contractors:
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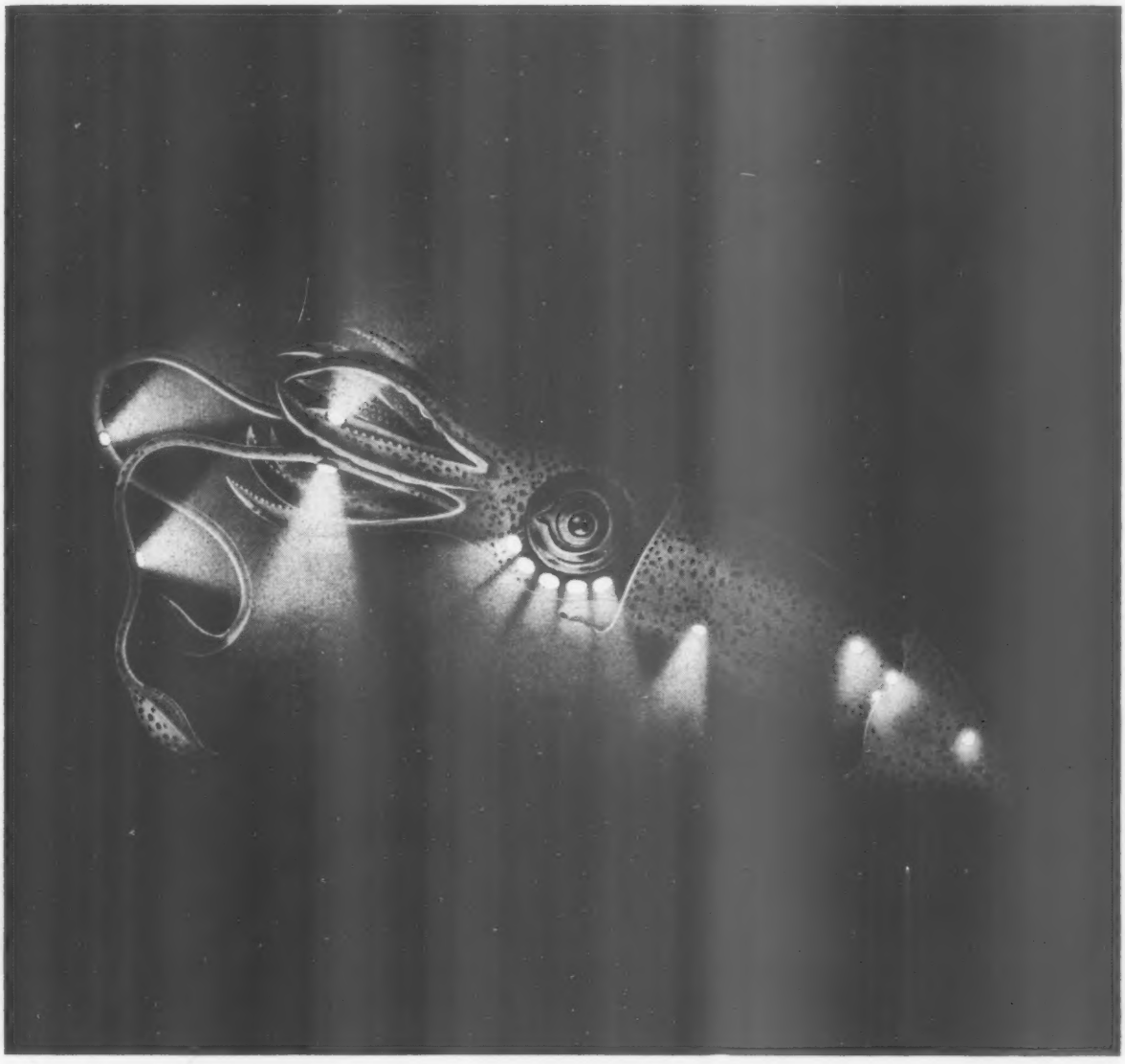
After "Aspects of Deep Sea Biology" N. B. Marshall (Hutchinson 1954)



Light fantastic The Deep Sea Squid, *Pterygioteuthis giardi*, has a lighting system that suits him down to the ground—which in his case lies hundreds of feet below high water mark and far below the last faint glimmer of daylight. Woe betide the prey that shows up in the beams of his battery of searchlights.

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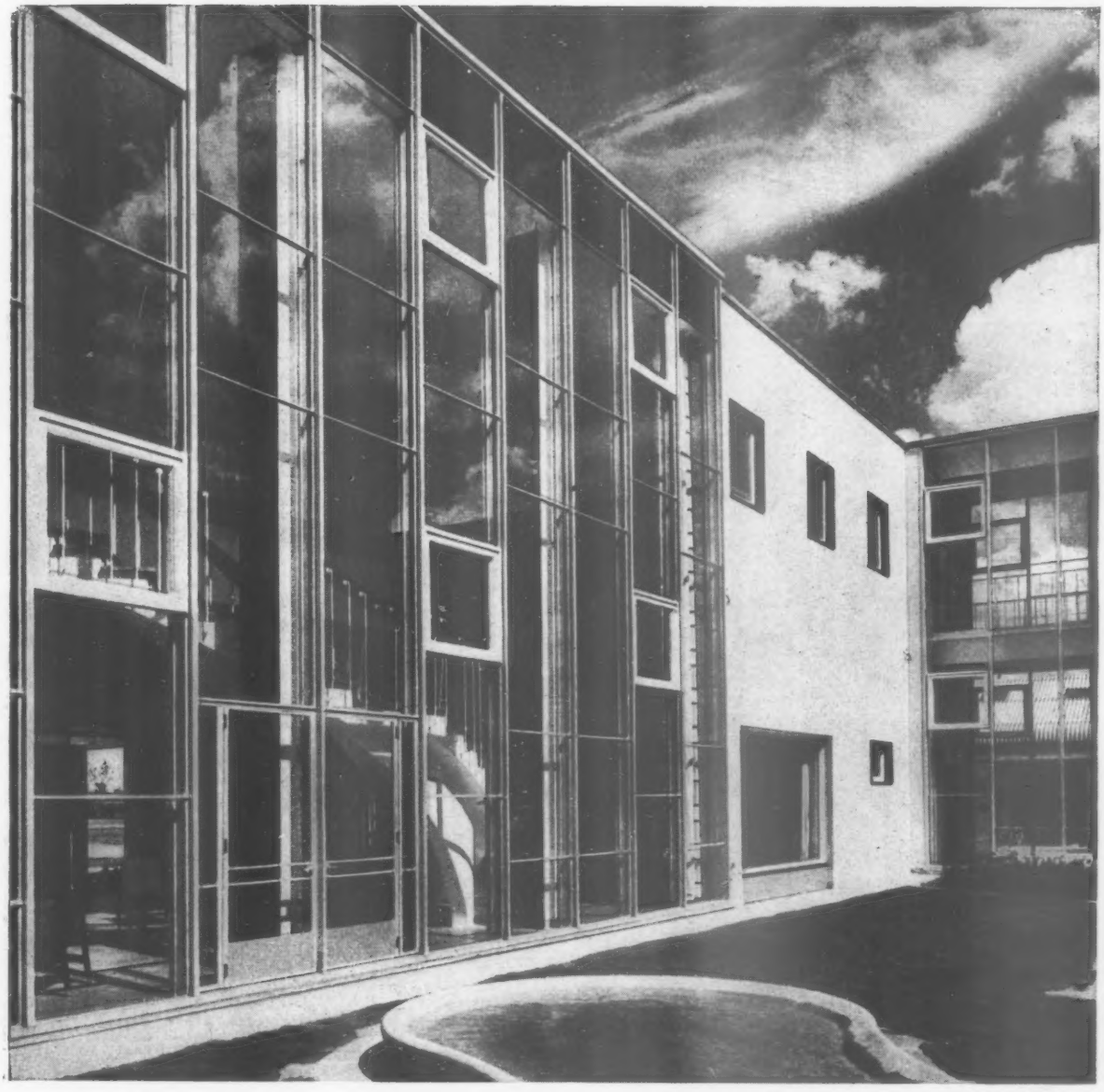

J. Douglass Mathews & Partners, Chartered Architects
Contractors:– W. & C. French. Ltd.

planned light

This impressive use of aluminium and glass at the new Aspro-Nicholas factory (illustrated above) has provided us with another unique opportunity to demonstrate a sample of the variety of specialised structures which Luxfer Ltd manufacture for the purpose of admitting light to a building.

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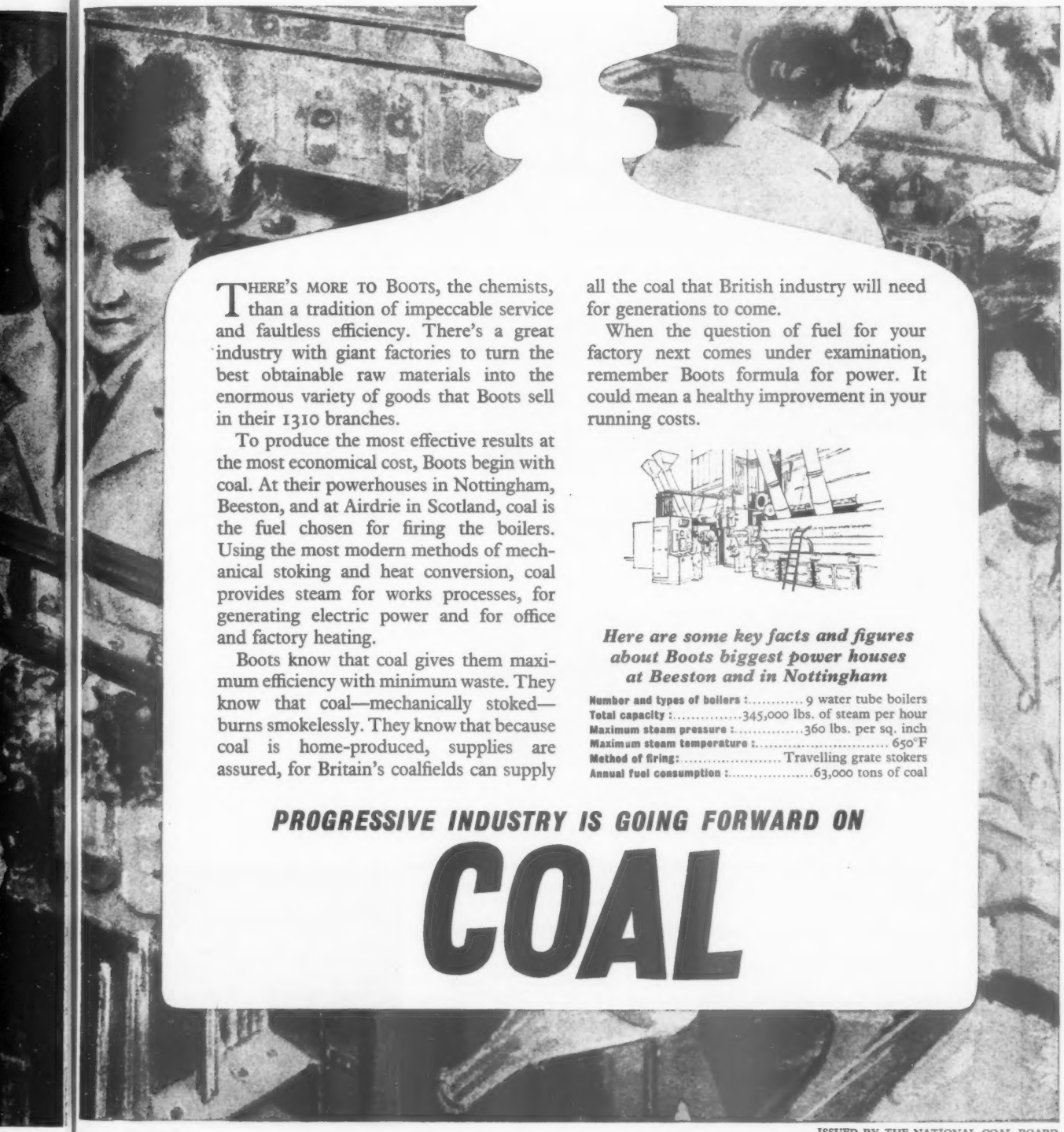

THERE'S MORE TO BOOTS, the chemists, than a tradition of impeccable service and faultless efficiency. There's a great industry with giant factories to turn the best obtainable raw materials into the enormous variety of goods that Boots sell in their 1310 branches.

To produce the most effective results at the most economical cost, Boots begin with coal. At their powerhouses in Nottingham, Beeston, and at Airdrie in Scotland, coal is the fuel chosen for firing the boilers. Using the most modern methods of mechanical stoking and heat conversion, coal provides steam for works processes, for generating electric power and for office and factory heating.

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Here are some key facts and figures about Boots biggest power houses at Beeston and in Nottingham

Number and types of boilers : ..... 9 water tube boilers
Total capacity : .....345,000 lbs. of steam per hour
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Maximum steam temperature : ..... 650°F
Method of firing: .....Travelling grate stokers
Annual fuel consumption : .....63,000 tons of coal

PROGRESSIVE INDUSTRY IS GOING FORWARD ON

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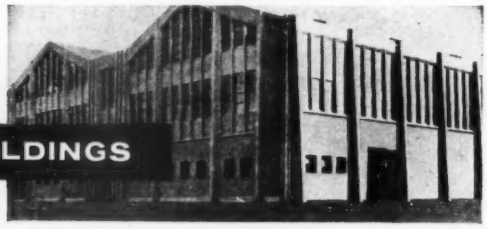
...NEW BUILDINGS



Central Engineering Works for Bryant & May Ltd by Beecham Buildings Ltd, Shipston-on-Stour, Warwickshire. Architects: Hastie, Winch & Kelly.
All prefabricated concrete components used in the construction of this building are treated with a water-repellent solution based on DRI-SIL 29.

...OLD BUILDINGS

All Saints Church, Hastings, mainly 14th century but contains older walling, part prehistoric. With passage of time the penetration of water through the walls has become more prevalent, resulting in the usual decay and fungus. Water penetration has been stopped with DRI-SIL silicone solution. (By courtesy of the Rector and Consultant Architect).

DRI-SIL silicone masonry treatments

- ★ Protect buildings from the damaging effects of weathering.
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- ★ Do not block the pores of building materials, thus do not inhibit "breathing".
- ★ Improve the thermal insulation of buildings by preventing the absorption of moisture by the walls.

...BRIDGES & ROADS

Highway overpass after a rain storm. The treated part of the concrete fascia (right) has not absorbed the water and is much more visible than the untreated section on the left. Silicone treatments also prevent spalling or scaling due to frost action on concrete road surfaces.

THESE FIRMS SUPPLY WATER-REPELLENT MASONRY TREATMENTS BASED ON DRI-SIL. IT IS IMPORTANT TO NOTE THAT TREATMENTS SHOULD CONTAIN 3 TO 5% ACTIVE SILICONE BY WEIGHT FOR SATISFACTORY PERFORMANCE ON MOST SUBSTRATES.

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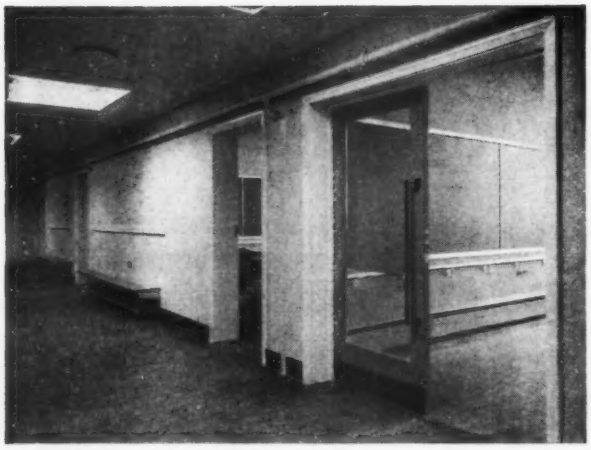

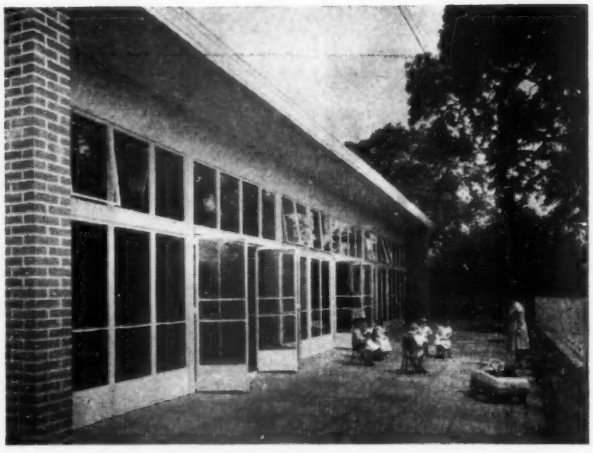

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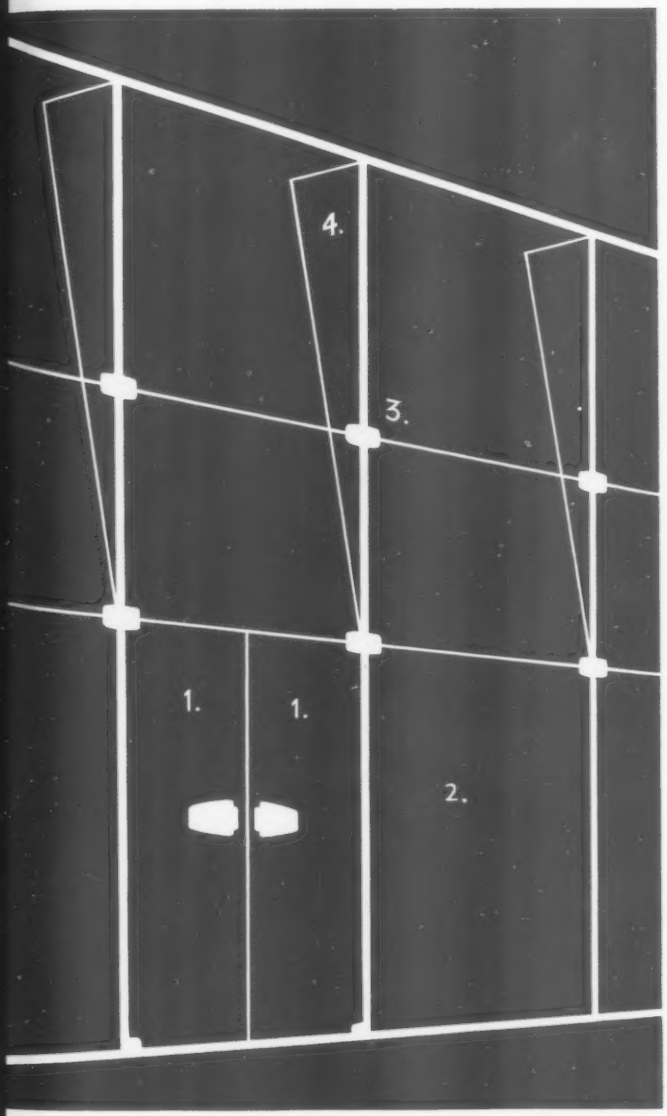

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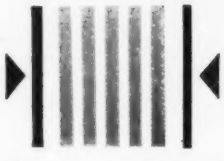

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THE ARCHITECTS' JOURNAL
(Supplement) November 12, 1959

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Blaise Pascal (1623-1662)
Inventor of the first calculating machine

Pioneers...

The calculating machine was invented in 1641 by Blaise Pascal, an 18-year-old Frenchman, who used a series of geared wheels each having ten teeth numbered 0 to 9. Pascal's machine was large and unwieldy and was capable only of addition. It was not until 1874 that Willgodt Th. Odhner, a Swede, developed the first compact calculator for addition, subtraction, multiplication and division and thus inspired the tremendous advances which have since been made in the field of 'mechanical thought.'

Like Pascal's calculator, the first contactors were cumbersome devices of limited scope; the trend in design has therefore been towards smaller, more efficient units having a wider application. This trend reached its peak in 1952 when the Crabtree Company introduced the first British 'block type' contactor of compact rectangular shape. It was designed for single or multiple assembly on a standard backplate to give an almost unlimited variety of control arrangements — a technique which is now being widely followed throughout the world.

The development of the 'block type' contactor exemplifies the Crabtree tradition of leadership in design, an influence which is being increasingly appreciated in the field of electrical control equipment.

CRABTREE

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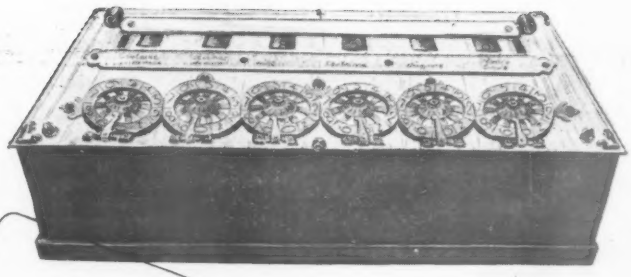
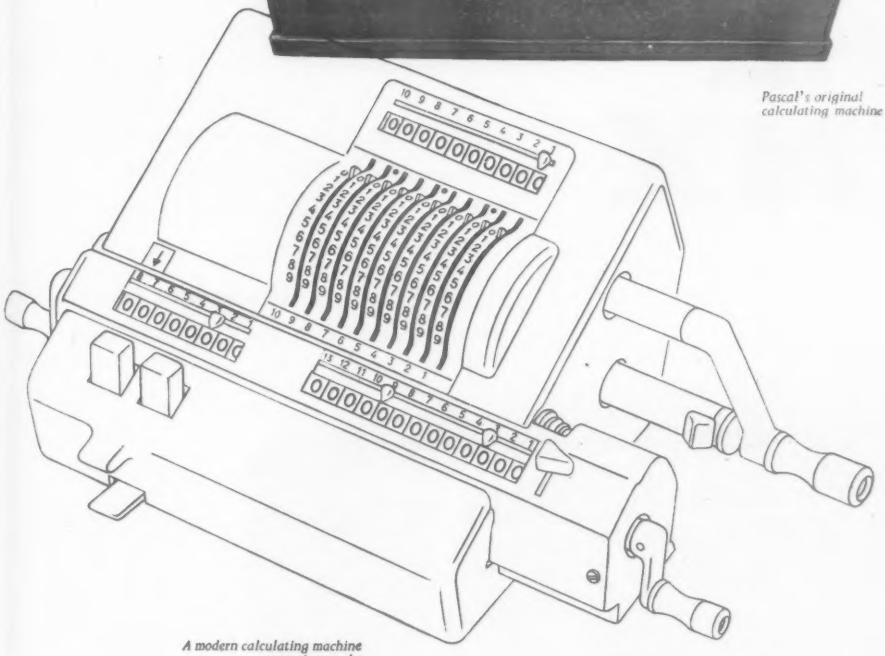


Pascal's original calculating machine



A modern calculating machine operating on the "pin-wheel" system

THE LYNX

The 'Lynx' is now established as the most popular cistern for every use, whether for replacement or for new installations. Its merits are acclaimed equally by the architect who specifies it, the builder who installs it and the customer who uses it. The well-designed shell is clean and handsome: the concealed fixing is neat and simple: the discreet flush-at-a-touch mechanism gives confidence and peace of mind. 'Lynx' low and high level cisterns are available in black Duranite or white or coloured Keramic ware. The 'Kingfisher' syphon mechanism gives a powerful flush: made of Shirene – non-corrosive, rustless, non-ageing, unbreakable – it can be used in hard or soft water areas. It conforms to BSS 1125 and water works specifications. Capacities: 2, 2½ and 3 gallons.

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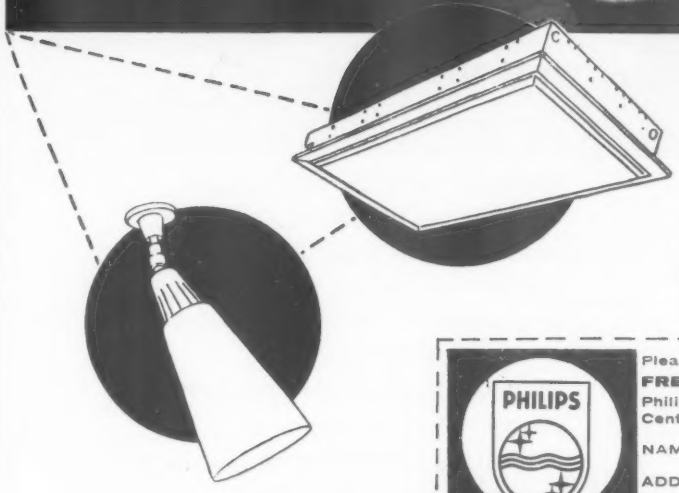

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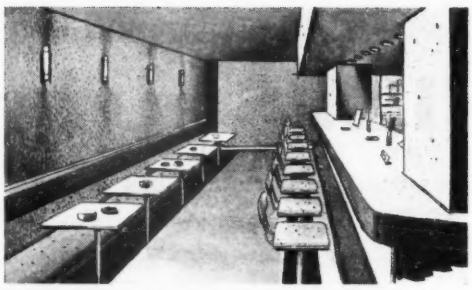

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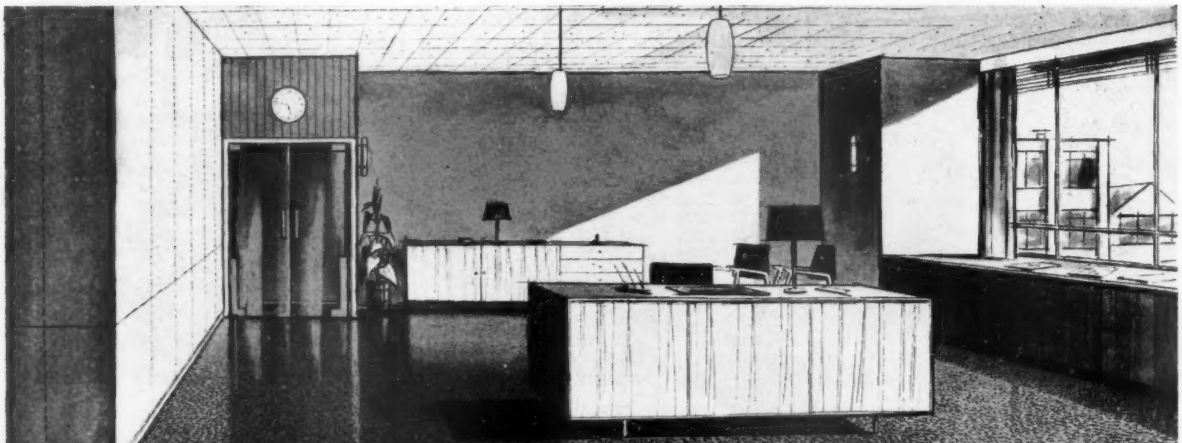

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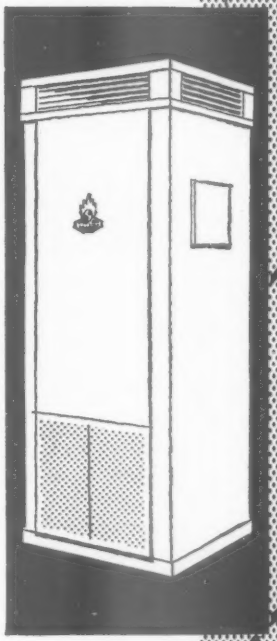

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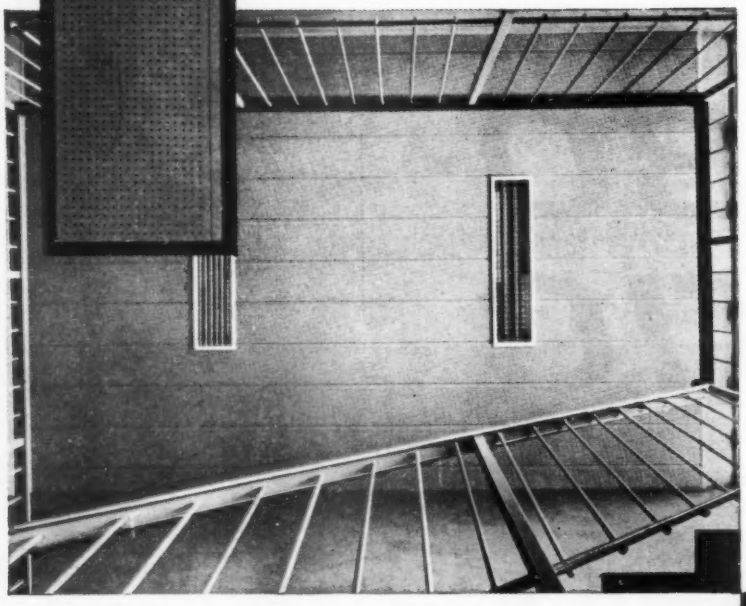

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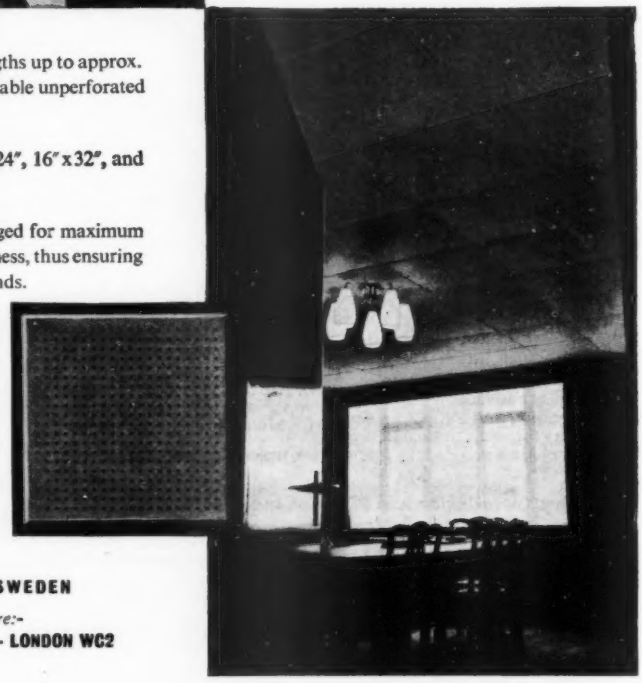

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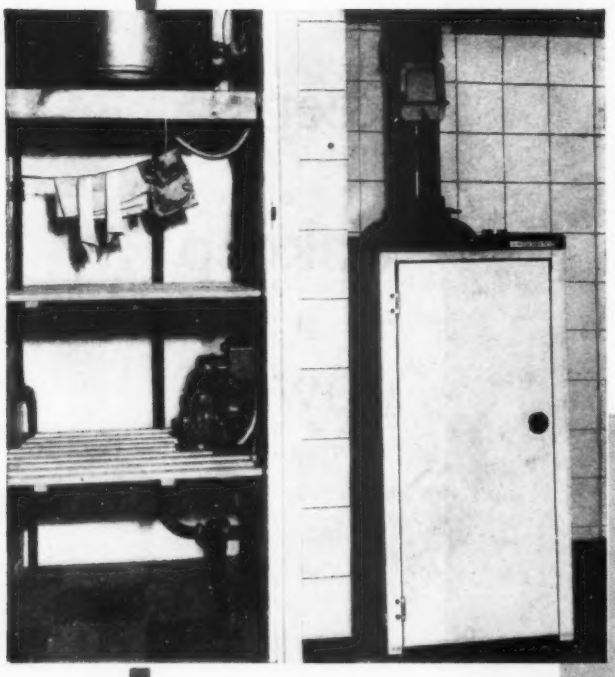

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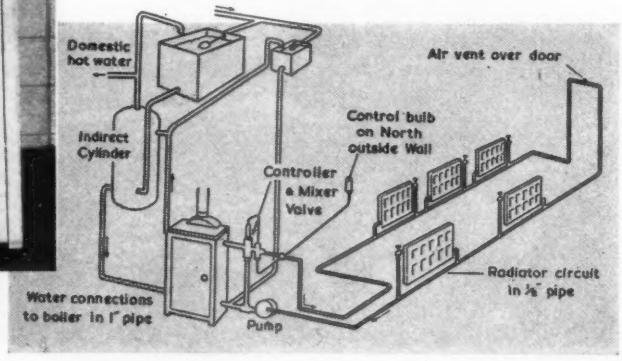

(*Above*) Boiler, fired with Hard Coke, serving a small-bore system. The circulating pump can be seen inside the airing cupboard. (*Alongside*) Typical small bore system.

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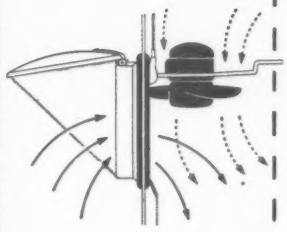
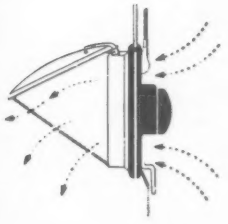
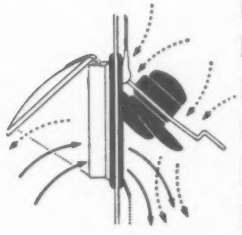


FRESH AIR IN



STALE AIR OUT



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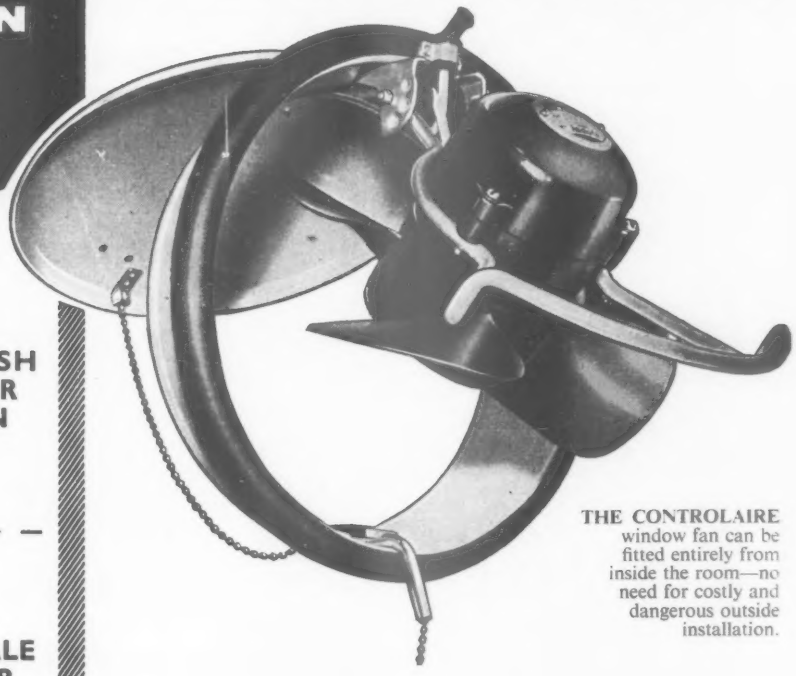

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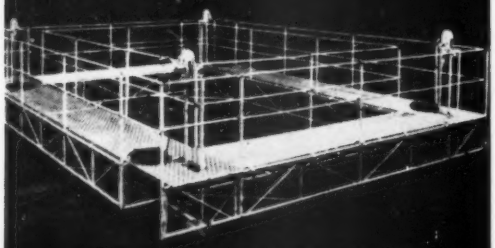
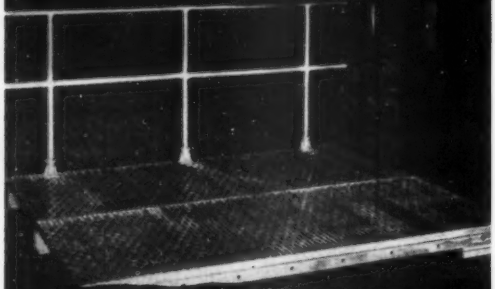


Alaflor suspended staging for inside boilers, as used by Sterling Safway Scaffolding, Jarrow.

Alaflor platforms supplied to Charles Roberts & Company Ltd., Wakefield, for Fisons Limited tank wagons.



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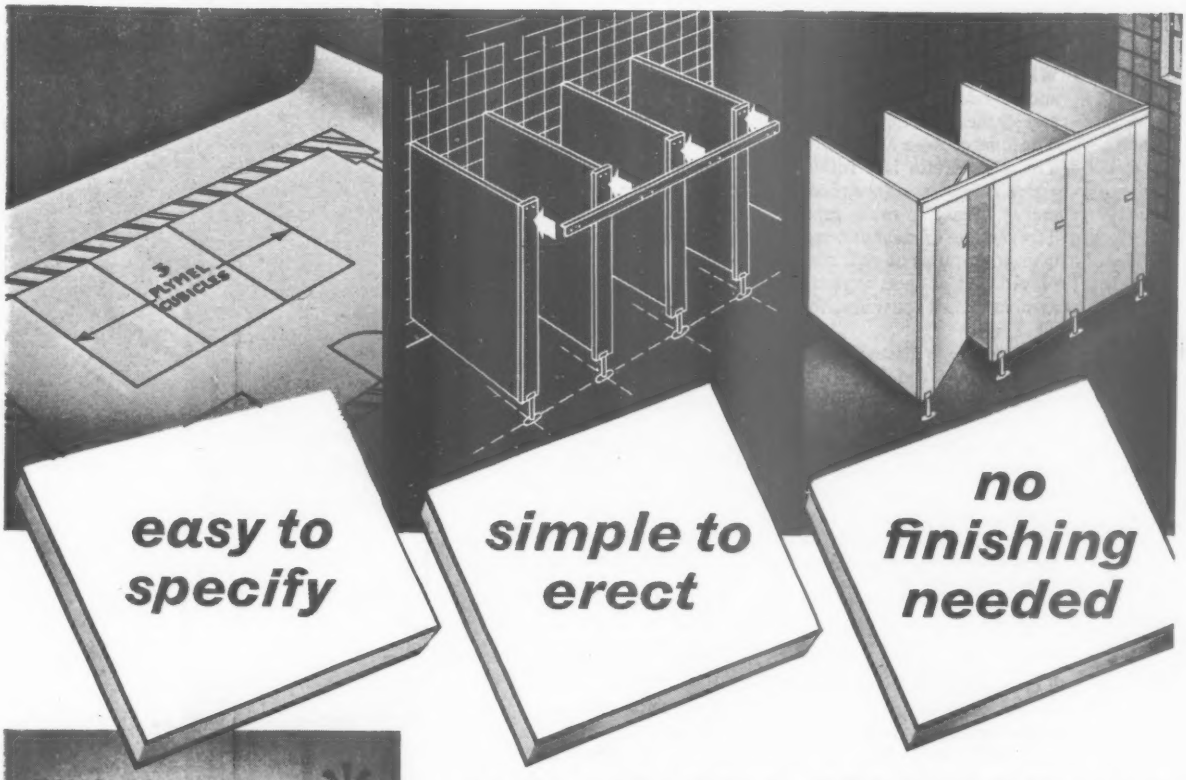

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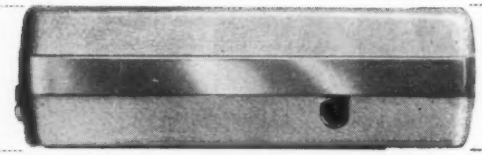

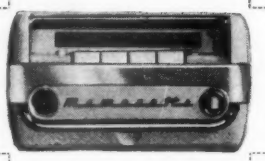

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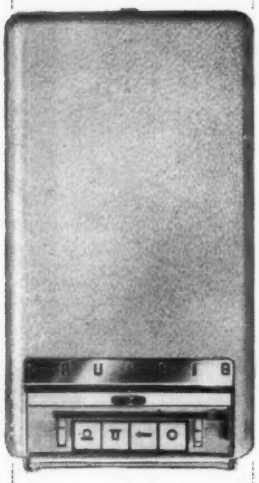

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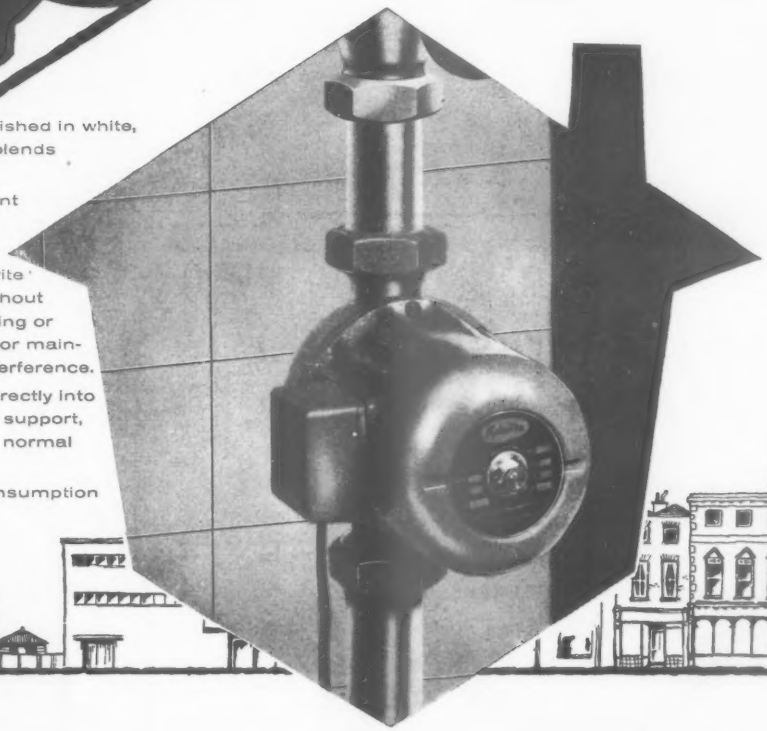

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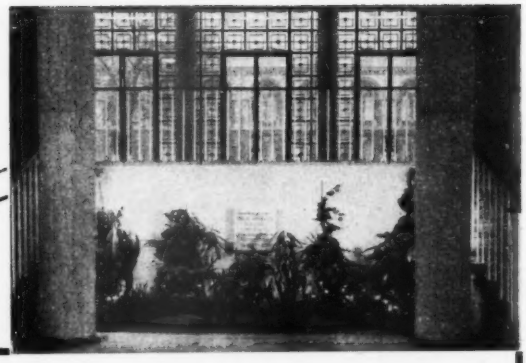

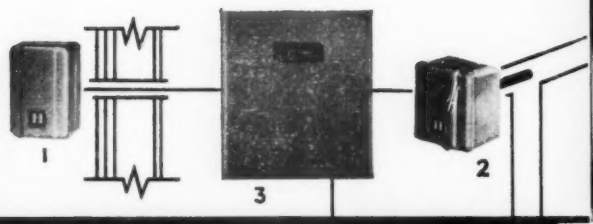

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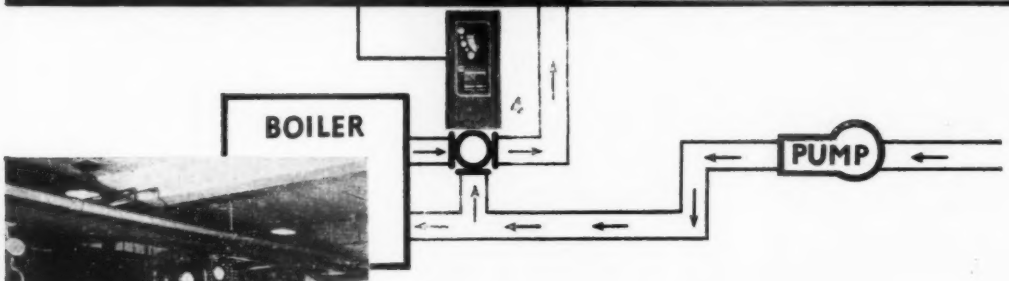

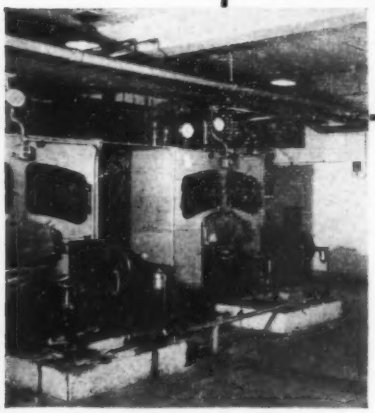

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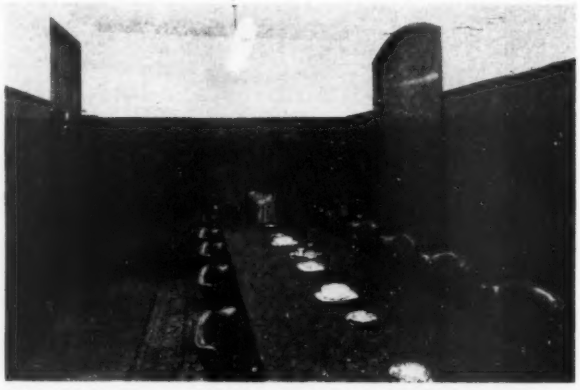
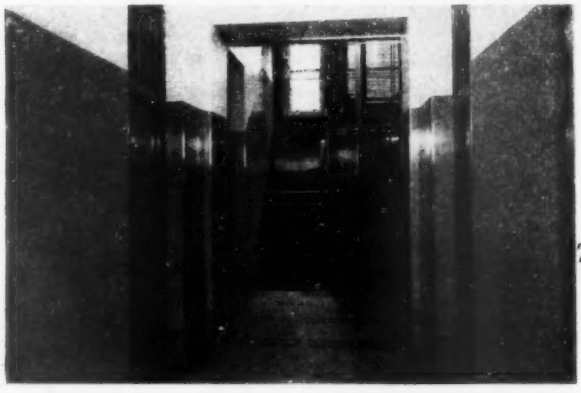


Photographs by courtesy of the British Jewellers Ass., Carey Lane, London, E.C.2



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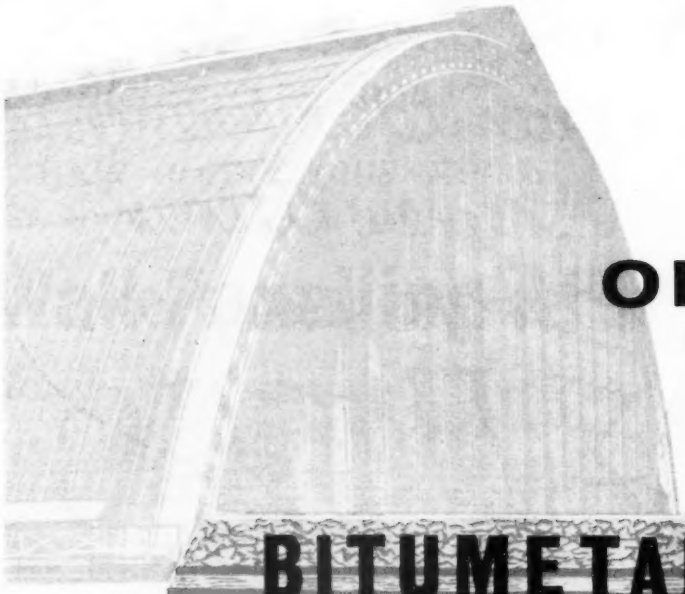

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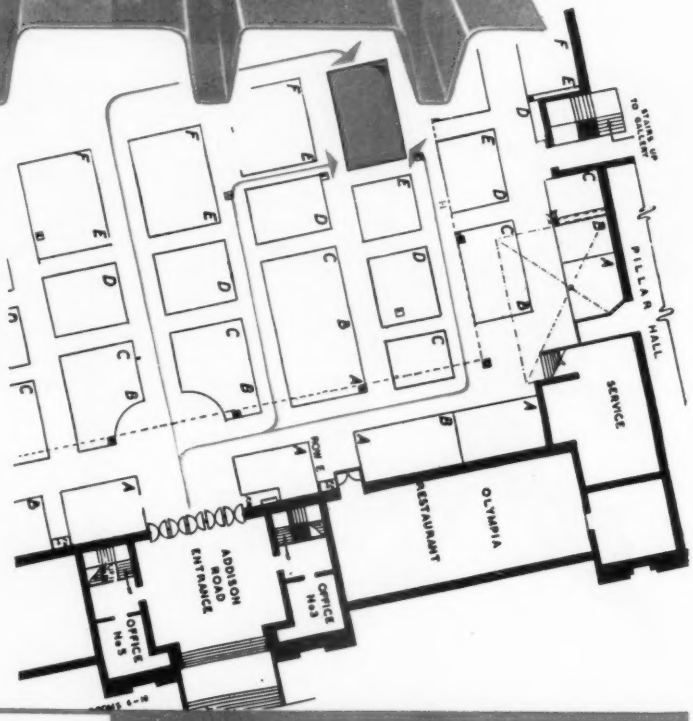

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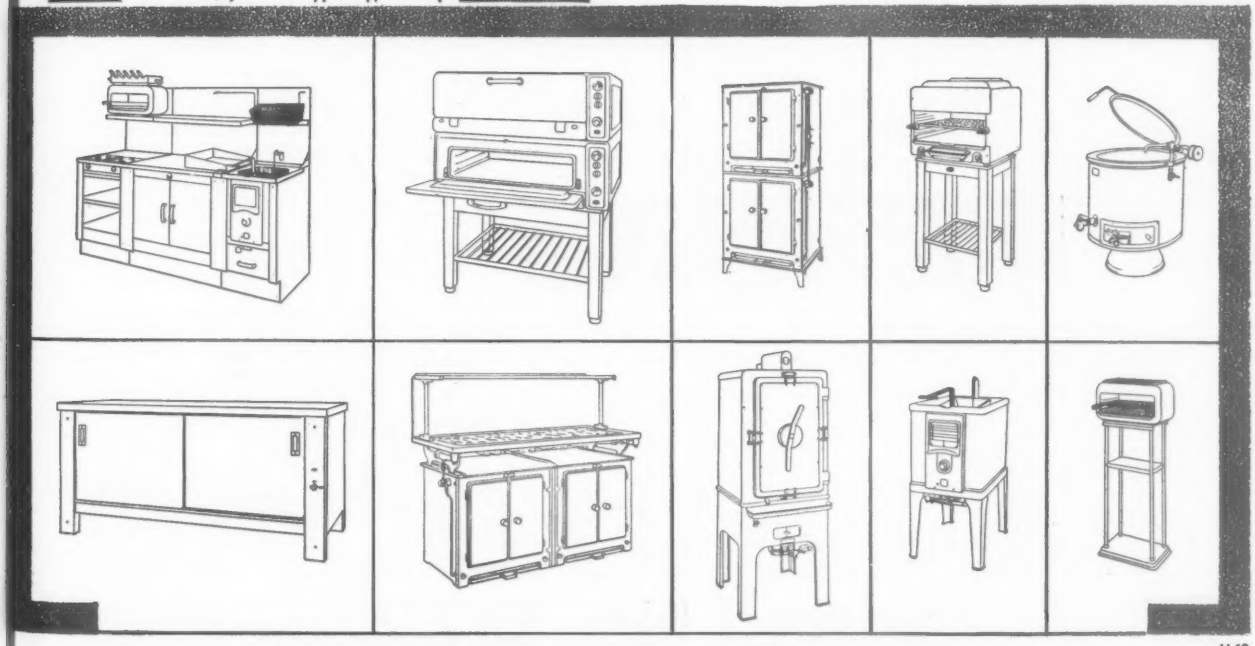

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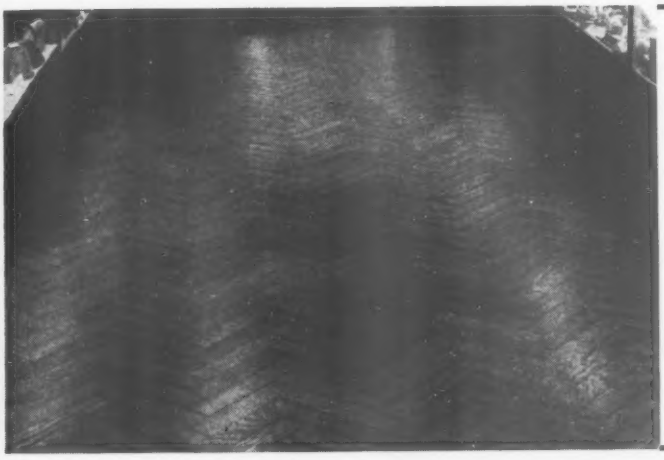

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THE ARCHITECTS' JOURNAL
(Supplement) November 12, 1959

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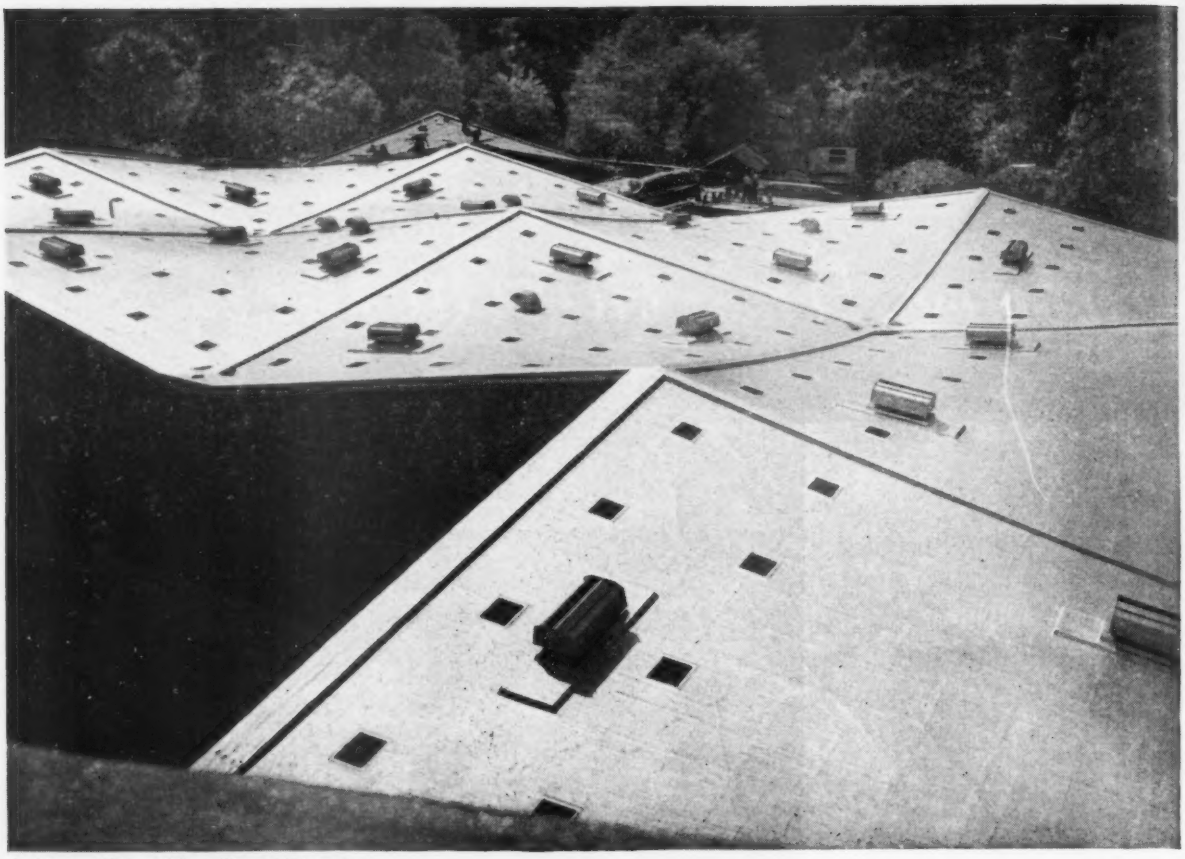

Architects: Messrs. Johns, Slater & Haward
Roofing Contractors: Wheelers Ltd., Sudbury

Shell . . . for eggs

This shell roof, the largest in Great Britain, has been built for the egg-packing station of John Rannoch Ltd, at Haughley Park, Suffolk. The sixteen hyperbolic panels, each 45 ft square, cover a total area of 32,400 sq. ft. The shell comprises three layers of boarding, glued at the edge of each panel over a strip 3 ft wide, using Aerolite 300 resin glue. The edge beams, 8 in. wide, consist of five layers of boards above the shell and five below, and are laminated with Aerodux 185 resorcinol resin adhesive. CIBA (A.R.L.) Limited Technical Notes No. 202 contain much information on the construction of shell roofs, and will gladly be sent on request.

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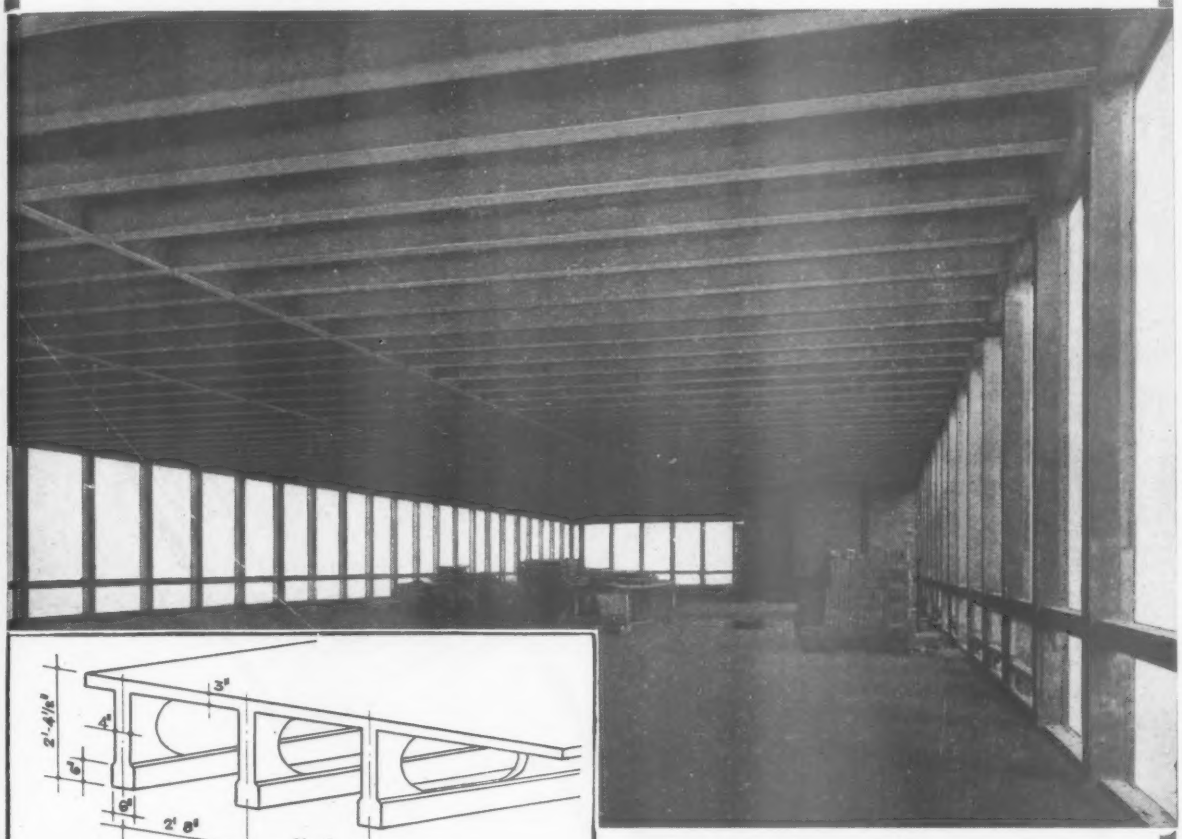

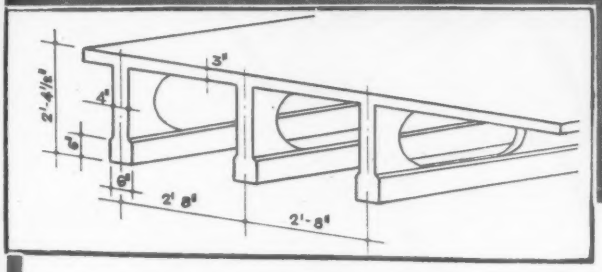

Architects : Keppie, Henderson & Partners.
Contractors : Melville, Dundas & Whitson Ltd.
Reinforced Concrete Designers : G.K.N. Reinforcements Ltd.

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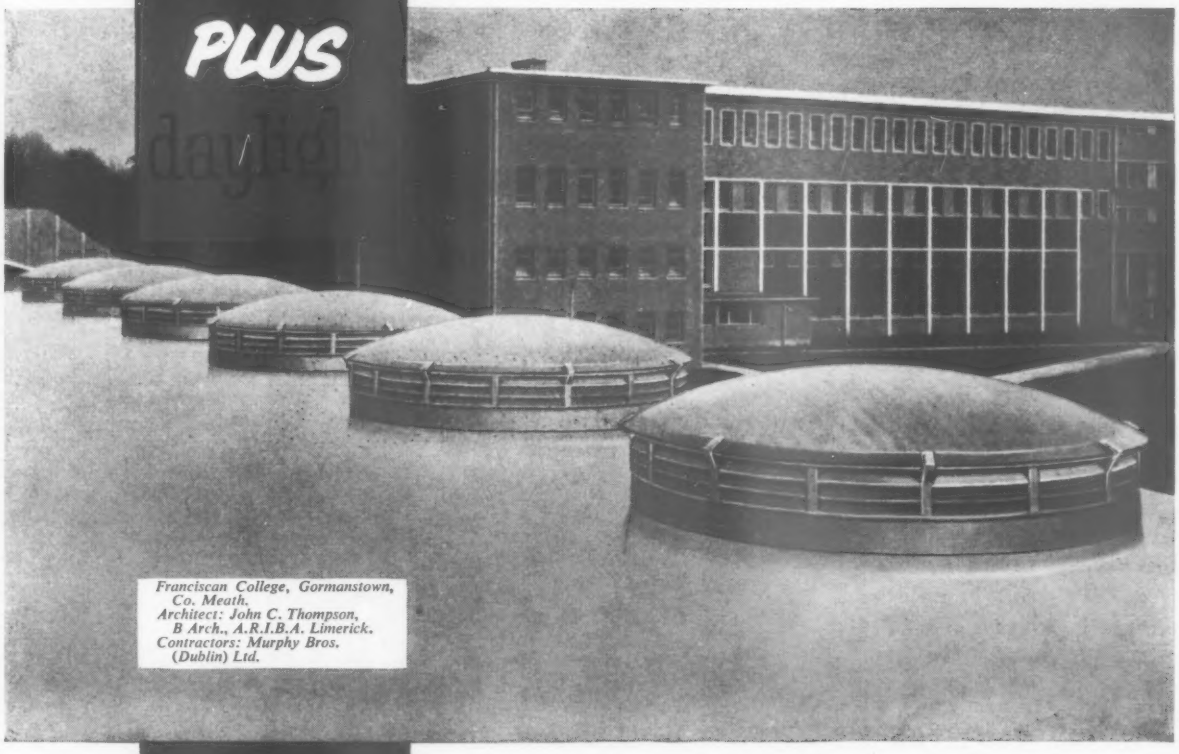

Franciscan College, Gormanstown, Co. Meath.
Architect: John C. Thompson, B Arch., A.R.I.B.A. Limerick.
Contractors: Murphy Bros. (Dublin) Ltd.

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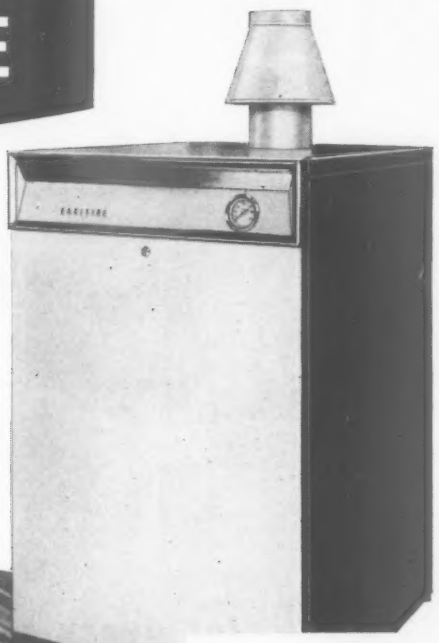

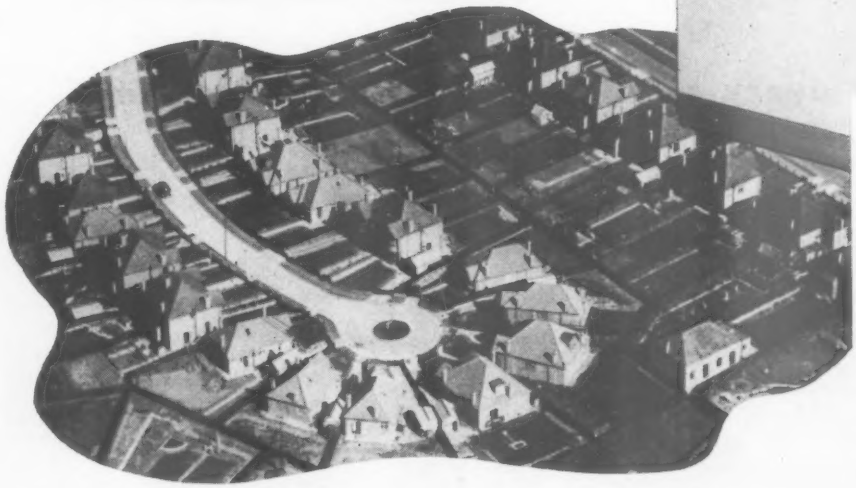

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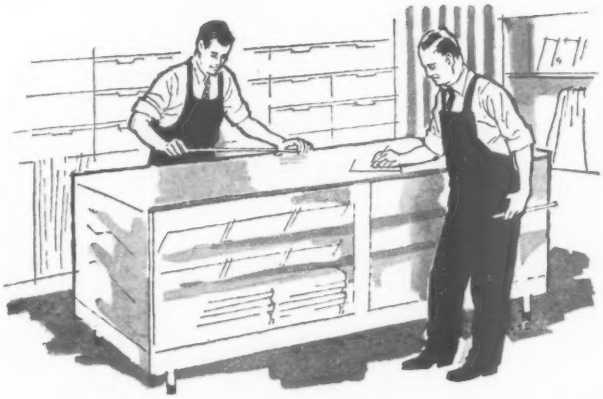

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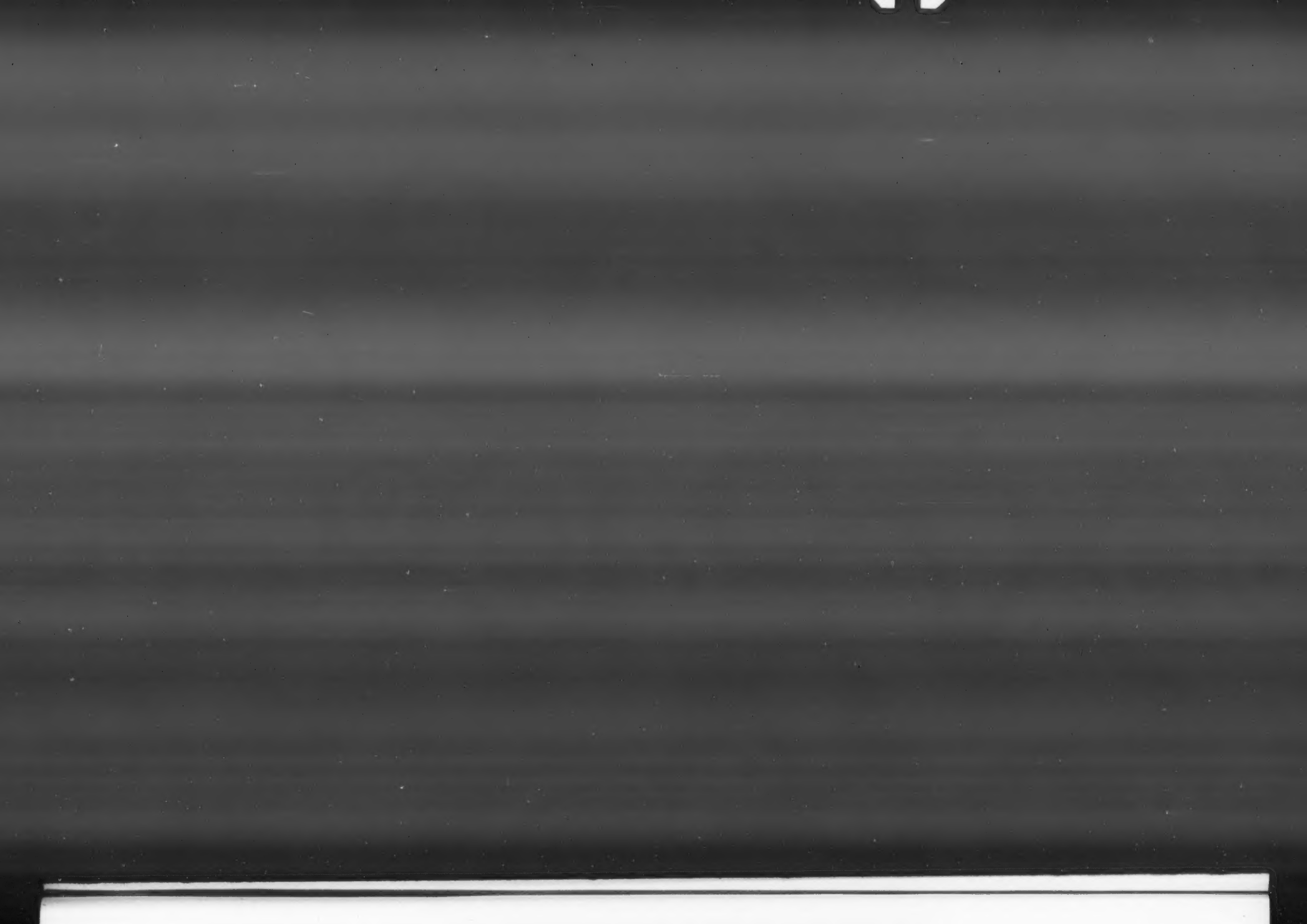

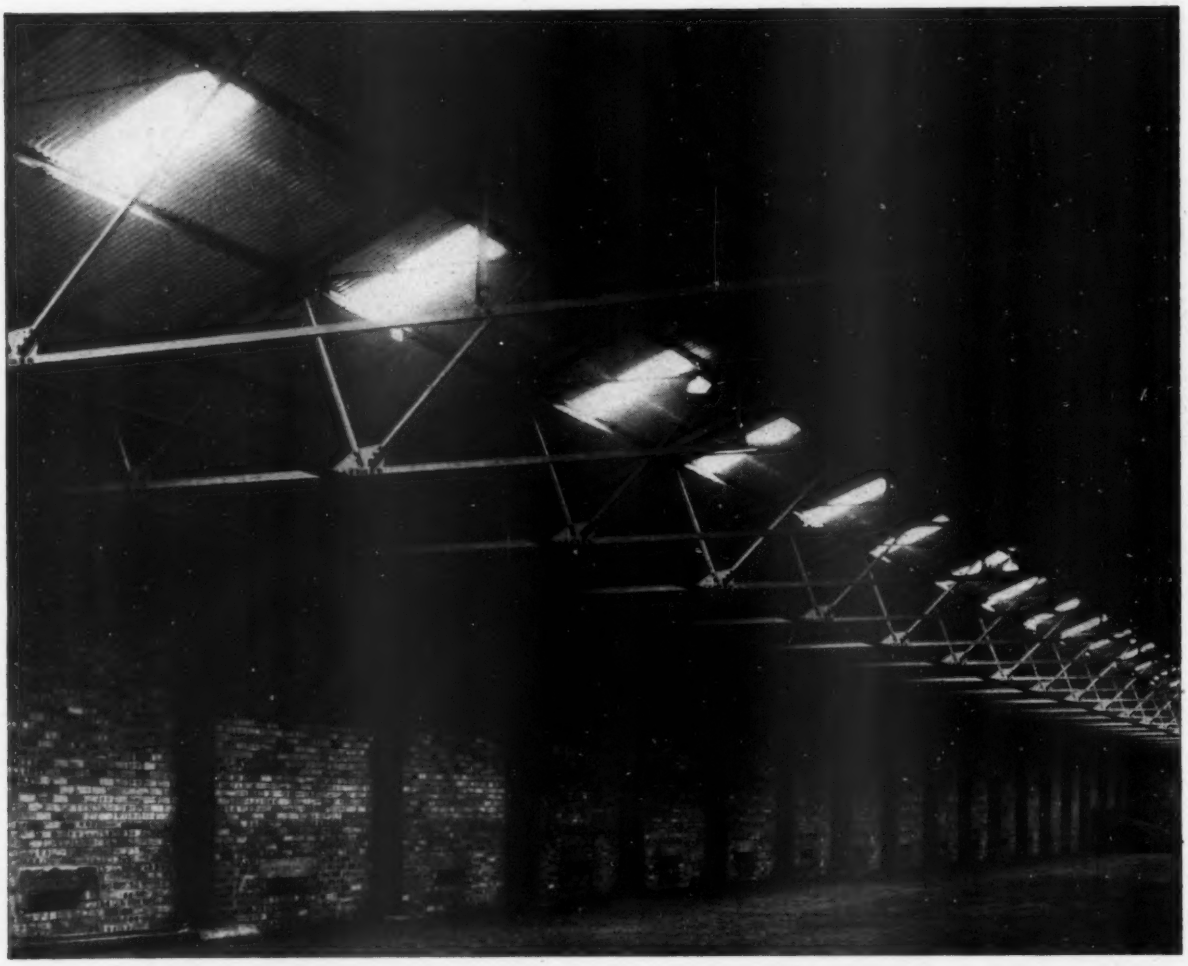

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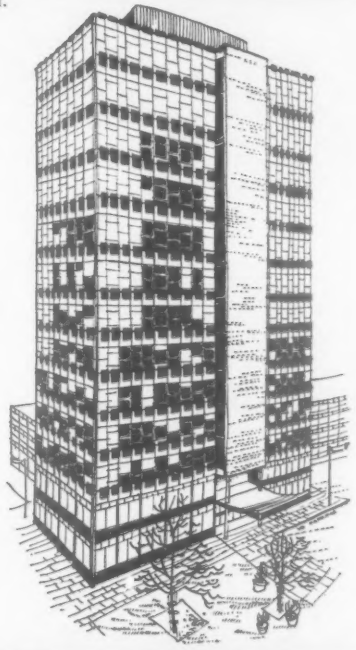

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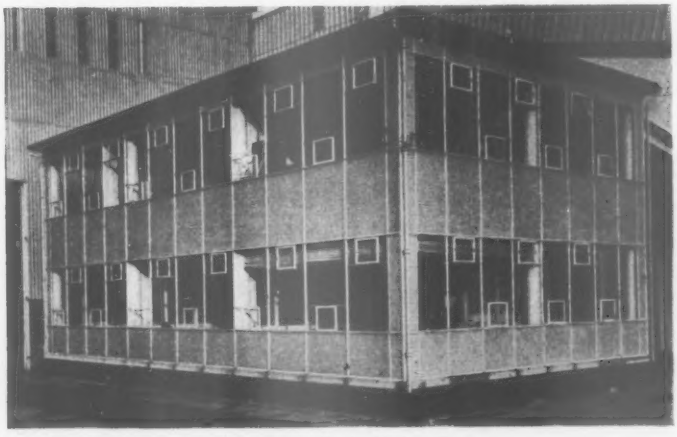

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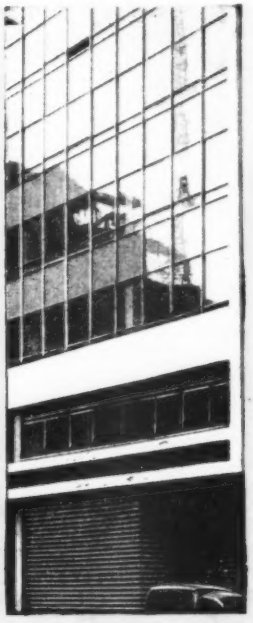
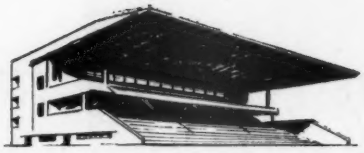
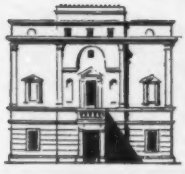


Office Block—High Holborn.
Architects George, Davies and Webb.



Nuffield Trust Hostel—Regents Park. Architect Eric S. Brown B.Sc., F.R.I.C.S.

Key Glass Works—Harlow, Essex. Architect Eric S. Brown B.Sc., F.R.I.C.S.



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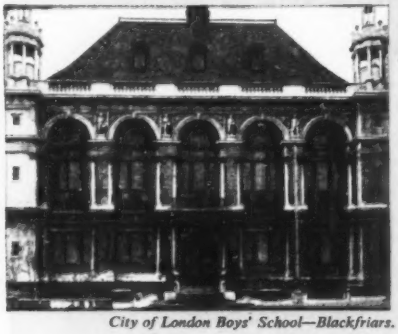

City of London Boys' School—Blackfriars.

Notre Dame Church—Leicester Square.
Architect Professor Corfiato F.R.I.B.A., F.S.A., S.A.D.G.

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I.C.S.

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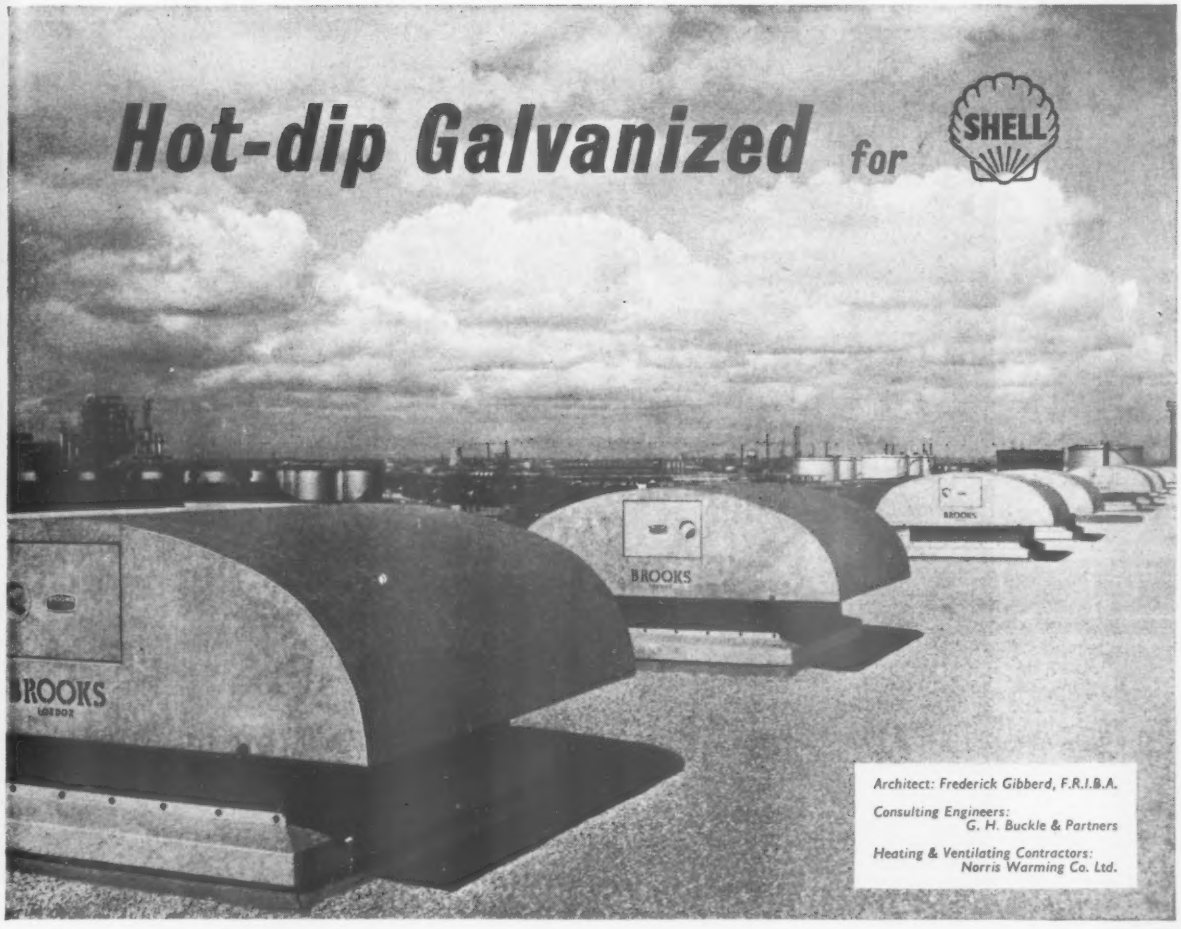

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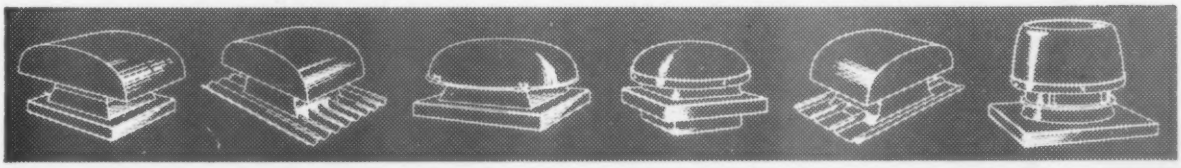
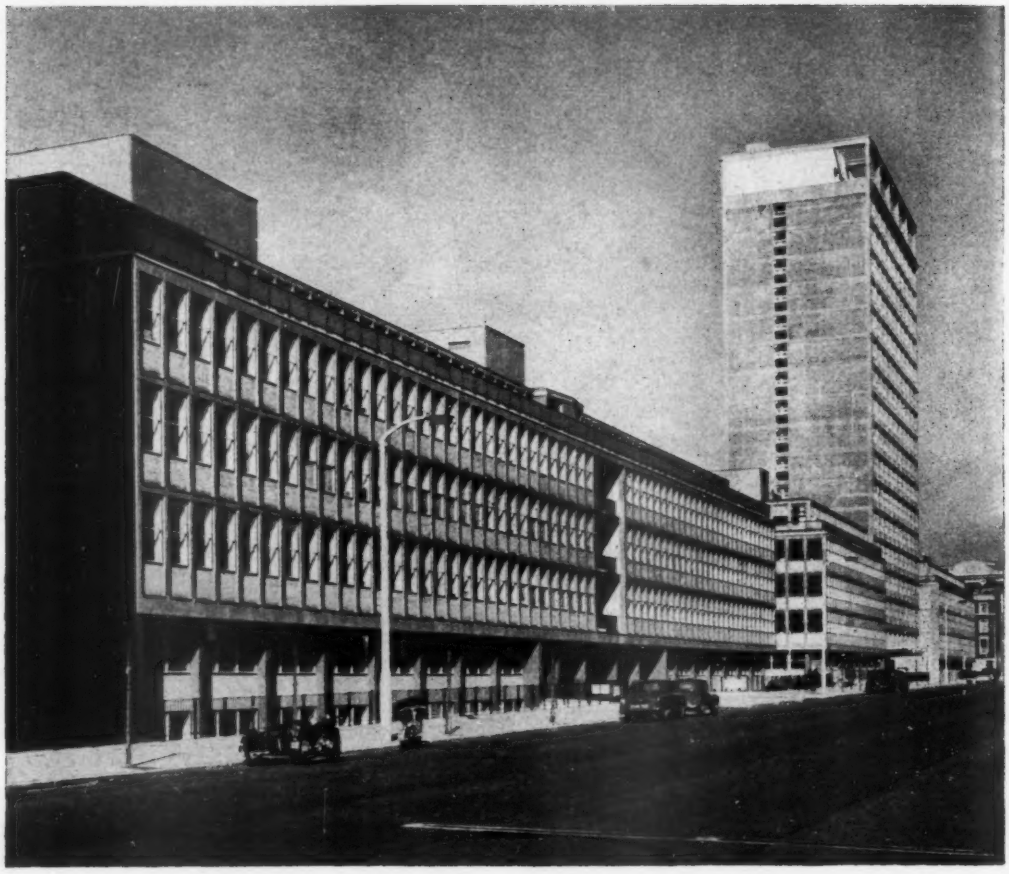


BRITAIN'S WIDEST RANGE OF POWERED VENTILATION UNITS



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- *Windows opening up new horizons in planning and design but right down-to-earth in sheer practicality*

To the building owner or occupier

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- *No painting necessary*
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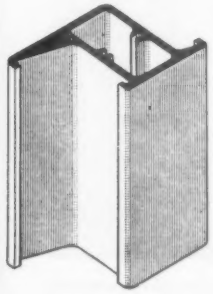
- *No warping*
- *No needless weight – windows that are* always *easy to open*
- *Reduced maintenance costs throughout the life of the building*

The advantages of aluminium are at their greatest with ALCAN aluminium. ALCAN, one of the world's largest producers, are specialists in the ingot field. To manufacturers, ALCAN specialisation means a constant, reliable source of aluminium in alloy forms exactly – *consistently* – suited to precise needs.

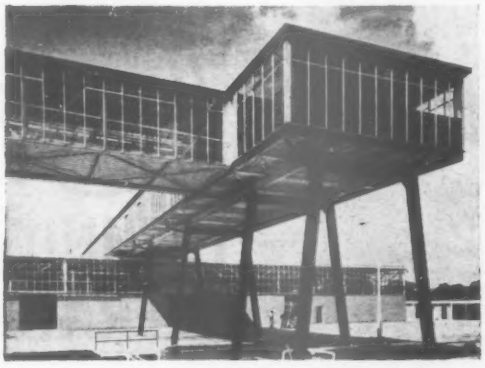


A typical example of an extrusion for aluminium windows.

To architects and designers ALCAN specialisation makes available a vast store of technical knowledge and experience ready to be applied to any project, backed up by years of fabricating technique.

To the user of every aluminium product ALCAN specialisation means a certainty of quality and the best value that money can buy.

THE WILLIAMS & WILLIAMS LTD. *windows in the new head office of George Wimpey incorporate a special square tubular aluminium section housing strips of P.V.C. to reduce outside noise.*
Architect: E. V. Collins, A.R.I.B.A.



The can-making building of the new Wigan factory of H. J. Heinz & Co. Ltd. "Aluminex" Patent Glazing constructed of aluminium by WILLIAMS & WILLIAMS LTD. *was used.*
Architects: J. Douglass Mathews and Partners in association with Skidmore, Owings & Merrill.

This bungalow at Tunbridge Wells incorporates WILLIAMS & WILLIAMS LTD. *new 'Alomega' aluminium windows which utilise a patent mechanism in place of cords.*

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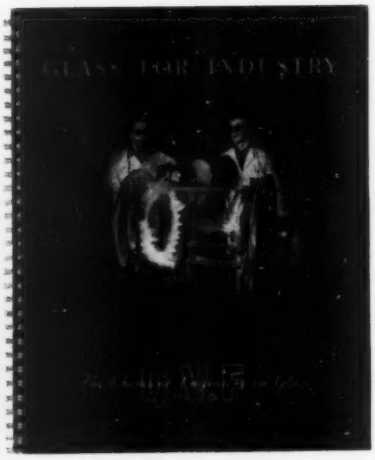

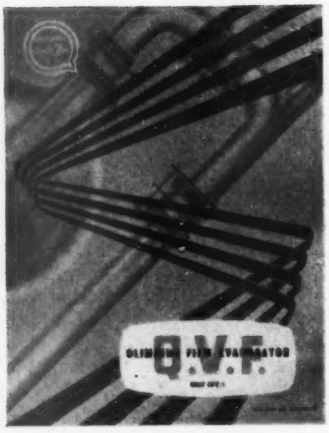

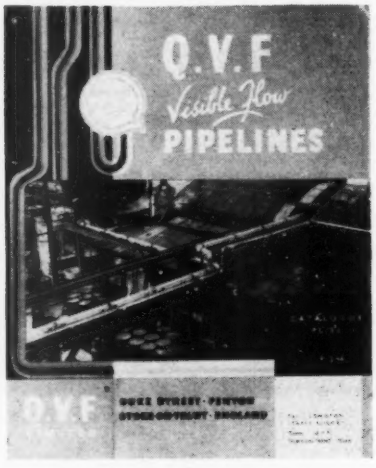

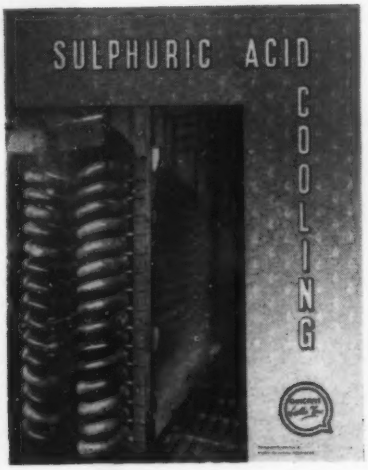

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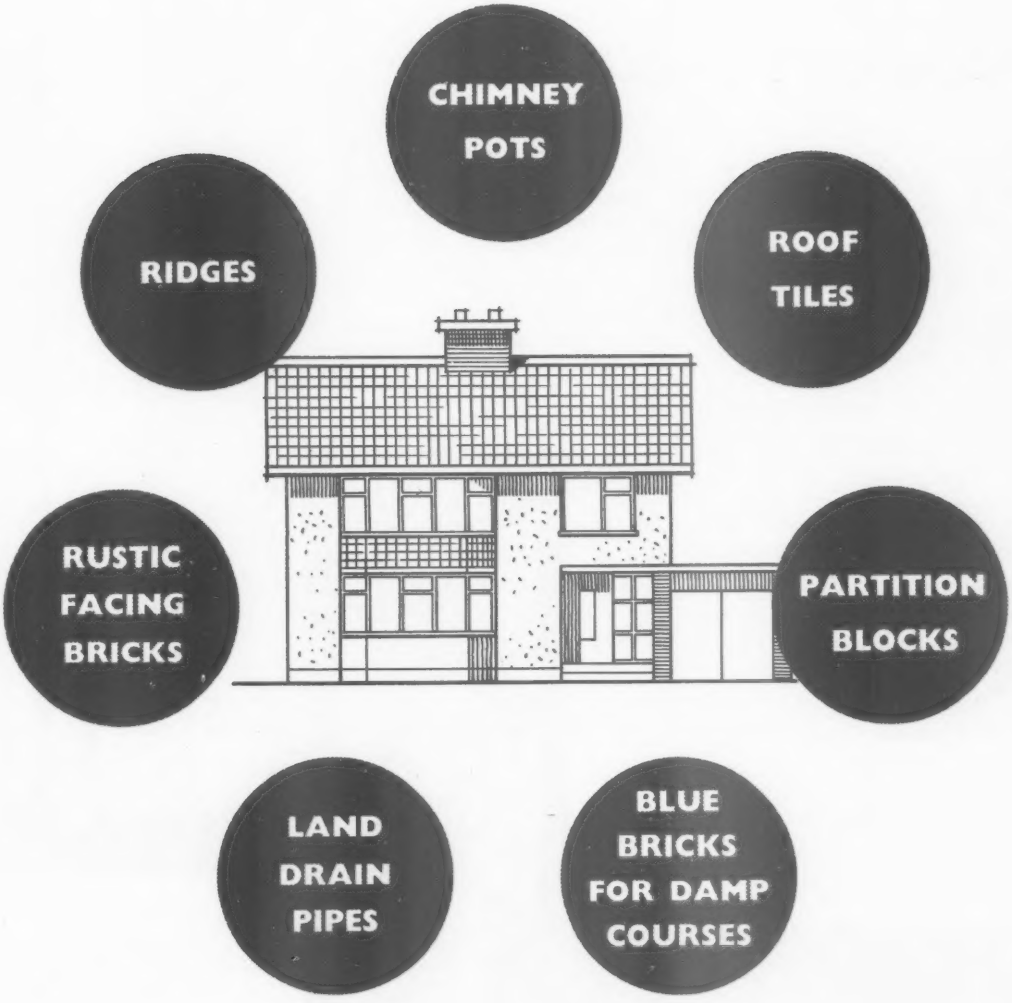

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This is one of a number at present being made up in our Panels Department, which is fully equipped to manufacture custom-built switchboards, control units and motor control cubicles, etc.

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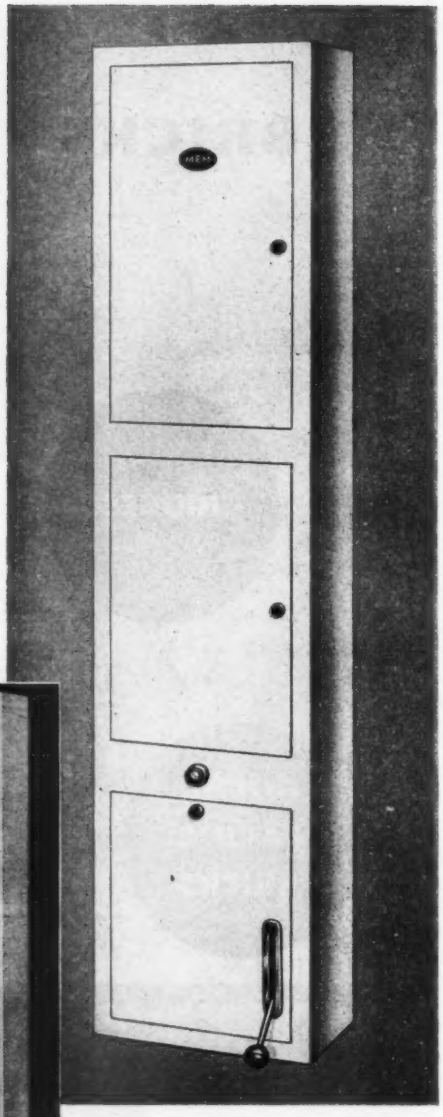
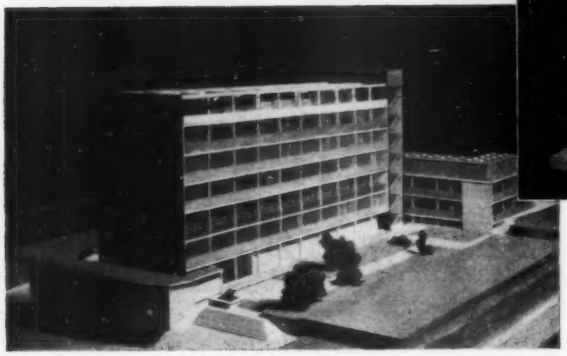
The main fused isolator is of the well known "Glasgow-Rex" range modified for flush mounting and rated at 60 amps, 500 volts, T.P. & N. pattern.

Fusing of the distribution section is 30 amp throughout.





The cabinet is of dust proof construction. The covers, which are flush pattern, are mounted on concealed hinges and are fitted with gaskets of resilient foam rubber.

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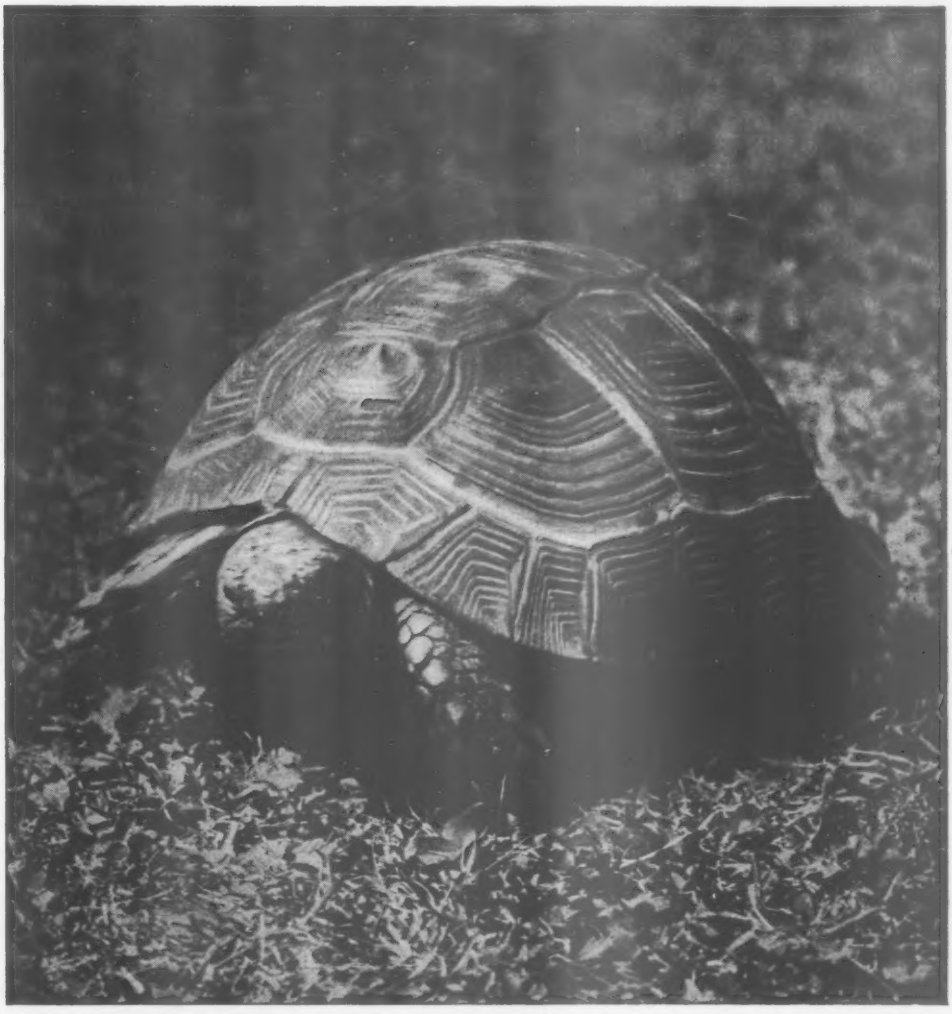

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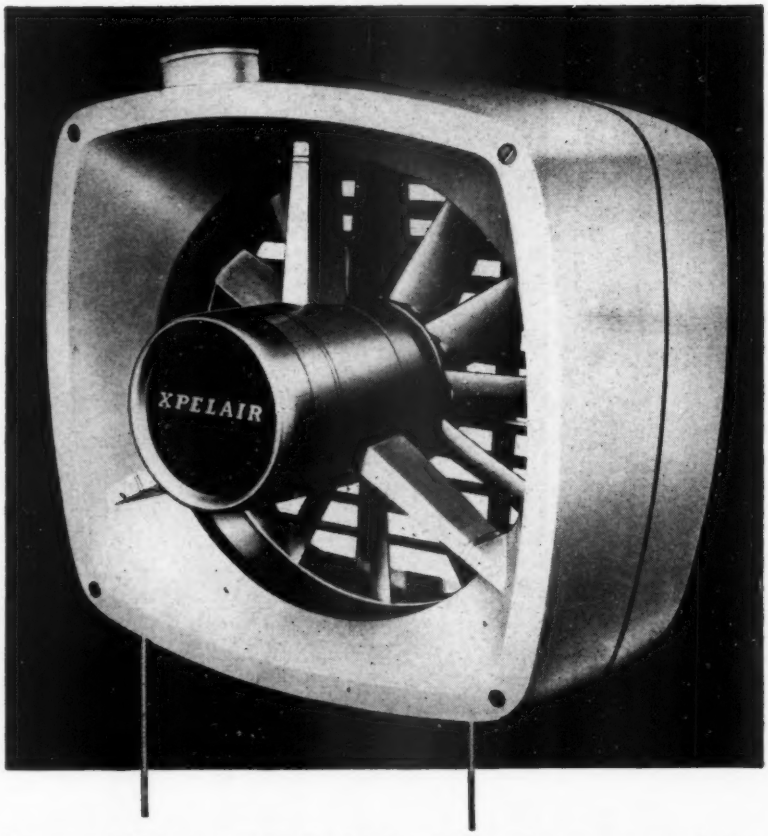

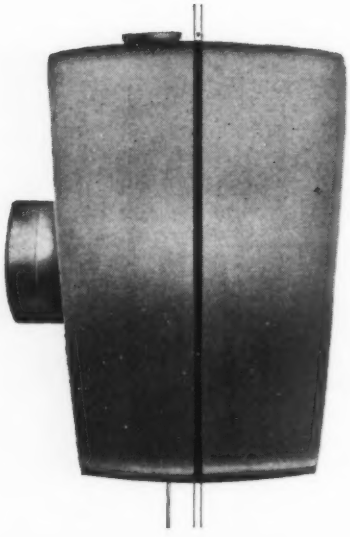

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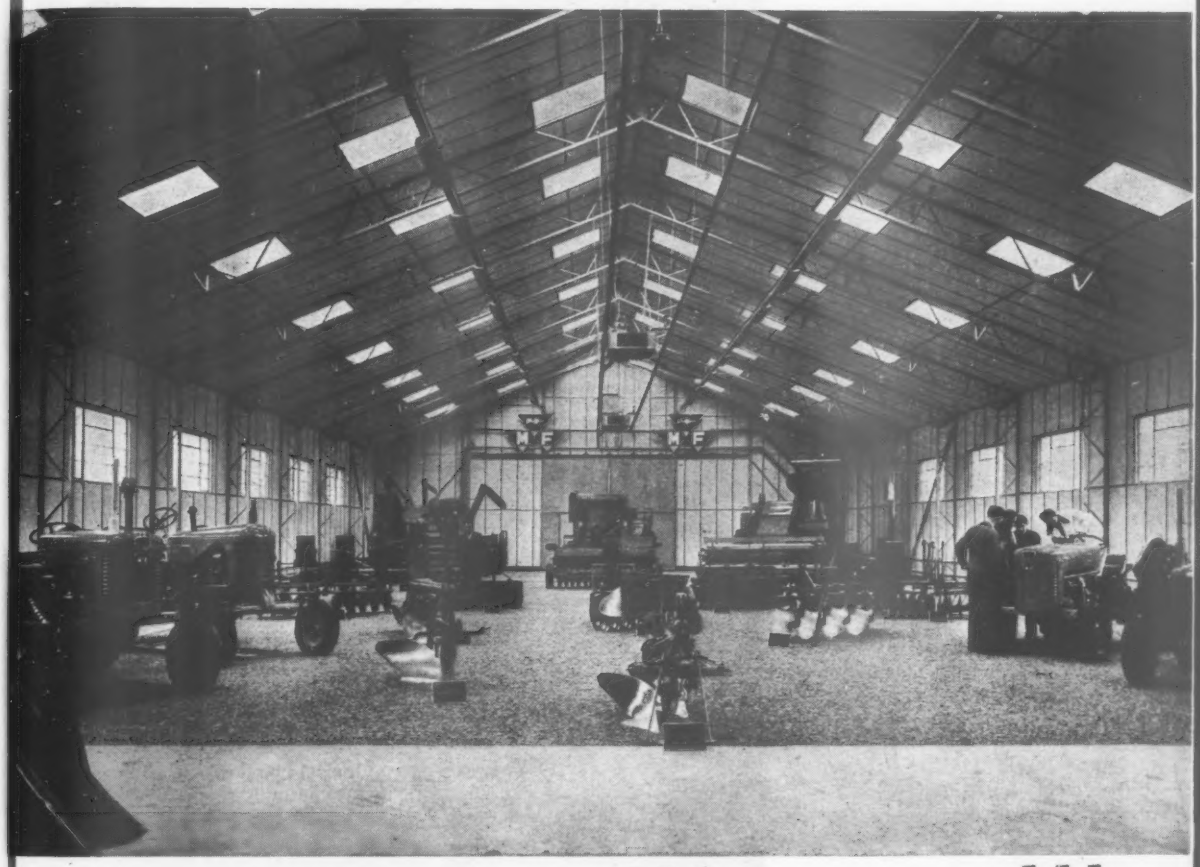

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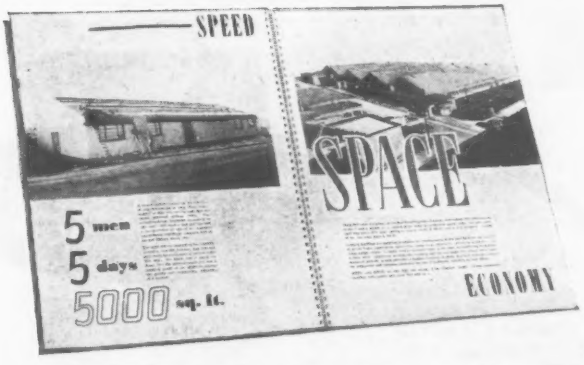

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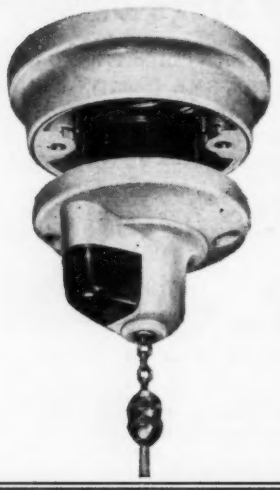

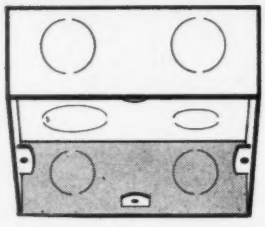

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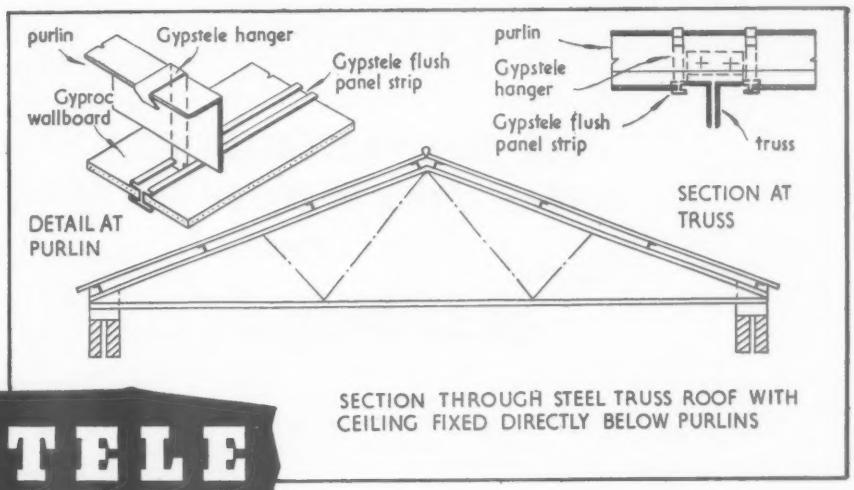

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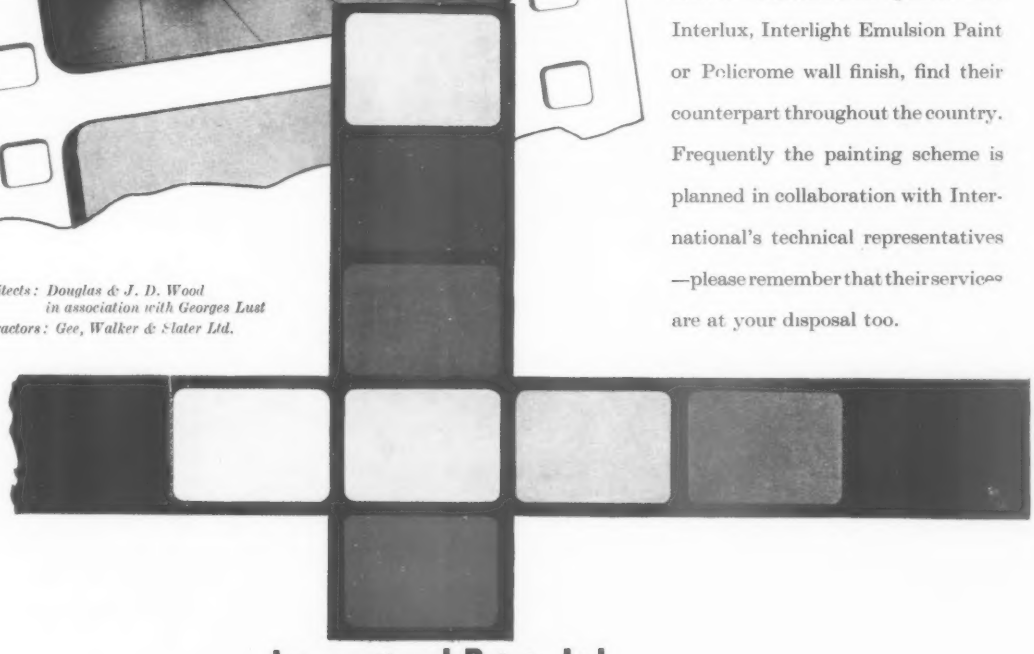

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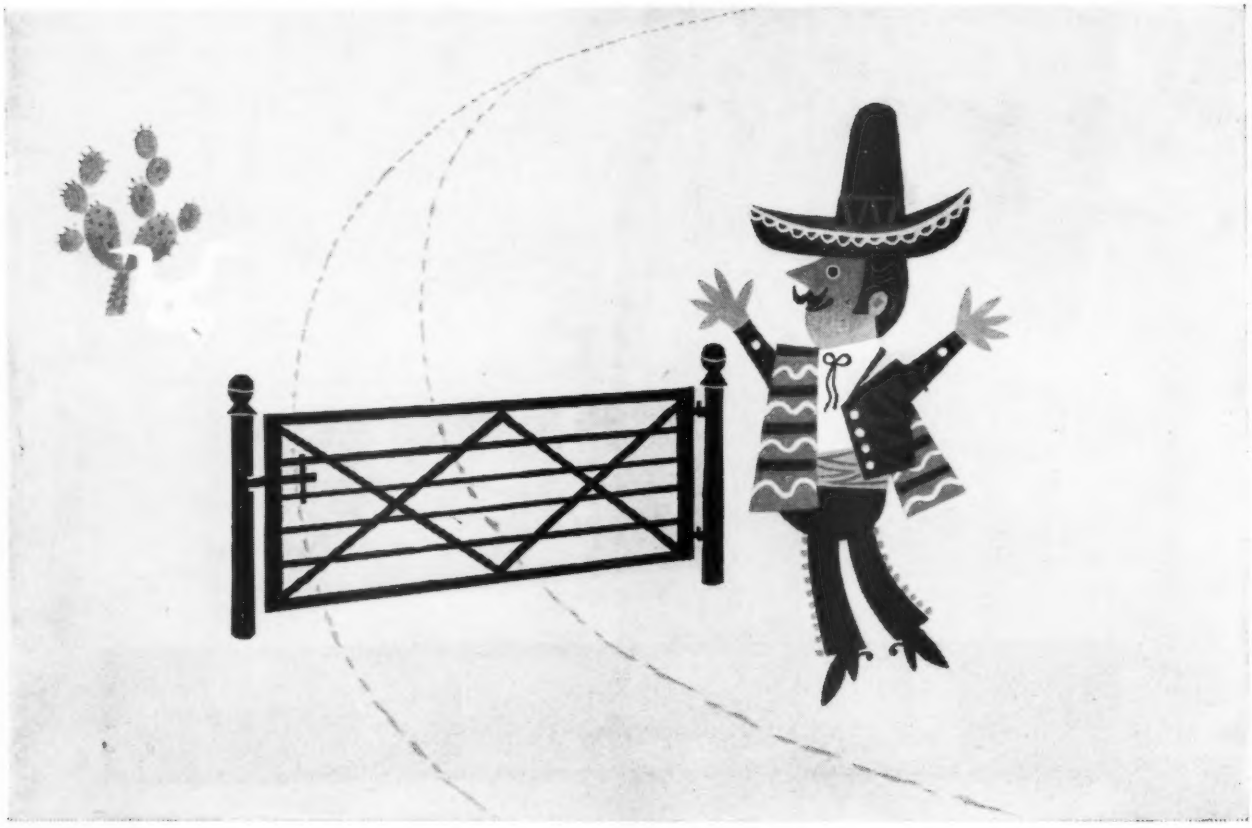

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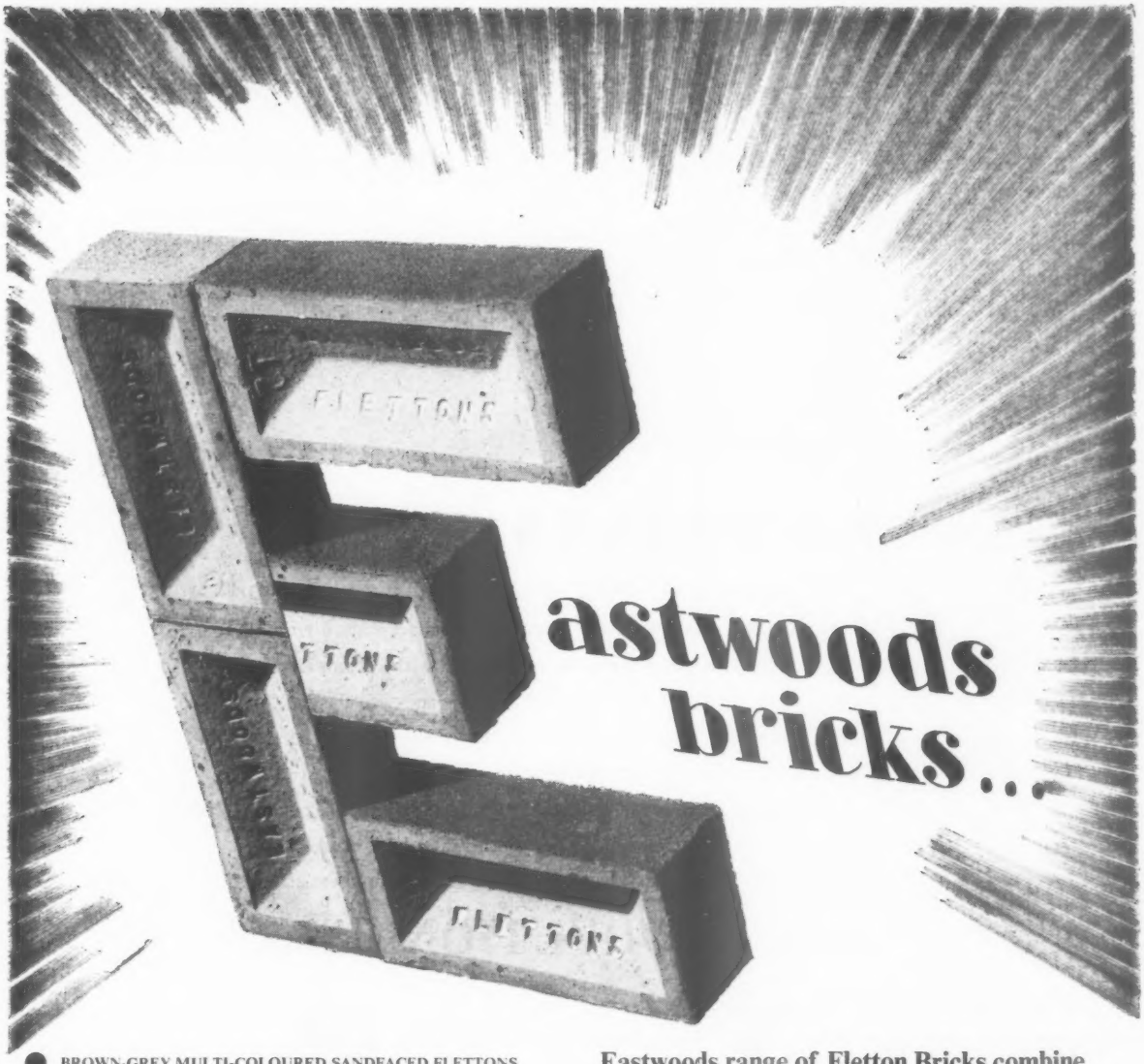

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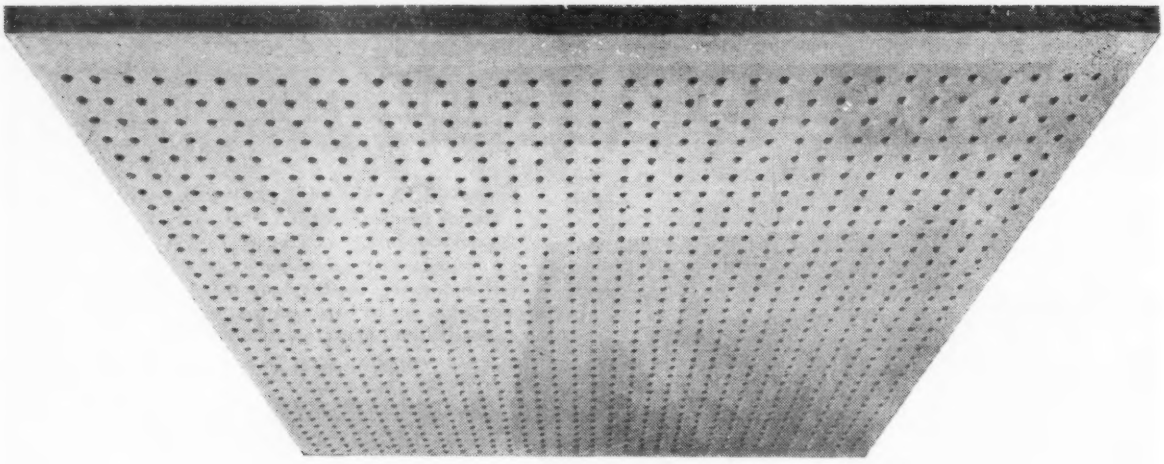

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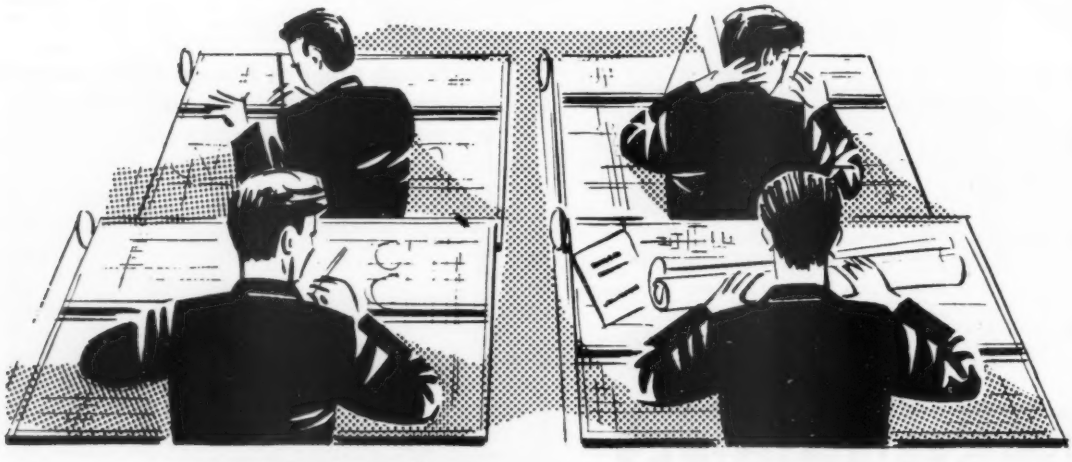

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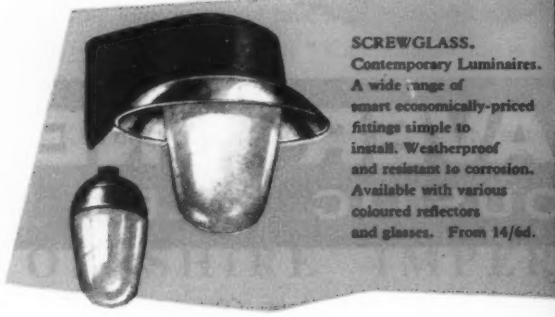

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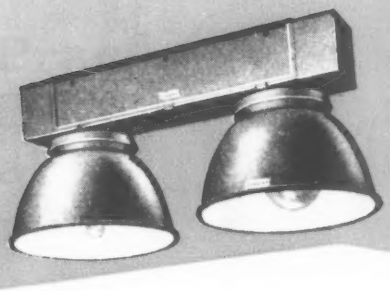

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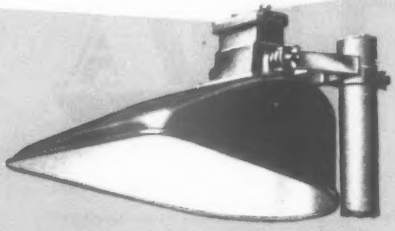

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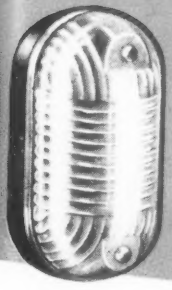

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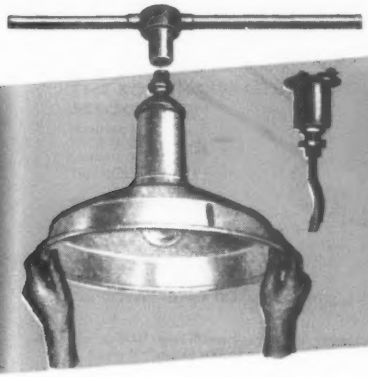

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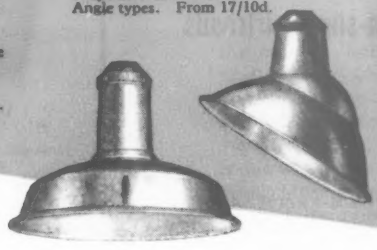

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AJ

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No. 3369 Vol. 130. November 12, 1959

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NOT QUITE ARCHITECTURE

Immigrants Welcome

The centre of Sydney is a busy gridiron of high, close-packed confident buildings standing on a peninsula between Botany Bay and the Harbour. There are department stores on the Selfridge scale, aggressively eclectic insurance buildings, an immense arcaded brownstone GPO. Scores of shops and coffee bars nestle under the continuous canopies that cover every pavement.

*

Going out from this core, you pass into the twentieth century with a bang. A network of roads leap-frogs away over the hills and headlands to scatter bungalows at five or six to the acre to an extent that defies belief. The spread is variously quoted at 30, 40 or 50 miles—but everyone knows that "it is greater than London." The difference here is that from hill tops you can see the pink roofs like pips in a spread of raspberry jam stretching to the horizon on all sides.

*

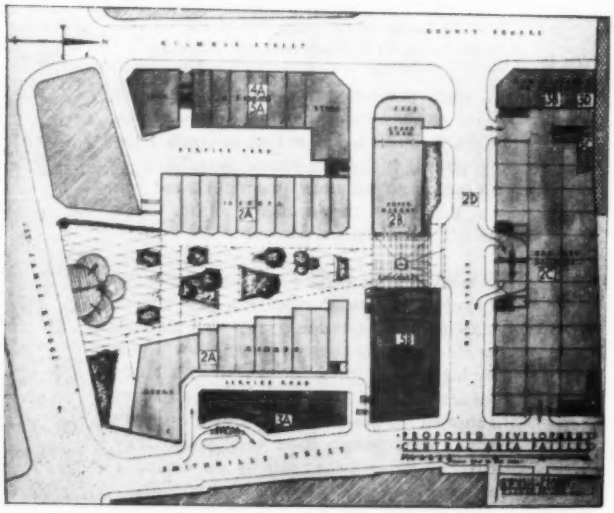
At intervals along the main arteries are "centres" (you can't call them villages or towns) with names like Putney, and Turrmurra, Chatswood and Kuringai. A railway station, little bank, post office, shops and filling station—none of them more than two storeys high. The newness of it all and the yellow licence plates on the cars add to the illusion that you are in America. Bungalows are fundamentally English, with porches, fretted barge boards and the treasured embellishments of a prosperous individuality.

*

At night the suburbs are a weird, deserted maze—a network of climbing turning roads with dim street lamps at long intervals, lined by ghostly unlighted bungalows. There is no one about, all streets seem alike and you are lost. It is the strangest setting for a friendly, socially inclined race.

*

The social idea behind this attenuation, is that every Australian is really a bush man at heart (gardens are universally well tended). So all the classic consequences follow. Rates are high to pay for the roads. Many suburbs are sewerless and adequate public transport is thin on the ground. The evident prosperity helps. Most people have cars, which they leave at the railway stations (to escape a ferocious tow-away campaign by the police).



Architects' Anonymous

Is the pattern and the form of central area redevelopment in the 1960s to be determined by the property speculators? After the outrage at Piccadilly Circus, tamely condoned by the LCC, comes the threat of the all-in planning service, offered by the speculative developer who is only too ready to relieve local authorities of their tiresome obligation to plan and reconstruct the city centres. Here is the design approved by the Burgh Council for the redevelopment of the centre of Paisley, whose planning officer is the Burgh Engineer. The plan is the work of the City Property Investment Trust Corporation and Scottish Site Improvements Limited. "An artist's impression of the entire development" (above) gives a most depressing impression of the dismal architectural quality achieved by the anonymous architects employed by the developers. The figures 2 to 5 on the plan (below left) show the stages in which the plan would be completed, beginning with the "ornamental piazza" (2A), Supermarket (2B), the ground floor of the car park, filling station and conveniences (2C). The later stages include a hotel (3A), car showroom (3B), first floor of the car park (3C), offices (3D), shops and offices (4A, 5A), a theatre and central concourse (5B). An attempt has been made to plan a pedestrian precinct, but it is not consistently carried through, as this is combined with frontage development (centre left), and a new road (2D) effectively separates the car park from the pedestrian area. This is the kind of thing that gives architecture a bad name, and frustrates the efforts of the RIBA to raise the status of architects.

North and south of Sydney, the coastline is heavily indented with bays and creeks lined by gum forests and edged with beaches. Here, on the outer belts of suburbia are the contemporary (and even modern) houses, mainly of American inspiration. Steep sites invite unorthodox solutions—car port on the roof and house below road level. The whole area is an architect's dream —superb prospects abound. Rounding a curve on a contour road you come upon an immense bay or river valley that can make you think of Captain Cook, rowing ashore in 1770. There are palms and flame trees and brilliant tropical lilies. And although you may be now 20 miles from the city in this immense continent, traffic at weekends is like the Brighton road.

*

The most startling paradox is the cost of land. £2,000 and £3,000 for a modest block (site) in a fairly good situation is becoming quite common. Building costs correspond. A house of about 10 or 12 " squares " may cost £8,000 or £10,000. Even when you deduct one-fifth to convert to English £'s, figures are high relative to the cost of living. Incomes are good, everywhere is talk of expansion and prosperity and only the town planners worry about spread and density.

*

The only problem for the private architect is shortage of staff. The senior assistants all leave their £35 to £40 per week jobs to start practices of their own. Ten to twenty-storey office blocks and high slab blocks of flats are becoming almost common in the city. European-type glass curtain walls are very much " in " but probably not for long in this near tropical blazing climate. At least three lift-slab jobs are to be seen in progress and down on Bennelong Point—a splendid headland on the sea side of the Bridge—piling rigs for the Opera House are in full swing.

*

The total population of this confident city of meteoric careers is near to two million, and growing. To a Londoner, people in the streets tend (like the bungalows) to look alike : the men universally in felt hats and grey suits ; the women with the big-hipped physique of a race of swimmers and with " hats "—all of them. Everywhere you meet the laconic helpfulness of a pioneering society and car drivers are astonishingly polite at crossings. In every conversation the subject of " Australia " comes up sooner or later—the future of its trade, tourist prospects, and housing development, the relationship to its nearest neighbours—the Asian countries ; comparison with America, the strength of the unions and the effect of European immigrants. It is said that Australians are an outdoor people who take life easily and yet work hard ; that the country still lacks an intellectual middle class ; that the women " ride " the men and will soon make a matriarchal society ; and so on. . . .

*

It is certainly an exciting place for a European to find himself in. And there is a feeling that those ingredients in society that he might miss most are soon to appear above the cultural soil here. JOHN CARTER.

The Editors

A PACEMAKER WANTED

WE hope that the appearance of the new Minister of Works, Lord John Hope, at the RIBA last week, where he moved a vote of thanks to Basil Spence for his presidential address, marks the beginning of a fruitful association between the Minister and the profession. Although the Ministry of Works carries greater responsibilities both for architecture and for the whole building industry than any other Ministry, it has failed to make itself " the country's pacemaker for research and development, for quality, speed of erection and value for money " (to quote from an editorial we wrote two years ago). The new Minister, who is young enough and able enough to make his name at the MOW, has an exceptional opportunity for vigorous and effective action, and we trust that he will take it. He can certainly count on the goodwill of the architectural profession in every forward step he takes.

One of the first things he should look into is information for the building industry. Not only does the Ministry itself sit upon large quantities of information which should be at the disposal of the industry, but it has never recognized its own responsibility for taking the initiative in this matter. Dargan Bullivant's reports in the AJ have made some valuable suggestions on which the Minister could act.

Another is the deplorable anomaly created when the Ministry failed to fill the vacancy created when Sir Charles Mole, the Director-General of Works, retired. For more than two years a non-professional general manager has been temporarily filling the gap. The Ministry was unable to attract a top-flight architect because it was unwilling to pay a big enough salary, and because the Ministry has not yet given convincing evidence of its readiness to do the job required of it. The sooner the Ministry is given professional leadership at the top level, the better.

RIBA ACCEPTS SfB

The RIBA Council has approved the SfB method of building classification—the system now being used in the AJ. Thus one more hurdle has been triumphantly surmounted by AJ Research Fellow Dargan Bullivant in the long race to get the advantages of a universally accepted and efficient system of classifying information. The next step is for the other pro-

fessions—engineers and surveyors, the Institute of Builders, builders' merchants and the manufacturers of building products—to study the system, if they have not already done so, and express willingness to try it out. Unanimity on this matter, *now*, would be a great step towards the creation of order in the sphere of published information: a major subject now under discussion in Ministries as well as in the more progressive sections of the building industry.

FURTHER PROGRESS IN COST ANALYSIS

The cost information on buildings published in the JOURNAL was given guarded praise at a recent meeting of the QS members of the RICS. A request was made, however, for a standard specification to be made for building elements, so that when costs were compared it would be certain that the elements were of similar content. For a long time a group of extremely public-spirited and dedicated architects and quantity surveyors have, in fact, been concerned with preparing just such a standard. Their conclusions have been submitted to the RIBA and the RICS, and at the meeting referred to above Cyril Sweett, a member of the Cost Research Panel of the RICS, stated that the Panel "did not disapprove" of the report. For such cautious commendation in the uncharted world of cost analysis we must be duly grateful. The report has also been submitted to the AJ, and will shortly be published. It is, however, being slightly amended, and simplified, so that those many architects and quantity surveyors who have not become familiar with the advantages of, and the technique of using, cost analysis, will be encouraged to join in, what is, perhaps, the most important architectural development of the decade.

THE PRESIDENT SPEAKS

Basil Spence was right, in his admirable presidential address (reported on another page), to suggest that planners, engineers, surveyors and architects should get together over important issues such as motorways. But the set-up he recommended—a meeting of presidents and secretaries—would be too high-powered, except as an inaugural summit meeting. Thereafter a joint consultation committee—similar to those already existing—should be enough.

*

Mr. Spence's public rebuke of the *RIBA Journal* editor's caption writing was rather unkind, but he did defend the paper against the charge of being dull. It is not, in fact, as dull as the profession it serves, and Noel Musgrave works monthly miracles with it. Read this month's excellent articles and see for yourself.

ANTI-UGLIES IN PORTLAND PLACE

There were not many architects present to hear the president's speech, so the Anti-Uglies' demonstration outside the RIBA was a damp squib. The theme, appropriate enough to a dark night, was "the blind leading the blind." Art students disguised as architects, ranging from bow-tie arty to bowler-hat spivvy, were shown leading the businessmen who in turn were leading the public in chains. On the steps of the RIBA Destitute Integrity was begging for alms, while an Establishment-looking gent representing the RIBA made Establishment-like remarks about good taste. All this was very baffling unless you could find an interpreter.

*

A manifesto called "The RIBA—Guilty or Not Guilty?" (see page 490) asked what the RIBA was doing about British architecture, and fired shots in all directions, some of them missing the mark by a long way. The writer asked for a two-tier profession with fewer architects and more assistants (a curious touch) and showed he was out of touch with the RIBA which is, after all, not only doing something about public relations, but is also discussing professionalism. The Institute has changed quite a bit in the last few years, but you wouldn't think the Anti-Uglies were aware of this.

BARLOW RETORT

Are large conurbations a social and economic evil? Since the Barlow report nearly all planning legislation and policy have been based on that notion. But not everyone defends it today, and it's interesting to see that the subject is to be debated on Saturday week at the London School of Economics. If you think post-war planning has gone wrong, take your five shillings along at 10 a.m. and hear what experts have to say at this meeting organized by the International Centre for Regional Planning. Defenders of Barlow will be Peter Self, lecturer at the School and Colin Clarke, director of the Agricultural Economics Research Institute at Oxford. The Barlow Retort will be provided by Professor Sargent Florence, leader of the Midland conurbation survey, A. G. Powell, chief research officer of the MOHLG, and Bryan Anstey, the expert on land values. The referee will be Professor Michael Wise, the social geographer.

THE FEWEST WITH THE MOSTEST

The Observer, dismayed at the mess being made of places like Piccadilly Circus, has suggested that where new building is needed on such cherished sites only a special kind of architect should be employed. And since the RIBA can not admit that some of its members are as bad as everyone (except their own clients) can see they are, the Royal Fine Art Commission should make a short-list of those whom it would trust with any scheme of national importance—an architectural top twenty. Only this top twenty should be allowed to do such work. Apart from the fact that the RFAC would hardly stick its neck out quite so far, is this really much of an idea? It would make it harder still for unknown talent to gain recognition; worse still, it would land yet more work on firms who already have more than they can properly cope with.

*

This problem of too much work in too few hands is now recognized by some of the hospital boards, who are consequently seeking to spread the load among firms other than those with previous hospital experience. But to supply the necessary know-how, specialists in hospital design are being engaged as consultant architects to hold a watching brief and give advice. (Would not a Ministry of Health development team be a better answer?) For different reasons, some of the universities are also employing consultant architects to prepare in the first place a development plan, and subsequently to guide and co-ordinate other architects who design the individual buildings.

*

Here is a trend which is probably inevitable, but are the RIBA and the profession awake to all the questions it raises? Is it a good thing to have king-size architects with other architects subject to them? Can consultants resist the temptation to collar the plums for themselves? What about the powers of patronage they are likely to wield? And must a subject-architect reduce his fees as he must if engineering consultants are employed?

FARCE WITHOUT DOORS

Architects and planners never had it so good. Their work is constantly discussed in print and on the air. But they can do without full-page articles in the *Sunday Times* suggesting that modern architecture is all looks and no function. I'm referring to the moan, signed by E. A. Williams, in the issue of November 1. This was irresponsible journalism. I know a lot of people who read the article, which attacked open planning, assume that Mr. Williams had been persuaded by his architect to have a house that didn't suit his needs. But he *didn't employ an architect*. He "fell in love" with a house that an architect had designed for his own use, and snapped it up when it came on the market.

*

Falling in love is always a hazardous business and the man who has just fallen out of love is always rather comical, as he stammers his complaints about the object of his one-time devotion. It is really very funny to think of Mr. Williams's sufferings as he tried to barricade the dog without a door, to keep his child out of the living area and to prevent the char from hearing remarks meant only for his wife. I liked his complaint that "whenever a visitor arrived, whether friend or stranger, he stepped at once into full view." (Do efficient architects provide separate entrances for friends and strangers?) Best of all I liked his indignant grumble that if his daughter had been eighteen instead of eight there would have been nowhere private for her to take visitors, "except to a bedroom which would have been hardly suitable." If Mr. Williams wanted a more suitable bedroom so that his daughter could have entertained if she had been ten years older, then he ought to have had his house specially designed.

*

The most amusing part of this confession of a disillusioned lover is that although he took six months to find the house didn't suit him, his wife made the discovery in only three months. In the three months of disagreement the char must have heard all the pros and cons of open living. And judging by Mr. Williams's report she must have seen a lot of sprinting up and downstairs as he tried to control a heating system he didn't seem to understand. Fortunately the *Sunday Times* has followed this story—a sort of Aldwych farce without doors—with an article by an architect, Brian Peake, on the merits of open planning. But the damage has been done. Many readers will feel that Mr. Williams, now back in a Victorian house, was made to suffer by one of those arty boys.

How many buildings does it take to make a style? We were under the impression that the new American embassy in London was an attempt to reflect the scale and character of Grosvenor Square, although frankly we don't quite see how it does. But now we are even more confused by the appearance of a manufacturer's handout on another new American embassy, this time in Oslo, Norway (see illustration), a chip off the new Mayfair block. However, according to the handout, the new embassy style "differs sharply from the current trend of office buildings . . . the exterior walls, the facade, actually help support the weight of the building." And so the wheel of revolution turns.

LLANELLY DROPS A CLLANGER

The borough architect of Llanelly has retired. Why should I tell you that? Because it will probably lead to a reduction of architectural standards in the borough. You see the Corporation has decided to merge its architect's department with its surveyor's, and this kind of move usually means that good architects are not attracted by any jobs that become vacant. Llanelly has more than 30,000 people and a rateable value of £354,712, so it ought to be able to afford a borough architect. If it can but won't the profession ought to be told why.

SPICKER SPANS WANTED

Did someone once say we were a backward profession? Just have a look at our engineers. It is thought necessary for the new Transport Minister, Mr. Marples, to inspect bridges on the continent accompanied by "experts." What has happened to the profession that was once led by Brunel, Telford and Stephens? Is it time someone slipped a .45 and a large bag of cartridges into the council chamber of the ICE?

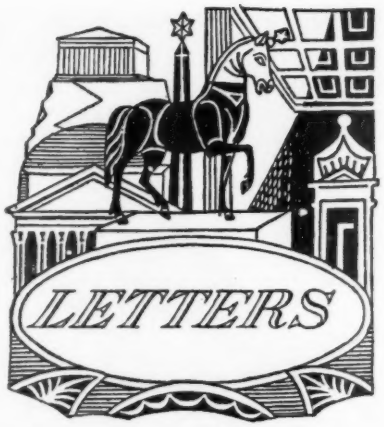
*

Perhaps we needn't be so drastic. I've had a look at the exhibition of bridges laid on by the Ministry at the House of Commons and I feel slightly cheered. It wasn't the stuff on show that cheered me, though some of the designs revealed ideas and know-how breaking through in a mass of technically outdated and costly work. I was encouraged by the remarks of Eric Ingerslov, the designers of the Alderton Construction Company's rejected alternative to the Staines bridge. He told me that some of the younger engineers think architects and their Institute are go-ahead by comparison. They complain that design is separated from construction. And they feel they have little chance of getting anywhere while there are no competitions in civil engineering and the jobs go to a few huge consulting firms.

*

By the way, we might as well face it —some of the most depressing work in the exhibition had clearly suffered from the hands of architectural consultants.

ASTRAGAL



Eric Brown, F.R.I.B.A.
Head of Kingston School of Architecture and others.

K. Hajnal Konyi, M.I.Struct.E.

Wyndham Thomas, Director TCPA.

Piccadilly Humiliation

SIR: It must be the opinion of all who value the cultural heritage of this country that, from available evidence, the proposed development of Piccadilly Circus represents the most humiliating depth to which our urban architecture has sunk.

That such a building, embodying taste and judgment equal with that of average suburban real estate, should even be contemplated in this unique central area of the capital city is shameful evidence of the cheapening values of our culture.

The developers are destroying more than the friendly and uncontrived gaiety of "the Circus." They are thrusting in our face the fact that there is no sanctuary from the dictates of a degenerate commercialism allied with an architecture devoid of æsthetic and social conscience.

Kingston School of Art, Department of Architecture; Head of Department:
ERIC BROWN AND OTHERS

It *is* a Caricature

SIR: The juxtaposition of the two designs for the proposed Staines bridge (AJ, October 22, page 374) does not only "amount almost to caricature" as you suggest, but *it is a caricature.* From the structural point of view, the Lutyens design with massive abutments was already out of date at the time when Lutyens designed it and, of course, the more so when it was formally accepted by the Ministry of Transport 10 years later.

In order to prove this I refer to the sketch of a bridge in Toronto, built in 1924, which I included in an article on "Reinforced Concrete Girder Bridges of over 100-ft. Span" in *Concrete and Constructional Engineering* 1938. In this article I collected 97 bridges among which the road bridge over the river Marne, Brye-sur-Marne, France, built in 1936, had a clear span of 220 ft. A more recent example is the Waterloo bridge with spans of 252 ft.

All these bridges were built before the advent of prestressed concrete which completely revolutionized bridge building and extended the range of girder bridges, *i.e.,* of bridges with vertical reactions only (in contrast with a horizontal thrust like the Lutyens design) beyond 400 ft.

The Ministry of Transport tries to justify the design for which a contract has been placed on two grounds:

1. The alternative proposed by the Alderton Construction Company is not up to the required standard.

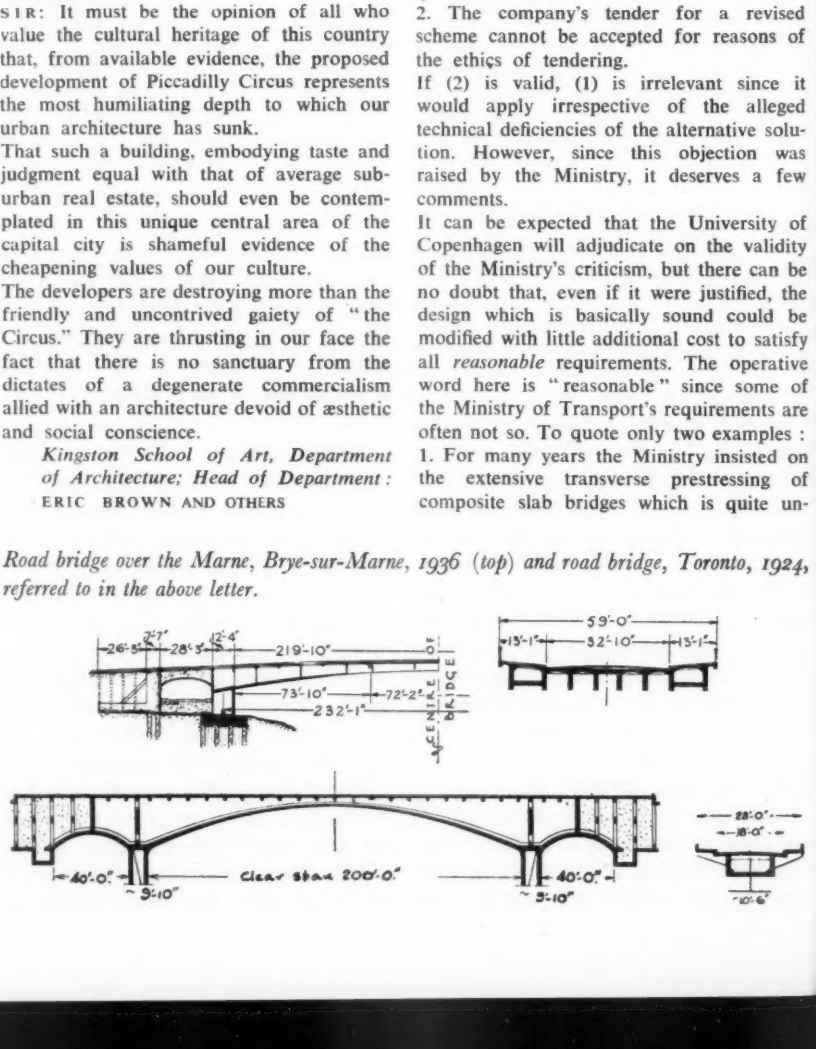
2. The company's tender for a revised scheme cannot be accepted for reasons of the ethics of tendering.

If (2) is valid, (1) is irrelevant since it would apply irrespective of the alleged technical deficiencies of the alternative solution. However, since this objection was raised by the Ministry, it deserves a few comments.

It can be expected that the University of Copenhagen will adjudicate on the validity of the Ministry's criticism, but there can be no doubt that, even if it were justified, the design which is basically sound could be modified with little additional cost to satisfy all *reasonable* requirements. The operative word here is "reasonable" since some of the Ministry of Transport's requirements are often not so. To quote only two examples:

1. For many years the Ministry insisted on the extensive transverse prestressing of composite slab bridges which is quite un-

Road bridge over the Marne, Brye-sur-Marne, 1936 (top) and road bridge, Toronto, 1924, referred to in the above letter.



necessary as has been proved by tests.

2. The Ministry still prohibits the use of high tensile steel in bridges although such steel has been successfully used for a great number of years in many Continental countries with a more severe climate than ours. Such requirements increase the cost of bridges without any return for the extra money spent on them. This means in other words that for the amount made available in the budget a smaller number of bridges can be built than would be possible on the basis of up-to-date specifications and designs.

The Ministry of Transport's views on bridge design are a generation behind the times. In 1952 the result of an extensive laboratory investigation on bridges was published. This work was carried out by the Building Research Station at the Ministry's request. Tests were made on four different types of bridges, three of which were obsolete on the Continent already at the time of the first World War.

It would appear that economy is not an important consideration for the Ministry. A recent example is the Birmingham Motorway where none of the bridges is in prestressed concrete (see JOURNAL, September 10). It would be interesting to find out how much money has been wasted by building shallow bridges in conventional reinforced concrete instead of in prestressed concrete.

Regarding the ethics of tendering, there can be nothing wrong in accepting an alternative solution which is better, cheaper and quicker to build than the scheme for which tenders were invited, provided that every firm asked to tender is at liberty to submit its own suggestion. Such a system of tendering, which causes more work for the Authority dealing with the tenders than the "ethical" system of the Ministry of Transport, is adopted in many Continental countries with the result that the traveller returning from Germany, Italy, France, etc., feels ashamed when he has to look again at bridges for which the Ministry of Transport was responsible.

It is a sad reflection on our times that in the country which was the cradle of modern bridge building in the second half of the 18th and throughout the 19th century, a design like the Staines bridge can be put forward by the Ministry of Transport. If it were built as illustrated in your JOURNAL, a large amount of taxpayers' money would be wasted and the badly needed improvement at Staines would be delayed by 12 months. What is even worse, the use of a design prepared 30 years ago in a "modern" bridge which is not a replacement of an historic bridge would make the present standard of bridge design in this country a laughing-stock in the whole civil engineering world.

K. HAJNAL-KÓNYI

London

Since this letter was written the report by the Danish professors on the Staines bridge has been issued by The Alderton Construction Co.

TCPA and New Towns

SIR: In opening our Conference, Henry Brooke did not advise the Town and Country Planning Association "to think less about new towns in the future," as your leader (wishfully?) says. He asked us to do two things. The first was to turn our attention to restoring vitality to areas suffering from unemployment, to making them "places in which people want to live and work." There is no doubt that far too little attention has been given to this problem and here is a challenge the Association must accept. It is the old industrial towns of North East Lancashire and South Wales, and declining rural areas like North Devon, for example, which are most urgently in need of economic and social uplift. In this respect, as in most others, the big cities are demanding and getting more than their fair share of investment and subsidies.

Secondly, speaking about "the renewal of old or congested or decayed areas," the Minister went on to say, "Your Association has prided itself in the past on being ahead of Governments in its thinking. Here is a fresh chance on offer to you. If you will crusade for old town planning as well as country planning and new town planning, the second 60 years of your Association may place on record even finer achievement than the first, and that is saying much."

For 60 years the Town and Country Planning Association has argued that the *raison d'être* of planned dispersal is to facilitate good redevelopment. For 60 years we have urged the vigorous application of all four parts of the only policy that makes real sense: planned dispersal, urban renewal, prevention of sprawl, and reduction of the big city employment level. If, as we believe, there is general agreement among thoughtful people about the need to apply all four parts of this comprehensive policy, should we not combine to suggest effective mechanisms?

The Development Corporation is the most effective dispersal instrument. Is something similar necessary for large scale urban renewal? How tight, how wide and how sterile should a green belt be, given a determinedly hopeful view of the success of the other parts of the policy? Most difficult of all, how do we hold, let alone reduce, the metropolitan employment level? (There are, of course, many other major decisions to be taken, and Malcolm McEwen's admirable Motropolis survey highlighted some of them.)

So let us not start cutting each other's throats. Let the lamp-post commandos campaign gaily for what they hold to be so desperately important. But let those who really care as deeply as we do for good planning for the right social and economic reasons lend their considerable weight to the one planning body which has any record of success to its credit and which is equipped and inspired to do even better in its next 60 years.

WYNDHAM THOMAS
Director, TCPA

London

The Editors write: There is no real quarrel about what Mr. Brooke said: if the TCPA crusades, as we hope it will, for "old town planning," it will have to give less attention to new towns which formed the only subject of the TCPA Diamond Jubilee exhibition.

RIBA

Two-Tier Profession—No Commitment

The most important news to emerge from last week's RIBA press conference was a statement by Gordon Ricketts, the secretary, that the resolution adopted by the Council at its October meeting did *not* commit it to the two-tier profession. The resolution adopted said: "The Council should appoint a Committee to put forward proposals for an approved form of training for technicians and technologists." This was adopted in substitution for another which did appear to commit the Council. The members of the Committee have not yet been appointed, but will include some members of other professions.

The conference was held by Mr. Ricketts in the absence of Basil Spence, who was unwell. Apart from the approval of the IBCC system of classification, which is reported separately, the Council meeting on November 3, the principal matters discussed were:

Investment Policy

The Council has decided to entrust the day-to-day management of the Institute's investments to a firm of stockbrokers, Messrs. Chase, Henderson & Tennant (who advised the Council on its scheme to amalgamate its trust funds, now before the High Court), and to instruct them to invest up to 50 per cent of the Ordinary funds and 33 per cent of trust funds in equity shares.

Scale of charges

Most of the meeting was spent discussing recommendations from the Practice Committee on proposed amendments in the Conditions of Engagement and Scale of Professional Charges. The Committee's recommendations will be published in the next *RIBA Journal*, and are then open to comments and criticisms by members for a month before the Council can adopt them.

Social facilities

A small Social Committee is to be formed, including a number of women members, to promote social activities when some changes now being made in the building are complete. These include new arrangements for reception of visitors, and a Members' Club

Room with a bar in the former canteen. The activities which, it is suggested, the new Committee might foster include: (*a*) running the Club Room so that it is a congenial place to meet, for the casual visitor and members generally, (*b*) the use of the bar and committee rooms for meetings of societies and groups, and (*c*) holding receptions, dances and larger social functions, which could bring the younger members to the RIBA.

Classification System Approved

The RIBA Council decided, at its meeting last week, to throw its full weight behind the system of building classification recommended by the International Building Classification Committee, on which Dargan Bullivant, the former ARCHITECTS' JOURNAL Research Fellow, is a member. The Council accepted a report prepared by a special committee that had been set up to consider the question.

In its report this committee emphasized how much depended on the RIBA's decision. "If we accept the proposed system in principle, and make this known," it said, "forward movement will at once begin. If a negative view is taken, it is difficult to see any prospect of providing an alternative proposal that could enjoy official support."

The Council decided that the appropriate RIBA committee should seek ways and means of promoting the use of the system by the members of the Institute, and, through joint action, by the building industry as a whole. The Committee has urged that work should start immediately on drawing up proposals for promoting the use of the system by joint action throughout the industry. These proposals, it says, should be agreed by all concerned, in particular with BRS and with the ARCHITECTS' JOURNAL. The Committee would like these proposals to include:

(*a*) The preparation of a *Building Filing Manual* for the UK, to include classification tables, a description of the notation, a comprehensive index and guidance for use by the various branches of the industry.

(*b*) Arrangements for supporting Dargan Bullivant in his capacity as Secretary of the Sub-Committee of IBCC set up at Rotterdam to co-ordinate the production of Building Filing Manuals in the member countries.

(*c*) Setting up a model library and advice centre.

Basil Spence made the theme of his presidential address to the RIBA last week inter-professional unity. He suggested that the professional institutions explore the formation of a standing council, composed of their Presidents and Secretaries; its object would be to make Britain a better place to live in, and to control the motor car instead of letting it control us.

THE PRESIDENT PLEADS FOR UNITY

A 'Higher Council of Professions?'

Basil Spence said: "Perhaps the one single question that stands out clearly in my mind is our struggle to get the architect's point of view recognized in connection with the new motor roads and especially when they make their impact in the towns. Without sufficient forethought from all points of view, engineering as well as architectural, the results may well be disastrous. This is clearly obvious from examples already in existence in other parts of the world. We think we should be represented on the regional committees recently set up to consider the problem. We wish to express an opinion—that is all. There is no doubt that if some machinery existed so that a question like this could be thrashed out beforehand with our sister institutions, it would be a great benefit. It is obviously bad for institutions like ours to have an argument almost in public. But the motor road question does not only concern the engineer and architect. I firmly believe that the Town Planners are seriously implicated to say nothing of the Surveyors and Landscape Architects.

"This address coincides with the opening of the first of the great motorways. An architect cannot contribute much when a route like this is planned. I think the landscape architect and the surveyor are the people who can help most.

"We are all in this together. On a normal building contract an architect cannot do a good job without the collaboration and help of an engineer. When it comes to bridges, the architect who is in a secondary role, can also help. But not just to apply a skin of architecture, like butter to bread. In the Royal Fine Art Commission, we try to show that the collaboration should be sought at the earliest stage, exactly as architects now insist that on a building project collaboration should exist between him and the engineer at the earliest moment. For myself, I always do this, and it is good business.

"Of course, there are exceptions. I contend that Sir Owen Williams' bridges on the new roads are exceptions. I have just been in Rome and aesthetically these bridges with their breadth and strength remind me of some of the great Roman works. In any case, who would dare to interfere with Sir Owen Williams? His bridges are a positive statement aesthetically and that is good enough for me.

"But I am concerned with the many new bridges going to be put up all over the country, where one cannot expect, and will not get, a positive statement without help. This is so, as I have seen many hundreds of bridge designs submitted to the Royal Fine Art Commission which have been improved immeasurably when the right architect consultant has come to the help of the engineer. I must mention here one architect who has been most successful in this respect—Mr. Arthur Bailey, who has advised Scott and Wilson, Kirkpatrick, and their partnership has yielded some excellent solutions.

"This is only one instance when an engineer can call on an architect to help him. The problem that looms large is where the motor road hits the city and infuses into it at one point an unusually large volume of traffic. There is, of course, the straight engineering solution. We have seen some of the results in other parts of the world. I suggest it would spell disaster here. This is, I am certain, a planning problem which has so many facets that it would take too long to enumerate them. But as architects we are most concerned on the aesthetic and architectural side. I hate the destruction of beautiful buildings, of precincts of lovely architecture; I deplore the creation of hopeless building sites by the superimposition of an unsympathetic road plan. I dislike the imposition of an elevated roadway if (as in some cases in America) it cuts a community in half and the houses adjoining have an arch for a vista from the living rooms and all those who pass on the carriageway can see into the bedrooms. I believe that the elevated carriageway will have to be accepted and it constitutes a challenge. Furthermore, I believe that the new motorways coming into cities can be the reason for much urban renewal and can create great opportunities to make our cities safer, better places to live in and much more beautiful. This, I hope, is the field of our future collaboration."

Mr. Spence deplored the fact that no official machinery existed so that a question like this can be thrashed out on a professional level, and suggested exploring the formation of a higher council composed of the Presidents and Secretaries of the Civil Engineers, the Structurals, the Town Planning Institute, the Institute of Chartered Surveyors and the Institute of Landscape Architects along with the RIBA. This council could meet perhaps quarterly, taking the chairmanship in turns, and its duty would be to make Britain a better place to live in and to control the motor car and not let it control us. It could eliminate much of the friction which exists today, and could help the Ministries when asked to do so.

Finally Mr. Spence discussed the problems of the overseas members of the Institute. He noted that whereas he heard many criticisms of the *RIBA Journal* at home, overseas members were generous in its praise. He suggested that to bring the members closer together there should be a yearly conference of delegates from overseas with representatives of the RIBA Council, to meet at some delightful place to discuss common problems for a week in an atmosphere of good fellowship, food, wine and sun. His final request, humorously made, was that he might be invited to go to one of these conferences himself.

The vote of thanks to Mr. Spence was moved by Lord John Hope, the Minister of Works, who made the not unreasonable plea that as he had been only two weeks in office he could not be expected to contribute anything very profound. He did, however, speak with feeling of his privilege in spending his childhood in Hopetoun House, which William Adam regarded as his greatest work; and he added that this did not mean that he thought beauty stopped in the 18th century, for he didn't. He promised to do his best as Minister to contribute to a solution of the motor car problem, and expressed agreement with Basil Spence's plea for early collaboration between the professions.

The vote was seconded by Professor J. S. Allen, President of the TPI, who thought the President had struck a new note of humility. He would go away from this meeting, he said, with the sense that humility (not an inferiority complex) was an increasingly important quality in the professional mind, because it enabled one to see one's work in its true relationship to that of one's fellows. He looked to see greater unity between the professions resulting from the President's address.

The London Architecture Bronze Medal for 1958 was presented to David du R. Aberdeen for the TUC building, who also stressed the virtues of humility and paid a striking tribute to his client, Sir Vincent Tewson, the secretary of the TUC; in a graceful speech of acknowledgment. Sir Vincent, to whom a replica was presented, said that with the decline of the private patron it was the duty of institutions and organizations to encourage all the arts. Finally, a presentation was made to Mr. McAlpine, for Sir Robert McAlpine and Sons, the builders, who also had a tactful word to say on professional co-operation: "any engineer who thinks he can build without the architect is a fool: any architect who tries to do without the engineer is rather an unwise man." Basil Spence's remark that "it's a bold man who interferes with Sir Owen Williams," prompted Mr. McAlpine to recall that 30 years ago when his company was building the Dorchester Sir Owen Williams thought he could do without the architect. The result was that Sir Owen Williams resigned, and the hotel was designed by Curtis Green, built, equipped and furnished in 12 months. "We haven't had the opportunity of co-operating with Sir Owen any more," he remarked amid loud laughter, "but we have survived."

TPI PRESIDENT

'Is There Such a Thing as an Architect-planner?'

Professor J. S. Allen, despite a strong dislike of the words "civic design" and "urban renewal," urged the Town Planning Institute in his presidential address last week to take an increasingly prominent part in advancing their study. Too often today, he said, civic design started where architecture left off, and too much building had been carried out since the war by mediocre designers working under the dictation of unimaginative speculators. But mediocre design was not the sole cause of disappointment—perhaps the conception of the "garden city" was incompatible with the closely-knit interdependent community.

Professor J. S. Allen, TPI President.

Promising architects and others who were anxious to improve the physical environment the TPI's enthusiastic support, Professor Allen said "neither the architectural profession nor our own has yet found a method which will ensure that redevelopment in three dimensions will be of a high standard." It was futile, however, to blame existing planning legislation, and he asked whether society was not getting the architecture and civic design it deserved. Was architectural chaos not the reflection of some deep-seated malaise? Awareness of the malady was certainly the first step towards its cure, and awareness was becoming vocal, even strident. But, he suggested, town design or urban renewal needed a much firmer basis than the wholesale denunciation of planning policies of the last decade and a nostalgic looking back to the war-time emotional urge towards Utopia.

Problems of the new towns and the renewal of old ones needed an objective, rather than an emotional approach if they were to meet the needs of a rapidly changing society. "I am certain," said Professor Allen, "that no revival of a romantic model society or preconceived ideas of architectural form will meet the new conditions. In the meantime, we have a responsibility to see that civic design precedes architecture, and to do all we can to foster higher standards and a more widespread understanding of the principles of town design."

Professor Allen, turning to education, suggested that the time had come to disillusion those who think of the planner as a hybrid. Was there, he asked, an engineer-planner, architect-planner, surveyor-planner any more than there is an economist-planner, lawyer-planner, doctor-planner or estate-management planner? If there were such people they should be those who had specialized in certain aspects after being thoroughly trained in planning in the first instance. The planner, he thought, would be the first to agree that his functions today were those of a planner, not those of an engineer, architect, geographer or economist looking into the problems of planning. The TPI, he suggested, should seek to define with the assistance of the other professions the functions of each in relation to the others. He also criticized the "anomaly" by which architects, engineers and geographers were exempted from studying subjects that were considered vital at the intermediate stage.

On research, Professor Allen said that while fantastic sums were spent to solve the problems of getting from A to B, almost nothing was spent on research to make either A or B worth getting to. He saw little hope of adequate progress, until there was a Planning Research Council to initiate and coordinate research, to marry theoretical thought with practical progress.

CARAVANS AS HOMES

Ineffective Controls

Some interesting facts emerge from the report on *Caravans as Homes** made by Sir Arton Wilson at the request of the Minister of Housing and Local Government. About 150,000 people, comprising about 60,000 households, are living in caravans (excluding gypsies or vagrants). Of these, only about 20 per cent are confirmed caravanners. The remainder, mainly young or youngish married couples with small children, hope to move into houses or flats. They live in caravans because they could not get other dwellings on the right terms and in the right place, or because caravans meet their needs for cheapness, convenience or mobility.

While there has been a great improvement in the quality and equipment of caravans in recent years, there are still many vans whose structural and internal facilities are poor or indifferent. The main reasons given by those who are seeking other accommodation are lack of space and bad toilet facilities. The majority have to fetch their water from standpipes, and less than half have access to any bath other than the municipal baths in a nearby town. Of the 60,000 residential vans about 38,000 are on sites for which there is specific planning permission, about 12,000 on sites which have "existing use" rights, and about 10,000 are on sites located or operated in contravention of the Town and Country Planning Act. Planning permission is usually granted only for one to two years.

Only a small minority of the sites are really well located, attractive and well-organized; a small minority are unpleasant, insanitary and ill-run; the rest "leave something to be desired as a physical and social environment for people's homes."

Many sites are badly located. They are often an unpleasant intrusion into the landscape. Caravans are produced and sold without prior public control, and such powers of regulation as do exist to control them are inadequate. The Housing and Public Health Acts are ineffective to secure housing standards in caravans, while the Town and Country Planning Act is ineffective to control location and layout.

The report finds little evidence of any positive public policy likely either to reduce the disadvantages of caravan-living, or to pro-

*HMSO. 5s.

vide an alternative way of meeting the needs which have usually given rise to it. Planning permissions for short periods have usually deterred site-operators from providing good site facilities, while the local authorities have failed to provide sufficient alternative dwellings, particularly in green belt areas round industrial centres where most of the caravans are situated.

Statistical information was obtained by P. G. Gray and Elizabeth A. Parr for the MOHLG, and their report is published by the Central Office of Information as *A Survey of Residential Caravan Life* (reference SS 299).

HOUSE-BUILDERS' CONFERENCE

"More Land" Demand

Peter Trench, the Director of the National Federation of Building Trade Employers, gave his support at the House-builders' Conference last week to the efforts of the speculative builders to have more land zoned for housing. He argued that the development plans were out of date and based on miscalculations of the increase in population. The 15,000 acres a year (10,000 of them for private house-building) in development plans were inadequate for the country's needs. He put the yearly requirement for housing at 350,000 houses a year, for which more like 30,000 than 15,000 acres a year would be needed.

Mr. Trench recognized that the principle of green belts was right on sociological grounds, but pointed to the far-reaching consequences of preserving these lands from development. If green belt land wasn't available, alternative areas must be made available, and nobody should forget that the price of planning was being paid in inflationary land values. It was land costs, not building costs, which today so often came between the reality of home-ownership and the dream: imagination boggled at the price being paid for "gold land" in the area between the Green Belt and the town. The Minister, Mr. Trench suggested, should at least release for development land for which permission was now refused, but for which permission was likely to be given in the next five years.

After taking a passing swipe at municipal direct labour schemes (which he described as "uneconomic," without proving them to be so) Mr. Trench went on to make an interesting proposal for associating private developers with urban renewal which, he said, was also wrapped up in the thorny business of land costs. He asked whether private enterprise might not be able, with financial assistance from the local authorities, to carry out comprehensive development at a figure which would cost the local authority less than the subsidy it would have to pay if it carried out the project itself. Why, he asked, should not a number of builders join together, and likewise private firms of architects, town planners and engineers, to initiate such large-scale development schemes?

Returning to the problem of finding more land for building, Mr. Trench threw "a covetous eye" on the country's agricultural land. After quoting Dr. N. Lichfield's estimate that £19,500 is required to save one acre of agricultural land by building at higher densities on inner land, he suggested that agriculture could afford to lose a little more than two to three per cent. over the next 20 years.

Oil-firing Rejected

Wates Ltd. have rejected oil-fired central heating in their houses, because it has given a lot of trouble, and think electric underfloor heating is in general inefficient. These were two of the interesting facts to emerge from a contribution—from the floor—by Niel Wates to a discussion on whole house heating at the Federation of Registered Housebuilders' Conference last week. After J. B. Dick, of BRS, had given a very careful presentation of the factors which govern whole house heating, Niel Wates described his firm's policy for different classes of dwelling.

In houses up to £2,000 they instal a Rayburn or some similar type of solid fuel equipment; in houses up to £5,000 they instal gas-fired warm air; between £5,000 and £7,000 they instal small bore central heating with solid fuel firing, as they find that people in this income group put up with the extra work for the sake of the fuel saving; in the £7,000-£10,000 range Wates use the same small bore system, but fired by gas. They use a relatively high degree of thermal insulation: Thermalite bricks, Lattenax roofing felt, aluminium backed plasterboard and glass wool in eaves.

ANTI-UGLY ACTION

The RIBA; guilty or not guilty?

The following statement was distributed outside 66, Portland Place on the evening that Basil Spence gave his presidential address, by Anti-Ugly Action. An outspoken document, it is published a little late in the day, because the RIBA has started to take action on most of the points made.

If all is well with architecture in Britain, why does ANTI-UGLY ACTION exist, why OUTRAGE, why SPUR, why even the CIVIC TRUST—why is Wembley the same uninspiring suburb as Sidcup, why were the farmers so afraid of the present that for Agriculture House they copied an architectural style from the past, why have the bombed sites of the City—bought with blood—been sold out to a commercial architecture, an architecture bankrupt in imagination?

All is not well with British Architecture, therefore it is necessary to ask what is the Royal Institute of British Architects doing about it?

Institutes are by nature conservative.
Institutes demand orthodoxy of their members.
Orthodoxy is death to progressive architecture.
The RIBA in its present form is out of date.
The Royal Charter is a drag on reform.
What is the RIBA doing about this?
Architects must act as a group.
Architects must lead society.
Architects must lead the Building Industry.
Architects must put pressure on the Government.
Architects must assert themselves as specialists.
Architects must advertise their trade.
Does the RIBA know all this? Does it do anything about it?
Professionalism is outmoded.
Speculative building is booming.
Suburban squalor spreads.
The countryside vanishes.
The quality of architecture is bad.
The architect can no longer sit on the fence.
The architect is no longer a god—he is part of the team.
Impartiality is old-fashioned.
Free the architect.
What is the RIBA doing about that?
There are too many architects.
There are too few assistants.
There are too many tame staff architects.
There are too few research specialists.
Private architects are hamstrung.
Official architects are hamstrung.
Architects have no status in society.
What is the RIBA doing about them?
The architect is a builder.
The architect is a technician.
The architect is a business man.
The architect is an artist.
The architect is a sociologist.
The architect is a bureaucrat.
The architect is a fool.
The architect is a superman.
What does the public know about him? What does the RIBA tell them about him? What about public relations?
There is an Institute of architects.
There is an Institute of engineers.
There is an Institute of surveyors.
There is an Institute of builders.
There is an Institute of town planners.
There is an Institute of landscape architects.
There is *no* Institute of interior designers.
Why? Why so many? Why don't they work together? What is the RIBA doing about them all?
The RIBA is run by a clique.
The RIBA gives jobs to the boys.
The RIBA gives medals and Diplomas to mediocrity.
The RIBA is out of touch with architects.
The RIBA is ignored by young architects.
The RIBA is more concerned with pomp than architecture.
The RIBA only considers but never *does*.
True or false? The public want to know, have a right to know!

What is the future of British architecture?
What part will the RIBA play in this future?
The RIBA is in the dock accused of gross negligence.
Guilty . . . or . . . Not Guilty?

ACT

Basil to act. The Piccadilly Circus scheme is monstrous.
The Piccadilly Circus scheme is speculative building.
The Piccadilly Circus scheme is condemned on all sides.
The LCC had a scheme that was good.
The RIBA was formed to protect the public.
Let it protect them now.

SHOULD ARCHITECTS BE DIRECTORS?

Further comments by architects and builders

We publish a further selection of views, from architects in public and in private practice and from builders on the question raised in the RIBA Journal: should the Code of Professional Practice be amended to allow architects to become directors of building firms?

Replies from architects

R. Crowe (county architect, Salop)
As so much building work is carried on throughout the country direct by a builder without employing architectural service, I am of the opinion that the standard of building generally in the country could be improved if architects were enabled to become directors of building firms. This, of course, is linked closely with the question of integrity of the architect and with architectural education; but assuming that both of these are beyond reproach, then nothing but good could come of such a revised code of professional conduct.

L. Hugh Wilson (chief architect, Cumbernauld New Town)
If better architectural service means good and efficient design and good design pays then this is more likely to be achieved in some fields by more direct influence from the architect who, by training and inclination, believes in it. This can be seen in at least one shining example in the speculative housing business. Architects are going to be mixed up in the building industry in one capacity or another and the sooner they occupy positions of leadership the better.

Eric Lyons (architect in private practice)
I cannot get excited about this issue. On the whole I think I would be in favour of allowing architects to become builders. You ask whether it would give the public a better architectural service. It might not make a lot of difference to this, but it might give the public a better building service.

James A. Roberts (architect in private practice)
I cannot conceive that allowing architects to be further involved in contracting firms by becoming directors can possibly result in the public getting a better architectural service. What is needed is for architects in private practice to become more business-like and produce higher standards of designs that cannot be faulted on aesthetic, economic or planning grounds. So long as they do this, together with proper administration of their own offices and contracts, there will be a great demand for their services and the private practice will flourish. If the right material or training standards are not available private practice will be limited and the door will be open, quite rightly, to substitute methods. I am very sure that to lower the architect's professional standing further is quite wrong and that there is adequate scope for architects to exercise any bent for business by running their own private practices efficiently.
The fact mentioned by the RIBA that architects in contracting firms do not usually lead the building team is a factor which must be recognized when these jobs are taken up and this loss of freedom is usually balanced, in the eyes of those leaving practice, by the higher salaries offered. It is an affront for the suggestion to be made in the *RIBA Journal* that an architect-director, who cannot be impartial, could better interpret the schemes of private architects.

Oliver Cox (architect with the LCC)
I read the article in the *RIBA Journal* with interest. I thought it good and am personally in favour of a change in the Code. I expect quite a few of us can foresee a welcome change in architecture as a result of our becoming directors of leading building firms. But what do you think their present directors would think?

Sir Hugh Casson (architect in private practice)
This is not a new problem. Some people have always preferred to go directly to contractors and receive as a result a building whose quality is largely and reasonably governed by the contractor's profit margin rather than by the unprejudiced assessment of an independent agent. Why then is the matter being raised at this moment? Motives are, as always, mixed; but present among them, I suspect, are fear of slipping even further down the ladder of leadership, suspicion that the code of professional conduct is being (shall we say ?) loosely interpreted by many professional colleagues (particularly in regard to preparing free schemes on spec) an anxiety to jump on what might prove to be a band-wagon, and an uneasy feeling that to be "professional" and be governed by a "code" is in these days fuddy-duddy and smells of the Establishment—all totalling up into the understandable aim of getting the best of both worlds. The wisest way to deal with this problem, the least hypocritical way—and the fairest to all concerned—is not to relax the code, but to tighten it for those who wish to remain bound by it, and to release the others from it entirely. This means facing the undeniable fact that there are those within the profession who would be happier in one group than in the other—just as in the Art world there are both Artists and Commercial Artists or, as they would prefer to be called, Graphic Designers.
Although sometimes their fields overlap, broadly speaking they are known to do different things and to be differently rewarded. There is no question of one being "superior" to the other and both are equally respected.
The man who prefers to remain "an architect" in the professional sense must be prepared to accept a tightening of the code so that clients can have absolute confidence in the impersonal judgment of the profession. Those who seek release from it must obviously be of similar technical competence but it must be clear to all—preferably by nomenclature—that they are doing the job in a different way. There is surely room enough without mutual snobbery in the contractoral system for both groups, and there need be no difficulties in permitting freedom of movement between one group and another, provided such movement is openly admitted by a change of nomenclature.
Whether the name "architect" should be restricted to those remaining within the code, or should be available to both, with one or other bearing a prefix is open to debate, and it will not be easy to solve. But some such differentiation must be made if the position of the architect as an impartial assessor—who incidentally reserves the right if he so wishes to do work to his own satisfaction even if it results in personal financial loss—is to be re-established and clearly comprehended by those who wish to commission his services.

E. D. Jefferiss Mathews (architect in private practice)
The RIBA's recently published statement poses a number of questions against a background of facts which exist in the profession and industry today. These facts are straws in the wind and show the possible pattern for the future. If we are blind to what is going on around us—whether we like what we find or whether we do not—we shall become hopelessly out-dated and lose the initiative and opportunity of giving the proper contribution to society which we are trained to do. Already things are getting out of control—the mishandling of the "package service" for instance. It is none too soon to review what is happening and prepare ourselves to retain our position, in fact to improve it. If we lose our leadership in the industry—and it is a controversial point that we have not lost a good deal of it already—architecture will have had it for a long time.
A great many questions arise. Some, such as the fundamental one of educational standard, are already in hand. The answer to every question must be steps to increase our status and so be ready for the very competitive challenge for leadership. Whether architects should become salaried directors of building firms, or companies operating in the building industry, and retain their membership of the RIBA is only one thing that has to be considered. But it is probably the most important because it seems to be the most revolutionary and certainly the most controversial.
Because of our long standing professional aloofness it is easy to condemn this suggestion out of hand. It is easy to draw parallels with other professions and deduce that the position would be intolerable for us too. It is easy too to confuse the idea with the one that it is an attempt at monetary gain. With the possible exception of

engineering, our profession and our position in the field in which we work has not the slightest resemblance to the medical profession or the law, for example. The question that we are out to do ourselves well is too petty to bother with. There are plain facts of architecture—I am using the word in its wide meaning—directly and peculiar to our work and the industry in which we work to achieve our purpose, which I think make the principle of permitting directorships of active members of the RIBA a right development in the future pattern of things. If the prediction of the future is wrong nothing need be lost in accepting the principle—there will be no compulsion of adoption, collectively or individually.

We know that any building, large or small, is a matter of teamwork—usually at least five separate professions and trades are involved. This was not generally the case fifty or less years ago when our professional status was unchallenged. A team needs a leader. The dangers of collective designing and collective responsibility for erection is confusion of the shared responsibilities with the inevitable uneconomic results and almost certainly bad architecture. Every time this happens—and we know that it does—it is a nail in our coffin, and our coffin not only contains us but the whole value of good architecture to the community. If we could be sure—even after we have raised the standard of general education for entry into the profession and established a proper post-graduate educational system—that we could all be capable of handling properly as leaders this complex team method of building, it could be argued that an insufficient case had been established to make a change from present wholly professional status. But this is obviously unrealistic. To achieve it we would have to breed a kind of super design-administrator—not an architect. What we want to do is to breed better architects, just as we want builders to breed better builders and so on—each to his own sphere in the complex.

What is happening—and what the straws in the wind point to as likely to develop in the future at least for some years—is that architecture is suffering because leadership, direct or behind the scenes, is being wrested from us by engineers and builders while we try and keep pace with complex developments beyond our sphere and do good architecture at the same time. As this superman role is beyond most of us—and there is nothing to be ashamed of in this, we are architects and that is quite something on its own—something has to go, either architecture, economics or administration, any one of which causes us to lose our status and the public to lose the benefits of good architecture. Left uncontrolled by the people who should control, things have a way of developing along lines to ease what is thought to be the most important thing that is suffering. In the building industry and for the building public, that is money. So we get the builder taking control because he honestly believes that he alone knows how best to spend the money and the public can understandably be easily persuaded into this belief.

It is not wholly our fault that this situation has arisen—we have been trying to do too much—but we must take a good deal of the blame. If however we do not now open our eyes to the situation and act quickly we shall become wholly to blame. Obviously we must retain leadership if good architecture is to be achieved parallel with efficiency and sound economics. In other words that the building owner's pocket is safeguarded and at the same time the community have good architecture. I am convinced that, whatever else has to be done to achieve this, it is to have an architect at the top of both the design part of the building process and the erection and money spending part. In the former our position is not seriously challenged, except in some spheres by the engineers. In the latter it is seriously challenged by the builders. Give us the opportunity of going in on the level as qualified active architects with the top brass of the builders and I have not the slightest doubt that our leadership can be retained and become more effective.

What in practice does this mean? It is not really as revolutionary as it seems. I want now only to consider principle and not detail, but some aspects of comparative detail are necessary to establish in order to accept the principle. I do not, for example, consider that an architect-director of a building firm, or of a specialist manufacturer, can at the same time retain a private practice or a public appointment. Like the engineers he must at any one time determine the role he is playing. I do not expect him to ape the trained builder and attempt to dictate how the builders' side should be done. I want to see the architect, as a specialist, having equal rights and making his contribution to the organization of the building company just as the trained builder, economist, engineer, accountant and administrator does. By this means he can relate the technical, administrative and economic considerations of building to the no less important architectural considerations. As at present constituted we allow an architect to be employed by builders—whole time or to be hired by them for a specific job—but we do not give them the status which they require to establish their contribution on an equal footing. Purely monetary considerations can therefore now over-rule those of design and aesthetics whereas, when discussed at the right level by people with equal status, they can be properly related. The admission of architects to the board of building companies does not mean the disappearance of the private practioner or the appointed official. It does not mean that the "package service" becomes predominant nor that the building public lose the advantages of independent professional advice. In any case, if we are efficient enough, the "package service" can be killed stone dead in a few years—as it has been in America. The architect-director is complementary to the way of things as we know them today—but it ensures that our leadership can be retained strengthened and, above all, is a realistic conception of the trends in our profession and the industry which we need to provide what we design.

A. Reiach (architect in private practice)

I feel sure that such a change would work to the benefit of the home buying public.

Naturally, an architect on the directorate of a building firm should be able to ensure the highest design standards of his firm's products.

In fact, unless such possibilities of an association are permitted, I can see little hope for a radical improvement in the design of speculative building work over the next few years.

F. R. Wylie (architect in private practice)

I favour modification of the Code:

(*a*) to bring it into line with the practice of the Institution of Civil Engineers. (In my view the leavening of commerce with executives having a professional training and background is bound to be beneficial.)

(*b*) by condensing it to a statement of broad principles, which would be rigorously interpreted and enforced.

Replies from builders

Peter Trench

It seems to me that there is a danger of confusing two points, *viz.* (*a*) An architect's status if employed by a building firm, and (*b*) the "all-in" service. There is no reason to believe that architects could not be employed by building firms who in fact do not offer an all-in service, and I do not think the RIBA's views in this matter should be clouded by their fear of the all-in service. If an architect is employed by a building firm no matter in what capacity I see no reason why he should not have the opportunity of attaining a place on the Board of Directors. If he does this, quite frankly it seems a little incongruous to me that he should have to relinquish membership of the Institution which sponsored him in the first place. Is it because he is dealing with profits rather than fees, or is it because there are some who believe that an architect should work for the love of the job rather than for the money he gets out of it?

In this age of talk about "teams" and "leadership" I would have thought that a little cross breeding would not be a bad thing. Many mongrels are more intelligent than thoroughbreds, although they do not look quite so nice!

I have been brought up to have a high regard for the negotiated contract, and it has always seemed to me that if the contractor had on his board a man who could explain the viewpoint of the architect and at the same time was able to communicate at top level the viewpoint of the builder, much good would result.

In the ultimate, it is ignorance on both sides of the other's functions which causes so much incompetence and bitterness today. Such ignorance would be lessened if an architect, still flying his battle honours, were able to take an appropriate place in the board room of a building firm. I must add of course that there are good and bad architects, and good and bad directors, and no architect would get on to the board of a building firm unless he was as good or better than the next man.

Nigel Hannen (builder)
The article in the *RIBA Journal* does much good in exposing sentimental arguments in favour of the architect isolating himself. The architect earns his living by designing buildings, a builder by erecting them, and both are concerned in satisfying the client and providing him with the building best suited to his requirements. If this is to be achieved there seem to be great advantages in the architect having a first hand knowledge of the practical problems involved, how the work will be carried out and a realistic estimate of the cost.
There seems no reason why his artistic or moral integrity should suffer from association with a contractor whose reputation is part of his stock-in-trade. As a director of the firm he would be in a measure responsible for that reputation and have a say in the quality of the work undertaken. Moreover, his appointment to the Board would not involve the loss of status thought to exist if he were only a member of the salaried staff.
The builder might think that he has less to gain, but it is certainly our experience that the closer the co-operation at all stages between the designer and the builder, the more efficient and economical will be the outcome.
You ask us if we would be prepared to have an architect in a senior position in our firm. Before answering that question any builder must ask himself, would association with one particular architect be detrimental to his relations with others. If an architect with suitable qualifications could be found I think such a risk would be worth while. In fact, during the course of our history, we have employed several architects in such a capacity, but in recent years not, of course, practising as such.

H. S. Oddie (Past President, Institute of Builders)
I do not see how a qualified architect can equitably become a director of a building firm and continue in professional practice. I have successfully employed architects in executive positions, and would be prepared to do so again.

Alan Harris, M.I.C.E., *a frequent contributor on engineering subjects, suggests that Malcolm MacEwen's article "Motropolis"* (AJ, *October* 1) *was inspired by hatred of the motor car, a suspicion of rich motorists, and laughable apprehensions about engineers. Malcolm MacEwen, in reply, argues that Mr. Harris's contribution is an excellent illustration of the limited point of view he criticized in Motropolis.*

MOTROPOLIS COUNTER-ATTACK

Malcolm MacEwen's "Laughable Apprehensions"

Malcolm MacEwen has written a forceful indictment of our neglect of road traffic. He is often factual, particularly where facts point to a fearful mess, but facts and arguments are overlain with ill-disguised emotion which, as is the way with emotion, confuses the picture. One must plan with the motor, he says, but one has a powerful feeling that he hates the motor and all its works.
The revealing phrase is perhaps "the misuse of the motor car," which occurs more than once. This implies that Mr. MacEwen has in his mind an idea of the correct use of the motor car: he should have started by defining it. As it is, he strikes out in all directions, at highway engineers, at town planners, at the government, at the motor manufacturers —only architects escape the lash—without ever quite getting to grips. We are all in agreement about the bad road; it may well be that we are in deep disagreement about the good road. Highway engineers, who are not only capable of building roads but have actually succeeded in doing just that, come in for the most heavily-loaded of Mr. MacEwen's pejorations: "ruthless engineering plan," "wreak frightful destruction," "bashing away here, there and everywhere." He really should not make these rude noises: they are no substitute for saying something.
The motor car is, of course, an oddly emotive machine, and Mr. MacEwen's *odi et amo* reaction is shared by many. Take Death on the Roads as an instance. Who would guess from reading the popular press that about as many people were killed per annum in the days of horses and carts, that relative to traffic we have only a quarter of the deaths that we had 30 years ago, and that on the same basis only one of the major nations has fewer deaths and that is the USA. Architects are doubtless aware that accidents in the home cause about the same number of deaths each year as accidents on the road. We may suppose that this worries them greatly; they seem to feel no need of showing it.
Again compare road and railway accidents. A railway accident occurs and a retired Sapper moves in to investigate all the causes. A driver is inculpated of negligence and sympathy is showered upon him. Not so the driver of a motor car—the full machinery of punitive justice is reserved for him; here almost alone agitation for reformatory punishment is completely absent.
This odd attitude, the feeling that driving a car is, if not wicked, at any rate somewhat caddish, is very widespread and has odd effects. It is only recently that the popular press has allowed any mention of the relation between road layout and accidents, though the findings of engineers on this subject, both in this country and elsewhere, have long since been published. In fact, of course, the accidents on motorways, again in relation to traffic, are minute compared with those in shopping streets; not only that, but the construction of a motorway greatly decreases the accident rate in the area which it drains.

What is there about the motor car which causes these things to be hidden from us, in favour of emphasis on the "education" of the motorist and the enforcement of ever more complex laws as the answer to our problems? It seems to spring from a feeling that people enjoy motoring, combined with a suspicion that motorists are rich. There are pictures in the popular mind which reinforce this—the blonde in the Bentley, the weekend race to the coast, goings on in Road Houses, pictures which leave a suspicion that good roads are luxuries for the playboy. Traffic jams have been with us now since the middle twenties; enough improvements have been carried out to prevent a complete breakdown, but only just. We have now got our first motorways, 25 years after Germany, 30 years after Italy, and nearly 35 years after the USA. The convenience which they offer is such that we may expect public pressure for their extension to become compelling; the highway engineer, having kicked for so long at a closed door, will suddenly fall through it.
What then?

Mr. MacEwen is correct in saying that no-one has yet produced a complete solution of the problem of urban traffic. He is surely wrong in seeming to want to wait until we can find it before doing something. His appeal for research is right in principle, but he has got the proportions wrong; a lot of research has been done and more is being done and we have the well-documented experience of other countries on which to draw. But if engineers waited for complete knowledge of any of their problems there would be no engineering; our knowledge of the stresses in a reinforced concrete beam is ludicrously scanty, but it is sufficient. The thing to do is to do something; a something planned with every possible safeguard, but do it and see how it works. When the prob-

lem is as pressing as this one, the man who does nothing is always wrong.

Mr. MacEwen will reply that irreparable harm may be done by precipitate action and that all those bodies whom he has mentioned must have their say lest the ruthless engineer gets to work with his bulldozer too soon and his purely engineering considerations dictate a road plan (a laughable apprehension to anyone with experience of highway work). Town planners, to whom the symbol of the rail seems nevertheless more deeply sympathetic than that of the steering wheel, are suggested as the right masters. So they should be, so perhaps they may rightly become. A road plan, a circulation plan, is the very essence of a town. But the present state is the negation of town planning, if not its final abdication.

This is where we must return to our beginning, the use of the motor vehicle. Engineering considerations are aimed at providing means of minimum cost to enable whatever wants to get from A to B to do so with minimum risk. What are the other considerations? And they must be specific considerations; another body brooding loftily over aesthetics will provide another push towards the universal mediocrity of the unexceptional solution. What are the other considerations?

Let's have them.

They are growing pains from which we suffer. Public transport, private transport, goods transport, are all affected by the increase in numbers of consumers and in the size and variety of the appetites of each. If ever we get organized, of course, it will not last; everything is in movement, but we must keep up.

Malcolm MacEwen Replies

Alan Harris says that "engineering considerations are aimed at providing means of minimum cost to enable whatever wants to get from A to B to do so with minimum cost," and he asks "what are the other considerations? Let's have them." By putting his question in this way, and brushing aside the aesthetic and all other aspects, he reveals precisely the limitations of the engineering outlook. I do not say this as a criticism of engineers. The right man to design roads and bridges is the engineer, and I am certain that British engineers, in the future as in the past, are capable of building as good roads and bridges as anybody else, and often better. All specialists have their limitations, and it is precisely because the engineer is trained to solve the engineering problem alone that he must be a member of a planning team whose members are trained to see the other sides.

What are the other considerations? To begin with, there are the questions whether traffic should go from A to B, whether it shouldn't be encouraged to go to D or E, whether there should be industry in A anyway, and so on. One can't brush aside the aesthetic, architectural and landscape considerations merely by referring to "another body brooding loftily over aesthetics." We certainly don't want more Royal Fine Arts Commissions, because the aesthetic result is not achieved by censorship or interference from the outside but in the design process itself. I am not thinking primarily of the appearance of the engineering structures, but of the integration of the new roads into the landscape and into the architecture of towns.

Expressway Blight

One way of explaining what I mean by my rude noises about "bashing through" is to quote from the October issue of *Architectural Forum* which published an article called "Expressway Blight" on a new 3½ mile urban motor road just built in Boston at a cost of $110 million (£11 million a mile). *Forum* has this to say:

"Actually the dollar cost is the least of it. A much greater cost is measured in muffed opportunities for redevelopment and renewal, in useless slivers of real estate along the edges of the route, and in the tangled web of old streets, ramps, and parking lots shadowed in gloom below the elevated structure—or above the tunnel stretch. The obvious deficiencies of Boston's Central Artery prove again that expressway planning is far too important to leave solely in the hands of highway engineers and planners."

This, I think, explains my "laughable apprehensions" about engineers planning the quickest and cheapest route from A to B without regard to town planning or architectural considerations. The main reason why Abercrombie revised the Bressey road plan for London was because Bressey drove many of his new roads plumb through established communities, cutting them in two, or severing housing from its shops, parks or other amenities. A new urban road must radically affect not only the appearance of the area it traverses but also the entire local communications system, both pedestrian and vehicular, in relation to shops, schools, parks, housing, public transport routes and so on. The needs of the residential areas through which the road passes are just as important as the needs of the traffic going from A to B, and the route chosen must leave viable areas on either side of it, or areas that can be suitably redeveloped. It is wrong to determine the line of a road on engineering considerations and then leave it to planners and architects to be "consulted" afterwards about the best way to sort out the mess. That is why the planning of the urban road and the redevelopment of adjoining areas must be studied by planners, architects and engineers as a single problem from the start. Of course our planners and architects are imperfect: they need better education, and more experience in this field, and opportunities for creative instead of negative planning. But the only real advances towards a resolution of the pedestrian—vehicle conflict (Coventry, Stevenage, Barbican, Boston Manor) have been made by the planning team led by architect-planners.

No matter how many roads we build from A to B, we still don't know what happens to the traffic when it arrives at A or B or any of the intermediate access points, and we leave untouched the most important problem of all: how to liberate the pedestrian from the danger, noise, smell, congestion and irritation of heavy traffic penetrating into every road or street, how to create a safe, civilized and beautiful environment for people to live and move about in. This can hardly be achieved without a radically different approach to the design of every part of the town, from residential to central areas, and to a reappraisal of the structure of the town itself. We can't, of course, build it all at once, or ever reach finality about our ideas, because the process of change is continuous and unending and its speed is always rising. Obviously we can't wait until we know all the answers before we do anything, but the sooner we try to find some provisional answers to be getting on with the less money we'll waste on erecting new buildings that are going to prove costly obstacles to essential redevelopment because we've put them in the wrong place on an obsolete street pattern.

What is "Misuse"

Mr. Harris is quite wrong to think I hate motor cars. Buying cars I can't really afford is almost my only extravagance, and how I'd do without one I can't think. I am excited by well-designed motor roads, and want more of them. But this doesn't remove the fact that we use cars wastefully and stupidly. If Mr. Harris doesn't know what I mean by misuse I wonder what he would say if British Railways placed orders for a few million locomotives, trucks and coaches, but forgot to build the railways and the marshalling yards: or if the railways couldn't function at rush hours because the stations were full of private trains reserved for the use of individual businessmen.

A final word on accidents. I'm tired of reading that about as many people are killed in the home as on the roads. This is a prime example of the abuse of statistics, for 62 per cent. of deaths in the home are the result of falls, and 80 per cent. of the victims are old people. The Royal Society for the Prevention of Accidents says that accidental falls in the home are "mainly a problem of the consequences of old age," and arise from such causes as senile changes in the brain. Most of the victims, to put it crudely, have nearly reached the end of their lives in any case, and it only needs a fall to kill them.

There is no comparison between these accidents and the death annually of more than 40,000 people in the US, over 12,000 in Germany, over 6,000 in Britain (and the injury of millions), the great majority of whom are children or adults in the prime of their lives. Certainly the accident rate per vehicle mile has fallen, and credit is due to our safety propaganda and practical measure. But the numbers of deaths and accidents is rising. One of the ways to reduce the number is to build a road system designed for motor vehicles: but it is equally necessary to liberate the pedestrian, setting him free to enjoy the town, the city and the countryside.

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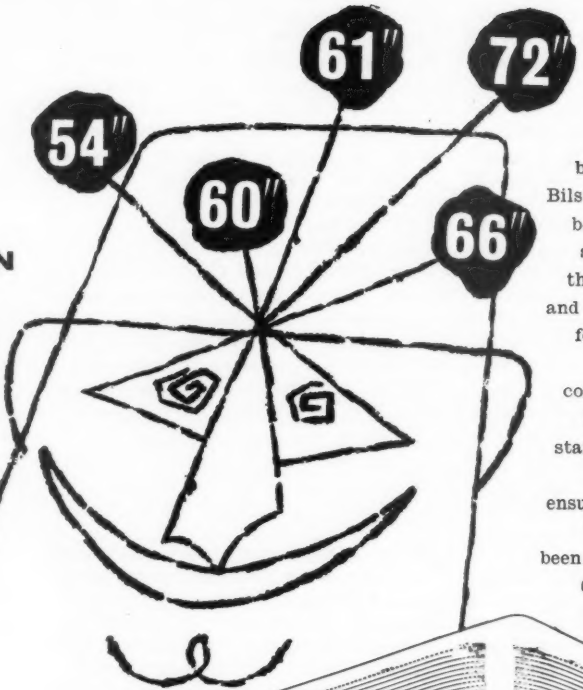

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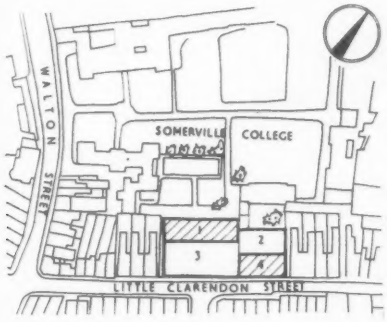

Site plan
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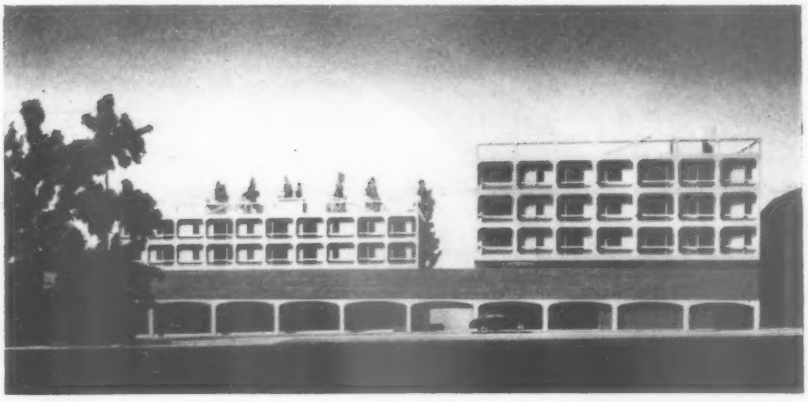
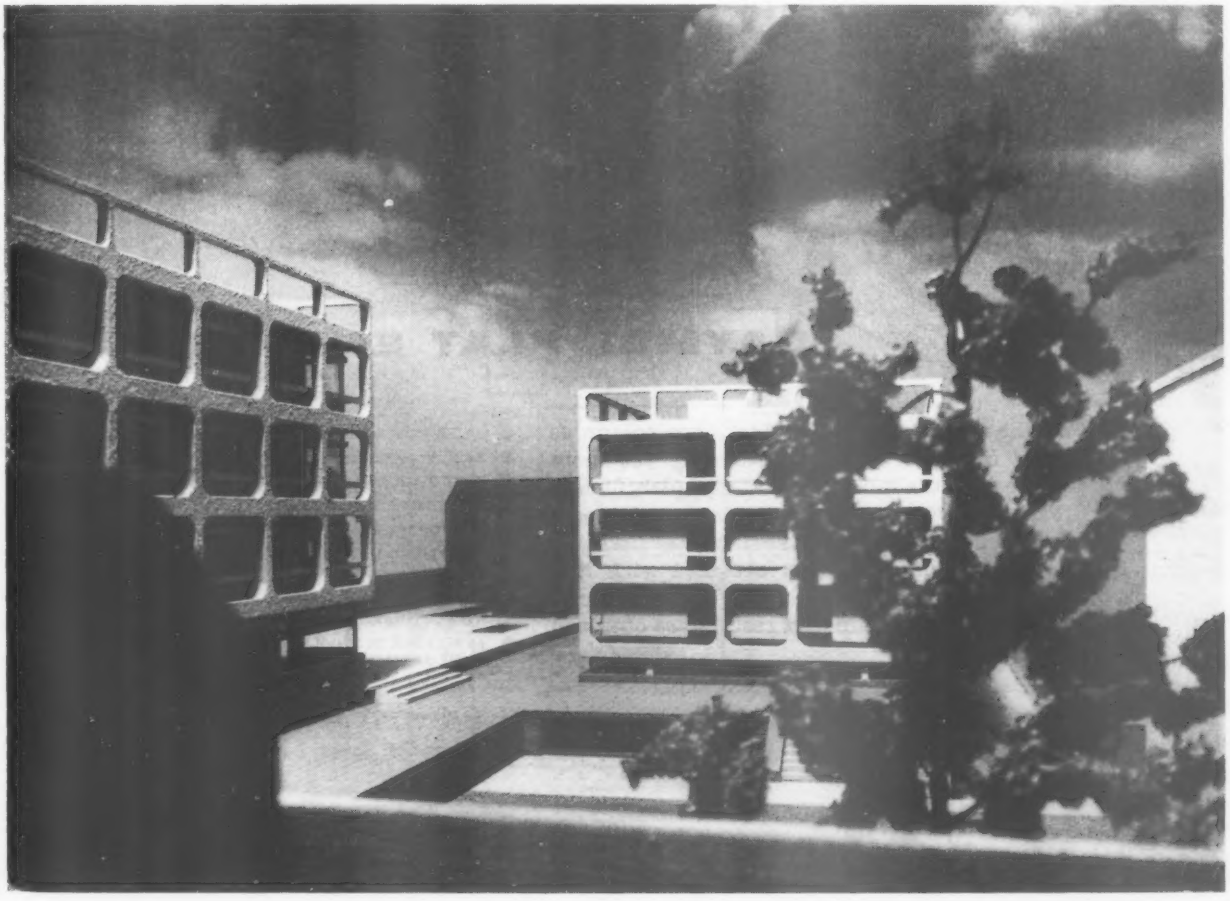
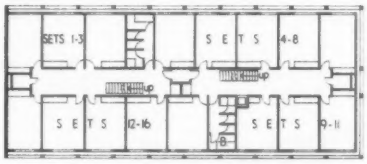


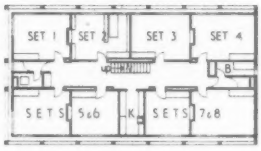
The projected extension of Somerville College, Oxford, by the addition of a block of study bedrooms for graduates and a new undergraduate block has been designed by Philip Dowson of Ove Arup and Partners. The new buildings will face and completely transform Little Clarendon Street, a narrow street of small terrace houses and shops to the south of the present College, for the design includes the widening of the street by a service street under a covered way, serving new shops on the ground floor front of the new buildings. The model above shows the arcaded service street, with graduate block on right and undergraduate lodgings on left, separated from the high surrounding wall (essential part of an Oxford College) by a paved garden on the roof of the arcade and shops. Below, the model from inside the grounds, with graduate block on left, linked with the student block (right) and the older parts of Somerville, through quadrangles at different levels. The graduate block is designed to provide 50 study bedrooms, generous communal kitchens and laundry facilities, a large common room, and a small dining room and common room for private entertaining which will be available to all Somerville graduates. Hitherto the College has had to lodge highly distinguished women



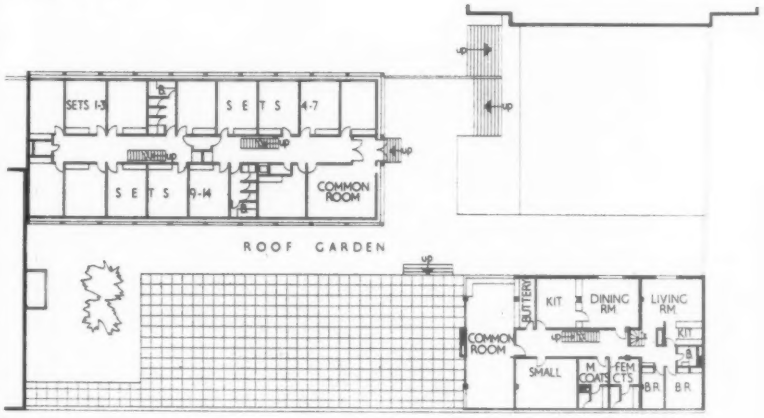
SOMERVILLE COLLEGE EXTENSION: continued

graduates from many parts of the world in scattered and often comfortless lodgings, which greatly reduces the part they can play in the life of the College. The estimated cost of these improvements is £200,000, and as Somerville has no endowments, the money must be raised before the work begins: nevertheless an outline of the scheme is boldly entitled "Building Plans 1961."





Second floor plan



First floor plan

Ground floor plan [Scale: $\frac{1}{16}$" = 1' 0"]

BOOK REVIEW

British Modern

Modern Architecture in Britain. By Trevor Dannatt. Batsford £3 3s.

This book illustrates the modern buildings featured at the Arts Council's exhibition of contemporary building in 1956, together with some later examples. It presents, therefore, a very comprehensive picture of British architecture since the war. It is divided into five sections (industry, offices and shops, education, houses and social buildings). It is well illustrated, although some of the pictures are rather small, and there might be more plans and sections. There is an excellent introduction by Sir John Summerson, pointing to the conclusion that what matters today is not the individual architectural statement of the isolated building, but town planning and the development of building types. The book itself avoids argument and aims rather at being an accurate and useful book of reference. In this it succeeds admirably.

DIARY

Exhibition of Status Group. Office furniture designed by Robin Day at Hille of London Ltd., 39/40, Albemarle Street, London, W.1. 10 a.m.—5.30 p.m. NOVEMBER 16-22

Code of Procedure for Selective Tendering. Joint Consultative Committee of Architects, Quantity Surveyors and Builders' Open Meeting at the RIBA. 5.45 p.m. NOVEMBER 16

Building Exhibition. At Olympia. NOVEMBER 18—DECEMBER 2

Architectural Seriousness. Illustrated lecture by Peter Smithson, organized by the University of London, Department of Extra-Mural Studies and the New Churches Research Group. At the Lecture Theatre, Institute of Archæology, 31/34, Gordon Square, W.C.1. 6.30 p.m. NOVEMBER 18

Discussion on Electric Floor Heating. Richard Eve, at the RIBA, 66, Portland Place, London, W.1. 6.30 p.m. NOVEMBER 18

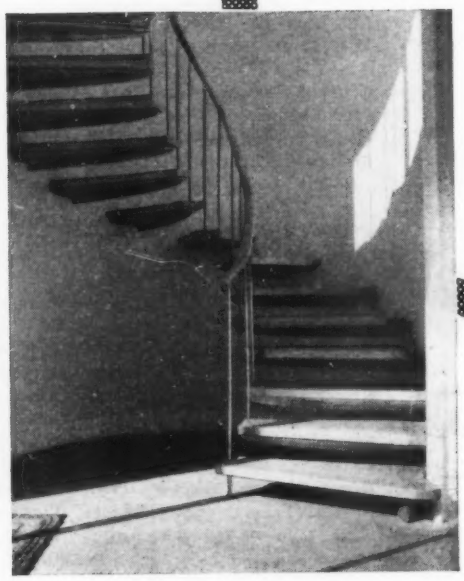
The Design of Concrete Mixes with High Alumina Cement. Talk by K. Newman at the RCA, 11, Upper Belgrave Street, S.W.1. 6 p.m. NOVEMBER 18

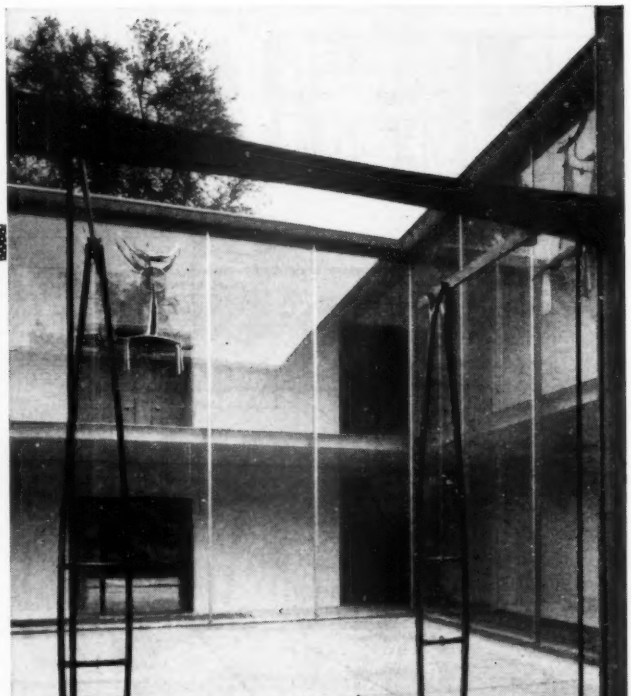
Some Impressions of a Visit to Australia. First lecture in the Institute of Builders' winter programme by Stanley Farrow. At the Henry Jarvis Hall, RIBA, 66, Portland Place, W.1. 6.30 p.m. NOVEMBER 18

Timber in Building Today. The Building Centre Forum, 26, Store Street, W.C.1. 6 p.m. NOVEMBER 18

The Influence of Plastics in Building. Plastics Institute Two-Day Conference at the RIBA, 66, Portland Place, W.1. NOVEMBER 19-20

PRINCIPAL'S LODGE
Newnham College, Cambridge





In this gracious addition to the University the remarkable versatility of English Ash has been delightfully demonstrated.

It forms the 19′ 0″ mullions which carry the tallest plate-glass windows in the world, and is used for the entrance-doors, strip-flooring, stair-treads and hand-rails, and for specially designed hand-made furniture.

We were specified to supply White Ash which the Architect selected personally from our seasoned stocks at Bury St. Edmunds, following close collaboration from the earliest stages of design.

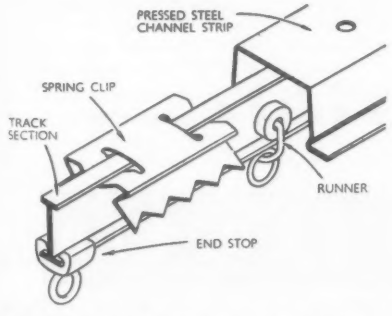
Architect Louis Osman Esq., B.A. (Arch) F.R.I.B.A.
Builders M. J. Allen and Sons Limited.
Hand-rails F. J. Lewis Limited.

THE INDUSTRY

From the industry this week Brian Grant describes a new curtain track, a switch backplate, an oil-fired boiler, sound-controlled pneumatic tube carriers, a glass-fibre sink, sliding windows and a device for lifting trench covers.

Curtain track

French's, who make Rufflette curtain track, have now evolved a built-in version to be fitted to steel channels fixed in the soffit of the lintel when the house is built. The drawing explains the system clearly enough: the channels, which have an in-turned lip, are plugged to the lintel before plastering and when decorations are complete the track is fixed by a series of clips which are sprung into the channel. The track is hidden and the rings hang only just below surface level, so that there is no need for a pelmet.



Section showing steel channel strip and spring clip.

The channel is 1s. 1d. per foot for 14-ft. lengths plus 1s. 10d. per foot for 14-ft. lengths of track and fittings, both figures plus 12½ per cent. for purchase tax. While these fittings are put forward mainly for domestic work, there is no reason why they should not be used in offices and other buildings. (*Thomas French & Sons Ltd., Chester Road, Manchester,* 15.)

Switch mountings

A recent addition to the Siemens Ediswan range of wiring accessories is a universal moulded backplate which has been devised to allow ceiling roses, switches, etc., to comply with the latest IEE regulations. Regulation 207G demands that with p.v.c. or t.r.s cable the portion from which the sheathing has been removed must be entirely enclosed in combustion-resisting material. The new backplate will fit any accessory designed with 2BA screws at 2-in. centres. (*Siemens Edison Swan Ltd.,* 155, *Charing Cross Road, London, W.C.*2.)

Oil-burning boiler

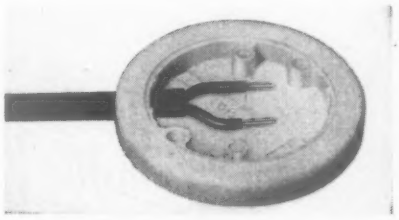
One of the members of the Smith organization, which makes a range of products varying from ultrasonic whale-finding gear to clocks, is now producing a domestic oil-fired boiler with an output of 30,000 B.Th.U. per hour. The fuel used is ordinary grade kerosene, and the pot type vaporizing burner has an automatic electric ignition plug controlled by thermostat, which also controls the fuel flow. There is no low flame burning condition at relatively low thermal efficiency, and tests carried out during last year gave an average fuel consumption of 8½ gallons a week for hot water and 120 sq. ft. of radiation in a 3-bedroom house, or 12s. 9d. a week. There are various safety devices to prevent fuel flow if the current to the ignition plug should fail and to avoid flooding of the burner if the fuel level should become too high. Price is £70. (*S. Smith & Sons (England) Ltd., Witney, Oxon.*)

Window ventilator in plastics

The Airflow window ventilator is made from clear plastic and needs only a 7⅞-in. diameter hole for fixing. The ventilator is made in two halves, the outer one of which has part of its rim cut away so that it can be passed through the hole in the window from inside, the two halves being held together with a nylon clamp screw. A hinged back flap is provided to close the ventilator, and the whole assembly can be easily removed for cleaning. Price is 28s. (*Fenton, Byrn & Co. Ltd., Airflow Works, Berrylands Road, Surbiton, Surrey.*)

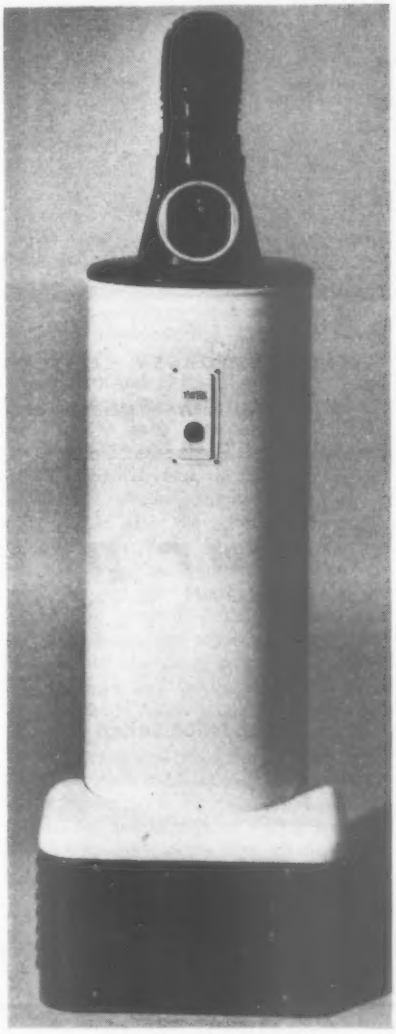
Pneumatic tube carriers

It must be some decades since pneumatic tubes were introduced for transmitting messages, and one now sees them most often



Above, Siemens' switch mounting.

Below, Smiths' oil-fired boiler.



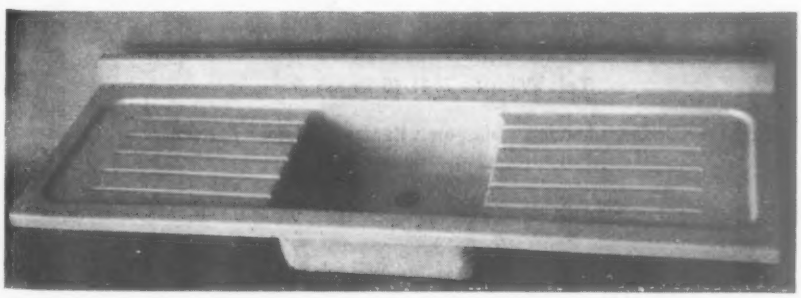
technical section

in post offices, and in shops, where a central cash desk may be made to serve all departments. While it is now possible to dial internal telephone numbers and dictate a message on to a wire or tape recorder if the office is unoccupied, there are occasions when it is necessary to transmit documents, punched cards, or quality control samples in a factory. The latest system, which seems to have been very well thought out, is made in this country by Dialled Despatches, who have evolved a ring main system which overcomes the limitation of either having only two send and receive points, or a central exchange through which all messages must go. In the Dialled Despatch system the carriers are fitted with an adjustable sound head with a series of reeds which produce a note when the carrier is being drawn through the tube. Each receiving station has its own distinctive note, which is picked up by a microphone placed outside the plastic ring main tube, after which various relays divert the carrier to the required station. A total of up to 45 stations can be served, the carriers having a device in the head for setting the station number and note on the reeds. The carriers travel at a speed of about 30 ft./sec. and their internal dimensions are 9½ in. long by 1¼ in. diameter. These figures apply to the 3-in. tube, but there is a larger 4½ in. version with carriers of increased size. One of the more recent installations is at Marchwood power station, where a 10-acre site has a ring main about 800 yards long, messages taking about 50 seconds to transmit. (*Dialled Despatches Ltd., The Green, Gosport, Hants.*)

Glass-fibre sinks

Glass fibre reinforced plastic sinks are no longer new, but in the Precision range some care has been taken to apply a proper degree of stressing to the glass fibres, and it is claimed that this reduces the tendency to split and craze. Sinks with double and single draining boards are produced, with or without an upstand at the back, the majority of the patterns being to BS sizes, though there are two smaller types measuring 36 in. by 18 in. and 42 in. by 18 in. All models are made in seven colours, which of course extend right through the material, and prices vary from £7 10s. to £13 2s. 6d. (*Precision Engineering Co. (Reading) Ltd., Meadow Road, Reading.*)

The double draining board Precision glass-fibre sink.

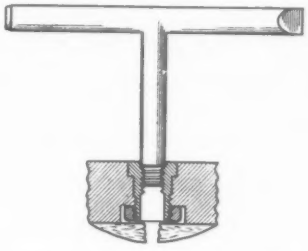


Sliding windows

Leyland have added two further types to their range of sliding windows, an economy version and a type suitable for ¼-in. plate glass. In the economy pattern one-third of the area is made to slide, the remaining two-thirds being fast. With only part of the window movable there remains an adequate area for ventilation with a distinct saving in cost. This window also includes the latest type of draught excluder which consists of a section of p.v.c. with a weathering lip designed to apply tension between the glasses at the lapped joint and so keep out draughts and rain. An aluminium stiffener bar is incorporated to keep the window stable under gale conditions and to avoid whip or shake. A draught excluder is also included in the other new type, which is intended for large windows such as car showrooms, and which has extra heavy track and bearings. (*Leyland & Sons Ltd., Talbot Road, Stretford, Manchester.*)

Lifting trench covers

A very simple but efficient device for lifting trench covers or floor traps has recently been marketed by Hewetsons. It consists of a threaded sleeve and nut which is fixed in the trap. The sleeve is countersunk and threaded internally, so that the trap may be fixed with a wood or metal thread screw. When the trap is to be lifted the screw is removed and a tee lifting handle with a threaded stem is screwed into the sleeve.



Hewetson's combined fixing cup and lifting key.

Ordinary lifting rings often tend to pull away, and keyhole slots become filled with dirt so that the lifters cannot be used without a lot of preliminary fiddling. With this device the thread is protected by the fixing screws and there should be no trouble with dirt. (*J. A. Hewetson & Co. Ltd., Marfleet, Hull.*)

INFORMATION CENTRE

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727

10.189 design: building type

SCHOOLS

Rehabilitating Old Schools. Ministry of Education Circular 10/59. HMSO.

Ever since the war, most of the money invested in educational building has been spent on *new* schools; but the Minister of Education has now embarked on a drive to improve old ones, and henceforth "an increasingly large and important element of major building programmes" will consist of remodelling. To architects this may sound pretty deadly, but in point of fact, the effect will be to bring the architect into a position of even more vital importance than ever before.

The overriding aim is to bring the standards of existing schools as near as possible to those of new ones. Besides improving the heating, lighting, sanitation, etc., this will usually mean adding new accommodation and converting present rooms to new uses in such a way that the enlarged school forms a single educationally and architecturally integrated whole. How much can be done in each case depends on how much money is involved; but if an old school can by these means be made "comparable in standard and amenity with a new one and can continue in service for another generation at least," then substantial expenditure will still be regarded by the Ministry as offering good value for money.

In the case of new schools the architect is only briefed *after* the schedule of accommodation has been drawn up (by the educationalists) and *after* a cost limit has been set (by the Ministry). But in the remodelling programme the architect must not only design the school: he must discover all the alternative potentialities of the old buildings and advise on the cost of realising them, before a schedule of accommodation can even be considered. Thus, the often-reiterated need for joint collaboration between educationist, administrator and architect is more essential than ever, and if the architect is to pull his weight he must be fully aware both of the educational implications involved and of the light in which an authority's proposals will be viewed by the Ministry. He cannot neglect, therefore, to digest all this circular contains; but whereas most circulars are solid starch this one is likely to stimulate him for the task ahead.

technical section

Though roadmaking falls on the fringe of architectural practice, as commonly interpreted, it is a subject which crops up relatively often in the architect's work. Also it is a subject on which it is difficult for him to obtain reliable and understandable information. We have, therefore, asked W. Houghton-Evans, an architect-planner working in local government, to write it up for us. This he has done in four articles, the first of which we publish below. As the title of the series makes clear, he is concerned only with minor roads and the information he gives will in general apply to other pavings—car park, playgrounds, etc.—normally associated with building. Also, he wishes to point out that this is not an exhaustive treatise on road engineering, but only a discussion of the underlying principles accompanied by the kind of practical data which, he hopes, the architect will find useful. He wishes to make acknowledgment to David Parkes and Innes Taggart who have done some of the preliminary spadework, also to John L. Hurrell, B.Sc. (Tech), A.M.I.Mun.E., Dip.T.P., for invaluable expert advice and criticism.

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19 CONSTRUCTION: DETAILS

minor roads and external pavings, 1 introduction, the sub-grade

In his first article the author, W. Houghton-Evans, considers briefly the answers to the questions "where?", "how wide?" and "how strong?" and then passes to the first of the key mysteries of roadmaking: the sub-grade.

The siting of the kinds of road which are the subject of these articles, will normally be settled by the lie of the land. The architect's experience as a motorist will tell him to avoid blind corners and cross roads. In addition, poor and badly drained ground should be avoided, if possible, and a head fall (*i.e.*, along the length of road) of not less than 1 : 180 is a help to drainage. The question of radii at sharp bends is more critical. Here regard must be had, on the one hand, to the turning circles of the largest vehicles likely to use the road, and on the other, to the radii of precast concrete kerbs. Data for the former are given in Table 1. Kerb sizes (from BS 340) are as follows:

Internal radii: 6, 10, 15, 20, 30, 40 ft.

External radii: 3, 6, 8, 10, 15, 20, 25, 30, 35, 40 ft.

Table 1. Critical dimensions of some typical vehicles

Motor vehicles	*Length*	*Width*	*Height*	*Turning circle*
	ft in	ft in	ft in	ft
Bedford:				
1½-ton truck	16 4	6 1½	6 8	43
3-ton truck	19 6	6 9	6 8	51
4/5-ton truck	21 4	7 6	7 0	51
Double-deck bus	26 0	8 0	14 4	59
Taxi (Austin)	14 6	5 8	5 11	25

Excavation beneath the carriageway should be kept to a minimum. Run sewers and service mains as far as possible under verges. Even where such a policy leads to duplication of runs, ease of subsequent maintenance is held to offset initial cost. Trenches beneath the road must be back-filled and consolidated before roadmaking, or must be made up with hard-core or lean-mix concrete.

Size

The quantity of road or other pavings to be provided may well have a greater bearing on final cost than any other factor. In this respect, it is well to remember that the width of a single-lane road, provided adequate parking, passing and turn-round places are provided, need be little greater than the wheel-base of the widest vehicle likely to use it. In many cases a total carriageway width of 7 ft. 6 in. may be adequate, but care must, of course, be taken that no obstruction likely to foul a vehicle abuts the road. In all cases, vertical obstructions such as lamp standards must be kept back at least 1 ft. 6 in. from the edge of the carriageway. Of footways, it should be remembered that lamp standards, walls, and other abutting obstructions, reduce effective width by as much as 3 ft. in places. It has been estimated that 20 persons per minute may comfortably pass along each 2-ft. wide strip.

The question of how wide will normally be settled by reference to the very full *Schedule of Suggested Minimum Street Widths for Carriageways and Footways* published in 1951 by the then Ministry of Local Government and Planning.

Strength

Of quality generally it should be remarked that it is not the occasional heavy vehicle, such as an oil-tanker or dust-cart, but normal daily loadings which should be used as a basis for design. Bear in mind also, that if slow-moving traffic is to be expected, deterioration will be less than is experienced on major traffic routes. Finally, as in so many building problems, the relative claims of first-cost and maintenance must be assessed. In recent years scientific techniques have in large measure superseded rule-of-thumb in highway design. These base themselves on preliminary testing of site and materials, and will be described in the course of these articles. Laboratory or site tests may be employed. They may be elaborate and precise, or simple and approximate, as circumstances demand, and their use—particularly in unfamiliar circumstances—may often obviate wasteful over-design or disappointing failure. Many County Councils are equipped and willing to undertake tests. So are the Road Research Laboratory and many privately run establishments.

Preliminary investigation should at an early stage include discussions with the local Road Surveyor. Based on a knowledge of local conditions, his advice is likely to be invaluable. He may also have authority to require certain standards of specification, particularly when adoption of the works by the local authority is proposed. In some cases, his Department may be willing to tender for roadworks or for their maintenance.

Definitions

A road will comprise all or some of the elements shown in the section (Fig. 1). It may now briefly be

technical section

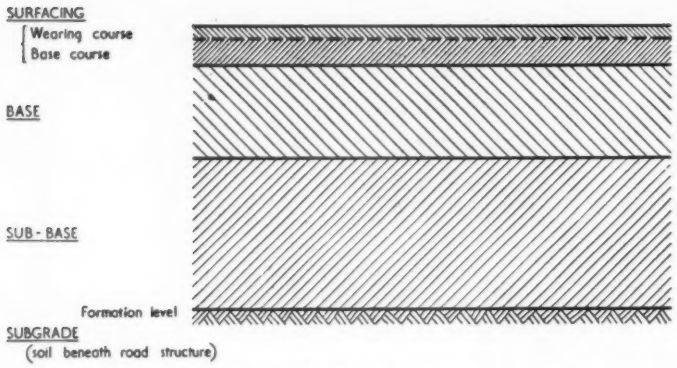


Fig. 1. Typical road section.

noted that the *base* or foundation may be *flexible* (granular—*e.g.* hardcore) or *rigid* (monolithic—*e.g.* concrete), and that the *wearing course* of the *surfacing* may sometimes be called a *carpet*. The whole constitutes a *pavement*—not to be confused with a *footway*. With other terms—camber, crown, profile, etc.—the architect will already be familiar.

The sub-grade

It cannot be too strongly emphasized that ultimately the road depends upon the soil beneath it, and it is with the condition of this that investigation must begin.

John Macadam, with Thomas Telford one of the great founders of modern road engineering, wrote:

"The roads can never be rendered thus perfectly secure until the following principles be fully understood, admitted and acted upon: namely, that it is the native soil which really supports the weight of the traffic; that whilst it is preserved in dry state it will carry any weight without sinking . . . that if water pass through a road and fill the native soil, the road whatever may be its thickness loses support and goes to pieces."

The force of Macadam's argument is not reduced by admitting that the road structure assists the ground in spreading wheel loads, and that for "in dry state" we should more accurately say, "at a stable optimum moisture content."

It is with the soil immediately below strip level that we are concerned. Unless the grading of the formation require it, nothing is in general to be gained by deeper excavation.

Site inspection is best done during the winter, when signs of flooding and a high water table can best be detected. Especially in country districts, vegetation offers clues to the state of the ground. Lank water-loving grasses indicate the presence of water near the surface, and abrupt changes in plant types reveal changes in underlying strata. The Ordnance Survey should be consulted for indications of low-lying areas liable to flood, which marshy conditions on site will confirm. The uniformity or otherwise of soil type and texture should be noted, together with its general characteristics.

The science of soil mechanics has evolved a system of soil classification with which in detail we need not concern ourselves. From his experience in foundation works an architect will be able to distinguish the main types, and should more precise information eventually be needed, the services of a laboratory employing skilled technicians would be necessary. A well-graded soil is one which has an even distribution of particles of all sizes from coarse to fine. In general, chalk and well-graded granular soils with a minimum of clay binder form the best sub-grade; poorly graded gravel and sand-clay mixtures are of intermediate quality; silts and silty-clays are poor; highly plastic clays are bad.

Sub-soil drainage

Good natural drainage is from the outset an advantage, and every effort should be made not to site a road across sodden ground. With chalk and gravelly soils, surface run-off alone is likely to require attention. In heavier soils, or where cuttings are to be made, sub-soil drainage will almost certainly be necessary.

Surface water running downhill onto the road is best intercepted in a ditch dug not nearer to the side of the foundation than 6 feet. If dug closer than this, care must be taken to ensure that the earth shoulder retaining the formation will not fail. Underground water may be intercepted in "dumb," "Scotch," or agricultural drains sited at such a depth that the water table is not allowed to rise nearer than 4 feet to the formation level. For our purposes, ditches either open or containing an agricultural drain and back-filled with a filtering medium will suffice. Where it is desired to lower a high water table it will generally be necessary to place these on both sides of the carriage-way, and the run-off from the road itself must not be discharged to them (Fig. 2). In extreme conditions, a complete "herringbone" sub-soil drainage system beneath the carriageway itself will be called for. Wherever possible this should be avoided as it is not only expensive, but disturbance of the sub-grade by trench excavation is in all cases undesirable.

The stability of sub-soil moisture, and consequently the pavement itself, may be disturbed by vegetation, and it is safer to have no large trees or shrubs within 15 ft. Frost, especially in chalk or silty clays, may cause the ground to heave. In these soils, or in very exposed situations, this can be guarded against by using a construction thicker than frost can penetrate—in this country about 14 in. This precaution will generally only be taken with rigid pavements and on more important roads.

Preparing the formation

Where the ground varies greatly in soil type, subsequent design should be based on the poorest. Isolated patches of weak material may be excavated and replaced by consolidated layers of sound fill. If the presence of peat or other poor underlying stata is suspected, borehole tests are advisable. Methods of treatment—rafting, "bog-blasting," etc.—will require the aid of specialists and are not dealt with here.

For most types of road construction, the preparation of the sub-grade is the same. We may be concerned with

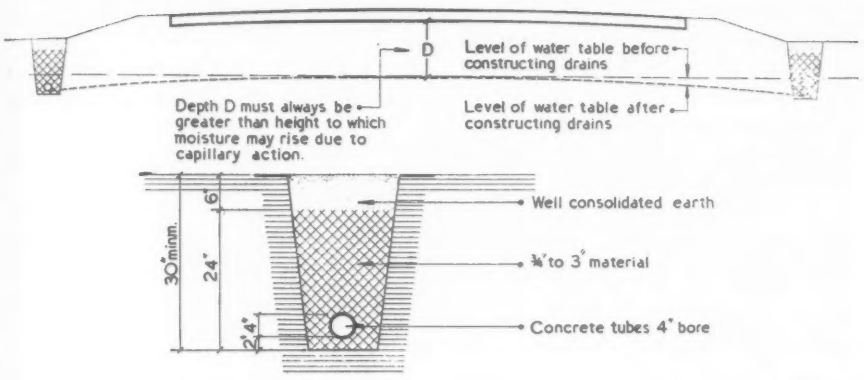


Fig. 2. Use of subsoil drains to lower a high water table.

Fig. 3. Diagram of California Bearing Ratio test equipment.

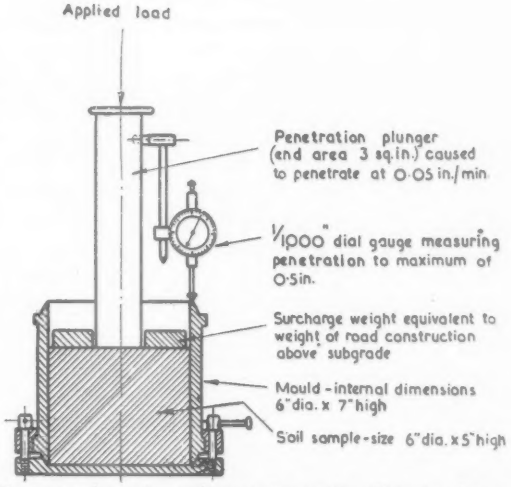
the ground exposed after the removal of vegetable soil, with cuttings, or with compacted fill. The last mentioned should be placed and rolled in 9-in. layers, and with heavy soils the occasional introduction of a layer of hard-core or other hard granular material will assist drainage and compaction. Weather conditions at the time of preparation are important—as they are at all stages of road construction. If too dry, swelling may subsequently occur; if too wet, shrinkage and cracking. Ideally, the soil should be at its optimum moisture content—" OMC." If a handful is squeezed, it should bind together without exuding water.

The formation should be shaped as nearly as possible to the profile of the finished road, and should then be compacted thoroughly. For this, six passes of an 8-10 ton roller will normally suffice. On wet ground, a lighter roller should be used, and heavy clays should at most be lightly rolled to smooth the surface, as rolling weakens these soils. Rolling should always proceed from the edge to the middle.

After shaping and rolling, the formation should quickly be sealed to prevent changes in moisture content. If road construction is not at once to follow, hot tar or bitumen, or a cold emulsion, should be sprayed on at the rate of 4 sq. yd./gallon, and the whole blinded with ash or other similar granular material, which may eventually form part of the sub-base. To carry rainwater well clear, it is better that this dressing should extend 2-3 ft. beyond the carriageway width. Traffic on the formation so prepared should be kept to a minimum.

Strength

Our next concern is with the strength of the sub-grade. From experiments initiated by Californian road engineers, data relating to thickness of structure required in differing soil and traffic conditions have been compiled. The strength of the soil or material used is expressed as a percentage of that of crushed limestone, and is known as the California Bearing Ratio (CBR). The design curves (Fig. 4) relate road thicknesses to soil strengths and traffic intensities. An example of design using this method will be given later. At this stage it should be noted that the term " commercial vehicles " applies to lorries, buses, etc., and excludes light vans and cars. From this it is clear that rarely will the architect be concerned with curve C, and probably never with D or E.



Tests on the sub-grade may be made either *in situ* or in a laboratory. Samples are prepared in such a way that their compaction and moisture content corresponds to that ultimately to be achieved in the finished road. The equipment used is a standard apparatus, and the services of a specialist laboratory are required (Fig. 3).

The expense of testing is generally unwarranted on short lengths of roadway up to say ½ mile, provided no conditions exist which might lead the architect to suspect the possibility of failure in the sub-grade. As an approximation, the CBR of varying formations may be assumed from the following data:

Soft clay, 2-4%.
Firm clay, 4-10%.
Sand/gravel, 10-40%.
Gravel, 40% plus.

The majority of soils have CBRs between 3 and 15, and design should be based on the poorest present.

Should testing be decided upon, an experienced laboratory should be consulted. Tests *in situ* should be made when the sub-grade is in the worst conditions of moisture content and density likely to occur during the life of the road. More tests will be necessary for coarse than for fine grained soils, and for laboratory testing a minimum of six specimens will be required. The cost of testing and reporting upon each sample is likely to be about £5, and to this must be added the expense of site inspection and sample preparation. A saving may result if the contractor were to take speci-

technical section

mens, but this should only be done under conditions recommended by the testing laboratory.

CBR tests are also made on road materials, and a supplier may be asked to state their value. With very coarse substances (large stone, hardcore) testing is not possible unless they be graded with smaller particles of the same material, in which case the value for these may be taken as typical of the whole.

The following example amply illustrates road design based on the CBR method, and is reproduced from Road Note No. 20 (DSIR: Road Research Laboratory: HMSO).

A road is to be constructed to carry normal housing-estate-road traffic and up to 50 public service vehicles per day. The subsoil is uniform over the whole length of the road and has been found to have a design CBR of 3 per cent. The road will be surfaced with pre-mixed bituminous surfacing; ashes, with a CBR of 15 per cent., and crushed limestone, with a CBR of 100 per cent., are available for the construction of the sub-base and base respectively.

The road must be designed by curve C (Fig. 4) which indicates that the total thickness of construction needed is 18 inches. This curve also shows that the ashes (CBR 15 per cent.) must be covered by at least 7½ in. of stronger material, and the crushed limestone (CBR 100 per cent.) requires a surfacing 2 in. thick.

All the design requirements will be met by a structure built up in the following way:

Surfacing: 2 in. (consisting of a 2-in. single-course surfacing).

Base: 6 in. (consisting of crushed limestone with a CBR of 100 per cent. which requires a minimum cover of 2 in.).

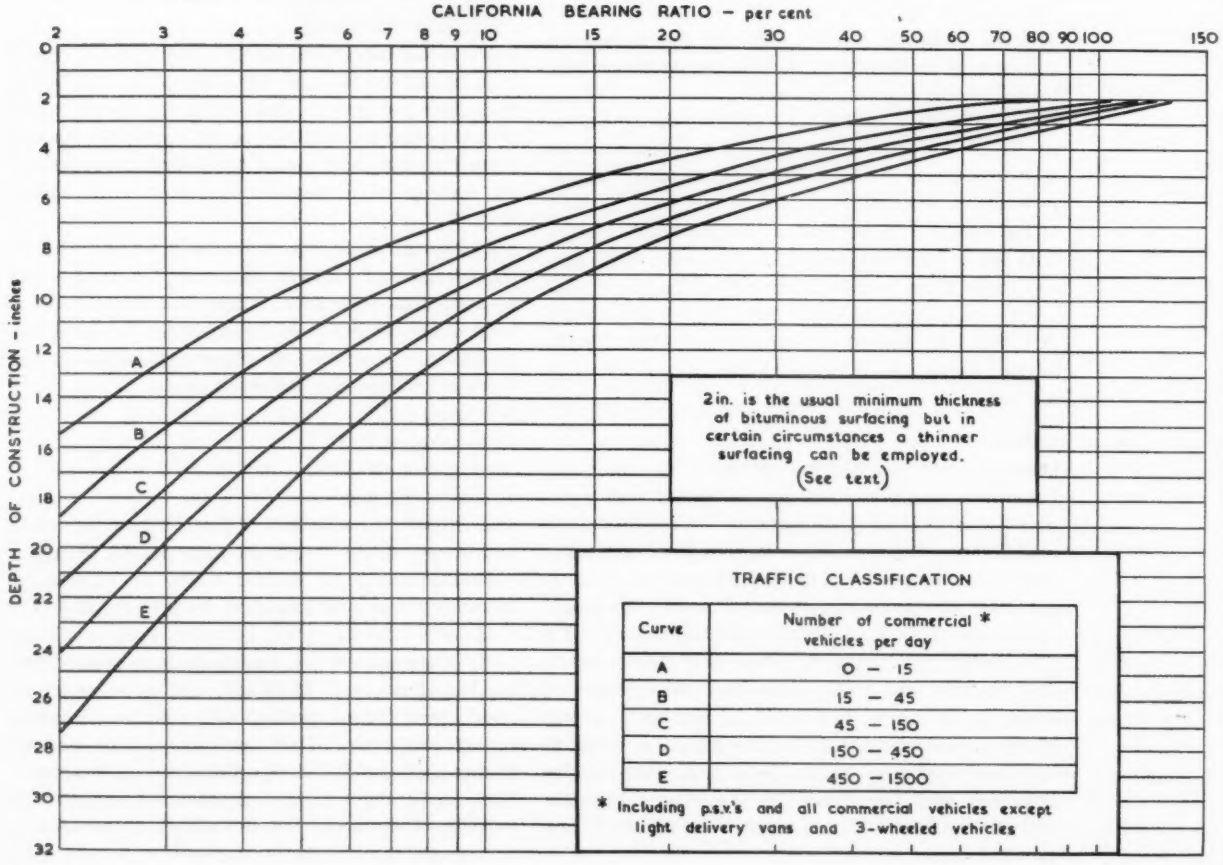
Sub-base: 10 in. (consisting of ashes with a CBR of 15 per cent. which requires a cover of 7½ in.).

In this example the base material was assumed to have a CBR of 100 per cent. It frequently happens, however, in practice that the base has a CBR greatly in excess of 100 per cent. and is itself capable of carrying the traffic loads without damage. In such circumstances, all that is necessary in the way of surfacing is a protective layer which will keep the water out of the structure and stop abrasion of the base by traffic. A double surface dressing with hot binder and chippings or a thin veneer of dense surfacing material will fulfil these functions.

It is recommended that the final surfacing should be laid when the road is constructed and not left until the builders' traffic has finished using the road. If, however, the latter course is adopted, the total thickness given by the appropriate CBR design curve should be laid initially and the final surfacing added later as an additional thickness.

In applying the results obtained from the design curves, the engineer should ensure that the thicknesses of base and sub-base are above the minimum necessary for the efficient handling and compaction of the particular types of materials to be used.

Fig. 4. CBR design curves for different classes of traffic.

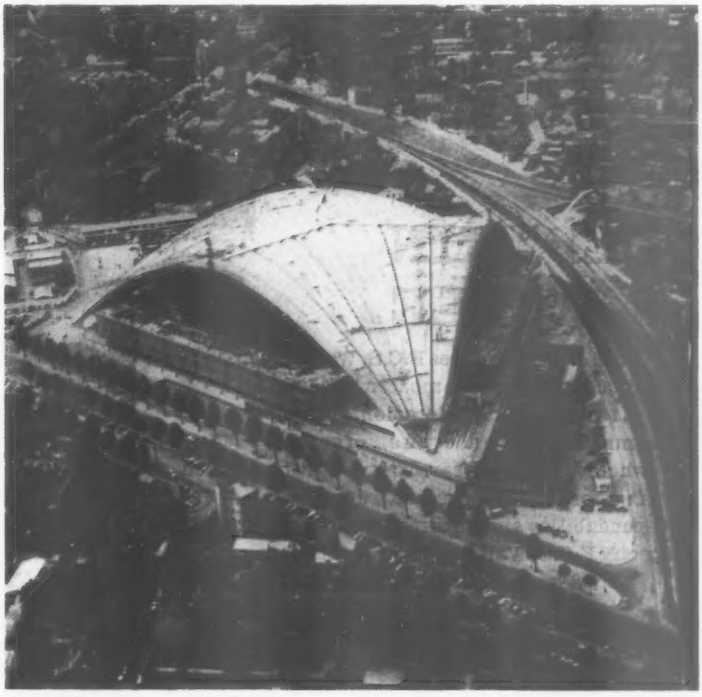


structure study

SfB File No. (2)E

UDC No. 624·9

DOMED ROOF ON THE CNIT EXHIBITION BUILDING, PARIS

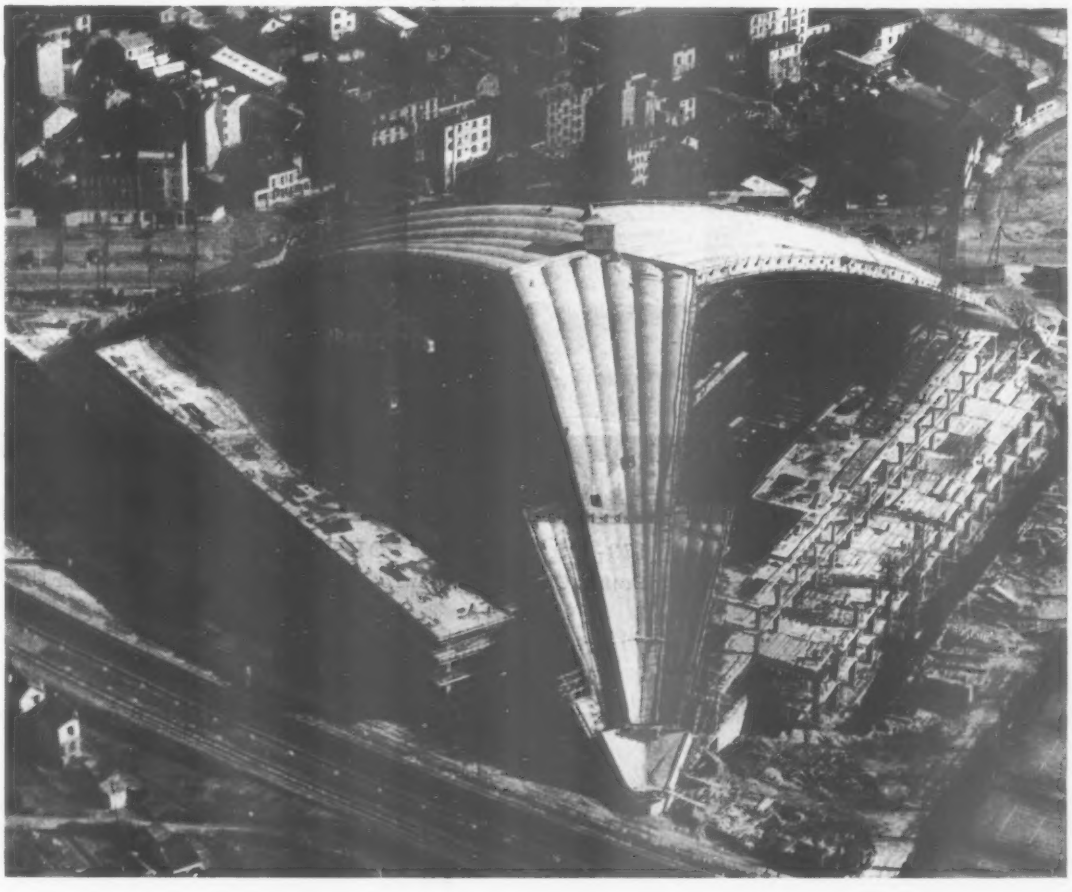


Aerial view of the completed roof.

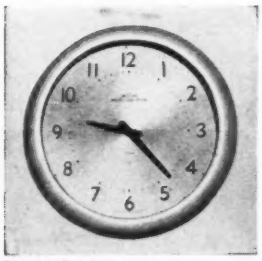
The new exhibition building of the *Centre National des Industries et Techniques*, which stands on one side of the Rond Point de la Defense just outside Paris where the road branches to St. Germain on the west and towards Pontoise on the east, is of interest for its huge domed roof.

The site of the building is triangular and almost the whole area of the site has been covered. The architects, Camelot, de Mailly and Zehrfuss, conceived a structure for the roof which, in principle, consists of three equal cylindrical forms in concrete on a triangular plan and supported at three points only, the apexes of the equilateral triangle, the sides of which are 715 ft. long. The structural design was carried out by Nicolas Esquillan, Technical Director of Enterprises Boussiron, one of the three firms of civil engineering contractors who combined to erect the building; the other two being Coignet and Balency.

Roof structure: The roof consists of two thin shells of concrete, spaced apart approximately 6 ft. at the crown and 9 ft. at the springing, of identical cross section, being formed in a series of



The shell roof at the commencement of the second stage of construction.



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Malvern/Fern

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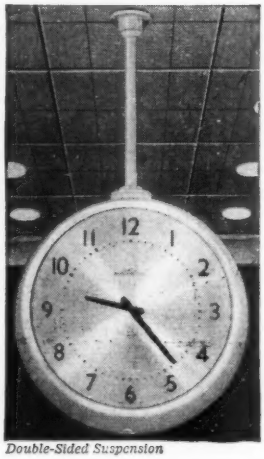
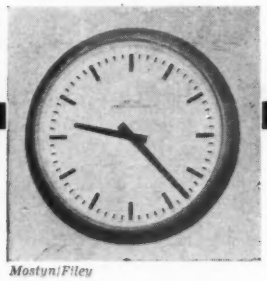


Double-Sided Suspension

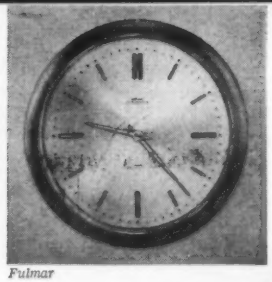
Medway/Fife

Monarch/Flint



Mostyn/Filey

'M' Series (e.g. Mayfair) Surface Mounted
'F' Series (e.g. Farnham) insertion type



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DOMED ROOF ON THE CNIT EXHIBITION BUILDING, PARIS: continued

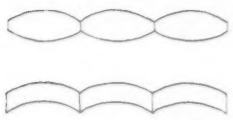
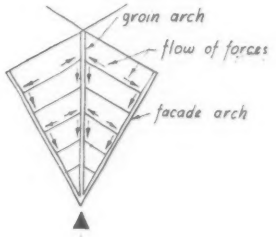


Fig. 1. Top: cross section of double shell construction as originally devised. Bottom: cross section finally used.



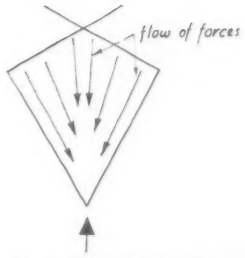


Fig. 2. Top: ribbed vault showing transmission of forces by way of framing members. Bottom: self-supporting shell showing direct flow of forces to support.

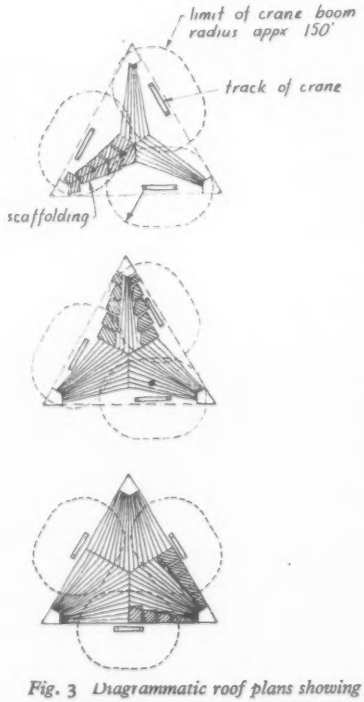


Fig. 3 Diagrammatic roof plans showing the three stages of construction, the positions of the three tower cranes and the limit of their booms.

corrugations of which each corrugation makes a sector with an angle of 3 deg. 20′ at the base. Each of the three bases or abutments supports eighteen of these corrugations. The purpose of the corrugations is to reduce buckling through folding of the concrete and the double shell construction produces a high moment of inertia, as well as providing a space in which services may be run. Theoretically the most advantageous form for the corrugations of the two shells is in Fig. 1 (top), where the web height is reduced to a minimum thus leading to a saving in weight and in formwork. The architects, however, felt that the appearance internally, as of a series of drapes, was visually unacceptable and the form which was finally devised is in Fig. 1 (bottom).

It is essential in structures of this sort to reduce dead load to a minimum. To this end it was decided that the shells should be self-supporting without transferring flexural or shear loads to structural members such as purlins, arches and so on as in a ribbed vault. The flow of forces towards the supports is direct, following the shortest possible route to the point of support.

The thickness of concrete in each shell is approximately 2½ in. at the crown, progressively increasing to 23½ in. at the abutments. The two shells are connected by means of precast reinforced concrete webs 2·3 in. thick. The last section of the groin web at the crown is cast in situ and is 3 in. thick. Because of construction phases webs are doubled at the joints between construction sections. The web at the three facades is 4·7 in. thick, cast in situ, and includes a projecting concrete gutter. In addition to the webs and at right angles to them, precast concrete vertical members are provided at intervals of approximately 30 ft. in the length of each corrugation. These members and the webs have openings cast in them for ventilation and for access from one cell to the next. Also these openings permitted the transfer of shoring from one section to another during construction. At the crown it was necessary to provide a special transverse member of great strength to ensure the monolithic action of the corrugations in a zone attaining maximum stresses. Also the moments produced in the groin webs acting as "half arches" have to be transmitted and distributed to all the corrugations. The crown member is 12 ft. high, has a web 11 in. thick and flanges top and bottom, each having a constant thickness of 15 in. and a width varying from 2 ft. to 4 ft.

The whole of the double shell structure is supported on three massive concrete abutments, each 20 ft. high, of which the last 8 ft. is cast directly in the excavation to ensure better bond with the excellent foundation soil. The plan shape of the abutments is influenced to some extent by the consideration of ensuring suitable anchorage for the tie members which are located below ground in the vertical plane of the three facades. These tie members were necessitated by the proposed construction of subway tunnels beyond the abutments outside the perimeter of the site. They are located underground to avoid obstructing the entrance to the basement of the building and as a protection against fire. The ties which connect the three abutments run from the abutments to a point underground approximately 150 ft. from the abutments where they meet prestressed concrete pads on two cable-anchorage shaft piles designed to withstand a pull of 787 tons. The shafts are continued downwards through a layer of limestone and flared out beneath it. Between the abutments and the shaft piles the tie member consists of two rectangular section concrete members, each 23·5 in. × 17·3 in., containing 22 cables. Beyond the shaft piles the tie consists of one rectangular section concrete member, 23·5 in. × 29·5 in., containing 44 cables and four ducts for future cables. High tensile steel is used in the cables.

The tremendous area of roof presents problems of rainwater shedding which drains to the three abutments, producing a torrent of water at the base. Large reinforced concrete basins are located at the abutments and from these the rainwater discharges through 2·6 ft. diameter vertical pipes to the sewers.

Facades: The three arched facades formed by the shell roof each comprise a steel frame curtain wall with tempered plate glass infill panels. The principal vertical members are H section and hollow section intermediate mullions are spaced at 7·4 ft. intervals. Horizontal maintenance walkways provide rigidity to the frame.

Construction: Construction time was limited to 21 months—a tight schedule—and site organisation was complicated by a lack of space for storing materials and for working. This made it necessary to precast as much of the work as possible away from the site. Most of this work was done on a site near the River Seine some 4 km. from the job. All precast flooring was fabricated here using fully automatic equipment with steam heating to accelerate curing. In all, 73,800 tons of precast members, reinforcement and concrete were transported to the job.

The floors, which consist generally of precast concrete sections, were placed in position before the shell roof so as to reduce the height for scaffolding to support the vault shuttering.

Construction of the abutments was

structure study

DOMED ROOF ON THE CNIT BUILDING: continued

Fig. 4. Preformed gutter section at the facades.

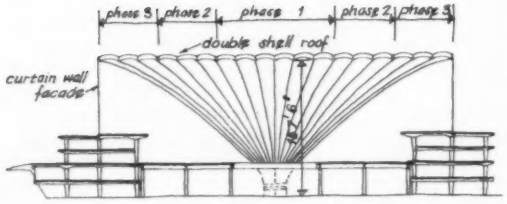


Fig. 5. Typical cross section along the line of the crown.

commenced simultaneously with the erection of the floors as was the placing of the tie rods and the shaft piles. The high tensile steel of the cables was left unstressed temporarily. Tensioning was carried out later on groups of cables working in stages corresponding to the thrust transmitted by the de-centering at the end of each construction phase.

The construction of the shell roof itself was carried out in three phases. The phases related exactly to the number of corrugations in the shell. Phase one comprised the six central corrugations of each of the three vaults, phase two the three corrugations on either side of the central six, and phase three the outer three corrugations on either side. The upper shell was cast on cement impregnated fibreboard which achieves a good bond between the rough texture of its surface and the concrete and is left in position as a thermal insulating barrier.

Fig. 6. Part cross section and plan showing tie members.

The phasing of construction enabled an economic use of shuttering which was re-usable in successive phases as the corrugations of the shell are identical. The timber shuttering comprised a series of small trusses, the bottom chord of which was bolted to the adjustable forks at the upper end of the tubular steel vertical scaffolding members. The top chord was curved to suit the cross section of the corrugation. Joists running parallel with the corrugations were fixed to the top chords of the trusses and to these the plywood forms were fixed. Each time the shuttering was moved for re-use it was necessary to adjust the levels of successive top chords and hence the pitch of the joists as the angle of inclination of individual corrugations varied. Some 920,000 ft. of tubular scaffolding was used in all.

Site equipment:

Three tower cranes each capable of lifting 3 tons at a span of 100 ft. to a height of 100 ft. and travelling along a path parallel to each of the facades. For construction of the shell the cranes were lifted to platforms constructed in advance. Thus the operating height was increased to 165 ft.

Three tower cranes capable of lifting 5 tons to 52 ft. for placing the precast floor units.

One caterpillar crane of 40 tons.

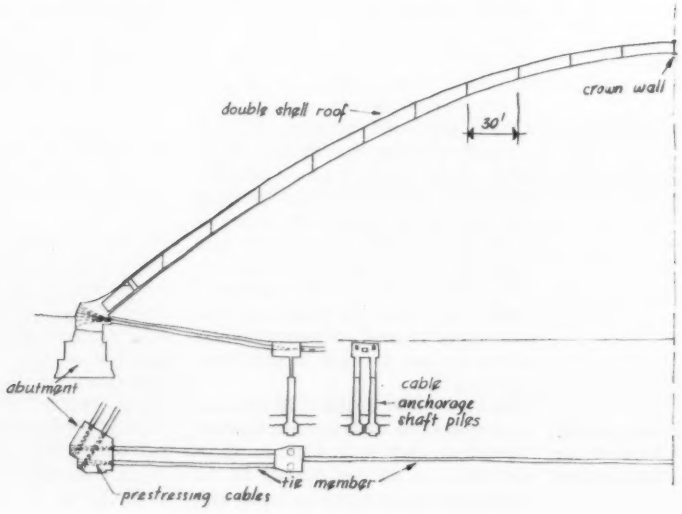
One crane on wheels of 20 tons.

Conclusion: The CNIT building was completed within the contract time of 21 months at a cost of 4,000 m. francs, of which the roof represented 500 m. (approx. £stg 3·5m).

The designers claim that the roof structure establishes two world records:

(i) The largest surface supported at a single point (75,000 sq. ft.).

(ii) The longest known span for a thin shell vaulted structure, 676 ft. at the facade and 780 ft. at the groin.



building illustrated

Sfb File No.	(98)
UDC No.	728·2

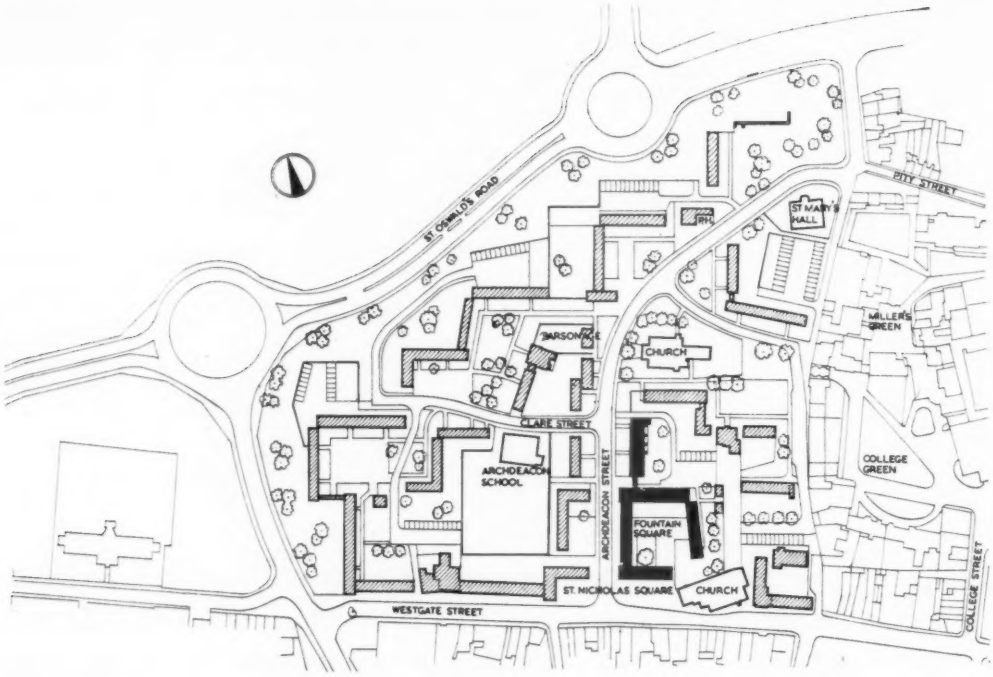
HOUSING

at FOUNTAIN SQUARE, GLOUCESTER
designed by J.V.WALL (city architect)
architect-in-charge A.J.AULT
assistant architects R.G.FRANKLIN, A.J.MAJOR
R.O.FITZSIMMONS
MRS. A.F.TIMPSON
quantity surveyor E.P.ROWNTREE

The City of Gloucester architect's department has here tackled a complex problem of redevelopment in the heart of the city with singular success. The 13-acre site is dominated by Gloucester cathedral, and contains a number of historic buildings which had to be fitted into the scheme. This has been done, and new views of the ancient buildings opened up, by the decision to build a series of connected blocks, of varying heights, and surround the whole by a pedestrian precinct.

View to the south from Fountain Square, over the two-storey block to the cathedral tower beyond.

building illustrated

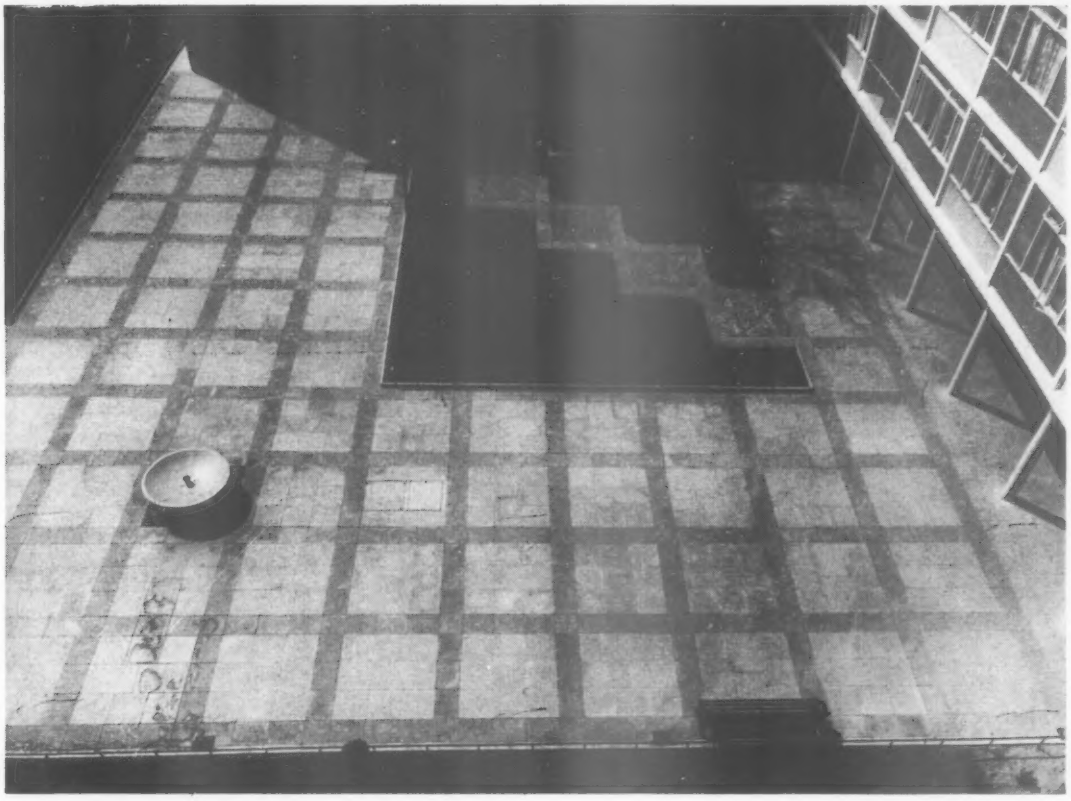


Block plan: in black, existing blocks illustrated here; shaded blocks, the next phase of the scheme

PPRAISAL: Housing in the City of Gloucester follows the same pattern as in most other cities, with private housing development on the outskirts in the form of an ever expanding sprawl of semi-detached suburbia and the Public Authority responsible for slum clearance in the city centre. The great difficulty of slum clearance sites is the unscheduled areas which occur as isolated pockets in such sites, properties not definable by the Public Health Authorities as slums, or those termed by Town Planners "non-conforming users"—industrial buildings, public houses, business premises and so on. Expensive and tedious as these properties are to acquire, their acquisition is essential to any comprehensive and cohesive layout. In the scheme illustrated here, the Westgate Comprehensive Development Area, the City of Gloucester has pursued a determined policy of acquiring these properties, and the result is a cohesive scheme and an unusually successful one.

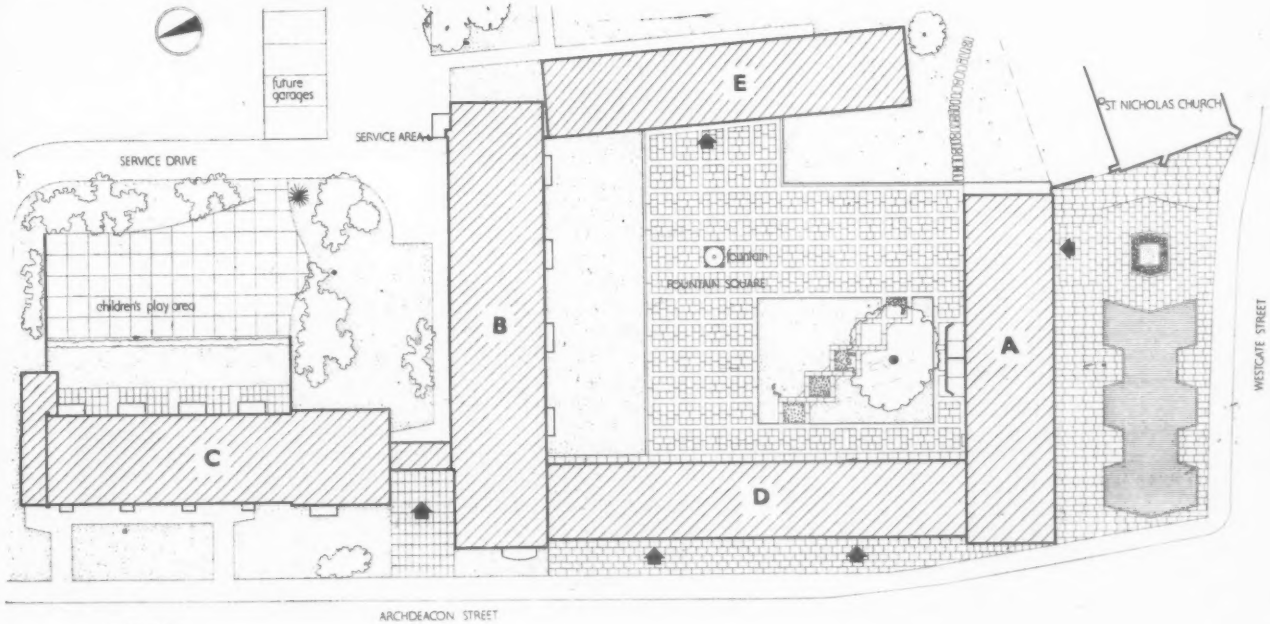
Aesthetically the architect had to face the problem of designing a housing scheme on a 13-acre site within the confines of a mediaeval city and abutting on the Cathedral precincts and precinctual houses on the south-east and on Westgate Street, historically the chief of the City's four main thoroughfares, on the south-west. Five buildings of architectural and historical interest are contained within the site: two mediaeval churches of St. Mary de Lode and St. Nicholas; St. Nicholas House, a building dating from the 16th and 17th centuries, now used as commercial premises; No. 7 St. Mary's Square, an early 18th century house, and the 19th century gothic monument to Bishop Hooper on the site of his martyrdom in 1555 in this square. Three further ancient monuments face directly on to the area: St. Mary's gateway, dating from the 12th and 13th centuries; the former West Gate of the Abbey, now the entrance to the precincts, and two well preserved houses of the 15th and 17th centuries on the south side of Westgate Street.

The Fine Art Commission, to which the layout was referred, agreed that taller blocks should be placed on the same east to west axis as the cathedral, to preserve the views of the cathedral from the west, and that no blocks should exceed six storeys in height. The basic intention of the layout has been to echo the cathedral closes by planning a series of enclosed courts of four and six storey blocks, linked by two and three storey blocks. Such a layout precluded the provision of private gardens for any of the dwellings. Some people feel strongly that as many dwellings as possible should have gardens, particularly the larger, family dwellings—not to satisfy an urge for horticulture, but to provide somewhere for young children and toddlers to play in safety. However, given a height restriction of six storeys and a density of 100 people per acre, the number of gardens which could be provided was small and would have severely reduced the public open space created by the precinctual layout. In fact, in any high density mixed development the advantage of gardens for the few is gained at the expense of the majority, for there is hardly any outlook more unsightly than that over private gardens viewed from above, and one of the absurdities of our time is the four-storey maisonette with gardens for the ground floor dwellings only. In Fountain Square gardens for a minority were sacrificed and the dwellings look onto a square carefully designed to look well both from above and at eye level, where children can play in safety without being fenced off into families.



Block A: 4-storey block with shops on ground floor, 9 two-bedroom flats above. Block B: 6-storey block of 29 one-bedroom flats. Block C: 4-storey block with 8 two-bedroom maisonettes and 4 two-bedroom flats. Block D: 3-storey block with through-way to Square and staircases on ground floor and 8 one-bedroom flats above. Block E: 2-storey block with tenants' stores on ground floor and 6 one-bedroom flats.

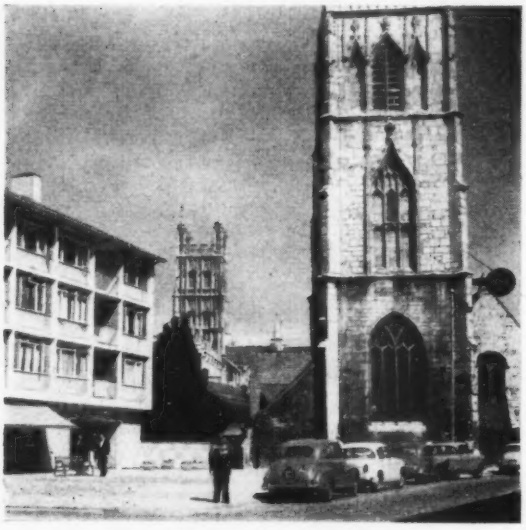
One of the most successful features of the scheme is the detailing of the ground areas. It is essential in high density housing schemes for grass areas to be protected, as here, by curbs and low, unobtrusive railings, if they are to survive. The concrete paved area has a grid of dark red concrete slabs to add interest and scale, and a concrete bowl and fountain (left) is placed on the axis line of the arch giving access from Westgate Street.

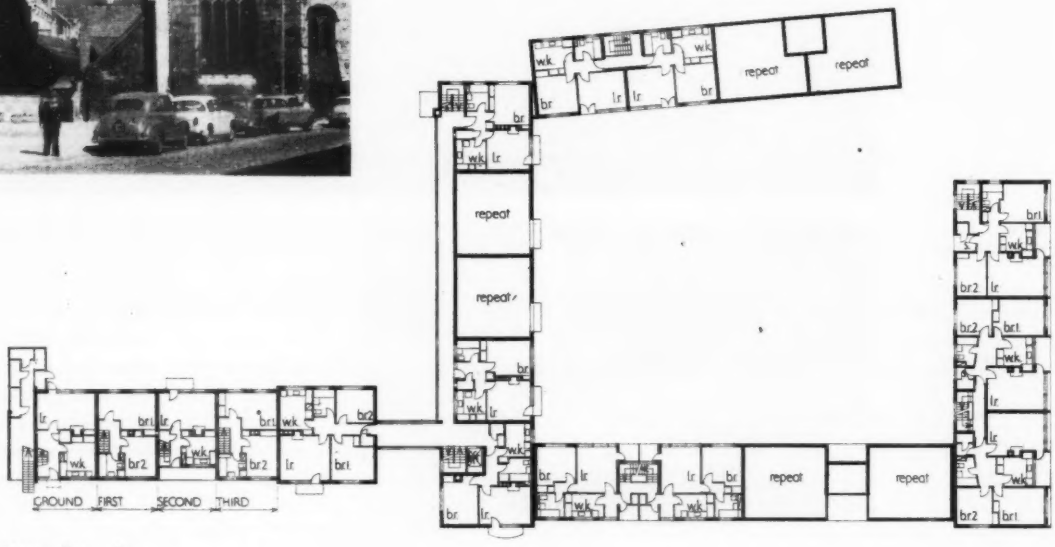


Site plan

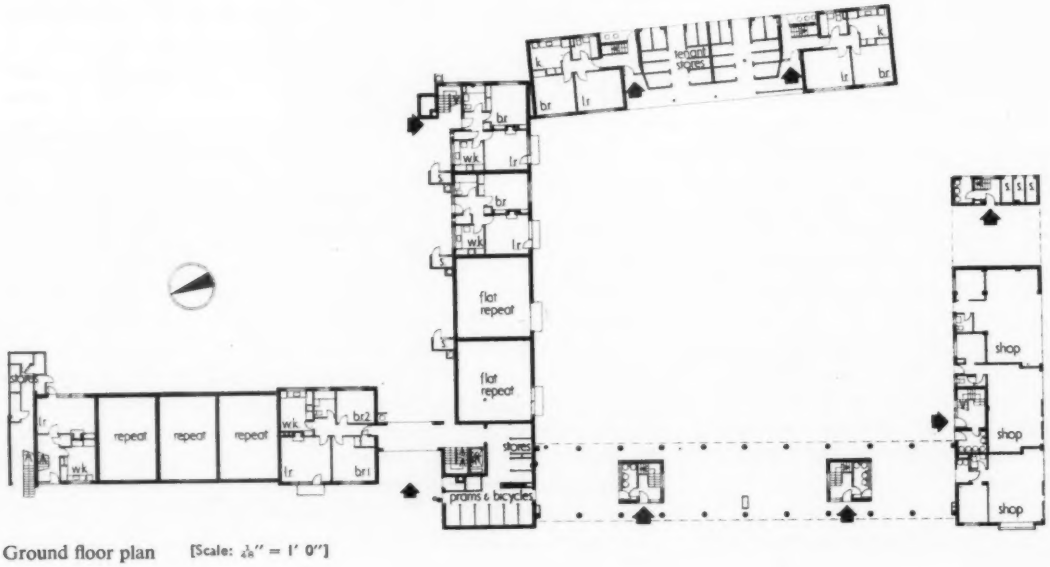
building illustrated

Opposite, top: the arch entrance gives a sense of privacy to the square beyond and a marked association with the narrow streets and archways of the mediaeval city. This block (A) which fronts onto Westgate Street, directly opposite two well preserved old town houses, has been set back so that the tower of St. Nicholas Church is exposed to view in its entirety for the first time (as shown below, left): it is hoped that money will be made available for a piece of sculpture to be erected on the cobbled and paved forecourt in a line with the entrance arch to the square. Opposite, bottom: within the court the aesthetic is contrived of contrasting the solid face with hole-in-the-wall windows of the taller blocks with the white structural grid and under window panels of the lower link blocks. This has given a greater definition to the low blocks and produced a directional quality in the square, towards the cathedral, the effectiveness of which can be seen in the introductory picture. Materials, form and structure are dictated by visual effect everywhere throughout this scheme. The result is frequently visually satisfying, but with the brittleness of a stage set. This is certainly not an accident but a conscious approach backed by careful thought. Note, for example, the way in which the drying balcony windows have been framed and the wall area rendered to give point and emphasis to the entrance gateway.

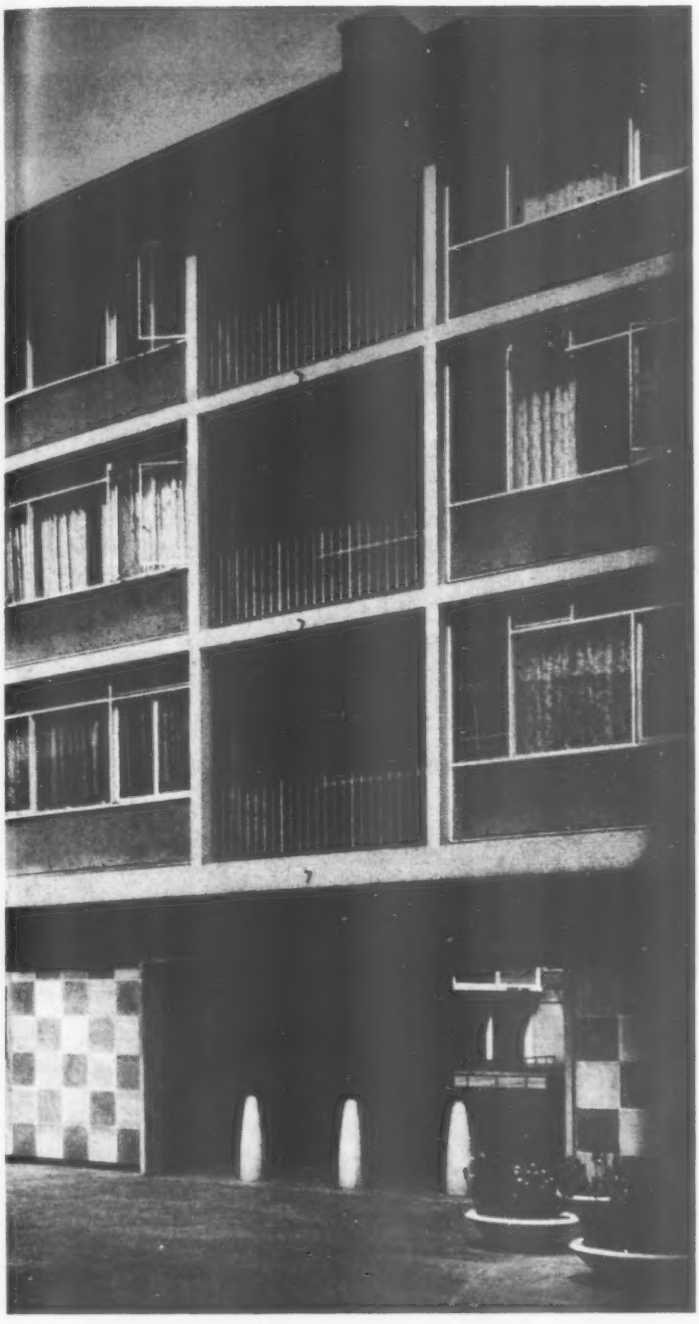




Upper floor plan



Ground floor plan [Scale: $\frac{1}{16}$" = 1' 0"]



analysis

CLIENT'S REQUIREMENTS

This is the first part of the Lower Westgate Comprehensive Development Area at Gloucester to be built. The overall plan provides for the rehousing of some 1,250 people over a period of 15 to 20 years, at a density of 100 persons per acre. It was suggested by the Royal Fine Art Commission and the Ministry of Housing and Local Government that the blocks should not exceed six storeys in height. These taller blocks are sited on an east-west axis to preserve the view of the cathedral from the west. The Fountain Square contract, which is analysed here, forms half of the first five year phase and comprises 21 two-bedroom, 43 one-bedroom dwellings and 3 lock-up shops.

PLANNING AIMS

The intention in this first stage was to provide flat dwellings at the required density in tightly knit urban development in scale with the older part of the town and closely integrated with adjacent buildings including the mediaeval church of St. Nicholas.

Five different blocks have been linked together to form an almost totally enclosed pedestrian court (Fountain Square) with the service area to the north and approached by a separate vehicular access drive. The problem of corner dwellings has been solved by accepting internal bathrooms and w.c.s in the three dwellings affected.

SUMMARY

Net floor area for A, B, C, D and E: 42,581 sq. ft.
Block B: 15,959 sq. ft.
Gross floor area for A, B, C, D and E: 50,240 sq. ft.
Block B: 20,140 sq. ft.
Type of contract: RIBA with quantities.
Tender date: April 27, 1956.
Work began: August, 1956.
Work finished: May, 1958.
Final contract price of foundations, superstructure, installations, and finishes: £127,029.
Final contract price for external works and ancillary buildings: £10,251.
Total: £137,280.

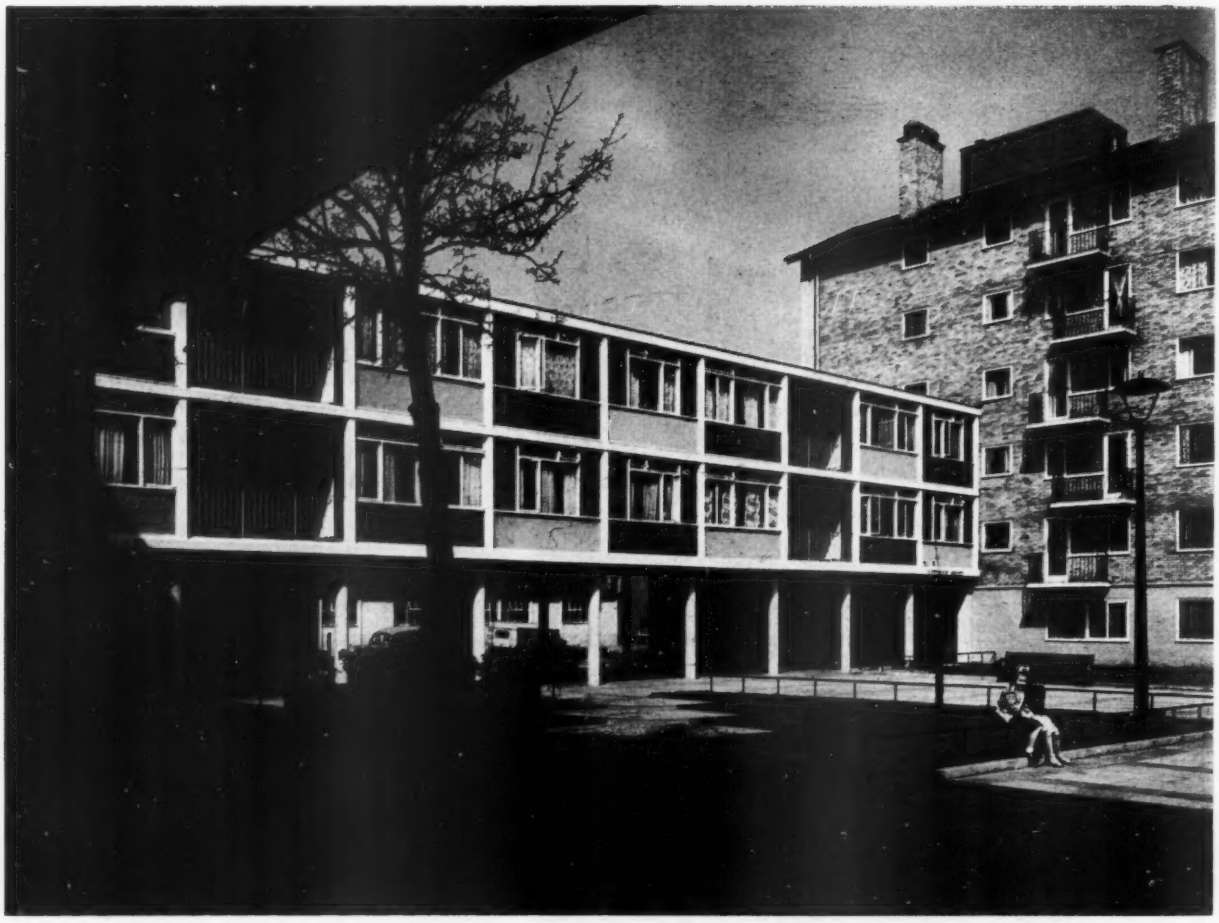
SCHEDULE OF ACCOMMODATION

Block A: 9 two-bedroom flats.
Block B: 29 one-bedroom flats.
Block C: 4 two-bedroom flats.
8 two-bedroom maisonettes.
Block D: 5 one-bedroom flats.
Block E: 6 one-bedroom flats.

cost per sq. ft.	s	d
Preliminaries and insurances	2	1½
Contingencies	2	4½
Work below ground floor level	7	9½

Pile and beam foundations with r.c. cast in-situ piles to depths of 25 to 30 ft.
Oversite concrete with one layer fabric reinforcement (Note: sub-soil: made-up ground to 8 ft.)

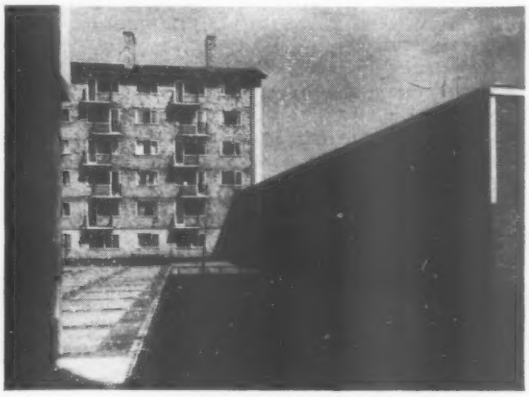
building illustrated



Above: the three-storey link block (D) is raised on reinforced-concrete circular section piloti, again to take advantage of the view through to the cathedral tower. Under-window panels are of alternate dark and light green cement glaze on rendering, and side panels of hardwood horizontal boarding are introduced where windows do not extend to full bay width, e.g., in bedrooms. Care has been taken to achieve a clean roof line to the low blocks, which, being seen from the higher dwellings, had to be kept neat and tidy. Tank rooms are housed in the pitched roofs of the taller blocks, and solid fuel fires have been replaced by electric fires to avoid chimney stacks in the low blocks. The main pipe runs are carried below the roof slab.

Left: the two-storey block, viewed from the outside of the square. To the left is the tower of St. Nicholas Church.

Above and below: in the six storey access balcony block (B) the brick cross-wall construction is suppressed behind a simple brick facade. The soffits of the private balconies are painted blue, yellow, red and white, and brickwork from ground to first floor is painted grey-green.



The four-storey maisonette block (C) with recessed access balcony to the upper maisonette is a widely used type of dwelling in public authority housing, with a plan form as standardized as the small house. Again, the brick cross-wall construction is suppressed behind the external walls.

analysis

STRUCTURAL ELEMENTS

	s	d
Frame or load-bearing element R.c. cross walls, to floors, staircases and liftshaft, r.c. piers and beams to parts of ground floor to blocks A and D, solid brick cross walls to block C maisonettes, concrete-block cross walls to block E.	10	5½
External walls Cavity walls; facing brick outer leaf, clinker block inner leaf. Prefabricated timber framed panels with woodwool lining, felt and rendering on metal lathes externally. Gable walls to blocks A and B; reconstructed stone. Ratio: $\frac{\text{solid wall}}{\text{floor area}} = \frac{0{\cdot}768}{1}$ Block B only $= \frac{0{\cdot}787}{1}$	4	11½
Windows Standard metal windows in wood surrounds, special metal windows to stairs. Ratio: $\frac{\text{windows}}{\text{floor area}} = \frac{0{\cdot}327}{1}$ Block B $= \frac{0{\cdot}385}{1}$	1	7
External doors 2-in. panelled half glazed hardwood doors to public entrances. 2-in. ply flush doors to bin stores. 2-in. solid core door lined with sheet steel to refuse chambers. Ratio: $\frac{\text{doors}}{\text{floor area}} = \frac{0{\cdot}033}{1}$ Block B $= \frac{0{\cdot}029}{1}$		6½
Upper floors	3	0½

Type of floor	*Span of each type*	*Area in sq. ft.*
Solid r.c.	11 ft. and 14 ft.	26,793
R.c. hollow tile	16 ft. 9 in. and 24 ft.	3,744
Timber joist	10 ft. 6 in. and 11 ft. 3 in.	2,943

Super loads: 40 lb. per sq. ft.

Staircases All r.c. Block A: 2 with 12-ft. rise. 4 with 9-ft. rise. Block B: 10 with 9-ft. rise. Block C: 1 public stair with 9-ft. rise. 8 timber internal stairs. Block D: 2 with 10-ft. rise. 2 with 9-ft. rise. Block E: 2 with 10-ft. rise.		4¾
Roof construction Tiled roofs: concrete slabs on tiling battens and one layer of bituminous felt. Felted roofs: 3-layer bituminous felt on cement/sand screed on 2-in. woodwool slabs. *Area of each type* Block A: 3,525 sq. ft. of tiling. Block B: 4,300 sq. ft. of tiling. Block C: 3,275 sq. ft. of tiling. Block D: 2,556 sq. ft. of felt. Block E: 2,286 sq. ft. of felt.	2	7¼
Rooflights 2 lights in Block D. Total area: 35 sq. ft.		0½
Glazing Generally 24-oz. and 32-oz. sheet. ¼-in. Georgian wired roughcast to public entrance doors and access gallery screens.		6

Total of structural elements: 24s 1½d

analysis

PARTITIONS AND FITTINGS

	s	d
Internal partitions	1	1¼
Generally clinker block. 3 in.; 24,669 sq. ft. 4 in.; 3,195 sq. ft. 6 in.; 360 sq. ft.		
Internal doors		9¾
313 single hardboard-faced flush doors.		
Ironmongery		8¼
Anodized aluminium generally.		
Fittings	1	7
Meter cupboards, drying cabinets, linen cupboards, kitchen storage units, worktops and draining-boards.		

Total of partitions and fittings: 4s 2¼d

FINISHES

	s	d
Floor finishes	2	2½

Type of finish	*Area in sq. ft.*	*Price per sq. yd.*
Granolithic	12,429	8s. 11d.
Plastic tile	21,924	10s. 6d.
Composition	4,869	11s. 7d.

Wall finishes	2	6¾
Two-coat plaster generally, wood skirtings, glazed wall tiling to baths and sinks.		
Ceiling finishes		8¼
Single-coat plaster to in-situ concrete (hacked). Two-coat to hollow tile soffits. Plasterboard and skim to timber joists.		
Roof finishes	1	1½

Type of finish	*Area in sq. ft.*
Concrete interlocking tiles on battens	11,100
Cement and sand screed with 3-layer roofing felt and chippings	5,616

Decorations	2	0
Externally; k.p.s. and 3 oils to wood and metal surfaces, two coats emulsion paint to concrete. Internally; two coats water paint to walls and ceilings, two coats emulsion paint to bathrooms, kitchens, public halls and landings.		

Total of finishes: 8s 7½d

SERVICES

	s	d
External plumbing	1	4
C.i. gutters and r.w.p.s, copper wastes, internal soil and waste stacks of prefabricated steel with preformed branches.		
Hot and cold water installation	2	10
Copper hot water supply—back boiler and immersion heater, copper combination tank.		
Sanitary fittings	1	2½

Type of fitting	*No. of each type*
Baths	64
Sinks	64
Lav. basins	67
W.c.s	67

	s	d
Heating and ventilation		
Cost divided between "hot and cold water" and "electrical installation." Solid fuel convector open fires to living rooms. In two and three storey blocks living rooms have electric fires to avoid the intrusion of stacks above the roof line. U of walls: 0·18–0·25. U of roofs; flat, 0·15; pitched, 0·30.		
Gas installation		1¼
No. of points: 190.		
Electrical installation	1	11¼

Type of point	*No. of each type*
Power	532
Lighting	476
Radio and TV aerials.	—

Lifts	1	0¼
One 8-person automatic lift in block B.		

Total of services: 8s 5¾d

Other elements	1	10
Refuse chutes; two in block B, 15-in. dia. glazed stoneware cast in concrete with a cast iron hopper at each landing. M.s. balustrading to stairs and balconies.		
Drainage	1	2

Total per sq. ft. of floor area:

£127,029 (net cost excluding drainage and external works) / 42,681 sq. ft. (floor area measured inside external walls) = **59 6¼**

COST COMMENTS

This cost analysis would have been very much more useful had each of the different heights of block been analysed separately, or if space forbade this, if an analysis of two blocks only had accompanied the general description. Had the construction throughout been identical the actual costs of each block could have been worked out from the given ratios. But in this scheme there are various solutions to constructional problems, which are grouped together to provide a single cost answer, thus producing a not very revealing average rate per square foot. It would be of a good deal of interest to see the block by block analysis of such a successfully varied scheme.

CONTRACTORS

General contractors: William Moss and Sons Ltd. *Sub-contractors: Reinforced pile foundations:* Piling and Construction Co. *Reconstructed stone:* Cotswold Vale Co. Ltd. *Bricks.* Star Brick and Tile Co. *Joinery:* J. Long and Sons Ltd. *Doors:* Gliksten Doors Ltd. *Prefabricated plumbing :* Econa Modern Products Ltd. *Combined hot and cold water tanks:* The Rolyat Tank Co. *Sanitary fittings:* The Western Trading Co. Ltd. *Grates and back boilers:* Haine and Corry Ltd. *Thermoplastic floor tiles:* Semtex Ltd. *Electrical installation:* Lee, Beesley and Co. Ltd. *Communal aerial system:* British Relay Wireless Ltd. *Television relay and radio relay:* Link Sound and Vision Services. *Metal balustrading:* Hotchkiss Engineers Ltd. *Felt roofing:* D. Anderson and Sons Ltd. *Glazing:* Faulkner Green and Co.

·OMNIA· FLOORS: 3, LOADING DATA FOR TYPICAL SLABS AND SUMMARY OF TESTS

This Sheet, the third on Omnia floor construction, gives loading data and a summary of tests. Sheet 20.Z11 gives a general description of the system and Sheet 20.Z12 gives typical applications.

Load-span Tables

The figures in the following tables are in accordance with the recommendations given in British Standard Code of Practice C.P. 114:1957. The concrete mix is 1 : 1½ : 3 and the self-weight of the slab is based on typical lightweight blocks. For spans to the left of the heavy line in each table, the ratio of superimposed to dead loads governs the acceptable deflection.

Thermal Insulation

U values for each depth of floor have been included on the load-span tables. They allow for ⅝ in. plaster below the Omnia slab and 2 in. lightweight screed with three layers of roofing felt above.

Omnia slabs with 4¾ in. wide planks at 2 ft. 0 in. centres.

Reference no. of Omnia section	Overall depth (in.)	Thickness of structural topping (in.)	Maximum effective simply-supported spans (ft. and in.) for uniformly distributed superimposed loads (lb./sq. ft.)								Self weight of slab (lb./sq. ft.)	Average U value
			50	60	80	100	125	150	200	250		
6/0/24	6	0	18 9	17 9	16 0	14 9	13 9	12 9	11 3	10 3	39	0·24
7/1/24	7	1	24 3	23 3	21 3	20 0	18 6	17 0	15 3	14 0	51	0·24
7½/1½/24	7½	1½	25 3	24 3	22 6	21 0	19 6	18 3	16 3	15 0	57	0·24
8/0/24	8	0	22 0	21 0	19 3	17 9	16 6	15 3	13 6	12 6	45	0·23
8/2/24	8	2	25 6	24 6	22 9	21 3	19 9	18 6	16 9	15 3	63	0·23
9/1/24	9	1	28 6	27 6	25 3	23 6	22 0	20 6	18 3	16 9	57	0·23
10/0/24	10	0	25 9	24 6	22 9	21 0	19 6	18 3	16 3	14 9	51	0·22
10/2/24	10	2	29 9	28 6	26 6	25 0	23 3	22 0	19 9	18 3	69	0·22
11/1/24	11	1	33 0	31 6	29 3	27 6	25 9	24 0	21 6	19 9	63	0·22
12/0/24	12	0	28 0	26 9	24 9	23 0	21 6	20 3	18 0	16 6	58	0·21
12/2/24	12	2	32 0	31 0	28 9	27 3	25 3	24 0	21 6	20 0	75	0·21
14/2/24	14	2	34 6	33 3	31 3	29 6	27 9	26 0	23 6	21 9	80	0·20

Omnia slabs with 6¾ in. wide planks at 2 ft. 2 in. centres.

Reference no. of Omnia section	Overall depth (in.)	Thickness of structural topping (in.)	Maximum effective simply-supported spans (ft. and in.) for uniformly distributed superimposed loads (lb./sq. ft.)								Self weight of slab (lb./sq. ft.)	Average U value
			50	60	80	100	125	150	200	250		
7½/1½/26	7½	1½	27 0	25 9	24 0	22 3	20 9	19 6	17 6	16 0	60	0·25
8/2/26	8	2	29 0	27 9	26 0	24 0	22 9	21 3	19 0	17 6	66	0·25
9/1/26	9	1	29 0	27 9	26 0	24 0	22 9	21 3	19 0	17 6	61	0·23
10/2/26	10	2	33 6	32 3	30 3	28 3	26 6	25 0	22 9	20 9	73	0·23
11/1/26	11	1	33 0	31 9	29 6	27 9	26 0	24 3	22 0	20 3	68	0·22
11/3/26	11	3	34 9	33 6	31 6	29 9	28 0	26 3	24 0	22 3	85	0·22
12/0/26	12	0	29 9	28 6	26 6	24 9	23 3	21 6	19 3	18 0	63	0·23
12/2/26	12	2	35 9	34 6	32 3	30 6	28 3	27 0	24 3	22 6	80	0·22
13/3/26	13	3	35 9	34 6	32 3	30 6	28 9	27 6	25 0	23 0	92	0·21
14/2/26	14	2	38 6	37 3	35 0	33 0	31 0	29 6	26 9	24 6	87	0·21
16/4/26	16	4	38 9	37 6	35 6	33 6	31 9	30 3	27 9	25 6	110	0·20

Spans and loads in excess of those shown can be achieved by using wider planks or double planks, which can also accommodate varying modular requirements.

20.Z13 · OMNIA · FLOORS: 3, LOADING DATA FOR TYPICAL SLABS AND SUMMARY OF TESTS

Summary of Tests

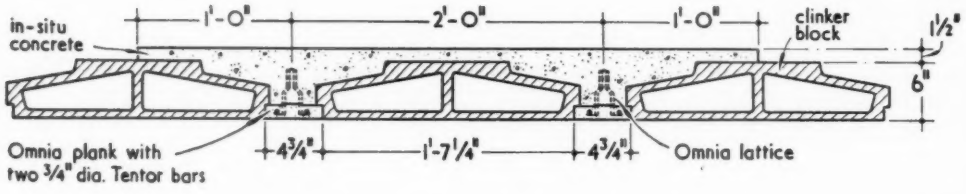
The following is extracted from *Summary of Tests on Omnia Floor Slab, 1958*, issued by Terresearch Limited, Building and Civil Engineering Laboratory.

1. BENDING TESTS

An Omnia Floor Slab 7½ in. deep was designed for a superimposed load of 93 lb. per sq. ft. by Messrs. John de Bremaeker and Partners, Consulting Engineers, and it was erected and tested as described below.

Two 4¾ in. wide Omnia Planks were set up at 2 ft. 0 in. centres over a span of 19 ft. 8 in. Each plank contained Omnia lattice expanded to height of 6 in. and two ¾-in. diameter Tentor bars as additional reinforcement. Three rows of 6 in. deep hollow clinker blocks were placed between and on either side of these planks. The planks were propped at quarter points and in-situ concrete, of 1 : 1½ : 3 nominal mix, was placed to a depth of 1½ in. above the blocks over a width of 4 ft. 0 in. The props were removed at seven days and the section was tested at nine days when the strength of the in-situ concrete was 4,575 lb. per sq. in.

A section through the slab is shown below:



The slab was then restrained at the third points, and loaded by means of two hydraulic ship jacks, one at each end. The load applied by the jacks was measured by means of previously calibrated pressure gauges fitted to each jack. Vertical deflections, relative to the end supports, were measured at third points and at the centre of the span. Dial gauges were used for deflections up to 1 in. and larger deflections were measured with a steel rule. The load was applied in stages, to determine deflection and recovery at various multiples of the design load, and the slab was finally tested to destruction.

The loading cycle and deflections are given below:

Multiple of Design Bending Moment	Equivalent Superimposed Loads	Central Deflection (inches)	Span/ Deflection ratio	Remarks
—	—	—	—	Dead load
1·00	93 lb./sq. ft.	0·35	690	Design load
—	—	0·026	9,200	Dead load
1·59	182 lb./sq. ft.	1·150	210	—
—	—	0·026	9,200	Dead load
2·05	268 lb./sq. ft.	1·963	122	—
—	—	0·213	1,130	Dead load
2·62	360 lb./sq. ft.	4·463	54	—

(*Dead load = 57 lb./sq. ft.*)

Conclusions

The observed deflections measured are acceptable, and recovery on removal of load very good. The deflection recovery on removal of load was virtually complete up to twice the design superimposed load, and a residual deflection of under ¼ in. was measured after loading to three times the design superimposed load.

From inspection of the load-deflection curves, it is thought that the reinforcement yielded in tension at a load equivalent to approximately 3½ times the design superimposed load.

After yield of the steel, the deflections increased fairly rapidly until the unit failed in compression at approximately four times the design superimposed load. On removal of this load, the residual deflection was 2 in. The infiller blocks parted on the underside but did not fracture. The primary cause of failure was steel yield, causing a rise in the neutral axis and subsequent compression failure.

From these results it can be seen that the strength of this unit in bending is fully adequate.

2. SHEAR TESTS

Description

Two sections of Omnia rib 3 ft. 0 in. long were cast. One unit contained the pressed steel lattice, and in the other the lattice was cut off at the level of the precast plank. These units were set up in a loading frame supported at 2 ft. 7 in. centres. The jack load was slowly increased until failure occurred.

The section without the lattice failed at a jack load of 22,000 lb., and that with the lattice at a load of 27,000 lb.

The ultimate shear force on the section with the lattice was 13,500 lb., giving a maximum shear stress on the section of approximately 540 lb./sq. in., which is an increase of about 25 per cent over the section without the lattice.

3. SUMMARY OF TEST RESULTS

A. Bending Tests

Deflection under design bending moment was approximately 1/700th of the span.

Full recovery was obtained at all loads up to twice the design superimposed load. Failing load was four times design superimposed load.

B. Shear Tests

Section without lattice failed at a shear force of 11,000 lb., or 3·9 times the designed shear force. Section with lattice failed at a shear force of 13,500 lb., or 4·8 times the design shear force. This test shows that the steel lattice increased the shear strength of this rib by about 20 per cent.

Further information

A complete design service is available if required. A list of contractors licensed to supply, or supply and fix, Omnia floors is available from Omnia Constructions Limited, who will also provide full technical data.

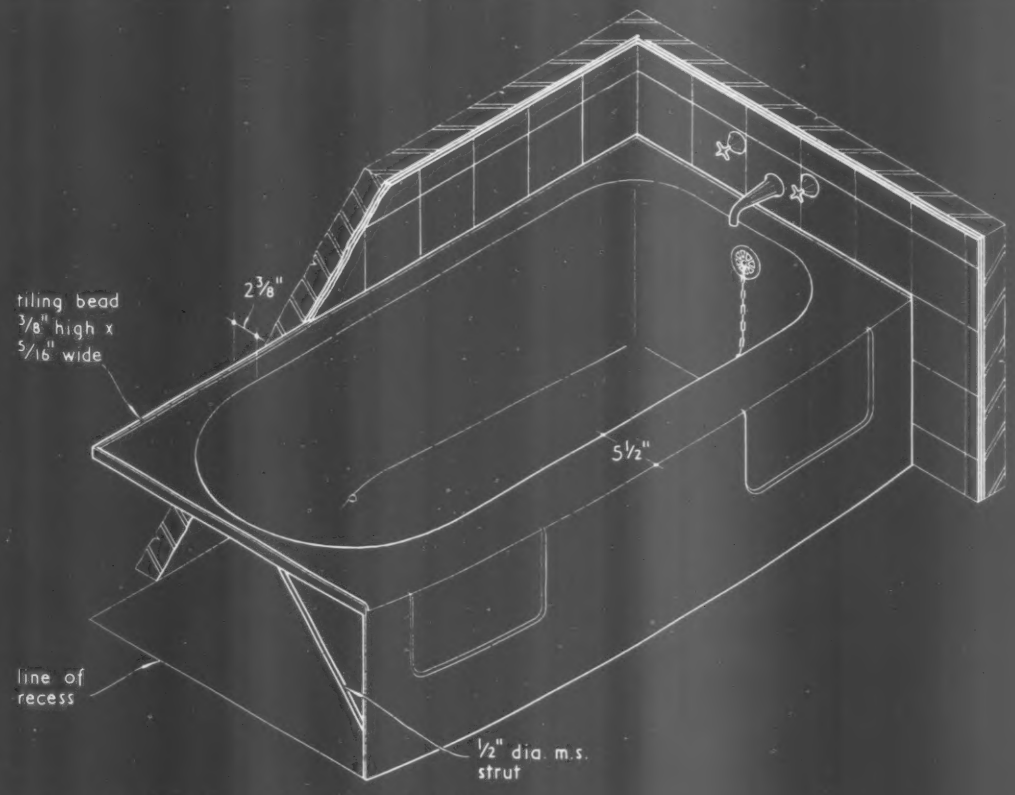
Compiled from information supplied by:

Omnia Constructions Limited.

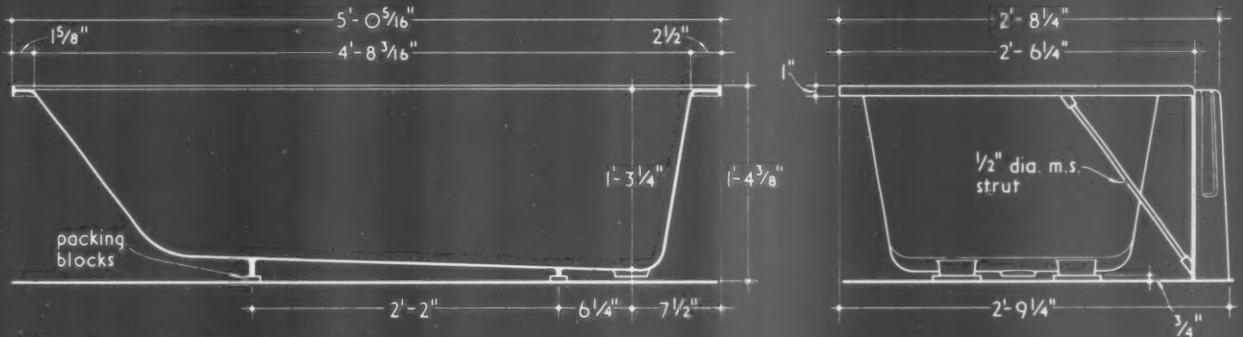
Address: 121, London Wall, London, E.C.2.
Telephone: Monarch 2272.

WATER SUPPLY AND SANITATION | BATHS

The Architects' Journal Library of Information Sheets 739. Editor: Cotterell Butler, A.R.I.B.A.



ISOMETRIC VIEW OF BATH. (for right-hand fitting)



SECTION AND END ELEVATION.

through airing cupboard or dwarf wall

through cupboard in adjacent room

through panel in adjacent room

DIAGRAMS SHOWING TYPICAL ARRANGEMENTS FOR OBTAINING ACCESS TO PLUMBING.

PRINCESS BATH. Manufacturer: Bilston Foundries Limited.

33.S3 ·PRINCESS· BATH

This Sheet describes the Princess bath which has an integral front panel and is intended for fitting into a recess. It is designed, in accordance with North American practice, especially for small modern bathrooms. It has a flat bottom and low sides and is particularly suitable for installation with an overhead shower.

Design and Construction

The bath is of cast iron to B.S. 1452 : 1956, grade 10. Its nominal length is only 5 ft. 0 in., but it has an internal width of 2 ft. 0 in. and is, therefore, not restricted in capacity. The flat bottom and low sides make it readily accessible and there is a flat rim, $5\frac{1}{2}$ in. wide at the centre front, which provides a seat for elderly people, invalids or mothers of small children, and facilitates cleaning. A steel strut at each end of the panel ensures rigidity. There is a bead, $\frac{3}{8}$ in. high and $\frac{5}{16}$ in. wide to take the tiling round the three sides that are to be built in, as shown in the isometric drawing on the face of the Sheet. A $\frac{3}{4}$-in. clearance is provided between the lower edge of the front panel and the underside of the four integral feet of the bath, so that any variations in the floor level can be accommodated with suitable packing blocks. The bath is available for right- or left-hand fitting.

Connections: No tap-holes are provided and taps should be fitted to the side or end wall: the trap is let into the floor. The drawings on the lower face of the Sheet show typical arrangements for obtaining access to the plumbing. The bath is normally supplied with provision for $1\frac{1}{4}$ in. overflow and $1\frac{1}{2}$ in. waste, but other sizes can be supplied to individual requirements.

Weight

The bath weighs approximately 340 lb.

Finish

The bath is porcelain-enamelled inside and painted on the underside.

Colours

The Princess bath can be supplied to match the range of colours in which sanitary earthenware is made and care is taken to reproduce the exact shade where differences occur between the products of different manufacturers. Colours outside this range can also be produced if necessary.

Compiled from information supplied by:

Bilston Foundries Limited.
Address : Highfields, Bilston, Staffordshire.
Telephone : Bilston 42331.

working detail

GLAZED WALL: STORE IN LONDON, W.C.2

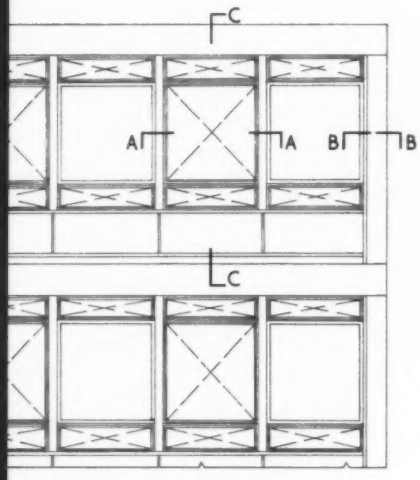
Fry, Drew, Drake and Lasdun, architects

The technical interest of this example lies partly in the detailing of the bronze, partly in the method used to provide an unchanging surface in the London grime. The bronze used is known commercially as gilding metal and consists of 90 per cent copper, 10 per cent zinc. The cladding is formed entirely of pressed sections of 14 gauge. To the exposed faces a compound of soot and oil was applied to produce at once, and in what is hoped to be a permanent form, the final effect of weathering.

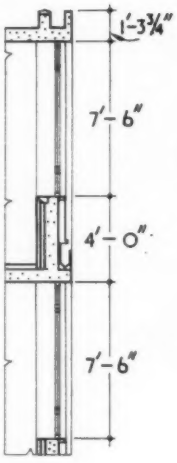
working detail

GLAZED WALL: STORE IN LONDON, W.C.2

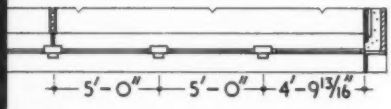
Fry, Drew, Drake and Lasdun, architects



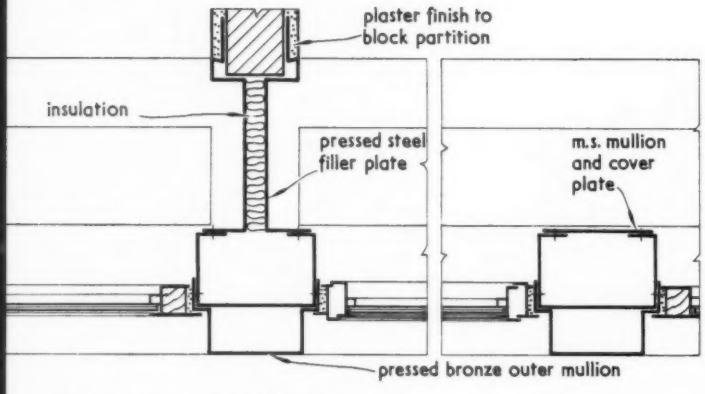
ELEVATION. scale 1/8" = 1'-0"



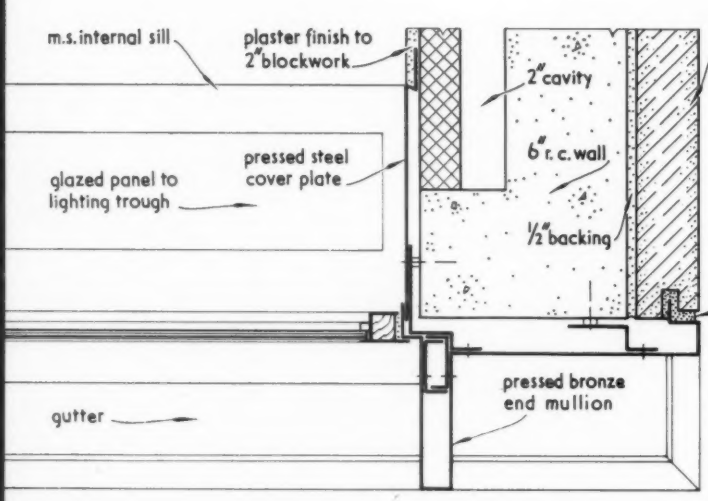
SECTION.



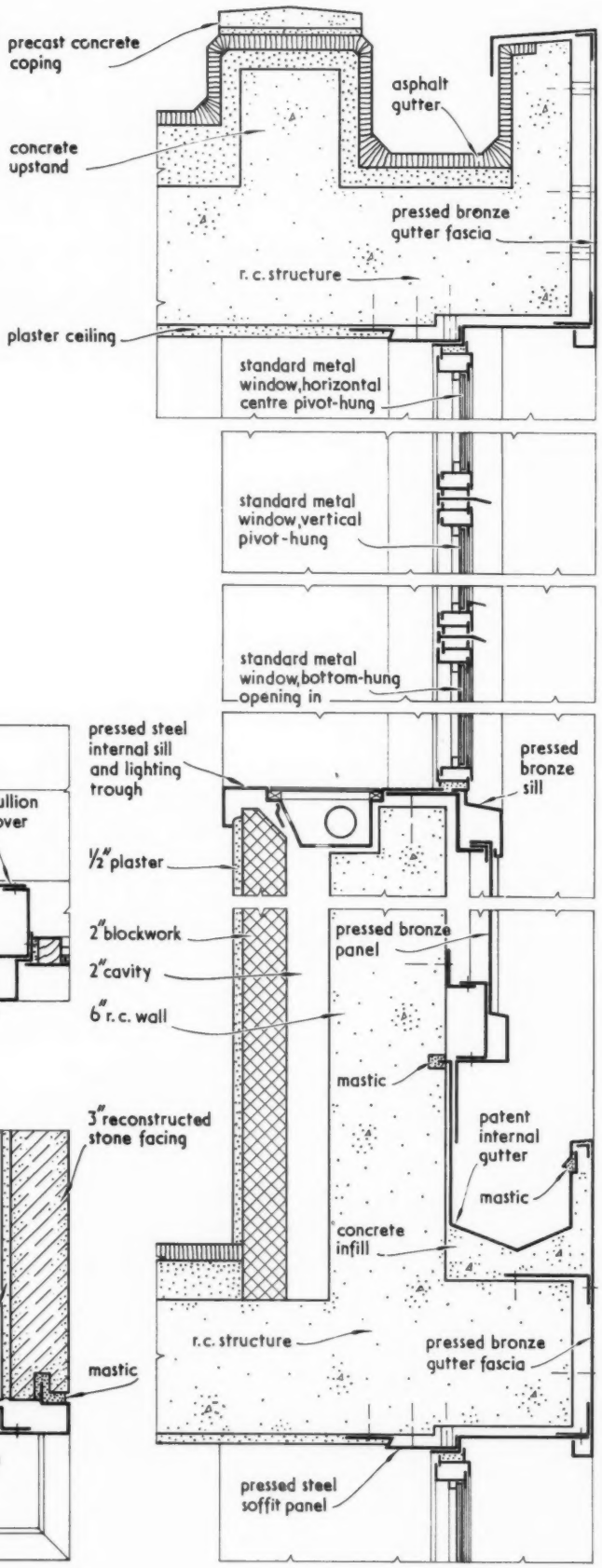
PLAN. scale 1/8" = 1'-0"



PLAN AT A – A. scale 1/8 full size



PLAN AT B – B. scale 1/8 full size



SECTION C – C. scale 1/8 full size

THERMALITE – The first name in loadbearing insulation **is now readily available**

Despite the heavy current demand for this top quality insulating building block, the greatly increased output of the new Thermalite production unit at Birmingham is ensuring rapid delivery.

SOME FACTS ABOUT THERMALITE

Aerated concrete is a material originally developed in Scandinavia where it has been widely used for many years.

Since the development of Thermalite (the British counterpart) in this country eight years ago it has achieved a first class reputation and has been repeatedly specified for domestic and industrial buildings of all kinds. Thermalite is loadbearing, non-combustible, stable yet light and easily worked. It has an extremely low "U" value.

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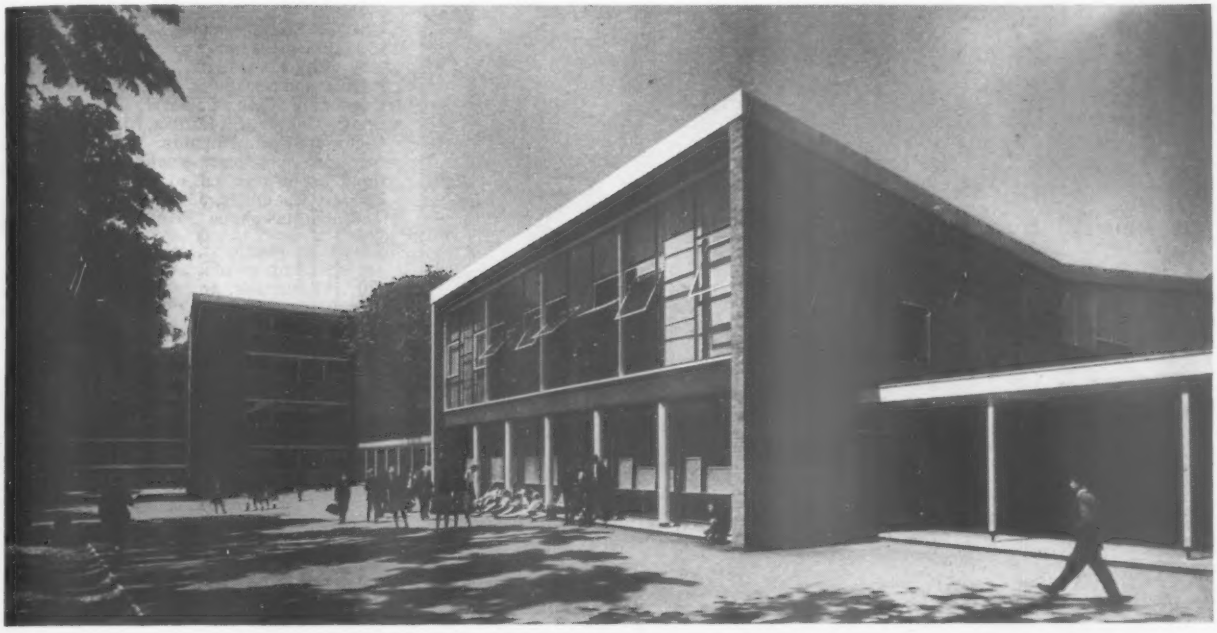
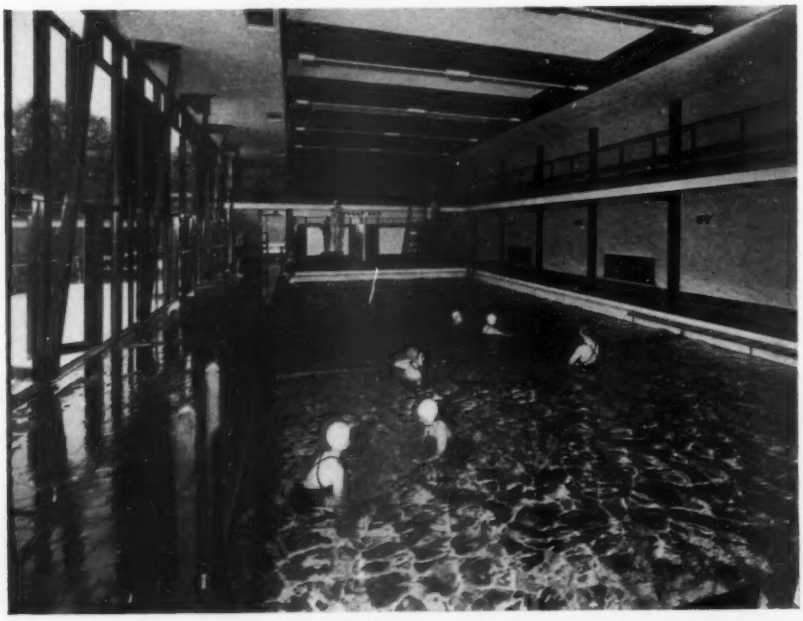
SECONDARY SCHOOL AT HOLLAND PARK, LONDON



Holland Park Secondary School—officially opened at the end of last month—is likely to be a much-photographed building; it is the first new secondary school to make a subject of Photography. Designed by the former chief architect to the LCC, Professor Sir Leslie Martin, it stands on a beautifully wooded 8-acre site, in the former grounds of three mansions, one of which, Thorpe Lodge, has been retained as a school library with study rooms. On the west it is bounded by Holland Park. Above, a view of the assembly hall from the south-east, showing the covered ways which link it to the teaching and workshop blocks, and part of one of the four-storey

SECONDARY SCHOOL AT HOLLAND PARK: continued



teaching blocks to the north. A swimming pool is still a much-too-rare amenity in schools: this one (shown above) has its south wall of glass, which can be opened up in hot weather, and leads out to a terrace for sunbathing. The school is for 2,000 boys and girls. General contractors, Spiers Ltd.

Announcements

PROFESSIONAL

Charles Blake, A.R.I.B.A., Chartered Architect, practising in association with J. E. Knapman, L.A.M.T.P.I., Town Planning Consultant, and S. Jampel, M.SC., D.I.C., A.M.I.C.E., Consulting Civil Engineer, has opened a branch office at Martin's Bank Chambers, Victoria Street, Paignton, S. Devon. Trade literature and representatives should continue to be directed to the head office at Phoenix Chambers, 553, Babbacombe Road, Torquay (telephone 25666/7).

Covell & Matthews, F/A.R.I.B.A., A.M.T.P.I., are operating an office on the site of Piccadilly, Manchester, and would like interested manufacturers to send literature and trade journals to 6, Lexington Street, London, W.1, and c/o Piccadilly, Manchester Properties Ltd., Portland Street, Manchester, 1.

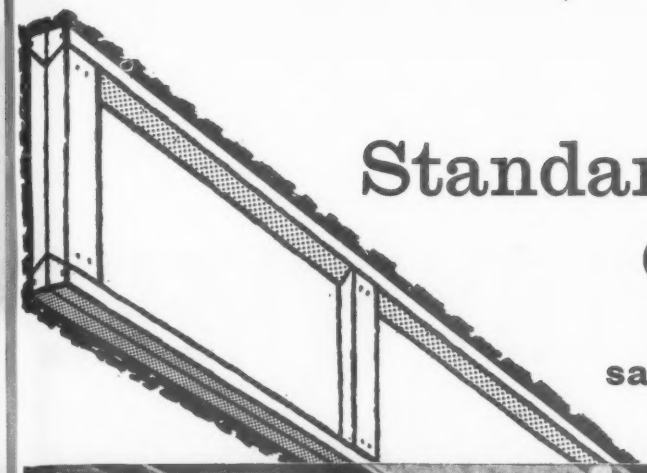
Cheltenham School of Architecture will be pleased to receive trade catalogues (three copies) at the Pittville Pump Room, Cheltenham, Glos.

The Council of the Ecclesiological Society has appointed as Hon. Secretary H. V. Molesworth Roberts (7, Mellows Road, Wallington, Surrey) of the RIBA Library.

TRADE

Research & Control Instruments Ltd. have become the sole distributors in the United Kingdom for the industrial products at present marketed by its associated company, Philips Electrical Ltd.

Philips Electrical Ltd. have appointed A. M. Gummer manager of the Special Lamps Department.



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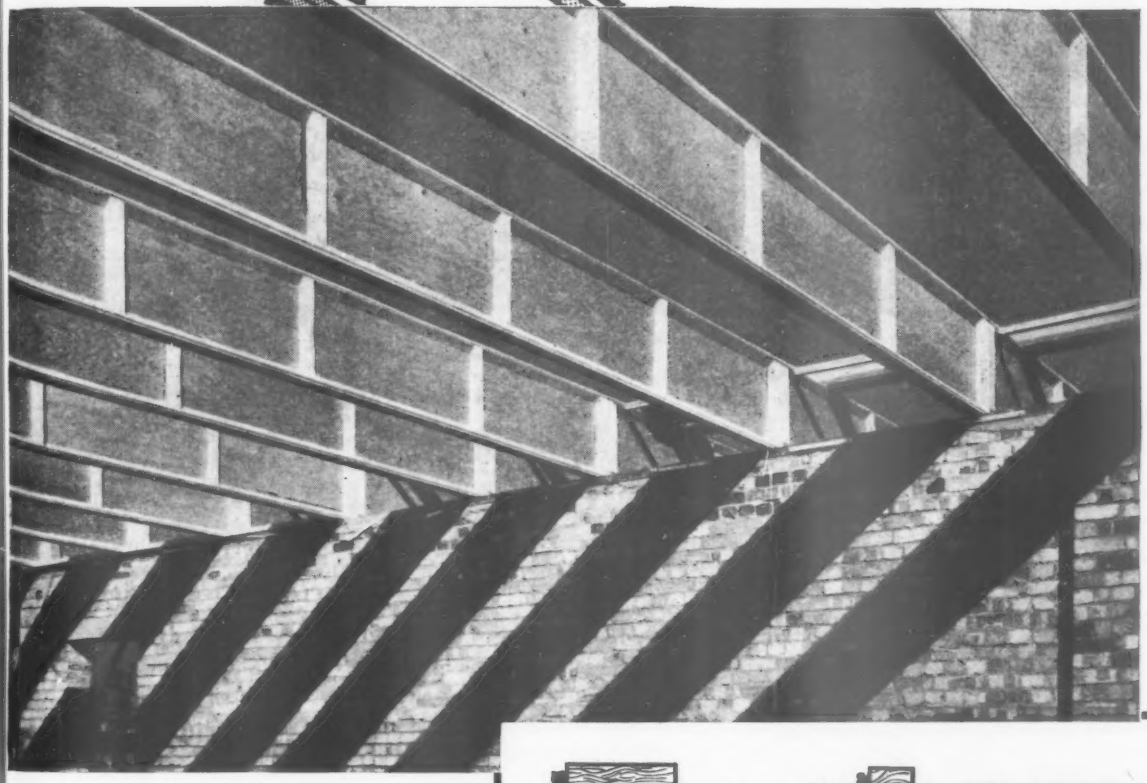

ARCHITECTS: *D. Plaskett Marshall, F.R.I.B.A., Chartered Architects, 59 Gordon Square, W.C.1.*

CONTRACTORS: *W. J. Cearns Limited Carpenters Road, Stratford, London, E.15.*

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'Rose Hall', Dunbartonshire, is the home o Mr. W. B. Gardner Henderson. However severe the weather, 'Rose Hall' is always beautifully warm—oil fired heating was chosen to make sure of that. Fuel for the oil fired system is supplied by Scottish Oils and Shell-Mex [Ltd., through their local Authorised Distributor. **ARCHITECT:** *Baron Bercott, B.Arch. Dip. C.D., A.R.I.B.A., A.M.T.P.I.*

Modern throughout— Rose Hall, Dunbartonshire has oil fired heating

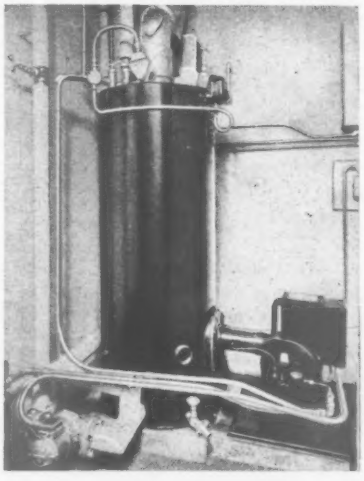
'ROSE HALL' gives its owner, Mr. W. B. Gardner Henderson, a glorious view of the Firth of Clyde. And plate glass windows have been fitted to ensure that there is no distortion of this magnificent view. The house owes its name to one of Mr. Gardner Henderson's main hobbies, the cultivation of roses. Modern in every possible way, 'Rose Hall' is kept warm and clean by the most modern of all heating systems. It has *oil fired* heating.

Oil firing in this house provides warmth efficiently and with no trouble at all. Room temperatures are controlled automatically. And the same boiler (see small illustration) supplies all the domestic hot water. During the summer the central heating can be turned off, still leaving the hot water supply in operation. With oil there is, of course, no stoking—instead the oil is gravity fed from storage tank to boiler.

Oil is a clean fuel. When it is supplied by a Shell-Mex and B.P. Authorised Distributor it is supplied promptly. Bought in bulk, oil is a surprisingly economical fuel. Running costs for oil fired automatic heating are normally very low in comparison with those of other fuels doing the same job.

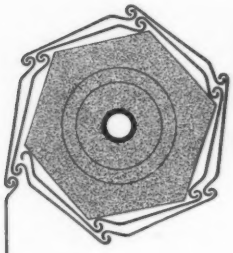
Oil firing is suitable for nearly all homes, regardless of size or age. It is ideal for full central heating, partial central heating, or for hot water supply only. There are two grades of fuel oil for domestic heating, Shell Domestic Fuel Oil which is correct for the 'pressure-jet' type boilers and BP Domesticol for the 'vaporising' type units.

If you are interested in the construction, design or modification of any house or public building and would like to know more about the costs and practical application of fuel oil, please write to Shell-Mex and B.P. Ltd., Sales Promotion Dept. AJ.26, Shell-Mex House, Strand, London, W.C.2.



As well as supplying heat for the house's complete central heating system, this boiler provides ample domestic hot water all year round.

SHELL BP



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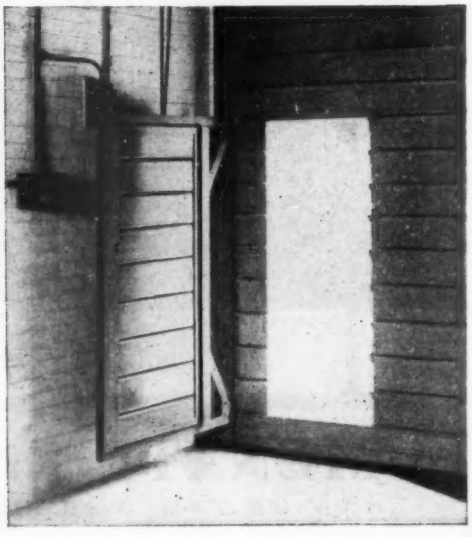

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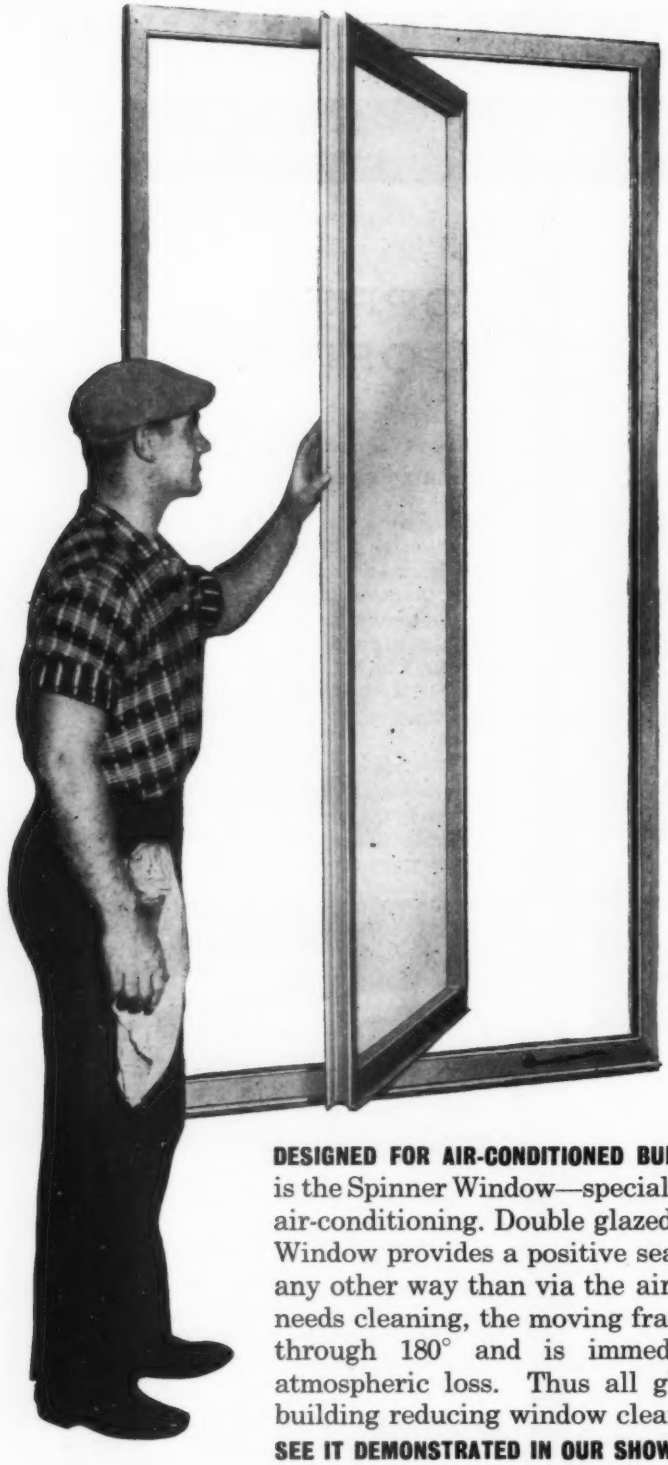

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"I have kept the record of the oil consumption as carefully as I can," he says. "We have certainly had all the heating and hot water we could wish for. I have calculated the cost of the oil at . . . £68.13s.1d. for the year to 25th March 1959. *These figures are far less than I had bargained for, and I regard them as very reasonable.*"

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Mr. Brennand's is a cavity-walled house, with double glazing to all windows and doors

Temperature is controlled at 70° in the two main living rooms

Clean, quiet and automatic—Mr. Brennand's 'Potterton' Oil-Fired Boiler at work

DESIGN OF THE HOUSE It is a cavity-walled house, the inside skin being of Thermalite blocks. First floor ceilings are insulated with fibre glass in the loft. There is double glazing to all windows and doors. A separate lounge, dining room, kitchen, larder and cloakroom occupy the ground floor; four bedrooms and a bathroom occupy the first floor. Area of the house is 1,962 sq. ft.
Architect: Robert Neil, A.R.I.B.A., Dawe, Carter & Partners.
Builder: S. & K. Darvill Ltd.

INSTALLING THE HEATING SYSTEM All 7 rooms—plus the hall landing and downstairs cloakroom—have radiators. A small radiator (10 sq. ft.) is also in the linen cupboard and a towel rail is in the bathroom. The radiators have a total heating surface of 318 sq. ft. Temperature is controlled at 70° in the two main living rooms, and 65° in the bedrooms. The boiler has an electric pump and a Venner Time Switch.
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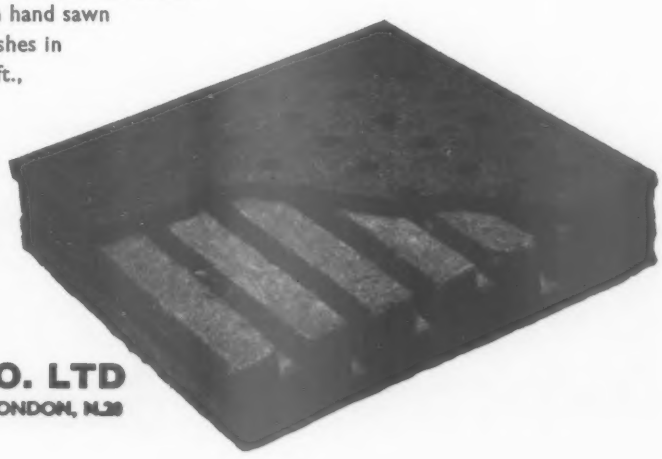

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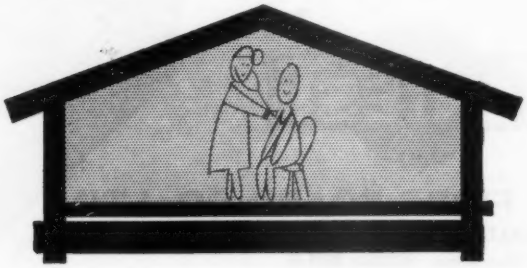

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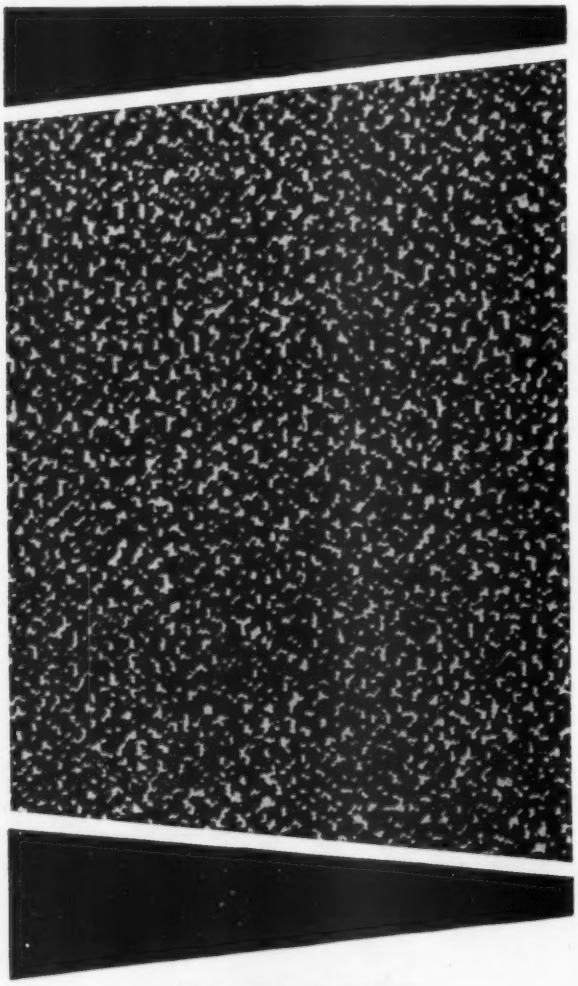

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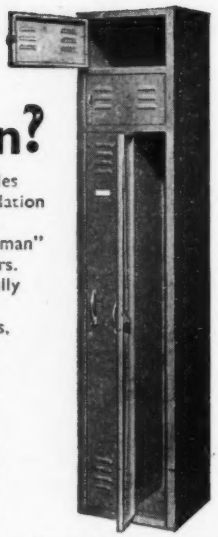

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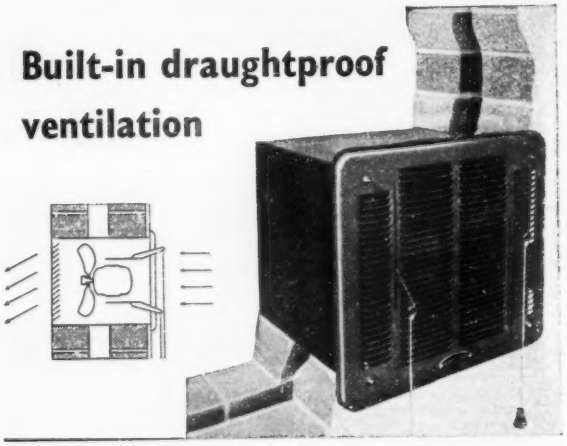

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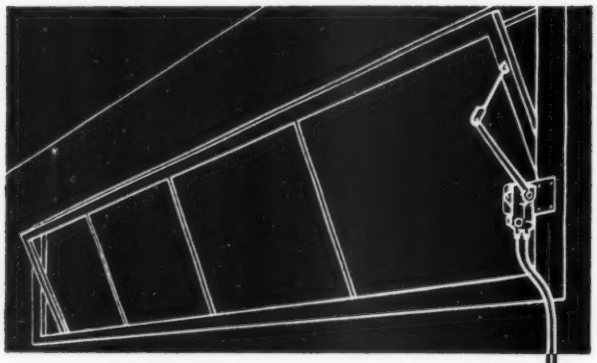

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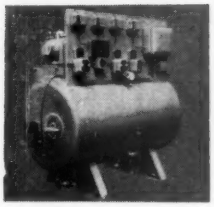

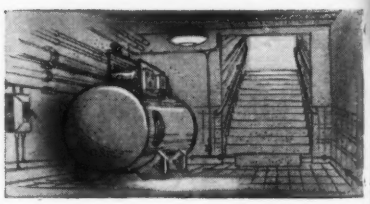

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Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

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In response to requests from a number of Overseas subscribers for air-mail delivery of Public and Official Appointment details and Other Appointments Vacant, we have been pleased to arrange that cuttings of all such classified advertisements appearing in the A.J., shall be despatched by air-mail on Wednesday of each week (one day prior to A.J. publication date). The cost of this special service to Overseas subscribers will be 5s. for four weeks (1s. 3d. for each additional week) and prepayment should be sent by subscribers wishing to take advantage of this service. The charge we are making represents only the actual cost of the postage involved.

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BUILDING SURVEYORS

Architect's Department, London County Council, has vacancies in Building Regulation Division and District Surveyors' Service for work in connection with applications under the London Building Acts and Byelaws. District Surveyors' offices are in the Metropolitan Boroughs and work involves negotiations with developers and supervision of works in progress.

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Town Clerk.

Public Offices,
Gentleman's Row,
Enfield, Middx. 6343

ARCHITECT'S DEPARTMENT
QUANTITIES DIVISION

Opportunity for interesting and rewarding careers in various branches of quantity surveying. Applications invited, particularly from newly qualified SURVEYORS, for following types of work:

Junior taking-off/working-up.

Approximate estimating and assisting in cost planning.

Pricing bills of quantities for estimates comparable with tenders.

Preparation and settlement of final accounts for major building contracts including interim valuations.

Measurement of minor works, schedule accounts, etc.

General technical duties and working-up.

Salaries up to £1,135. Application form and further particulars from Hubert Bennett, F.R.I.B.A., Architect, London County Council, County Hall. (2286) 6383

ARCHITECTURAL ASSISTANTS REQUIRED BY MINISTRY OF WORKS

For employment in London. Keen and enthusiastic Assistants of Intermediate R.I.B.A. standard are required for the design of interesting and varied types of buildings in all parts of the world. The salary range is from £550 (at age 21) to £900. Starting pay according to age and experience. 5-day week. 3½ weeks annual leave. Good prospects of promotion and permanency. Permanent posts are pensionable and the pension scheme is non-contributory. Apply, giving details of age, training and experience to: E. Bedford, C.B., C.V.O., A.R.I.B.A., Chief Architect, Ministry of Works, Abell House, Room 435, John Islip Street, London, S.W.1. 6456

COUNTY COUNCIL OF ESSEX

An opportunity exists for an ARCHITECTURAL ASSISTANT interested in administration and experienced in the supervision and practical organisation of building contracts, to share in the work of a liaison group of architects concerned with a large programme of work placed with private architects. Design experience an advantage in dealing with the varied County building programme but experience in contract administration essential.

Salary according to qualifications and experience but not exceeding £880.

Application form from H. Conolly, C.B.E., F.R.I.B.A., County Architect, County Hall, Chelmsford, returnable with copies of three testimonials by 27th November, 1959.

Canvassing disqualifies. 6752

CWMBRAN DEVELOPMENT CORPORATION
APPOINTMENT OF ASSISTANT ARCHITECTS APT.III/IV

Applications are invited for the above superannuable posts in my Department in the Salary Range £880—£1,220 with a commencing salary according to Qualifications and experience.

Candidates should be Associates of the R.I.B.A. with suitable office experience and should have had good experience in house design, construction and layout; experience in shop design would be an advantage.

Housing accommodation will be made available to the successful applicants if needed.

Applications stating age, experience, details of present and former employment (together with applicable salaries) and the names and addresses of two referees must reach the undersigned by first post on Monday, 23rd November, 1959.

J. C. P. WEST, A.R.I.B.A., M.T.P.I.,
Chief Architect.

Victoria Street,
Cwmbran, Mon. 6625

STEVENAGE DEVELOPMENT CORPORATION
CHIEF ARCHITECT'S DEPARTMENT

Applications are invited for appointment to posts as ASSISTANT ARCHITECTS on the following New Towns Salary Grades:—

N.T. A.P.T. IV—£1,065 to £1,220.

N.T. A.P.T. III—£880 to £1,065.

Starting salaries according to qualifications and experience.

Candidates should have experience of the design and construction of modern buildings and the successful candidates will be engaged on varied and interesting work relating to the building of a New Town which will include Shopping Centres, Housing and Multi-storey Flats, Office Blocks and Industrial Buildings.

Housing accommodation will be available in due course in an appropriate case.

Applications, giving full details of experience and names of two referees, should be sent to the: Chief Administrative Officer, Aston House, near Stevenage, Herts, by Friday, 20th November, 1959. 6547

LANCASHIRE COUNTY COUNCIL

Applications are invited from qualified applicants for the following permanent appointments:

QUANTITY SURVEYORS within the Salary Scale £1,220—£1,375.

Applicants should have had a wide experience in the preparation of Bills of Quantities for major projects of all types and be able to take charge from taking off to settlement of final accounts. Previous applicants should not re-apply.

ARCHITECTS within the Salary Scale £785—£1,070.

A large and varied programme offers scope for young Architects of ability and applicants should show keen design sense, a good grasp of building technology and above all enthusiasm.

STRUCTURAL ENGINEERS (*a*) within the Salary Scale £1,065—£1,220; (*b*) within the Salary Scale £785—£1,070.

(*a*) Applicants must be corporate members of the Institution of Structural Engineers and have had several years' experience in the design and detailing of reinforced concrete structures.

(*b*) Applicants must be corporate members of the Institution of Structural Engineers with some experience in reinforced concrete design and detailing.

Application forms from the County Architect, P.O. Box 26, County Hall, Preston, to be returned as soon as possible. 6600

BOROUGH OF BEDDINGTON AND WALLINGTON
ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment on A.P.T. Grade III (£880—£1,065), plus London weighting, starting salary depending on qualifications and experience. Preference will be given to applicants holding appropriate qualifications.

Housing accommodation will be made available to a suitable applicant, if required.

Applications on forms obtainable from the undersigned, to be returned not later than Saturday, 21st November, 1959.

A. B. BATEMAN,
Town Clerk.

Town Hall,
Wallington,
Surrey. 6544

BOROUGH OF ASHTON-UNDER-LYNE
APPOINTMENT OF
JUNIOR ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment in the office of the Borough Engineer & Surveyor at a salary within Grade I of the Administrative, Professional and Technical Division of the National Scales.

The position offers valuable experience in connection with housing development by direct labour and contract, central area re-development of houses, flats, maisonettes and shops, and the construction of various public buildings.

The provision of housing accommodation for the successful candidate will be considered if necessary.

Particulars of the appointment and application forms may be obtained by application to the Borough Engineer & Surveyor and should be returned to me by Wednesday the 25th November, 1959.

G. A. MALONE,
Town Clerk.

Town Hall,
Ashton-under-Lyne.
30th October, 1959. 6703

BINGLEY URBAN DISTRICT COUNCIL
ARCHITECTURAL ASSISTANT

Applications are invited for the permanent position of:—

ARCHITECTURAL ASSISTANT, A.P.T. II, £765—£880 per annum.

Preference will be given to candidates who have reached the Intermediate standard of the Royal Institute of British Architects and who have had training and experience in housing design and development, and general architectural work.

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

Applications stating age, qualifications, training and experience, and details of past and present appointments, accompanied by copies of two recent testimonials, or the names and addresses of two referees, should be forwarded, endorsed "Architectural Assistant" to the undersigned on or before Monday, 23rd November, 1959.

F. M. DUNWELL,
Clerk of the Council.

6754

COUNTY BOROUGH OF HALIFAX
BOROUGH ENGINEER'S DEPARTMENT

The Corporation is planning to carry out a number of large capital works on highways, sewerage, public baths, civic centre development and schools, etc., and applications are invited for the following appointments.

ENGINEERING

Senior Engineering Assistant, Grade A.P.T. IV, £1,065—£1,220.

Engineering Assistant, Special Grade, £785—£1,070.

ARCHITECTURAL (General and Housing)

Chief Architectural Assistant, Grade A.P.T. V, £1,220—£1,375.

Senior Architectural Assistant, Grade A.P.T. IV, £1,065—£1,220.

Architectural Assistant (two appointments), Special Grade, £785—£1,070.

Architectural Assistant (two appointments), A.P.T. I, £610—£765.

ARCHITECTURAL (Schools)

Architectural Assistant, Special Grade, £785—£1,070.

Architectural Assistant, A.P.T. I, £610—£765.

TOWN PLANNING

Senior Town Planning Assistant, Grade A.P.T. IV, £1,065—£1,220.

Town Planning Assistant (two appointments), Grade A.P.T. I, £610—£765.

BUILDING INSPECTING

Senior Building Inspector, Grade A.P.T. III, £880—£1,065.

Building Inspector (two appointments), Grade A.P.T. I, £610—£765.

ELECTRICAL ENGINEERING

Electrical Engineer, Special Grade, £785—£1,070.

CLERKS OF WORKS

Clerk of Works (Schools) Grade Misc. VI, £715—£775.

Applications stating age, education and training, qualifications, present and past appointments (with dates and salaries) and experience along with the names and addresses of two persons to whom reference may be made should be delivered to the undersigned not later than Wednesday, 2nd December, 1959.

RICHARD de Z. HALL,
Town Clerk.

Town Hall,
Halifax. 6753

COUNTY BOROUGH OF SOUTHAMPTON requires under N.J.C. conditions of service:

(*a*) ASSISTANT ARCHITECT, Special Scale, £785—£1,070. Applicants must have passed Parts I and II of the R.I.B.A. Final examination and have had experience in housing design and construction and estate layout, preferably with a municipal authority.

(*b*) ARCHITECTURAL ASSISTANT, A.P.T. Grade II, £765—£880. Applicants are required to have passed the Intermediate R.I.B.A. examination or its equivalent at one of the recognised schools of architecture, and preferably have had experience in local government housing.

Apply on application forms obtainable from the Borough Engineer and Surveyor, Civic Centre, Southampton, by 1st December, 1959. 6749

PORTSMOUTH COLLEGE OF ART

Principal: W. J. L. GARDON, A.R.C.A.

Applications are invited for the post of ASSISTANT LECTURER and STUDIO MASTER in the School of Architecture. Preference will be given to applicants who have been trained in a recognised School of Architecture, are Associates of the Royal Institute of British Architects and have at least three years post-academic practical experience.

The salary will be in accordance with the Burnham Technical Scale for Assistants, Grade B. £700 × £27 10s.—£1,150 (men) plus allowances at both minimum and maximum of £90 for degree (or professional equivalent) and £30—£120 for training. In determining the commencing rate, increments of £27 10s. will be allowed for previous teaching or professional experience.

Further particulars and forms of application, which should be returned as soon as possible, may be obtained from the Registrar, College of Art, Guildhall Square, Portsmouth. 6750

BOROUGH OF WIMBLEDON

ARCHITECTURAL ASSISTANT, Grade A.P.T. II, £765 to £880, plus London weighting. Form of application from Borough Engineer & Surveyor, Town Hall, Wimbledon, S.W.19. Returnable by Friday, 27th November, 1959. Canvassing disqualifies. 6731

CITY OF PORTSMOUTH
CITY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments:—

(*a*) ASSISTANT ARCHITECTS, Special Grade (£785—£1,070), commencing salary according to experience. Work in the Department includes New Civic Offices, Technical College, Schools, Swimming Baths, Multi-storey Flats, Old People's Homes, etc.

(*b*) ARCHITECTURAL ASSISTANTS, A.P.T. Grade II (£765—£880), commencing salary according to experience.

The Council will consider the provision of housing accommodation at an economic rent in suitable cases.

Applicants for (*a*) must have passed Parts I and II of the R.I.B.A. Final Examination, and for (*b*) must have passed the Intermediate examination of the R.I.B.A.

Applications, with full details and names of two referees, must be delivered to the City Architect, 1 Western Parade, Portsmouth, not later than Friday, 27th November, 1959.

Canvassing will disqualify.

V. BLANCHARD,
Town Clerk.
6751

BOROUGH OF COLNE
ARCHITECTURAL ASSISTANT

Applications are invited for this whole-time appointment in the Borough Engineer and Surveyor's Department. Salary within A.P.T. III (£880—£1,065); commencing according to qualifications and experience. Medical examination. Applicants must be experienced in preparation of plans, specifications and quantities, with particular reference to housing development, and have had a thorough training in design and building construction. Previous municipal experience not essential. Preference to holders of recognised examination qualifications. Applications endorsed "Architectural Assistant," stating age, qualifications, experience and names of two referees, to be delivered to me by 23rd November. Housing accommodation will be provided, if desired. Canvassing disqualifies.

T. RUTTER,
Town Clerk.
6725

CANNOCK URBAN DISTRICT COUNCIL
APPOINTMENT OF QUALIFIED ARCHITECT

Applications are invited for the appointment of a qualified Architect in the Architectural Section of the Architect's Department at a salary within the range £785 per annum to £1,070 per annum.

Further particulars may be obtained from the undersigned, to whom applications should be submitted by Monday, 30th November, 1959.

Consideration will be given to the allocation of suitable housing accommodation to the successful applicant, if married.

H. C. ALLEN,
Clerk of the Council.

Council House,
The Green,
Cannock.
6727

COUNTY BOROUGH OF SOUTHAMPTON
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the permanent position of ASSISTANT ARCHITECT, Special Grade (£785—£1,070). Applicants should be A.R.I.B.A. and should state housing needs and commencing salary required. Experience in School major projects an advantage. Application forms from the Borough Architect, Civic Centre, Southampton, returnable by 28th November, 1959.
6726

LONDON COUNTY COUNCIL

ARCHITECTS (up to £1,135) required for Housing, Schools and General Divisions of Architect's Department. Full and varied programme of new work including schools, multi-storey flats and town development. Starting salaries according to qualifications and experience.

Particulars and application form from Hubert Bennett, F.R.I.B.A., Architect to Council, EK/77/59, County Hall, S.E.1. (1879.) 5551

EAST RIDING OF YORKSHIRE COUNTY COUNCIL

Applications are invited for the following permanent appointments on the staff of the County Architect.

ASSISTANT ARCHITECTS. Special Scale salary, £785 to £1,070 per annum.

Applicants are required to have passed Parts I and II of the R.I.B.A. Final or Special Final examination or their equivalent at one of the recognised schools of architecture.

ARCHITECTURAL ASSISTANTS. Grade A.P.T. I, £610 to £765 per annum.

Applicants are required to have passed the Intermediate R.I.B.A. examination.

Particulars of qualifications, age, experience, past and present appointments with salaries, together with the names of three referees should be sent to the County Architect, County Hall, Beverley, not later than Saturday, 21st November, 1959.

Assistance towards removal, lodging and travelling expenses may be granted.

THOMAS STEPHENSON,
Clerk of the Council.
6671

COUNTY BOROUGH OF SWANSEA
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the post of SENIOR ASSISTANT ARCHITECT, salary grade A.P.T. IV (£1,065 to £1,220). Applicants must be Associates of the R.I.B.A. and must have had considerable experience in the design and supervision of the erection of public buildings.

Candidates must be under 45 years of age unless in Local Government Service.

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

Forms of application may be obtained from the Borough Architect, The Guildhall, Swansea, to whom they must be returned not later than Thursday, November 26th, 1959.

Canvassing disqualifies.

T. B. BOWEN,
Town Clerk.

The Guildhall,
Swansea.
30th October, 1959. 6656

BOROUGH OF SLOUGH
AMENDED ADVERTISEMENT

TWO ASSISTANT ARCHITECTS required for housing, redevelopment, factories, and general building works. Applicants should have good experience in design and supervision and must be A.R.I.B.A. Knowledge of multi-storey flat construction an advantage. Salary: Grade A.P.T. IV (£1,065—£1,220 per annum). Housing accommodation for married candidates.

Application giving age, qualifications and experience, and names and addresses of 2 referees to Borough Engineer, Town Hall, Slough, Bucks, by Monday, 23rd November, 1959. 6655

CUMBERNAULD NEW TOWN

There are vacancies for the undernoted staff in the Office of L. Hugh Wilson, Chief Architect and Planning Officer, for a variety of interesting projects in this hilltop Town:—

ONE ASSISTANT ARCHITECT, Grade B (Ref. A.2), salary scale £1,220—£1,390.

ONE ASSISTANT ARCHITECT, Grade C (Ref. A.3), salary scale £880—£1,065.

ONE ARCHITECTURAL ASSISTANT, Grade D (Ref. A.4), salary scale £610—£880.

ONE ASSISTANT PLANNING OFFICER, Grade C (Ref. P.3), salary scale £880—£1,065.

A.R.I.B.A. required for all posts except Architectural Assistant Grade D, for which Intermediate R.I.B.A. necessary. A.M.T.P.I. required additionally for Planning post.

Starting salary according to experience. Assistance with housing in appropriate cases. Five-day week.

Write quoting reference number of post to the General Manager, Cumbernauld House, Cumbernauld, Glasgow, for application form to be returned by Monday, 30th November, 1959. 6648

APPOINTMENT OF TEMPORARY
ASSISTANT ARCHITECT
Grade A.P.T. IV

An Architect (Degree, Diploma or A.R.I.B.A.) is required to join a small, but enthusiastic, young group in the Architect's Department, working on the new Civic Centre at Ebbw Vale. The project includes Municipal Offices with Council Chamber and a covered Swimming Pool for immediate construction, with a large Public Hall to follow. Other interesting Schemes include a small Public Hall, Community Centre and an extensive Housing Programme.

The salary will be in accordance with Grade A.P.T. IV, the appointment being subject to one month's notice on either side, and the passing of a medical examination.

Ebbw Vale is in close proximity to the beautiful Usk Valley and Beacon National Park.

The Council will provide Housing Accommodation if required.

Forms of application may be obtained from the undersigned, and applications are to reach him not later than 30th November, 1959.

HOWARD J. WILLIAMS,
Clerk of the Council.

Ebbw Vale Urban District Council,
Council Offices,
Ebbw Vale,
Mon. 6653

COUNTY BOROUGH OF STOCKPORT

(1) ARCHITECTS required, salary A.P.T. IV (£1,065—£1,220). Candidates must be members of R.I.B.A.

(2) ASSISTANT ARCHITECTS required, salary Special Grade (£785—£1,070) or A.P.T. III (£880—£1,065) depending on qualifications.

Commencing salaries according to age and experience. Large programme of modern buildings—design ability more important than local government experience, which is not essential. The Corporation have a scheme for advancing, in approved cases, loans for house purchase up to 100 per cent. Full particulars (age, experience, two referees) to Borough Architect, Town Hall, Stockport, by 26th November, 1959, stating if related to any member/senior officer of Council. Post pensionable, subject to medical examination. Canvassing disqualifies. 6657

COUNTY BOROUGH OF BURTON UPON TRENT
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited from qualified Quantity Surveyors for the appointment of ASSISTANT QUANTITY SURVEYOR in Special Grade (£785 to £1,070) at a commencing salary in accordance with qualifications and experience. Appointment subject to the provisions of the Local Government Superannuation Acts, 1937-1953; to the passing of a medical examination, and to determination by one month's written notice on either side.

Housing accommodation, at a rent, will be provided for the successful candidate if required.

Applications giving age, qualifications, full details of experience and names of two referees, to the Borough Architect, Town Hall, Burton upon Trent, by 24th November, 1959.

H. T. MEADES,
Town Clerk.

Town Hall,
Burton upon Trent.
October, 1959. 6658

SCOTTISH SPECIAL HOUSING ASSOCIATION LIMITED, invite applications for the superannuable post of ARCHITECT, Grade II to assist Regional Architect in preparation of large scale housing layouts and site supervision. Salary scale £780—£1,135 per annum with placing for age on entry up to £990 at age 31. Application forms with full particulars from the Secretary, 19 Palmerston Place, Edinburgh, 12. 6647

HARLOW DEVELOPMENT CORPORATION

ASSISTANT ARCHITECTS. Applications are invited from candidates interested in taking part in New Town work. Candidates should have passed R.I.B.A. Intermediate or equivalent. Salary within the range £765—£850 p.a. Housing provided in suitable cases. Applications within fourteen days to General Manager, Terlings, Harlow, Essex. 6646

METROPOLITAN BOROUGH OF BATTERSEA

Applications are invited for the following appointments to the permanent staff:—

(*a*) ASSISTANT ARCHITECT, A.P.T. Grade IV, £1,065—£1,220 per annum.

(*b*) ARCHITECTURAL ASSISTANT, A.P.T. Grade I, £610—£765 per annum.

(*c*) OFFICE JUNIOR, Architects' Section, General Division, £240—£730 per annum (subject to conditions).

(*d*) ASSISTANT BUILDING SURVEYOR, A.P.T. Grade III, £880—£1,065 per annum.

London weighting £10—£30 per annum, according to age, also payable.

For appointment (*a*) applicants should be Associates of the R.I.B.A. and have had several years' thorough office experience.

For appointment (*d*) preference will be given to Associate Members of the Royal Institution of Chartered Surveyors (Building Sub-Division) and the successful candidate will be engaged on the improvement and conversion of house property.

Previous Local Government experience is not essential. The commencing salary will be according to qualifications and experience.

Further particulars and application forms obtainable from the Borough Engineer and Surveyor, Town Hall, S.W.11. Closing date: 18th November, 1959. 6662

BOROUGH OF HACKNEY
ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment in salary grade A.P.T. II (£765—£880 p.a.), London weighting allowance £30 p.a. at age 26. Commencing salary according to training, qualifications and experience.

Candidates should have passed the Intermediate examination of the R.I.B.A. or its equivalent.

Apply Town Clerk, Town Hall, Hackney, E.8, for application form returnable by 9 a.m., 30th November, 1959. 6665

BOROUGH OF REIGATE

ARCHITECTURAL ASSISTANT required on Grade A.P.T. I (£610 to £765 p.a.). Commencing salary according to qualifications and experience. Intermediate examination R.I.B.A. desirable. Housing accommodation provided, if necessary, for married man. Application forms obtainable from Borough Surveyor, Town Hall, Reigate, to be returned by 20th November, 1959.

HEBER DAVIES.
Town Clerk.

Town Hall,
Reigate.
2nd November, 1959. 6673

BOROUGH OF SOUTHGATE
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT
ASSISTANT ARCHITECTS
ARCHITECTURAL ASSISTANTS

Applications are invited for the following appointments in the Department of the Borough Engineer and Surveyor:—

(*a*) A.P.T., Special Grade, £785—£1,070 plus London weighting.

(*b*) A.P.T. Grade I, £610—£765 plus London weighting.

The posts are permanent and superannuated and the starting salary will be fixed in accordance with qualifications and experience. In the case of appointment (*a*) applicants should be Associates of the Royal Institute of British Architects.

Forms of application may be obtained from the Borough Engineer and Surveyor and should be returned to the undersigned not later than 12 noon on Wednesday, 25th November, 1959.

Canvassing, directly or indirectly, will be a disqualification.

GORDON H. TAYLOR.
Town Clerk.

Town Hall,
Palmers Green,
London, N.13.
November, 1959. 6643

BOROUGH OF BEXLEY
ARCHITECTURAL ASSISTANTS

Applications are invited for two appointments in the Borough Engineer & Surveyor's Department. The salary for each of these posts is within Grade A.P.T. II (£765—£880 per annum) plus London weighting. Preference will be given to suitably qualified candidates with experience of housing and school projects.

Form of application and conditions of appointment are obtainable from the Borough Engineer, West Lodge, Broadway, Bexleyheath, Kent, to whom completed applications must be returned by Monday, 30th November, 1959.

The Council may be prepared to assist in the provision of housing accommodation. Canvassing will disqualify.

ARTHUR GOLDFINCH.
Town Clerk.
6713

THE SOUTH WALES ELECTRICITY BOARD
SENIOR ARCHITECTURAL DRAUGHTSMAN

Our Architectural Section does a large, varied and interesting range of work.

It is situated in a locality which is rural, yet only five miles from the City of Cardiff.

To help maintain our standards in servicing over 600,000 consumers, we need a Senior Architectural Draughtsman who has obtained or is studying for membership of the R.I.B.A.

The salary will be £790—£890 and applications to the Secretary at St. Mellons, Cardiff, will receive careful and prompt consideration.

(Closing date for application, Saturday, 5th December, 1959. Envelopes should be marked "Senior Architectural Draughtsman—46/59").
6708

BERKSHIRE COUNTY COUNCIL. Applications invited for appointment of PLANNING ASSISTANT. Salary on A.P.T. Grades I (£610—£765 p.a.) or II (£765—£880 p.a.) according to qualification. Duties primarily to assist in the preparation of the survey and development plan for the County. Application forms obtainable on receipt of stamped addressed envelope from County Planning Officer, 7 Abbot's Walk, Reading, to whom completed applications must be delivered not later than 10 days from the date of this advertisement. 6742

BOROUGH OF BEDFORD
APPOINTMENT OF ASSISTANT ARCHITECT
A.P.T. Grade III

Applications are invited for the above position in the Architectural Section of the Borough Engineer and Surveyor's Department.

Applicants must have passed the Intermediate Examination of the R.I.B.A. and the salary will be in accordance with A.P.T. Grade III (£880—£1,065) commencing at a point commensurate with experience and qualifications.

Bedford is a rapidly expanding Borough and the Department is at present concerned with a large housing programme and redevelopment of the Central Area.

The Council is prepared to assist in the provision of housing and contribute towards the cost of removal expenses.

The appointment is permanent, superannuable and subject to one month's notice on either side and the successful applicant will have to pass a medical examination.

Forms of application and particulars of the appointment may be obtained from the undersigned and should be returned not later than 24th November, 1959.

F. W. DAWKES,
Borough Engineer and Surveyor.

Newnham House,
Horne Lane,
Bedford. 6702

CITY OF CHICHESTER
APPOINTMENT OF GENERAL ASSISTANT

Applications are invited for the above appointment at a salary in accordance with A.P.T. Grade II (£765—£880). Applicants should have passed the Intermediate Examination of the R.I.C.S. or the R.I.B.A.

The person appointed must have a good knowledge of building construction, experience in design and be fully competent to arrange and supervise building works.

The appointment will be in accordance with the National Conditions of Service and terminable by one month's notice on either side.

Housing accommodation will be provided, if required.

Applications stating age, education, qualifications, training and experience, present and previous appointments, together with the names of two referees, should reach the City Surveyor, Greyfriars, North Street, Chichester, by 19th November, 1959.

ERIC BANKS,
Town Clerk.
6701

CAMBORNE-REDRUTH URBAN DISTRICT COUNCIL
APPOINTMENT OF SENIOR ASSISTANT ARCHITECT/SURVEYOR (A.P.T. IV)

Applications are invited for the above appointment in the Engineer and Surveyor's Department at a salary in accordance with Grade A.P.T. IV (£1,065—£1,220).

Applicants must be Registered Architects or Chartered Surveyors and have had considerable experience in housing and general building works. The duties attached to the appointment will include the preparation of drawings, specifications and bills of quantities, and general supervision of works carried out by contract and by direct labour.

The appointment is subject to the provisions of the Local Government Superannuation Acts, 1937-53, to the National Joint Council's Scheme of Conditions of Service, and is terminable upon the expiration of one month's notice in writing by either side.

Consideration will be given to the provision of housing accommodation, if required.

Applications, on forms to be obtained from the Engineer and Surveyor, should be received by the undersigned not later than the 26th November, 1959.

The successful applicant will be required to pass a medical examination to be carried out by this Council's Medical Officer of Health.

Canvassing, either directly or indirectly, will be a disqualification, and applicants must disclose their relationship to any member or senior officer of the Council.

S. C. WILSON.
Clerk of the Council.

Council Offices,
CAMBORNE,
Cornwall.
5th November, 1959. 6740

DENBIGHSHIRE COUNTY COUNCIL

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT, A.P.T. Grade II (salary £765—£880) in the County Architect's Department, Wrexham.

Further details with form of application may be obtained from me. Completed forms to be returned by 28th November, 1959.

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

County Offices,
Ruthin.
Denbighshire. 6667

BENBIGHSHIRE COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT

Applications are invited from suitably qualified persons for the appointment of ARCHITECT, Special Scale (£785—£1,070 per annum) to the Headquarters Staff of the County Planning Department at Ruthin.

Application forms and further particulars obtainable from me. Completed applications, giving the names of two referees, must be returned not later than 27th November, 1959.

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

County Offices,
Ruthin,
Denbighshire. 6668

ADMINISTRATIVE COUNTY OF LEICESTER

(*a*) SENIOR ASSISTANT ARCHITECT
£1,065—£1,220.

(*b*) ASSISTANT ARCHITECT
£785—£1,070.

(*c*) ASSISTANT QUANTITY SURVEYOR
£765—£880 or £785—£1,070.

According to qualifications.

Candidates for (*a*) must be Chartered members of the R.I.B.A., have had considerable experience and be capable of taking charge of contracts from inception to completion; for (*b*) must have passed Parts I and II of the R.I.B.A. final and be capable of executing working drawings; for (*c*) should have had experience in the preparation of specifications, bills of quantities and the settlement of final accounts. Intermediate or Final R.I.C.S. preferred.

Lodging allowance and removal expenses may be paid to a married man. Apply on form obtainable from the County Architect, 123 London Road, Leicester. 6728

BUILDING SURVEYOR

Architect's Department of the London County Council require building surveyor for internal maintenance and some minor improvement and alteration works at voluntary schools. Work involves surveys, estimates, supervision of works and settlement of accounts. Salary up to £895.

Application form, returnable by 21st November, 1959, from Hubert Bennett, F.R.I.B.A., Architect to the Council, the County Hall, S.E.1, quoting ref. AT/EK/108/59. (2415.) 6710

CORPORATION OF LONDON

ARCHITECTURAL ASSISTANT required in Architectural and Building Section of City Surveyor's Department. Good architectural knowledge necessary, with capability to prepare working drawings in all categories. Applicants should have passed Intermediate Examination R.I.B.A. The work is interesting and covers design and alteration to a wide variety of buildings. Salary up to £1,025 per annum, dependent upon experience and qualifications.

Applications in writing giving full particulars of age, experience and qualifications to City Surveyor, Guildhall, London, E.C.2, within 14 days. 6695

CITY OF PETERBOROUGH

Applications are invited for two appointments of ARCHITECTURAL ASSISTANT in Grade I A.P.T. (£610/£30/£765). Housing accommodation available. National Scheme of Conditions of Service. Application forms from City Engineer, Town Hall, Peterborough. Closing date 21st November, 1959.

C. PETER CLARKE.
Town Clerk.

Town Hall,
Peterborough.
November, 1959. 6693

WARWICKSHIRE COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments:—

1. ASSISTANT ARCHITECTS, Special Grade (£785—£1,070).

Applicants must have passed Parts I and II of the R.I.B.A. Final or special examinations or their equivalent at one of the recognised schools of architecture. The successful applicants will work in teams on large projects but opportunity will be given to men with enthusiasm and ability to design and carry out smaller projects under a Group Architect.

2. ASSISTANT HEATING ENGINEERS, Grade A.P.T. III (£880—£1,065).

Applicants should have had some years in the design of heating and water supplies.

The commencing salary can be within the grade according to ability and experience. Application forms and other conditions applicable to the appointments can be obtained from E. Davies, A.R.I.B.A., A.M.T.P.I., Deputy County Architect, Shire Hall, Warwick.

L. EDGAR STEPHENS,
Clerk of the Council.

Shire Hall,
Warwick. 6692

HAMPSHIRE COUNTY COUNCIL

PLANNING ASSISTANT required for pensionable post in Area Planning Office at Fareham, A.P.T. I (£610—£765). Commencing salary according to qualifications and experience.

Candidates should preferably have passed the Intermediate examination of the Town Planning Institute or of a related professional body and have had experience in the Planning Department of a Local Planning Authority. Assistance with removal and other expenses in approved cases. Applications, stating age, education, qualifications and experience, together with a copy of one testimonial and the names of two referees, should reach the Clerk of the County Council, The Castle, Winchester, not later than 25th November. 6680

CAMBRIDGESHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Appointment of (*a*) SENIOR ASSISTANT ARCHITECT, Grade A.P.T. IV (£1,065—£1,220). (*b*) ASSISTANT ARCHITECT, Special Grade (£785—£1,070).

(*a*) Applicants should be Associates of the Royal Institute of British Architects and have had good experience in the design and construction of Schools and other County Buildings, and should be capable of supervising assistant staff as necessary.

(*b*) Applicants should be Associates of the Royal Institute of British Architects.

In each case the commencing salary will be in accordance with experience.

The appointments are subject to the Local Government Superannuation Acts 1937 to 1953, the National Scheme of Conditions of Service, a satisfactory Medical Examination and terminable at one month's notice on either side.

Applications, stating age, present salary, present and previous appointments, details of training and experience, together with the names and addresses of two referees, should be submitted to the undersigned, not later than 25th November, 1959.

CHARLES PHYTHIAN,
Clerk of the County Council.

Shire Hall,
Cambridge.
2nd November, 1959. 6676

Architectural Appointments Vacant

4 lines or under, 9s. 6d.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. extra

EXPERIENCED ARCHITECTURAL ASSISTANTS required, one Qualified and one of at least Intermediate standard, for Branch Office, Birmingham, engaged on a varied and interesting programme of Commercial projects. The positions are pensionable and a five-day week is in operation. Applications, giving full particulars, to G. S. Hay, F.R.I.B.A., Chief Architect, Co-operative Wholesale Society Ltd., 1, Balloon Street, Manchester, 4. 4307

LLEWELLYN SMITH AND WATERS require Senior and Junior ASSISTANTS for a widely varied programme of work. Salary according to experience. Please write stating qualifications, experience and age to 103, Old Brompton Road, S.W.7. 4622

W. H. WATKINS, GRAY & PARTNERS require ASSISTANTS of Intermediate standard for interesting hospital work, salaries according to experience and capabilities, pension scheme in operation. Write or 'phone: 57, Catherine Place, S.W.1—VICtoria 7761. 5746

ARCHITECTURAL ASSISTANTS, Intermediate to Final standard, with some office experience, required for interesting work in West End Office. Plenty of scope for responsibility and experience. Telephone for appointment to MAYfair 9554, or write with particulars to Box 6123.

RONALD WARD & PARTNERS have immediate vacancies for ASSISTANT ARCHITECTS with initiative and some experience, for interesting, commercial, industrial and civic projects. Salaries commensurate with ability. Apply, 29, Chesham Place, S.W.1. BELgravia 3361. 5639

ASSISTANTS required for busy Architect's City office; Laboratory and Industrial projects. Intermediate standard or above. Apply to: Secretary, Fairtlough and Morris, Temple Chambers, Temple Avenue, E.C.4. FLE. 6295. 5932

ARCHITECT'S ASSISTANTS required for busy office: varied practice including Industrial, Housing, etc. Write, stating experience and salary required, to Francis W. Keyworth, L.R.I.B.A., 31, Friar Lane, Leicester. 5884

ARCHITECTURAL ASSISTANT at Final standard required by Buckinghamshire office. Interesting and varied work with scope for initiative and responsibility. State age, experience and salary required to Box 5871.

EDINBURGH: Qualified ASSISTANT wanted immediately for small expanding practice. Please write giving details of age experience and salary required to Law and Dunbar-Nasmith, 54, Frederick Street, Edinburgh. 6609

WEST END Architects require ASSISTANT with good knowledge of building construction and ability to prepare working drawings and details under supervision. Box 6033.

BOOTH, LEDEBOER AND PINCKHEARD, 17-20, Mason's Yard, Duke Street, St. James's, S.W.1, require ASSISTANTS in salary range £750—£1,000 p.a. Tel. TRA. 1866. 5957

COVELL & MATTHEWS require capable and enthusiastic Senior and Junior ASSISTANTS, to work on large central area redevelopment projects. Salary according to experience. Five-day week. Ring REGent 2291. 6027

ERIC FIRMIN & PARTNERS require Senior ASSISTANTS for work on industrial and commercial projects. Five-day week. Luncheon Vouchers. Salary by arrangement. Please apply 5 Holborn Circus, E.C.1. CITy 8811. 6684

ARCHITECTS and ASSISTANTS required. Minimum Intermediate standard. Very large programme commercial, industrial and residential work. London Office. Good salaries and bonus to right men. Five-day week. Box 6117.

SENIOR ARCHITECTURAL ASSISTANT capable of making site surveys, preparing sketch plans, working drawings and specifications, and supervising work in progress. Applications stating age, experience, qualifications and salary required to R. E. Akerman, F.R.I.B.A., Chief Architect, United Dairies Ltd., 31 St. Petersburgh Place, W.2. 5709

QUALIFIED ASSISTANT ARCHITECTS required, minimum three years' office experience, preferably in London. Salary according to ability and experience. Theo. H. Birks, 38, Portland Place, W.1. LAN 7236. 5965

INTERMEDIATE standard ASSISTANTS required, minimum two years' office experience. Salary according to ability. Theo. H. Birks, 38, Portland Place, W.1. LAN 7236. 5966

ARCHITECTS' ASSISTANTS required, Senior and Junior, qualified or otherwise, with practical experience, general private practice. Apply W. B. Starr, Clifford & Carman, 204, Derby Road, Nottingham. Tel. 43192. 6199

ASSISTANTS of Intermediate or equivalent standard, required in busy city office. Interesting and varied work, offering scope for initiative and responsibility. Commencing salary up to £800 per annum, according to qualifications. Write Stewart & Hendry, F.F.R.I.B.A., A.M.T.P.I. 90 Fenchurch Street, E.C.3, or telephone ROYal 6216/7. 6202

SEELY AND PAGET, 41 Cloth Fair, E.C.1, need another responsible ASSISTANT to help with training colleges, churches and other varied work. Near Final standard preferred, with some office experience; salary by arrangement. Write or ring MET 8511. 6397

W. H. WATKINS, GRAY & PARTNERS require ASSISTANTS of Intermediate and Final standard, pension scheme and luncheon vouchers, salary range £700 to £1,000. Apply 57, Catherine Place, London, S.W.1. 6399

W. H. WATKINS, GRAY & PARTNERS require an ASSISTANT for their Oxford Office, pension scheme and luncheon vouchers, salary approximately £800. Apply 57, Catherine Place, London, S.W.1. 6400

SENIOR AND JUNIOR ARCHITECTURAL ASSISTANTS and DRAUGHTSMEN required for multiple company's Architect's Department. Please reply stating age, experience and salary required to Box 6369.

TAYLOR YOUNG & PARTNERS, MANCHESTER, require ASSISTANTS for work on schools, hospitals and other projects. Apply in writing to 195, Oxford Road, Manchester, 13. 6468

PATRICK GWYNNE requires an ASSISTANT to work personally with him on private houses and interior design. Must be thoroughly experienced and capable of first class detail drawing. The Homewood, Esher, Surrey. 6406

BUILDING Contractors engaged upon private development of housing estates require an ASSISTANT to WORKS DIRECTOR. Salary £1,500 per annum. Only men fully experienced in office administration and site supervision need apply, as the applicant will, after satisfactory trial period, be invited to join the Board of Directors. Write giving fullest details to Box 6409.

EXCELLENT opportunity for Senior and Intermediate ASSISTANTS in a permanent and progressive appointment with Midland firm of Architects who are working on large projects of an advanced type of design, including comprehensive development schemes, multi-storey office buildings, multi-storey flats, shopping centres, schools, banks, public houses and industrial projects. Apply Box 6415.

JOHN H. D. MADIN, Chartered Architect, 83/85 Hagley Road, Birmingham 16, has further vacancies for Senior and Intermediate ASSISTANTS. Suitable Senior Assistants would be required to take full responsibility for large scale interesting projects. 6416

ARCHITECTURAL ASSISTANT required for Educational, Ecclesiastical and Industrial work. Good draughtsmanship essential. Please state experience, age and salary required to John A. Strubbe, F.R.I.B.A., Beaufort Studio, Ham Street, Ham, Surrey. 6563

TREHEARNE & NORMAN, PRESTON & PARTNERS, have vacancies for ARCHITECTS and ASSISTANTS with imagination and designing ability to assist with important new developments in the London area. Apply in confidence to 83, Kingsway, London, W.C.2. (HOL. 4071.) 6429

SENIOR ASSISTANT required of Intermediate/Final standard in Croydon office. Varied practice of interesting work. Good draughtsman and sound knowledge of construction essential, together with ability to manage jobs. Five-day week. Salary according to experience. Apply, giving all particulars, to George Lowe & Partner, 4 High Street, Croydon 3608/9. 6444

ARCHITECTURAL ASSISTANT required, to deal mainly with Factory Construction. Applicants should be of Intermediate standard, with at least four years' Office experience. Salary A.P.T. II, within the range £765—£850 per annum. Applications to D. Maxtone Craig, A.R.I.B.A., A.R.I.A.S., Chief Architect, The Wales and Monmouthshire Industrial Estates Limited, Treforest Industrial Estate, Pontypridd. 6432

ADAMS, HOLDEN & PEARSON require SENIOR ARCHITECTURAL ASSISTANTS and ASSISTANTS not less than R.I.B.A. Intermediate Standard. The work includes Hospitals, Commercial Buildings and Laboratories. Apply, giving age, qualifications, experience and salary required to 98, Gordon Square, W.C.1. 6519

COLLINS, MELVIN, WARD & PARTNERS are looking for staff to work on the design of hospital, university and office projects. Age and experience are less important than enthusiasm and interest in architecture. Five day week, quarterly bonuses, pension scheme. Ring Welbeck 9991 for appointment. 6496

RAMSEY, MURRAY, WHITE & WARD require qualified ASSISTANTS. Salary according to experience. Apply to the Secretary, 32, Wigmore Street, W.1. Telephone No. WELbeck 0661. 6521

ARCHITECTURAL ASSISTANTS required. Why travel to Town when I can offer two Assistants, Intermediate-Final grade, first class work on Stores, Office Buildings, Factories, Dance Halls, etc. Five-day week, bonus scheme, luncheon vouchers. Use of cars on job visits and for summer holidays. Pleasant surroundings with easy access to Morden Underground and Southern Electric Merton Park Station. 146, Mostyn Road, S.W.19. Tel. LIBerty 8181. 6517

WORCESTER Architects require competent ASSISTANTS, preferably of Intermediate standard with previous office experience, for varied busy practice. Write, stating age, salary required and experience, to Llewellyn Smith & Waters, 33, Foregate Street, Worcester, or to 103, Old Brompton Road, London. 6457

H. A. HALPERN & ASSOCIATES require first-class ASSISTANT with at least five years' office experience and exceptional knowledge of building construction. Must be able to operate with minimum supervision from sketch stage to contract on Supermarkets in new developments and conversions. Apply with full particulars of experience and salary required to H. A. Halpern & Associates, Cumberland Chambers, 7, Edgware Road, Marble Arch, London, W.2. 6458

SENIOR (A.R.I.B.A. standard or equivalent) and JUNIOR ASSISTANTS (Intermediate or equivalent) required for large scale development schemes in the South, incorporating all types of Housing, Flats, Shops, etc. The successful applicants will have ample scope for advancement and will be required to undertake comprehensive schemes from sketch plan stage through to completion. Pension and bonus schemes are available, and the posts offer excellent and permanent prospects. Apply in writing in the first instance, stating age, experience and salary required, to Chief Architect, N. R. Trickett Ltd., 1, Spring Crescent, Portswood, Southampton. 6466

ARCHITECTS

EXPANDING the Architects' Department of our large Building Organisation we invite applications for positions at all levels in this department of our Birmingham Head Office.

The scope of work includes Industrial, Commercial and Domestic design where progressive thought, enthusiasm and a sound knowledge of contemporary building construction are essential.

Salary according to experience and within the range to £1,200 p.a.

Assistance in housing accommodation will be given to the successful applicants.

Write immediately giving brief particulars of qualifications, age, experience and salary required to Box 6627.

ASSISTANT QUANTITY SURVEYOR, A.R.I.C.S., salary range £700—£900, required by Morrison and Partners, 103 Belper Road, Derby. Interview expenses paid. 6550

THREE qualified ARCHITECTURAL ASSISTANTS with office experience required for (*a*) Industrial Work, (*b*) School Contracts, (*c*) large housing scheme abroad. Assistants will be expected to take the responsibility of running and supervising these contracts. Salary according to age (limit 35) and experience. Apply to J. M. Austin-Smith & Partners, 29 Sackville Street, London, W.1. 6565

W. J. LEWIS AND SONS require an ARCHITECTURAL ASSISTANT of Intermediate R.I.B.A. or above standard, for interesting and varied work in busy office, and with opportunities for future. Salary will be according to age and experience. Five-day week. Apply by letter to 68 Cranbrook Road, Ilford, Essex, or telephone Ilford 3589. 6596

RILEY & GLANFIELD require male ASSISTANT of Intermediate to Final standard. Work: Church, industrial, housing and public house. Some general office experience is necessary. Tel. CHA 7328. 6594

ARCHITECTURAL ASSISTANTS (Senior and Junior) required in busy office handling a wide variety of interesting work including commercial, domestic, school and brewery projects. Please apply stating experience and salary required to: Portess & Richardson, Lloyds Bank Chambers, Peterborough. 6593

SENIOR ARCHITECTURAL ASSISTANT required urgently—must have good standard of design ability and preferably with previous experience in Architect's office. ARCHITECTURAL ASSISTANT, Intermediate standard, also required. Please apply Leach, Rhodes & Walker, 90 Deansgate, Manchester, 3, giving all details and salary required. 6590

ARCHITECTURAL ASSISTANTS required with Intermediate and Final R.I.B.A. standard. Busy progressive office in York. Practice interesting and varied. Salary according to experience and ability. Apply in writing giving full particulars to Needham, Thorp & White, 5 High Petergate, York. 6584

ARCHITECTURAL ASSISTANTS, Intermediate standard, required in London Office with varied practice. Interesting projects, 5-day week. Write giving particulars of age, experience, etc. to Box 905, c/o 7, Coptic Street, W.C.1. 6578

SENIOR ARCHITECTURAL ASSISTANTS required in salary range £700—£1,000 to take control of varied and interesting jobs of all sizes. Experience in colour and design of interiors and fittings and good presentation draughtsmanship an advantage. Five-day week, excellent working conditions and holidays. Please write giving full details of experience and qualifications to Deacon and Laing, 65, Goldington Road, Bedford. 6634

ARCHITECTURAL ASSISTANT required for small busy office in Kensington. Office trained man preferred with good knowledge of building construction and ability to prepare working drawings and details under supervision. Write giving brief details of experience and salary required to Mayell, Hart & Partners, 118, Cromwell Road, S.W.7. 6635

ARCHITECTURAL ASSISTANTS, Senior and Junior, required by firm in High Wycombe for commercial and industrial schemes. Scope for responsibility and experience. Five-day week. Write Box 6636.

SENIOR ASSISTANTS urgently required for busy City office engaged in industrial and commercial work. 5-day week. Luncheon Vouchers. Salary up to £1,200 according to experience. Box 6554.

EXPERIENCED ASSISTANTS required for Architects' Office in W.C.1 area, to work on Laboratory and Hospital schemes. Salary according to experience. Telephone HOLborn 3518/8371 or write Box 6718.

JAMES A. ROBERTS, A.R.I.B.A., requires Intermediate and Final standard ASSISTANTS, salary range £750—£1,200 depending upon ability, experience, and personality. Interesting and varied work with scope for initiative and responsibility. Please write: 86, New Street, Birmingham, 2. 6699

PLAYNE & LACEY urgently require a recently qualified ARCHITECT or a Final standard evening school student for work on large scale University development. Telephone WHI 2552 for interview. 6567

VERNER REES, LAURENCE & MITCHELL require ASSISTANTS for work on University projects. Please telephone PARk 3900 for interview or write to 38 Holland Villas Road, W.14. 6571

LEWES, SUSSEX. Small practice, contemporary work, needs ARCHITECTURAL ASSISTANT, Intermediate R.I.B.A. standard. Previous experience not essential. Hours to suit part-time study. Experience offered on site and in office. No Saturdays. Apply John Schwerdt, A.R.I.B.A., 31 High Street, Lewes, Sussex. 6575

NEW ZEALAND. SENIOR ASSISTANTS or newly qualified ARCHITECTS offered remunerative employment: state if willing to be nominated under N.Z. Government Assisted Immigration Scheme: accommodation available for single or married applicants: full particulars by airmail. Orchiston, Power & Associates, Architects, Engineers, Industrial Planning Consultants, Box 35, Wellington. 6576

DEX HARRISON, F.R.I.B.A., 34 Holland Park Road, London, W.14, requires (*a*) SENIOR ASSISTANT, qualified, able to take full responsibility, with organising and practical ability. Salary £800—£1,200 plus car allowance, according to experience. Good prospects for right man. (*b*) JUNIOR ASSISTANT, either training or qualified but good draughtsmanship first essential. Commencing salary according to ability. 6536

ASSISTANTS of Intermediate standard required in W.1 office; must be good draughtsmen and have reasonable knowledge of construction. Starting salary £650 upwards according to ability and experience. Write stating age and experience to Box 6537.

SIR JOHN BURNET, TAIT & PARTNERS require ASSISTANTS experienced in the production of working drawings for buildings in London. Apply in writing, stating age, experience, when available and salary expected, to 10 Bedford Square, London, W.C.1. 6541

LOUIS DE SOISSONS, PEACOCK, HODGES & ROBERTSON have immediate vacancies in their London office for Senior and Junior ASSISTANTS. Write stating age, salary and experience to the above at: 3 Park Square Mews, Upper Harley Street, N.W.1. 6543

J. DOUGLASS MATHEWS & PARTNERS, Chartered Architects, 3 Pharv Street, London, S.W.1, require ASSISTANTS of post-Intermediate standard. Please write, giving full details of education and experience. 6549

SENIOR AND INTERMEDIATE ASSISTANTS required for busy office near London. Top salaries will be paid to the right people who must be experienced and capable of carrying out projects to completion under minimum supervision. Excellent prospects. Write with full details of experience and salary required to Box 6621.

BRIGHTON & HOVE. ARCHITECTS require Junior and Intermediate standard ASSISTANTS. Box 6601.

QUALIFIED ARCHITECTURAL ASSISTANT required by busy South Coast Architects whose practice is concerned mainly with multi-storey flats. Write stating salary required and experience to Kenneth Parker & Associates, 4, Liverpool Terrace, Worthing, Sussex. 6616

VACANCIES for senior grades on varied and interesting work, good salary in accordance with experience. Fitzroy Robinson & Partners, CHAncery 2111. Ref: GWJ. 6614

SENIOR ASSISTANT ARCHITECT required to take charge of project. Apply Ronald Ward & Partners, 29, Chesham Place, S.W.1. BELgravia 3501. 6500

ARCHITECTURAL, PLANNING and CIVIL ENGINEERING ASSISTANTS are required by rapidly expanding Building Contractors for work in connection with large scale housing projects throughout the Country. A pension scheme is in operation and assistance with housing may be granted. Apply in writing giving age, experience and salary to H. C. James Ltd., 185 High Town Road, Luton, Beds. 6611

ARCHITECTURAL ASSISTANTS required in busy modern Knightsbridge office of large Commercial Company. Salary range £900—£1,000 p.a. plus Cost of Living and annual bonus, pension fund, five-day week and L.V's. Tel. KNI 8321, Ex. 13. 6642

BUSY and expanding practice requires Final standard ASSISTANT of initiative, and ability to handle varied work. Box 6538.

ROOM At The Top at a salary of up to £1,000 per annum for experienced ASSISTANT ARCHITECT of proved imagination and ability who dislikes "age and service" promotion prospects. If you have got it, we would like to see it and you at our Brighton Office. Pensionable if you can stand the place. Box 6649.

CLIVE PASCALL & PETER WATSON, 24, Half Moon Street, W.1, require two experienced post-Intermediate ASSISTANTS for lively work on commercial and industrial projects. Salary £650—£800. Telephone GRO. 7343 for appointment. 6645

MAJOR Petroleum Company requires for its Birmingham Office an ARCHITECTURAL ASSISTANT to work on varied commercial projects. Applicants must be of Intermediate R.I.B.A. standard with sound knowledge of construction and have had a minimum of five years' private office experience. Salary according to experience. Position will be permanent and pensionable. Excellent working conditions, staff restaurant, sports club, etc. Apply in writing, giving full details of age, qualifications and experience, to Box 6650. Replies can only be sent to those selected for interview.

URGENT.—ASSISTANT, Intermediate standard, some office experience. No "New Brutality" but down-to-earth experience in small mixed practice, south-west coastal belt. Up to £500. Box 6651.

AN opportunity exists for an imaginative ARCHITECT with a flair for the proper presentation of sketch plans and perspectives, to join a new office in the Midlands with considerable potential. The opportunity also exists to carry out various interesting jobs from their inception to completion. Reply, stating age, details of experience and salary required, to Box 6652.

SENIOR QUALIFIED ARCHITECTS and ASSISTANTS of Intermediate standard required for London Architects Department of Ind Coope Ltd. Varying and interesting work on hotels and public houses, including interiors and furnishings. Seniors, age 25/40 must have good design sense and be able to take charge of projects. A capacity for good perspective and presentation drawing an advantage. Intermediate Assistants must be competent draughtsmen with sound knowledge of construction. Pension scheme, five-day week, Lunch Vouchers. Write with full particulars and salary required to Company Architect, 160, St. John Street, E.C.1. 6659

£1,100 per year, plus car, plus superannuation, plus profit-sharing, for suitable SENIOR ARCHITECTURAL ASSISTANT, South Yorkshire. Box 6660.

ARCHITECTURAL or SURVEYING ASSISTANT required of Intermediate or Final standard with some office experience. Apply: Victor Bloom & Partners, Architects, 12, Gloucester Place, W.1. HUN. 2069. 6661

ARCHITECTURAL ASSISTANT, pre-Intermediate standard, required to work with small design group on commercial projects. Apply to the Architect, Brixton Development Co., Ltd., 22/24, Ely Place, London, E.C.1. CHAncery 5141. 6663

ARCHITECTURAL ASSISTANT, who has passed R.I.B.A. Intermediate Examination, required by old established Chartered Surveyors. Good prospects. Apply G. K. Denniss, F.R.I.C.S., Eastman & Denniss, 3, Church Road, S.E.19. 6664

ASSISTANTS required of Intermediate standard or above, by Architects in South Kensington. Applicants should have had two or three years' office experience and be capable of taking control of small contracts in all stages, particularly design—Apply R. Mountford Pigott & Partners, KENsington 1242. 6758

PROGRESSIVE firm of Architects require DRAUGHTSMEN and ARCHITECTURAL ASSISTANTS in Ruthin and Wrexham. Apply in writing, stating Office preference, salary required, qualifications and references available, to: Kenneth W. Favell, A.R.I.B.A., Favell, Bellis & Associates, 23, Well Street, Ruthin, Denbs. 6666

LANCHESTER & LODGE urgently require for work on large and interesting projects, one SENIOR ASSISTANT and one ASSISTANT Intermediate standard. Write full particulars, including salary required, 10, Woburn Square, W.C.1. 6670

IAN FRASER & ASSOCIATES require for their London Office, SENIOR and JUNIOR ASSISTANTS to work on major modern Commercial and Industrial Developments. Good salaries, five-day week. Phone COV. 2608. 6672

ARCHITECT of real ability wanting to escape the city required for expanding architecture/planning group. Write for appointment, enclosing photographs/drawings of recent work, to Tom Hancock of Morton Lupton, 1, Church Lane, Wallingford, Berks. 6674

ARCHITECTS with busy practice in Brighton require ASSISTANTS with practical experience for varied work. Salary up to £750 per annum. Five-day week, pension scheme, etc. Box 5848.

ARCHITECTURAL ASSISTANT required in South Coast office. Hospital experience an advantage. Write with details of training and salary required. Box 6709.

ASSISTANTS of Intermediate and Final standard required for large and small educational jobs, some overseas; at first in London and later in Guildford office. Write to Frank Rutter, F.R.I.B.A., 2 Finchley Road, London, N.W.8. 6719

ARCHITECTURAL ASSISTANTS

BEARD, BENNETT, WILKINS & PARTNERS require several Senior Assistants competent in contemporary design to take charge of interesting contracts. Apply in writing with full particulars to 101/3, Baker St., W.1. 6757

BIRMINGHAM. Clifford Tee & Gale, F/FRIBA, require an experienced SENIOR ASSISTANT and an experienced Inter Standard ASSISTANT for interesting industrial and commercial work in a congenial atmosphere. 5-day week. Bonus additional to salary. Please apply to Mr. R. G. Cox, FRIBA, 43, Frederick Road, Birmingham, 15. Tel.: Edgbaston 3676. 6748

MIDLANDS Brewery Company require qualified ARCHITECT with practical experience of structural alterations, designs for interiors and construction of new Licensed Houses. Write stating age, experience and salary required, etc., to Box 6747.

ARCHITECTURAL ASSISTANTS required for City Office. Good Draughtsmen, previous office experience and sound knowledge of construction. Varied and interesting work. Apply stating age, experience and salary required to Box 6745.

HENRY C. SMART & PARTNERS require experienced ASSISTANT for School and other projects. Write stating age, experience and salary required to 120 Moorgate, London, E.C.2. 6746

RECENTLY Qualified and Intermediate Standard ASSISTANTS required for Private Practice in the West Riding of Yorkshire, undertaking a wide range of Building types. Age and experience are less important than enthusiasm and interest in Architecture. Apply stating salary required to Box 6744.

PETER BAREFOOT will shortly require ASSISTANT Inter to Final standard. Modern domestic, exhibition, industrial work. Furniture/industrial design experience an advantage. Write 22, Thorofare, Ipswich. 6741

GEORGE BAINES & SYBORN require Senior and Junior ARCHITECTURAL ASSISTANTS for interesting work on Departmental Stores. Salary according to experience. Write stating qualifications and age. 121, Victoria Street, S.W.1. 6756

HENING & CHITTY, F.R.I.B.A., A.M.T.P.I., require experienced Staff. Write full particulars 30 Percy Street, W.1. 6730

WESTWOOD SONS & PARTNERS require a SENIOR ASSISTANT, salary depending on qualifications, etc. Please apply in writing to 21, Suffolk Street S.W.1. 6743

ARCHITECTURAL ASSISTANT with experience required for private Office in Morayshire, capable of handling jobs throughout. House available. Apply giving particulars of past experience and salary required. Box 6723.

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