The Architects' JOURNAL for September 5, 1957

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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No. 3262] [Vol. 126

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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 Ig one week, Ih to Z the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. Marlborough Whitehead, "Dyneley," Castle Hill Avenue, Berkhampstead, Herts.	
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5721
ABT	Association of Building Technicians. 1, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James' Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
ARCUK	Architects' Registration Council. 78, Wimpole Street, W.1.	Welbeck 2915
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BATC	Building Apprenticeship and Training Council. Lambeth Bridge House, S.E.1.	Reliance 7611, Ext. 1706
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portland Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 105, Uxbridge Road, Ealing, W.5.	Ealing 9621
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Fremantle 8494
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Glasgow Central 2891
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Chancery 7772
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Whitehall Gardens, Horseguards' Avenue, Whitehall, S.W.1.	Trafalgar 8855
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
BTE	Building Trades Exhibition. 32, Millbank, S.W.1.	Tate Gallery 8134
CABAS	City and Borough Architects Society. C/o Johnson Blackett, F.R.I.B.A., Civic Centre, Newport, Mon.	Newport 65491
CAS	County Architects' Society. C/o F. R. Steele, F.R.I.B.A., County Hall, Chichester.	Chichester 3001
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Belgravia 6661
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611 Ext. 1284
CDA	Copper Development Association. 55, South Audley Street, W.1.	Grosvenor 8811
CIAM	Congrès Internationaux d'Architecture Moderne. Doldertal, 7, Zurich, Switzerland	
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
DGW	Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1.	Reliance 7611
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
DPT	Department of Overseas Trade. Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
EJMA	English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1.	Regent 4448
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 68, Gloucester Place, W.1.	Welbeck 9966
FASS	Federation of Association of Specialists and Sub-Contractors, Artillery House, Artillery Row, S.W.1.	Abbey 7232
FBBDO	Fibre Building Board Development Organization, Ltd. (Fidor), 47, Princes Gate, Kensington, S.W.7.	Kensington 4577
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	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. 26, Great Ormond Street, Holborn, W.C.1.	Chancery 7583
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Whitehall 3902
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Langham 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

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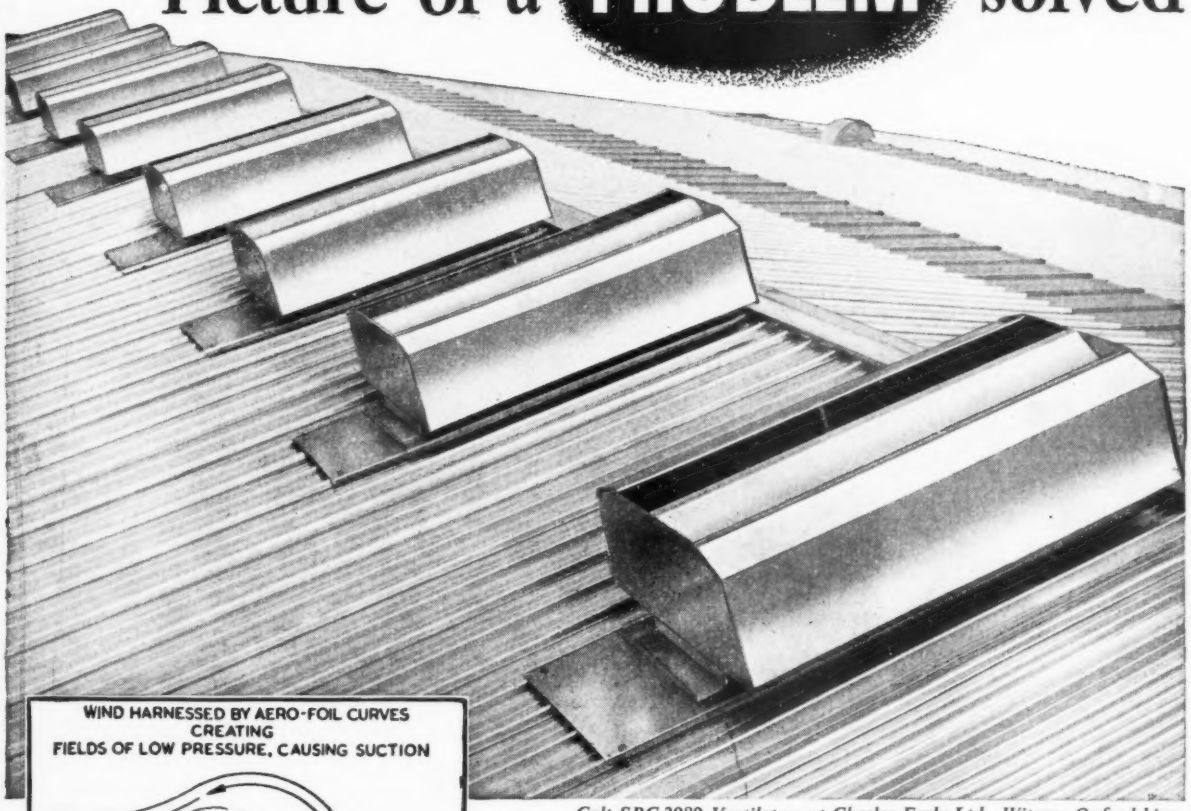
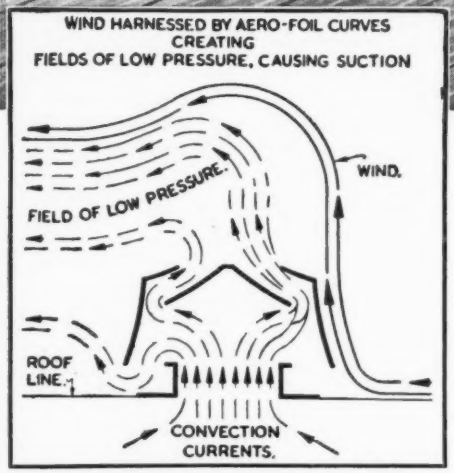
Picture of a PROBLEM solved





Colt SRC.3080 Ventilators at Charles Early Ltd., Witney, Oxfordshire
Architects: Messrs. R. Fielding, Dodd and Stevens

This trim installation of Colt SRC.3080 High Duty Extractors is the outward and visible sign of healthy and comfortable working conditions. To Charles Early Ltd., makers of 'Earlywarm' blankets, this is the picture of a problem solved. It signifies the extraction of over 1,000,000 cubic ft. of stale air each hour from the new extension to their Witney Mills.

Late in 1955 Charles Early Ltd., faced with ever increasing export demands for their product, decided to extend their factory space, plant and production. During the design stage of the extension the Architects, anticipating that ventilation problems would arise approached Colts for advice.

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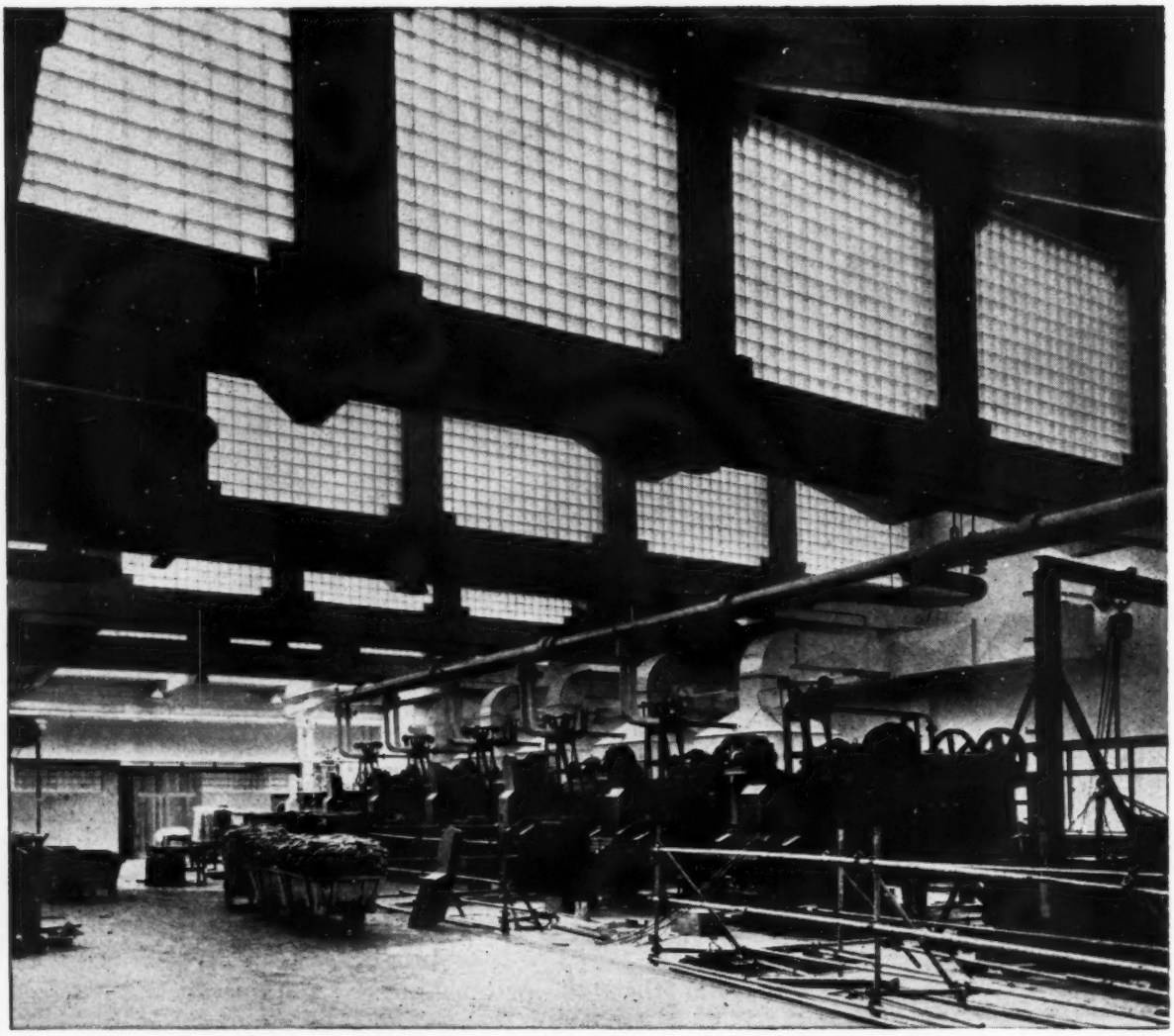
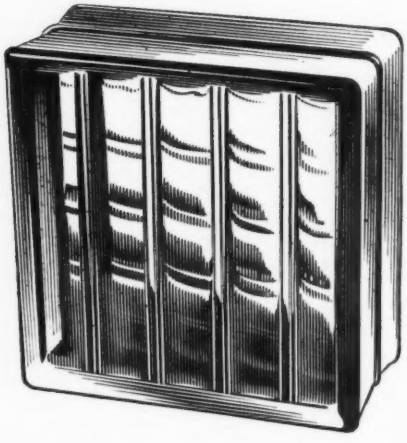


THERE IS NO LIMIT . . . to the applications of Pilkington's "Insulight" Hollow Glass Blocks. Here, the Glass Blocks are providing thermal insulation with consequent absence of condensation, in addition to an even distribution of natural light. They are shown fixed in the North Lights of the mercerising room of J. & P. Coats Ltd., Paisley.
Wherever "Insulight" Hollow Glass Blocks are used they give substantial benefits—bringing light into the interior while providing effective heat and sound insulation. They also add to the appearance of a building.



'INSULIGHT' HOLLOW GLASS BLOCKS

For further information on the use of glass in building, consult the Technical Sales and Service Department at St. Helens, Lancs. Telephone: St. Helens 4001; or Selwyn House, Cleveland Row, St. James's, London, S.W.1. Telephone: Whitehall 5672-6. Supplies are available through the usual trade channels.

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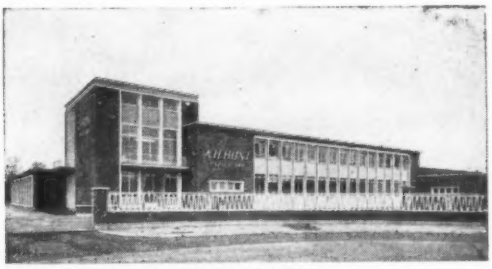

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Douglas White & Furniss, F/F.R.I.B.A
Bradfords were responsible for the frame, floors and staircases.

Men are wise in proportion, not to their experience but to their capacity for experience. *George Bernard Shaw*

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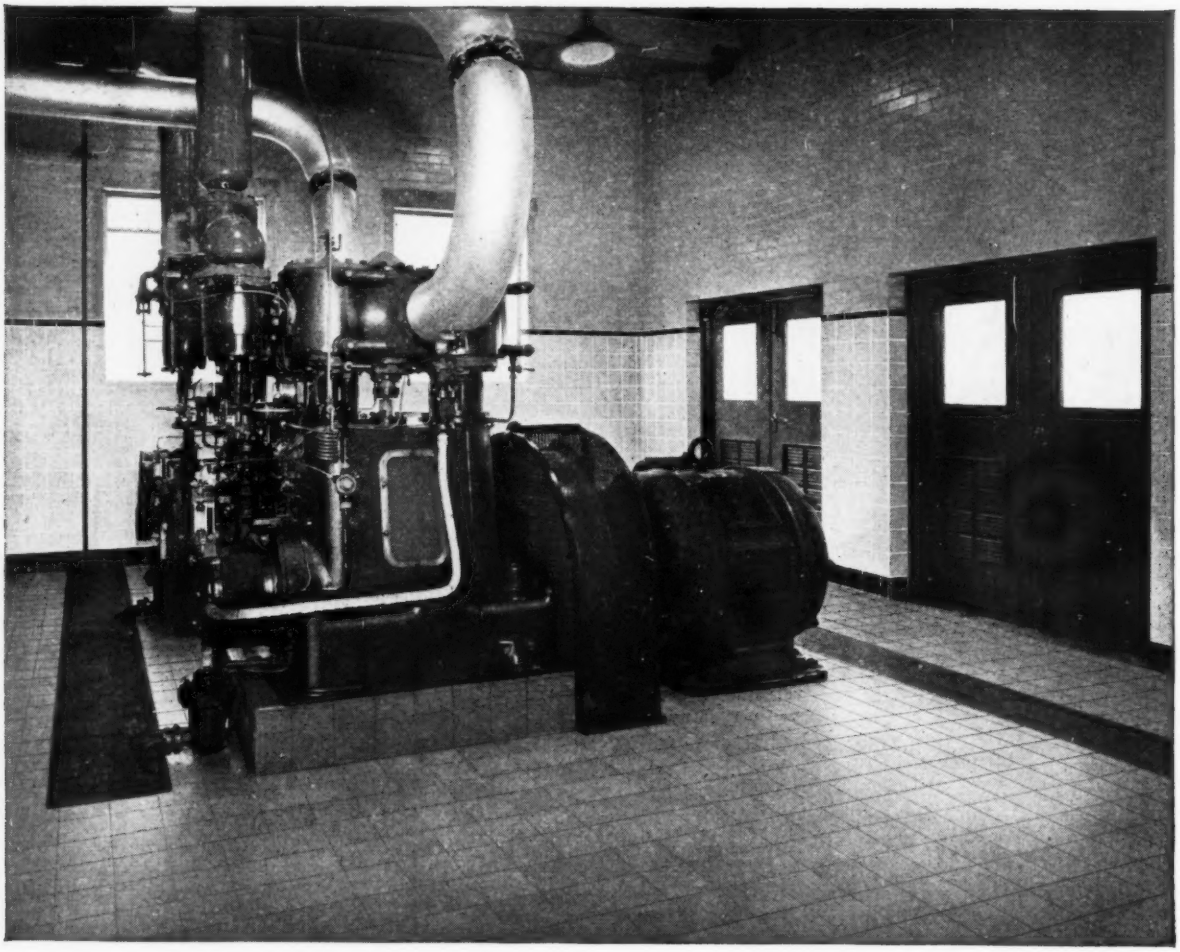

BRITISH INSULATED CALLENDERS CABLES LTD. CHOOSE CERAMIC TILES

In the planning of the new Boiler House at Helsby ceramic floor and wall tiles were the obvious choice.
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BSF.12.

British Aluminium at Marchwood Generating Station: (3)

The conveyor bridges for the coal handling plant at Marchwood—almost half a mile long — are clad with Rigidal Industrial Trough T corrugated aluminium sheet. Rigidal provides a light weathering that needs little maintenance and lasts a lifetime.

The cladding was carried out by Freeman, Morrison Limited.

The BRITISH ALUMINIUM Co Ltd

NORFOLK HOUSE ST JAMES'S SQUARE LONDON SW1

AP96

Map Copyright : George Phillip & Son, Ltd.

The longest stairtreads in the world?

Well, we haven't really checked on the record. Certainly, the sweeping lengths of stairtread which add safety and emphasis to the clean, unbroken curve of these stairs are the longest ever delivered by Ferodo. They lead to the spacious new showrooms of the Austin Motor Works.

Special techniques were evolved to manufacture and transport these four curving lengths, ranging from 33′8″ to 37′6½″. But, longest, shortest, widest, narrowest—it's all in a Ferodo-day's work. Many shapes, sizes and colours of non-slip stairtreads have already given years of accident-free hard wear in public buildings and factories. Perhaps Ferodo can help with your next job.

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Architects : Harry W. Weedon & Partners, Birmingham.

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The First Bridge for Britain's 1st Motorway by BOOTH

The Bridge is 246ft. long by 34ft. wide carrying Cuerdale Road over the Motorway. It is in four spans with four lines of plate girders braced together and supported by 14in. diameter hollow steel columns (concrete filled) which have top and bottom spherical bearings.

The main steel bridge girders, 4ft. 2in. in depth, are all-welded and have flanges of notch ductile steel. The four spans will be site-welded to form continuous girders 246ft. long.

The photograph shows two of the girders being transported to site.

The work is under the supervision of Mr. James Drake, B.Sc., M.I.C.E., M.I.Mun.E., County Surveyor and Bridgemaster to the Lancashire County Council.

General Contractor for the Bridge: Messrs. Leonard Fairclough Ltd., Adlington.

Contractor for the Motorway: Messrs. Tarmac Ltd., Wolverhampton.

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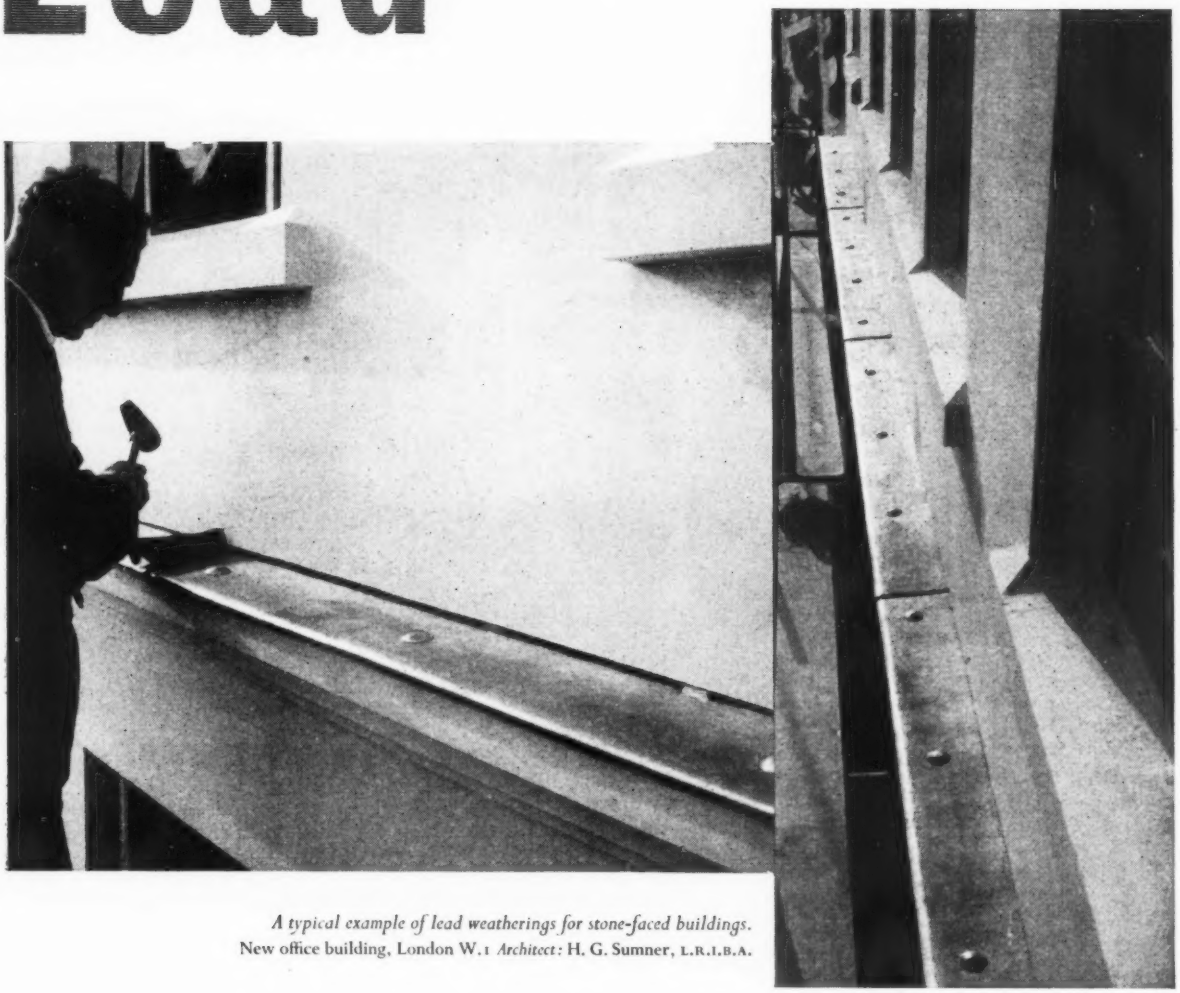
Lead weatherings...



A typical example of lead weatherings for stone-faced buildings.
New office building, London W.1 *Architect:* H. G. Sumner, L.R.I.B.A.

A FAMILIAR JOB to the plumber is fixing lead weatherings to cover cornices and similar projections of stone-faced buildings.

Lead is extensively used for such weatherings, because experience proves it to be the best material for the purpose—it does not stain adjoining masonry—it gives

permanent protection

LEAD LASTS

The Association's Technical Information Bureau will gladly help with problems on the use of Lead Sheet and Pipe in building work. Details of the main uses are given in a series of information sheets and bulletins, which can be obtained by applying to the Association.

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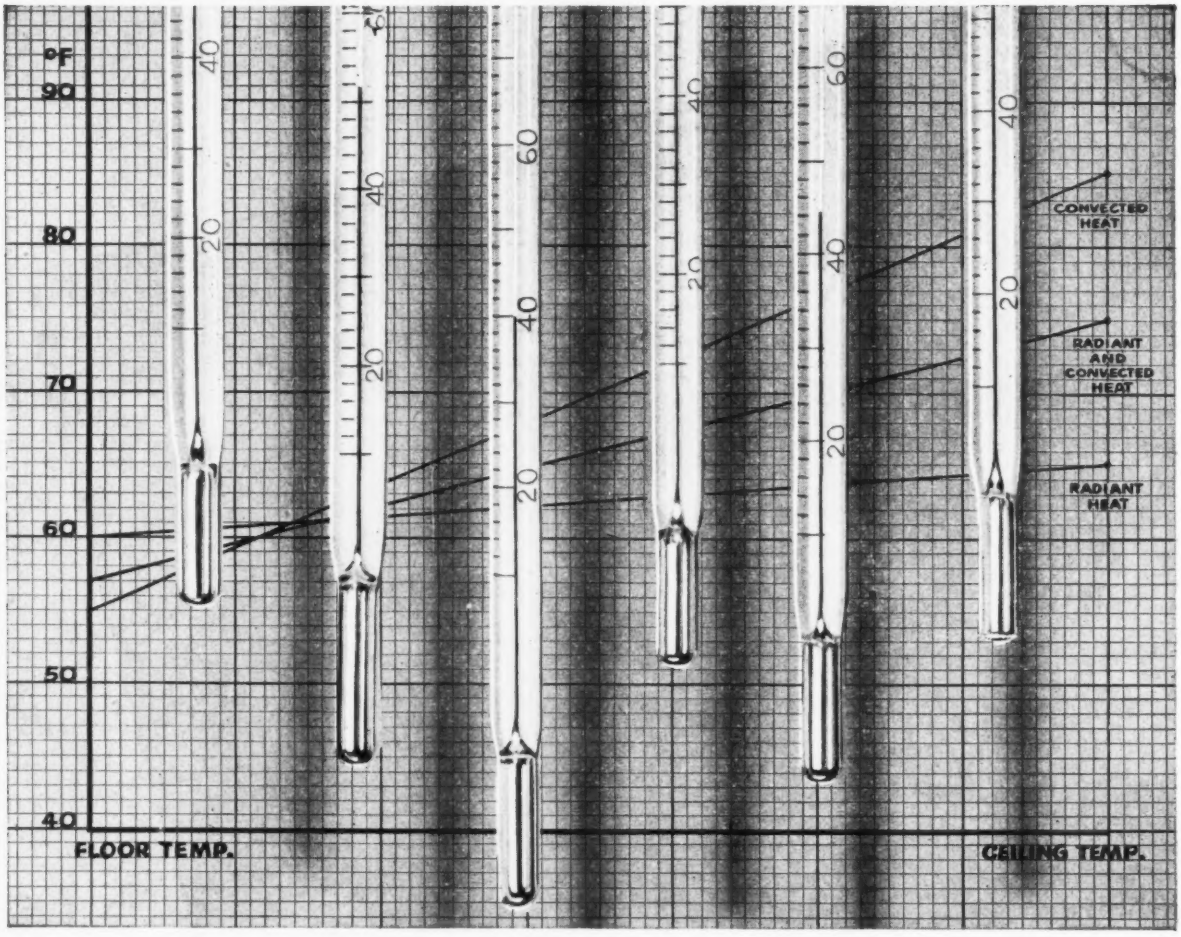
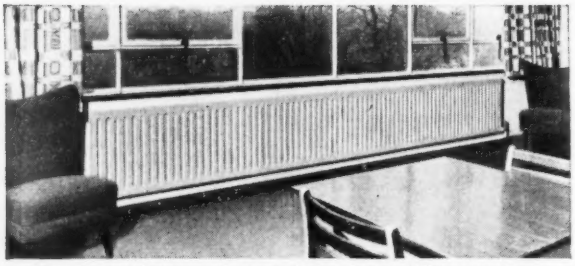
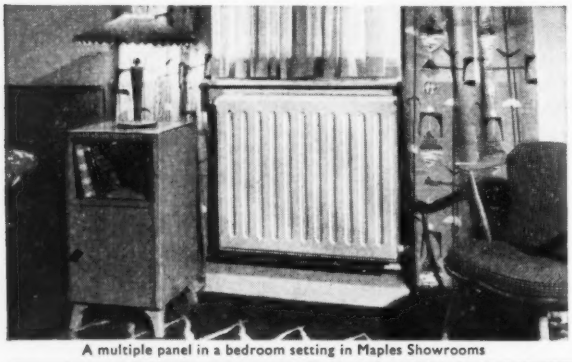


TEMPERATURE GRADIENTS & THE COMFORT ZONE



A long panel in the Deputy Headmaster's study in Tulse Hill School for Boys



A multiple panel in a bedroom setting in Maples Showrooms

Modern heating practice demands a radiator to extend the full width of the windows or the entire length of the outside wall to eliminate down-draughts and reduce extremes of temperature gradients and ensure all-over room comfort.

Gulf make radiators for this purpose, in column and panel types to any length and in angled or curved form.

Other advantages of Gulf Radiators are:—

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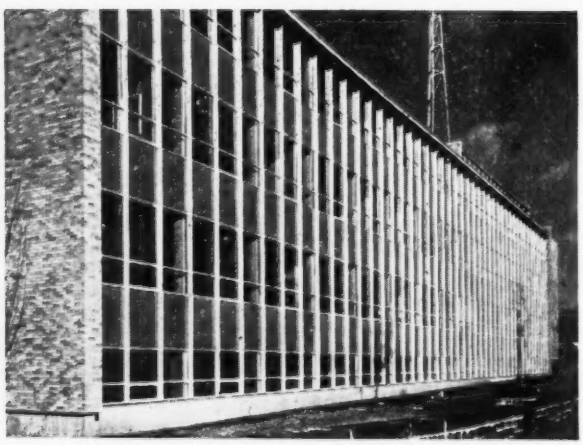
WILLIAMS & WILLIAMS NEWS SHEET

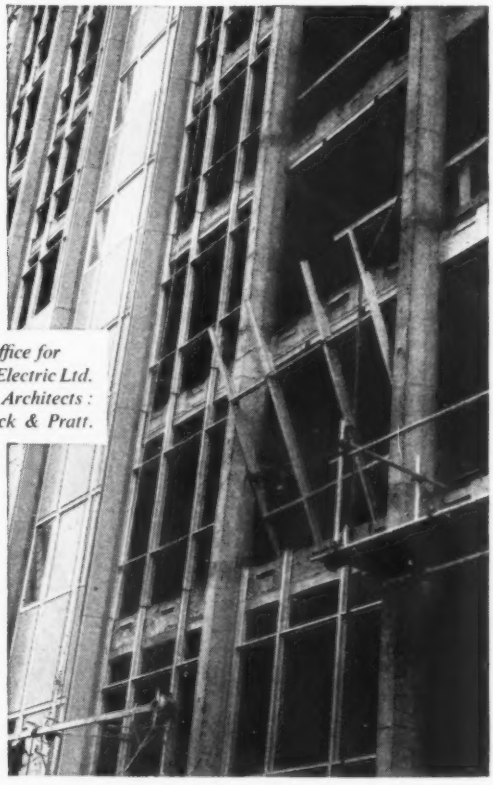
'WALLSPAN' in curtain-wall-conscious America



In the United States, Williams & Williams 'Wallspan' is finding frequent and favoured mention in architects' specifications. For the new Loyola Hall of Science at Scranton University, for example, 'Wallspan' was chosen to clad the two long sides of the building. A rare feature (to American as well as to English architects) is the absence of a stub wall behind the spandrels.

The circular concrete columns supporting the upper floors were formed by cardboard shuttering — a recent innovation in American building technique.

New Science building for Scranton University.
Architects: Gilboy, Bellante & Klaus.

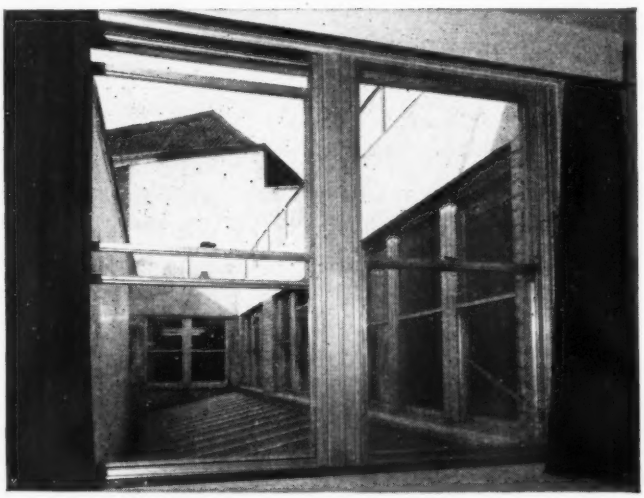


New Head Office for British Columbia Electric Ltd. Vancouver. Architects: Thompson, Berwick & Pratt.

Our biggest yet . . . is the new B.C. Electric building in Vancouver. This famous office block has its entire exterior—all 21 floors of it—clad in 50,000 square feet of 'Wallspan'. Time from foundations to occupation—20 months!

As a point of interest, the fixing of the 'Wallspan' was unorthodox. The HE9 alloy sections were assembled into small grids prior to erection, in order to facilitate fixing from inside the building.

The light concrete structural mullions are capped by a specially made aluminium pressing.



Northern Aluminium choose Williams & Williams

Williams & Williams purpose made aluminium double hung windows, recently fitted at the Bristol office of Northern Aluminium Co. Ltd. Architects & Surveyors: Frank W. Wills & Sons.

A reminder that . . . your Williams & Williams Area Manager is always anxious to serve you. Telephone him at:

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CRAWLEY: 2200
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GLASGOW: Douglas 0003
HERTFORD: 3969
HULL: 36013
LEEDS: 21208
LIVERPOOL: Central 0325
MAIDSTONE: 51750
MANCHESTER: Blackfriars 9591
NEWCASTLE UPON TYNE: 21353
NORWICH: 24393
NOTTINGHAM: 52131
PLYMOUTH: 67885
READING: 50291
SHEFFIELD: 51594
SOUTHAMPTON: 26252

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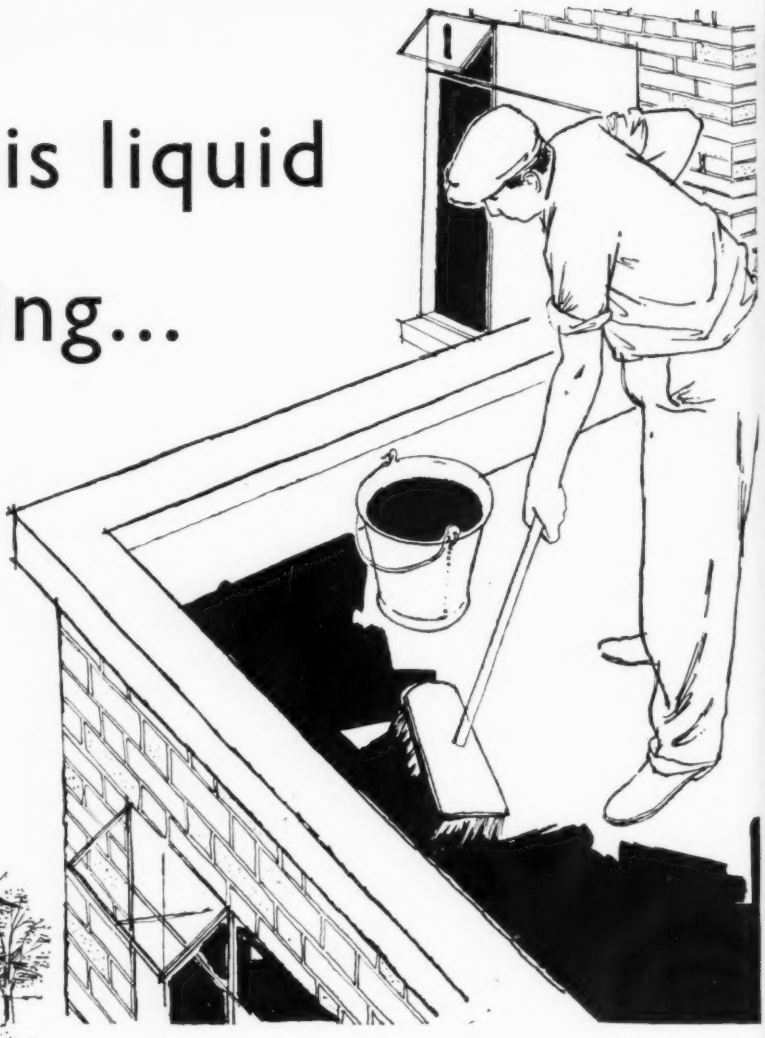

ARCHITECTS, BUILDERS AND CONTRACTORS are often on the look-out for an economical, durable material that protects roofs from the worst that the weather can do. They will find Synthaprufe ideal for this purpose.

Synthaprufe is a liquid waterproofing that protects roofs completely from moisture and requires no maintenance. It does not decay, even after years of exposure.

Synthaprufe is extremely easy to handle—you simply brush it on and allow it to set. And because it spreads so well and lasts so long, it gives great savings in man-hours and money.

Synthaprufe can be confidently recommended as a reliable material that gives great economy and is suitable for every type of roofing job.

Synthaprufe

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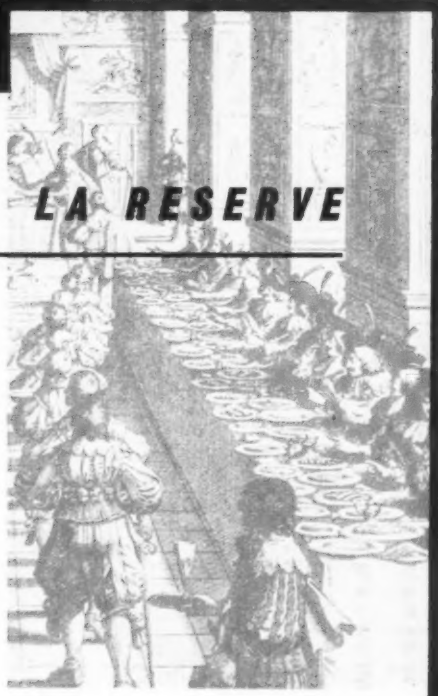
"SYNTHAPRUFE" IS A REGISTERED TRADE MARK

Architects, Leonard Manasseh and Partners. *Photographs by courtesy of Sam Lambert.*

How they do it at LA RESERVE



You have only to step into 'La Reserve' Restaurant, in Gerrard Street, W.1, to see how seriously they take the business of attracting discriminating patrons. Soft lighting and richly contemporary decor make a perfect setting for enjoying good food and wine.

And behind the scenes? A kitchen that's chef's delight. Here food is King: extensive refrigeration by Prestcold keeps it as fresh as food can be kept. All the time it is in store it is sealed away safely in a Prestcold. Meat in a special coldroom. Fish in a Prestcold fish cabinet. And there's a large general coldroom for everything else that needs careful storing.

Prestcold specialise in fitting out catering premises. A great range of refrigeration equipment provides protection for every kind of food and drink, in almost any situation. And where standard equipment cannot be used, special units can be designed.

Next time *you* have to plan for refrigeration, have a word with Prestcold—in the early stages. You will find that it pays.

PRESTCOLD

BY APPOINTMENT TO HER MAJESTY THE QUEEN
MANUFACTURERS OF REFRIGERATING MACHINERY
PRESSED STEEL COMPANY LIMITED

THE PRESSED STEEL COMPANY LIMITED · COWLEY · OXFORD
and at Sceptre House, Regent St., London, W.1

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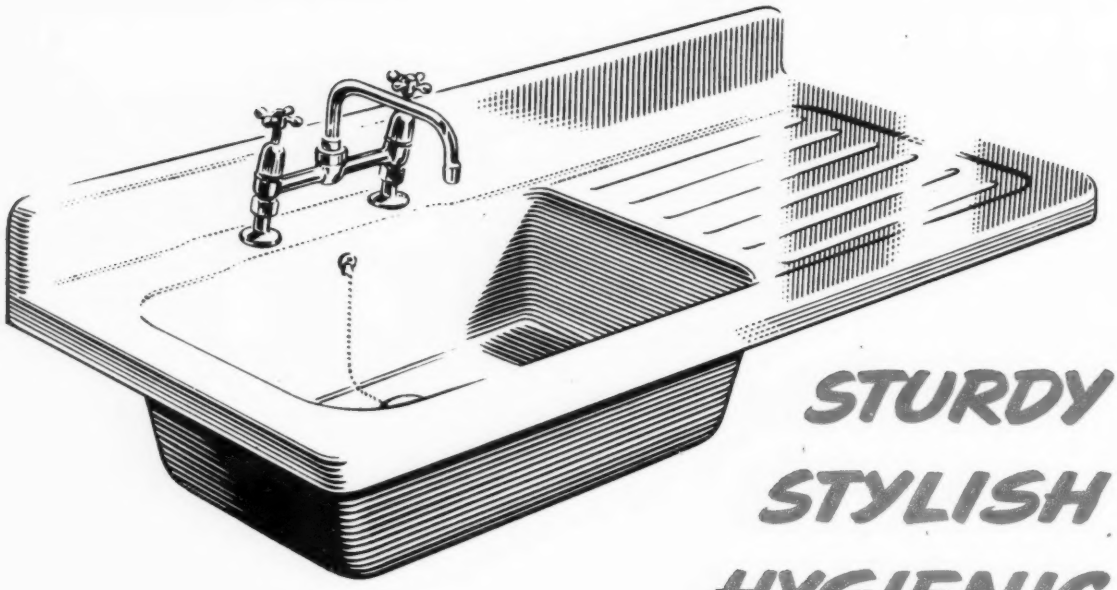


STURDY STYLISH HYGIENIC

When thoughts are given to planning the kitchen, don't overlook the importance of the sink—don't specify one which is inconvenient in design and will soon become unhygienic and unsightly.

The Hostess Sink is modern and functional in design. It is made of durable cast-iron with an acid-resisting porcelain enamel finish in the alternative colours of white, opal green or cream. With drainer on right or left, as required, it can be supplied with or without overflow and there is a choice of fittings to meet every need.

The Hostess Sink is a first-class luxury product at a very reasonable price. Strongly made, practical, permanently hygienic and easily cleaned, it is ideal for the busy housewife of today, and with normal care and attention will last a lifetime.

THE *Hostess* SINK

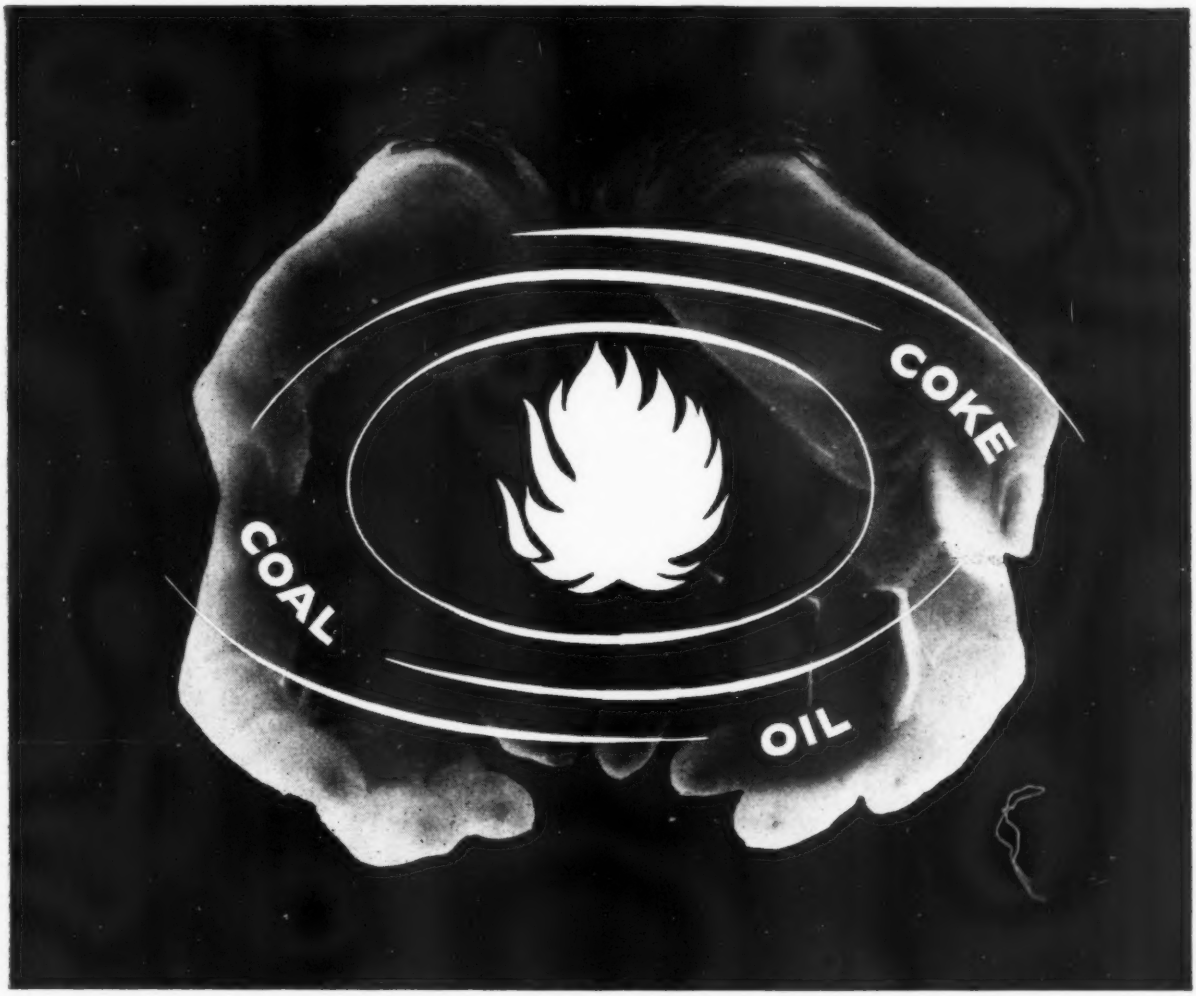
LIST PRICE *WITHOUT ANY FITTINGS All colours* **£10**

(With overflow £10 · 15 · 0)

The Hostess Sink can also be supplied with wall-brackets or cast-iron legs (as illustrated). It can be fitted if necessary into a cabinet of your own construction.

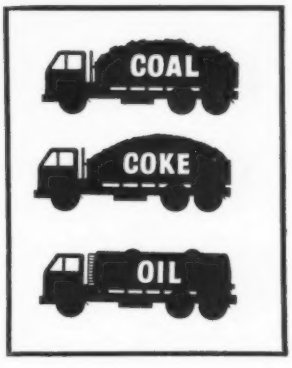
IDEAL-Standard

IDEAL BOILERS & RADIATORS LIMITED · IDEAL WORKS · HULL



The gift of fire is precious . . .

and to-day, world events make it more imperative than ever to get the utmost efficiency from every type of fuel. Coal, coke or fuel oil . . . which is best for your heating? Hargreaves, who distribute all three, can give you expert and completely impartial advice.



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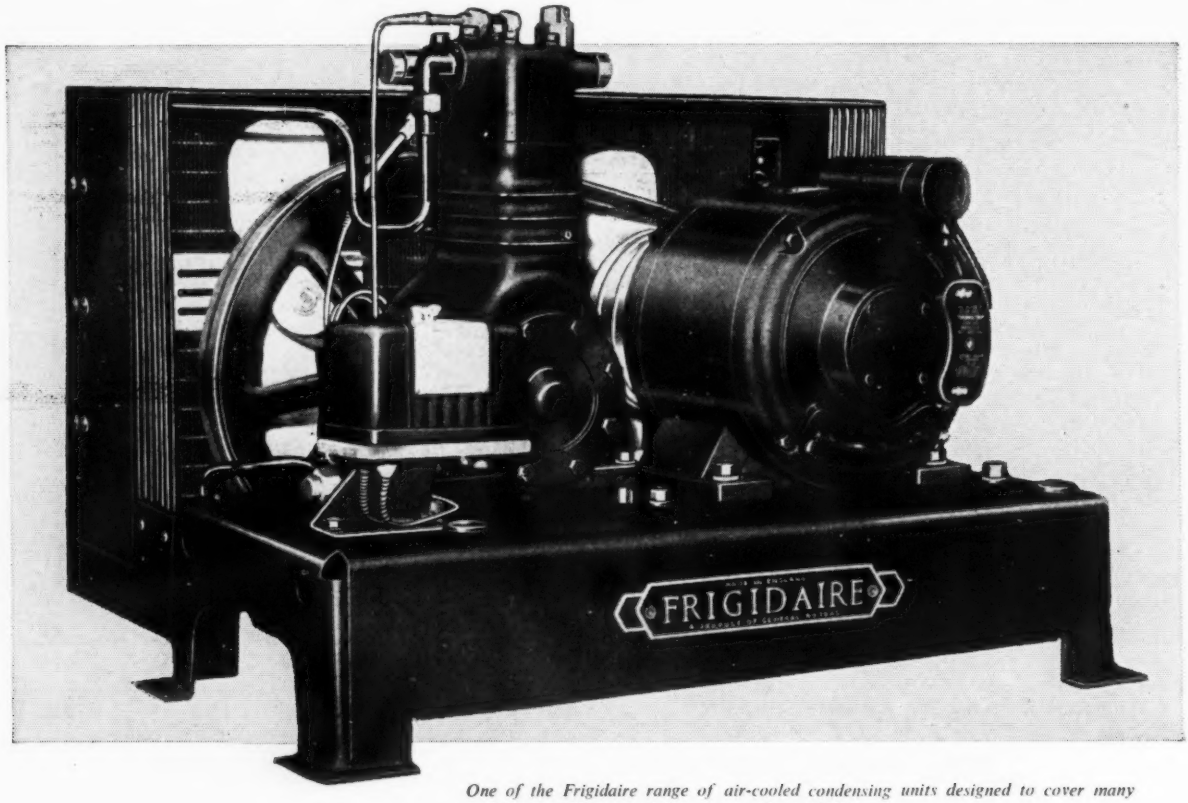
NOW! Five-year Warranty on all Frigidaire Compressors!



One of the Frigidaire range of air-cooled condensing units designed to cover many applications. Water-cooled types are also available.

The full range of famous Frigidaire Compressors is now backed by a five-year warranty: not just the compressors — but the condensers, belts, receivers and oil separators as well — *and at no increase in price.*

There are 80 model variations in this wonderful range, from 1/8 h.p. to 10 h.p. inclusive.

Frigidaire equipment is built and backed by General Motors. You can have complete confidence in it and in Frigidaire's unequalled after sales service.

This step is part of Frigidaire's new Five Point Development Programme for commercial refrigeration

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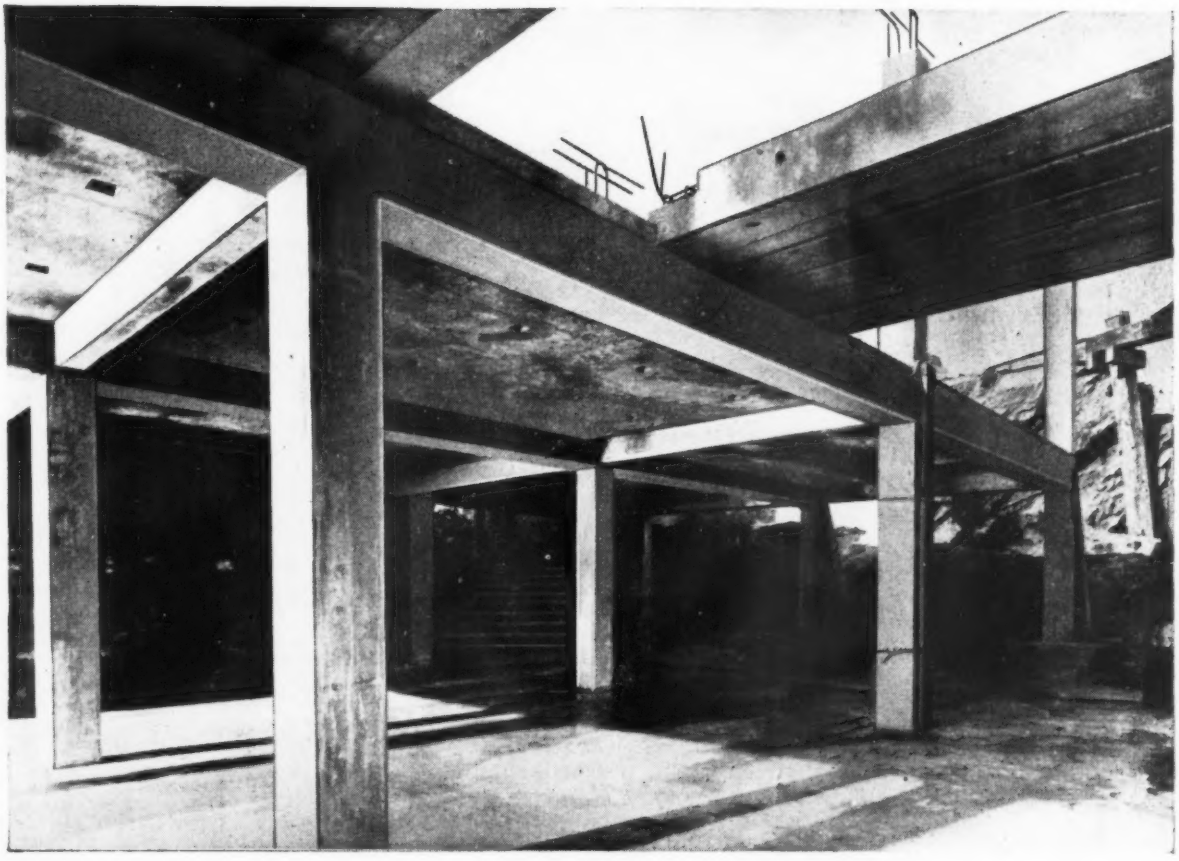

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Here is a scientifically-designed shelf support which has the strength required for industrial applications, yet is attractive enough for use in showrooms, libraries and the home. SPUR is scientifically-designed, simple in principle, easy to install and flexible in arrangement. There are only two main components — slotted V-channel uprights, and flanged brackets which key into the slots.

FOR INDUSTRIAL STORES, HOMES, OFFICES, LIBRARIES, SHOPS, LABORATORIES, EXHIBITION STANDS

FLEXIBILITY OF ARRANGEMENT

The height of SPUR brackets can be altered without the use of tools whenever storage needs change. Alignment is automatic. Both right-angled and slanting brackets are available.

UNOBSTRUCTED ACCESS

No upright supports at front or side are needed with SPUR. This means a more pleasing design as well as easier access to shelves.

PRE-DETERMINED STRENGTH

Uprights are available in lengths up to 94½ in., and brackets are supplied in seven standard sizes up to a maximum of 18½ in. Loadings have been calculated for each size, and the largest will support 1½ cwt.

WALL FIXING OR FREE STANDING

The uprights are easily screwed to walls, but where free standing units are required with shelves both sides—in libraries or storerooms for example—double-sided uprights can be used. Special collars are available for fixing uprights to the floor and ceiling.

ATTRACTIVE FINISH

SPUR uprights and brackets are attractively finished in four standard colours: Willow Grey, Terra Cotta, Frost White and Jet Black. Alternatively they can be nickel or chromium plated, zinc sprayed or galvanised when required for special service.

RANGE OF FITTINGS

A full range of accessories such as shelf straps and book supports give the SPUR system added flexibility.

Shelve those problems of support on

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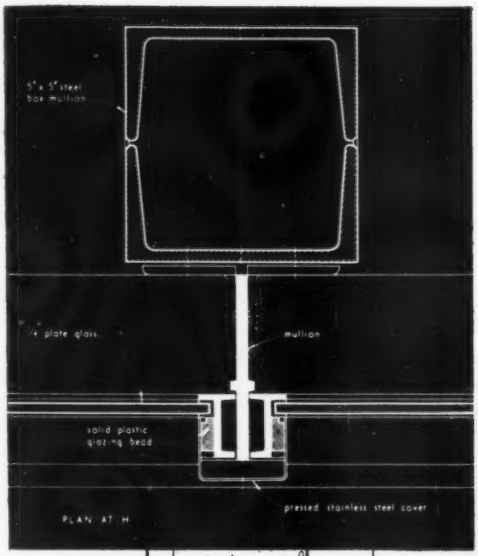
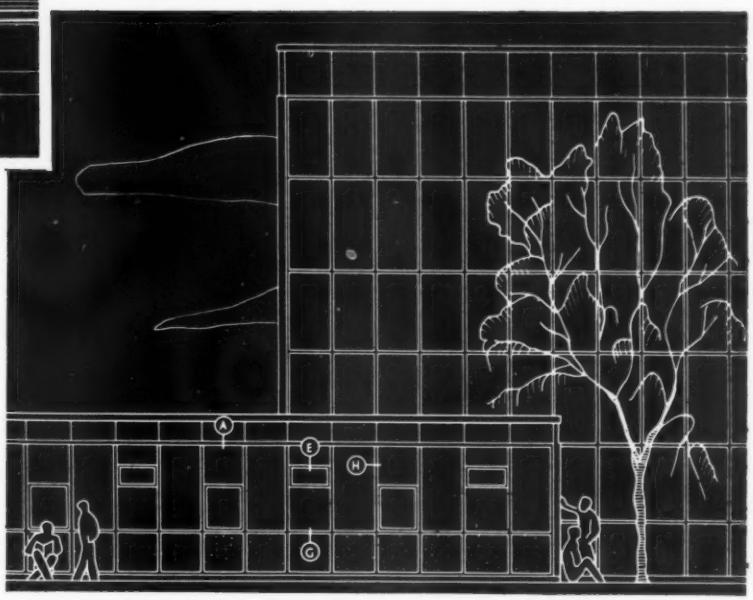
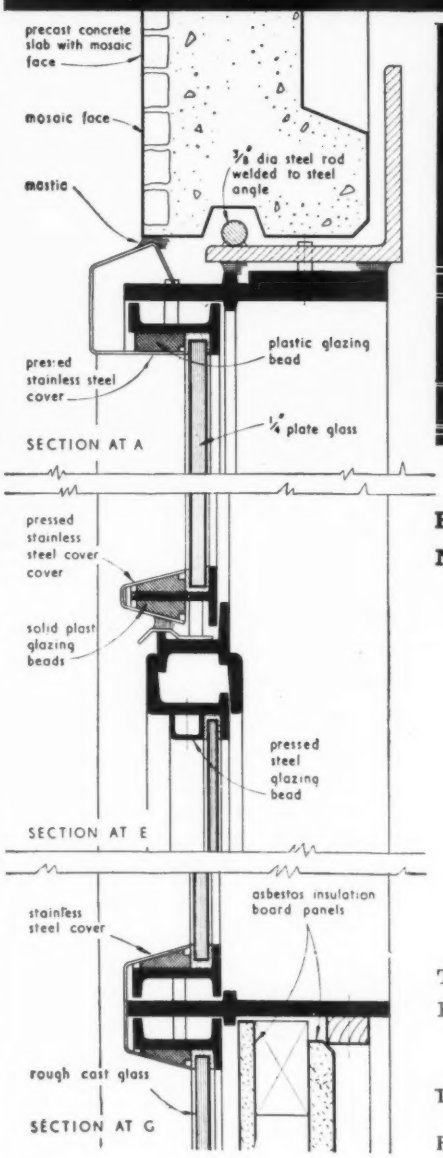


MODULAR

CURTAIN WALLING

BY MORRIS SINGER





BOWATER PAPER CORPORATION LIMITED NORTHFLEET, KENT. *Architects: Farmer and Dark, F/F.R.I.B.A.*

Holoform Curtain Walling can be manufactured to meet special requirements both those based on modular co-ordination and to special sizes. The Window Wall for Messrs. Bowater's new Office Block at Northfleet is constructed to suit a 3′ 4″ grid, modular construction being used both horizontally and vertically. The external face of all members is covered with stainless steel.

These drawings are taken from the Morris Singer Catalogue 'Holoform Purpose Made Window Walls' which can be had on application.

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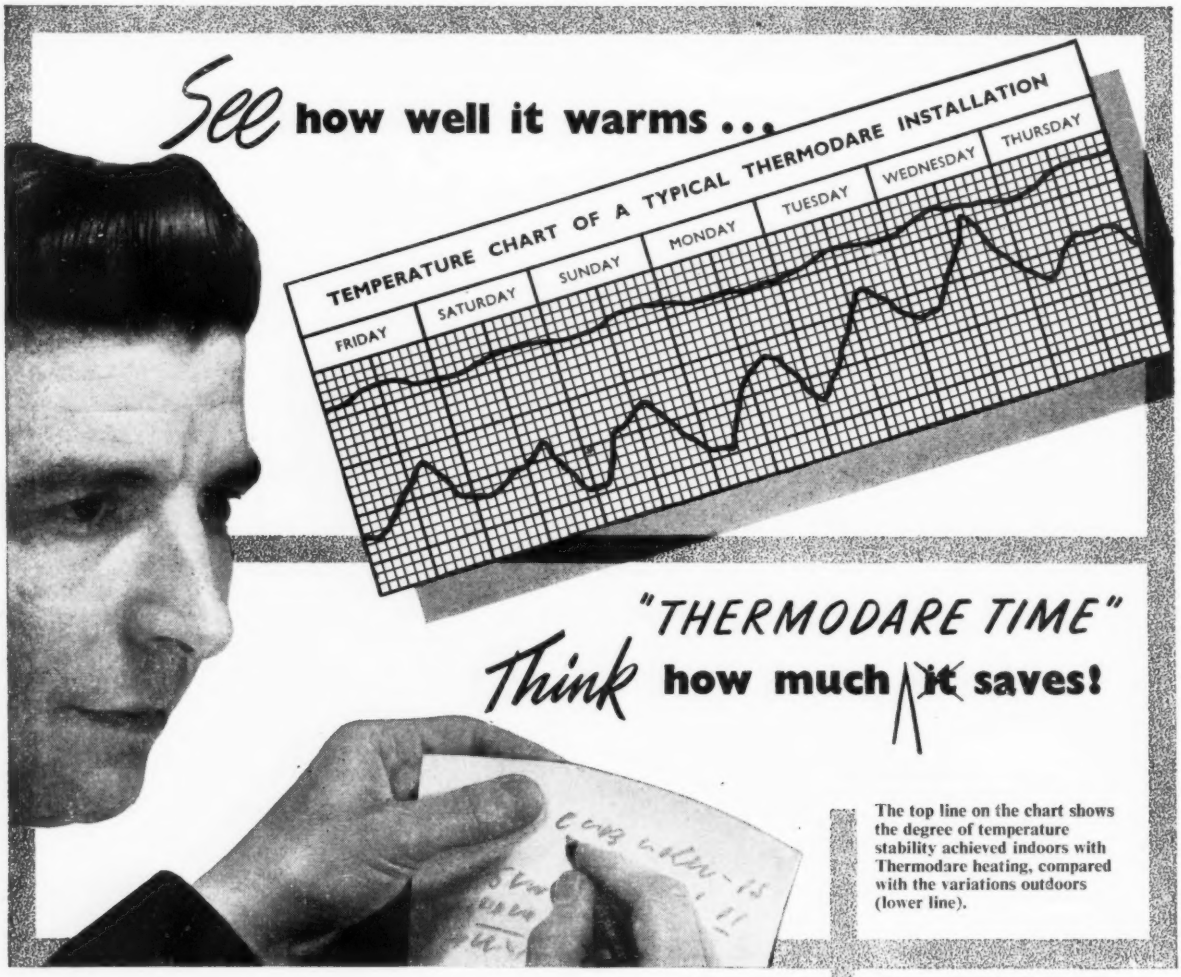


The top line on the chart shows the degree of temperature stability achieved indoors with Thermodare heating, compared with the variations outdoors (lower line).

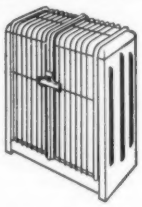
THERMODARE

off peak storage heating

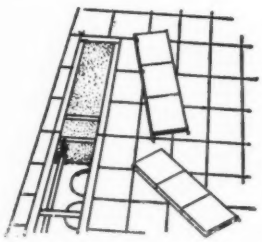
Whatever the weather, it's always uniformly warm inside with efficient Thermodare storage heaters. This clean and healthy method of heating also costs *less* because it can utilise 'off-peak' tariff rates.

Thermodare heating—available as compact cabinets or permanent underfloor installations in concrete—stores heat by night and radiates it evenly throughout the day. Control by thermostat and time switch is entirely automatic. There is no dust, mess or maintenance. Capital costs are low, and installation is simple.

We marketed the first night storage heater in this country, and are leaders in this rapidly-growing field. Ask for full particulars—the Thermodare Technical Service will gladly help you.



Designed for safety with built-in guard and thermal link. Clean, factory-built units. Will harmonise with any decor. A range to suit all applications.



Warm-floor heating with fully retractable element, embedded in concrete. Automatic and trouble-free. Various floor finishes can be employed after installation e.g. wood blocks, carpets. Technical publication available on request.

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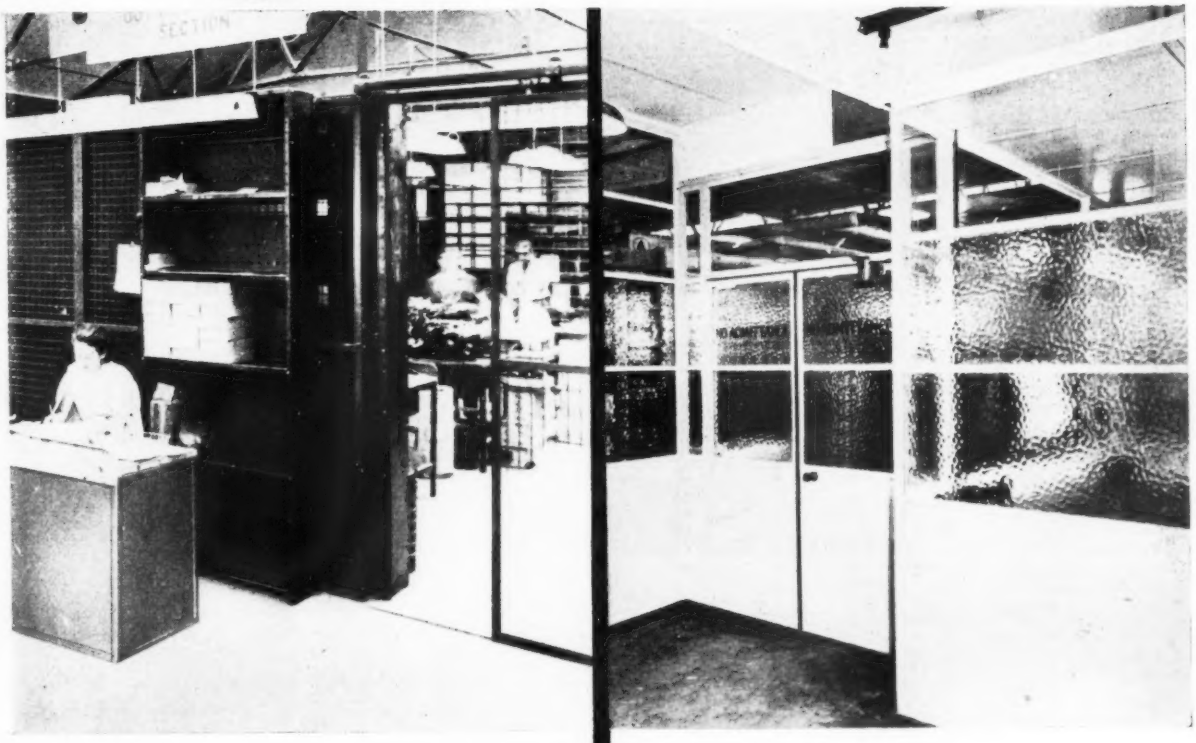

STEELBRAC sectional steel partitioning is not confined to standard fixed-size units. Its sections, although available in standard widths, can be 'made-to-measure' to fit any given ceiling line, whether irregular or sloping; or roofed over at any height to form separate cubicles. Even pipes and joists present no problems.

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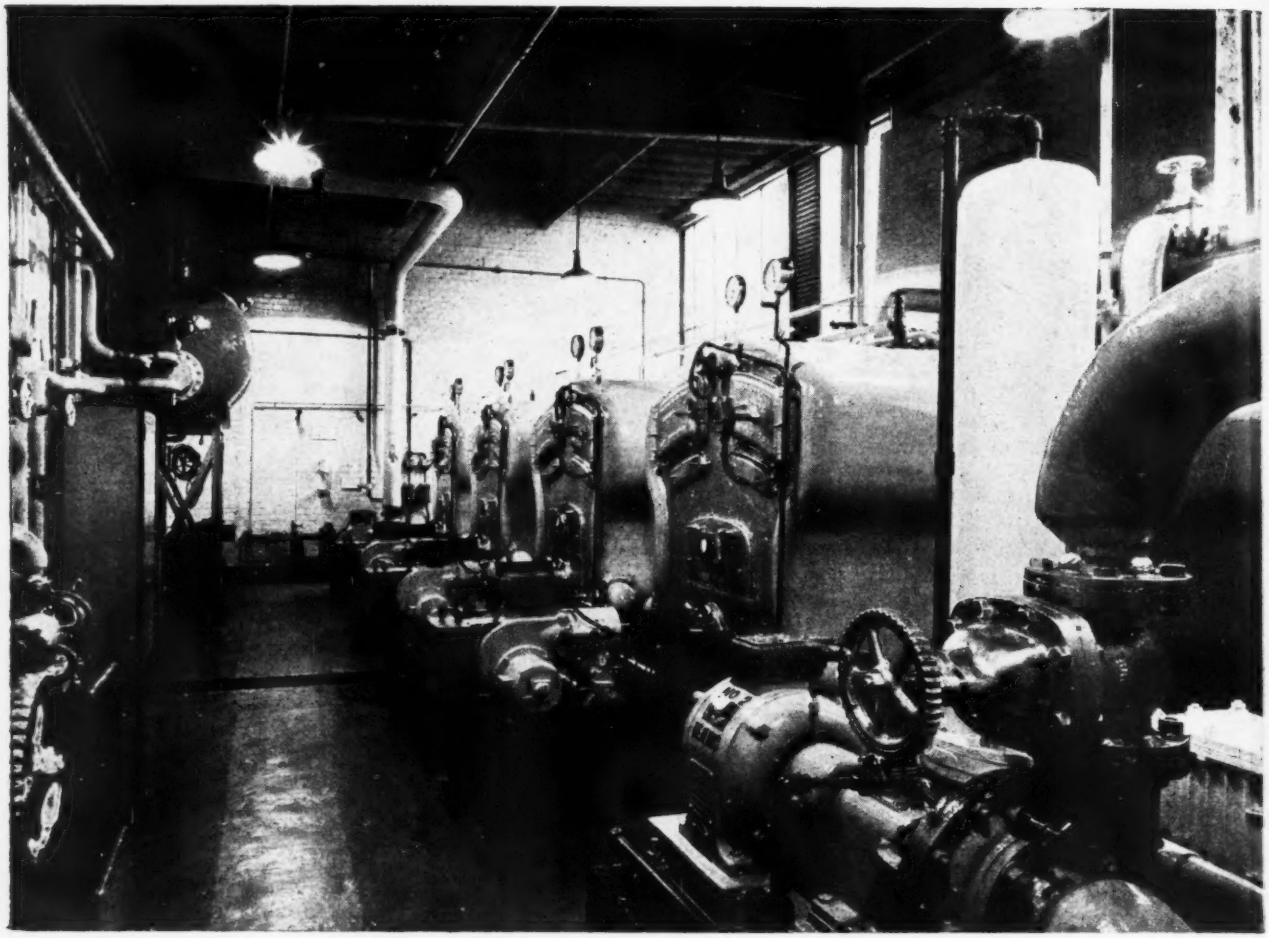

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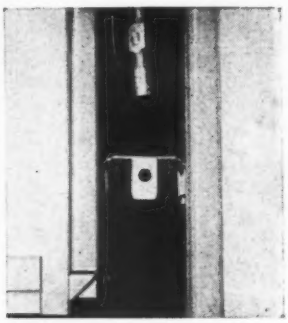
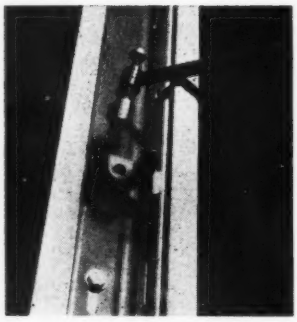
Roften Modular Partitioning is as easy as this to put up — or rearrange

1 Two steel sole plates for each unit of partitioning are screwed to the floor with wood screws.

2 The 40" wide, modular units are bolted to the sole plates. All units are interchangeable.

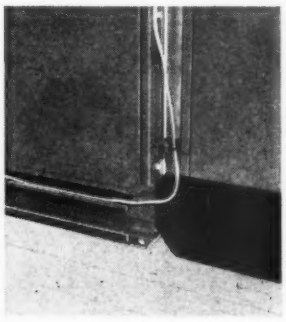


3 Five link plates, at 15" centres, drop into ready pressed out pockets and fix each unit to the next.

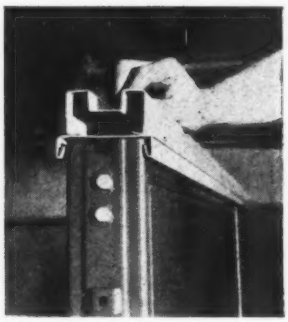


4 Link plates are also used for 3-way fixing — but in this case they are finally bolted in for extra strength.

5 The 40" wide modular door frame, linked in with the rest of the system, is firmly anchored at the foot by a cleat.



6 Electric wiring runs down between partitioning units and along specially provided channels at the bottom.



7 A head channel, cold rolled like all Roften Modular Partitioning sections, finishes off the top of the free-standing screening.

8 Pilasters are clipped on to the notches of the link plates to finish off the joins between units.

9 Skirting is clipped on to the bottom of each unit. Plinths cover the joins in between.

10 Four rubber-buffered glazing beads clip in. Special beads are available for double glazing.

11 Any type of 32 oz. glass slips into the opening, followed by the second set of four glazing beads.

The partitioning installation is now finished. Although it is easy to rearrange, Roften Modular Partitioning is permanent in appearance, all joins are flush, there are no uncovered bolts or screw heads. 13 standard colours are available, and contrasting schemes can be easily arranged at no extra cost. Roften Modular Partitioning will give your client quiet, warm, well laid out *offices — of sumptuous appearance.*

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The panelling of Roften Modular Partitioning units consists of a double skin of 20 B.G. pressed steel. Each skin is backed by ½" insulating board and there is a 1" dead air space in between.

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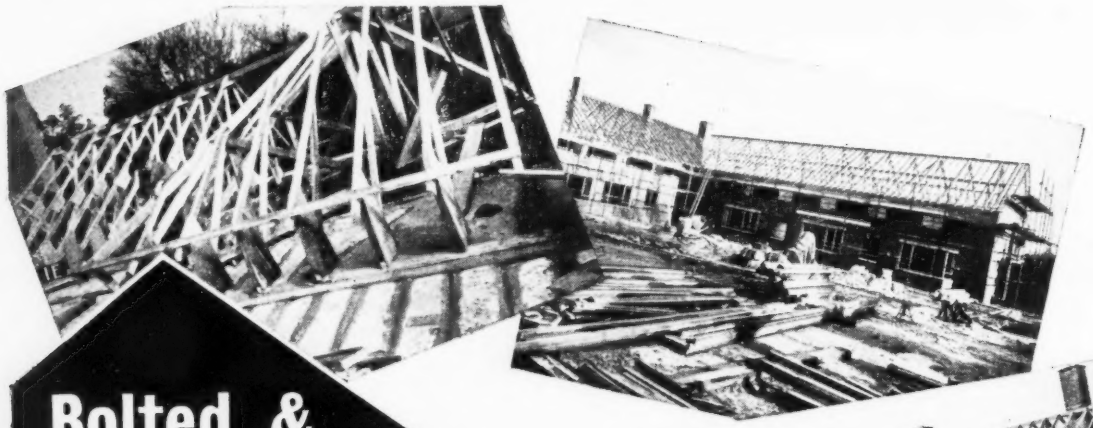

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Rainham Timber Engineering Co. Ltd. manufacture any type of truss to specification and supply a sound engineering job for the purpose required. Ask them to estimate for your next contract.

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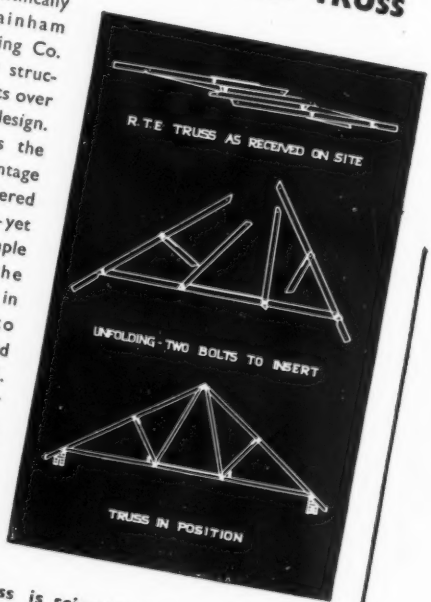
This truss scientifically designed by Rainham Timber Engineering Co. Ltd. shows many structural improvements over conventional truss design. In addition, it has the considerable advantage that it can be delivered to the site folded — yet requires only four simple movements and the insertion of two bolts in pre-drilled holes to transfer it into a rigid structure. The R.T.E. folding truss is suitable for all types of roof covering, for any pitch, for hipped and gabled roofs and for spans up to approximately 30 ft.



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- The R.T.E. Truss looks right — and is right.

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Construction in Glued Laminated and Bolted and Connectored Timber

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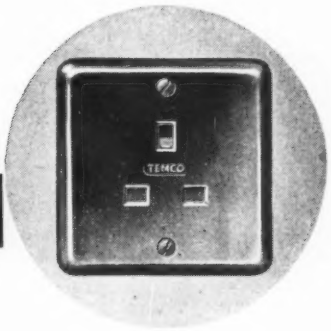

Examine carefully a TEMCO 13 amp socket outlet or switched socket outlet. One of the first features to impress you will be the way in which the terminals and terminal screws are positioned so that wiring can be carried out more easily, more quickly. That is not accidental but is characteristic of the care taken to ensure the highest possible efficiency for all TEMCO Accessories.

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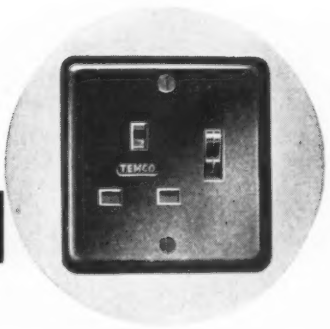

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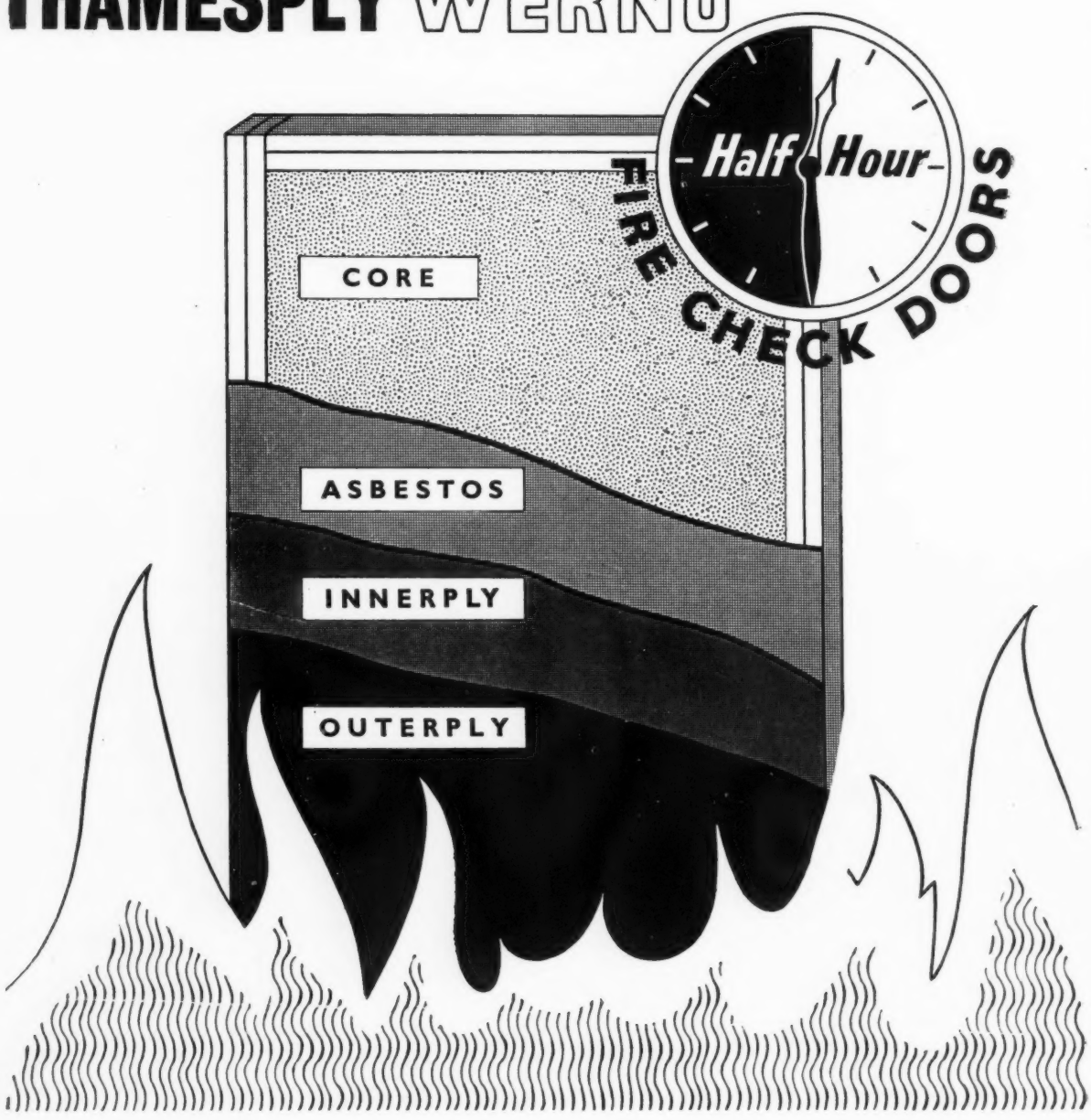

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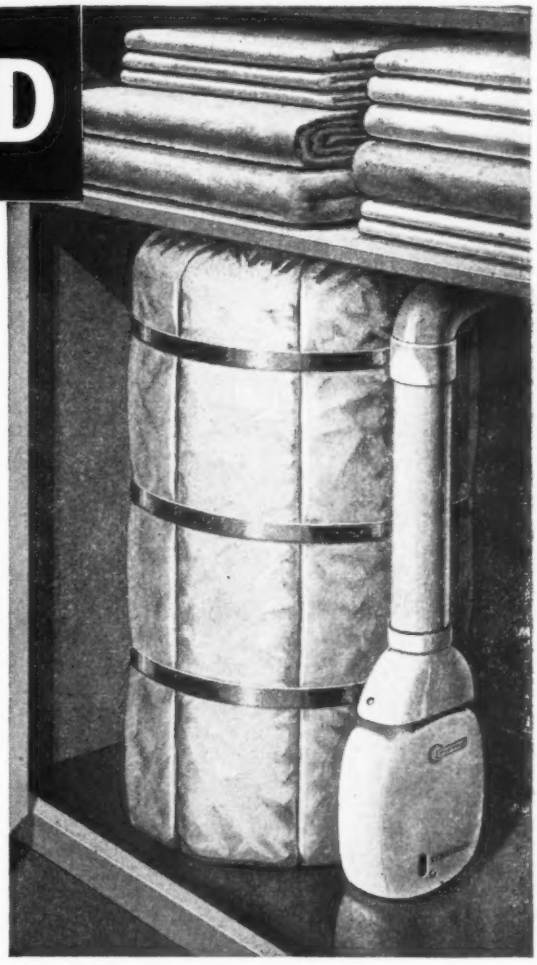

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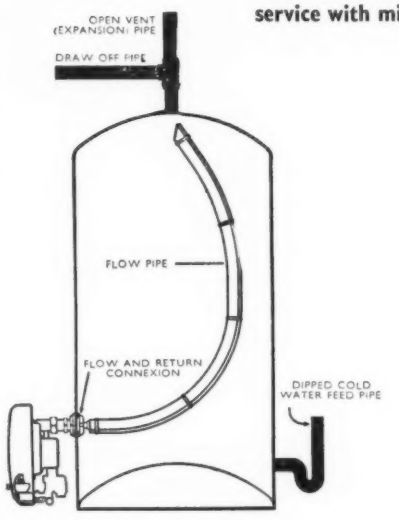

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Output—5½ gallons raised 80°F.
Complete with governor and T.C.O.
Available with flue cap or draught diverter. Finished in white vitreous enamel.

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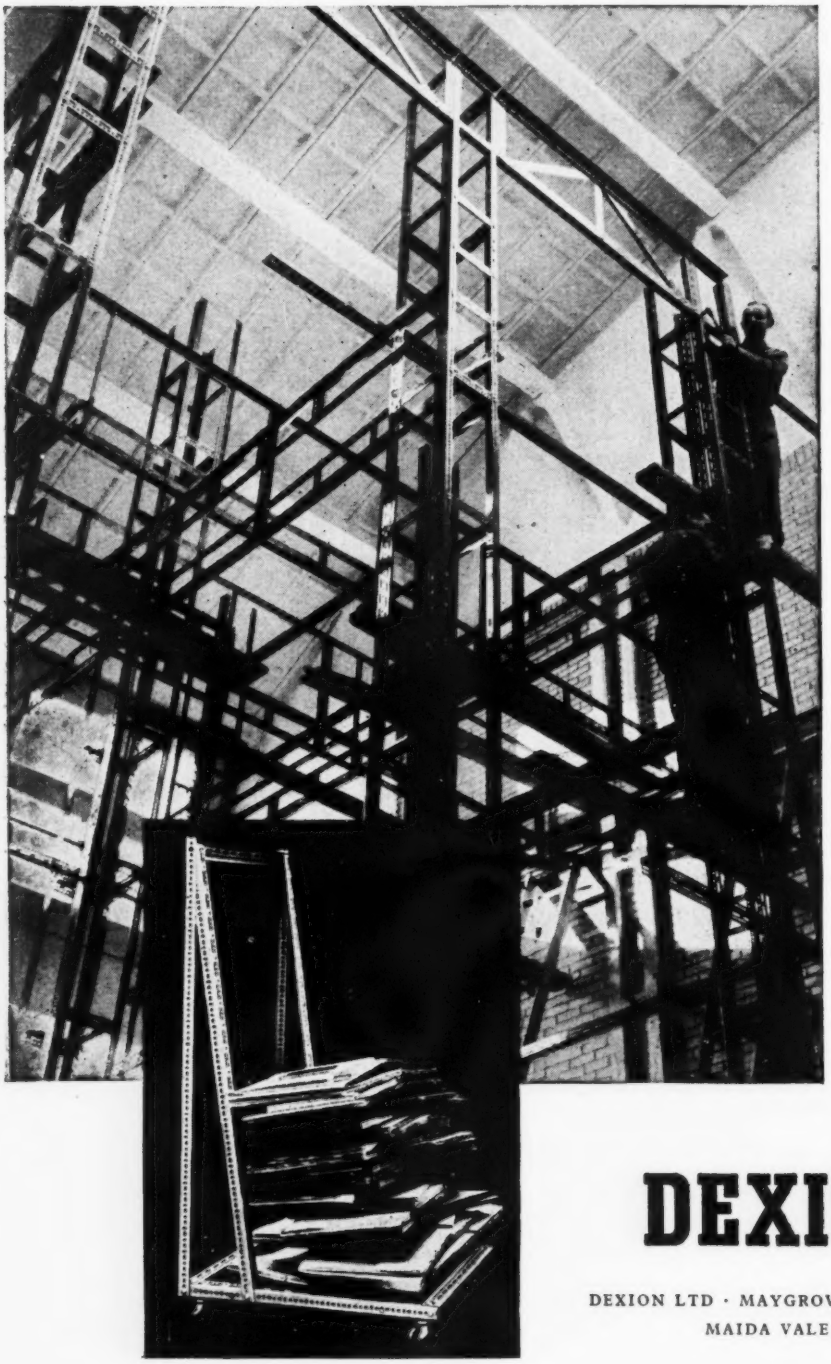
It's amazing what you can do with DEXION slotted angle



AMAZING is just the right word. It's certainly no exaggeration. For this versatile material, with just a little human assistance, is capable of some quite remarkable feats of construction. And at a price which is sometimes so small it, too, is amazing!

Dexion Slotted Angle is so versatile it is true to say that its only limitation is the imagination of the user. Storage racks, work benches, conveyors, mobile maintenance platforms—the full list is too long to give here, and in any case, there isn't really a complete list, because people are finding new uses for Dexion every day. And most of the structures can be erected by unskilled labour, because 80% of the work has been engineered into Dexion before it reaches the customer!

If you are concerned with constructional problems, large or small, where cost, speed and space-saving are important considerations, you can be certain that Dexion Slotted Angle will delight you with its performance.

DEXION

DEXION LTD · MAYGROVE ROAD · LONDON · N.W.6
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Talking Shop...

"Curtain Walling and conversion work? — as different as chalk from cheese, I'd say. What's the connection?".

"'*Paramount' Dry Partition, of course*".

"You mean it's a multi-purpose material?".

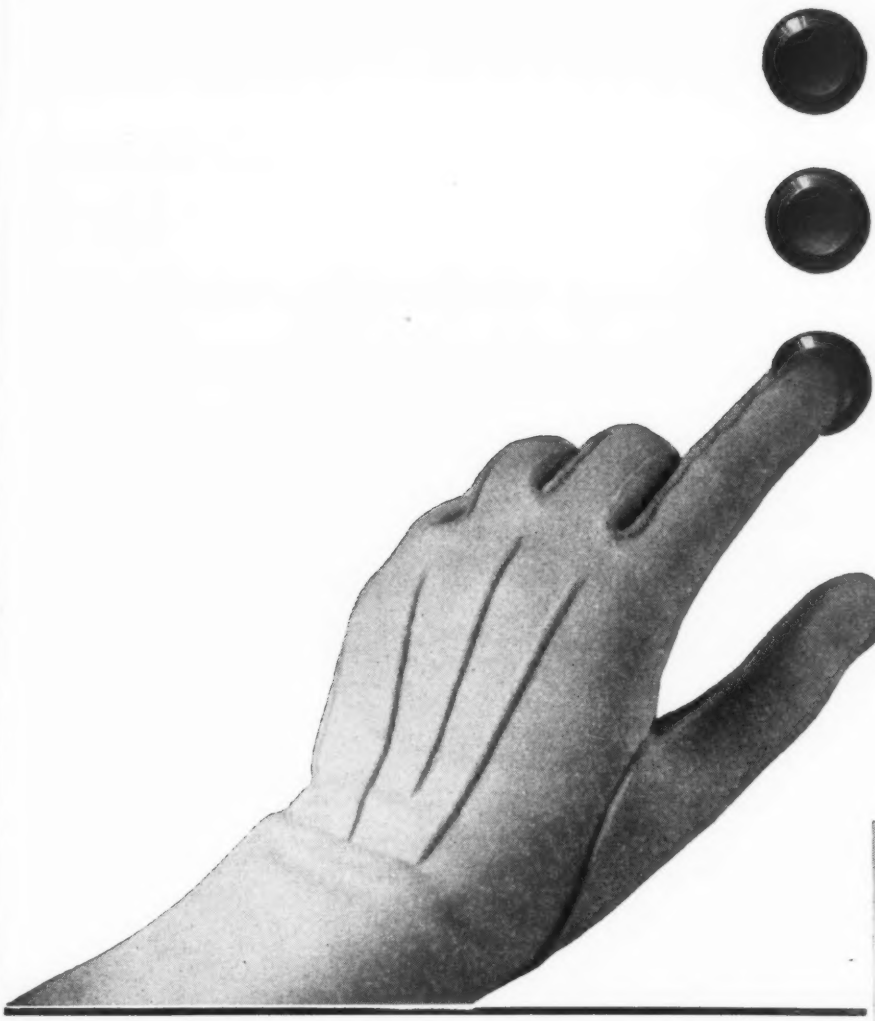
"*Exactly, John. 'Paramount' Dry Partition is a good thermal insulator, fire-resistant, light in weight and very easily fixed. In fact, it possesses all the qualities essential for both types of work*".

Write for full particulars of 'Paramount' Dry Partition to

THE BRITISH PLASTER BOARD (MANUFACTURING) LIMITED

Bath House, 82 Piccadilly, London, W.1. Tel. GROsvenor 8311

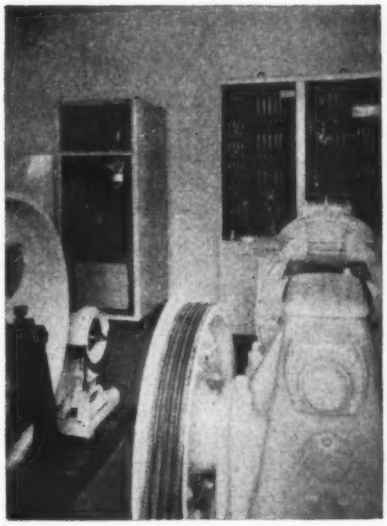
A BLUE HAWK PRODUCT



Wadsworth Passenger Lifts

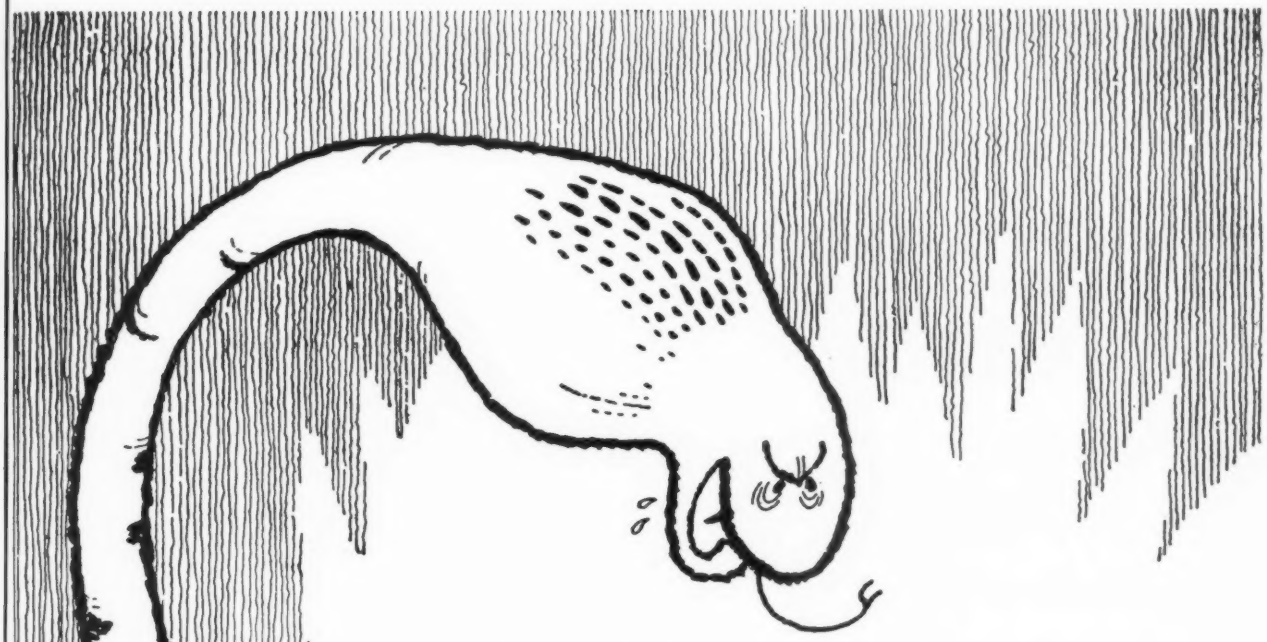
are running on mercury - vapour

An electronically-controlled mercury-vapour rectifier replaces the motor-generator set as a winding motor power source for the latest Wadsworth 'Static' variable-voltage lifts.
Static V.V. eliminates the installation and maintenance costs of continuously running machinery; precise electronic control gives swift smooth acceleration and accurate approach to the floor.
An entirely British development, Wadsworth Static V.V. has been chosen for office buildings, technical colleges, concert halls and luxury flats, on the basis of its outstanding performance, modest installation requirements, and overall economy, both in this country and overseas. Making lighter demands on control gear than any other drive, a number have also been supplied for heavy duty industrial applications.
'Generator-less' V.V. deserves your investigation. Technical information is available.



In the machine-room illustrated, the rectifier cubicle can be seen on the left. The arc between graphite electrodes and a pool of mercury in an evacuated vessel possesses rectifying properties, and the static mercury-arc rectifier has replaced rotating machinery in many applications, converting a.c. to d.c. with smaller power loss and greater reliability. For lift drive the d.c. voltage supplied to the lift motor is controlled electronically, using rectifiers incorporating auxiliary electrodes. Several features of Wadsworth rectifier drive are protected by patent.

WM. WADSWORTH & SONS LTD. BOLTON AND LONDON



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To keep an even temperature under all conditions is not always easy. When it's a question of thermal insulation in the factory, office or home, Fisher's Aluminium Foil will solve the problem — simply, speedily and economically. Fisher's Foils Limited specialise in rolling aluminium foil for thermal insulation.

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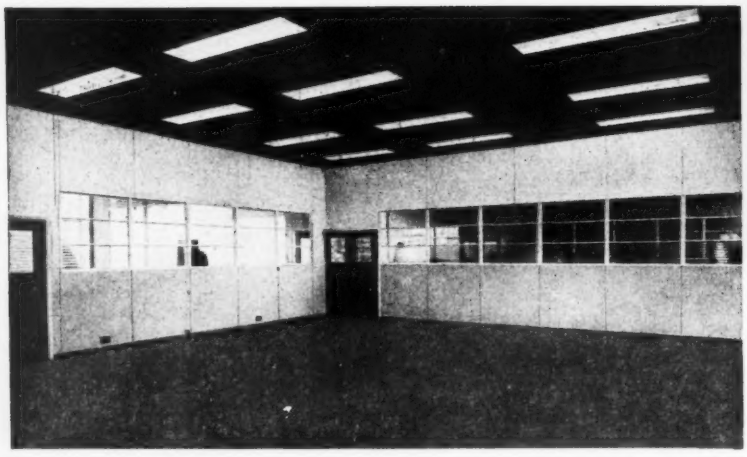
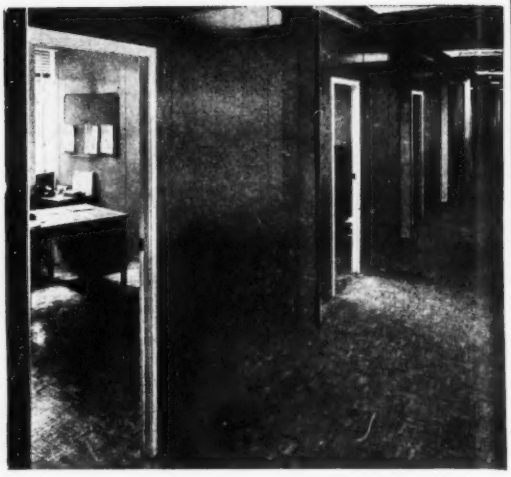
"FLUSHFORM"

MOVABLE UNIT PARTITIONING





'FLUSHFORM'

floor-to-ceiling assemblies are a great advancement on other systems, where rapid erection is called for, as it only requires wedging between floor and ceiling, and the simple method of tongueing the panels together dispenses with the need for framing.

ERECTION COSTS
Cheaper than brick, breeze block or plaster walls with more floor space. Faster to erect—no disorganisation or mess.

MAINTENANCE
Bi-yearly repainting costs disappear. Cleaning done with ordinary soap and water.

FITTING
" FLUSHFORM " fits tightly to floor, ceiling and walls whatever design of architraves, skirtings, or ceilings.

WIRING
Ducts in core, accommodate all forms of electrical services.

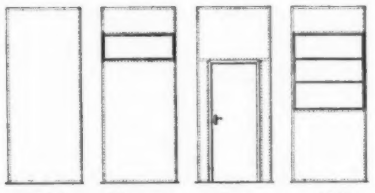
GLAZING
" FLUSHFORM " takes all types of glazing.

ALTERATIONS
Whenever reorganisation is necessary, " FLUSHFORM " can be taken down and re-erected without undue expense, waste or inconvenience.

SOUND REDUCTION
" FLUSHFORM " incorporating the flax shive core has the remarkable sound reduction value of 34 decibels.

FIRE RESISTANCE
" FLUSHFORM " has a thirty-minute fire rating. Incombustible sheet material can be used where exceptional safeguard is needed.

" FLUSHFORM " FLOOR TO CEILING ASSEMBLIES



The modern walling system

" FLUSHFORM ", the prefabricated, permanent, yet easily movable partitioning, has been devised on sound engineering principles to fulfil every requirement specified by Architect or Interior Designer for Offices, Showrooms, Hospitals, Stores, etc.

" FLUSHFORM " provides attractive partitioning, light in weight, yet absolutely robust and rigid with remarkable thermal and sound-reduction qualities.

" FLUSHFORM ", with its neat, clean flush line and many of the superb finishes, avoids the necessity of repainting, thereby saving maintenance costs.

" FLUSHFORM " is quickly erected with the absolute minimum of inconvenience, cheaper in cost than wood, brick, glass and plaster methods, easier to maintain, and so much easier to remove and re-assemble if the need arises.

" FLUSHFORM " is available as standard units or individually tailored in a wide variety of styles and finishes to suit all requirements, thereby keeping within reasonable budget margins.

Our design and planning staff are at the service of Architects to assist and advise and prepare fully detailed drawings.

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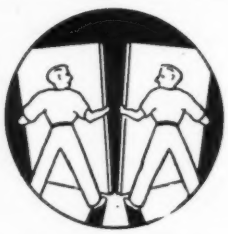

"FLUSHFORM" SAVES TIME, SPACE AND BUILDING COSTS!

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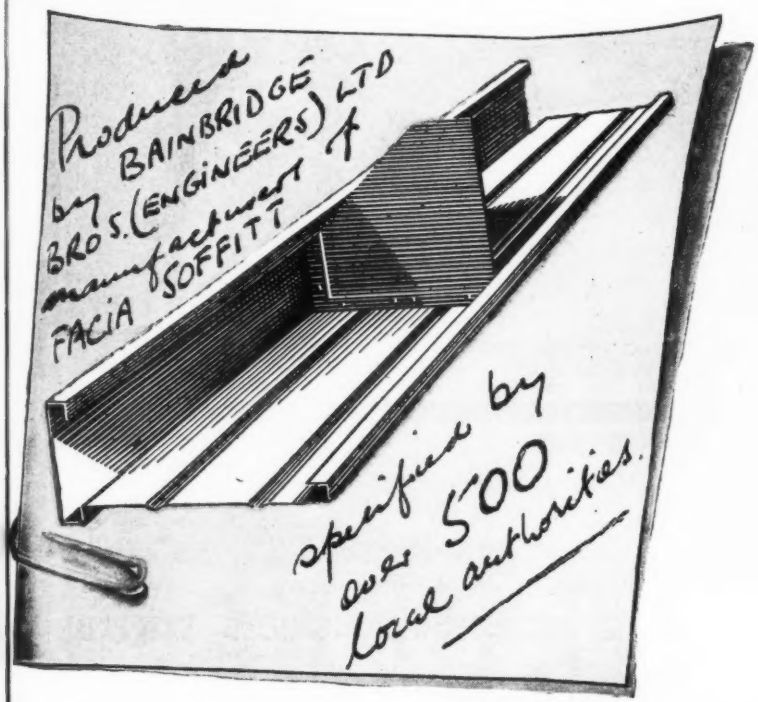
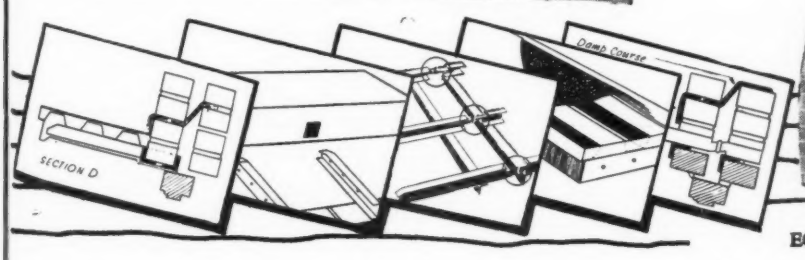
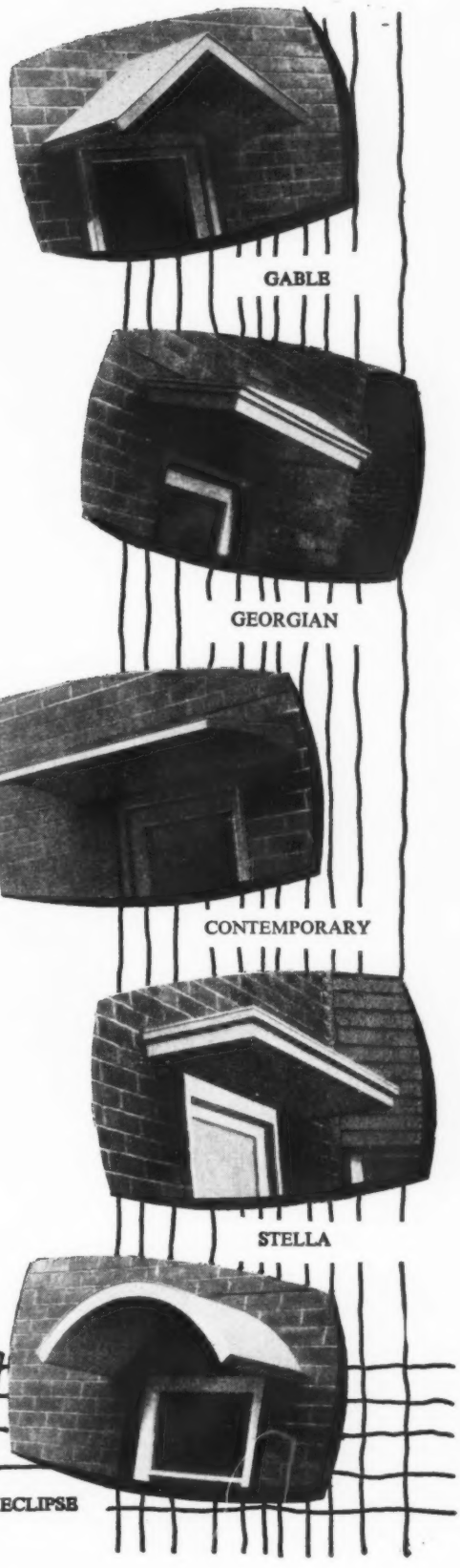
ALICANOPIES are specially designed to give the architect economy and speed in canopy construction, and only the best quality aluminium is used. If these shapes were designed and constructed in other materials in such a way as to require no maintenance other than the periodic painting given to the exterior of the house, the cost would be very considerable.
Furthermore, the construction is such that labour for fixing both frame and canopy is cut down to a minimum duration.







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4,677 sq. yds. of aluminium veneered panels, stove enamelled units, and perforated panels.

*ASBESTOLUX is now available on immediate delivery.

ROCKSIL

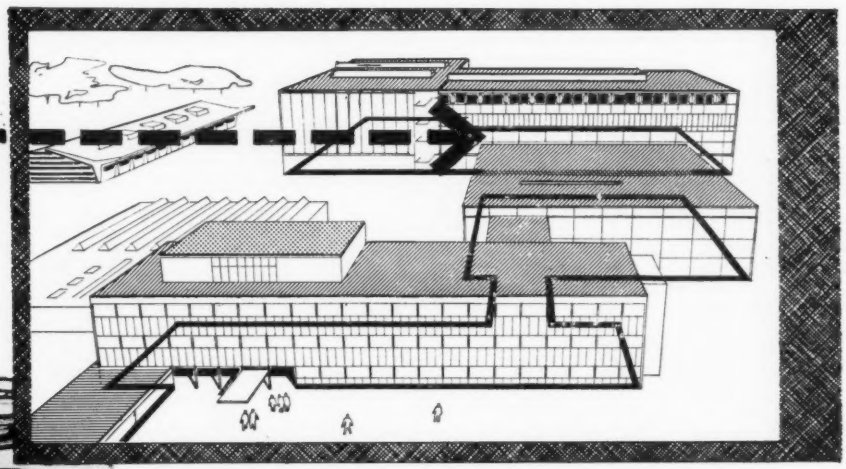
3,100 sq. yds. of 1" building mat.

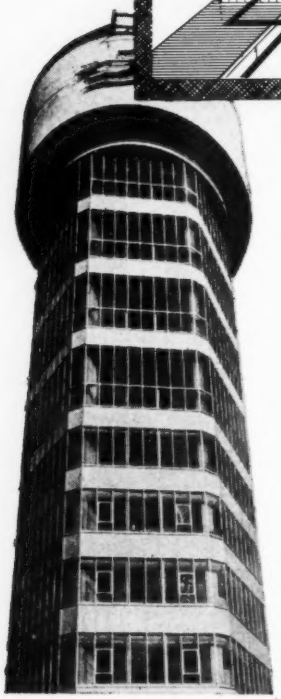
UXBRIDGE FLINT BRICKS

166,000 Purple. 240,000 White facing.

Illustration top left: Stove-enamelled units behind glass with a plinth wall of Uxbridge Flint Bricks.

Illustration below: Water Tower with window wall frame of aluminium veneered Asbestolux infill panels.





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The provision of adequate fire protection in buildings is good citizenship. Acknowledging human fallibility it takes the sensible long term view in preventing possible loss of life and destruction of property.

The provision of adequate thermal insulation in a building and ensuring warmth without wastage of fuel is also good citizenship. In the long term it helps the national economy and rewards the owners of the property with sensibly reduced overheads.

For this reason it should be remembered that Insulating Gypsum Plasterboard not only gives real protection from the spread of fire but, in addition, superior thermal insulation.

There is no better or more inexpensive method of ensuring two such worthwhile ends.

Insulating GYPSUM Plasterboard is BRITISH and . . .

RESISTS FLAME . . . RETAINS WARMTH

★ *FACTS*

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HERE is the answer to all those in authority whose urgent needs for extra room are frustrated by delay and high cost. HALL'S wide span timber buildings are designed with a greater degree of prefabrication to save expensive site hours. These structures are so skilfully designed and well constructed that they will grace any site.

Architects, surveyors and public authorities in many parts of the country have specified these buildings as a supremely practical and aesthetic answer to a variety of accommodation needs.

HALL'S wide span buildings are available in standard single spans of 10, 12, 18, 24 and 30 ft. and in any lengths in units of 6 feet. Interior details are "made to measure" for individual needs. Constructed by craftsmen from selected timber, kiln dried and processed, they will last indefinitely.

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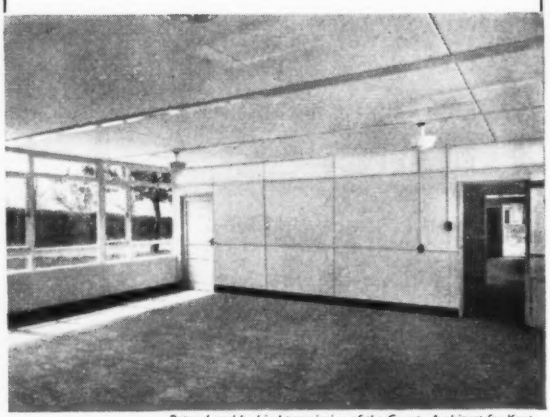

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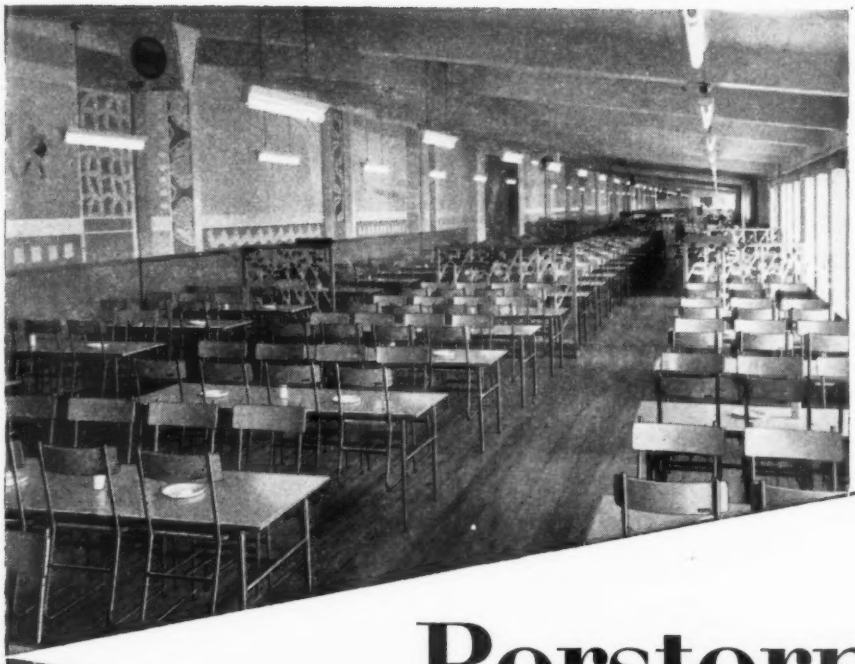
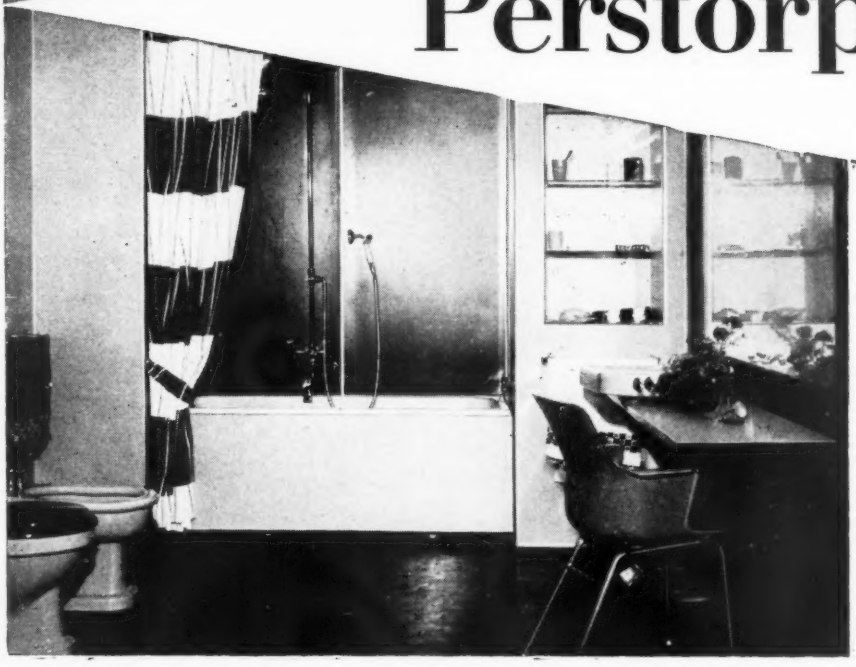
THE TIMBER BUILDING MANUFACTURERS ASSOC OF GT BRITAIN



good for cooking

Perstorp Panels



ideal for bathing

The big canteen you see here has its walls and its tables surfaced with permanent, fadeproof, colourful Perstorp, the original plastic laminate. And the same with the bathroom.

Perstorp is the ideal greaseproof, dirtproof, steamproof surface for all manner of industrial uses. It can be cut to any shape, harmonise with any design or colour scheme, and it cleans with a wipe.

Boiling water won't affect Perstorp, neither will hot utensils, and its finish is a carefully thought-out balance between gloss and matt. On top of all this it's not expensive.

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ORIGINAL PERSTORP PANEL MADE IN SWEDEN FOR LONG LASTING BEAUTY

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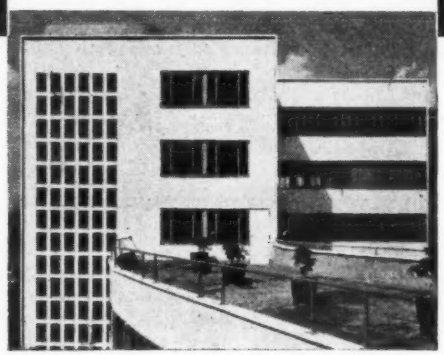
SAVE MONEY by building in REINFORCED CONCRETE

New Office building for Sir Lindsay Parkinson & Co. Ltd., St. George's Circus, S.E.1., acting as own contractor.
Architects: Moiret & Wood, in liaison with the Company's chief architectural surveyor, Tristan G. Walden, F.R.S.A., F.F.S.(Eng), A.M.S.E.
Structural engineering consultants: Malcolm Glover & Partners.
Reinforced concrete construction throughout:—columns, structural floors, stairs, liftshafts, mullions, external walls (main elevations) faced with polished marble cladding slabs which formed permanent shuttering; flank walls of in situ concrete finished with a 'Cemprover' treatment.



REINFORCED CONCRETE is being used increasingly in Great Britain for offices, factories, warehouses, flats, schools and similar building and industrial projects, as it has proved itself the *cheapest form of construction.*

For the building frame, external cladding, staircases, floors and roof, reinforced concrete offers many advantages—in addition to that of low cost. Modern concrete technology, aided by research—The Blue Circle Group of Companies alone spend about £300,000 each year on research and development—and the availability of the range of Blue Circle Products for structural and decorative concrete, have placed concrete in the forefront of modern constructional materials.

The services of our Technical and Advisory Department are at your disposal

A BLUE CIRCLE CMC PRODUCT

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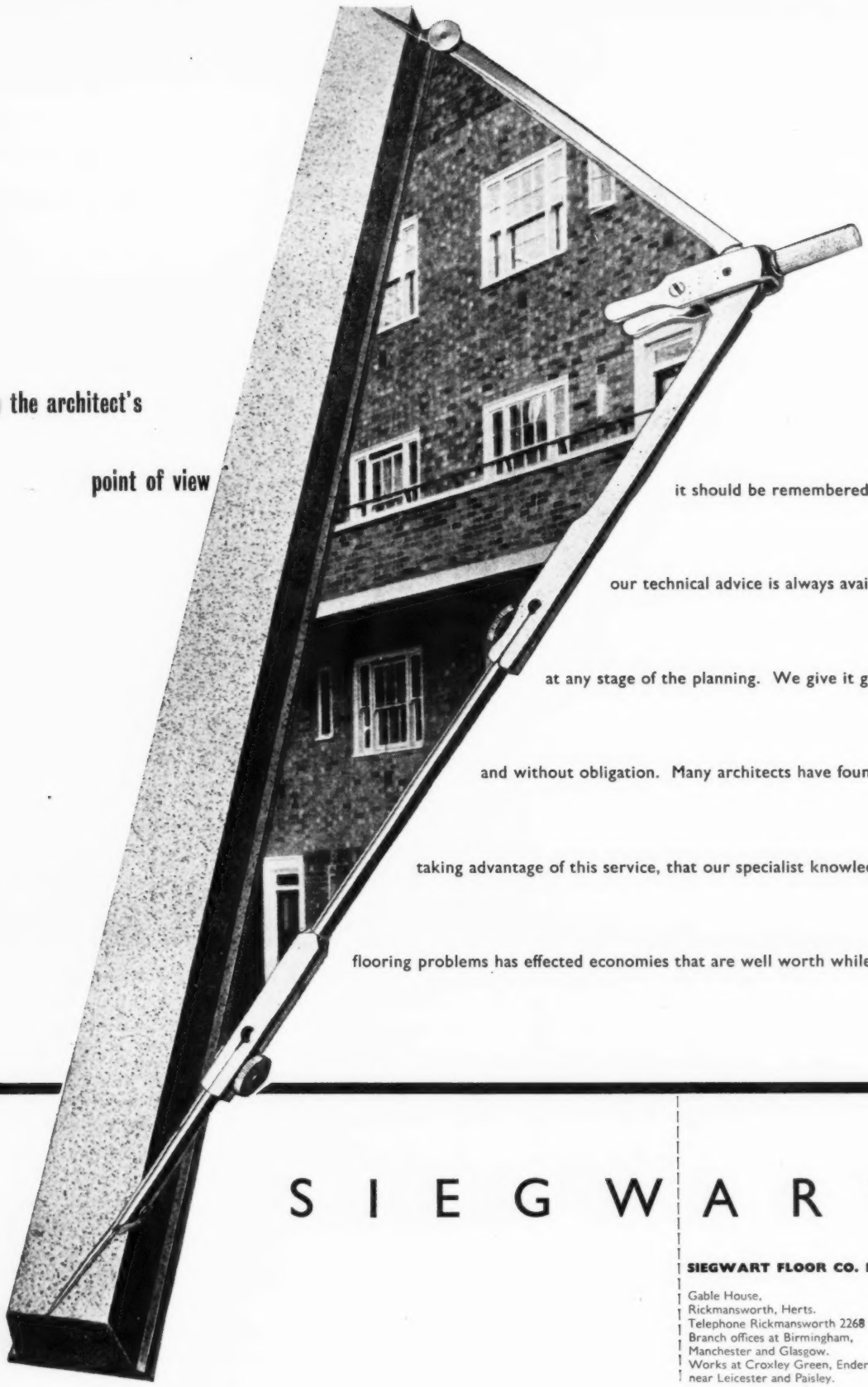

From the architect's point of view it should be remembered that our technical advice is always available at any stage of the planning. We give it gladly and without obligation. Many architects have found, in taking advantage of this service, that our specialist knowledge of flooring problems has effected economies that are well worth while.

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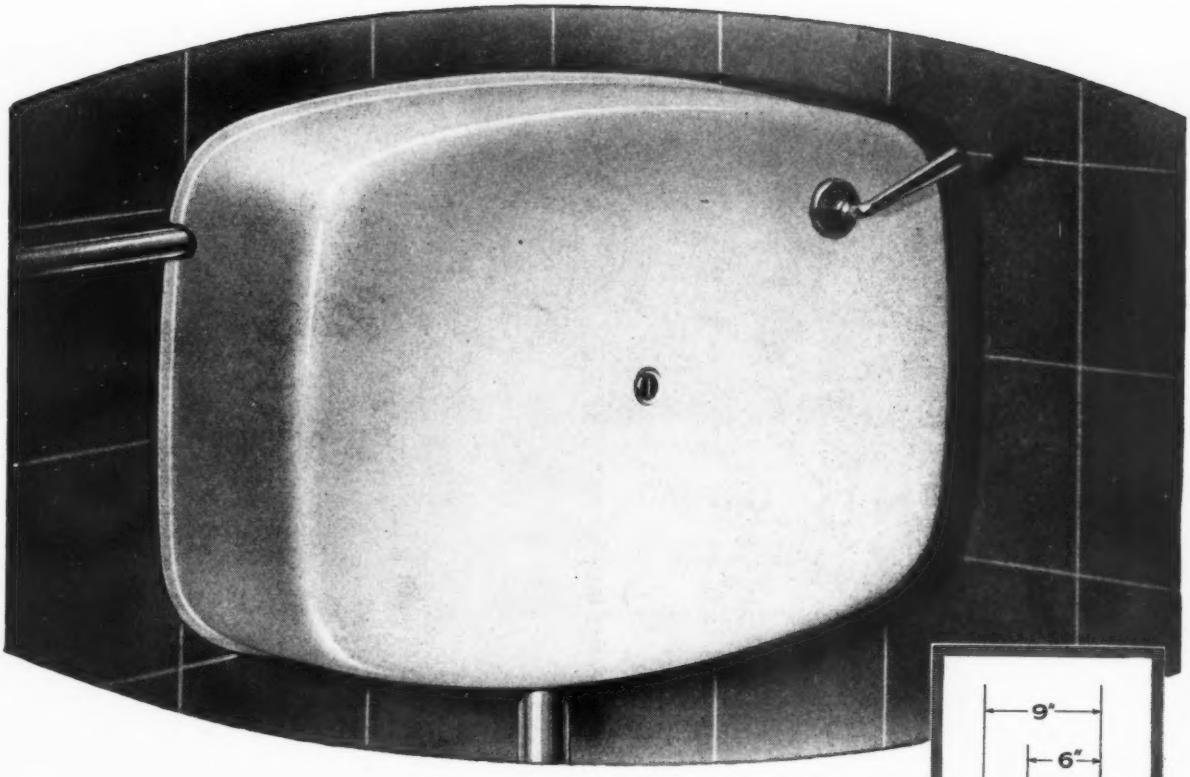
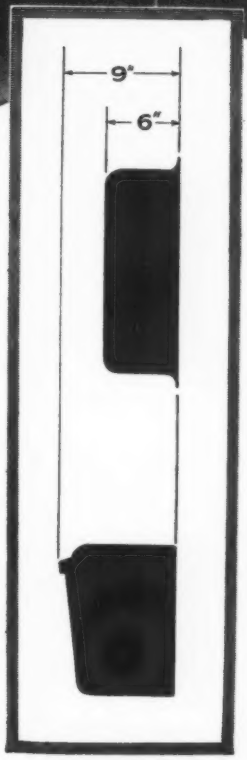
There's nothing obtrusive about this new **Fordham**





IT PROJECTS ONLY 6 INCHES FROM THE WALL

With its handsome cleanline design, the new Fordham Panel Low Level Cistern has the pleasing quality of keeping well in the background. The unique all-over cover projects only a modest 6 inches from the wall—a valuable saving of space in the smallest room. Equally noteworthy is its smoothly efficient performance, for the finely adjusted operating lever flushes at a touch, and there's simply nothing to go wrong. Unobtrusively at home in contemporary surroundings, the new Fordham is available in a choice of beautiful enamelled finishes to match any scheme of decoration.

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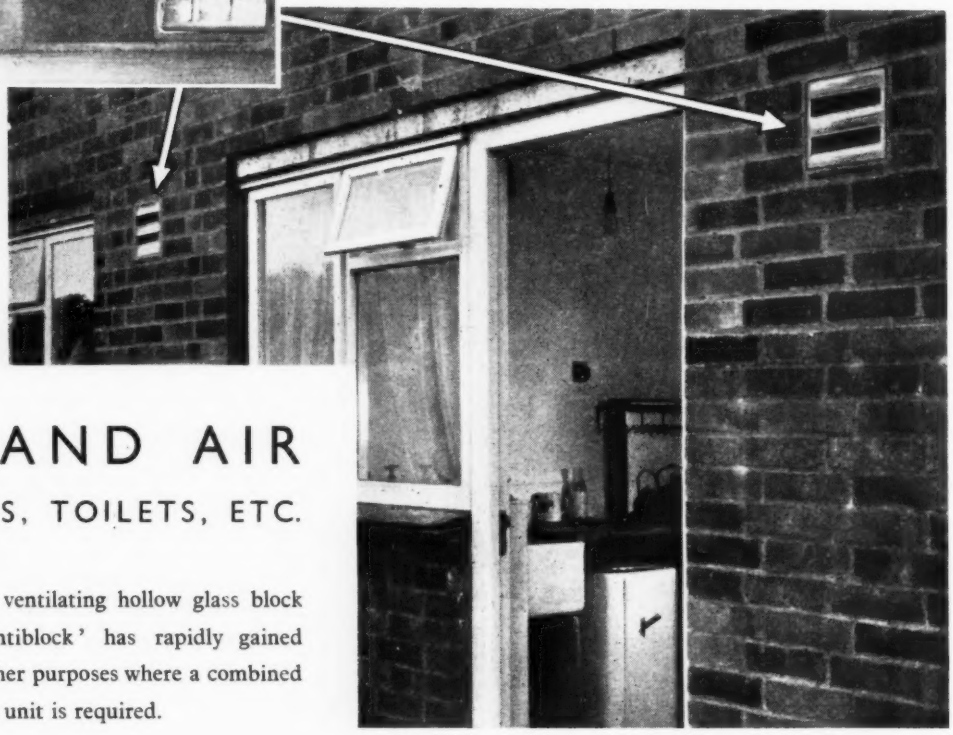

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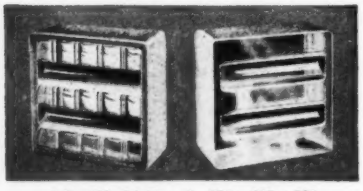
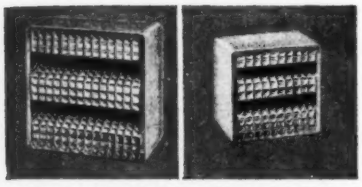
FOR LARDERS, TOILETS, ETC.

Designed primarily for ventilating hollow glass block installations, the 'Ventiblock' has rapidly gained acceptance for many other purposes where a combined lighting and ventilating unit is required.



'Ventiblock' Type 3—7¾" × 7¾" × 3¼"



'Ventiblock' Type 32—7¼" × 7¾" × 3¼"

'Ventiblock' Type 2—5¼" × 5¼" × 3¼"

Available with or without SHUTTERS and/or FLY-SCREENS

THE CLARK-EATON ALL-GLASS 'VENTIBLOCK'

(Patent Nos. 552195, 583552. Further patents pending.)
Designed by Lethieullier Gilbert, A.I.A.A., L.R.I.B.A., and L. James Hobson, A.R.I.B.A.

Can be used singly, or in groups. It is hygienic and easily cleaned, needs no painting and is simple to install. No moving parts—nothing to vibrate; excludes driving rain and will not collect water; ensures privacy and freedom from direct draughts; impassable to rodents and can be supplied with Fly Screen and/or Shutter.

An adaptable unit for every type of building.

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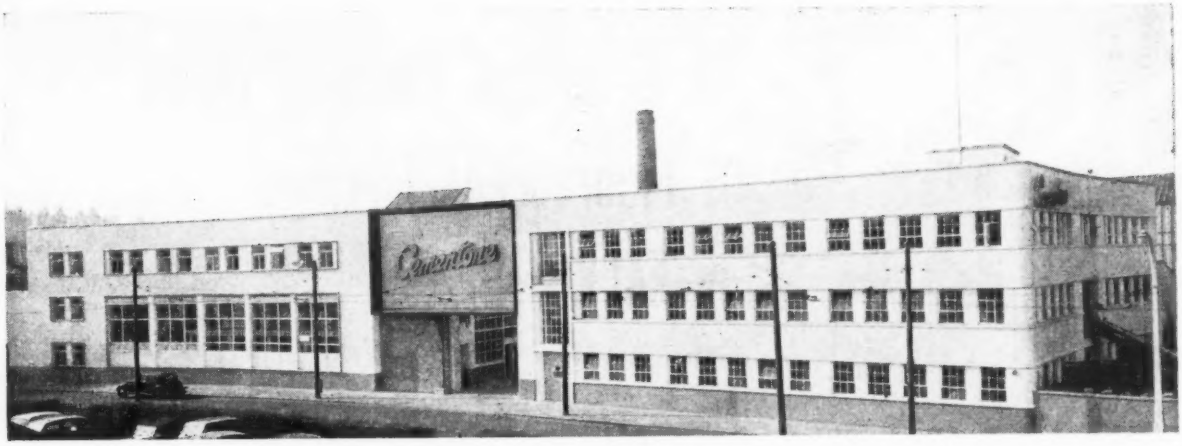
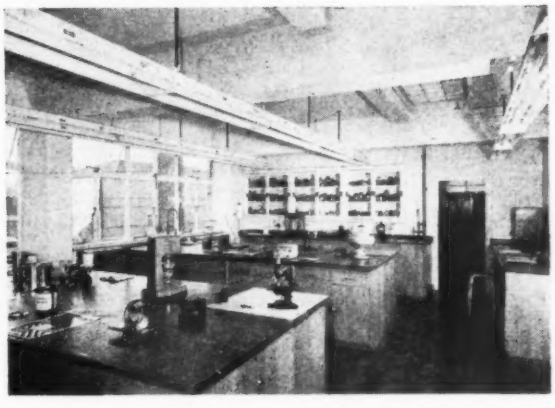


Architects for the complete buildings: P. A. W. Roffey, F.R.I.B.A., F.R.I.C.S., and Eldred J. Stevens, A.R.I.B.A.

CEMENTONE WORKS WANDSWORTH
NEW MILL ROOM AND LABORATORIES

The recently completed new extension to the Cementone works affords a good example of the versatility of the range of building products manufactured there. In all stages of construction one or other of the Cementone Range can be used to good effect as the list below suggests. Full details of all these products—colours, hardeners, waterproofers, mortar plasticiser and decorative finishes —will be found in the Cementone Handbook, sent free on request.



Cementone — **of course!**

The following products have been used in the new Mill Room and Laboratory Block:

Hardening and Frost Proofing Cement	—Cementone No. 8 Liquid Concrete Hardener.
Waterproofing Foundations, etc.	—Cementone No. 2 Waterproofing Powder.
Bricklaying Mortar	—Rendaplas Double Strength Mortar Plasticiser.
Coloured Flooring	—Cementone No. 1 Permanent Colours for cement. Presto Wax Polish.
Exterior Decoration	—NUMBER SEVEN Gloss Finish. Anti-Rust Primer.
Interior Decoration	—NUMBER SEVEN Interior Flat Finish. EXELAERO Wall Flat, Emulsion Paint.

ARCHITECT FOR NEW MILL ROOM AND LABORATORIES:
Eldred J. Stevens, A.R.I.B.A.

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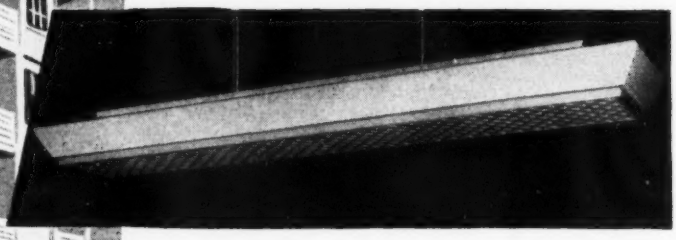
FLEET—Gear channel, body and louvre of sheet steel, stove enamelled off-white. The louvre is specially designed to show only the transverse members and has "perspex" shields at each end to conceal the lamp holders.



WANDLE—Gear channel and body of sheet steel, stove enamelled off-white. The louvre is of polystyrene.

EMBER—Gear channel and body of sheet steel, stove enamelled off-white. The lower panel is of $\frac{1}{4}$" reeded clear "perspex".

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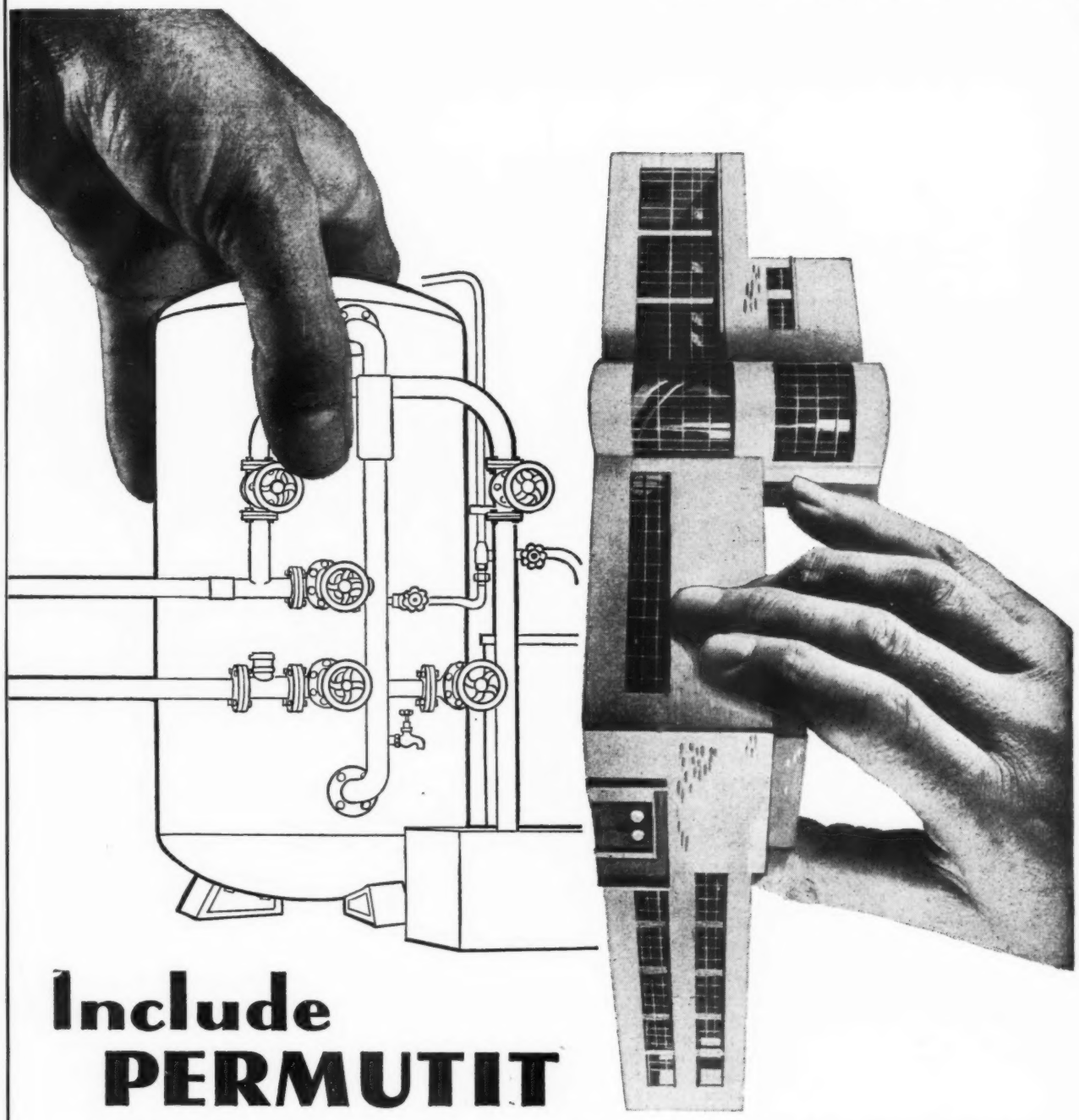

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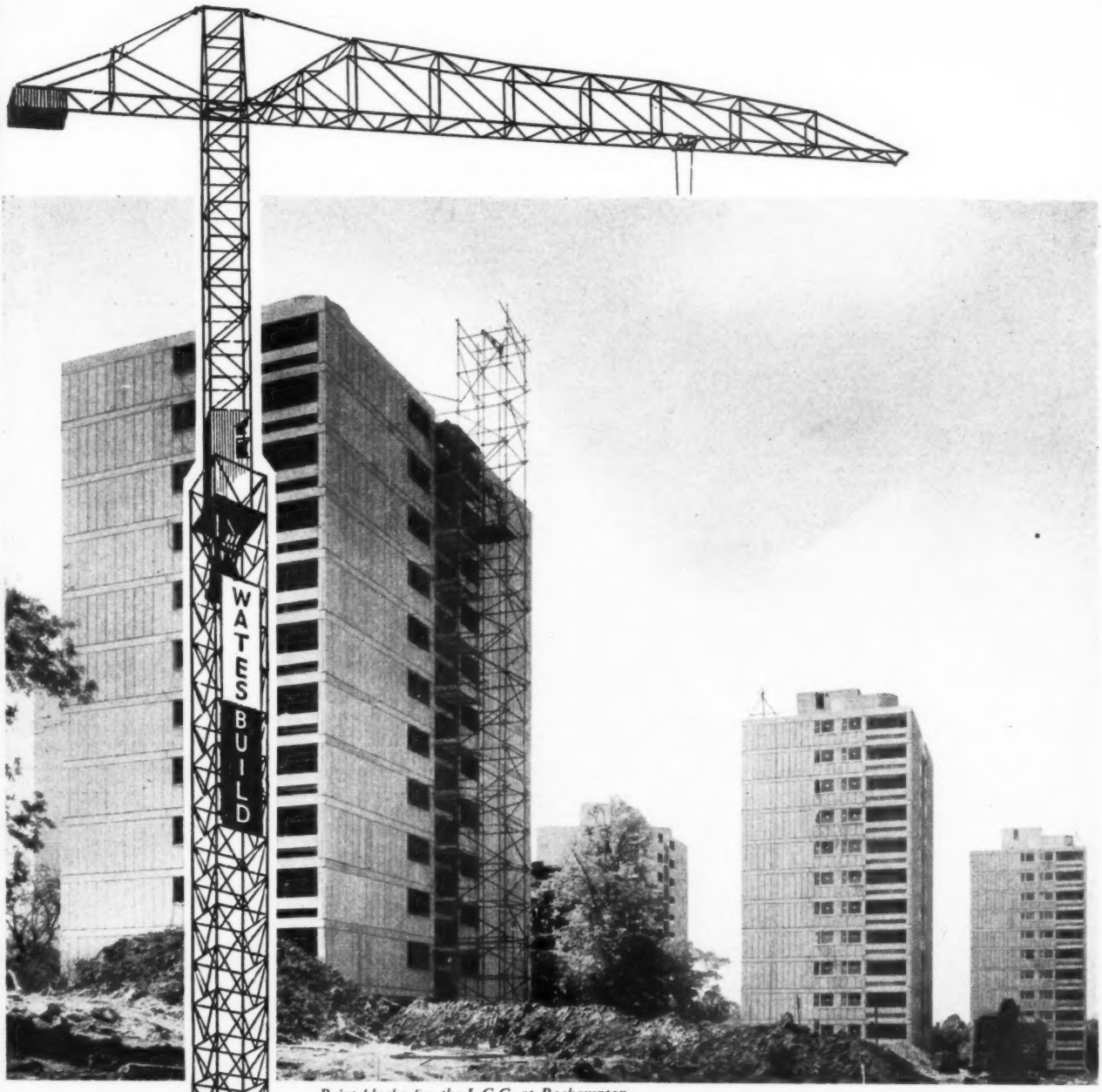

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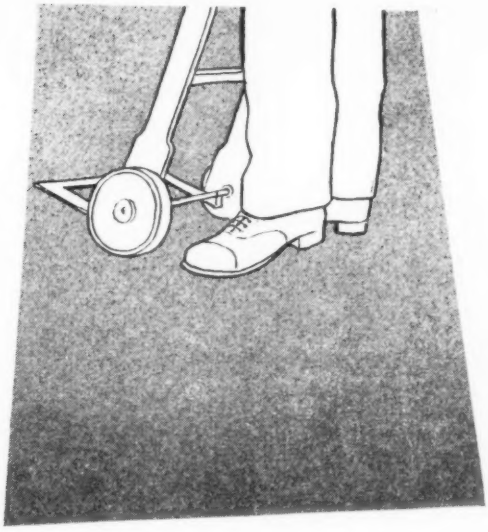

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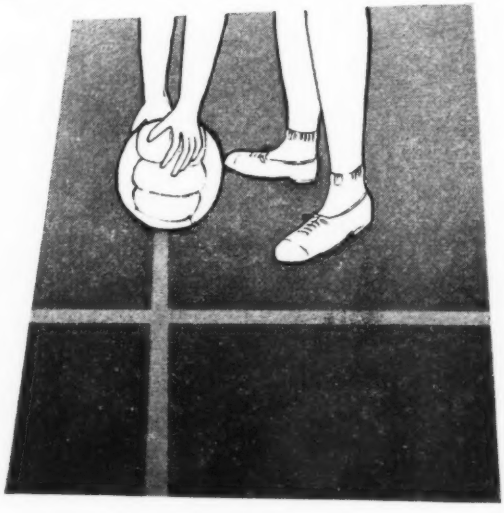

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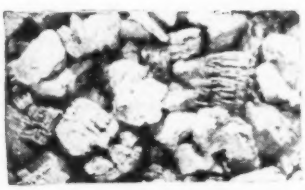

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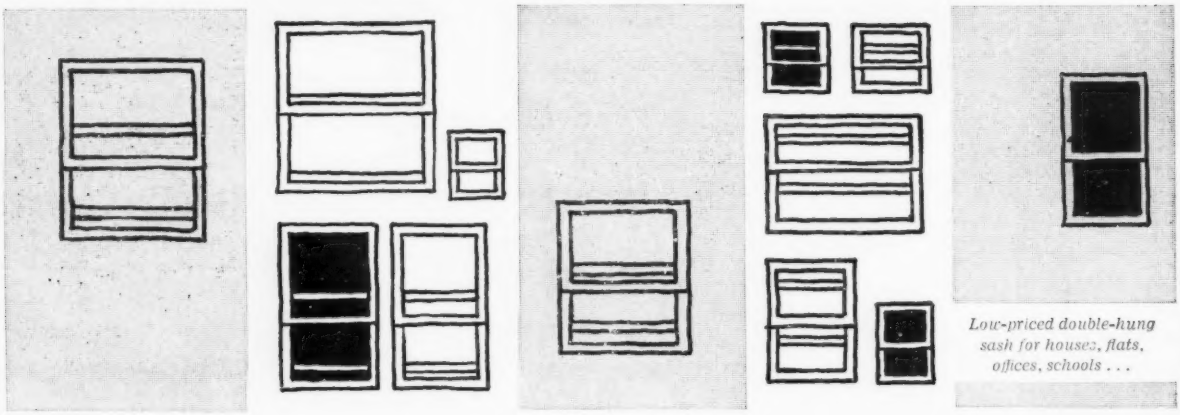

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It is primarily the new design that brings about this new low price; because there is no counterbalancing mechanism and, therefore, no need for bulky hollow jambs to house it. Also, there are several new, cost-saving techniques on the assembly line.

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Standard sizes or Purpose-made

ALOMEGA Windows are available for inspection at any Williams & Williams Area Office or merchant stockist, and are made in the following standard sizes:

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Type 35, 4′8⅜″ x 2′8½″	**Type 45 4′8⅜″ x 3′5½″**
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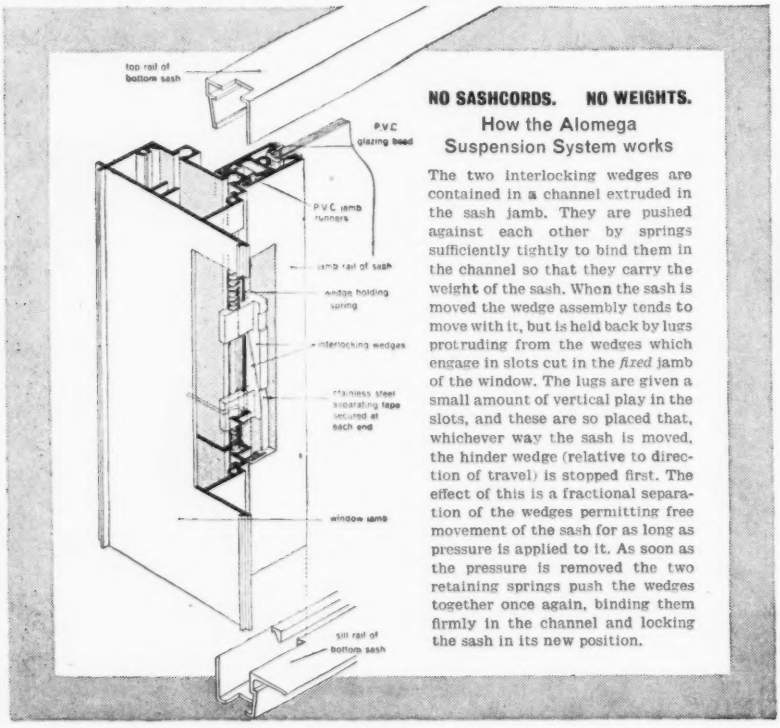
Type 36, 5′8⅜″ x 2′8½″	**Type 46, 5′8⅜″ x 3′5½″**

Owing to the method of construction, purpose-made sizes present no difficulty and are available up to a maximum of 19′ perimeter, at approximately pro rata prices—although, of course, there will be a certain delay.



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How the Alomega Suspension System works

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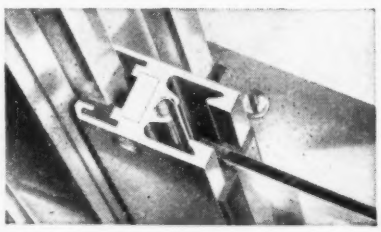

The system is very ingenious, extremely simple, and *completely foolproof*. The components have a laboratory-tested "life" of well over 200 years of normal use. The whole mechanism is completely enclosed and out of sight.

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82

A Linoleum floor at the Bond Street offices of K.L.M.-Royal Dutch Airlines. Notice how skilfully the architect has selected a contemporary pattern muted in tone to accentuate his decorative theme. Linoleum, more successfully than any other modern flooring, provides resistance to wear coupled with quietness of tread, which a busy office demands.

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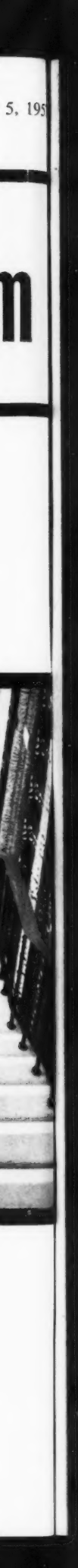

AJ

THE ARCHITECTS' JOURNAL

No. 3262 Vol. 126 September 5, 1957

9-13 Queen Anne's Gate, London, S.W.1. Tel. WHI 0611

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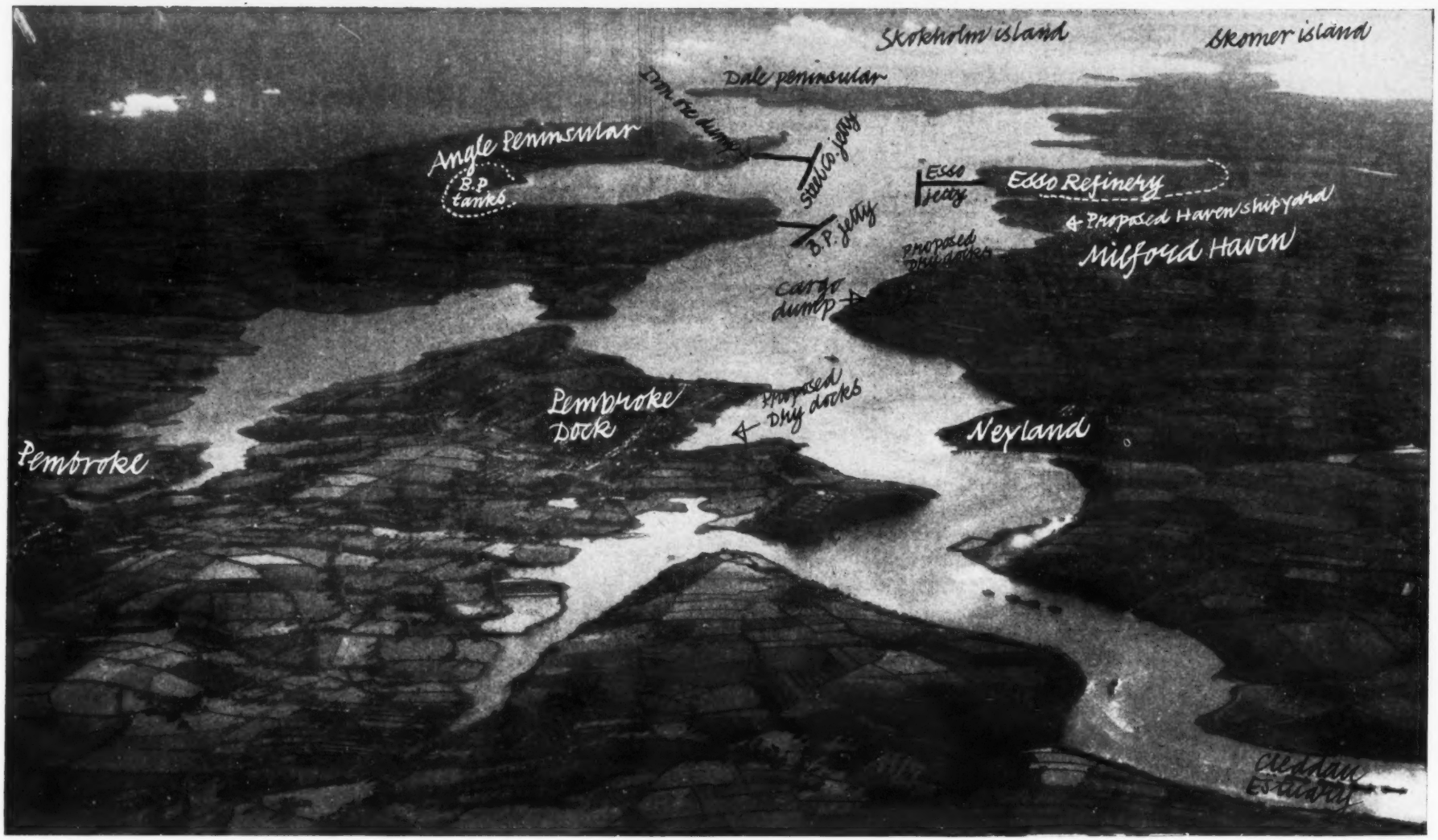
NOT QUITE ARCHITECTURE

BEWARE OF THE TUBE

Or, Look Back in Ongar!

We've had a vintage crop of bland official falsehoods in the past year, one way and another. There are a few more loose in the foyer of Charing Cross Underground, called collectively "Fifty Years of the Hampstead Tube." This exhibition is of great historical importance. Here the particular blend which created Subtopia—the conjunction of the chase for the countryside and the false historicism—can be dated on perhaps its first appearance: December, 1924. It is a poster to advertise the Golders Green to Edgware extension, opened in that year, and it commemorates in Mock-Tudor English the adventure of a couple who MOVED OUT—"thus did they acquire a house of rare beauty and commodious withal." Faugh!—at least the builders of the Nottingham back-to-



Photograph by Terence Soames.

A Major European Port?

Will Milford Haven become, as the Prime Minister has suggested, a " major European port "? At the moment plans are going ahead for the provision of tankers in this National Park area up to 80,000 or 100,000 tons. In addition proposals have been made for the provision of an iron ore dump within the Park. On page 350 we publish a report prepared by a representative of the JOURNAL, who shows clearly how easily Milford Haven might be spoiled, pin-points the rashes of subtopia that already exist and discusses the means by which the area could be brought under control. He rightly says that the responsibility at the moment rests with the MOHLG, which has the opportunity to demonstrate its belief both in planning and in national parks; and that what is really needed is a development authority similar to a new town development corporation,

backs *knew* they were putting up something awful.

*

I wonder if any of the people who dreamed up the exhibition had been to take a good look at Edgware in 1957—the gutless wilderness of bus-route ends and sleazy caffs (not *good* sleazy caffs, mind you), the home of the two typical environmental end-products—the sexless stove-enamelled secretary trying to be genteel, and the Teddy-boy in deserved reaction against the whole mindless goulash.

*

And is London Transport proud or ashamed of the Edgware which it created, as surely as if it had bought the land itself? We can't tell. There's not a word in the exhibition itself: just a "balanced presentation of the facts." It might almost be a Public Inquiry. Well, for once the facts speak for themselves, in the series of posters which are the backbone of this exhibition. They start in the 1910's and early '20's with simple legitimate advertising—country walks, fun and fresh air on Hampstead Heath, and so on. Then comes this sudden switch in 1924 with the Edgware extension, softly first of all—"motor bus routes" (connecting with Edgware) "which serve the lanes and woods of Hertfordshire." Then, "seek a home of your own in the new country"—with a big estate agent's map and the quarterly season 62s. 6d.—and "leave this and MOVE TO EDGWARE." Then comes the fake, already quoted, signed, alas, "Helen Bryce, Her Work." And it is then an easy step to the full nausea of John Dixon in 1928 quoting gleefully "ye Lord of ye manor shalle furnish a Piper to play to hys loyal tenants," and so on.

*

"All that has gone," you might say; "it can never happen again." But among a flood of sickeningly-disingenuous propaganda put out by London Transport in the past year on the moral superiority of L.T.'s transport, there was a little notice on electrifying the Epping to Ongar line—the one quadrant near London which has real countryside, not something carefully preserved: Navestock and Stanford Rivers and the Staplefords, Essex rough stuff. The advertisement said it would "bring the homely Essex villages nearer the crowded heart of London." Hm.

*

It had better not end up looking like Edgware. We've been fooled once—and not only by bodies like London Transport; by the ministries, by the planners, most of all, perhaps, by the architects themselves because they at least knew there *was* something better. We've got a bit of sales resistance now, and we'll have to have something subtler and slimier than this. How about it, copywriters?

IAN NAIRN

The Editors

AFTER MOE, WHAT?

IT was a good idea of the MOE's to publish a substantial booklet* describing our post-war school building programme to laymen; for this programme and the achievement it represents, though so well known to architects, are not particularly well known to others. This achievement is, in fact, the apologia for modern architecture. The people of this country asked for two million new school places by 1961: three-quarters of the time is up and they have three-quarters of the places. Though the cost of building has more than doubled since the programme began, the cost of school building per sq. ft. has gone up only from 58s. to 71s. and the actual cost per place has, in fact, dropped by 20 per cent. This is due not only to the use of cost analysis, and well-considered savings in cubic space, but also to "development" with manufacturers. Perhaps even more important than the quantitative performance is the fact that the kind of schools we now have are on almost every known criterion better than the kind of schools we had in mind before we began this process. This, in broad terms, is what "modern architecture" can do, if given a reasonable chance. Why is the same not being done for other building types? There is no reason why schools should be more susceptible to this treatment than any other building type, or that their costs should be so spectacularly reducible. As the MOE booklet points out, schools ought to be more expensive than office blocks and multi-storey flats; they require wider spans, their finishes have to stand up to heavier wear, their costs include more equipment, and the intricacy of school planning gives less scope for repetitive work. Though the chief credit for the schools achievement must go to the architects and administrators concerned, it is possible to discern certain principles which have made for this success and which could be applied equally to other building types.

The first is the principle that all who need a type of building, or are engaged on designing it, have a common interest in improving our conception of this building type which far exceeds any competitive interest that may legitimately arise between them. The nature of this interest is such that it can only be served by a group of architects who are so organized that they can give adequate attention to the specialized, detailed problems to which the full exploitation of the building

**The Story of Post War School Building.* MOE Building Bulletin No. 4. HMSO

National Park area up to 80,000 or 100,000 tons. In addition proposals have been made for the provision of an iron ore dump within the Park. On page 350 we publish a report prepared by a representative of the JOURNAL, who shows clearly how easily says that the responsibility at the moment rests with the MOHLG, which has the opportunity to demonstrate its belief both in planning and in national parks; and that what is really needed is a development authority similar to a new town development corporation,

type gives rise, and who can, at the same time, serve as a clearing house of all relevant information. The experience of the MOE (and of other bodies who have undertaken "development" work) is that this work can only be done if the group is engaged on the actual design of prototype buildings. The second principle is that since the exploitation of a building type using industrialized components requires the development and manufacture of components to suit the type, this common interest must impress manufacturers sufficiently to make them wish to co-operate on favourable terms. With the MOE there was no particular administrative problem in establishing a common interest and in forming a development group, and the same should be true whenever public building is concerned. For all other kinds of developer it seems logical to call on trade or professional associations. But whether the building type is the concern of public or private bodies, there is no doubt that the architects must take a lead, both because they in the end are responsible for providing the right buildings at the right price and because at the moment they alone understand the problem. Would it not therefore be logical for the RIBA to take a leaf out of MOE's notebook, to contact the interested public bodies and trade associations whenever a considerable building programme looms, and to form with them an architects' development group?

BARK COMES TO TOWN

There are two small, quiet exhibitions among the clamour and splendour of the late August scene—the Hulton collection, now occupying one room at the Tate, and the aboriginal bark-paintings, from Arnhem Land, at the ICA. The Paul Klee pictures, which are part of the Hulton collection, are not shown this time because they have been seen before. But what remains is a pretty formidable display for a recently-assembled private collection. It includes Degas, Corot, Delacroix, Monet and Seurat paintings from the last century; Picassos, Braques, Legers, Kandinskys, Chagalls and what have you from the present century; and sculpture by Manzu, Marini, Moore, Reg Butler, Degas, Picasso and Arp. This all goes to show that—armed with determination and the profits of a successful publishing house—you can still get together a private collection in the grand manner.

*

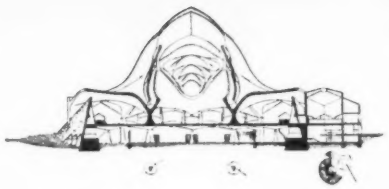
The bark paintings are, of course, an entirely different affair—an anthropologist skimming off the movable artwork of a surviving stone-age culture. Don't go along, though, expecting to be shattered by primitive passions or shocked by primeval frankness; most of these barks are so decorative and elegant it just isn't (as the saying goes) true. This decorative quality is emphasized by the excessively tasteful way they have been distributed on the walls. Many of them are so abstract that without the catalogue you would never know what they represented. It is curious that one's immediate reaction of welcome to these unassuming artefacts makes them hard to accept at their original value. Had they been less easy on the eye, less like fashionable wallpapers gone bop, it might have been easier to get at what they meant to the aboriginals who created them.

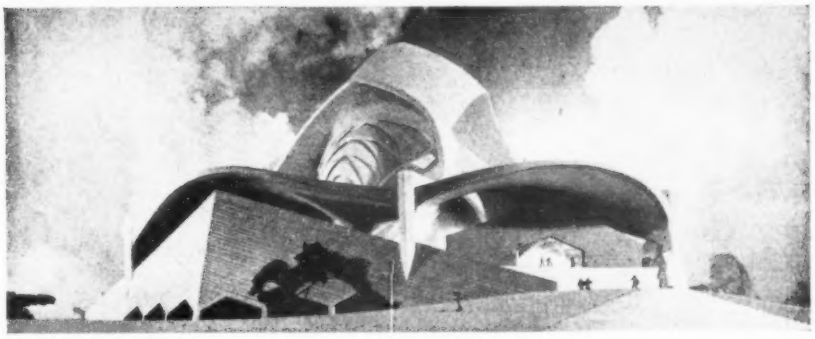
LISTEN WITH GRANDMOTHER

Though rendered suitably punch-drunk by transistors, continental styling, high-flux ferrites, Tiller Girls and printed circuits, ASTRAGAL came away from the Radio Show convinced that the real threat this year is . . . the Vintage Radio. Ever since talking-type steam wireless has had its preservation society (like everything else more than a week old) we knew it was only a matter of time before the Espresso clique got on to the paleotechnic phase of wireless telegraphy. And now at least two firms have given them a straight lead, using this year's radio-anniversaries as an excuse. One of them also has a gothic revival job of the early thirties on display that should definitely tip the balance. The accompanying rhetoric runs true to the form established by the old car cult. Once again the well-worn phrase, "continues to function as perfectly as when it was new," makes one realize just how much our standards of perfection have improved in the last quarter century.

PRAM TOWN

Not so standards of television presentation. One day last week—BBC television's 21st birthday week—the Outside Broadcasting Department took us to Harlow New Town, where four finalists were being scrutinized in an "ideal family" competition. But first of all the OB van toured the town. "Those are shops," said the commentator, as the camera swept by a row of plate glass windows, staring bleakly into the premature dusk. "And . . . funnily enough . . . a lot of them seem to sell . . . television sets. Yes, there—they are . . . television sets . . . oh, and prams."





It didn't win a prize, but as ASTRAGAL *points out below, it is worth a second look. Enrico Castiglioni's design in the Syracuse Competition for a . . . well what do you think?*

By now ASTRAGAL had one foot well within reach of the controls, but the commentator arrested it with a bright, bold idea. "Pram Town," he said, "they call Harlow Pram Town. We'll just find out *why* there are so many children. Excuse me, sir, could you tell me. . . ." But the question didn't come out quite right: perhaps the commentator caught a stern official eye. Instead we were dumped in a local hall in what another commentator decided to call Har*well*, to watch Lady Barnet and Freddie Mills making up their minds which of the ordinary people put before them were the most *extra*ordinary.

*

An agonizing programme, made endurable only by the children of the contestants, and by a rude voice from the crowd. It seems odd that in a programme which was produced to show new town rent-residents competing for a new town house, so little should be said about the life and buildings of the town. The BBC still gets over-awed by "actuality" programmes. Most of us are so used to the thrill of knowing that "it's really happening" that we are forgivably bored when what does happen is rather dull, and even more bored when we have to wait about in darkened streets for that dull happening *to* happen.

*

Incidentally, wouldn't it have been a good idea to show us a short film of the house, which was presented by the local newspaper and Wimpey's, who built it? It is true that we saw some stills of it ("These are the stairs which lead down from the bedroom to the hall"), but they were hardly adequate.

*

By the way, the understatement of the week came later on the same evening in an anniversary programme. Leslie Mitchell, who was tracing television's history, said casually, ". . . then came the war, and that was a nasty shock to us all."

QUI EXCUSE SYRACUSE?

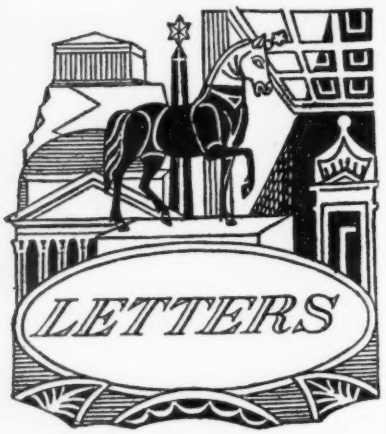
The furore and astonishment occasioned by the Sydney opera house competition seem to have dulled response in this country to the results of the Syracuse pilgrimage church competition which were made public at about the same time. ASTRAGAL has just seen some of the non-award designs, and among those well worth a long second look is Enrico Castiglioni's. This architect, who plaits—rather than folds—concrete slabs (you may remember his design for the new station at Naples) put in a project (above) that looks at first glance like a cross between Gaudi and Old Harry. But when you look at it again you will find that it makes sense—in a complicated way. You may not like the look of it, and it may not be quite as technically feasible as Castiglioni might like to think, but this great undulating and involuted slab, carried on six external supports and three internal ones, is an important indication that ideas on the relation of cover to structure to space enclosed is being loosened up today. It seems that we really are beginning to fight our way out of the post-and-lintel impasse that the Mies-Mondriaan faction tried to persuade us was the only real modern architecture.

A Bottle. See "A Bottle."

A BOTTLE

A bottle is a bottle is a bottle as often as not, but the one in my picture seems to have ideas above its station. Recently donated to the collection of the "Bride of Denmark," the Architectural Press's private pub, by the distinguished Italian architect, Gio Ponti, it once contained one of these unspeakable French liqueurs, but, empty, remains a monument of architectural eclecticism. Sharp-eyed readers should be able to distinguish on it blind niches, machicolations, swallow-tail crenellations, crocketts, three different types of early Florentine Renaissance window tabernacle and a suspicious resemblance to the tower of St. Paul's School.

ASTRAGAL



Kit Evans, A.R.I.B.A.

W. A. James, A.R.I.B.A.
Hon. Sec. Coventry and District Branch, A.B.T.

James E. Raynham, A.R.I.B.A.

Wallace F. Smith, A.R.I.B.A.

A. P. Holdsworth

Eric de Maré, A.R.I.B.A.

The Jaguar Fire

SIR,—The DSIR report on the Jaguar fire (AJ: August 29), and the acknowledgment at the end of it, prompt one to ask the question—what were all those chaps doing before the fire?

Did the Chief Fire Officer or his deputy know that one of the most important factories in his area had a roof lining and covering that were combustible, yet that there were "excessively large undivided areas," "no provision for venting the roof" and no fire curtains?

Did Jaguar's Safety Officer have any sleepless nights because of those "high concentrations of combustible materials" not partitioned from the rest of the factory, or because there was no sprinkler system in the building?

Did the Coventry Factory Inspector bring all or any of these factors to the notice of the Jaguar management, and make any attempt to enforce the regulations that are designed to prevent this sort of fire? Or did the factory comply with the regulations?

Did the architects of the factory (who were they, by the way?) try to abide by these regulations, and were they prevented from doing so for reasons of economy?

KIT EVANS.

London.

The Cap Fitted

SIR,—I am instructed by my Committee to refer to ASTRAGAL'S remarks (August 22) about the Coventry City Engineer. Our members in the City Architect's Department constantly endeavour to create and maintain with their engineering colleagues the good relations necessary for the successful re-building of Coventry.

We do not think this sort of comment helps.

W. A. JAMES.
Hon. Sec.,
Coventry and District Branch, ABT.

ASTRAGAL comments: "I made no reference to the City Engineer, but only to the Coventry engineering department. It is, however, interesting to see that the ABT assume that the comment referred specifically to the City Engineer. The ABT are to be congratulated on showing how eagerly and assiduously they take steps to avoid friction."

A Medieval Plague

SIR,—Those of your subscribers and, indeed, all who reside in the epidemic areas exposed to the mortal dangers of poliomyelitis will gratefully acknowledge the publicity you, like the national Press, have given this subject.

The decision of the Coventry city council to spend £400,000 annually on the improvement of its drainage system is encouraging and a measure of the seriousness and urgency attached to this problem. Nevertheless, to level criticism at one profession or another seems to me to be unjustified, for the Engineers of Coventry, like other local authority Engineers, were not free to act without the initiative of those elected to safeguard the public health.

At a time when the doctors and nurses are striving ceaselessly to master the epidemic with restricted supplies of vaccine and to nurse the sick and paralyzed it is surely sensible for the Minister of Health to give priority to new drainage schemes in the epidemic areas, for rivers known to be polluted to be sealed off from bathing and for local authorities themselves to cease or at least suspend the practice of spreading crude sewage collected from cesspools over open farmland.

In our endeavours to create or improve upon an environment in which it is pleasant to live, work and play it is for the community itself to exercise vigilance, and for those in authority to co-ordinate and direct the services which condition that environment, in order to prevent at least the spread of an epidemic which has all the aspects of a medieval plague.

Kent. JAMES E. RAYNHAM.

A Haze Of Professionalism

SIR,—Pier Luigi Nervi, in his book *Structures*, has written that "the proper title of a man capable of conceiving and building a structure is Architect. . . ."

The ancient and traditional practice of architects was designing and building, and it has been revived by them in many parts of the world. The revival in the United Kingdom is being nurtured by those architects who work within building and contracting organizations. They, but most likely the men who follow them, will become the architects and the master builders in the Nervi pattern. The revival will be slow because a major change of attitude will have to occur within the profession before its inevitable progress is accepted.

How strange it is that members of professions allied to architecture can design and produce their conceptions and, from time to time, have honours conferred on them by Her Majesty the Queen, by learned Societies and by Universities for their achievements, yet architects would be guilty of disgraceful conduct if they followed their noble example!

Our profession has lost itself in a haze of professionalism, even to the extent of legislating against the practice of its most ancient and traditional functions.

WALLACE F. SMITH.

Hants.

Barrels And Ox Hairs

SIR,—At some point in the revival of the story about the barrel of bricks (ASTRAGAL, August 22), acknowledgment should be given, I feel, to the Institution of Royal Engineers, whose *Journal* told it about twenty years ago.

At that time it concerned a conscientious clerk of works or foreman on a high building being erected in one of the cities in India. He was in the habit of making an inspection in the quiet of the evening when all the men had left. Finding the barrel suspended half way up a lift shaft he decided it would be safer at the bottom and unhitched the rope with the intention of lowering it.

The story was posed as a problem in insurance, because it was said the man made five claims for compensation for injuries resulting from five separate accidents. I believe the title was something like, "Five accidents or one."

Another story remains equally amusing to me, although I haven't heard it since it was told me by my senior when I was a pupil learning to write a specification. An architect dictating a specification to his pupil reached the clause for hair in plasterer and at his normal slow, deliberate speed dictated, "The hair is to be clean, long cow hair pulled from the belly of the living ox in the presence of the architect." I was writing from dictation, just the same as that earlier pupil, and that evening very carefully re-read all I had written to make sure I had not accepted some such clause amongst my senior's dictation to me. Perhaps that was the result to be expected from his tale.

A. P. HOLDSWORTH.

Sheffield.

A Small One's No Good

SIR,—You quote Dr. Pevsner on the Berlin building exhibition as saying that what is lost in unity is made up for with "zest, energy and faith in the twentieth century."

That statement, coming from an intelligent, distinguished, sensitive and humane European, is alarming. If we have "zest, energy and faith" in the present trends of the twentieth century, we must be round the bend. To me the exhibition, as shown in your pictures, expresses what one would expect it to: boredom, sterility and uncertainty. It shows no humanity, no love, no humour and no charm. The scale is brutal. Barracks for self-immolating serfs.

I see that the symbol of guilt is there in the middle, but ungilded, coarse, low down and small. For Confucius's sake, either make it big or leave it out altogether and think of something else.

Don't ask: Well, what's the answer? The question now is: What's the question?

ERIC DE MARE.

London.

DIARY

Planning for the Ageing. Meeting organized by the London Branch of the A.B.T. Speakers: Miss M. E. Merrylees (secretary of the National Federation of Housing Societies); Hugh W. Mellor (representing the National Corporation for the Care of Old People); Mr. Dobson (an old-age pensioner and member of the Camberwell Housing Society). Chairman: Harry Moncrieff, F.R.I.B.A., A.M.T.P.I. Opening by S. K. Ruck (Deputy Chief Officer, Welfare Department, L.C.C.). At the BC, 26 Store Street, W.C.1. 6 p.m.

SEPTEMBER 6

NEWS

LCC

Permission Granted for New Town

"You can have a New Town if you build it yourself." That is what the government has told the LCC. So if London is to get an overspill town it will not be developed under the New Towns Act by the government itself—which is what the LCC has long been hoping for: it will, in fact, be created by the LCC under the Housing Act, 1956 and the Town Developments Act, 1952. The government has agreed to this project "provided that a site suitable from agricultural and other aspects can be found and that the timing of the scheme when formulated in detail can be approved in the light of the economic situation as it then exists."

What about money for the project? The LCC has told the government that their assistance might be needed here, and the Minister of Housing and Local Government, Henry Brooke, says that the raising of capital would have to follow the rules in force at the time, although he has no reason to anticipate that this would involve the Council in any major difficulties.

The leader of the Council, I. J. Hayward, says that if there are any "major difficulties" the Council will expect the government to play its part in eliminating them.

CIVIC TRUST

Exhibition Represents Its Aims

The staging in this country for the first time of the International Exhibition "Landscape in Modern Life" was the starting point on which the Civic Trust would build, said the Trust's secretary, Michael Middleton, at a press conference in Birmingham last week, prior to the opening of the exhibition.

The exhibition was originally prepared by the International Federation of Landscape architects for their 1956 conference in Zurich. It has been shown since in Lisbon and Cologne and is to go to America after its showing in this country.

Birmingham will probably be the only provincial city in which the exhibition will be staged. After it has run in the Town Hall from Friday, August 30, to September 7, it will go to the Festival Hall, London, in October. It is possible that the exhibition will also be seen in Glasgow.

The exhibition has 250 wall panels carrying photographs, plans and drawings of the work of 16 member countries of the International Federation of Landscape Artists.

In Birmingham the city's Civic Society have been helping the Civic Trust in the organization of the exhibition.

At the press conference on the day before the opening, the Society's secretary, R. Stanley-Morgan, said that it was felt that the only way a National body such as the Civic Trust could do follow-up work and spread its ideas was through societies such as his own. For that reason they were very proud to be associated with the first exhibition to be staged by the Trust.

Mr. Middleton said that he considered the exhibition was the most important of its kind ever to be put together, and for that reason they had been most anxious not to restrict its showing to London. They were very pleased that its first showing should be in Birmingham, for the Trust had considerable links with the city including the fact that Sir Herbert Manzoni, the City's Engineer and Surveyor, was a trustee.

Miss Sylvia Crowe, speaking at the opening of the "Landscape in Modern Life" exhibition, which the Civic Trust are putting on in Birmingham. On the left of the Lord Mayor is Sir Herbert Manzoni, Birmingham's City Engineer, Surveyor and Planning Officer, and a Trustee of the Civic Trust. Second from the right is A. G. Sheppard Fidler: extreme right is Col. K. G. Post, director of the Civic Trust. The others are mayors and wives from nearby towns.

The exhibition, said Mr. Middleton, would appeal to those with a direct interest in planning. There had already been a pleasing example of this as a result of its showing in Portugal. After the exhibition had been shown in Lisbon, the government there was so impressed that landscape architects were appointed to all the planning regions.

Equally important was the spreading to the general public of the thought and ideas embodied in the exhibition. Education and propaganda of this kind would be one of the most important undertakings of the Trust and this exhibition was the beginning of a programme which would gradually spread. This was the starting point of all the Trust hoped to do and it was hoped that the actual course the work would take would become clearer in six to nine months' time.

The exhibition showed the best examples of what was being done all over the world in landscape architecture. It would enable people already interested in their cities, such as members of the Birmingham Civic Society and the wider public, to realize the potentialities here.

Stressing the importance of landscape architecture to this country at the present time, Mr. Middleton referred to the great amount of development that was going on—the new towns, new roads, and new sources of power which were being developed.

If landscape architecture was not considered in this development there would be a spread of characterless suburbia; of the merging of town and country in continuous areas; the sort of thing that could already be seen in the outskirts of any of the big cities—London, Birmingham and Glasgow, for example.

But if there was sufficient demand for this consideration from interested people, then eventually it would be obtained.

The task was so big that the Civic Trust could not hope to achieve all the changes needed at once. They would have to take things stage by stage, target by target.

"The only way to achieve results is to show what is desirable long enough, to enough people, in as forcible a way as possible," Mr. Middleton continued.

"I don't think that you can get far on negative lines just saying, 'This is bad, that is bad.' If you take that approach, people get disheartened without realizing what they can do."

Mr. Middleton added that in Birmingham there were one or two outstanding examples of landscaping—the Edgbaston Estate and Bournville. Although these were not examples of how modern problems could be faced, they did show what could be achieved.

RIBA

"Legal Officer" Post Cancelled

The RIBA announce that it has been decided that, after a trial period, the post on the headquarters establishment of the RIBA under the title of "Legal Officer" would, with better advantage, revert to that previously entitled "Assistant Secretary."

Under these circumstances, the first and last holder of the post, Walter Parkes, who was appointed earlier this year, indicated that he would feel unable to continue in the Institute's service and was accordingly released.

The RIBA are accordingly inviting applications from candidates under the age of 40, "who need not necessarily be qualified barristers or solicitors, though some legal qualifications and experience are essential, particularly in connection with the building industry." The salary scale will be £1,250—£50—£2,000 per annum, and the starting point on this scale will be according to age, qualifications and experience. Further particulars may be obtained from the Secretary, RIBA, 66, Portland Place, W.1.

BRISTOL

Building Centre to Open

Following the success of the pilot scheme for a Building Bureau in Bristol, held in July and August last year, the organizers are proposing to set up a permanent Building Centre in the centre of the business area of Bristol. The Centre will be financed by rentals charged to exhibitors in the same manner as has been adopted by the London Building Centre. The organizers state that their object is to provide a place where architects, surveyors, builders and clients can "examine and evaluate building materials, services and equipment . . . to provide a comprehensive information service based on British standards, Codes of Practice, current technical books and publications, manufacturers' literature, and samples." All enquiries should be made to:—The Directors, c/o 18, Orchard Street, Bristol, 1. The Centre will open on Wednesday, October 23.

CRITICISM

The architect replies

D. A. Birchett, the architect of the Harlow garage and service station which was illustrated and cost analyzed in last week's JOURNAL, replies here to criticisms made by J. M. Richards in the same issue.

In replying to J. M. Richards's criticism of Kennings' Garage and Service Station at Harlow, I would like to make it clear that in many ways the building represents the refinement of ideas and experience gained from previous erection over a widespread area within the UK of filling stations, service stations and garages of smaller or greater size using the same centrally designed unit system of construction. These jobs, planned and erected under totally different conditions to meet widely dissimilar problems, have been controlled by many architects, each of whom has shown great inventiveness in adapting the basic system to meet individual cases.

It can be said with certainty that the ideas first demonstrated at the Reading Service Station, mentioned by J. M. Richards, have not become less valid as a result of increased experience in handling this particular medium. Certainly, however, a process of refinement has taken place which I am glad to say is proving a continuous characteristic.

The showroom, washing bay and workshop.

Owing to the administrative difficulties attendant on the decentralization of responsibility for erection through the agency of individual architects, construction of this kind has to employ as "open" a method as possible. One of the chief difficulties has been to retain this character in spite of the fact that certain standardized forms of building were called for as station "types." The demand for "type" buildings derived from an open system can very readily lead to over-detailing within a narrow field; almost imperceptibly the designer finds that this results in buildings which are tending towards "closed" systems as the essential flexibility is lost.

On the other hand, from point of view of an Oil Distributing Company desirous of having its products identified with certain buildings presented in a standard fashion, the whole problem of supply is much simplified.

The same consideration applies to the suppliers of the components, for when buildings are standardized it is possible to stock-pile components in balanced stocks. Experience has shown that the overall flexibility required to handle the large scale problem led to a demand for special components. This made the manufacturing problem of maintaining balanced stocks extremely difficult. To a marked extent this matter was controlled by co-ordinating meetings held at regular intervals between architects and manufacturers, which had the effect of reducing the demand for additions to the range of parts.

I should now like to answer J. M. Richards's detailed criticism of the Harlow project.

The oil companies are certainly trying to establish good design standards applicable not merely to the furniture and furnishings at sites at which they are interested, but also better standards of appearance in the garage buildings required. The establishment of higher standards will necessarily take a long time owing to the complex nature of the motor industry.

The dissimilarity both in function and appearance of pump island furniture required at a filling station has to an extent been unified by the standard use of colour to denote to road users the products and service they can expect there.

In regard to the red and yellow striped base of the Harlow buildings referred to in the criticism, it will be of interest to know that Shell-Mex and B.P. Ltd. have recently suggested that at all stations in the UK through which their products are sold this colour scheme should be discontinued and a colour selected in keeping with the character of the buildings concerned. It is intended that the pumps should retain the "house" colours of the company represented. In my opinion no reasonable objection could be taken to this decision since the pumps so coloured are as indicative of the product sold from them as red telephone boxes denote the public telephone service. By limiting such bright colours to the point of sale a great deal is gained, as vehicle users will more readily identify the pumps when the background colouring of adjacent buildings is more or less neutral.

The dissimilarity of equipment at stations, particularly on pump islands, is in the main due to the complicated internal mechanism. I agree with Mr. Richards that there is no reason why these matters should not be reconsidered, thus allowing designers better opportunity than they have previously enjoyed of producing more satisfactory objects.

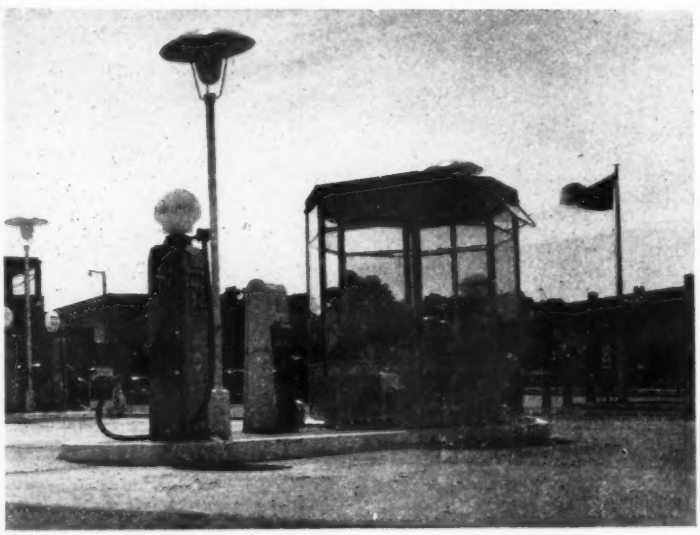
The point in regard to lighting at pump islands is in some ways a more difficult matter to deal with. There is first the necessity to produce a working level of light at the pump island which will allow engines to be checked at night. The light source must be at a clear height above the level of breaking of motor

spirit in order that there shall be no risk of explosion. Flame-proof fittings could be used at lower level but in free-standing positions of this kind they are generally altogether too heavy and cumbersome to create a good appearance.

Secondly, the point made in regard to floodlighting is subject to other difficulties, some of which are statutory. The Town and Country Planning Act, 1947, Control of Advertisements Order, 1948, and subsequent amendments makes it clear that the floodlighting of business premises could be interpreted as an advertisement and therefore requires express consent from planning authorities. This means that the two conditions of amenity and public safety should not be transgressed. Floodlighting of premises has been held in certain instances to be detrimental either to public safety or to amenity or both. While individual garages can plan and receive approval of floodlighting schemes for their premises, it is extremely difficult for an oil distributing company operating on a nation-wide scale to advocate this as a general policy. In spite of statutory difficulties, the point made by J. M. Richards is apt and much more could be done to produce a working level of light where it is necessary at pump islands, which would not result in the erection of still further objects of dissimilar heights. Perhaps more could be done than has been done to incorporate lighting of the requisite working level at or about the height of the eaves of the island kiosk.

J. M. Richards is perfectly right to point out the apparent lack of relation between forecourt and buildings which on first sight appears to be present in plan. Aesthetics apart, the physical planning of garages and service stations demands that ample provision be made for parking of vehicles off the main lines of circulation to and through the station past the pump islands. Whatever the problem, whether simple filling station, service station, or complex garage and depot, adequate parking space must be provided immediately adjacent to the service given. One of the principal causes of dissatisfaction among motorists is the lack of parking provision within so many existing stations.

Close-up of the pump island kiosk.



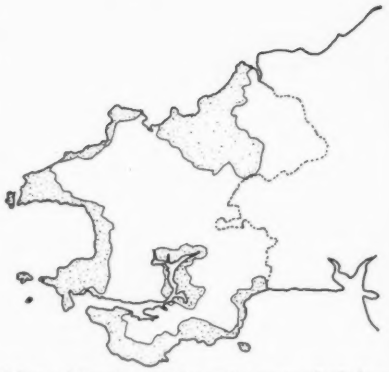
Though in a measure the use of so great an area of glass is experimental, it does serve three practical needs. It ensures natural light for the examination and repair of vehicles. Then it demonstrates that there is no reason why any of the activities concerned with the maintenance and repair of motor vehicles should not be readily seen by the public. Finally, the internal illumination of the premises during the evening and night shows clearly that the station is offering service. If properly handled the internal lighting functions in the same way as the filament in a lamp and the building appears incandescent. Lighting of this kind cannot reasonably be objected to by planning authorities on the ground that it is an advertisement detrimental to amenity.

It is true that the reflected images of neighbouring development on the glass introduces new problems of composition. It is also true that the secondary effects observed obliquely through the glass caused by the reflection of internal coloured areas are equally interesting and both can be exciting. Further, the property of glass in reflecting with complete precision any change in plane between one such surface and another, opens a new field for research into articulation of modern façades employing these techniques.

J. M. Richards's point of criticism in regard to the two little pavilion buildings on the garage entrance end and the interruption of the corner rhythm is fair comment. While I am not suggesting that the principle of "tacking on" otherwise difficult appendages to the main structure is one to be followed, throughout this design there has been a great effort to ensure that all the internal areas should be kept as clear as possible of sub-division. One of the pavilions is the works manager's office and the other the scrap store. By building them in this way the rectangle of the workshop is left undisturbed, the line of intercommunication between the workshop and the lubricating and washing bays is unhampered and the whole space, therefore, profitably used. An alternative arrangement for the workshop manager's office—frequently possible in depots of this kind—could be to construct it at a higher level above the workshop with glass screens overlooking the workshop area. At Harlow it might have been possible to so place this office by rearrangement of the canteen and adjacent facilities at the opposite end of the workshop at a mezzanine level.

Finally, the problem in regard to the heating of service stations and garages is a severe one. Whether glass or masonry be used as a main walling material, the heat loss resulting from the opening and closing of the large doors required for the passage of vehicles is very considerable. At Harlow a comfortable temperature is maintained by using convector heaters connected to the oil-fired central heating system, supplemented by radiators giving a high surface temperature. Thus heat loss through the glass is to an extent secondary to the loss through the doors. Even so, when heating figures become available, this aspect can be considered in detail. The depot has not operated so far for one complete heating season.

Can planning rise to the opportunity, or cope with the problems, presented by the development of Milford Haven, in Pembrokeshire, as a major oil port? Will industrialization ruin the Pembrokeshire Coast National Park, in which a large oil refinery and pumping station are to be situated? Should this development take place at all, and if so, how can it be planned and controlled so as to minimise the damage to the beauty of the landscape, and even to create a pleasing industrial environment within the area? These are some of the questions investigated by a representative of THE ARCHITECTS' JOURNAL, *who describes the proposals, discusses the problems, and makes some suggestions for their solution.*



Map of Pembrokeshire. The parts shaded are the designated areas of the Pembrokeshire Coast National Park.

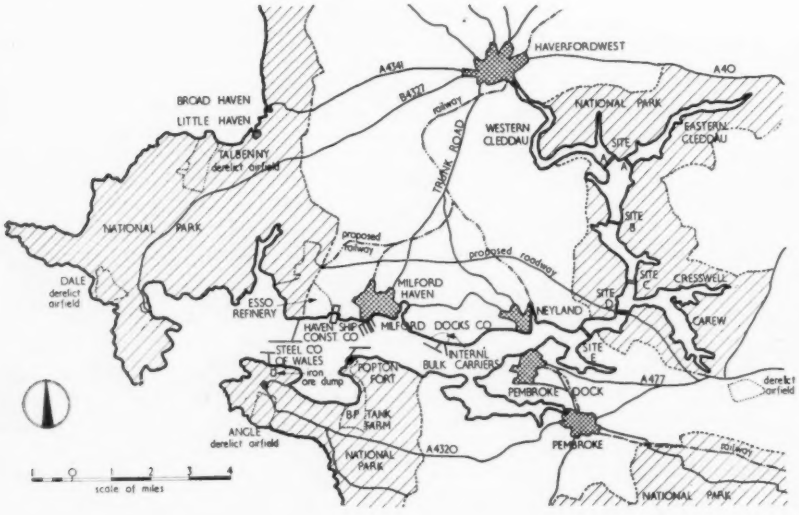
A STUDY OF THE PROBLEM OF OIL AND MILFORD HAVEN

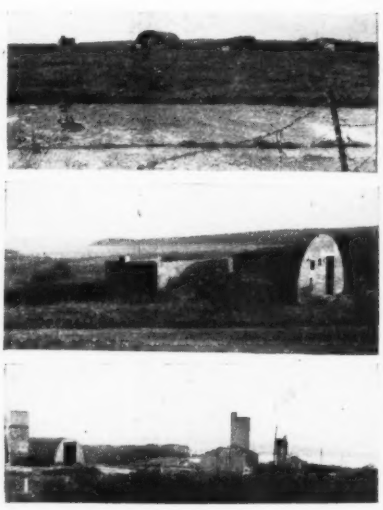
INDUSTRY IN A NATIONAL PARK

When the Pembrokeshire coast was designated as a National Park, and a coastal pathway along its cliffs and headlands was planned, most of us felt that one of the most beautiful parts of Wales was safe from spoliation. St. David's Head and St. Bride's Bay, Grassholm, Skomer and Skokholm Islands with their unique bird colonies, the numerous coves and sandy beaches, are among the most glorious parts of our heritage. Nobody, of course, disputed the need for some additional industry in the little towns of Pembroke, Pembroke Dock, Neyland or Milford Haven, but everybody assumed that, in the words of Harold Macmillan—who was then the Minister of Housing—amenity and access would in future be given "an over-riding position" over industry in the areas of the National Parks.

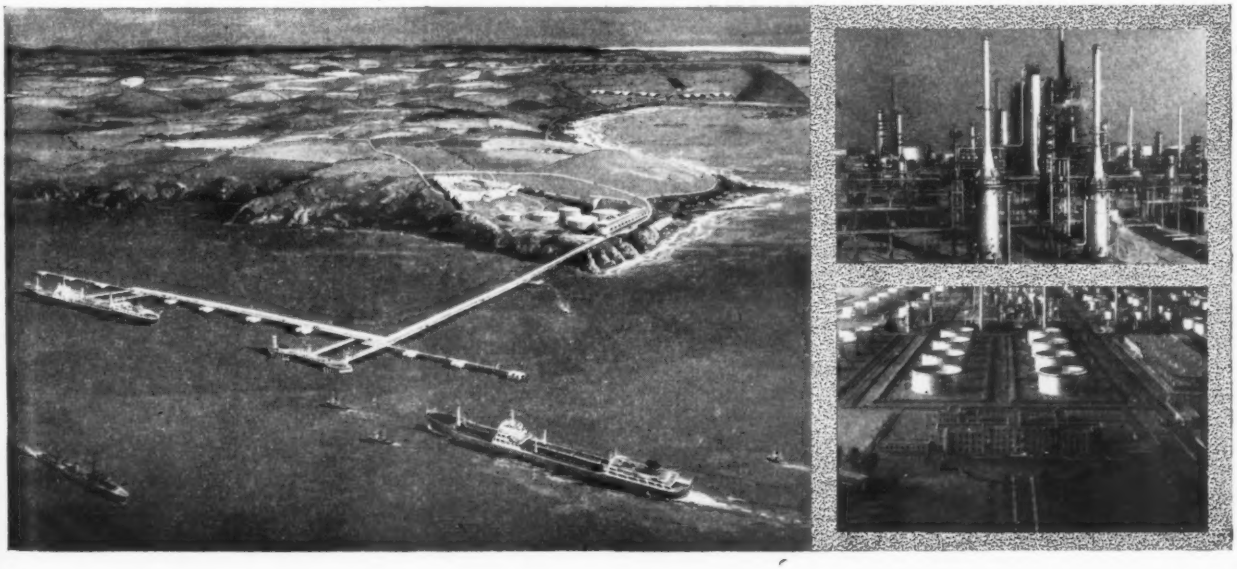
Yet we are faced today with the virtual certainty that Milford Haven is to be developed as a major industrial centre with incalculable and unplanned consequences in the National Park. The Esso Petroleum Company will build a tanker terminal and a refinery, the British Petroleum Company will build a tanker terminal and an oil tank "farm" (an incongruous piece of jargon, no doubt intended to reconcile lovers of the countryside to oil tanks). A huge iron ore dump in the National Park is being planned, and other industrial projects may follow. For the Prime Minister

The map shows the Milford Haven area in Pembrokeshire. It indicates the boundaries of the National Park, the principal industrial developments proposed on the shores of the Haven, the possible sites of the Cleddau river barrage marked A B C D, proposed road and rail connections, and the derelict airfields in the Park. Below, service department eyesores at Tellenby (top), Dale (centre) and Angle (bottom).





Above, Milford Haven, showing the existing docks, and sites of the proposed shipyard in Gelliswick Bay, the B.P. jetty at Popton Point on the opposite side of the Haven and the Esso refinery, which will occupy the land in the right-hand lower corner. (Photograph by Terence Soames.) Below left is a perspective of the proposed B.P. Jetty at Popton Point and the photographs below right show what a modern oil refinery, such as Esso proposes to build at Milford Haven, looks like. The top picture is a general review of Esso's Fawley Refinery. The chimneys at the rear discharge flue gases at a height of 250 ft. to minimise oil pollution. Similar chimneys at Milford Haven will be 300 ft. high. The lower picture shows a model of Fawley, giving some idea of the structures to be built at Milford Haven, and of the architecture of the administrative block. (Photos by Esso Petroleum Co. Ltd.)

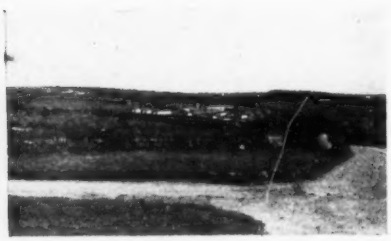


announced on May 15 that it had become necessary to plan facilities for tankers up to 80,000 or even 100,000 tons, and in this context said that Milford Haven looked like becoming a "major European port." These developments are being pushed ahead at great speed and in advance of any plan for the location or control of industry. Questions vital to the future of the National Park arise: should industrial development of this kind be allowed at all? If so, within what limits and under what conditions? And what measures are necessary to ensure the planning of the area to secure not merely an orderly but even a pleasing development?

The super tanker

The cause of the sudden change in the fortunes of Milford Haven has been the extraordinary increase in the size of oil tankers in recent years. Before the war the typical tanker was between 10,000 and 12,000 tons. But since the war the economies to be achieved from larger tankers, both in construction and in operating costs, have led to startling increases in size. Only three years ago the 26,000 tonner was a "super-tanker." Today it is the 47,000 tonner. But an 87,000 ton tanker is afloat, and a 100,000 tonner is being built.

ST. DAVID'S



Scenes from St. David's Airfield, in the National Park, now used by the R.N. and by Airwork Ltd. Top, a general view. Centre, note the posts (some would-be consumers near St. David's can't get electricity because the authorities can't decide who is to pay for putting the cables underground). Above, "Airwork" says the sign: shining aluminium roofs to the nissen huts are the latest additions to National Park scenery. (Photographs by the National Parks Commission).

Milford Haven (the oil companies say) is the only port in prospect at which tankers of 100,000 tons and over will be able to berth and discharge their cargoes. A 100,000 ton tanker will draw 49 feet laden, and Milford Haven provides five miles of channel 60 ft. deep at low spring tides, which requires no dredging.

A horizontal landscape

To enable the projects described below to be understood, they should be considered against the background of the Haven's landscape. Except where the ground falls gently to sea level at coves and inlets, the shores of the Haven consist of cliffs about 100 ft. high, from which the ground rises to about the 200 ft. contour line. Consequently the jetties to be constructed by the deep water channel in the centre of the Haven must discharge, not on to flat land at sea level but generally on to the cliff tops at 100 feet or thereabouts. It is difficult in this landscape to conceal industrial structures or dumps, and a refinery 300 ft. high (the height of the Esso towers) rising from a 100 ft. base will be seen for many miles, and from a large part of the National Park, whatever a landscape consultant may do. The land level rarely rises above 200 ft., and the landscape consequently has a horizontal emphasis: the eye is struck by the horizontal line of the cliffs, and this will emphasise any substantial vertical constructions. Strong prevailing winds also limit the stature of trees and the effectiveness of planting.

1. The Esso refinery

The Esso Petroleum Company (a subsidiary of the Standard Oil Co. of New Jersey) has bought 1,000 acres, almost entirely within the national park and athwart the coastal path, to the west of Milford Haven, on the north shore of the estuary. Jetties to take four 100,000 ton tankers will be constructed half a mile from the shore and 4,300 feet in length (about four fifths of a mile). In the first stage 300 acres are to be developed for a refinery dealing with 5,500,000 tons of crude oil a year. Since, however, the Company proposes to produce 20 million tons of oil per annum by 1966, and since it cannot expand its production at Fawley beyond 10 million tons, it is a fair assumption that it intends to enlarge Milford Haven later to 10 million tons.

The additional land is required not only for subsequent expansion, but for industries manufacturing polythene, artificial rubber and other petro-chemicals. Consequently, the estimate made by Esso that the refinery will employ 800 to 1,000 people in the first stage does not tell the whole story by any means. The refinery will require improved road access, a branch railway line, and a water supply of 4½ million gallons a day in its first stage.

The Esso private Bill has received parliamentary approval, and the Minister (who "called in" the planning application for decision by him, as it was inconsistent with the development plan) held a public enquiry in July, at which no serious opposition was presented, although serious doubts about oil pollution were voiced by naturalists. The danger of oil pollution arises from discharge of sludge on the high seas (which foreign owners may do whatever port they are proceeding to), accidental discharge at the jetties (the precautions against which were found, by a county council deputation, to be apparently satisfactory at Fawley), and pollution from the return to the sea of sea water used for cooling. This, the most serious danger, will be eliminated entirely if, as now seems probable, the Company instals air cooling.

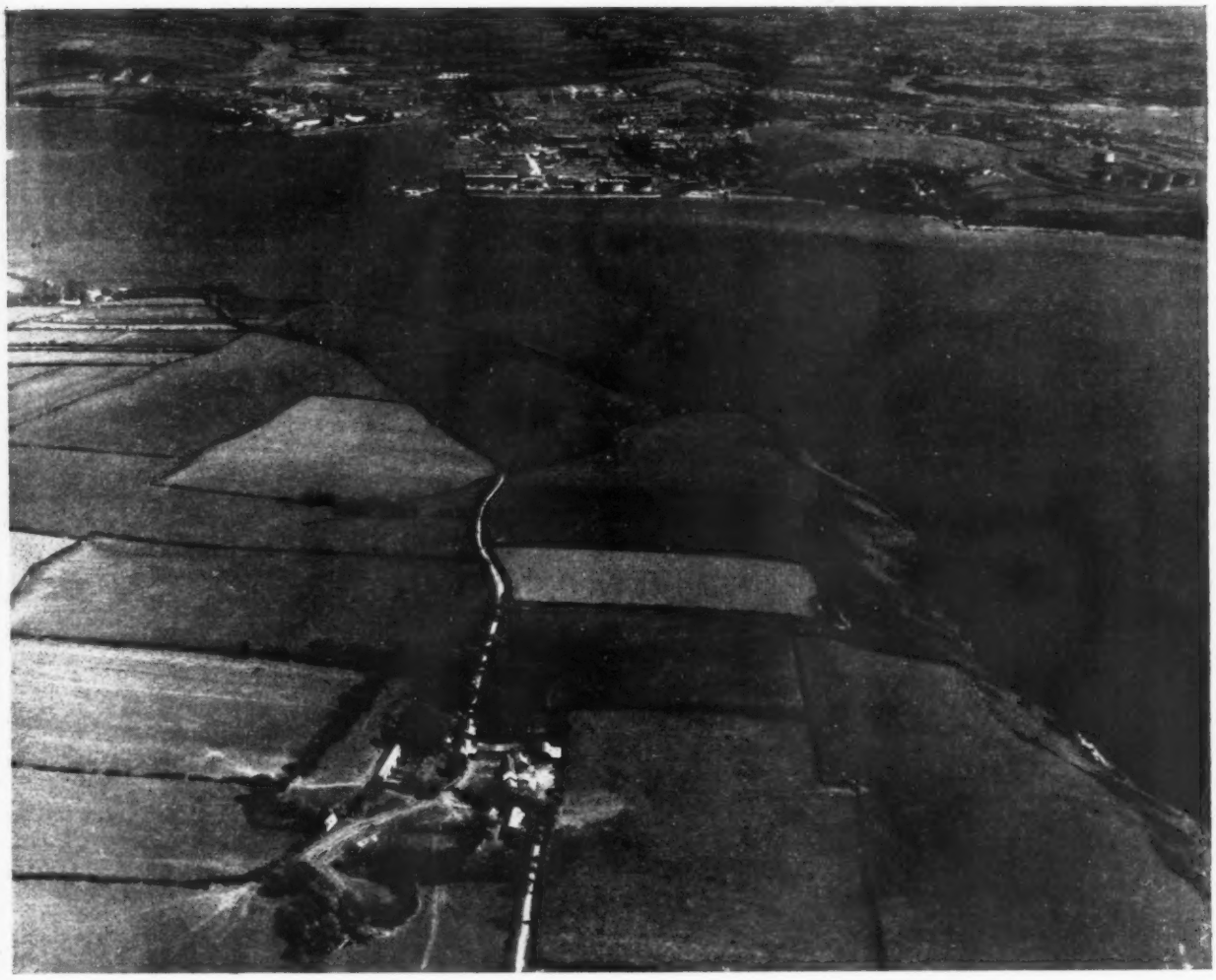
The Company has agreed to submit its detailed plans for approval, has promised "so far as possible" to preserve the beauty of the countryside, and has accepted the National Parks Commission's recommendation to retain S. Colwyn Foulkes as landscape consultant. It refuses to permit the coastal path to run through the site, but it may be doubted whether the path will have much value if the refinery is built.

2. B.P.

B.P.'s decision to go to Milford Haven arises from the fact that it cannot accept tankers of much over 28,000 tons at its Swansea refinery. It has bought a site of 380 acres in Angle Bay, entirely within the National Park, on the north side of the Haven, of which it proposes to develop 100 acres as a tank farm. The oil will be pumped by an 18-in. pipe to Swansea for refining. A jetty 1,200 feet out and 2,500 feet long will berth two 100,000 ton tankers. The planning committee hopes that the oil tanks will be almost invisible from the Angle peninsula. The coastal path will not be interfered with and the administrative buildings will be housed within the old Popton fort. Only some 60 people will be employed. S. Colwyn Foulkes has been retained as landscape consultant, and the B.P. Bill, which has received parliamentary approval, contains a clause drafted in consultation with the National Parks Commission, on the preservation of scenery and amenities. The B.P. Company is, in fact, given full marks by those concerned for its co-operative attitude.

3. The Steel Company of Wales

This company has bought a 40 acre site for an iron ore dump in the Angle peninsula, 300 yards from Angle village, in a beautiful part of the National Park, athwart the coastal path (which would have to be closed) and close to West Angle Bay, a favourite spot with bathers. It would



Further up the Haven, looking towards Pembroke Dock. The oil tanks (right and left) are prominently sited on the skyline. There is a proposal for a graving dock at Pembroke, and an American millionaire has an option on the site in the foreground for building a jetty and dumping iron ore, coal or other bulk cargoes.

convey ore from a jetty on the Haven to a dump with gantries 65 ft. high. The dump would rise to a maximum of 45 ft. above ground level, which would be 90 ft. above sea level.

Supercargo ships would transport the ore in the summer months from Labrador, storing it at Angle for transhipment to the Margam steelworks throughout the year by small vessels. The site, in addition to being very unsightly, would almost certainly be noisy and might well be extremely dirty. The Company claims that the site is technically an ideal one, that Labrador ore is a heavy clay which does not create dust, and that planting will screen the dump. But there can be no certainty that at some time in its life the dump will not be used for dusty ore which in other places has created an appalling nuisance, or that planting is capable of screening the dump satisfactorily. No Bill or planning application has yet been presented and the county council is expected to oppose the application, offering an alternative site nearer Pembroke Dock, outside the national park area. The number employed may be as few as 24.

4. Milford Dock Company extensions

The Milford Dock Company proposes to build two dry docks capable of servicing vessels up to 100,000 tons: the only dock available today for ships of this size is that at Southampton which is used by the Queen liners. There would also be two wet basins and a pier for the discharge of sludge for separation to prevent oil pollution. It is anticipated that the Esso, B.P. and Steel Company projects would involve about 750 ship movements a year, and there may well be scope for even more dry docks than the Milford Company proposes to build if this traffic materializes. The 100,000 ton tanker however remains problematical. The Milford Dock extension would employ 1,500 to 2,000 men.

Sir Percy Thomas is the firm's architectural adviser.

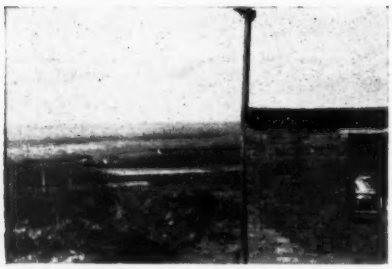
5. International bulk carriers

This American Company, presided over by an enterprising millionaire, Daniel K. Ludwig, has acquired an option on an 80-acre site between Milford Haven and Neyland for a bulk cargo dump. The Company already operates very large cargo ships through the Panama Canal. The dump would be on the cliff top, and the cargoes mentioned include iron ore (no word of its being of the non-dusty variety) and coal. It might become a distribution centre for the European Common Market.

6. Other projects

The Haven Shipbuilding Company has been formed for the prefabrication of giant tankers at Gelliswick Bay, between Milford

STRUMBLE HEAD



Two views of Strumble Head ("if it wasn't for the 'ouses in between"). Top, an old observer post on Garn Fawr, and above, an inhabited military hut on the coast road.

Haven town and the Esso refinery. Caltex (Regent Oil) have shown an interest in building a refinery, but the site in which they are interested includes the area on which Mr. Ludwig already has an option. Shell are also reported to be "interested." Hancock & Co., local shipbuilders, have a scheme for building a £5 million giant graving dock at Pembroke Dock, and a local firm of potato merchants have announced a scheme for shipbuilding on a 300 acre site above Pembroke Dock. A sand and gravel company intends to quarry aggregate at Dale, both inland and from the seabed.

To get a clear picture of the planning problems involved in these developments, it is also necessary to list the authorities interested, apart from the individual developers. These are:

The National Parks Commission (whose powers are almost purely advisory).

The Pembrokeshire County Council, as local planning authority through its planning committee (for the area outside the national park), and through the National Park Committee, which is the planning committee for the national park area. Of the Park Committee's 18 members, six are nominated by the Minister of Housing and Local Government, but the committee is dominated by the local members.

The "second-tier" authorities, which are responsible, inter alia, for housing, despite their small population and resources: the boroughs of Haverfordwest and Pembroke, the urban district councils of Milford Haven and Neyland, and the rural district councils of Haverfordwest, Pembroke and Narberth.

The Ministries: The Board of Trade (which has issued an industrial certificate to Esso), the Ministry of Housing and Local Government, the Admiralty (responsible for navigation in the Haven, and for boom defence), the Ministry of Transport (for roads and sea communications), the Ministry of Agriculture, Fisheries and Food.

Other public authorities: The Prescelly Water Board (which supplies the area), the South Wales Sea Fisheries District Committee, British Railways.

Industry and the national park

Should a major industrial development be permitted in or adjoining the national park? It is untrue to say that industrialisation of Milford Haven would mean the end of the national park, for a glance at the map on page 350 shows that only a small part is directly affected. But a large part will, and it will all be affected indirectly, either by the sight of 300 feet high refinery towers, or by the great increase in population that will have easy access to it. It could be affected by oil pollution of the sea, which seriously alarms those concerned with the preservation of marine and bird life, a subject of special study at Dale Fort in the Milford Haven estuary.

Is Milford Haven in fact the only suitable port for giant tankers? Authoritative information on this is lacking though it is clear that Milford Haven itself has great natural advantages. Does it necessarily follow that, even if the tanker terminals are built at Milford Haven the oil refineries should also be sited there? R. M. Lockley, the naturalist, has argued cogently that if B.P. can pump to Swansea, where there is derelict land and skilled labour, Esso can do the same. It might cost £2 million more, but how much is it worth paying to preserve a national park? What limit is to be put to industrial development at Milford Haven, and what types of industry would be most suitable for it, taking all the factors into account? All these, and many other, questions should have been considered at the highest level. An authoritative survey should have been made by the Ministry of Housing and Local Government, as the ministry responsible for planning, in consultation with the other ministries and agencies concerned. But has this been done? Apparently not, for no such survey, no authoritative guidance on Milford Haven's place in the national plan, no statement on the future of the national park, have reached the local planning authority, which has been forced to grope in the dark. Piecemeal decisions are being taken without any clear idea of the end to which they are leading.

It has been assumed by the National Parks Committee for Pembrokeshire that the "national interest" (namely, oil) must inevitably take precedence over the national park, which is not regarded as a "national interest." For example, the chairman of the Pembrokeshire County Planning Committee and its National Park Committee in a joint statement issued in February 1957 said, "the demand for the Haven as a major port must, in the interests of the nation's economy be, as we see it, the paramount consideration." The Secretary of the National Parks Commission, H. M Abrahams, said at the Esso enquiry that the building of a refinery was clearly inconsistent with its aim to preserve and enhance the beauty of the area, but the Commission did not oppose the development or even lay down conditions.

Lord Strang, the chairman of the National Parks Commission, said at the Exmoor enquiry in 1952, "The passage of the National Parks Act . . . makes the preservation and enhancement of natural beauty a national interest." He went on to say that in passing the Act Parliament had provided a wide precaution against threats that might arise in the foreseeable future. Yet at the first blast of the industrial trumpet the walls of the National Park have fallen, almost without a blow being struck.

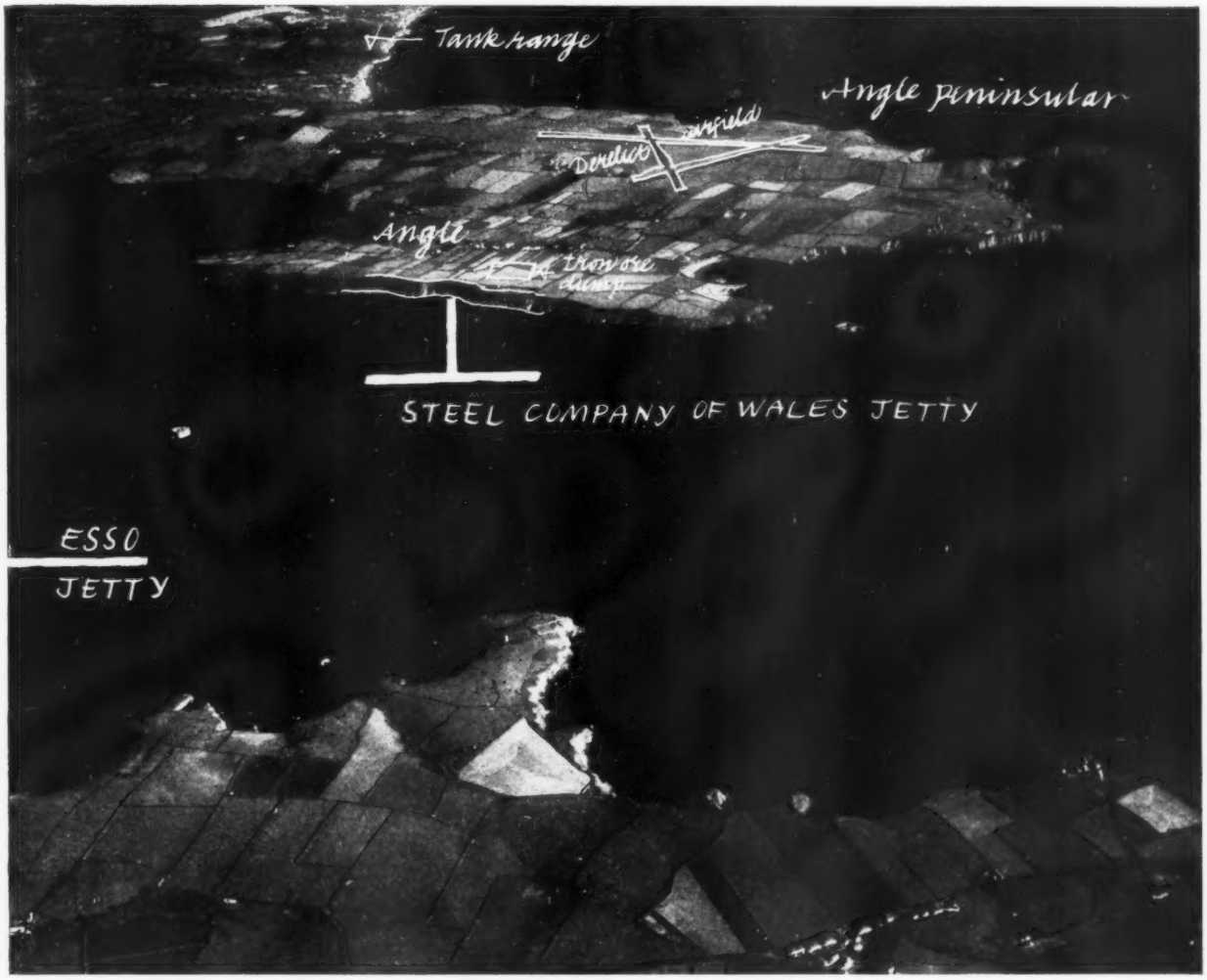
This is all the more regrettable because the National Parks Commission, the local committee and the County Council were in a strong bargaining position, if Milford Haven is as indispensable to the oil companies as they say it is, at least to insist that if immense sums can be spent on developments that detract from natural beauty, a modest percentage must be spent on enhancing and preserving natural beauty. It was not until nearly a month after the Esso enquiry that the Welsh members of the National Parks Commission, G. P. Hopkins Morris and W. H. Vaughan, wrote to the Manchester Guardian to ask that the Minister should satisfy himself, before granting Esso's application, that there is no other site available outside the national park, and that if no other site is available the developer should be required to spare no pains or expense to limit the damage to the landscape. The letter urged the need for a general plan for the whole Milford Haven area, the setting of eastward and westward limits for industrial development, and the establishment of a supervisory body to study the problems of land use, and to advise both the Ministry and the County Council

The case for industry

There are, of course, very strong arguments in favour of industrial development in an area which has already suffered more than its fair share of disappointments and distress. The County Development Plan stresses the need for industrial development and Pembroke Dock is scheduled as a development area under the Redistribution of Industries Act, although in practice it has not obtained any benefits from this. The Haven has suffered from the waywardness of the Great Western Railway, which transferred its Irish terminal from Neyland to Fishguard, from reliance on the service departments (which closed the Pembroke Dockyard many years ago, and closed the Pembroke seaplane base only this year), and from the vagaries afflicting the fishing industry (which has lost more than half the trawlers operating from Milford Haven in the last seven years). Pembrokeshire has continued to suffer from an outward migration of population, masked by a rising birthrate, and unemployment in the county has risen from 647 in February 1956 to 1,191 in February of this year. The latter figure is 4½ per cent. of the insured population. It is obviously possible and necessary to industrialize parts of Milford Haven without injury to the National Park, although industrialization may not be welcomed by the farmers or the trawler owners (who fear that they will lose their labour) and if badly done it could damage

THE IRON-ORE DUMP

The scene of the proposed outrage by the Steel Company of Wales in the Angle peninsula, in an unspoiled part of the National Park. Ore would be landed from giant cargo ships on the jetty and dumped in the fields between the cliff and Angle village. The derelict airfield shows up clearly behind. Castlemartin tank range, occupying seven miles of the Park's coastline, lies just beyond Freshwater Bay (Photography by Terence Soames.)



THE CLEDDAU BARRAGE

The Cleddau estuary. The barrage, if built at site "D" (on map, p. 350) favoured by the County Council, would dam the estuary where the ships are moored. (Crown Copyright photograph.)

the potentially large tourist industry. There are, in fact, strong arguments on both sides, but there is no evidence that they have been carefully weighed, and the information to enable one to decide whether the oil refinery should be allowed is simply not available, publicly at any rate.

The national park machinery

How far has the local machinery set up by the National Parks Act been adequate in this situation? The National Park is not very popular in Pembrokeshire. To the county council it means additional expense in the national interest, but with virtually no support from the national exchequer. The national representatives are in a minority and are excluded from the chairmanship or vice-chairmanship, and the council even claims the right to refuse to appoint the Minister's nominee. The atmosphere with which the committee has to contend is well illustrated by a report of the county council meeting last February, when Councillor J. R. Williams deplored any attempt by the council to attach conditions regarding amenity to its support for the Esso and B.P. proposals.

"What's the good of that?" he is reported as saying. "You can't live on that. It is like Councillor Owen Hire's horse on the Barrack Hill. Nothing there for it to graze on. Plenty of scenery!"

The National Parks Committee, despite its difficulties, has nevertheless attempted under the able guidance of the county planning officer, J. A. Price, to do a good job in improving the national park. The County Development Plan listed an impressive number of projects, including the removal of disfiguring developments, planting, the provision of accommodation, meals and camping places and car parks, and construction of 60 miles of path to complete the coastal path by 1959. But its record is one of almost total frustration. The coastal path has been surveyed, but not an inch has been constructed. None of the litter in the four derelict airfields within the park (there are six in the county) and the innumerable derelict camps or buildings left by the service departments has been removed. Volunteers, it is true, have demolished old buildings on one airfield, but the problem of removing the rubble remains. The County Council hopes that B.P. (which is willing) and Esso may demolish some of the ruins and use the rubble for aggregate. The Castlemartin tank range still occupies seven miles of the parks coast. The National Parks Act fixed the exchequer grant at 75 per cent. of the council's approved expenditure for such projects as providing car parks, accommodation, meals, camping sites, tree planting and clearing derelict land, but even this has been cut off almost entirely by the credit squeeze. The government has ignored the Commission's request, made last year, for the Act to be amended to give the local committee greater powers and more finance (including raising the grant to 100 per cent. for some improvements) and it has rejected the Commission's repeated requests for assistance from the National Land Fund, which was earmarked in 1946 as a "nest egg" for the national parks. A particularly sore point with the County Council is that administrative expenses do not rank for grant, although in practice a very high proportion of the expenses of planning and running a park are administrative.

The local National Parks Committee and Planning Committee, in the light of the local demand for industrial development, was probably in no position to resist it, even if it had wished to do so, and adopted what seemed the reasonable course—if industrialization is to take place—of trying to limit industrial development to the centre of the Haven.

The Steel Company of Wales' proposal is regarded by many as a test of the Government's attitude to national parks. If it is allowed, then, so it is said, the government has clearly no serious intention of preventing the gradual destruction of the entire park. This is the view put by Dr. J. H. Barrett, director of the Dale Field Studies Centre, and a nationally nominated member of the Pembroke National Park Committee. "You don't put gas works in a municipal park," he says, "so why put an iron ore dump in a national park?"

The waterway

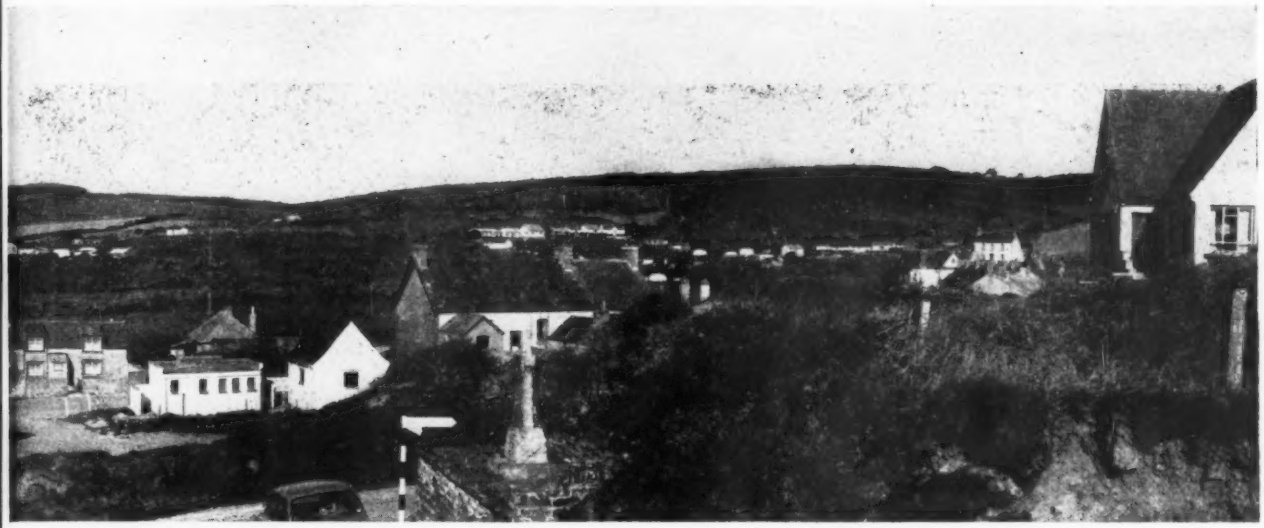
The need to co-ordinate developments on the Milford Haven waterway is obvious. There are two aspects to this: navigation, and land use. There has not in the past been any Milford Haven port authority, such control as has been necessary having been exercisd by the Admiralty. It is agreed that the number of berths that can be provided for supertankers or similar vessels is limited, although there are differences between the Admiralty authorities locally and others as to what that number is.

The Government has agreed, after representations, to set up a Milford Haven Conservancy Authority, that will regulate navigation, but what is clearly more desirable is a Port Authority that will actually build dock installations in accordance with a plan for the development of the entire Haven, and make them available to users. If each company insists on the exclusive use of a private jetty, each jetty cannot be used to its fullest extent. The County Council has warned the government that without a planned and co-ordinated layout of the dock installations it is impossible to plan the development of the land frontages in a way that will benefit both local and national interests. The alternative is for the first comers to grab the best sites for jetties, regardless of the effects their operations have on land use or on other, possibly more desirable, developments.

Water supply

The Esso project calls, in its first stage, for more than 4 million gallons of fresh water a day. The ultimate demand is much larger, and there is general agreement that the only way to meet it is to dam the tidal waters of the Cleddau, creating a fresh-water lake capable of supplying a vast quantity of water, the amount depending on the site of the dam. The most favoured site (Site D on the map, p. 350) would impound also the

IN A NATIONAL PARK



Above, a panorama of Broad Haven, showing the scattered development of bungalows, houses, huts and caravans, with an ugly hotel almost blocking the road along the shore. There is a proposal by Pembrokeshire County Council and Haverfordwest Rural District Council to develop it as a seaside resort and to accommodate refinery workers. But will the RDC's housing be very different from the Milford Haven housing estate seen in the picture on the right?

BUT WILL IT LOOK LIKE THIS?

waters of the Carew and the Cresswell, would yield 56 million gallons a day and would have other advantages. It would provide a road link between the north and south sides of the Haven and would create a fresh-water lake that would be more beautiful than the tidal estuary and ideal for sailing. The cost is estimated at £2 million, excluding the eight miles of approach roads—a very large sum for the local authorities to find. This would, nevertheless, be a positive improvement in the national park area and it would be deplorable if a short-sighted decision were taken to procure water in some other way that must, in the long run, prove inadequate. At the moment the principal difficulty is to decide who is to construct the barrage, the County Council or the Prescelly Water Board. The latter might be tempted, because its sole concern is water supply, to construct the barrage at a site higher up the estuary, where it would cost rather less and might produce sufficient water, but would not yield any of the other advantages. The County Council feels that it should, as the planning authority, be in a position to regulate the distribution of industrial developments and to allocate water supplies, that any profit or loss from the barrage should be spread over the whole county, and that the barrage, being a highway project, is more than a water undertaking. Naturalists are divided on the project which, some say, will lead to silting and destruction of bird life. But Dr. J. H. Barrett takes the view that the changes in nature, while considerable, would be of great interest and not harmful.

The planning machinery

Almost the entire burden of co-ordinating the developments in Milford Haven area, and of formulating plans to provide the services that will be necessary, has fallen on the shoulders of J. A. Price, the County Planning Officer, and his tiny staff of 9, which includes secretarial workers, and of whom only the county planning officer holds the Town Planning Institute's qualification, and none are architects. Mr. Price is very conscious of the need for a staff that is both larger in number and better qualified, and the establishment has recently been raised to 12. Not only is this a grossly insufficient number to cope with the gigantic task it has now to discharge, but a recent advertisement for an architect failed to draw a single reply, obviously because the salary offered (between £728 and £907 a year) is unattractive.

The county planning authority has to work very largely in the dark.

For example, how is it to estimate housing requirements when no clear picture has yet emerged of the intentions of some of the developers, and in the absence of any master plan based upon a realistic assessment of economic trends and government policy? What is clear is that several thousand new houses will be needed in the next few years. Already two of the biggest building firms in the country have moved in: one has already bought a site in Haverfordwest and it is highly probable that unless immediate steps are taken a substantial part of the housing will be provided by speculative builders on sites chosen by them. Large London firms would, presumably, design the houses in their architects' departments, but no such luxuries will be indulged in by local builders. At the present time some 50 to 60 per cent. of the planning applications are for buildings not designed by architects.

Housing and other services

The defects in the existing local government structure aggravate this problem. The County Council, although it is the planning authority, is not responsible for housing, which is the responsibility of second-tier authorities, all of them pitifully weak in resources and jealous of each other, each of them demanding a "fair share" of housing and everything else. This and the pressure of the local interests within the County Council, will make it almost impossible to plan housing and other development in the most desirable areas, regardless of local authority boundaries. The weakness of the smaller authorities, not one of which has

THE NATIONAL PARK—AS ONE IMAGINES IT

Little Haven, a typically beautiful Pembrokeshire cove, is four miles as the crow flies from the proposed refinery, and near Broad Haven. But the farm buildings suggest that already crude building is endangering its traditional character. (Photograph by Terence Soames.)

an architect's department, can be judged from their population: Haverfordwest borough, 7,890; Haverfordwest R.D.C., 22,470; Milford Haven U.D.C., 11,780; Neyland U.D.C., 2,210; Pembroke Borough, 13,710; Narberth R.D.C., 9,920.

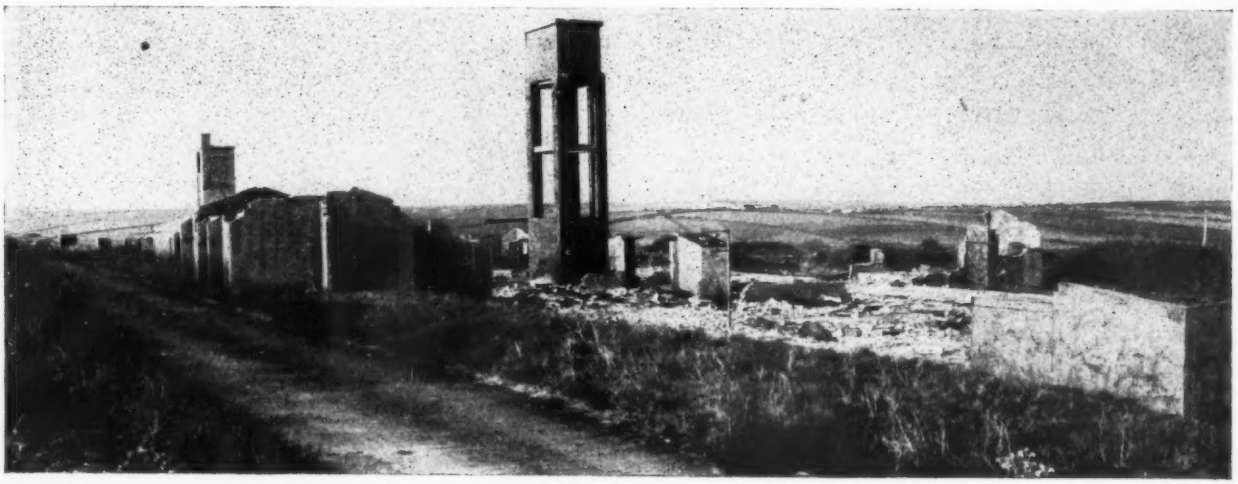
For such small local authorities suddenly to be called upon to provide the financial resources for a large housing programme at 6 per cent. is a tall order. Even in the County a 1d. rate raises only £3,000. The County Council has pressed the government to pay the industrial housing subsidy, but present indications are that the government is unwilling to do so. Even more formidable is the problem of ensuring that the housing is of the highest order, both from the architectural and planning points of view, and that disorderly, low grade housing, whether speculative or council built, does not disfigure the landscape. Important decisions have to be taken on the creation of housing: whether to build up one single centre, or to develop all the existing towns simultaneously, or to build a new town.

One proposal, to house about 4,000 people at Broad Haven, is worth considering, as the place is at present spoiled by haphazard siting of bungalows and caravans, and could benefit by a well-designed small town accommodating some workers from the refinery in ideal surroundings, and also providing badly needed accommodation for summer visitors. A joint committee of the County Council and the Haverfordwest R.D.C. is studying this proposal, but can such a development really be left to the R.D.C., or to a firm of speculative builders? And has the County Planning Committee got the necessary staff, either in quality or quantity, to plan or control developments of this kind—particularly with all the local vested interests breathing down the planning officer's neck? Great efforts have been made by the County Council to adapt the machinery to the new situation. A joint committee of all the local authorities on the north side of the Haven has been created to advise the planning committee on such questions as the creation of housing and other planning problems. The National Park Committee and the planning committee have been working jointly. But this elaborate apparatus of joint committees only emphasizes the need for a "unified command." The Minister of Housing and Local Government has advised the County Council to improve both the quality and the quantity of its planning staff to enable it to revise the development plan, but he has declined to offer the council any grant to pay for them.

Proposals for the future

What positive proposals must therefore be made? First, that even at this, the eleventh hour, the Government reconsider the alternatives to Milford Haven, so as to satisfy itself that its development as a major oil refining centre is essential. Second, that if the Esso refinery scheme is approved stringent conditions should be attached to it, to ensure that it does the least possible damage to the national park. Third, that when giving permission, the Government shall also determine the ultimate extent of development to be allowed. For this purpose the preparation of a report by a first rate team of planners is urgently required. Fourth, that the Steel Company of Wales project be refused. Fifth, that substantial funds be made available for the improvement of the national park. Sixth, that the organization and financial arrangements of the National Parks machinery be reviewed. One must conclude also that a small county council in alliance with a multiplicity of

—AND AS IT ALL TOO OFTEN IS

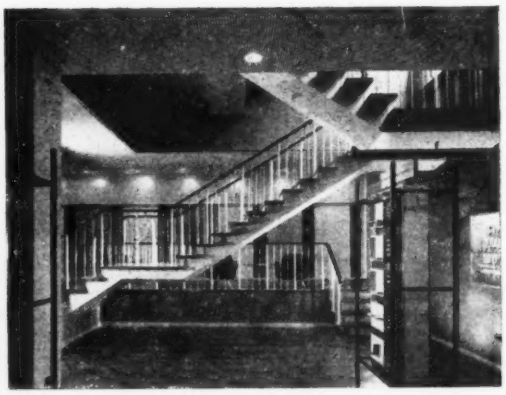


Above, a ruined tower and huts on a former R.N. site in the Dale peninsula. These ruins have all been "handed back" by the service departments and are no longer their responsibility. Left, unsightly fences, buildings and a water tower at H.M.S. Harrier, near St. Ann's Head in the Dale peninsula. Below left, a derelict brickworks disfigures this beautiful little cove at Porth Gain in the National Park. Bottom left, part of the three acres of derelict land at Tellanby ex-RAF airfield in the National Park, near Little Haven. The building on the right has been transformed into a house by the addition of a crinoline-like veranda.

second-tier authorities, all lacking the necessary powers, finance and staff, cannot hope to cope successfully with this situation. What is needed is a development authority, similar to a new town corporation, financed by the government, employing a sufficient staff of the highest quality, led by a first-class architect-planner-landscape-architect, that would undertake to plan the development of a designated area or areas as a whole, and would execute much of the plan itself. Professor Julian Huxley, in a letter to *The Times*, has put the case for bold action along these lines, urging that if our best town planners and architects were given full powers over layout, design and buildings, the proposed development "might even produce a site of beauty instead of the dreary sprawl of ugliness that industrial development usually connotes." The real challenge is, at this stage, not to the planners and the architects, who are powerless, but to the Ministry of Housing and Local Government which has the opportunity to demonstrate its belief both in planning and in national parks, not by exhorting others, but by taking the practical decisions and giving the solid help that the situation requires.

SHOWROOMS FOR PLASTICS AND KITCHEN EQUIPMENT

The newly-opened basement showroom for Thomas De La Rue & Co. Ltd. in Regent Street was designed by Misha Black, Alexander Gibson and Philip Lucey: signs and typography, Milner Gray and Ronald Armstrong; and displays, Ronald Ingles, all of Design Research Unit. Special displays of plastic sheet, Charles Munro; and the display kitchen, W. M. Dixon and E. J. Marshall, chief designers to the clients. Below, left and right, the main entrance seen from Regent Street, the entrance hall and, right, the

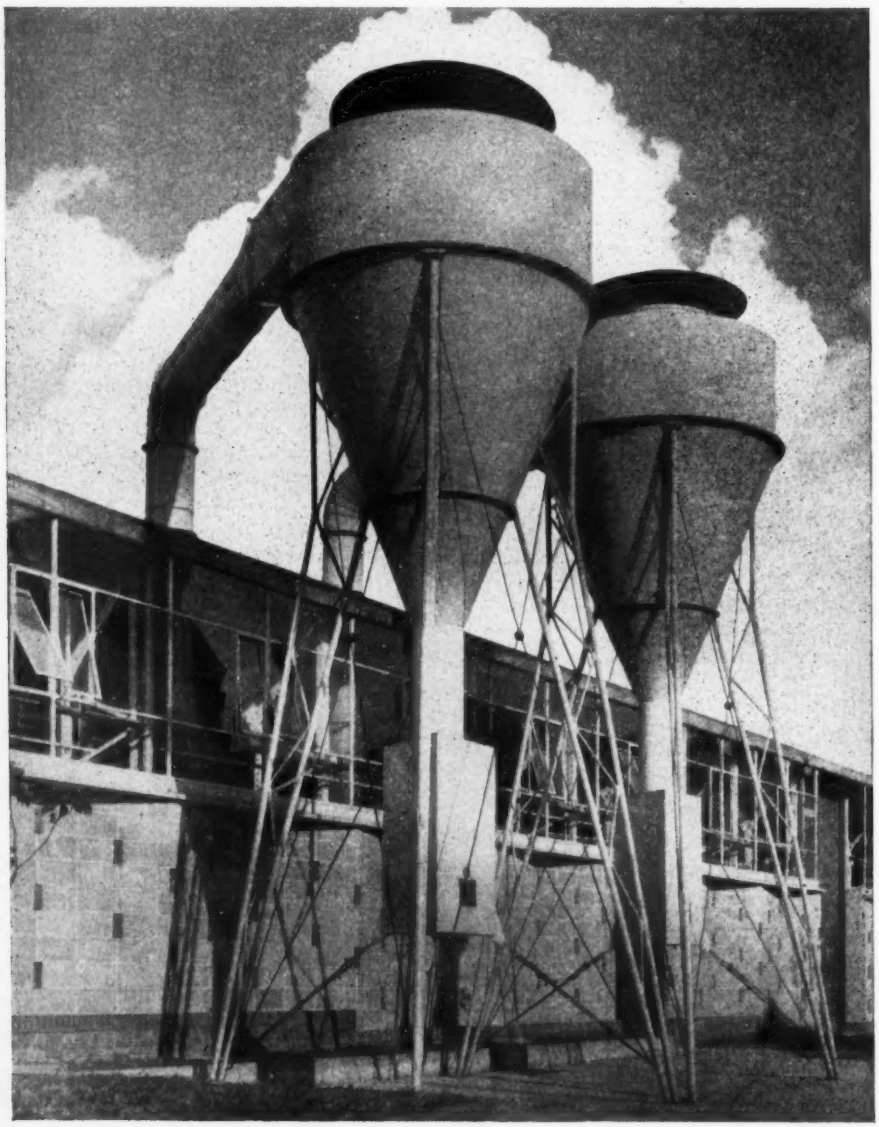


staircase from ground floor to the basement showroom. The frame to the entrance doors and transome are of stainless steel and the fascia is black Belgian marble. The name of the Company on the upper fascia is in a specially-designed modified Gothic script. The door handles are cast in stainless steel, bearing a silhouette of the founder of the Company, in oval Wedgwood ceramic inset. The staircase is constructed of prestressed concrete and has teak treads. At the base of the staircase (below) is a

IN REGENT STREET, LONDON W.1

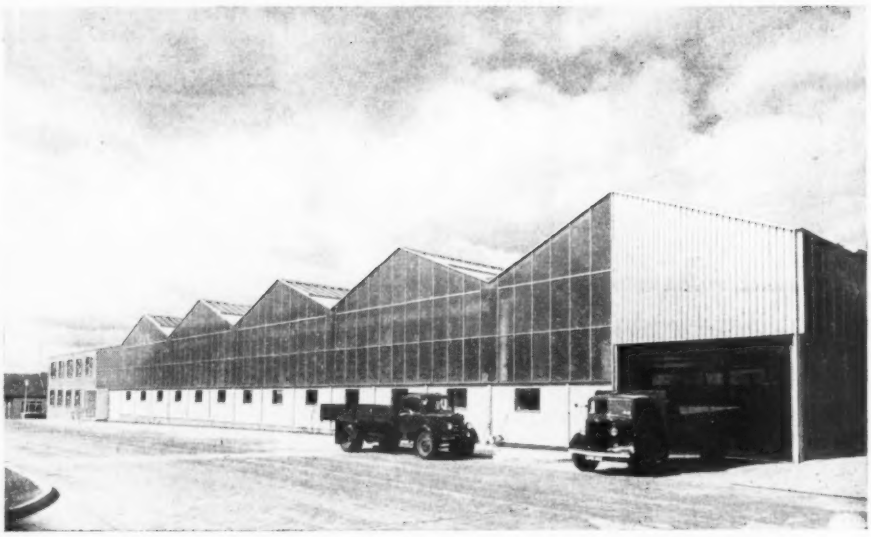
raised area from which the remainder of the showroom, with standing display units and permanent exhibition areas, can be seen. The end wall to this raised area is faced with laminated plastic sheet with an abstract pattern of rectangles in different colours. Above, the display dining area, with circular table designed by Ernest Race, and a view through the hatch of the kitchen. Incorporated in the panelling to the wall-dividing dining area and kitchen are designs from woodcuts by Thomas Bewick. The colour scheme in these areas includes yellow, pale blue, white and two tones of grey. There is also a small theatre, built to seat 50 people. The contractors for the showroom were F. W. Clifford Ltd., and for the shop front E. Pollard & Co. Ltd.

RECENT BUILDINGS FOR THE BRISTOL AEROPLANE CO.

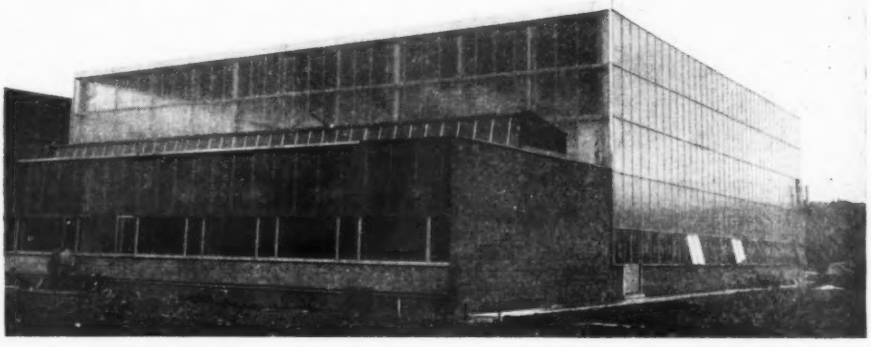


The buildings illustrated on this page and opposite were all designed by Eric Ross for the Bristol Aeroplane Co. Ltd. at Filton, Bristol. Above, the wind tunnel, which has a total floor area of 16,490 sq. ft. and is used for the testing and observation of scale models under varying air velocities. The building also accommodates research workshops, laboratories and offices. The dust extractors, left, are erected against the south wall of precision foundry, which has a floor area of 45,631 sq. ft. The main building, in which precision components are moulded and cast, is an adapted aeroplane hangar. In addition to the foundry there are ancillary buildings comprising a boiler house, electrical sub-station and offices, all steel framed with brick external walls. On the opposite page, top: the goods intake store, which has a total floor area of 30,635 sq. ft. and is a reception and distribution centre for incoming bulk stores. The store, seen in this photograph from the east, has a large open floor area where goods are moved by overhead cranes. The main building is steel framed and the ad-

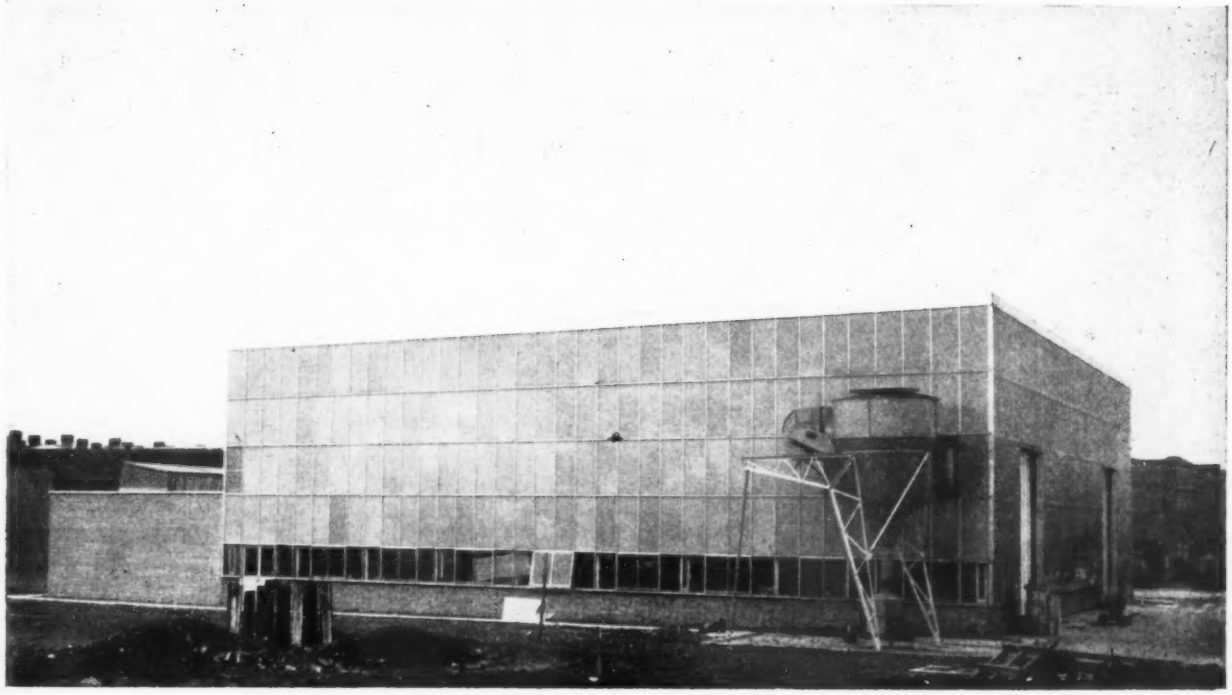
AT FILTON, GLOUCESTERSHIRE



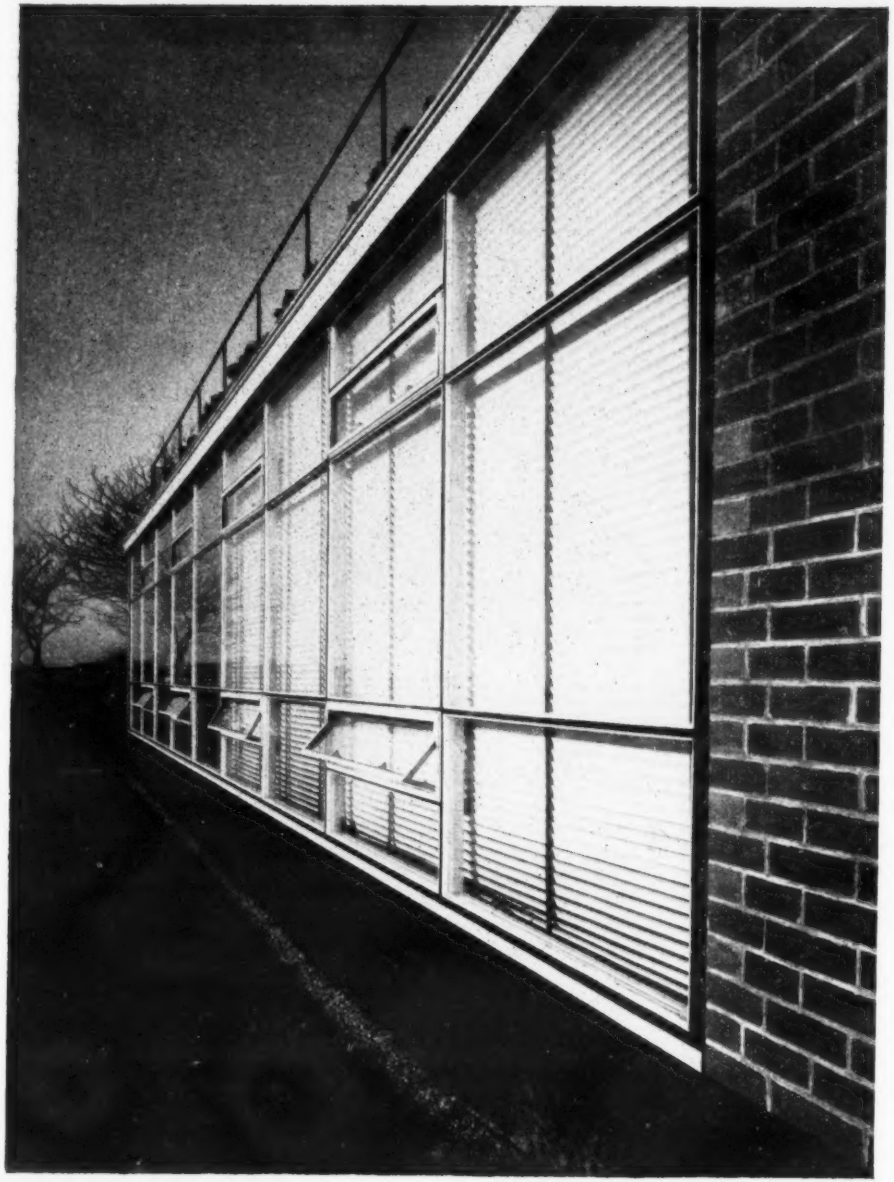
joining office block (on the left) has external load-bearing brick walls and precast concrete floors and roof. The blade forge shop, below left from the south-west and below, from the north-west and bottom from the south, has a total floor area of 11,160 sq. ft. and accommodates a number of cold presses used for the stamping of metal blades. Offices and lavatories are also provided. The building is steel framed and has patent glazing cladding.



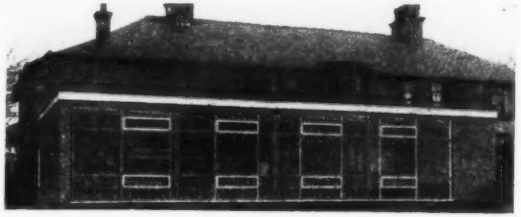
Other new buildings at Filton include an apprentices' training school, with classrooms, workshops and laboratories, hangars for engine testing and inspection and a plating shop for the finishing of components.



EXTENSIONS TO GOLF CLUB HOUSE AT OLDHAM, LANCASHIRE



The extension to the Werneth Golf Club House, illustrated on this page, was designed by George A. Hayes (of Tom Hayes & Co.). As maximum economy had to be considered, three alternative structural methods were studied and priced. Firstly, a r.c. frame along the front with precast beams spanning to the rear load-bearing wall, secondly, a steel frame with r.s.js and timber joists or concrete beams spanning between and, thirdly, a combination of r.c. beams and columns, load-bearing cross walls and patent prestressed r.c. beams for the roof. The third form of construction proved by far the cheapest. It was also found that timber window frames, made up on the site, with aluminium opening lights, were cheaper than purpose-made



or standard metal windows. Facing bricks are red Accrington engineering bricks, as used for the old building (above left). The main clubroom (above right) has a small bar in one corner. The approximate total costs were £2,550, with a floor area of 840 sq. ft.; cost per sq. ft. £3, which includes new bar (£650) and alterations to the existing building (£200). The new extension, therefore, cost £1,700, or £2 per sq. ft. The general contractors were J. & J. Blunn Ltd.

COST SUMMARY (for new extension)

Items	*Total cost* £ s d	*Cost per sq. ft.* s d
Foundations, columns, beams, pre-cast roof	332 9 6	8 0
Concrete floor, excavation, hardcore, brickwork, padstones, and openings between new and ex. building. Vermiculite roof screed	619 0 7	14 8
Glazed wall to south elevation and internal joinery work excluding new Bar	133 17 6	3 2
Vermiculite plaster to ceilings, hardwall plaster to walls	100 0 0	2 5
Roof and floor, asphalting	150 5 0	3 7
Balustrade, to roof metal opening casement to windows	105 0 0	2 6
Internal lighting and power points	63 0 0	1 6
New windows and r.w. pipes including making good to ex. building. Glazing and plumbing	120 0 0	2 10
Internal and external decorations including making good to ex. building	102 0 0	2 5
3 No. 3 kW. electric heaters	65 0 0	1 7
Venetian blinds to window w	75 19 4	1 9

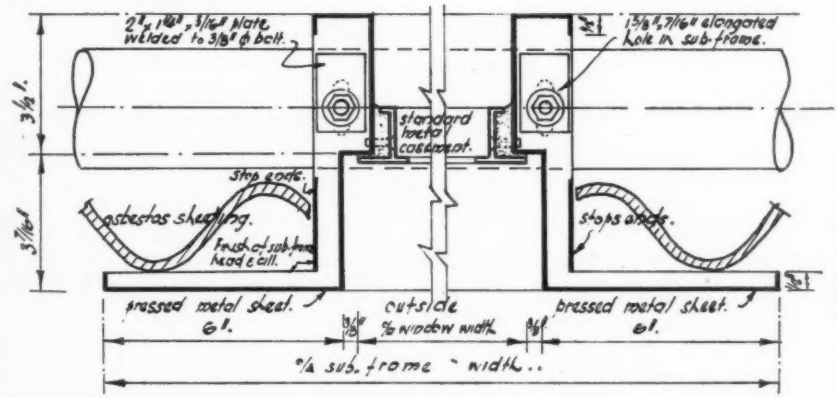
THE INDUSTRY

This week Brian Grant reviews a window surround for use in corrugated sheeting, a new anthracite-burning boiler, a system for preventing frost damage and a portable panel heater.

Windows in corrugated sheeting

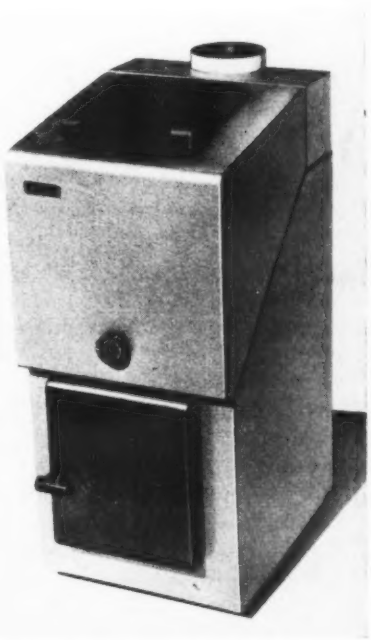
The Selite window and surround have been developed to provide a satisfactory method of fixing and weathering when steel framed windows are to be fixed in walls which are clad with vertical corrugated sheeting. The surround eliminates the need for a special frame and at the same time provides its own weathering, thus avoiding the need for any flashing pieces or joint fillers. It also provides a uniform finish to the sides of all windows. The sub-frames are made from 16 gauge sheet steel, galvanised, and are designed for use with steel sashes made from 1¼ in. industrial sections with horizontal centre hung ventilators for cord or pole operation. The windows can be fixed singly, joined side to side, or above each other, and avoid the cost of a structural frame or trimmers between the side rails. (*Sherbourne Engineering Ltd., Sherbourne Road, Acocks Green, Birmingham*, 27.)

Details of the Selite window and surround.



Small magazine boiler

The illustration on the right shows the new Janitor junior magazine boiler, which has an output of 35,000 B.Th.U per hour, and is intended to provide hot water and background heating for the average 6 roomed house. The boiler burns with natural draught and the output is controlled by a thermostatically adjustable primary air damper. A certain amount of pre-heated secondary air is also provided, and the manufacturers claim a thermal efficiency of 75 to 80 per cent. The boiler burns anthracite beans or large peas, and one filling of the fuel hopper should last for 24 hours, or, with the radiators turned off, for 2 or 3 days. Full insulation is applied, and all the stove enamelled outer surfaces remain cool to the touch and easily cleaned. (*Janitor Boilers Ltd., Vale Road, Camberley, Surrey.*)



The Janitor junior magazine boiler.

Preventing frost damage

Electrical methods for applying a certain amount of heat to water pipes and tanks during cold weather have been on the market for some time, but an automatic thermostatically controlled system which can be installed for less than £20 seems well worth investigation. The main unit consists of a small step down transformer which is fixed to the storage tank just above the water line. A galvanized iron plate is fixed inside the tank so that it extends well below the water line, and when the transformer current is switched on by the thermostat, eddy currents are generated in the plate, which grows warm and prevents the water from freezing. The secondary winding of the transformer produces current at low voltage for heating any pipes which may be connected to the tank. One terminal of the winding is connected to the tank as a common junction for all pipes, and the other is connected by a series of leads to the remote end of each pipe, the current passing through the metal of the pipes and warming them directly, not by conduction, as with resistance wire. The wires can be wound in a loose helix round the pipes to give increased heating by induction, or they may be lead direct to the ends of the pipes by the shortest route, and it may be noted that whichever method is used it is not necessary to remove any existing lagging. The system should be perfectly safe in use, as the mains current is completely isolated from the tank and pipes, and the secondary heating current is at only 2 volts, too low to give a shock. Current consumption for an average tank and 25 ft. of piping is about 200 watts. The standard heating unit, complete with thermostat and all fittings, costs £14 16s. 7d. including purchase tax, and is suitable for most domestic jobs and other small build-

technical section

ings: larger units can be supplied for industrial purposes. (*Power Frequency Heating Ltd., Lampton Road, Hounslow, Middlesex.*)

Portable panel heater

A new floor standing "Radiant Glass" Thermovent heater has just been produced. The heater is rated at 1Kw and the panel

The Thermovent "Radiant Glass" panel heater.

is made of armourplate glass which is also non-reflecting so that it does not show smears and finger marks. A pilot lamp provides a glow when the heater is switched on, and although the conductivity of the glass is low enough to prevent anyone from being burnt by momentary contact, a welded wire guard can be supplied to give maximum protection in households where there are young children. (*E. K. Cole Ltd., Southend on Sea, Essex.*)

INFORMATION CENTRE

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

18.188 construction : theory

RIVETS AND PRELOADED BOLTS

The limits of transmission of force in riveted and bolted connections in structural steelwork. (Acier Stahl Steel [Belgium] March 1957 pp. 131-137)

An article based on information supplied by Messrs. Bauer & Schaurte, Düsseldorf-Neub, of interest to architects and engineers.

Riveted connections subjected to static forces are first considered. The action of the rivet is described whereby the hot rivet contracts, thus pre-loading the members forming the connection and bringing frictional forces into play which hold the plates together when under load. For the purpose of design as specified in the various regulations the rivet shank is assumed to fill the hole and the hole is therefore taken as the basic cross section for shear and bearing stresses. The real safety of a joint depends on the ability of the rivet not to slip. This is governed by the gripping force of the rivet and the condition of the surfaces of the connection.

The gripping force depends on the material, grip length, temperature of rivet and time of forming head and method of riveting. These points are considered in turn and experimental data are given in support of the conclusions.

The superiority of connections made with high tensile bolts is described. For a diameter equal to that of a rivet under similar conditions the gripping force produced by the bolt is 3·7 times as high. Behaviour of bolted connections under both static and fluctuating load is considered. While there is yet no information on the correct spacing of the bolt holes the data applicable to rivets may be employed, the hole being $\frac{1}{16}$ in. larger than the theoretical bolt size. The bolts are not subjected to a fluctuating load in the longitudinal direction of their axes and may be given an initial stress up to 90 per cent. of the elastic limit. Recommendations are made for the type of bolt, washer and treatment of contact surfaces.

20.234 construction : complete structures

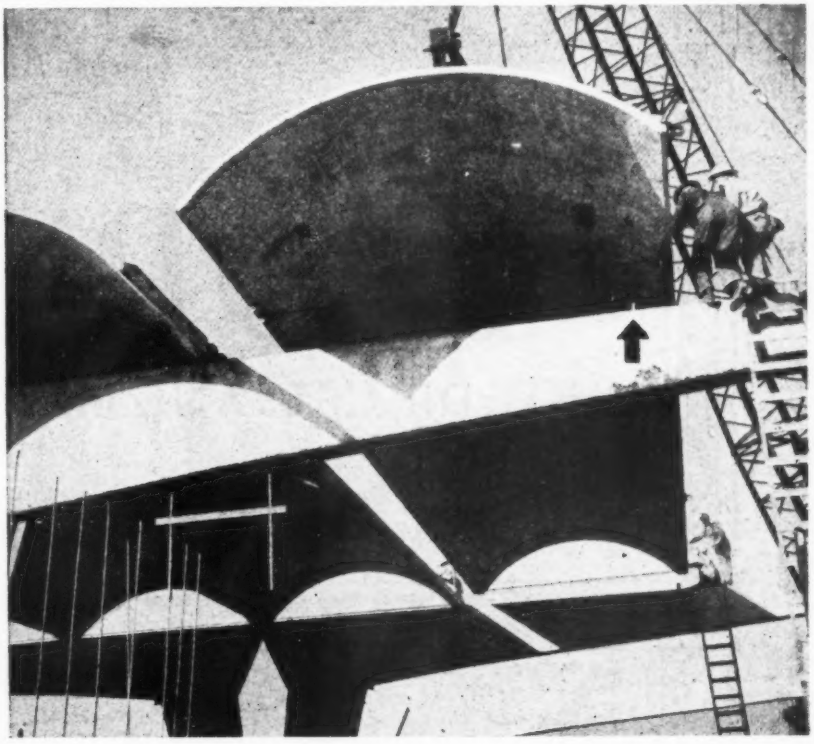
PRECAST SHELLS

Precast Arches Form Gym Roof. (Engineering News-Record [U.S.A.] Jan. 31, 1957. pp. 45-47)

Large precast shells form roof for a gymnasium: of interest to architects and engineers.

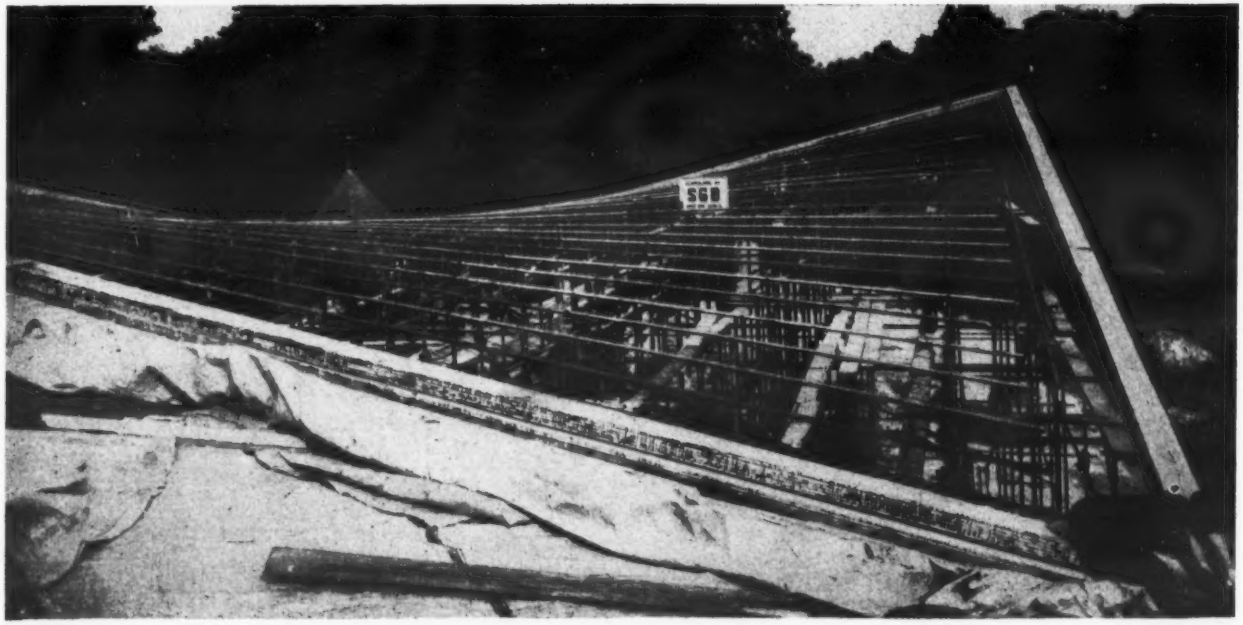
The structure was conceived to compete with structural steel spans of the order of 50 ft. In the gymnasium at a Californian high school precast shells are used weighing 20 tons each, 61 ft. long and 15 ft. wide with a 3½-ft. rise. The shells span between portal frames 52 ft. apart and cantilever 9 ft. over one of the frames. The shells are 3½ in. thick with no diaphragm at the support but an extra 3 in. thickness is added to provide a stiffening arch. The concrete is lightweight, 102 lb. per cu. ft. density, with a crushing strength of 3,000 p.s.i. The casting bed was built up on the ground with a soffit of corrugated steel. The bed carried six units end to end and units were removed about 8 days after casting. For erection purposes the shells have ¾ in. dia. ties cast in to prevent spreading. The units weighing 20 tons were transported to the portals by a truck and dolly trailer, the unit connecting the two sets of wheels. A 50 ton truck crane picked up the unit and placed it in position on the portals, engaging steel locators. The ties were cut later to allow the shells to spread against each other. Plates set in the valleys were welded together to tie the whole structure together.

Concrete arches of a gymnasium roof in California are supported by precast trusses. The arrow points to the pipe sections cast into the trusses, which fit into sleeves in the barrels ; a welded connection completes the anchorage.



MULTIPLE PARABOLOID ROOF ON A FACTORY AT WILTON, WILTSHIRE

Illustrated on this page is the first multiple paraboloid (i.e. twisted plate) roof in the world to be built in timber. It covers the Wilton Royal Carpet Company's new weaving shed at their factory at Wilton near Salisbury. The roof, which was designed by the TDA, was built by direct labour under the supervision of the architect, Robert Townsend and, it is claimed, has proved cheaper than any alternative structure, working out at less than 10s. per sq. ft. The free floor area is 110 sq. ft. comprised in a square. The roof is wholly supported on four r.c. columns placed midway on the sides and is formed of four "twisted plates." Each of these "plates" was formed in situ *of three layers of ⅝-in. by 5-in. fifth-quality tongued and grooved European redwood boarding, the lowest layer being laid on the scaffolding (see right), the middle layer being then laid diagonally and stapled to the lower layer, and the top layer laid straight and nailed to both. In addition the layers were glued together along a strip 6-ft. wide round the outer edge of each panel with a urea adhesive. Lastly edge beams built up of two sections, each composed of six layers of 1-in. by 10-in. nominal unsorted redwood, glued with a resorcinol adhesive, were glued top and bottom to the edges of each plate. It will be appreciated that though the boards comprising the plates themselves were laid flat, the edge beams had to be carefully formed to the correct twist. 2¾-in. dia. mild steel tie rods run diagonally to connect the two lower corners of each plate, four ⅜-in. dia. mild steel hangers connect the roof to each of these ties, and two steel guys hold down the four upward tilted outside corners. The underside of the roof is sprayed with two coats of p.v.a. glaze and the topside is laid with two layers of felt. Though the maximum deflection on the plates is very slight, a 1-in. tolerance has been allowed between the underside of the roof and the framework of the glazing. The roof took about six weeks to erect.*



technical section

24 LIGHTING
a study of laboratory daylighting

On February 7, 1957, we published an article by John Musgrove, B.ARCH., A.R.I.B.A. of the Nuffield Foundation and Peter Petherbridge, M.SC. of the BRS describing a technique which they had evolved for using models to find out the daylighting characteristics of a building. This week the same authors describe a specific problem of laboratory daylighting and its solution using the model technique.

The pattern of collaboration in lighting design between the Nuffield Foundation and the Building Research Station has been developed progressively during the past seven years. It began with the model studies of the Larkfield experimental ward unit[1, 2] and has continued throughout the Foundation's hospital studies.[3] When the Foundation's Division for Architectural Studies began its investigation into the design of research laboratories, the lighting studies were extended into this field, taking full advantage of the improved calculation and model assessment techniques developed around the hospital and school studies.[4]

This previous work should be borne in mind in order to appreciate that the change in emphasis on the various stages of the investigation is due as much to earlier advances in the subject as to the difference in function of the building type being studied.

Introduction

There are two prerequisites for daylighting design: the levels of natural light (daylight factor) to be aimed at should be reliably established and techniques should be available for predetermining the levels with reasonable precision. This article deals briefly with the establishment of a design level of daylighting for laboratories and, more fully, with the realization of such a level in one particular laboratory room. The window design adopted for this room introduced sun-penetration problems and these are also considered.

This article deals only with the *quantity* of daylight and is applicable to laboratory rooms generally or, for that matter, to any room at all. On the other hand, the collaborative lighting studies at the Building Research Station have been aimed at developing an integrated approach to interior design in terms of the visual character of the environment. Qualitative studies were carried out in the laboratory room dealt with in this article and an account will be published later.

Techniques used are described here only in general terms and results are given for a particular laboratory room: the joint work on lighting will be reported more fully in a forthcoming publication by the Nuffield Foundation.

Daylighting levels for laboratory design

Various recommendations have been published giving the levels of illumination needed for various types of work (visual tasks). These recommendations have been determined largely by the size and contrast of the detail in each task. For example, a task of small size and poor contrast (like reading finely graduated scales) requires a high level of illumination (of the order of 100 lumens/sq. ft.) while a task of large size and good contrast (like washing glassware) requires only a low level (about 5 lumens/sq. ft.).

Although laboratory work includes tasks of widely varying visual difficulty, each of which, strictly, would require a different recommended illumination level, the IES Code[5] groups the tasks into four broad categories, of which that relating to general laboratory work (20 lumens/sq. ft.) is relevant to the present paper.

The recommended daylighting level (daylight factor) is obtained from the recommended illumination level (lumens/sq. ft.) by expressing the latter as a percentage of the prevailing outdoor illumination. In this country 500 lumens/sq. ft. is generally assumed for the outdoor illumination since it corresponds to average sky conditions in Great Britain. The design level of daylight factor for general laboratory work derived from the IES Code is therefore $\frac{20}{500} \times 100 = 4$ per cent.

In planning a laboratory room, the procedure would therefore be to ensure that the daylight factor did not fall below this level in any part of the working area. Merely providing this minimum daylight factor will, however, only ensure that the recommended indoor illumination level is met or exceeded when the outdoor illumination is at least 500 lumens/sq. ft. In fact, for a typical 5- or 5½-day week in south-eastern England, the outdoor illumination falls below 500 lumens/sq. ft. for an average of about 320 hours during the working year. For this number of hours, therefore, artificial lighting will be required to supplement the daylighting. On the other hand, some other level can be adopted for the outdoor illumination, provided longer or shorter durations of supplementary artificial lighting are accepted as a consequence. For instance, the recommended illumination level of 20 lumens/sq. ft. for general laboratory work can also be achieved with a design level of 2 per cent. daylight factor, provided supplementary lighting is used for those times of the day when the outdoor illumination falls below 1,000 lumens/sq. ft. This would mean a further 400 hours of artificial lighting over and above those required with a design level of 4 per cent. daylight factor and a 500 lumens/sq. ft. sky.

The Nuffield Foundation's laboratory survey

The adoption of only one recommended level of illumination could, however, lead to the daylighting in a laboratory building being used to less than maximum advantage. This point was examined by the Nuffield Foundation Division for Architectural Studies who, in the course of a laboratory survey, made a study of

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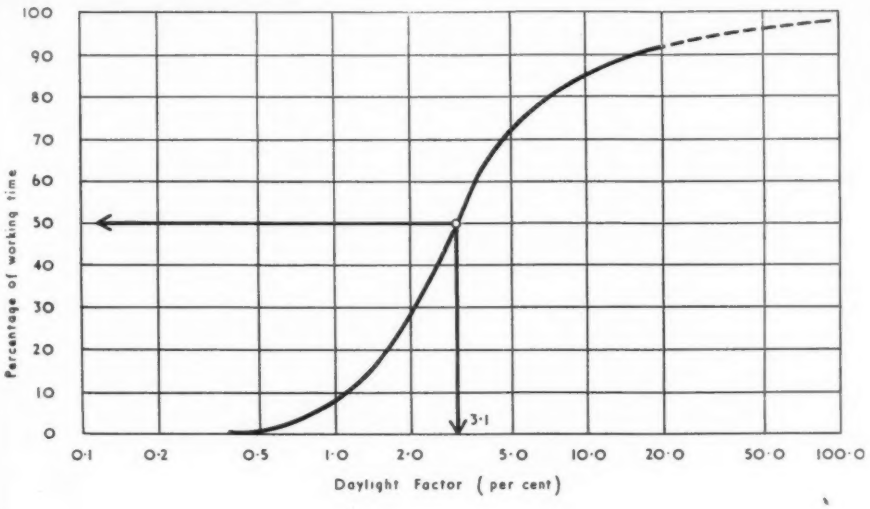


Fig. 1. Curve relating the amounts of daylight needed for laboratory tasks with the percentages of working time spent on these tasks (averaged for eleven types of scientific discipline).

the sizes and contrasts of the many kinds of visual task performed in laboratories. The survey, which covered eleven types of scientific discipline, was carried out in laboratories administered by the Agricultural Research Council. The results of the survey are consequently applicable mainly to the biological sciences, but include physics and chemistry.

The amounts of daylight needed for the tasks studied in the survey were derived from the size and contrast data and were correlated with the percentages of working time spent on these tasks. The relationship for an average of all the eleven types of scientific discipline is given by the curve in Fig. 1. From this curve it is seen that if a laboratory room is designed to have a minimum daylight factor of about 3 per cent. (actually 3·1 per cent.), then this will enable tasks occupying 50 per cent. of the total working time to be carried out anywhere in the room.

The daylighting requirements for individual scientific disciplines, however, vary about the average values given in Fig. 1. For example, from similar curves drawn for individual disciplines it was found that plant physiology laboratories are the least difficult to light, requiring a minimum daylight factor of 2·8 per cent. to cater for the above percentage of total working time, while animal physiology laboratories are the most difficult to light, requiring a minimum daylight factor of as much as 3·4 per cent. Chemistry and physics laboratories on the other hand require a minimum daylight factor of 3·0 per cent., corresponding almost exactly with the average value for the whole range of eleven disciplines.

In a side-lit laboratory room, designed to have a minimum daylight factor of 3 per cent., those parts near the window will, of course, have daylight factors considerably in excess of this value. These better-lit parts will therefore cater for those tasks of greater visual difficulty (occupying the remaining 50 per cent. of total working time).

This minimum daylight factor was suggested by the results of a pilot laboratory survey[6, 7] carried out in 1954 by the Division for Architectural Studies. The results of the more recent main survey quoted above confirm this. It should be remembered, however, that the adequacy of the criterion depends to some extent upon a large proportion of the room area having higher levels of daylight than the recommended minimum. If, therefore, rooms are designed with a more uniform level of daylighting, for example, by using toplights and smaller side windows, some higher minimum daylight factor will be necessary.

The Nuffield Foundation's laboratory design project

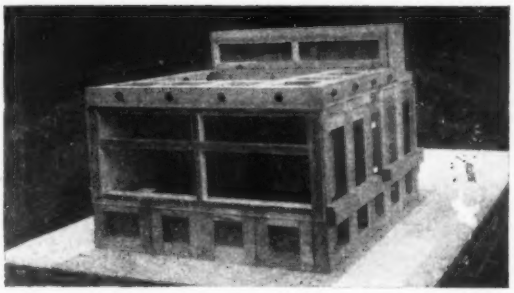
A further part of the laboratory study was to apply to the design of a projected laboratory building the results of the survey mentioned earlier, in which factors such as space requirements and services as well as the lighting were investigated. One of the aims was to realize the daylighting design level of a minimum of 3 per cent. daylight factor in the building.

The daylighting study was made in conjunction with the Building Research Station; its object was to find out whether, with an economic ceiling height, the daylighting design level could be achieved in one of the smaller rooms in the projected building with a side window alone, or whether the side lighting would have to be supplemented by a rooflight. In the latter event, an assessment was to be made of various types of rooflight and an estimate made of the daylighting provided by the type eventually selected for the new building.

Mode of attack on the problem

Since reflections from the interior surfaces were likely to make important contributions to the total amount of daylight in the room, the problem required the predetermination of total daylight factors rather than merely the direct sky contributions (i.e., sky factors) more commonly determined in daylight calculations. Until quite recently no relatively simple means were available for taking internally reflected light into account in such calculations, and until a few years ago such a problem would have had to be tackled entirely by means of models, in which the daylighting levels could be measured with photocells. (An example

technical section



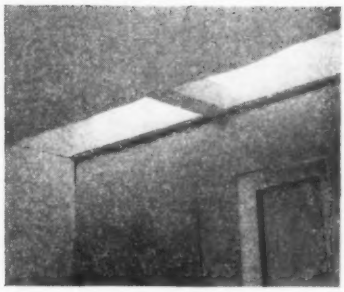


Fig. 2 (far left). Exterior view of model laboratory room showing side window and lantern-type roof-light. Fig. 3 (left). Interior view of model laboratory room showing position of roof-light. Fig. 4 (below). Plan and section of laboratory room.

of this method is the study of the daylighting in the experimental ward unit at Larkfield Hospital which was reported by Hopkinson in 1952.[7])

The development at the Building Research Station of simple and practical methods for calculating the amount of internally reflected light meant, however, that the present problem could be tackled on the quantitative side largely by calculation. In fact, in this case a model was only resorted to in order to check the accuracy with which existing calculation techniques could predict the levels of daylighting, particularly from the type of rooflight finally adopted. A model was, however, used for subjective appraisals of the interior daylighting and also for determining the final scheme of decoration.

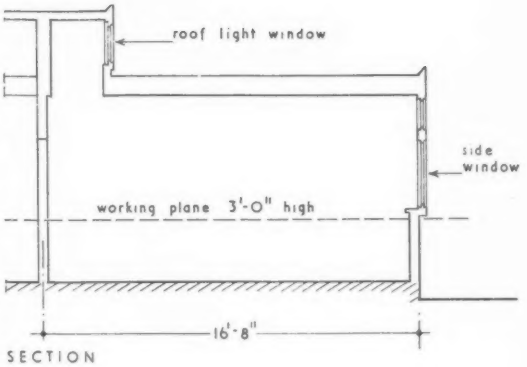
Check on the need for a rooflight

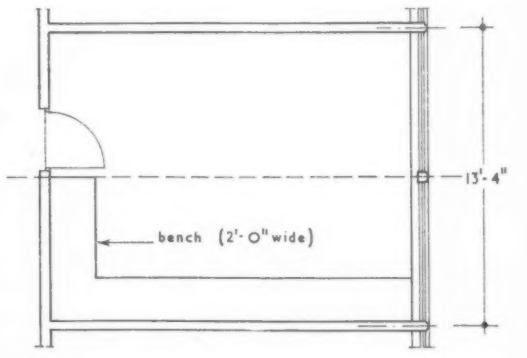
A preliminary daylighting calculation was made to verify the need for a rooflight. This calculation used the BRS Protractors to estimate the amount of direct skylight (the Sky Component) and the BRS Nomograms[8] to estimate the amount of internally reflected light (the Internal Reflected Component). The calculations were applied to the smallest laboratory room in the building, since this room would be the most difficult to light. The room was 13 ft. × 16 ft. 6 in. × 8 ft. 6 in. high, these dimensions having been determined on the basis of real space requirements rather than because of the daylighting. The window was in one of the shorter walls, from sill (3 ft. 6 in. high) to ceiling.

Assuming interior decoration with comparatively low reflection factors typical of the laboratories visited in the survey, the calculations showed that even with a 10-ft. ceiling the daylight factor at the back of the room was little more than 1 per cent. Since, therefore, it was evident that a useful working area of the laboratory room could not be lit to the minimum design level by means of a single side window alone, it was decided to supplement the daylighting at the back of the room by means of a rooflight.

Choice of rooflight

At this stage, the relative merits of a number of types of rooflight were examined. The lantern type of rooflight used in the top-floor classrooms of the Mörby Läroverk school in Stockholm was eventually chosen since it provided adequate daylighting, both in amount and quality, and gave a pleasant subjective effect produced by reflection of light from the back wall.





The rooflight is seen in the photographs of the exterior and interior of the model laboratory room (Figs. 2 and 3) and in the section through the laboratory room (Fig. 4). The principal contributions of daylight to the bench along the back wall of the room are by reflections from the back wall and from the interior surfaces of the lantern.

Check on rooflight dimensions

Before detailed drawings of the laboratory building could be prepared, a rough assessment was made of the lighting at the back of the room from a lantern-type rooflight with dimensions appropriate to the size and shape of the room. This assessment was needed to ensure that a rooflight constructed to these dimensions would, in fact, compensate adequately for the deficiency in daylight from the side window alone. The calculations confirmed that, provided the interior surfaces of the lantern were given a light finish, slightly over 2 per cent. daylight factor would be obtained at the back of the room from the rooflight alone. This,

technical section

together with the contribution from the side window, would ensure that the minimum design level of 3 per cent. daylight factor would be met, and confirmed the adoption of the provisional rooflight dimensions for the detailed design.

The model laboratory room

Once drawings of the laboratory building became available it was possible both to make more precise calculations of the daylighting in the laboratory room for the side window and rooflight combined and to construct a scale model of the room which could be used for subjective studies and for checking the calculations of daylight factor. One of the first uses of the model was to prepare a scheme of interior decoration which took into account the brightness pattern on the interior surfaces of the room produced by the daylight from the side window and rooflight acting together. This scheme provided data on values of interior surface reflection factor needed for more precise calculations of the interior daylighting.

A description of the form of model construction which was developed for this particular study has already been given by the present authors.[9] To assemble the model laboratory room, the basic wall and ceiling units were supplemented with a window, door, benches and rooflight specially made for the room in question. Papers approximating to the colours of British Standard 2660[10] were stapled to the wall units and white ticket card pinned to the ceiling. The interior of the lantern was painted matt white and the floor was covered with grey marbled linoleum. It should be noted that with this type of lantern the roof surface plays an important part by reflecting sky light through the rooflight window. Roofs of three widely different reflection factors were therefore chosen in order to study the effect of roof surface reflectivity on the interior daylighting.

The decorative scheme eventually selected from the model study was as follows:

Surface	*BS No.*	*Approximate Munsell reference*
Side walls	4—046	5Y 9.25/1
Back wall	4—047	5Y 8/2
Wall under window	7—085	7.5 B 3/4
Ceiling	Matt white	
Floor	Light grey	
Interior surfaces of rooflight	Matt white	

The reflection factors of these coloured surfaces as actually measured were 85, 61, 10, 78, 38 and 79 per cent. respectively.

The more precise daylighting calculations

The more precise daylighting calculations assumed that the roof would be covered with weathered marble chips. Their reflection factor had been separately measured to be 40 per cent., and this was allowed for in calculating the daylight contribution from the rooflight. Furthermore, the calculations included an allowance for the obstruction which would have been caused by an adjacent building, neighbouring trees and rising ground, had the laboratory building been erected on a proposed site at Hurley, Berks. For this purpose a 360° photographic panorama of the site was made and measurements obtained from the panorama enabled the angular sizes and positions of the obstructions to be located.

The BRS protractors were again used for estimating the amount of direct light from the sky received through the side window, and also for estimating the amount of light directly reflected from the obstructions on the site (the External Reflected Component)[11]. The BRS Interreflection Formula[12] was, however, used on this occasion instead of the Nomograms to give greater accuracy when estimating the amount of internally reflected light from the side window.

The calculation technique developed for dealing with the rooflight is not described in detail here but involved a preliminary assessment of the amount of daylight received in the lantern both directly from the sky and by reflection from the roof surface. The interreflection of this light between the lantern surfaces and its subsequent reflection on to the working plane was then determined.

The calculations of total Daylight Factor (i.e., Sky Component + External Reflected Component + Internal Reflected Component) were made both for the side window alone and for the rooflight alone, for a number of representative points on a 3-ft. high working plane (corresponding to bench height). A simple addition then gave the daylight factors for the side window and rooflight combined. Contours of equal-daylight factor were drawn from the data and enabled the distribution of daylight throughout the room to be readily seen.

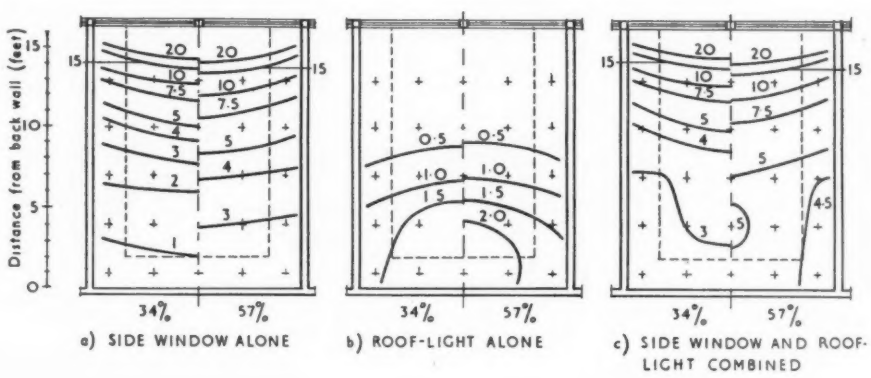
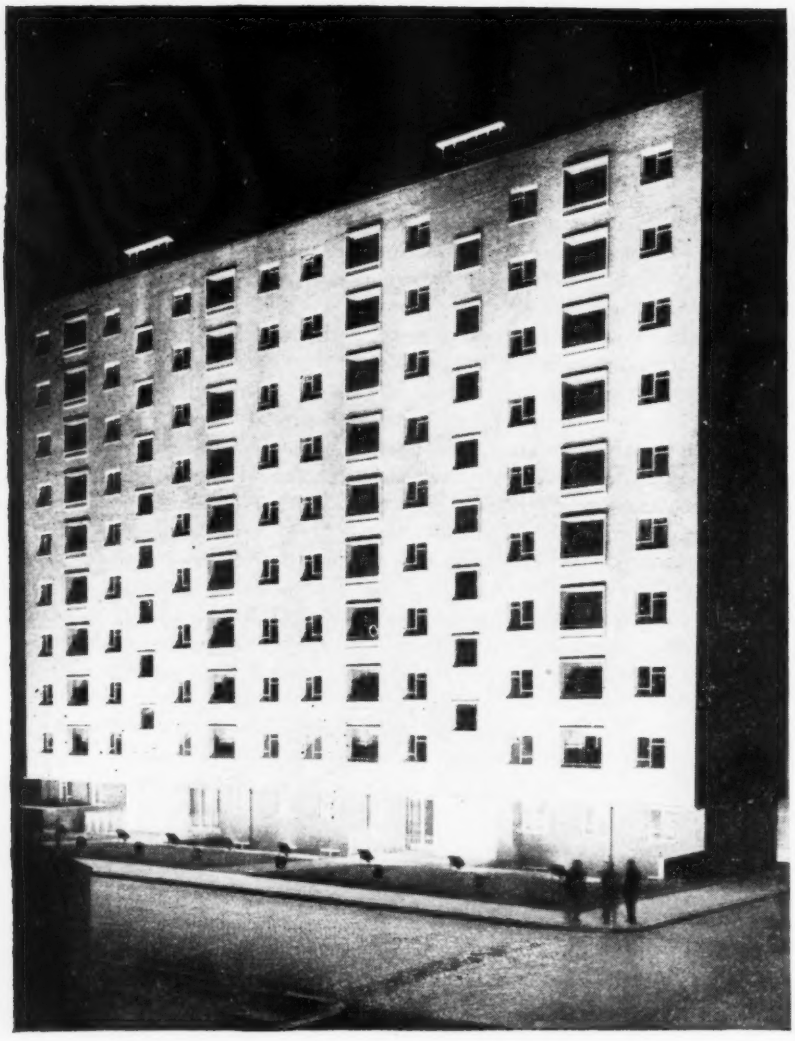
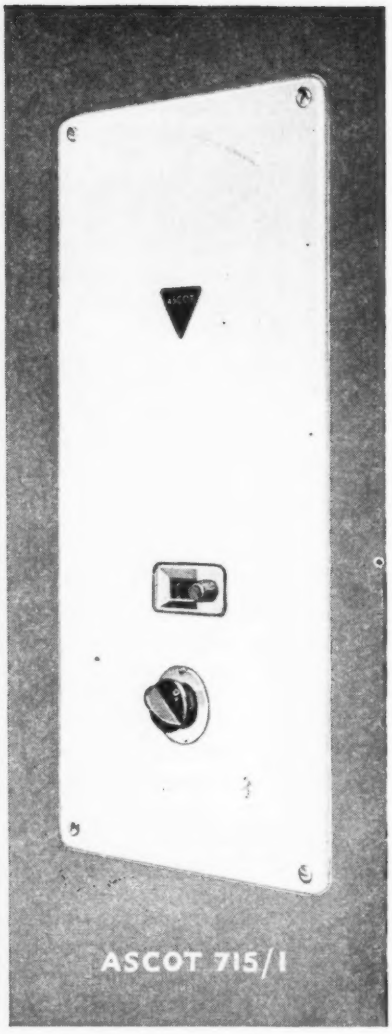


Fig. 5. Equal daylight factor contours obtained by calculation for laboratory rooms with average interior reflection factors of 34 and 57 per cent.



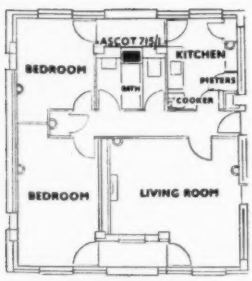


ASCOT IN NEW HOUSING (4)

The Metropolitan Borough of Saint Pancras have recently completed 245 flats and maisonettes consisting in all of 11 blocks, known as the Regent's Park Development Area 'C'. Ascot 715 "Balanced Flue" Multipoint Gas Water Heaters were chosen to provide an instantaneous hot water service to the majority of dwellings in the scheme. In two of the blocks, the Ascot 715's with the shell casing were installed in the kitchens over the draining board.

In the remainder of the blocks (one of the 11 storey blocks is illustrated above) the 715's were fitted in the bathroom plumbing duct as shown on the plans below. The terminal unit was fitted through the 11" cavity wall and the duct constructed in 3" breeze. Access to the heater was provided by fitting a special panel of approved design in the front of the duct.

In this way the Ascots were neatly installed, with only the controls visible, providing an unobtrusive method of water heating that has proved very successful and popular with the tenants.



TWO-BEDROOM FLAT
(1st—9th FLOORS)

BATHROOM OF SAME FLAT

RESPONSIBLE AUTHORITIES

Messrs. Davies and Arnold, F.R.I.B.A. (Architects)

John Laing & Son Ltd. (Contractors)

ASCOT

ASCOT GAS WATER HEATERS LTD · 255 NORTH CIRCULAR ROAD · LONDON · N.W10
WHG/A268

technical section

An example of these contours is shown in Fig. 5 for the side window alone, the rooflight alone and the side window and rooflight combined, for rooms having decorative schemes corresponding to two average interior reflection factors (34 and 57 per cent.). The higher average corresponds to the scheme derived from appraisals in the model laboratory room, while the lower average corresponds to an assumed scheme in which the reflection factors tended towards the minima found* in most existing laboratories (walls—30 per cent.; ceiling—70 per cent.; floor—20 per cent.). The contours show that with the side window alone, the daylight factor on the bench along the back wall is about ¾ per cent. in the room with lower surface reflection factors, and about 2¾ per cent. in the room with higher surface reflection factors. The minimum daylighting design level is almost achieved in this latter room. It should be remembered, though, that when working on the bench along the back wall, laboratory staff would be standing " in their own light " and consequently there would be much less than 2¾ per cent. daylight factor on their work. Furthermore, this level is only achieved with surfaces of very light colour and it is likely that the reflectivities of these surfaces would be reduced by dirtying and therefore could not be maintained for any length of time in an actual laboratory room.

The contours also show that the rooflight contribution to the daylight factor on the bench along the back wall is about 1¾ per cent. for the room with low surface reflection factors, and about 2 per cent. for the room with high surface reflection factors. The change in daylighting contribution with decorative finish is not so marked as for the side window, since the reflection factor of the interior of the rooflight lantern (the primary reflecting surface) was taken as the same in both cases.

By combining the contributions of daylight from the side window and rooflight it is seen that the daylight factor on the bench along the back wall is about 2½ per cent. for the room with low surface reflection factors, and about 4¾ per cent. for the room with high surface reflection factors. It is estimated that the average interior reflection factor would need to be about 50 per cent. to give a daylight factor at the back of a room which, with a maintenance factor of ×0·8 to allow for depreciation in use, would still meet the minimum daylighting design level. If this level is also to be met with someone working at the bench at the back of the room, then an average interior reflection factor nearer the higher value (57 per cent.) considered in this study would be required.

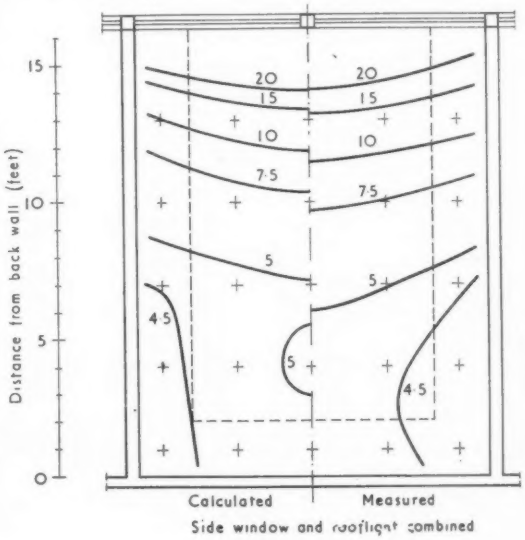
The daylighting level of 4¾ per cent. obtained in the room with higher surface reflection factors is not found to be excessive when reductions due to screening by a person standing " in his own light " and depreciation of reflection factors due to dirtying are taken into account. It is, therefore, instructive to know the room height which would be necessary with a side window alone in order to give this same daylighting level. A further calculation showed this height to be 12 ft. 3 in. In other words, if a multi-storey laboratory building was planned with provision for working on benches along the back walls of the laboratory rooms, then the ceiling height would need to be increased by 3 ft. 9 in. The importance of the roof surface reflectivity has already been mentioned. If a roof of slightly weathered asphalt had been considered (reflection factor—5 per cent.) instead of the weathered marble chips then the daylighting contribution due to the rooflight would have been about ½ per cent. daylight factor less (i.e., about 1¼ per cent.). On the other hand, if a roof of light concrete paving slabs had been considered (reflection factor—60 per cent.) then the daylighting contribution would have been about ½ per cent. daylight factor more (i.e., about 2¼ per cent.).

Model measurements of the daylighting levels

The measurements of daylight factor which were made in the model laboratory room were primarily concerned with the daylighting contribution from the rooflight, but other measurements were also made to check the accuracy of calculation of the contribution from the side window.

Two calibrated photocells were used, one to measure the daylight illumination at each of a number of indoor positions and the other to measure the simultaneous level of total outdoor illumination. The quotients of these two illumination levels then gave the required daylight factors directly. The measurements were made on days when the sky was densely overcast, the brightness distribution of the sky then being the same as that assumed for the daylighting calculations (i.e., the CIE Standard Overcast Sky)[8].

Fig. 6. Comparison of equal daylight factor contours derived by calculation with those obtained by measurement in the model laboratory room (average interior reflection factor of 57 per cent.)



*Measurements of the reflection factors of typical laboratory surfaces were made as part of the laboratory study.

technical section

A typical comparison of predictions and measurements of daylight factor for the side window and rooflight combined is given in Fig. 6. The remarkably good agreement between calculated and measured values demonstrates the accuracy which can be obtained by using present-day techniques for calculating total daylight factors.

Sun penetration through the rooflight windows

The proposed site for the laboratory building (at Hurley, Berks.) was so situated that some of the rooms had to face due south. In these rooms the sun could shine through the rooflight window to make two bright rectangular patches of light on the back wall. During the summer months, these patches could come sufficiently low to be close to the line of vision of anyone working at the bench along this wall and, by contrast with the general wall brightness, could produce acute discomfort glare. This was confirmed by subjective appraisals in the model room.

This discomfort can be relieved by fitting a louvre system to the underside of the rooflight or by providing louvre or roller blinds in front of the lantern windows themselves. A permanent louvre system is, in fact, a feature of the rooflight in the Stockholm school, but there the problem was one of glare from the view of bright surfaces inside the lantern, a problem which does not arise in the laboratory room.

A permanent louvre system can result in a disturbing pattern of light and shade on the back wall, and will in any case lead to a permanent reduction in the amount of daylight from the rooflight. This means that any permanent louver system must be carefully designed.

Two louvre systems have been examined experimentally. One system had three small blades while the other had one large blade. In each case the geometry of the system was such as to prevent the patches of sunlight reaching to any point lower than door-head height, at which height it was thought that discomfort glare would be negligible. Limiting sun penetration to this height was also thought essential to prevent the sun from shining into the eyes of anyone entering the room and so causing a temporary disabling effect with possible disastrous consequences.

Subjective appraisals of these louvre systems in the model confirmed their effectiveness in eliminating the brightly sunlit patches on the back wall and hence in relieving the discomfort glare which they would otherwise have produced. The reduction in the daylighting caused by the louvre systems on overcast days was checked by measurements made in the model room (louvre systems do not readily lend themselves to daylighting calculations as at present developed). Using blades painted the same matt white as the interior of the rooflight it was found that in the room of higher average interior reflection factor the daylight factor on the bench along the back wall would not be reduced to less than 4 per cent. Adequate daylight was therefore still available to meet the minimum daylighting design level. In practice this " margin of safety " might very well be narrowed if it were thought necessary to make the louvre blades darker in colour.

Conclusions

The study described in this article demonstrates the way in which present-day calculation techniques combined with subjective appraisals in a model can be used to produce a laboratory room in which the daylighting is both adequate in quantity and acceptable in quality. Although concerned here with one particular room, the procedure is applicable in general terms to the daylighting design of any room. In many cases, the practising architect can use less detailed calculations, while a less elaborate model would suffice. This study, however, emphasizes the accuracy which is possible with the daylight calculation techniques now available.

No mention has been made of the artificial lighting of laboratories. Minimum design levels for adequate artificial lighting could, if necessary, be obtained from data similar to that given in Fig. 1. In multi-storey buildings, with rooms as deep or deeper than those considered in this article, more or less permanent artificial lighting would be needed over part of the rooms. The problem of providing such lighting of adequate quantity and quality would then have to be considered.

The uses of the model room for subjective appraisals of the daylighting have only been referred to in respect of the chosen scheme of decoration and the penetration of sunlight. The subjective studies made in the model will be described in detail in a later article.

Acknowledgments

The work described has been carried out as part of a joint investigation by the Nuffield Foundation Division for Architectural Studies and the Building Research Station. This article is published by permission of the Director and Trustees of the Nuffield Foundation and the Director of Building Research. The authors wish to acknowledge the assistance in the experimental work given by Miss W. M. Godfrey of the Nuffield Foundation while attached to the Building Research Station.

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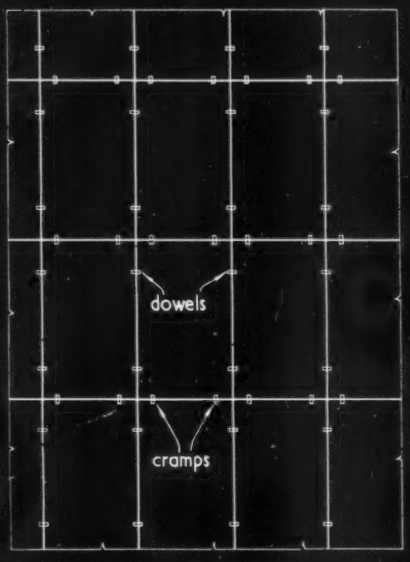
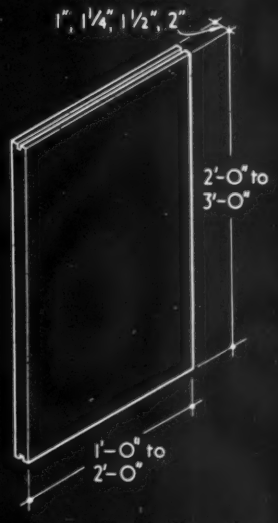
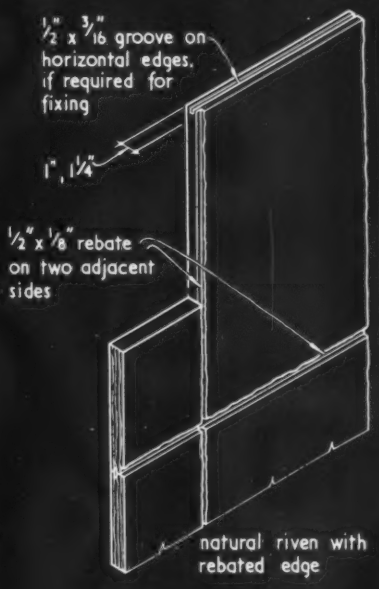


ELEVATION OF FACING.

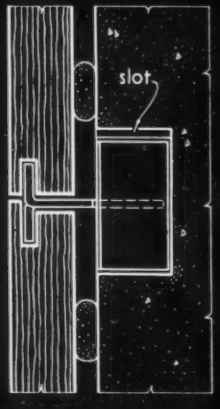


highly polished, fine rubbed and frame sawn



natural riven with rebated edge

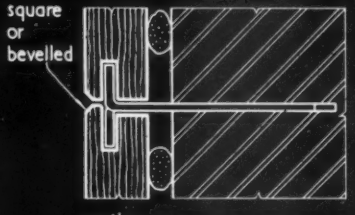
TYPES OF FACING SLAB.



section

plan

DOVE-TAILED CRAMP. (fixing to concrete)



section

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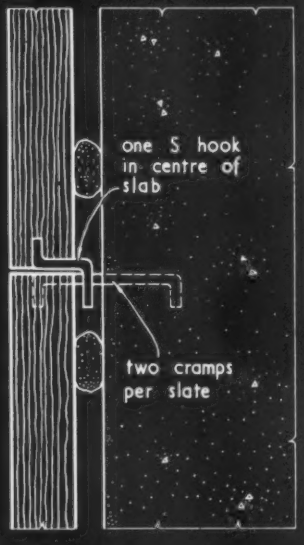
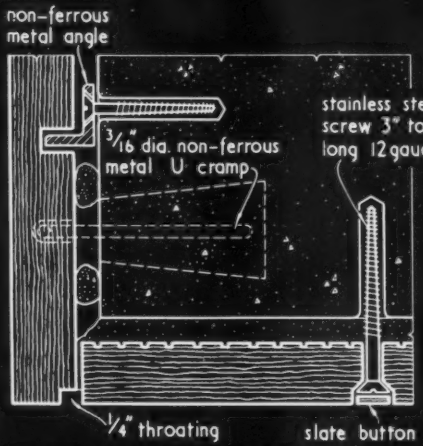
FISH-TAILED CRAMP. (fixing to brickwork)

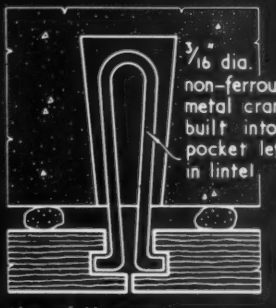


section

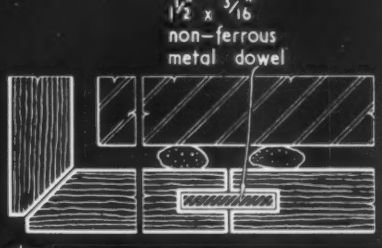
S HOOK AND CRAMPS.



SOFFIT AND LOWER COURSE.



plan of U cramp



plan

EXTERNAL ANGLE AND DOWEL DETAIL.

·WINCILATE· SLATE FACINGS.

Manufacturer: Bow Slate and Enamel Co. Ltd.

5.B2 ·WINCILATE· SLATE FACINGS

This Sheet describes the use of slate for wall facing. Slate window sills are described on Sheets 24.Z1 and 24.Z3, slate surrounds for windows on Sheet 24.Z2, and slate copings and cappings on Sheet 5.B1.

Material

Slate is a particularly suitable material for facing as it can be obtained only 1-in. thick and, under certain circumstances, may be supplied even in ¾ in. It is chemically inert, non-porous and does not warp, shrink or rot.

Description

The facing is supplied in square or rectangular slabs scored on the back to give a key for fixing where solid bedding is to be used and smooth or textured on the face according to requirements; the following four finishes are available:

Highly polished: This gives the slate a dark smooth sheen.

Fine rubbed: Slightly lighter in colour than the highly-polished surface with a slightly coarser texture, giving a matt eggshell finish.

Frame sawn: The surface has a vertically corrugated texture. It appears yet lighter in colour than either of the above finishes.

Natural riven: This is the surface obtained from the natural cleavage of the slate and is consequently roughest in texture. It can be supplied rebated on two adjacent edges which gives a panelled effect to the slabs (see drawing on face of Sheet).

Sizes

For ease of handling and fixing it is recommended that slabs from 2 ft. 0 in. to 3 ft. 0 in. long and 1 ft. 0 in. to 2 ft. 0 in. wide be used. Larger slabs could be supplied against specific orders except in natural riven finishes, which are limited to comparatively small sizes. The standard dimensions suggested are 3 ft. 0 in. by 1 ft. 6 in., 2 ft. 6 in. by 1 ft. 3 in., 2 ft. 0 in. by 1 ft. 0 in., or square slabs of equivalent area. These sizes may be varied within the limits described above in 3 in. units with no cost increase. Intermediate sizes are supplied if required.

The minimum thickness recommended for highly polished, fine rubbed and frame sawn finishes is normally 1 in., the maximum being 2 in. Where apron cladding between windows or a string course of a similar kind is required, ¾ in. thickness may be used, provided the height does not exceed 1 ft. 9 in.

The natural riven finish varies up to $\frac{3}{16}$ in. in thickness on its face texture and two thicknesses are recommended: 1 in. average and 1¼ in. average. When natural riven slabs are supplied with a rebate on adjacent edges, the thickness of slate at the rebate will be $\frac{7}{8}$ in. and 1⅛ in. respectively.

Weight

A slab 3 ft. 0 in. by 2 ft. 0 in. by 1 in. thick weighs slightly over ¾ cwt.

Fixing

Various forms of fixing are illustrated on the face of the Sheet and their uses are described in the notes below:

Large wall areas: The following recommendations have been designed to simplify fixing: slate slabs drilled for normal cramp holes and S hooks can be supplied if required.

The slate slabs are grooved centrally on their horizontal edges (except in the case of 1-in. slabs when the groove is moved ⅛ in. towards the face of the slab) to a depth of ½ in. and a width of $\frac{3}{16}$ in. This enables the dovetailed cramp to be fixed at any point on the horizontal edge. The dovetail of the cramp is inserted in a dovetailed holder which is cast into the concrete. The length of the holder is generally 2 in., but this may be increased if required and this provides a vertical tolerance of at least 2 in. A slot immediately above the holder should be provided in the concrete to allow the cramp to be inserted. On the vertical joints dowels 1½ in. long by $\frac{3}{16}$ in. dia. are provided for additional support and to assist alignment of the slabs.

Where the lower edge of the facing does not receive direct support from the structure, the lowest course of slabs should be supported by a non-ferrous metal angle screwed back to the concrete, either continuous or in lengths 1 ft. 6 in. long at the joints (see detail at lower left of the face of the Sheet.) In addition, the bottom course is tied back to the concrete by means of a $\frac{3}{16}$ in. U-shaped cramp as illustrated.

For fixing to brickwork, fishtailed cramps may be used in place of dovetailed cramps to avoid having to cut the brick; in all other respects the fixing is similar.

Slate fixed on the above principle should have a ⅜ in. gap for bedding and mortar pads used as shown, one to each corner of a slab and one in the centre.

Apron cladding and plinths: For cladding not exceeding 1 ft. 9 in. in depth and also short returns, U-shaped cramps are suggested for use between joints and the course supported with a non-ferrous metal angle (as previously described for bottom course of large wall areas). In this case a solid bedding of mortar (ratio 3 : 1) is recommended: slabs should be scored on the back.

Soffits: The most satisfactory method of fixing a soffit is by screw-fixing through the face of the slate: the screw head is covered with a ½-in. dia. slate button bedded in a mastic. 3-in. or 4-in. stainless steel 12 gauge screws are recommended, used with white metal plugs. Positions of drillings may be determined when the facing is ready to be fixed. This method is also suggested for fixing slates wherever cramp fixing is difficult or impractical.

Weathering: Where there is a set back in the surface to be faced, the slabs should be bedded on the horizontal projection with a slight fall to act as a weathering, the underside of the outer edge being provided with a ¼-in. check throating where it is jointed to the vertical slabs below. Bottom edges may be bevelled towards the back of the cladding as an alternative.

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Address: British Railways Bow Depot, Old Ford Road, Bow, London, E.3.
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SPECIALIZED FITTINGS SHOPS

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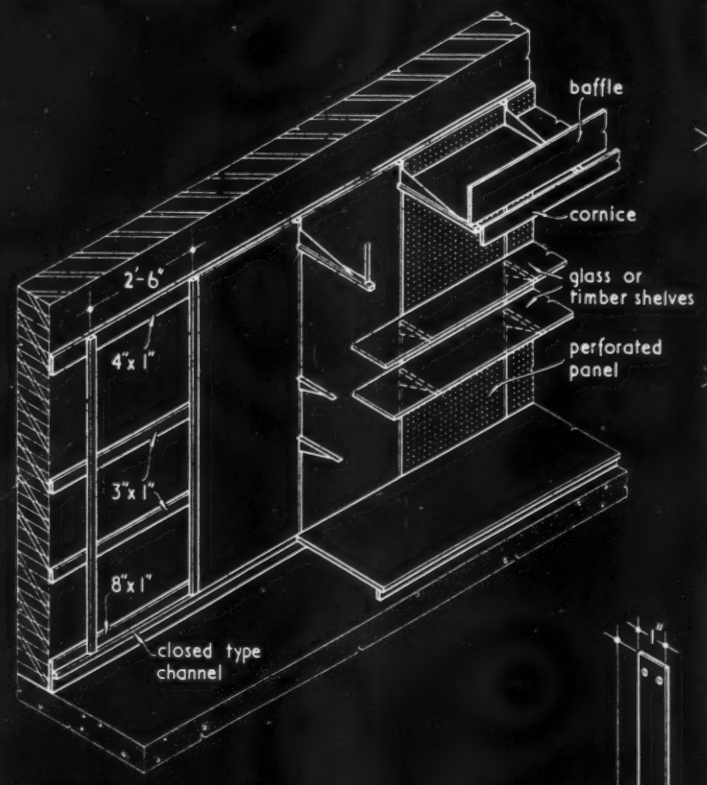
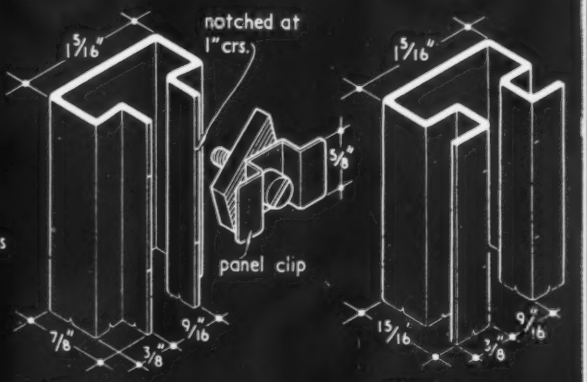
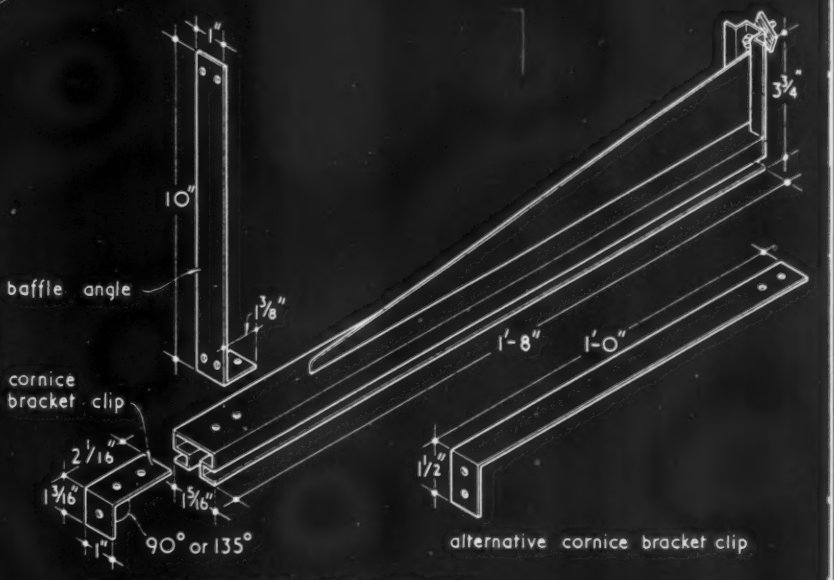


ISOMETRIC SKETCH OF TYPICAL ASSEMBLY.



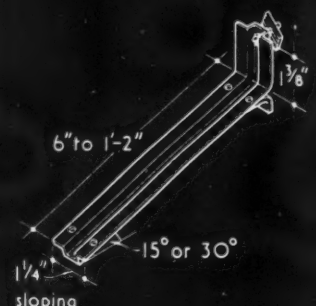
open type WALL CHANNELS.

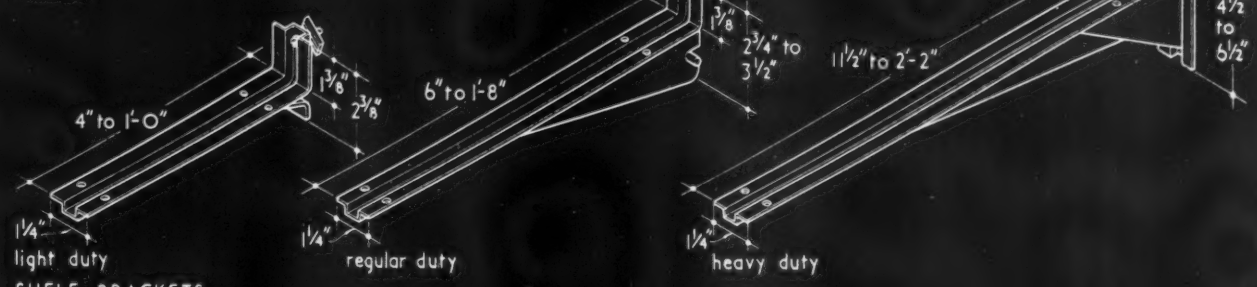
closed type



alternative cornice bracket clip

CORNICE BRACKET AND FITTINGS.





SHELF BRACKETS.

·VIZUSELL· DISPLAY FITTINGS : WALL-MOUNTED. Manufacturer : Versatile Fittings (W.H.S.) Ltd.

43.H1 ·VIZUSELL· DISPLAY FITTINGS: WALL-MOUNTED

This Sheet describes Vizusell wall-mounted fittings which may be varied to suit any kind of display and are fully demountable. Freestanding fittings are described on Sheet 43.H2.

Principle

The system consists of vertical channels and a horizontal base channel fixed to wall battens. Patent fixings on the shelf brackets or other attachments can be fitted into the vertical channels at any point. The channels may be used to retain any type of ¼-in. building board, perforated board, mirror glass, etc.

Components

All components are of mild steel, cadmium-plated, channels and brackets being of rolled steel.

Channels: There are two types of channel, as illustrated on the face of the Sheet. The open type, in which the panels are retained by the back section of the bracket or with clips to hold lining boards in position, and the closed type which is designed to hold the boards itself. Channels are obtained in lengths of 2 ft. 0 in., 2 ft. 6 in., 3 ft. 0 in., 3 ft. 6 in., 4 ft. 0 in., 5 ft. 0 in., 6 ft. 0 in., 7 ft. 0 in. and 8 ft. 0 in. with holes for wall fixing pierced at appropriate intervals.

Screw fixing: This consists of a screw through a locking-piece, shaped as shown on the face of the Sheet. The locking-piece is inserted narrow-ways into the channel and falls into the locking position at the first turn of the screw. The forward face of the locking-piece is scored so that it will grip without sliding. The fixing is incorporated in all brackets and panel retaining clips.

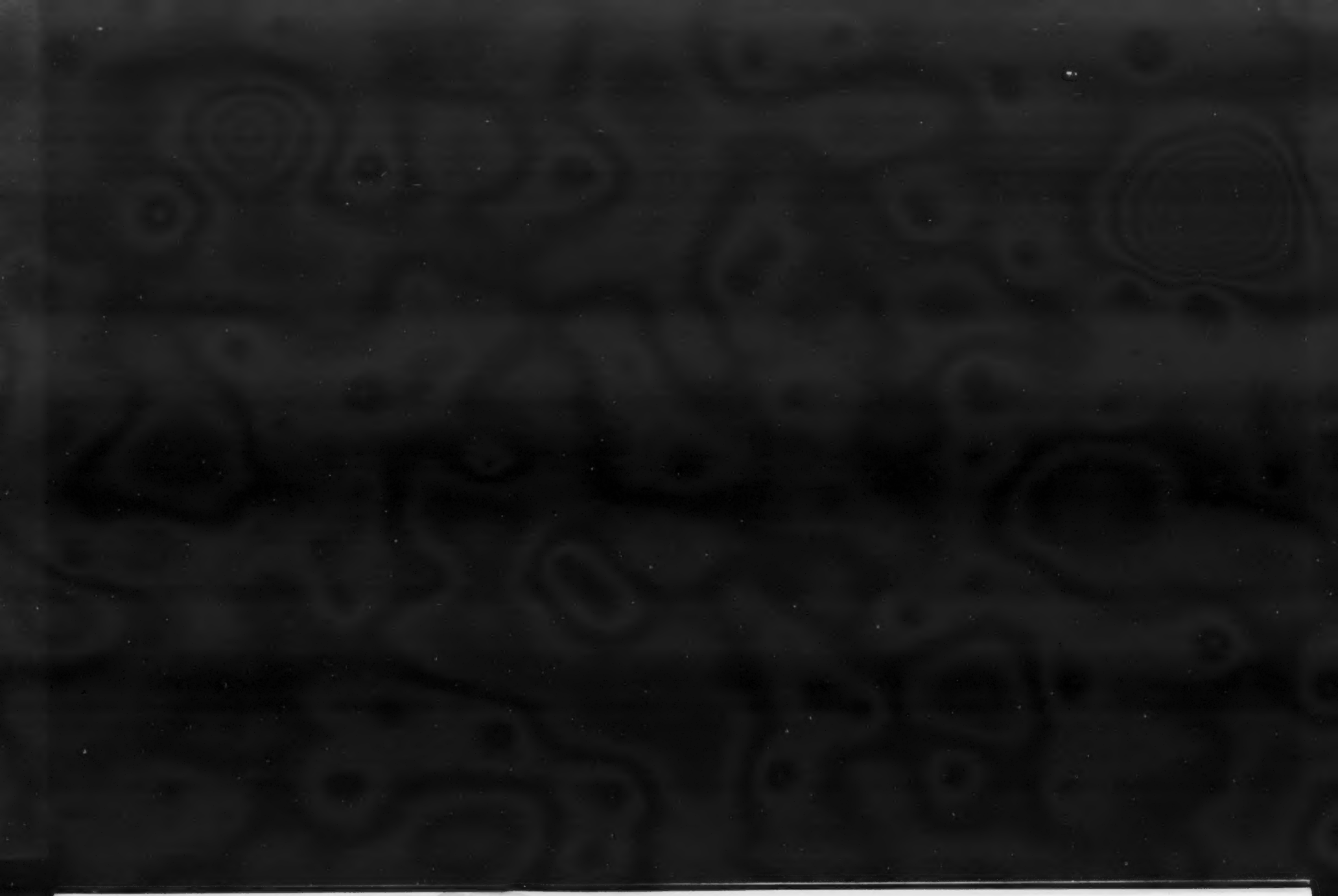
Cornice bracket and fittings: The cornice bracket is 1 ft. 8 in. in length, but may be extended up to 2 ft. 6 in. by means of the adjustable cornice bracket clip. Alternative cornice bracket clips are shown on the face of the Sheet. The baffle angle may be used to support a baffle above the cornice line.

Shelf brackets: The following types of bracket are available for differing applications.
Light duty, for lightweight goods and glass shelving and binning, in lengths from 4 in. to 1 ft. 0 in., in 2-in. increments.
Regular duty, for medium-weight goods, e.g. pottery, household goods, linen, in lengths from 6 in. to 1 ft. 8 in. in 2-in. increments.
Heavy duty, for heavy goods, e.g. paint, foodstuffs, tyres, radio and television sets, in lengths of 11½ in. and 1 ft. 2 in. to 2 ft. 2 in. in 2-in. increments.
Glass shelves must be the same width as the length of the bracket but timber shelves may be up to 2 in. wider. Glass stops and rubber rests are available for use with glass shelving. A complete range of binning is obtainable to fit all types of bracket.
Other types of bracket include a two-prong type for carrying a glass shelf from a single fixing point and others for inclining glass shelves at an angle of 15° (light and regular duty range) or 30° (light range).

Fixing

Four timber horizontal firring strips should be fixed to the wall. The bottom rail should be 8 in. by 1 in., the head rail 4 in. by 1 in. and intermediate rails 3 in. by 1 in. For exceptional loads an additional member is recommended. A horizontal base channel of the closed type is attached to the bottom member or skirting, accurately levelled. The vertical wall channels are then fixed to the firring strips at 2 ft. 6 in. centres. If desired, the firring and channels may be prefabricated on timber frames in, for example, 10-ft. sections. Where lining panels are inserted as the channel strips are fixed, the former serve for spacing and squaring the uprights correctly. Panel retaining clips may be used to hold boards in position in the open-type channels until shelves are fitted. The baffle angle, where required, and cornice bracket clips should be attached to the cornice bracket before it is fixed in the vertical channel. The soffit panels are then inserted and the baffle and cornice fixed.

Compiled from information supplied by:
Versatile Fittings (W. H. S.) Ltd.
(A subsidiary of W. H. Smith and Son Ltd.)
Address: 55, Fetter Lane, London, E.C.4.
Telephone: Fleet Street 6262.
Vizusell showrooms: London, Manchester, Glasgow, Toronto, New York, Chicago, Los Angeles.

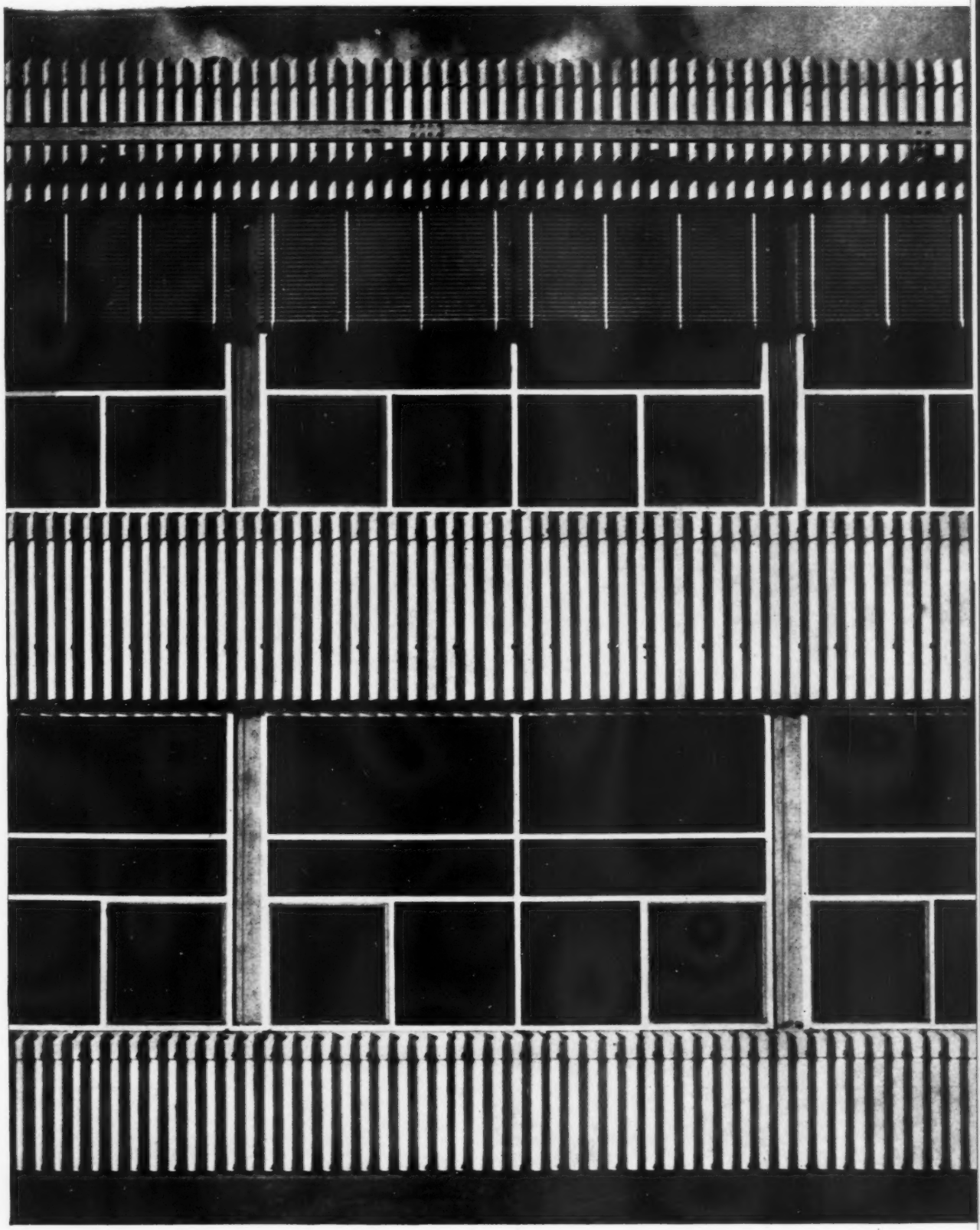


working detail

WALLS AND PARTITIONS: 52

CLADDING: FACTORY AT HEIDELBERG, GERMANY

Ernst Neufert, architect (material supplied by D. Parker)

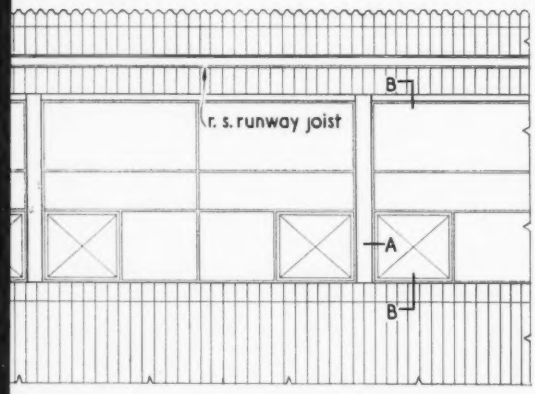


This detail shows an interesting use of asbestos cement as a cladding to a reinforced-concrete structure. This use, which is relatively common in Germany, is encouraged by the unusually well-thought-out asbestos-cement accessories which can be obtained there. Note, for instance, the internal sill detail and the ventilator. The gantry above the first floor windows is to assist maintenance and to guard against breakage of the cladding.

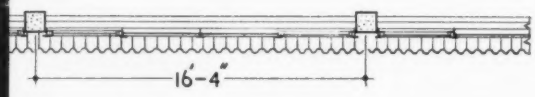
working detail

CLADDING: FACTORY AT HEIDELBERG, GERMANY

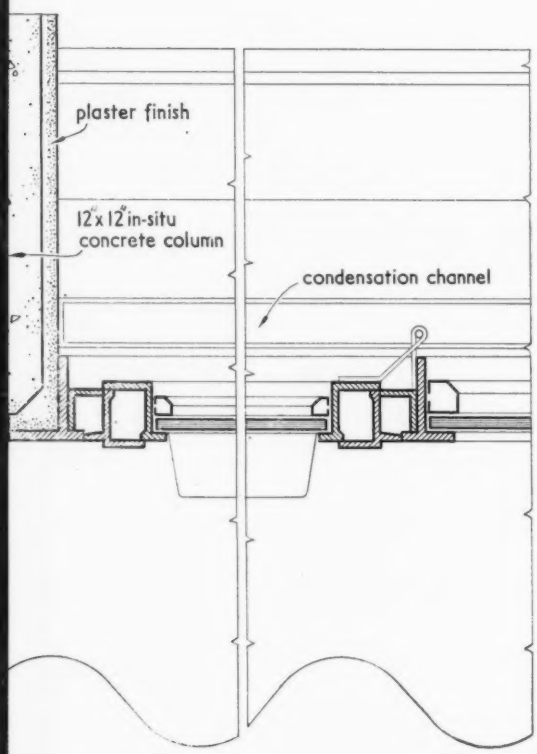
Ernst Neufert, architect (material supplied by D. Parker)



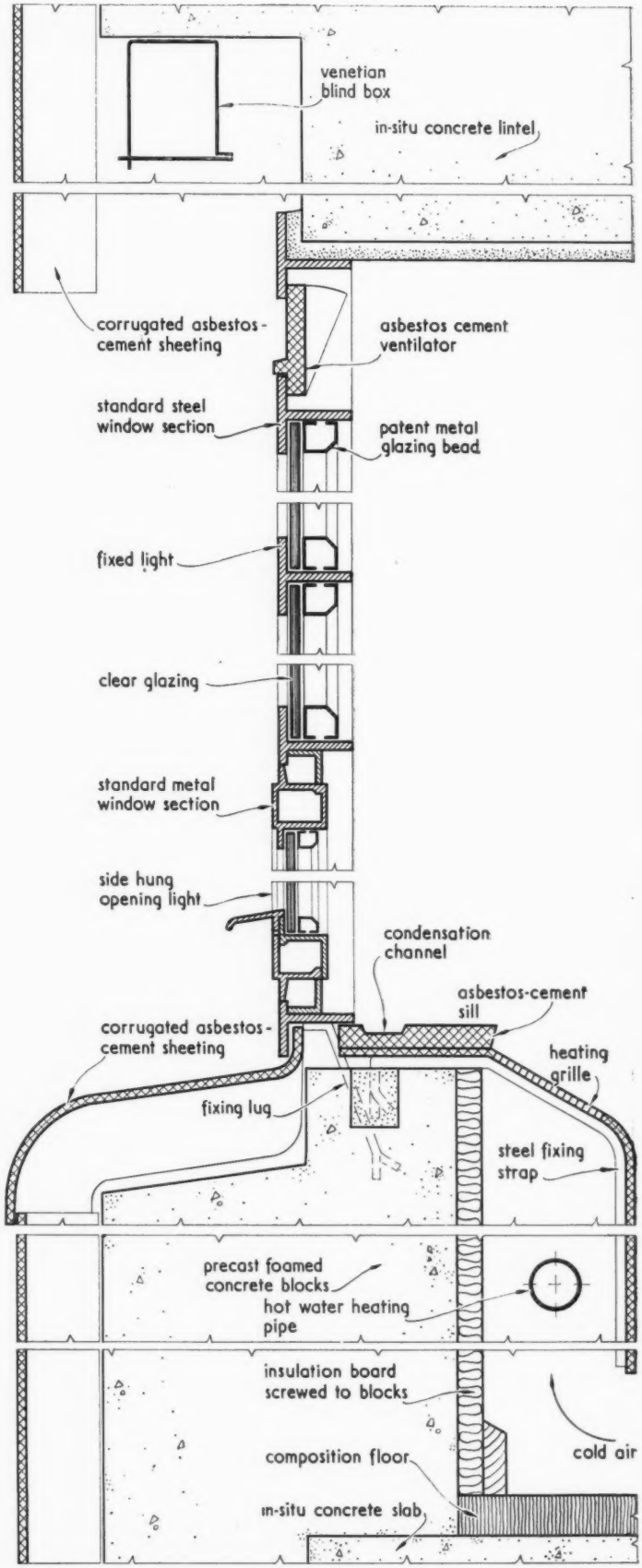
ELEVATION. scale ⅛" = 1'-0"



PLAN. scale ⅛" = 1'-0"

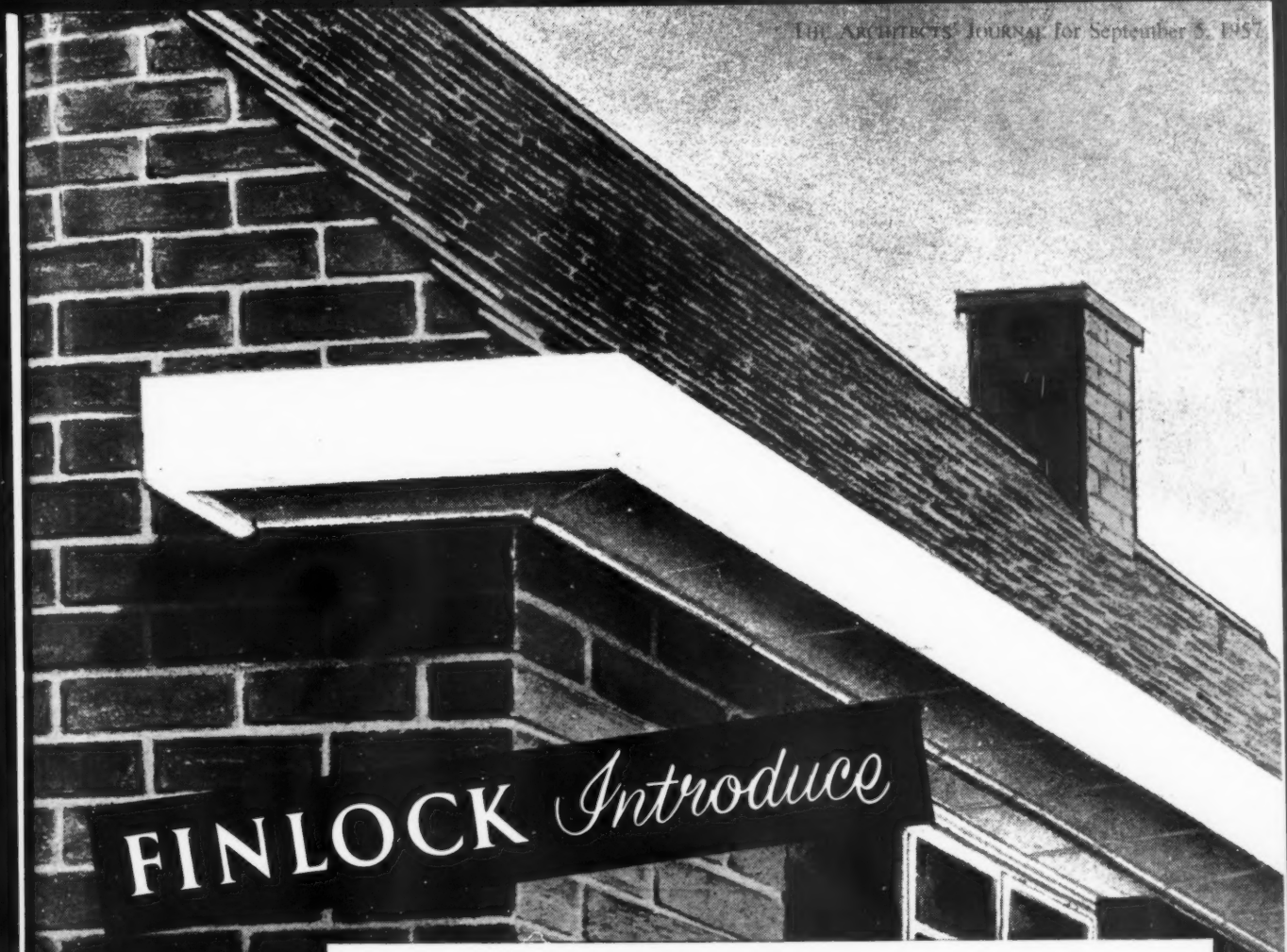


PLAN AT A. scale ¼ full size



SECTION B–B. scale ¼ full size

note. figured dimensions in feet and inches are approximate



ROYSTON

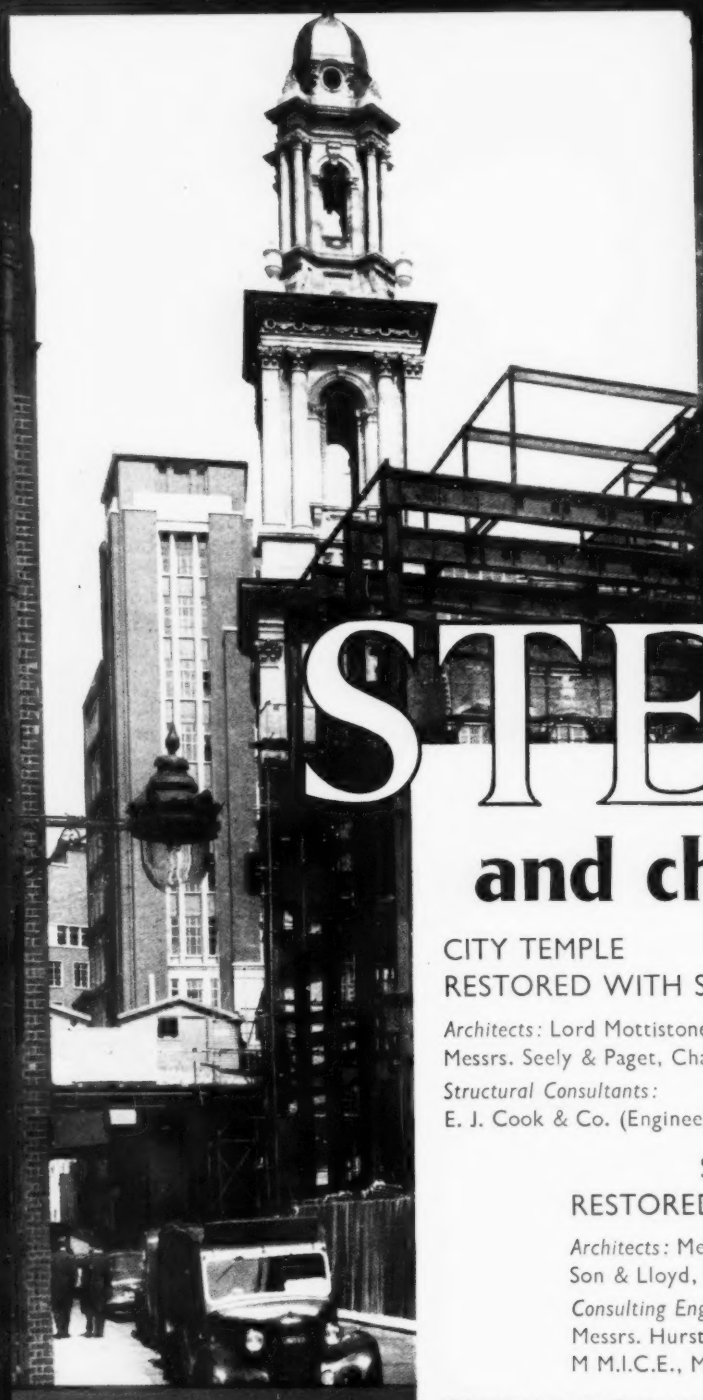
NEW The most exciting development in gutter construction. Never before has it been possible to produce such a beautiful clean white line at eaves level.

Continuous effect is obtained by almost invisibly jointed fascia units in 2 ft. lengths. These are fitted on to easily handled gutter sections incorporating the patent lintel trough.

White attractive artificial Portland Stone contrasts sharply with the darker shadows cast by the extra overhang.

. . . and of course the Finlock 20 year guaranteed lining service.
Write now for details of this latest cost-saving technique.

FINLOCK GUTTERS LIMITED FINLOCK HOUSE, FRANT ROAD, TUNBRIDGE WELLS, KENT.
Telephone: Tun. Wells 3396/9.



STEEL
and churches

CITY TEMPLE
RESTORED WITH STEELWORK

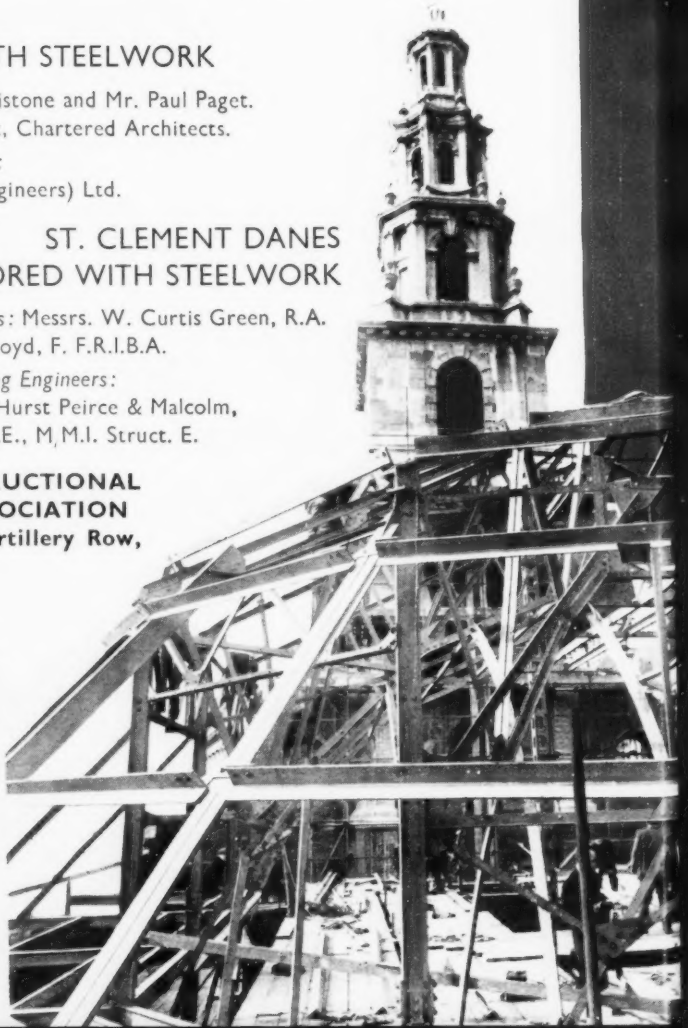
Architects: Lord Mottistone and Mr. Paul Paget.
Messrs. Seely & Paget, Chartered Architects.

Structural Consultants:
E. J. Cook & Co. (Engineers) Ltd.

ST. CLEMENT DANES
RESTORED WITH STEELWORK

Architects: Messrs. W. Curtis Green, R.A.
Son & Lloyd, F. F.R.I.B.A.

Consulting Engineers:
Messrs. Hurst Peirce & Malcolm,
M M.I.C.E., M M.I. Struct. E.



BRITISH CONSTRUCTIONAL STEELWORK ASSOCIATION
Artillery House, Artillery Row, Westminster, London, S.W.I.

STEEL
STRENGTH SECURITY

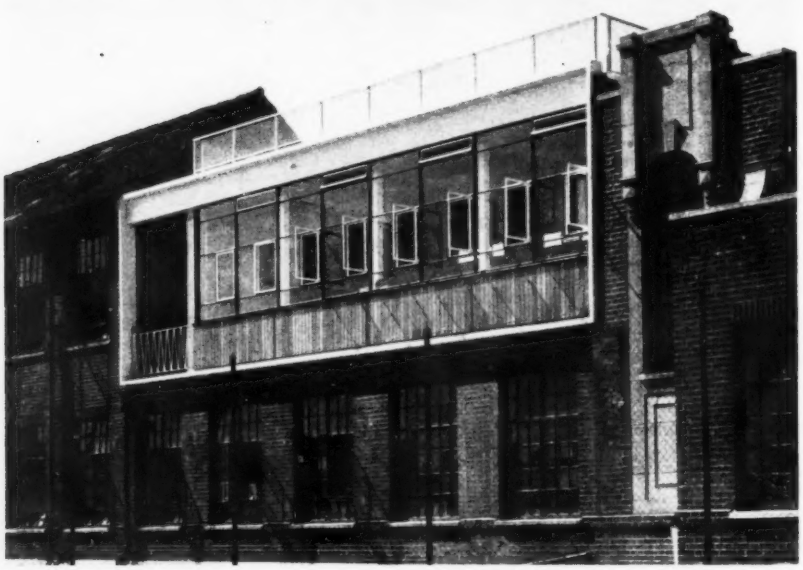
B·C·S·A

CREMATORIUM IN DALSTON ROAD, CARLISLE

The new Crematorium in Dalston Road, Carlisle, has been built on a 14-acre site about 1½ miles from the city centre. The crematorium was designed by L. J. A. Stow, city engineer and surveyor, E. A. Stewart, deputy architect, B. W. Fairlamb, chief assistant architect, and T. Vinter, principal assistant architect. Heating and engineering consultant, G. B. Johnston. The chapel, below and right, is built on a north-south access, with a central entrance to the north and the altar at the south end. There is no structure for the reception of urns or caskets and no commemoration

stones, tablets or nameplates, memorial records being kept solely in the Book of Remembrance. Ashes are strewn in the informal gardens and woodland that form part of the site. The chapel is 52 ft. long, 29 ft. wide and 16 ft. high and seats 80 people. The altar is placed centrally in a recess in the south wall and is made of polished mahogany. The cost of the chapel, roads and services was £48,000 and of the gardens £7,000. The general contractors were John Laing & Son Ltd.

TECHNICAL SCHOOL EXTENSION IN WEST HAM



The south facade of a classroom extension to the Lister County Technical School, designed by Thomas E. North, Borough Architect and Planning Officer, West Ham, and Jack Whittle, Deputy Borough Architect. The school was built about 20 years ago and designed with corner classrooms omitted at the first floor external angles of the building. One of these angles has now been filled in with a geography classroom, store and circular staircase to a flat roof, used for meteorological study. The cost was £2,680.

Announcements

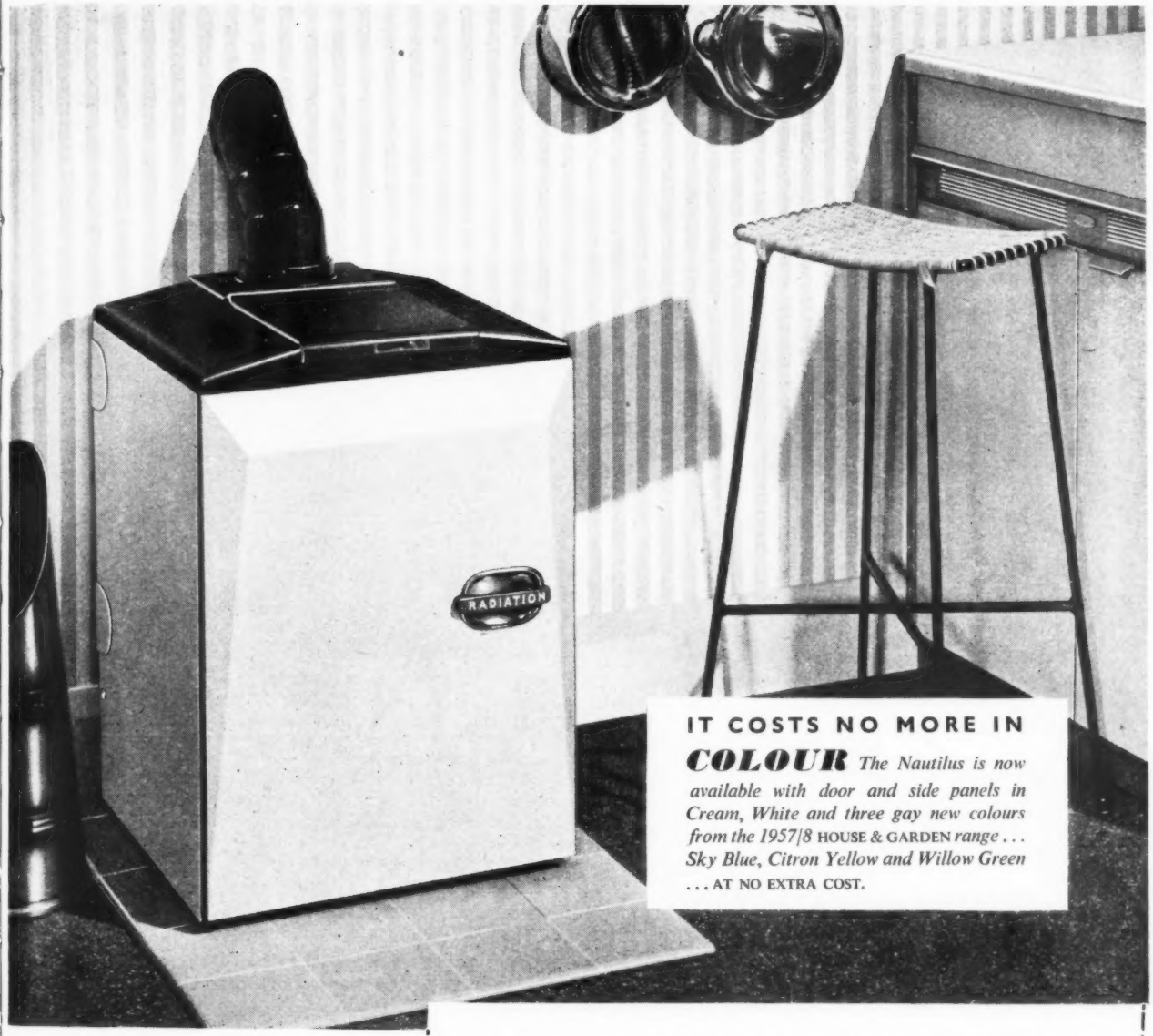
Donations for an endowment fund for the preservation of Croft Castle, Herefordshire, should be made to: Croft Castle Endowment Fund, 47, Downshire Hill, N.W.3. A description of Croft Castle was published in the JOURNAL of August 15. As was then explained, the MoW, on the recommendation of the Historic Building's Council, is prepared to make a grant to enable the National Trust to keep the property if an endowment fund can be raised.

S. J. Stockwell & Co. (Carpets) Ltd., of 16, Grafton Street, W.1, announce that in future they will sell Wilton Royal handmade carpets.

Stramit Boards Ltd. announce that there will be no increase in the price of 2-in. thick Stramit slabs and Stramit lagging units, before December 31, 1957. In cases of building contracts on a fixed price basis the company will quote firm prices subject to orders being received within two months of quotation and to complete delivery being accepted within eighteen months from the date of quotation.

Correction

In the Working Detail of the covered way of the clinic at Pisa, Italy (AJ, August 22), the outside diameter of the m.s. tubular columns was given as $\frac{3}{8}$ in. This should, of course, be $3\frac{1}{8}$ in.



IT COSTS NO MORE IN

COLOUR *The Nautilus is now available with door and side panels in Cream, White and three gay new colours from the 1957/8* HOUSE & GARDEN *range . . . Sky Blue, Citron Yellow and Willow Green* . . . AT NO EXTRA COST.

NAUTILUS the little boiler with the BIG output

THE NAUTILUS stands only 2 ft. 3 in. high and occupies less than 20 in. square of floor space. But beneath its clean good looks is an engineering job rated at 30,000 B.Th.U./hr. for central heating and hot water.* That means hot water for a much-bigger-than-average household *and* 70—80 sq. ft. of radiating surface. Or it will centrally heat the *whole* of a fair-sized house with up to 130 sq. ft. of radiating surface. Other points your clients will like about this automatic boiler include crusher bars (only the Nautilus has them) which grind everything that won't burn down to ash and thus make raking unnecessary . . . and a variable thermostat that watches fuel consumption like a miser. Write for technical information sheets.

** Top of its class in section J(ii) of the List of Recommended Domestic Solid Fuel Appliances published by the Coal Utilisation Council and the Smokeless Solid Fuels Federation*

Radiation
NAUTILUS
AUTOMATIC BOILER

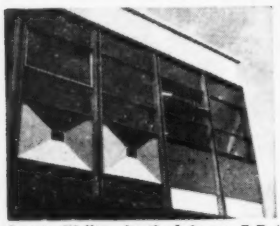
RADIATION GROUP SALES LTD. PARK FOUNDRY, BELPER, NR. DERBY

PIONEERS OF SMOKE REDUCTION

Curtain Walls
Roman and Gothic
Shepton Mallet

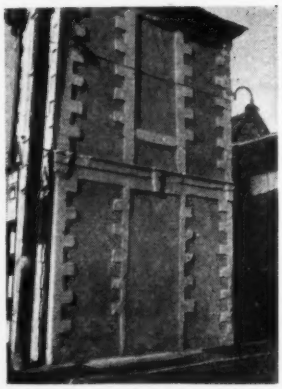
September Architectural Review

A major feature of the Review's *Machine Made America* issue, and rapidly becoming a dominant topic in discussions of the economics, technics and aesthetics of building today, *Curtain Walling* will bulk large in the September number of the Review. Michael



Curtain Walling detail of the new B E A terminal off Cromwell Road, Kensington.

Brawne will contribute a full scale study of the potentialities and perils, scope, materials and methods of this fully industrialised



House in the lower town Shepton Mallet

means of clothing buildings, while in *Skill* there will be a supplement on some of the products and systems that are available on the British Market. Also in *Skill* will be new Jaeger shop *Interiors* by Dennis Lennon, as well as *Design Review* and other regular departments. Aspects of the diversity of English nineteenth-century architecture are covered by Hugh Honour's account of the improbable *Roman Church at Everingham*, and a narrative of the building activities at *Strawberry Hill* of Frances Waldegrave, recounted from original sources by Osbert Wyndham Hewett. September *Townscape* features will deal with *Shepton Mallet*, whose multi-level town-centre will be discussed by Gordon Cullen.

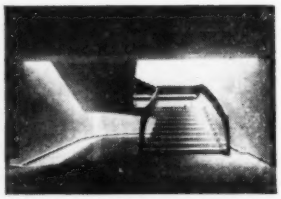
Universities
Staircase
Arcadia

October Architectural Review

Vexed by conflicting interests and lack of comprehension of the issues at stake, the design of *Universities* has become a prob-

3 D shop lettering in Dublin.

lem that excites passion and prejudice, rather than constructive thinking. In the October number of the Review, Professor Pevsner and the Hon. Lionel Brett will attempt to put the problem back on a realistic basis in a special feature covering both the historical growth of *universities* and their present needs, emphasising the diversity of concepts, both in organization and architecture that the term embraces. Two articles in the same issue will deal with problems of architectural lettering; Nicolete Gray contributing a study of *Lettering in Three Dimensions* and *Skill*, surveying the design of *Fascia*



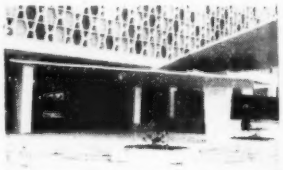
Staircase at the MEA store, Stockholm.

Boards. Also in *Skill* will be an illustrated description of Arne Rudberger's stunning staircase for the MEA department store in Stockholm, and other recent structures to be illustrated will include a small house by Sir Hugh Casson on the South Coast, and another well-designed adjunct to a department store—G. A. Jellicoe's roof garden on top of Harvey's at Guildford. Two historical features will deal with developments in the first quarter of the present century: Ian Nairn's delayed study of Hampstead Garden Suburb is now expanded into a larger study of *Arcadia* as a place to dwell in, and Reyner Banham will investigate the implications of recent publications on the position of *Mondriaan* both as a pioneer of modern design, and as a model to be set up for emulation by architects in the future.

Smithsons
Building Exhibition
ONNO

November Architectural Review

The controversial Smithsons will make their first appearance as contributors to the Review in November, with an illustrated study of the Shape of the Community, in which they set against the exhausted diagrams of CIAM planning their vision of a more humane type of ciry. For non-visionaries—and for visionaries too—*Skill* will provide a full coverage of the Building Exhibition from the technical point of view, as well as an *Interiors* treatment of G. A. Jellicoe's restaurant and shopping floors at Harvey's of Guildford, whose roof-garden was dealt with in the October Review. Visionary qualities, spurred by hard practical necessities, illuminate Kenneth Browne's proposals for applying the ONNO traffic-directing technique to Park Lane and west Mayfair. Also in *Miscellany*, Ian Nairn will describe a giant waterwheel—a little-known triumph of the *Functional Tradition* in the Isle of Man, and the study of the functional tradition will be carried further by Brian Spiller's article on Georgian Breweries. Buildings described in this issue will include the new Bowater Factories by Farmer and Dark, whose cladding provides a practical follow-up demonstration of patent-glazing techniques, and Rangoon University and Technical Institute, by Raglan Squire and Partners, extensively illustrated in colour. Professor



Entrance to the Library of the new Rangoon University. Architects, Raglan Squire and Partners.

Pevsner reviews Tschudi Madsen's important book on the Origins of Art Nouveau, whose character is summed up in the title *Beautiful and, if need be, useful*, and Dr. S. Lang will provide a note on Architectural Visitors to Padua, based upon a register kept by the university there, in which practically every English architect and amateur of note signed his name when passing through. Regular features such as the *Counter-Attack bureau* will continue, and Kenneth Browne will contribute a frontispiece-drawing—this time a trailer to the coverage of the TUC building which will appear in the December issue.

Water wheel at Laxey, Isle of Man.

CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcements

30s. per inch; each additional line, 2s. 6d.

COUNTY BOROUGH OF SOUTH SHIELDS

Applications are invited for the following appointments in the Borough Engineer's Department.

THREE SENIOR ARCHITECTURAL ASSISTANTS on Grade IV to V (£727 15s.—£994 5s.). The persons appointed will be placed in these Grades according to qualifications and experience.

Vacancies also exist on the Special Grade (£707 5s.—£861) for Qualified Architectural Assistants who desire to obtain practical experience in the profession.

The Council would be prepared to assist with housing accommodation, if required.

Application Forms obtainable from the Borough Engineer, Town Hall, South Shields, should be returned to him not later than Monday, 9th September, 1957.

R. S. YOUNG,
Town Clerk.

Town Hall,
South Shields.
6th August, 1957. 7250

THE CORPORATION OF GLASGOW
ARCHITECTURAL AND PLANNING DEPARTMENT
ASSISTANT ARCHITECTS
ASSISTANT QUANTITY SURVEYORS

Vacancies exist for a number of Assistants as above, minimum qualification Intermediate examination of the appropriate professional body. Salary scale £595—£1,180 with placing according to age, experience and qualifications.

Form of application may be obtained from the Principal Administrative Officer, 20 Trongate, Glasgow, C.1

A. G. JURY,
City Architect and Planning Officer.
7141

COUNTY BOROUGH OF GLOUCESTER
CITY ARCHITECT'S DEPARTMENT

Applications are invited from persons having suitable qualifications and experience for the appointment of ASSISTANT ARCHITECT, Special Grade—£707 5s. to £861 per annum.

Superannuable post. Medical examination. Municipal experience not essential.

Applications, stating age, married or single, training, qualifications, previous and present appointments, with copies of testimonials, or names of referees, to the City Architect, Suffolk House, Gloucester, not later than September 14, 1957. 7362

CITY OF BELFAST
ARCHITECTURAL ASSISTANT, CLASS I

Applications are invited for the above position in the Education Architect's Department.

Applicants must have passed the Intermediate examination of R.I.B.A. and should have a sound practical experience in design and construction and preparation of specifications.

Salary: £540 × £25—£665 × £30—£755 × £35—£790; the commencing salary to be fixed according to qualifications and experience. Superannuation contributions of approximately 6 per cent. of remuneration will be payable. Reciprocal pension arrangements exist between the Corporation and certain other Public Authorities.

Favourable consideration will be given to the recoupment, up to a limit of 50 per cent. of the removal expenses of a newly appointed officer coming to reside in Belfast.

Canvassing will disqualify.

Application forms, etc., are obtainable from the Education Office, 40, Academy Street. Completed applications must reach the undersigned by 12th September, 1957.

JOHN DUNLOP,
Town Clerk.

City Hall, Belfast, P.O. Box 234.
26th August, 1957. 7423

COUNTY BOROUGH OF STOCKPORT

ASSISTANT ARCHITECT—Special Grade £707 5s. 0d.—£861 or A.P.T. I/II £543 5s. 0d.—£691 17s. 6d., depending on qualifications. Commencing salary according to age and experience. Full particulars (age, qualifications, experience, two referees) to Borough Architect, Town Hall, Stockport, by 7th September, 1957, stating if related to any member or senior officer of Council. Post pensionable, subject to medical examination. Canvassing disqualifies. 7333

WORCESTERSHIRE COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Applications are invited for:—

(1) ASSISTANT ARCHITECT, Grade A.P.T. IV (£727 15s. 0d.—£907 2s. 6d.).
(2) ASSISTANT ARCHITECT, Special Grade (£707 5s. 0d.—£861).
(3) ARCHITECTURAL ASSISTANT, A.P.T. III (£656—£784 2s. 6d.).

Forms of application and further particulars may be obtained from L. C. Lomas, F.R.I.B.A., 14, Castle Street, Worcester, not later than 10th September, 1957. (W250.) 7357

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for ARCHITECTS and SURVEYING ASSISTANTS in the Building Regulations Division as follows:—

(*a*) for surveys of existing premises and consideration of proposals for alterations and new construction in the Theatres Section, and;

(*b*) for building control work in connection with applications under the London Building Acts and bye-laws as regards compliance with the Council's construction and means of escape standards.

Salaries up to £817 (under review) with starting rates according to qualifications and experience.

Application form and particulars from the Architect (Ref. AR/EK/47/57), The County Hall, S.E.1. (1610). 7377

BOROUGH OF BARKING
DEPUTY BOROUGH ARCHITECT

Applications are invited from Associates of the Royal Institute of British Architects for the above appointment at a salary on scale B of the recommendations of the Joint Negotiating Committee for Chief Officers of Local Authorities (maximum £1,405 per annum).

Further particulars of the appointment and form of application may be obtained from the Borough Architect, Town Hall, Barking, and completed applications are to be returned to the undersigned not later than Monday, the 16th September, 1957.

E. R. FARR,
Town Clerk.

Town Hall,
Barking, Essex. 7323

BOROUGH OF BEXLEY
ARCHITECTURAL DRAUGHTSMAN

Applications are invited for this appointment at a salary in accordance with Grade A.P.T. I (£575—£725 per annum) plus London Weighting.

Applicants should be good draughtsmen and have a general knowledge of building construction and specification work.

Forms of application with conditions of appointment are obtainable from Borough Engineer, West Lodge, Broadway, Bexleyheath, to whom completed applications must be returned by 23rd September, 1957. The Council may be prepared to assist in the provision of housing accommodation.

Canvassing will disqualify.

ARTHUR GOLDFINCH,
Town Clerk.
7389

BUCKS COUNTY COUNCIL

Applications are invited for the following permanent appointments:—

(*a*) ARCHITECTS

Assistant Architects, Grade VI, £902—£1,107 p.a.

Applicants must be Associates of the Royal Institute of British Architects and the successful applicants will be required to work on a large and interesting building programme.

(*b*) QUANTITY SURVEYORS

(i) Assistant Quantity Surveyors, Grade VI, £902—£1,107 p.a

Applicants must be Associates of the Royal Institution of Chartered Surveyors with considerable experience in the preparation of Bills of Quantities and settlement of final accounts.

(ii) Junior Assistant Quantity Surveyor, Grade II, £609 17s. 6d.—£691 17s. 6d. p.a.

Applicants should have passed the Intermediate examination of the R.I.C.S.

The appointments are superannuable and subject to medical examination.

A weekly allowance of 25s. and return fare home once every two months may be paid for six months to newly appointed married officers of the Council unable to find accommodation

Applications, on forms provided, must be returned by 12th September, 1957.

F. B. POOLEY,
County Architect.

County Architect's Department,
County Offices,
Aylesbury, Bucks. 7391

NATIONAL COAL BOARD. Vacancy exists for an ARCHITECTURAL ASSISTANT at West Ayr Area Headquarters in Ayr. Applicants should be studying for or have passed the Intermediate R.I.B.A. examination, be capable of preparing sketch plans, working drawings in detail, and have had three years subsequent practical experience or equivalent. The salary for the post will be Grade II—£520 × £20 to £615 or Grade I—£625 × £25 to £750, with extension to £900 in exceptional circumstances. The points of entry will depend on qualifications and experience. Applications, stating age, education, qualification, experience, present post and salary, should be forwarded to Area Staff Manager, "Westfield," Ayr, within 7 days. 7409

WEST SUSSEX COUNTY COUNCIL

Applications are invited for the under-mentioned appointment in the County Planning Department, County Hall, Chichester:—

TECHNICAL ASSISTANT (Architectural)

Salary: for fully Qualified Persons—Special Grade (£750 × £40—£1,030 p.a.) otherwise A.P.T. Grade II (£725—£845 p.a.).

The duties of the post will include the preparation of redevelopment schemes and designs relating to development control. Preference will be given to applicants able to prepare perspectives and free hand sketches.

Application Forms and Conditions of Service may be obtained from Mr. John G. Jefferson, County Planning Officer, County Hall, Chichester, to whom applications should be returned by Monday, the 23rd September, 1957. 7427

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Selections for appointment are now being made from ARCHITECTS who have passed their Final examinations this summer. Starting salaries up to £676 16s. a year in scale £606 6s. to £817 (under review).

Vacancies also for ARCHITECTS of experience at starting salaries up to £1,036 (under review).

Full programme of houses, flats, schools and many other interesting buildings.

Application forms and full particulars from the Architect (Ref. AR/EK/46/57), The County Hall, S.E.1. (1609). 7378

BOROUGH OF EDMONTON
QUANTITY SURVEYING ASSISTANTS (temporary) required for Borough Architect's Department.

(*a*) New Grade A.P.T. III, £845 × 4 of £35 and 1 of £40 to £1,025. Minimum qualification Final R.I.C.S. or equivalent.

(*b*) New Grade A.P.T. II, £725 × £30—£845. Minimum qualification Intermediate R.I.C.S. or equivalent and studying for Final.

Both appointments subject to addition of £10/£30 London weighting according to age. Alternate Saturdays free.

Applications on forms obtainable from the Town Clerk, Town Hall, Edmonton, must be delivered by 18th September. 7425

HOLLAND COUNTY COUNCIL
(LINCOLNSHIRE)
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the following permanent appointments at commencing salaries according to capabilities:—

One ARCHITECTURAL ASSISTANT Grades II/III. £609 17s. 6d.—£784 2s. 6d. per annum.

One QUANTITY SURVEYING ASSISTANT Grades II/III. £609 17s. 6d.—£784 2s. 6d. per annum.

One QUANTITY SURVEYING ASSISTANT Grade II. £609 17s. 6d.—£691 17s. 6d. per annum.

The appointments are superannuable and subject to medical examination.

Applications, on forms provided by the undersigned, should be returned completed to me by 23rd September, 1957. When applying for the forms please state appointment required.

H. A. H. WALTER,
Clerk of the County Council.

County Hall,
Boston, Lincs. 7390

LEEK URBAN DISTRICT COUNCIL
APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited for the appointment of an Architectural Assistant at a salary in accordance with Grade A.P.T. IV.

Applicants must have considerable architectural experience in housing and municipal work and must be suitably qualified.

The appointment will be accordance with National Scheme of Conditions of Service.

Housing accommodation will be provided if considered necessary.

Applications stating age, training, experience, present and previous appointments, together with copies of two recent testimonials, in an envelope endorsed "Architectural Assistant" should be received by the Architect and Surveyor, J. A. Gilchrist, not later than Monday, 23rd September, 1957.

S. F. ESLAND,
Clerk to the Council.

Town Hall,
Leek.
23rd August, 1957. 7376

THE SOUTH WALES ELECTRICITY BOARD require an ARCHITECTURAL DRAUGHTSMAN at the Head Office of the Board, St. Mellons, Cardiff.

Salary: Schedule "D" Grade 6 (£595/£715) of the N.J.B. Schedule.

Applications stating age, present position and salary, qualifications, experience and three referees should be addressed to the Secretary (Establishments Section), St. Mellons, Cardiff, so as to reach him not later than Monday, 23rd September, 1957.

St. Mellons,
Cardiff. 7400

WOKING URBAN DISTRICT COUNCIL
APPOINTMENT OF ARCHITECTURAL ASSISTANT

Grade A.P.T. III (under review) £656 × £25—£784

Applications are invited for the above appointment in the architectural section of the Engineer and Surveyor's Department. Applicants should have passed the Intermediate Examination of the R.I.B.A. and have had good general experience.

Housing accommodation will be provided if necessary.

The appointment is subject to the National Scheme of Conditions of Service, the provisions of the Local Government Superannuation Act and the passing of a medical examination.

Forms of application are to be obtained from and returned to Mr. H. P. Tame, A.M.I.C.E., M.T.P.I., Registered Architect, Engineer & Surveyor, Council Offices, Woking, not later than Monday, 16th September, 1957.

M. SHAWCROSS,
Clerk of the Council.

Council Offices,
Woking.
26th August, 1957. 7398

CITY OF BIRMINGHAM HOUSING MANAGEMENT DEPARTMENT
REINFORCED CONCRETE FENCING POSTS

The Housing Management Committee of the Birmingham Corporation invites tenders for the supply and delivery of 5 ft. 6 in. × 4 in. × 4 in. reinforced concrete fencing posts, to be supplied as required during the 12 months commencing 1st October, 1957.

Forms of tender can be obtained from the undersigned at 19-29, Summer Row, Birmingham, 3, and should be returned by the 23rd September, 1957.

J. P. MACEY,
Housing Manager.
7432

YORKSHIRE ELECTRICITY BOARD
NO. 2 (HUDDERSFIELD) SUB-AREA:
SENIOR DRAUGHTSMAN (CIVIL AND BUILDING).

A Section Leader is required in the Sub-Area Drawing Office, Market Street, Huddersfield, for work associated with the design and construction (including stone and reinforced concrete work) of sub-station, office and other buildings. Applicants should have had extensive experience in building and civil engineering work, and possess the necessary technical qualifications. They should be capable of supervising other Draughtsmen.

Salary: N.J.B. Schedule "D," Grade 4 (£895×£20—£995 per annum).

Applications, giving full details of age, qualifications and experience, together with the names of two referees, should be forwarded to the Manager, No. 2 (Huddersfield) Sub-Area, Yorkshire Electricity Board, Market Street, Huddersfield, not later than 20th September, 1957.

NO. 4 (LEEDS) SUB-AREA:
SECTION LEADER (DRAWING OFFICE).

Applicants should have had a recognised technical training and experience in the design and detailing of new buildings and in the conversion of existing buildings.

Experience in the preparation of Bills of Quantities and Estimates is essential, and ability to design simple reinforced concrete and/or steel structures would be an advantage.

The successful applicant will be required to supervise staff engaged on the above work and should hold an appropriate qualification.

Salary: N.J.B. Schedule "D," Grade 4 (£895×£20—£995 per annum).

SENIOR DRAUGHTSMAN (CIVIL AND BUILDING).

Applicants should have had a recognised technical training and experience in the design and detailing of new buildings and in the conversion of existing buildings.

Experience in the preparation of Bills of Quantities and Estimates is essential, and ability to design simple reinforced concrete and/or steel structures would be an advantage.

Salary: N.J.B. Schedule "D," Grade 5 (£760×£20—£860 per annum).

Applications, giving full details of age, qualifications and experience, together with the names of two referees, should be forwarded to the Manager, No. 4 (Leeds) Sub-Area, Yorkshire Electricity Board, Bramhope, near Leeds, not later than 20th September, 1957. 7433

PADDINGTON BOROUGH COUNCIL

(*a*) ASSISTANT ARCHITECT (A.P.T. V: £844—£1,024).

(*b*) ASSISTANT QUANTITY SURVEYOR (A.P.T IV: £757—£937).

For (*a*), A.R.I.B.A. candidates preferred with experience in design and supervision of building works and knowledge of local authority requirements (quote A 345).

For (*b*), Intermediate R.I.C.S. is essential, with good experience up to final account stage (quote B.346).

Commencing salaries will be according to qualifications and experience.

Applications stating age, qualifications, experience, present and past appointments, names and addresses of two referees should be made by the 16th September, 1957.

W. H. BENTLEY,
Town Clerk.

Town Hall,
Paddington, W.2. 7402

CUMBERNAULD DEVELOPMENT CORPORATION

LANDSCAPE ARCHITECT required within the department of the Chief Architect & Planning Officer. Possession of A.I.L.A. and the ability to take a project through to completion, are essential.

The successful applicant will work under the Senior Landscape Architect and the Landscape Consultant, as a member of mixed teams of architects, planners, engineers and quantity surveyors on a variety of development projects.

The site of the new town of Cumbernauld lies midway between Glasgow and Stirling, and offers scope for interesting and original contributions towards the landscape problems.

The salary scale is Whitley Council scale A.P.T. V (£815 to £994 per annum) with initial placing in accordance with qualifications and experience.

The Corporation will endeavour to give, in an appropriate case, assistance in the provision of living accommodation.

Write to L. Hugh Wilson, O.B.E., A.R.I.B.A., Dist. T.P., A.M.T.P.I., Chief Architect & Planning Officer, Cumbernauld House, Cumbernauld, by Glasgow, for application form to be returned not later than Monday, 16th September, 1957. 7397

Vacancies exist for DRAUGHTSMEN (Arch. and Civ. Engr.) in the War Department at CATTERICK, DARLINGTON and YORK. Candidates must have at least three years' Architectural training experience in an Architect's office and be of Intermediate R.I.B.A. standard. Salary ranges from £490 (at age 21) rising by annual increments to £780. Applications giving full particulars of qualifications and experience, etc., to be addressed to CRE, CATTERICK CAMP, YORKS; CRE Northern Counties, DARLINGTON; or CRE East & West Ridings Area, YORK, according to choice of locality. 7388

CITY OF SALFORD
CITY ENGINEER & SURVEYOR'S DEPARTMENT
ASSISTANT ARCHITECT, GRADE A.P.T. VI
£902.0.0.—£1,107.0.0.

Applications are invited from persons having appropriate qualifications and experience for the above-mentioned post in the office of the City Engineer & Surveyor (G. A. McWilliam, B.Sc., A.M.I.C.E., A.R.I.C.S., M.I.Mun.E.).

Applicants should hold at least the minimum qualification appropriate to the grade as set out in the National Scheme of Conditions of Service. The work of the Department affords experience in a wide variety of municipal engineering and architectural projects carried out for all Committees of the City Council.

Housing accommodation will be provided in approved cases.

The appointment will be subject to the provisions of the Local Government Superannuation Acts, the National Scheme of Conditions of Service and the passing of a medical examination.

Applications stating age, qualifications, and details of experience, together with the names of two referees, should be sent to the City Engineer & Surveyor, Town Hall, Salford, 3, Lancs., to arrive not later than *Thursday, 19th September*, 1957.

R. RIBBLESDALE THORNTON,
Town Clerk.
7428

AIR MINISTRY require WORKERS-UP in Quantities Division London. Must be fully experienced and competent to Work-up entire Bills of Quantities. Preference holders C. & G. (Quantities), O.N.C. or equivalent technical qualification. Salary range £695 at age 26 to £1,030 starting pay dependent on age, qualifications and experience. Pensionable and promotion prospects. Five-day week. Over three weeks' leave a year. Applicants normally should be natural born British subjects. Write stating age, qualifications and previous appointments including type of work done, to P.E. 104, Manager, Professional & Executive Register, Ministry of Labour and National Service, 1-6, Tavistock Square, London, W.C.1. No original testimonials should be sent. Only candidates selected for interview will be advised. 7404

BERKSHIRE COUNTY COUNCIL
ASSISTANT ARCHITECTS, Grade IV (£1,025—£1,175).

Men capable of taking charge of contracts under a Section Head from preliminary scheme stage to completion are required. Opportunity to obtain a varied experience will be given.

Application forms and further particulars can be obtained from J. T. Castle, A.R.I.B.A., A.M.T.P.I., County Architect, Wilton House, Parkside Road, Reading, to whom they should be returned not later than Thursday, 19th September, 1957. 7399

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

The City Architect will be pleased to receive applications from suitably qualified persons for the following Architectural vacancies:—

(*a*) PRINCIPAL ASSISTANT ARCHITECTS (General, Housing or Re-Housing Sections). A.P.T. Division Grade VI (£902—£1,107 per annum).

(*b*) SENIOR ASSISTANT ARCHITECT (Education Section). A.P.T. Division Grade VI (£902—£1,107 per annum).

(*c*) SENIOR ASSISTANT ARCHITECTS (General or Housing Sections), A.P.T. Division Grade V (£814 17s. 6d.—£994 5s. per annum).

(*d*) SENIOR ASSISTANT ARCHITECTS (General, Housing, Re-Housing or Education Sections), A.P.T. Division Grade IV (£727 15s.—£907 2s. 6d. per annum).

(*e*) ASSISTANT ARCHITECTS (General, Re-Housing or Education Sections). A.P.T. Division Grade III (£556—£784 2s. 6d. per annum).

The salaries named are subject to the recent award of the National Joint Council.

The above posts will be subject to the Provisions of the Local Government Superannuation Acts, 1937-1953, and to one month's notice on either side. The successful candidates will be required to pass a medical examination.

Further particulars and Forms of Application may be obtained from George Kenyon, A.R.I.B.A., A.M.T.P.I., City Architect, 18, Cloth Market, Newcastle upon Tyne, 1. Applicants must state the position applied for when requesting particulars.

Closing date for receipt of completed applications: Saturday, 28th September, 1957.

JOHN ATKINSON,
Town Clerk.

Town Hall,
Newcastle upon Tyne, 1.
28th August, 1957. 7401

THE LONDON HOSPITAL, Whitechapel, E.1, requires GENERAL ASSISTANT in the Architect's office. Salary according to experience, but probably in range £555—£760. Post is suitable for someone within a few years of retirement or for Junior with Intermediate R.I.B.A.

Applications, stating age, present salary and brief particulars of experience to be sent to the Architect. 7424

Architectural Appointments Vacant

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

LONDON office with widely varied practice urgently requires all grades of ASSISTANTS, preferably with London experience. Five-day week. Lewis Solomon, Son & Joseph, 21, Bloomsbury Way, London, W.C.1. Holborn 6108. 6531

CO-OPERATIVE WHOLESALE SOCIETY, LTD.
ARCHITECT'S DEPARTMENT,
BIRMINGHAM

APPLICATIONS are invited for the following appointments in the above Branch Office undertaking interesting and varied commercial and industrial projects:—

(*a*) ASSISTANT QUANTITY SURVEYOR, with good experience in the preparation of Bills of Quantities, measuring and adjusting variations and estimating under supervision (salary range £550 to £820 per annum).

(*b*) ASSISTANT ARCHITECT, capable of preparing working drawings from preliminary details (salary range £550 to £820 per annum).

There is a 5-day week in operation, and the appointments offer prospects of upgrading.

Applications, stating age, experience, qualifications and salary required, to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester. 7073

LEADING Firm of Building Surveyors (City of London) require JUNIOR ARCHITECTURAL DRAUGHTSMAN, age 22/27. Must be well educated and keen to progress in profession. Salary from £350 according to experience. Box 7263.

ARCHITECTS.—SENIOR ARCHITECTURAL ASSISTANTS required immediately for a wide variety of work. Salary range £800—£1,000 per annum (according to experience and qualifications). Superannuation Scheme.—Application should be made in writing to Kenneth F. Masson, A.R.I.B.A., Chief Architect, S.C.W.S., Ltd., 76, Morrison Street, Glasgow, C.5. 7179

ASSISTANTS required in Architects' offices in London and Manchester. Must have an appreciation of contemporary design, have had practical experience and be prepared to take responsibility in the preparation of working drawings for large contracts. Salary £750—£850.—Scherrer & Hicks, FF.R.I.B.A., 19, Cavendish Square, London, W.1. 7317

JUNIOR ARCHITECTURAL ASSISTANTS required. Salary £400 to £550 according to age and experience.—S. Dodson & Son, L./A.R.I.B.A., Museum Buildings, Priestgate, Peterborough. 7316

EXPERIENCED ARCHITECTURAL ASSISTANTS required for contemporary office, salary according to experience. C. H. Elsom, 10, Lower Grosvenor Place, S.W.1. Telephone: VIC 4304. 7299

ASSISTANT ARCHITECT. Co-operative Wholesale Society, Ltd., invite applications for the position of Assistant Architect. Must be capable of preparing working drawings from preliminary details. The post is superannuable, subject to medical examination. 5-day week in operation. Applications, giving details of age, experience and salary required, to—W. J. Reed, F.R.I.B.A., Chief Architect, C.W.S. Ltd., 99, Leman Street, London, E.1. 6360

ASSISTANT ARCHITECT with practical experience required for small busy practice, mainly flats and houses. Capable draughtsman and detailer essential, and to deal with jobs to finish. Apply in writing, stating salary and experience to R. Jelinek-Karl, F.R.I.B.A., 22, Chancery Lane, London, W.C.2. 7342

NORMAN JONES, SONS & RIGBY require an ARCHITECTURAL ASSISTANT of Intermediate standard, good draughtsman, sound knowledge building construction, able to produce working drawings, surveys. Salary range £550—£650. Please write stating experience to 271, Lord Street, Southport, Lancashire. 7318

EDINBURGH. ASSISTANT, Intermediate standard or qualified, wanted for recently established practice. Please write, giving full details and salary required to Law and Dunbar-Nasmith, 54, Frederick Street, Edinburgh, 2. 7320

BUCKINGHAMSHIRE firm of Architects, within 30 miles of London, with a varied practice, require TWO ARCHITECTURAL ASSISTANTS approaching Final R.I.B.A. standard. 5-day week. Salary according to age and experience.—Please write, giving full particulars, to Box 7384.

TWO ASSISTANTS required in City Architect's Department. Salary range £600—£800 with good prospects of advancement and secure future for suitable applicants. Write giving particulars of experience, age and salary required. Box 7210.

YOUNG ARCHITECTURAL ASSISTANT (male) required in West End office. Write stating age, experience and salary required. Box 6683.

MANCHESTER. ARCHITECTURAL ASSISTANTS, intermediate standard and above required in busy office having varied and interesting work in progress. Five-day week. Apply stating age, experience, salary required and any other relevant particulars. A. Vincent Booker, A.R.I.B.A., 28, Kennedy Street, Manchester, 2. 7430

ARCHITECT

THE NUFFIELD FOUNDATION invites applications from Architects with some practical experience and a special interest in the application of science to design. The successful applicant will be a member of the staff of the Division for Architectural Studies of the Nuffield Foundation, but will be stationed at the Building Research Station, Watford. He will be expected to promote collaborative work between the Division and the Building Research Station. The starting salary will be between £1,045 and £1,325 per annum, according to age and qualifications.—Applications, giving age, qualifications, experience, present position and salary, should be sent to the Director, Division for Architectural Studies, Nuffield Foundation, Nuffield Lodge, Regent's Park, London, N.W.1. 7420

ASSISTANT ARCHITECTS required, capable of preparing working drawings and details from preliminary sketches.—Applications, stating age, experience, qualifications and salary required, to R. C. Steel, A.R.I.B.A., Architect's Department, Co-operative Wholesale Society, Ltd., Westmorland Road, Newcastle upon Tyne. 7419

ARCHITECTURAL ASSISTANT required.—Apply G. Langley-Taylor and Partners, 9, Kings Bench Walk, Temple, E.C.4. Telephone: CENtral 4774. 7415

ARCHITECTURAL DRAUGHTSMAN, up to Intermediate standard, required for leading firm of Consulting Civil Engineers, Westminster. 5-day week; bonus and pension schemes.—'Phone Mr. Maggs, ABBey 1122, for appointment. 7414

ASSISTANT wanted, Intermediate standard; small progressive office, Bristol.—Please write Box 7413, giving full particulars and salary required.

SENIOR and JUNIOR ASSISTANTS required for busy office in the North-East. Ability and a sense of responsibility are the essential qualities. Good starting salaries are offered, and progress will depend on performance. Pension scheme and bonus scheme are both operated.—Box 7412.

JUNIOR ARCHITECTURAL ASSISTANTS required. 5-day week. Factory and office buildings. Minimum 3 years' experience.—Write full particulars, R. H. Gallannaugh, L.R.I.B.A., 54, Queen Anne Street, London, W.1. 7411

ACCOMMODATION OFFICER (age 25-35) required by MEDICAL RESEARCH COUNCIL, 38, Old Queen Street, London, S.W.1. for work at headquarters.

Duties (under supervision) include discussions with staff and negotiations with universities, hospitals, etc., for new buildings and conversions; appointment of and dealings with architects, surveyors; examination of tenders, bills of quantity, etc. Experience of layout of laboratories and of fixed equipment of scientific nature an advantage, but not essential.

Salary, according to age, qualifications and experience, at point within ranges £655—£1,050 or £1,110—£1,250 per annum, with superannuation.

Write full details (naming two business referees) to Assistant Secretary (Supplies) within two weeks. 7426

EDWARD D. MILLS & PARTNERS require experienced ARCHITECTURAL ASSISTANTS for contemporary work, home and abroad. Sound knowledge of construction essential.—Apply in writing to 15, Carlisle Street, Soho Square, W.1, stating age, experience, availability and salary required. 7395

ARCHITECTURAL ASSISTANT required, with office experience, able to see small contracts through. Busy office, with wide variety of work. Five-day week.—Applications to Vallis & Bird, F./A.R.I.B.A., Frome. 7394

S. ELDEN MINNS & SON require a SENIOR ASSISTANT for expanding private practice with a variety of work. Excellent prospects for capable hard worker with initiative. Salary £650 to £850.—Reply, giving details of age, qualifications and salary required, to No. 453, Glossop Road, Sheffield, 10. 7393

OPPORTUNITY for young SENIOR ASSISTANT in busy progressive practice, W.1. Initiative, design sense and organising ability would be well rewarded. Office experience, and Final, or near Final, standard essential.—Box 7387.

ARCHITECTURAL ASSISTANTS. Intermediate standard, required in Cirencester and Swindon.—Applications, stating experience and salary required, to Eric Cole & Partners, Dyer Street House, Cirencester. 7386

JUNIOR ARCHITECTURAL ASSISTANT required, with previous office experience. Must be a quick and accurate draughtsman and have a sound knowledge of building construction. 5-day week.—Hugh Macintosh & Partners, 33, High Street, Croydon. 7385

ARCHITECTURAL ASSISTANT required immediately for London Brewery. Must be good Draughtsman with sound knowledge of construction. Superannuation scheme. Please reply giving details of experience and training with salary required to Box 7351.

ASSISTANT, with initiative and good draughtsmanship, required in South Coast office, for large and interesting contract. Good salary and prospects.—H. Hubbard Ford, F.R.I.B.A., 24, Cornfield Road, Eastbourne. 7381

ARCHITECTURAL ASSISTANTS required for work on Licensed premises, including interior decoration. Write stating age, experience and salary required to The Secretary, Benskin's Watford Brewery Ltd., P.O. Box 105, Watford, Herts. 7123

ASSISTANT ARCHITECT required for work on Atomic Power Stations. Previous experience of heavy industrial architecture an advantage.—Write, stating training, experience, and qualifications, to Senior Architect, Nuclear Civil Constructors, 54, Warwick Square, S.W.1. 7379

GEORGE WIMPEY & CO., LIMITED

THE Architects' Department seek SENIOR and INTERMEDIATE ASSISTANTS, with ability to apply their knowledge to new construction techniques covering Multi-Storey Flats, Houses, Offices and Industrial Buildings for contracts throughout the U.K.

Appointments are at Head Office, Hammersmith, on a permanent basis, with a 5-day week.

For applicants interested in work in the Midlands, our Regional Office at Birmingham has similar appointments open for Architectural Staff (excepting 5-day week).

Salaries according to qualifications and experience and, subject to satisfactory service, there is a Pension Scheme available.

Applicants should write, giving particulars, to E. V. Collins, A.R.I.B.A., Chief Architect, 27, Hammersmith Grove, London, W.6. 7392

ARCHITECTURAL ASSISTANT required, Intermediate to Final standard, with office experience, for small busy practice. L.V. No Sats.—Shaw & Lloyd, F.R.I.B.A., 74, Gt. Russell Street, W.C.1. Museum 9693. 7406

ARCHITECTURAL or BUILDING DRAUGHTSMEN are required by FREEMAN, FOX & PARTNERS, Consulting Engineers, 68, Victoria Street, Westminster, London, S.W.1, for interesting work in their head office as above. Applicants must be experienced, neat draughtsmen, and should have a good knowledge of Building Construction. Salaries commensurate with age and experience. 5-day week; non-contributory pension scheme; luncheon vouchers; bonus; generous holidays.
Applicants should write, in confidence, to the Chief Draughtsman at the above address, giving full details of experience, qualifications, etc. 7403

APPLICATIONS are invited for the post of SENIOR STAFF ARCHITECT to a new group of Property Development companies. Applicants must be fully experienced in all phases of development from Town Planning and War Damage to certification of completed buildings, including negotiations at all levels with local authorities and tenants. This post, which is pensionable, carries the highest salary. Apply in confidence, giving full details of career to date. Our staff know of this advertisement.—Box 7405.

BRITISH ROAD SERVICES, LTD., require ARCHITECTURAL ASSISTANTS in the New Works Section of their Surveying and Architectural Department. The office is located in London, but work on projects in various parts of the country will involve travel. Applicants must be Architects of wide experience, and able to handle projects from sketch designs to completion, including the preparation of working and detailed drawings and specifications and supervision of work. Salary ranges (a) £767—£835/£872—£945, (b) £990—£1,045/£1,085—£1,190, according to qualifications and experience.
Applications, giving age, experience and qualifications, to Personnel Officer, British Road Services, Ltd., 222, Marylebone Road, London, N.W.1. 7410

SENIOR ARCHITECTURAL ASSISTANT required for responsible post in well-known private practice. London office. 5-day week. Varied work.—Box 7380.

IS anyone interested in the study and preparation of standard working details for a period? Please write to Morrison and Partners, 103, Belper Road, Derby, or 30B, Wimpole Street, London. 7322

CO-OPERATIVE WHOLESALE SOCIETY LTD. ARCHITECT'S DEPARTMENT, MANCHESTER
APPLICATIONS are invited for the following appointments:—(a) SENIOR ASSISTANT ARCHITECTS with experience of work on commercial and industrial projects (salary range £820 to £975 per annum). (b) ASSISTANT ARCHITECTS capable of preparing working drawings from preliminary details (Salary range £560 to £820 per annum). There is a five-day week in operation and both appointments offer prospects of upgrading. Applications stating age, experience, qualifications and salary required to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society Ltd., 1, Balloon Street, Manchester 4. 6023

RAMSEY, MURRAY, WHITE & WARD require recently qualified ASSISTANTS, with two to five years' practical experience, to work on interesting industrial and office buildings. Salary by arrangement.—Apply 32, Wigmore Street, W.1. 5929

Architectural Appointments Wanted

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

ASSOCIATE, thirty years' first class experience, seeks part time appointment two to three days weekly, Hertfordshire.—Box 7431.

ASSOCIATE (34), 6 years' first-class post-graduate experience, schools, civic, commercial buildings, seeks responsible permanent position, anywhere except London. Salary £1,250.—Box 7421.

ARCHITECTURAL ASSISTANT, with considerable experience in land and building surveying in this country and abroad, wishes to specialise in this field. Salary £800.—Box 7422.

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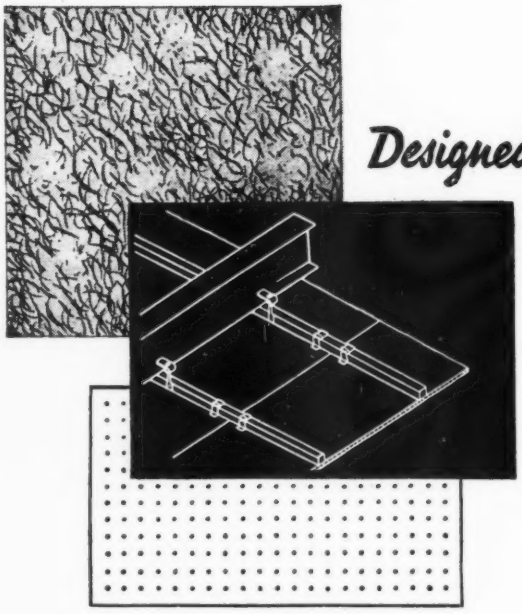

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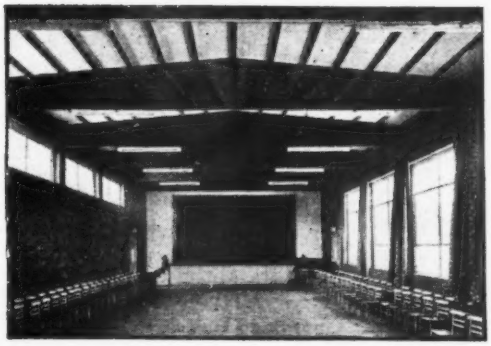

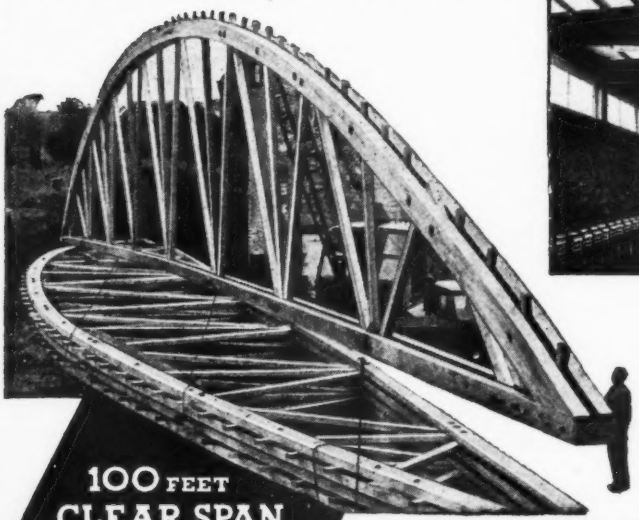

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