THE ARCHITECTS' JOURNAL

Standard contents

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

No. 3420] [Vol. 132

THE ARCHITECTURAL PRESS

9, 11 *and* 13, *Queen Anne's Gate, Westminster, S.W.*1. *'Phone: Whitehall* 0611

Price 1s. 0d.

Registered as a Newspaper

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

ILA	Institute of Landscape Architects. 1, Park Crescent, W.1.	Museum 3473
I of Arb	Institute of Arbitrators. Hastings House, 10, Norfolk Street, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7197
IQS	Institute of Quantity Surveyors. 98, Gloucester Place, W.1.	Welbeck 1859
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3.	Avenue 6851
IRA	Institute of Registered Architects. 68, Gloucester Place, W.1.	Hunter 1945
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128
JFRO	Joint Fire Research Organisation (DSIR & Fire Offices' Committee), Fire Research Station, Boreham Wood, Herts.	Elstree 1341/1797
LDA	Lead Development Association. 18, Adam Street, W.C.2.	Whitehall 4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
MAFF	Ministry of Agriculture, Fisheries and Food. Whitehall Place, S.W.1.	Trafalgar 7711
MOE	Ministry of Education. Curzon Street House, W.1.	Hyde Park 7070
MOH	Ministry of Health. 23, Savile Row, W.1.	Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1.	Whitehall 4300
MOLNS	Ministry of Labour and National Service, 8, St. James's Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell-Mex House, W.C.2.	Gerrard 6933
MOT	Ministry of Transport, Berkeley Square House, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine Owners and Manufacturers Council. 14, Howick Place, Victoria Street, S.W.1.	Victoria 1600 & 6477
NAS	National Association of Shopfitters. 2, Caxton Street, S.W.1.	Abbey 4813
NBR	National Buildings Record. 31, Chester Terrace, N.W.1.	Welbeck 0619
NCBMP	National Council of Building Material Producers. 10, Storey's Gate, S.W.1.	Abbey 5111
NEFMAI	National Employers Federation of the Mastic Asphalt Industry. 21, John Adam Street, Adelphi, W.C.2.	Trafalgar 3927
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4459
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1.	Whitehall 1631
NHBRC	National House Builders Registration Council. 58, Portland Place, W.1.	Langham 0064/5
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NRDB	Natural Rubber Development Board. Market Buildings, Mark Lane, E.C.3.	Mansion House 9383
NSAS	National Smoke Abatement Society. Palace Chambers, Bridge Street, S.W.1.	Trafalgar 6838
NT	National Trust. 42, Queen Anne's Gate, S.W.1.	Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1.	Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Fountainbridge 7631
RIB	Rural Industries Bureau. 35, Camp Road, S.W.19.	Wimbledon 5101
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5533
RICS	Royal Institution of Chartered Surveyors. 12, Great George Street, S.W.1.	Whitehall 5322/9245
RFAC	Royal Fine Art Commission. 5, Old Palace Yard, S.W.1.	Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Trafalgar 2366
RSH	Royal Society of Health. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1.	Victoria 2186
SE	Society of Engineers. 17, Victoria Street, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, E.C.3.	Mansion House 3921
SIA	Society of Industrial Artists. 7, Woburn Square, W.C.1.	Langham 1984/5
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1.	Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Ruthergien	
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1.	Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2.	Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4.	City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4.	City 5040
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1.	Whitehall 4341
ZDA	Zinc Development Association. 34, Berkeley Square, W.1.	Grosvenor 6636

and that means the mortar — for the strength, stability and watertightness of the wall depends on the type of mortar used. In the soft state, the mortar must be highly plastic so that it spreads with ease and allows the bricks to be cushioned easily into position. It should hold together well and it must also have good water retentivity to prevent the bricks sucking the water out of the mortar too quickly so that the mortar does not stiffen before the bricks are thoroughly bedded and bonded.

In the hardened state, it should have adequate strength and a low drying out shrinkage. It should resist rain penetration and to have good durability, it must not be affected by repeated cycles of freezing and thawing.

All these properties and advantages are obtained at low cost if a mortar is gauged 1-6 or 1-8 cement and sand with FEBMIX ADMIX Mortar Plasticiser incorporated

FEBMIX ADMIX

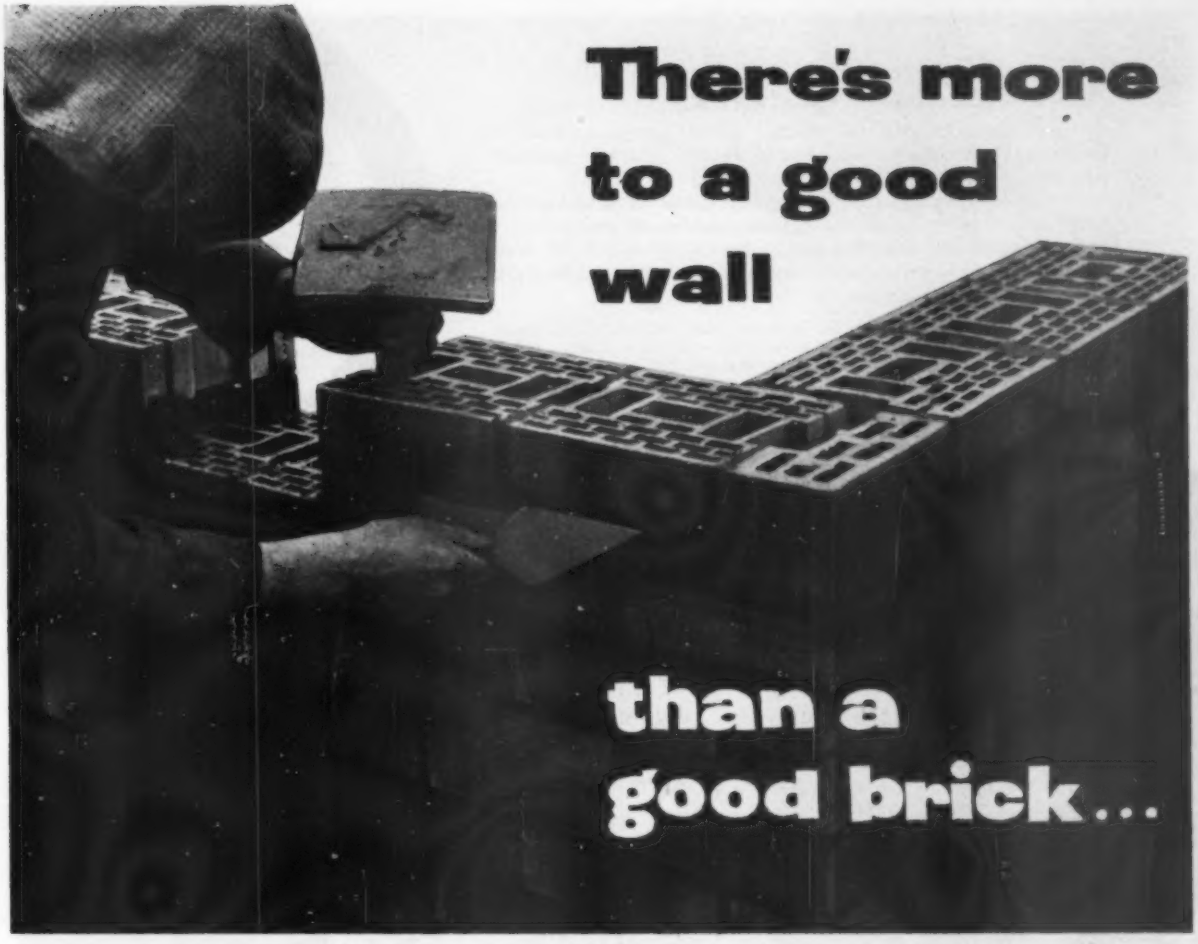
MORTAR PLASTICISER

FEB (GREAT BRITAIN) LTD.

*IT COSTS YOU MONEY **NOT** TO USE IT !*

102 Kensington High Street, London, W.8 WES 0444
Albany Rd., Chorlton-cum-Hardy, Manchester 21 CHO 1063

DHB 8031



and that means the mortar — for the strength, stability and watertightness of the wall depends on the type of mortar used. In the soft state, the mortar must be highly plastic so that it spreads with ease and allows the bricks to be cushioned easily into position. It should hold together well and it must also have good water retentivity to prevent the bricks sucking the water out of the mortar too quickly so that the mortar does not stiffen before the bricks are thoroughly bedded and bonded.

In the hardened state, it should have adequate strength and a low drying out shrinkage. It should resist rain penetration and to have good durability, it must not be affected by repeated cycles of freezing and thawing.

All these properties and advantages are obtained at low cost if a mortar is gauged 1-6 or 1-8 cement and sand with FEBMIX ADMIX Mortar Plasticiser incorporated

FEBMIX ADMIX

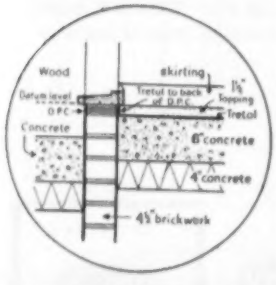
MORTAR PLASTICISER

FEB (GREAT BRITAIN) LTD.

*IT COSTS YOU MONEY **NOT** TO USE IT !*

102 Kensington High Street, London, W.8 WES 0444
Albany Rd., Chorlton-cum-Hardy, Manchester 21 CHO 1063

DHB 8031



This detail is taken from the Tretol Specification Sheets, complete sets of which are available on request

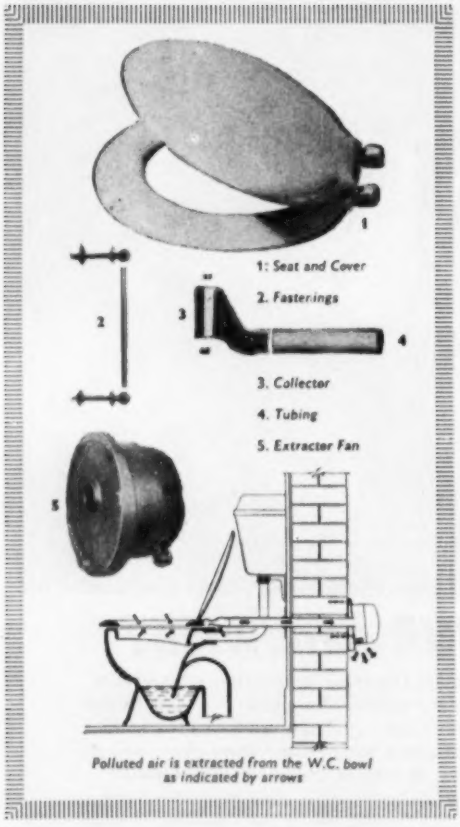
What's inside YOUR sandwich?

Preferences in sandwiches range from genteel triangles to crusty hunks, with a common expectation of something good in the middle. For sandwich membranes in solid concrete floors, Tretol are well versed in the provision of something good (although inedible) in the middle. Tretol Bitumen Membranes have been used for many years both horizontally and vertically, in tens of thousands of buildings throughout the country. These high grade *bitumen solutions* give protection against moisture and moisture vapour which will last for the life of the building. If your files do not include a set of our membrane specification sheets, we shall be very glad to remedy the omission.

TRETOL **for Bitumen Membranes**

TRETOL LTD., Makers of Building Products and Paints, THE HYDE, LONDON, N.W.9 Telephone: Colindale 7223

Reduce dangerous airborne infection and eliminate offensive odours at source with ***Silavent*** REGD



Bacteria are invariably present in air polluted by the use and flushing of a W.C., and the danger is strikingly explained in an article published in *The Lancet* recently, which states:

'. . . . the flushing of the water closet generates particles of sizes capable of penetrating to the lower respiratory tract, as well as of deposition in the nose, mouth and eyes, and upon surfaces touched by the hands . . . .'

It was to remove this health hazard and the aesthetically objectionable problem of odour in use that the 'Silavent' system was invented. It extracts polluted air from the W.C. bowl before it can escape into the surrounding air, the extracted air being harmlessly dispersed outside the building.

A British invention, the 'Silavent' system comprises a toilet seat which is fixed to the W.C. in the usual way. A collector fits to the hinge of the seat and connects by tubing with a special extractor fan mounted on an outside wall.

Low in cost and universal in application, 'Silavent' can be installed in any type of toilet in homes, hospitals, hotels, factories, schools or public buildings, in units or ducted multiples.

Write for a booklet giving full details of the 'Silavent' System —an invention as simple and fundamental as that of the water-closet itself.

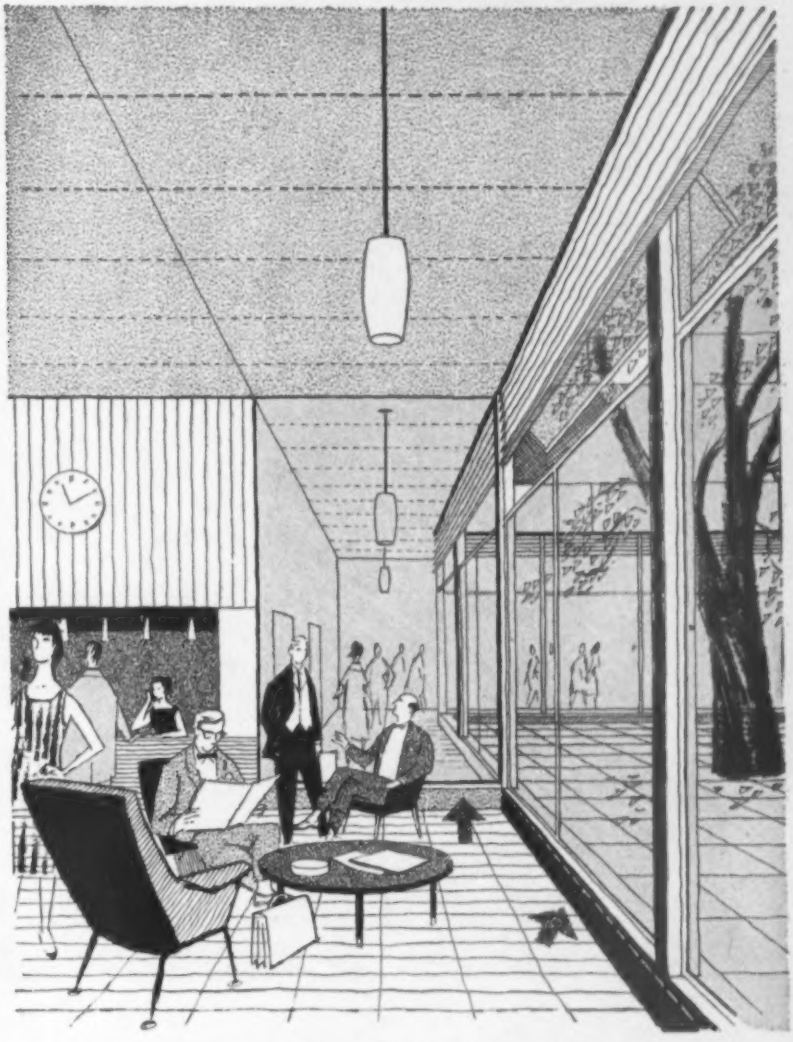
Full Technical advice is readily available.

The ***Silavent*** REGD System

MORPHY-RICHARDS (INSTALLATIONS) LTD., 50 CONDUIT STREET LONDON W1. REGENT 2803

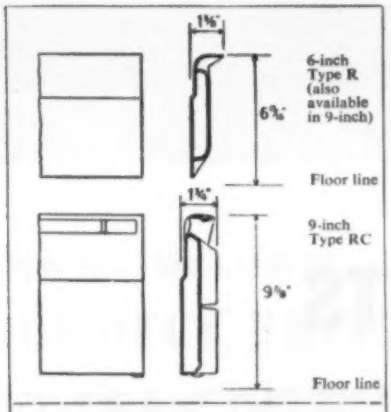
TGA 511

When windows must be wide and deep



THE need to introduce—whether for practical or for aesthetic reasons—windows that reach generously from floor to ceiling and wall to wall, might appear to present a problem: the problem of installing an efficient heating system economically without taking up valuable space or marring an otherwise uncluttered design.

There is one system that is designed to answer problems of this kind. It is a system of skirting heating developed by Crane Ltd. Crane Skirting Heating is so unobtrusive and its application so flexible that a great deal of freedom of arrangement is attained.



Manual (No. 423) on Crane Skirting Heating may be had on application to

CRANE LTD., 15-16 RED LION COURT, FLEET STREET, LONDON, E.C.4

London Showrooms:
118 Wigmore Street, London, W. 1 and Great West Road, Brentford, Middlesex

Branches:
BIRMINGHAM · BRENTFORD · BRISTOL GLASGOW · LEEDS · LONDON · MANCHESTER

Works: IPSWICH

28

This heating system takes the form of panels which are used in place of the normal skirting. They avoid local 'hot spots' and distribute the warmth evenly where it is needed, without taking valuable floor or wall space. There are two types. Type R, which is purely radiant and made in panels 6-inches and 9-inches high; and Type RC (radiant-convector) in the 9-inch size only (used in the example illustrated and indicated by arrows). All panels are in 2-ft. and 1-ft. lengths and are made of cast iron, which gives them great resistance to accidental damage. The operations of calculating heat requirements and designing the pipework are in principle no different from those for conventional radiator heating systems.

In all cases where the architect needs greater freedom of expression than conventional heating systems allow him, and at the same time has to pay due consideration to costs, the answer is, undoubtedly,

CRANE skirting heating

REMEMBER POPPY DAY

PICKERINGS MOTOR CAR LIFTS

ESTABLISHED 1854

Pickerings Motor Car Lifts are designed so that they can be installed in restricted positions with a minimum of headroom and a minimum of builders' work. Here is an important contribution to the car parking problem—Pickerings Motor Car Lifts save ground space.

PICKERINGS LIMITED *Head Office and Works:* **GLOBE ELEVATOR WORKS · STOCKTON-ON-TEES**
Tel: **Stockton 65278/9 and 65270**
London Office: **GLOBE HOUSE, 12 ST. CROSS ST. HATTON GARDEN E.C.1.** *Tel:* **CHAncery 5061-2**
Branches: BELFAST · BIRMINGHAM · BRISTOL · DUBLIN · GLASGOW · HULL · LEEDS · MANCHESTER · NEWCASTLE-UPON-TYNE SCARBOROUGH · WORTHING

E 70

The INSULATED ALUMINIUM ROOF

"MACDEK"

NOW INCLUDES

ROOF DECK UNITS TO SPAN 14' 6"

'MACDEK' (Pat. No. 807029) Aluminium Roof, designed by F. McNeill & Co. Ltd., is a complete lightweight insulated roof designed for flat, pitched or vertical construction. It is made up of strong Aluminium alloy deck units with a layer of insulation material sealed to the roof deck and waterproofed with McNeill's Lion "Combinite" Multi-layer bituminous roofing.

The deck units are pre-fabricated and manufactured from high grade Aluminium Alloy. Each unit, has an effective width of 2ft. and a maximum span of 14ft. 6ins. from purlin to purlin.

All erection is carried out exclusively by McNeill's skilled craftsmen, thereby giving the highest standard of efficiency.

Technical Literature and further Information from

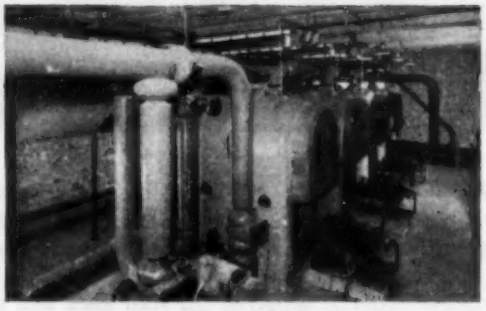
F. McNEILL & CO. LTD.

10 LOWER GROSVENOR PLACE LONDON, S.W.1

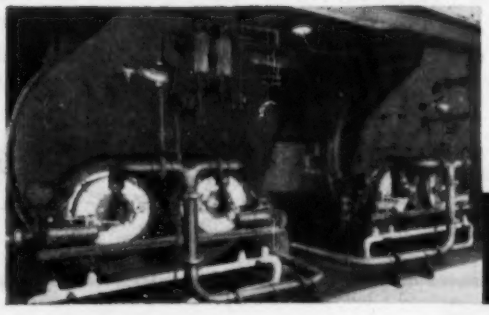
Telephone VICtoria 6022

STEELS ADD AN AIR OF LUXURY

with modern space-heating techniques



Battery of fully automatic oil fired boilers. Cleveland Technical College.



Oil firing equipment to economic boilers Cochran's Foundry — Middlesbrough.

Specialists in creating the 'right atmosphere' for healthy living, Steels aim to combine **efficiency** with **attractiveness** in systems designed to keep the temperature right inside whatever the conditions out.

S E I activities include: Low, Medium and High Pressure Hot Water Heating; Domestic Hot and Cold Water Supplies; Gas Installations; Ventilation and Air Conditioning (land and marine); Dust Extraction; Boiler House Plant; Kitchen and Laundry Installations; Electrical Heating; Combustion Installations for Solid Fuel, Gas and Oil and Pipelines for Industrial Purposes.

STEELS ENGINEERING INSTALLATIONS LIMITED

SUNDERLAND BIRMINGHAM 715

Talbot Hicks

for abundant even light . . .
durability . . .
safety and economy . . .

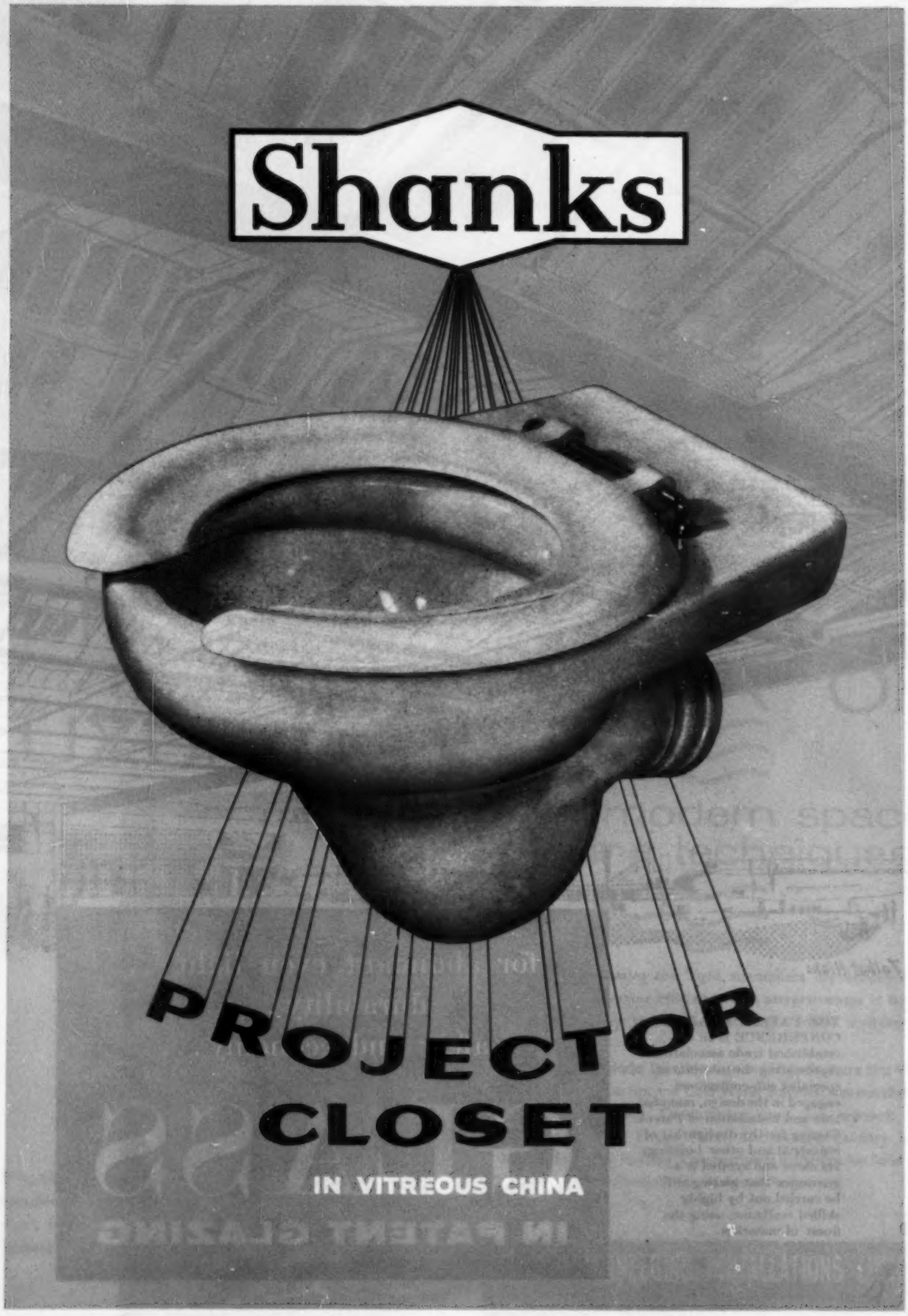
GLASS
IN PATENT GLAZING

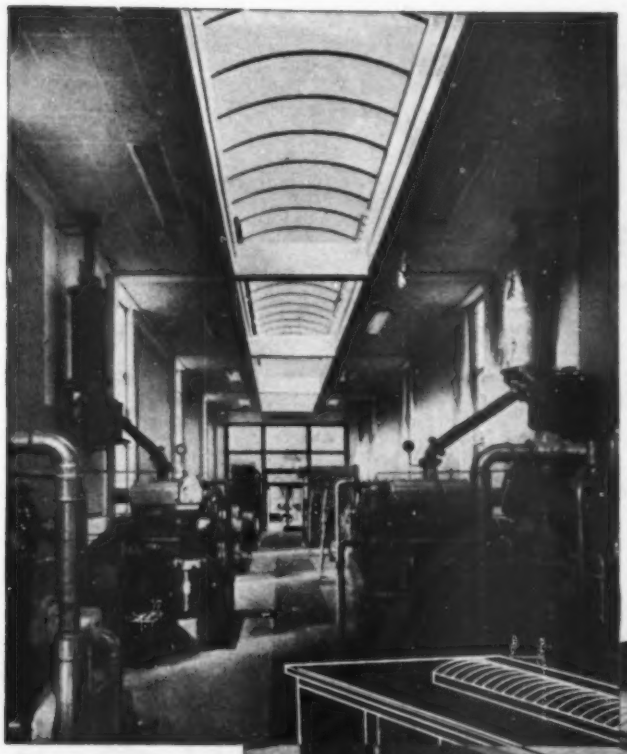
THE PATENT GLAZING CONFERENCE is an old-established trade association representing the interests of specialist sub-contractors engaged in the design, manufacture and installation of Patent Glazing for the daylighting of industrial and other buildings. Its name and symbol is a guarantee that glazing will be carried out by highly skilled craftsmen using the finest of materials.

P G C

THE PATENT GLAZING CONFERENCE

BURWOOD HOUSE · CAXTON STREET · LONDON · SW1


Shanks
PROJECTOR
CLOSET
IN VITREOUS CHINA



Ventilation *plus* Daylight

with

GREENWOOD AIRVAC 'Continuous' Rooflight Ventilators *

A 60 FEET LONG INSTALLATION

Architect: Walter Watson, A.R.I.B.A., South Eastern Gas Board
Contractors: The Demolition & Construction Co. Ltd

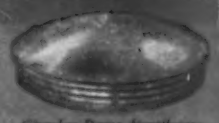
Booster House, Old Kent Road, London, for the South Eastern Gas Board

FOR FLAT OR BARREL VAULT ROOFS

Specifically designed to give permanent or controlled ventilation with maximum rooflighting, Greenwood Airvac Gable End Continuous Rooflight Ventilators have low overall height and unobtrusive appearance and can be supplied in extended lengths from 4 ft. with nominal widths up to 7 ft.

- ***Continuous louvred ventilation—fully weathered.***
- ***Available with internal controllable shutters.***
- ***Shutters operated by long arm or remote control.***
- ***Constructed entirely of aluminium.***

On this Booster House a 'Continuous' Rooflight Ventilator, 60 feet long and 7 feet wide with controllable shutters, was installed.



Circular Dome Ventilators are also available from 18" diam. to 72" diam.

Rectangular Dome Ventilators are also available from 30" x 30" to 48" x 72"

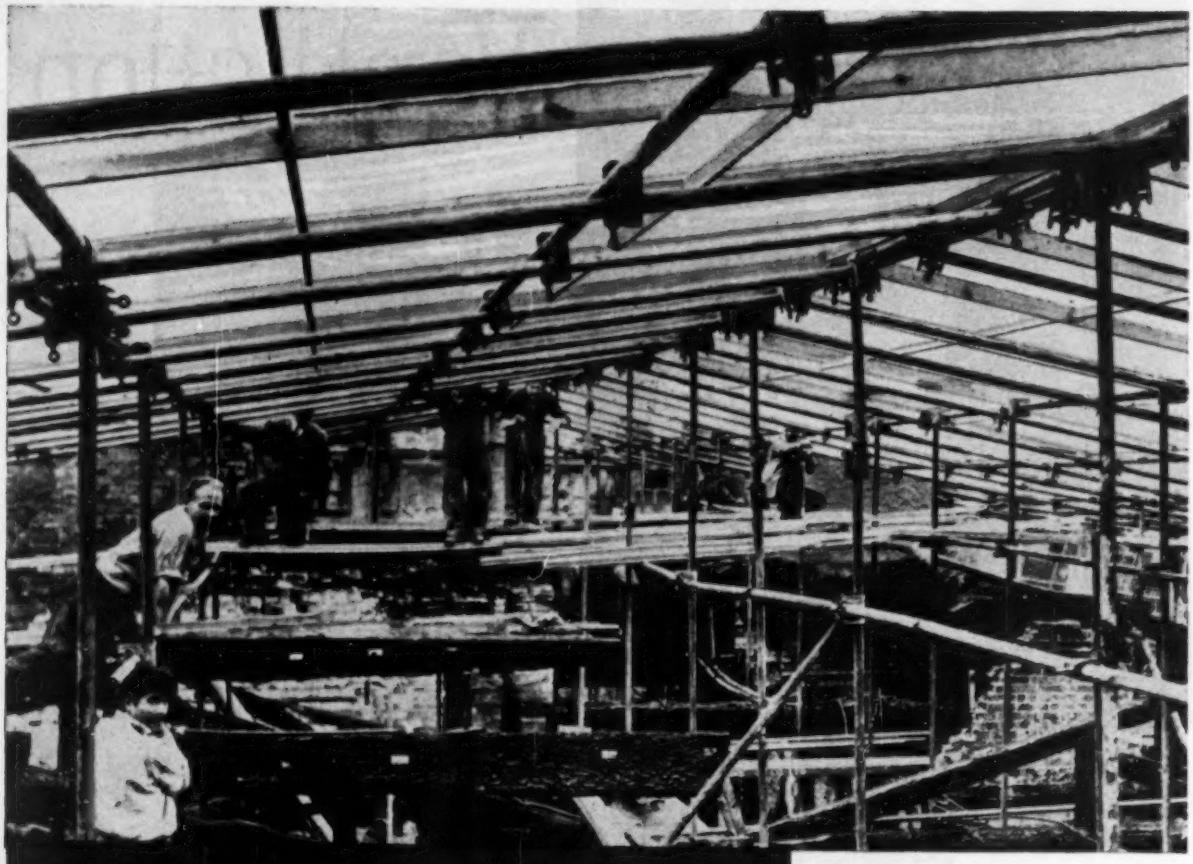
PATENTED

✻ *Illustrated technical leaflets on the full range of Dome and Continuous Rooflight Ventilators are available on request.*

Greenwood Airvac *ventilation*

GREENWOOD'S AND AIRVAC VENTILATING COMPANY LTD
ESTABLISHED 1879
PATENTEES, DESIGNERS AND MANUFACTURERS OF NATURAL & MECHANICAL VENTILATING EQUIPMENT

BEACON HOUSE, KINGSWAY, LONDON, W.C.2
CHANCERY 8135 (4 lines). 'Grams: 'AIRVAC', LONDON



Transparent 'VISQUEEN' protects Stoneleigh Abbey after fire

The temporary roof structure erected over fire-damaged Stoneleigh Abbey not only gave weather protection to the exposed building but provided excellent working conditions. Softwood rafters were fixed to the scaffolding structure with pipe clips at five foot centres. These rafters were covered with wire netting and the 'Visqueen' 500 stretched over and battened down.

Fire recently severely damaged the west wing of Stoneleigh Abbey, Lord Leigh's old and valuable property near Coventry. To give immediate protection to such parts of the building that were not burnt, a temporary roof had to be erected. To enable the work of clearing away debris and consolidation to proceed without the use of artificial lighting, the architects specified the use of polythene sheeting. The 500 (heavyweight) grade 'Visqueen' used, supplied ex stock by a local 'Visqueen' distributor, is light to handle, easy to fix, extremely tough and costs only 1¼d. per sq. ft.

This is only one of many ways in which 'Visqueen' can be used on a site to protect both men and materials from the weather while still letting in all the daylight. The special black heavyweight grade is also widely used as a tough, flexible tarpaulin for building materials and particularly useful in an emergency, as a protection for articles salvaged from damaged buildings.

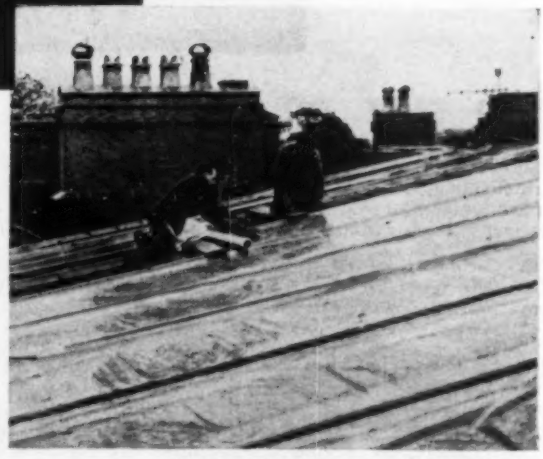
For an illustrated booklet on the uses of 'Visqueen', together with samples, prices and the name of your nearest stockist, write now to:

BRITISH VISQUEEN LTD

SIX HILLS WAY, STEVENAGE, HERTS. Tel: Stevenage 1310

A subsidiary company of Imperial Chemical Industries Ltd.

BV161



The top of the 'Visqueen' roof showing sheeting being unrolled quickly and easily before battening down. Strips of wire netting can be seen laid over the top of the polythene to hold it down.
Architects: Messrs. Quick and Lee (Guy Silk and A.S. Gasson, F/F.R.I.B.A.)
Contractors: Messrs. Stowe & Co. Ltd., Leamington Spa.
Visqueen Distributors: Messrs. A.R. & W. Cleaver.

"Twitterton!

Is this really

FORMICA?"

Many people are surprised about this. They think of FORMICA only in connection with their famous decorative laminates. FORMICA is actually the name of a company who manufacture a great many first rate products. Take those chairs for instance. They were made with FORMICA chair seats and backs. They are light, stackable, strong, virtually indestructible and easily cleaned with a damp cloth. These chair sets are supplied to manufacturers as shaped seats and backs, made by FORMICA LIMITED in 25 colours and patterns

FORMICA make

INDUSTRIAL LAMINATES
DECORATIVE LAMINATES
CHAIR SETS
EXTRUDED PLASTICS

For full information on any FORMICA product, please write to :

FORMICA LIMITED, De La Rue House, 84-86 Regent Street, London, W.1 Tel: REGent 8020

**FORMICA is a registered trade mark*

THE ANSWER IS A METAL PARTITION

BY EVERTAUT

They're so versatile—can be planned to fit any shape or size of floor space. Erection is simple and speedy, with none of the mess and noise usually associated with building jobs. And not only is the result attractive..... it's strong, rigid, gleaming with practical qualities.

Write for our illustrated folder.

POST COUPON FOR CATALOGUE

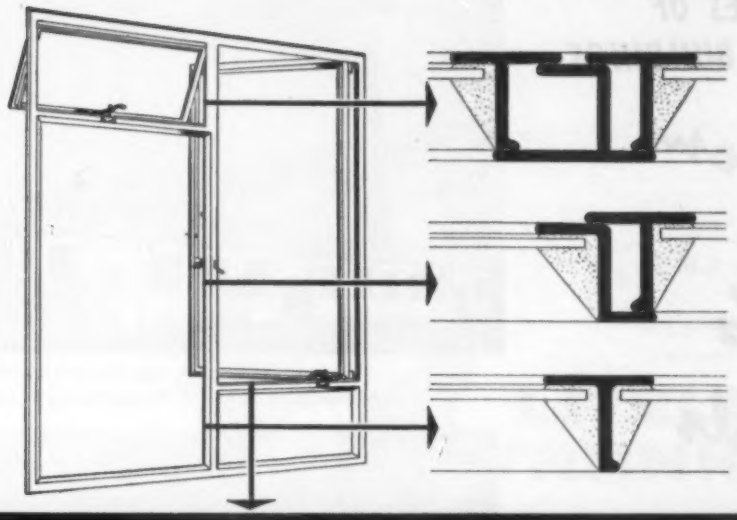
To EVERTAUT LTD., WALSALL ROAD, PERRY BARR, BIRMINGHAM, 22B.

Please send me full details of Evertaut Metal Partitions.

NAME _____

ADDRESS _____

_____ U



ONE
BAR
SECTION

For ready accessibility
INSIDE-GLAZE
Beacon Windows
are being
used in the
rehousing
schemes
throughout
the country.

BEACON
STANDARD WINDOWS
Member of the Metal Window Association

JOHN THOMPSON
BEACON WINDOWS LTD
WOLVERHAMPTON

SIEMENS EDISWAN

LITELINE TRUNKING

LIGHTER

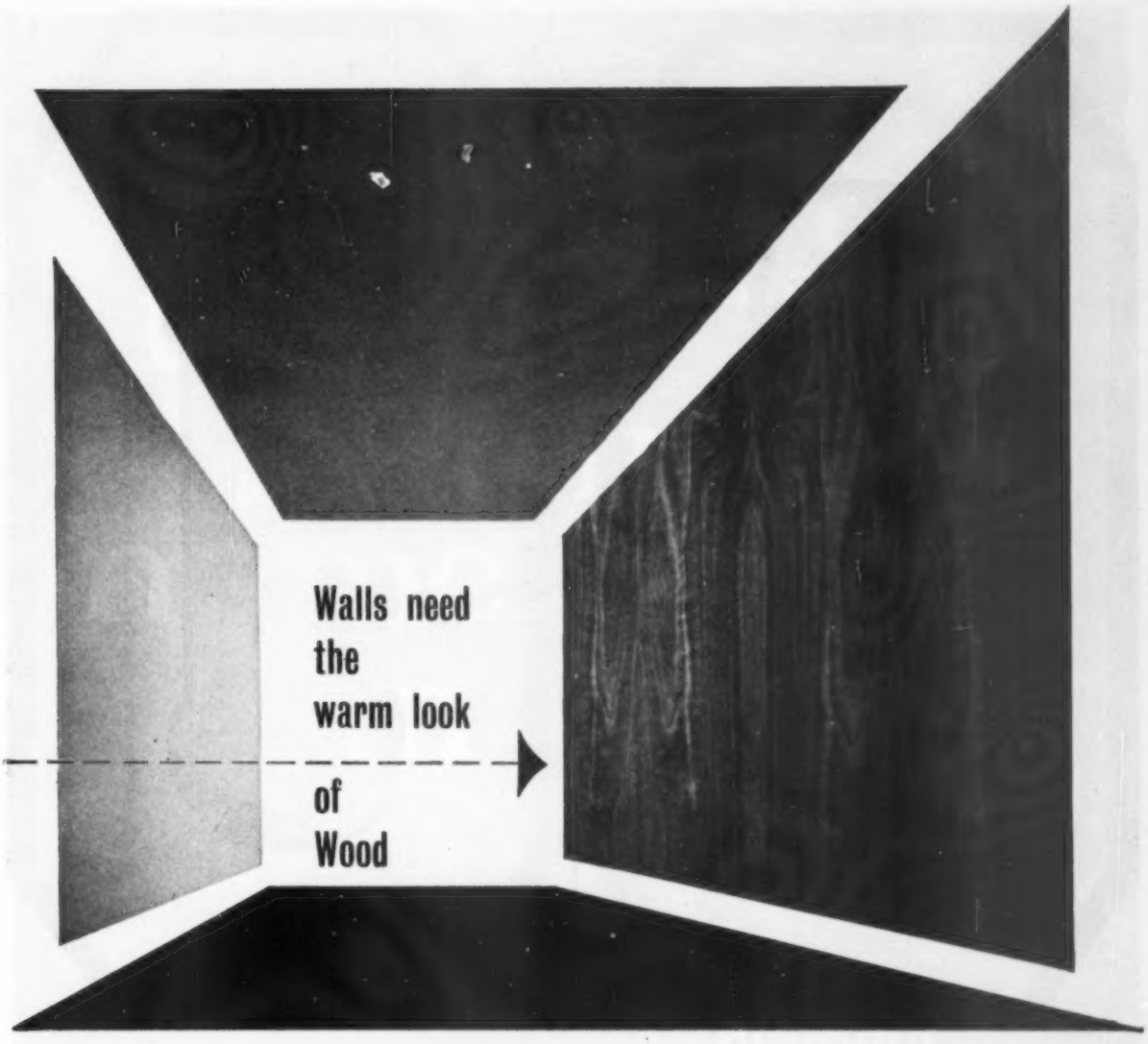
Lightness is only one of the many special features of the new Siemens Ediswan Liteline—but it's important. It means that Liteline Trunking is easier to handle and fix; it means that you can erect it in longer and more economical spans with fewer fixings and it means lower stresses on the roof structure.

Liteline Trunking provides two unobstructed cable troughs that you can run under, over, through or around any type of roof or ceiling. And you can attach any kind of fluorescent or filament light fitting to it with the simplest tools (and sometimes none at all).

There is so much to say about Liteline Trunking and all the fittings and accessories that it fills a 10-page illustrated brochure. We'd like to send you a copy.

Write to: **Associated Electrical Industries Ltd.**
Radio and Electronic Components Division
Lamps and Lighting Department,
36/39 Upper Thames Street, London, E.C.4

CRC11/79



With Venesta Veneered Plywood any surface can be made to delight the eye and give a warm, natural, friendly look. From the calm dignity of complete panelling, to the dramatic effect of a single wall—wood veneer is one of our most versatile decorative materials.
Its colour, grain and figure can be used to great effect in almost every type of interior and nowhere can you find a wider choice and more consistent high quality than in the Venesta range of Veneered Plywoods.

. . . the practical good looks of Venesta veneered plywood

and the perfect complement

VENESTA FLUSH DOORS

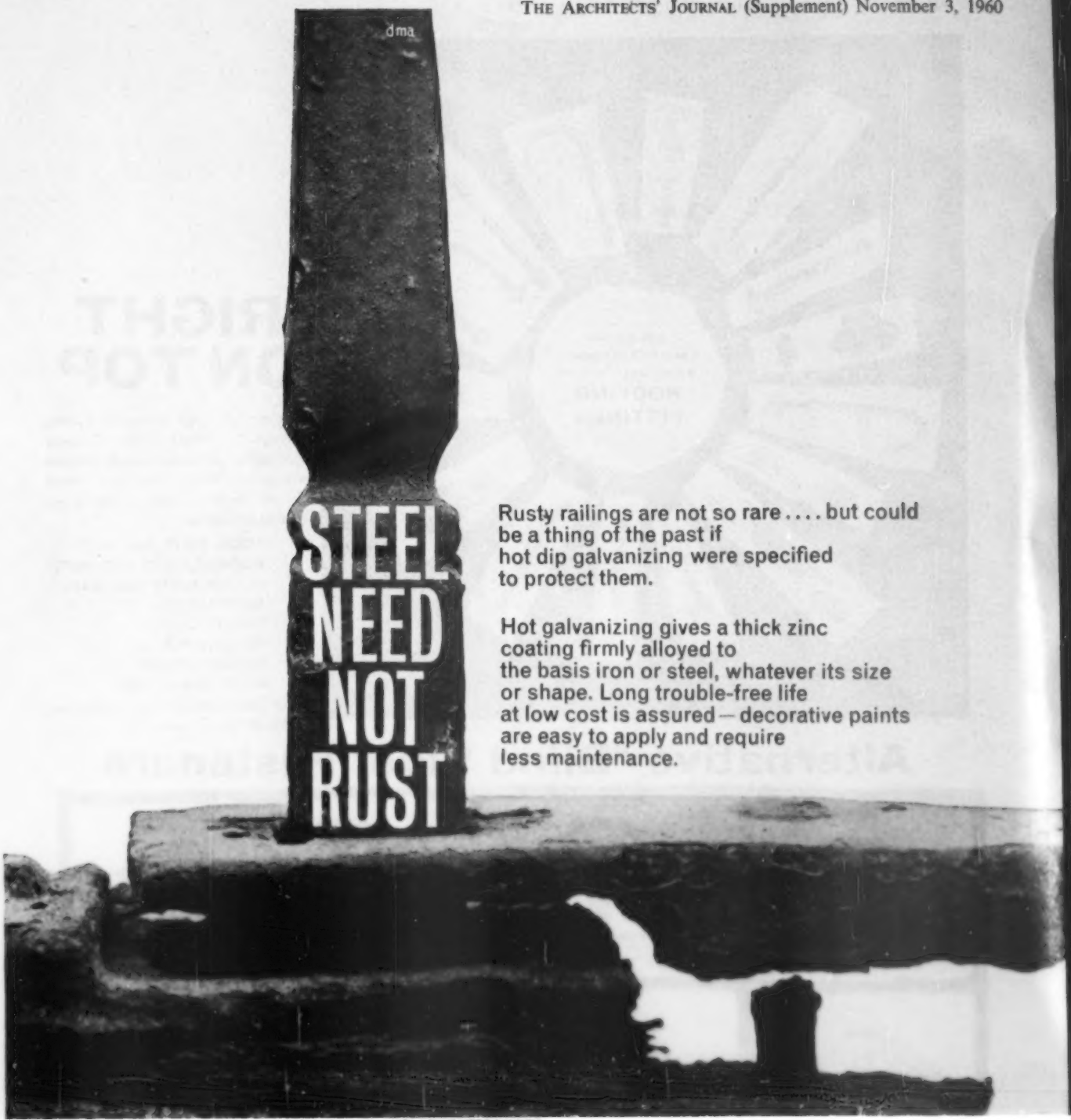
These are available either veneered or suitable for painting—to fit any scheme of decoration. They're built for hard wear too, solid core, lipped edges, flat and sound resistant.
For full details please write for leaflet (L.13)

VENESTA PLYWOOD LIMITED

Vintry House, Queen Street Place, London, E.C.4. CENtral 3040

REMEMBER POPPY DAY

TA 8060



Rusty railings are not so rare .... but could be a thing of the past if hot dip galvanizing were specified to protect them.

Hot galvanizing gives a thick zinc coating firmly alloyed to the basis iron or steel, whatever its size or shape. Long trouble-free life at low cost is assured — decorative paints are easy to apply and require less maintenance.

times none at all).

There is so much to say about Liteline Trunking and all the fittings and accessories that it fills a 10-page illustrated brochure. We'd like to send you a copy.

Write to: Associated Electrical Industries Ltd.
Radio and Electronic Components Division
Lamps and Lighting Department,
38/39 Upper Thames Street, London, E.C.4

CBC11/79

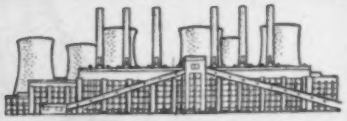
THE ACTIVITIES OF THE

PRODORITE

ORGANISATION are concentrated on all problems concerning chemical corrosion and mechanical wear and tear:—

1 CONTRACT WORK

concerned with chemical engineering; acid proof constructions and industrial finishes; floor laying; complete plant design, installation and maintenance; effluent disposal and drainage schemes, carried out by our own personnel using Prodorite products.



Extensive sub-contracts in C.E.A. Power Stations

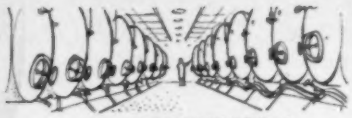
2 CHEMICAL RESISTING CEMENTS

and compounds for all types of industrial application. These cements fall into two basic categories: silicate based and resin based; the two combined ensuring the availability of a suitable cement to fill every anti-corrosive need.

CEMENT PRODOR *is used for these power station chimneys*

3 PROTECTIVE COATINGS and LININGS

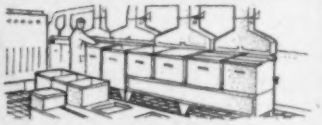
to storage and transport tanks and pipelines; for industrial processes; and linings to vessels for foodstuffs, beverages and aviation fuels. Available for bonding or spraying on site in a variety of forms.



PRODOR-GLAS *lined cold room tanks*

4 PLASTICS FABRICATIONS and RESIN/GLASS LAMINATES

Rigid P.V.C.; plasticised P.V.C.; polythene in welded sheet form for fume ducting, tank linings, fans etc; for chemical, plating, pickling and allied industries. Complete range of ORGLAS laminates having highest possible chemical and temperature resistance. Wide industrial applications, including the food industry.



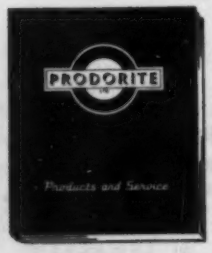
P.V.C. *fabrication scheme for fume extraction*

5 INDUSTRIAL WALL and FLOOR FINISHES

including acid resisting and heavy duty types in the form of paviors, tiles, flags, and insitu, with suitable additives. Also decorative wall and floor treatments for use in flats, hotels, public buildings, etc.

Corrosion resisting floors and walls in Acid Pickling shop

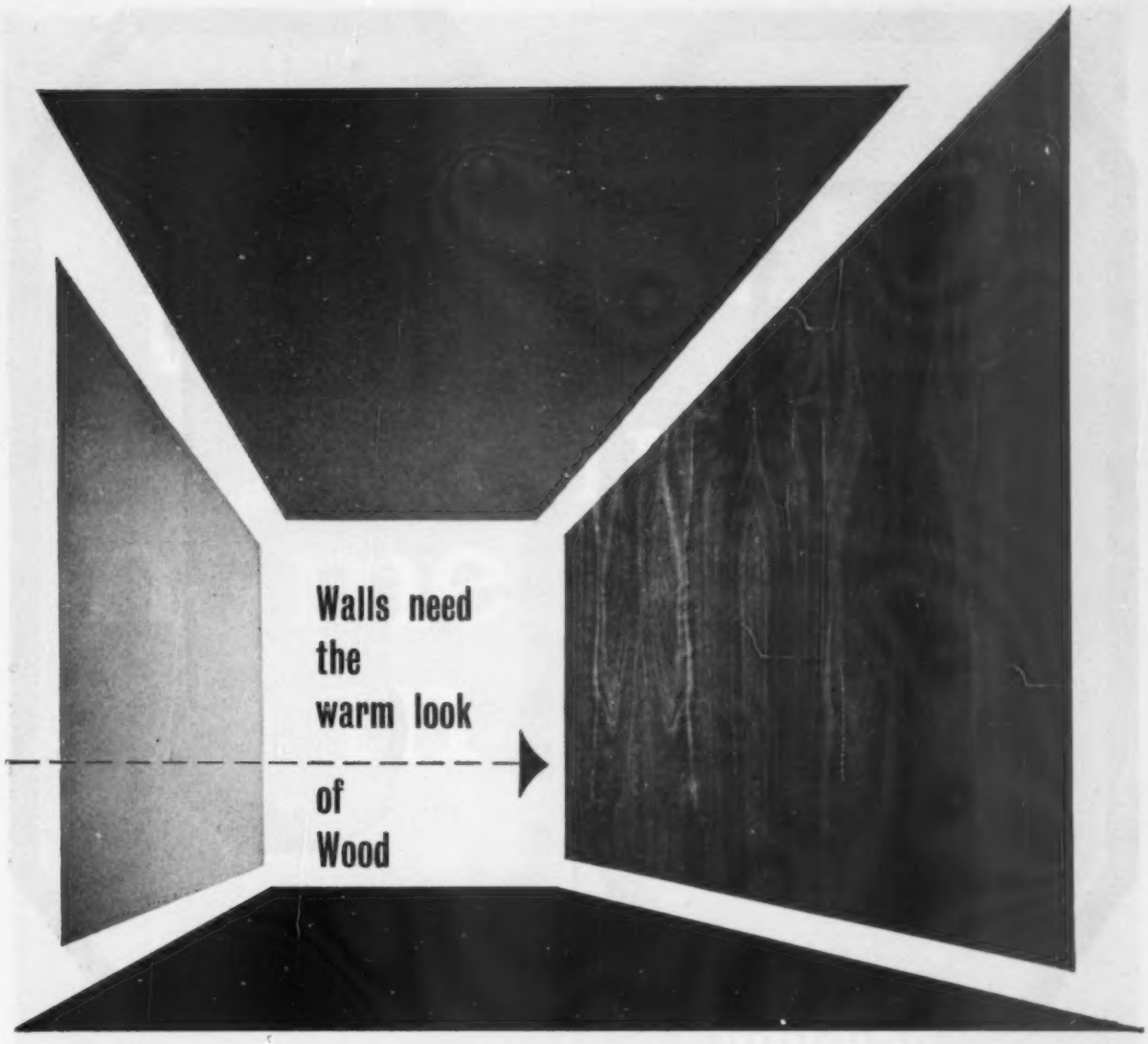
The products and services of the Prodorite Organisation extend from the manufacture and supply of materials to complete constructions carried out by the Contracting Department to customers' requirements. Prodorite products give complete protection from atmospheric conditions, chemical corrosion and mechanical wear and tear of any sort.



SEND FOR YOUR FREE COPY OF THE PRODORITE BOOKLET

This stiff-cover publication contains 25 pages of invaluable information about the products and services of the Prodorite Organisation. It includes photographs of actual installation and details of the Prodorite research, development and consultation services. Technical information about individual products is also available in leaflet form. Please quote publication reference number : P.101

Write to: **PRODORITE LIMITED** (Chemical Engineers and Consulting Contractors) **EAGLE WORKS, WEDNESBURY, STAFFS.**, or Telephone Wednesbury 1821 (10 lines).



With Venesta Veneered Plywood any surface can be made to delight the eye and give a warm, natural, friendly look. From the calm dignity of complete panelling, to the dramatic effect of a single wall—wood veneer is one of our most versatile decorative materials.
Its colour, grain and figure can be used to great effect in almost every type of interior and nowhere can you find a wider choice and more consistent high quality than in the Venesta range of Veneered Plywoods.

. . . the practical good looks of Venesta veneered plywood

and the perfect complement

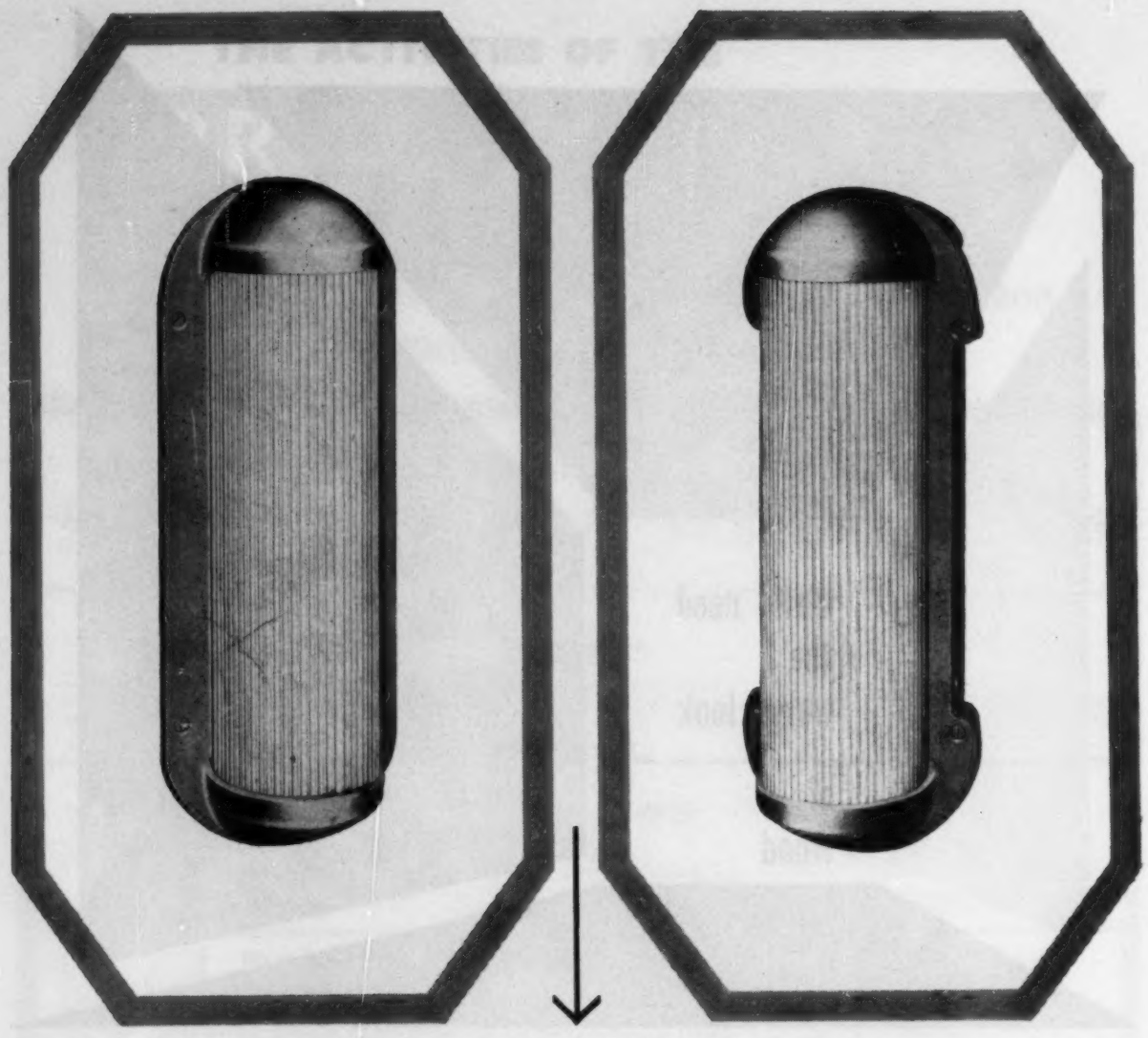
VENESTA FLUSH DOORS

These are available either veneered or suitable for painting—to fit any scheme of decoration. They're built for hard wear too, solid core, lipped edges, flat and sound resistant.
For full details please write for leaflet (L.13)

VENESTA PLYWOOD LIMITED

Vintry House, Queen Street Place, London, E.C.4. CENtral 3040

REMEMBER POPPY DAY



WARDLE *fluorescent bulkhead fittings*

Available as a recessed or non-recessed unit, this Wardle directional lighting fitting provides continuous low cost lighting with minimum maintenance.

DESIGN FEATURES INCLUDE . . .

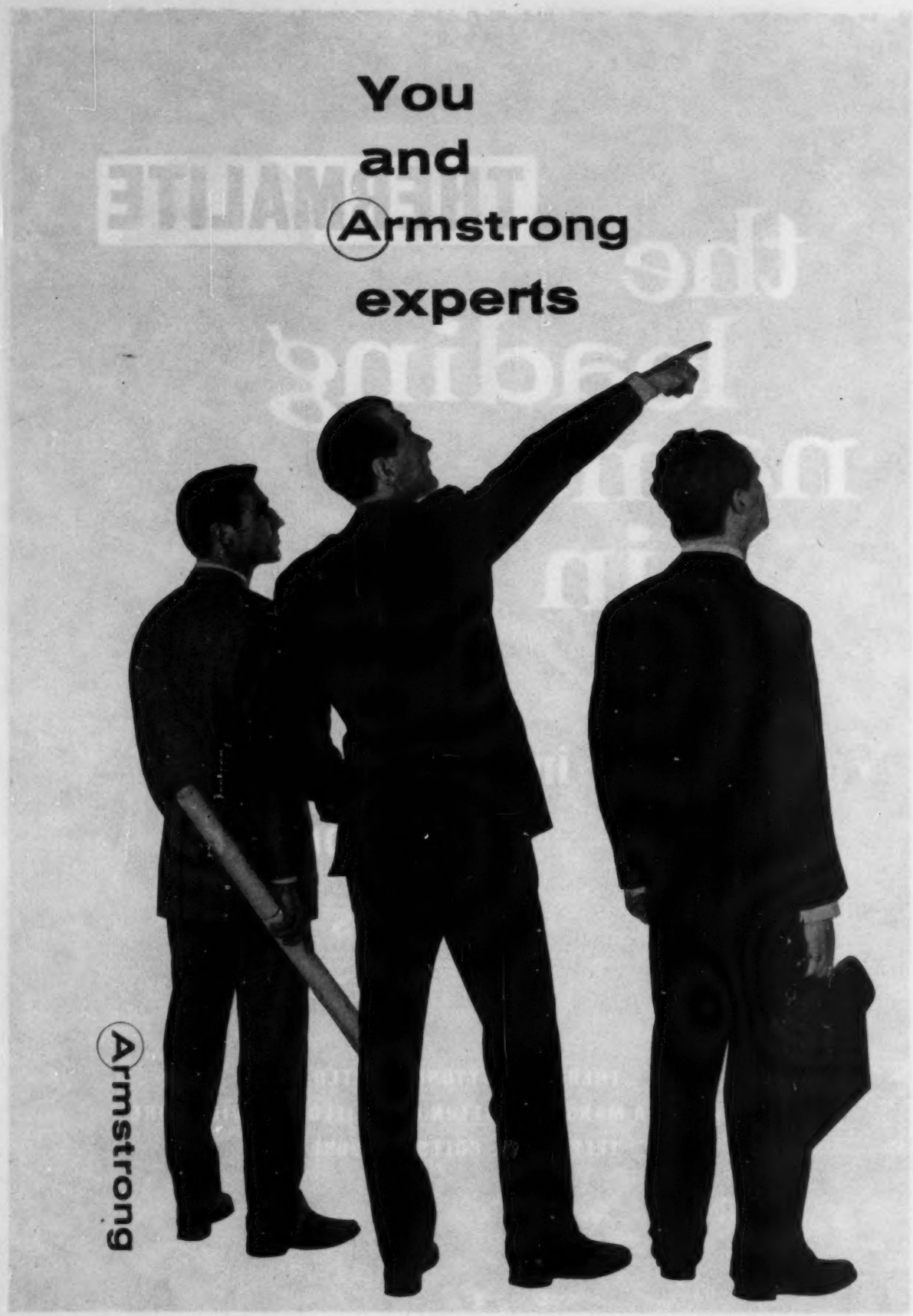
- ★ Two or three 8 watt 12″ fluorescent tubes
- ★ Lamp life over 5,000 hours
- ★ Built-in control gear
- ★ Fluted glass or Perspex in detachable front cover
- ★ Corrosion resistant aluminium alloy body
- ★ Choice of 5 inlet positions
- ★ Shaped for normal, tilted or corner mounting
- ★ Completely weatherproof
- ★ Hammered silver finish

Send for leaflet L601/M

THE WARDLE ENGINEERING CO. LTD.

OLD TRAFFORD MANCHESTER 16. *Telephone: TRAfford Park 1801 (3 lines)*
London Office: 34 Victoria Street, S.W.1. Telephone: ABBey 4072 and 1356

W3915B


You
and
Armstrong
experts
Armstrong

Overseas Visitors' Club, London

make good listening good-looking

Noise problems? Armstrong can offer you a complete acoustic service. There are tiles that are attractive in appearance as well as efficient in sound absorption, while Armstrong's acoustic experts in various parts of the country are available to assist you with any installation problems you may encounter.
Shown here is an acoustic ceiling of Armstrong Cushiontone tiles. Pine wood fibres compressed to a special density give these tiles a high sound-absorption coefficient. Their appearance is attractive — four designs are available — and several different methods of installation are possible, including the use of Armstrong's specially designed metal suspension system.
Also available are Travertone (mineral wool) and Corkoustic (cork) tiles. *Please write for full details.*

Armstrong *CUSHIONTONE** **ACOUSTIC TILES**

**Trademark owned by Armstrong Cork Company, U.S.A. for a wood-fibre acoustical material manufactured in U.S.A.*

ARMSTRONG CORK COMPANY LTD.
ACOUSTICS DEPARTMENT, 11a CARLISLE RD., COLINDALE, LONDON, N.W.9.
TEL.: COLINDALE 9744

AT.17

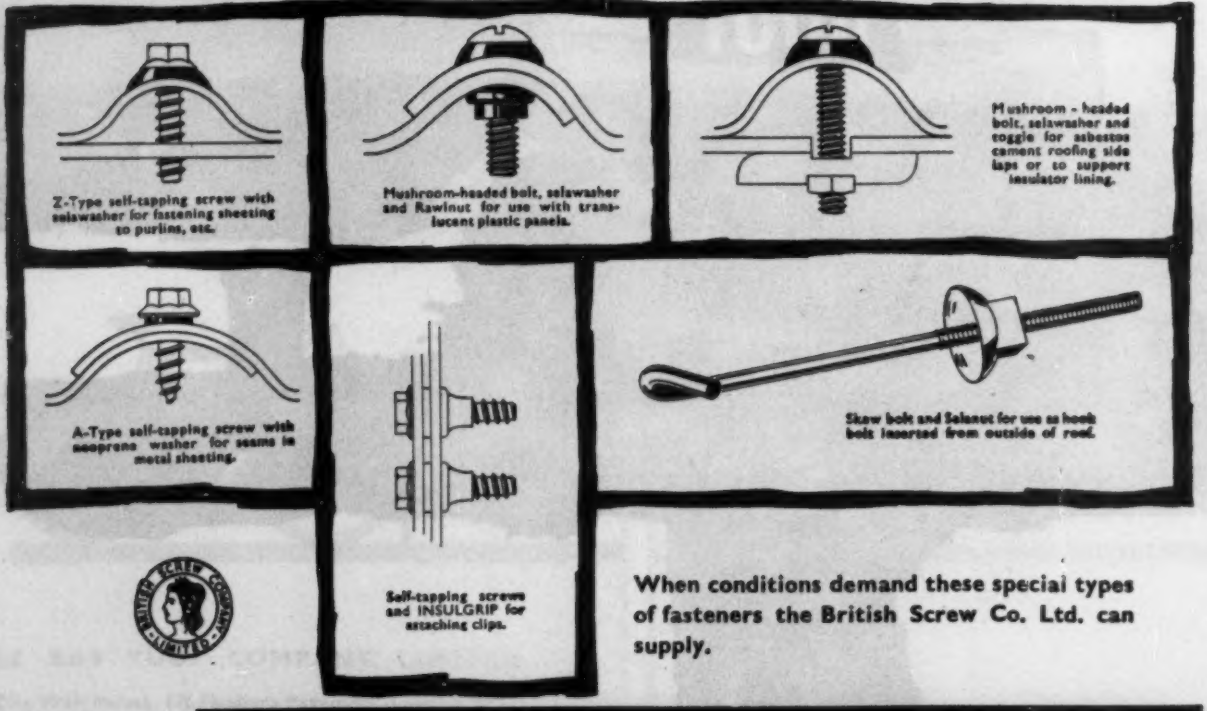
RIGHT ON TOP

In their full range of famous Roofing Fittings The British Screw Company incorporate first-rate reliable materials and modern design features of proved success. Be sure—insist on nothing less than British Screw

HOOK BOLTS AND NUTS
ROOFING BOLTS AND NUTS
GUTTER BOLTS AND NUTS
DRIVE SCREWS
OAKLEY CLIPS
ROOFING SCREWS
GUTTER SCREWS
ROOFING WASHERS

Prices. These vary with size and quantity, kindly ask for a quotation.

Alternative "Blind Side" Fasteners



When conditions demand these special types of fasteners the British Screw Co. Ltd. can supply.

the British Screw Company Limited

153 KIRKSTALL ROAD, LEEDS 4. Tel: Leeds 30541

'Let's talk it over with Charringtons, now'

A FREE TECHNICAL ADVISORY SERVICE

Before making a final choice between fuel-oil or solid-fuel heating systems, planning problems need expert consideration.

Whether you are to build, or provide plans for a block of flats, an entire housing estate, or a single private house, Charrington's technical service can help you to ensure that your project will have the most suitable, practicable and efficient heating system. Our experts will gladly assist with heating installation plans for your entire project.

Here are some of the many points on which Charringtons experts can give architects, builders and estate development organisations invaluable help and advice:—

Special requirements for the convenient siting and planning for fuel-oil storage tanks or solid-fuel bunkers; proper provision for oil-filling and fuel delivery points; information on cost of equipment; guidance on installation and running costs; choice of special equipment to meet specific space-heating and hot water requirements.

Write or telephone

CHARRINGTONS

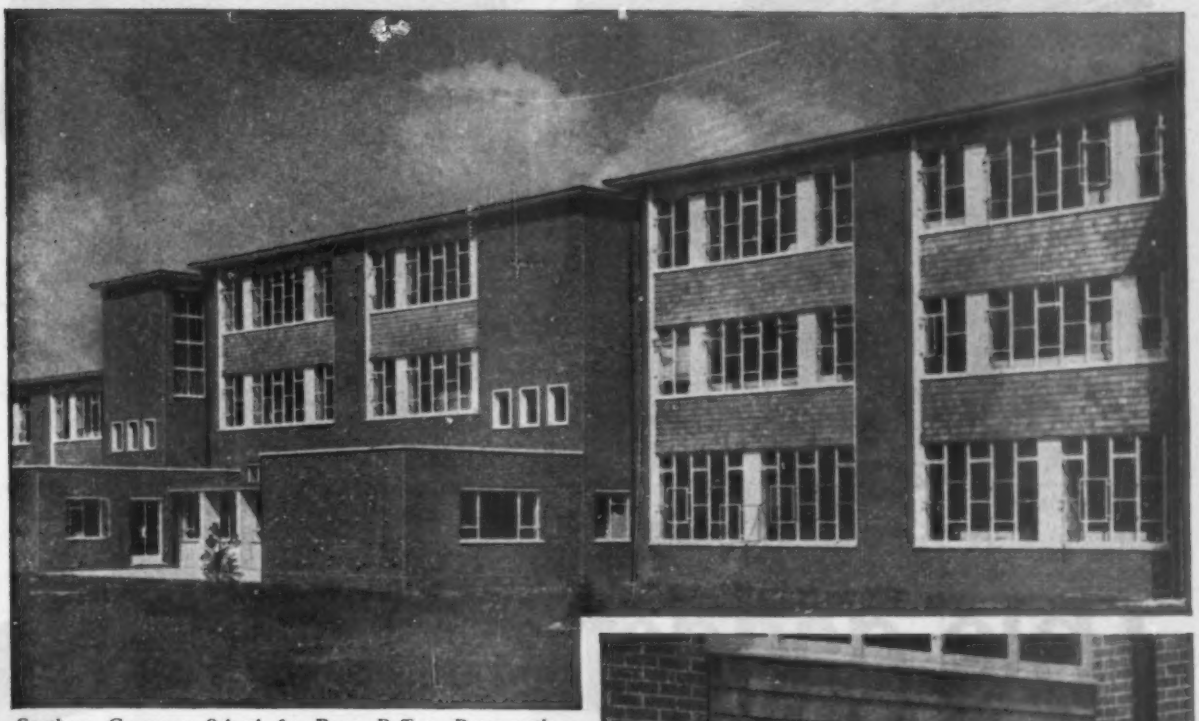
Heat is our business

DISTRIBUTORS OF
COAL, COKE Mobil FUEL OILS

TOWER HOUSE · TRINITY SQUARE · LONDON EC3 · ROYal 9111

TGA CD171/6

COLT *Canadian Cedar Wood* SHINGLES



Southern Grammar School for Boys, Baffins, Portsmouth.
City Architect, Frank Mellor, F.R.I.B.A.

ADDING SHINGLES to new style walls is an old well-tried method of providing a distinctive elevation. Colt Canadian Cedar Wood Shingles weather to a pleasant silver grey. Nailed to battens on brick, breeze or timber studding, the construction is both economical and completely weatherproof.

The high thermal insulation of Western Red Cedar makes Shingles a valuable addition to the range of modern cladding materials available to the Architect. Fixing is extremely simple but, for those who prefer it, Colt can offer an efficient fixing service.

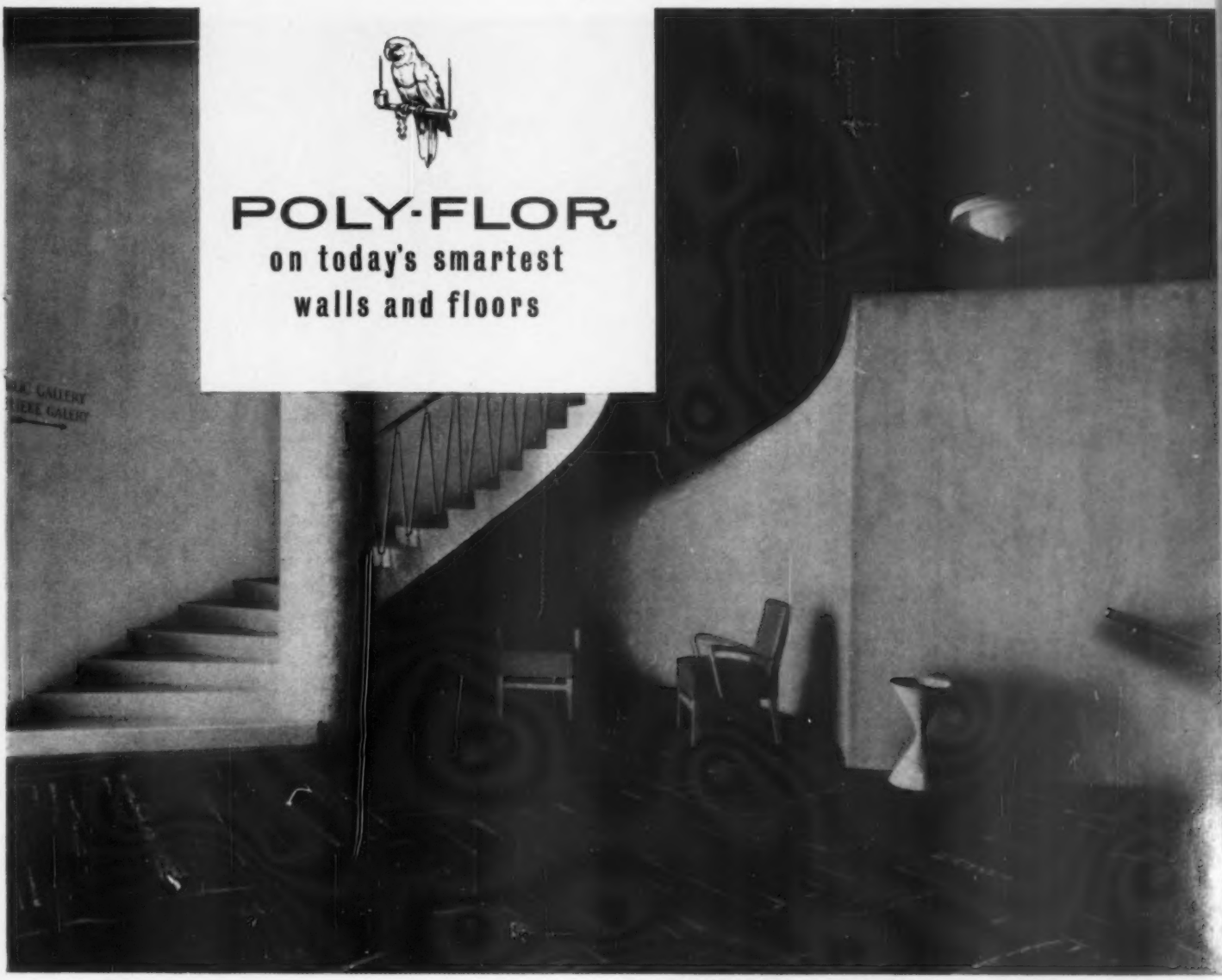
Send for full details to Dept. M.138

Fixing can also be undertaken if required

W. H. COLT (LONDON) LTD., SURBITON, SURREY

Telephone: ELMbridge 6511 (10 lines)

G.126



POLY-FLOR

on today's smartest walls and floors

Wool Exchange • Port Elizabeth • Cape Province • South Africa

Provides twice the wear—with half the care

POLY-FLOR 90 gauge true *Vinyl Flooring* and Poly-Flor 45 gauge *Wall-Cladding* was extensively used in this magnificent Wool Exchange Building, acclaimed as the finest of its kind in the world. Poly-Flor 90 gauge on the floor areas gives them a handsome elegance which can so easily be maintained with only soap and water. Poly-Flor 45 gauge is the inspiring wall cladding used on the large wall surfaces—inspiring enough to dream—"I dwelt in Marble Halls". Doors, Pillars, Reception counter tops and a host of other surfaces were likewise covered with this versatile material—

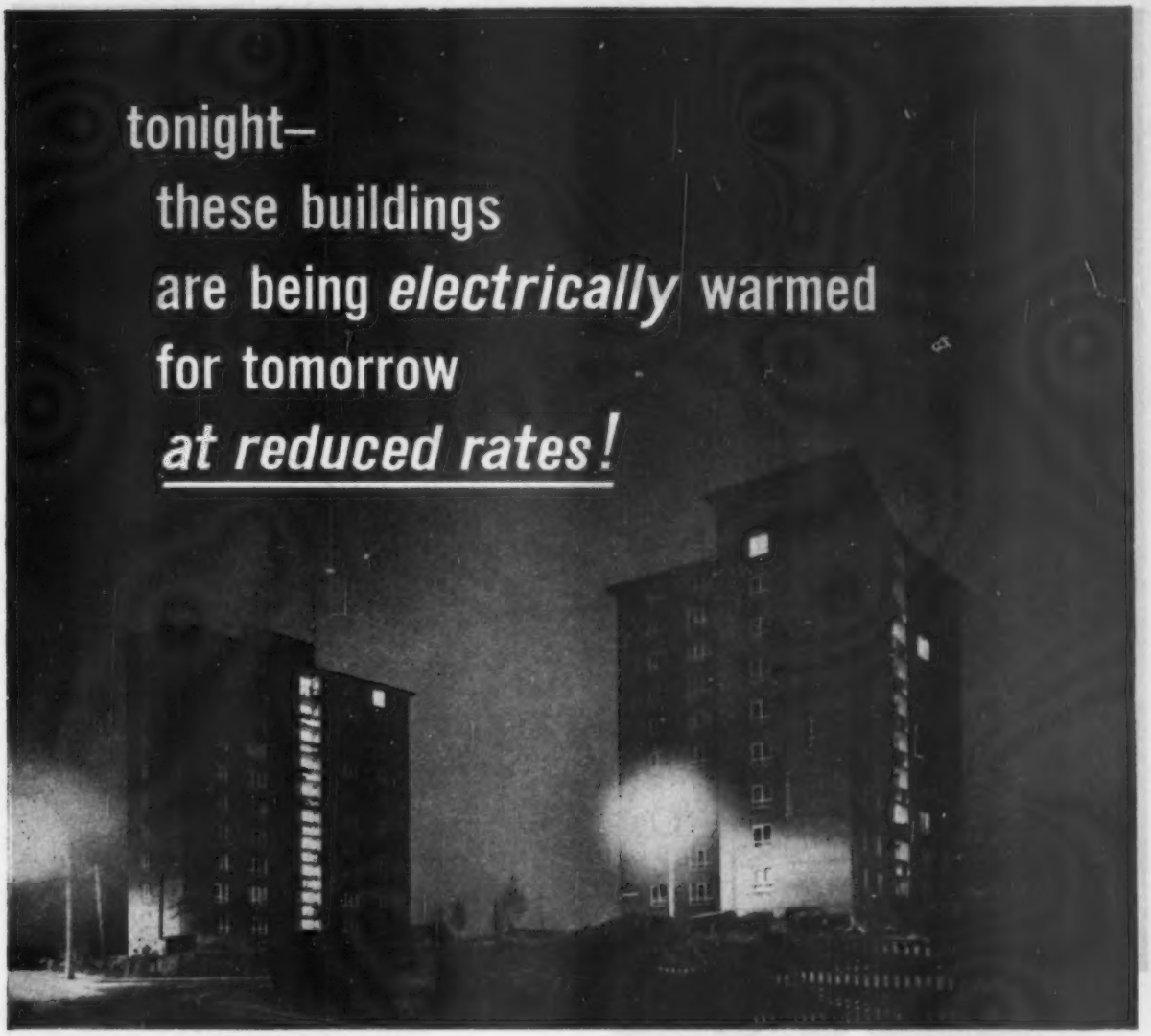
45 GAUGE
90 GAUGE
125 GAUGE
160 GAUGE

POLY-FLOR

Manufactured by

JAMES HALSTEAD LIMITED

CROW OAK WORKS, WHITEFIELD, MANCHESTER



BICC Panelec floor warming

'Panelec' Heating systems are automatically controlled, taking advantage of "off peak" tariffs. Heat is stored in the floor from which it is transmitted throughout the building, providing a clean, efficient uniform level of comforting warmth.

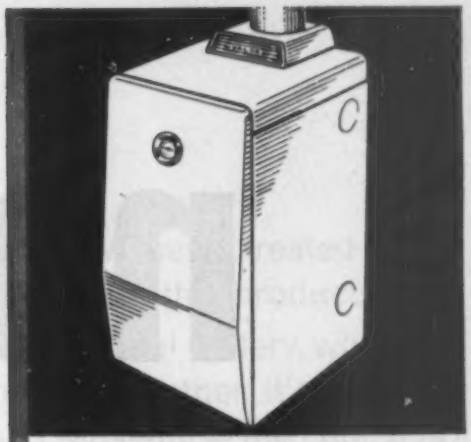
'Panelec' Systems allow greater planning freedom to the Architect and reduce building costs by eliminating the need for boiler houses, chimney stacks and fuel storage space.

Rewirable and Solid Embedded Systems are available to suit every type of new building. Consult the Panelec Heating Division of BICC whose Technical Advisory Service is available to solve your space heating problem, without obligation.

PANELEC HEATING DIVISION
BRITISH INSULATED CALLENDER'S CABLES LIMITED 21 BLOOMSBURY STREET LONDON WC1

Valor

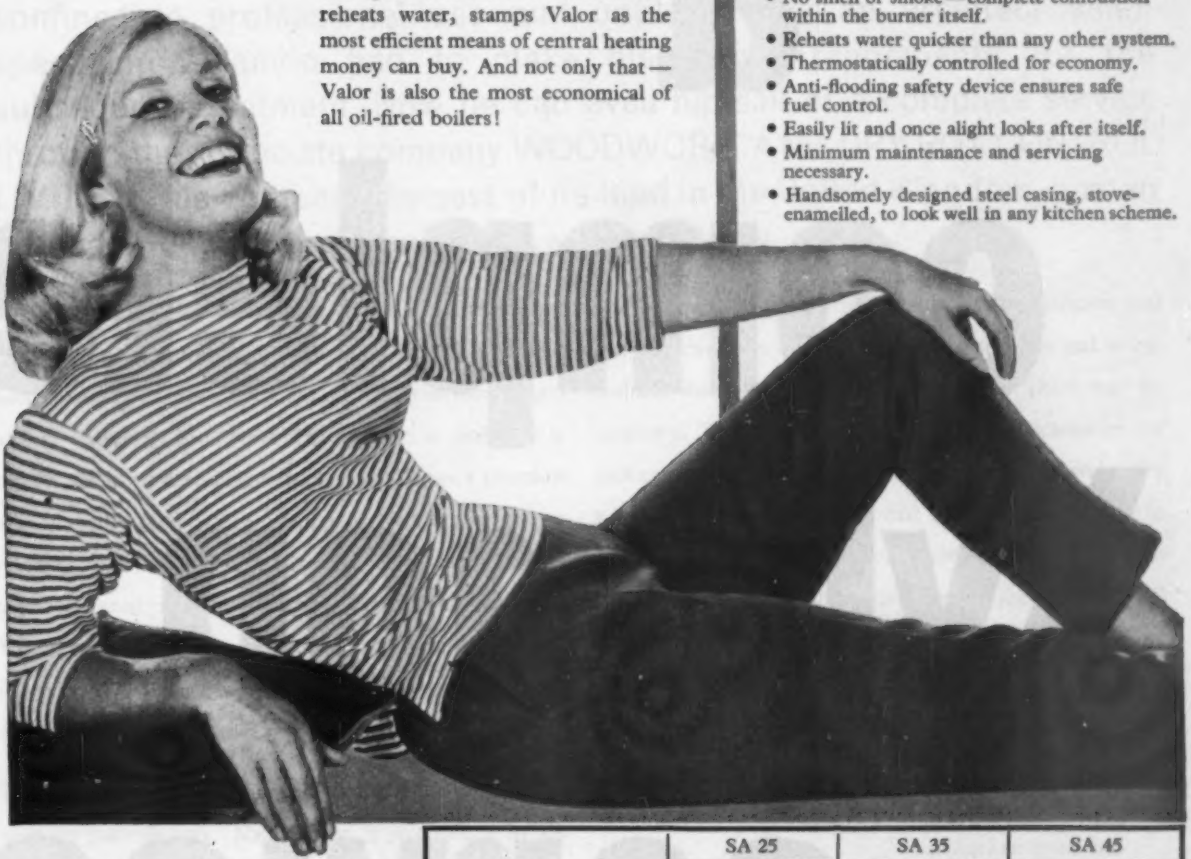
oil-fired boilers heat —and reheat—water quicker than any other



Valor provides central heating at its best

- The price is right.
- Easy to install.
- No smell or smoke—complete combustion within the burner itself.
- Reheats water quicker than any other system.
- Thermostatically controlled for economy.
- Anti-flooding safety device ensures safe fuel control.
- Easily lit and once alight looks after itself.
- Minimum maintenance and servicing necessary.
- Handsomely designed steel casing, stove-enamelled, to look well in any kitchen scheme.

The speed with which Valor heats and reheats water, stamps Valor as the most efficient means of central heating money can buy. And not only that—Valor is also the most economical of all oil-fired boilers!



	SA 25	SA 35	SA 45
Hot water only Constant rating	25-40 galls. 15,000 B.t.u./hr.	40 galls. upwards 30,000 B.t.u./hr.	40 galls. upwards 45,000 B.t.u./hr.
Radiators only	3-4	5-8	8-11
Total loading including mains to radiators	100 sq. ft.	200 sq. ft.	270 sq. ft.
Hot water & radiators	30 galls. 50 sq. ft.	30 galls. 150 sq. ft.	30 galls. 220 sq. ft.
Maximum fuel consumption per hour	1 pt.	2 pts.	3 pts.

Valor

OIL-FIRED BOILERS

For further details please contact

The Valor Co. Ltd., Bromford, Erdington, Birmingham 24. Tel.: Erdington 6151

now a complete Xylamon service

A long list of famous buildings which have now been treated with Xylamon proves the respect which architects have for this product.

Whether it is for the Palace of Versailles or the National Gallery, whether it's for St. Bride's Church or Cologne Cathedral, whether it's for the Royal College of Arts or the Victoria and Albert Museum — the choice is Xylamon — in this country and abroad.

Xylamon is not on sale to the general public. It is a professional material confined to professional use and until recently an architect when specifying Xylamon had to make his own arrangements for the subsequent treatment. Now he can avail himself of a complete service through the associate company WOODWORM AND DRY ROT CONTROL LIMITED. This company, largest of its kind in the United Kingdom, has an operating network embracing the whole country.

THE PRODUCT Xylamon has been chosen to protect many of the world's finest buildings and works of art. It can be used curatively or preventively against both insect and fungal attack. Extremely penetrative when applied to timber, it is rapidly absorbed deep below the surface. It has a chemical affinity with wood which renders it highly resistant to leaching out. It has a three-way toxic action, exterminating *any* wood-destroying pest which attempts to attack the timber. Xylamon is a formulation of a complex chemical nature, and is produced by the largest wood preservative research organisation in Europe. It is used throughout the world.

THE SERVICE The service is designed to assist the architect in every possible way. Nation-wide, it is operated by the largest timber preservation servicing organisation in the United Kingdom. A letter or telephone call will initiate a survey. Findings of the survey will be sent in a report together with an estimate.

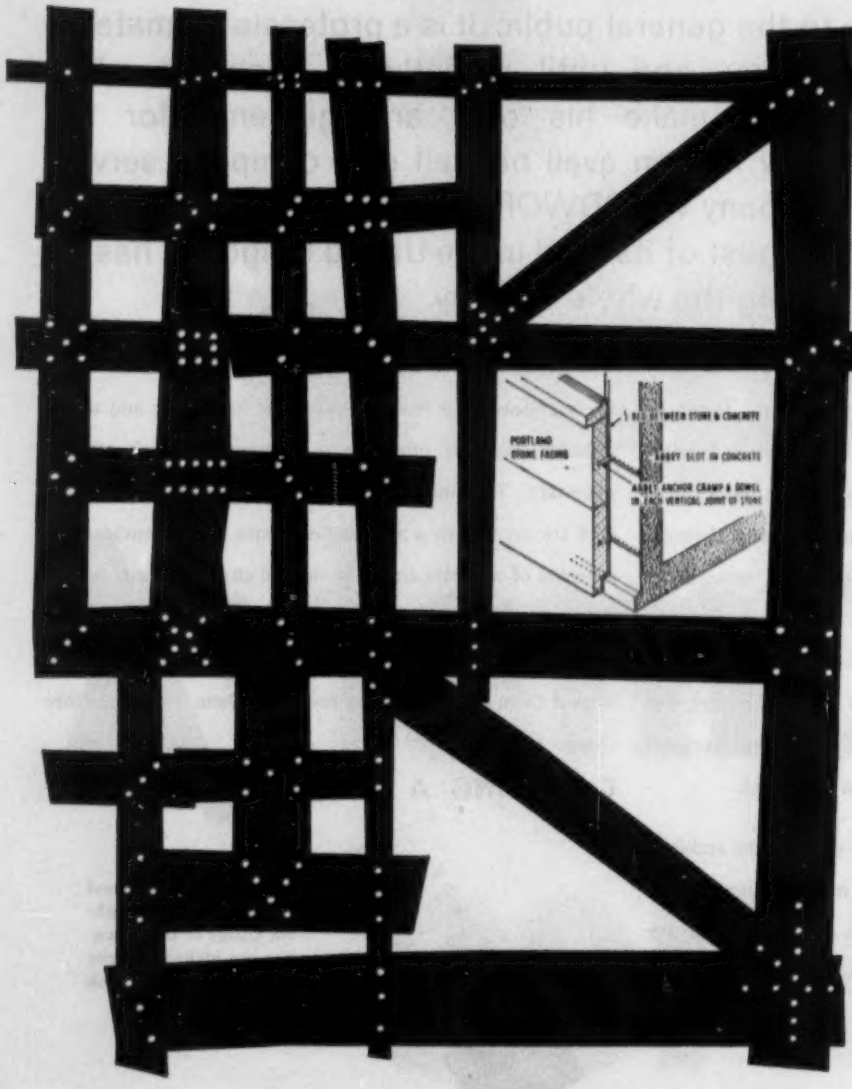
The treatment itself is given by highly trained operatives and every endeavour is made to minimise disruption and to co-ordinate with any other works programme which may be necessary. Treatments carried out to our specification by our staff are covered by a 20 year Guarantee. This provides, for a period of 20 years from the date of the treatment, that in the event of any continuation or recurrence of the infestation by insects and fungi in the timbers treated, the Company will inspect them and if necessary re-service them without further charge.

CARRYING A 20 YEAR GUARANTEE

Advice, surveys and estimates are given without charge or obligation. You are invited to write for this free 40-page book (Fifth edition).

WOOD PRESERVATION LTD. *142 Sloane St., London, S.W.1. Tel: SLOane 9984/5*

STONE AND THE ARCHITECT



In fact the Company's Development Drawing Offices exist only to assist the architect. They are staffed by experienced senior technicians who are fully conversant with all aspects of stonework and in close touch with the latest developments in fixing techniques. They are qualified to assist and discuss stonework at project stage and after.

It is part of the normal service, of which many architects make use, to prepare detail drawings showing specialist fixing details, and these can be made available within a specified time.

No charge is made for any part of this service and, of course, it involves no obligation.

PORTLAND
BATH
DOULTING
BEER
CLIPSHAM

THE BATH AND PORTLAND STONE FIRMS, LIMITED

BATH, SOMERSET. *Bath 3243* *London VIC 9182* *Manchester, Central 6602* *Portland 2276* *Leeds 25912*

in one working day!

Modernisation of a bar, restaurant, shop or office *all in one day?* And without disturbing staff or customers? That's what can be achieved by using HARDEC—*quickest fixing plastic surface.* The reason is this: HARDEC is a *balanced* board which lies flat by itself, needing only the simplest fixing.

In 'Operation HARDEC', the area to be re-surfaced is measured-up and the boards pre-cut to size beforehand. Then colourful, plastic-surfaced HARDEC tops can be quickly and permanently fixed on horizontal surfaces with the minimum of adhesive or by simple metal edging.

Wall-panelling with HARDEC (in another of its many designs) takes only a little longer. A simple framework of timber grounds . . . contact adhesive (panel-pins or screws, if you prefer) and the job is done.

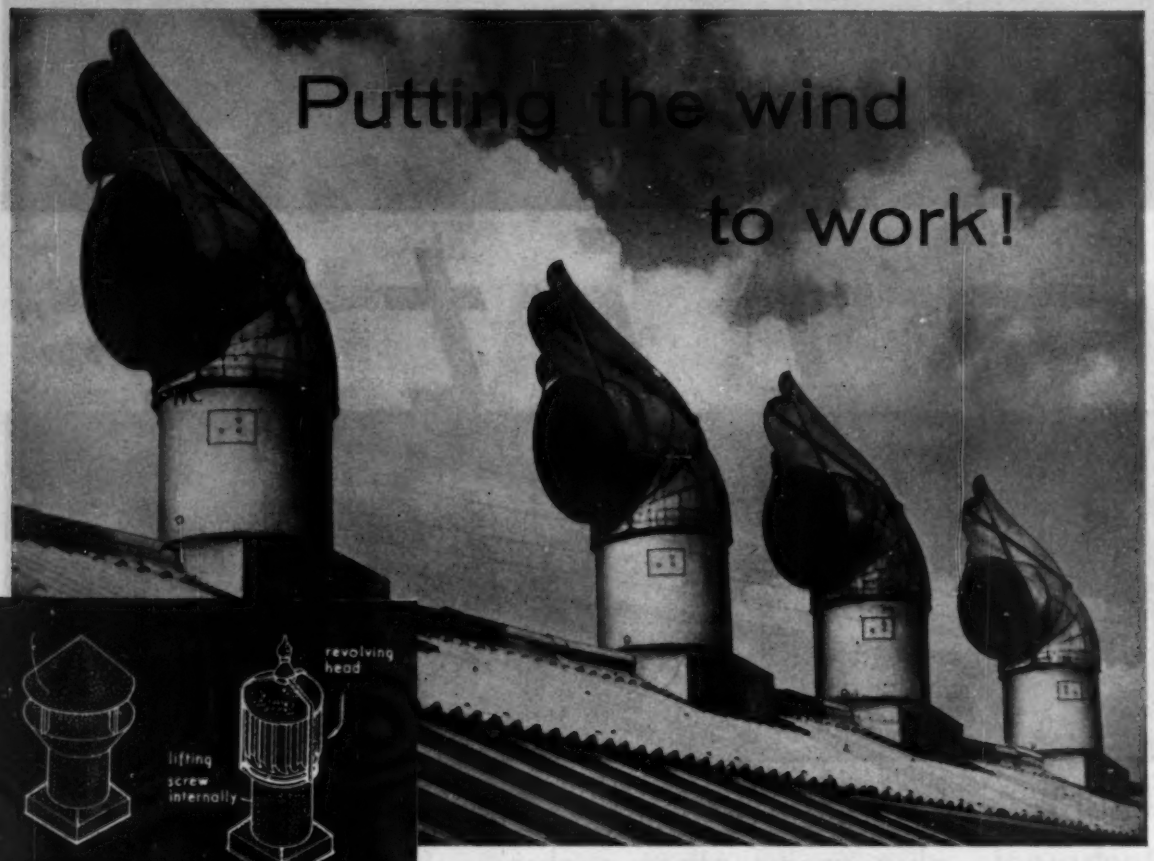
THAT'S THE TIME, LABOUR AND MONEY YOU SAVE WITH **Hardec**

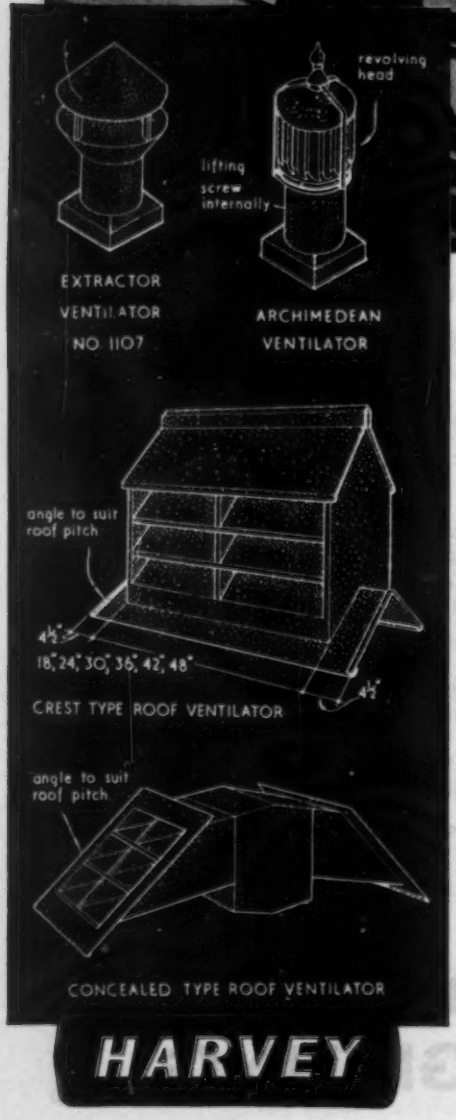
Quickest-Fixing* Horizontal *or* Vertical *Plastic Surface

WPS 87

Write for free sample to:—

THE AIRSCREW COMPANY & JICWOOD LTD · DEPT AJ18 · WEYBRIDGE · SURREY





"Natural" extraction of stale air is effective, economical and trouble-free.

'Harco' Self-acting Extractor Ventilators use the action of wind across specially designed louvres to induce a powerful upward suction movement of air, and at the same time prevent down draught. Allied to a correctly calculated number of air inlets, this type of "natural" ventilation will effect the changes of air required by normal conditions without recourse to mechanical forms of extraction. All ventilators are craftsman-made in zinc or mild steel, and can be supplied with or without roof seating as required.
Details are in our Catalogue No. 924; and we will readily advise on and suggest a suitable form of ventilation for any type of structure.

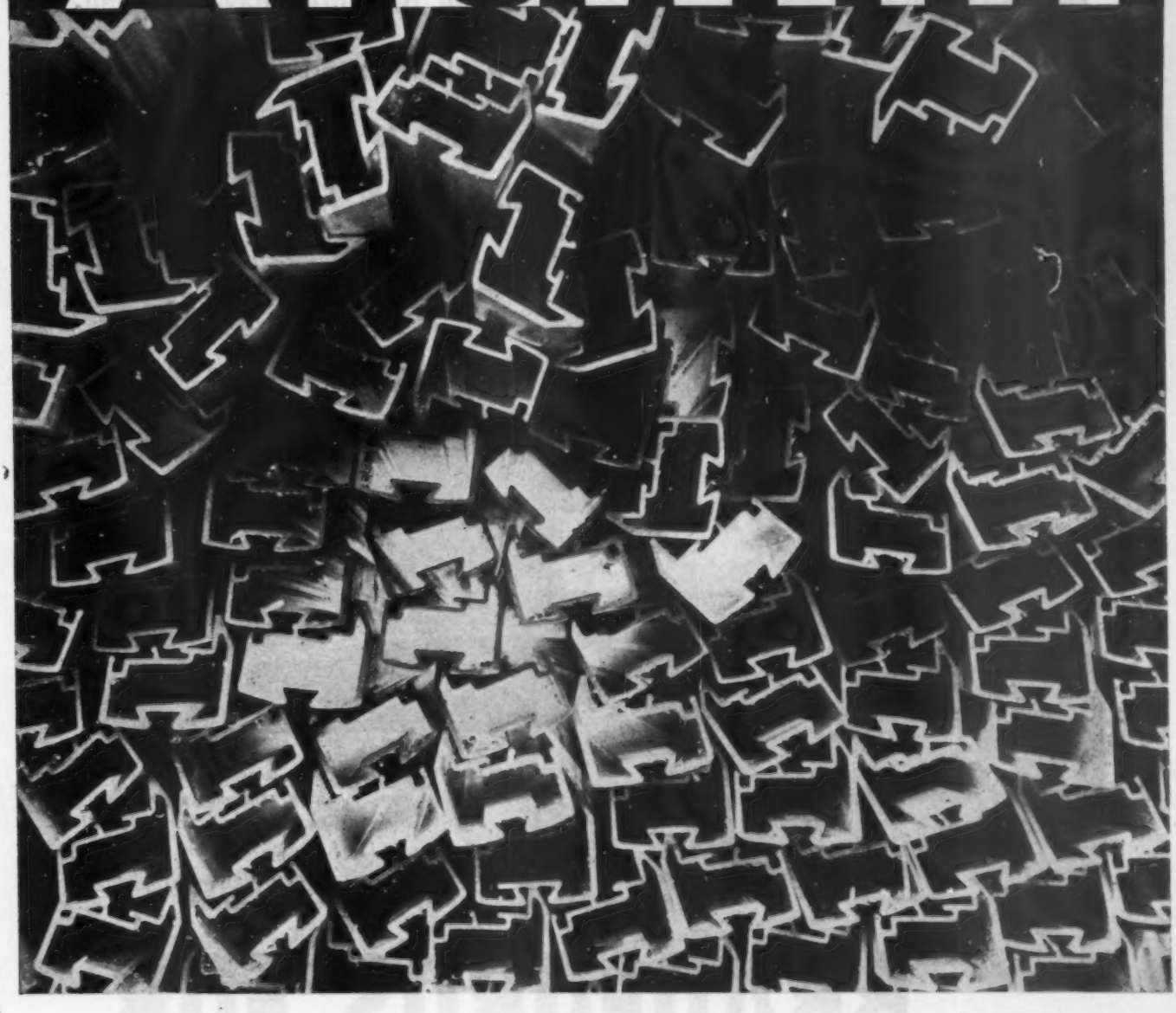
'HARCO' SELF-ACTING EXTRACTOR VENTILATORS

G. A. HARVEY & CO., (LONDON) LTD., WOOLWICH ROAD, LONDON, S.E.7.
Telephone: GREenwich 3232 (22 lines)

HARVEY Products for the Building Industry include:—
CHIMNEYS AND COWLS · OIL STORAGE TANKS · RAINWATER GOODS IN MILD STEEL AND ZINC · STORAGE BINS · STOVE PIPES AND FITTINGS · TANKS, CISTERNS AND CYLINDERS — DIRECT AND INDIRECT · WEATHER VANES · WIREWORK PRODUCTS
SM/10

Alumin

the WARWICK sash window



Designed to take full advantage of the unique possibilities of extrusions in aluminium, and owing nothing to conventional types, these scientifically efficient windows are rational in conception, design and manufacture, and are better value than any other product in their class on the market today

- WARWICK SASH WINDOWS
- 180° PIVOT WINDOWS
- PANORAMIC SLIDING WINDOWS
- ALUMIN ROOF LIGHTS

ALUMIN BUILDING COMPONENTS LIMITED

A B C

Winterstoke Road
WESTON-SUPER-MARE phone 5641
Somerset

THERE'S NATURAL BEAUTY IN BEAUTY PLANK

Tiama

American Black Walnut

Rotary Cut Red Oak

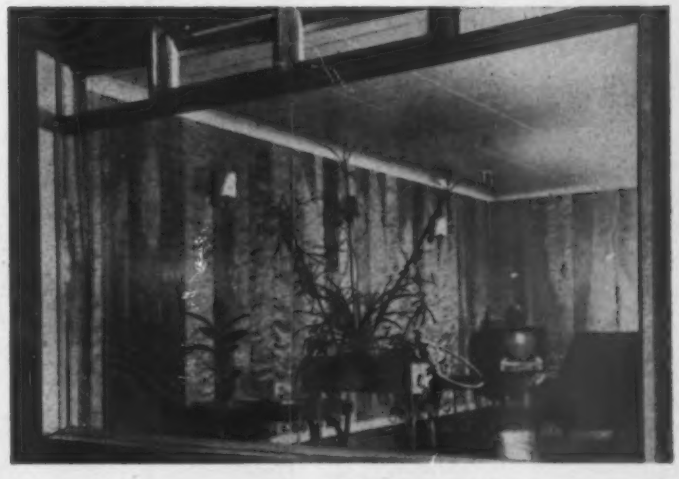
Rich colour — fine grain

To Board Room, Showroom, or Exhibition Stand, this prefinished plywood planking adds beauty and distinction.

The incorporated tongued and grooved fixing techniques eliminates all face nailing and simplifies application.

The panelling, 8′ long, ¼″ thick and of random widths, is available in the following eight prefinished hardwoods:-

NATURAL BIRCH · TIAMA · AMERICAN BLACK CHERRY · ASH · AFRICAN MAHOGANY RIFT RED OAK · AMERICAN BLACK WALNUT ROTARY CUT RED OAK



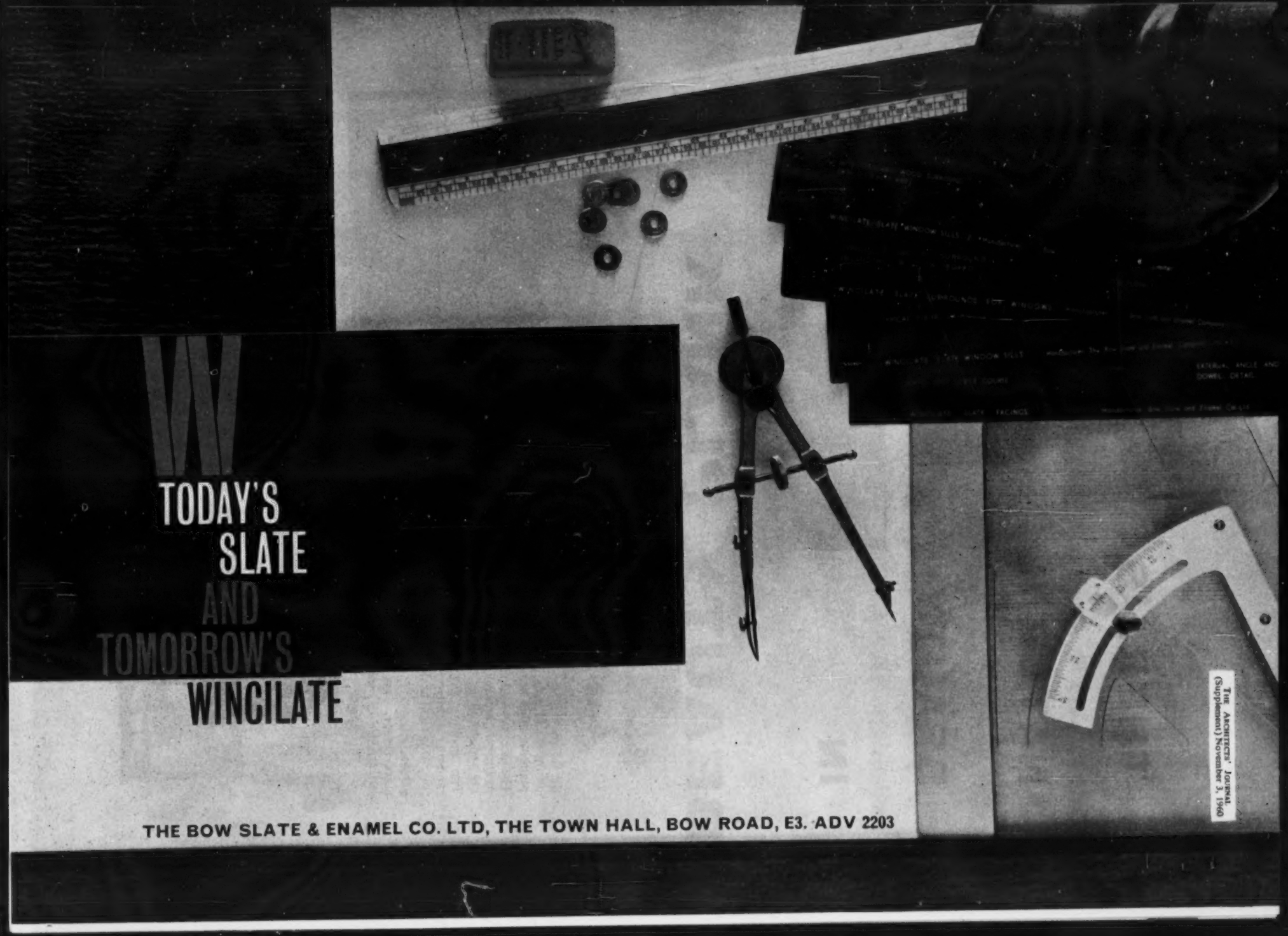
Canadian

BEAUTY PLANK

THE TENTEST COMPANY LTD

DEPT. A.J. FIBOARD HOUSE, OAKLEIGH GARDENS, N.20

Hillside 8801


TODAY'S
SLATE
AND
TOMORROW'S
WINCILATE
THE BOW SLATE & ENAMEL CO. LTD, THE TOWN HALL, BOW ROAD, E3. ADV 2203
THE ARCHITECTS' JOURNAL
(Supplement) November 3, 1960

from top to bottom... ...it's Elliscraft

When appearances count and clients are pressing, that's the time to specify Ellis Precast Concrete Chimneys. Available with almost any reconstructed stone finish and in three different cross sections, they can add much to the architectural merits of a building.

Chimneys go up faster and need less maintenance when they are precast by Ellis.

T. A. Collins Esq., F.R.I.B.A., County Architect
Enderby Secondary Modern School, Leicestershire

ELLISCRAFT . . . FOR LEADERSHIP IN CONCRETE

JOHN ELLIS & SONS LIMITED, 21 NEW WALK, LEICESTER. TEL: LEICESTER 56682

ellis OF LEICESTER


WORSE THINGS
HAPPEN AT SEA...
Especially to paint. But we can all learn from others' misfortunes. Born of experience in troubled waters, new Interlux Sea Coast Enamel will rule the waves . . . or ride the calmer seas of factory, office and home.
This is Interlux Sea Coast Enamel. White that stays white—wide colour range (including 'House & Garden' colours)—splendid obliterative power—low-cost undercoat.
Sea Coast Enamel is the best full-gloss paint you ever had the pleasure of using, indoors or out.
INTERLUX SEA COAST ENAMEL
also in matching shades:
INTERLIGHT EMULSION PAINT
INTERLUX EGGSHELL FINISH
INTERLUX FLAT FINISH
INTERNATIONAL PAINTS a third of the world's ships
Head Office: Grosvenor Gardens House, London S.W.1. Tel: TATe Gallery 7070 (15 lines)

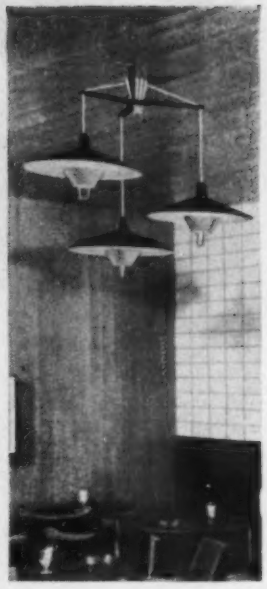
Medway Constructional Systems

Medway modular systems save both time and money. This is ensured by first class architectural detail and sound timber engineering, combined with really up-to-date production techniques. Very rapid site schedules can be offered with 'all-dry' methods. Design costs can also be cut at the 'working drawing' stage of a project.
Medway have systems suitable for almost any one or two-storey building—permanent or demountable. For rapid building, economic cost and, of course, a most attractive building use a *Medway System*.

MEDWAY BUILDINGS & SUPPLIES LTD.,
Phoenix Wharf, Rochester, Kent. Tel: Strood 7521

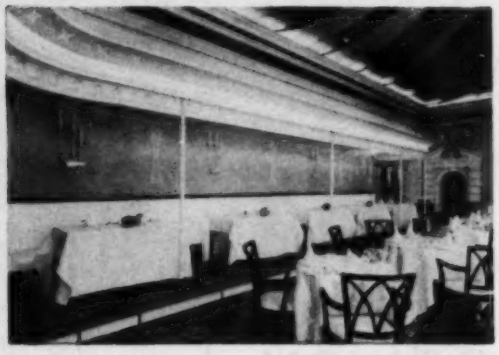
"Regent Palace Hotel", London, W.1. Designer: G. Ramon.

"The Castle" Tooting, London.



"The White Knight" Crawley, Sussex. Architects: Messrs. Musman & Cousens, F.I.A.R.I.B.A.

"The Candlelight Room", at the Mayfair Hotel, London, W.1. Designer: Jack Stevens, Esq.



"The Red Lion", Watling Street, London. Architect: Sidney C. Clark, F.R.I.B.A.

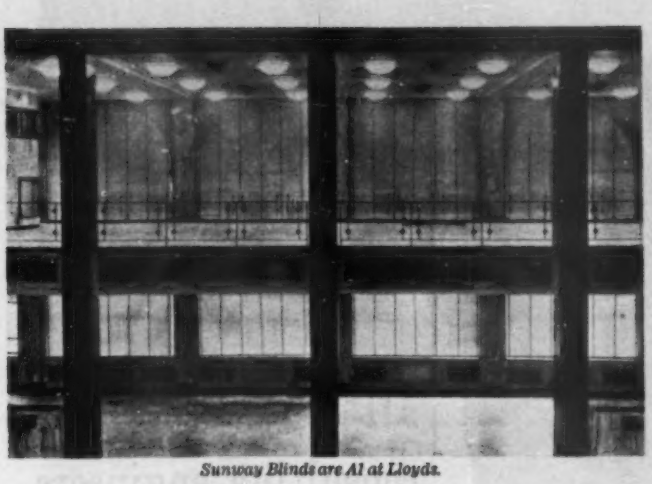
Your lighting is important

Lighting plays an important part in creating the right atmosphere in restaurant, hotel or bar. Troughton & Young, the experts in lighting, can supply the type of lighting you require.

From an extensive range of standard fittings, almost every requirement can be met, but through the ingenuity of Troughton & Young designers, special assemblies can be provided in many alternative finishes to meet specific installations. Please write for catalogues.

TROUGHTON & YOUNG

TROUGHTON & YOUNG (Lighting) LTD., *The Lighting Centre*, 143 Knightsbridge, London, S.W.1
Phone: KENsington 3444, *and at Rodney Street, Liverpool 1*



Sunway Blinds are A1 at Lloyds.

Sunway Skylight Blinds fitted to glass roof of office.

Sunway Standard Blind fitted with invisible Terylene Tapes (offices for Moons Motors Ltd. designed by J. M. Austin-Smith and Partners).

IN ANY SITUATION —

SUNWAY

REG.

VENETIAN BLINDS

If you have a
Venetian Blind problem—
here is a specialist service.
We will be very pleased
to discuss and advise
on all types of installation.

Main Distributors and Fixers

HORSLEY, SMITH HEWETSONS

hs GROUP

HORSLEY, SMITH & CO. (Hayes) LTD. Hayes, Middlesex
Telephone HAYes 2931

J. A. HEWETSON & CO. LTD. Marfleet, Hull
Telephone 13880

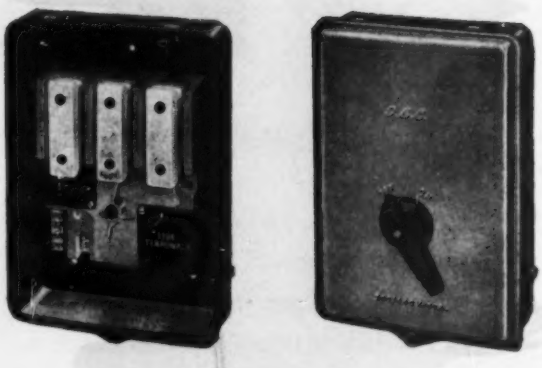
NEW

all contractors and consulting engineers will want to use these *NEW*

"HIDUTAC" SWITCHFUSES

SINGLE POLE AND NEUTRAL – DOUBLE POLE – TRIPLE POLE – TRIPLE POLE AND NEUTRAL

Men whose business it is to assess and advise are quick to appreciate the very real advantages offered by G.E.C.'s new Hidutac switchfuses. Unlimited full load switching. High breaking capacity. High fault current protection. Absolute safety. These are the performance features that the experts like so much, but they also welcome the smaller size and the good looks of this advanced range of switchfuses. As it is made by G.E.C., they naturally take its reliability for granted.



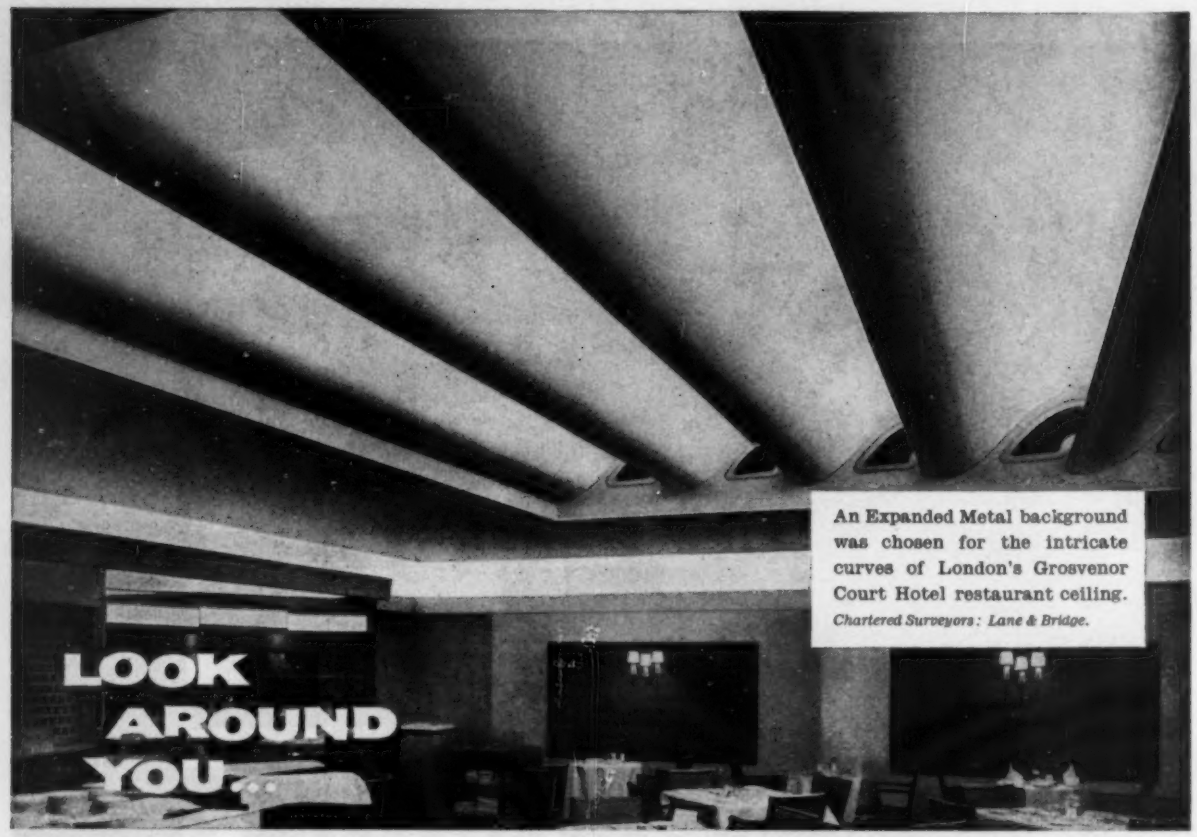
15, 30 or 60 amp. 440 volt a.c. Single Pole and Neutral, Double Pole, Triple Pole, Triple Pole and Neutral Switchfuses with interchangeable H.R.C. or rewirable fuses.

G.E.C.

INSTALLATION EQUIPMENT GROUP

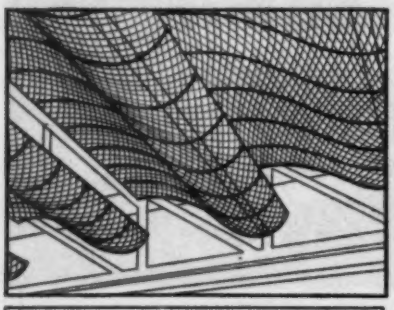
SWITCH AND FUSE GEAR · H.R.C. FUSES · OVERHEAD BUSBARS · RISING MAINS · CONDUIT · PIRELLI GENERAL CABLE · CABLE TRUNKING UNDER FLOOR CABLE DUCTS · ELECTRIC WIRING ACCESSORIES · BELLS

THE GENERAL ELECTRIC CO. LTD., MAGNET HOUSE, KINGSWAY, LONDON, W.C.2



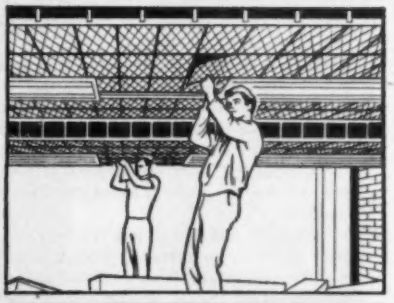
An Expanded Metal background was chosen for the intricate curves of London's Grosvenor Court Hotel restaurant ceiling.
Chartered Surveyors: Lane & Bridge.

and see how Expanded Metal translates the most complex suspended ceiling from drawing board dream into reality



Expanded Metal is infinitely versatile
Flat, domed, arched, vaulted . . . whatever the form of the suspended ceiling you plan, Expanded Metal will match it . . . easily, accurately, beautifully and economically.

Expanded Metal is backed by a unique service When you select Expanded Metal you enjoy the service of suspended ceiling specialists who will collaborate with you in both design and construction on a fully responsible basis.



Expanded Metal is a major economy
Expanded Metal keys are permanent quality keys. With suitable plaster mixes a very high fire rating can be achieved and an exceptional degree of acoustic control attained. These benefits are additional to low initial cost.

Write today for details

EXPANDED METAL

at the heart of more things than most people realise

THE EXPANDED METAL COMPANY LIMITED, 16 Caxton Street, London, S.W.1. Phone: ABBey 7766 Also at: Aberdeen · Belfast Birmingham · Cardiff · Dublin · Exeter · Glasgow · Leeds · Manchester · West Hartlepool · The Expanded Metal Company of Canada Ltd., Annacis Industrial Estate, Vancouver, Canada.
Agents in every country throughout the free world

Expamet

SPANBOARD

U C

MANUFACTURED BY

THE ULSTER CHIPBOARD COMPANY LIMITED

COLERAINE, NORTHERN IRELAND

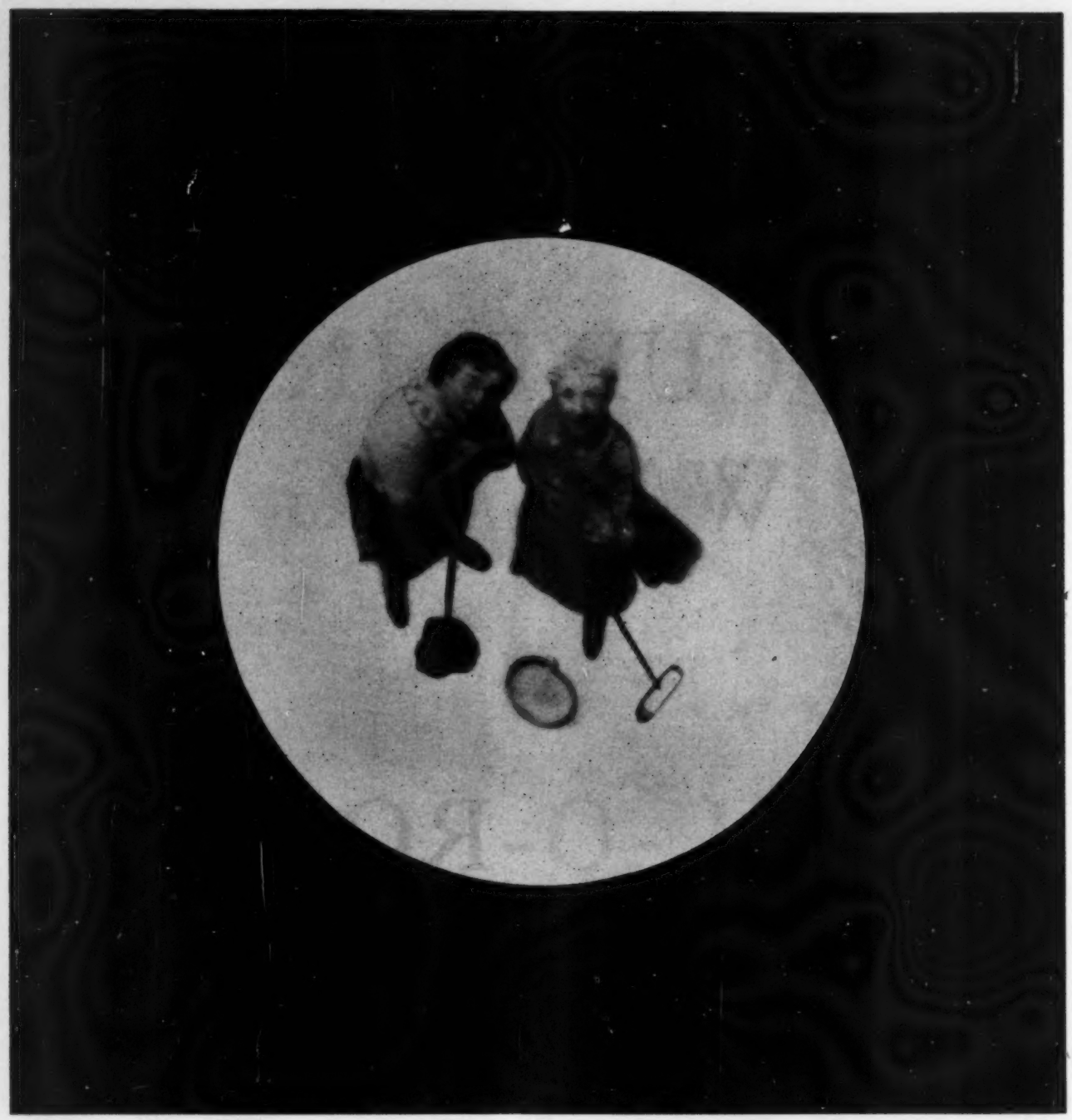
THE ONLY HOMOGENOUS GRADED - DENSITY WOOD CHIPBOARD MANUFACTURED IN THE BRITISH ISLES

FOR FULL DETAILS APPLY:

HARRISONS & CROSFIELD LTD.

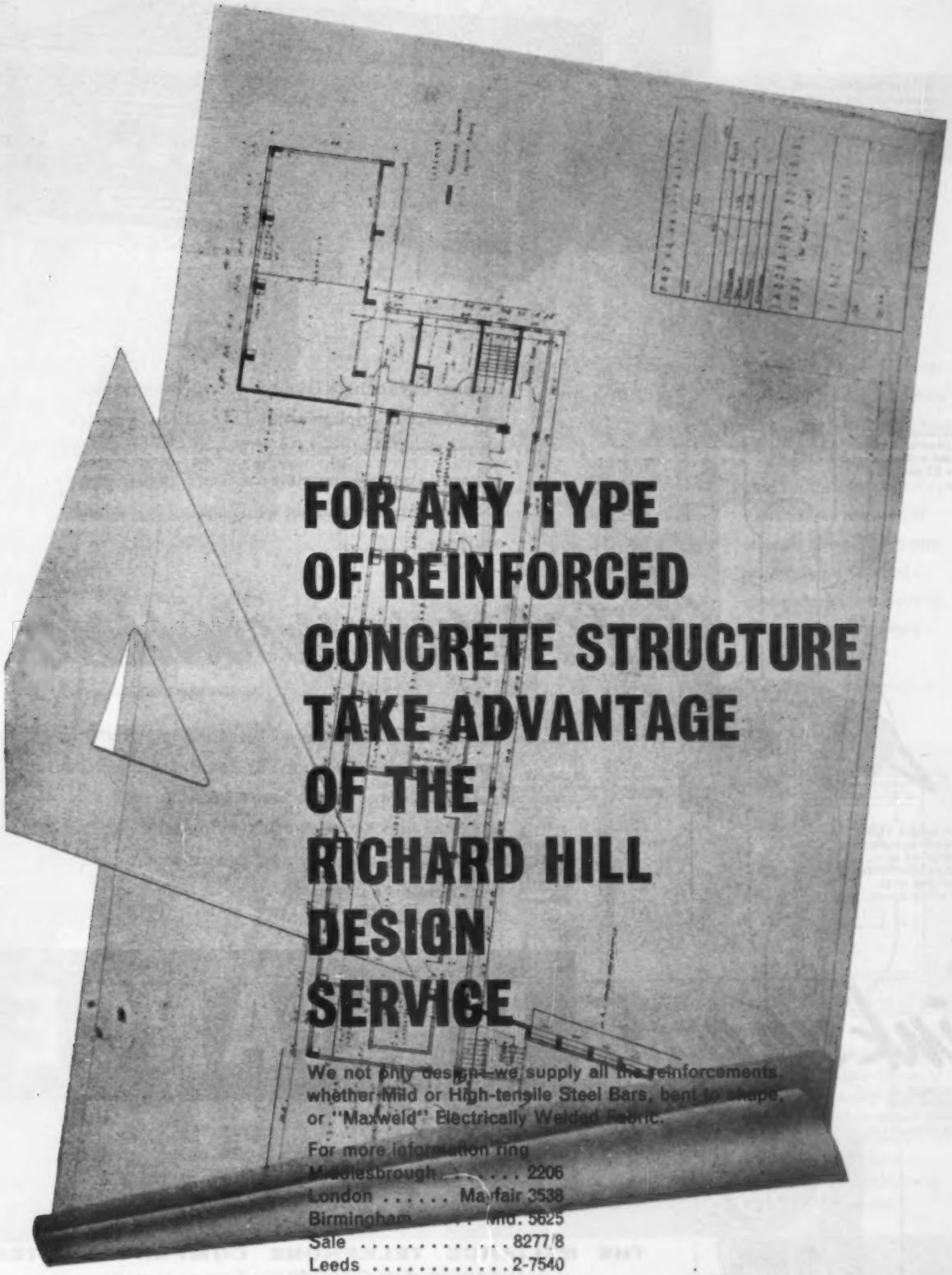
1/4 GREAT TOWER STREET, LONDON, E.C.3

THE ULSTER TIMBER COMPANY, BELFAST, NORTHERN IRELAND.



"You can't beat glass, you know. Look at that dome. Just as good as new after 25 years." (They wouldn't know, but it is a Pilkington Glass Dome.)

For details of the full range of Pilkington Glass Domes, write to the manufacturers, Pilkington Brothers Limited, St. Helens, Lancashire. Telephone: St. Helens 4001; *or* Selwyn House, Cleveland Row, St. James's, London S.W.1. Telephone: WHItehall 5672-6. *Supplies available through the usual trade channels.*



FOR ANY TYPE OF REINFORCED CONCRETE STRUCTURE TAKE ADVANTAGE OF THE RICHARD HILL DESIGN SERVICE

We not only design—we supply all the reinforcements, whether Mild or High-tensile Steel Bars, bent to shape, or "Maxweld" Electrically Welded Fabric.

For more information ring

Middlesbrough 2206
London ..... Mayfair 3538
Birmingham ..... Mid. 5625
Sale 8277/8
Leeds 2-7540
Bristol 24977
Glasgow. .....Central 2179

RICHARD HILL LTD. (ESTABLISHED 1868)
REINFORCED CONCRETE ENGINEERS, MIDDLESBROUGH, YORKSHIRE
A MEMBER OF THE FIRTH CLEVELAND GROUP

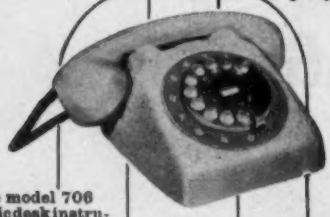
CRC 32MX

A new transistorised loudspeaking master station of unique design by Reliance for use by the busy executive.

The Reliance push button intercommunication set suitable for 3 to 21 stations.

In these days of high labour costs, it is even more essential that employers obtain the fullest possible return from highly paid staff. Key personnel should be kept as much as possible at their desks—you pay them for working and not walking. The answer of course is

Intercommunication



Reliance model 706 automatic desk instrument supplied in a wide range of colours to harmonise with modern office decor.

and that means Reliance. These time-approved Intercommunication Telephone Systems are pre-eminent in their field, are available from 3 lines and on a most advantageous Rental Service saving capital outlay and providing free maintenance. You get something really worthwhile when you

Link up with RELIANCE

Another version of Reliance model 706, the automatic instrument for wall mounting.

The Reliance Rental Service saves capital outlay, gives free maintenance and an all-time guarantee. Please write for full details.

THE RELIANCE TELEPHONE COMPANY LIMITED

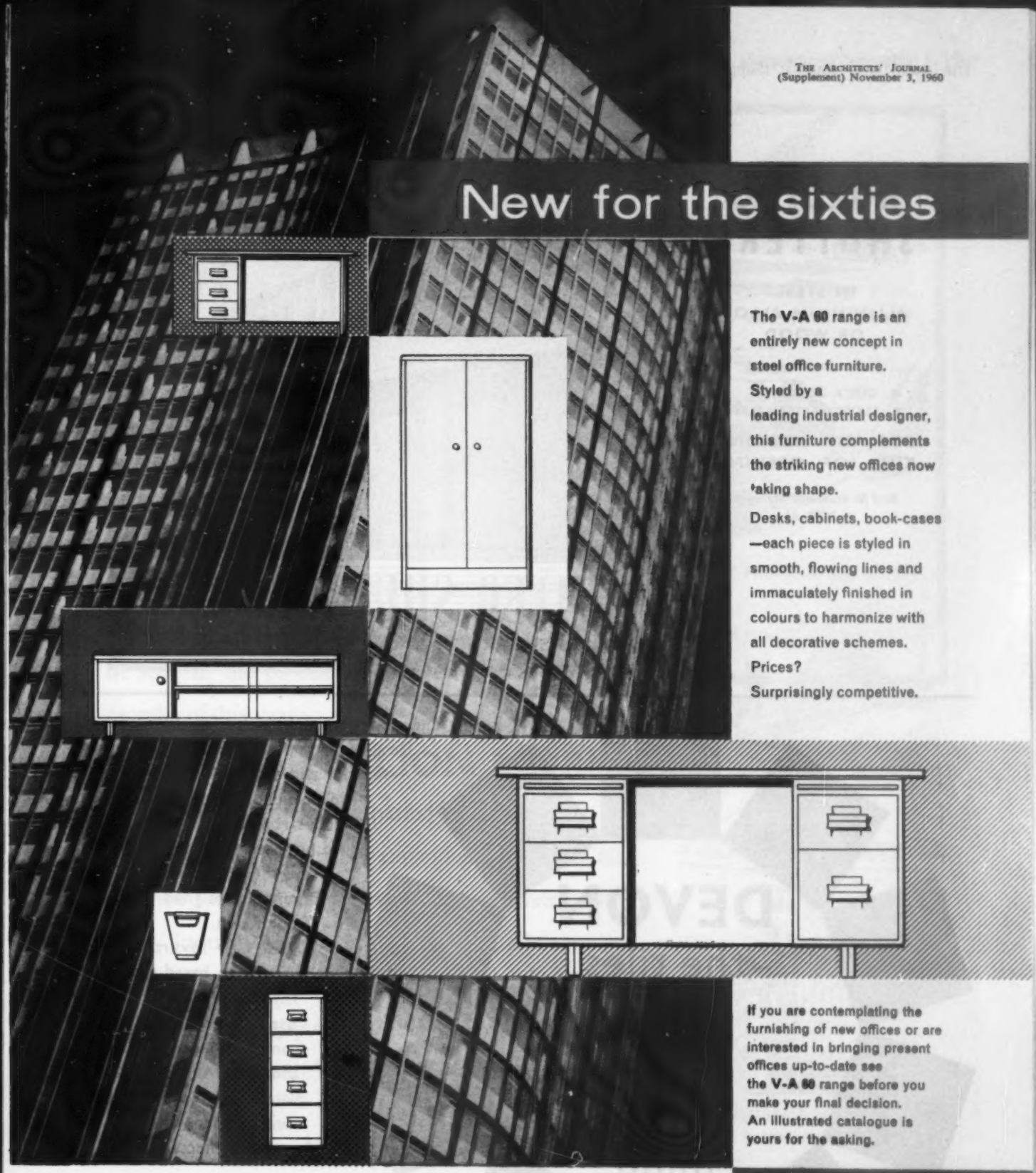
(A Subsidiary of the General Electric Company Limited)

43-47 PARKER STREET, KINGSWAY, LONDON, W.C.2.

Telephone: CHAncery 5341 (P.B.X.) Branches throughout the United Kingdom

INTERNAL TELEPHONES · STAFF LOCATION · MUSIC FOR INDUSTRY

New for the sixties



The V-A 60 range is an entirely new concept in steel office furniture. Styled by a leading industrial designer, this furniture complements the striking new offices now taking shape.

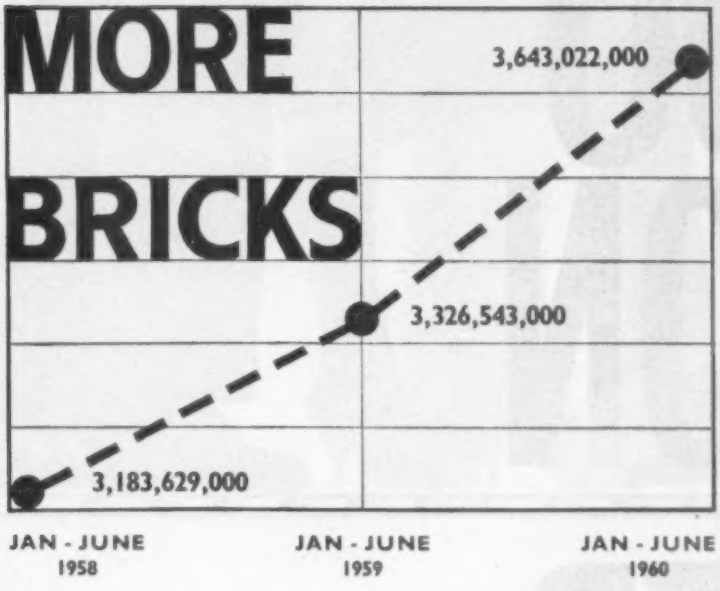
Desks, cabinets, book-cases —each piece is styled in smooth, flowing lines and immaculately finished in colours to harmonize with all decorative schemes. Prices? Surprisingly competitive.

If you are contemplating the furnishing of new offices or are interested in bringing present offices up-to-date see the V-A 60 range before you make your final decision. An illustrated catalogue is yours for the asking.

VICKERS **V-A SIXTY**

STEEL OFFICE FURNITURE

VICKERS-ARMSTRONGS (ENGINEERS) LIMITED
DARTFORD KENT *SALES OFFICE AND SHOWROOM* 13 CITY ROAD LONDON EC1 MET 8877/9



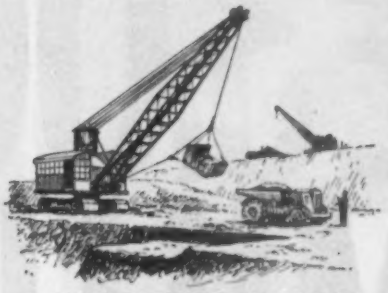
The Brick Industry is undergoing extensive re-organisation and development. Results may already be seen in the production figures for the first six months of this year—

OVER 316 MILLION MORE

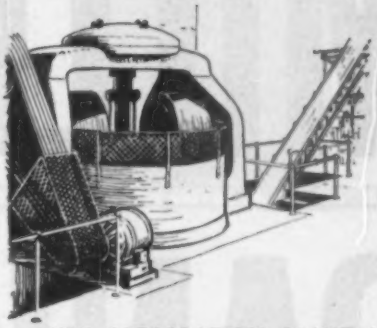
than in the corresponding period of last year.

Capacity is being steadily expanded and when all planned developments have been completed, the Brick Industry should be able to meet all requirements.

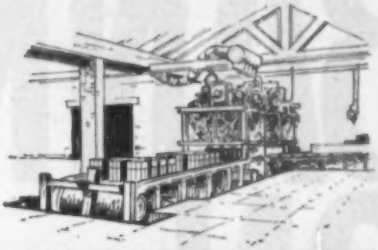
In the meantime, you can help to ensure supplies when they are needed by making reservations at the planning stage.



NEW EXCAVATION PLANT



NEW PREPARATION PLANT



NEW BRICKMAKING MACHINES

NEW KILNS

NEW MECHANICAL HANDLING EQUIPMENT

THE BRICK INDUSTRY is forging ahead!

Issued by The National Federation of Clay Industries, London, W.C.1.

£3,000 MILLION

BANKED ON HARDWOOD FLOORS

In the biggest banks, the smallest banks, the oldest banks, and today's most modern banks . . . Warm, quiet, comfortable surfaces to walk on, stand on, work on . . . They bank on hardwood floors, unmatched for wear. For a floor of enduring beauty, incomparable character, practical qualities of easy maintenance and permanence, the first choice and only choice is a genuine hardwood floor.

TAKE STEPS TO FIND OUT MORE ABOUT HARDWOOD FLOORS THEY'RE CHEAPER IN THE LONG RUN

The Hardwood Flooring Manufacturers' Association or the Timber Development Association will be glad to supply you with design data and full information on the characteristics of the many hardwood species now available for floors to meet all conditions of service. *Write to* The Hardwood Flooring Manufacturers' Association, 68/70 Queen Street, London, EC4

TDA TD170

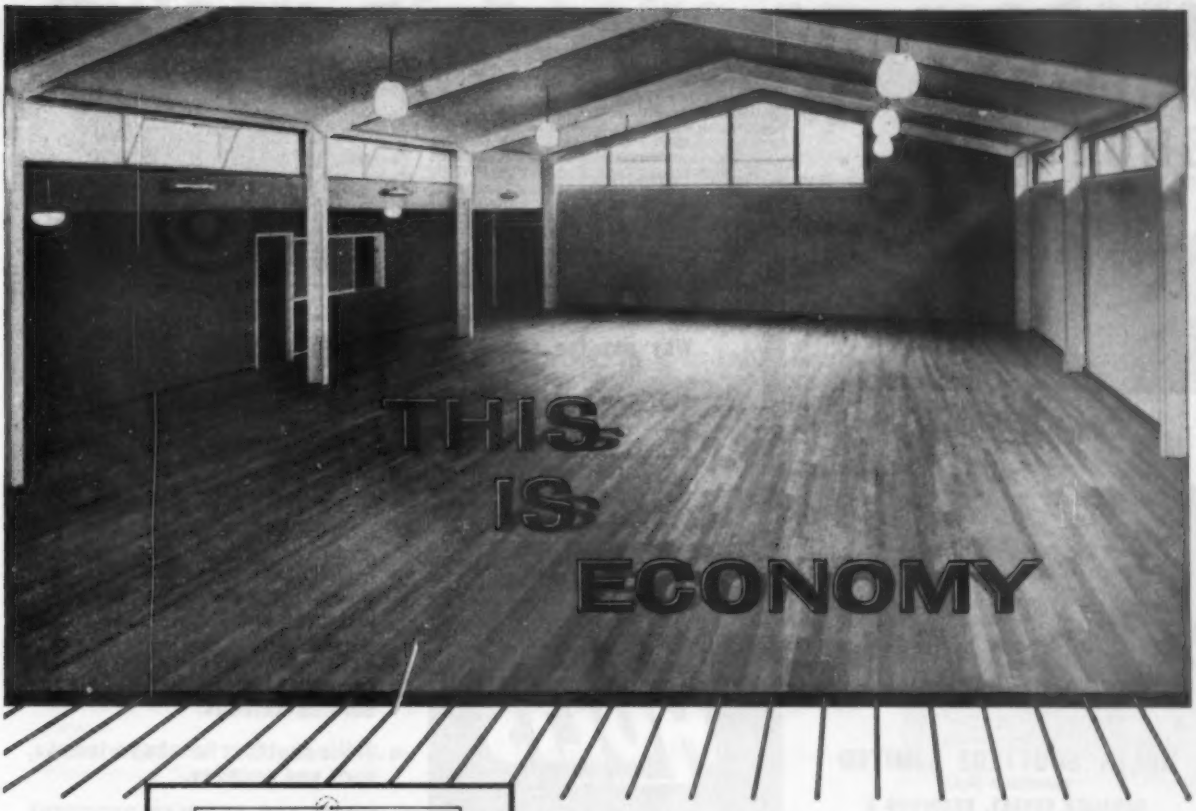
Regina House, Cr. Edgware Rd., London, N.W.1.
Architect: Jack E. Dalling, Esq.
Contractors: Messrs. McLaughlin & Harvey Ltd.

Fosalsil flue bricks were used throughout

modern architecture and bigger, finer buildings are changing the face of Britain . . .

but Fosalsil remains the basis of modern flue construction

Made only by MOLER PRODUCTS LIMITED
Hythe Works, Colchester, Essex Phone 7319



ELFIDO

TRADE MARK

PROV. PAT. 24670/57 · 36942/58 · 2253/58

The ELFIDO heated wood floor above, installed at the St. Francis Xavier Parish Hall, Liverpool, provided warmth throughout last winter for less than 15/-d. per function.

Architects : Messrs. Edmund Kirby & Sons, Liverpool.

Electric Low Temperature HEATED WOOD FLOORS

Because the hardwood strip of ELFIDO floors is used to carry the heating cable, the low initial capital costs are further reduced.
This quick response, controlled, space heating system permits maximum clear floor space, eliminates the need for chimneys and fuel stores,
requires no maintenance and is particularly suitable for multi-storey flats.
We supply and install
ELFIDO Electric Low Temperature Heated Wood Floors, on concrete, suspended or existing floors.
Details, costs and specifications forwarded on request.

WILLIAM THORNTON & SONS LIMITED
38, WELLINGTON ROAD, LIVERPOOL, 8.
Tel: Lark Lane 1921/4. Grams: Thornpool Liverpool.

a trilogy of books on modern building construction

These three volumes—of which details are given below—combine to provide a definitive work on modern building construction which has been written and published at the recommendation of the Text and Reference Books Committee of the Royal Institute of British Architects. The main object of the Series, written in a manner directly related to design, is to provide information in a suitable form for architectural students. It will, however, also be found useful by practising architects, students of building, and building technicians.

building materials by CECIL C. HANDISYDE, A.R.I.B.A. Foreword by A. H. MOBERLY.

This book provides up-to-date information on building materials in a form most useful to architectural students and practising architects. In addition to traditional materials, Mr. Handisyde deals with the many new materials which have come into use during the last twenty-five years, and takes full account of the very considerable amount of recent scientific research which has been brought to bear on both old and new materials. He examines thoroughly those problems of increasing concern to architects today—to what extent will alternative materials provide comfortable buildings, buildings that are warm and quiet and reasonably secure against fire, as well as being weatherproof and strong enough for their purpose.

Size: 9 in. by 6 in. Containing 342 pages including 62 diagrams and halftone illustrations. Third edition, 30s. net, postage 1s. 5d.

structure in building by W. FISHER CASSIE, PH.D., M.S., F.R.S.E., M.I.C.E., M.I.STRUCT.E., and J. H. NAPPER, M.A., F.R.I.B.A., A.M.T.P.I. Foreword by W. A. ALLEN, B.ARCH., A.R.I.B.A.

Steel, concrete, aluminium alloys, etc., have revolutionised structural design, and although this field is largely an engineering one, today it is essential for the architect to understand something about it. No attempt is made in the book to give the formulae and methods of analysis and design used by the structural engineer; rather it provides the architect and student with mental pictures of how structures behave, for without the ability to 'feel' how forces act and react in the support of buildings, the architect cannot hope to put into practice the spatial conceptions of present-day architecture.

The book fills a gap in the literature on structural design and provides the architect with all the information he needs about systems of construction, their character, possibilities and limitations, to enable him to produce designs for new buildings with economy and imagination.

Size: 9 in. by 6 in. Containing 268 pages including over 150 diagrams and halftone illustrations. Second impression, 30s. net, postage 1s. 4d.

building elements by R. LLEWELYN DAVIES, M.A., F.R.I.B.A. and D. J. PETTY, M.B.E., M.A., A.R.I.B.A. Foreword by W. A. ALLEN, B.ARCH., A.R.I.B.A.

This book deals with the structural elements of which a building consists, its walls, roofs, floors, windows, etc., and explains the functional requirements a building has to meet. It then describes how these requirements are met in the actual design of the various structural elements.

The book is divided into two parts, the first of which contains chapters on the requirements of building elements under the headings of Design and Expression; Weather Exclusion; Thermal Insulation; Sound Insulation; Fire Protection. In Part 2 chapters deal with the principal kinds of External Walls; Internal Walls; Roofs; Floors; Stairs; Flues and Fireplaces; Windows and Doors; which are in current use, and show how far and in what way, each of these elements fulfils the requirements described in Part 1.

Size: 9 in. by 6 in., containing 386 pages including over 190 diagrams and halftone illustrations. Second Edition revised. 37s. 6d. net, postage 1s. 9d.

The complete set of three volumes: price 97s. 6d. net. Postage 2s. 3d.

THE ARCHITECTURAL PRESS 9-13 QUEEN ANNE'S GATE WESTMINSTER S.W.1

JOSIAH PARKES & SONS LTD
UNION WORKS · WILLENHALL · STAFFS · ENGLAND
BUSH HOUSE, LONDON · JOHANNESBURG, SOUTH AFRICA
EST. 1849

EDWIN SHOWELL & SONS LTD
STIRCHLEY · BIRMINGHAM 30 · ENGLAND
BUSH HOUSE, LONDON

606·60

everything points to FILON

1 *Louvres in clear FILON flat sheet.*

2 *Push panel to door. FILON flat sheet. Red 103.*

3 *Sliding doors to enclosure back. White flat sheet infills of FILON. White 704.*

4 *Soffit to Hood in FILON flat sheet. Red 103.*

5 *Corrugated sheet to fascia. White 704.*

6 *Upper part to window enclosure in FILON corrugated. White 705.*

For all kinds of shops, FILON points the way, bringing new textures and colours to exterior and interior. FILON is strong, light; it is easy to fix and can be worked with ordinary carpenter's tools. And once fixed, *needs little attention.*

This new polyester/glass fibre sheeting is available in many attractive colours and tints in standard corrugated, flat sheet (in rolls if required) and decorative profiles.

Easy to handle, easy to work, easy to fix, FILON can show substantial economies as well as opening up entirely new creative possibilities in shopfitting design. *Write for full details.*

FILON

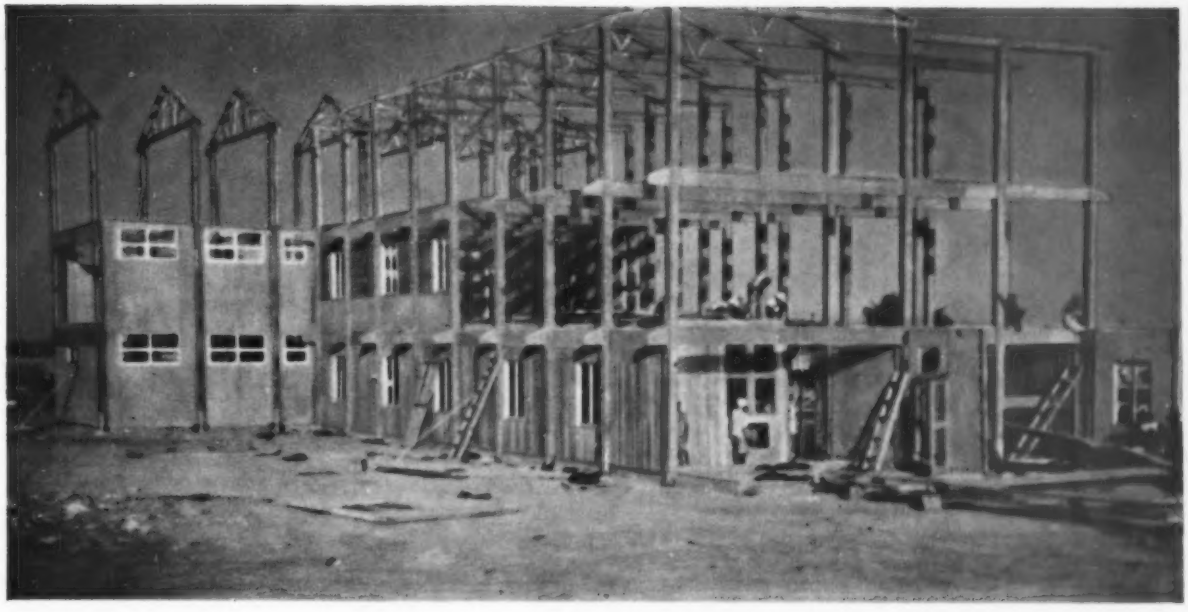
STRUCTURAL SHEETING

strong translucent

B.I.P. REINFORCED PRODUCTS LIMITED · STREETLY WORKS · SUTTON COLDFIELD · Phone: Streetly 2411

SIMMS
SONS & COOKE LTD

Prefabricators in Timber



Three-storey all-timber 150 man barrack block in course of erection for Air Ministry, Aden

Simms **C-DA** **system for prefabricated multi-storey all-timber buildings**

SIMMS Timber Structures embody contemporary practice in timber engineering.

SIMMS design, manufacture and build single- and multi-storey structures for all parts of the world.

Full treatment against insect attack and fire hazard.

Simms Prefabrication backed by Simms Building Service means completion to time

Further particulars from :

W. J. Simms Sons & Cooke Ltd *Building and Civil Engineering Contractors*

Head Office : Haydn Road, Sherwood, Nottingham · *Nottingham* 66264 (10 *lines*)

Sales Office : British Simms Buildings Ltd, 12 York Buildings, Adelphi, London, WC2 · *Trafalgar* 3383

BRANCHES: LONDON · BIRMINGHAM · MANCHESTER · LEEDS · ADEN · TORONTO

The Architects' Journal

No. 3420. Vol. 132. November 3, 1960

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

Subscription rates: post paid, inland £2 15s. 0d. per annum; abroad £3 10s. 0d. per annum. Single copies, 1s. post paid, 1s. 6d. Special numbers are included in subscriptions; single copies, 2s.; postpaid, 2s. 6d. Back numbers more than 12 months old (when available), double price. Half-yearly volumes can be bound complete with index in cloth cases for £1 17s. 6d.; carriage 2s. extra.

NOT QUITE ARCHITECTURE

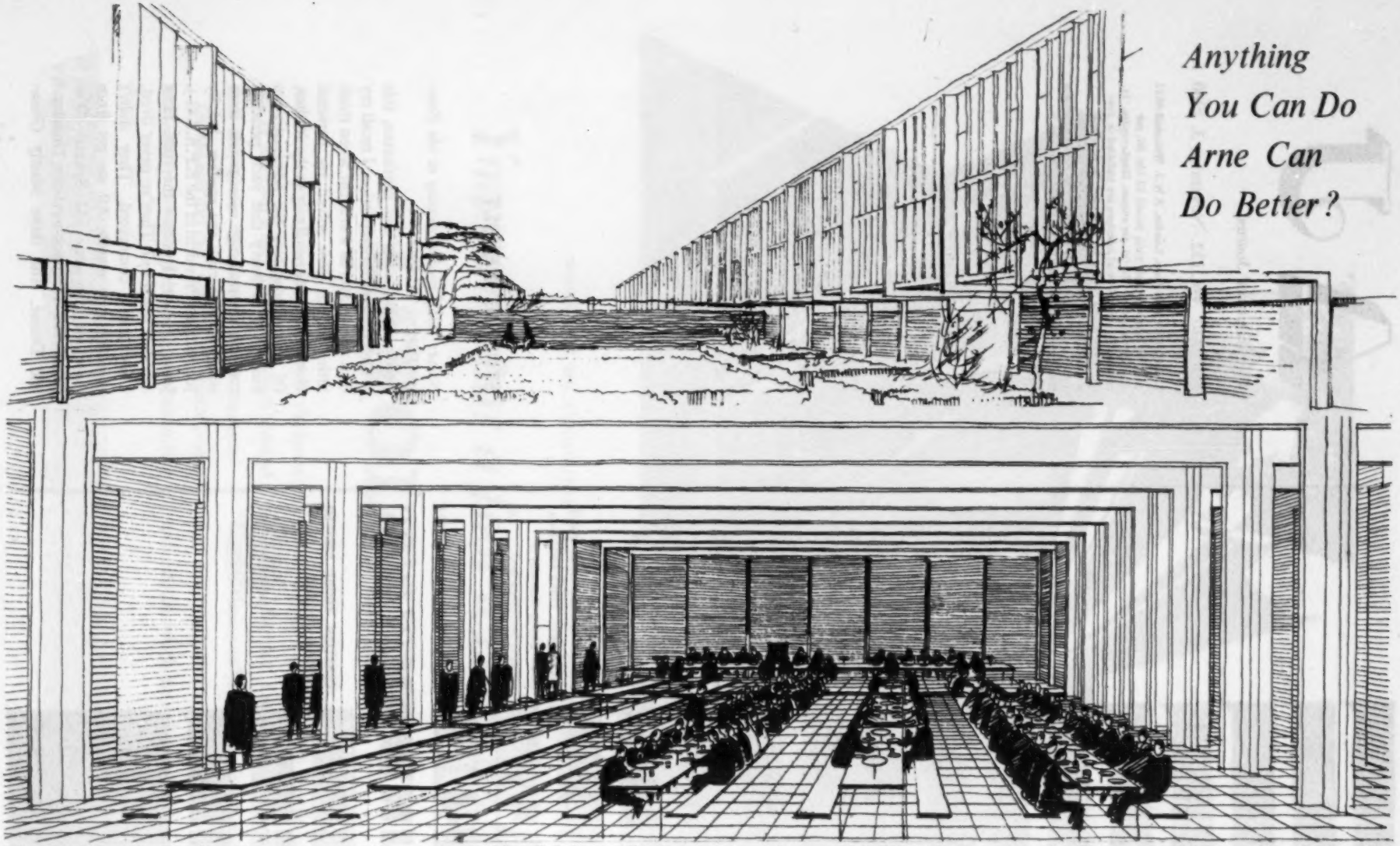
STUDENT REVOLT

Scene: Staff-student meeting at the Eastern Poly.

Prof.: Well, ladies and gentlemen, this is something of an innovation. I recall my own young days as a student when these little matters were solved by personal visits from Professor Reilly to the studios. Of course nowadays the administrative burden is so heavy that such personal contacts are well-nigh ——(growls from students, who rush the speaker, led by Joe Buckley, President of the E.P.A.S.G.).

Joe: J'accuse! I accuse the staff. How can they teach us? They've never lived. They aren't committed. They didn't even join the march. All we get from them are the same old Spanish War moans, last war mock-modesty, Dixieland and Donne. And those beastly *Green-*

Anything You Can Do Arne Can Do Better?



Many architects in Britain will greet more with envy than with relief the publication of Arne Jacobsen's design for St. Catherine's College, Oxford. As the illustrations above and on pages 634-638 show, he has produced a polished and individualistic design as requested by the clients. There is no indication that the clients were wrong in going to a Danish architect, indeed it would be hard to name a British firm who one would be confident could do better, or even as well, in this particular stylistic approach to architecture. Nevertheless, we greet this triumph of individual talent with sadness, because British architects *have* achieved international prestige in one humble sphere. That is, developing the phased programme of building, based on a painstaking study of clients' needs and industrialised building. The results are not so glamorous, perhaps, for the client, but more in tune with this country's limited resources. We regret that St. Catherine's do not attempt to lead the way in a university building *programme* as Herts., Notts., and the MOE have done with schools. Above, the dining hall ; top, a court, with the Library left and a residential block right.

sleeves recorder sessions at the end of term parties. What it all adds up to is that they just don't speak the same language as we do. There isn't one of them that wouldn't sell his grandmother for a fellowship at some Ivy League joint. I say that we should get rid of the whole boiling and have someone we can really admire—someone who isn't always spouting a lot of guff about the Modern Movement.

(*The teaching staff are overpowered and led out in chains.*)

Now let's elect a committee to nominate someone.

Female student: You choose, Joe.

Joe: Right, Fiona. We'll have you, Jim, Pat and Fred. The rest of you can have the day off.

(*Fade out, to the tune of* There'll be some changes made—*the Eddie Condon disc.*)

* * *

Two weeks later. The newly elected Prof. enters his study, followed by the committee.

New Prof.: God, what a crummy hole.

Joe: Yes, Bill, but don't worry, we'll change it for you. Fiona had a smashing idea about it.

New Prof.: Do you mind? And you can call me Doctor. Now get that Paul Nash off the wall and put the colour shot of the 1958 Caddy in its place. Once God's Own Country brought out the Rambler I knew they were finished. Get that desk cleared of all those student grant papers. I want room for my signed picture of Colin Chapman.

That's better. Now someone take a telegram.

Begins—to Head of People's Architects University, Peking. Entire student body of this college insist I visit your country earliest to study impact of political system on teaching methods. Will bring own secretary. Reply paid, etcetera. Copies to *Architectural Press*, *Nature*, *Time* and *Botteghe Oscure*. Now, back to the shop floor, all of you. You can stay, Fiona. I want to talk about foreign travel . . . .

* * *

Two weeks later. The shop floor.

Student: This space ship won't come out right. I just can't understand these slide-rule leaflets. What about you, Joe?

Joe: I don't know. I wanted to do some Bucky Fuller domes but as he says, they're square. I must be getting old. And then there's Fiona . . . .

DENBOW

The Editors

PLAIN SPEAKING

IN his inaugural address AA President Edward Playne described himself as an " architectural old fogy." Few of his fellow architects would disagree with the description, yet the views of this old fogy are well worth attention. He advocates: the acquisition of the whole area of cities and their redevelopment to a proper plan over many years; setting up a central planning department to establish development principles for urban renewal; inter-professional teamwork to make cities free from noise and dirt and fit to live in; the design team (because the individual can no longer have all the qualities necessary to design and get built a complex modern structure); a residential college of building for architects, engineers, surveyors and builders; more time for designing, building and planning their construction, with an extra charge in the scale of charges if the contract has to start within a minimum time after the receipt of instructions.

Such a volley of enlightened, forward-looking good sense from a confessed old fogy must cause many of the *avant-garde* furiously to think. Now is the moment to press Government and Institute to implement these old fogy ideas.

REDUNDANT CHURCHES

Thanks to pioneers in the SPAB, it is now an established principle that we preserve our historic buildings, if need be out of public funds. But one class of building which always evaded this wise provision was the disused church. It was illogical that this should be so, since the disused church was in many cases medieval and the only building of this period in the neighbourhood. It was illogical also to expect the parishioners to keep it up since the usual reason for its disuse was that the parishioners had moved elsewhere. The Church of England is to be congratulated on having at last put forward a businesslike proposal for dealing with this problem. This proposal, which is described on page 639, involves the standardising of procedure in a form which will give a reasonable chance of finding an alternative use. It involves also the treatment of the problem on a national, not a diocesan or parochial, basis and a division of financial responsibility between the Church, the State and private benefactors. Perhaps to avoid alarming the Treasury, the makers of this proposal put the amounts likely to be needed

at £5,000 to put each church in order and £150 per annum to maintain it. This makes a capital sum of between £1½m. and £2m. and an additional annual expenditure which will rise to between £60,000 and £70,000.

Although we welcome this attempt to set a price on the proposal, we fear that the price is too low and for this reason may force those who have to make the decisions to destroy more than they ought in order to have enough to pay for the remainder. However modest a parish church may be from the point of view of architectural style, it is still too valuable as a social and religious document to be submitted to financial pressures of this kind.

You will be reading about Arne Jacobsen's buildings for St. Catherine's College elsewhere in this issue. But here are some interesting notes a colleague has sent me (not verbatim, but paraphrased) of part of an interview with the amiable Dane who is over here for a week or so.

*

Your "Egg" chair has caused a lot of interest over here. When you are designing furniture do you take note of anthropometrical data? I do not rely on figures and drawings. You cannot design a chair by drawing it. Instead I make a clay model first and mould it to the human body.

*

You try to design as much of a building as possible—landscaping, lighting, furniture, fabrics, cutlery and so on. Do you think every architect should be capable of doing more than the building itself? I think that every architectural student should learn to do *some* industrial designing, even if he is no good at it. This will teach him to know what he wants from others and to respect what they do. We have introduced industrial design into the curriculum for architectural students at the Danish Academy.

Saarinen's U.S. Embassy, Grosvenor Square. See "Danger—Caution at Work".

*

Your strong views on architectural education are well known. Is Denmark producing a high proportion of good architects? Only four out of eighteen students are likely to be any good. The ideal would be to set up a system by which the good architects were designers and the not-so-good were doing routine work. But you can't organise that sort of thing in a democracy.

*

What is your standard of building like? Can you easily get the quality of finishes you want? It is difficult to get good finishes unless you are always on the site. Craftsmanship is dying in Denmark and the only answer—for large public buildings and offices—is prefabrication. But I much prefer to do the craft kind of building myself.

DANGER—CAUTION AT WORK

Saarinen was also over here last week, facing critics at a Press Conference on his US Embassy building. Someone said the design fell between two schools, being neither traditional nor modern.

Epstein's bust of Sir Basil Spence, unveiled on Tuesday at the RIBA.

"Sometimes," said Saarinen, "the most daring thing to do is not to be daring." Charmingly and persuasively he explained how he had arrived at his final design; how the podium made the ground floor the *piano nobile*, and how the building was divided horizontally into public offices on the ground floor, with private offices above and stores, garages, etc., underneath. Those of us who listened quietly and attentively didn't notice until later what a lot of dark offices were included in the "etc." underneath. But it is too early to write a fair criticism. There's still a lot to be done, and there is something rather inhibiting about wandering around the unfinished building amongst what seems like feverish inactivity.

MEDAL FOR DARK DEEDS

A colleague reports that it was good

to see Frankland Dark (of Farmer and Dark) collecting the South Eastern Society bronze medal last week for Bowater's laboratories and offices at Northfleet. It was better still, he says, to find that the buildings' users were contented with them and could produce only tiny criticisms after persistent questioning. He was not so pleased, however, to discover that Brenda Colvin's careful planting had been uprooted in parts by a Bowater gardener of the bedding-out-a-blaze-of-colour school. Nor was he happy to see a roundabout wrecked by municipal "keep left" signs.

*

He tells me, by the way, that two sensible proposals were put forward at the presentation ceremony. Frederick Gibberd, who made the presentations, suggested the builders responsible should also get a medal—not just a copy of the diploma. And Clifford Culpin, chairman of the award committee, said the method of entering designs for the award should be less haphazard.

MATTER OF PRINCIPAL

Michael Pattrick's resignation as principal of the AA School—to take effect from next summer—has provoked Abner, of the *Architect and Building News*, to write curiously of the days when Mr. Pattrick took over: "restlessness . . . was the keynote among staff and students and academic standards were dangerously low." Abner does not say what evidence he has for this outrageous slur on the school's previous principal, Robert Jordan—a man whose term of office produced some imaginative and sensitive architects.

*

A good successor will not be easy to find. Perhaps the AA council will remember how ex-principal Frederick Gibberd once suggested he should run his practice from within the school. And they might give some thought to George Fairweather's proposal that there should be a controlling team instead of a maestro.

CLORE'S IN THE CONTRACT

When he was interviewed by the BBC about the Cotton-Clore merger, Jack Cotton still seemed pretty bitter about the architectural profession as a result of the Monico enquiry. Asked to comment on the RIBA's concern about local authorities accepting the highest bidders for redevolpment, he said that architects were rather peculiar people; he had worked with them over the years, and didn't always agree with them, certainly he didn't think that it was in the architect's own interests to attempt to dictate policy—the local authorities were perfectly capable of making their own decisions. The original Monico scheme, he said, had been accepted by the LCC; the Ministry of Housing turned it down as a result of an organised publicity campaign—organised, perhaps, by some of the more prominent architects. He had now waited for seven years to get going on the site, and he hoped he could start building before another seven years went by.

*

Mr. Cotton is entitled to his opinions. But architects would have more respect for what he has to say if, as a developer/estate agent, his name was not associated with a firm of architects.

NIGHT OUT

Last week the new blood running at 66, Portland Place relaxed enough to throw a party. Apart from a dinner and a stiff-necked reception or two the RIBA has done little entertaining since the war. The result was outstandingly successful: 900 guests, two bands on two dance floors (Florence and Jarvis halls), three bars, Eames films and a deceptively easy quiz arranged by Reyner Banham which had additional entertainment value to the spectator because of the fantastic mistakes made aloud by the learned participants.

*

BASA had made a brave attempt to decorate a building which has a remarkable number of un-dancy rooms. However, the main stair-hall and landings, thronged with people, and overlooking the dancing provided an endlessly lively and fascinating scene.

ASTRAGAL

Announcements

ABS Christmas Cards

In response to a large number of requests to produce an official RIBA Christmas card, the one below has been designed by Mr. Herbert Spencer. It is printed in scarlet, blue or gold on a white card.

The cards are 1s. each or £4 per hundred, and overprinting orders can be accepted for 30s. for orders up to 100 and 15s. per 100 thereafter.

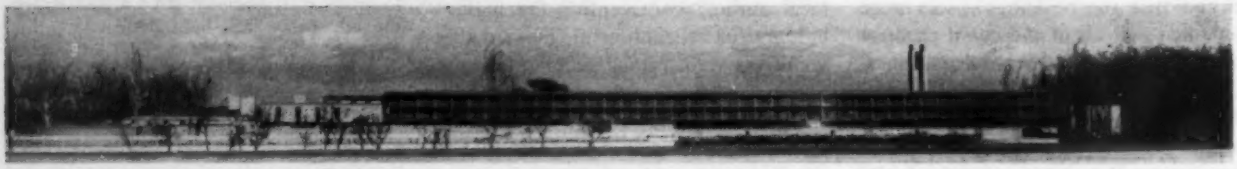
Christmas 1960

RIBA New Standard of Entry

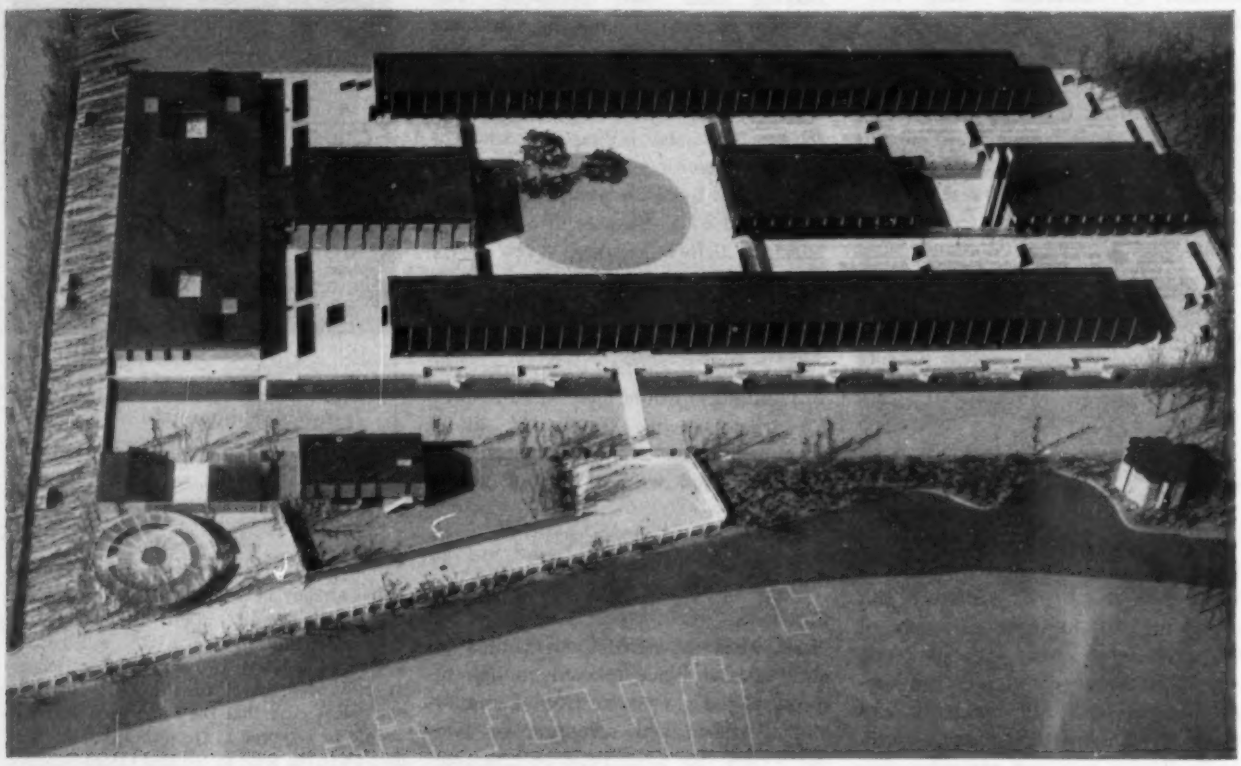
It has already been announced that as from the 1st September, 1961, applicants for Probationership of the RIBA will be required to possess two appropriate passes at Advanced Level of the GCE (or the equivalent) and that the same qualifications should be required as from that date for admission to the Recognised and Listed Schools of Architecture. Representations have been made to the Board of Architectural Education that this may leave some doubt about the position of applicants for Probationership up to 31st August, 1961, who have only five Ordinary level passes (or the equivalent) and in particular of students who may achieve these passes in the Spring and Summer of 1961.

In order to clarify the position the RIBA have decided to bring forward the introduction of the new arrangements for the Probationership so that the last applicants who can be admitted with Ordinary level passes (or the equivalent) only will be those who gained such passes *before* the Spring and Summer Examinations of 1961. They have also decided in view of the ruling issued to the Recognised and Listed Schools, and of the limited facilities for training otherwise available, that students should be advised in their own interests *not* to register as Probationers from now onwards unless they have two appropriate "A" level passes (or the equivalent).

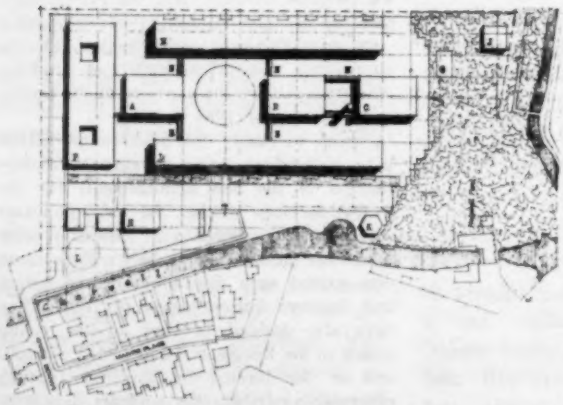
ST. CATHERINE'S



The model from the west from across the Cherwell, showing the low silhouette of the building, with the high bell tower



The model from the west, with the Cherwell in the foreground



KEY
A dining hall
B library
C lecture theatres
D west residential block
E east residential block
F common-rooms and service block
G proposed site for future chapel
H Master's lodgings
J squash courts
K music rooms
L bicycle park
N covered ways linking the blocks

Professor Arne Jacobsen, the Danish architect, has now produced sketch plans and a model of his design for the new St. Catherine's College at Oxford, for which he was commissioned by the University about eighteen months ago. The aim of the scheme is to provide an environment which will cater fully for the best traditions of college life in Oxford, carried out with the utmost clarity and disciplined simplicity, but avoiding any sense of monumentality.

COLLEGE OXFORD

The building is sited to the east of the main concentration of colleges on Holywell Great Meadow, which is north of Magdalen and just across the River Cherwell from Manor Road, along which is the site for the new library building by Sir Leslie Martin published last month (AJ, 6.10.1960). About eight acres of land have been purchased from Merton, an area which has already been used as a tip in the thirties, but which will still have to be raised a further two feet or so to bring the building above flood level. There are many trees, and apart from the Cherwell on the west side, the site is surrounded by playing fields, so that the setting of the building will be rural.

The St. Catherine's Society was founded about a century ago as a non-residential college with the aim of providing an inexpensive method for studying at Oxford. Owing to a large increase in the number of State and other grants since the war, the Society feel that this function is no longer required, hence their scheme to change into a more conventional college for about 400 men. Two basic aims of the Society are to have a high proportion of students in residence, and for about half the undergraduates to study the sciences, in comparison with about a quarter for the University as a whole. In addition to about three hundred study-bedrooms, the scheme provides sets of varying sizes for 45 Fellows, common-rooms, dining hall, kitchens, libraries, lecture theatres, seminar rooms, music rooms and the Master's lodgings.

The building will be approached from Manor Road by a bridge over the Cherwell at the north-west corner of the site, the road continuing along the whole north side for service access and parking. The amount of parking space is limited, but it must be remembered that car ownership is normally not permitted to undergraduates. Near the road bridge is a circular cycle store, and beyond it the Master's lodgings. These are separated from the college proper by a pool running the full length of the building, with access by a single bridge for pedestrians into the central court with its circular lawn.

The college is symmetrically planned round a north-south axis, with long residential blocks on the east and west sides, and the communal facilities between. At the north end is the common-room block, with the kitchen centrally placed on the north side so that it can not only serve the dining hall to the south, but also the junior common-room on the east and the equivalent accommodation for Fellows on the west. Careful planning allows for an internal yard, provision for dustbins and the like, so that the north side of the college in no sense becomes the back of the building.

The dining hall, library and lecture blocks are designed so that within identical structures of the same size, the enclosure in each case is varied to suit the planning. The first floor of the library is, for instance, cantilevered out beyond the frame, and the walls of the lecture theatres are modulated inside to improve their characteristics as acoustic reflectors. Between the library and lecture blocks is a seventy-foot-high bell tower; this was included in the brief from the client, and is the only part of the scheme which will contribute in any way to the skyline of Oxford, the rest of the building being deliberately kept low in its massing.

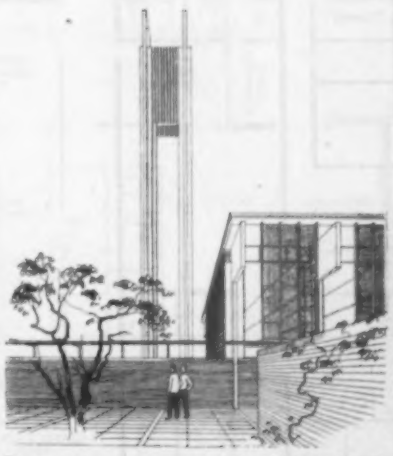
The architect lays great stress upon the relationship between the individual blocks and the landscaping between, this representing a sincere and carefully developed present-day interpretation of the traditional layout of Oxford quadrangles. Professor Jacobsen spent a considerable amount of time visiting various colleges in the University, so as to be able to examine the way in which they function, and the virtues if any of the medieval and renaissance planning. The layout is one of the results of this study. The college is conceived as resting on a continuous podium of paving. This is, however, broken up by carefully sited screen walls and planting so as to form a series of courts. Linked with this is the series of covered ways joining the blocks, continuity being completed by the recessed ground floors of the residential buildings. The whole is very deliberately carried out in a formal pattern both for the blocks and the landscaping between. The architect believes that this high degree of formalism, which he admits was difficult to achieve, was essential to create the order and clarity that he felt to be the character the building required.

Outside the main complex the architect has sited two additional small buildings on the heavily treed south end of the site. These consist of a small hexagonal block housing two music rooms, and a pair of squash courts: in addition the architect has indicated a possible site for a future chapel which is not included in the present scheme.

In general the architect is anxious to have a building which will mature gracefully, and he relies for this on the use of mainly natural materials, chiefly a pale buff brick, combined with the use of aluminium for windows, and bronze for the perforated screens in front of the library windows and certain other details.

Part of the model, with the lecture block on the left, the library on the right and the bell tower between

The terrace on the west side, looking across the water garden to the Master's lodgings

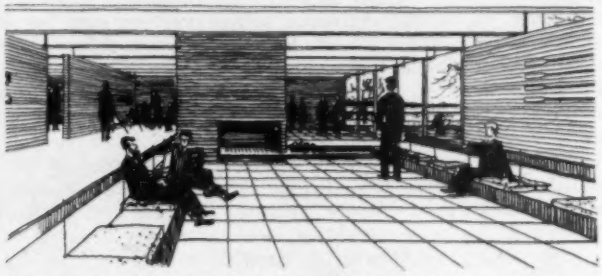


Bronze sun screens on the library block, and the bell tower rising out of the library court

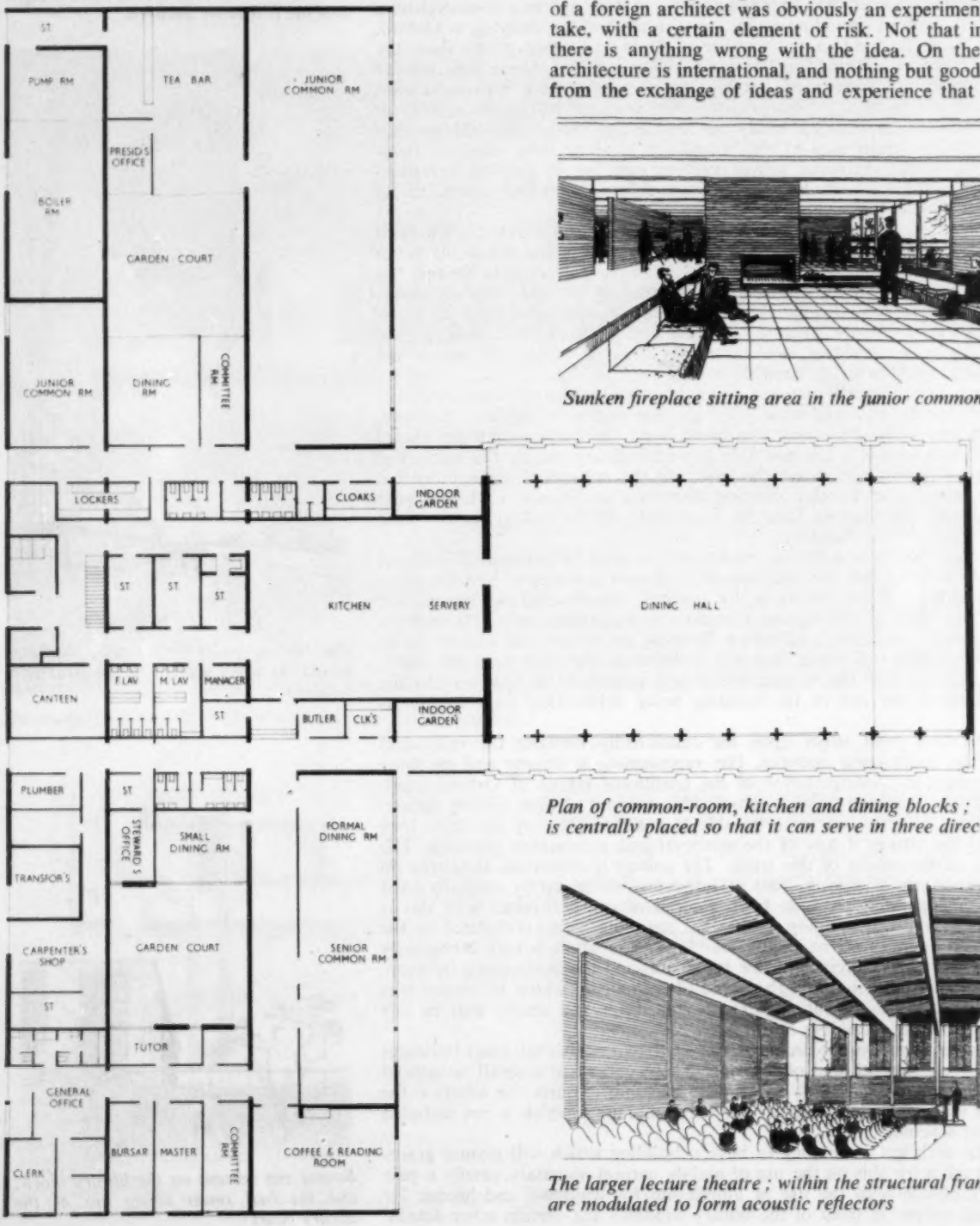
St. Catherine's College (continued)

The structure will be in situ concrete, but this is conceived as having the highest possible quality of finish, and only exposed externally in limited area. The concrete frames will be expressed internally in the central blocks in combination with fairface brickwork and natural timber. A similar treatment will occur in the residential block, but in combination with a certain amount of plaster and other finishes. In these cases the structure will be concrete cross walls, with in situ floors and roof. The general effect will be to have a high proportion of natural finishes internally, and this is appropriate for the all male and semi-monastic college environment. The architect insists, however, that this will be most carefully detailed, and carried out with the highest possible quality of workmanship. In his view it would be quite wrong to regard the building as new-brute.

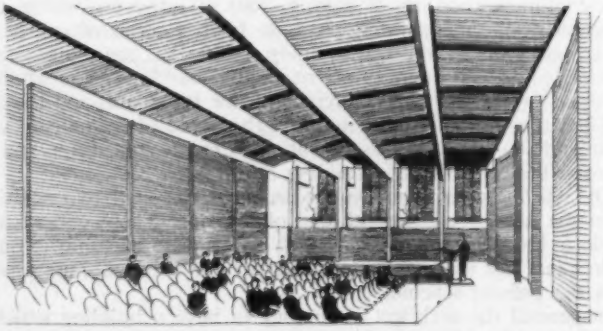
The clients, particularly in the person of the future Master of the College, Alan Bullock, express themselves as extremely delighted with the design. The decision of the University to appoint Professor Jacobsen was no whim. The building committee who recommended his appointment, before making this choice, inspected many recently completed university buildings in this country, and interviewed several British architects prominent in this field. They then visited a number of Jacobsen's buildings in Denmark, and met him before putting forward his name. This appointment of a foreign architect was obviously an experimental step to take, with a certain element of risk. Not that in principle there is anything wrong with the idea. On the contrary, architecture is international, and nothing but good can come from the exchange of ideas and experience that can result



Sunken fireplace sitting area in the junior common-room



Plan of common-room, kitchen and dining blocks ; the kitchen is centrally placed so that it can serve in three directions

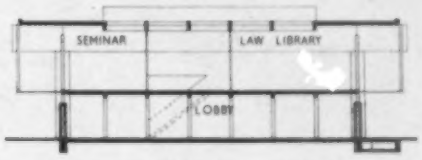


The larger lecture theatre ; within the structural frame, surfaces are modulated to form acoustic reflectors

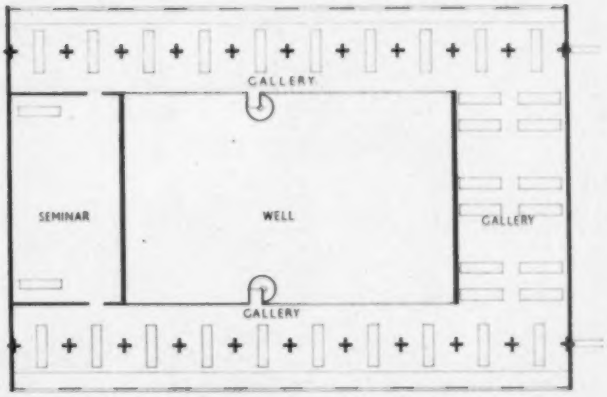
from this type of commission. Accepting that Oxford has now abandoned reactionary architecture, which has so badly marred the University in the recent past (think of Nuffield College), this appointment nevertheless shows a lack of confidence in British architects, at least the ones that the committee interviewed and whose buildings they inspected. Why is this? One of the most interesting points about Jacobsen, which is surely relevant, is that he is one of the very few successful architects who restrict the size of their practice. His office is limited to a maximum of about ten assistants. He deliberately turns down commissions unless he can give his full personal attention to every detailed aspect of the design, and says that he has refused several large and important jobs in order to concentrate upon St. Catherine's. This is surely a reflection on the big offices in this country, which have been mainly responsible for university buildings in this country since the war. Giving the commission to Jacobsen is a clear expression of opinion from an intelligent and knowledgeable client.

The scheme is obviously a very carefully thought out and intelligent piece of architectural design. Jacobsen himself is very modest about it, and says that both he and the client will only be proved right or wrong when the building is finished in about 1964. The clients wanted personal service and an individualistic design, and it is quite clear that they are getting both. But it is equally clear from examining the scheme in detail that it is going to offer no more—certainly no positive contribution to the design of university buildings. This is for two reasons. The first is in the inherent nature of the design. In its layout, planning and detailing the whole scheme is based on an aesthetic which has been applied externally, and which one cannot identify as growing naturally out of the client's brief. This is true of the layout; for instance the sense of enclosure Jacobsen admires in the older buildings, and seeks to emulate in the actual design, seems to trickle away round and over the screen walls and be lost. On closer examination, and as far as one can judge from the present drawings, the design is full of details which are an imposed aesthetic, with grilles over windows, setbacks in brickwork, strips of window separating frame and cladding, and the like, features which bear little relationship to a true statement of structure or function. Not that

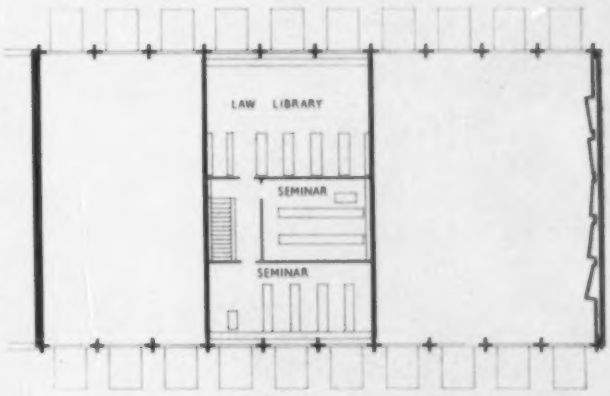
Section through library



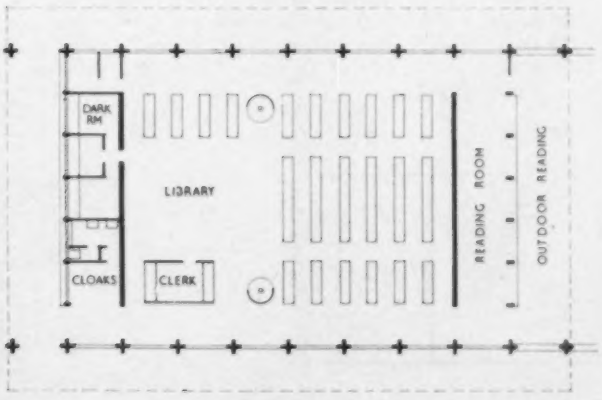
Section through large lecture theatre



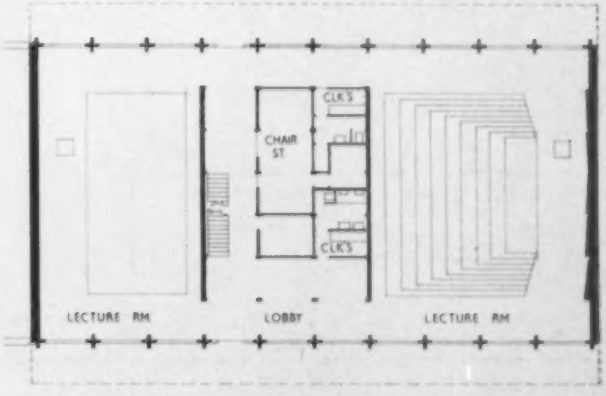
First floor library plan



Lecture room block, first floor plan



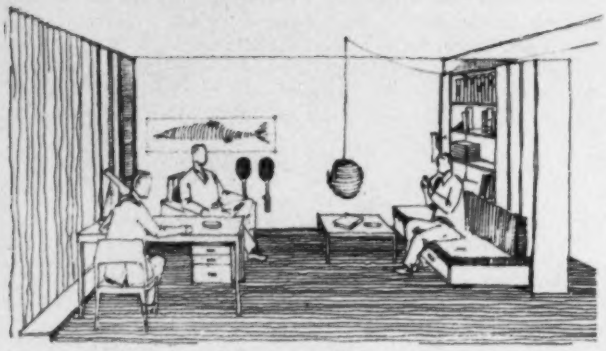
Library, ground floor plan



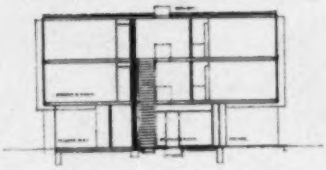
Lecture room block, ground floor plan

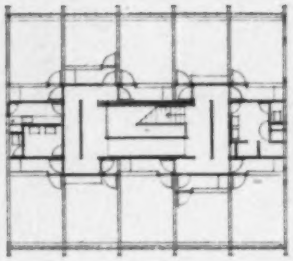
St. Catherine's College (concluded)

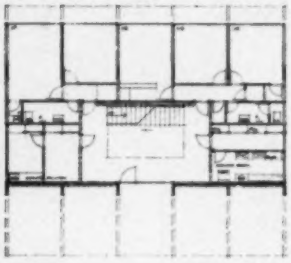
Jacobsen is unique in doing this sort of architecture: on the contrary there are signs elsewhere—in Scandinavia, in America with people like Paul Rudolf, and even in this country—of the growth of this new expressionism. And, at the same time, there seems to be a link between this building and the work of the early moderns, Dudok, the young Mies, and even Wright, in the endless repetition of detail. The second reason is a policy one, which is the responsibility of the clients. As long as they continue to commission single buildings from individual architects there can be no great advance in university building design. In continuing this policy they ignore all the great examples of programme building in the past, where the highest quality of architecture was achieved by continuity, such as the Romanesque monasteries and pilgrim churches of France, the Baroque of the counter-reformation in south Germany, or even many of their own colleges: quite apart from more recent examples, particularly in the schools field here, the one big success of current architecture that this country has to offer. It is to be hoped that it will not be long before the universities, either individually or collectively, will make this experiment in continuity. The biggest opportunity in the near future will, of course, be the buildings for the new university at York.

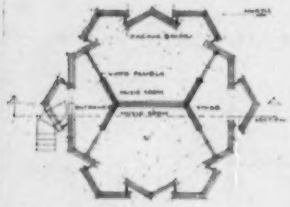


Typical undergraduate's room with storage unit on the right; the bed converts to a sofa by day

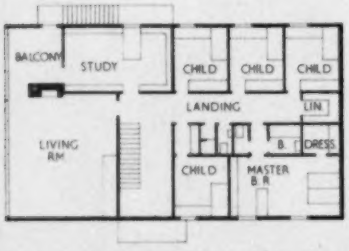






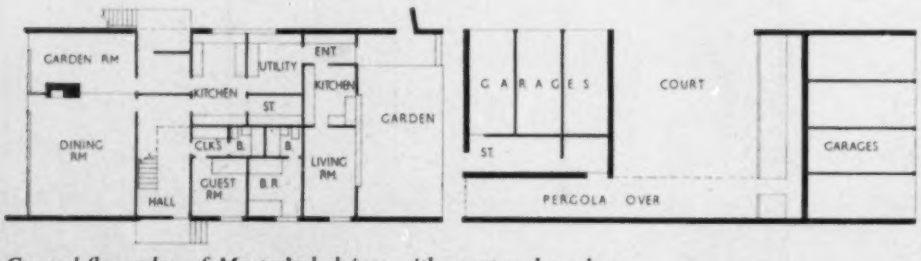


Plan of music practice rooms



First floor plan of Master's lodgings

Ground floor plan, upper floor plan and section of a typical bay in the residential blocks. The ground floor is recessed on the inner side so as to form covered circulation, and the planning of the three-storey blocks is based on the traditional staircase access. Although varying in area from 130 to 165 sq. ft., each student's room has an external frontage of 10 ft. Lobbies are provided to insulate the rooms from staircase noise, and washing facilities and w.c.s are included on each floor. A bathroom and scouts' room are provided at the foot of each staircase, and the ground floor is devoted partly to tutors' rooms.



Ground floor plan of Master's lodgings with courtyard garden and associated garages

NEWS

BURY ST. EDMUNDS

Campaign was a Winner

The Bury St. Edmunds town council, at a special meeting on October 18, reversed its decision to sell the Corn Exchange for demolition and replacement by shops, and voted 17 to 7 not to proceed with negotiations with Sir Cyril Black's group of companies.

The vote was unquestionably a victory for public opinion, actively organised and loudly expressed, and two of the councillors who changed their vote said frankly that they had done so as a result of finding out how strongly local people felt about the proposed deal.

One remarked that though much of the opposition was "sentimental" it was evident that people were prepared to lose something in hard cash for their sentiment in retaining the Corn Exchange. Another defended "the right of people to be sentimental about their possessions." Sentiment, he said, made the town treasure its town hall, its cathedral and many other things.

Many who spoke insisted that, having decided not to sell the Corn Exchange and the School of Art, the Council must keep them in a proper state of repair, and almost every opposition speaker pressed for the development of a new shopping area in the derelict Brentgovel Street-Loom Lane area.

It was announced that the County Planning Officer had received a letter from the MOHLG which said it would consider the demolition of these buildings of special architectural and historic interest regrettable and asked the Council to consider shopping developments elsewhere.

C of E COMMISSION

Redundant Churches

Lord Bridges, the Chairman of the Commission set up by the Archbishops of Canterbury and York to consider the problem of the Church of England's redundant churches, held a press conference on October 26 to present the Commission's report.* There are about 370 churches now thought to be redundant and it is expected that the shift in population will cause another 420 churches to become redundant in the course of the next 15 or 20 years. In order to handle this problem the Commission propose a standard procedure which will include a waiting period of from one to three years from the original declaration of redundancy to enable an alternative use to be sought. If at the end of this period no alternative use can be found it is proposed that the Church Commissioners consult a new advisory board which will represent both the Church and the Preservation Societies before they, the Commissioners, can proceed to demolition. It is also proposed that a Redundant Churches Fund shall be set up to look after churches for which no use can be found, but which are to be kept as monuments. It will be the Fund's business not merely to put them in order in the first instance but to maintain them. In order to do these things the Fund is to raise money partly from the Church herself (for the Church of England does not want to lose her claim to these churches as she might want them back), partly from the State (on analogy with Historic Buildings Grants), partly from private donations. The Commission estimate that in 20 years they may find some 400 churches on their hands, involving a capital expenditure of between £1½m. and £2m. and an ultimate annual maintenance bill of £60,000 to £70,000.

* Report of the Archbishops' Commission on Redundant Churches 1958-60. SPCK. 6s.

ILA

Power and the Landscape

The case for putting electric wires underground was firmly supported by Sylvia Crowe, past president of the ILA and consultant to the Electricity Generating Board on power station projects, when she spoke to a meeting of the ILA on October 21.

"It should not be a choice between electricity for every farm or a decent looking countryside," said Miss Crowe. "Surely we can afford both." Even in the case of high tension transmission she looked on the careful siting of lines as a temporary expedient. "I look forward to seeing, in perhaps ten years' time, a land free from wires," she said, "in which, at decently long intervals, magnificent power stations will rise as natural focal points of an uncluttered landscape."

Miss Crowe outlined the problems associated with electric power generation and transmission through the countryside, illustrating her points with slides of several projects.

Generating stations, whether hydro-electric, nuclear, or coal fired, are all constructions of huge scale, but with great possibilities of architectural quality, she said. Sub-stations and transformers are small but so far show little visual quality of design. Transmission presents quite separate problems of linear pattern.

She submitted that the task of the landscape architect fell into five parts:

1. Assessment of the landscape and a decision on the relationship to it of the new structure.
2. Formulating an overall plan which is firm in concept but flexible in detail.
3. A continuing watching brief throughout the planning and construction periods.
4. Drawing up the final plan for execution when the work is completed, or for such parts of the plan as can be executed from time to time.
5. Arranging for maintenance.

A lively discussion followed in which it was obvious that the mixed attendance of engineers and landscape architects was mutually stimulating. The engineers' case was stated by Sir Christopher Hinton, chairman of the Central Electricity Generating Board, who pointed out that landscape architects had much to learn and were just as prone to error as engineers. He was fully in favour of employing landscape architects, but disliked the policy of hiding or camouflaging engineering works.

The other side of the picture was presented by Howard Lobb, who discounted the idea of camouflage and stressed the problems of scale in the countryside, created not by the power stations themselves, but by the paraphernalia which attends them, notably the sub-stations.

The meeting was held at the Electricity Advisory Council's rooms in Winsley Street, London, W.1.

Caravan Advertises Bathroom Grants

This mobile information unit, which is to travel the country advertising to local authorities and the public how to get the grants available towards the cost of putting bathrooms, etc., into old houses, has been designed by John and Sylvia Reid, for Bilston Foundries Ltd., a member of Allied Ironfounders Ltd. The trailer contains a small room before and after conversion, and a simple diagram of a hot water system. A back-projector shows a film illustrating the improvements that can be made to pre-1945 houses with the help of Standard Grants and it can be watched from either outside or inside.

TCPA

Design for Motorised Living

A Report on two Conferences by Nigel Seymer

It is encouraging, for anyone who dreads the transformation of our great cities into Motropolis, that at two recent conferences on the problems of traffic—above all, the problem of the private car—the experts who spoke, some of whom are in key positions to decide transport policy in the future, have shown no intention of lying down under the car.

At the Fifth International Study Week on Traffic Engineering, recently held at Nice, papers were presented on "Traffic and parking needs generated by building development" and on "Individual and Mass Transport in Urban Areas," in which the control of private transport in the centres of cities was put forward as perfectly practical politics; while at the TCPA's conference on October 17 and 18, devoted to the problems created by the private car, Mr. C. D. Buchanan, newly appointed Urban Road Planning Adviser to the Ministry of Transport, set the keynote when he said: "Much of our future happiness and wellbeing depends on the extent to which we can control the motor vehicle and make it serve our ends without becoming our master."

Necessary Research

Concentration on the problems of facilitating the movement of vehicles had resulted in preoccupation with problems of providing for through-traffic. "By-passes are a case in point," he said. "Many by-passes were built between the wars . . . and while I would not deny their value nor that many more are needed, the fact remains that most by-passed towns, even quite small ones, are still choc-a-bloc with traffic.

"I am sure the reason is that a new social habit has arisen; the motor vehicle has become part of the ordinary equipment of daily life, useful for a thousand-and-one comings and goings." Investigation would show that the "penetrative abilities of the motor vehicle" which could "worm its way anywhere, get right inside buildings and even climb tight spiral ramps to the roof," was a very important factor in the traffic problem in the centres of towns.

Mr. Buchanan urgeed the need for "a few thorough-going studies to reveal just what use is being made of motor vehicles, one of the main points of which would be to discover "the 'essentialness' of traffic—what traffic is essential to urban life and what could be dispensed with (should the need arise) as being in the nature of a luxury."

New Town Formula

The "New Town formula" of central pedestrian shopping areas had worked quite well in the conditions of new town development—a clear site and a small town. "I am much less sure of its applicability in a large standing town," Mr. Buchanan went on, "where the bounding roads are enormously difficult to carve out, where the creation of areas of homogeneous use poses serious difficulties of shifting 'non-conforming uses,' and where the conversion of the streets to pedestrian use involves the insertion of rear-access roads.

"In fact, when you get down to it on a drawing board, you find that it pretty well involves complete reconstruction, and if this is to be the case then I think there are advantages in multi-level planning . . . saving of space is not the least of them, and if you bring the traffic underneath the buildings then obviously you save the space required for horizontal movement between vehicle and destination."

Searching Questions

"If we decide to give the motor vehicle its head," he continued, "it is just as well to know what we are in for. We could give the motor vehicle its head almost without realising it by embarking on the radial urban motorways which on a narrow view are such a logical answer to the dreadful conditions on the radial roads." And he offered this "question to cogitate on": "Looking ahead, some factor is going to put an eventual limit to the total number of vehicles in circulation. Will it be the capacity of the motor industry? The purchasing power of the public? The number of licensable drivers? Or could it possibly be the capacity of built-up areas to handle traffic?

"Could the existing pattern and fabric of towns be preserved by any policy deliberately aimed at reducing traffic to manageable proportions by means of restrictions? I am not going to express a view . . . All I am saying is that if, as I honestly think is the case, the motor vehicle is going to demand very expensive and far-reaching changes to towns, then it is logical to ask whether we really need have all this motor traffic . . . Suppose some traffic *could* be cut off (e.g., private car traffic firmly checked at peripheral car parks), what would the essential residual traffic amount to? Would it still be enough to demand major modifications to the central areas?"

Design for Motorways

Turning to the design of urban motorways, Mr. Buchanan asked:

"What are the planning and architectural problems involved in accommodating big new roads in urban areas? Is there any way of making them less savagely destructive than the American examples appear to be?

"This of course is a planning as well as a design problem. Much could probably be done to reduce the impact of these roads by careful location, placing them, say, in belts of open space, or between communities and land use zones. This aspect needs consideration from the earliest moment such schemes are mooted so that a fair balance can be secured between traffic and environmental needs.

"I think what has worried the architectural profession recently is that decisions regarding the location of these roads would be taken on traffic and engineering grounds alone, without regard to planning or architectural considerations. There is, however, a sheer design problem as well . . .

"I think it is questionable whether any urban area can absorb more than a limited amount of roads of this kind, and the thought goes through my mind that this may be one of the factors controlling the amount of traffic that urban areas can cope with."

Fundamental Values

Earlier in his paper, Mr. Buchanan had submitted that "urban areas, and particularly urban centres, are rapidly becoming horribly uncivilised places under the influence of motor traffic," and that "it is our whole urban tradition which is at stake and not just minor matters of movement and parking." He went on:

"Most of us live our lives in urban areas, but we seem to be forgetting what towns ought to be like . . . We should have in our minds the vision of urban areas where we don't have to run for our lives at the approach of a motor vehicle; where we don't have to wait mud-bespattered in driving rain for the buses; where we don't have to breathe in vehicle fumes; where we don't have to converse in signs because of the noise; where we don't have to struggle along narrow congested pavements; where we don't have vehicles stationary or moving cluttering up every yard of available space; and where we can wander freely about and take stock of our surroundings and receive the stimulus that a coherent urban environment can give.

"This is a fundamental question of values. I have no doubt that measures to deal with road traffic will involve every now and then sacrifices of things we value—buildings, meadows, narrow streets, views and privacy—but these losses will be easier to bear if we know we are working towards the creation or retention of things as good elsewhere.

How Much Traffic?

"The prospect that terrifies me is that we shall dodge along from one improvement to the next, widening out and opening up, destroying things of value right and left, but even so never catching up with

the motor vehicle. I think that is the sad lesson of the last 40 years.

"I have just referred to the 'stimulus of a coherent urban environment,' and this means that for myself I firmly believe that in any measures we consider for adapting cities to motor traffic we must seek to continue in the main-stream of urban tradition with its emphasis on compactness, easy social exchanges, architectural unity, and freedom of movement for pedestrians. The difficulty we are up against is that the motor-vehicle operates strongly against urban qualities. Already it has proved an arch scatterer of development and given its head it will continue with the job.

"I know that we are on the threshold of the motor age, that the boom still lies ahead, but I do not think there is any reason to panic and to abandon the great tradition of compactness in favour of the sprawl and dispersal that wholesale acceptance of the 'drive-in' philosophy would involve.

"I think this is the real challenge ahead —to see how far we can retain cities broadly in the traditional concept (though perhaps much changed in detail) whilst securing reasonably full exploitation of the many remarkable qualities of motor transport."

Terrifying Prospect

In introducing his paper, Mr. Buchanan stressed that we can't both have our cake and eat it; we shall be forced to say "this place was designed for so much traffic and no more." In the discussion Mr. Edmonds, chairman of the LCC Town Planning Committee, said that, being still on the right side of the point of no return, we *can* still say this.

But even if we accept the argument that we must somehow stem the rising flood of motor traffic the question arises "How can we set bounds to the growth of this traffic, or restrict the entry of cars to certain areas?"

Mr. G. J. Roth (a Cambridge economist who previously studied engineering) maintained that motorists are not paying the full cost of their use of city streets, and advocated the use of the price mechanism to regulate traffic growth.

This was also suggested, more tentatively perhaps, by Alan Day (L.S.E. economist), who wondered whether a mileage tax on miles driven in the big cities could not be imposed, say on the basis of the compulsory reading of car mileometers on entering and leaving the conurbations. He thought speedy and efficient arrangements could be the object being to make private car owners contribute at least 2d. a mile to the community, to cover their costs to the community in congested cities.

Role of Public Transport

Mr. Day added that the principle that motorists should pay the full rent of the space they use for parking their cars "is now slowly becoming established with the spread of the parking meters, although rents per square foot of parking-meter space in Mayfair are still uneconomically low. If it turns out that most people prefer the comfort and independence of private transport when each covers its costs, then public transport should be allowed to go the way of the stagecoach," he suggested.

"In fact, I imagine the full costs of private transport for some kinds of journey will always seem intolerably high, relative to the costs of public transport," said Mr. Day. "In particular, this is likely to be true of the daily tidal flow to and from the big city centres, particularly London. For this periphery-to-centre type commuter traffic, public transport is likely to be so much cheaper than private, if both are properly costed, that public transport is likely to continue to play the major role."

Mr. Day's confidence that public transport could compete effectively with the private car even if we started building radial motorways in our large cities, provided each covers its costs, was not shared by Mr. J. D. C. Churchill, of London Transport. He maintained that there is a good economic case for subsidising the contruction of new "rapid transit" facilities (*e.g.*, the Victoria Line tube), as has been recognised in the U.S.A., where even Los Angeles may at last start to build such facilities, encouraged by the success of the new underground railways in Toronto and Cleveland.

Mr. Churchill's doubts about the adequacy of Mr. Day's formula were shared by Mr. Peter Self (author of "Cities in Flood"), who asked whether its application might not result in the Los Angelesation of the London region; and by Mr. Willmott (Deputy Director of the Institute of Community Studies), who thought that such a *laissez faire* approach was inadequate, and that public transport, far from being allowed to die, should be improved—there was, he said, a very real fear of "auto-domination." We might, Mr. Willmott thought, get a different answer to our problems by finding out what sort of society people wanted to live in.

In this, he echoed the questions which had been put by Sir William Glanville, Director of Road Research, in his General Report presented at Nice on "Individual and Mass Transport in Urban Areas." These included the following:

How can urban communities be helped to choose the best transport system, bearing in mind all the consequential effects of alternative systems on the kind of town or city in which they will live?

Would it be possible to make experiments (*a*) in planning cities with alternative policies of transport, (*b*) in actually carrying out alternative policies to determine their effects?

How far, if at all, should public transport or parking facilities be subsidised?

A Sensible Answer

A sensible answer to the first question was given in another paper presented at Nice by F. Peter, Head of the Town Planning Office of Basle. He answered the question "How is the parking problem to be solved in fully-developed central areas?" as follows:

"There are, broadly speaking, two possible solutions.

"The first is to foster the growth of private motor traffic, and provide even greater space for traffic and parking to enable it to develop without friction. If parts of the existing central area are sacrificed for this purpose, then the area will be increasingly destroyed by reduced density and roads slicing through it. If only those parts of the city immediately surrounding the central area are used, then the area can at first be preserved. But its growth will be prevented, which in the long run will lead equally to its decay.

"The second possible solution is to preserve and foster the central area, maintaining and even increasing its concentration and making possible its organic growth. If this solution is adopted, the creation of new space for traffic and parking can only be permitted to a very limited extent, which means that the growth of private motor traffic in this area must be very limited.

"We must, therefore, decide either to foster private motor traffic, or to preserve and develop the central business district. The two policies are mutually exclusive.

"In Europe above all, we place a greater value on preserving the old central areas, which in most cases are not only business but also cultural centres. But if we want to preserve them, then it is essentially wrong to ask 'How can we provide the necessary space for traffic and parking in the central areas?' since any solution on these lines would lead to destruction of the central area. Rather we should ask 'How can the existing central area be preserved and fostered despite the never-ending increase in motorisation?'

Setting a Limit

"It can only be done if we voluntarily abandon any idea of bringing private cars into the central area in unlimited numbers in the future, but seek instead to make the area easily accessible by other means of transport. This does not mean that we must completely ban private motor traffic from the area. In order to find out what volume of such traffic we can permit in the area, we can check how much space is at present available for traffic and parking, and how much more can be made available without destroying the urban structure; and then decide how much private motor traffic the area can cope with, with the most rational utilisation of this traffic and parking space.

"The limited amount of parking space sets an exactly calculable limit on the amount of private motor traffic, which again has its effect on road planning. It would obviously be pointless to foster the growth of traffic beyond this point by building more new roads. In most cases the existing road space will be quite sufficient.

"It can never be the function of planning to put the clock back, or to want to halt the development towards full motorisation. But it must guide development.

"The residential and industrial districts, covering large areas, must be adapted to the automobile. In the central areas of cities, on the other hand, cultural and economic values are decisive, and the demands of private motor traffic must be subordinated to them. Only by such evaluation and guidance will it be possible to preserve our cities as lively, healthy organisms."

HOPE'S standard Reversible Windows

with the new automatic safety arm

Clean, repaint or reglaze from inside in perfect safety—no head for heights—no expensive scaffolding or cradles necessary

Send for List 380

LINCOLN TOWER, LADYWOOD, BIRMINGHAM
A. G. Sheppard Fidler, M.A., B.Arch., F.R.I.B.A., City Architect

HOPE'S WINDOWS
The Name Guarantees

HENRY HOPE & SONS LTD
SMETHWICK, BIRMINGHAM
LONDON: 17 BERNERS ST., W.1

All-Gas House Competition

In this competition, sponsored by the Scottish Gas Board, the first premium of two hundred and fifty pounds is awarded to A. Clayton and T. E. Adams, the second of one hundred and fifty pounds to Allan M. Clissold and the third premium of seventy five pounds to A. S. Matheson. The assessor for the one hundred and ten entries was Professor F. Fielden.

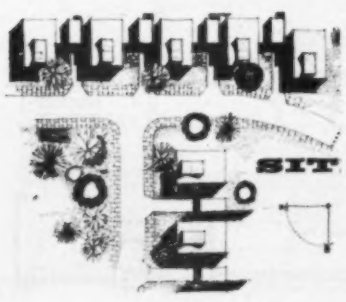
The conditions in this competition were minimal. A design for a detached house was requested, at a maximum of eleven hundred square feet and at a cost (excluding the site) of not more than four thousand pounds. The estimate for the house could, however, be based on the assumption that it was one of up to a hundred houses being built under the same contract. The design was to be flexible enough to be adaptable to differing family needs, but it had to be capable of accommodating a married couple with two schoolchildren (a girl and a boy) plus the occasional guest. Within the price limit a garage was required, over and above the maximum floor area. The sponsor requested that special attention be paid to provision of adequate storage of all types, to a suitable standard of thermal insulation, and to maintenance costs. They made it particularly clear in addition that it was not their intention that the house should in any way be a showroom illustrating as many uses as possible for gas. What they expected was a stimulating and imaginative contribution to the problem of small house design in terms of planning, aesthetics, structure, fittings, equipment and cost. Their only stipulation was that all the major services other than lighting should be gas.

This has therefore been a competition of ideas, although the Scottish Gas Board have every intention, if practicable, of building one or more houses to the winning design in either the Edinburgh or Glasgow areas. In the meantime, they are putting all the entries on show to the public in the Edinburgh College of Art until November 11, together with a display of gas-fired heating systems and appliances. Of the hundred-odd entries the assessor says that *some were disappointingly commonplace*, but that *a large number showed competence, ingenuity and visual imagination*. In making his assessment, he explains that he was guided by three basic requirements. First, a house which had a fundamentally livable plan, suitable for the typical family, and giving a high proportion of usable area; second, a design which would visually make a positive contribution to the domestic environment; third, that the design, when repeated with perhaps minor variations would be an attractive element of urban design. This latter requirement was not unfortunately explicitly written into the conditions, and most of the entries show no evidence of this problem having been considered. The winning entry was, in fact, one of the few submissions which included a drawing showing how the design could be used successfully in a repetitive way to form a satisfactory urban street frontage.

On the basis of his three criteria the assessor says that unfortunately no single entry combined all three in a satisfactory manner. *It was the second and third factors which made me choose Messrs. A. Clayton and T. E. Adams' scheme as the winning design.* With its first floor living and the continuity created by the linking together of the recessed ground floor with screen walls along the road frontage *it is a most imaginative piece of design, a first rate exhibition house and, as the authors have shown in their drawings, it makes an excellent contribution to the urban environment.*

One of the aims of first floor living, the authors state in their report, is to give added privacy. It is unfortunate in this respect that the kitchen and dining space windows tend to overlook the next-door garden. But the major weakness of the design is, as the assessor points out, that *it has planning faults, and the living space is nothing like as generous as the schemes placed second and third.* If the Scottish Gas Board do carry out their intention of building one or more of these houses, it is to be hoped that the planning can first be modified to overcome some or all of these faults.

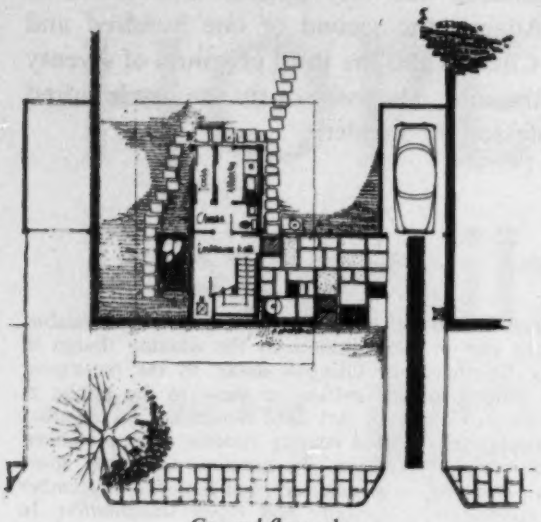
First premiated design by A. Clayton and T. E. Adams



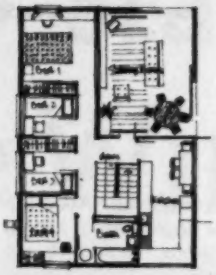
Site plan

Front elevations

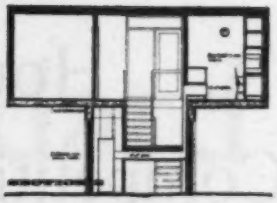
All-Gas House Competition: First premiated design (continued)



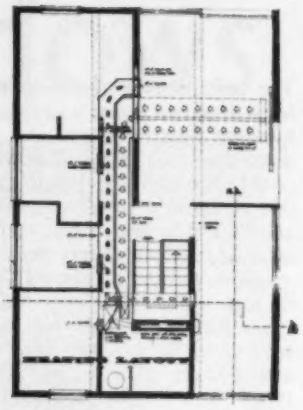
Ground floor plan



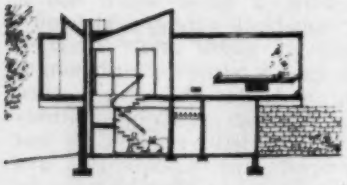
First floor plan



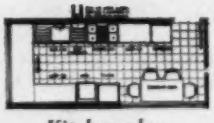
Section across stairs



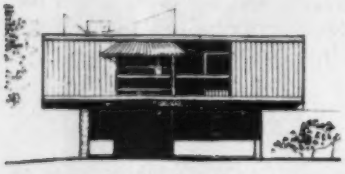
Heating layout



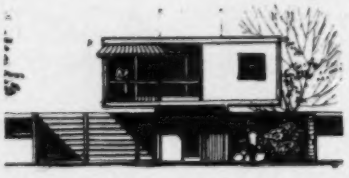
Section front-rear



Kitchen plan



Side elevation

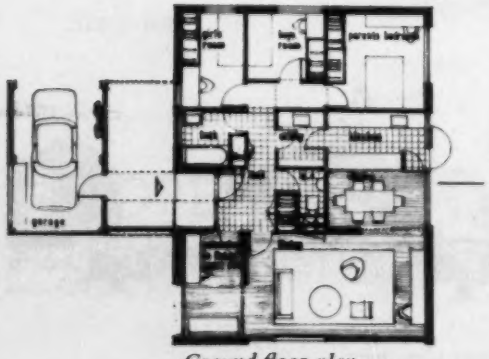


Rear elevation

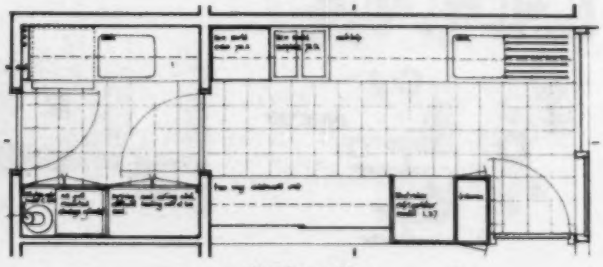
Side elevation

The design placed second by A. M. Clissold, is perhaps the most workmanlike plan to be entered, a combination of service core and tight circulation, giving a relatively large living area. Its design, in the view of the assessor, *makes better use of space than that placed first, but lacks its sheer exuberance*. This entry is one of the few submitted with a carefully thought out and well written report. The assessor has something quite pertinent to say about *the somewhat naïve reports which were often monuments of rationalisation, and seemed almost without exception to be last-minute compositions produced whilst the drawings were being prepared for the post.*

Second premiated design by A. M. Clissold

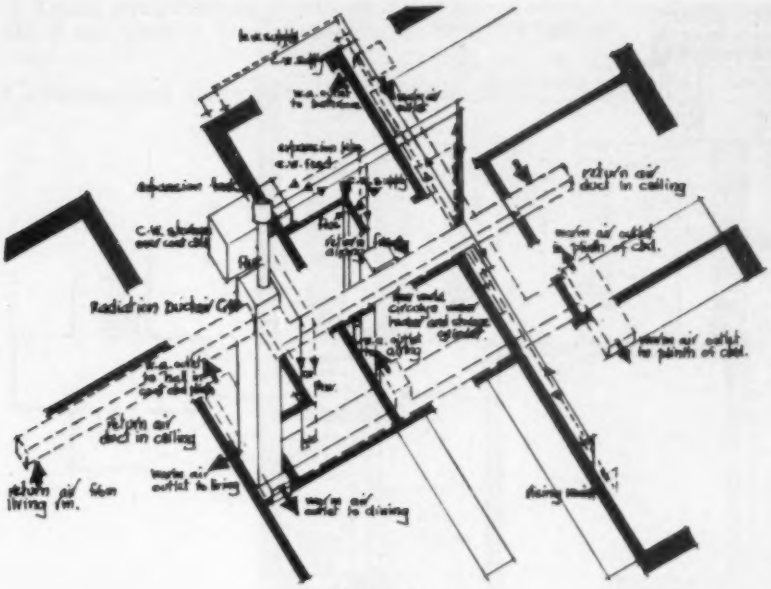


Ground floor plan

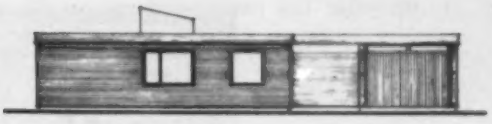


Kitchen plan

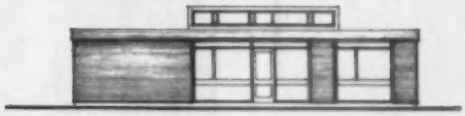
Second premiated design (continued)



Services layout



North-east elevation

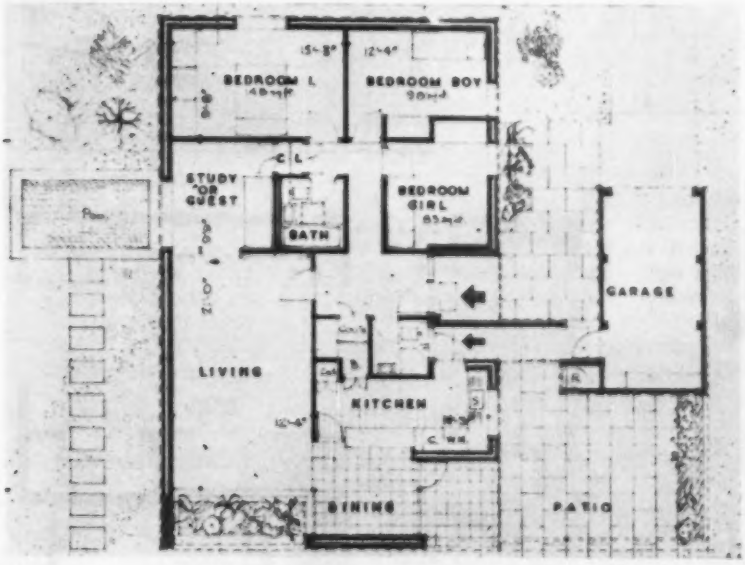


South-east elevation

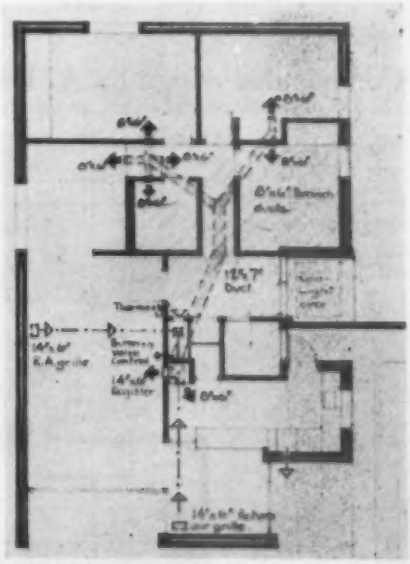
South-west elevation

The third premiated design by A. S. Matheson he finds *extremely competent and attractive; perhaps a little fussy, but an extremely livable-in house, and capable of wide application.* Of the three winners, this is the only one to retain the traditional back door (for the servants?) This it achieves by making the living area a through traffic route. In addition; like many of the entries, it needs a fairly generous frontage, a factor that the assessor may well have considered, but does not mention in his report.

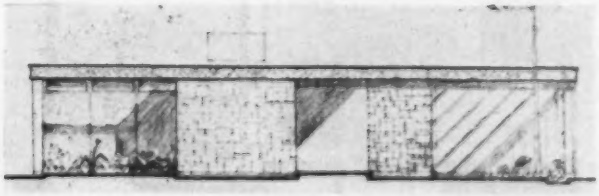
Third premiated design by A. S. Matheson



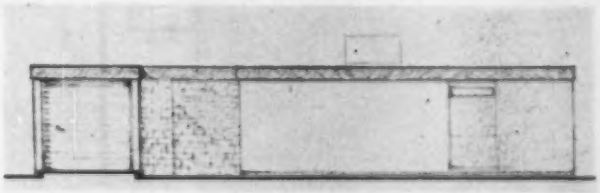
Ground floor plan



Heating layout

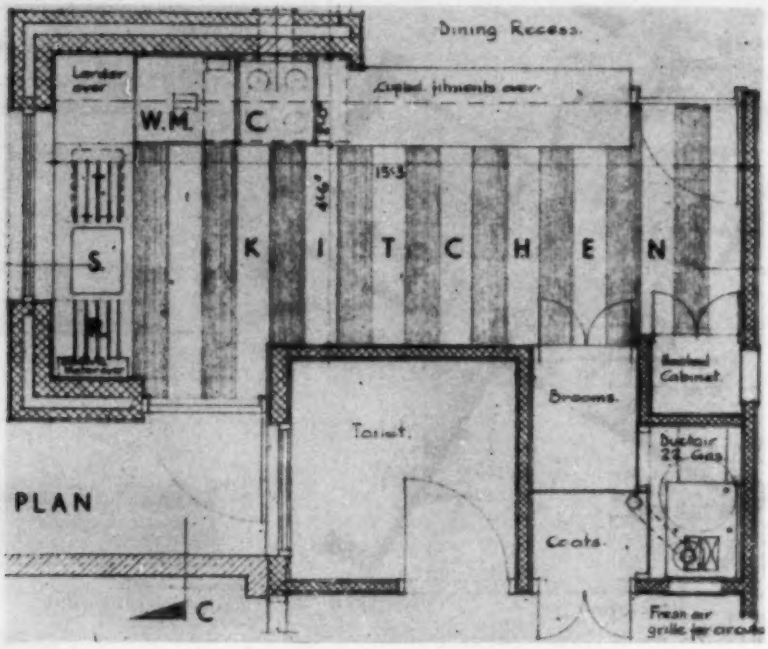


South elevation



North elevation

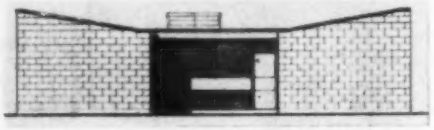
All-Gas House Competition: Third premiated design (continued)



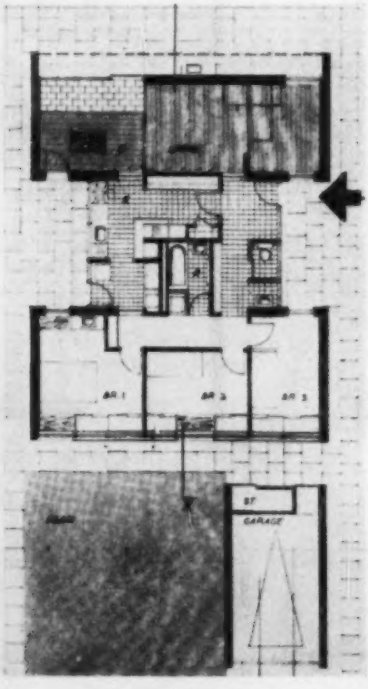
Kitchen plan

In addition to the premiated designs, the assessor commends a further four entries. These include a rather new-brute house by Miss Alice Harter, which has a clearly articulated plan with living areas separated from the bedrooms by a service and entry core. The assessor is obviously disturbed by the appearance of this design which, he writes, *I would hate to see proliferated in any development area.* High level windows over the bedroom cupboards seem pretty brutal

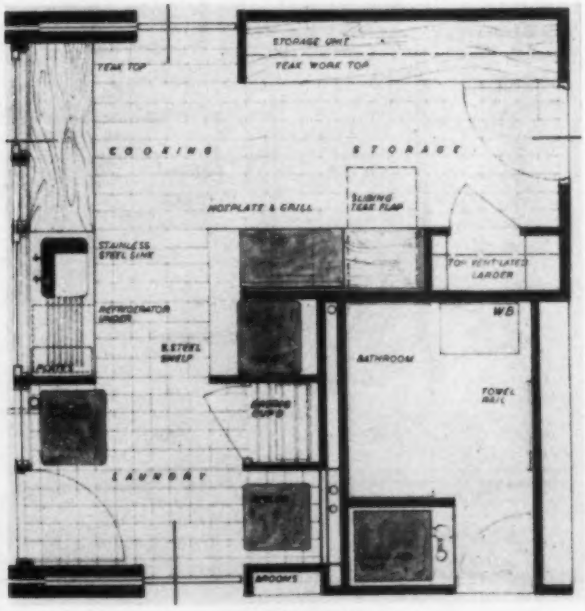
Commended design by A. Harter



North-west elevation



Ground floor plan

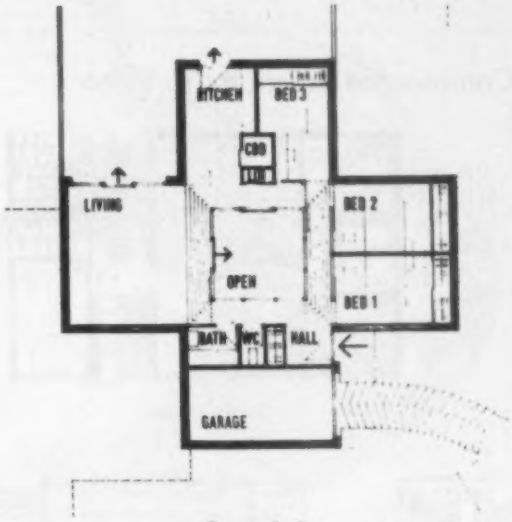


Kitchen plan

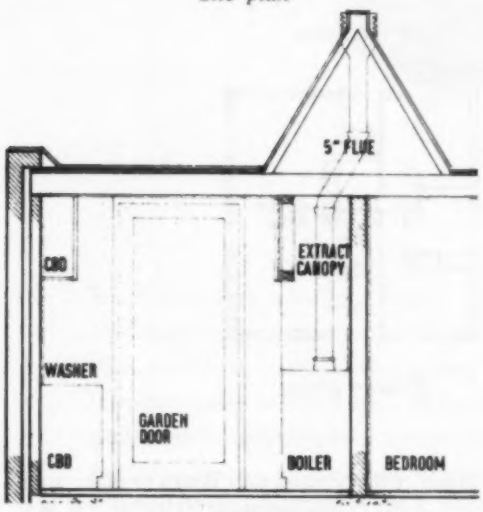
too. The assessor says that he was fascinated by the *monastical skywards-looking house* designed by J. Bartlett and T. Leach, *particularly in its relation of one unit to another.* He is not much in favour, however, of top-lit bedrooms. There is also the snag in the interlocking development they show that bedrooms in one house abut on to the noisier parts of its neighbour, the living room and bathroom.

Commended design by J. Bartlett and T. Leach

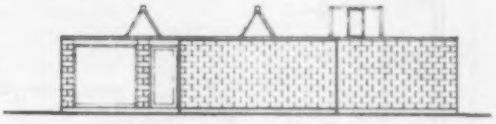
Site plan



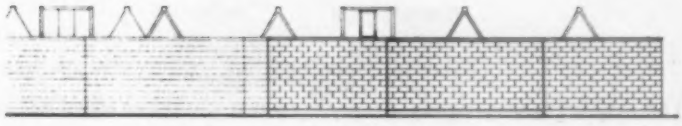
Ground plan



Section



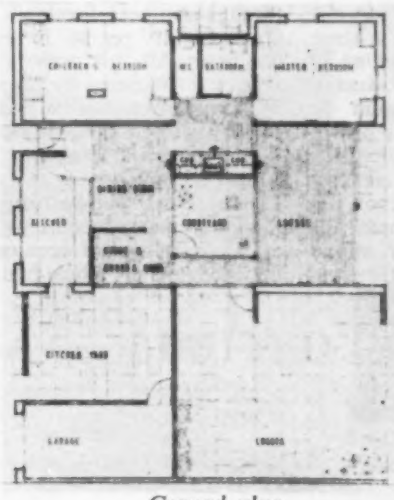
West elevation



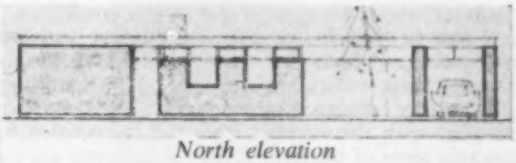
East elevation

The entry by N. G. A. Pearce, with its internal court the assessor found *an interesting plan. The planning of the living room, however, would make it difficult to use:* and on the subject of intercommunicating children's bedrooms *to plan them so that one is accessible only from the other would be quite unacceptable within the conditions.* It is interesting to note, in addition, that although the courtyard is basically an attractive idea, close examination of the plan reveals that because of it, a rather high area of the house is sacrificed to circulation.

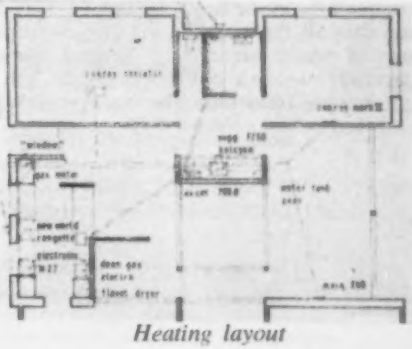
Commended design by N. G. A. Pearce



Ground plan



North elevation

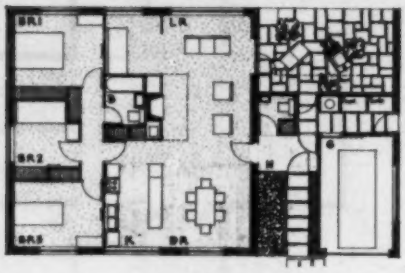


Heating layout

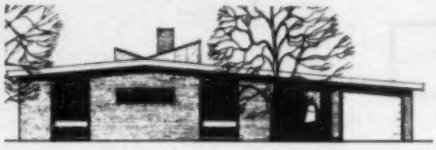
All-Gas House Competition (concluded)

The last commended entry, by B. Cobb, the assessor regards as a *quiet, charming and unpretentious house which, however, has a living room somewhat loose in form, and a kitchen with certain access problems.* It has the virtue of being a successful exercise in minimal external wall area. Perhaps a very small detail, but the design also deserves commendation as being one of the very few entries to provide an extract over the cooker, which is particularly necessary with open or semi-open planning.

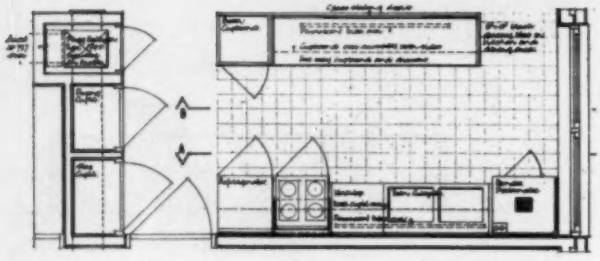
Commended design by B. Cobb



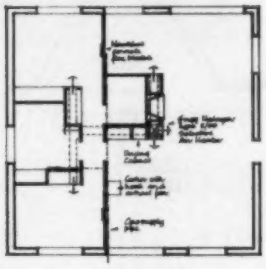
Ground plan



Front elevation



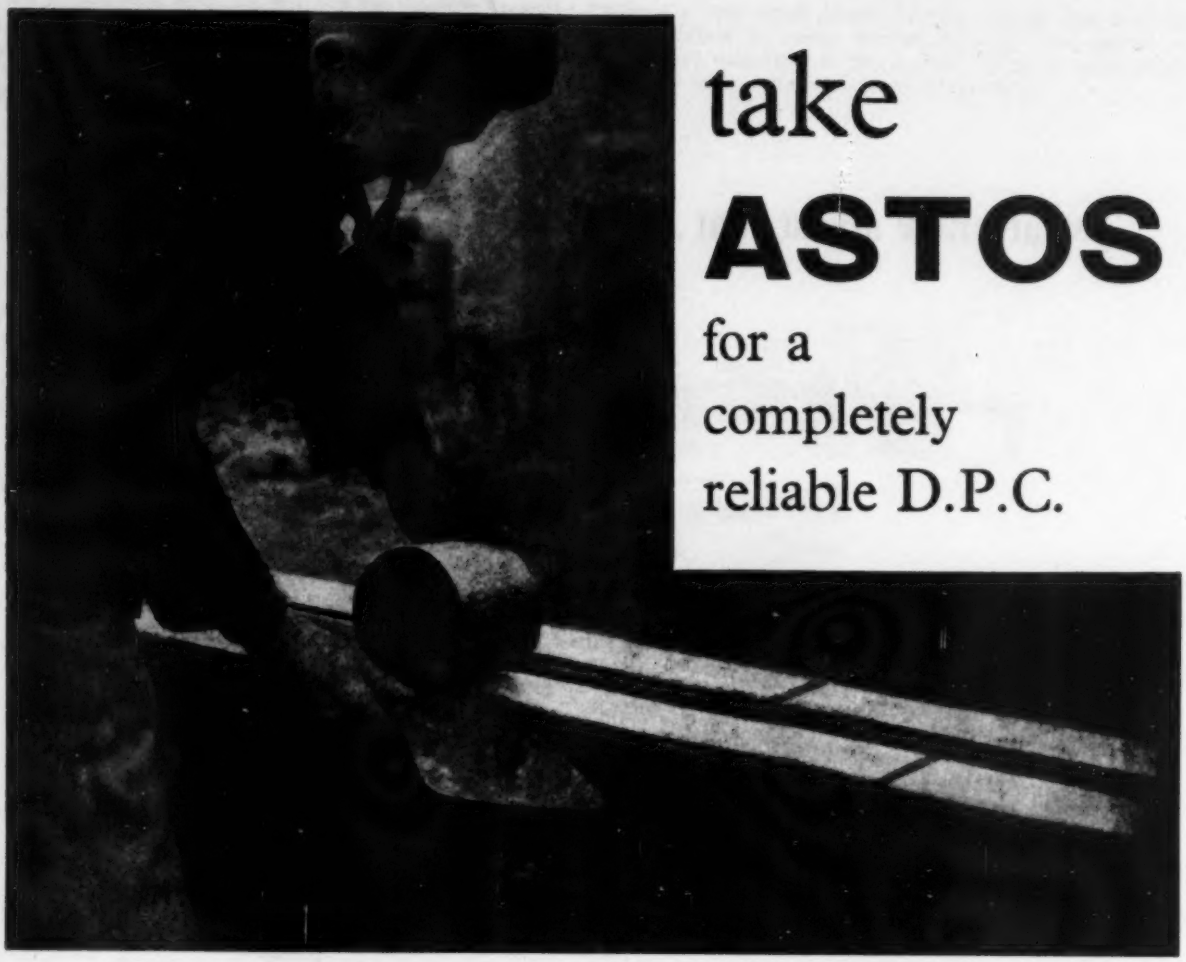
Kitchen plan



Heating layout

The assessor is very rightly disappointed that several of the more imaginative schemes *had to be rejected because of errors of planning which just could not be overlooked: this was more particularly unfortunate, as some of these faults must have been apparent to the authors, and could have been overcome with a little serious thought.* A typical error was the one where the children had to go across the living room to get to the w.c., hardly satisfactory in the evening when there are visitors. The assessor is also disillusioned about the design of the kitchens, detailed plans of which were requested in the conditions. *I do not feel that in the whole of the entries there was one scheme that made any serious contribution to domestic planning.*

Despite these indications of a not very sparkling average standard of design, the Scottish Gas Board should be satisfied with the attention that the competition has drawn towards some of the newer types of domestic gas equipment, particularly in the field of whole-house heating. It is interesting that all three of the winning entries are based upon the use of warm air central heating systems. All three are carefully worked out applications and need only minor corrections in detail. The background to this competition has been the desire of the Scottish Gas Board to make architects more aware of the fundamental revolution in gas heating techniques which has taken place in the last few years. This is, incidentally, also matched on the production side of the Board's activities. They are currently installing a Lurgi pressure-gasification plant in Fife, on the site of a large opencast mining area, a German process which is the first of its kind in this country. The essential point about the method is that the gas is produced at high pressure, which, when the whole scheme is complete, will be circulated through southern Scotland in a gas grid, at a pressure of about 250 lb. per sq. in. and moving at some forty miles per hour. All this activity has the object of reducing or at least maintaining the present price of gas. This, of course, is of vital interest in the use of gas for heating in buildings, particularly the domestic house. The architect is often faced in this field with conflicting information from the different supply authorities and the major oil companies as to what running costs will be using different fuels. If the winning design in this competition is built, it could be valuable as an accurate trial of running costs for a house specifically designed for gas whole-house heating.



take ASTOS for a completely reliable D.P.C.

An Astos dampcourse gives *permanently* effective protection. It cannot be damaged by vibration and normal settlement.

Astos is easily identified on site by the gold band and black lettering. (Green lettering for lead-lined Astos). The original asbestos/bitumen dampcourse, it complies fully with British Standard requirements. Available in 24 ft. rolls in wall widths up to 36 inches. Type 5C, 7 lb. per square yard. Lead-lined (Type 5F) 9¼ lb. per square yard.

This mark appears on a gold band on all Astos dampcourses at 8 ft. intervals.

take ZYLEX slaters' felt

to complete the weatherproofing, provide a completely dependable secondary roof, reduce heat losses. Reinforced Zylex for open rafters, Standard for boarded roofs, Aluminium Foil Surfaced for even greater insulation.

Specify RUBEROID *and you specify the BEST!*

We will gladly supply full details of Ruberoid bituminous products. Write or telephone :—

THE RUBEROID COMPANY LIMITED 498 COMMONWEALTH HOUSE, 1-19 NEW OXFORD STREET, LONDON, W.C.1. Holborn 9501 (5 lines)

ZA611

technical section

THE INDUSTRY

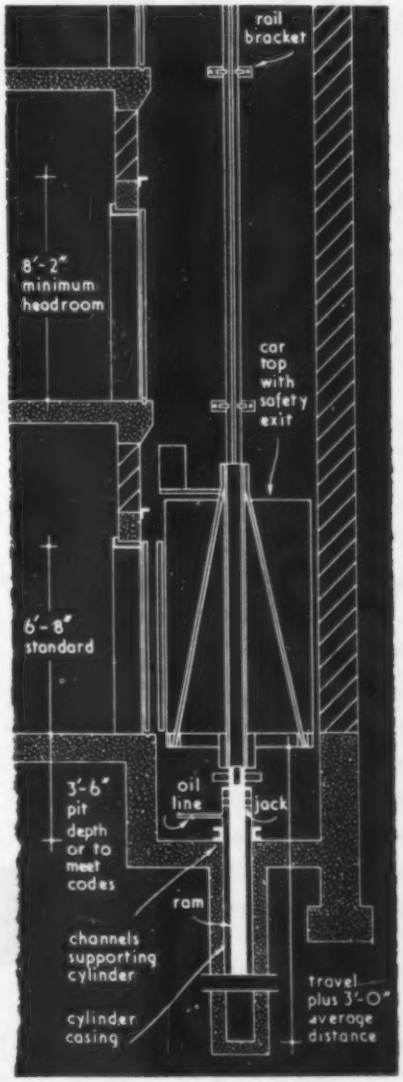
This week Brian Grant describes a range of multi-coloured paints, a gas-fired incinerator, and a pamphlet on hydraulic lifts.

Multi-Coloured Paint

A colour card from Sissons shows the range of Porterfleck multicolour paints, which are applied in a single spray coat and are touch dry in two hours. The range of colours is virtually unlimited, but the card shows 30 or more. The thickness of the coating is four or five times as great as the normal paint film, and will mask irregularities in plaster, joints in boards and other defects. The paint is washable and the makers claim that it is exceptionally hard wearing. (*Sissons Bros. & Co., Ltd., Bankside, Hull.*)

Gas-Fired Incinerators

Victor Products have recently introduced a 1·6 cubic foot gas-fired incinerator in which wet or dry waste material is completely reduced to ash. There is a foot pedal to open the lid, and a dial set time control for the burning period required, the main gas burner being automatically lighted. Combustion is controlled by a draught stabiliser, smoke and fumes being drawn into a firebrick chamber where they are rendered smokeless and odourless. All metal parts exposed to flame are made of heat resistant stainless steel. Price is £72 9s. (*Victor Products (Wallsend) Ltd., Wallsend, Northumberland.*)



Hammond & Champness hydraulic type lift

Hydraulic Type Lifts

Whereas hydraulic lifts were pretty common pre-1914 one would nowadays tend to look on them as semi antiques due for replacement. Yet for medium height lifts there is much to be said for hydraulic systems, which nowadays use oil and not water, and derive their power from an electrically driven oil pump rather than from a high pressure water main. Hammond & Champness have just issued a leaflet on the subject, setting out the advantages of lifts of this kind when a comparatively short rise is needed. Perhaps the most important is that there are no vertical loads on the lift well structure (though guide rails are, of course, necessary) no counterbalance weights or ropes, no winding gear or brakes, and a minimum of electrical gear to maintain. Furthermore the operating motor and oil pump are a comparatively small unit which can be placed anywhere within reason. The only limiting factor is the bored hole to take the ram, on which the entire lift system is supported. This must be equal to the total lift height, plus about 3 ft.

The oil pump is in operation only during upward movement, descents involving no more than the balance of the oil in the ram, which is returned to a supply tank over the motor unit. Control is by push button with electro magnetic valves, and floor levelling is accurate to ¼ inch. Speeds up to 125 ft./min. are available, which the makers say is the most practical speed for short rise lifts. (*Hammond & Champness Ltd., Gnome Works, Blackhorse Lane, London, E.*17.)

IS THE HOUSE THAT JACK BUILT

Jack's house is insulated with Fibreglass. That's what keeps it warm and comfortable all through. Fibreglass in the attic and between cavity walls stops heat escaping and keeps it inside where it belongs. Cost — a few pounds. Benefits — permanent savings in fuel and a home with extra comfort for as long as you live in it, and if you are thinking of installing central heating, lower capital equipment costs. If you are having a house built, ask your architect or builder about the advantages of Fibreglass insulation.

WHAT OF THE HOUSE THAT JIM BOUGHT? If your house is already built, you can do your own attic insulation easily enough with Cosywrap. This is a Fibreglass product available from ironmongers, stores and builders' merchants. A leaflet about it? —write and it's yours.

for comfort's sake insulate with

FIBREGLASS

FIBREGLASS LIMITED · ST. HELENS · LANCASHIRE · TELEPHONE ST. HELENS 4022

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.

A
699·844

22.96 sound insulation and acoustics

Effect of Painting on Sound Transmission Loss of Lightweight Concrete Block Partitions. Hale J. Sabine.
Noise Control, Vol 6, No. 2, March/April, 1960.

The idea of a "sound insulating paint" is usually and rightly regarded as a pipe dream. However, there are circumstances in which paint can improve sound insulation by an appreciable amount and this article describes tests proving this fact. It is well known that lightweight concrete block walls, because of their porosity have very low sound insulation unless they are plastered on at least one side. Some of the recently introduced machine made blocks employing expanded aggregates and/or cement foaming agents have faces which are smooth and regular enough to allow them to be used without any applied surfacing material (plaster or sheeting) in certain applications. This may result in very poor sound insulation performance unless the surfaces are sealed in some way.

Tests carried out on various types of lightweight block wall gave sound insulation increases of between 3 and about 15 dB, depending on the type of block. Briefly, the smaller increase is obtained with blocks having a close texture and non-communicating pores, while large increases can be expected when blocks of more open texture are painted. Dense concrete blocks show no increased insulation after painting.

Direct reference to the types of block tested would be of little value because it applies to material of U.S.A. origin and counterparts are not necessarily to be had in the U.K.

The paint coats employed on both sides of the walls consisted of two coats of resin-emulsion paint applied at the rate of 52 sq. ft. per gallon for the two coats. It should be noted that the final insulation of the painted walls does not exceed, and in some cases does not quite reach, the mass law insulation value. Stress is laid on the need to paint the *whole* of the wall if sound insulation increase is required, and not to omit parts which are not exposed, for example inside fitted cupboards.

SfB No.	C
UDC No.	624·13

8. SURVEYING & SPECIFICATION

site investigation, 2

In his first article Geoffrey Williams considered the broad objects of site investigation and dealt with such questions as how many bore holes should be sunk and how deep they should go. This week he completes his review of this subject by considering the actual techniques to be adopted both when sinking the holes and when recording data. He ends with a reference to geophysical methods of site investigation.

Cost of site investigation

The amount of work required will differ so much from one site to another that it is extremely difficult to give any idea of how much money site investigation in general will cost. The cost of making boreholes through soft ground varies from £1 to £3 per foot of depth, depending on the soil, plus the cost of transporting the equipment to and from the site. Taking a reasonable number of undisturbed samples and standard penetration tests may increase this cost by about 5s. per foot, whilst diamond drilling to prove rock below a borehole could cost from 40s. to 90s. per foot depending largely on the hardness of the rock. All in all the full investigation might cost from £3 to £6 per foot of boring. Using the Dutch penetrometer (discussed later in this article) might cost from 10s. to 15s. per foot of penetration.

Boring and Sampling

No matter how good the conditions appear to be and how simple the foundations intended, it is always wise to confirm them with trial holes or borings on the actual site of the building, although in some cases it may be sufficient to limit them to a few shallow trial holes—for instance if all the information points to there being sound bedrock within a few feet below the ground surface.

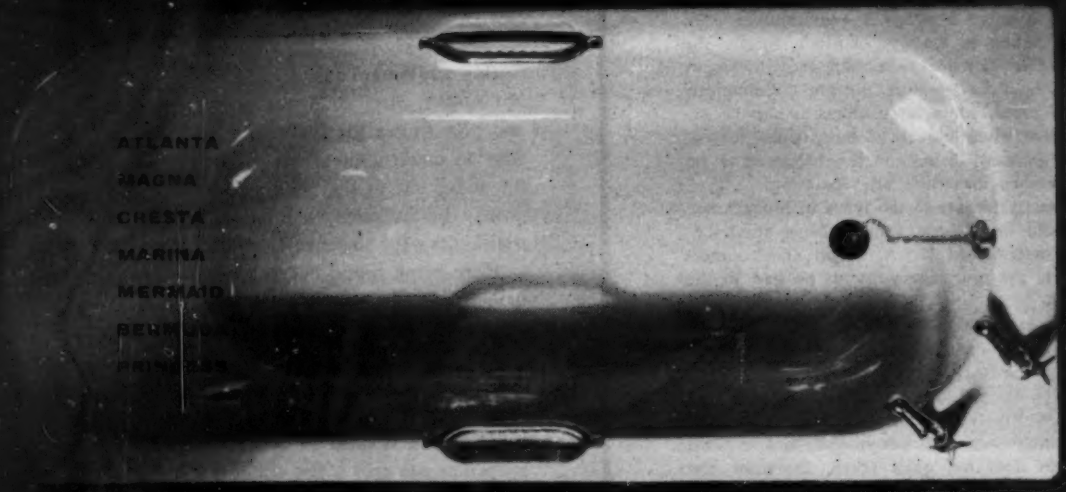
Until quite recently it was frequently difficult to persuade clients to spend money on making borings or trial holes on any site, but recently some clients seem to have become so accustomed to having borings made that it is hard to convince them that on some particular site only a few shallow trial holes are necessary.

Usually trial holes, as opposed to borings, are only justifiable when a shallow investigation is required and the depth does not justify the cost of bringing

THE ARCHITECTS' JOURNAL
for November 3, 1960

For design, finish . . . choice of sizes and colours,

Architects need look no further than Bilston, the Bath Specialists



BILSTON

Illustrated literature sent on request · Bilston Foundries Ltd, Bilston, Staffs

technical section

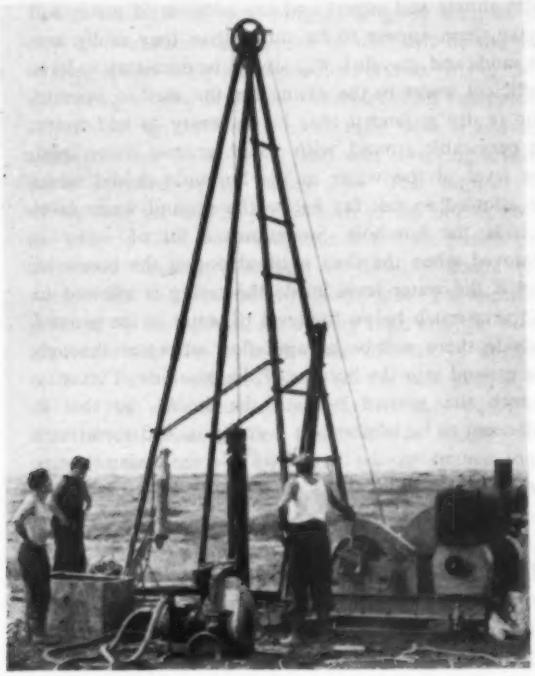


Fig. 1. Typical portable boring rig suitable for most site investigation

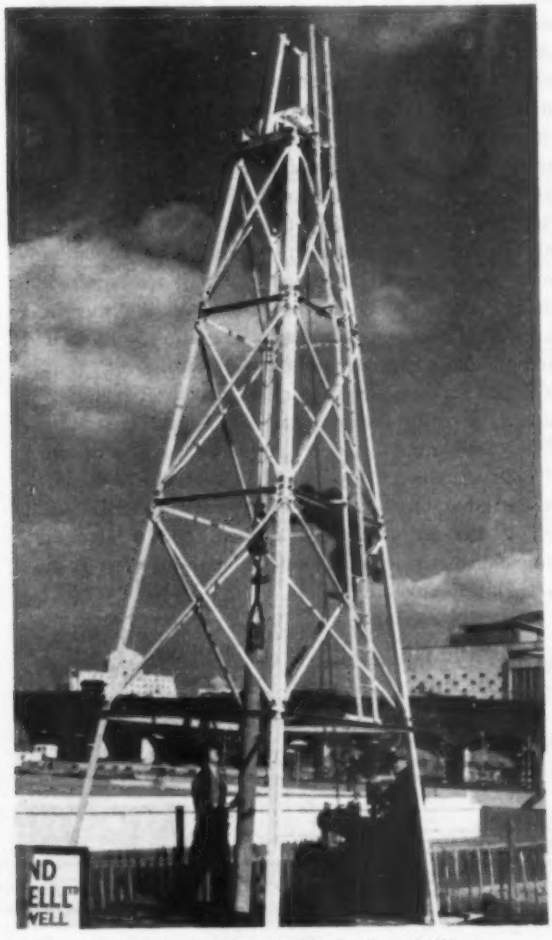


Fig. 2. Heavier boring rig suitable for deep drilling

drilling equipment to the site and erecting it. Trial holes have the advantage that the ground can be examined *in situ*, and undisturbed samples for laboratory tests can be cut out by hand. Generally, sinking trial holes becomes much more expensive when the ground water table is reached; in this case borings are cheaper, whatever the depth.

The majority of site investigations are carried out by sinking borings. Their most usual size is 6 in. diameter, and in the majority of soils they are lined for their entire depth with steel tubes called "casing" which is withdrawn when the boring is finished with. On the relatively rare occasions when it is necessary to make deep borings through sands, gravels or firm clays it may be very difficult to withdraw the casing because it is held too tightly in the ground. In such cases it is advisable to start the boring with a casing of much larger diameter, and when such a depth is reached that this casing becomes tight in the ground, a second smaller casing is lowered inside it and boring proceeds inside the smaller casing. This process may be repeated several times in a deep boring if the first casing is sufficiently large.

Occasionally for very small jobs on dry clay sites, where the depth of the investigation will not exceed a few feet, it is possible to economise by making unlined borings with a post-hole auger, instead of excavating trial pits.

When boring deeper holes in firm clay, where the sides of the hole will stand without casing, there is a temptation to avoid difficulties in withdrawing the casing by not driving it down, but by boring on into the clay beneath the casing, leaving the hole unlined. This procedure should not be permitted without due consideration, firstly because nearly always some material will fall from the unlined upper parts of the hole and it may be picked up from the bottom of the hole and mistakenly assumed to be typical of the ground at the bottom. Secondly casing would be required if the hole went beyond the bottom of the clay stratum and into sand or gravel, where the sides of the hole would not stand up without casing.

Deep borings can be bored without casing by filling the hole with drilling mud—that is dense liquid whose pressure supports the side of the hole. However, this method is not recommended for site investigation work because the drilling mud can become mixed into the samples of soil, and cause them to be no longer typical of the *in situ* soil.

The majority of boring for the site investigation for building foundations can be done with a light portable drilling rig, equipped with a small portable engine, such as that illustrated in Fig. 1, and operated by two or three men. Such a rig will drill to depths of 100 ft. or 150 ft. in most ground. If deeper holes are required, heavier and less portable drilling rigs are required, such as that shown in Fig. 2.

It is important that the drilling should be done with great care, and not hurried, because it is quite possible for inexperienced drillers to drill through layers of soil

technical section

of up to 1 or 2 ft. in thickness without noticing them. It is also important that the samples of soil brought to the surface should be as truly representative as possible of the natural soil *in situ* in the ground. At first sight there is a similarity between sinking borings for site investigations and drilling small wells, but in practice it is found that men whose experience is in well-drilling are not often very successful at site investigation, because as a class they tend to work too fast and are not sufficiently careful to observe changes in strata.

The reliability of the information obtained from a borehole depends very much on the method adopted for removing the soil from inside the casing. In most soils the quickest method is to insert a water jet into the casing to loosen the soil and to wash it out suspended in the water. This method, commonly known as "wash boring," should never be permitted in site-investigation work, because the water jet will disturb the soil so much that the material brought to the surface will be quite different from the undisturbed soil *in situ*. Clays will be softened, whilst the finer constituents of sand and gravel will be washed away and the samples will give the impression that the soil is coarser and more permeable than it really is.

It is much better in site investigation work to employ the "shell and auger" method of removing the soil from the boring. Clays are removed by means of an auger, which is a corkscrew-like tool that is screwed into the ground and is then raised to the surface with the soil upon it. Sands and gravels are removed with a "shell"—that is a tool consisting of a tube several feet long, open at the top and with a flap-valve at the bottom arranged so that water can flow up into the tube, but cannot flow down out of the tube. The hole is charged with water and the shell raised and lowered rapidly at the bottom. A mixture of sand, gravel and water then enters the bottom of the shell through the valve. The water overflows from the top whilst the sand and gravel accumulate in the shell until it is raised to the surface and emptied. In hard soils a heavy chisel-shaped tool is useful to break up the ground at the bottom of the boring before it is removed.

During shell and auger boring only the minimum quantity of water should be added to the borehole. In clays it should never be necessary to add any water, because even the hardest can always be removed with chisels and augers and the addition of water will make them appear to be softer than they really are. In sands and gravels it will always be necessary to have sufficient water in the casing for the shell to operate, and in dry ground it may be necessary to add water. In permeable ground, with a high ground water level, the level of the water in the borehole should never be allowed to fall far below the ground water level outside the borehole. Sometimes a lot of water is removed when the shell is lifted out of the borehole, and if the water level inside the casing is allowed to fall very much below the level of water in the ground outside there will be a rapid flow of water through the ground into the bottom of the borehole. This may disturb the ground beneath the casing, so that it will seem to be looser than it really is, and sometimes more ground may be carried up into the casing than is removed with the shell, so that the hole ceases to progress.

"Disturbed" and "Undisturbed" samples

Types of samples taken in borings are of two kinds—"disturbed" samples and "undisturbed" samples. Undisturbed samples are intended to be absolutely undisturbed samples of the soil as it exists in the ground, so that neither its composition nor its structure is altered, its water content is neither increased nor decreased, and it is neither compressed nor allowed to swell while the sample is being taken. This is, of course, an ideal which can only be approximated to in practice. All samples are disturbed to some extent—although the amount of disturbance can be reduced by using complicated sampling equipment and painstaking workmanship. It is much easier to obtain undisturbed samples of clay than of sands or gravels, but fortunately in the design of most building foundations only undisturbed samples of clay are required. Small specimens can be cut from the undisturbed samples in the Soil Mechanics laboratory, and their strength and compressibility can be determined by tests in much the same way as other structural materials such as steel or concrete can be tested. The results of the tests are then used as the basis of the design of the foundation. However, the properties measured in the laboratory will not be typical of the *in situ* soil if the samples are disturbed, and sometimes sample-disturbance can cause the laboratory results to be seriously misleading.

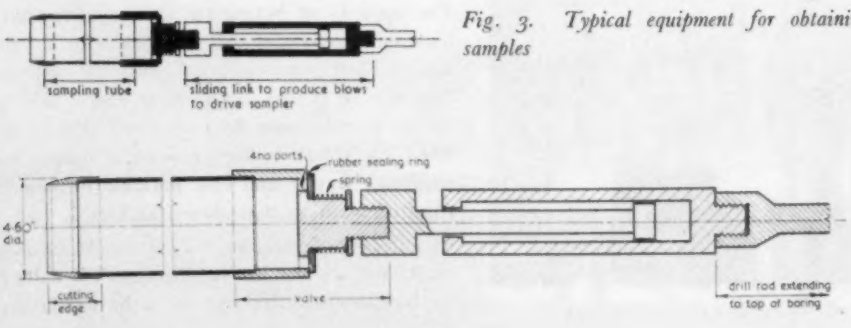


Fig. 3. Typical equipment for obtaining undisturbed samples

It has been found that sufficiently good samples of clay for foundation design can be obtained by the use of the type of sampling equipment shown in Fig. 3—commonly known as a " U4 " sampler. This equipment consists of a thin-walled steel tube with a cutting edge attached to its lower end and a spring-loaded valve attached to its upper end. The sampler is driven into the clay at the bottom of the boring until the tube is filled with soil, and it is then pulled up, the valve causing a suction to develop above the sample that helps to retain it in the tube. The sampler is raised to the surface, the cutting edge and the valve are removed, and a thick coat of wax is applied to both of the exposed faces of the soil sample to ensure that its moisture content remains equal to that of the ground from which it was taken. Steel caps are then screwed into each end of the sampling tube to protect the sample during transport to the laboratory.

When the sampler is driven into the ground, a volume of soil equal to the volume of its walls must be displaced, and this will cause disturbance of the sample. Clearly the thinner the walls, the less will this disturbance be, and the sampler walls should be as thin as possible. Most engineers include in their specification a limit on the thickness of the samplers to be used.

Sample disturbances will also occur if the sampler is not driven as smoothly as possible into the ground, and particularly if it is permitted to rock from side to side during driving. This will certainly happen if the sampler is attached to the bottom of a rod that extends to the top of the borehole and it is driven down by blows on the top of the rod. It is essential for the sampler to be driven by a sliding link mechanism introduced between the rod and the sampler itself. The weight of the rod can then be used to drive the sampler by raising it to the extent of the sliding link and allowing it to fall. Experience has generally shown that this is the most convenient method that can be relied upon to give sufficiently undisturbed samples.

The taking of undisturbed samples is expensive and they can only be taken easily in clays. Furthermore they are heavy and cumbersome, and they cannot be inspected easily. Consequently it is also necessary to retain samples of the material brought up by the boring tools, since they can be easily taken from any type of soil, and they can be conveniently stored in glass jars, and can be inspected at any time. Such samples are usually referred to as " disturbed " samples and they give an indication of the nature of the soil but not an exact numerical value of its strength or compressibility. To be of any value, disturbed samples of sands and gravels must contain all the particle sizes in the same proportions as they occur in the ground, whilst the water content of disturbed samples of clay must not differ from the water content of the clay *in situ*. If this is not so the samples will be misleading as far as the hardness of the clay is concerned. For the same reason, jars containing disturbed samples should be tightly sealed as soon as they are taken, and should be kept sealed at all times. Samples of the clay that have been allowed to dry out are quite useless. Disturbed samples should be taken at every change of stratum, and they should also be taken at every few feet of boring in thick strata where there are no perceptible changes.

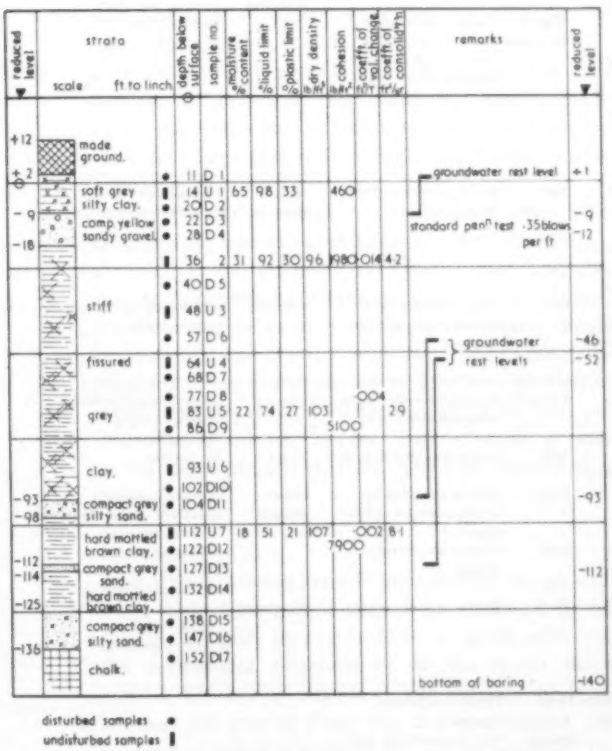


Fig. 4. Typical record of boring and test results

Keeping Records

Sinking borings and trial pits is of little value unless reliable and accurate records are kept of all the information that they reveal. The basis of all such records must be the record kept by the foreman as the work proceeds, noting each change of stratum as it is encountered and each disturbed or undisturbed sample as it is taken. Errors can occur if the foreman delays making out his record until the end of the shift.

The foreman's record should be checked by the engineer in charge of the investigation, who will be able to examine the disturbed samples of soil at leisure in the laboratory and amend their description if it is necessary. He will also add to the record the results of the laboratory tests on the undisturbed samples, and any other information necessary to complete the records.

The results of each boring or trial pit should finally be listed on a record sheet (see Fig. 4).

The strata are best shown by means of a section of the boring drawn on the record sheet, the various

technical section

types of soil being indicated by the British Standard conventional symbols, which are given in Fig. 5.

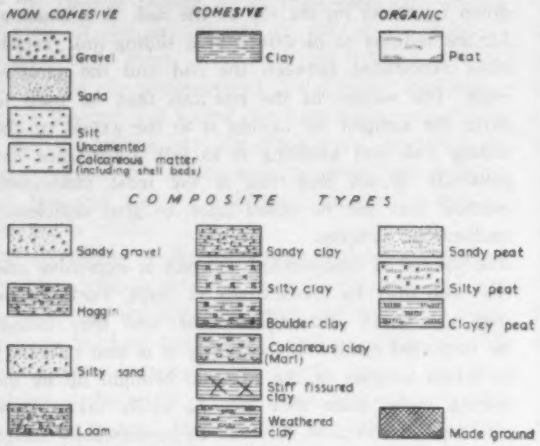


Fig. 5. BS symbols for earth types

The level of each change of stratum is given, with the datum to which all the levels are to be referred. All disturbed and undisturbed samples are indicated against the level where they were taken, and the results of all laboratory tests are entered against the sample to which they refer. The record should also give full information on all observations of the groundwater level, the names of the clients and the firms who carried out the boring and the laboratory testing, the date when the work was done, the type of equipment and the size of the casing used and whether or not the casing extended to the full depth of the hole. A means must also be given of identifying the position of each boring or trial pit on the site—in most cases this will be done by assigning a number to each boring, and producing a plan showing the positions of all the borings.

The verbal descriptions of the various types of soil must be very precise, care being taken that each

Table 1.—General basis for identification and classification of Soils after BS Code of Practice CP 2001 (1957)

	Size and nature of particles			*Strength and structural characteristics*			
	Principal soil types 1	2	*Composite types* 3	*Strength* 4		*Structure* 5	
	Types	*Field identification*		*Term*	*Field test*	*Term*	*Field identification*
Coarse grained, non-cohesive	Boulders Cobbles	Larger than 8 in. in diameter Mostly between 8 in. and 3 in.	Boulder gravels Hoggin	Loose	Can be excavated with spade. 2-in. wooden peg can be easily driven	Homogeneous	Deposit consisting essentially of one type
	Gravels	Mostly between 3 in. and No. 7 BS sieve	Sandy gravels	Compact	Requires pick for excavation. 2-in. wooden peg hard to drive more than a few inches		
	Uniform Sands Graded	Composed of particles mostly between No. 7 and 200 BS sieves, and visible to the naked eye Very little or no cohesion when dry Sands may be classified as uniform or well graded according to the distribution of particle size Uniform sands may be divided into coarse sands between Nos. 7 and 25 BS sieves, medium sands between Nos. 25 and 72 BS sieves and fine sands between Nos. 72 and 200 BS sieves	Silty sands Micaceous sands Lateritic sands Clayey sands	Slightly cemented	Visual examination Pick removes soil in lumps which can be abraded with thumb	Stratified	Alternating layers varying types
Fine grained, cohesive	Low Plasticity Silts	Particles mostly passing No. 200 BS sieve Particles mostly invisible or barely visible to the naked eye. Some plasticity and exhibits marked dilatancy. Dries moderately quickly and can be dusted off the fingers. Dry lumps possess cohesion but can be powdered easily in the fingers	Loams Clayey silts Organic silts Micaceous silts	Soft Firm	Easily moulded in the fingers Can be moulded by strong pressure in the fingers	Homogeneous Stratified	Deposit consisting essentially of one type Alternating layers of varying types
	Medium Plasticity Clays High Plasticity	Dry lumps can be broken but not powdered They also disintegrate under water Smooth touch and plastic, no dilatancy. Sticks to the fingers and dries slowly Shrinks appreciably on drying, usually showing cracks Lean and fat clays show those properties to a moderate and high degree respectively	Boulder clays Sandy clays Silty clays Marls Organic clays Lateritic clays	Very soft Soft Firm Stiff Hard	Exudes between fingers when squeezed in fist Easily moulded in fingers Can be moulded by strong pressure in the fingers Cannot be moulded in fingers Brittle or very tough	Fissured Intact Homogeneous Stratified Weathered	Breaks into polyhedral fragments along fissure planes No fissures Deposits consisting essentially of one type Alternating layers of varying types. If layers are thin the soil may be described as laminated Usually exhibits crumb or columnar structure
Organic	Peats	Fibrous organic material, usually brown or black in colour	Sandy, silty or clayey peats	Firm Spongy	Fibres compressed together Very compressible and open structure		

word in the description is used in a defined sense which will mean the same thing to every experienced engineer. Table 1 is reproduced from Civil Engineering Code of Practice No. 1 and defines most of the terms used in describing soils. It is desirable to restrict the terms used to describe the soils to the terms given in this table, and to use the terms exactly as they are defined. The description of each type of soil should include the following information, usually in the order listed:

1. Density, hardness and structural characteristics.
2. Odour when present.
3. Colour.
4. Type of soil particles.

Composite soils are mixtures of more than one of the principal types. The final word in their description should be the type of particle that is predominant—e.g., sandy-clay would be predominantly clay and clayey-sand would be predominantly sand.

Typical full soil descriptions would be as follows:

Homogeneous, compact, yellow sand;

Stratified, soft, yellow and white silty clay;

Stiff, fissured, blue clay.

If the boring records do not describe the various soils in such full, precise terms, there is a strong suggestion that the site-investigation contractor has not done his work conscientiously.

The following terms are particularly liable to be misapplied, and care must be taken to use them only in the sense defined in the Code of Practice:

Silt. A silt is a particular type of fine grained soil of very low plasticity, which behaves like a clay of very low plasticity in some circumstances and like a very fine sand in others. True silts are quite rare in Great Britain.

Loam. This is a general term describing soil that consists of clay, silt and sand in approximately equal amounts; but it has been used generally to such an extent that it is of little use in the precise definition of soil.

Marl. This term should be confined to clays containing lime, and not applied to any hard clay.

"*Firm.*" It will be noted in Table 1 that firm clay can be moulded by strong pressure in the fingers. Clay that can be easily moulded in the fingers should be described as "soft," and clay that cannot be moulded in the fingers should be described as "hard." Admittedly the strength of the fingers varies from one individual to another, but the range is hardly as great as the range of soils that are commonly described as being "firm."

Groundwater

In addition to noting the soils encountered, the groundwater conditions should always be observed in the borings because they will have a great effect on the design and execution of all the works below ground. The boring records should indicate the levels at which the ground water was first encountered, and the level at which it came to rest in the borehole. The rest-level of the groundwater should be observed carefully and sometimes it is necessary to leave the boring undisturbed for several hours from the point where the groundwater was encountered, taking observations at intervals until it is certain that the water level in the hole has come to rest. There are several common errors made in observing the groundwater conditions which must be guarded against, the two most obvious being introducing water into the boring, or removing it, during the drilling operations and driving the casing through a waterbearing stratum to be sealed off in an impermeable layer below. It is less widely appreciated that any pumping of the groundwater can lower its level over a very wide area, and it will rise to its original level when the pumping ceases. Thus when important groundwater observations are being made, the neighbourhood should be examined to ensure that no work is in progress that may cause a temporary lowering of the groundwater level.

Near the sea and tidal rivers, the groundwater will usually rise and fall with the same frequency as the tides, but with a smaller range. This effect can be easily investigated by observing the levels of the water level in the borehole throughout a period of 12 hours, provided that the bottom of the casing is not sealed off in an impermeable stratum.

Penetration Testing

Besides the most common method of taking undisturbed soil samples in a borehole, and testing them in the Soil Mechanics Laboratory, there are several methods in use of investigating the strength of the subsoil by driving various types of probes into it. The two most common methods in Great Britain are the "standard penetration test" and the "Dutch penetrometer" method.

In the standard penetration test a standard thick-walled sampling tube, of 2 inches diameter, is driven into the ground at the bottom of the borehole by blows from a weight of 140 lb. dropping freely through a height of 30 inches. The number of blows required to drive the tube through a distance of one foot is a measure of the hardness of the ground. The tube will retain a certain amount of soil which can be kept as a disturbed sample of the ground in which the test was made, but this should not be confused with an undisturbed sample because the walls of the samplers used in the standard penetration test are so thick that the samples obtained with them are useless for laboratory testing.

The standard penetration test is useful because it is a simple quick test that can be done in ordinary borings to obtain an indication of the strength of

Table 2 Approximate correlation between penetration test, density and bearing pressure of dry sand

Number of blows per foot in standard penetration test	*Density of sand*	*Allowable bearing pressure on thick stratum of dry sand*
0–10	Loose	1 ton/sq. ft.
10–30	Medium	1–3 tons/sq. ft.
30–50	Dense	3–5 tons/sq. ft.
Exceeding 50	Very dense	6 tons/sq. ft.

technical section

sands and gravels where undisturbed samples for laboratory tests cannot be obtained easily.

Table 2 gives an approximate correlation between the number of blows per foot in the standard penetration test and the density of the sand or gravel. The third column suggests a safe bearing pressure for normal size footings near to the surface of a thick stratum of dry sand. If the sand is saturated with water the values of the bearing capacity should be halved. These values are, of course, only intended as a guide, but they should be generally applicable to small buildings.

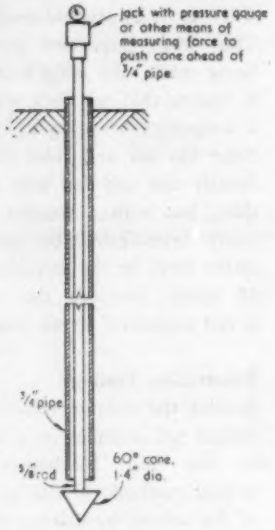


Fig. 6. Simple Dutch penetrometer

The Dutch penetrometer is shown in Fig. 6. It consists of a steel cone, 1·4 in. diameter with a 60° point, attached to a ⅝-in. diameter rod which is driven into the ground inside a ¾-in. gas pipe. By measuring the force to push the cone for a short distance ahead of the pipe, a measure is obtained of the resistance of the soil at the level of the point. The pipe is necessary to separate the friction of the ground on the rod from the resistance at the point. This equipment can be used to depths approaching 100 ft. in suitable ground, and it is cheaper than making borings. However the information that it gives is confined to the penetration resistances of the ground, and no information is obtained about the types of soil. Furthermore it is difficult to decide from the penetrometer results alone what bearing pressure is safe under a footing at a particular depth.

The penetrometer is very useful, however, for determining the depth to a clearly defined hard stratum beneath a soft overburden, and for observing how this depth varies over a large site—possibly to decide what lengths of piles are required to reach the hard stratum. A number of borings should be made, however, to obtain detailed information about the various strata and to confirm the penetrometer results.

In fact penetrometer tests are nearly always of greatest use when they are used on large sites to supplement a small number of borings, and to ensure that there

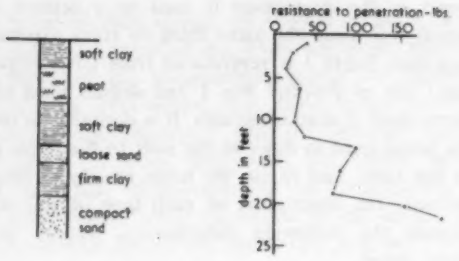


Fig. 7. Typical comparison of Dutch penetrometer result with boring

are no variations in the strata between the borings. However, there is only a limited range of sites where this can be done.

Geophysical Methods

There are, of course, various geophysical methods of site investigation available, in which various physical properties of the ground, such as its electrical resistance or the manner in which sound waves are propagated, are measured at the surface, and the nature of the subsoil is deduced from them. These methods are generally not so useful on building projects as they are on civil engineering projects, where the sites tend to be more extensive and the designers are interested in the properties of the soil to much greater depths. One very simple geophysical method may be mentioned however, because it provides a cheap way over a large site of determining the depth to rock or a hard stratum where it is overlain by soft materials—to determine how the length of piles will vary from one part of the site to another, for instance. A peg in the surface of the ground is struck with a sledge hammer, and a nearby geophone, which is a microphone-like device buried in the soil to detect sound waves travelling through the ground, picks up the noise of the initial blow and then that of its echo from the hard layer beneath. The time interval between the initial blow and the echo is determined electrically, and from it the depth to the hard layer can be deduced. The apparatus is very portable, and the test can be carried out easily and quickly, so that a large number of tests can be carried out all over a site. This method is limited, however, to sites where there is a clear distinction between the hard layer and the soft overburden, and it is essential to confirm the results by a few borings.

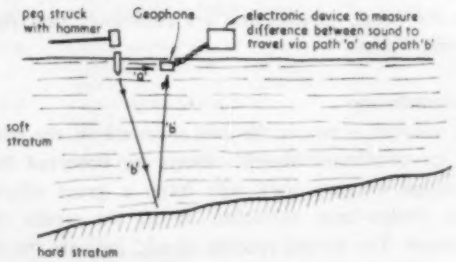
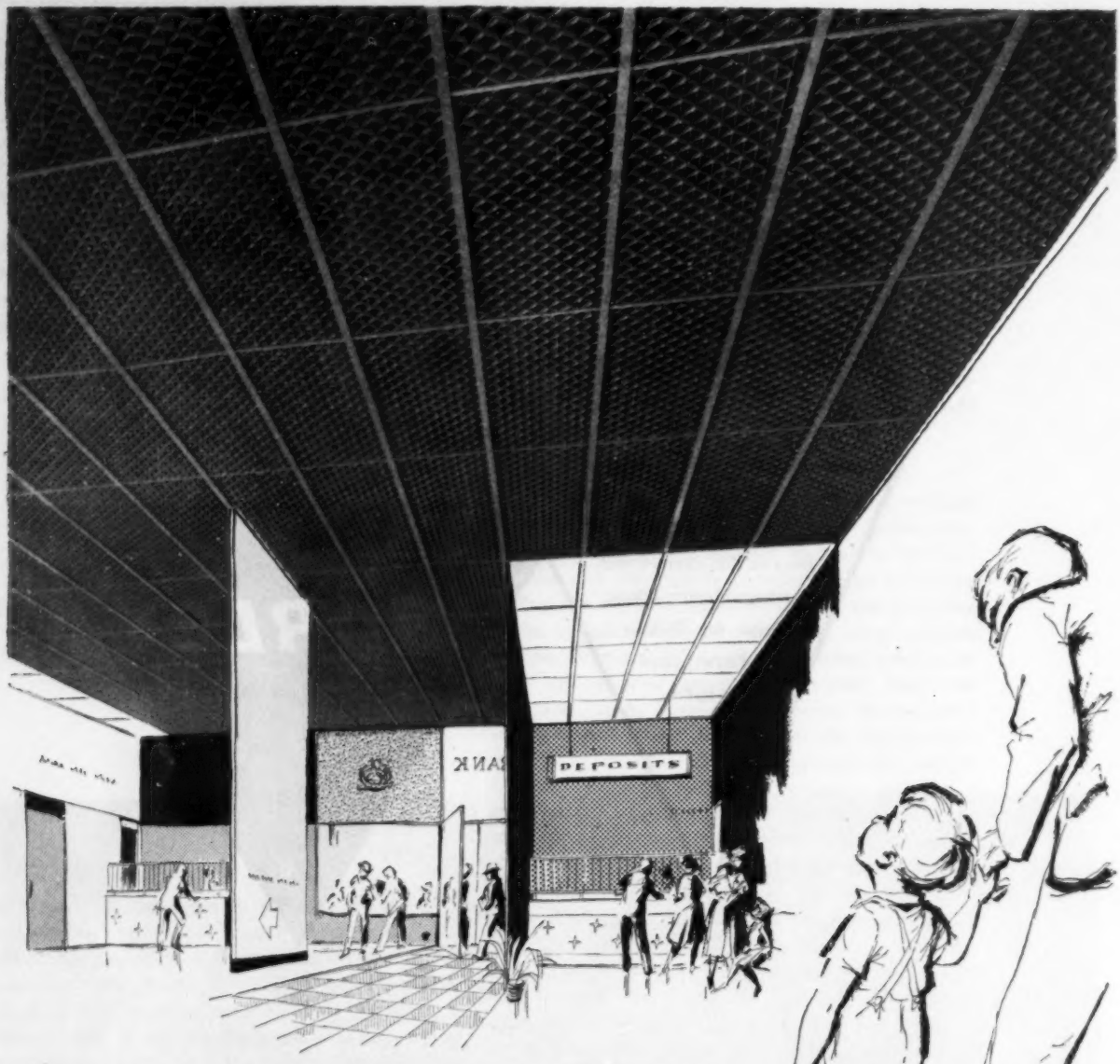


Fig. 8. Method of obtaining depth of hard stratum by use of a geophone



They've covered the lights up!

And what a difference it makes. The soft diffused light through a Difulite cellular sub-ceiling is so pleasing. Difulite is a fully ventilated panel arrangement which invites many delightful ceiling patterns. The panels are simple to erect and can be removed rapidly for inspection or maintenance.

There is a full colour catalogue which gives full details

METAL SECTIONS LTD

OLDBURY · BIRMINGHAM · Telephone: BROadwell 1541

PLEASE SEND "DIFULITE" CATALOGUE TUAJ

NAME .....

POSITION .....

COMPANY ADDRESS .....

.....

.....

BASA

Monthly Supplement

The BASA Editors
The Building Centre
Store Street
London WC1

AFTER BALLIOL

The BASA supplement can perform two quite distinct but essentially complementary functions. It can provide specific information about what is going on in the schools, and, naturally, about BASA activities that are organised for school participation. It can also provide a public platform for the further exploration of the major problem, that of architectural education, that BASA has been almost alone in facing. We can confidently hope that the new RIBA Education Committee will make a far more searching investigation into this vital subject than any previous committee, but its deliberations will presumably be in private—what BASA can perhaps do is to provide a forum for positive and original ideas, incidental to attempting its own eventual definition of what the end product of architectural education is.

The basic aims of BASA have not changed very much since its formation —what was wrong then is wrong now—but the clarifying of these aims has marked a significant advance. BASA is no longer a dissatisfied adolescent kicking at authority because it is there: it is growing up. It has moved from acting " with a view to improving the educational and social position of Architectural students " (BASA Supp. March 1959) through to Bristol early this year: " architectural education should be based on a wide general education and should stimulate the student to evolve a philosophy related to a changing society, and teach him to realise this philosophy in the technics of the society (BASA Supp. Feb. 1960), and on to Oxford in September. This conference, together with Mr. W. L. Stuart's article (BASA Supp. Sept. 1960) which immediately preceded it clarified finally some of the hitherto confused issues involved. Mr. Stuart's most pertinent comments dealt with the core of the problem: " All recent discussions on education, including BASA's, have been concerned with the requirements of entry to the educational system without any specific statement of what the system is intended to produce." He goes on to acknowledge that " a definition of the end-product of the educational system is the nettle which no one is prepared to grasp." To *improve* standards of architecture it is essential to *establish* standards towards which the educational system can strive—the definition of the end-product is a necessary precursor of any valid curriculum. Or is it? There are two approaches to the grasping of this nettle :

1. the definition of the end product of the educational system can only be produced by employing the best combination of existing education techniques.

2. the definition of the end product of architectural education can only be established when the function of the architect is seen in relation to that of other professions similarly involved with the planning and progress of the artefactual environment.

Roughly paraphrased these two approaches represent the short term and long term policies—the means predisposing towards if not predetermining the end, or the end justifying the means. At Balliol last month, two papers, both read during an afternoon, seemed to express and argue these apparently diverse points of view. Both are published in this issue: " Architectural Education and its Technical Aspects," by James Gowan, ARIBA, and "An Overall View of the Architect's Training," by Sir Leslie Martin, RIBA. Are the actions recommended in these two papers irreconcilable?

LETTER FROM BRISTOL

SIR, I think you will be pleased to hear that many of the suggestions made at the Oxford conference have already been accepted by this school. The syllabus is being altered so that in future years the final examinations will be taken at the end of the fourth year, leaving the fifth year completely free to the thesis design and research making it, apart from the RIBA portfolio exam, a post-graduate year. Of course, this will raise the standard of the Intermediate Exam. Already with the present fourth year the number of their lectures has been increased so that part of the finals can be taken this year, and lecture courses revised for the rest of the school. Starting with this year's first year no more part-timers will be taken. A student-staff committee has been set up, which was suggested by our Principal, to tackle the problems of education from both angles, and this committee will meet as an informal discussion group once a fortnight. May I suggest that other schools do the same and instead of letting the Principal suggest they join him in such a group, that they suggest that he and other chosen members of staff join them in such a group to show the students' interest in education?

An area has also been set aside in which scale models of structures can be built and tested (e.g. the hyperbolic paraboloid).

CHRIS. J. ROLFE,
BASA Rep.

RWA School
Bristol

AN OVERALL VIEW OF THE ARCHITECT'S TRAINING

Prof. Sir Leslie Martin

I assume at the outset that training can mean education. I assume that the process of architectural education should entail a stretching of the mind and an enlargement of experience through the exercise of intelligence and judgement in the solution of problems. I shall assume throughout that architectural training has this generalised aim of all educative processes and that it is not just a matter of acquiring certain professional habits.

Having said that, it is nevertheless necessary to ask the narrower question: "What is the ultimate objective of training?"

We might try to answer this by looking at what has been and is being built around us. If we do this we are struck by a contrast.

There is on the one hand the pioneering work of a few individual architects. We know it well. It is widely illustrated and is the subject matter of books. It is analysed and discussed in the schools. It is, of course, very important that there should have been a Ronchamp, an IIT Campus and a Saynatsalo. These are individual masterpieces of architecture in the traditional sense. They are the unpredictable achievements of genius. They each achieve uniquely a new balance between form and technical standards and a new consideration of human needs and environment.

But in contrast to this and in magnitude completely obscuring and overwhelming these few isolated buildings there are the stark evidences of deterioration in every aspect of our environment. Cities which once worked no longer do so. They are destroyed by a redevelopment and expansion which adds up to nothing more than operational and visual anarchy. The technical standards by which this is achieved are in themselves completely unbalanced and, on the whole, cannot be compared with the standards which are common in many forms of mechanical equipment. In the name of one human need—for instance, mobility—we unquestionably accept the destruction of half a dozen others.

But I need not go on. You have rightly stressed as the most urgent architectural task the complete reordering of our environment. If this is the case, then it is for this task that we should be educating architects. It is a task of such complication that the incidence of individual genius alone is incapable of dealing with it.

I have made a contrast between a few isolated works of genius and the vast architectural problems that remain unsolved.

By and large our educational systems have tended to arrange themselves around the first of these, as if our intention were to produce an abstraction—The Architect. But this means different things to different people. If we were to list all the virtues which different people expect an architect to possess, we would have described some kind of paragon who just cannot exist. This is too vague an objective to provide any realism in an architectural course.

On the whole, it is accepted that the architect is primarily concerned with design but since we have laid stress exclusively on monuments and pioneers we have laid a particular stress on originality—on being "different." Our courses are often built around this cult of design originality. Lectures in history stress it; construction has to be exciting; other courses are loosely and somewhat irrelevantly arranged around it.

There are several reasons why this approach should be questioned. First, the definition of the end product, and therefore the whole intention of the course is too vague. Second, although this system of education has been widely developed in Europe and the U.S.A. it is doubtful whether the number of architects of genius has appreciably increased. Let us say at once that real genius will look after itself.

What the system has produced is a remarkably strong tendency for everyone to want to be different from the next man, for forms to be changed without relation to real changes in things and situations, in fact, just for the sake of change. This at its worst results in a frantic search for new forms which even some otherwise capable architects find it hard to resist. This is no way to tackle the most pressing architectural problem of our time. As a society we have lost the power to control the form of our environment. The task ahead of the architect is not that of being different: it is to see how that power can be regained. This is a matter of seeing clearly the job of work that we have to tackle *together as architects*. The first need is a clear statement of the problems to be solved. *It is necessary to define what has to be done before we can say what form training should take.* The purpose of training is to develop the diversified talents which are necessary to solve known problems—and in the process of doing this to give the student the ability to act.

What I am suggesting is that education should be directed towards a more concrete end. That end should not be an abstraction—such as the ideal concept of "The Architect"—but the common solution of that problem in which all architects should feel themselves vitally involved. The student must feel himself equally involved if his education is to have any purpose and meaning.

How is this to be done? I am suggesting that the object of education is the study of the form of our environment. Few problems could be more complicated, more diffuse, or more overloaded with prejudice. Furthermore, a subject of this complexity cannot be studied by architects in isolation, it must be shared by many others, sociologists, economists, historians. For the purpose of education we have to find a means of making various aspects of the problem clear and intelligible.

As I see it, post-graduate research could provide an operational framework for clarifying the issues that are involved and parcelling out the problems to be solved. The methods of studying the various pressures that control the form of our environment and the possibilities of breaking these down into related studies of manageable dimensions is at present being worked out at Harvard and, in a less comprehensive way, in other post-graduate schools. Indeed, it is feasible to suppose that an area of study carried out by research students at the level of "Strategy" could be broken down into sections of decreasing complexity capable of development at the "Tactical" level by students from the second year onwards during their course of training. It is inherent in this proposal that the grounds for the "strategic" decisions should be carefully explained to the students taking part. Conversely, it is realistic to realise that students themselves have neither the necessary time, the facilities for inter-faculty co-operation, nor the experience to conduct effective research themselves.

Exercises involving the replanning of towns on the basis of inadequate research carry all the defects of the *beaux-arts esquisse* produced behind locked doors. In the proposal I have made, research is carried out at its proper level—but it might well benefit by a "feed back" from the studio to research group itself.

Post-graduate research on the problem of urban environment on an extensive scale is therefore not only an urgent national need; it is equally urgent as an essential means of forging the tool of education itself. For if it is organised in a certain way it is through post-graduate research that a course orien-

tated towards a realistic end might be given its backbone.

By post-graduate research of this kind I do not, of course, mean conventional town planning. We, as architects, are concerned with man in relation to his environment and with all the pressures that form that environment. Some of these pressures are beneficial, some detrimental. The way in which they interact represents the pattern of the problem. Within that pattern we are concerned with the correction of the parts that do not fit. Let us take an example. Let us assume that as a matter of urban approach it is necessary to achieve fairly high densities, say 150 people per acre Not long ago there would have been one answer—slab blocks of 8-storey flats. But whilst this solution is one way of putting a number of people on to a given area, we now know that it fails to answer many other requirements—on the human side it limits the desirable range of accommodation and possibly disrupts existing family groupings. There is a loss of privacy, loss of private open space, etc. On the technical side there is a complicated building problem, high cost, etc. A combination of high buildings and low buildings goes part of the way towards meeting these defects but by no means satisfies all the requirements that can be stated. When these are seen clearly and written down, it becomes evident that new relationships of dwelling space within a 3½- or even 2-storey building can achieve the necessary densities and, at the same time, may give more satisfactory answers to the requirements of the stated needs. In this particular field the interrelated aspects of the problem could be written down concisely. It would be parcelled into a neat and relatively self-sufficient exercise in a course of training.

The generalised study of environment may thus lead into a particularised aspect of urban renewal: within a given situation this study will again be anatomised into specific aspects of human association. According to the given instance these will be either "simple" (a new university) or "complex" (combined residential, shopping, recreational, etc.). But in all cases reductions of areas of study may be introduced graduating down from groups of buildings to a specific building with its limited range of environmental and constructional characteristics. Reductions can be continued right down to the scale of a highly localised ergonomic analysis (for instance, the movements of a fork-lift truck or operations within a projection booth). If programmes of study are properly stated they are all-embracing. Subjects that are frequently isolated and independent like structure, internal climate, acoustics, etc., are built into them and into the problem. Courses of lectures are not sepate things—they must be meshed into the developing series of empirical exercises. (In saying this I do not exclude architectural theory.) *There are no separate subjects*. Each problem should be limited, clearly defined and then thoroughly worked out in all its implications.

The great merit of the study of environment as the subject of training is that the object contains *all* the independent architectural problems. At the same time, it relates them to each other. The task within the schools is to decide the ground which each institution has the capacity to cover. From then on the problem of teaching seems to me that of taking new facts and problem patterns as they are disclosed by research and tying them up into manageable parcels of study of varying degrees of complexity so that they build up into a course which however diversified can at any moment be recalled to its central unifying principle.

My colleague Colin St. John Wilson said to this Association at its last meeting that "somehow one has to devise a course the development of which is reasonably open to positive observation, discussion and judgement." But he also said that "architectural education is like the training of a jungle fighter—he is trained so that he can ultimately act in a completely self-reliant way under entirely unprecedented circumstances."

Whilst a developing series of problems presented as I have suggested could meet the first requirement (open to positive observation, discussion and judgement), this needs as its preliminary the methodical preparation of the jungle fighter. Although problems could and should be broken down to such an elementary level that they would be suitable for first-year study there must also be, at this stage, the necessary complement of preliminary training. (Various types of preliminary courses have been devised in recent years of which those used in some American schools and at Ulm are interesting examples.) It is also here, in the preliminary course, that theory plays an important role and that the student is made fully aware of the orientation of his course.

Before, and as, the student meets his problems he must be trained by this preparatory course in the methods of attacking them step by step at the tactical level rising with increased experience towards a grasp of the strategy of complex situations. This brings us back to the point at which we began—the post-graduate research worker—and thereby completes the "life cycle" of a period of training.

It seems from these considerations that the whole progression of a course can in some ways be a reflection of the design process itself. The design of a complicated building (the actual constructive putting together of the form of the building) does not begin with "doodling." It is preceded by a number of preliminaries. The designer does not immediately tackle everything. He studies parts that can be isolated. He breaks the problem down into the study of areas, circulation systems, structural systems. It is through this preliminary process that he discovers—to use Lou Kahn's phrase—"what the space wants to be."

The designer has, in fact, tackled the problem in two stages. At the first stage, he is clarifying separate parts so that he can give these proper weight when he comes to fuse them. It is only then that he can act like the jungle fighter "with the speed that can be taken for intuition." It is this stage, the perfection of the method of attacking problems, that has to be learnt by practice before the problem itself can be solved with economy and certainty. Architectural training itself should be equally economical and it does not seem out of the question, by concentration on main issues, to reduce the normal duration of a course to a broad grounding in three years with a further year for advanced study.

I am well aware that the overall view of education that I have presented is highly generalised. I have simply urged that architectural training should be directed towards a realistic end; that this end should be the major task ahead of the profession—the reforming of our surroundings.

It can be argued at once that this subject is too vast to be intelligible and that changes in architectural education cannot wait for effective post-graduate research and then wait again for its findings. Of course not. My argument is that research into the problem of environment is an urgent national need. At a university level it is already being developed and the inter-departmental links between workers in various faculties are strengthening. Each centre of architectural training could strain itself to make some contribution to this field of study and, at the same time, forge a link between research and training. No single institution can study everything: but if a common objective is accepted it can select those aspects of work in which its contribution will be most effective.

It should also be made clear that the fact that we move towards a common end does not prevent differences of emphasis. A university, a college for higher technical education, or a college of art differ in their potentialities and in their powers of inter-departmental co-operation. I do not ignore at this point the co-operation that would be possible with the profession itself, and it seems to me that practical example and the live project could assume a new role in education. The integrative approach could be common to all courses though each could give its studies a particular inflection. What is certain is that around such an end all the constituent elements of a course could be built up —and it is only when they are related to a concrete aim that they can have relevance and meaning for the student.

ARCHITECTURAL EDUCATION AND ITS TECHNICAL ASPECTS

James Gowan

The Industrial Revolution is regarded as the genesis of the modern movement in architecture and we tend to accept this upheaval as a phenomenon which isolates us from the past. A basic tenet of the New Architecture was that the traditions of craftsmanship and style had been interrupted in a very final sense and were to be superseded by a new range of aesthetics which were uniquely post-industrial.

This is the philosophy expounded by Moholy-Nagy in his book *The New Vision*, which is the most important work on the theory and teaching of the architecture of this period. The work is 30 years old and makes, so it appears to us now, a number of fairly wild assumptions. One is that the New Architecture would be made wholly of new materials. The experiments were made with glass, steel, plastics and so on and although complete freedom was implied in the programme, traditional materials were virtually disregarded. The book also assumed that mechanisation would solve every problem; instead of possibly every repetitive problem. And it initiated an attitude towards research based entirely on visual and tactile values, which was a parody of the idea of objective research. Every so-called experiment at the Bauhaus resulted in the stock-type solution, a little machine, and artists played at being scientists without the technical background.

The fundamentals of architecture have not changed much in the last 2,000 years. If an unbiased observer were rash enough to compare the Parthenon with a latter-day temple, like Castrol House, he would have to admit that though Castrol House was bigger and technologically more up to date, it was inferior in workmanship and visually less profound. The development of architecture, in an historical sense, has not been a summation of accumulated wisdom but rather the adaptation, extension and reassessment of certain constants to the needs of a particular society. We can still discuss any work of architecture, regardless of style and in spite of the Industrial Revolution, in terms of the same values. Vitruvius was concerned with the art of architecture, its historical precedent, constructional matters, and the practicalities of site and so on. These are still relevant, but the scope of architecture has increased beyond religious and public buildings, beyond the Ruskinian limitations which regarded industry and commerce as debased activities, to include everything which has a visual impact on our lives.

These are the assumptions on which, I suggest, we should base our education, rather than the idea of a totally revolutionary architecture involving totally new disciplines which was propagated in the 1920s. They imply that, given certain academic standards in our schools, a reasonably high level of architecture should result.

What in fact is the case? There are nearly 20,000 qualified architects in the country and if we assume that three of these are engaged on a building every two years, we should have 1,500 competent pieces of architecture annually. In fact, only a handful of buildings each year could probably be described as architecture. This considerable deficiency is a serious reflection on the competence of the graduate and, indirectly, on the methods of training.

The following remarks are intended to show certain shortcomings in our present systems and to point to improvements which should be made in them, if we are to achieve a standard of architecture proportional to the number of designers who receive a complete architectural training.

The curriculum of most schools is geared to the needs of the best students. Aims are never stated, standards are rarely made clear, assessments are personal and in this loose situation the exceptional student flourishes, with a surfeit of encouragement, and the remainder survive as best they can. I regard this situation as morally reprehensible. If the school accepts the fees it accepts a measure of responsibility. I consider the responsibility is that the school should guarantee the basic minimum standard which its graduate will attain and that it should define precisely what that standard is. I think that teaching and architecture are not concerned with abstractions but with reality, and that to teach one has to take up a position, and to take up a position, one has to teach a sort of architecture and a particular approach to architecture. This implies creatively or mentally active staff, that is productive architects or scholars, directed in a positive manner by the principal. The importance of the quality of the staff cannot be overstated; we only have to recall the impact of Eric Brown at Kingston, or Colin Rowe at Liverpool, or Paul Rudolph at Yale to see the degree of change which one person can effect. And exceptional students have the same catalytic impact. The administrator-type principal is very much a middle of the road solution, which can produce no more than an effective organisation. The creative stimulus is left to others, tutors and students; and policy changes are the result of pressure and dissatisfaction from the bottom up.

There are a number of factors in architecture which are fundamental, and therefore inseparable from teaching. These are the tangible aspects of our attempt to rationalise a creative activity and therefore cannot be truly comprehensive. But from the point of view of study, which after all is an academic situation, I regard them as basic. The *programme* is principally composed of the client's brief. This is a key document. Whatever the purpose of the building, social, industrial or educational, the client/user is the contact with reality, with society, and he states the physical requirements and describes the usage. The brief gives a schedule of accommodation, room sizes and their interrelationships, equipment, finishes, special requirements, cost limits and time schedules. This document defines the problem and should therefore be exhaustive and detailed. A brief which we received from a local authority recently ran to 100 pages of foolscap, and included a detailed description of every room. Other requirements of society are legislative; the obligatory statutory approvals, which define constructional methods, clearly, and T.P. standards, very badly. The architect stands in a critical relationship to these requirements, negotiating any change he considers necessary. But the brief should not include any directive on aesthetics, the form or the visual aspects, for these are the architect's prerogative and should be entirely under his control. Certain T.P. restrictions, such as lay people and town planners passing judgement on architects' designs, default in this respect and should be resisted. In terms of teaching, this requirement of an accurate brief can be met by programmes which specify thoroughly all the requirements of a building required by an actual client, who really knows what he wants.

The relevance of the *site* is very much a reflection of one's personal attitude towards architecture. The romantic and the organic, accept each tree and undulation as sacred phenomena which must not be disturbed. The mechanistic, with an eye on repetitive production, universal type designs and a single style environment are concerned with imaginary sites which, as at the IIT Campus, closely resemble a drawing board. But if one looks at prehistoric earthworks, like Maiden Castle, or 16th-century castles on mounds, like Launceston or the industrialised landscape of St. Austell, or a golf course for that matter, one is very conscious of the plastic potential of the site that

could be achieved with present-day mechanisation. As far as the school is concerned, the important thing is that each design programme should have a real site, easily available for inspection and surveying.

In the schools a great deal of time and energy is wasted on misdirected effort until eventually the student evolves some sort of methodical approach. I know it is easier to define a *method* than to work to it; it is firstly an analysis of the programme, breaking it down into the main functional elements, deciding on key circulation, and by small-scale diagrams defining the basic organisation. Visiting existing examples and questioning the client/user is probably the most profitable research, or discussing the technicalities with specialists. A good library and a good system of filing information are particularly important. Keeping notes, recording ideas and actually writing a digest of the problem are useful aids. The aim is to arrive at an informed condition of mind, where one can think in terms of essentials, in terms of whole integrated ideas.

I attach a good deal of importance to *draughtsmanship*. The whole process of building involves one in an enormous amount of drawing and a degree of facility is essential. This just means hard work. An architect has to transmit his ideas by description, on paper, from the drawing board. There are certain techniques and aids that have to be learned; the accuracy of the isometric and axonometric is particularly useful; models are helpful for massing but misleading in detail; the ability to represent the actual materials distinctly. Perspectives and freehand sketches are very casual tools, liable to gross misinterpretation and have a limited purpose. Their main use seems to be to mislead clients. Accurate and formal representation of materials is particularly important because I do believe that unless you can draw effectively what you have in mind, you do not fully understand what you are doing.

There has been a great deal of discussion about the teaching of *structure* and the most recent paper on this subject has been by Niels Lisborg. This describes the development of his work at the A.A. His main concern is to integrate the study of the elements of structure (tendon, strut and so on) with specific structural problems which are posed by his programmes. Models of wood and wire are built to attain stated performance standards, such as supporting a brick. His broad aim is to inculcate a feeling for structure without attaching too much importance to mathematics. From a participation point of view this approach is very successful. The model-making is thoroughly enjoyed by everyone and the studio swims knee-deep in plaster. One can only judge a method of teaching by the end-result, which is a crop of derivative structures, suspension bridges and stressed skin jobs. I have two main criticisms. Models are extremely deceptive in structure experiments because of the reduction in scale. It is possible, at a small scale, to support a brick on a few tiny pieces of balsa wood and therefore give the appearance of a very simple minimum structure, which in reality would result in a massive, expensive framework. And the second criticism is about the aim; which is to create a feeling for structures. If you read Niels Lisborg's comments on the various experiments, you find that the criticisms are not primarily factual and structural but aesthetic—"This is a good looking structure"—and so on. They are value judgements, they are very subjective, they deal with style and styling.

I think the student should understand and be advised of the physical property and behaviour of wood, steel and concrete under load, should understand the behaviour of the various elements of structure, beams, columns, planes, trusses; should be able to do the calculations and should know the codes of practice thoroughly. The various tests—crushing concrete, tensioning steel, testing beams—cannot be done in a school and therefore must take place in a department of engineering which has the facilities. The actual lectures could well be held there too, as it is, for example, at Edinburgh, because I feel it is important that one should be given the basic information is as analytical a manner as possible—without the overtones of loaded aesthetic opinions. *Geometry* is inseparable from structure; the two words almost imply the same thing; and structure is the armature of form. If you look at a fortification like **St. Mawes,** with its three cylinders interlocking at varying levels, you see that this elemental complex resolves a number of things simultaneously: the problem of resisting attack, all-round vision for defence, the curved structural stone walls, a diverse radial geometry, a rich interrelationship of internal spaces. The factors of function, structure, geometry and space are fused in a most compelling manner. It is very well ordered.

I attach a good deal of importance to the various *materials* with which one builds: timber, brick, stone, glass, steel, concrete, and so on. Each of these has its own particular characteristics. The brick, for instance, generates solid opaque structures, vertically emphatic because they transmit loads in this way, with a low void-to-solid ratio, and because of bonding, with limited flexibility of profile. Brick, being a somewhat clumsy element, produces heavy, simple details and the characteristics of the material run through the whole building like a predetermined discipline. I tend to regard a building as a lump of cheese: whichever way you cut through you find it homogeneous. A particular fault of post-19th-century British architecture is to use too many materials in a casual, thoughtless way. In the school I think that it is essential to do design studies limited to the use of these basic traditional constructional materials and to follow this up with working drawings. These studies make clear that you have to think in a different way for each material; in a manner which has regard for the inherent characteristics of the materials you are using. I think these studies ought to be backed up with observation, possibly a visual research, because this country is rich in example. But you obviously have to be prepared to look in fairly unexpected places for these things. Constructions such as the St. Pancras railway bunkers, which are very top-heavy concrete affairs, are object lessons in the potentialities and characteristic forms of poured concrete. The technical information has to be fed into these studies. I think the main

Gowan (continued)

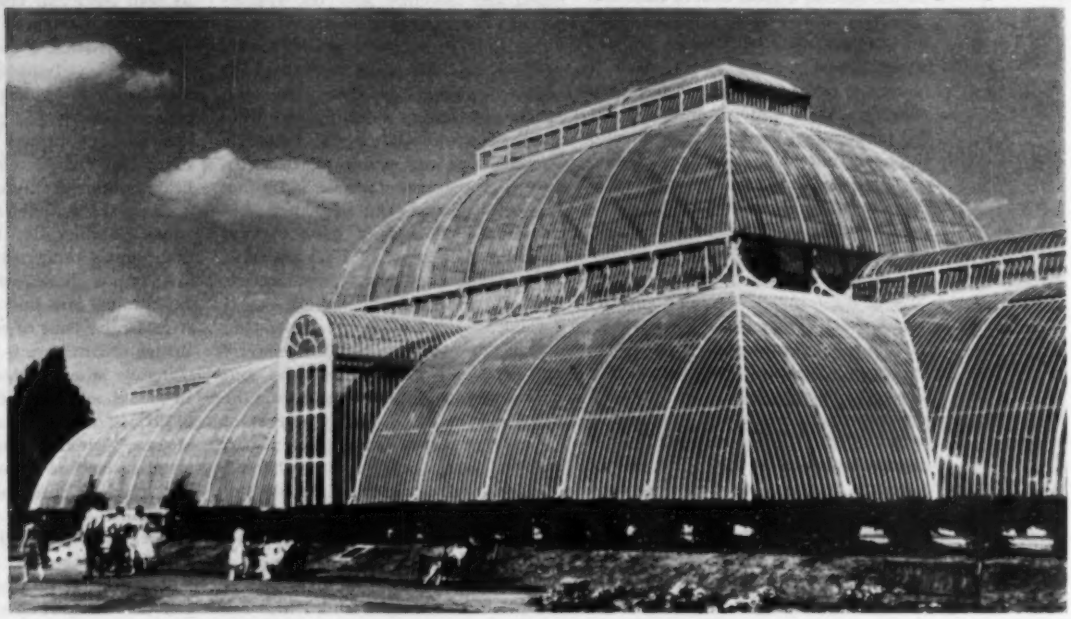
problem is to ensure that the data are factual, so that they let the student work out his own ideas on aesthetics. Certain publications do this admirably: Fitzmaurice's *Principles of Modern Building*, BRS digests and the Codes of Practice. Fitzmaurice takes the subject in a completely analytical way; there is no chatter about aesthetics or style. First, he describes the material and its physical properties—these are the *principles of the material*—and in the case of brick he describes the clay, absorption, permeability, compressive strength, dimension, fire resistance firing, salt content, thermal expansion, and so on. These are facts about the material. Second, he describes the behaviour of the material as structure—these are the *principles of construction*—he deals with permissible pressures, slenderness ratio, eccentric loading, mortars, crystallisation of salts, creep, thermal expansion, and so on. Finally, he tackles detailing, rain exclusion, damp, and so on. The book deals only with clay, stone and concrete and though the continuation of this series has not been published, it is a model of how to present factual information.

The other sort of information which has to be phased with the design studies is data on services, specialist suppliers and specialist techniques. In spite of the complication of sales-pushing, I think that it is essential to bring technical representatives into the schools to discuss and describe their products.

I should comment on *history* and its place in the curriculum. It has an indirect importance in establishing standards of comparison and judgement. I tend basically to agree with the Duchamp attitude that any work of art is expendable, and has a limited period of vital life, after which it can be relegated to a museum. It is true that, as history comes closer to one's own time, the objectives become more tangible and real. The study of modern history is particularly important in the first years of the school, when it can assist in forming opinions. But a word of caution—the fairly earthy operation of building has been elevated by historians to a rare level of intellectualism, so that there is little connection now between the two activities.

Peter Trench's analysis of future trends in the building industry is probably the most informed and accurate that has been made recently. He predicts a two-tier industry—small builders doing the odd-jobbing, the medium-sized firms surviving in the present boom but gradually being squeezed out by the large companies, with their comprehensive facilities, packaged deal, teams of architects, etc., and large-scale mechanisation. The present sort of architect we are training, the art school type with a smattering of building construction, will be eaten alive in such an organisation.

I think contract managers should lecture at the school on how they run their jobs, and that we might even be daring and invite a few builders along and hear what they think. In a systematic way, the mechanical equipment should be explained by the manufacturers, and visits arranged to sites to see them in operation. Lectures must be extended to cover production methods, scaffolding, large-scale window cleaning and so on. Although we must have this technical knowledge, I do not regard the machine as anything more than an important tool. Mechanisation, at an intellectual level, makes certain fallacious assumptions. First is cost—here it is reasoned that if you make more and more of a particular commodity, the price drops correspondingly. In fact, fixed prices, price rings and monopolies are likely to increase the price if demand becomes excessive. Second is social—as the function of a building comes closer to the human condition, as it becomes more personal, so the resistance to the aesthetics of mechanisation increases. This affects the whole range of domestic and residential building, where most people are prepared to make a last stand by their hearth and home. Third is the inflexibility of mechanisation. We have now reached a state of development where it would be practically impossible to build, say, the Decimus Burton **Palm House**, with its curved glazing bars and curved glass. One is aware of an increasing resistance among manufacturers to experiment, to make specials or develop new standards. Acceptance of mechanisation is gradually becoming the acceptance of a particular product. Ideally one aspires to flexible techniques like the rubber mould for the infra-red drying of laminated timber which accommodates any shape and is not preset to everlasting repetition.



Time and time again, a client refers to the architect for advice on land purchase and so on. There should be a series of lectures in the final years on legal and financial matters. These should give a working knowledge of land and property values, mortgaging and the legal and financial aspects of building.

My final observation is on the professional side of the training. Obviously one has to acquire by lectures a working knowledge of professional practice, and the limitless complications and interpretations of the Form of Contract. I do think we could make more use of the membership than we do. To affiliate a student with an older member, so that he can learn first hand about professional procedure, seems to me to be a mutually beneficial idea and would in a way perpetuate one of the most important benefits of pupilage.

working detail

DOOR: LABORATORIES, UNIVERSITY IN LIVERPOOL

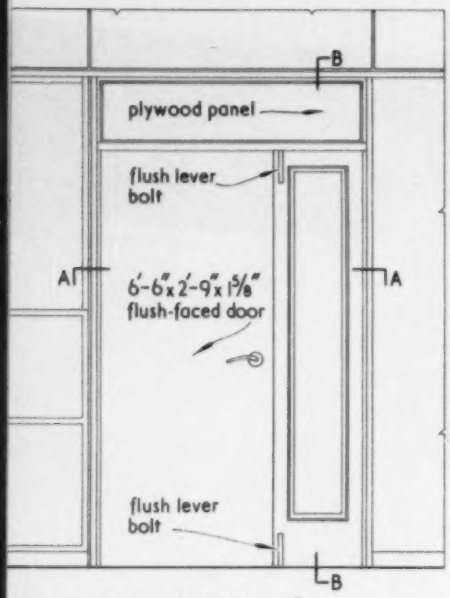
Basil Spence and Partners, architects.

It is now becoming common practice to use a normal width door in conjunction with a narrow glazed panel. This useful variation shows the vision panel treated as a separate leaf which is secured during normal use by substantial flush lever bolts top and bottom, but which can be opened on the rare occasion when something bulky has to be brought through.

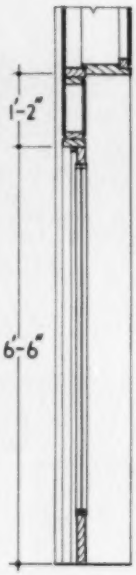
working detail

DOOR: LABORATORIES, UNIVERSITY IN LIVERPOOL

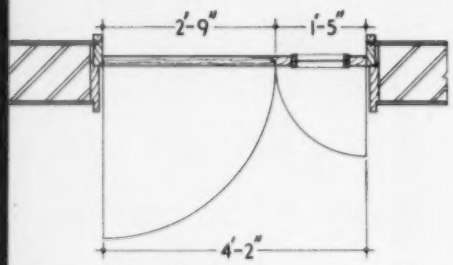
Basil Spence and Partners, architects.



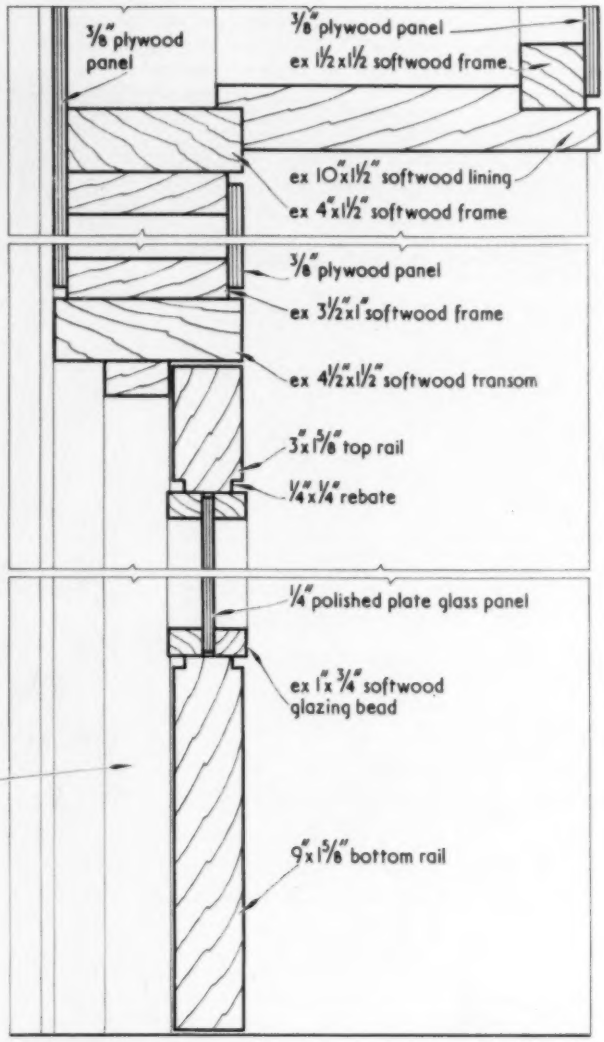
ELEVATION. scale ⅜"=1'-0"



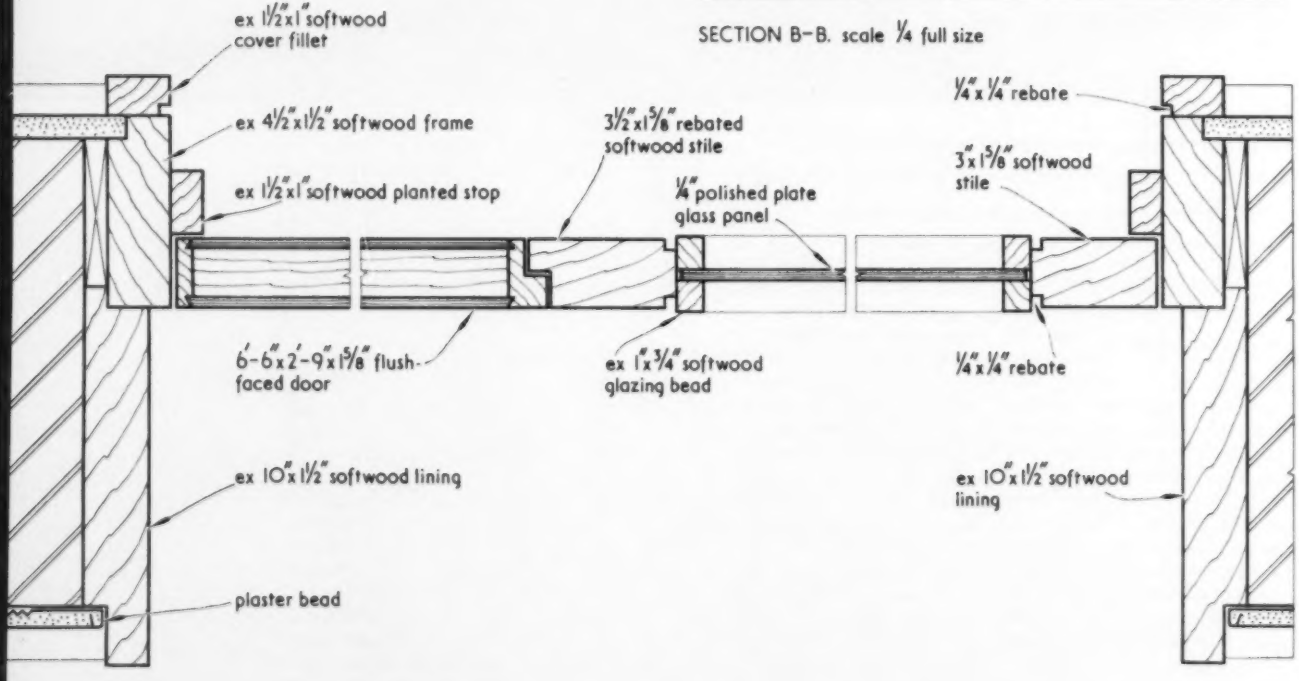
SECTION.



PLAN. scale ⅜"=1'-0"



SECTION B–B. scale ¼ full size



PLAN AT A–A. scale ¼ full size

working detail

ROOFLIGHT IN CORRIDOR: LABORATORIES, UNIVERSITY IN LIVERPOOL

Basil Spence and Partners, architects

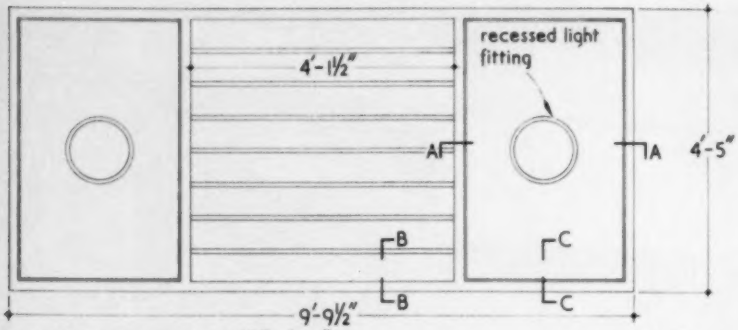
This detail shows a sensible way of combining natural and artificial light in a long corridor. Note the alignment of the lighting unit with doorways and the use of transverse ceiling elements to reduce the apparent length and increase the apparent width of the corridor.

PLAN AT A–A. scale ¼ full size

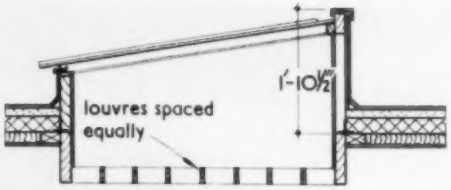
working detail

ROOFLIGHT IN CORRIDOR: LABORATORIES, UNIVERSITY IN LIVERPOOL

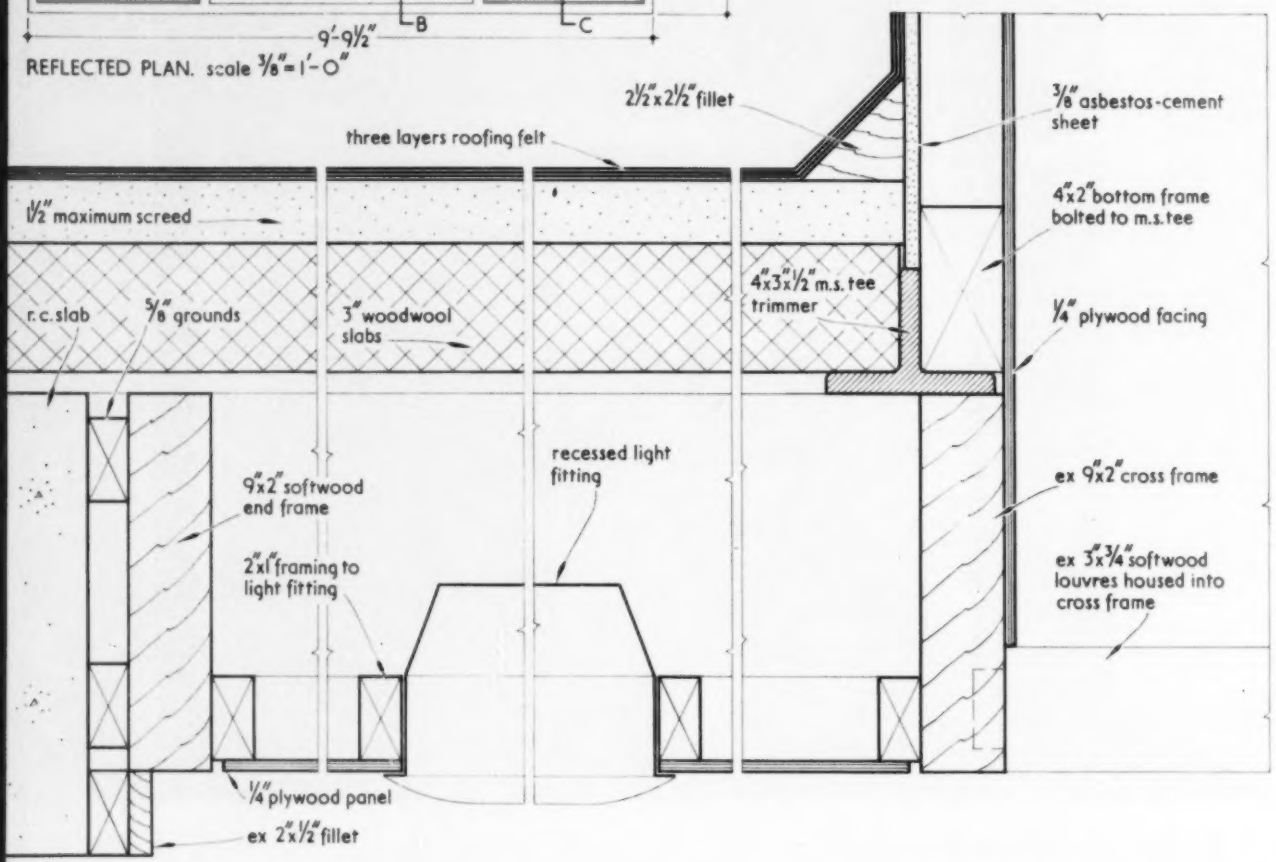
Basil Spence and Partners, architects



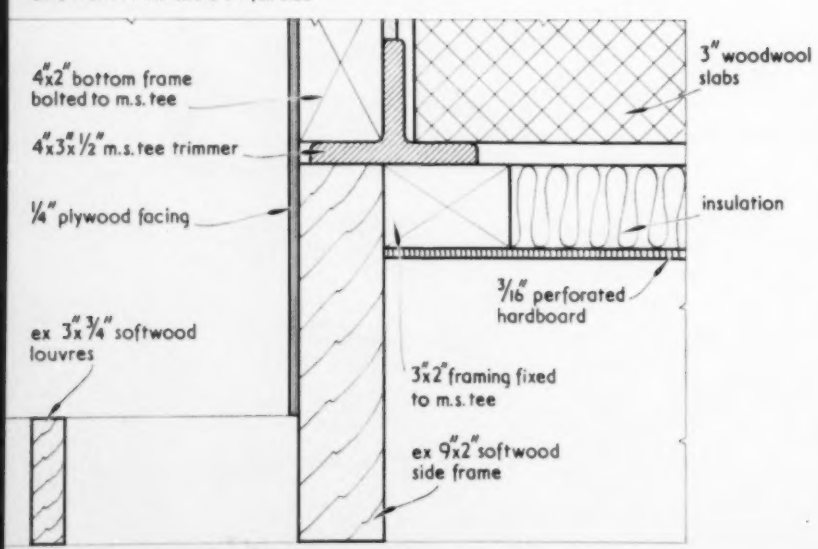
REFLECTED PLAN. scale ⅜"=1'-0"



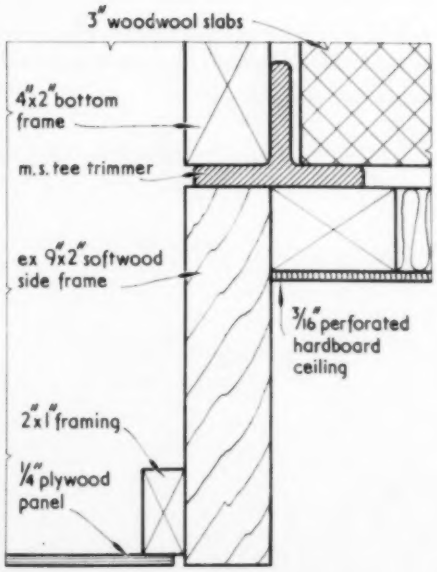
SECTION. scale ⅜"=1'-0"



SECTION A–A. scale ¼ full size



SECTION B–B. scale ¼ full size



SECTION C–C. scale ¼ full size

Well, you can't blame a frisky youngster for being bored with this business-letter dictation stuff—even if he is seated upon TRINASCOLIN—linoleum flooring at its modern best, supplied and laid by Limmer & Trinidad.

Craftsman-installed TRINASCOLIN produces a colourful and resilient floor which is easily maintained. It is available in several thicknesses and a variety of plain and marbled colours. The Limmer & Trinidad Group of Companies are specialists in all types of Decorative and Industrial flooring and have unique technical and practical experience to offer.

Descriptive leaflets are available on request.

THE LIMMER & TRINIDAD LAKE ASPHALT CO. LTD.,
Trinidad Lake House, 232/242, Vauxhall Bridge Road, London, S.W.1.
Telephone: TATe Gallery 4388.

THE TRINIDAD LAKE ASPHALT CO. (NORTH WESTERN) LTD.,
India Buildings, Water Street, Liverpool 2. Central 8591.

THE WESTERN TRINIDAD LAKE ASPHALT CO. LTD.,
Asphalt House, St. Mary Street, Cardiff. Cardiff 24731.

MEMBERS OF THE

LIMMER & TRINIDAD

GROUP OF COMPANIES

Gay new ideas

for modern living

BLUE HAWK

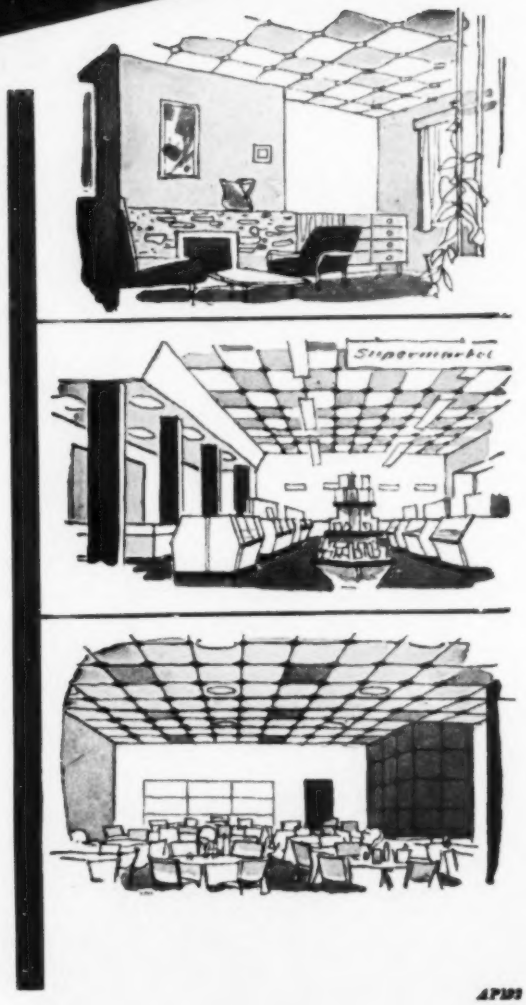
sparkling, plastic-covered ceiling and wall tiles

Bright colourful ceilings . . . gay attractive walls . . . patterns that can be arranged and re-arranged at will . . . Blue Hawk VARITILES bring extra depth and warmth to every room.

Simple to fit – just screw in runners, slide in tiles and the job's done; fully insulating and fire-resistant; padded and plastic-covered – VARITILES can be fitted to new or existing ceilings and need only a wipe to keep clean.

VARITILES have many varied applications and are ideal for ceiling and wall decoration in offices, schools, cinema and theatre foyers, shops and stores, restaurants and cafes, homes etc.

Send for leaflet giving full details of VARITILES



THE BRITISH PLASTER BOARD (Manufacturing) LTD

PEDDINGTON HOUSE, 15-17 MARYLEBONE ROAD, LONDON, N.W.1. TELEPHONE: HUNTER 4881

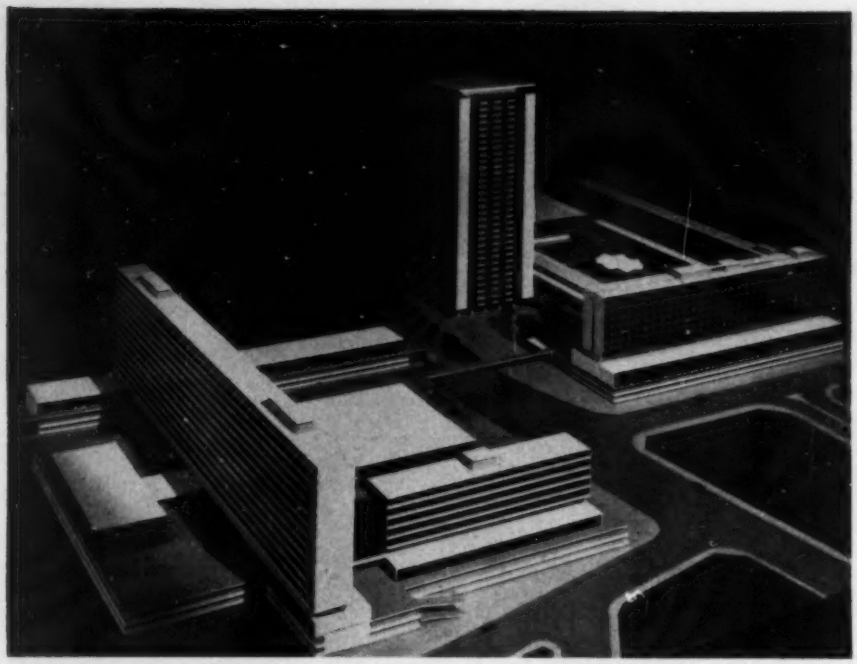
BLUE HAWK PRODUCTS

REMEMBER POPPY DAY

AP101

Redevelopment Proposals for Central Hammersmith

This scheme for the comprehensive redevelopment of a 14-acre site in central Hammersmith has just been submitted to the LCC for planning approval. Designed by Gollins, Melvin, Ward and Partners for City Wall Properties Limited, the proposal is for a mixed development of flats, shops, offices and a hotel. One of the key features of the proposal is the linking together of the existing public transport facilities, one bus and three underground stations, so that they can serve as a single unit. At the same time it is planned to provide two-tier parking for 3,000 cars, and to raise the whole pedestrian



level 20 feet above the ground. Access to this artificial pavement level is generally by high speed escalators, but also by ramps for prams and wheel chairs. Central feature of the scheme is a 300-ft. high tower block for a 450-bed hotel, which has been provided with the fact in mind that the site is within 30 minutes of London airport. To attract overseas buyers it is hoped to include showrooms and warehouses linked to the hotel for use by British manufacturers. The promoters believe that there is a pressing need in London for space specially designed for this purpose, catering for a mixture of temporary and permanent displays for the overseas market. Space is retained within the scheme for a new civic centre for the Borough and a restaurant to replace the Clarendon. Subject to planning approval, it is intended to start construction by 1962 on the site which is bounded by Brook Green Road and Hammersmith Grove on the north, on the south by the Cromwell Road Extension, on the west by Queen Charlotte Street, and on the east by the recently opened new road to be known as Butterwick. The scheme is ambitious, and we applaud particularly the separation of pedestrians and traffic. It is unfortunate that the area is split in two by the Broadway, with only one narrow bridge for pedestrians connecting the two parts of the site at the upper level.

Another Quality plus Economy Specification

'NAMASTIC'

In the construction of this important office building, everything had to be of outstanding quality. The choice of 'NAMASTIC,' which is made from British materials with manufacturing tolerances much closer than those demanded by British Standard Specifications, emphasised this need while ensuring the added advantage of lower costs.

The Association has a membership made up of the following:—

ASSOCIATED ASPHALT COMPANY LTD.
THE BIRMINGHAM ASPHALT & PAVING CO., LTD.
BOLTON & HAYES LTD.
WILLIAM BRIGGS & SONS LTD.
CAMBRIDGE ASPHALT CO. LTD.
COVERITE (ASPHALTERS) LTD.
DAVIES BROTHERS (ASPHALTERS) LTD.
DURABLE ASPHALTE CO., LTD.
DURASTIC LTD.
EXCEL ASPHALTE CO., LTD.

Specify

NATIONAL ASSOCIATION OF MASTER ASPHALTERS · NAMASTIC ·

ROOFING · FLOORING

— THE STANDARD ASPHALT FOR BUILDING

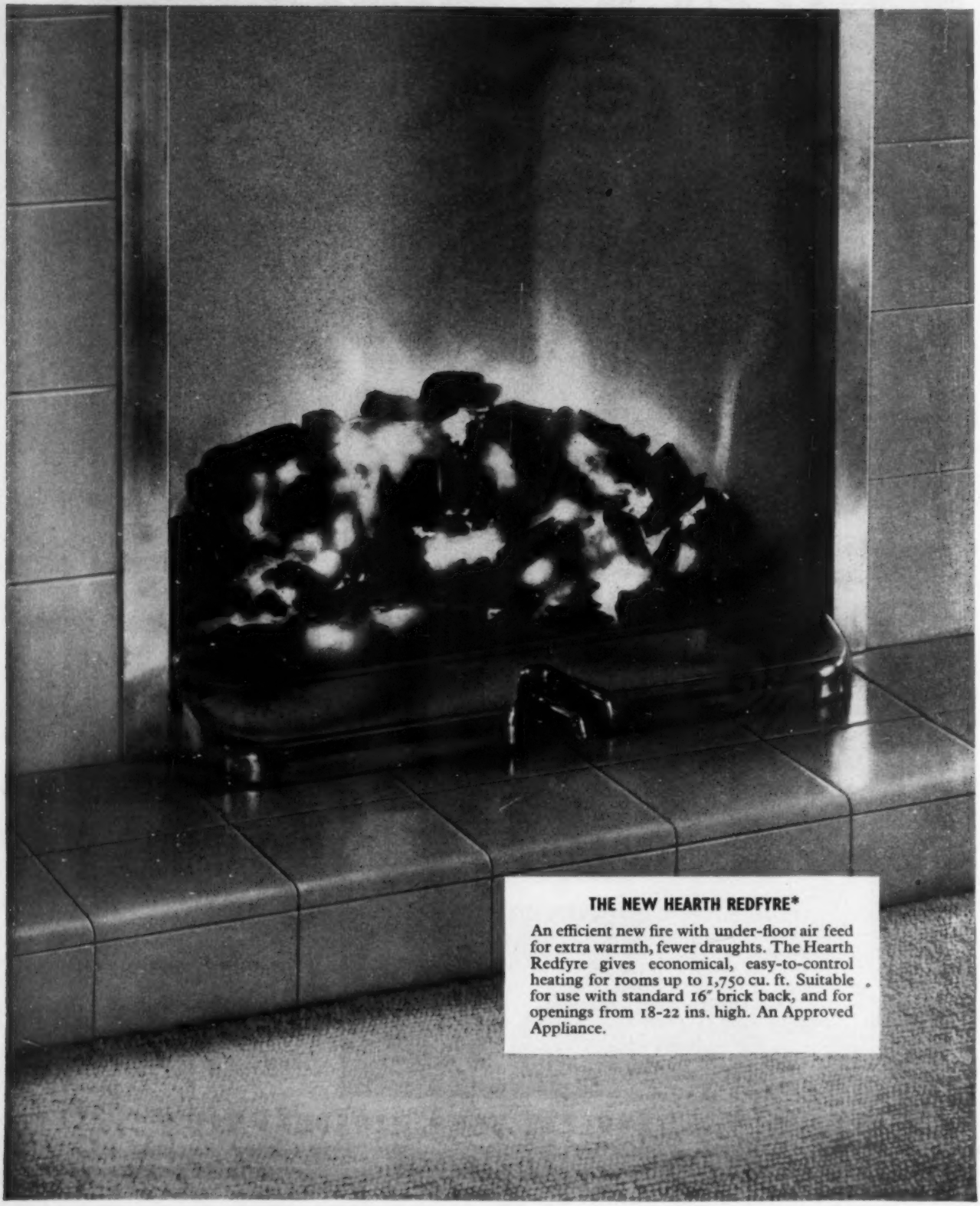
TANKING

FALDO ASPHALTE CO., LTD.
FIELD & PALMER LTD.
THE IMPROVED ASPHALTE CO., LTD.
MOUNTFIELD JUNIOR
NATURAL ROCK ASPHALTE CO., LTD.
THE OXFORD ASPHALT CO.
C. PASINI (IPSWICH) LTD.
PERMANITE LTD.
THE ROCK ASPHALTE CO., LTD.
J. TAYLOR & SONS (ASPHALTERS) LTD.
UNITY ASPHALT LONDON) LTD.

For full information about N.A.M.A. and free technical advice on asphalt for Building apply to the Secretary:

NATIONAL ASSOCIATION OF MASTER ASPHALTERS, 9 CLARGES STREET LONDON W1
TELEPHONE: GROSVENOR 5333 ESTABLISHED 1933

Now! Redfyre gives you



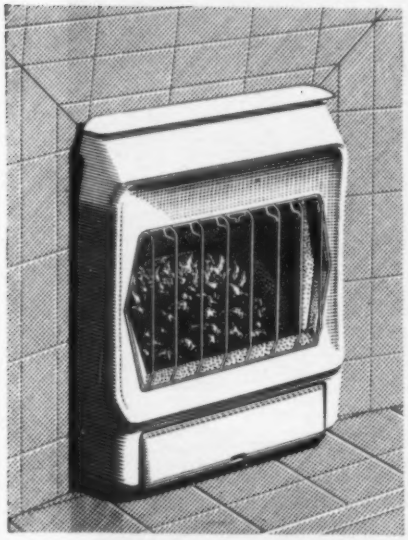
THE NEW HEARTH REDFYRE*

An efficient new fire with under-floor air feed for extra warmth, fewer draughts. The Hearth Redfyre gives economical, easy-to-control heating for rooms up to 1,750 cu. ft. Suitable for use with standard 16″ brick back, and for openings from 18-22 ins. high. An Approved Appliance.

low-cost heating with *top-designer looks*

Redfyre—whose famous Bacboilers put them years ahead in low-cost heating—now take the lead in tackling a new problem: matching really low cost with the best modern design. Styled to merge successfully with any modern room scheme, these new Redfyres are equally suitable for modernising old property or for new buildings. And as you'd expect from Redfyre, the whole range is very practical, very economical, and remarkably low in initial cost.

Write for the REDFYRE HANDBOOK —a handy folder containing full specification sheets of all Redfyre products. The Redfyre mailing service will keep your handbook up to date *automatically*.

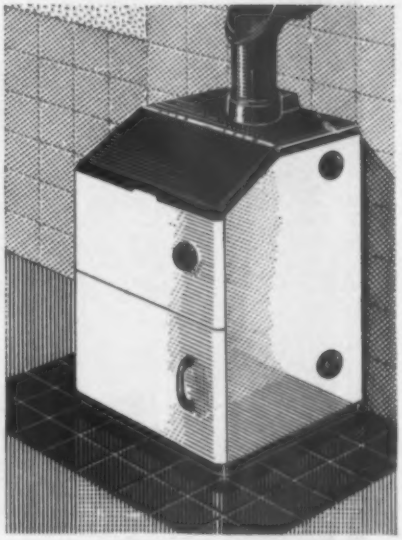


New Redfyre Convector

A superb new open convector fire which gives two-way warmth, by radiation and convection. An adjustable throat restrictor increases efficiency still further, giving far more comfort from far less fuel. It burns a wide range of fuels and is easy to install in almost any fireplace opening—no fire back is necessary. Suitable for rooms up to 2,000 cu. ft. An Approved Appliance.

New Redfyre 60*

A controlled-burning fire with exceptionally clean modern lines. It's easy to install, and burns any solid fuel, efficiently and very economically. Suitable for rooms up to 1,750 cu. ft. and for use with standard size 16" brick back. An Approved Appliance.



New Redfyre Magazine Boiler

For hot water and radiators. Magazine feed-automatic control by thermostat. Compact and very efficient, the Magazine Boiler runs on any smokeless fuel. Continuous Heating Rating: 20,000 B.Th.U's/hr. Domestic Hot Water Rating: 35,000 B.Th.U's/hr. An Approved Appliance.

**Also available with the famous Redfyre Bacboiler as a complete unit.*

REDFYRE

NEWTON CHAMBERS & COMPANY LIMITED, REDFYRE PRODUCTS, THORNCLIFFE, SHEFFIELD

Our panels enable suitable curtain walling to withstand a 2-hour fire test. They are incombustible and therefore cannot spread flame. The U value of wall and roof panels, ranging from 0.29 to 0.15 according to thickness, is more than sufficient for the proposed thermal insulation (Industrial Buildings) Act, 1957. SECO panels reduce fire hazard—and cut heating costs.

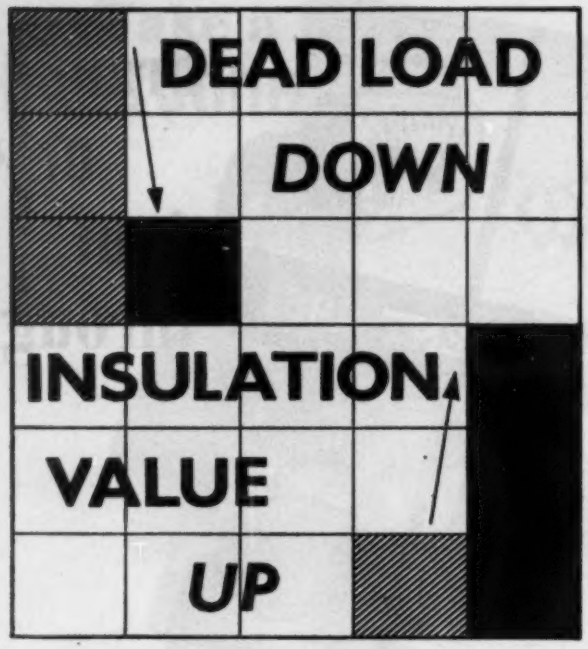
Are you on our mailing list?

At about three-monthly intervals we print and mail information sheets in our series DESIGN IN SECO. If you are not already receiving these helpful sheets please write now to our PLANNING DEPARTMENT asking for copies to be sent you.

design in SECO

SELECTION CONSTRUCTION COMPANY LIMITED

26 Margaret Street,
London, W.1.
Telephone: LANgham 7931



One of the oldest and best of building materials has been developed to produce the striking results indicated above.

'SIRAPITE' (Regd.)

LIGHTWEIGHT PLASTERS

are produced by the makers of the long established 'Sirapite' brand of gypsum plasters, and incorporate a lightweight aggregate, either Vermiculite or Perlite.

These new ready-mixed plasters may not only cut the plaster dead load on a structure by as much as two-thirds, and provide improved thermal insulation; they offer STILL GREATER RESISTANCE TO FIRE, MINIMISE CRACKING, ensure STRICT UNIFORMITY OF MIX, and GREATLY FACILITATE SITE WORK; the material only needs the addition of clean water.

Always the most satisfactory internal finish, plaster has now become the *modern* treatment for walls and ceilings.

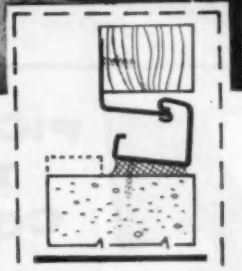
Please ask for literature.

THE GYPSUM MINES LTD

Registered Office:
Mountfield, Robertsbridge, Sussex.
Tel: Robertsbridge 234
(Products Grey in colour)

Midlands Works:
Kingston-on-Soar, Nottingham.
Tel: Gotham 364
(Products Pink in colour)

An angle on the door closing against a lipped channel on the floor—that's how simple, and how fool-proof, the Trapper Weather Bar is. No mechanical parts, no finicky adjustments—fast, easy installation and silent operation. If the door drops, the angle can be adjusted. If the door twists, the seal is still effective.
Sizes to fit all doors. Sample set, up to 36 in. door, 18/6 post paid. Cash with order; please state door size. Quantity discounts.



Wind and Water proof
Silent in Operation
No mechanical parts
Allows doormat inside door
Specified by many housing authorities
Over 50,000 now installed
Patented Design

ORDER FROM THE SOLE MANUFACTURERS

Douglas Aitken

(Metal Work) Ltd.,

176 Hope Street, Glasgow, C.2.
Telephone: DOUglas 0404/5

TRADE ENQUIRIES INVITED.

CLASSIFIED ADVERTISEMENTS

Advertisements should be addressed to the Advertisement Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post 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.

AIR-MAIL SERVICE available on request.

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

Public and Official Announcements

36s. per inch; each additional line 3s.

HUNTINGDONSHIRE
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments:—

(a) ARCHITECTURAL ASSISTANTS
Special Grade (£785—£1,070).

(b) ARCHITECTURAL ASSISTANT
Grade APT II (£765—£880).

The persons appointed will become members of small architectural teams engaged in projects of varying size. It is desired that the persons appointed shall be keenly interested in architecture with an up-to-date approach to both planning and design.

Application forms and further particulars may be obtained from The County Architect, County Buildings, Huntingdon; completed forms should be returned to the undersigned as soon as possible.

A. C. AYLWARD,
Clerk of the County Council.

County Buildings,
Huntingdon. 3246

BIRMINGHAM REGIONAL HOSPITAL BOARD

ASSISTANT ARCHITECTS required for interesting work on all types of hospital architecture. Applicants must be registered architects having passed the requisite examinations. Salary scale £905—£1,310; commencing salary according to age and experience.

Apply naming two referees to Secretary, 18 Augustus Road, Birmingham, 15, as soon as possible. 3790

BOROUGH OF TAUNTON
ARCHITECT'S DEPARTMENT

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

1. ASSISTANT ARCHITECTS
Grade APT IV (£1,140—£1,310 p.a.)
2. ASSISTANT ARCHITECTS
Special Grade (£840—£1,145 p.a.)
3. ARCHITECTURAL ASSISTANTS
Grade APT II-III (£815—£960—£1,140 p.a.)
4. ARCHITECTURAL DRAUGHTSMAN
General Division (£260—£630 p.a.)

The Council have an interesting programme of estate development and redevelopment schemes, including flatted accommodation, groups of shops, old people's accommodation, market offices and other ancillary buildings.

The staff appointed will work in small self-contained teams and will be responsible for the design, construction and management of projects.

Facilities will be given to persons wishing to take an approved part time study course with the intention of obtaining qualifications.

The posts are superannuable, subject to medical examination, and to National Conditions of Service. Applications stating age, present position, and salary, qualifications, experience and names of two referees to be sent to C. Eacon, F.R.I.B.A., Borough Architect, Flock House, Station Road, Taunton, within 14 days of the appearance of this advertisement.

Housing accommodation will be made available to suitable applicants if required.

K. A. HORNE,
Town Clerk.
3940

CORPORATION OF LONDON
CITY SURVEYOR'S OFFICE

Applications invited for permanent staff appointments:

ARCHITECTURAL AND BUILDING DIVISION

SENIOR ASSISTANT ARCHITECT: Candidates must have passed Final R.I.B.A. and be capable of preparing sketch schemes for the design of a wide variety of buildings. Salary up to £1,565.

ARCHITECTURAL ASSISTANT: Candidates should either be studying for or have passed Intermediate R.I.B.A., possess a sound knowledge of building construction and ability to prepare detailed and ¼ in. scale drawings. Salary up to £1,005.

Applications, with relevant particulars, including names and addresses of two referees, to The City Surveyor, Guildhall, London, E.C.2, within 14 days. 3835

CITY OF OXFORD
CITY ARCHITECT AND PLANNING OFFICER'S DEPARTMENT

Applications are invited for the under-mentioned posts:—

ARCHITECTURAL ASSISTANTS, Special Classes/A.P.T. IV (within the range £840—£1,145/£1,140—£1,310).

The successful applicants must be members of the Royal Institute of British Architects and should have several years' experience, possess a wide knowledge of modern methods of construction and contract procedure, and must be capable of carrying through contracts from sketch stage to completion with minimum supervision. A high standard of design ability and a keen interest in contemporary architecture is expected. Assistants are encouraged to control their own contracts from sketch design onwards.

Suitable housing accommodation will be made available, if required, in connection with the above appointments. Five-day week.

The appointments will be subject to the National Conditions of Service and the successful candidates will be required to pass a medical examination.

Application forms to be obtained from the City Architect and Planning Officer, Town Hall, Oxford. Closing date 11th November, 1960.

HARRY PLOWMAN
Town Clerk.

Town Hall,
Oxford.
14th October, 1960. 3877

AIR MINISTRY require JUNIOR WORKERS UP in Quantities Division in London. Must be fully experienced and competent to Work Up entire Bills of Quantities. Candidates must hold O.N.C. or C. & G. (Quantities) or equiv. technical quals. Financial assistance and time off given for recognised courses of study. Promotion and pension prospects. Five-day week with 18 days' paid leave a year initially.

Salary ranges from £820 (at age 26) to £975. Applicants, who must be natural-born British subjects, should write stating age, quals. and exp. to the Manager (PE.1234), Ministry of Labour, Professional and Executive Register, Atlantic House, Farringdon Street, London, E.C.4. No original testimonials should be sent. 3085

QUANTITY SURVEYING ASSISTANTS GRADE III required by AIR MINISTRY in the PROVINCES. Duties include abstracting and billing, site measurement and preparation of estimates. Candidates must hold O.N.C. (Building or Builder's Quantities) or equiv. and have good experience under Quantity Surveyor or Building Contractor. Knowledge W.D. Schedule an advantage. Financial assistance and time off given for recognised courses of study. Promotion and pension prospects. Five-day week with 18 days' paid leave a year initially. Overseas tours for which special allowances granted.

Salary ranges from £770 (at age 26) to £925. Commencing salary dependent upon age, quals. and exp. Applicants, who must be natural born British subjects, should write stating age, quals. and previous appointments including type of work done, to Manager (P.E.2), Ministry of Labour, Professional and Executive Register, Atlantic House, Farringdon Street, London, E.C.4. No original testimonials should be sent. Candidates selected will normally be interviewed in London and certain expenses reimbursed. Only applicants selected for interview will be advised. 3084

CITY OF SALFORD

Applications are invited from appropriately qualified persons for the following post in the Department of the City Engineer & Surveyor (G. Alexander McWilliam, B.Sc., A.M.I.C.E., A.R.I.C.S., M.I.Mun.E.).

SENIOR PLANNING ASSISTANT, Grade A.P.T. IV (£1,140—£1,310 per annum).

The Department is undertaking programmes of redevelopment and urban renewal and the post will afford a wide variety of interesting experience. The commencing salary will be dependent upon qualifications and experience.

Housing accommodation may be provided in approved cases.

The post is subject to the provisions of the Local Government Superannuation Acts, the National Scheme of Conditions of Service, Standing Orders of the City Council, the passing of a medical examination, and is terminable by one calendar month's notice. A five-day week is in operation.

Applications, stating age, education, qualifications and details of experience, together with the names of two referees, should be sent to the City Engineer and Surveyor, Town Hall, Salford, 3, Lancs., to arrive not later than Monday, 14th November, 1960.

R. RIBBLESDALE THORNTON,
Town Clerk.
3904

SOUTH-EASTERN REGIONAL HOSPITAL BOARD
REGIONAL ARCHITECT'S DIVISION

Applications are invited from Registered Architects for the following superannuated posts on the staff of the Regional Architect's Division, headquarters in Edinburgh.

SENIOR ASSISTANT ARCHITECTS, £1,300 × £50 (5)—£1,600.

ASSISTANT ARCHITECTS, £905 × £35 (1) × £45 (6) × £50 (2)—£1,310.

Applications, giving details of age, qualifications and experience should be sent to the Regional Architect, 18 Rothesay Terrace, Edinburgh, 3, within 7 days. 4007

CITY OF SALFORD

Applications are invited from appropriately qualified persons for the following posts in the Department of the City Engineer & Surveyor (G. Alexander McWilliam, B.Sc., A.M.I.C.E., A.R.I.C.S., M.I.Mun.E.).

TWO ASSISTANT ARCHITECTS, Grade A.P.T. V (£1,310—£1,480 per annum).

TWO ASSISTANT ARCHITECTS, Grade A.P.T. III/IV (£935—£1,310 per annum).

JUNIOR ASSISTANT ARCHITECT, Grade A.P.T. I/III (£645—£1,140 per annum).

The posts will form the nucleus of a team of about 30 professional assistants which, under the leadership of a Principal Architect, will be responsible for extensive schemes on housing and central redevelopment including designs of 20 storey blocks of flats and new shopping precincts.

Candidates should possess exceptional design ability. The commencing salary will be dependent upon qualifications and experience.

Housing accommodation may be provided in approved cases.

The posts are subject to the provisions of the Local Government Superannuation Acts, the National Scheme of Conditions of Service, Standing Orders of the City Council, the passing of a medical examination, and are terminable by one calendar month's notice. A five-day week is in operation.

Applications, indicating the post applied for, and stating age, education, qualifications and details of experience, together with the names of two referees, should be sent to the City Engineer and Surveyor, Town Hall, Salford, 3, Lancs, to arrive not later than Monday, 14th November, 1960.

R. RIBBLESDALE THORNTON,
Town Clerk.
3906

AMENDED ADVERTISEMENT

COUNTY BOROUGH OF DARLINGTON
DEPUTY BOROUGH ARCHITECT

Applications are invited for the above appointment. Salary within the range £1,715 × £50 (5) = £1,965.

The Department has a large programme including Secondary and Primary Schools, Housing, Welfare Schemes, Municipal Offices, Markets and Central Redevelopment. Preference will be given to candidates experienced in this class of work and who are members of the R.I.B.A.

Application, giving full particulars of age, qualifications, present appointment with salary, previous appointments with dates, and name and address of three referees, to be received by E. A. Tornbohm, A.R.I.B.A., A.M.T.P.I., Borough Architect, Central Buildings, Darlington, not later than 10th November, 1960.
19th October, 1960. 3901

COUNTY BOROUGH OF SOUTH SHIELDS
ASSISTANT ARCHITECTS

Applications are invited for the above appointments in the Borough Engineer's Department. Applicants must be suitably qualified and the salary paid will be in accordance with Grade A.P.T. IV (£1,140—£1,310).

Housing accommodation will be made available to successful applicants if necessary and they will be required to pass a medical examination for Superannuation purposes.

Application forms are obtainable from the Borough Engineer, Town Hall, South Shields, and should be returned to him not later than 10 a.m. Friday, 11th November, 1960.

R. S. YOUNG,
Town Clerk.
3931

BOROUGH OF HARROW

Applications are invited for the following appointment in the Borough Engineer and Surveyor's Department:—QUANTITY SURVEYING ASSISTANT, A.P.T. Grade II (£815 to £960 p.a., plus London "weighting"), the point of commencement according to qualifications and experience.

Applicants should have passed the Intermediate Examination of the R.I.C.S. or I.Q.S.

The Council cannot provide housing accommodation but a contribution towards removal expenses will be considered.

The appointment is subject to the Local Government Superannuation Acts; and the National Joint Council's Scheme of Conditions of Service.

Application forms, obtainable from me, should be returned to me not later than Saturday, 12th November, 1960.

DAVID PRITCHARD,
Town Clerk.

Town Clerk's Department,
Harrow Weald Lodge,
Harrow, Middlesex. 3926

BOROUGH OF RAWTENSTALL
APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment at a salary within the Special Grade (£840 to £1,145). The starting salary will be fixed according to experience. Housing accommodation available.

Applications with names and addresses of two referees must reach the undersigned by Saturday, 12th November, 1960. Any relationship to members or senior officers of the Council must be disclosed. Canvassing disqualifies.

COLIN CAMPBELL,
Town Clerk.

Town Hall,
Rawtenstall,
Rossendale,
Lancashire. 3964

DESIGNING FOR LONDON

LONDON COUNTY COUNCIL The Architect's Department has vacancies for Architects and Architectural Assistants.

Architectural Assistants—up to £950
Architects Grade III—up to £1250
Architects Grade II—up to £1500

HOUSING DIVISION All types of high density housing. 14 new positions at Grade II level still to be filled as well as vacancies for Assistants and Architects Grade III.

SCHOOLS DIVISION All types of schools and colleges. Vacancies for Architects Grade III and Assistants.

SPECIAL WORKS DIVISION Crystal Palace National Recreation Centre, completion of South Bank with Royal Festival Hall Extensions and a varied programme of other buildings. 2 vacancies at Grade II level. Vacancies for Architects Grade III and Assistants.

GENERAL DIVISION A mixed programme of new building including welfare establishments, cottage development, hostels and factories. Vacancies for Architects Grade III and Assistants.

Application forms and particulars from Hubert Bennett, F.R.I.B.A., Architect to the Council, County Hall, Westminster Bridge, S.E.1., quoting reference EK/2617/AJ/11.

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

A unique opportunity exists in this office for competent ARCHITECTS to take part in one of the most ambitious programmes of varied building works in the country, and vacancies in the establishments of the five Architectural Sections of the Department are given below:

RE-HOUSING SECTION
PRINCIPAL ASSISTANT ARCHITECT
J.N.C. "C", J.N.C. "B"
SENIOR ASSISTANT ARCHITECTS
A.P.T. V, A.P.T. IV, A.P.T. III.
ARCHITECTURAL ASSISTANT
A.P.T. I.

This Section is engaged upon the preparation of layouts and design of major Redevelopment schemes in the City, which includes Multi-storey Flats, Shopping Precincts and associated Community buildings, and the development of open spaces including playgrounds, etc., connected therewith. One of the most important of these schemes is the Scotswood Road Redevelopment Area which will re-house approximately 5,000 persons, and which is expected to cost in the region of £12,000,000.

EDUCATION SECTION
PRINCIPAL ASSISTANT ARCHITECT
J.N.C. "B".
SENIOR ASSISTANT ARCHITECT
A.P.T. V, A.P.T. IV.
ARCHITECTURAL ASSISTANT
A.P.T. I.

This Section is about to embark on a new Education Precinct in the central area of the City, comprising Colleges of Further Education, Art and Industrial Design, Commerce, Drama, and Multi-storey Hostels for Students, etc., which will be the largest development of its kind in the country.

GENERAL SECTION
SENIOR ASSISTANT ARCHITECT
A.P.T. V, A.P.T. IV.

This Section is engaged on a large and varied programme, including Airport Terminal Building, Public Abattoir and Fatstock Market, Wholesale Markets, new Central Library, Divisional Police Headquarters, and works for all Committees of the Corporation other than Housing and Education.

HOUSING
PRINCIPAL ASSISTANT ARCHITECT
J.N.C. "A"
SENIOR ASSISTANT ARCHITECT
A.P.T. V, A.P.T. IV, A.P.T. III.

This Section deals with the layout and design of all normal Housing Estates, both inside and outside the City boundaries and is engaged on a varied programme of house design of a stimulating character.

NEW TOWN HALL
PRINCIPAL ASSISTANT ARCHITECT
J.N.C. "C"
SENIOR ASSISTANT ARCHITECT
A.P.T. V, A.P.T. IV.

This Section is engaged solely on the New Town Hall, a project of some £3,500,000 in value. An exceptional opportunity is presented for working on a building carried out in materials of the highest quality.

The salaries applicable to the posts are in the recently negotiated awards for both Lettered and A.P.T. Scales, as follows:

J.N.C. "C"	—	£1,560—£1,825 per annum.
J.N.C. "B"	—	£1,410—£1,670 per annum.
J.N.C. "A"	—	£1,365—£1,565 per annum.
A.P.T. V	—	£1,310—£1,480 per annum.
A.P.T. IV	—	£1,140—£1,310 per annum.
A.P.T. III	—	£960—£1,140 per annum.
A.P.T. I	—	£645— £815 per annum.

Applicants for all the Principal and Senior posts mentioned above must have appropriate professional qualifications, and will be considered on their ability in design, experience, and architectural outlook. Architects wishing to take part in one of Britain's most stimulating programmes should apply immediately for further details and Forms of Application to George Kenyon, A.R.I.B.A., A.M.T.P.I., City Architect, 13 Cloth Market, Newcastle upon Tyne, 1, stating the Section of the Department and the post and grade applied for

JOHN ATKINSON,
Town Clerk.

Town Hall,
Newcastle upon Tyne, 1.
27th October, 1960. 4034

ROYAL BURGH OF STIRLING
BURGH ARCHITECT AND PLANNING DEPARTMENT

Applications are invited for the following posts:
ASSISTANT ARCHITECT. Salary scale £750—£1,075 per annum (with placing according to experience).
JUNIOR PLANNING ASSISTANT. Salary scale £675—£795 per annum (with placing according to experience).

The Assistant Architect will be required to take control of an interesting variety of local authority contracts (both large and small) throughout design and construction.

The Planning Assistant must be a neat and expeditious draughtsman with experience in carrying out Town Planning Surveys and other general work of a planning office, including the preparation of Development Plan Maps, etc.

Applications for the posts, which are superannuable subject to medical examination, should be addressed to Walter H. Gillespie, Burgh Architect and Planning Officer, 65 King Street, Stirling, before 30th November, 1960. 3941

BINGLEY URBAN DISTRICT COUNCIL
ARCHITECTURAL ASSISTANTS

Applications are invited for the permanent positions of:—
(1) **SENIOR ARCHITECTURAL ASSISTANT,** A.P.T. III, £960—£1,140.
(2) **ARCHITECTURAL ASSISTANT,** A.P.T. II, £815—£960.

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

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

Applications stating age, qualifications, training and experience, and details of past and present appointments, accompanied by copies of two recent testimonials, or the names and addresses of two referees, should be forwarded, endorsed "Architectural Assistant," to the undersigned, on or before Thursday, 10th November, 1960.

Housing will be made available, if required.

F. M. DUNWELL,
Clerk of the Council.
4033

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD
ASSISTANT ARCHITECT

Applications are invited for the above-mentioned appointment:—

Applicants must be Associate Members of the R.I.B.A.

The commencing salary will be within the salary range £905 × £35 (1) × £45 (6) × £50 (2)—£1,310 p.a. plus London weighting allowance of £40—£50 p.a.

Application forms may be obtained from the undersigned at 40 Eastbourne Terrace, London, W.2, and must be completed and returned by 16th November.

E. G. BRAITHWAITE.
Secretary.
3990

BOROUGH OF ROMFORD

Applications are invited for the appointment of **ARCHITECTURAL ASSISTANTS** in A.P.T. I-II, to Special Grade on qualifying (£645—£1,145) with a salary "plusage" equivalent to London weighting.

Appointments will be made at a salary within the scale according to qualifications and experience.

Applicants should have passed the Intermediate R.I.B.A. examination or be probationers. Newly elected Associates will be considered for appointment within the Special Grade.

Consideration will be given to the payment of reasonable removal expenses and to assistance, if required, in the provision of housing accommodation.

Particulars and conditions of the appointment may be obtained on application to the Town Clerk, Town Hall, Romford, to whom completed applications are to be sent within 14 days of the date of this advertisement. 3991

HERTFORDSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT
ASSISTANT ARCHITECTS

Salary £840 to £1,310.
Candidates should be registered Architects.
Starting salary according to experience.
TECHNICAL ASSISTANTS
Salary Scales A.P.T. I (£645—£815).
A.P.T. II (£815—£960).
A.P.T. III (£935—£1,140).

Candidates should be good draughtsmen with a sound knowledge of modern building construction and will be required to work with teams of Architects engaged on large scale programmes of work. Salary according to experience and ability.

All posts are permanent and pensionable. Write or telephone for appointment to County Architect, County Hall, Hertford. (Hertford 4242—Extension 206.) 4004

COUNTY BOROUGH OF TYNEMOUTH
BOROUGH SURVEYOR'S DEPARTMENT
STAFF

Applications are invited for the following appointments:—
1. **ASSISTANT ENGINEERS,** Grade A.P.T. I or II.
2. **TOWN PLANNING ASSISTANT,** Grade A.P.T. I or II.

A.P.T. I Scale is £645—£815 and A.P.T. II Scale is £815—£960. The commencing salary will be fixed within these Grades at a point commensurate with experience and qualifications.

Application forms together with conditions of appointment are obtainable from D. M. O'Herlihy Esq., O.B.E., B.Sc.(Eng.), M.I.C.E., 16 Northumberland Square, North Shields, to whom they should be returned by 19th November, 1960.

FRED. G. EGNER,
Town Clerk.
4005

NATIONAL COAL BOARD
NORTH EASTERN DIVISION
ARCHITECTURAL ASSISTANTS required in Architects Branch, Denaby Main, Nr. Doncaster. R.I.B.A. Intermediate and three years' subsequent practical experience, or Final (practical experience not necessary) or considerable practical experience without qualifications.

Salary £715 × £25 to £850 (exceptionally £1,000). Full details and application forms from Mr. H. Smith, F.R.I.B.A., P.O. Box No. 4, Denaby Main, Nr. Doncaster; forms to be returned by 11th November. 3982

CITY OF MANCHESTER
CHIEF ASSISTANT AND SENIOR ASSISTANT PLANNING OFFICERS required in the City Surveyor and Engineer's Department. Salaries:—
Chief Assistant Planning Officer, J.N.C. Scale "D" (£1,530—£1,755).*
Senior Assistant Planning Officers, J.N.C. Scale "B" (£1,260—£1,485).*

* In addition, the recent National increase of approximately 12½ per cent (subject to confirmation).

Candidates must be appropriately qualified by examination and must have had considerable experience in the Planning and Development work of a local authority.

These appointments offer practical experience on large scale projects. Housing accommodation and removal expenses.

Applications stating age, education, qualifications and experience together with the names of three referees to the Town Clerk, Town Hall, Manchester, 2, not later than 14th November, 1960. 4008

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE
OFFICE OF THE COUNTY ARCHITECT

The Council require **SENIOR ARCHITECTS** in salary grades A.P.T. V (£1,310—£1,480), A.P.T. IV (£1,140—£1,310) and Special Grade (£840—£1,145) for their extensive and interesting building programme which includes schools, colleges, old people's and children's homes, clinics, ambulance, fire and police stations, and other public buildings. Architects appointed will be employed at the Central Office in Wakefield solely upon capital works dealing with building projects from sketch plans to completion.

Applications to be submitted by the 15th November, 1960, on forms to be obtained from and returned to the undersigned.

A. W. GLOVER, F.R.I.B.A.,
County Architect.

Bishopgarth,
Westfield Road,
Wakefield. 3976

COUNTY BOROUGH OF SOUTHEND-ON-SEA
EDUCATION COMMITTEE
MUNICIPAL COLLEGE
Principal: T. L. MORGAN, M.Sc., A.M.I.C.E., A.M.I.Struct.E.

Applications are invited for the post of LECTURER in the School of Architecture.

Candidates must be Associates or Fellows of the Royal Institute of British Architects, with at least five years' professional experience.

Salary in accordance with the Burnham Technical Scale, £1,370 by £35 to £1,550.

Further particulars and forms of application may be obtained from the undersigned (stamped addressed foolscap envelope).

Completed forms to be returned to the Principal, Municipal College, Victoria Circus, Southend-on-Sea, within 14 days of the appearance of this advertisement.

D. B. BARTLETT,
Chief Education Officer.

Education Office,
Warrior Square,
Southend-on-Sea. 3972

QUANTITY SURVEYING ASSISTANTS
required by
ADMIRALTY
WAR OFFICE
AIR MINISTRY
MINISTRY OF WORKS

Posts in London, Provinces and overseas. Salaries for candidates with suitable experience range from £690 p.a. at age 21 to £1,375 p.a. and in exceptional cases to £1,730 p.a. Write for particulars of vacancies in each Department, and forms, to Ministry of Labour, Technical and Scientific Register, 26, King Street, London, S.W.1. (Room 403). 3973

QUANTITY SURVEYORS AND ASSISTANT QUANTITY SURVEYORS
required by
MINISTRY OF EDUCATION
ADMIRALTY
WAR OFFICE
AIR MINISTRY
MINISTRY OF WORKS

Posts in London, Provinces and overseas. London salaries for suitably qualified and experienced men of up to £1,780 p.a. for quantity surveyors and £1,300 p.a. for assistant quantity surveyors. Prospects of promotion and pensionable status. Write for particulars of vacancies in each Department and forms, quoting J.Q.S., to Ministry of Labour, Technical and Scientific Register (Room 403), 26 King Street, London, S.W.1. 3974

COUNTY BOROUGH OF BARROW-IN-FURNESS
BOROUGH ENGINEER & SURVEYOR'S DEPT.
ARCHITECTS

Applications are invited from qualified Architects with suitable experience for the posts of:—
SENIOR ARCHITECT, Grade IV, £1,140—£1,310.
ASSISTANT ARCHITECT, Special Grade, £840—£1,145.

In each case the commencing salary will be fixed within the grade.

Housing accommodation may be provided if required. The Department works a five-day week.

Full details of the post, conditions of appointment and application forms may be obtained from the Borough Engineer and Surveyor to whom completed forms must be returned not later than Monday, 14th November, 1960.

LAWRENCE ALLEN,
Town Clerk.

Town Hall,
Barrow-in-Furness. 4024

NEW ZEALAND : MINISTRY OF WORKS

The New Zealand Government Ministry of Works invites applications for Permanent Staff appointments. Positions available are:—

ARCHITECTS

Commencing salaries up to £1,700 a year according to qualifications and experience. Applicants should be members of the Royal Institute of British Architects (R.I.B.A.). These positions offer excellent prospects for those with the right qualities and scope for initiative and creative thinking in helping to meet the architectural requirements of a prosperous and fast-developing country.

ARCHITECTURAL DRAUGHTSMEN

Salaries up to £1,210 a year according to qualifications and experience. Applicants should have had at least five years' draughting experience in an architectural office.

Subject to completion of a Bond to remain in the Service for three years, successful applicants will be assisted with expenses incurred in travelling to New Zealand. A Superannuation scheme is available and there are generous annual and sick leave privileges.

Enquiries, mentioning this publication, quoting reference number B11/30/23 and indicating the position sought, should be addressed to The High Commissioner for New Zealand, 415 Strand, London, W.C.2. Full details of housing available, fares payable, career prospects, type of work, terms of contract, local conditions, and application forms, will then be supplied. 3946

RHONDDA BOROUGH COUNCIL
BOROUGH ARCHITECT'S DEPARTMENT
(Amended Advertisement)

Applications are invited from suitably experienced persons for the post of ARCHITECTURAL ASSISTANT at a salary in accordance with Grade A.P.T. II (£815 to £960 per annum).

The appointment will be terminable by one month's notice on either side and will be subject to the National Scheme of Conditions of Service. The successful candidate will be required to pass a medical examination and will contribute to the Council's Superannuation Fund.

Applications on forms to be obtained from Mr. C. Gingell, A.R.I.B.A., A.R.I.C.S., Borough Architect, Bronwydd, Porth, are to be submitted to the undersigned not later than Saturday, November 12, 1960.

E. D. WILDE,
Town Clerk.

Council Offices,
Pentre, Rhondda.
21st October, 1960. 3948

COUNTY COUNCIL OF STIRLING
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the post of SENIOR ASSISTANT ARCHITECT. Salary £1,260 to £1,512. Applicants must hold A.R.I.B.A., and have had wide experience in preparation of working drawings, taking complete responsibility and handling building contracts.

The appointment will be subject to the provisions of the Local Government Superannuation Act, and the successful candidate will require to pass a medical examination.

Applications, stating age, qualifications and experience, together with names of two referees, should be lodged with A. J. Smith, A.R.I.B.A., F.R.I.A.S., County Architect, Spittal Street, Stirling, not later than 15th November, 1960.

JAMES D. KENNEDY,
County Clerk.

County Offices,
Viewforth, Stirling. 3949

BOROUGH OF EDMONTON
BOROUGH ARCHITECT'S DEPARTMENT
QUANTITY SURVEYING ASSISTANT

Applications are invited for this appointment from persons who have passed the Final examination of the Royal Institute of Chartered Surveyors or equivalent examination. Salary, Grade A.P.T. III, £980—£1,185 per annum inclusive of London weighting.

Applications on forms obtainable from the Town Clerk, Town Hall, Edmonton, N.9, must be delivered by the 12th November, 1960. 3963

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

SOCIOLOGIST required in Town Planning Division to work in collaboration with architects, surveyors, and other specialists on a variety of planning problems, especially in connection with neighbourhood and community studies and the planning of areas of comprehensive redevelopment. £830 to £1,250 according to experience and qualifications. Form returnable by 19th November, from Architect to Council (EK/AJ/2831/11), County Hall, S.E.1. 3992

BOROUGH OF ACTON
BOROUGH ENGINEER'S DEPARTMENT

Applications are invited for the following appointments:—

SENIOR ENGINEERING ASSISTANT, A.P.T. Grade V.
ENGINEERING ASSISTANT, A.P.T. Grade II/III/IV.
TECHNICAL ASSISTANT, A.P.T. Grade II/III.
ARCHITECTURAL ASSISTANT, A.P.T. Grade IV.
ARCHITECTURAL ASSISTANT, A.P.T. Grade II/III/IV.

Successful candidates will be engaged on general municipal works, structural design and multi-storey development.

Applicants for post of Technical Assistant should have some knowledge of street lighting.

Appointments on A.P.T. Grades IV and V are subject to possession of appropriate qualifications.

Starting salaries according to age, qualifications and experience, London allowance (maximum £45 p.a.) is payable in addition. The Council operates a five-day week.

Conditions of appointment and forms of application may be obtained from and should be returned to the Borough Engineer, Town Hall, Acton, W.3, by 14th November, 1960. 3962

MANCHESTER CORPORATION
SENIOR ASSISTANT PLANNING OFFICER.

Grade A.P.T. V (£1,310—£1,480) in the City Surveyor and Engineer's Department. Candidates must be appropriately qualified by examination and should have had considerable experience in the planning and development work of a local authority.

This appointment offers practical experience on large scale projects. Housing accommodation and removal expenses.

Applications stating age, education, qualifications and experience together with the names of three referees to the City Surveyor, Town Hall, Manchester, 2, by 14th November, 1960. 4010

STAFFORDSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited from suitably qualified candidates for the following posts:—

ASSISTANT ARCHITECTS
Grade A.P.T. IV (£1,140—£1,310).
Special Grade (£840—£1,145).
Candidates must be Associates of R.I.B.A.

ARCHITECTURAL ASSISTANTS
Grade A.P.T. II (£815—£960).
Applicants must hold Intermediate R.I.B.A.

The Architect's Department is a busy and expanding office, offering valuable experience within groups working on a wide variety of projects, including Colleges, Schools, Libraries, Hostels, Fire Stations, Police Stations, Offices, Ambulance Stations, Clinics, Training Centres, etc.

Pleasant offices in County town and good working conditions.

The appointments will be subject to:—
(*a*) The National Scheme of Conditions of Service.
(*b*) The Local Government Superannuation Acts and the passing of a medical examination.

The County Council are prepared to grant a lodging allowance of 35s. per week to married applicants maintaining a home outside the geographical County for a period of six months, also second-class rail travel home every second month during the initial six months. The Council are also prepared to give consideration to the granting of financial assistance in appropriate cases towards removal expenses.

The Council has a scheme for loans to employees wishing to purchase their own houses.

Forms of application, which must be returned by the 14th November, 1960, may be obtained from P. Woodcock, F.R.I.B.A., County Architect, Green Hall, Lichfield Road, Stafford.

T. H. EVANS,
Clerk of the County Council.
4011

ARCHITECTURAL DRAUGHTSMEN required for London office; applicants should have experience in an architectural drawing office and be neat and accurate draughtsmen, with ability to prepare working drawings and details. The work is primarily concerned with transport depots and includes offices, transit buildings, vehicle workshop and ancillary facilities. Projects in various parts of the country will involve some travel. Appointments, according to qualifications and experience, will be within the salary scales £905—£980 or £1,020—£1,100 and £735—£790 or £825—£870. Pension fund and canteen. Applications giving age, experience and qualifications to Personnel Officer, British Road Services Limited, Melbury House, Melbury Terrace, London, N.W.1 4015

COUNTY BOROUGH OF SOUTHAMPTON
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT

Applications are invited for the following appointment:

SENIOR ASSISTANT ARCHITECT, Grade A.P.T. V (£1,310—£1,480), for duties in connection with an extensive and varied programme of housing development including multi-storey flats. Applicants must hold the qualification A.R.I.B.A. with wide experience in the design and administration of major building works.

The appointment is subject to N.J.C. conditions of service.

Housing accommodation available in approved cases and approved removal expenses reimbursable up to a maximum of £50.

Apply on application forms obtainable from the Borough Engineer and Surveyor, Civic Centre, Southampton, returnable by not later than Monday, 14th November, 1960. 4055

ASSISTANT ARCHITECT

A vacancy exists on the staff of the Chief Civil Engineer, British Railways, York, for a Leading Assistant Architect with several years' experience since qualified.

Applicants must possess a Degree or Diploma in Architecture and be an Associate of R.I.B.A.

Commencing salary £1,150 per annum, within range £1,150—£1,260.

Applications in writing, giving age, qualifications, etc., to Chief Civil Engineer, British Railways, North Eastern Region, York. 3953

COUNTY BOROUGH OF SUNDERLAND
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for posts in the above Department, viz.:—
(*a*) ASSISTANT ARCHITECTS—J.N.C. Scale "B."
(*b*) ARCHITECTS IN CHARGE—J.N.C. Scale "A."

Salaries according to experience and qualifications. Consideration will be given to a payment towards removal expenses, to a lodging allowance for the applicant, and to a generous mortgage advance in respect of house purchase.

Application forms obtainable from Borough Architect, Grange House, Stockton Road, Sunderland, which, duly completed, must be received at my office, Town Hall, not later than 15th November, 1960.

Canvassing will disqualify.

G. S. McINTIRE,
Town Clerk,
3942

BEDFORDSHIRE COUNTY COUNCIL.

Applications are invited for the following posts:—
(*a*) SENIOR ARCHITECTS, Grade A.P.T. V (£1,310—£1,480) and A.P.T. IV (£1,140—£1,310).
(*b*) ARCHITECTS, Special Scale (£840—£1,145).
(*c*) ARCHITECTURAL ASSISTANTS, Grade A.P.T. II (£815—£960) and A.P.T. I (£645—£815).

Suitable candidates will be appointed to grades and points within grades in accordance with qualifications and experience.

The office has an extensive programme of work which includes a new County Hall, Training Colleges, Further Education and School Buildings, Police and Fire Station, and other public buildings.

Application forms obtainable from the County Architect, Shire Hall, Bedford, to be returned by 30th November, 1960. 4050

URBAN DISTRICT COUNCIL OF BASILDON
(Population 85,000—27,000 acres. Rapidly expanding)

ESTABLISHED POSTS.
(*a*) SENIOR ASSISTANT ARCHITECT—Within A.P.T. IV (£1,140—£1,310).
(*b*) ARCHITECTURAL ASSISTANT—Within A.P.T. II (£815—£960).
(*c*) ARCHITECTURAL DRAUGHTSMAN—Within Miscellaneous VI (£760—£825).

Applicants for (*a*) must be fully qualified and experienced architects, for (*b*) be partially qualified and have had practical experience, and for (*c*) be competent draughtsmen with experience of architectural work. The last named position would offer advancement for anyone wishing to continue a course of study.

Housing accommodation considered. Five-day week. Casual user car allowance payable in respect of position (*a*).

Full particulars and application form from and returnable to Mr. S. A. Wadsworth, A.M.I.C.E., A.M.I.Mun.E., Engineer & Surveyor, Council Offices, 88, Town Square, Basildon, Essex. Closing 17th November. 4051

BOROUGH OF SUTTON AND CHEAM
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT

Applications are invited for the appointment in the Architect's Section of the Borough Engineer's Department of an ARCHITECTURAL ASSISTANT, Grade A.P.T. IV (£1,140 to £1,310 p.a.) plus London weighting £45 per annum.

Candidates must be qualified members of the Royal Institute of British Architects. Work is on an interesting programme of public buildings and housing.

The commencing salary will be according to qualifications and experience, and the Council may consider the provision of housing accommodation where necessary.

The appointment which is terminable by one month's notice in writing on either side, is on the permanent staff of the Corporation, subject to the provisions of the Local Government Superannuation Acts, 1937-53, and to the National Scheme of Conditions of Service.

The successful candidate will be required to pass a medical examination. Form of application may be obtained from Mr. C. Needham, M.I.C.E., M.I.Mun.E., A.M.I.Struct.E., Borough Engineer and Surveyor, to whom it should be returned accompanied by copies of two recent testimonials, not later than 19th November, 1960, endorsed "Architectural Assistant, Grade A.P.T. IV."

Applicants must state whether they are related to any member or holder of any senior office under the Borough Council. Canvassing in any form will disqualify.

ARTHUR PRIESTLEY,
Town Clerk.

Municipal Offices,
Sutton, Surrey.
October, 1960. 4035

LEEDS REGIONAL HOSPITAL BOARD

Applications are invited for the appointment of an ASSISTANT ARCHITECT. Salary scale £905/£1,310 per annum. Candidates should be registered architects.

The Board's offices are in Harrogate in pleasant surroundings and an excellent canteen is available on the premises.

Applications, stating age, qualifications and experience, together with the names and addresses of two referees, to The Secretary, Park Parade, Harrogate, by 12th November, 1960. 4049

BOROUGH OF HEMEL HEMPSTEAD
SENIOR ARCHITECTURAL ASSISTANT
SPECIAL GRADE (£840—£1,145)

Applications are invited for the appointment of a Senior Architectural Assistant in the Borough and Water Engineer's Department at a salary within the Special Scale (£840—£1,145).

Candidates should have passed Parts I and II of the R.I.B.A. Final or Special Final Examination or their equivalent at one of the recognised schools of architecture and to have had at least five years' experience, including the period spent on training.

It is anticipated that housing accommodation will be made available to the successful applicant. The appointment will be subject to the Local Government Superannuation Acts, to the National Conditions of Service from time to time in force, and to the passing of a medical examination and will be terminable by one month's notice in writing on either side.

Applications, stating age, education, qualifications and experience, together with copies of two recent testimonials, should be sent to A. H. Turner, A.M.I.C.E., Borough and Water Engineer, High Street, Hemel Hempstead, Herts, not later than Monday, the 14th November, 1960.

Canvassing will disqualify and applicants must state whether to their knowledge they are related to any member or senior officer of the Council.

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

Town Hall,
High Street,
Hemel Hempstead, Herts.
26th October, 1960. 4045

UNIVERSITY OF SYDNEY
LECTURESHIP IN ARCHITECTURAL SCIENCE

Applications are invited for the above-mentioned position. Candidates should have an Honours degree in Architecture or Engineering and have had some research experience in architectural structures.

The salary for a Lecturer is within the range £A1,730 × £A105—£A2,435 per annum, plus cost of living adjustments and will be subject to deductions under the State Superannuation Act. The commencing salary will be fixed according to the qualifications and experience of the successful applicant.

Under the Staff Members' Housing Scheme in cases approved by the University and its Bankers, married men may be assisted by loans to purchase a house.

Further particulars and information as to the method of application may be obtained from the Secretary, Association of Universities of the British Commonwealth, 36, Gordon Square, London, W.C.1.

Applications close, in Australia and London, on 16th December, 1960. 4036

KENT COUNTY COUNCIL require a QUANTITY SURVEYING ASSISTANT with experience in taking off and in settlement of final accounts. The salary range extends to £1,145 a year, the starting grade and salary depending on qualifications and experience. Further details and application forms from County Architect, Springfield, Maidstone. Closing date 15th November, 1960. 4000

COUNTY BOROUGH OF HASTINGS

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

(*a*) ASSISTANT ARCHITECT, Special Grade (£840—£1,145 per annum), for Education projects.
(*b*) ENGINEERING ASSISTANT, A.P.T. II (£815—£960 per annum).
(*c*) ARCHITECTURAL ASSISTANT, A.P.T. I (£645—£815 per annum).

Candidates must be qualified in accordance with the Scheme of Conditions of Service, and the point of entry in the Grade will be dependent on experience.

Housing accommodation will be available if required.

Applications, stating age, qualifications, experience, present and previous appointments and salary, and the names of three referees, to be delivered to the Borough Engineer, 37, Wellington Square, Hastings, not later than Monday, 14th November, 1960.

Canvassing will disqualify.

N. P. LESTER,
Town Clerk.

Town Hall,
Hastings. 4038

COUNTY COUNCIL OF DUNBARTON

Applications are invited for the following posts in the County Architect's Department of the County Council:—

CHIEF ASSISTANT ARCHITECT, £1,310 × (3) £56 13s. 4d. to £1,480 per annum.
SENIOR ASSISTANT ARCHITECT, £1,150 × (3) £53 6s. 8d. to £1,310 per annum.
ASSISTANT ARCHITECTS, £795 × £35 to £1,075 × (2) £35 × £55 to £1,200 per annum.
ASSISTANT ARCHITECTS (Part Qualified), Executive I to III, £605 to £795 per annum.

Applicants for the posts of Chief and Senior Assistant must be A.R.I.B.A., preferably with considerable experience in housing, schools and other local authority work. The posts are superannuable under the Local Government Superannuation (Scotland) Acts, 1937 to 1953. Placing on the scale will be given to Assistant Architects according to experience and qualifications. Canvassing in any form will disqualify and relationship to any member or senior officer of the County Council must be disclosed. Five-day week. The provision of housing accommodation will be considered.

Applications stating age, experience and qualifications, along with the names and addresses of two referees, should be lodged with the County Architect, Ferry Road, Old Kilpatrick, on or before 12th November, 1960.

JOHN F. MILLER,
County Clerk.

County Buildings,
Dumbarton. 3965

REBUILDING OF ST. THOMAS' HOSPITAL

ASSISTANT ARCHITECTS, £905 × 35 (1) × 45 (6) × 50 (2) to £1,310 plus £40—£50 London weighting.

Opportunities occur for young, imaginative architects to assist in carrying out the design and construction of a complete new 800 bed teaching hospital. Working drawings for Stage I are now under way and planning studies for Stage II will be commencing shortly.

Preference will be given to qualified architects who have recently completed a full-time course at a recognised School of Architecture.

Previous hospital experience is not essential.

Applications should be returned to me within two weeks, giving particulars of education, qualifications and experience.

W. FOWLER HOWITT, A.R.I.B.A.,
Architect to the Board of Governors.

45 Lambeth Palace Road,
London, S.E.1. 3966

COUNTY BOROUGH OF BLACKPOOL

APPLICATIONS are invited for the following appointments in the BOROUGH SURVEYOR'S DEPT.

ARCHITECTURAL ASSISTANT.
A.P.T. I. £610/£765.
ASSISTANT ARCHITECTS.
SPECIAL GRADE. £785/£1,070.
ASSISTANT QUANTITY SURVEYORS.
SPECIAL GRADE. £785/£1,070.

Particulars and Forms of Application from Borough Surveyor (Arthur Hamilton, B.Sc., A.R.I.B.A.), P.O. Box 17, Municipal Offices, Blackpool. 2996

BRACKNELL DEVELOPMENT CORPORATION

Applications are invited for the post of ARCHITECT, salary range £1,305—£1,565 per annum. Applicants must be Corporate Members of the R.I.B.A. Superannuation schemes, medical examination. Housing available. Apply by 21st November, 1960, giving age, education and qualifications, experience and appointments held (with dates and salaries), and names of two referees, to General Manager (A), Bracknell Development Corporation, Farley Hall, Bracknell, Berks. 4009

BOROUGH OF EALING

BUILDING SURVEYOR, A.P.T. III, £1,005—£1,185 inclusive. Must hold appropriate qualification of the Institution of Municipal Engineers or Royal Institution of Chartered Surveyors.

Full particulars and application form from Borough Surveyor, Town Hall, Ealing, W.5.

Closing date: 14th November, 1960.

E. J. COPE BROWN,
Town Clerk.

3909

CORPORATION OF THE CITY OF ABERDEEN
CITY ARCHITECT'S DEPARTMENT

Applications are invited from qualified ARCHITECTS (A.R.I.B.A.) for two posts of ASSISTANT ARCHITECT in the above Department, one post being temporary and the other permanent.

The salary scales are (*a*) for the temporary post, £1,250 by annual increments of £35 to £1,320 per annum, and (*b*) for the permanent post, £1,085 by annual increments of £35 (3) and £45 to £1,235 per annum. Appointment to the posts is subject, where appropriate, to the passing of any medical examination requisite for superannuation purposes.

Applications, stating age, qualifications, experience and the names and addresses of three Architects to whom reference may be made, should be sent to the City Architect, 11 Broad Street, Aberdeen, on or before 10th November, 1960.

J. C. RENNIE,
Town Clerk.

Town House,
Aberdeen.
October, 1960. 3969

COVENTRY CORPORATION
require
SENIOR ASSISTANT HEATING AND VENTILATING ENGINEER, Grade "B" (£1,468—£1,670), commencing according to qualifications/experience, to be responsible for design and contract supervision of heating, ventilating, air conditioning and other building services in a varied and interesting building programme, including Central Swimming Baths, Schools, College of Technology, Central Library, Law Courts, Residential College, 'Bus Station and Multi-storey Dwellings. Associate membership Inst. H. & V.E. essential. Housing accommodation may be available. Interest free removal expenses loan up to £50. Application forms from City Engineer, Council House, Coventry, returnable by 10th November. 3971

ARCHITECTS — PART-TIME

Architect's Department, L.C.C. has work for a few part-time architects. Form from Hubert Bennett, F.R.I.B.A., Architect to the Council, (EK/AJ/2755/11), County Hall, S.E.1. 3970

AIR MINISTRY require SENIOR TAKERS OFF in the Quantities Division, London. Must have wide experience of all classes of work and preferably be A.R.I.C.S. (Sub-Division III Quantities). Salary scale £1,375 to £1,785. Commencing salary according to age, qualification and experience. Non-pensionable but long term. Good prospects of establishment and/or promotion. Five-day week, 22 days' paid leave. Applicants must be natural born British subjects. Forms from Ministry of Labour, Technical and Scientific Register (K), 26, King Street, London, S.W.1, Quoting J.340/OA. 3564

HOLLAND COUNTY COUNCIL invite applications for the following appointments:—

(*a*) SENIOR ASSISTANT ARCHITECT, Grade A.P.T. IV, £1,140—£1,310 per annum.
(*b*) ARCHITECTURAL ASSISTANT, Grade A.P.T. II, £815—£960 per annum.
(*c*) QUANTITY SURVEYING ASSISTANT, Grade A.P.T. II, £815—£960 per annum.

The provisions of the Local Government Superannuation Acts, the N.J.C. Scheme of Conditions of Service and a medical examination will apply.

The County Council would be prepared to make a contribution towards the cost of removals.

Forms, obtainable from the County Architect, should be returned to the Clerk of the County Council, County Hall, Boston, Lincs, by 14th November, 1960. 3967

Architectural Appointments Vacant

3s. per line; minimum 12s. Box Number including forwarding replies, 2s. extra.

WEST END OFFICE requires ASSISTANT ARCHITECTS of Final and Intermediate standards for interesting Industrial projects in Home Counties. Good salaries offered to men with initiative and ability. Bonus Scheme, five-day week, holiday arrangements honoured. Box 2939.

ARCHITECTURAL ASSISTANTS required in busy Bloomsbury office with varied practice. Good salary and prospects for suitable applicants. Five-day week. Write giving particulars of age, qualifications, experience, etc., to Box 910, c/o 7, Coptic Street, W.C.1. 8815

LEWIS SOLOMON, KAYE & PARTNERS, rapidly expanding practice require ARCHITECTS and ASSISTANTS with initiative and competence to work on major design projects in the London area. These projects include Comprehensive Development Schemes, Hotels, Schools, Offices, and Luxury Flats. Good salaries according to ability and experience, luncheon vouchers, five-day week, and excellent working conditions. Write 5, Holborn Circus, Thavies Inn House, E.C.1, or telephone CITy 8811, quoting SLB in both instances. 7700

SENIOR ASSISTANTS required immediately. Salary by arrangement. Theo. H. Birks, 39 Portland Place, London, W.1. LAN 7336. 1486

INTERMEDIATE to Final ASSISTANTS required immediately. Salary according to ability and experience. Theo. H. Birks, 36, Portland Place, London, W.1. LAN. 7236. 9739

EXPANSION into additional offices creates space for one or two more ASSISTANTS, both Senior and Intermediate. Salaries, according to experience, will be generally well up to or above average. There are pension and profit-sharing schemes besides other benefits. We have a tremendous variety of work offering excellent prospects and full responsibility to Senior Assistants and great opportunities for development to Intermediates. Write or phone HUN 1711, ref. KAM, for an appointment to see the office, meet people and discuss joining us. Beard, Bennett, Wilkins & Partners, 101, Baker Street, London, W.1. 3606

RONALD WARD AND PARTNERS invite applications from ARCHITECTS, Senior and Junior. Long-term prospects. Scope for initiative and responsibility in interesting commercial, industrial and civic projects in British Isles, West Africa and Australia. Salaries commensurate with ability. Non-contributory Pension and Life Insurance schemes. Five-day week. Pleasant offices. Apply 29, Cheeham Place, Belgrave Square, London, S.W.1. Tel.: BELgravia 3561. 2960

ARCHITECTURAL ASSISTANTS of all categories required for busy City office engaged in industrial and commercial work. Good working conditions, 5-day week, luncheon vouchers. Salary by arrangement. Please contact Eric Firmin & Partners, Thavies Inn House, Holborn Circus, E.C.1. Tel.: City 8911. 2692

ASSISTANTS required urgently in expanding Practice. Plenty of scope with opportunities of varied site experience. Initiative encouraged. Write giving particulars and experience and salary required. Box 3503.

ASSISTANT with several years' office experience and accustomed to preparing working drawings from sketches, required immediately by West End Architects. Should be interested in supervising the work and have a sound knowledge of construction. Write for interview to Box 3557.

BASIL SPENCE & PARTNERS require qualified and experienced ARCHITECTS to fill positions of responsibility on a major building programme. Write to 46, Queen Anne Street, W., stating experience and salary required. 9824

£1,000/£2,000 p.a. will be paid to experienced competent ARCHITECTS by a private practice in the City of London. The work will be primarily on the drawing board on new and interesting projects of magnitude. A high standard of design and detailing ability is required. Please apply in writing to Box 9360.

£850—£1,400. ARCHITECTURAL ASSISTANTS with imagination and designing ability required to assist with large and important new developments in the central London Area. Telephone or write—Trehearne & Norman, Preston & Partners, 83, Kingsway, W.C.2. HOLborn 4071. 2126

MONRO AND PARTNERS require ARCHITECTURAL ASSISTANTS of Intermediate/Final R.I.B.A. standard in their London, Watford, and Glasgow Offices for work on interesting industrial and commercial projects. Salary range £800—£1,000 p.a. Non-contributory Pension Scheme. Five-day week. Apply in writing to 32, Clarendon Road, Watford. 3609

SENIOR ASSISTANT required by Hasker & Hall, L./F.R.I.B.A., in their office in Warwickshire. Good salary, with scope for initiative and responsibility. Write Longdon House, High Street, Knowle, or telephone Knowle (Birmingham) 3502. 2143

SIR JOHN BURNET, TAIT & PARTNERS have vacancies for ARCHITECTURAL ASSISTANTS of all grades. Salaries ranging from £1,000 to £1,500 per annum. Luncheon vouchers. Pension and Medical schemes (non-contributory). Telephone LANgham 3826 for appointment. 2113

ARCHITECTURAL ASSISTANT required, with at least two years' office experience. Apply in writing to Thomas Mitchell & Partners, 26, Bedford Square, London, W.C.1. 7282

SIR GILES SCOTT, SON & PARTNER require ARCHITECTURAL ASSISTANT, qualified or unqualified, with practical experience. Interesting and varied practice. Salary up to £1,000 plus luncheon vouchers. Write 9, Gray's Inn Square, W.C.1, or telephone CHAncery 8387/8. 3469

CITY OFFICE requires ASSISTANTS for industrial and commercial work. 5-day week, luncheon vouchers. Salary £1,200 p.a. 3691

SIR GILES SCOTT, SON & PARTNER require a SENIOR ASSISTANT with good general experience in practical supervision of work and also in administration. Varied work including schools, hostels, churches, office buildings, municipal buildings, etc. Five-day week, luncheon vouchers, and salary in accordance with experience. Please apply in writing to 9, Gray's Inn Square, London, W.C.1. 3710

ASSISTANT ARCHITECTS required for staffing a new office opening in Southampton for work on interesting projects including University, War Department and Ecclesiastical programmes. Juniors also required. Apply stating age, qualifications, experience and salary required to Robert Potter, F.R.I.B.A. & Richard Hare, B.Arch., A.R.I.B.A., De Vaux House, Salisbury. 3167

ELIE MAYORCAS requires ARCHITECTURAL ASSISTANTS with a minimum of three years' office experience in this country. Write giving brief particulars of architectural education and experience, and salary required, to: 13, David Mews, Baker Street, W.1. 3698

BOOTH, LEDEBOER AND PINCKHARD require ASSISTANTS in the salary range £750—£1,250. Apply 17-22, Mason's Yard, Duke Street, St. James's, S.W.1. Tel.: TRAfalgar 1866. 3139

RESPONSIBLE position vacant in congenial City Office. Salary by arrangement, reviewed annually. Luncheon voucher scheme. Applicants of Intermediate to Final R.I.B.A. standard (at least two years' office experience) should ring MET. 8511 or write Seely and Paget, 41, Cloth Fair, E.C.1. 3661

WATKINS, GRAY & PARTNERS, 57 Catherine Place, S.W.1, require ASSISTANTS of Intermediate standard for work on large hospital projects. Excellent opportunities for those seeking first hand experience in this most interesting and rapidly developing field. Luncheon vouchers and pension scheme in operation. Write giving full particulars. 3673

NORMAN & DAWBARN require an ASSISTANT in their Wolverhampton office. This position could afford useful experience of small and medium size jobs in a small but expanding office, with possibility of later transfer to London office or overseas if desired. Minimum two years' previous office experience preferred. Working conditions are good, five-day week, three weeks' annual leave, lunch vouchers. Please write or phone to 7 Portland Place, London, W.1. Langham 8011. 3649

HOWARD V. LOBB & PARTNERS require ASSISTANT ARCHITECTS. Salaries would be between £750 and £1,250 per year. Please write to 20 Gower Street, London, W.C.1. 3640

SOUTHAMPTON. Senior and Junior ARCHITECTURAL ASSISTANTS required for interesting contracts in the Southern Counties. Apply with details of experience and salary required to E. M. Galloway & Partners, F./A.R.I.B.A., 10 Portland Street, Southampton. 3656

RICHARD SHEPPARD, ROBSON & PARTNERS require ASSISTANTS of Intermediate and Final standard; salary range £750—£1,000 according to ability. 5 Southampton Place, W.C.1. CHAncery 4261. 3592

WELL established firm of London Architects require experienced, qualified or unqualified, staff for their new Eastbourne office age 20/35. Salary £500—£1,100 according to age and experience. Gunton & Gunton, Empire House, St. Martin's le Grand, E.C.1. 3589

QUALIFIED ARCHITECT required by London firm to work in their Nigerian office. Varied and interesting projects, good salary, pleasant location and conditions. Apply: J. E. K. Harrison, F.R.I.B.A., Eagle House, High Street, Wimbledon, S.W.18. Tel.: WIM. 4244. 3701

GOLLINS, MELVIN, WARD & PARTNERS require ARCHITECTURAL ASSISTANTS for their Sheffield Office to work on interesting University projects. Five-day week, quarterly bonuses and pension scheme. Write: 281, Glossop Road, Sheffield 10, or telephone Sheffield 29922, for an appointment. 3723

ARMSTRONG & MACMANUS have vacancies for competent ASSISTANTS with initiative. Prospects and salary according to ability. Please write 28, Gloucester Place, W.1, or telephone WELbeck 2273 for appointment. 3750

ARCHITECTURAL ASSISTANT required for interesting work including office blocks, social clubs and commercial buildings. Please write stating age, experience and salary requirde to Westmore & Partners, 121 Cheapside, London, E.C.2. 3908

ARCHITECTURAL ASSISTANTS required immediately. Final and Intermediate standards. Varied and interesting work, including large scale comprehensive housing schemes and high buildings. Write to Collcutt & Hamp, 86 Prince Albert Road, Regents Park, N.W.8, or telephone PRImrose 5157. 3910

ESTABLISHED Architectural practice offers outstanding opoprtunity for young Associate. Immediate partnership, excellent profit sharing basis, guaranted income. Applicants only who have ability and drive and are not frightened of hard work. Amalgamation with another existing practice considered. Box 3918.

STRATFORD-UPON-AVON. ARCHITECTURAL ASSISTANT with experience and originality required to work in expanding firm with team of architects, engineers and surveyors offering "all-in" service on a wide variety of projects. Apply to Chief Architect, Industrial House, Stratford-upon-Avon. 3932

REQUIRED. A.R.I.B.A., not less than five years' office experience, and general ASSISTANTS, Intermediate standard. Good opportunity in expanding office, interesting variety of work. Evening interviews if required. Write or phone George E. Clay & Partners, A/A.R.I.B.A., 198 Parrock Street, Gravesend, Kent. Gravesend 1401/2. 3890

ASSISTANT to Architect required, experienced in the maintenance of Industrial Buildings. Apply for further information to the General Manager, Lancashire United Transport Limited, Atherton, Lancs. 3893

SENIOR ASSISTANT required. Final R.I.B.A. standard, to take charge of a number of interesting and varied jobs in City Architects' office. Salary by arrangement. Vigers & Co., 4 Frederick's Place, Old Jewry, E.C.2. 3896

ARCHITECTURAL ASSISTANTS. The Architect's Department of a large industrial organisation requires Senior and Junior Assistants to work on a variety of interesting projects. The offices are modern and spacious and situated in pleasant rural surroundings in South-East England. Permanent appointments with progressive salaries are offered to the right men, within the range £780—£1,200. Five-day week, three weeks' annual holiday, non-contributory pension scheme. Applications, giving details of age, qualifications and experience, should be addressed to Box 3920.

ARCHITECTURAL ASSISTANTS of Final standard required immediately for busy country practice with varied programme of work. Some office experience essential. Experience in country house and ecclesiastical work an advantage. Salary by arrangement. Write stating experience and salary required to Forsyth Lawson, Cunningham & Partners, 30 Horse Fair, Banbury, Oxon. 3899

J. M. AUSTIN-SMITH AND PARTNERS require fully qualified ARCHITECTURAL ASSISTANTS with office experience and the ability and knowledge to design, run and supervise sizeable contracts on their own initiative. These contracts will commence early in the New Year. Salary according to age (limit 35) and experience. Apply in writing giving all relevant details to 29 Sackville Street, London, W.1. 3923

YORKSHIRE BANK LIMITED
(Established 1859)
offers a
SECURED FUTURE
in Leeds to an
ARCHITECTURAL ASSISTANT
Commencing Salary in the range £645—£960.
Pension Scheme.
Favourable House Purchase Terms.
Staff Luncheon Club.
Well-equipped Sports Ground.
Possession of a driving licence an advantage.
Apply to:—The Manager, Premises Department (351),
Yorkshire Bank Ltd., P.O. Box 155,
Infirmary Street, Leeds, 1.
Expenses for interview will be refunded. 3955

ERDI AND RABSON
SENIOR ASSISTANT
£1,000 +
Sketch to Accounts,
Starting January.

JUNIOR ASSISTANTS
£500 — £700
As soon as possible.

CITY 2639
27, Knightrider Street,
London, E.C.4. 3947

ASSISTANT required in Architects' Department of Multiple Firm having experience or interest in Shop and Interior work. Shopfitting experience an advantage. Five-day week and superannuation benefits. Salary £800—£1,000 per annum. Telephone TER. 4242 Ext. 7, or write Box 3959.

EXECUTIVE ASSISTANT required to establish and direct a Property and Architectural Dept.: old established Commercial House with number of Branches in south-eastern counties. Salary according to qualifications and experience. Bonus and Pension Schemes. Write, giving particulars of age, qualifications, experience, etc., to Box 3954.

ARCHITECTURAL ASSISTANTS required—Pre and Post Intermediate. One day a week for full-time study. Write with details to: D. Plaskett Marshall & Partners, 59, Gordon Square, W.C.1. 3957

ARCHITECTS
SYDNEY GREENWOOD, A.R.I.B.A., CHIEF ARCHITECT,
JOHN LAING AND SON LIMITED
REQUIRES SENIOR ARCHITECTS, ARCHITECTS and ARCHITECTURAL ASSISTANTS and DRAUGHTSMEN.

The Office, established over 15 years, continues to expand in content, experience and outlook, and offers tremendous opportunity for advancement.

There is full opportunity for close collaboration with all other branches of the industry with, for example, Civil Engineering, Plant Engineering, Cost Analysis, Job Planning and Construction. The Research and Development Division provides a unique background to design work, and staff are appointed to this Division as the occasion arises.

The fullest attention is given to new techniques and materials and there is a continuous thread of development within the Organisation in all fields.

Work in hand includes the following: Redevelopment of Central Areas, Industrial, Commercial, Multi-storey Dwellings, Housing, Schools and Proprietary Systems.

Staff are required in all grades and of all talents. Full advantage will be taken of skill in conceptual design, vigorous presentation, sensitive detailing, draughtsmanship, technical knowledge and administration. Applicants who have a positive attitude to the need for close collaboration between the branches of the industry will be especially valued. There is also a vacancy for a competent PERSPECTIVE ARTIST.

A Pension Scheme is offered, and there are canteen and club facilities. Apply giving brief details to Personnel Manager, Ref. S.A.4, John Laing and Son Limited, London, N.W.7. 3958

INTERMEDIATE standard ARCHITECTURAL ASSISTANTS required in busy provincial practice for permanent positions with interesting work in modern offices. Five-day week. Apply J. W. Hammond, Chartered Architects, Lloyds Bank Chambers, Gidea Park, Romford, Essex. 3952

ARCHITECTURAL ASSISTANT required for small but busy London office. Experience more important than qualifications. Good prospects for keen type on varied and interesting projects. Box 3907.

£825—LONDON. ASSISTANT required to do a primary school and an office block. Moore Simpson & Partners, 34, Bedford Row, W.C.1. CHA 7252. 3951

ARCHITECT WANTED—up to £2,000, depending on experience—temporary post one year—qualified Architect or highly experienced Draughtsman. Urgently required for drawing and detailing large Industrial development, possibility of permanency with further prospects for right man. Five-day week. Morter & Dobie, Chartered Architects, 2, Exchange Street East, Liverpool, 2. 3945

A BUILDING and civil engineering organisation requires the services of an
ARCHITECT
in their Building Division.
Applicants should be experienced in the design and execution of working drawings in connection with Housing and Flat Development schemes. Permanent and progressive position. Salary according to ability and experience. Box 3960.

LIVERPOOL
QUALIFIED and unqualified ASSISTANTS required. Five-day week. Good conditions, generous salaries. State experience in handwritten letter to: G. de C. Fraser, Son and Gearey, 27, Dale Street, Liverpool. 3961

AN ARCHITECTURAL REPRESENTATIVE
is required by
CAPE BUILDING PRODUCTS LIMITED
for their London Sales Force.
SPECIAL consideration will be given to applicants who have received some architectural training. Appreciation of architectural and constructional developments is essential. Age 25-35.
Apply: Secretary, Cowley Bridge Works, Uxbridge, Middlesex. 3950

ARCHITECTURAL STAFF
SYDNEY GREENWOOD, A.R.I.B.A., CHIEF ARCHITECT,
JOHN LAING AND SON LIMITED
requires
A SENIOR ARCHITECT, ASSISTANT ARCHITECTS and ARCHITECTURAL ASSISTANTS for recently established Regional Office in Manchester.

This office will be responsible for all types of Architectural projects undertaken by the Department.

The Senior Architect will be qualified, with at least five years' experience in schools, industrial and commercial projects. Assistant Architects will be qualified with two/three years' similar experience, including domestic experience. Architectural Assistants will be of Intermediate standard, with two/three years' experience in an Architect's Office.

There are excellent prospects within an expanding organisation, including Pension Scheme and other progressive benefits.

Applications giving brief details to Personnel Manager (M.R.O.5), John Laing and Son Limited, Page Street, Mill Hill, N.W.7. 3981

ARCHITECTS' ASSISTANTS required. Experienced in running commercial contracts. Interesting work including new shopping centres in provincial towns. Five-day week, superannuation fund and other benefits. Good salary according to experience. Apply: Eric H. Davie, F.R.I.B.A., A.M.T.P.I., 77, Grosvenor Street, London, W.1. (MAYfair 7666.) 3980

JUNIOR and INTERMEDIATE ASSISTANTS for a new small office in Victoria. Interesting and varied work with excellent prospects for advancement and good salaries. Knapton & Deane, 6, Martin Lane, E.C.4. MAN. Hse. 6281. 3978

BIGGINS AND ASSOCIATES invite you, if you have an eye to the future, to write to Richmond House, Boughton, Chester. 3977

LOUIS DE SOISSONS, PEACOCK, HODGES, ROBERTSON & FRASER require competent ASSISTANTS, both senior and junior, for appointments in their Exeter and Plymouth Offices; good salaries will be offered to suitable applicants. Applications, giving details of age, training and experience, should be sent to 12, Baring Crescent, Exeter. 3975

CHIPPINDALE & EDMONDSON
REQUIRE FOR THEIR BRADFORD AND DARLINGTON OFFICES THE FOLLOWING STAFF:

1. ASSISTANT ARCHITECTS with at least two years' office experience after qualification.
2. ARCHITECTURAL ASSISTANTS, all grades.

The offices have a five-day week, pension scheme and luncheon vouchers.

Applications to Chippindale & Edmondson, Empire House, Piccadilly, Bradford. Endorse the envelope "Private—Staff." 3760

WELL KNOWN firm of Architects, with offices both in London and on the South Coast, require ASSISTANT ARCHITECTS of all grades. High salaries paid for a five-day week, with Luncheon Vouchers and other benefits. Reply stating age, experience and qualifications, to Box 3865.

INTERMEDIATE to Final Standard. Design-conscious expanding practice engaged large-scale commercial projects requires ARCHITECTURAL ASSISTANTS with initiative and perspective ability. Good salaries according capabilities. Five-day week. L.V.s. Raymond Spratley & Partners, 9, Hertford Street, Park Lane, W.1. GRO 1532. 3707

ASSISTANT ARCHITECT required by Hasker & Hall, for responsible position in their London Office, 13, Welbeck Street, W.1 (WEL. 0961). 3765

ARCHITECTURAL ASSISTANTS required of intermediate standard. Plenty of opportunities for responsibility and administration of contracts, large and small. Facilities given for study of design at London Schools. Salary commensurate with experience. Box 3748.

POWELL & ALPORT require an ASSISTANT in their Croydon office to work on industrial and domestic developments. Salary by arrangement. Write giving brief details. Box 3747.

EXPERIENCED ARCHITECTURAL ASSISTANT required for busy West End office. General practice but mainly office and commercial projects. Bernard Gold & Partners, 4/6, Savile Row, W.1. REGent 7551. 3742

BUSY private practice has vacancy for ARCHITECTURAL ASSISTANT, preferably car driver. Pleasant office and working conditions. Five-day week. Scope for initiative and responsibility on varied and interesting works including Domestic, Commercial, Industrial and Ecclesiastical, over wide area of the country. Commencing salary according to experience and ability up to £1,000. Please apply giving fullest details to A. R. Laing, Deacon & Laing, 65, Goldington Road, Bedford. 3769

DENYS LASDUN & PARTNERS require qualified and experienced ARCHITECTS to fill positions of responsibility. Salaries from £1,100 p.a., according to ability and experience. Write to 3, Albany Terrace, N.W.1, or telephone HUNter 1822 for an appointment. 3792

ASSISTANT required Intermediate to Final Standard, five-day week. Write with full particulars to Reginald H. Gallannaugh & Partners, 54, Queen Anne Street, London, W.1. 3810

SECURE YOUR FUTURE IN YOUR PROFESSION

ARCHITECT'S ASSISTANTS required by Westminster Bank. Commencing salary range from £550 to £950 with good prospects. Modern London drawing office. Favourable house mortgage rates. Luncheon club. Sports club and other social activities. Pensions scheme. Fare for interview refunded. Write stating age, experience and salary required to:—The Architect, Westminster Bank Limited, Post Office Court, 10, Lombard Street, E.C.3. 3812

W. S. HATTRELL & PARTNERS require ASSISTANT ARCHITECTS (Intermediate Standard). Write or telephone to 21, Cleveland Place, London, S.W.1 (WHItehall 4076); 1 Queen's Road, Coventry (Coventry 25446); 15, Piccadilly, Manchester, 1. 3807

WALLIS GILBERT and PARTNERS ALSO NEED STAFF URGENTLY. 5, Cromwell Road, S.W.7. KENsington 1450. See page 130. 3814

ARCHITECTURAL ASSISTANT required in National Developers' design group. Age, qualifications immaterial BUT real experience and practical outlook essential. Salary £850—£950. Five-day week. Sense of humour an advantage. Box No. 3818.

EXPERIENCED ARCHITECT'S ASSISTANT required in well established provincial office. Fully qualified preferred although not absolutely essential. Possibilities of Partnership if satisfactory. State full particulars in confidence to Box 3902.

BRIGHTON & HOVE. Experienced ASSISTANTS in all grades required.
Details please to:
H. Hubbard Ford & Associates,
51 Church Road, Hove, 3, Sussex. 3906

MUNCE & KENNEDY, Chartered Architects and Consulting Engineers, require school-trained and qualified ARCHITECT for their Belfast Office with at least five years' post-graduate experience. First-class design ability and keen interest in basic planning/research are essential requirements. Experience in co-operating with client committees and knowledge of hospital work are desirable qualities. Good salary and prospects to successful applicant. Own staff notified. Apply in writing to 133 University Street, Belfast, 7, or Chiron House, 10-11 Bulstrode Place, Marylebone, London, W.1. 3875

AUSTIN VERNON & PARTNERS, 5 Buckingham Place, Westminster, S.W.1. Architects with varied practice require experienced ASSISTANTS to help with the development of a large London private estate of houses and flats in schemes with town planning interest. Must be interested in contemporary design. Good salaries. 3857

SENIOR AND JUNIOR ARCHITECTURAL ASSISTANTS urgently required for varied and interesting projects. Write full particulars and salary required. Lanchester & Lodge, 10 Woburn Square, London, W.C.1. 3859

GOLLINS, MELVIN, WARD & PARTNERS have vacancies for JUNIOR STAFF of Intermediate standard interested in the contemporary design of hospitals and educational buildings. Five-day week, pension scheme, quarterly bonuses. Telephone Welbeck 9991. 3868

QUALIFIED ARCHITECTS looking for some really interesting new work should apply to George, Trew & Dunn at their new offices, 50 Eastbourne Terrace, W.2. 3871

ARCHITECTURAL ASSISTANTS of Intermediate or higher standard who are looking for some really interesting work where wide experience can be gained, should apply to George, Trew & Dunn at their new offices, 50 Eastbourne Terrace, W.2. 3872

PHIPPS NORTHAMPTON BREWERY CO. LTD. have vacancies for
ARCHITECTURAL ASSISTANTS

APPLICANTS must be approaching Intermediate standard and duties will entail work on design and detailing as members of small teams in a lively Estate Department. Commencing salary will depend on age and experience. Excellent conditions of employment, including contributory pension scheme, five-day week and facilities for attending educational classes.
Apply to Personnel Officer, The Brewery, Bridge Street, Northampton, giving details of age, qualifications and experience. 3823

PRE-INTERMEDIATE ASSISTANT with at least two years' office experience required to join architect's office of Development Company. The successful applicant will be given the opportunity to work on his own initiative and assist in research into office and factory developments. Please apply: R. W. Kenzie, A.R.I.B.A. Telephone CHAncery 5141. 3833

ARCHITECTURAL ASSISTANTS required, salaries £600 to £1,000. W. Leslie Jones & Partners, 241a, High Street, Poole, Dorset. 59, High Street, Great Missenden, Bucks., and 9, Acresfield, Bolton, Lancs. 3838

JUNIOR ASSISTANTS required, salary according to experience. Apply H. & H. M. Lidbetter, F/F.R.I.B.A., 2 Verulam Buildings, Gray's Inn, W.C.1. 3839

COMPETENT ASSISTANTS in all grades required by busy Architects in London, S.W.1, engaged on office blocks, laboratories and factories. Five-day week and Luncheon Vouchers. Write giving details of experience, qualifications, age and salary expected to Box 3852.

ASSISTANT ARCHITECTS
required by
A. H. ANDERSON LIMITED

THIS Company which, in connection with its method of construction known as A.75, provides a comprehensive design and management service, requires a number of Assistant Architects.
The work covers not only research and development in conjunction with associated consultants, but also the design and supervision of complete projects throughout the British Isles.
Current schemes vary from single-storey to five-storey developments, using timber, steel and concrete components, and include offices, schools, factories, residential, welfare and community buildings.
Appointments will be on a commencing salary scale of £1,000 to £1,250, according to experience.
Applications in writing to A. H. Anderson Limited, 66 Victoria Street, London, S.W.1, or telephone Tate Gallery 2192. 3850

WILLIAM H. ROBBINS, A.R.I.B.A., requires ARCHITECTURAL ASSISTANTS of Final and Intermediate standard for interesting work in expanding office. Applicants should be experienced in design and construction and taking responsibility. Excellent opportunity of advancement, salary range from £750 to £1,400 per annum according to experience. Five-day week. Apply to 77 Wigmore Street, London, W.1. WELbeck 0274/5. 3841

ARCHITECT/BUILDING SURVEYOR able to work on own initiative required by provincial firm of Chartered Surveyors and Land Agents in East Midlands. Work, mainly rural, will include structural surveys, plans and specifications for small houses, agricultural buildings, modernisation of cottages, supervision and final accounts. Box 3840.

GILLESPIE, KIDD & COIA, 20, Park Circus, Glasgow, C.3, require ASSISTANTS to participate in a number of interesting projects. 4054

ARCHITECTURAL ASSISTANTS required. Final or Intermediate. Five-day week, interesting and varied work. State age, experience, salary and availability in confidence: William Roseveare, Sherwell House, Tavistock Road, Plymouth. 4053

MOBIL OIL COMPANY invites applications for the post of ASSISTANT ARCHITECT in their Birmingham Office. Applicants must be A.R.I.B.A., have experience in contemporary design and be capable of working independently. They will be responsible for handling jobs through all stages of development. Must hold a current driving licence. Five-day week; three weeks' holiday after one year's service; pension scheme; luncheon vouchers; sickness benefits. Write, giving full details of experience, age and salary required, to Employment Adviser, Caxton House, Westminster, S.W.1, quoting ref. AAE 4688 A. 4052

FIRST ASSISTANT required to help two busy partners and secretary. Intermediate or qualified. Ring HOLborn 5101. 4055

ASSISTANT ARCHITECT with experience and/or interest in schools and multi-storey flats. Write ERIC LYONS, MILL HOUSE, BRIDGE ROAD, HAMPTON COURT, SURREY. 3569

THE expanding firm of W. H. Saunders & Son, L/A/A.R.I.B.A., has the following vacancies for Architects and Architectural Assistants.
SOUTHAMPTON.—ASSISTANT with some experience, modern design outlook and initiative. Work in hand includes central area redevelopment projects, large scale flat developments and other multi-storey buildings, also schools and a variety of commercial work.
LONDON.—Intermediate to Senior Grade ASSISTANT with several years' experience. Work includes interesting projects in the West End as well as commercial developments and shops in the Greater London area.
PORTSMOUTH / GOSPORT.—An additional ASSISTANT is required to join a team working on a Civic Centre project. Office experience not essential but a sound design background is necessary.
CHANNEL ISLANDS.—ASSISTANT with some office experience required in the office of Saunders & Grime, Jersey, for work on hotels, shops, commercial projects.
MIDLANDS OFFICE, at Coventry, requires ASSISTANTS of all grades for a large programme of work which includes central area redevelopments in several towns, a number of Anglican and Catholic Churches and several new schools.
All these posts are permanent and progressive and offer the opportunity of working on a variety of projects in offices where good modern design is the order, and where the individual is encouraged to use his initiative.
Applications in the first instance should be made to John H. Saunders, L.R.I.B.A., F.R.S.A., at 22, Brunswick Place, Southampton, or 53, Goodge Street, London, W.1. 3989

INTERESTING and varied small practice urgently requires SENIOR and JUNIOR ASSISTANT for high quality work—not industrial. Telephone or write Bird & Tyler, 13, Welbeck Street, W.1. WEL. 0882. 4041

YORKE, ROSENBERG & MARDALL require recently qualified or office-trained ASSISTANTS for working drawings on large jobs. Write to 2, Hyde Park Place, W.2, or ring AMBassador 4521 for appointment. 3993

SENIOR ARCHITECT required for branch office in Chelmsford, age 35/45. Salary £1,600/£2,000, according to experience. Replies will be treated with confidence. Box 3996.

RESPONSIBLE ASSISTANTS for Colleges, Hostels, Schools, Offices. Salary according to ability. Apply Charles Pike & Partners, 14, Lincoln's Inn Fields, W.C.2, or phone HOL. 3532. 3995

RALPH TUBBS requires ARCHITECTS and ASSISTANTS. The work includes a new hospital, a television centre and publishers' headquarters. Phone WELbeck 2129 or write 46, Queen Anne Street, W.1. 3994

ARCHITECTURAL ASSISTANTS required for most interesting and varied work. Salary grades ranging from £550 to £1,020. R.I.B.A. Intermediate to Final standard. Five-day week. Excellent working conditions. Pension Scheme and three weeks' holiday. Paid overtime. Car allowance. Apply Gordon Payne and Preece, Grosvenor House, Gloucester. 3999

ANGUS McDONALD & PARTNERS, F/A.R.I.B.A., of Bristol and Guildford, require a SENIOR ASSISTANT to take charge of their Bristol Drawing Office, with sound practical experience in the preparation of Working Drawings and Specifications, capable of supervising large contracts and controlling Junior Staff. Car available if required. The Principals believe in progressive modern design combined with a proper office system. Forward details of experience and salary required to 1, Unity Street, College Green, Bristol, 1. 3988

NOTTINGHAM: The following staff are urgently required to assist in our extensive building programme:
1. SENIOR ARCHITECTS, £1,050 to £1,500.
2. ARCHITECTS, £800 to £1,050.
3. INTERMEDIATE ASSISTANTS, up to £800 depending on experience.
Five-day week. Pension scheme about to be instituted.
Bartlett & Gray, Dip. Arch. F/F.R.I.B.A., 16, Bridgford Road, West Bridgford. Tel. No. 88711/2. 3986

RAGLAN SQUIRE & PARTNERS AND WILLIAM WHITFIELD require Senior and Junior ARCHITECTURAL ASSISTANTS who are keen to join group working on selected prestige jobs. Five-day week; luncheon vouchers; pension scheme, etc. Write personally to William Whitfield, 3, Hobart Place, London, S.W.1, giving age, experience and salary required. 3983

EXPERIENCED ASSISTANT ARCHITECT required to carry out a programme of additions and alterations to Hospitals and other work. Responsible position. Age preferably over 30. Salary in the range of £1,200 to £1,500 according to ability. Three weeks' holiday with pay. Luncheon vouchers. London W.1 area. Reply to Box 4029.

EXPERIENCED ARCHITECTURAL ASSISTANT required for London office, work consisting of full office responsibilities and site supervision of homes, schools, assembly halls, etc., for handicapped children throughout Britain. State experience and salary required to: G. Tallo, Chartered Architect, 122, Harley Street, W.1. WELbeck 7267. 4044

ARCHITECTS

SENIOR, Intermediate and Junior Architects required in the DEVELOPMENT SECTION of a Building Company in the West End of London.

A sound practical background is more important than technical qualifications and preference will be given to applicants who have had experience in the *DESIGN OF HOUSING AND FLAT SCHEMES.*

The positions are permanent and progressive and a superannuation scheme is available.

Commencing salaries up to £1,200 p.a. according to experience plus bonus. Apply Box 4039.

ASSISTANT ARCHITECT—Birmingham Co-operative Society require the services of a competent ASSISTANT ARCHITECT. Applicants required to be conversant with both commercial and industrial premises and be qualified and capable of accepting responsibility. Salary commensurate with qualifications and ability. Applications to Personnel Officer, Birmingham Co-operative Society Ltd., Castle Street (off High Street), Birmingham 4. 4032

CHIEF ASSISTANT ARCHITECT required. Must have experience in design of new licensed premises and also alterations to existing houses including Brewery buildings. Contributory pension. Car provided. Apply, giving age and full details of qualification and experience, also salary required, to The Group Architect, Joshua Tetley & Son Ltd., Herries Road, Sheffield, 6. 4031

RICHARD FINCH requires personal ARCHITECTURAL ASSISTANT. Please telephone WELbeck 4713 or 4215 or write to 71, Blandford Street, London, W.1. 4040

SOUTH DEVON country practice has vacancy for energetic ASSISTANT for varied and responsible work; previous office experience essential. Salary £750—£950. Box 3968.

RICHARDSON & McLAUGHLAN, 13, Mansfield Street, London, W.1, LANgham 5984, require ASSISTANTS for busy practice to work on Office Buildings, Banks, Flats and Stores. Enthusiasm and ability essential but qualifications not important. Appropriate salary and luncheon vouchers. Write or telephone without delay if you wish to join this thriving organisation. 4042

LEONARD MANASSEH AND PARTNERS require SENIOR ASSISTANT to run large contract, not less than six years' experience. Write, giving full particulars and salary required, to 39-40, Bedford Street, Strand, W.C.2. 4043

ARCHITECTURAL ASSISTANTS, qualified, required. Salary £800—£1,250 per annum according to experience. Glasgow Office. Five-day week. Schools, Offices, Redevelopment, etc. State experience. D. Harvey & A. Scott, 2, Lynedoch Place, Glasgow, C.3. Tel. No. Douglas 8388. 4047

ARCHITECTS require SENIOR and INTERMEDIATE ASSISTANTS with private practice experience to be engaged on interesting Commercial and Industrial projects. Salary range £800 to £1,200 per annum plus bonus. Apply by telephone or in writing to: GORDON WHITE & HOOD, 77, King Street, Leicester. Tel. 23032—59798. 4006

ARCHITECTURAL ASSISTANTS with at least three years' office experience required for busy City office engaged in industrial and commercial work. Good working conditions. Five-day week, luncheon vouchers. Salary by arrangement. Please contact Eric Firmin & Partners, Thavies Inn House, Holborn Circus, E.C.1. Tel.: CITy 8811. 4030

W. J. LEWIS AND SONS require an ARCHITECTURAL ASSISTANT of Final and Intermediate R.I.B.A. standard, for interesting and varied work in busy office, and with opportunities for future. Salary will be according to age and experience. Five-day week. Apply by letter to 68, Cranbrook Road, Ilford, Essex, or telephone Ilford 3589. 4017

SENIOR ASSISTANT ARCHITECT required in Brewery Architects & Surveyors Dept. for work in connection with Industrial and Administrative buildings.

Salary range £1,050/£1,320. Five-day week, pension scheme, luncheon allowance and annual bonus at present in operation. Applicant's age not to exceed 45.

To apply in writing, stating past and present appointments and experience, to S. Hutchings, A.R.I.B.A., Brewery Architect & Surveyor, Watney Combe Reid & Co., Ltd., The Brewery, Mortlake, S.W.14. 4028

NORTHOLT AIRPORT. Private office urgently requires ARCHITECTURAL ASSISTANTS and DRAUGHTSMEN on rush job for U.S. Air Force. Telephone Geoffrey Pennell, A.R.I.B.A., Viking 2300 Extn. 299 for appointment. 4027

QUALIFIED ARCHITECTS required for interesting work on overseas projects. Knowledge of tropical design an advantage. Good salary and opportunities for travel. Write Tecnic, 6, Welbeck Street, W.1, or telephone WELbeck 1681. 4020

ARCHITECTURAL ASSISTANT required in busy City Office. Assistants should be capable of carrying through schemes from sketch stage to final construction. Mainly office and residential buildings in London area. Varied and interesting projects. Long term engagement to right person. £1,500 per annum, plus luncheon vouchers. Five-day week. Applicants must be capable of producing sketch schemes on contemporary buildings and preparing working drawings. Box 4026.

ARCHITECTURAL ASSISTANT

WANTED, at Chelmsford Office, Architectural Assistant up to Intermediate grade; five-day week; salary by arrangement. Apply E. F. Logan, A.R.I.B.A., Staff Architect, Coval Hall, Chelmsford, Essex. 4018

SMALL office in Manchester Square requires imaginative ASSISTANT, Intermediate standard, for varied work. Five-day week. Commencing salary £800 per annum, good prospects. Tel.: WEL. 7889 or write Box 4021.

WANTED—ARCHITECTURAL ASSISTANTS and SURVEYORS for expanding varied practice in London. King VIC. 4853. 4022

GUILDFORD Brewery requires Intermediate/Final standard ASSISTANT. Interesting work, congenial and progressive office. Write, giving particulars of age, salary required, etc., to:

Chief Architect,
Friary Meux Brewery,
Guildford,
Surrey

or telephone Guildford 2965 for appointment. 4023

ASSISTANT required in Architect's Office of a London Brewery. Intermediate standard, knowledge of licensed premises an advantage. Salary according to experience. Charrington & Co., Ltd., 86, Fenchurch Street, E.C.3. 4016

ARCHITECTS, ARCHITECTURAL ASSISTANTS AND DRAUGHTSMEN urgently required for huge programme involving New Buildings, Reconstructions, Extensions and Alterations to existing Multiple Stores in the London Area and South East England. Five-day week. Dining Room facilities. Pension scheme. Good salaries given to men of ability. Applications to be submitted in writing, stating details of age and experience, to: The District Architect, F. W. Woolworth & Co., Ltd., Metropolitan House, Metropolitan District Office, 1264/1266, London Road, Norbury, London, S.W.16. 4012

COOK, CULLING & ILLINGWORTH require experienced ASSISTANT ARCHITECT for busy industrial practice. Pleasant conditions. House available.

Apply: Meeting Lane,
Gold Street,
KETTERING. 4037

ARCHITECTS with initiative and responsibility for a variety of contemporary work in expanding practice in South Yorkshire. Bonus, Pension and Life Assurance Scheme. Travelling and removal expenses paid by agreement. Salary according to ability. Box 4003.

ARCHITECTURAL ASSISTANT required in office in the City of London. Intermediate standard. Salary according to ability and experience. Pension Scheme. L.Vs. Hours 9.30—5.30. Write Box AJ.821, c/o Hanway House, Clark's Place, E.C.2. 4001

ARCHITECTURAL ASSISTANT required for practice in St. Albans. Salary by arrangement according to experience. Write to Box 4013.

Architectural Appointments Wanted

3s. per line; minimum 12s. Box Number, including forwarding replies, 2s. extra

ASSOCIATE with expanding practice in Hampshire, wishes to contact another with work in same area, also Berkshire, Surrey and Wales. A London office would be an advantage. Box 3402.

SCHOOL TRAINED ARCHITECT, 28, first class qualifications, four years' varied office experience of high calibre work, requires position of independence and responsibility with good prospects. Box 3867.

A., R.I.B.A., age 33, recently returned from six years' varied experience in Canada and the U.S.A., wants responsible position with small progressive London firm. Box 3943.

ARCHITECTURAL DRAUGHTSMAN (30) seeks post with scope for initiative and research as well as drafting. Salary required £1,200 p.a. London area. Five-day week. Three weeks' holiday. Box 4046.

DIPL. ARCH., two years' office experience, requires evening or week-end work. Box 4019.

Other Appointments Vacant

3s. per line; minimum 12s. Box Number, including forwarding replies, 2s. extra

THE ARCHITECTS' JOURNAL requires a good DRAUGHTSMAN for the preparation of Information Sheets and Working Details. Some knowledge of line block reproduction desirable and an interest in the compilation of technical data essential. Write to the Editor (Information Sheets), 9, Queen Anne's Gate, S.W.1, stating age, architectural training and experience. 3304

ALCAN INDUSTRIES LIMITED ROGERSTONE (MON.)

require

SENIOR ARCHITECTURAL DRAUGHTSMAN FOR interesting and varied work connected with extensive development of company sites and plant, new office blocks, extensions and industrial buildings.

Write giving full details of age, qualifications and career to date, to: Chief Draughtsman, General Engineering Dept., Alcan Industries Limited, Rogerstone, Newport, Mon.

(*A member of the Aluminium Limited of Canada group of companies.*) 3794

DRAUGHTSMAN up to Intermediate standard required for West End offices of national building contractors. Apply, stating salary required to Box 3720.

DESIGNERS, preferably with Architectural training, required to specialise in Department Store design. Able to produce visual sketches and working drawings, and willing to travel to contracts throughout England. Box 3898.

ARCHITECTURAL DRAUGHTSMAN up to Intermediate standard required. Five-day week. Bonus and pension schemes. Write L. G. Mouchel & Partners, Southbank House, Albert Embankment, London, S.E.11, or telephone Mr. Maggs, A.R.I.B.A., RELiance 7691 for appointment. 3870

COMPETENT DRAUGHTSMAN required in Chief Architect's Office of a large Multiple Retail Firm, with offices in London. Should have sound knowledge of Building Construction. Good salary, five-day week, staff dining room, Superannuation Scheme. Write giving details of age, experience and salary required: Box 3979.

JACK GODFREY-GILBERT, F.R.I.B.A., having work in London, Bognor and Bombay, requires a first class DESIGNER, Intermediate to Final standard. Ring: 3, Broadway, Wimbledon—WIM. 6131. 3998

ARCHITECTURAL REPRESENTATIVE

JENSON & NICHOLSON LTD. require a Representative to call on Architects in the London area. Age 25—45. Preferably with some knowledge of painting practice and essentially already in contact with Architects and Specifying Authorities. Although selling experience is not essential applicants require to be good mixers and of good appearance. Applications should be addressed in writing, giving full particulars, to the Personnel Manager, Jenson & Nicholson Ltd., Jenson House, Carpenters Road, Stratford, E.15, quoting Ref. B.05. 3984

ARCHITECTS' OFFICE—DRAUGHTSMAN WITH PREVIOUS EXPERIENCE AND KNOWLEDGE OF BUILDING CONSTRUCTION, REQUIRED. APPLY TO EDWARDS & WEBSTER, CHARTERED ARCHITECTS, 13, SILVER STREET, TROWBRIDGE, WILTSHIRE. 3987

Services Offered

3s. per line; minimum 12s. Box Number, including forwarding replies, 2s. extra

"DON" ARCHITECTURAL MODEL MAKERS. We offer the highest grade work with speed and reliability.—Please 'Phone Woolwich 1262 or write 6, Pelham Crescent, Hastings. 1678

ARCHITECTURAL, Civil Engineering, Land, Building and Quantity Surveying services on fee, lump sum or quantum meruit basis. Tel. SILverthorne 7561. 3562

SURVEYS. Large or small, drawn to large scales, accuracy guaranteed. Structural sewerage, sewage disposal, sanitary plumbing and drainage design. The Site Survey Company, London, S.E.5. Telephone LEE Green 7444. 4009

FULLY experienced in all Building and Architectural work, I am available to undertake: Designs, Working Drawings, Details, Surveys, Specifications, Models, etc. Just telephone Wallington 9883 (near Croydon) and I will call anywhere and take your instructions. Box 3564

SURVEY OF LAND or buildings also Specifications, quantities and final accounts prepared for new or conversion work. LIV. 1839. 2366

MODELS AND COLOUR PERSPECTIVES. Charles Houthuesen offers work of the highest quality. 16, Thames Street, Sunbury-on-Thames, Middlesex. Sunbury 3728. 2339

ARCHITECTURAL MODELS.—Tomas E. Bartlett and Partners specialise in this work. 5 King's Ave., W.5. Phone Perivale 6283 6176

"NAPIER Models." Specialists in Architectural work. Stanley Studios, S.W.10. FLAxman 2118. 3551

FOUNDATION STONES. Sculptured Panels, Commemorative Tablets, etc., designed and executed by experienced sculptors and expert lettering craftsmen. Carved heraldry, bronze plaques. Sculptured Memorials, 67, Ebury Street, S.W.1. 1983

QUALIFIED HEATING ENGINEER requires private work, able to design all types of heating installations including specification and drawings. Survey work and reports of existing installations willingly undertaken. Box 3956.

NAMEPLATES, PLAQUES, CRESTS, etc., in bronze, brass, and plastic; quotations and lay-outs submitted.—Abbey Craftsmen, Ltd., Abbey Works, 109a, Old Street, London, E.C.1. CLE 3846. 4165

TWO London Architects recently established in own practice are able to assist other firms with all types of work. Box 4056.

NEWLY commenced Architectural Partnership with London headquarters, will be pleased to undertake work anywhere, on time or partial fee basis. Box 3884.

For Sale and Wanted

3s. per line; minimum 12s. Box Number, including forwarding replies, 2s. extra.

PRACTICE FOR SALE. BOX 3892.

FOR SALE, small busy Country Practice; S. Midlands. £3,000 gross last year. Expanding area. Box 3318.

Accommodation Wanted

3s. per line: minimum 12s. Box Number, including forwarding replies, 2s. extra.

ARCHITECTS urgently require accommodation, one or two rooms, Baker Street area, West End (not Portland Place), or Bloomsbury. Willing to share facilities. Box 4002.

Partnership and Financial

3s. per line: minimum 12s. Box Number, including forwarding replies, 2s. extra.

PARTNERSHIP available in Architect's practice in Hertfordshire. All replies will be treated as strictly confidential. Write to Box 4014.

Premises To Let

3s. per line; minimum 12s. Box Number, including forwarding replies, 2s. extra

TORQUAY. In a prime residential position. A BUILDING SITE. With planning permission for 16 flats. The site occupies an elevated position directly overlooking the old harbour and Torbay. Freehold with Vacant Possession. Auction November 16th (unless sold previously). Collins & Collins & Rawlence, Westland House, Curzon Street, London, W.1. Telephone GROsvenor 3641. 3830

Premises for Sale

3s. per line; minimum 12s. Box Number, including forwarding replies, 2s. extra.

KINGS CROSS (close). Prominent main road position with long frontage. Freehold site for future development of commercial building to afford floor space of between 70/95,000 sq. ft. Full details from CHAMBERLAIN & WILLOWS, 9, Pentonville Road, N.1. (TER. 8044.) 3997

Miscellaneous

3s. per line; minimum 12s. Box Number, including forwarding replies, 2s. extra

A. J. BINNS, LTD., Specialists in the supply and fixing of all types of Fencing, Gates and Cloakroom Equipment.—Harvest Works, 96/107, St. Paul's Road, N.1. Canonbury 2061. [illegible]

HANDMADE, CLAY TILES available in many beautiful colours. The perfect roofing material with the longest life. Particulars, samples and brochure from G. Tucker & Son, Ltd., Loughborough, Leicestershire. Phones: Loughborough 2446/7. 1609

CROGGON & CO. LTD.—Chain Link Fencing and all types of Wrought Iron Fencing supplied and erected.—230, Upper Thames Street, London, E.C.4. CENtral 4382. 9429

Educational Announcements

3s. per line; minimum 12s. Box Number, including forwarding replies, 2s. extra

R.I.B.A. and T.P.I. EXAMS.—Stuart Stanley (Ex. Tutor Sch. of Arch. Lon. Univ.), and G. A. Crockett, M.A./B.A., F./F.R.I.B.A., M./A.M.T.P.I., prepare Students by correspondence, 10, Adelaide Street, Strand, W.C.2. TEM. 1603/4. 9953

CUT ALONG THIS LINE

FIRST FOLD HERE

AJ enquiry service

If you require catalogues and further information on building products and services referred to in the advertisements appearing in this issue of the Architects' Journal please mark with a tick the relevant names given in the index to advertisers overleaf. Then detach this page, write in block letters, or type, your name, profession or trade and address in the space overleaf, fold the page so that the post-paid address is on the outside and despatch. We will ensure that your request reaches the advertisers concerned.

FOLD HERE

Postage will be paid by Licensee

No Postage Stamp necessary if posted in Great Britain or Northern Ireland

BUSINESS REPLY FOLDER
Licence No. S.W. 1761

THE ARCHITECTS' JOURNAL

9-13 Queen Anne's Gate

London, S.W.1.

FOLD HERE

TUCK IN THIS END

Alphabetical index to advertisers

For Appointments (Wanted or Vacant), Competitions Open, Drawings, Tracings, etc., Educational, Legal Notices, Miscellaneous, Property and Land Sales, see 129, 130, 131, 132, 134, 135, 136, 137, 138.

Write in block letters, or type, your name, profession, and address below, and fold so that the post-paid address is on the outside.

NAME _____

PROFESSION _____

ADDRESS _____

_____

3 11.60

Alphabetical index to advertisers

For Appointments (Wanted or Vacant), Competitions Open, Drawings, Tracings, etc., Educational, Legal Notices, Miscellaneous, Property and Land Sales, see 129, 130, 131, 132, 134, 135, 136, 137, 138.

Write in block letters, or type, your name, profession, and address below, and fold so that the post-paid address is on the outside.

NAME _____

PROFESSION _____

ADDRESS _____

_____

3 11.60

Printed in Great Britain for the Proprietors of "THE ARCHITECTS' JOURNAL" (The Architectural Press Ltd.), 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, by HARRISON & SONS LTD., by Appointment to Her Majesty The Queen, Printers, London, Hayes (Middx.), and High Wycombe. Editorial illustrations engraved by THE ENGRAVERS' GUILD LTD., Windsor House, 23/26, Cursitor Street, London, E.C.4.