The Architects' JOURNAL for April 3, 1958

THE ARCHITECTS' JOURNAL

standard contents

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

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THE ARCHITECTURAL PRESS

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

IHVE	Institution of Heating and Ventilating Engineers. 49, Cadogan Square. Sloane 1601/3158
IIBDID	Incorporated Institute of British Decorators and Interior Designers. 100, Park Street, Grosvenor Square, W.1. Mayfair 7086
ILA	Institute of Landscape Architects, 2, Guilford Place, W.C.1. Holborn 0281
I of Arb	Institute of Arbitrators. Hastings House, 10, Norfolk Street, Strand, W.C.2. Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1. Museum 7179
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. 47, Victoria Street, S.W.1. Abbey 6172
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1. Sloane 7128
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
LSPC	Lead Sheet and Pipe Council. Eagle House, Jermyn Street, S.W.1. Whitehall 7264/4175
MAFF	Ministry of Agriculture, Fisheries and Food. Whitehall Place, S.W.1. Trafalgar 7711
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1. Mayfair 9400
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' 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, Berkeley Square, W.1. Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1. Reliance 7611
NAMMC	Natural Asphalte Mine Owners and Manufacturers Council. 94/98, Petty France, S.W.1. Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1. Abbey 4813
NBR	National Buildings Record. 31, Chester Terrace, Regent's Park, N.W.1. Welbeck 0619
NCBMP	National Council of Building Material Producers, 10, Storey's Gate, S.W.1 Abbey5111
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 4451
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1. Whitehall 1693
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 for Places of Historic Interest or Natural Beauty. 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
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 5322/9242
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
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19. Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1. Victoria 2186
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1. Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3. Mansion House 3921
SIA	Society of Industrial Artists. 7, Woburn Square, London, 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, Rutherglen
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

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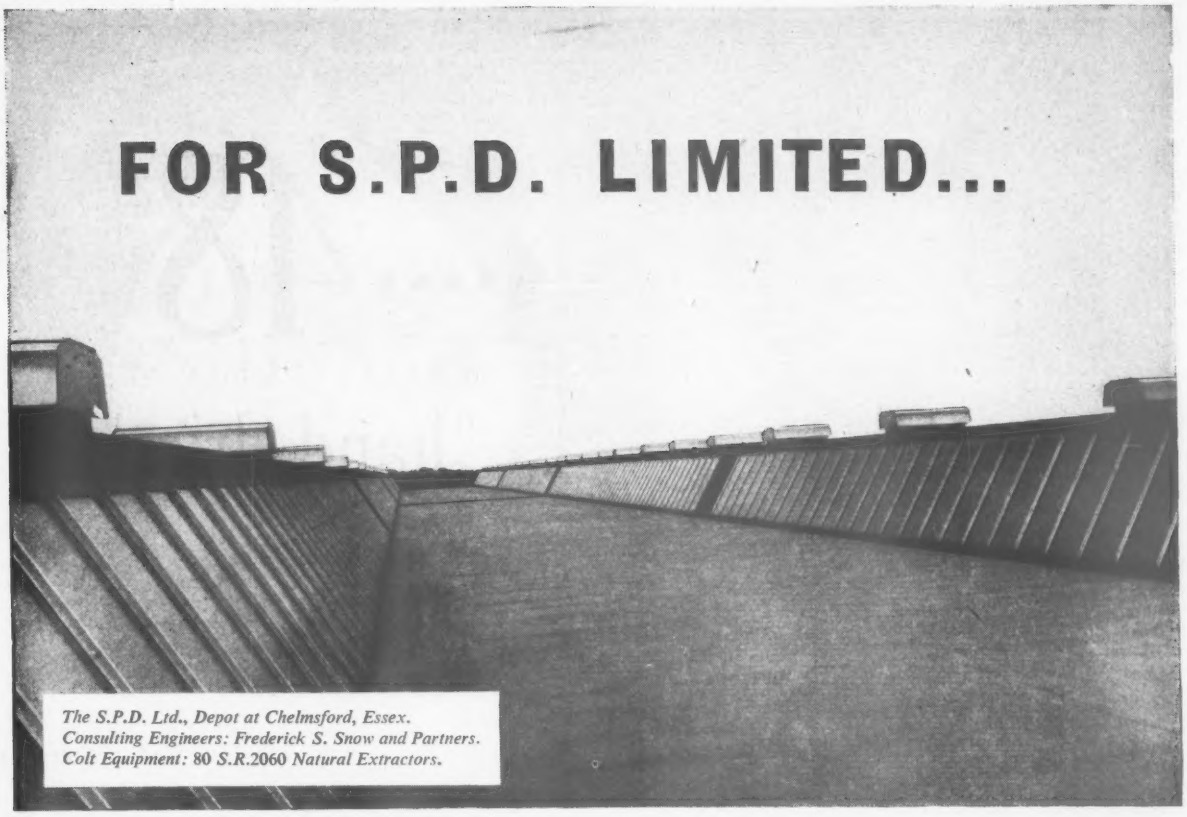

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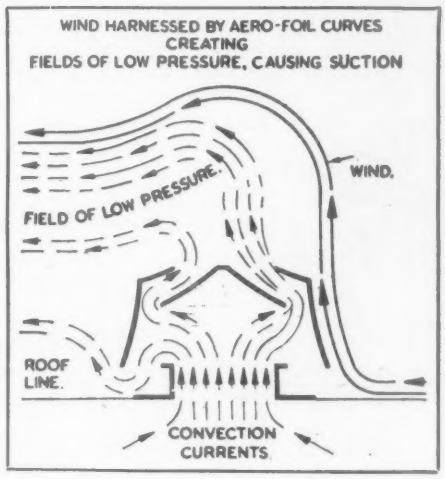

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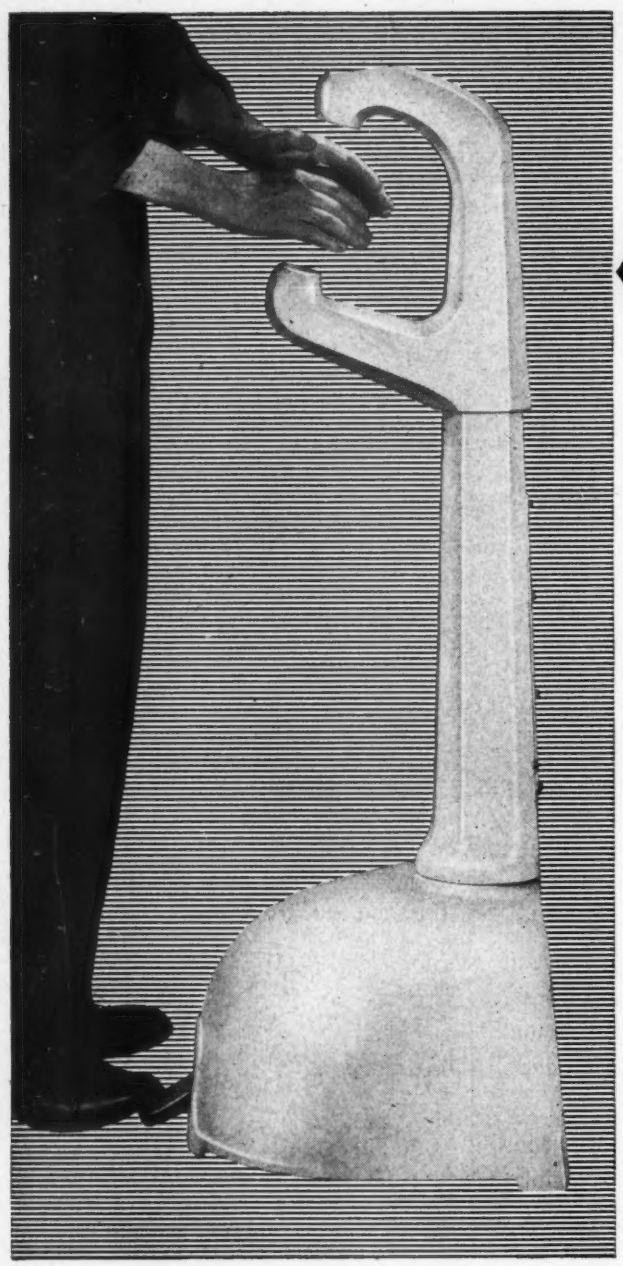

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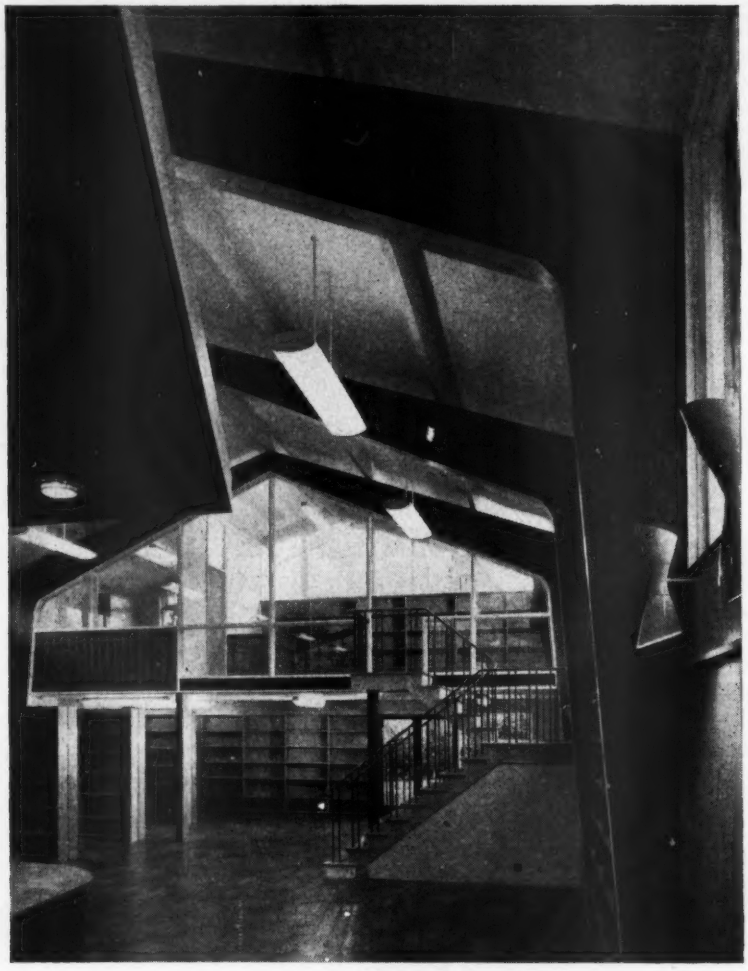

(Photograph by courtesy of Frederick B. Pooley, F.R.I.B.A., A.M.T.P.I., A.M.I.Struct.E., Buckinghamshire County Architect)

Supporting evidence

The inherent beauty and simplicity of this new library at Beaconsfield owe much to the design of the timber structures. The three-hinged frames shown in our photograph were built to the design and patent specifications of Mr. D. W. Cooper, B.Sc., A.M.I.Struct.E., by F. & H. Sutcliffe Limited, using Aerolite 300 resin glue to bond plywood webs rigidly to Douglas fir and withstand the considerable bending stresses involved. Aerolite 300 has proved particularly suitable for structures such as these. It is cold-setting, outstanding in strength and durability, simple and economical to use—and it is gap-filling, which avoids the need for high clamping pressures during setting. Glued Portal Frames are described in detail in *Aero Research Technical Notes* No. 175, July, 1957. May we send you a copy?

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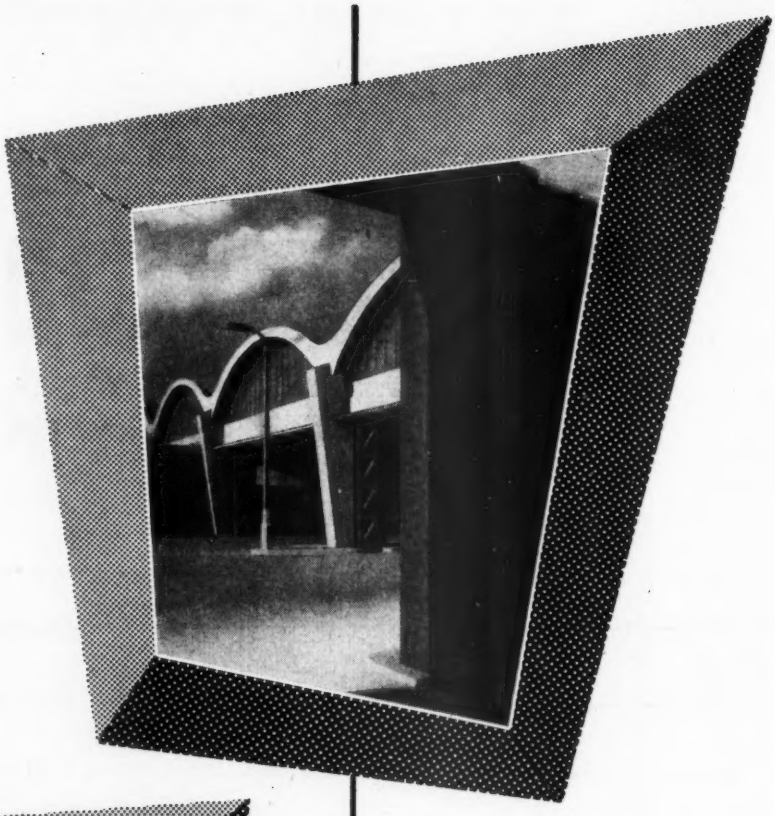

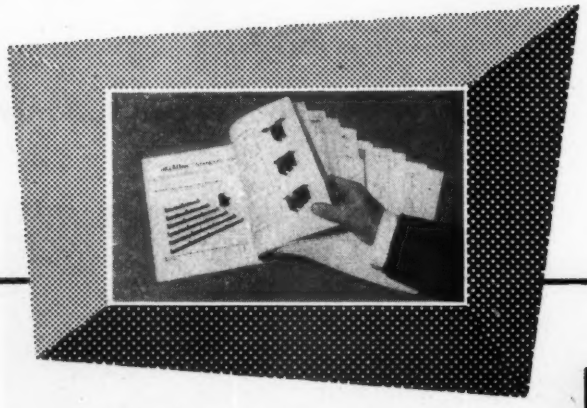

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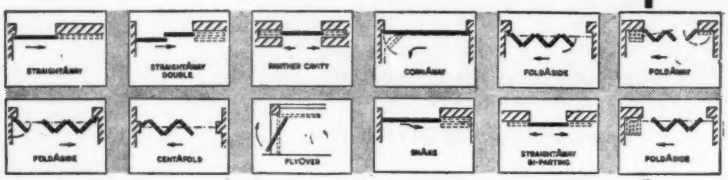

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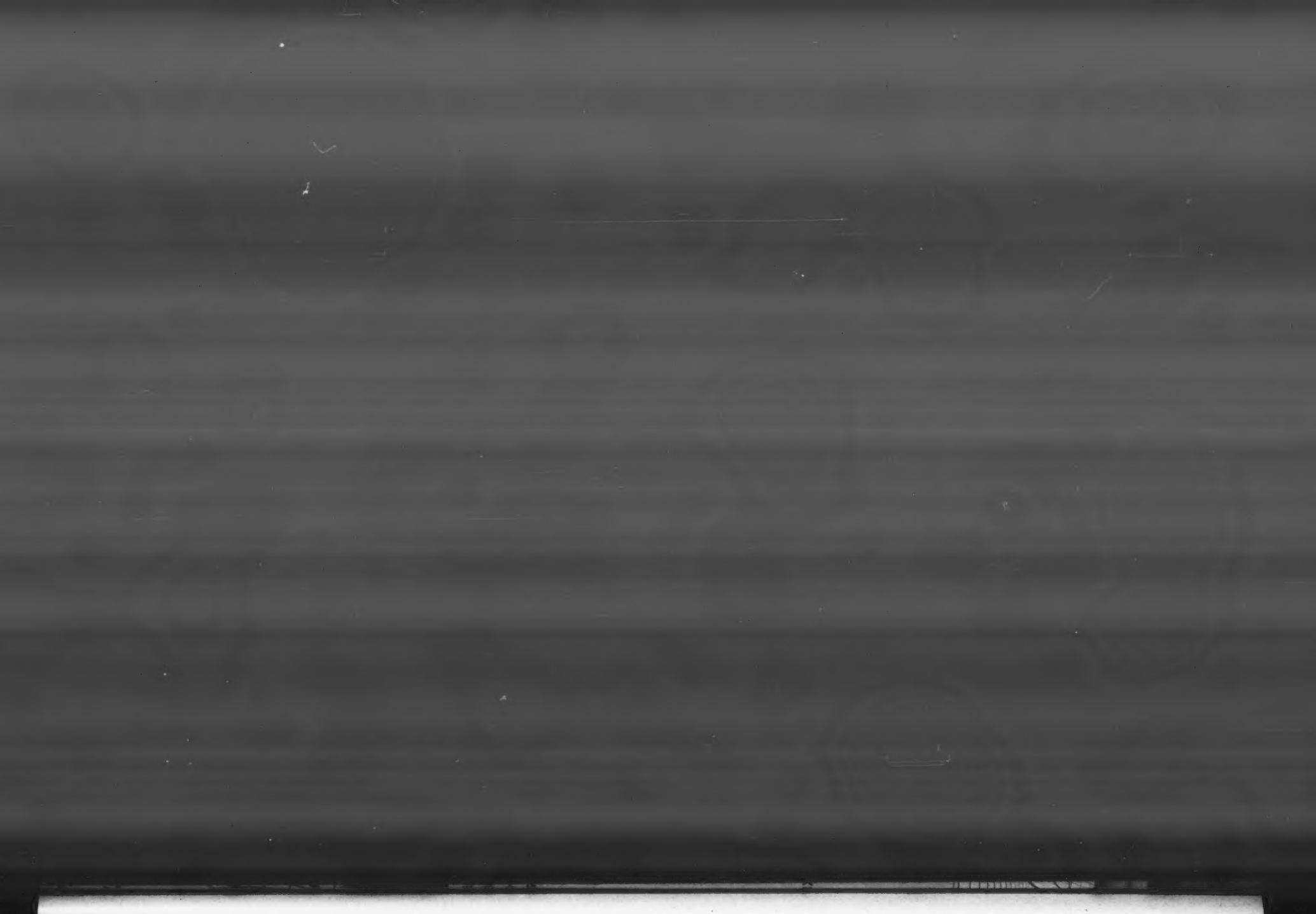
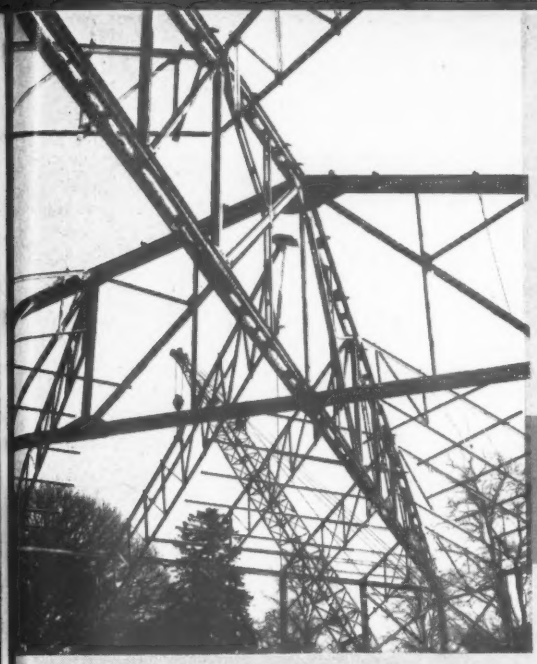


THE ARCHITECTS' JOURNAL (Supplement) April 3, 1958



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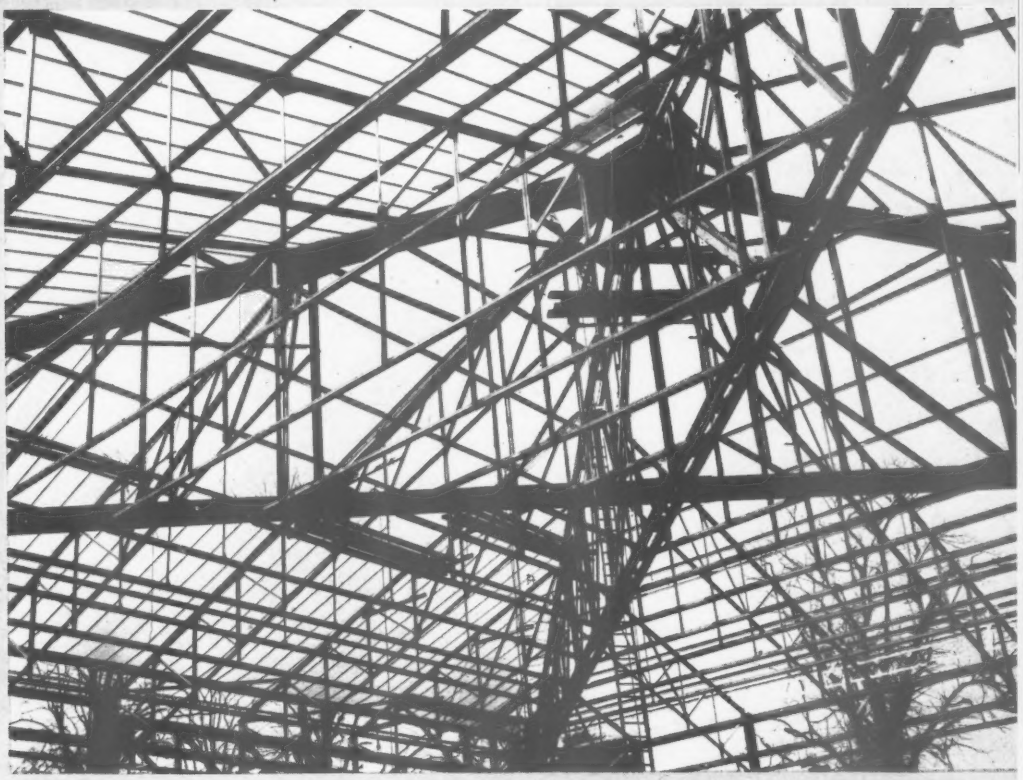
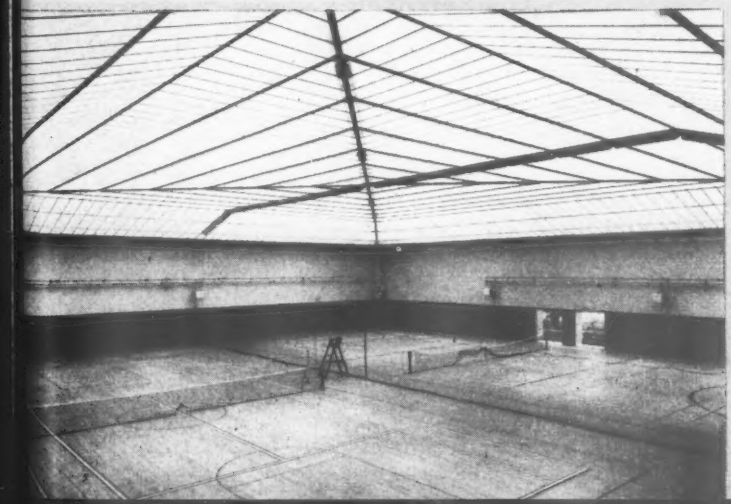


XING OF ROOF GLAZING



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- **SIDE HUNG**
- **HORIZONTAL SLIDING**
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The illustration shows One set of Electrically operated Twin Tension Rod Gear with Counter-Balance Unit operating one continuous opening light, 74'0" long × 5'0" deep. Note the Spiral Balance Wheel fitted at the end sprocket

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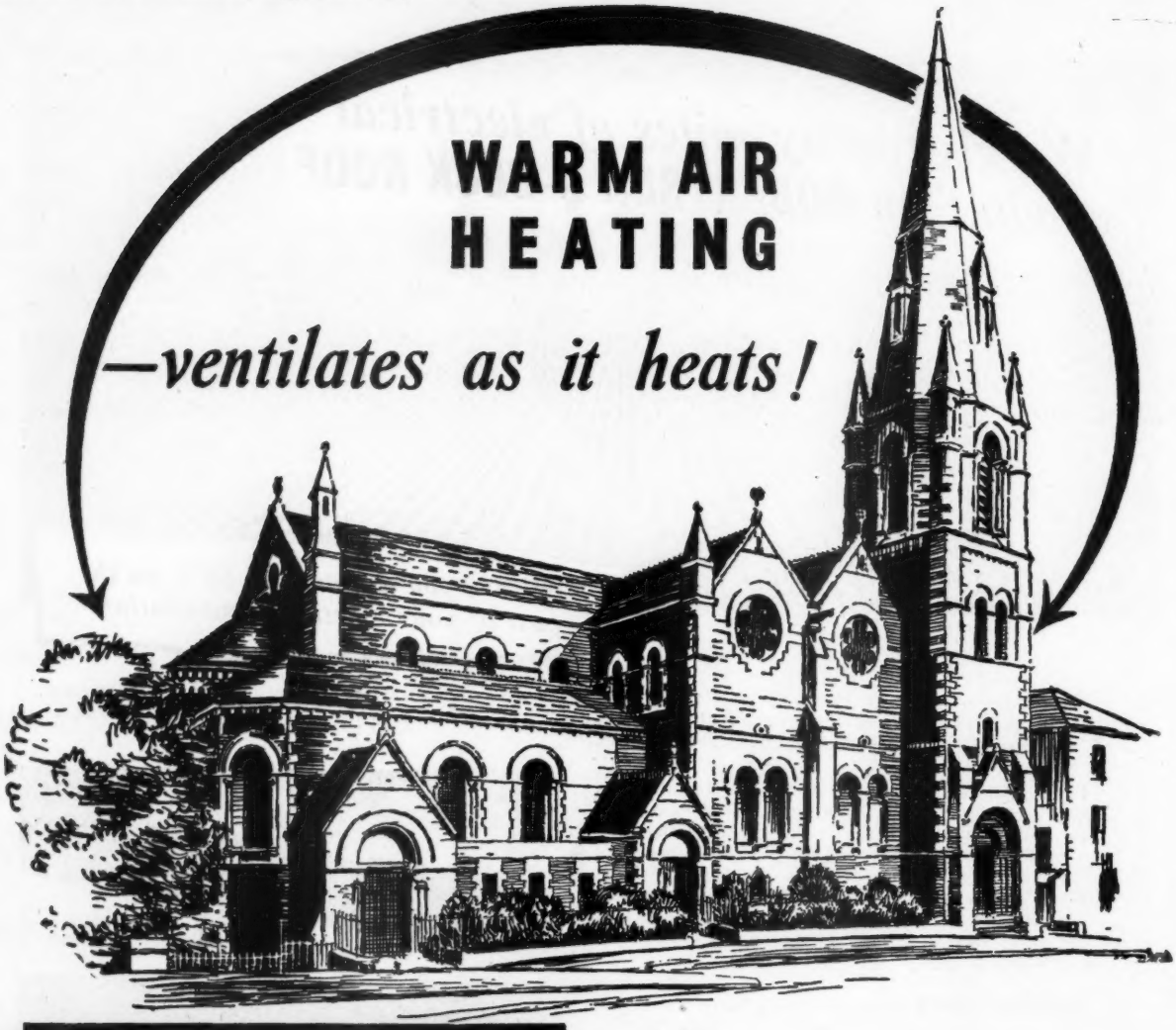

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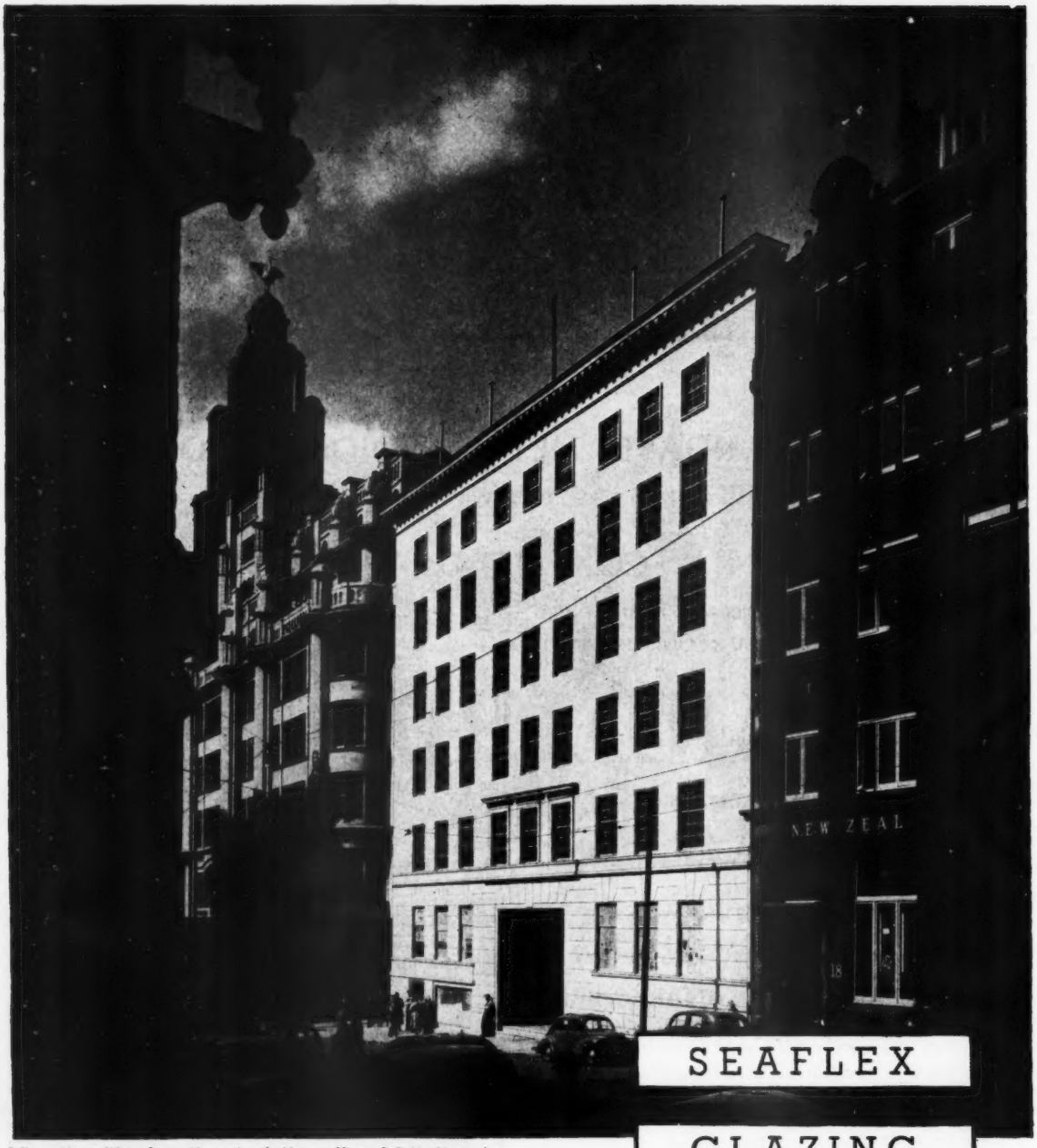

Reliance House, Water Street, Liverpool. Architects: Morter & Dobie, Liverpool. Contractors: Bovis Ltd., London, W.1. Glaziers: Compton Bros. Ltd., Liverpool. Windows: New aluminium sash type windows with clip-on beads by Alan Williams (Chester) Ltd., Coventry.

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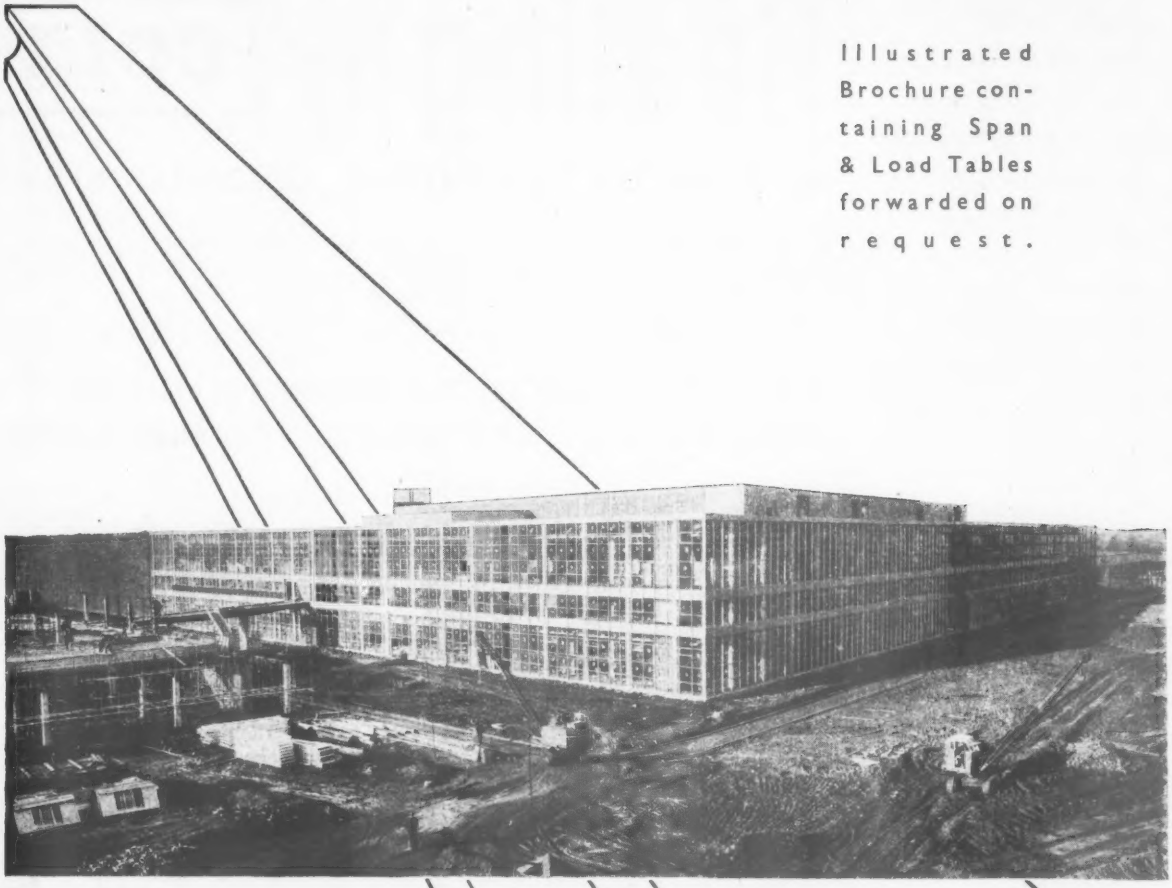

Illustrated Brochure containing Span & Load Tables forwarded on request.

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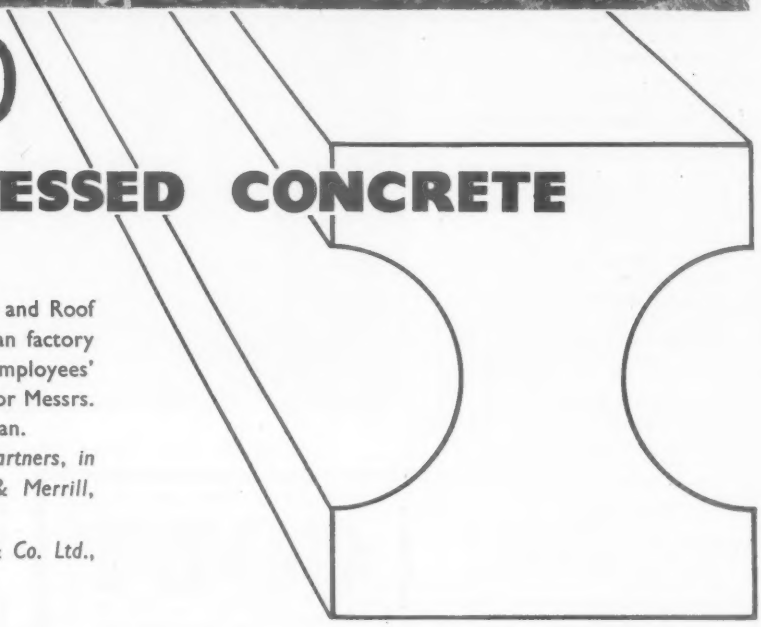

26,000 square yards of Pierhead Floor and Roof construction were supplied to the Can factory Main Production building and Employees' Services building at the new factory for Messrs. H. J. Heinz Co. Ltd., Kitt Green, Wigan.

Architects: J. Douglass Mathews & Partners, in conjunction with Skidmore, Owings & Merrill, New York, U.S.A.

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Architect: Charles H. Pike, F.R.I.B.A.

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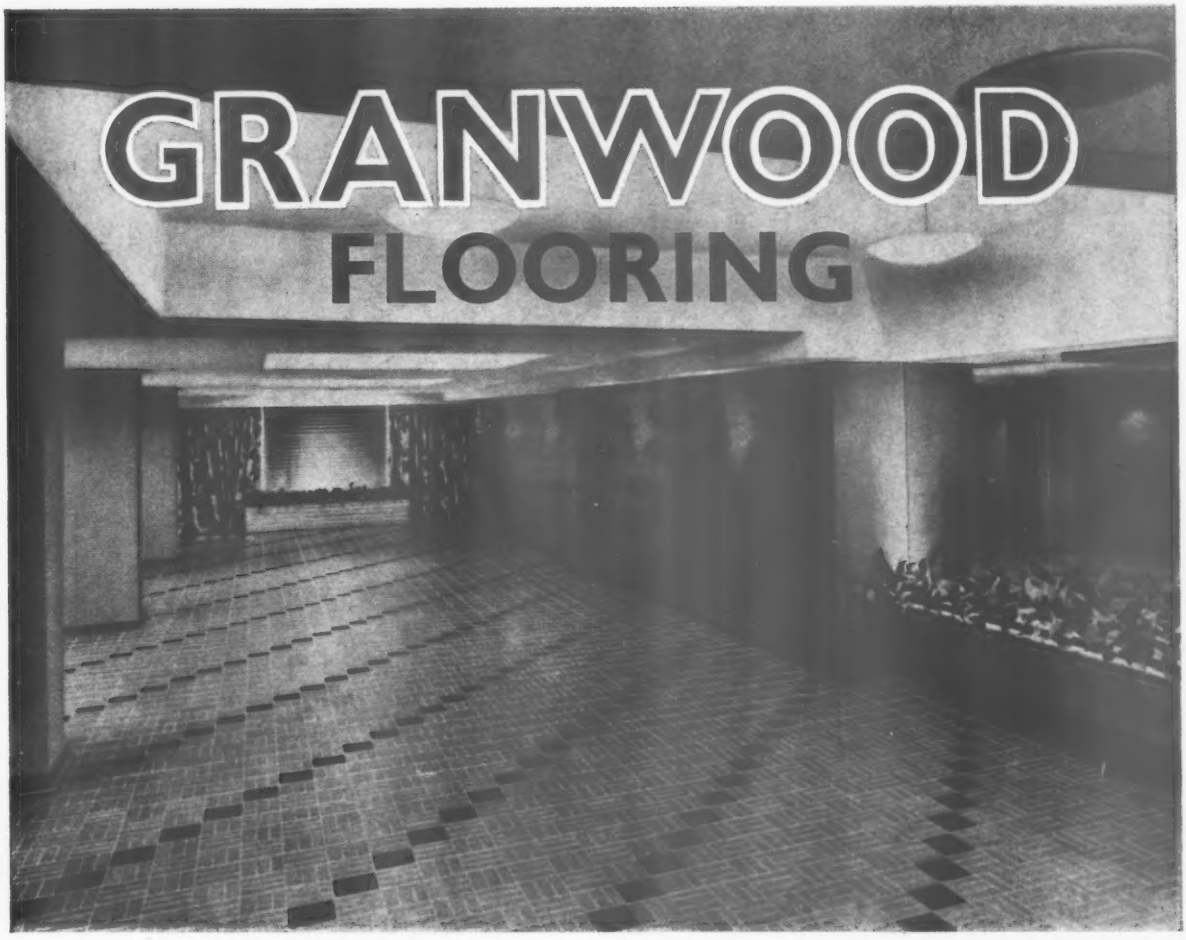

Illustration shows Granwood Flooring in the Banquet Hall, of the Westminster Hotel, Toronto, Canada.

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View of part of the Works after the fire.

Boulton & Paul Service

and Jaguar recovery

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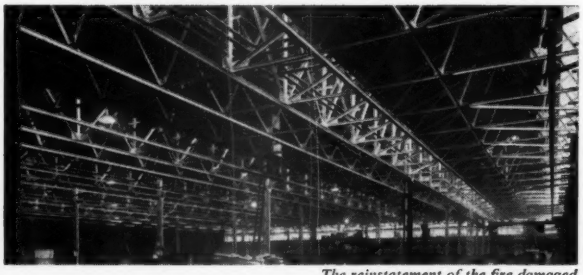
Boulton and Paul were privileged to play a prominent part in achieving this difficult task.

While usable parts of the fire area were being shored up, the steelwork for the new building 420′ x 180′ and containing 240 tons of steel was designed, delivered and erected in 9 weeks from receiving instructions to proceed. This enabled the building, with many parts already occupied, to be handed over to the clients on July 2nd, in 17 weeks from the start of operations.

Meanwhile, the reinstatement of the fire damaged premises covering an area of 389′ x 400′ and requiring 800 tons of steelwork and roof covering has proceeded in stages allowing virtually uninterrupted production since the fire.

A further example of the careful planning, employment of advanced techniques and meticulous attention to detail behind the Boulton and Paul service.

New building erected in 9 weeks.



The reinstatement of the fire damaged area in progress of construction.

BOULTON AND PAUL

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COLRON is a penetrating wood-dye, developed by Ronuk to enrich the natural colour of a wood or to simulate the colouring of others. Easily and quickly applied to floors, doors, panelling and other woodwork, and it sinks deep down into the grain.

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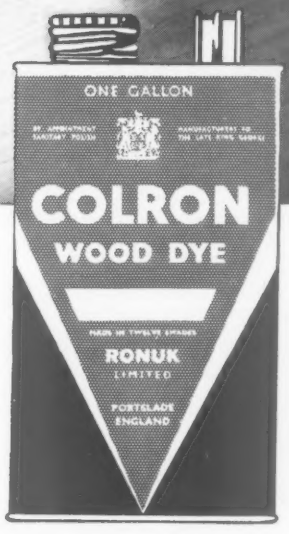

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FOR USE ABOVE AND BELOW GROUND

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Wednesbury

have done it!

They have opened up new prospects in plumbing with a new 100% plastic assembly that is Guaranteed to do its job—yes, GUARANTEED!

HOW IT WORKS

Briefly, this is how it works. A rigid plastic ring is inserted with the special tool into the tube, raising a permanent external collar which is gripped between the body of the fitting and the end cap. The tool is withdrawn and the "Wednesbury" Fitting locks the tube solidly, sufficiently to withstand an end pull of over a quarter of a ton. Pressure in the tube further expands the collar and makes a still tighter joint.

WHAT IT DOES

These fittings and tubes at last make plastic plumbing practicable.
Efficiency? This fitting will not pull out—'cold flow' does not affect it. Speed? A joint can be made in 20 seconds with the special tool available. Adaptability? Any end adapts to metal or reduces by means of special accessories.
And no expensive tools are required.

Guarantee

We guarantee that if a "Wednesbury" Plastic Fitting is used on a "Wednesbury" Plastic Tube, and providing that the joint has been made in accordance with our instructions, it will not leak at any water mains pressure in this country.
If any "Wednesbury" Plastic Fitting should fail to meet this standard we will replace it free of charge.

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for good looks and functional efficiency

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

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

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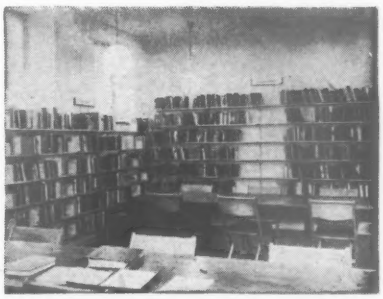
No upright supports at front or side are needed with SPUR. This means a more pleasing design as well as easier access to shelves.

PRE-DETERMINED STRENGTH

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



WALL FIXING OR FREE STANDING

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

ATTRACTIVE FINISH

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

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

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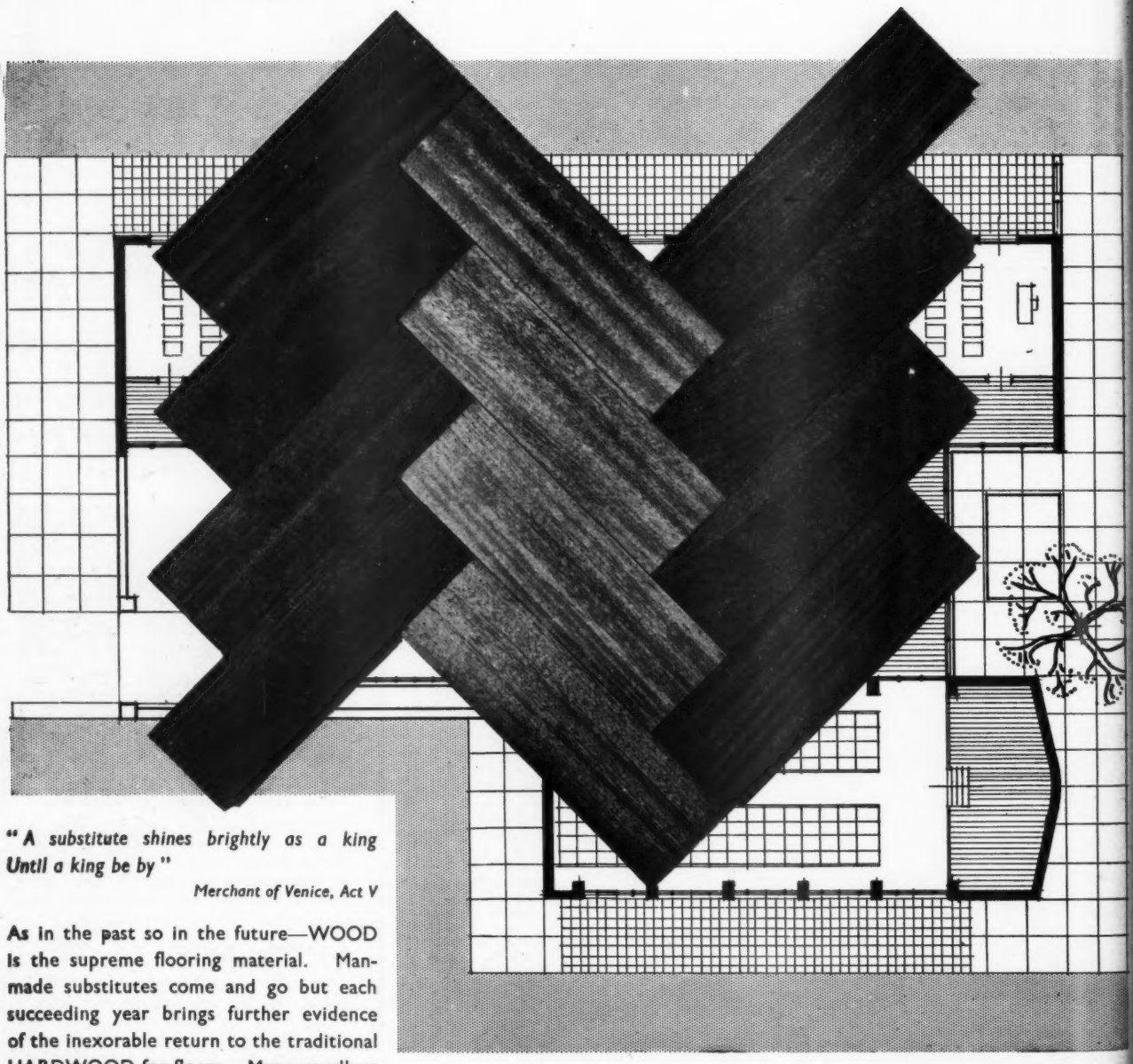
TGA 51.1

FLOORS for the future . . . by HOLLIS



"A substitute shines brightly as a king
Until a king be by"

Merchant of Venice, Act V

As in the past so in the future—WOOD is the supreme flooring material. Man-made substitutes come and go but each succeeding year brings further evidence of the inexorable return to the traditional HARDWOOD for floors. Many excellent hardwoods are now available at moderate cost which combine BEAUTY, DURABILITY and COMFORT with ECONOMY.

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to ensure precision in manufacture, controlled moisture content and stability of the floor.

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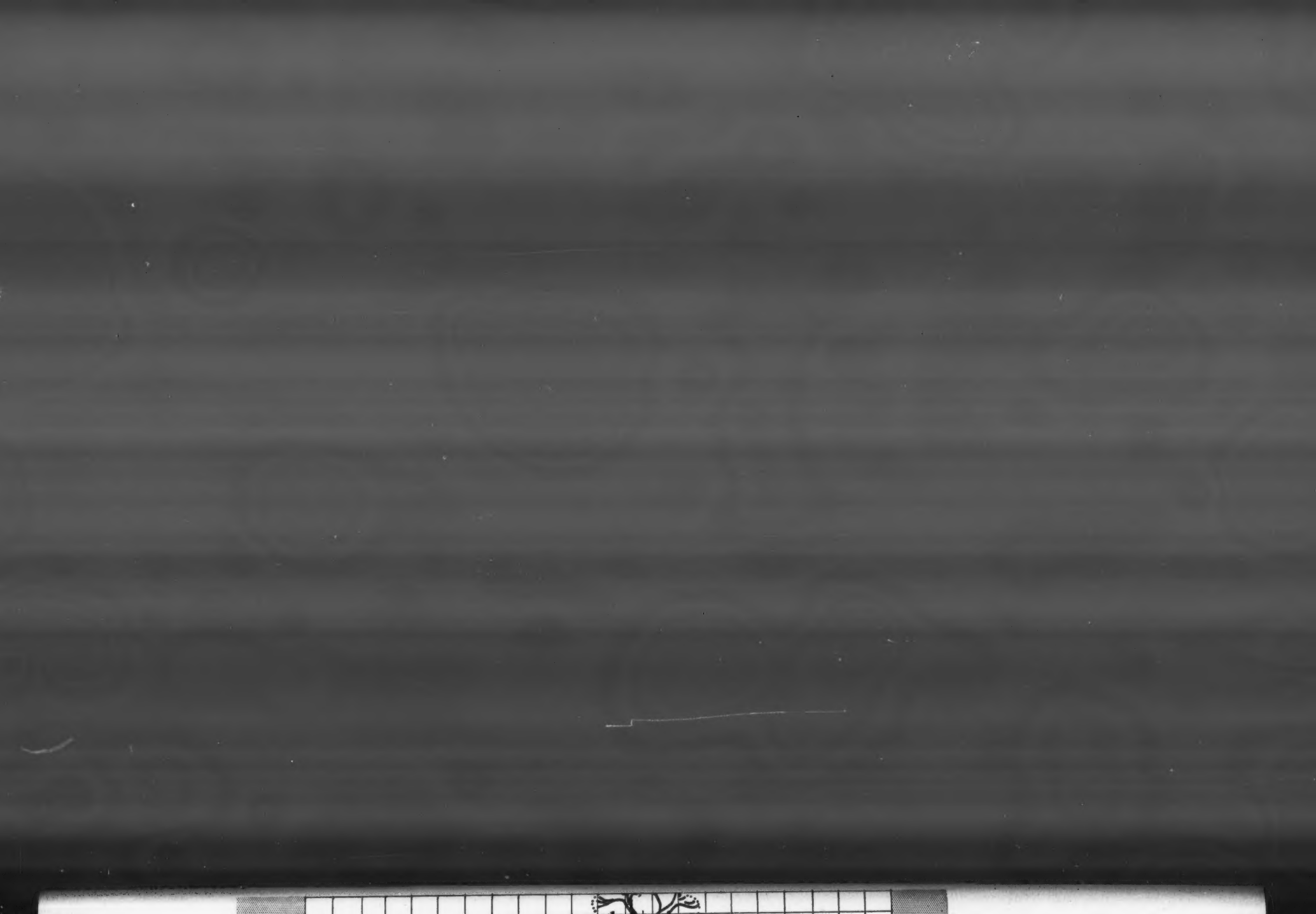
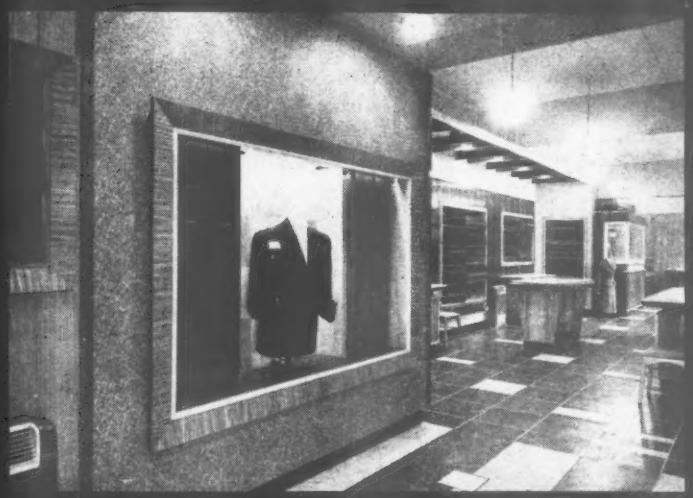


THE ARCHITECTS' JOURNAL (Supplement) April 3, 1958

a new and exciting note

in store



and shop décors...

More and more department, chain and other types of store are featuring RYDURA in the decor of their new branches, and in their re-decoration plans for existing shops. RYDURA is shown here as a decoration for the pillars and walls of the Crawley Branch of Boot's Pure Drug Co. (left) (Photo by courtesy of C. St. G. Oakes Esq., Chief Architect); and as a wall decoration at the Darlington branch of Jackson The Tailor (below). RYDURA was used in this store for the entrance, stairs, ground floor and lower ground floor walls.

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ATTRACTIVE APPEARANCE
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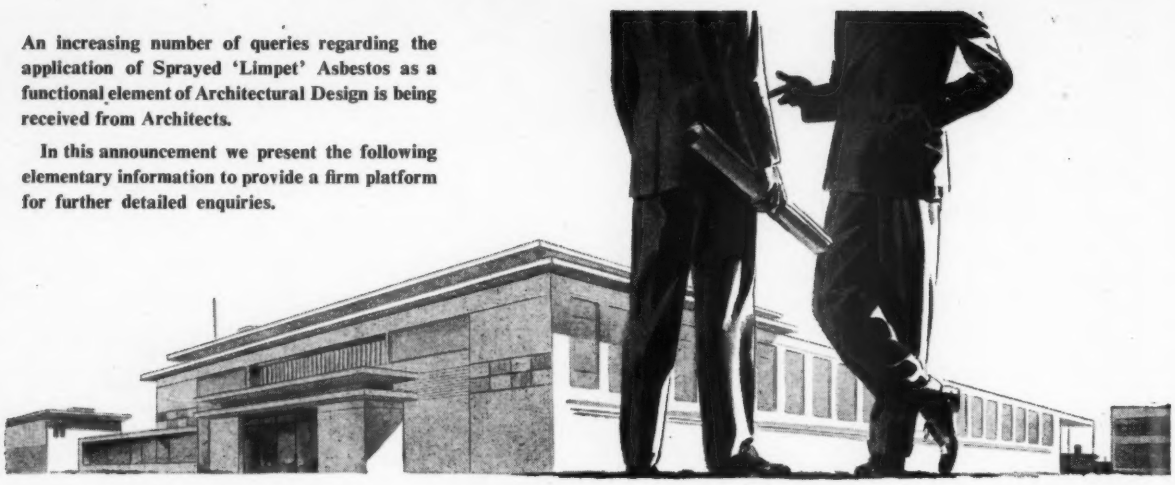
Rydura

THE VERSATILE FABRIC WITH THE 'PROFILM' FINISH

An increasing number of queries regarding the application of Sprayed 'Limpet' Asbestos as a functional element of Architectural Design is being received from Architects.

In this announcement we present the following elementary information to provide a firm platform for further detailed enquiries.



an architect asks questions about Sprayed 'Limpet' Asbestos by NEWALLS

REGD.

"What do you consider is the major advantage of Sprayed 'Limpet' Asbestos?"

Probably the most important element is that the 'Limpet' process gives intimate surface contact, sealing all joints, covering rivets, irregularities and protrusions in a continuous coat that entirely eliminates air spaces—a significant factor in itself.

"I understand that Sprayed 'Limpet' Asbestos has two insulating properties?"

Correct. In addition to providing a high degree of thermal insulation, it is an excellent material for absorbing sound. Indeed, many firms have specified the process for correcting acoustic distortions alone.

"Being largely Asbestos, I suppose the process gives a measure of fire protection?"

Most certainly! Again, it is often used solely because of its fireproofing properties. In fact, this method was the first to be approved for Class A fireproofing of ships under the 1948 Convention.

"Being porous, isn't the treatment liable to premature rotting where condensation exists?"

On the contrary. Asbestos is chemically inert. It is rotproof, verminproof and undamaged by water. Condensation is deffused preventing dripping and allowing for speed re-evaporation to the atmosphere from the warm surface of the coating.

"It seems too versatile for words. It's a Thermal and Acoustic Insulant, rotproof and verminproof, fire-resistant, prevents condensation, resists vibration . . . anything else?"

Well. It has been used extensively purely as an anti-corrosion measure on metals subject to severe corrosive conditions, but we'd have to know the particular application you had in mind to give our full recommendations.

"Naturally. And if we did want Thermal and Acoustic Insulation—and Fire protection in one coating—I suppose it would cost the earth?"

Frankly—no. You see, the erection of timber grounds is not necessary. In application there is no cutting to waste, and the density and thickness is controllable to a very fine degree by highly efficient operators. It compares favourably with conventional insulation methods and materials.

Sprayed 'Limpet' Asbestos is a particularly suitable multi-purpose insulant in schools, public buildings and the like. Our considerable experience in this field will be gladly placed at your disposal.

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A member of the TURNER & NEWALL ORGANISATION
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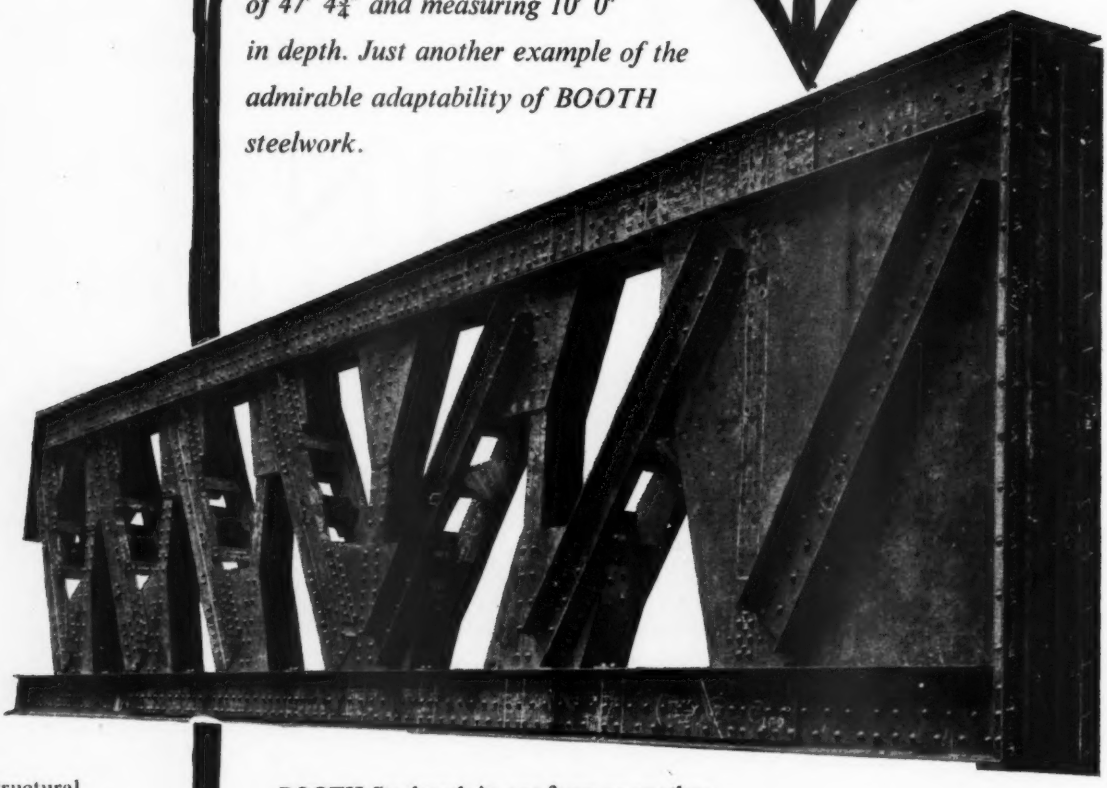
One of thirteen lattice girders for a Power Station

The photograph shows one of thirteen riveted lattice girders, each with a span of 47′ 4¾″ and measuring 10′ 0″ in depth. Just another example of the admirable adaptability of BOOTH steelwork.



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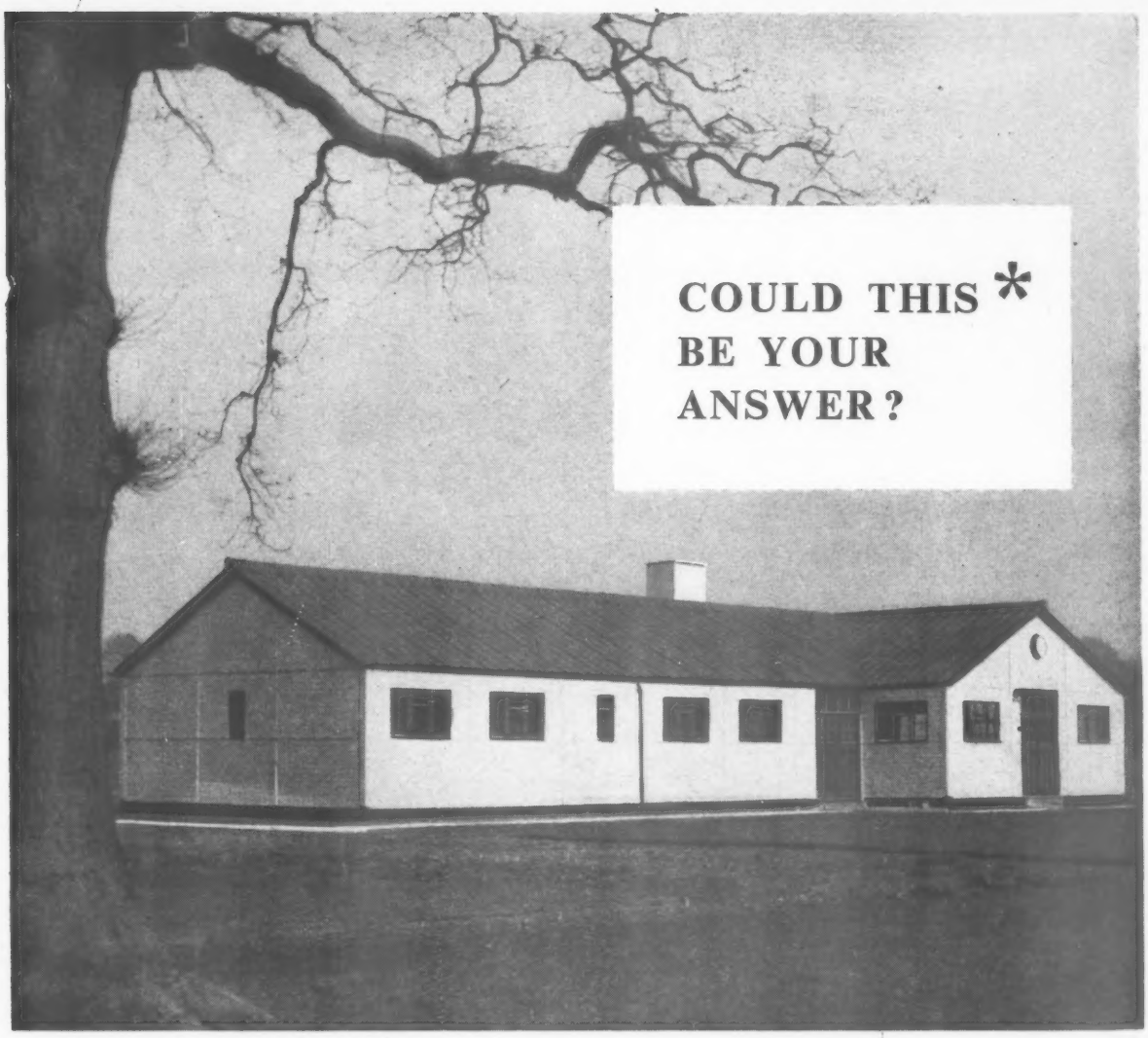
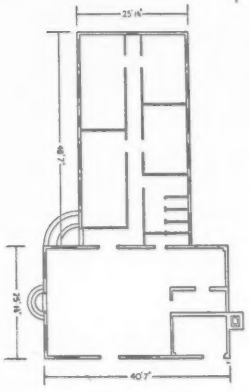


Photograph by courtesy of the Westminster Medical School.



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The photograph shows a Sports Pavilion at Cobham, Surrey. It comprises two buildings, 48ft. by 25ft. and 40ft. by 25ft., joined at right angles with a hipped roof and containing changing rooms, clubroom, kitchen, etc.

Basic width available—12ft., 15ft., 18ft., 20ft., 24ft., 25ft. and 30ft.

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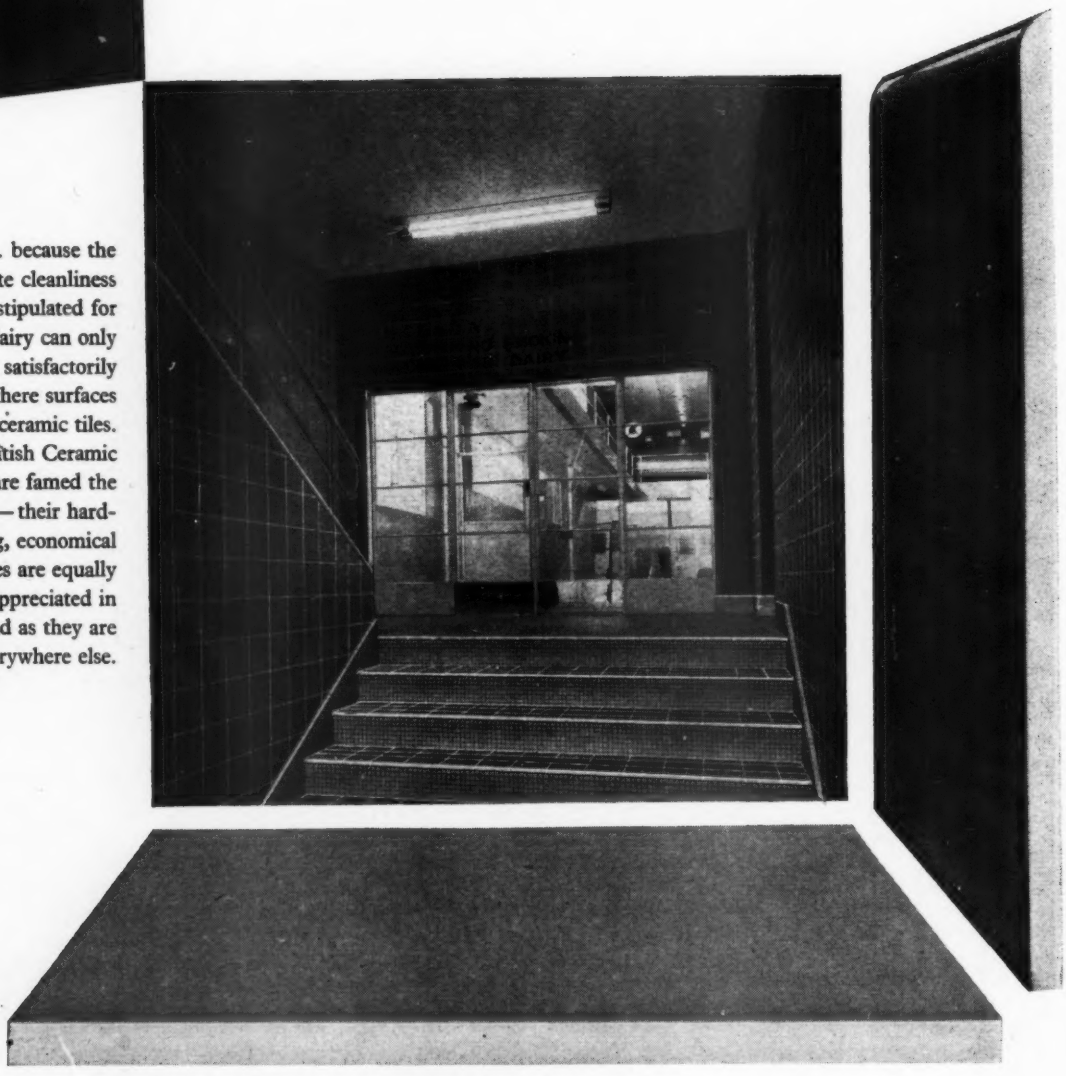

Architect: James Herbert Hall-Kenny, A.R.I.B.A., Wellington, New Zealand.
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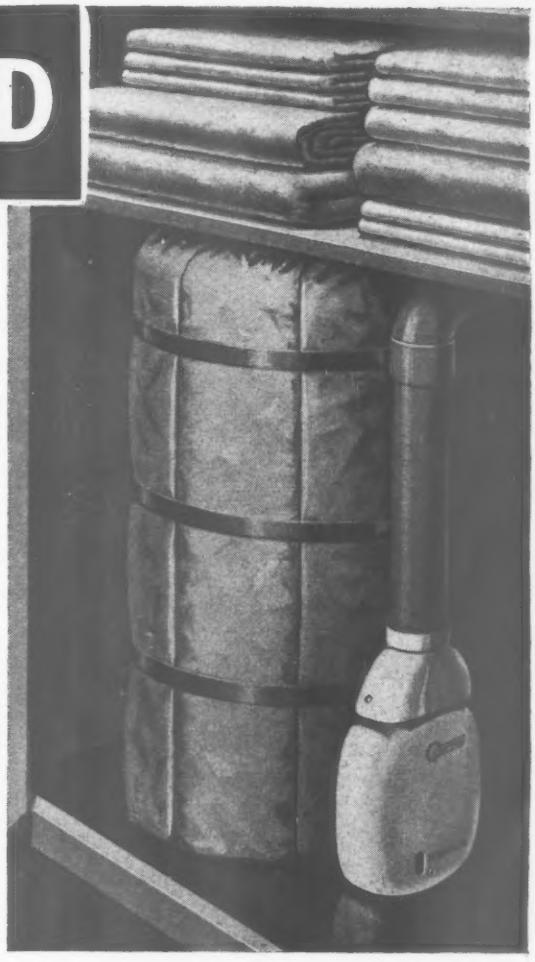
NEW WORLD



leads the way

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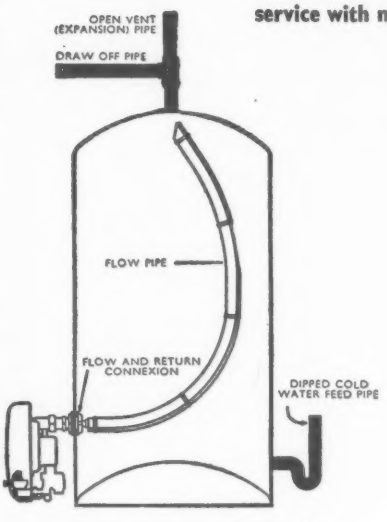
INJECTOR

GAS WATER HEATER

The NEW WORLD Stratalyn Injector Heater is inexpensive to buy, economical to run, cheap to fit, and will give maximum service with minimum maintenance



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The flow pipe terminates close to the top of the storage vessel and hot water is injected into the top ready to be drawn off. Mixing is avoided and the highest degree of stratification is attained.

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

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Water Heaters

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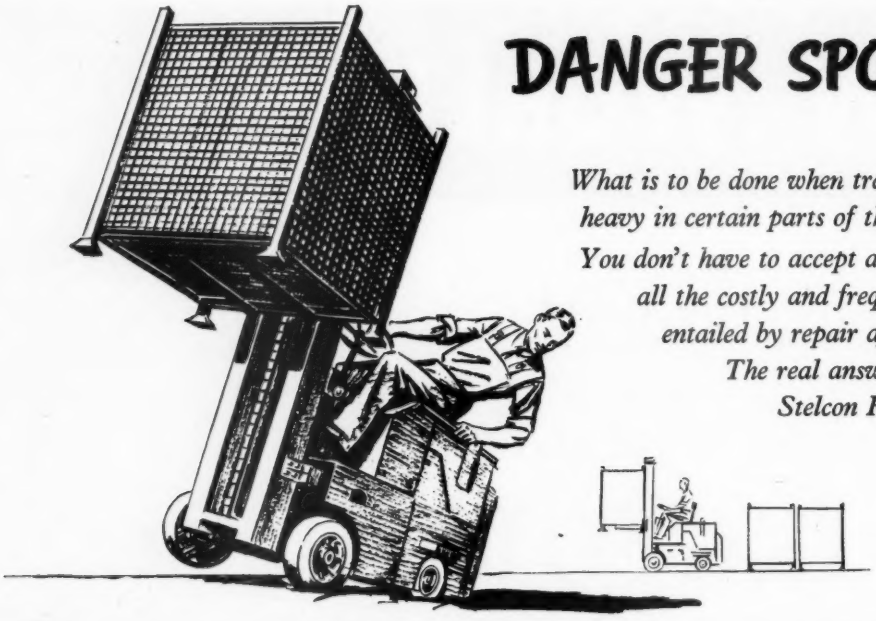
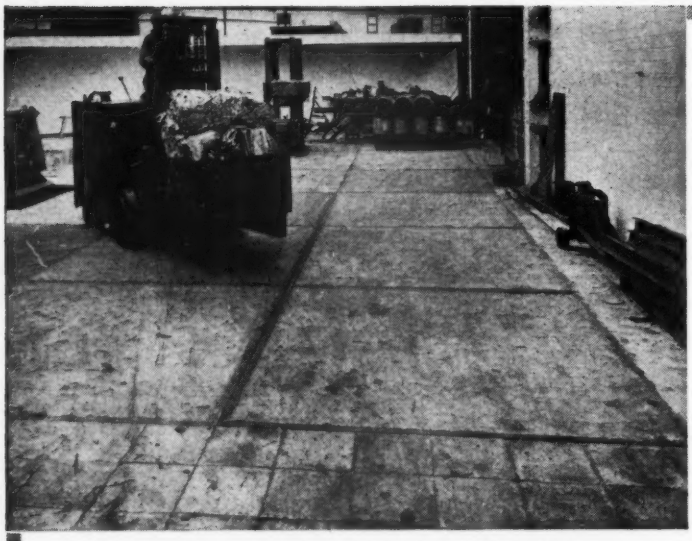


DANGER SPOT!

What is to be done when traffic is very heavy in certain parts of the factory? You don't have to accept as inevitable all the costly and frequent delays entailed by repair after repair. The real answer is to lay Stelcon Raft Floors.



The steel clad surface of Stelcon Raft Flooring stands up to long periods of exceptionally hard wear. There is also a mineral clad raft (at lower cost) for laying where traffic is not quite so punishing. Stelcon Raft Flooring is laid very quickly —on a bed of sand—and traffic can start rolling again the instant it is laid. It is most adaptable in use and need be put down only at the "black spots". It will, in fact, reduce re-flooring to a minimum, give an even, *safe* surface, and save you time and money.

The illustration shows Stelcon Raft flooring laid at the Carver Street Works of D. F. Tayler & Co. Ltd. Birmingham.

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(Patents applied for in the United Kingdom and overseas)

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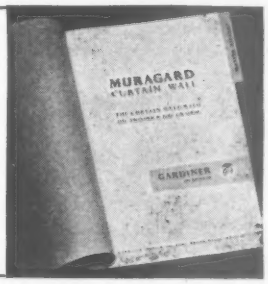

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M-W 128

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Building-in consists simply of plugging the masonry reveals and screwing the window in.

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The only maintenance likely to be needed is glass replacement. And then all that has to be done is unscrew one sash rail, slide out the broken pane and slide in a new one.

The window has been bench-tested to a life of over 200 years' normal use with no appreciable wear. The suspension mechanism is completely enclosed and out of sight.

STANDARD SIZES

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

Type 14, 3′ 8¼″ x 1′ 2¼″	Type 24, 3′ 8¼″ x 1′ 11¼″
Type 34, 3′ 8¼″ x 2′ 8¼″	Type 44, 3′ 8¼″ x 3′ 5¼″
Type 15, 4′ 8¼″ x 1′ 2¼″	Type 25, 4′ 8¼″ x 1′ 11¼″
Type 35, 4′ 8¼″ x 2′ 8¼″	Type 45, 4′ 8¼″ x 3′ 5¼″
Type 16, 5′ 8¼″ x 1′ 2¼″	Type 26, 5′ 8¼″ x 1′ 11¼″
Type 36, 5′ 8¼″ x 2′ 8¼″	Type 46, 5′ 8¼″ x 3′ 5¼″

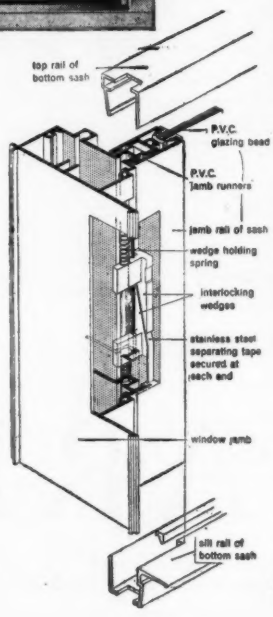
PURPOSE-MADE SIZES

Little more than pro rata prices are charged for purpose-made sizes—the maximum being 19′ perimeter. There will naturally be a certain delay in supply.

NEW DESIGN -NEW LOW COST

Other things being equal (namely £.s.d.) aluminium is probably the first material you would choose for windows. With Williams & Williams Alomega, other things *are* equal. For example, an Alomega window 3′ 8¼″ x 1′ 11¼″ costs £6.0.7., in quantities over 48.

This low price is possible mainly because of the new suspension system. There are no weights, cords or pulleys and no bulky jamb sections to accommodate them. A much slimmer sash jamb houses the compact "interlocking wedge" suspension device with a consequent saving in aluminium.



NO SASHCORDS NO WEIGHTS
How the Alomega Suspension System works

The two interlocking wedges are contained in a channel extruded in the sash jamb. They are pushed against each other by springs sufficiently tightly to bind them in the channel so that they carry the weight of the sash. When the sash is moved the wedge assembly tends to move with it, but is held back by lugs protruding from the wedges which engage in slots cut in the *fixed* jamb of the window. The lugs are given a small amount of vertical play in the slots, and these are so placed that, whichever way the sash is moved, the hinder wedge (relative to direction of travel) is stopped first. The effect of this is a fractional separation of the wedges permitting free movement of the sash for as long as pressure is applied to it. As soon as the pressure is removed the two retaining springs push the wedges together once again, binding them firmly in the channel and locking the sash in its new position.

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Alomega

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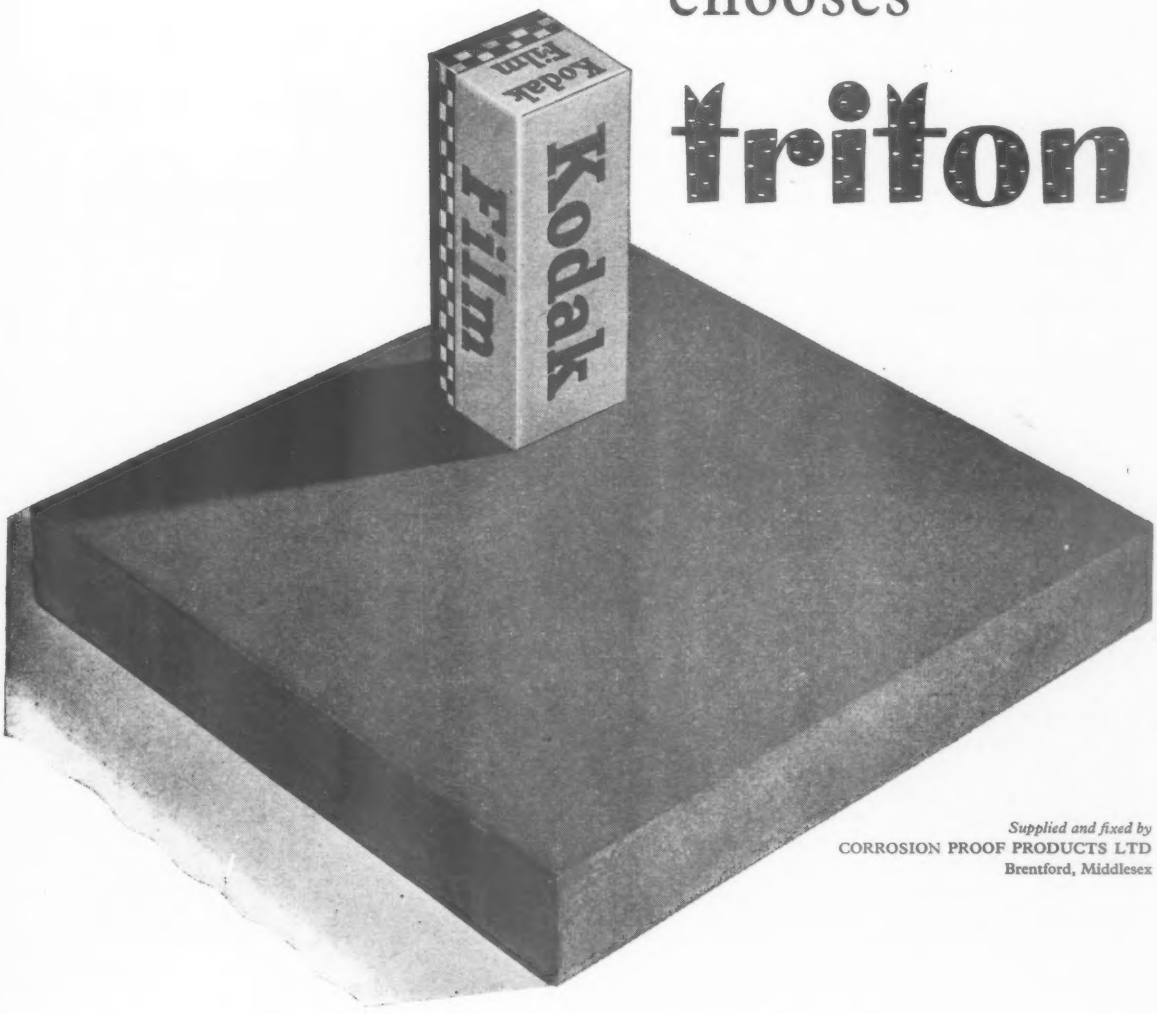
Success chooses triton



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And Kodak is but one of very many famous names that use TRITON Quarries for their industrial floors.

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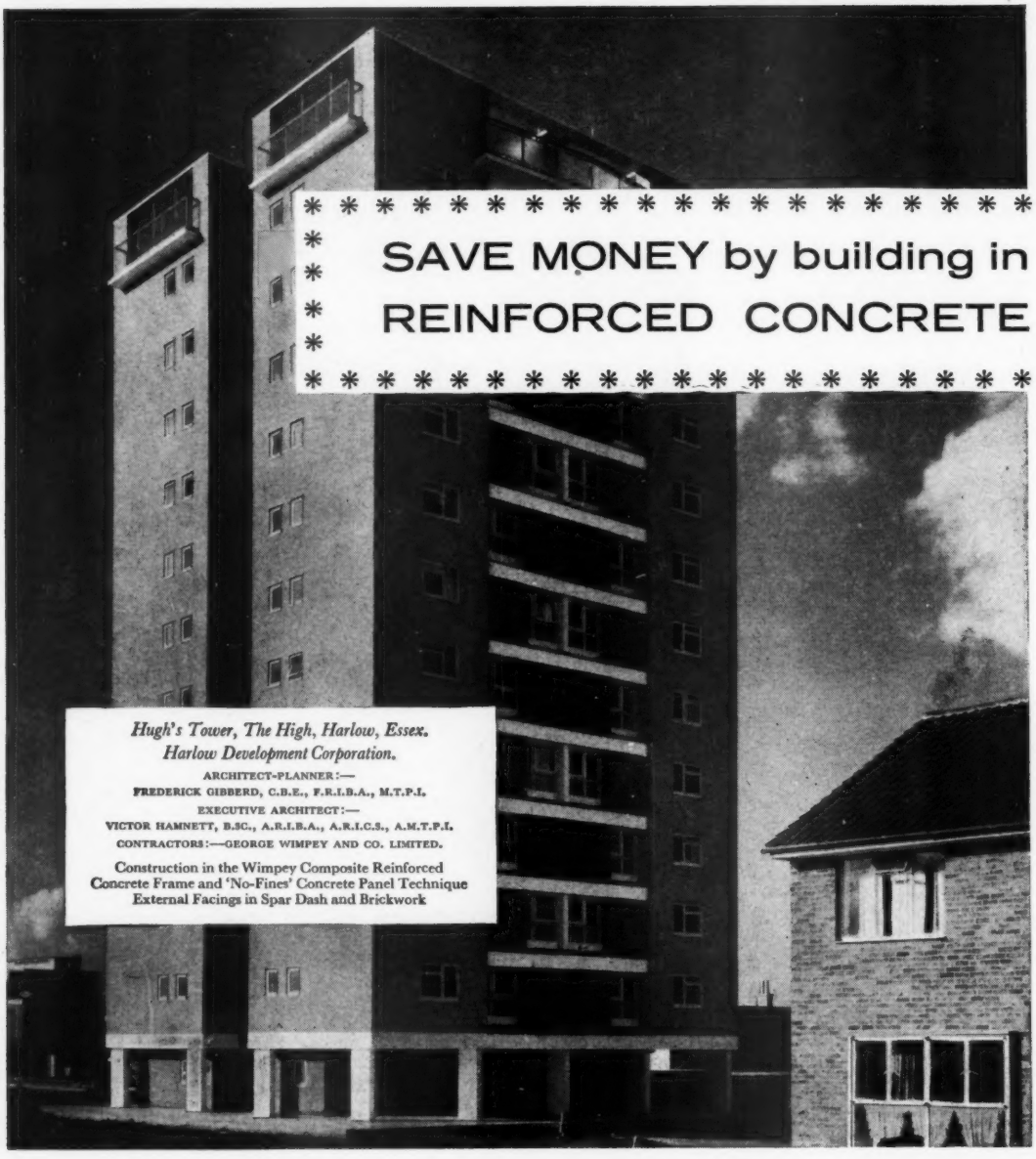

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Hugh's Tower, The High, Harlow, Essex.
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External Facings in Spar Dash and Brickwork

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

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

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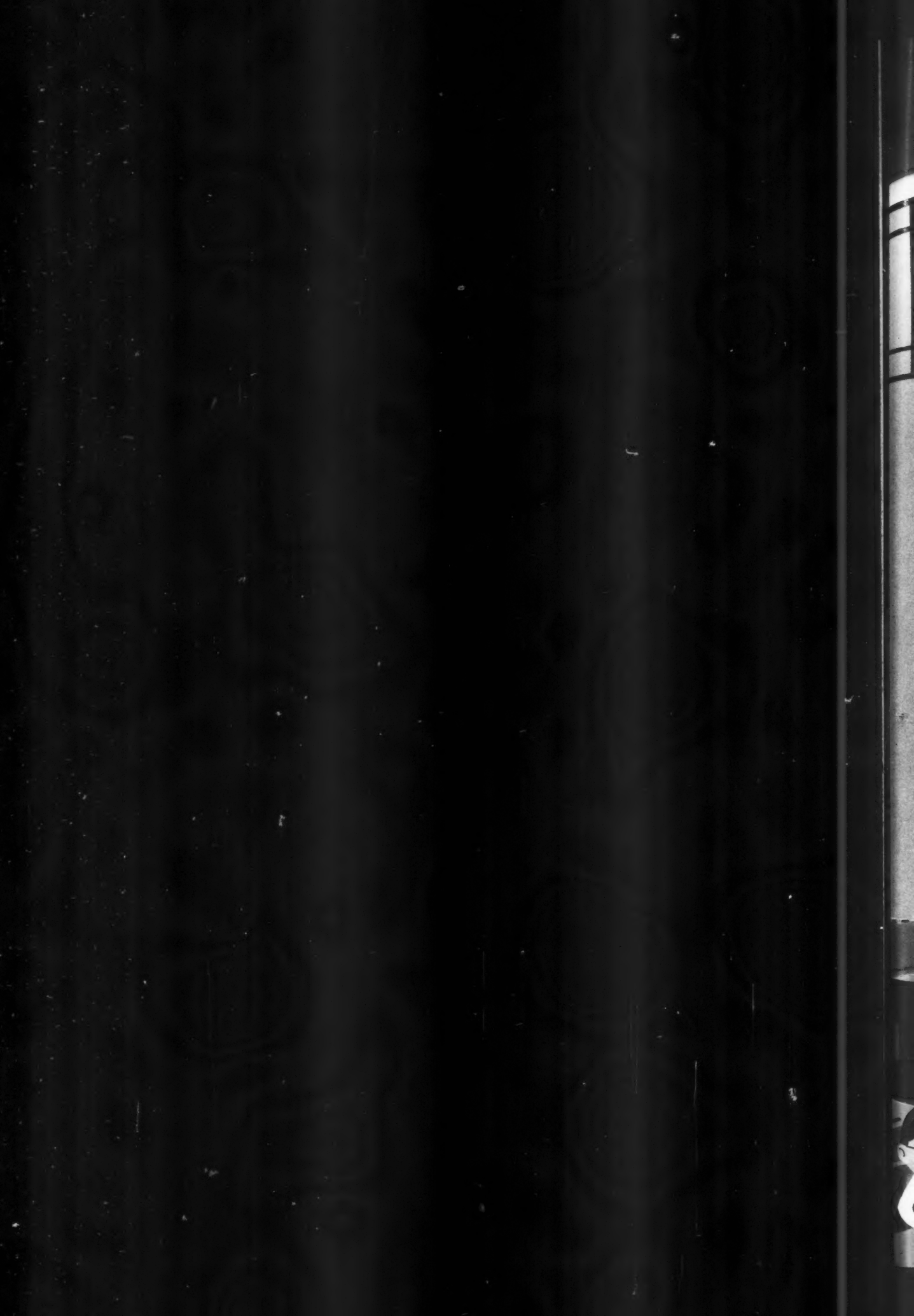

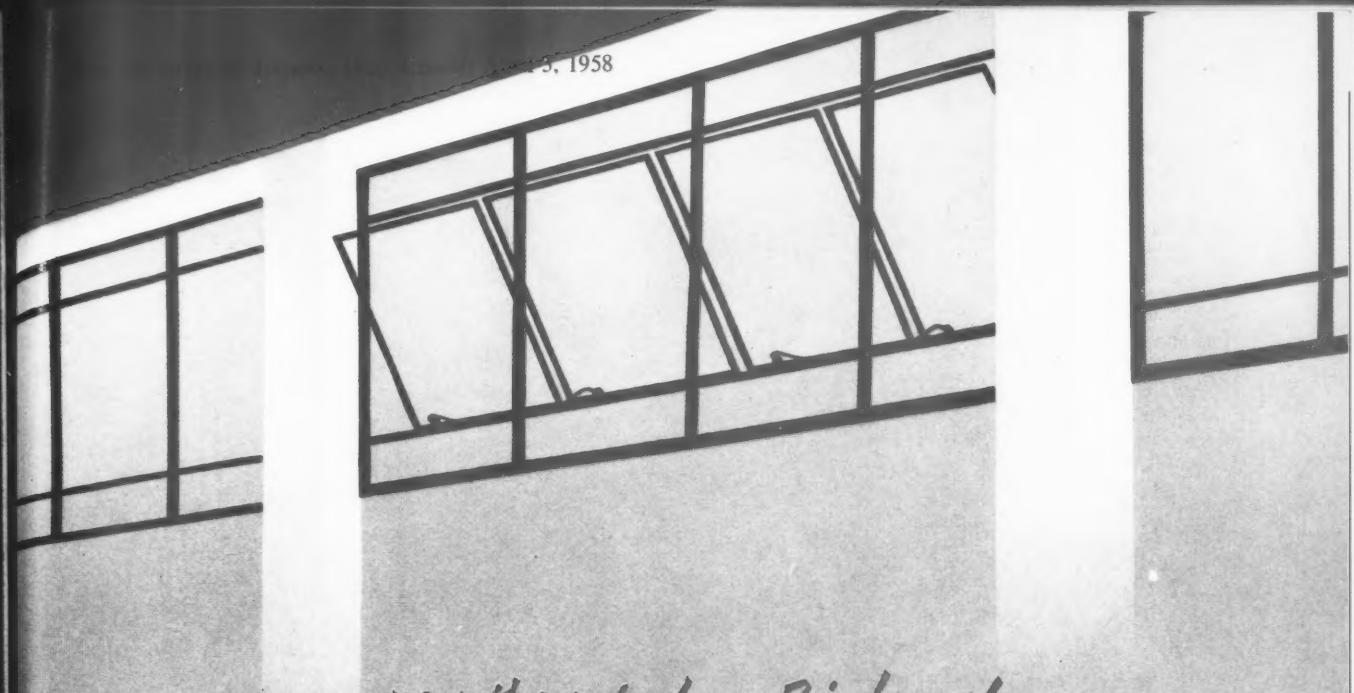

open the window Richard...

When it is a Teleflex Remote Control it's child's play—whether in school, office or factory. The Teleflex system of mechanical remote control, long used in other applications, has been an outstanding contribution to modern building practice. It is neat, flexible, and easily operated. Control cables can be enclosed within the wall, neat wall plates with removable handles being the only visible parts.

Teleflex *window & ventilator remote control*

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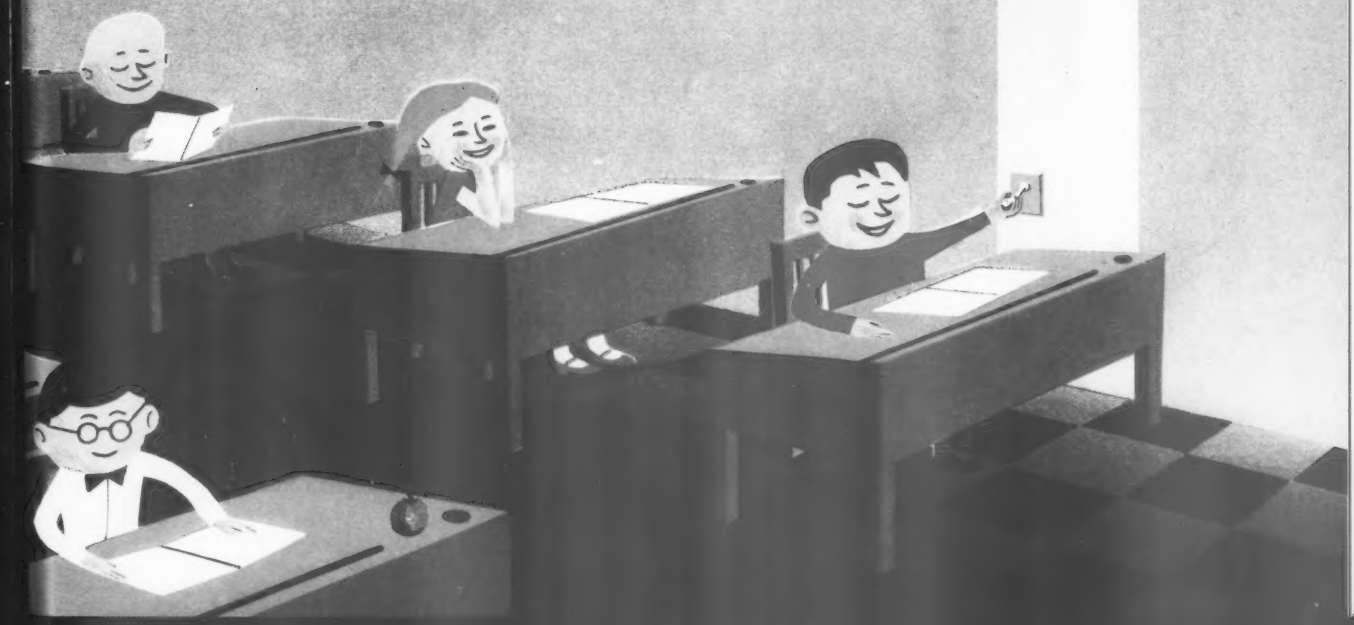
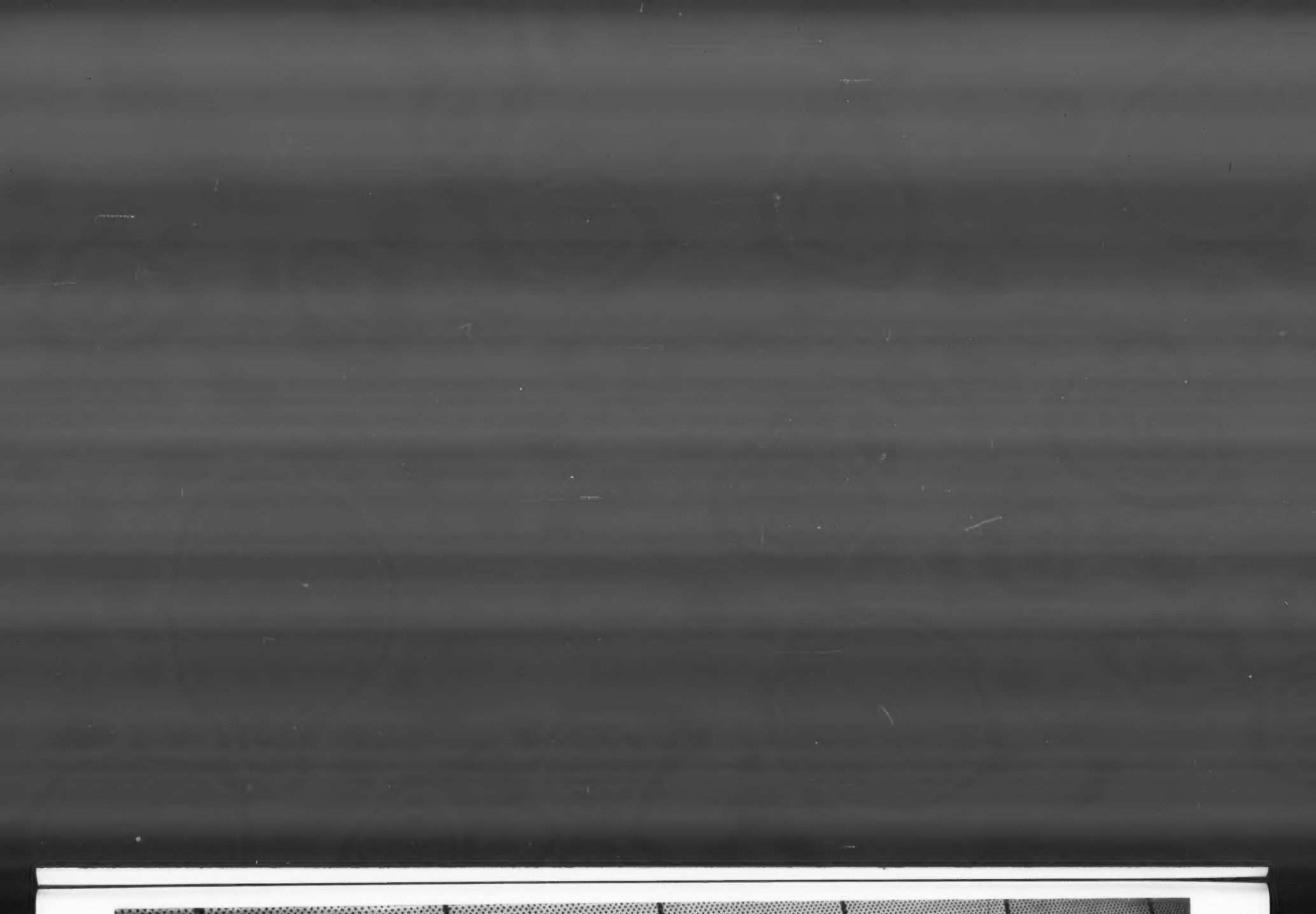
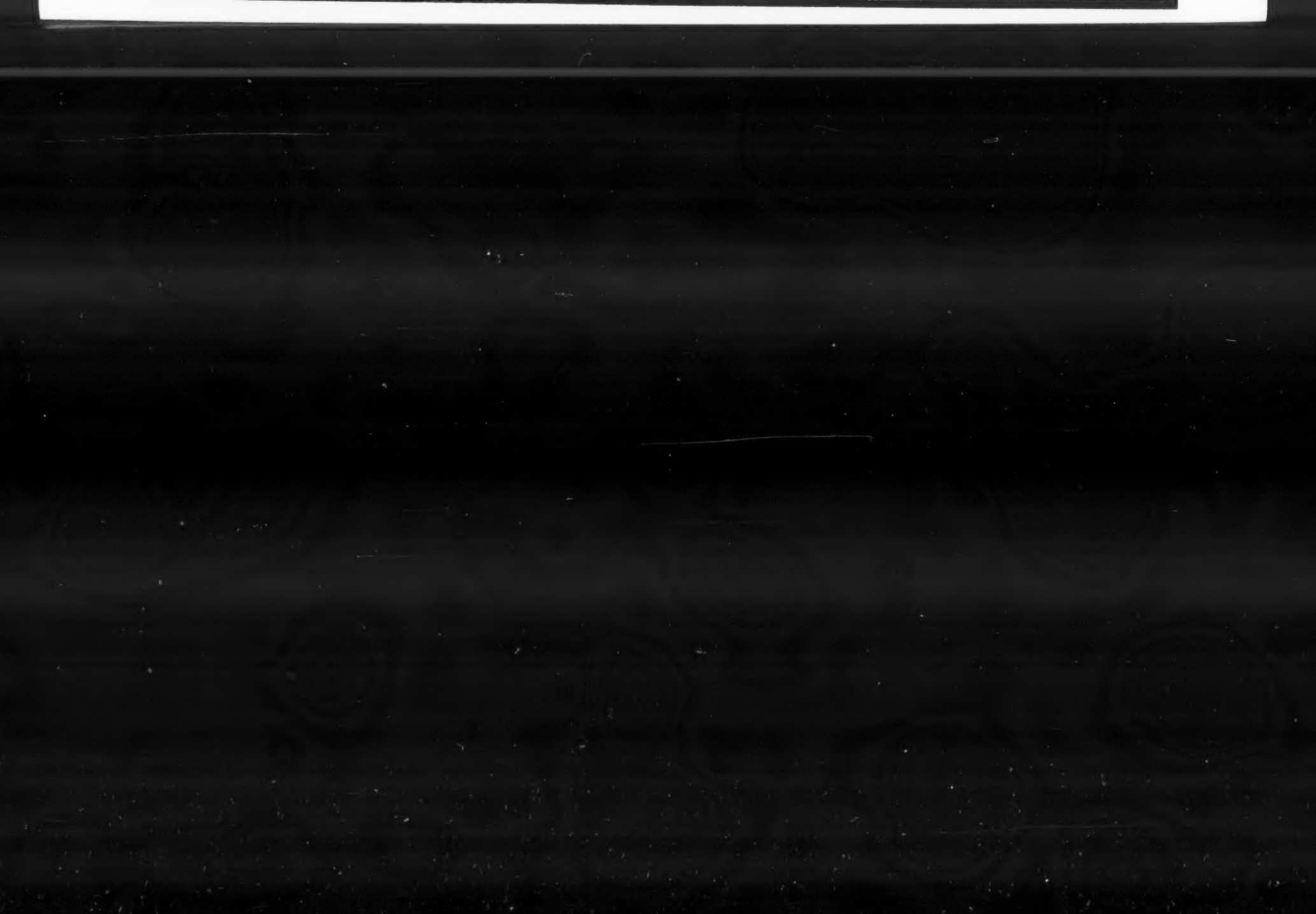
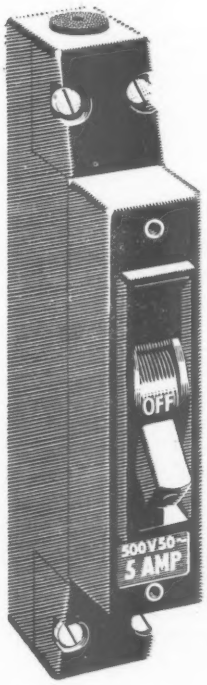




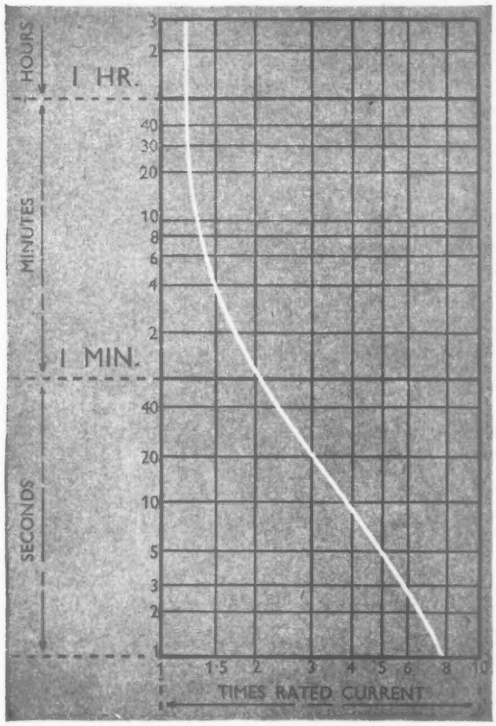


CRABTREE MINIATURE CIRCUIT BREAKERS



CLOSE AND ACCURATE OVERLOAD PROTECTION

The Crabtree Type F-60 miniature circuit breaker is designed togive close and accurate protection at all times. Tripping under fault conditions is achieved by a simple device which, whilst tolerating such harmless temporary overloads as starting surges, will trip immediately the sustained overload becomes dangerous. On heavy overloads or short-circuits, where rapid fault clearance is essential, the Crabtree circuit breaker will trip instantaneously. Full details of this new product are given in Publication No. 1191, available on request.



Characteristic tripping curve for 60 amp. overload release.

WHY THE USER PREFERS CIRCUIT BREAKER PROTECTION

"Re-closing of the circuit is both simple and safe".

CRABTREE TYPE F 60

A CIRCUIT BREAKER OF UNEQUALLED PERFORMANCE

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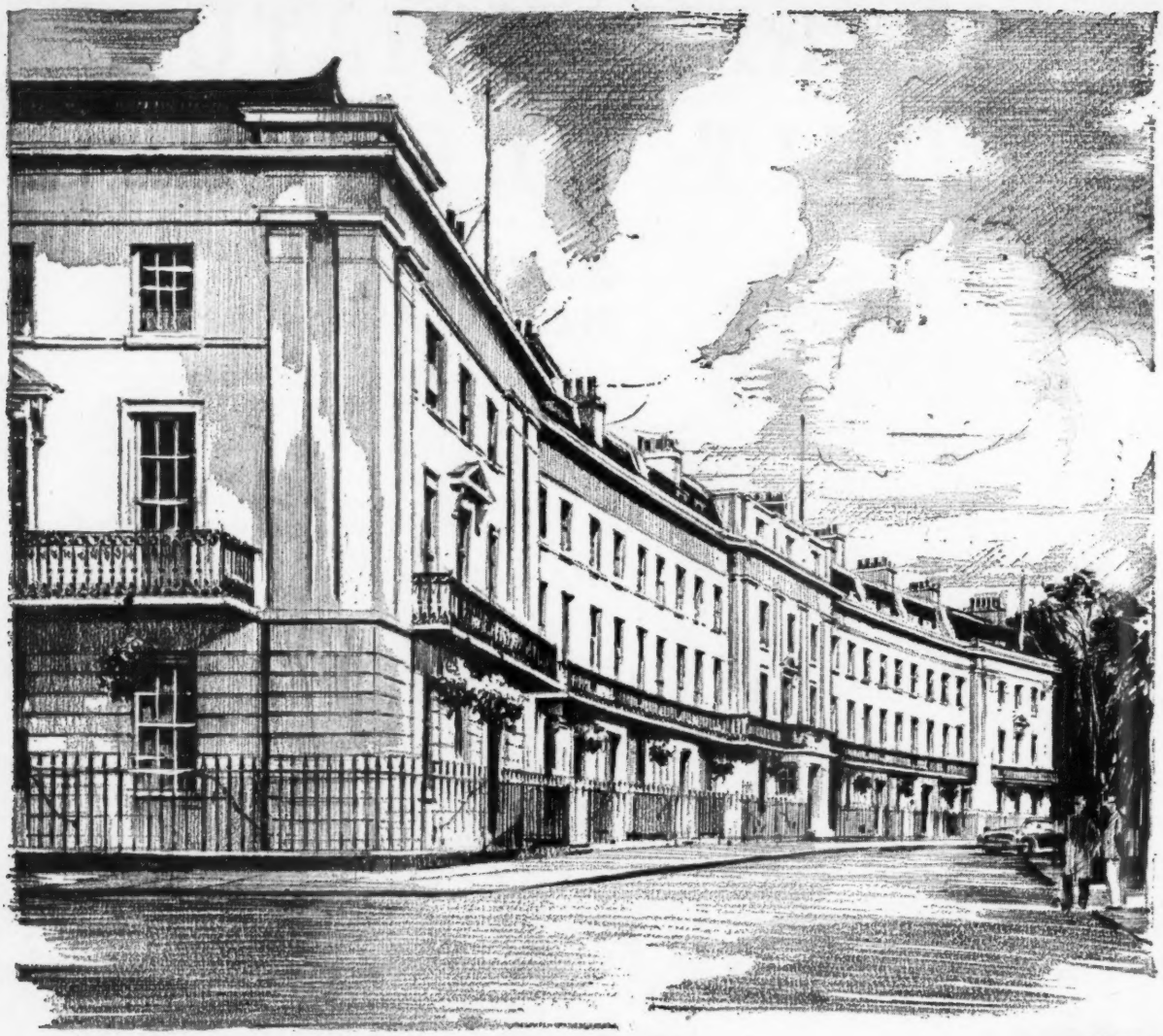

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—the best that money can buy—are used with conspicuous success throughout the country. Best known are Walpamur Water Paint, in interior and exterior qualities, Duradio, the easy to apply, quick to dry Enamel Paint, for inside or outside use and Darwen Satin Finish, steamproof and ideal for kitchens and bathrooms as well as other rooms, domestic, commercial or industrial. The full range includes paints, enamels and varnishes of superb quality for every conceivable need.

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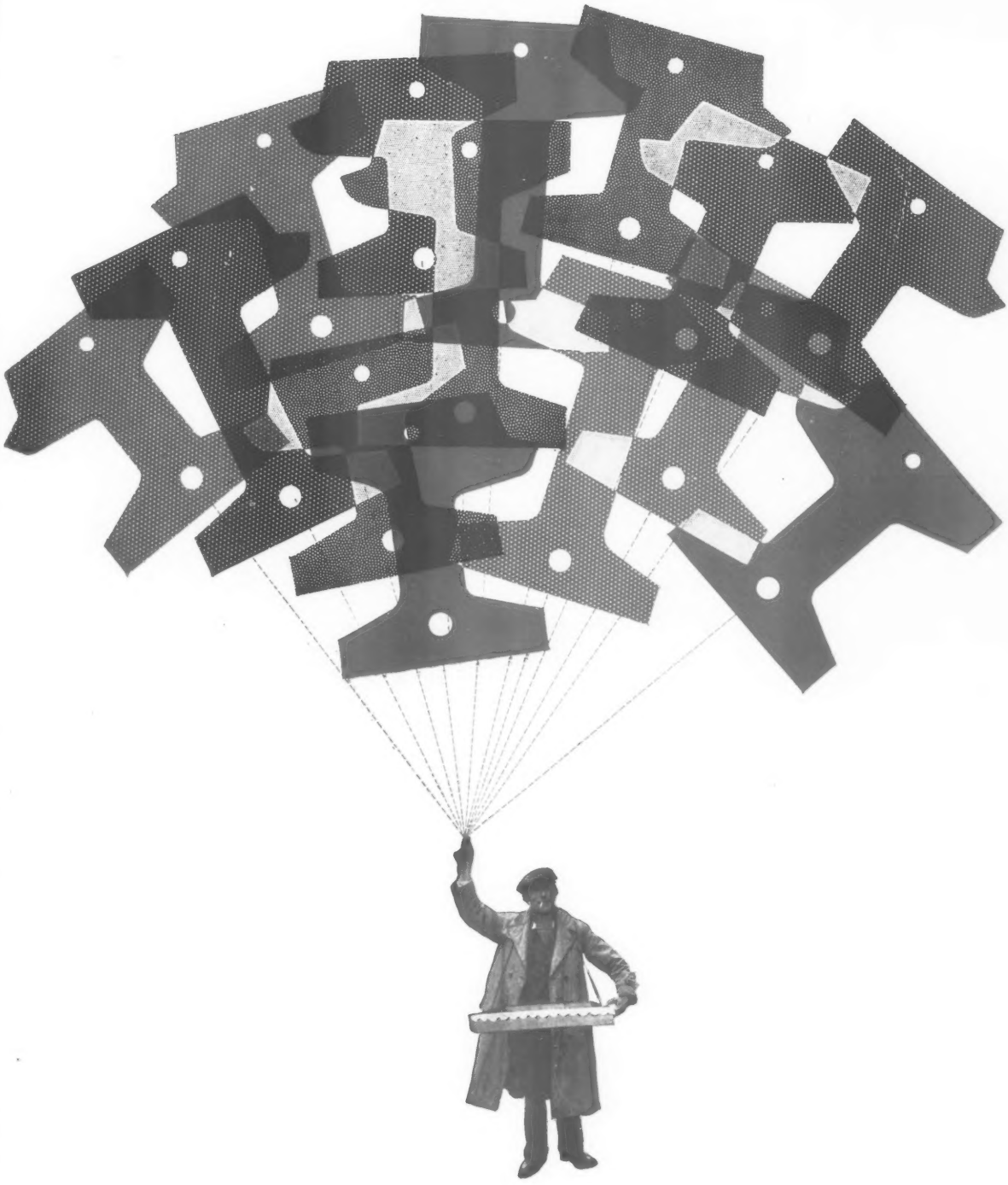

lightness

Carefully calculated ratios of steel to concrete and elimination of useless dead-weight
More of the many reasons why you can—with confidence—specify

RAPID PRECAST FLOORS

The Rapid Floor Co. Ltd. Africa House, Kingsway, W.C.2
John Ellis & Sons Ltd. Leicester
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Durable...

Vitreous China has given 'durable' a new meaning, and because all "Standard" Sanitary Appliances are made of Vitreous China, it takes a lifetime to discover just how durable they are. With Vitreous China comes a higher resistance to harsh treatment than ordinary ware. Much higher. And because "Standard" Sanitary Ware lasts and lasts, its cost for each year of service is much lower.

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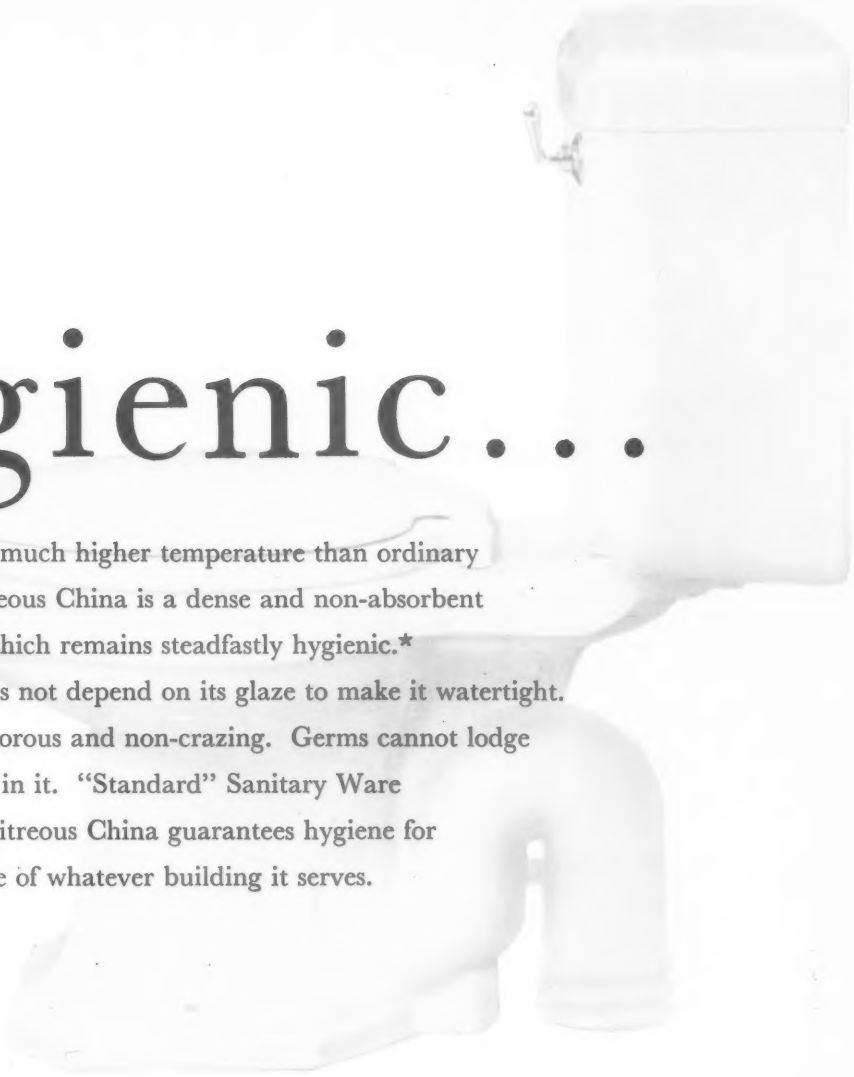
The clean, fresh beauty of "Standard" Sanitary Appliances made of Vitreous China is a joy to behold. A brilliant, practical beauty. A modern beauty that has been achieved by years of planning, styling, shaping and re-shaping. And below the surface there is the beauty of a superb craftsmanship. Inside and out, this Vitreous China ware is really beautiful.

Vitre

★ *In many countries it is officially required that Sanitary Appliances be made of Vitreous China. Many British architects, doctors, and Public Health Authorities would like to see similar legislation in Britain and so, not unnaturally, would the makers of "Standard" Sanitary Appliances.*



Hygienic...

Fired at a much higher temperature than ordinary ware, Vitreous China is a dense and non-absorbent material which remains steadfastly hygienic.*
And it does not depend on its glaze to make it watertight. It is non-porous and non-crazing. Germs cannot lodge and breed in it. "Standard" Sanitary Ware made of Vitreous China guarantees hygiene for the lifetime of whatever building it serves.

eous China

Durability. Beauty. Hygiene. Economy. These are the characteristics of "STANDARD" SANITARY APPLIANCES made of VITREOUS CHINA which appeal to the house owner and builder no less than to the doctor and the architect.

IDEAL BOILERS & RADIATORS LTD., IDEAL WORKS, HULL

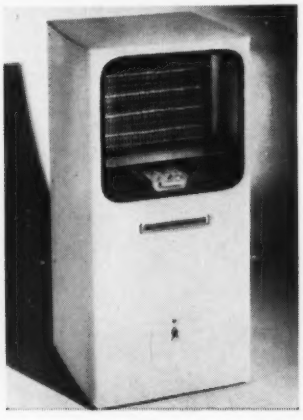
392

CAN YOU AFFORD NOT TO BUILD THESE HOUSES?

They cost less to build less to sell & less to run

These are houses of the future. They will be up-to-date in 1980. Why? Take a look at the roofs—there are no chimneys. These are all-electric houses on an estate which is being developed in Woking. They have a domestic heat pump installed for providing constant hot water and a refrigerated larder. Central heating is provided either by built-in convector heaters or by heating cables buried in solid floors. This latter type of heating gives an evenly spread heat throughout the house and the power may be taken at night when special off-peak rates are available. The absence of chimney breasts and flues means no more draughts and additional space.

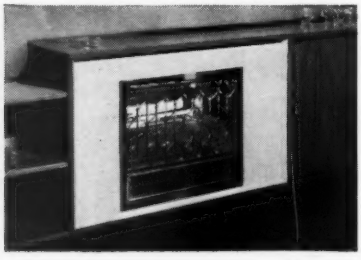
The latest types of insulating materials are used in the construction of these houses, for example, lightweight concrete blocks are used for the inner walls and insulation round the edges of the floors prevent loss of heat through the walls. Roof insulation is also provided which cuts down one of the greatest sources of heat loss in any house. And the cost? The capital and running costs are actually less for this type of house than for a conventional one. The all-electric house is here to stay. Look at the tables below: the savings shown are taken from actual figures in the all-electric houses at Woking.



ABOVE: These are some of the all-electric houses on an estate under development at Woking.

LEFT: The Ferranti Fridge-Heater provides constant hot water and a refrigerated larder.

BELOW: Ferranti Panel Fires provide an attractive focal point-of-interest.



CAPITAL COSTS

All-Electric House	£	s.	d.
Fridge-heater	159	12	7
Floor warming cable installation	90	0	0
Living room, radiant fire	18	17	8
Bathroom, radiant fire	5	5	0
Bedroom, radiant fires (three)	20	15	3
Extra wiring and labour	15	0	0
	£309	10	6

Conventional House	£	s.	d.
Refrigerator, 4 cu. ft.	80	0	0
Two chimneys and coal bunker	136	0	0
Flashing, chimney soakers	10	0	0
Tiler and carpenter ...	7	0	0
Ducts in floor ...	1	10	0
Slow burning grate and surround	50	0	0
Five radiators and valves	21	5	0
Towel rail	10	0	0
Boiler and pipes ...	50	0	0
Tubing and plumber's labour	70	0	0
Decorators	3	0	0
	£438	15	0

SAVING BY ELECTRIC METHOD

£129 4s. 6d.

The All-Electric House

NEEDS—NO FUEL STORAGE, NO CHIMNEYS, NO FLASHINGS
CUTS BRICKLAYING COSTS, CUTS CARPENTRY COSTS, CUTS TILING COSTS, AND COSTS LESS TO BUILD, LESS TO SELL, LESS TO RUN

Average total running costs for a 3-bedroomed house (water heating, space heating, lighting, cooking and accessories) average between £50 to £60 p.a.

Write for details to:

Ferranti Ltd. *Domestic Appliance Dept., Moston, Manchester, 10*

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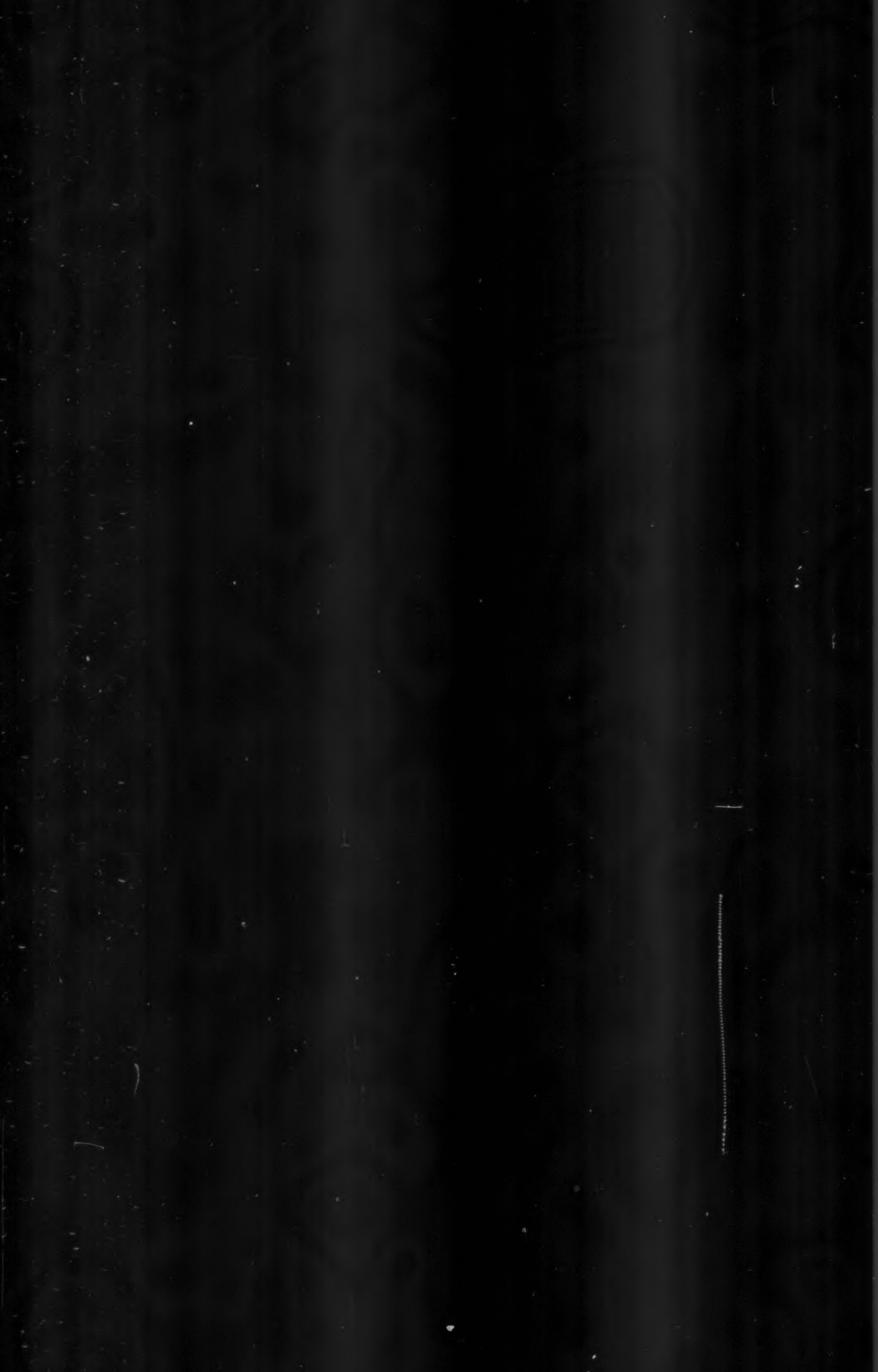

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NOT QUITE ARCHITECTURE

South-East Asia and Elsewhere

2 THE CITIES OF THE HILLS

At Bangkok the airport is so far out that on landing one is hardly aware of any change in the seemingly limitless pattern of irrigation canals and rice fields. The straight tree-lined road which leads to the centre through these fields only thickens gradually with buildings, a barracks here and a school, hotel or factory there; it hardly ever develops into what American speed cops call a "thickly-settled area." The houses are nearly all of one or two storeys set in their own plots. It is neither town nor country and this diffuseness is reason enough for the airport being so far out.

*

In contrast, the pressure on land in Hong Kong has thrust the new airport out into the bay like a giant pier while the surrounding hills have been carved away for flight paths. All around in this bowl of hills and islands rise new buildings wherever access can be gained, and seldom less than six storeys. Blocks of flats seem to hover on the very edge of roads where there would hardly seem to be room for a mountain goat to stand, their entrances often at the fourth or fifth storey. With building land at such a premium densities are naturally high. There are nearly 2,000 flats on the six acres of the old fort at North Point—a density of some 2,000 persons to the acre—yet this quite admirable piece of architecture is in no way oppressive and with its playgrounds and lifts compares favourably with our better local authority schemes. But North Point is a middle or clerical class scheme and one must look to the re-settlement areas really to see the problem *in extremis*. With densities of close on 3,000 persons to the acre these six- or seven-storey walk-up tenement blocks are gradually replacing the squatter camps which still cover the hills and even the pavements. Minimal as they are (they are planned for progressive enlargement) there can be little doubt that these tenements are helping greatly to solve the needs of

Enthusiasts for high density development will appreciate the virtues of these blocks of flats (above) marching across the landscape in Hong Kong, with a density of 3,000 people to the acre, to which Fello Atkinson refers in his article below. On the left of the photograph are the slums they replace. Below left, a traditional walled village in Hong Kong and, below right, modern shanty development.

the city's natural increase of 75,000 persos per year.*

*

Yet the character and atmosphere of this teeming urbanism is far from unpleasant and decidedly lively, while the architecture which has been created—flatted factories are also provided for one man or family industries—has a harsh brutalist charm.

*

The two cities, Victoria on the island and Kowloon on the mainland, are joined by a superbly run ferry service met incongruously by smart double-decker London buses. Having had to rise rather than spread, Hong Kong's organized public services are short and sweet and highly efficient. Yet it has a charm which it is hard to define. It is not as like San Francisco as I had expected, partly because its peaks being steeper are not built over. It more closely resembles Genoa and by night Monaco. Indeed to the European eye uncharmed by soft green equatorial lushness the whole landscape of this corner of the Chinese littoral is nostalgically Mediterranean: Greece, Italy and Switzerland are evocatively recalled as one sails around the islands or drives through the leased territories.

Singapore, for all its efficiency, has none of Hong Kong's charm and while its business centre, hemmed in like the Chicago Loop, has shot upwards, good highways allow easy escape for most of its European and many of its Asiatic citizens to the inevitable red-roofed suburbs beyond the city limits. Only the Chinese have in any way remained truly urban and only their quarters of this conglomerate garden city remain really interesting.

*

Kuala Lumpur, on the other hand, as the new federal capital of Malaya has a very good chance of avoiding this sprawl. Not

* DSIR Colonial Building Notes, February, 1958.

only is it ringed in by hills, but was prevented during the troubled years for military reasons from spreading, and now its planners are well aware of the problem and have already equipped it with one new town, Petaling Jaya. Its developers are learning too the Californian virtues of building on hillsides and hilltops on what would once have been thought to be hopeless sites. Indeed, Kuala Lumpur has every chance of becoming a fine capital if its planners continue to see it rather than only make statistics of it.

*

While both Hong Kong and Kuala Lumpur appear to be relatively healthy urbanisms, comparatively free from the disease which endangers Rangoon, Bangkok and even Singapore, there is another great hill city, namely Istanbul, which, while far from forming part of South-East Asia, does at least stand between East and West and demands our attention today, if for no other reason than that it is changing so rapidly and is yet part of our western heritage. Furthermore it is changing to plan—a plan which owes much (a dubious honour) to English post-war planning techniques. It differs in a number of things from, for example, the London planning. It is more ambitious, it is being implemented almost under one's feet and, as far as I can make out, it has behind it no survey and no phased development.

*

It is one of the most hair-raising projects I have ever contemplated for it just pushes ahead with vast roads and clearance schemes apparently regardless of the housing problem created—these roads naturally pass through the most crowded parts of the city. Yet few dwellings are replacing those destroyed, since the city authorities, while holding almost unlimited powers to clear land and build roads, have no housing authority. They must, therefore, re-sell such contiguous land as arises for private or co-operative schemes and attempt to control development by tying planning permission to the master plan.

*

Thus, the present picture of Istanbul is one of great highways lined on either side with half-destroyed buildings and rubble. Foreigners have expressed surprise that this neutral city should have been so badly bombed.

*

The plan itself is imaginative, though I am certain densities (based on English practice) are far too low. This will, no doubt, force the creation of "new towns" beyond the walls of Byzantium, which if they fail to keep the invaders out have until now saved the city from spreading. As a series of skylines, Istanbul is among the most majestic of cities. Of this the planners are very aware and indeed from a visual point of view the whole plan is based on the preservation and improvement of these silhouettes, but those who knew the city, even but a few months ago, will find it very changed internally. If this plan comes off it will be a great achievement, but it is a gamble and if it fails for economic or political reasons it will leave Istanbul in utter chaos.

FELLO ATKINSON.

The Editors

THEME FOR THE OXFORD CONFERENCE

ARCHITECTURAL education is rapidly becoming a major issue—and not only among architects. No doubt this is because so many of the problems of building and architectural practice lead back to it. Should architects be trained to design to cost limits? to programme their work? to organize their information libraries? Should they know more about the physics and chemistry of services installations? or about building site organization? Thinking of these questions, it becomes clear that the problem of architectural education is really the problem of what rôle the future architect should play in society. Is he to play a less or a more responsible part in the design and putting up of buildings?

Suggestions for changes in present training are diverse and conflicting—for two reasons. First because the profession still has to agree on what sort of man the architect should be. Second because the amount of exploration, of deviation from accepted methods of teaching and learning is far too limited. Where everyone pursues the same path, speculation as to the value of other paths is of doubtful value—we have no evidence to guide our ideas. Within the bounds of the RIBA examination standards there is room for experiment, and one of the few schools to believe this and to *act* upon it is Birmingham, with its "live projects." Thus to provide a talking point for the forthcoming Oxford Conference on education, we publish this week on page 505 an article on the live projects by the Deputy Director of the school, Denys Hinton. We do not suggest, that live projects are an ideal remedy for the defects in present methods of education. They represent one way of breaking the isolation of education from the real world of building. There may be other ways of tackling the same problem. We hope that the Oxford Conference will consider them and recommend more experiment and adventure in the training of architects.

TOO MUCH PRESERVATION

The Architecture Club gives architects a good chance of swopping views with informed and interested laymen, instead of merely allowing them to preach to each other. But neither architects nor laymen made the most of their opportunity at last week's debate on the proposition "that we are trying to preserve too much."

*

Nobody spoke strongly for this proposition (not even the proposer, R. Furneaux Jordan), and the opposing speaker, John Betjeman, very nearly said that all buildings should be preserved. Why? So that people interested in architecture could spend their time developing an appreciation of the more recondite styles.

*

Speakers thoroughly enjoyed their own wit and their well-meant irrelevancies—such as lamp-posts, James II's statue and the low standard of doll's-house design. ASTRAGAL was delighted when Robert Jordan took up a point which only the JOURNAL has been alone in emphasizing—that the Nash terraces in Regent's Park must be considered as a whole. Mr. Jordan castigated John Summerson and Sir William Holford for discussing in public which terraces were worth keeping.

A TIDY SUM

The Government have made a £15,000-a-year grant to the "Keep Britain Tidy" group. Good. But let's hope the Group won't spend this money on more sites for the latest anti-litter posters (put out by the MOHLG), which show girl with doggy (park-trained or litter lout?) against a nice bit of Subtopia. Both versions of this poster—the photograph and the really ghastly drawing—add something rather special to the plea for less litter.

*

Incidentally, it's a fine state of affairs as somebody once said—when a local authority will refuse to buy a piece of open land because the annual bill for litter removal would be larger than the cost of the land. How can we solve this problem? It is possible, of course, to be fined up to £5 for leaving rubbish in places like St. James's Park; but have you ever heard of this happening? The police may interfere with our parking activities, but at least they leave us our instinctive national sport. What else can they do in a country where a brewer is able to advertise his canned beer with a slogan about tossing the can over the hedge?

*

Seriously, the only way to end this litter menace is by on-the-spot fines.

ENOUGH TO MAKE A STAR TURN

The copper dome of London's planetarium (pictures in last week's JOURNAL) makes a welcome break in the monotony of the Marylebone Road. It is not unattractive. But the circular foyer is astonishingly vulgar. Inside the planetarium itself everything is dead and claustrophobic (until the show begins), and even if there was any vulgarity here it could not compete with the astonishing instrument in the centre.

*

In their waxworks Madame Tussaud's manage to get somewhere between scientific accuracy and showmanship. Their planetarium promises cheap spectacle and provides an impressive show marred by confusing narrative. A pity. But the things that are wrong here could be put right without much trouble. At least there is the core of a good display.

HOW I WONDER WHAT YOU ARE

The architectural antics of the *Star* continue to baffle me. The opening day of the Hatfield roofs inquiry produced headlines in large italics on the front page, and a suggestion of imminent bloodshed. Then the paper dropped the inquiry and resurrected its "Shame of London" attacks on LCC housing. What happened? Were heads too slow to roll?

*

With capricious inconsistency, the *Star* has also presented a sympathetic piece about Professor Rasmussen's views on the London scene, and a noisy full-page article in favour of high-rise development in the City and the West End. Sample: "The rectangular masses above almost float, held to earth by a few stringy columns." Not masterly, but at least a beginning. If the *Star* can nurture this tender, stringy plant it might do something to regain the confidence of the architectural profession.

*

One query. The article is credited to "*The Star* Architect." Why anonymous? The headlined feature in the *Evening News* on "High Smithfield" was properly signed by an ARIBA, who shall be nameless if only because I have forgotten his name. Who *is* the *Star's* correspondent? Perhaps the paper is trying out the Top People's paper's gimmick. But this won't be any good. At least the Top People know who writes the anonymous articles in *The Times*.

NEW STONE FACINGS

How you all laughed—it's no good denying it in that modest way—when Saul Steinberg took a rise out of the UN and Lever buildings by drawing pent-houses on the top margin of a sheet of graph paper, and motor cars round the bottom of it. But how do you feel now that Ed Stone, designer of the Museum of Modern Art, the first of the tropical Hilton Hotels, the new US Embassy in Delhi and so on, has actually put up a building on which graphs could—and probably will—be drawn.

*

Architectural Forum has just published twin dormitories (see opposite) designed by Ed Stone for the University of Carolina, each completely faced over with a sun-screen of pierced units about a foot square. These look like those neutral grids that are said to be

the coming thing in urban architecture, but Mr. Stone says (and Ed's decision, as you know, is final) that they prevent heat and glare, increase privacy and reduce air-conditioning costs.

*

Come to think of it, they might also be useful in preventing late night entry by means of stack pipes and windows. They don't look nearly so totalitarian as the barbed wire entanglements round the halls of residence at you know where.

SO THAT'S WHAT ITS POSTER BE

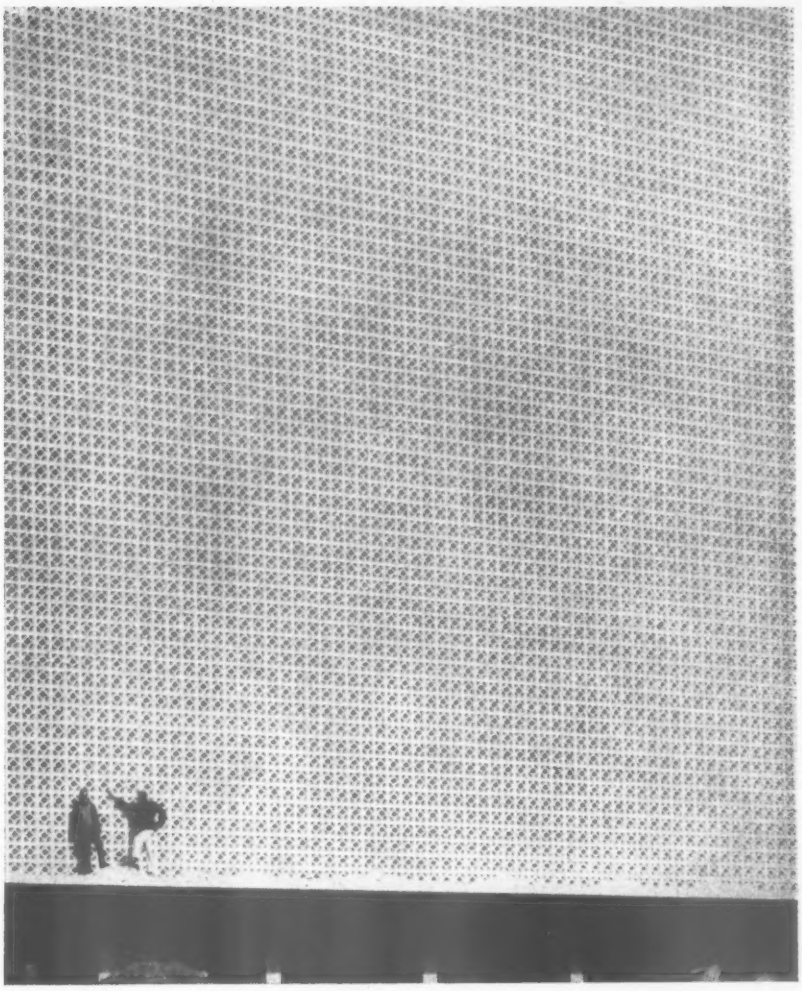
If you travel by tube, let me persuade you to tear your eyes away from the ads for girth control and have a look at the newest small Olivetti poster. During the last week or two this ad has been stirring in me an inexplicable antipathy to Olivetti typewriters. As usual in this firm's advertising, the visual gimmick is an aggregation of coloured shapes, quite elegant in an abstract way, but not the usual typographical or mathematical symbols. What I now know them to be—having glanced by mistake at an Italian town planning magazine—are very slight variants of the plans of sub-standard hovels, holes in the ground and other slums that have been appearing in reports on places like Matera. No wonder they are off-putting in a subtle way.

*

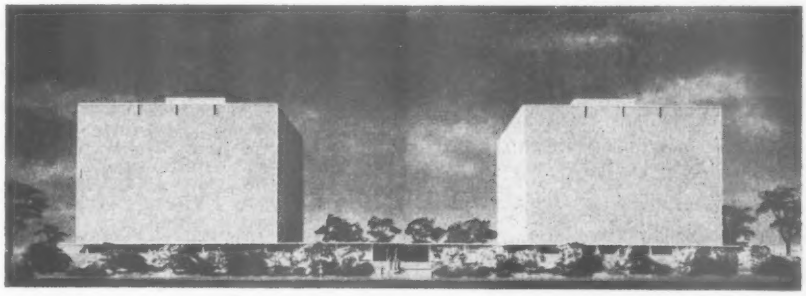
This mixture of Olivetti elegance and southern squalor may be a fair picture of Italy, but is this truth in advertising, or simply a cynical disregard by a too-fine artist for the miseries of his subject matter?

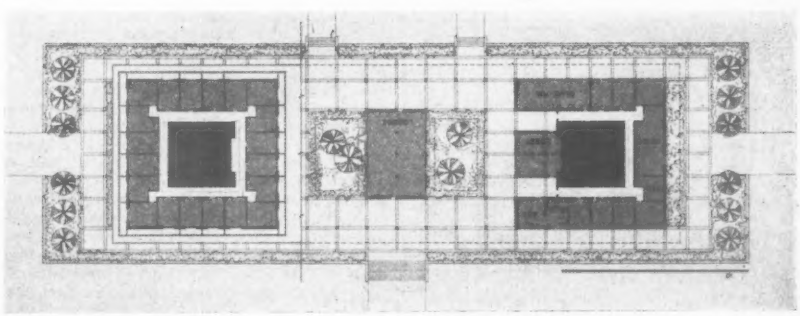
WHEN DAD SAYS TURN

The JOURNAL'S Information Sheets were the first examples in the Building Industry of technical information produced in what are known as the "A" series of paper sizes. It has long been obvious that this international series would have to be adopted in this country if any order was to be introduced into the business of filing. But last year, when the RIBA and the Building Centre held a competition for trade and manufacturers' literature, the JOURNAL'S sheets were not eligible because the BSI did not recognize the "A" series. Last week, however, the Institute said it was going to change



Above, men in a mesh. Part of a façade of one of twin seven-storey dormitory blocks for a men's hall of residence at Columbia University, South Carolina, designed by G. Thomas Harmon, with Edward D. Stone, associate architect. The whole symmetrical, veiled composition is shown below. See ASTRAGAL'S *comment titled "New Stone Facings."*





over gradually to this series—at first for stationery and later for the British Standards themselves. This is excellent news and the BSI are to be congratulated.

*

It won't be long before the imitators of Information Sheets, who carefully conformed to the old BSI standard, will be the wrong size in their turn. Moral: don't pay too much attention to the foot-dragging elements of British industry.

ARCHITECTURAL BIOGRAPHY

Dogs, doctors and lawyers—so say the experienced publishers—are the only built-in guarantees for a successful autobiography. Why not, one wonders, architects? If they are not pure artists they live at least on the fringes of Bohemia . . . (hints of studio life and free love) . . . they share with their clients secrets almost as intimate as those discussed by doctors or lawyers . . . (double-beds, concealed drink-cupboards, marble bathrooms) . . . they handle Big Money, meet Top People, Go Abroad. And yet how regrettably few are those architects who commit their lives to paper and how curiously mixed are those who have . . . Oliver Bernard, Reginald Blomfield, Frank Lloyd Wright. . . .

*

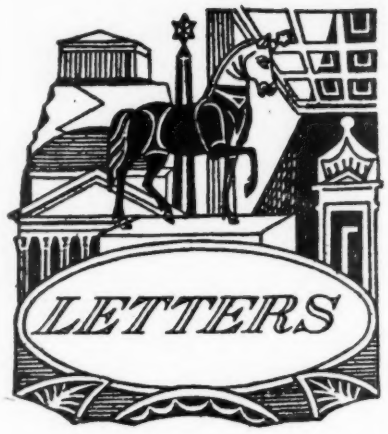
The latest and most unassuming recruit to their number is Humphrey Pakington,* ex naval officer (he served in the Battle of the Falkland Islands in the First World War and as a staff officer in the Second), ex-architect, devoted countryman and cricket maniac. Those who know him—witty, disarming, gentle, unpretentious—his buildings and his books, will know what to expect: no high-life scandal, no soul-searing revelations, no criticism, malicious or avuncular, of others—just a record of a happy modest life.

*

Disappointing? A little perhaps. Even Worcestershire is surely not always so placid, nor architecture so mild a pursuit. It is sad to see so perceptive and sensitive a mind—rare enough, goodness knows, in our profession—content to doze and chat agreeably upon the side lines.

* *Bid Time Return.* Chatto & Windus, 21s.

ASTRAGAL



W. H. Willatts, Engineer

J. T. Longlands
Secretary, Architectural Students Association, Portsmouth

Mrs. Alex Richardson

"X-Arch."

Albert J. Upton, Student R.I.B.A.

Pseudo-scientific Mess

SIR,—I enjoyed very much reading your editorial of March 20, but I feel that you were too severe in your criticisms of the schools of architecture. If there is failure to produce properly trained technicians for the building industry is this not because all sections of the industry do not know how to make the best use of the brains and knowledge already available?

If architects are to have any future I believe that there are two courses of action which must be taken. One is to adopt a rigid self-discipline to accept the standardization and simplification of all basic elements or components of construction. Architects must have the ability to overcome the many problems of using these standard components to produce well designed but economic buildings. I do not see how building construction can be cheapened if the majority of architects insist on being "creative artists"—where every job is virtually customer built. Few people can afford a customer built car, yet we are expected to afford one-off houses, flats, schools, factories and similar buildings.

The second line of action must be to break with the pseudo-scientific mess of present day methods for structural design which follow almost exclusively the use of lineal or plane frames, which results in most cases in an extravagant and expensive construction.

May I quote the words of the great architect Candela from his article in *Progressive Architecture*, June, 1954, where he says: *"In the field of construction, we fortunately are ending a long, analytical period. The ideas that nourished it are fully developed and to continue exploiting them would be senseless. If the symptoms are to be believed, we are on the verge of a new creative epoch. Architects should be pleased with this situation, especially if they manage to regain their lost rôle as 'master builders,' since in order to build at such a time it perhaps will not be necessary to master so much science, but to have some talent."*

W. H. WILLATTS.

London.

Student Fees Protest

SIR,—With reference to the letter from the AA Students' Committee (AJ, March 13), I have been asked, by the Committee of the Architectural Students Association, Portsmouth, to say that we support their views wholeheartedly.

We feel particularly strongly on the matter, as, being a provincial college, it appears that we are considered of little consequence, in that we received no prior notification whatever of the rise in fees. For example, candidates for Part One of the RIBA Finals Examination found, without warning, that the fees for that examination had suddenly risen from £6 6s. to £9 9s.

We consider it to be possible to devise some scheme whereby full-time students would pay less than those in employment who study part time.

J. T. LONGLANDS.

Portsmouth.

Can Architects Cure Subtopia?

SIR,—We were fascinated to learn that an architect considers it is not democratic to prohibit unqualified persons from submitting plans for building. This explains a great deal to us (the idiot lay public) who now understand better why we are so seldom able to find anybody actually *responsible* for the continued offence to our eyes. Obviously, it can't be the architects' fault as they have no authority and they do not jolly well intend to acquire any—it would not be democratic.

At least we know where we are, now. Mr. Greenen has given us a pat answer to any architect who bleats about his lack of status, and we (the same idiot lay public) can stop wondering if it might not be an idea if somebody could be persuaded to introduce legislation forbidding anyone but a qualified architect from submitting plans for building—it could mean that, sooner or later, we should know just where to lay the blame and that would never do.

Furthermore, if you start going the whole hog, architecture might find itself becoming a profession in the true sense of the word, instead of a comfy little old trade as at present. Which could mean that, one grim day, people might cudgel their muzzy brains into wondering what it is architects "profess" and start asking what constitutes a repudiation of their avowal; which might be a bit ulcer-making, when you come to think of it.

Once this sort of thing gets rolling you never know where it will end. You might even rouse discerning members of society (oh *yes* there are!) into taking local architecture seriously. Next news, you'd have some maniac wanting to build in stone and glass and teak. Ugh!

(MRS.) ALEX RICHARDSON.

Chippenham.

SIR,—What a waste of time this is, talking to each other on this matter.

The plain fact is that nobody can cure anything unless they are asked. That goes for doctors, dentists, chiropodists, etc., etc., too.

How to get the willing patient to the cure; that is the point. What architects are trying to do is to get the cure to the patient. A very different thing in this context, because the patient is not willing.

Reorientate your efforts.

"X-ARCH."

Surrey.

Domestic Building And Spec. Development

SIR,—In view of the large interest shown in the lecture by Eric Lyons at the RIBA, on March 25, and as questions and discussion were cut short by lack of time, I would like to use your paper to continue this very important topic, particularly in view of the forthcoming symposium "Design Pays."

As a member of the Modular Society, I believe that the only possible way for architects to jump on the band waggon with Eric Lyons is for us, as a profession, to offer not only good design but also low cost. The spec. builder sticks to his pre-war bay-windowed villa because it offers the lowest cost. If we can present him with a system of building of simplified standardization based on modular co-ordination with the accent on interchangeability of units, coupled with house and flat unit designs with a comprehensive Spec. and Bills, then, I believe, the builder *and* the building societies will be more willing to risk their so-called *investments* on modern design, simply because it will have the backing of the RIBA or the Modular Society and not just reliant on the design whims of the individual architect. Eric Lyon's work is good, but *his* client is a very rare bird and we must approach the builder-developer *via* the manufacturers by offering standard building elements of a more well proportioned size and co-ordinated (unlike BSS where all materials are a law to themselves in sizes). Only this way can we fight the standard timber bay window, "rising sun" front door, or tiled fireplace.

Not enough support is given to the Modular Society in the domestic field and I fervently hope that the coming symposium will show signs of a united effort by the architectural profession to once again lead the building industry in house design.

ALBERT J. UPTON.

London.

DIARY

Prestressed Concrete. First of three Cantor Lectures by G. W. Kirkland. At the RSA, 6, John Adam Street, W.C.2. 6 p.m. APRIL 14

How Successful is Counter Attack? Talk by Ian Nairn. TCPA meeting at the Planning Centre, 26, King Street, W.C.2. 6.30 p.m. APRIL 14

Presentation of RIBA Gold Medal. At the RIBA, 66, Portland Place, W.1. 6 p.m. APRIL 15

Forming of Metals. Film by Shell-Mex and BP Ltd. At the BC, 26, Store Street, W.C.1. 12.45 p.m. APRIL 16

Engineering in the Landscape, talk by G. B. Jackson and Brian Hackett. ILA meeting at the Housing Centre, 13, Suffolk Street, S.W.1. 6.15 p.m. APRIL 17

The Organization of Joint Maintenance Schemes in Conjunction with Modern Development. Talk by G. P. Townsend, Director, Span Developments Ltd. At the HC, 13, Suffolk Street, S.W.1. 6 p.m. APRIL 22

Modular Society Public Meeting. Paper by Bruce Martin, Head of Modular Co-ordination Studies, BSI. At the RSA, 6, John Adam Street, W.C.2. 7.30 p.m. APRIL 24

RIBA

Royal Gold Medal Presentation

R. Schofield Morris, of Toronto, Canada, will receive in person the Royal Gold Medal for 1958 which will be presented to him by Kenneth M. B. Cross, President RIBA, at a general meeting to be held at 66, Portland Place, on Tuesday, April 15, at 6 p.m.

Mr. Schofield Morris will be sponsored by two past Royal Gold Medallists—Sir Howard Robertson, and Sir Percy Thomas. The following will be the speakers at the meeting: Sydney D. Pierce, Deputy High Commissioner for Canada, Sir Howard Robertson, Sir Hugh Casson, G. A. Jellicoe and Basil Spence.

This is the second occasion on which the medal has been awarded to a Canadian, the first being in 1915 when it was awarded to Frank Darling.

Amendment to the Exams

The Council of the Royal Institute announce that with effect from January 1, 1960, no candidate will be allowed to take the RIBA Intermediate Examination unless he can show that he has spent either two years working under the direction of a registered architect or in attendance at a full-time course at a school of architecture.

CANTERBURY SCHOOL

Full Recognition Given

The RIBA has granted full recognition to the School of Architecture of the Canterbury College of Art. The Head of the school is Robert Paine, A.R.I.B.A.

The school is a City Council establishment operating with considerable support from the Kent Education Committee. It now serves the whole of the County of Kent and draws its entrants from 39 grammar and 10 public schools. It is part of the Canterbury College of Art which is under the direction of the Principal, A. Moody, A.R.C.A.

One of the few schools in the south of England to have the RIBA's full recognition, the Canterbury School offers a full-time course in architecture to any suitable student and it is likely now to draw an increasing number of students from other counties which are without comparable facilities, and from abroad.

The Head of the school, Robert Paine, has stated: "The honour of recognition and the privileges associated with it is a coveted one, much sought after and hardly won. Kent for too many years was content to enjoy the facilities offered by the old-established London Schools. For a county so large, so populous and flourishing and historically so well blessed with fine architecture and architectural traditions, not to have a recognised school was hardly good enough. The present event puts the matter right and is particularly happy in as much as the school enjoys the environment of Canterbury, the mother of Christian architecture in England."

BSI

International Paper Sizes Adopted

The British Standards Institution announce that it is initiating this month a progressive changeover in the sizes of paper it uses for all purposes—correspondence, duplicating, and printing. In an announcement issued to the Press they state that the new sizes, taken from what is known as the international "A series," have already won such favour that they are used in 26 foreign countries and are likely to be formally adopted as a world standard by ISO, the International Organization for Standardization.

Their main advantage is that every size in the series has precisely the same proportions. The basic dimensions are ·841 millimetres wide by 1·189 millimetres high (*i.e.* 1 sq. metre in area), smaller sizes being obtained by halving the longer dimension and larger sizes by doubling the shorter one. This consistency in relationship has marked advantages for all who are concerned with the reproduction of illustrations, especially when photographic enlargement and reduction processes are involved.

The two sizes to be use by BSI are as follow:

A4 measuring 210 millimetres × 297 millimetres, approximately equivalent to 8¼ in. × 11¾ in. and falling conveniently between our normal foolscap folio and large post quarto;

A5, 148 millimetres × 210 millimetres—or exactly half the A4 size.

At first BSI will use these sizes only for stencilled documents, of which a great number leave British Standards House every day. Later they will be applied to printed publications—notably, of course, to British Standards themselves. The rate of changeover must be governed by existing paper stocks, which must be used up first.

For some purposes the new sizes have been used in this country for a number of years, and although the interest in them is still relatively small, it is growing fast enough to lead the paper and printing industries to cater for them as the demand increases. Already some exporters are being asked by overseas buyers to provide their technical instruction and sales literature in the A4 size, and this demand may well increase as the Free Trade Area of Europe develops.

It is not suggested that the new sizes will oust the more traditional British ones, but rather that as the inherent advantages of the A series become more widely known and appreciated their use will grow at the expense of the less common British sizes. So far as ancillary services are concerned, it is to be noted that the normal foolscap files will accommodate sheets of the A4 size, which can be used on most modern office machines.

A full schedule of the A series is given below, which shows that the standard dimensions are the millimetre ones, the inch equivalents being given only to the nearest ⅛ in.

The sensible standardization of manufacturers' trade and technical literature, to simplify its handling and filing, is a matter in which architects, engineers and other specialist users are very interested. For this reason the A4 and A5 sizes have now been added by means of a published amendment to British Standard 1311, which formerly specified for such publications only the 11 in. × 8½ in. and 8½ in. × 5½ in. sizes. Other British Standards for stationery are also reviewed in order to add to their provisions the appropriate sizes from the A series.

The A series of paper sizes

Designation	*Size in millimetres*	*Equivalent in inches (to nearest ⅛ in.)*
4A0	1682 × 2378	66¼ × 93⅝
2A0	1189 × 1682	46⅞ × 66¼
A0	841 × 1189	33⅛ × 46⅞
A1	594 × 841	23⅜ × 33⅛
A2	420 × 596	16½ × 23⅜
A3	297 × 420	11⅝ × 16½
A4	210 × 297	8¼ × 11⅝
A5	148 × 210	5⅞ × 8¼
A6	105 × 148	4⅛ × 5⅞
A7	74 × 105	2⅞ × 4⅛
A8	52 × 74	2 × 2⅞
A9	37 × 52	1½ × 2
A10	26 × 37	1 × 1½

LAW REPORT

Variation or Concession?

A letter from the Council's architect accepting a proposal by contractors that another firm should be employed to bore piles after difficulty had been experienced in driving piles for the construction of a nine-storey block of flats, part of the Camden High Street housing scheme, "fell within the absolute discretion vested in him by the contract," said Mr. Justice Edmund Davies in the Queen's Bench Division last week.

The judge gave judgment for Simplex Concrete Piles Ltd., of Brechin Place, S.W.7, on their claim against the St. Pancras Borough Council to be reimbursed a sum of £2,659 extra cost incurred after another company, Cementation Co. Ltd., had been employed as sub-contractors in connection with foundation work.

Simplex Concrete Piles Ltd. contracted to do the work, but during its execution difficulty arose in driving piles, said the judge. The crucial issue in the case was whether a letter from the Council's architect (R. F. Lloyd-Jones) dated July 30, 1953, regarding a quotation given to the plaintiff company by Cementation Co. for the sinking of boring piles amounted to an architect's instruction for a variation or was merely a concession to the plaintiff company.

The letter stated that the architect had discussed the position with the district surveyor.

The letter confirmed that he (Mr. Lloyd-Jones) was prepared to accept the plaintiffs' proposal that the piles supporting the block should be of the bored type in accordance with the quotation submitted by Cementation Co. Ltd.

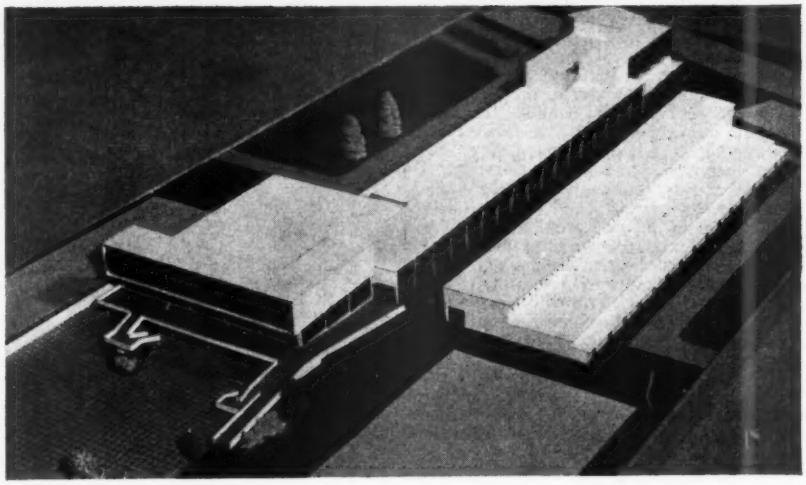
There could be no doubt that Mr. Lloyd-Jones, who was greatly concerned by the prospect of the work being held up, certainly intended by his letter to authorize a variation. In his lordship's view it was an over-simplification of the case to say that, following the letter, the plaintiffs did no more than they were bound to do by their contract with the council.

This contract provided that "the architect might in his absolute discretion issue written instructions in regard to a variation or modification of the design, quality or quantity of the work."

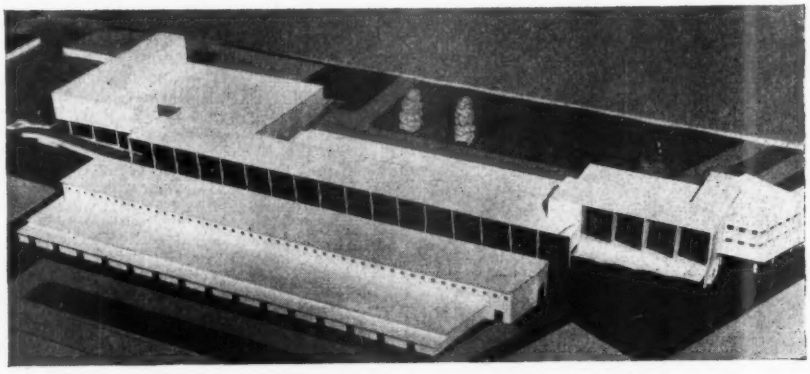
In his lordship's view the architect's action fell within the absolute discretion vested in him and was motivated by his desire to get the job moving. It led to the plaintiff company doing something different from that which they were obliged to do and the Council was responsible for the extra expense.

Plaintiffs were awarded costs.

SHOPS FOR BASILDON AND BIRMINGHAM



A block of 37 shops has been designed for the town square of Basildon New Town by J. C. Seymour-Harris and Partners. The clients are Freedom Developments Ltd. The shops are on two levels where the block faces the town square; the upper level being accessible from a covered terrace reached by ramps from the car park or from the main pedestrian area, the colonnaded walk along the main facade. Finishes are of white and green marble, except the rear facade which is of brick. It is regrettable that even in a new town the layout leaves awkward plan shapes for the architect to handle with the results shown on the right in the second view, below. The chief architect of Basildon is Noel Tweddell.



Above is the proposed 800 ft. frontage of a block of 40 shops and offices for a comprehensive redevelopment area in the centre of Birmingham. The architects are James A. Roberts and S. Greenwood. The offices are cantilevered out to form a canopy for shoppers. A 14-storey hotel with 250 bedrooms may be included. The contractors are John Laing and Son, and the building is to be ready for occupation during 1959.

Below is an account of the collaboration on the LCC's Picton Street housing development between the LCC architects, the engineers (Ove Arup and Partners) and the contractor (John Laing and Son) which began in October 1953. The lecturers discuss the 11-storey slab blocks of maisonettes, describe the early design work, and some of the problems and successes of work on the site. The text is a condensed report of a lecture in the course on architect-engineer collaboration recently organized by the Schools of Architecture and of Engineering of the Regent Street Polytechnic, with the JOURNAL'S help. The lecturers were Cleeve Barr (formerly research and development architect LCC) and Peter Dunican (Ove Arup and Partners). The chairman was D. H. New, chief structural engineer, Holland, Hannen and Cubitts.

ARCHITECT-ENGINEER COLLABORATION:

PICTON STREET DEVELOPMENT

The Chairman, D. H. NEW, pointed out that the theme of the present series of lectures was collaboration between architects and engineers.

The fourth lecture would deal with the Picton Street experiment and here that essential member of the team, the contractor, came in. In the audience was Mr. Britton, construction specialist of the contractors, John Laing, and he hoped something would be heard from him as well.

CLEEVE BARR: I am standing in for Mr. Whitfield Lewis, who is unfortunately ill with jaundice and should have done this talk. I am no longer with the LCC, but during the time I was there I was responsible under Mr. Lewis for this contract. The object of the design stage collaboration was to utilize the scheme as a means of studying the techniques of building certain kinds of dwellings, particularly with a view to achieving economy and greater speed of construction. From the point of view of architect/engineer collaboration it was an unqualified success. I have no hesitation in saying this. When the decision to carry out a development project with a nominated contractor was made, it was politic to select a site for which a layout had been in fact approved by a committee some 12 months previously. Neither engineer, nor contractor, therefore had any say either in the site layout or in the type of dwellings proposed.

There was a definite æsthetic desire to exploit the comparative lightness of prefabricated components, and of metal, timber and glass, as materials, to give a feeling of elegance and precision of detailing.

PETER DUNICAN: As Mr. Barr has already said, we intend to talk only about the 11-storey block.

To begin with, I should like to stress two facts. First, the design team started work with the LCC on this scheme four and a half years ago in October, 1953. Secondly, for the previous five years we had been working with the Housing Division of the LCC on the development of structural ideas for multi-storey housing. By 1953 the architects had reached the broad conclusion that planning within the concept of a cross-wall structure should lead to economic multi-storey housing. When we were first shown the drawings, we suggested three structural possibilities which seemed worth further development—a cross-wall structure; a beam and column construction, partly precast and partly *in situ*; and a completely precast structure using the largest possible elements which could be lifted by the tower crane. One of the advantages of having the contractors with us was that we knew beforehand the type of crane that was available for the job.

After the initial discussions with the design team, which also included the Building Research Station and the LCC quantity surveyor, it was agreed that we would prepare at least six possible structural systems for the 11-storey block. In fact, we produced seven.

The main point in introducing these seven draft proposals was to see whether there was not some idea somewhere which had not been exploited to date in this particular field.

After discussion with BRS and contractors, we decided to pursue only two schemes—first, the conventional cross-wall structure with cast *in situ* walls, precast main floors and timber intermediately within the maisonette floors, and second, a beam and column framework precasting the beams and casting *in situ* the columns. One of the seven schemes was completely precast, the vertical structure being made with climbing interlocking precast frames. As it would have taken rather a long time to develop and would increase the cost of each maisonette by £70, it was abandoned.

After comparative analyses it was decided to use a

cross-wall structure. The main reason was: cost.

CLEEVE BARR: There are no beams, no columns projecting from the walls, no chimney breasts sticking out, because the flues are in the structural walls. Since the flat was narrow, there was good light even in a 20-ft.-long room. There were no projections, all the beams, even the timber floors, were within the depth of the floors.

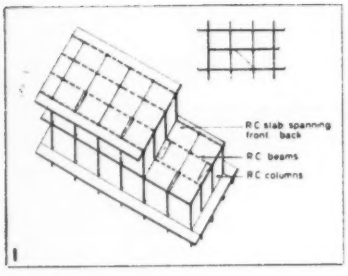
PETER DUNICAN: Having made this decision, we were now able to pursue certain detailed aspects of the scheme, in particular the omission of the reinforcement from the walls. Tests carried out in Denmark and at the Building Research Station had shown that in normal circumstances reinforcement adds very little to the ultimate strength of concrete walls under direct loading. These tests have also shown that for walls of domestic proportion—8 ft. high and 4 in. thick, and *pro rata*—failure of the wall is related to the strength of the concrete and is not materially affected by slenderness. Therefore, we proposed that all the normal cross-walls above the first-floor level should not be reinforced, and that the concrete mix should be designed to suit the actual stresses, as we had found from previous experience that the usual Grade III concrete was much too strong. Again, the advantage of having the contractor with you at the design stage was that you could get down to the concrete mix and similar questions.

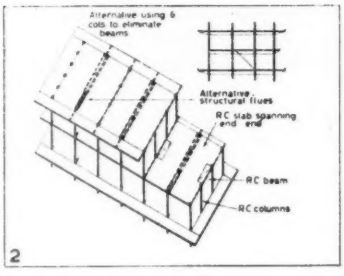
Both these ideas saved money. Pouring thin walls means that the reinforcement gets in the way, and if it tends to get in the way why not leave it out? This is engineering, to my mind. We discussed these proposals at some length with the BRS and the senior structural engineer to the LCC. These buildings were under Part 4 of the London Building Act where one could get to grips with the engineers at County Hall. Both BRS and the LCC approved, but they were concerned about the possibility of shrinkage stresses causing cracking. In normal circumstances, such cracking only occurs if restraints exist. Fortunately, in our case the geometry of the structure was most suitable. The cross-wall is a free length without twists or turns and stops at the end to restrain it. Provided the construction took place without undue delay, the shrinkage of the concrete walls would not be resisted.

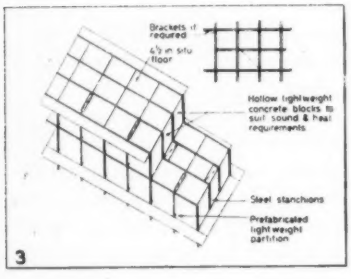
The job proceeded with the reinforcement being omitted from every *other* cross-wall because alternately there was the flue wall which had to have reinforcement owing to high temperature stresses.

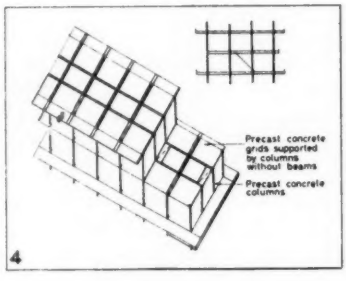
The mix we used was designed to give a minimum of 28 day strength of 2,250 p.s.i. and it was used in all the walls above the first-floor level. Naturally we had our troubles. On block one there was some delay at the first-floor level and the walls below had taken up most of their shrinkage before the first-floor walls were concreted. Shrinkage of the upper walls was resisted, and there was some cracking. It did not occur in all of them, perhaps half-a-dozen, and did not affect the stability of the wall, but it was a nuisance.

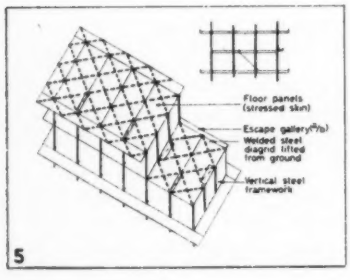
Overall stability was not difficult to deal with. Lengthwise along the block it was provided by the lift shaft and staircase walls, which were reinforced in the normal way as a frame. Transversely, there were the cross-walls. The frame action of the structure which

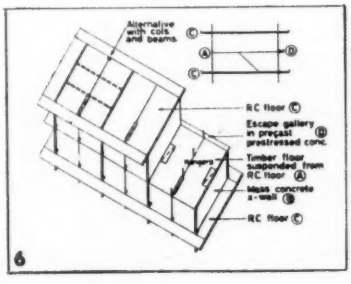


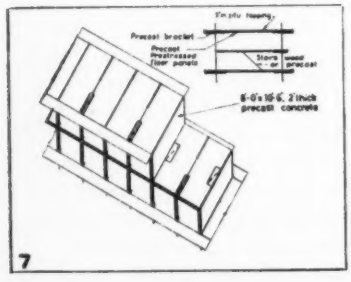




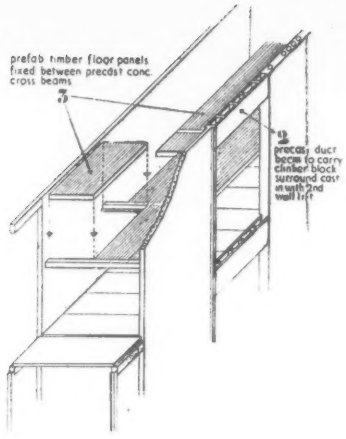




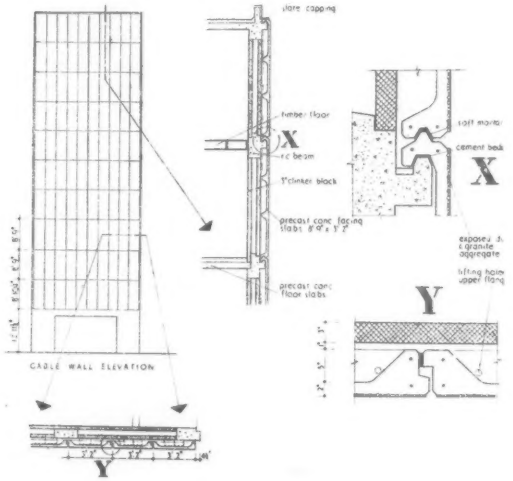




Left, seven alternative schemes for the structure. "*. . . the main point in introducing these draft proposals was to see whether there was not some idea somewhere which had not been exploited to date in this particular field.*"



Timber intermediate floor panels. " *We started with the contractors making the floor in a workshop on the site and fixing the floorboards . . . it was impossible to keep the weather off them and they tended to swell and the boards to rise up. We therefore made up the joist units only and the flooring was fixed in the traditional way . . .*"



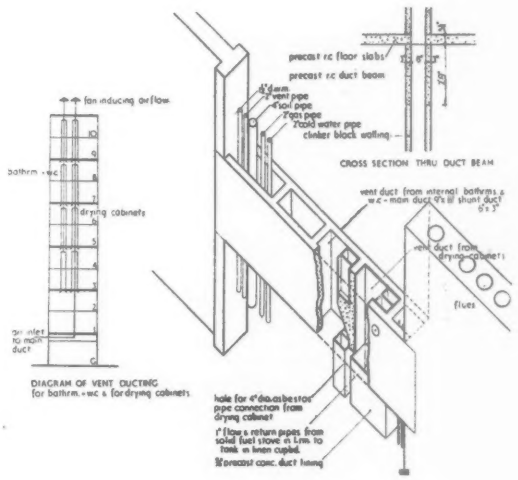
End walls. " *. . . it was uneconomic to use an* in situ *concrete wall at the end of the building. We had a beam and column framework with the beams precast, with nibs sticking out to carry storey high slabs hooking over like tiles . . .*"

could have been developed by taking advantage of the precompression in the walls due to the vertical load was not taken into account, not because it was of no value, but because one or two people thought it a bit chancy. Every aspect of the structure was examined in detail by the design team. I have not worked on a job where the structure was taken apart so much by so many people. We were concerned with the possibility of spanning the timber floor 12 ft. between cross-walls or parallel to them, resting on precast beams. The quantity surveyor said it was cheaper to have precast beams, so we had precast beams. Surprisingly, the estimated cost of prefabricating the timber floor and lifting with the crane—which is what one would normally expect to do in these circumstances—was certainly no cheaper than taking up the joists and boarding and nailing on the job.

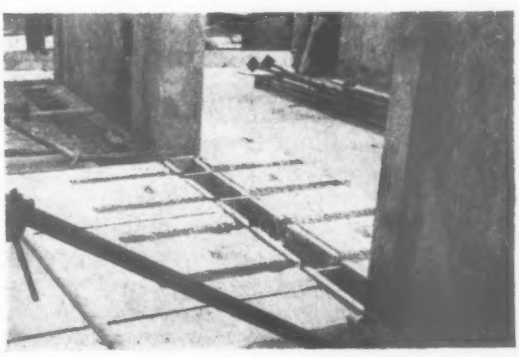
For constructional reasons, it was decided to precast the staircase flights and half-landings, although according to the quantity surveyors this would be slightly more expensive than casting them *in situ*. Everyone else believed that precasting would be better, especially for speed of construction.

CLEEVE BARR: We started with the contractors making the floor in a workshop on the site and fixing the floorboards before the units were brought up by crane and placed in position. It was impossible to keep the weather off them, and they tended to swell and the boards to rise up. We therefore made up joist units only and the flooring was fixed in the traditional way afterwards. This also got over a very awkward problem of carrying the boarding across the precast beams on which the timber floor rested.

The timber wall cladding was made up by a subcontractor in a factory complete and brought to the site in units. As to the gable end, it was uneconomic to use a concrete wall at the end of the building. We had a beam and column framework, with the beams precast, with ribs sticking out to carry storey-high precast slabs. All services were taken down in alternate cross-walls, the maisonettes being handed. At openings in the cross-wall we therefore had a beam



Duct beam. " *. . . all services were taken down in cross walls . . . at openings in the cross walls we therefore had a beam spanning the duct containing all the plumbing, water and gas . . . The beam idea sprang from a conference with the engineers . . . and was manufactured on the site . . .*"



spanning the duct containing all the plumbing, water and gas. There were two ventilation systems, one taking the w.c. and bathroom and the other taking the cabinet for drying. The beam idea sprang from a conference with the engineers and carries the floor slabs as well as forming in itself the junctions between these ducts. It was manufactured on the site, and it came out remarkably well.

One virtue of having the contractor with you before you start is that you can play about with a mock-up. This was carried out by Laings, the contractors, at Elstree, with a tower crane. We all gained some experience on the handling of the elements and experimented with certain methods of fixing cladding.

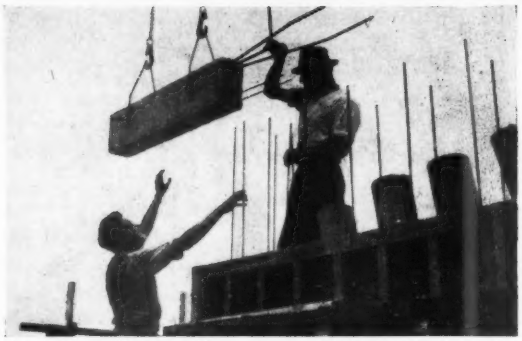
PETER DUNICAN: We used normal strip foundations and on the small blocks we concreted up to ground floor level with brick aggregate concrete which was cheaper than the conventional method.

CLEEVE BARR: The local surveyor said that it was usually necessary to pile in this area, so strip foundations were a major feature in keeping the cost down. They were about £62 per dwelling in this block, compared with four other schemes built by the LCC using these 11-storey maisonette blocks which varied between £160 and £250 per dwelling.

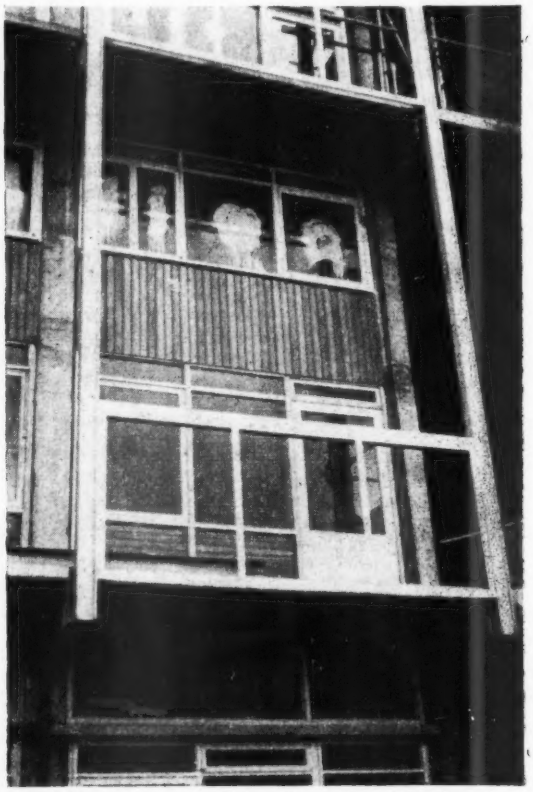
PETER DUNICAN: Precasting work of the contractors was well arranged. They used the vacuum process for dewatering the slabs which enabled them to be handled and used at a very early stage. That was very successful. There is a lifting device with the vacuum process. These and the gable end units came out extremely well, which supports the general argument that you can carry on all the precasting on the site; it is not necessary to go 30 or 40 miles to get them made in the shop.

CLEEVE BARR: Balconies rest on cantilevers and we had a bit of trouble lining them up vertically. When it came to fixing the vertical aluminium droppers connecting the ends of the cantilevers all the way up there was a tendency for one or two to pull out of true, and the contractor later made a jig to position them precisely. Rainwater pipes come down inside alternate droppers which are of channel section.

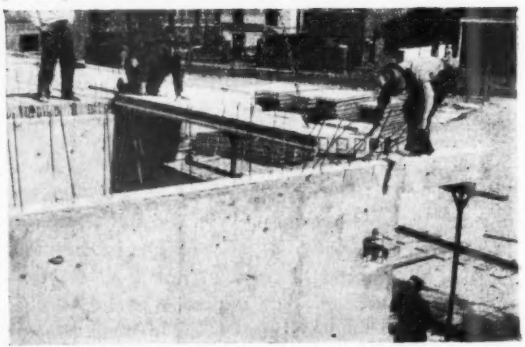
On the second 11-storey block, the follow-on trades were able to come in sooner because the upper-floor slabs were made waterproof by running a bucket of bitumen along the joints. That idea of the contractors must have made a difference of many months in the completion of the block. On the first two blocks screens between the private balconies were provided to give privacy. There are very light gauge aluminium panels which we changed later. The price went up rather dramatically between the two parts of the phased contract, and we changed to save money to wired glass. Members of the Committee visited the job at an early stage and thought aluminium screens a considerable extravagance and that a single-storey height screen between was perfectly adequate, so it ended in that way. It did mean that a tenant could look down if he was curious on to the next door balcony. Ends of cross-walls were covered with glass fibre insulation and an aluminium cover strip to prevent heat loss which might cause condensation.



Precast cantilevers. " . . . Balconies rest on precast cantilevers and we had a bit of trouble lining them up vertically . . ."



. . . When it came to fixing the vertical aluminium droppers . . . there was a tendency for one or two to pull out of true and the contractor made a jig to position them precisely.



Precast floor unit. " . . . the precast floor units achieved a very high degree of finish as a result of the vibration and vacuum curing and casting . . ."

Discussion

J. CARTER (architect) asked whether changed methods of construction at various points in the work had affected the programming of the work on site by the contractors.

G. A. BRITTON (John Laing & Son) said that such changes were always freely agreed only when it was quite clear that they would be an improvement, and because they were seen to be an improvement they were readily accepted.

CLEEVE BARR said he could give an example to the contrary, where a change from concrete to aluminium gable cladding was not proceeded with for this reason. Units of ribbed aluminium were designed with very large-scale ribbing 10 ft. high, standing over a grid of cladding rails on the gable-end wall. They would have been about 4s. a yard cheaper, but the moulds were already made for the concrete units, and as no more moulds would have to be made for the whole job, it was not economic to change.

J. M. HARRIS (Holland Hannen & Cubitts) asked what was the form of contract and whether it had any effect as far as co-operation was concerned.

CLEEVE BARR: It was something like cost plus, but with a target limit on cost which was fixed by the LCC quantity surveyors and accepted by the contractor as a target limit, for they had had an opportunity of pricing bills of quantities for the job, not as it was finally carried out but at the sketch stage. Therefore, they had the bills which gave them an assurance that they could do the job within the target limit proposed to them. The job was measured and paid on cost plus. There were two kinds of variation orders. By and large, it was agreed that changes should not be subject to variation orders and that work done should be paid for; but where changes of policy occurred—for example, if the Committee decided as a general rule in LCC housing to have a different kind of floor finish—there was a provision in the contract which was rarely exercised for the use of special variation orders which would have altered the original target price.

J. B. BENSON (architect) asked whether Mr. Dunican could say why frames were adopted for end gable walls. Was it on account of the cost?

PETER DUNICAN said the gable-end walls should not be *in situ* concrete. The periphery of the building should have the minimum structure. This was the basic idea of the cross-wall structure: that the edges of the wall only came to the outside. In the early days, 1946 or 1947, at Roseberry Avenue, for instance, they had concrete walls at the ends. They were expensive. In addition to the making of the wall, it was expensive to mount the shuttering and demount it. For labour it was about six times the cost of internal cross-walls. If beams could be avoided in the framework, so much the better, but quite often they could not be.

CLEEVE BARR said this was the subject of a lot of discussion. A wall should do three things: look decent from the outside; keep the weather out, and provide thermal insulation. The concrete wall provided structural support. Something had to be applied outside, and thermal insulation inside. There were blocks of flats which had been built with load-bearing concrete external walls, but it was difficult to ensure that the water did not come through the place where the bolts had gone through or the construction joints.

J. CARTER (architect) asked what part the Building Research Station played.

CLEEVE BARR said they sat in on the design consultations all the time.

G. A. BRITTON said he recalled among other things that BRS had been superintending a demonstration of pre-assembled timber flooring. They had been disappointed that it had not proved possible to include the finished ceiling, the plasterboard on the floor units, before erection without incurring damage. They urged that it be done. But it suffered too much damage and the joining up proved to be such a nuisance that it was cleaner to finish the materials in the piece.

DR. STEED (head of the Polytechnic School of Engineering) asked why it was decided to do the job in this way. Who took the initiative, and was it so successful that they were doing it on all their jobs?

CLEEVE BARR said that the initiative came from the architects who were eternally faced with the problem of wanting to use new techniques, to use things like cranes to speed up the erection of buildings, to find an alternative to the brick cavity wall for multi-storey buildings, and so on. They took the common-sense view that they must get the contractor in during the design stage of the job to find out the economy and value of techniques such as had been illustrated.

Whether the LCC would do any more, he did not know. This one was being finished well within the contract period. One of the troubles was that the LCC was a very complex organization. He was not sure whether the structural engineers of the LCC would permit the omission of reinforcement from cross-walls again. Timber-faced panels were used on an 11-storey building, which was the first time combustible cladding had been used, in London, in building over two storeys. He was not sure whether the LCC would permit it again. One had to ask how long it took an experiment to become a matter of routine.

PETER DUNICAN suggested that this idea was a continuation of the general policy up to that time. They had collaborated closely with a number of design engineers, and it was an extension of that to see how far they could get and what advantages could be gained from collaborating also with constructional engineers.

E. PETHERBRIDGE (architect) asked what was the result of the weathering of the building. Had the insulation been successful? Had there been any movement of joints?

CLEEVE BARR said that from the point of view of keeping the weather out and the thermal insulation, this must be one of the most successful schemes the LCC had ever carried out. There were a lot of condensation problems to be expected, even with an 11-in. cavity wall or a 13½-in. wall as standard for the exterior. The U values would be very high where a concrete cross-wall end was exposed. It was covered with

fibre-glass and insulated. The framed gable walls had about 6 in. of insulating block which was very good. The roof was insulated, and at balconies there was a ½-in. strip of fibreboard dropped in the vertical joint between the balcony slab and the first of the precast floor slabs.

As to movement in external panels, the detail at the junctions were like welts on a zinc flat roof where one piece stood up and the other clipped over it. It was a good weather joint. He had not heard of any detailed troubles and should have thought it reasonably sound. One might ask about the weathering of the aluminium from the point of view of appearance in London atmosphere. That would be interesting in a few years' time. The weathering had improved the appearance of gable slabs with the washing off of the laitance of the cement and the covering of soot.

O. E. SPEER (architect) asked whether any record was kept of the design costs of the buildings. He would like to have some idea of the percentage of the cost of quantity surveyors and general professional services, including the architects and engineers.

CLEEVE BARR said he could not give an exact answer. With a big job like this, which involved about £1½ million, they were normally very much below the RIBA scale. On a small job of, say, 20 houses, the LCC architects' costs would be relatively very high. Certainly this job was not excessive on architects' and quantity surveyors' fees. It was about what would be expected for a job of this size. There was not an enormous team on the job.

They would very much like to have more quantity surveyors. One of the reasons for adopting this form of contract was to make a very close examination of the *actual* costs, so that it could be of value to other LCC building. In fact, little advantage was taken of this opportunity owing to the shortage of quantity surveyors at the LCC.

DR. STEED asked what was the mechanism for collaboration once the scheme was under way, looking at it from the outside. Was there a standing committee which could be convened at a moment's notice?

CLEEVE BARR said there were fortnightly meetings most of the time. The problem was to keep the meetings to a reasonable size. There were the architects and the quantity surveyors and officers of the Building Research Station and the various departments of John Laing, and there was a tendency to get 15 or 16 men at a meeting which, in his own opinion, was at least twice too big. He did not think there was any solution other than to be as businesslike as possible. One was torn between keeping everyone in the picture and having a small meeting to make decisions. Problems and ideas were taken away, thrashed out and brought back by various parties. Between these meetings there were working meetings between people working on particular problems.

MISS A. JOUBERT (architect) asked whether the maintenance was not bound to be high, for instance, the varnishing of the timber panels. In such an exposed condition there must be frequent renewal. She did not know whether the aluminium was specially treated, but she believed the Festival Hall was washed down with soap and water periodically. It was a big thing to put in a wash tub.

CLEEVE BARR said they had gone to some length to get the proper specification for the aluminium droppers. It was vetted by the industrial chemists and they checked the specification. Washing would be unnecessary.

The lower blocks which were aluminium clad were finished with an oxidizing process which should weather pretty evenly. In the course of time, they would get grubby, and if the buildings wanted sparkle, the aluminium droppers would have to be painted again, or they would go grey and stay grey.

The hardwood cladding was varnished with the best varnish that could be obtained. Half-a-dozen samples were tried in an accelerated weathering machine for a number of months. One hoped it would get five-yearly maintenance, but it was not in a terribly exposed position.

L. A. MACER (engineer): A claim had been made that it was successful as far as cost was concerned. What had the speakers to say regarding the saving in time?

G. A. BRITTON said it was three floors every two weeks. The things most amenable to being speeded up were the fairly new techniques, the things that were susceptible to a considerable amount of organization. The things most difficult to speed up were the traditional trades, the finishing trades.

CLEEVE BARR said there was a lot of trouble with finishing trades, plastering and painting and so on, in getting an adequate number of men on the job.

The precast floors achieved a very high degree of finish, as a result of the vibration and vacuum curing and casting, they were so good that the ceilings could almost be simply distempered. But there were a very few pinholes which one gets on very good concrete. The contractor tried various ways of filling and stopping. They ended with a thin skim coat of vermiculite plaster less than ⅛-in. thick. The elimination of plastering was not achieved, however, though there was a lot of interesting discussion at national level with the Plasterers' Union. They got the contractor to cast some slabs on hessian, rubber mats and so on, to try to provide a finish which was good enough to leave without plastering, but the cost was more than the cost of the plaster.

L. A. MACER asked whether there was a saving in time by the elimination of some of the preparation in the design and quantities in going out to tender.

CLEEVE BARR said that probably four or five months was saved on the ordinary job of going to tender, but the intention was to see whether time could be saved in construction as a result of collaboration. From their appointment it was about 14 months to the start on site.

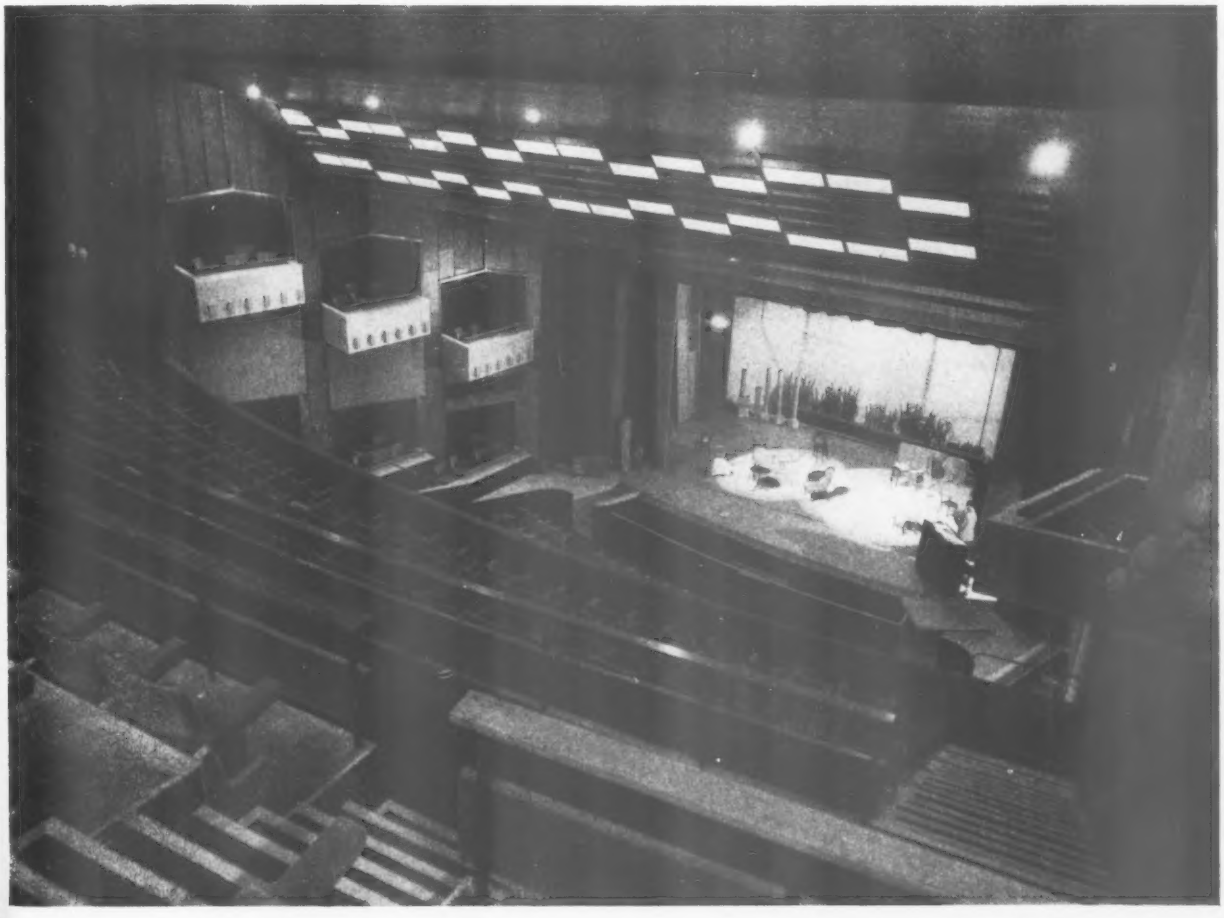
PETER DUNICAN said it was certainly no longer than the time normally taken.

A. S. RAIMES (architect): Presumably at some stage there was an approximate cost from the quantity surveyor's department and at the end a final cost. How did they compare?

CLEEVE BARR: The final cost was not known. Intermediate cost-checks indicated that the final cost was unlikely to be below the target figure they had set out to achieve.

BELGRADE THEATRE AT COVENTRY

Coventry's new municipal theatre, designed by the City Architect, Arthur Ling (principal architect, Douglas Beaton; group architect, Kenneth King), opened last week. It has been named the Belgrade Theatre to commemorate a gift of Yugoslav beechwood used in the interior. In 1953 the City Council decided to use a site on Corporation Street, in the central area of reconstruction, for a theatre to hold about 900 people, with six ground floor shops, as part of the development, and 21 single-room flats on first, second and third floors of the building, some for letting furnished to actors in the company. Above, the theatre entrance, with the shops on the left, aud the porte cochère on the right. Below, and left, the auditorium. (A full-length article on the Belgrade Theatre will appear in the AJ shortly.)



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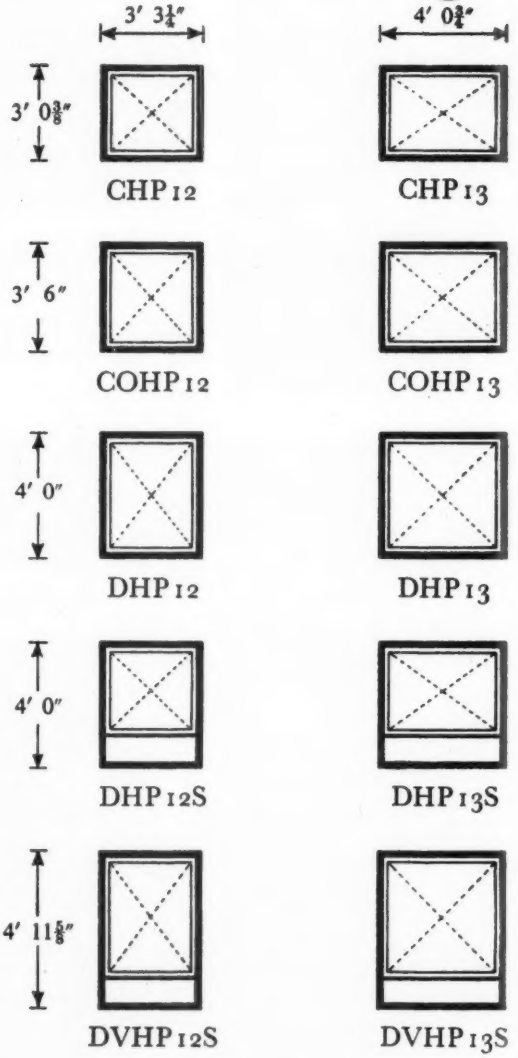

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CRITICISM

The architect replies

Last week we published in the JOURNAL an article by J. M. Richards on a block of maisonettes in Canterbury, designed by J. L. Berbiers, city architect and planning officer, who this week replies to Mr. Richards.

I read with interest Mr. Richards's comments on the four-storey block of 24 maisonettes recently completed in Canterbury. It was, in my opinion, a well-considered criticism and of particular importance in fixing attention on possible alternative lines of research and experiment in producing lower costs in housing development.

The initiative of the Ministry of Housing and Local Government in carrying out the research and providing all the basic information made it possible without delay to go forward with a practical demonstration to ascertain the economics of certain constructional principles, employing acceptable standards of design and accommodation at a density particularly suitable for use in slum clearance redevelopment areas. With due regard to the limitations and possible consequences of seeking lower building costs in traditional building methods, as suggested by Mr. Richards, it is felt that results both economically and architecturally have justified the experiment.

I am conscious that the design suffers from the cross-walled central portion having too little relationship to the end blocks. In future designs of this kind it would be possible to eliminate the central staircase block and introduce a staircase at each end. These end staircases would be in load-bearing brick construction to provide end stability, but the resulting reduced mass and unbroken continuity of the central cross-walled portion would achieve a greater unity in the elevational design.

The row of balconies, to which reference is made, cannot be claimed to be of any real practical use. The living rooms have southerly aspect and the casement doors behind the balconies can be opened when desired and should increase the sense of spaciousness and airiness of the rooms. Elevationally it was anticipated that the features would provide elements of interest to the rather long horizontal lines of the façade.

I agree with Mr. Richards's comment that the sheds at the rear are a little unfortunate. It must, of course, be borne in mind that these have been sited mainly for the convenience of tenants occupying the lower storey maisonettes.

The maisonettes are, of course, not a departure from traditional methods of building and an immediate advantage is that the work involves the employment of all normal trades of the building industry and can be carried out by the average building contractor without relying on the introduction of specialized units of prefabrication. The quick erection of additional accommodation to meet housing needs is an important problem for most Local Authorities and the building under discussion meets this requirement. The economics of cross-wall construction is possibly becoming established as there is increasing evidence of private developers also directing their efforts in this direction. In my experience no non-traditional methods of construction have so far proved more economical than traditional building methods when applied to housing, but personally I would welcome further research along the lines suggested with a non-traditional form of construction. This can only be achieved by the setting up of a specialized team of architects and building technicians able to command the maximum resources for research.

Finally, I would like to acknowledge my predecessor, Mr. L. Hugh Wilson, in whose time these maisonettes were designed on the basis of the constructional details and Specification Memorandum supplied by the MOHLG.

The four-story block of 24 maisonettes in Military Road, Canterbury.

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consumer study

THE STUDENT CONSUMER

Two views of study-bedroom A. Left, looking towards the fitted bed and right, the wardrobe and movable table.

The major problem for anyone designing students' bed-sitting rooms is the size and variety of the clobber a student will want to have there. Here, to prove it, is a list of the items which must be stored, or may have to be either accommodated or banned, which two experienced wardens of students' halls of residence recently provided to an enquiring architect:

Clothing: caps, overcoats, duffle coats, raincoats, jackets, suits, trousers, dressing gowns, requiring hanging space; shirts, socks, underclothes, handkerchiefs, sports clothes, requiring drawers; gumboots, shoes, football and cricket boots, climbing boots, requiring shelf or cupboard space. *Crockery:* about six cups and saucers, or mugs and an unknown number of bottles. *Sport:* sports bags, rackets (various), fishing tackle, trophies. *Music:* record players, records, radio, guitars. *Literature:* books, magazines, journals, prints, posters. *Miscellaneous:* cameras, pot plants, pottery, hobbies materials, drawing boards, microscopes, skeletons, climbing ropes, training corps kit, collections (varying from beer mats to Ordovician fossil worms), easels and paints, animal horns, stuffed animals, draperies . . .

Fortunately, few students are such all-round chaps that they want to store the lot in the 100 sq. ft. or so allotted to them in newly designed student hostels. This storage problem was one of the main discoveries made by the architects, J. H. Napper & Partners, when they organized a modest piece of consumer research recently at Kings College, Newcastle-upon-Tyne, in the University of Durham.

The architects, who are designing a new men's hall of residence for the College, at Mooredge, had two contrasted rooms constructed and put on show for three days, when they invited presidents and secretaries of the various college societies, and wardens and ex-wardens of halls of residence to come and criticize. All comments were meticulously recorded in a book in each room. The results led the architect to comment ruefully that "in analysing the comments it has become clear that this kind of public opinion poll is best carried out by people who are skilled at it." Detailed analysis of the views of the two wardens, six university staff and 19 students (including one woman) who came and commented certainly wouldn't get a statistician very far. Nevertheless, the total of comment helped the architects to realize the size of the storage problems and to make various improvements in the fittings and layout which make these little rooms so shipshape and habitable. And it must undoubtedly have been a useful exercise for students who will some day be planning their own homes, to put their minds to considering how the small living spaces offered to them could be made most convenient.

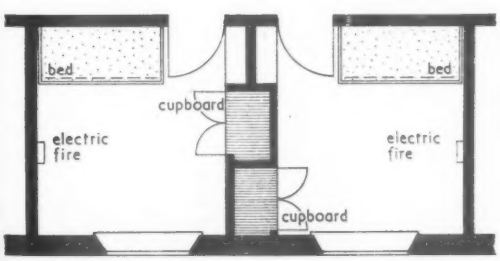
Of the two rooms on view, room A, intended for corridor access, was square, 10 ft. by 10 ft., with fitted bed, wardrobe and shelves and movable table and two chairs.

Room B, intended for staircase access, was longer and narrower, 13 ft. 1 in. by 8 ft. 6 in. (111½ sq. ft.), with rather more shelf space provided because here a projecting cupboard, topped by open shelves was used to create the effect of a little lobby. In room B an ottoman bed was offered instead of a built-in bed. Both rooms were 7 ft. 10 in. high.

The visitors were invited to comment on the rooms in general, and in particular to examine the wardrobes, bookshelves and storage space, beds, lighting arrangements and fittings, heating, windows and ventilation, wall finishes (including pin-boards and plywood panelling round the bed), floor finishes (cork tiling), sliding doors, work table, chairs, curtains—and to point out any omissions.

Their comments often cancel out; sometimes reveal a real forgotten need; and occasionally cast amusing sidelights on the people who make them: for instance, in the ground floor room two students complained that the window sill was not strong enough to sit on, and two others that the swing of part of the window restricted use of the sill. And two members of the staff—but no students—were of the opinion that the easy chair was "too comfortable."

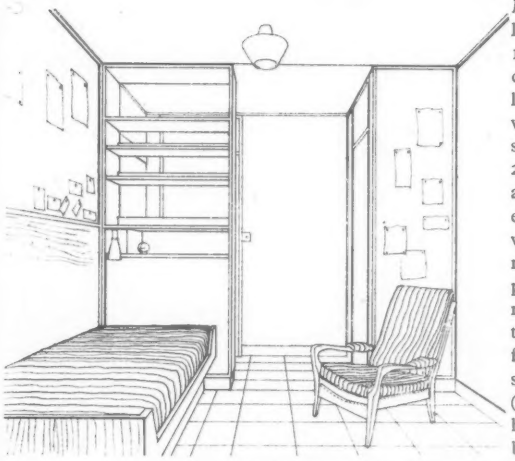
However, both rooms won general approval, with a slight preference shown for the long room with the lobby, and on some points there was a clear majority: for instance, for more hanging space in the wardrobes, for shelves to be either varied in height or adjustable, for more opportunity for self-expression in décor, for a desk with drawers to replace the table, for a movable light fitting; and the visitors pointed out that the rooms needed a bedside shelf or table, a mirror, a waste paper basket, a washbasin and places to store food, drawing boards, crockery.



Plan of room A [Scale: ½" = 1' 0"]

consumer study

THE STUDENT CONSUMER: continued



Room B, with the suggested improvements carried out.

Five people questioned the open shelving of the lobby, apparently seeing themselves pushing books and crockery straight through, and when it came to the beds the students expressed general disapproval of the movable divan in room B and a preference for a fixed bed, as in room A.

Fixed beds are much more hard wearing, and in students' rooms where they will constantly be used to sit on, divans must be strong enough to take, for example, three 15-stone forwards together at fairly frequent intervals, and it has been known for seven or eight people of normal size to sit on a divan at once.

Lighting provoked a good deal of discussion, for economy demanded that two lighting points must suffice, yet good lighting is required in at least four different places—over the work table, at the head of the bed, in the wardrobe and by the bookshelves.

After studying all these comments, many of which were made after lively discussion by groups of students, the Mooredge Committee agreed on the following points with the architects:

1. The rooms, especially A, are adequate in size apparently because of the large percentage of fixed furniture. It will be possible for at least six people to sit comfortably in either room.

2. The table and two chairs probably are to be the only movable furniture in each room, because the fixed bed-divan will probably replace the ottoman in room B. In spite of the baize areas for pinning up papers there is a certain restriction in the freedom of the student to create his own surroundings. A need for tolerance strips in the vertical dimension for the fixed machine-made units (suggested by the joiner-foreman critic) has given the idea to carry such a member round the top of the walls next to the ceiling. It would be about 1¼ in. wide and adequate for nailing for the support of light-weight articles, such as pictures, trophies, models.

3. A bedside table or shelf is to be provided.

4. Another light should be fitted for reading in bed.

5. The fixed table reading light should be replaced by a socket outlet of 5 amp. capacity to take a portable light (to be provided by the student). This will allow greater freedom in placing the table for work. The other outlet (10 amp.) will be wired through the prepayment meter to the electric "fire."

6. Alternatives are to be sought for the electric and hot water heating units. The former may be replaced by a black element convector, and the latter (washboard type radiator) by a form of panel heating.

7. Mirrors are to be fitted, behind the crockery cupboard in room A and behind the wardrobe door in room B.

8. Hardware: The sliding doors in room A should have fittings which make it more difficult to remove them.

The main door furniture is not satisfactory because the handle can be unscrewed from the outside, and the latch click is too loud. It is proposed to try a type of check action door-closer with push-plate and pull handle with a Yale type lock.

Silent light switches have been successful and rubber stops to the sliding doors appear to need only slight thickening.

The timber studding to the walls of the model rooms and the timber floor made it difficult to predict the probable noise level of the sliding doors in the final structure. Plastic tracks and nylon wheels have been used.

Plastic light shades may replace glass.

9. Ventilation: In the final building provision will be made in the window design for permanent ventilation to meet by-law requirements.

10. Carpet: A larger carpet, at least 6 ft. × 3 ft., should be provided.

11. Washbasins: No basins have been provided in the study-bedrooms, but each floor will have ample washing facilities, and basins will be arranged so that a large proportion will be screened off by curtains when used by visitors during conferences. Rooms for the twelve members of the academic staff living in the hall of residence have been planned in pairs sharing a bathroom, etc.

The following suggestions are being considered for room A:

12. An additional shelf inside the shelf unit in the wardrobe.

13. The work table to have at least two lockable drawers.

14. Two drawers to be fitted in space under fixed bed, making the space more useful and less likely to be used for rubbish. The bed baseboard might be detachable, for access to the drawer space for cleaning.

15. An additional shelf unit to be fixed high up above the bed.

16. The space above the bookshelves should be completed as an additional shelf and part of the shelf unit converted to a crockery cupboard. Shelf heights should be varied.

Room B:

17. The storage shelf unit which acts as a sort of screen would require modification if it is to be retained:

The shelves should be more varied in height.

A crockery cupboard should be formed on the door side.

The open shelves should be partly filled to prevent books falling off.

18. A shelf should be made, accessible from the bed side, just below the bottom open shelf.

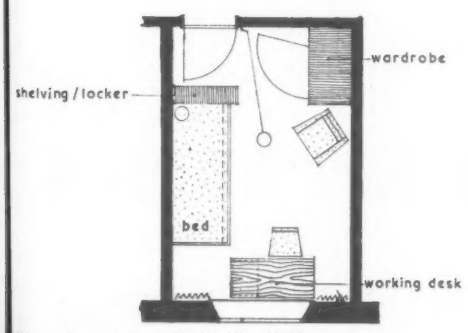
19. The work table should have at least two lockable drawers.

20. In answer to the demand for a food locker it should be noted that each student will have a food locker in the "galley" on each floor.

Finally, while the cost of the loose furniture and furnishings, floor, window, hardware and other "catalogue" fittings is known, it has not been possible to assess the probable cost of the fixed furniture. All this is "one-off" having been very well made by the Clerk of Works Department joiners of the College. In the actual contract most of the joinery would be produced by a shop fully equipped with machinery and mass production adopted to the maximum.

Altogether, summing up, it seems that 29 visitors gave a general blessing to the architects' ideas, and produced 22 useful additions or modifications, which sounds like a well-spent three days on everybody's part.

Throughout the design of the rooms the architects have had the advantage of a most experienced committee who have encouraged and helped in every conceivable way.



Plan of room B [Scale: ⅛" = 1' 0"]

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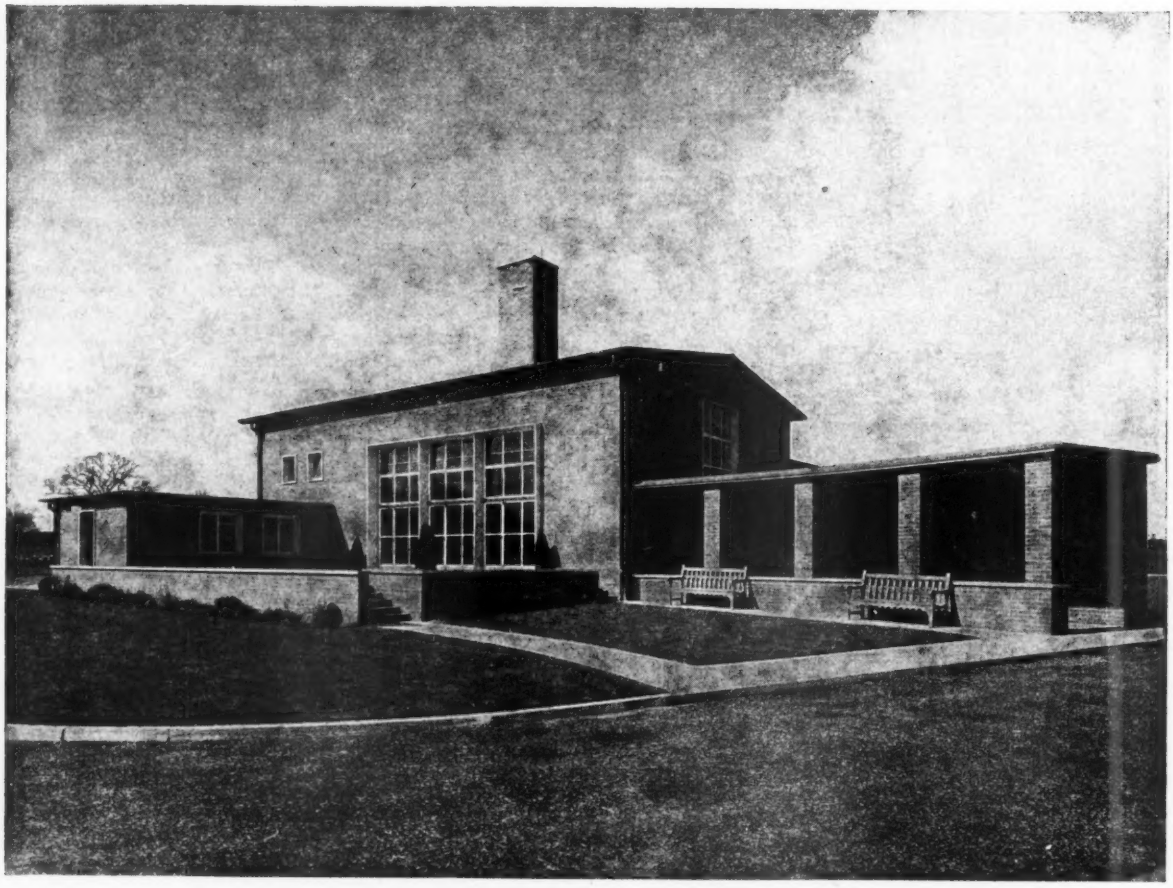

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Borough Architect: THOS. W. EAST, F.R.I.B.A.
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technical section

THE INDUSTRY

Brian Grant describes glass-fibre swimming pools, standardized trusses and keys for rendering.

Small swimming pools

A Wolverhampton firm is now marketing a range of fibreglass swimming pools which are claimed to be only about one-third the price of reinforced concrete pools. Various sizes are produced, from a 9 ft. by 5 ft. by 2 ft. model for children at £65 to a 24 ft. by 10 ft. by 3 ft. 4 in. family model at £335. Larger pools are also produced from special precast blocks of plasticised concrete interlocked with reinforcing rods. This alternative method is used mainly to meet transport difficulties, for the baths are made in one piece and the size of trailers is limited.

Installation need not be expensive if enough neighbours can be persuaded to help with the necessary digging, and the pools can, if necessary, be only half buried and the upstanding sides supported by brick or concrete walls. Both heating and filtration plants are available as well as special covers to keep in the heat and to control suicidal children. (*Landscape & Gardens (Wolverhampton), Ltd. Fordhouses, Wolverhampton.*)

Low cost trusses

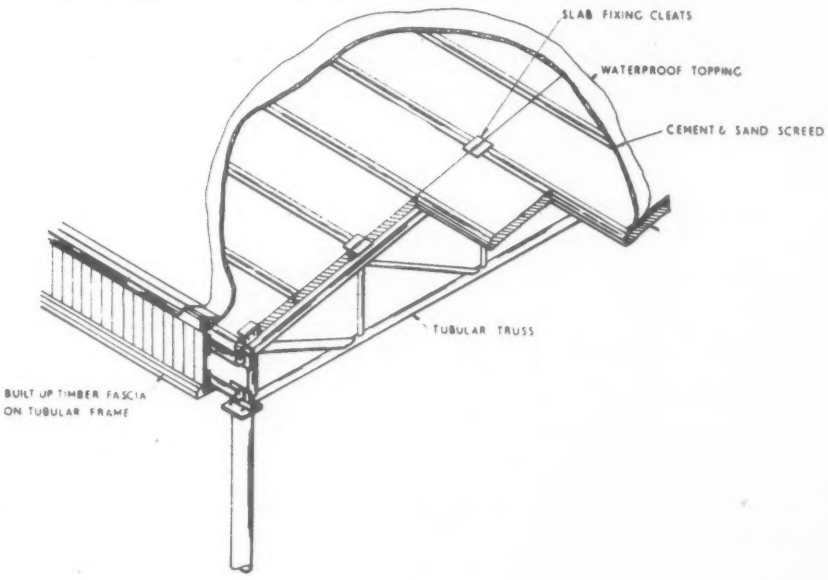
The "Select" range of standardized tubular steel trusses has been designed for spans beginning at 16 ft. 8 in. and progressing by 3 ft. 4 in. increments to 40 ft. The tubes used are of round or rectangular section, and are to grade 13 of BS 1775, while the design is to BS 449. The standard roof pitch is 10 degrees, too low for any of the single lap sheet coverings, and is intended to be finished with decking units and roofing felt. The manufacturers recommend Woodcemair wood wool slabs, which are reinforced along both edges with tongued and grooved galvanized steel channels. The trusses were designed originally for use in schools and hospitals, but they are now being specified for use in shops, factories and offices, and even for domestic work. There are no standard designs for roof supports or eaves finishes, which can thus be to architects' requirements, and owing to the low pitch it is quite simple to build a low parapet wall which will hide the roof completely. (*Sherbourne Engineering Ltd., Sherbourne Road, Acocks Green, Birmingham 27.*)

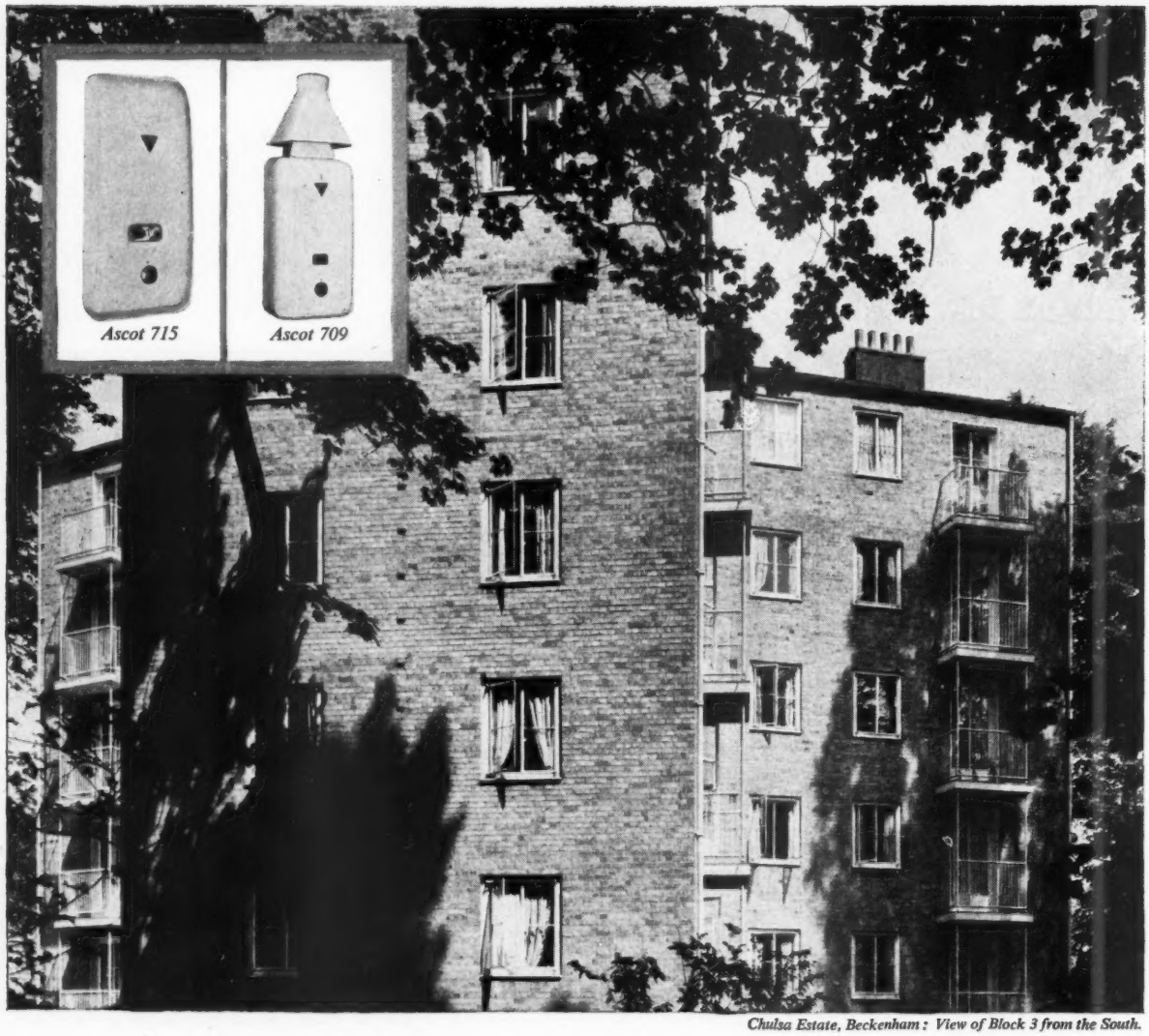
One of the glass-fibre swimming pools made by Landscape and Gardens (Wolverhampton) Ltd.

Keys for rendering

Freemans have just announced Rendabond, a keying medium for plastering, rendering and for concrete floors. The price is 44s. a gallon, and the liquid is applied by brush at about 50 to 60 square yards per gallon. Surfaces must be firm and clean, and Rendabond is not suitable for use on cement painted or distempered surfaces, but renderings can be applied to glazed tiles, to previously painted surfaces and any other type of smooth finish. The materials may also be used to provide a key when patching concrete floors or when adding a new topping to an old base. (*Joseph Freeman Sons & Co. Ltd., Cementone Works, Wandsworth, London, S.W.18.*)

Cut-away drawing of the Select tubular steel truss.



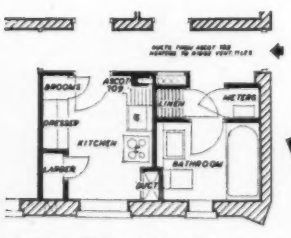


Chulsa Estate, Beckenham: View of Block 3 from the South.

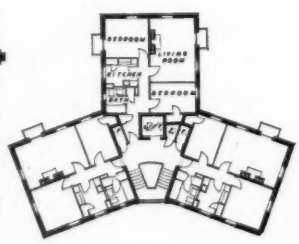
ASCOT IN NEW HOUSING (6)

Beckenham Borough Council's Chulsa Estate in Crystal Palace Park Road, Beckenham, comprises 172 flats and maisonettes in 13 blocks. Ascot multipoint instantaneous gas water heaters were chosen to give a comprehensive hot water service to each of these since the flexibility and compactness of Ascot installations enabled the architects to make the best possible use of the space available for the Estate.

In some blocks, Ascot 715 "balanced flue" multipoints were installed: the planning and load-bearing requirements of the "star blocks", one of which is depicted above, were, however, found to be better served by the installation of Ascot 709 multipoints, each with an asbestos flue carried up into the roof-space and terminating at the ridge with a vent tile.



TYPICAL KITCHEN & BATHROOM PLAN



TYPICAL FLOOR PLAN

RESPONSIBLE AUTHORITIES

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(Borough Engineer & Surveyor)

James and Bywaters,
5 Bloomsbury Street, W.C.1
(Architects)

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technical section

7 PRACTICE

live projects by the Birmingham School of Architecture

So far as we know, Birmingham is the only architectural school in this country where students can design " real " buildings, the only school to depart significantly from the accepted belief in a training isolated from practice or from the industry. For this reason we invited the Deputy Director of the Birmingham School, Denys Hinton, to describe why and how the " live projects " are conducted. He tells the story of one project, a laboratory for the Birmingham Regional Hospital Board. On following pages (513-518) there is a cost analysis and description of this building.

The idea of combining working and training is not, in itself, a novelty. The articled pupil,. the *atelier* student and the assistant attending evening classes are traditional figures in the world of architectural education. Probably more practising architects have been brought up in one of these ways than in the " recognized " schools which give full time academic training. But although most thoughtful people are now agreed that the old methods of training are makeshift and unreliable there are almost as many misgivings about the way architecture is taught in the schools and particularly about the relation of theory and practice.

This is the starting point of the Birmingham live projects. An established school decides to take on building projects and, through its students, to give architectural services to clients. One novel aspect of this policy is that the work should become part of an organized curriculum concerned also with examinations, the RIBA, local status, relationship with other schools and other bodies. Not all the consequences were foreseen in 1950 when the projects began. What existed then was a conviction that the existing methods were inadequate, a conviction best summarized by the present Director, A. Douglas Jones:

" The reasons why we carry out these ' live ' projects hardly need stating. However, we do feel that the present academic approach to the teaching of architects is too abstract in that they ' design ' buildings without access to enough of the facts. This is not only a bad example to them for their future, but, to the intelligent student it is boring; learning should be attractive, but to be attractive it must be comprehensible. If it is comprehensible it will be easy.

" It seems to us best to gain an insight into building the direct way, because this is the comprehensible way to learn. We do not want to pretend that these ' live ' projects are anything more than a small start, but one cannot sit on one's backside intellectualizing about architectural education forever.

" Surely it is necessary to experiment?

" The alternative seems to be to atrophy.

" For too long many of us have regarded ' paper ' and attractive drawings as an end in themselves. Paper is only a means to an end, and that end is knowledge and experience.

" Those who teach, those who inspect, and those who merely encourage might do well to spend less time looking into portfolios and more into students' minds, less into presentation and more into syllabuses."

Douglas Jones was appointed Director in 1947. As a result of negotiations with the Chief Housing Architect to the City of Birmingham Corporation the first live project was produced in 1950. It consisted of four houses at Rednal, Birmingham. Other live projects have been:

Date	*Building*	*Location*
1950	Rednal Housing	Birmingham
1951-52	Garretts Green Flats and Bungalows	Birmingham
1952	Flats, Bungalows and Garages	Coventry
1953	Ex-Servicemen's Club	Duddeston, B'ham.
1954	Tenants' Meeting Room	Birmingham.
1955	Flats	Tile Hill, Coventry.
1956	Pathology Laboratory	Erdington, Birmingham.
	Boys' Clubhouse	Birmingham.
1957	Housing	King's Heath, Birmingham.

One feature was common to all these projects: They were all initiated in the third year of the school. The time taken to complete them varied with their size and complexity, as did the price. Some were organized from beginning to end by the same students, others were bequeathed by one year to another. For some the school received fees, for others it did not.

The danger of disrupting the rest of the school syllabus can be imagined. Even with disruptions the educational value of the policy has been proved, but we believe that if a project can be run efficiently and smoothly without prejudice to the rest of the curriculum, if student morale can be sustained and we can finish with a decent building and a satisfied client, then and only then shall we get the maximum educational benefit.

Over the past eight years we have learned many lessons as to the desirable scale of building programming and studio method: it is generally agreed that the 1956-57 project comes nearest to the ideal we have set up. For this reason we think it is worth telling the story of the building in more detail.

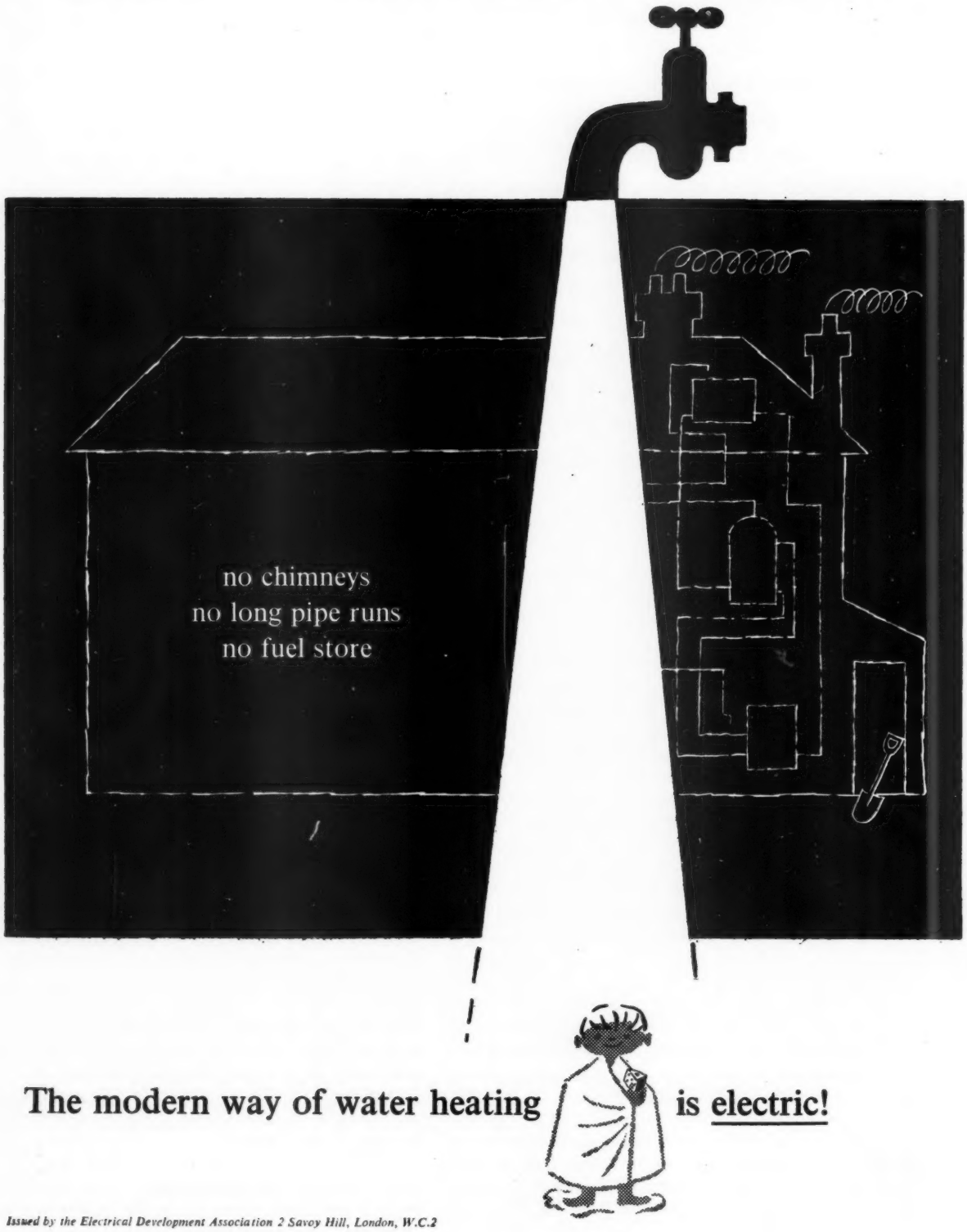
School resources and organization

Student enthusiasm grows as the live project season approaches: we may expect to find ourselves with:

(i) One commission.

(ii) Up to 30 keen " assistants " just below Intermediate standard.

Electric Water Heating cuts building costs



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BIRMINGHAM SCHOOL OF ARCHITECTURE

Year: III

Subject	Date of issue	27.2.56.
Live Project:	Date of completion	9.3.56
"PATHOLOGICAL LABORATORY." (Phase I) To appear on drawings	Duration	2 weeks.

A live project cannot be considered in the same way as other programmes. From its beginning each student accepts some of the responsibility towards his client that a practising architect has to assume. It follows, therefore, that he, the individual student, is responsible for verifying and interpreting the clients' requirements by a careful and penetrating study of the problem. This is possible only if he sees the problem clearly and it is proposed to devote the first phase of the programme to this end.

A Schedule of accommodation is only a beginning. To complete the picture you must know the way in which the accommodation is used, imagine what will go on inside your building and how people will react who visit it. You must know the site so well that you can feel the way in which it will accept your design. You must listen to and record all that is said by client, quantity surveyor, engineer, or anyone else whose advice may assist you. Only in this way will you build up a complete picture, and, in effect, write your own programme. By so doing you will have a live programme - the only basis for live architecture.

SITE.

The Laboratory we have been commissioned to design under the auspices of the Birmingham Regional Hospital Board will be at Highcroft Hall, Erdington. A site visit and discussion will take place on Monday 27th February. Surveying equipment will be required.

Arrangements are being made to visit, on the same day, the pathology department of the Dudley Road Hospital.

ACCOMMODATION

(a) Entrance Hall	..	For collecting specimens.
(b) Laboratory I.	..	For bacteriology, haemotology.
(c) Laboratory II	..	For biochemistry, histology (N.B. these may be separated, calling for a submission of Laboratory 2)
(d) Cutting room	..	Sink, bench space for two.
(e) Wash-up	..	Large sink, still, oven, autoclave steamer.

P.T.O.

This programme to be retained and filed by each Student

(f) Utility.	..	Used for interviewing patients and possibly as dark room.
(g) Lavatories for both sexes	..	Basin and W.C. in each.
(h) Store	..	For Chemicals, glassware and apparatus.
(j) Pathologist/ Secretary	..	Bench, secretary's desk, filing.
(k) Technicians	..	Rest room facilities for minimum of four.

This list gives the bare outline - to be supplemented by studio talks, observation and research.

Areas are not given because the important thing is to work out the sizes and shapes of rooms by their function, their relat' to each and to the whole. For your guidance it is expected t ancillary space exclusive of Entrance Hall and general circulation (items d - k in the Schedule above) will occupy 40% - 45% of the total area.

MODULAR CO-ORDINATION.

This project presents the first opportunity to design from the outset on a modular basis. All work will be based on the researches of the Building Research Station in this field and a talk will be given in the studio by one of the B.R.S. team on Tuesday 28th February. Throughout the project Mr. Abbott will be available to direct this side of the work.

METHOD OF WORK.

The main work on the project will be carried out by the group working as a single unit. To prepare for this each student will produce his own programme dossier containing the following:-

1. Analysis - human, technical, structural.
2. Reports - Site survey, visits, discussions.
3. Research - components, materials, techniques.
4. Modular Co-ordination - Number patterns, objectives & methods.
5. Costs - study analysis and comparisons.
6. Exploratory planning - studying in three dimensions the layout and grouping of the required accommodation.

These dossiers are to be made up of standard sheets measuring 9" x 12" and giving a working area of 7½" x 11" (This represents ¼ of an imperial sheet and will be the basis of future drawings: it is also suitable for binding in a foolscap file). Examples of data sheets already based on this size will be available in the studio.

The dossiers are a very important part of the live project work and the success of the scheme will depend on the thoroughness with which they are compiled.

COST. The Regional Hospital Board have allocated the net figure of £6,000 for the building. It is estimated that the standard required will cost approximately 70/- per foot super.

(iii) One year master.

(iv) A share of the architect member of staff who looks after the "corpus" of live projects. (It is not uncommon for three projects to be alive simultaneously).

(v) A share of other part-time teaching staff and specialists.

Ultimate responsibility is with the Director of the School, and his name appears on the drawings and the contract. It is the third year master's job to carry out the preliminary investigations, to prepare and run the project while it remains in Year 3. He does this in close collaboration with his colleague (iv) to whom he passes over the main responsibility at the contract stage and gets ready for the next project and the next "generation" of students.

In drawing up the organization for this project we had very much in mind the experience of previous years, especially with regard to timing. To give students a reasonable chance of seeing a scheme through to completion it is desirable to begin each one as early as possible in the five year course. On the other hand the students participating must have had some designing experience and to meet both these requirements we consider the second term of the third year (*i.e.*, about February) is the best time to begin. When they finish is often less predictable, but on this project a strict timetable was prepared and we managed to adhere to it over a period of sixteen months. The key to this timetable is getting complete working drawings to the Quantity Surveyor before the school closes down in July. The bulk of his work and all the tendering should take place during the long vacation and a start made on the actual building as soon as possible after the students re-assemble for the Christmas term.

All the supervision work should be planned to take place during the Fourth Year: in this case the project went into the studios in February, 1956, and building was opened in July, 1957. The students concerned are now in their fifth year and have opportunity not only of seeing their design being put to work, but also of dealing with the "post mortem" aspects of the contract, such as maintenance liability, defects and final accounts.

The pathology laboratory

Experience of earlier projects had also taught us to avoid where possible the type of jobs (such as housing) in which administrative delays seem inevitable. Jobs which take up to four years to design and build, however realistic, are of no use to us. We also prefer commissions with real, accessible clients rather than anonymous or inarticulate ones so that we can talk to them and they can come into the studio and talk to us. For the same reason we do not seek very large or very expensive jobs. There is an additional reason for limiting the size: the School having come

Fig. 1 (left). The initial programme for the pathological laboratory which was handed to the students.

technical section

to an agreement about this with the local architectural society.

Towards the end of 1955 the Birmingham Regional Hospital Board (Chief Architect Donald Goldfinch) promised to find us a building suitable for the next project and in January, 1956, we were invited to design a small pathological laboratory for an existing hospital complex at Erdington on the N.E. side of Birmingham and about six miles from the School. We were attracted at once by the commission, which differed from its predecessors in a number of ways.

(*a*) It was a specialized building and invited design from first principles.

(*b*) A cost limit was set low enough to make Ministry approval unnecessary and hence there was less prospect of administrative delay.

(*c*) The building would be modest in scale—planning and construction would be within reach of third year students. Certain other things operated in our favour which we were not in a position to discern fully at this stage. We enjoyed cordial relations with the Board, but could not anticipate the close and enthusiastic interest which our pathologist clients would take both in the professional and educational aspects of the project, nor that the successful tenderer would be like-minded and would appoint a foreman possessing the combined qualifications of a senior lecturer in building construction and an international diplomat.

Nor could we foresee that from another source a second project would be offered to the School simultaneously. The third year divided and the laboratory group became a compact group of ten students. The commission was accepted and the engagement of our services confirmed on exactly the same terms as apply to the appointment of other outside architects by public bodies. Nominally, Douglas Jones is the architect and receives the fees —more of which later—based on RIBA scales.

We are consulted about the appointment of quantity surveyor and naturally we nominate the one who has worked with us already and knows the school set-up. This is no sinecure for the quantity surveyor: he is called upon to do far more than usual for his 2½ per cent.—constantly in demand in the studio and obliged to explain every move in the game. It is vital to have someone, as we have, who will do it cheerfully and convincingly.

Clients brief and sketch design

The clients knew exactly what they wanted as far as accommodation was concerned (see Fig. 1); there was only one really suitable site and the cost limit was set at £10,000, including fittings. The first thing which the staff did was to study the problem thoroughly themselves, to visit local hospitals with laboratories to sort out references, and to decide what the students should be made to find out and where they could find it.

On February 27, 1956, the first programme was presented. Work on it would last two weeks and would be only the starting point for the design programme. It gave the clients' requirements and described the site: it did not call for any designing, simply for a study of the problem. This included site visits, survey, hospital and laboratory visits, a visit to the New Health Centre at Corby, talks and discussions in the studio with clients, staff, quantity surveyor, services specialists and builders. At the end of a fortnight we had no design but we had a real programme prepared by the students themselves and containing a great mass of information, a site survey with levels and scale drawings of every piece of equipment likely to go into the building (Fig. 4).

We now felt we were in a position to start designing and the next programme called for a preliminary design to $\frac{1}{8}$ in. scale. Each student worked individually on his design for two weeks producing therefore 10 possible schemes to put to the client when the first eliminating jury took place. In addition to the director and his staff, the chief architect to the Board, two pathologists, the quantity surveyor and the heating consultant took part in the adjudicating. They were not asked to make a final choice, but to make frank comments on all the designs. They therefore concentrated on principles and we were able to see how they placed emphasis on certain things when seen as part of a building—very different from writing them down in a programme.

Three quite different schemes were short listed as a recommended basis for further study. The group took these recommendations back to their boards and worked on them for a further week. They were not expected to remember everything the jury said. One student nominated for the purpose kept a record of all the comments and a copy of the jury report went to each member of the group. This is a cardinal principle of the projects and is applied to every meeting. Such comprehensive records are regarded as supplements to the original programme and bring the picture up to date as the job proceeds. They are essential if each member of the group is to keep in step.

We now began to gear our activities to the events going on outside the school curriculum and started thinking in terms of committee dates. The jury met again and made its final selection: this had now to be presented to the Hospital Board for final approval. Submission drawings, including a colour perspective, were prepared and a period of three weeks passed in which the group were engaged on other School work (in this case a three-week programme on medieval history, including a residential visit to Beverley, Yorks).

Modular co-ordination

The laboratory project coincided with the appointment to the School staff of a Research Fellow whose work on modular co-ordination included a special study of its application to the laboratory. The BRS

technical section

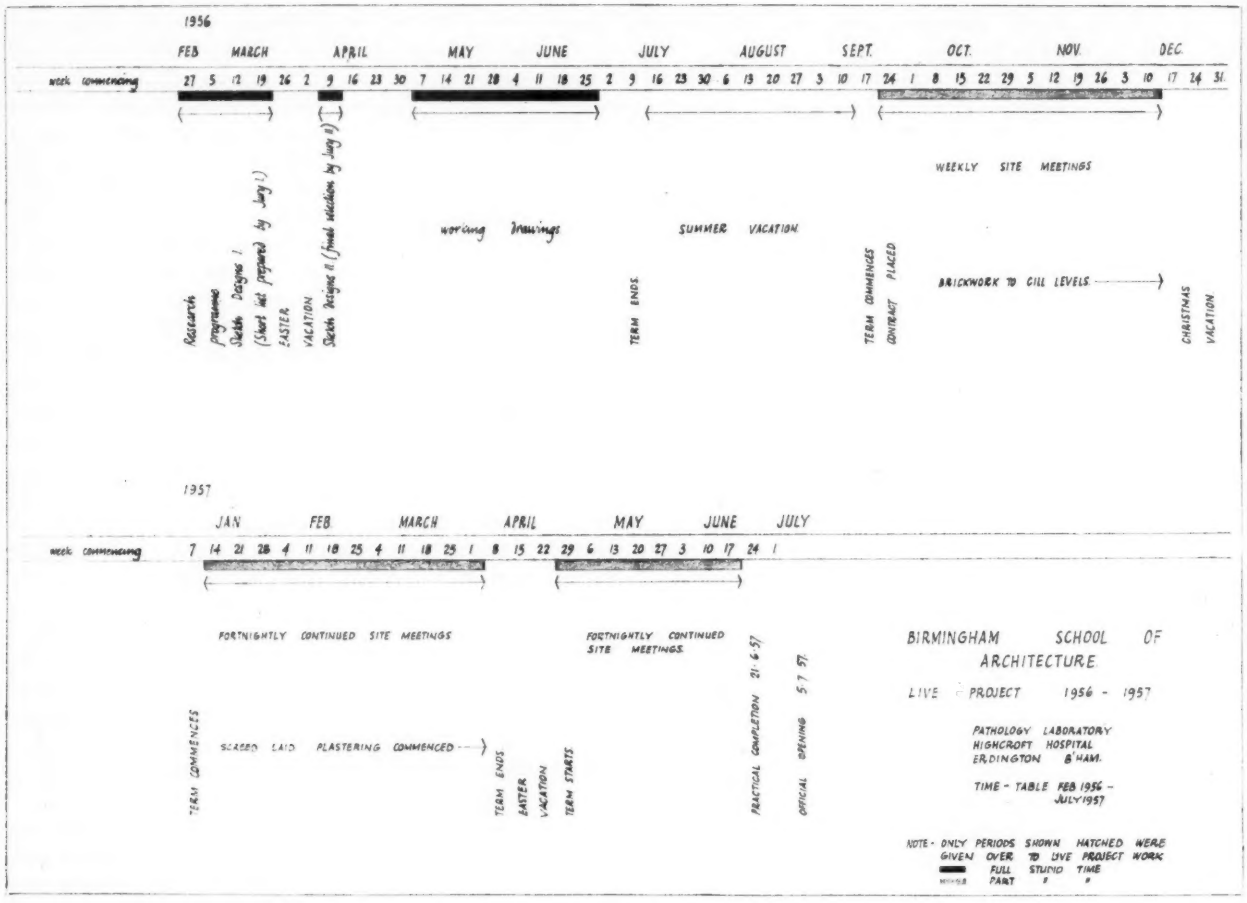


Fig. 2. Programme of school work on the live project. Notice that the working drawings phase is completed at the end of June so that quantities can be taken off during the summer vacation, work on site commencing when students return for the autumn term.

three-dimensional number pattern* was used and we enjoyed the close collaboration of the BRS Research Team. This is not the place to summarize the research which went on throughout the working drawing stage but it should be said that the building, being a simple rectangular box in traditional brick construction with a timber roof and calling for simple finishes such as tiles on the floors and fibreboard panels on the ceilings, threw up most of the standard textbook " modular " problems in a form not too difficult to solve using the flexible number pattern system. (There is also something to be said for the discipline which this method of working entails though this is a two-edged weapon and we have found, on a subsequent project, that the attempt to apply a 3 ft. planning module to the design of low-cost housing proved an intolerable inhibition.)

Up to this stage work in the studio had all been individual. Except in so far as students naturally tend to compete, work had not been so much competitive as exploratory and the author of the chosen design was regarded not as the " winner " but as a member of the team who drew up that particular design.

Working drawings

An important decision now had to be made. In the detailed study and the working drawings which follow shall the students—

(*a*) all concentrate on working out the chosen design, or (*b*) each make studies and working drawings of his individual scheme?

Both policies have in fact been tried on previous projects, but we had no hesitation in choosing alternative (*a*). It seemed to us alien to the whole conception of live projects as an educational force that only a minority should work on the scheme to be built while the majority of the participants should be fobbed off with " dead " schemes. On the other hand, a very real administrative problem presents itself at this stage: in fact it is *the* basic problem of the live project system. Assuming that a concentrated programme of work based on one scheme is desirable, how is work on a project costing, say, £10,000 in an office perhaps demanding the part-time attention of not more than two assistants to be shared out between 10, 20 or even 30 and still retain their enthusiasm? If it is possible, is it a true reflection of architectural practice? These questions have caused us a lot of anxiety and the

* A full description of the system together with a plan of the laboratory is to be found in Ezra Ehrenkrantz's book *The Modular Number Pattern, Flexibility through Standardisation.* Tiranti, 25s.

technical section

CO-ORDINATED RESPONSIBILITY CHART

	CO-ORDINATION	TERRACE HOUSES	OLD PEOPLES DWELLINGS	GARAGES	EXT. WORKS	
SEWAGE & DRAINAGE		Breedyk				
WATER		Breedyk				
ELECTRICITY		Abbott				
WORK BELOW GROUND					Danks	
STRUCTURE	Mills	Hong	Jolliffe Jinader			
ROOFS		M. Jones	Seaton			

Fig. 3. Portion of a "co-ordinated responsibility" chart for a later project, housing for the Birmingham Corporation. Different elements of the job are allotted to different students for working out.

temptation is very great to select a small "*corps élite*" to work as a normal office group while the others do something else. We are sure this temptation must be resisted: we try to answer the questions in these ways.

We do not attempt merely to imitate conditions of a "normal" office—whatever they are, and we recognize that the relative inexperience of the students will cause them to take longer over their work.

We take every opportunity of holding discussions and lectures on points arising out of the project, and give each student responsibility for a sub-division of the work and expect him to do it thoroughly.

We go to great lengths to keep accurate records of development—minutes of meetings and discussions on a scale quite impossible in most offices.

We aim at much greater thoroughness, *i.e.* completely worked out set of drawings before tendering. Investigation of parallel research such as modular co-ordination and cost analysis, and technical analysis of such things as daylight factors.

Cost analysis

Modular co-ordination studies on this project have been described. On the subsequent project, special attention was given to cost control. This was a small Housing Scheme for the City of Birmingham for which we used a complete cost plan and elemental drawings. This decision followed a course on the subject of cost planning held at Attingham Park in February, 1957, in which the ARCHITECTS' JOURNAL played a leading part (see AJ for March 14, 1957).

Since our brief included a target price of 29s. per foot super for the houses, we were not encouraged to expect much from this first exercise in cost planning, the decisions being in almost every case to choose the material and the type of construction which was known to be the cheapest. However, the exercise proved very valuable educationally, and although we have not yet enough results to show whether the scheme itself has profited financially, it did throw up an interesting by-product which affected our decisions about administration.

Five major planning groups (including a co-ordinating group) were set up and a list prepared of 25 subjects requiring investigation in some or all groups. The subjects correspond roughly to the "elements" in Elemental Bills of Quantities and to them were added such subjects as secretariat, modular co-ordination and costing. Every student as well as being a member of a planning group has one or more of these responsibilities and becomes an "expert" on his subject which brings him into contact with other groups as well. All correspondence goes through the Secretariat, but students make their own arrangements to interview manufacturers and collect information and samples—all of which are carefully kept and classified.

Fig. 3 shows the system of "co-ordinated responsibility"—so called because each student's name is on horizontal and vertical columns. Thanks to the enthusiasm of the participants, this method of studio work has so far been completely successful in producing the information needed by the planning groups to make their decisions. In the next phase the planning groups edit their information and produce elemental contract drawings. There is still a great deal to be done before the ultimate success of the project and the methods employed in it can be judged. Educationally, however, the project has already helped to crystallize the ideas of a very diverse group of students and to unite them as an effective working team.

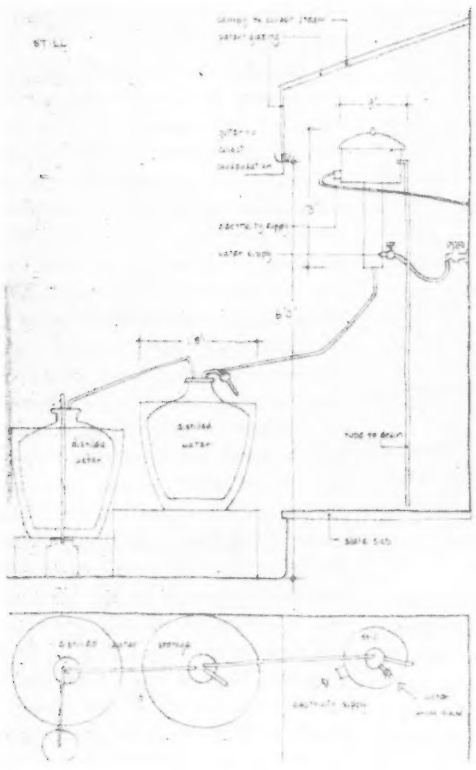
By special work of this kind we think we are able to work in a concentrated way which many architects would probably like to do but cannot and also try to give our clients something extra in return for the trust they have shown in us.

To return to the laboratory—the main organization of the working drawings was normal in so far as students did orthodox drawings and we relied on traditional methods of cost control—discussion of various alternatives, reference to experience and current prices, and of course constant inquiries to the quantity surveyors. Responsibilities were divided between the group for various sections of the building, for example, one student was concerned with lighting and her findings, in consultation with the BRS and the Nuffield Foundation Research Group led to an entirely new approach to laboratory planning, with benches at right angles to windows and internal top lights.

Once this approach was begun we were soon convinced of its correctness and its implications were felt throughout the building and the design team. Our clients, however, were less easily convinced, but once they had digested the report of daylighting (worked out with BRS protractors) and seen that by this type of planning the useful bench run could be increased by over 70 per cent. they became more and more enthusiastic.

During all this period the live project programme formed the main stream of the third year students' work. Short design programmes, day sketches and the

technical section



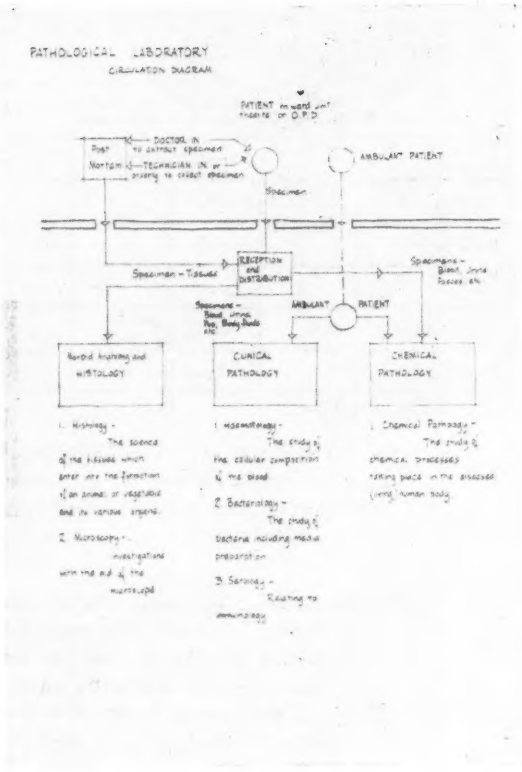
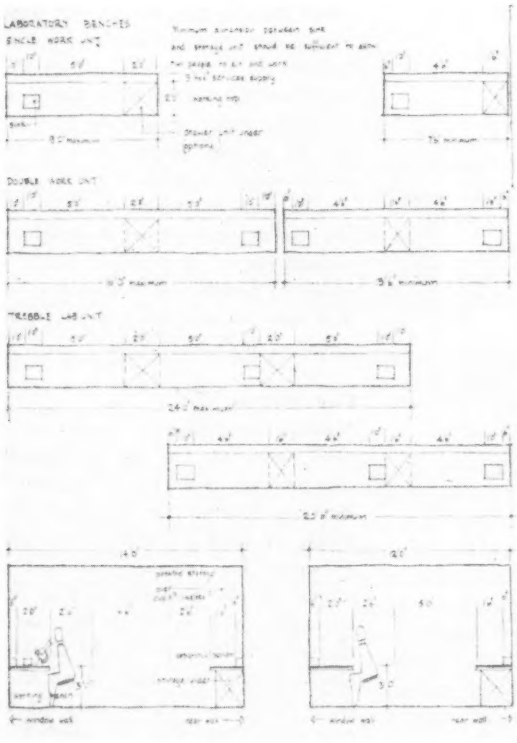


Fig. 4. Three of the many data sheets prepared by students as a result of their investigations into clients needs.



normal lecture syllabus continued together, with the corresponding round of juries, crits. and examinations. The project also generated certain events of its own such as special visits and talks in the studios by people like our quantity surveyor, specialist consultants (heating or lighting) or by specialist sub-contractors who were invited to talk about, for example, tendering or special bench equipment.

By July the working drawings were complete: a meeting took place with the quantity surveyor and all the specialists and all the drawings were handed over for work on the bill to begin.

Work on the site

In September the School re-assembled to learn that all six tenders were in, that the lowest was £9,956 and the highest £10,375.

Although tender procedure was orthodox an indication had been given before this stage that the contractor would be working under special conditions, that he would be expected to take an interest in the educational aspects of the job and that he would have his site visited regularly and trampled over by hordes of inquisitive students. Forewarned of this, some contractors might conceivably fore-arm themselves in the costing, but there seems no reason why they should need to do so. In our general experience and particularly in this contract, the successful contractor has more than risen to the occasion. So far from nursing any prejudice against working with students our contractors have seemed to enjoy the experience from the managing director down to the site labourers. The site foreman is, as in so many other ways, the key man in

technical section

Fig. 7. A site meeting during the laboratory contract. On the left, Denys Hilton, deputy Director of the Schools; on the right, John Roberts, senior lecturer.

the process. On the laboratory project we had the maximum co-operation at all levels.

The supervision programme (October-July) was comparatively simple to organize. Site meetings were weekly and later fortnightly by three members of the group and one member of staff. Quantity surveyors and other specialists attended as required and one of the three students kept the minutes of the meeting. The day after each site meeting, a meeting of the whole group took place at which the trio on duty presented their report. The various subjects were discussed and decisions made on points left outstanding from the site meeting. Where a new drawing was required, the work was allocated, where an investigation necessary or a letter needed writing, one student was given the job. Correspondence was on a modest scale but justified a small filing system of its own. Every student had access to the files and when called upon to draft a letter or report had it checked by a member of staff and typed by the School Secretary. Telephone calls were all recorded in a similar way.

The programme chart (Fig. 2) shows the stages through which the job passed towards completion in July, 1957. Although this progress was reasonably smooth it did involve some disruption of the students' work in the Fourth Year and it is hard to see how this could be avoided. During the building of the laboratory, regular visits were organized for the First Year and they were able to see the main stages of construction taking place on the site. Again the contractors and especially the general foreman co-operated nobly even though this work lay entirely outside their contract.

The First Year also made use of the project as a basis for studying colour, finishes and interior lighting.

Certificates were issued under the normal terms of the contract, the students being informed when this took place. At the time of writing (January, 1958) the final account is almost due and when it is received we propose to have a joint meeting with students and quantity surveyor, followed by an inspection and a report drawn up by the students themselves.

This will, frankly, be unusual as we have never before reached the end of the maintenance period on a live project contract before the students left the School!

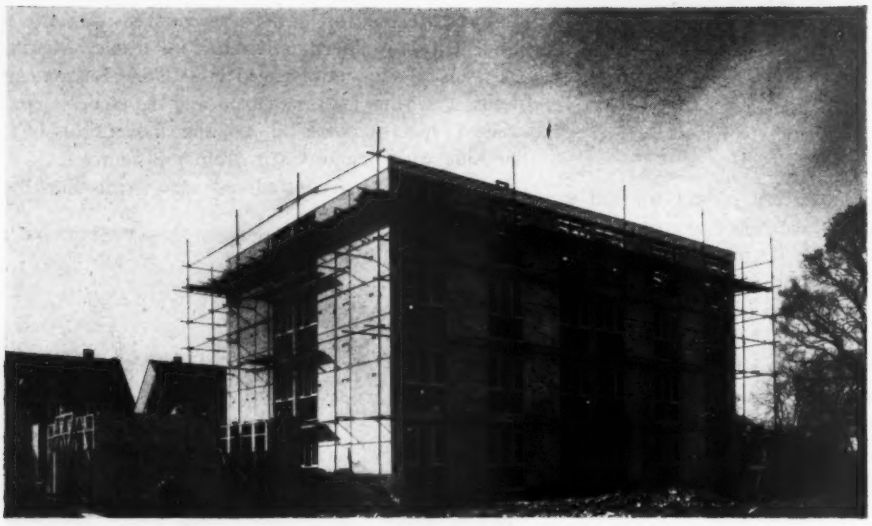
Conclusion

The School is paid fees on all live projects. These are made payable to the Director of the School, but are paid into a special fund administered by the college authorities. They are used partly to cover our working overheads, some of which, due to producing duplicate drawings and to travelling, are high, but these are offset by the absence of bills for rent, heating and lighting, and of course, assistants' salaries! We could, presumably, argue (but we do not) that students get their reward in experience and that they should expect nothing else. In fact, we are allowed to draw on the fees' account to subsidise a wide range of student activities: for instance, in the last session we were engaged in a design for a small housing scheme in Birmingham and the students concerned spent a week in London looking at LCC housing with financial help from this source.

We have not as yet introduced experiments into the

Fig. 8 (above). Model of the Birmingham housing project.
Fig. 9 (below). Completed houses of the Birmingham housing project.

technical section



Left: live projects built for the Coventry Corporation; top, old peoples' bungalows at Canley, on the left; bottom, flats at Tile Hill.

form of contracting (*e.g.* negotiating contracts, direct labour, participation with other students in quantity surveying, structures or services). For one thing we have not been free to do so, our clients being usually public or semi-public bodies handling public funds and tied by strict procedural rules. Had we been able to it is doubtful whether such experiments would be valuable in this context. Within the limits set by the academic syllabus our object is primarily to acquaint the students with the conditions they will meet in practice, and it seems better not to introduce complicated experiments which may misfire.

The cost of these projects in terms of the syllabus is hard to estimate: they replace, as programmes, the orthodox fictitious programmes with their attendant working drawings and colour studies—an estimate would be: design for two medium size buildings, one carried to working drawing stage, and one carrying an interior and colour study. In another sense they cost a good deal in administrative difficulties and disruption of studio time. On the whole, it would be true to say that balanced in the middle of a course which consists otherwise mostly of the traditional elements in architectural education they are beneficial to years 1 and 2 both directly in the ways already described and also in their effect on students' interest and enthusiasm. Their contribution to years 4 and 5 depends largely on the degree of success achieved in administration and timing. When a difficult patch is encountered, the projects can be a nightmare to the senior year masters.

This can be attributed to the very fact that we have a mixed curriculum and that at present live projects are made to fit into a traditional course. Short of re-casting all our thinking so as to fit the five-year course round the projects, it seems best to limit them in scale and keep them rigidly under control for timing and programming.

That is our present intention. We have one innovation in mind at present, and that is to postpone the designing of the project buildings until the first term of year 4 and then pass over the working drawings to year 3 students in their 2nd and 3rd terms, who will carry out the supervision of the building when *they* are in year 4, simultaneously with preparing designs for the *next* project.

The machinery for this has yet to be devised.

We think, though we cannot be sure, that most students who have entered into the project schemes with enthusiasm, are better equipped when they go into offices than if they had not had this experience, and reports from certain employers bear this out. We certainly find that some students develop unexpected talents while at school which orthodox training does little to encourage—leadership, organizing ability and so on, while others are made to realize their shortcomings in these fields in time to do something about them.

Our attitude towards this has always been and will probaly continue to be, empirical, for it seems better to struggle to a base camp than to sit at the mountain foot dreaming about the summit.

building illustrated

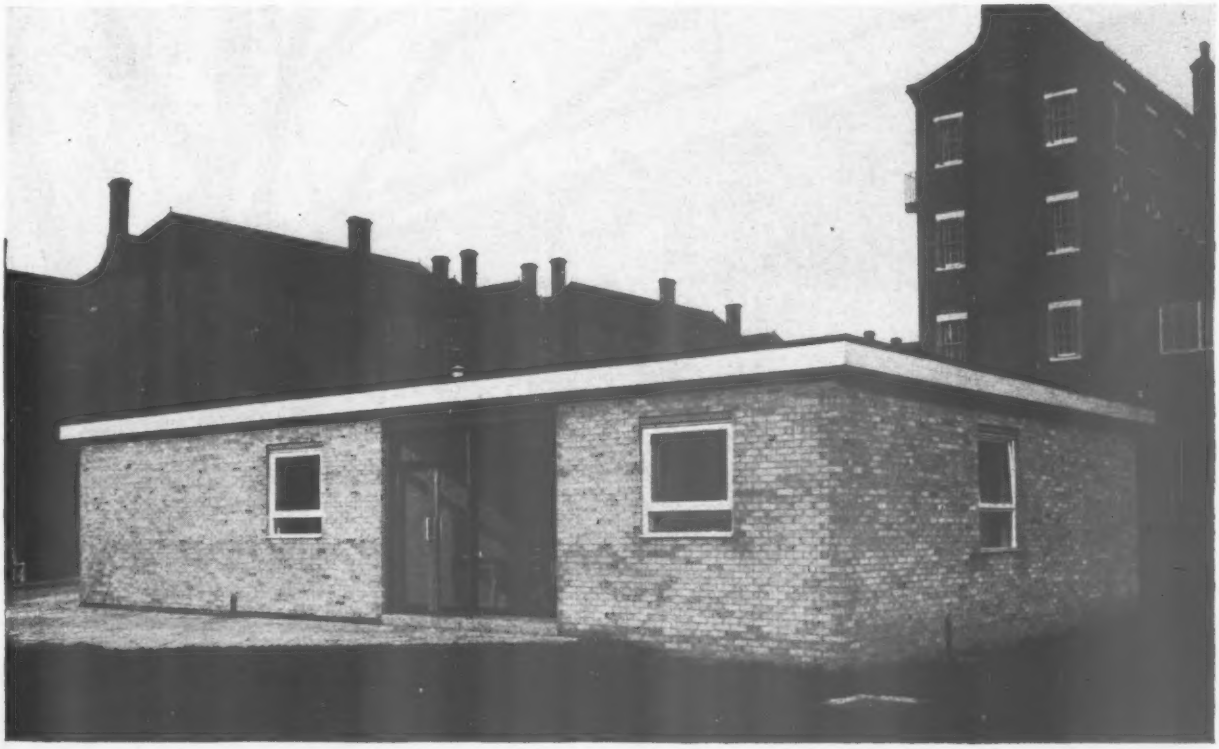
Pathological laboratory at Highcroft Hospital, Erdington, Birmingham

PATHOLOGY LABORATORY

at HIGHCROFT HOSPITAL, ERDINGTON, BIRMINGHAM; designed under the direction of A. DOUGLAS JONES, director, Birmingham School of Architecture; DENYS HINTON, deputy director; assistant architects JAMES A. ROBERTS, ERIC ABBOTT; consultants (heating) HOARE, LEA and PARTNERS; quantity surveyors SILK and FRAZIER

This small laboratory building was designed by students of the Birmingham School of Architecture as one of a series of "live projects." A full description of the aims of the projects and the method of working is given in the preceding article.

The building from the south-west.

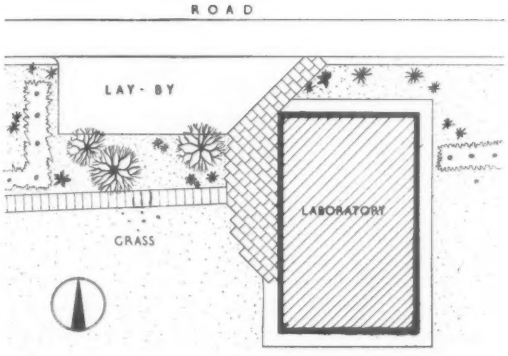


building illustrated

The building is sited on an existing lawn within the hospital grounds. It is essentially a simple brick "box" with a timber joisted roof and windows regarded in the traditional way as holes in the wall, spanned by boot lintels. The photograph left shows the concrete lay-by and flag paving to the north-west of the building, which was the only additional work to the site.

The entrance to the building, below, unlike the window openings, has been regarded as a clear break in the continuity of the outside walls. It is spanned by an r.s.j. with a plywood fascia, and the opening is filled with glazing to the full width of the entrance hall and waiting area.

analysis



Site plan

CLIENT'S BRIEF

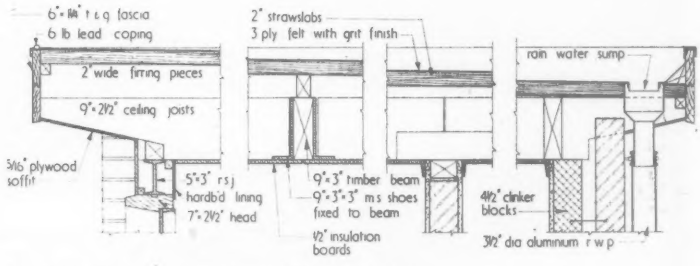
Two laboratories were required, for biochemistry, histology, haematology and bacteriology, with wash-up and cut-up facilities; a small waiting area and room for examination of patients; pathologist and secretary's room; rest room for technicians and lavatory for each sex; store room.
A preference was expressed for north and east light in the laboratories.

SITE

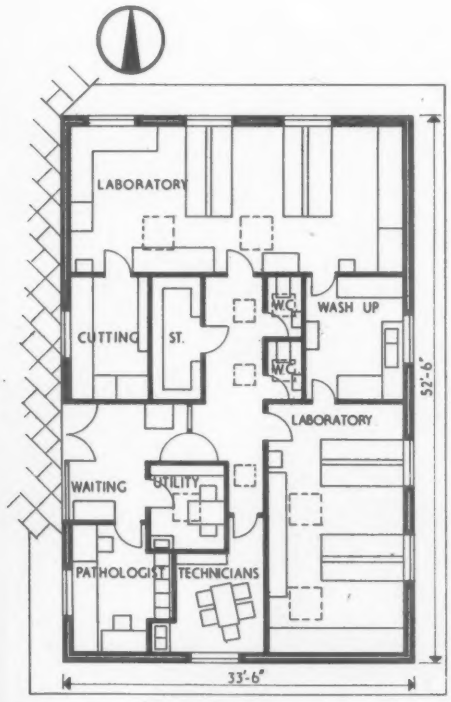
The laboratories were built in the grounds of the hospital, on land with a fall of 1 in 10 from east to west, surrounded by tennis courts, lawns, allotments and shrubbery, with a five-storey ward block on the east. Access is off a road from the main hospital to the observation blocks, and a row of shrubs have been planted along the road, and saplings along the east boundary of the site.

PLAN

The laboratories were given north and east aspect, with central wash-up room. Rest room and offices on south. Technicians' rooms separated from public and patients. Corridor, store and lavatories are internal and top lit, giving increased compactness. Inner part of laboratories is also top lit.
Relation of units : Modular co-ordination: BRS system of preferred dimensions is employed throughout.



Roof section at entrance doors [Scale: ½" = 1' 0"]



Ground floor plan [Scale: 1/16" = 1' 0"]

MAIN CONSTRUCTION

Traditional load-bearing brick and breeze, carrying timber joist roof.

	cost per sq. ft.	s	d
preliminaries and insurances		11	3¼
contingencies			

STRUCTURAL ELEMENTS

Work below ground floor level — 5 6¼
Strip foundations to external walls in 1:3:6: mix.

External walls and facings — 6 11
Mixed brown rustic 4½-in. brick outer skin, 4½-in. commons for inner skin, with 2½-in. cavity to conform to modular thickness.
Ratio: $\frac{\text{solid wall}}{\text{floor area}} = \frac{0{\cdot}758}{1}$

Roof construction — 9 9¾
9-in. × 2½-in. timber joists, tapered firrings, with 2-in. straw slab covering finished 3-ply bituminous felt with grit finish.

building illustrated

The internal corridor, left, has the familiar character given by traditional construction and detailing when modified slightly to take in new materials and methods. The architrave and skirting, of forms descended from classical details, have been "cleaned up" but the process has not been taken far enough; the junction between the two is awkward, having lost its classical rightness. Similarly, it is not sufficient to cut out all the scale-giving traditional elements such as door panels and cornices without reorganising the whole approach; the result is inevitably a stark and ill-proportioned, even if clean and efficient, interior.

The laboratories, one of which is shown below, are extensively equipped with benches, cupboard and drawer units and fume cupboards. The benches are supported on a light steel framework to allow flexibility of position of the storage units beneath them. On grounds of cost, no provision has been made for concealing plumbing. The ceiling consists of insulation board laid out in a modular pattern to minimise cutting.

analysis

	s	d
Rooflights In laboratories, utility rooms, lavatories and corridor. Timber curb and cast glass in laboratories, giving even daylight curve (20 lumens per sq. ft. or 4 per cent d.l.f.). Obtained by combination of windows and roof lights. Rectangular domes, 3 ft. × 3 ft. and 4 ft. × 4 ft. Total area: 111 sq. ft.	6	5½
Windows Timber framed, horizontal pivot, standard EJMA sections with hardwood meeting bead, gloss finished. 4 ft. 6 in. × 4 ft. 6 in. throughout, except in rest room, where window measures 4 ft. 6 in. × 5 ft.	1	5½
External doors Hardwood frame, 7 ft. × 5 ft. 7½ in. and double doors with double action floor springs, to entrance hall, in teak with natural finish. Doors have 7-in. × 3-in. timber frame, 4-in. × 2-in. stiles, and ¾-in. × ½-in. bead.		10
Ratio: $\frac{\text{external doors and windows}}{\text{floor area}} = \frac{0{\cdot}188}{1}$		
Glazing Entrance doors, ¼-in. polished plate. Internal screen, ¼-in. Georgian wired. Rooflights, roughcast glass; elsewhere, 32 oz.		10

PARTITIONING

	s	d
Internal partitions See plan for location. 3-in. breeze with ¾-in. plaster finish.	1	9½
Screens Gloss painted softwood screen in internal hall for 3-ft. door, and 2-ft. 5-in. × 9-ft. screen panel, made with 6-in. × 2½-in. softwood frame, 4-in. × 2-in. stiles and ¼-in. × ½-in. beads. This screen divides the technicians' and the public zones in the building.		4½
Internal doors Doors are 1⅜-in. BS flush, 6 ft. 6 in. × 2 ft. 6 in. in lavatories, and 2 ft. 9 in. elsewhere, except to Pathologists' room and door between waiting room and laboratories, which are 3 ft. Number of internal doors, 11.	1	2
Ironmongery Lever type handles, in aluminium with anodized satin finish.	1	5

FINISHINGS

	s	d
Floor finishes 9-in. × 9-in. thermoplastic tiles, worked into the modular pattern to minimize cutting.	3	10¾
Wall finishes ¾-in. plaster with steel float finish.	2	4½
Ceiling finishes In laboratories, ½-in. surfaced insulating board. Rest room, path. section, cut-up and elsewhere, plasterboard and skim.	2	2¾
Decorations Eggshell emulsion on all walls, gloss on all woodwork. Strong colour in the laboratories has been confined to non-working bench walls, and in wash and cut-up rooms to the ceilings. *Colours:* Laboratory 1, 7·5 R6/10. Laboratory 2, 7·5 Y9/8, 2·5 Y 7/10. Walls in both laboratories, N9, ceilings white, doors N7. Pathologists' room, 2·5 PB6/4. Rest room, 7·5 R5/8. Wash-up, 7·5 Y9/8. Cut-up, 5 B7/4. Hall, 10 R5/14. Corridor, white walls G5 7/1 doors. Store, lavatories and utility room, all N9 walls.	3	11¼

FITTINGS

	s	d
Special laboratory fittings Cupboard and drainer units (loose) in wash and cut-up laboratories, utility room and path. section room, made of blockboard with beech veneer, purpose designed to fit beneath benches. Fixed benches in laboratories, cut-up, wash-up and path. section of tubular steel frame with blockboard tops. Plastic sheet working tops with iroko lipping, except in histology area, where the whole top is iroko. A light steel frame was used to give complete flexibility of positioning of drawer and cupboard units beneath. Fume cupboard in laboratory 2 and cut-up, softwood frame, blockboard, on an asbestos compound base, finished beech veneer. Purpose designed with counterweight at back of cupboard, to eliminate the usual thick corner post details at the front.	6	4

SERVICES

	s	d
External plumbing and rain water disposal R.w.p. into trapped gulley (existing system) on east wall corners. Internal felt-lined gutters, 3½-in. al. r.w.p., 6-in. gulley and concrete kerb. Painted.		2¼
Internal plumbing Stack in lavatory. 3½ c.i. SVP. All lavatory basins and sinks to 6-in. gulley.	1	6¾
Hot water Low pressure hot water from calorifier in existing building.	5	8
Cold water From central tanks in existing building.	3	9
Sanitary fittings 15-in. × 10-in. sinks in benches, 2 lavatory basins per laboratory, with elbow operated taps. Anti-corrosive traps in all sinks. Lavatories and 4 sinks elsewhere. All in glazed porcelain.	2	5¼
Heating installation 2 radiators per lab., 1 in rest room, 1 in path. section, 1 in hall, heated from calorifier in existing building.	8	8

analysis

	s	d
Ventilation	3	1
Drainage Separate soil and rainwater systems. Connected to existing drains (a distance of 464 ft.). 4-in. s.g.w.	6	1½
Gas installation Two 2-point taps to centre of lab. benches and fume cupboard. Ring in rest room.	2	2
Electrical installation Ducted from hospital. Fluorescent lighting in labs., cut-up, wash-up and path. section. Illumination level of 20 lumens per sq. ft. Wiring type: ¾ conduit (chased). Power supply type: 3 ft. 4 in. above floor level, and in bench ducts, distributed through 13-amp. fused switch outlets. Number of light points, 27. Number of power points, 54.	11	6
Paved areas A layby for 4 cars or ambulances. Approach terrace along the west wall, of concrete paving slabs, 2 ft. × 2 ft. and 3 ft. × 2 ft.	3	2½
Total per sq. ft.: £9,347 / 1,627 sq. ft. =	114	11

SUMMARY

Time schedule
Drawings: July 1956.
Tender date: September 1956.
Contract signed: October 1956.
Work began: October 1956.
Work completed: July 1957.
Type of contract: RIBA fixed price.

Cost summary
Total ground floor area: 1,627 sq. ft.
Price of foundations: £448 6s. 11d.
Price of external works: £255.
Gross total price: £9,347.
Price per sq. ft. of floor area: 114s. 11d.

COST COMMENTS

A small block like this one would be difficult to estimate on an overall cost per foot super basis, especially when it forms an extension to an existing block of buildings. Its many and varied requirements planned within a relatively small floor area tend to inflate the overall cost per foot super. To offset this cost are the savings that can usually be made by the extension of existing services.

In this laboratory block the analysis of tender reveals one or two surprises which might not have been envisaged in any cost plan:

Preliminaries, etc., 11s. 3¼d.

Did the contractor weight his preliminaries rather heavily or was it found necessary to cover adequately in contingencies, work undecided at tender stage?

Rooflights, 6s. 5½d.

The money spent here has allowed a reduction in window area. Rooflights have allowed more compact planning.

Fittings, 6s. 4d.

When it is remembered that this is a laboratory block the amount spent on special fittings seems economical.

The service elements

As an extension, one would expect to find some saving over these elements compared with a similar building carrying the capital cost of its own source of heating, etc. This saving has not materialised. A sum of 8s. 8d. per ft. super floor area has been spent on heating installation. The service provided does not appear from the description to be lavish and it can only be assumed that the feed from the heating installation in the main block together with its duct has been an expensive item.

These remarks similarly apply to the amount spent on the hot and cold water and electrical installations which all have their source in the existing building. The electrical installation element, however, has provided a multiplicity of power points and a high standard of lighting throughout.

The cost of the laboratory block is 114s. 11d. per ft. super. The analysis shows that the amount spent on the structure and finishings has been quite modest and that approximately 50 per cent. of the cost of this job can be apportioned to preliminaries and services.

SITE LABOUR AND EQUIPMENT

Contractor's comments:

As is our normal practice with contracts under £10,000, a working general foreman (an ex-carpenter) was employed, with a senior foreman bricklayer as his deputy. In view of the smallness of the job, no hoist or special equipment was used and only a small concrete mixer. Small electric hand tools were used during the finishing stage.

Sub-letting: flush doors, because mass produced doors cost less than purpose made ones.

Glazing, because specialist sub-contractors are much quicker and therefore cheaper than our own painters.

Wax polishing because specialist french polishers generally carry this work out better and more economically than our own painters.

Job management: in view of the special nature of this job it was under the direct supervision of a director, who visited the site once or twice a week, and either he or the contract surveyor attended regular site meetings. The site foreman submitted a report sheet daily, which was seen and discussed by the director and surveyor.

CONTRACTORS

General contractors: Wm. Sapcote & Sons Ltd. *Sub-contractors—Bricks:* Proctor & Lavender Ltd. *Roofing felt:* Permanite Ltd. *Glass:* Pearce & Cutler Ltd. *Patent flooring:* Marbello & Durns Ltd. *Central heating, gas fixtures and fittings, plumbing:* J. S. Wright & Co. Ltd. *Electric wiring and fixtures:* Syd Davis (West Bromwich) Ltd. *Ventilation:* Greenwoods & Airvac Ltd.; Morgan Air Treatments Ltd. *Window furniture:* Baldwins (Birmingham) Ltd. *Sanitary and laboratory fittings:* A. D. Foulkes Ltd. *Bench fittings:* H. E. Breaker (Metalwork) Ltd. *Paint:* I.C.I. Ltd.

XYLAMON TREATMENTS FOR THE PRESERVATION AND PROTECTION OF TIMBER

Xylamon products dry by absorption into the timber, after which oil paints, varnish, etc. can be applied without risk. In the case of dry softwood this absorption may take only a few days, but on wet timber and certain types of hardwood it may take up to eight weeks.

CURATIVE TREATMENT

For all wood-destroying insects, with preventative action against new attack, which also includes that from fungi

Grade	Uses	Colour and odour	Coverage	Method of application
Xylamon BN Clear	For interior timber and wherever the stronger odour or slower drying of other grades would be undesirable	Colourless and completely odourless after drying	1 gallon to 200 sq. ft. Available in small household packs with special injector	Brushing or spraying
Xylamon BN Brown		Light brown: completely odourless after drying	1 gallon to 200 sq. ft.	
Xylamon LX Natural	For enclosed roof timber, exterior timber, and wherever odour is of no consequence	Brown: distinctive odour gradually dispersing with ventilation		

For fungi

Xylamon E.C. Paste	For treatment of rot in timber and brickwork, stone, etc.	Light brown: slight odour	1 lb. to 50 sq. ft.	Brushing or spraying (where timber is inaccessible the bore-hole method, described on the reverse of the Sheet, should be used. Special notes on the use of E.C. Paste are available from the manufacturer)

PREVENTATIVE TREATMENT

Against fungi and all wood-destroying insects

Grade	Uses	Colour and odour	Coverage	Method of application
Xylamon Protective	Pretreatment of timber	Lightly tinted: slight odour	1 gallon to 250 sq. ft.	Brushing, spraying or dipping
Xylamon Natural	For all external timber; roof construction, barns, stables, etc.	Brown: distinctive odour gradually dispersing	1 gallon to 300 sq. ft. (surface treatment)	
Xylamon Stay-Brown	For all external timber; unaffected by light, weatherproof, and highly water-repellent	Dark brown (non-fading) distinctive odour gradually dispersing	1 gallon to 250 sq. ft. (2 coats)	
Xylamon BN Clear	For interior timber and wherever the stronger odour or slower drying of other grades would be undesirable	Colourless: completely odourless after drying	1 gallon to 250 sq. ft.	
Xylamon BN Brown		Light brown: completely odourless after drying		

SPECIAL GRADES

The following special grades are available and detailed information will be supplied on application to the manufacturer.

Grade	Uses
Xylamon TR Brown or TR Clear	For use on timber in areas infested by termites (TR stains also available)
Xylamon Primers	Pore-filling treatment, giving simultaneous protection against blue stain and other fungi, and insects
Xylamon LX—Hardening	For use of professional restorers for treating antiques and works of art
Xylamon Stains	These have all the preservative qualities of Xylamon Natural (see table headed *Preventative Treatment*) and are available in six basic colours; they are durable and non-fading and are slow drying
Xylamon S.P.I.	For incorporating with glues, etc. during manufacture of plywood, laminated trusses, and artificial materials based on wood and wood pulps, for protection against fungi and insects (including termites)
Flurasil	The Flurasil range of salts is available for use where a treatment completely odourless during application is essential, e.g. for curative and preventative work in food and tobacco warehouses, breweries, etc.

40.A1 XYLAMON TREATMENTS FOR THE PRESERVATION AND PROTECTION OF TIMBER

This Sheet deals with Xylamon products for the treatment of timber against attack by fungi and insects. The table on the face gives recommendations for preventative and curative treatments and gives a list of special grades available for specific applications. The notes below summarise the types of attack to which timber may be subject and describe how these may be identified.

Types of attack fall into two groups: those due to fungi (commonly known as "rot"), and those caused by wood-eating insects.

Fungi

Dry rot (*Merulius lacrymans*): The attack is normally confined to softwood and found in the lower part of a building. It renders the timber brittle, light and crumbling, with cracks both across and along the grain, as though it has been subjected to prolonged heat. A strong, musty smell is present and growths will be found on the timber, from fluffy white woolly threads to matted grey festoons. Where the attack is of several years' standing, a fruiting body may be found: this has a rust-red centre with white edges and an unpleasant smell, and it discharges the spores which continue the attack.

Dry rot occurs where dampness causes the moisture content of the timber to rise to 20% or more (12% to 18% is normal). An unventilated atmosphere, particularly where the temperature lies between 68° and 86° F, encourages its growth. Once it has secured a hold, sound dry timber can be affected and it will spread through other materials, e.g. mortar joints.

All affected timber must be removed and burnt. Joists, etc., which retain four-fifths of their original dimensions intact and are therefore still mechanically sound need not be removed. Where the timber is inaccessible to brushing or spraying, as recommended in the table on the face of the Sheet, staggered holes, ½ in. to 1 in. in diameter, should be drilled 12 in. to 16 in. apart into the member for about three-quarters of its thickness. 1 part Xylamon E.C. and 1 part water should be poured into the holes, topping up two or three times before plugging with wood or corks. With infected brickwork, all rendering should be removed, loose mortar raked out and two coats of Xylamon solution applied. Inaccessible brickwork should be treated by a bore-hole method similar to that previously described, except that the holes should be inclined and to a depth of one-third of the wall thickness. Re-rendering may be carried out after some days.

Cellar fungus (*Coniophora cerebella*): This is sometimes called wet rot and can affect hardwood and softwood. It attacks where there is dampness and is confined to damp areas, e.g. solid floors on concrete: it may occur in wet untreated timber left in the open. It is identified by darkening of the wood with fissures along and across the grain. Fluffy blackish-brown mycelium are present and any fruiting bodies are dark and covered with papillary growths.

Treatment is similar to that for dry rot, but the attack is usually more localised. The fungus will often damage the centre of a board or beam, leaving the outside apparently sound, and therefore tests must be made where this is suspected. Removal of the cause of dampness prevents subsequent attacks.

Mine fungus (*Poria vaillantii, etc.*): So named because of the extensive damage it causes to timber in mines, this fungus can also attack timber in houses. Its effects are similar to those of dry rot and are confined to damp areas. The mycelium and fruiting bodies are white, the latter being covered with small round holes.

Blue stain (*Ceratostomella, Diplodia, etc.*): The various fungi which cause the damage known as blue stain attack European softwoods, particularly pine, and tropical hardwoods, e.g. obeche, limba, ramin, but European hardwoods are seldom affected. The fungi do not impair the mechanical strength of the timber as they feed upon the sap, but the discoloration thus induced renders the wood unusable for decorative purposes where natural finishes are required. It also discolours and disrupts any paint that may be applied to infected areas.

Timber should be treated with Xylamon Primer or PCP Primer by brushing, spraying or dipping for a few seconds. 1 gallon will treat 500 sq. ft. where subsequent decoration is contemplated; 1 gallon of Xylamon Primer to 250 sq. ft. is necessary where no other finish is desired.

Other types: Other types of fungus include *Phellinus megaloporus*, which attacks oak timbers in old buildings (see paragraph below headed *Death-watch beetle*), and *Lentinus lepideus*, a form of wet rot. Any small fungi of the nature of toadstools are not a danger in themselves but indicate dampness which could encourage any of the above.

Wood-destroying Insects

Furniture beetle (*Anobium punctatum*): This is the most common type of wood-destroying insect, the "woodworm." It attacks hardwood, softwood and plywood and is found in old furniture, etc., and in the timbers of rooms in which this is stored. It has a life cycle of one to two years, the greater part of which is spent as the grub which feeds on the timber. The beetle emerges from the chrysalis from June to August.

Death-watch beetle (*Xestobium rufovillosum*): Oak timbers, particularly those in old churches, are most often damaged by the death-watch beetle, which has a preference for timber that has already been attacked by fungi (see paragraph under *Fungi* headed *Other types*). Although normally confined to hardwood, these insects have been known to destroy softwood in the immediate vicinity. The life cycle is three to four years and the beetle emerges from April to June, when the characteristic clicking sound may be heard. The presence of the pest is indicated by signs of dampness and bore dust. Before treatment all softened surface wood should be cut away from beams and bore dust removed with a vacuum cleaner.

House longhorn beetle (*Hylotrupes bajulus*): Attacks are confined to coniferous wood, particularly roofing members, and are mostly in Southern England. The beetle is one of the largest European wood-eating insects with a life cycle of four to five years. The grub is a heavy feeder but hard to detect as it often leaves the outer shell of the timber intact: the beetle emerges from June to August and the oval hole it leaves is the only sign of damage. Before treatment, the outer layers of wood should be removed to expose the tunnels made by the grub.

Powder post beetle (*Lyctus brunneus*): This insect attacks fresh or partially-seasoned wood and is often found in new oak or walnut furniture and in the hardwood stocks in timber yards. It has a life cycle of about a year so that damage can be very rapid. The beetle emerges from April to August. The grub does not bore tunnels, like most wood-eating insects, but reduces the centre of the timber to powder in layers, leaving the outer surface intact.

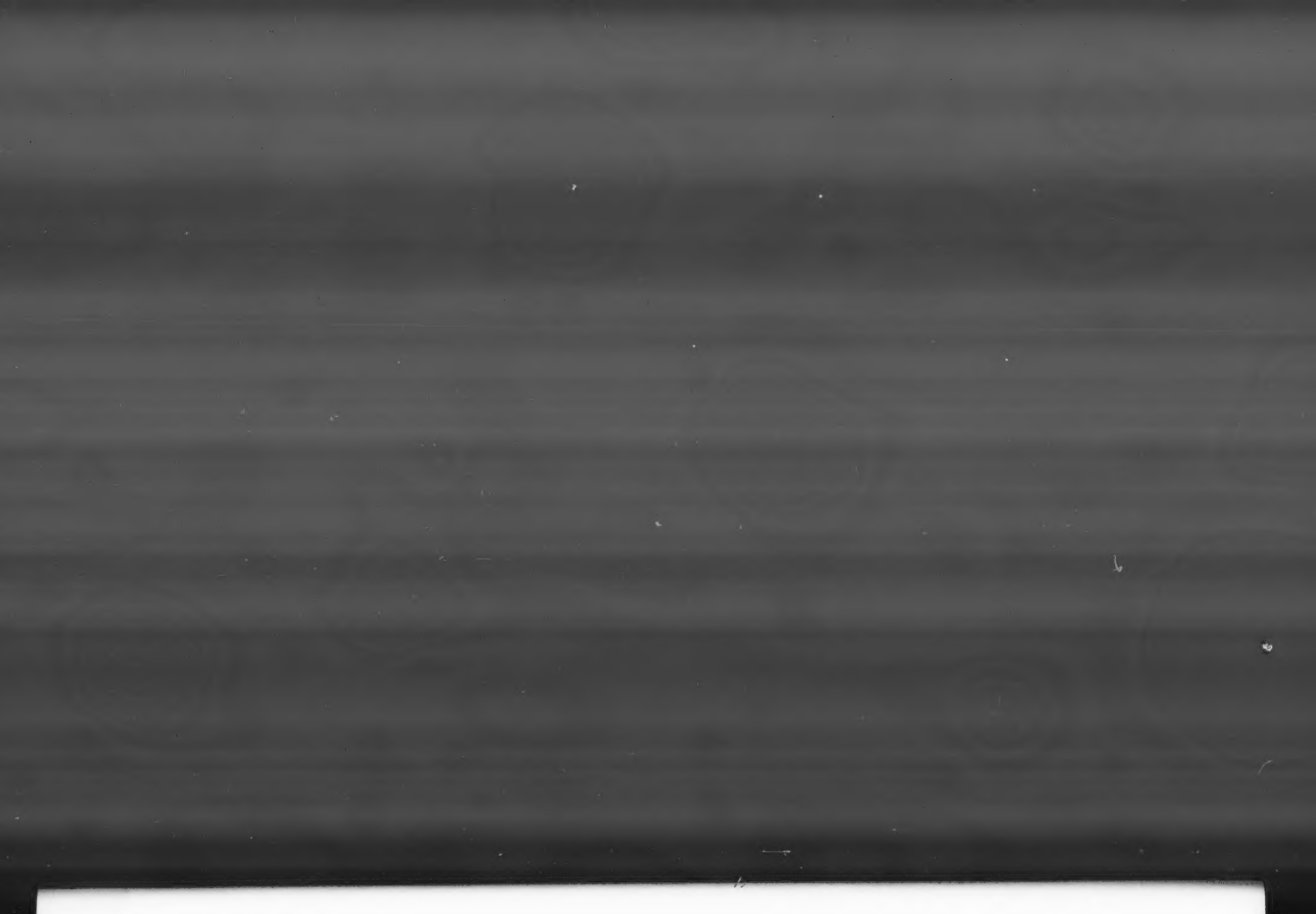
Further Information

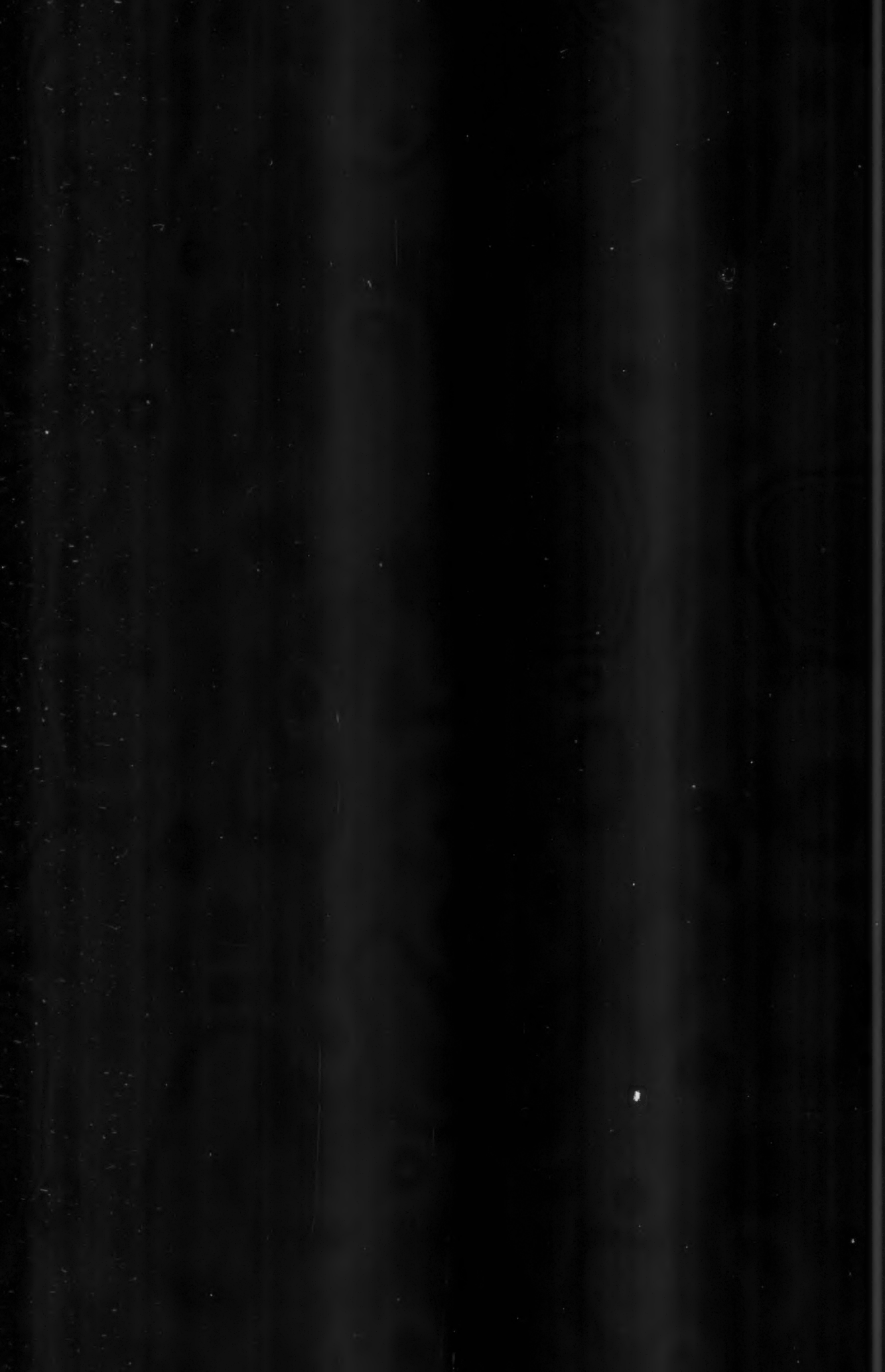
The manufacturer maintains the Xylamon Advice Bureau to give guidance on the preservation of timber and the use of Xylamon products.

Compiled from information supplied by:

Silexine Paints Limited

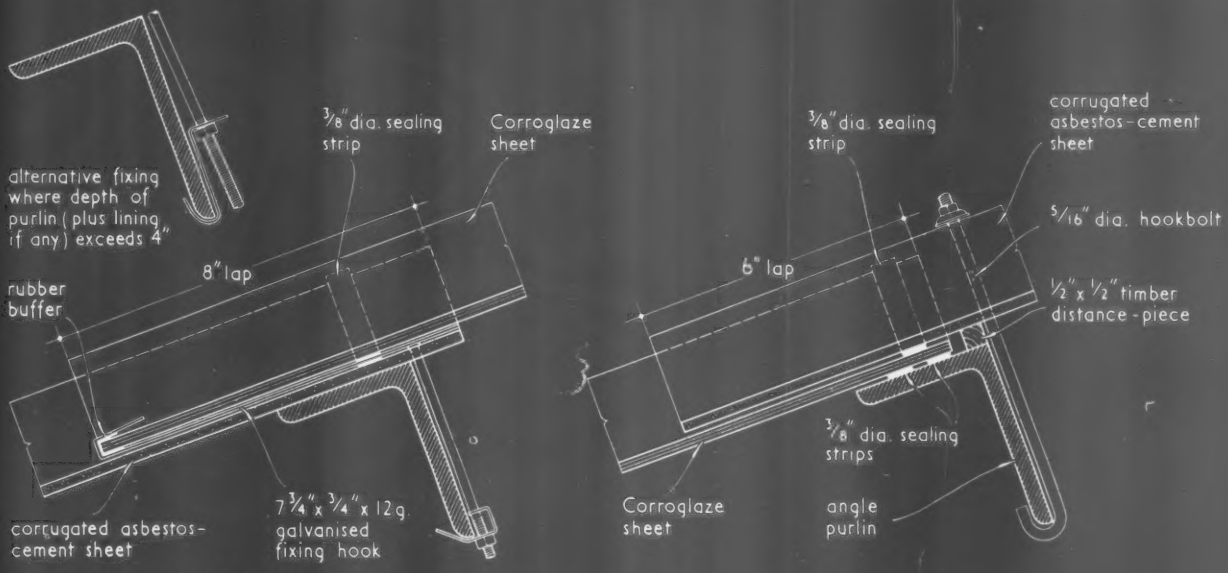
Address: 142, Sloane Street, London, S.W.1.
Telephone: Sloane 9218.



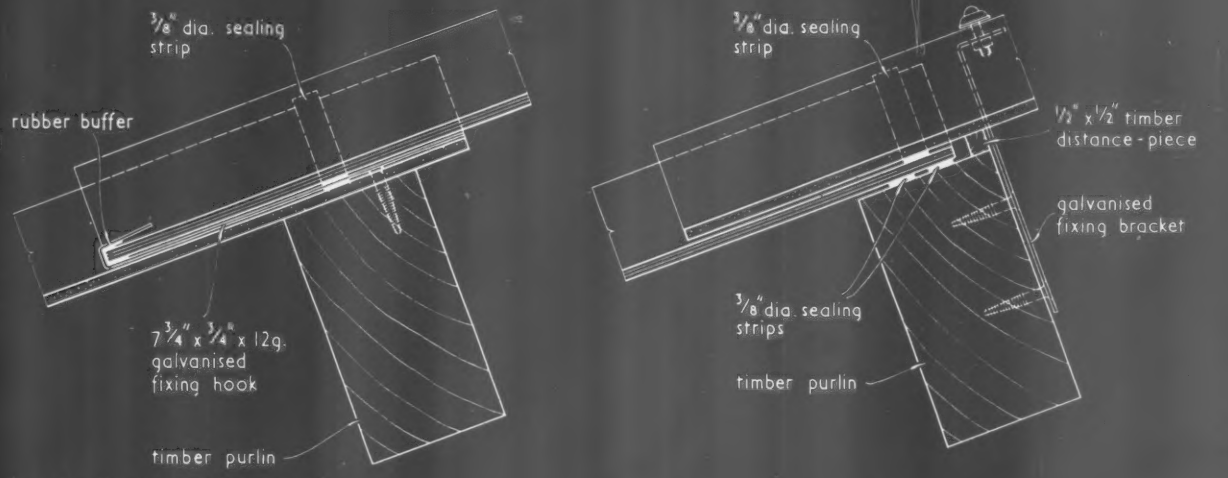


ROOF GLAZING | CORRUGATED GLASS SHEETS

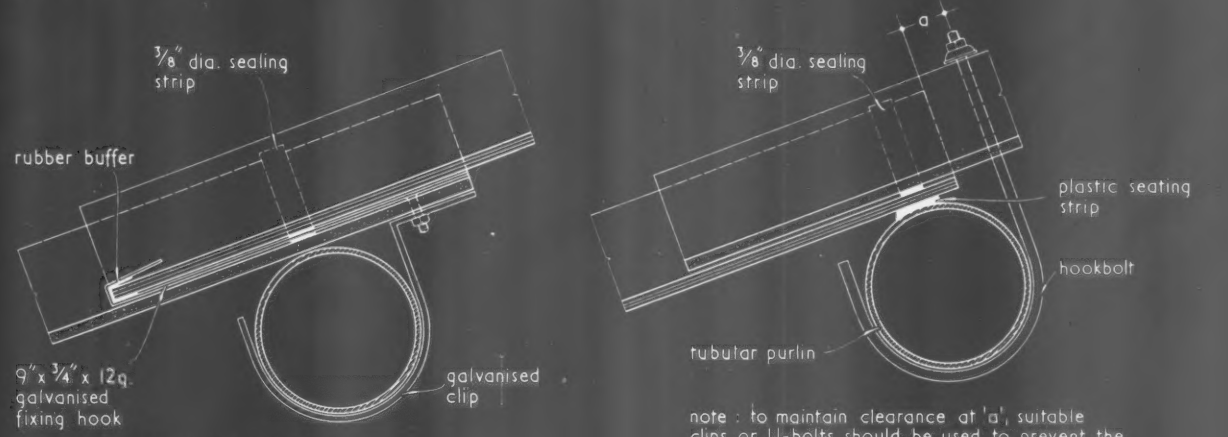
The Architects' Journal Library of Information Sheets 666. Editor: Cotterell Butler, A.R.I.B.A.



FIXING TO ANGLE PURLINS.



FIXING TO TIMBER PURLINS.



FIXING TO TUBULAR PURLINS.

note : to maintain clearance at 'a', suitable clips or U-bolts should be used to prevent the asbestos-cement roof sheeting from slipping

·CORROGLAZE· CORRUGATED GLASS SHEETING. Manufacturer : Corroglaze Ltd.

24.T1 ·CORROGLAZE· CORRUGATED GLASS SHEETING

This Sheet describes Corroglaze corrugated glass sheeting which is designed to fit in with asbestos-cement roof sheets of nominal 6-in. corrugation. It is suitable for roof or vertical glazing.

Description

Corroglaze is corrugated ¼-in. annealed cast glass reinforced with 1-in. square wire mesh. The external face is smooth and the internal face ribbed for light diffusion. It is designed to fit in with roof sheets such as Big Six (Turners Asbestos Cement Co. Ltd.), Standard Six (Universal Asbestos Manufacturing Co. Ltd.), Major Six (Atlas Asbestos Cement Co. Ltd.). It therefore requires no flashings, glazing bars or compound purlins and gives shadow-free illumination of even intensity.

Sizes

The sheeting is 3 ft. 5½ in. wide (nominal) by 5 ft. 0 in. long. It can be supplied in lengths of 4 ft. 6 in. and 5 ft. 6 in. to order.

Weight

The weight of the sheeting is 3·6 lb. per sq. ft. or 62 lb. per 5-ft. sheet.

Fire Resistance

The sheeting, being glass, is non-combustible within the definition of BS 476 : Part 1 : 1953 and has no surface spread of flame and therefore the restrictions governing permissible areas of roof lights formed from other corrugated rooflighting sheets do not apply to Corroglaze.

Light Transmission

The light transmission coefficient of Corroglaze is approximately 85 per cent. To obtain a daylight factor of 4 to 6 throughout the working plane in an average single-storey building, Corroglaze equal to approximately 10 per cent. only of the roof area is required, provided that the panels are evenly spaced out.

Fixing

The standard 5-ft. sheet requires purlins or rails spaced at 4 ft. 6 in. centres. This allows for the minimum end lap of 6 in.: sides should lap a half corrugation. Sheets should be correctly mitred and standard lengths can be supplied already mitred if desired. They should be fixed in accordance with the manufacturer's printed instructions, using Corroglaze sealing strip and fixing accessories as shown in the drawings on the face of the Sheet. The details show the method of fixing to various types of structure. The top of the Corroglaze in every case is held by the asbestos-cement sheeting, which is hook-bolted to the structural support. The lower ends of Corroglaze sheets are held by two fixing hooks, which are in turn fixed to the intermediate or lower structural support by the various means illustrated.

Further Information

The manufacturer maintains a technical advisory department which is available to answer questions and advise on technical problems dealing with this subject generally.

Compiled from information supplied by:

Corroglaze Ltd.
Address: Palace of Engineering, Wembley, Middlesex.
Telephone: Wembley 9411.

working detail

COVERED WAYS AND CANOPIES: 28

ACOUSTIC CANOPY: SCHOOL AT HERTFORD

C. H. Aslin, Architect to the Hertfordshire County Council

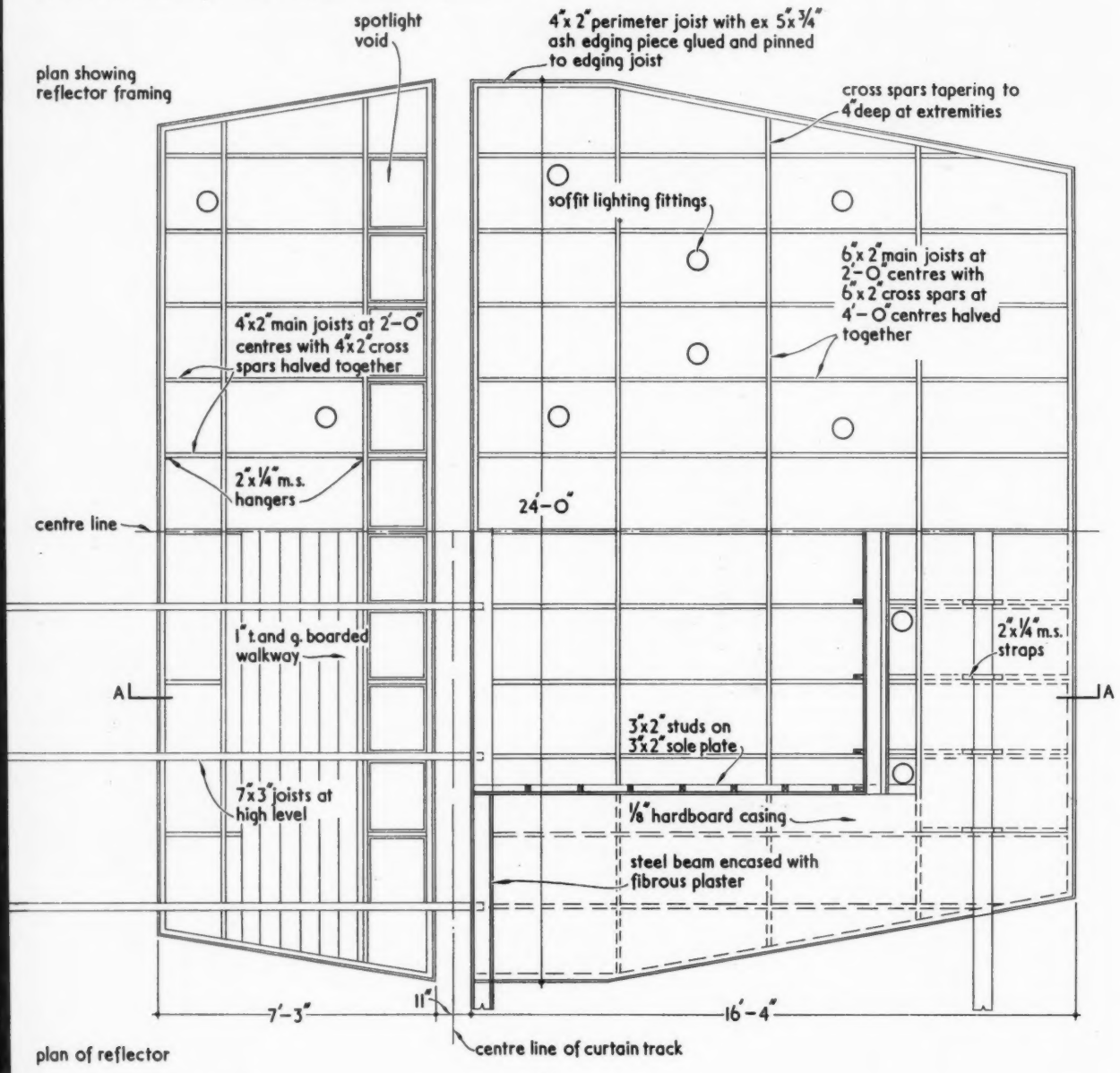
This reflector is of value in showing the skilful accommodation of the many pieces of overhead gear which the stage of a secondary school assembly hall requires: the sound reflector itself, the three different classes of light fitting, the walkway to give access to them, and the curtain.

working detail

COVERED WAYS AND CANOPIES: 28

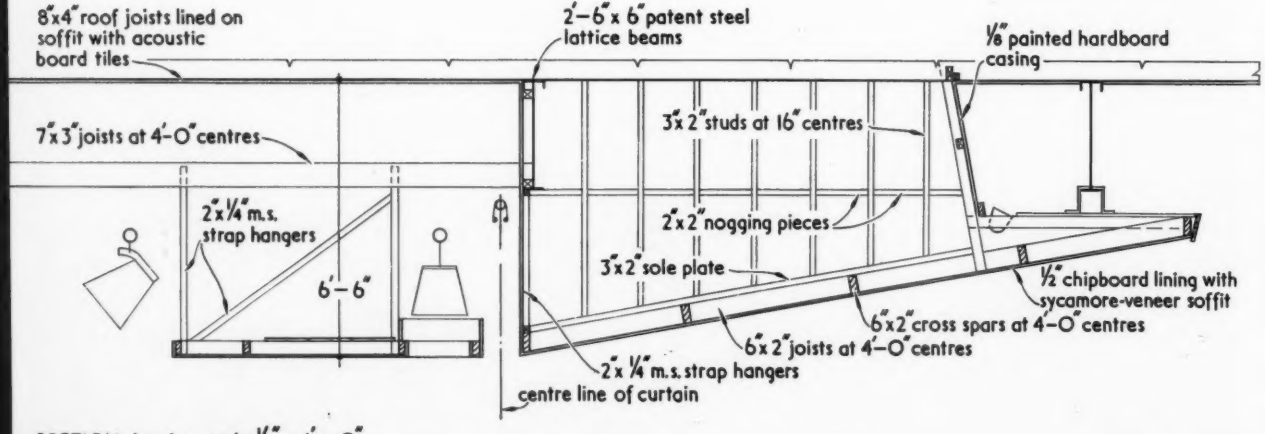
ACOUSTIC CANOPY: SCHOOL AT HERTFORD

C. H. Aslin, Architect to the Hertfordshire County Council

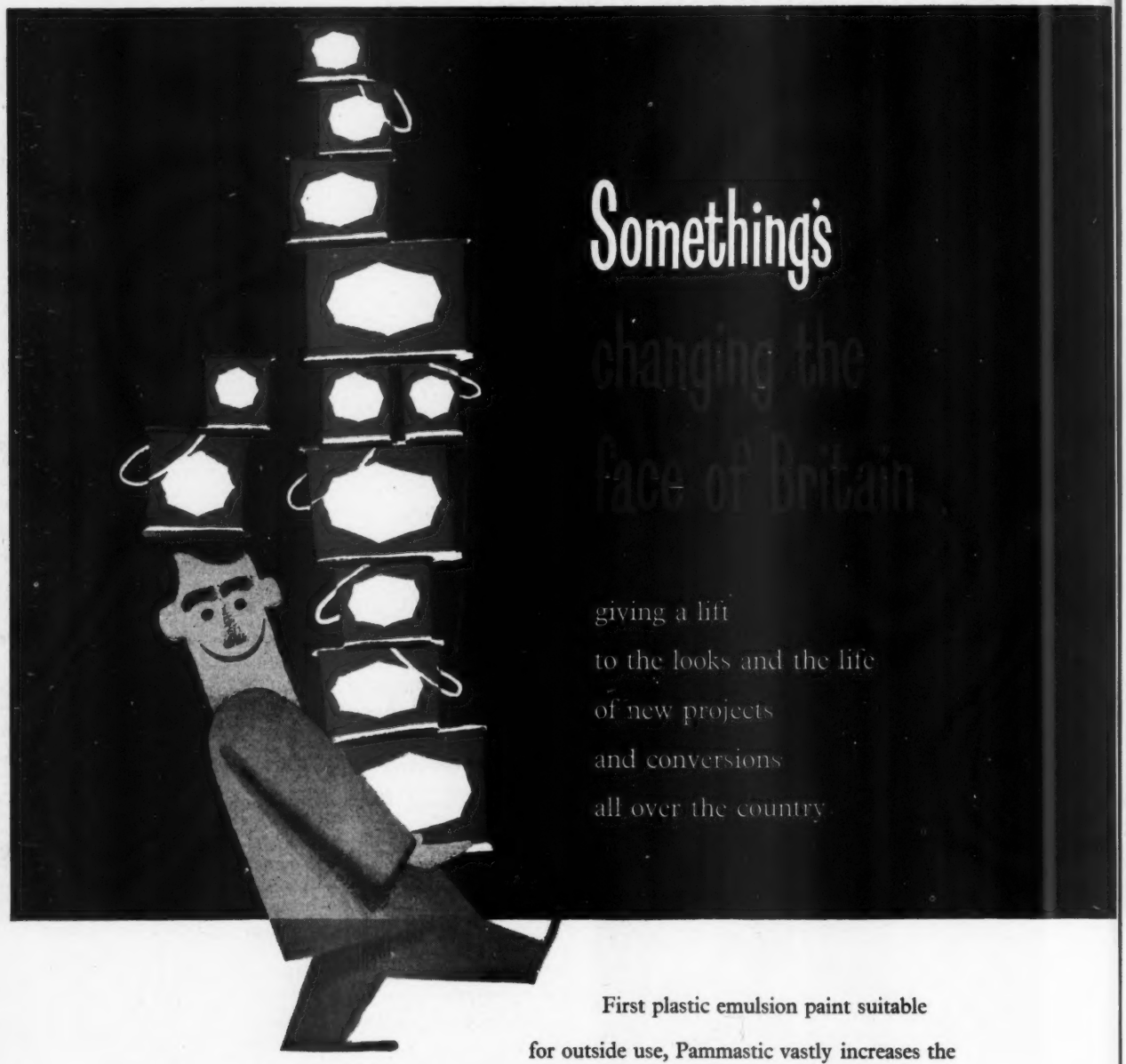


plan of reflector

PLANS. scale ¼" = 1'-0"



SECTION A—A. scale ¼" = 1'-0"



First plastic emulsion paint suitable for outside use, Pammastic vastly increases the potentialities of exterior colour in architecture. For pointing good features and disguising the bad, for achieving new effect of proportion and uniquely interesting colour schemes, Pammastic's range of 25 intermixable colours is an unexcelled design medium.

NO COMPLICATIONS

Pammastic is probably the simplest kind of wall paint ever devised. It needs no undercoating or primer; can be used on brickwork, plaster, stucco, cement, concrete, pebbledash and asbestos; will not peel or flake. Perfect, in fact, for *outside* as well as inside uses.

TROPICALLY TESTED

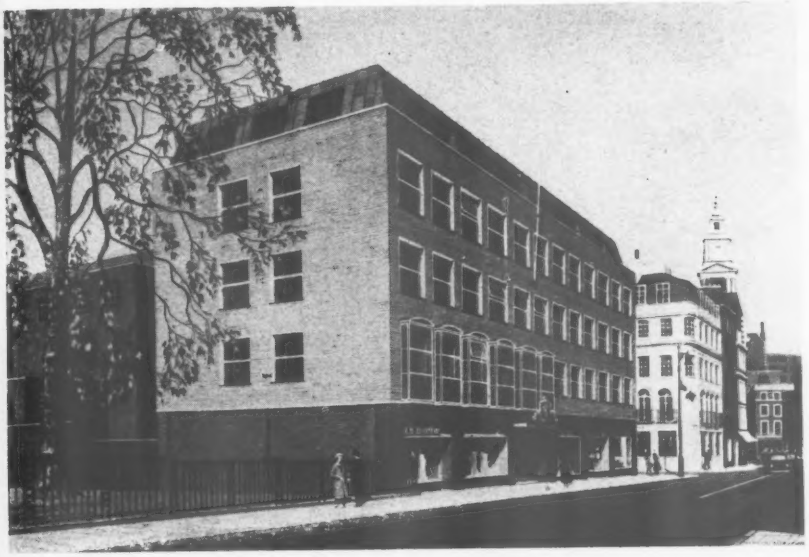
Pammastic has proved it remains unaffected by humidity, rain, or industrial fumes. It is distinguished for its low dirt retention, great adhesion and fastness to light. Its effective life is often three times that of conventional cement paints. Over the years, it is certainly the most economical kind of exterior wall paint.

PAMMASTIC

the world's best Emulsion Paint

Further information from: Blundell, Spence & Co. Ltd., 37 Queen Square, London, W.C.1

SHOPS, OFFICES AND FLATS IN CURZON ST., MAYFAIR



This three-storey block of shops, offices and flats, designed by Bridgwater and Shepheard, is now going up in Curzon Street, Mayfair, and is expected to be completed within twelve months. Construction of basement and ground floor is r.c. frame on pile foundations to 40 ft. Above first floor, 14½-in. brick walls support r.c. floors, with a penthouse flat in timber roof construction covered with copper. The ground floor is faced in green Vert Stella marble and upper floors in picked yellow London stock facing bricks. A low-temperature hot water system flows in heated coils embedded in the soffit of the ceiling.

Announcements

PROFESSIONAL

Mrs. Sheila Gooch, A.R.I.B.A., has begun private practice at Gurney Court, Magdalen Street, Norwich (telephone: 27506).

Victor Wilkins, F.R.I.B.A., retired from practice on March 25 and the practice of Victor Wilkins & Partners has been transferred to Ronald Ward & Partners, 29, Chesham Place, Belgrave Square, S.W.1.

Architects' Co-Partnership of 44, Charlotte Street, W.1 have taken into associate partnership Philip D. B. Groves, A.R.I.B.A., Dennis E. Pugh, A.R.I.B.A., Gordon Redfern, A.R.I.B.A., DIP. ARCH., Alan K. H. Richards, A.R.I.B.A., DIP. ARCH. and John Smith, A.R.I.B.A., A.A. DIP.

R. Michael Rostron, B.ARCH., A.R.I.B.A., has been awarded a Leverhulme Research Fellowship to study modern cladding techniques and will be pleased to receive trade catalogues and other information on this subject from manufacturers and architects.

TRADE

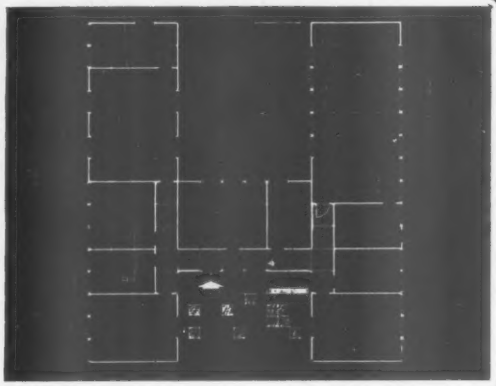
The Birmingham Area Sales Office of Northern Aluminium Co. Ltd. has now moved to new premises at Devonshire House, Great Charles Street, Birmingham, 3 (telephone: Central 7393). The telegraphic address remains unchanged.

The Airscrew Co. & Jicwood Ltd. of Weybridge, Surrey, has now established area representatives at key central spots in the United Kingdom to maintain direct contact with commercial and domestic users of its Weyroc and Hardec products. These representatives are situated in Berkshire, Surrey, London, Glamorganshire, Edinburgh, Bristol, Birmingham and Newcastle-on-Tyne.

SHOWROOM AND OFFICES IN THE STRAND, LONDON, W.C.2

A photo mural of the New York skyline, abstract painting, and specially designed showcases and low, glass-topped tables, are some of the features of Ronson's new sales offices, Strand, London, W.C.2. Designed by W. J. de Majo. A main stanchion, faced with mirror and sycamore, carries a small boxshelf with recessed plug, from which electric shavers can be demonstrated.

Attractively designed 'Middlesex' Prefabricated Timber Buildings are fast achieving a name for dependability and economy. The architect-designed 'Middlesex' System uses the minimum number of basic components, yet is sufficiently flexible to meet most requirements. Shown here is a typical 'Middlesex' Office Block consisting of two 60ft. by 16ft. wings connected by a 24ft. entrance link.



'Middlesex' Prefabricated Buildings are the complete answer to problems involving temporary or semi-permanent accommodation suitable for tropical or temperate climates. Delivery is prompt, erection rapid and simple, and modifications and extensions can easily be incorporated after erection. Supplied in a variety of interior and exterior finishes, the 'Middlesex' System can provide accommodation for a whole community, including even cinemas and churches.

- **OFFICES : SOCIAL CENTRES**
- **BUNGALOWS**
- **HOSPITALS : SCHOOLS**
- **HOSTELS : LIBRARIES**
- **CONSTRUCTION CAMPS**

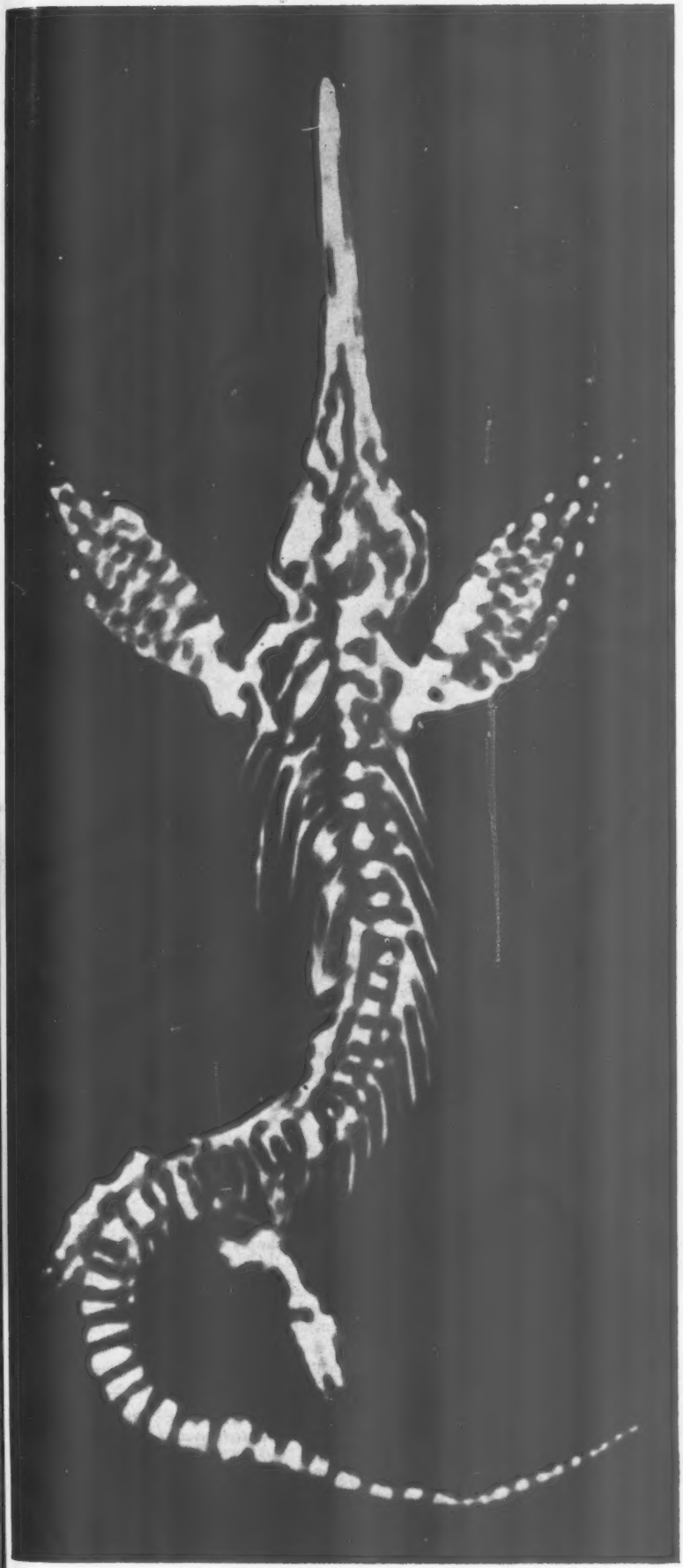
Illustrated brochure giving full details of the 'Middlesex' system available on request.

'Middlesex' Prefabricated Buildings

All enquiries to: Prefabricated Structures Division,
J. E. LESSER & SONS LTD.

Head Office:
Green Lane, Hounslow, Middlesex.

Tel:
HOUnslow 7281-7



Had his construction kept pace with the times he might be in business today

Icthyosaurus Tenuirostris belonged to a very old family whose members varied happily from one to thirty feet long. They failed to keep pace with changing conditions and another old family became extinct. This introduces the subject of Prestressed Precast Concrete—a development as progressive as the Icthyosauri were static. Production is controlled in detail at all stages by experienced engineers and trained staff. The units are manufactured to agreed schedules, stored on our site when required, to ensure delivery to sites by road or rail *when they are scheduled to be received.* This enables site erection schedules to be maintained, work on site, i.e., shuttering, steel placing, concreting, being reduced to the minimum, thereby reducing waste and delays due to inclement weather.

Order your requirements in Prestressed and Precast Structural Units from Concrete Development Company and reduce building costs and construction time. Our units are made to measure to your design or those of our Design Department. In either case our engineers will be glad to collaborate with you.

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TELEPHONE: IVER 1131

CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcements

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

BOROUGH OF BEXLEY
ARCHITECTURAL ASSISTANT

Applications are invited for this appointment at a salary within Grade A.P.T. I (£575—£725), plus London weighting.

Preference will be given to candidates who have passed the Intermediate Examination of the R.I.B.A. and have had experience in housing and other building projects.

Forms of application and conditions of appointment are obtainable from the Borough Engineer, West Lodge, Broadway, Bexleyheath, Kent, to whom completed applications must be returned by 21st April, 1958. The Council may be prepared to assist in the provision of housing accommodation. Canvassing will disqualify.

ARTHUR GOLDFINCH,
Town Clerk.
9078

LANCASHIRE COUNTY COUNCIL
APPOINTMENT OF COUNTY ARCHITECT

The Lancashire County Council invite applications from Fellows or Associate Members of the Royal Institute of British Architects for the post of COUNTY ARCHITECT at a salary of £3,390 per annum rising by annual increments of £265 and £260 to a maximum of £3,915 per annum. The appointment will be subject to the provisions of the Local Government Superannuation Acts, and the successful applicant will be required to pass a medical examination.

Forms of application, together with particulars of the terms and conditions of the appointment, may be obtained from the undersigned, to whom applications should be submitted not later than the 9th May, 1958.

R. ADCOCK,
Clerk of the County Council.
County Hall,
Preston. 9007

CITY OF BRADFORD
ARCHITECTURAL ASSISTANTS

Applications are invited for the appointment of TWO ARCHITECTURAL ASSISTANTS (Posts 122 and 204) at a salary in accordance with Special Grade, £750—£1,030; commencing salary in accordance with experience and qualifications.

Candidates should have had experience in the design of houses, flats and shops and the layout of housing estates, have sound design ability and be experienced in the preparation of working and detail drawings.

Applications on forms to be obtained from the City Engineer and Surveyor, Town Hall, Bradford, 1, together with three testimonials, must be received by the undersigned by 18th April, 1958.

W. H. LEATHEM,
Town Clerk.
Town Hall, Bradford, 1. 9083

CITY OF BIRMINGHAM EDUCATION COMMITTEE
COLLEGE OF ART AND CRAFTS
BIRMINGHAM SCHOOL OF ARCHITECTURE

Principal: MEREDITH W. HAWES, A.R.C.A., A.R.W.S., N.R.D.

Director of the School of Architecture: A. DOUGLAS JONES, Dip.Arch.(L'pool), F.R.I.B.A.

Applications are invited for the full-time post of LECTURER in the School of Architecture. Salary Burnham (Further Education) Scale for Lecturers—men £1,200 × £30 to £1,350.

Forms of application and further particulars may be obtained from the Principal, College of Art and Crafts, Margaret Street, Birmingham, 3. Closing date 19th April, 1958.

E. L. RUSSELL,
Chief Education Officer.
9108

COUNTY BOROUGH OF DONCASTER
APPOINTMENT OF PLANNING STAFF

Vacancies exist in the Borough Surveyor and Planning Officer's Department for PLANNING ASSISTANTS on the following grades:

A.P.T. I — £575—£725
A.P.T. II — £725—£845
Special Grade — £750—£1,030

Applications are invited from suitably qualified persons for the posts which are superannuable, subject to N.J.C. conditions of service and a medical examination.

Consideration will be given to the provision of housing accommodation.

Applications, stating whether candidates are to their knowledge related to any Member or Senior Officer of the Council, with details of qualifications, experience, past and present appointments and the names of two referees, should be made to the Borough Surveyor and Planning Officer, 2, Priory Place, Doncaster, not later than 14th April, 1958.

H. R. WORMALD,
Town Clerk.
1, Priory Place,
Doncaster.
19th March, 1958. 9105

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for (1) ARCHITECTS, Grade III, starting salary up to £1,090 a year. (2) ARCHITECTURAL ASSISTANTS, starting salary up to £860.

Full and interesting programme of houses, flats, schools and general buildings.

Application form and full particulars from the Architect (AR/EK/5/58), The County Hall, S.E.1. (203) 8741

CITY OF BIRMINGHAM PUBLIC WORKS DEPARTMENT

Applications are invited for the post of Deputy Redevelopment Officer.

Candidates must be Corporate Members of the Town Planning Institute and an additional qualification in Architecture, Engineering or Surveying is desirable. Experience with a large local authority will be an advantage.

Salary scale: £1,215 per annum, rising by annual increments to £1,380 per annum.

The post is permanent, superannuable and subject to a medical examination.

Application forms may be obtained from the undersigned to be returned not later than 26th April, 1958.

Canvassing disqualifies.

HERBERT J. MANZONI,
City Engineer and Surveyor.
Civic Centre,
Birmingham, 1. 9106

DERBYSHIRE COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT

Applications are invited from Qualified ARCHITECTS, preferably with experience in the layout and design of housing estates and central area redevelopment. Salary will be in the range £750—£1,030, and the commencing salary will be determined on the basis of experience.

Applications with one testimonial and the names of two referees should reach the County Planning Officer, 8A Bold Lane, Derby, by April 14th, 1958. 9107

MIDLANDS ELECTRICITY BOARD

Applications are invited from qualified Architects for the appointment as ASSISTANT CHIEF ENGINEER (BUILDINGS) on the Chief Engineer's Staff at Board Headquarters.

Applicants must have good executive and organising ability, and extensive experience in the design, planning, erection and maintenance of such buildings as offices, workshops, stores and shops, together with knowledge of civil engineering work. Experience in land and building valuations an advantage.

Salary in accordance with N.J.M. Class 'C,' Grade 7 (£2,300/£2,500 per annum). Superannuable.

Applications giving full details of age, qualifications, experience, present position and salary should be forwarded within 14 days to The Secretary (Ref. FWC), Midlands Electricity Board, Mucklow Hill, Halesowen, Nr. Birmingham.

A. STEPHENS,
Secretary.
9135

CITY OF PLYMOUTH
APPOINTMENT OF JUNIOR PLANNING ASSISTANT

Applications are invited for appointment as Junior Planning Assistant, Grade A.P.T. I (£575—£725). Candidates should have experience of general planning work. Preference will be given to those having passed Intermediate Examination of the Town Planning Joint Examination Board.

Applications must be made on forms obtainable from the undersigned—closing date 21st April, 1958.

J. PATON WATSON, C.B.E., M.I.C.E.,
City Engineer and Surveyor.
The Guildhall, Plymouth.
March, 1958. 9136

NATIONAL COAL BOARD—N.W. DIVISION

ARCHITECTURAL ASSISTANT Grade I at the Divisional Office.

Experience in preparation of working drawings and details, and in making accurate site surveys, necessary. Good standard of draughtsmanship and R.I.B.A. Intermediate Examination required.

Salary will be in the scale £715—£850 per annum.

Applications giving age, qualifications, experience, present post and salary to Divisional Chief Staff Officer, 40, Portland Street, Manchester, 1, within 14 days. 9122

HERTFORDSHIRE COUNTY PLANNING DEPARTMENT

PLANNING ASSISTANT (ARCHITECTURAL) required to work upon Town Centre Schemes. Must be A.R.I.B.A. A Planning qualification, or experience in this sphere, would be an advantage, and would be reflected in the commencing salary (Special Grade £750—£1,030).

Forms of application from the County Planning Officer, County Hall, Hertford. Closing date 12th April, 1958. 9121

SHEFFIELD REGIONAL HOSPITAL BOARD

Applications are invited for the post of ASSISTANT ARCHITECT in the Architectural Division of the Board's Headquarters. Applicants must be Registered Architects and have passed the requisite examinations. Salary £700—£1,015. The appointment is subject to the Whitley Council terms and conditions of service, to the National Health Service (Superannuation) Regulations and to one month's notice on either side. Applications, together with the names of three referees, should be sent to the Secretary to the Board, Fulwood House, Old Fulwood Road, Sheffield, 10, by 18th April, 1958. 9123

COUNTY BOROUGH OF GREAT YARMOUTH
SCHOOLS ARCHITECT'S DEPARTMENT

Applications are invited to fill the vacancy for a temporary JUNIOR ASSISTANT, A.P.T. Grade II (£725 to £845).

Candidates should have had experience in school construction.

Forms of application may be obtained from F. Jackson, A.R.I.B.A., Schools Architect, 22, Euston Road, Great Yarmouth, and completed forms must be returned by 18th April, 1958.

D. G. FARROW,
Chief Education Officer.
22, Euston Road,
Great Yarmouth. 9118

UNIVERSITY OF HONG KONG

Applications are invited for the posts of LECTURER AND ASSISTANT LECTURER IN ARCHITECTURE.

Annual salary (superannuable) is: Lecturer £1,575 × £50—£2,175 for a man or £1,200 × £90—£1,680 for a woman; Assistant Lecturer, £1,375 × £50—£1,525 for a man or £1,040 × £40—£1,160 for a woman. There is also an expatriation allowance of £225 a year if applicable. The equivalent of income tax in the Colony is comparatively low.

Applicants should have a degree or diploma from a University or school recognised by the Royal Institute of British Architects, and should be an A.R.I.B.A. Postgraduate qualifications will be an additional consideration. The successful applicants will be required to work as a studiomaster in any Year and should be able to offer instruction in Building Construction, Design, or Theory of Structures.

First class sea passages are provided for expatriate staff and their families on first appointment and leaves.

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.

The closing date for the receipt of applications, in Hong Kong and London, is 3rd May, 1958. 9119

STAFFORDSHIRE COUNTY COUNCIL
COUNTY PLANNING & DEVELOPMENT DEPARTMENT

Applications are invited for the appointment of DEPUTY COUNTY PLANNING & DEVELOPMENT OFFICER. The salary scale will be £2,120 p.a., rising by annual increments of £55 to a maximum of £2,340 p.a.

Applicants should have had extensive experience of planning administration and should be corporate members of the Town Planning Institute and should hold in addition a recognised qualification in architecture, engineering or surveying.

Applications, giving details of age, qualifications, experience, together with the names of two persons to whom reference can be made, should be sent to D. W. Riley, County Planning & Development Officer, 41a, Eastgate Street, Stafford, not later than 14th April, 1958.

Relationship to any member or senior officer of the County Council must be disclosed. Canvassing will disqualify.

T. H. EVANS,
Clerk of the County Council.
25th March, 1958. 9120

LANCASHIRE COUNTY COUNCIL
APPOINTMENT OF COUNTY ARCHITECT

The Lancashire County Council invite applications from Fellows or Associate Members of the Royal Institute of British Architects for the post of COUNTY ARCHITECT.

The appointment will be made within the scale £3,390—£3,915 and will be subject to the provisions of the Local Government Superannuation Acts. The successful applicant will be required to pass a medical examination.

Forms of application, together with particulars of the terms and conditions of the appointment, may be obtained from the undersigned, to whom applications should be submitted not later than the 9th May, 1958.

R. ADCOCK,
Clerk of the County Council.
County Hall,
Preston. 9125

WILTSHIRE COUNTY COUNCIL invite applications for ASSISTANT ARCHITECT, preferably A.R.I.B.A. Superannuable. Salary £845—£1,025. Local Government experience desirable but not essential. Applications, stating age and experience, with names of three referees to the Clerk of the Council, County Hall, Trowbridge, by 25th April, 1958. 9126

COUNTY OF ESSEX
COUNTY PLANNING DEPARTMENT

Applications are invited for the post of AREA PLANNING OFFICER, JNC Scale "A" (£1,215—£1,380) in the North West Essex Area at Braintree.

Candidates must be corporate members of the Town Planning Institute and should possess an additional recognised professional qualification. They should have had extensive and wide experience in the administration of an Area predominantly rural in character including areas of great landscape value, the preparation of town maps for country market towns, village plans, control of development, the preservation of trees and woodlands and advising upon the preservation and maintenance of historic and ancient buildings. They should also be experienced in the administration of an office and the control of staff.

Medical examination; superannuation; canvassing disqualifies.

Application forms from County Planning Adviser, Broomfield Place, Broomfield, Chelmsford, returnable by April 8th, 1958. 9124

MANCHESTER EDUCATION COMMITTEE
REGIONAL COLLEGE OF ART

Required: an ASSISTANT in the School of Architecture. Candidates should have at least three years' professional experience and be Associates of the R.I.B.A.

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Forms and particulars (s.a.e.) from Chief Education Officer, P.O. Box 480, Manchester, 3, returnable by 14th April, 1958. 9127

Architectural Appointments Vacant

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ARCHITECTURAL ASSISTANTS required in busy London Office with varied practice. Good salary and prospects for suitable applicants. Five-day week. Write giving particulars of age, qualifications, experience, etc., to Box 873, c/o 7, Coptic Street, W.C.1. 8941

MANCHESTER Architect with small but busy practice requires SENIOR or NEAR SENIOR ASSISTANT. A good opportunity for man willing to work hard and who is enthusiastic about architecture and building. Box 9084.

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PLYMOUTH Architect requires ASSISTANTS at all levels. Write with full particulars of experience, etc., to Box 9065.

ARCHITECTURAL ASSISTANT required for Brewery Architect's office. Capable of proceeding from sketch stage, largely licensed houses and hotels, good knowledge of design and construction essential, previous experience in brewery work not necessary. Full details, age and salary required to the Architect, Thomas Ramsden and Son Ltd., Stone Trough Brewery, Halifax. 9087

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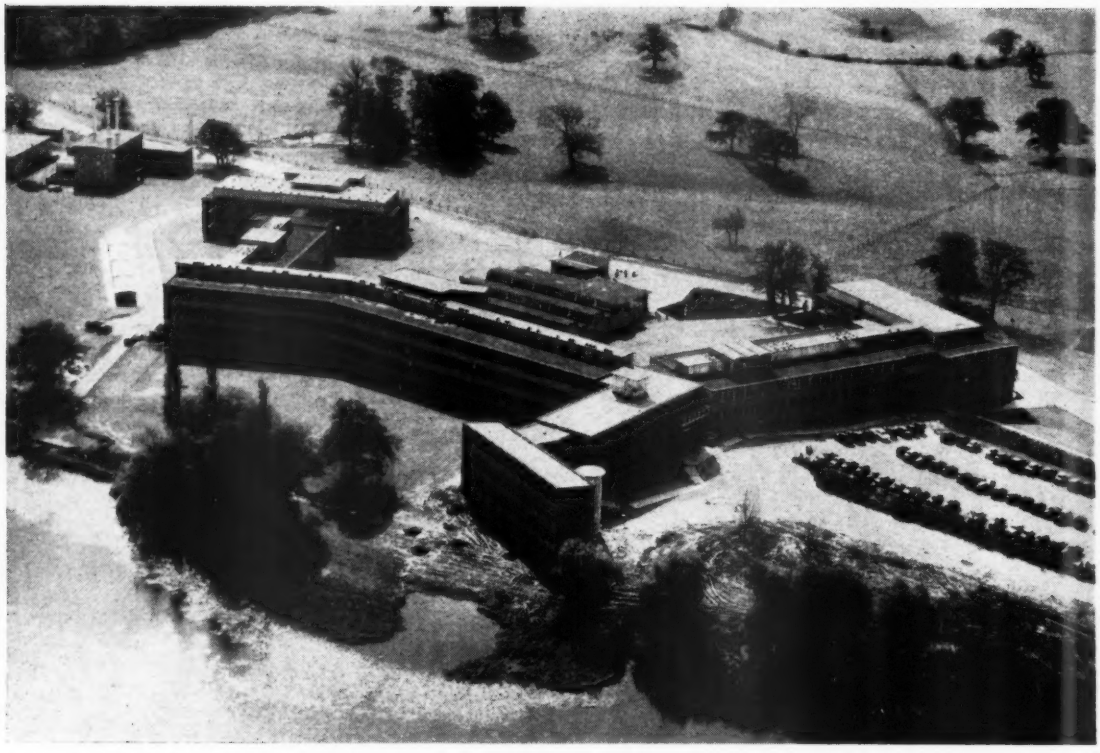

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