THE ARCHITECTS' JOURNAL

No. 3087] [VOL. 119

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

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. Marlborough Whitehead, "Dyneley," Castle Hill Avenue, Berkhampstead, Herts.	
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5721
ABT	Association of Building Technicians. 5, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James' Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
ArchSA	Architectural Students' Association. 34/36, Bedford Square, W.C.1.	
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Langham 8738
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BATC	Building Apprenticeship and Training Council. Lambeth Bridge House, S.E.1.	Reliance 7611, Ext. 1706
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 105, Uxbridge Road, Ealing, W.5.	Ealing 9621
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Fremantle 8494
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Glasgow Central 2891
BIAE	British Institute of Adult Education. 29, Tavistock Square, W.C.1.	Euston 5385
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Chancery 7772
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Whitehall Gardens, Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
BRDB	British Rubber Development Board. Market Buildings, Mark Lane, E.C.3.	Mansion House 9383
BRS	Building Research Station. Bucknalls Lane, Watford.	Garston 2246
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. British Standards House, 2, Park St., W.1.	Mayfair 9000
BTE	Building Trades Exhibition. 4, Vernon Place, W.C.1.	Holborn 8146/7
CABAS	City and Borough Architects Society. C/o Johnson Blackett, F.R.I.B.A., Civic Centre, Newport, Mon.	Newport 5491
CAS	County Architects' Society. C/o F. R. Steele, F.R.I.B.A., County Hall, Chichester.	Chichester 3001
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Sloane 5255
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611
CDA	Copper Development Association. Kendals Hall, Radlett, Herts.	Radlett 5616
CIAM	Congrès Internationaux d'Architecture Moderne. Doldertal, 7, Zurich, Switzerland.	
COID	Council of Industrial Design. Tilbury House, Petty France, S.W.1.	Abbey 7080
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.	Sloane 4280
CUC	Coal Utilization Council. 3, Upper Belgrave Street, S.W.1.	Sloane 9116
CVE	Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.	Reading 72255
DGW	Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1.	Reliance 7611
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
DPT	Department of Overseas Trade. Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
EJMA	English Joinery Manufacturers' Association (Incorporated), Sackville House, 40, Piccadilly, W.1.	Regent 4448
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 67, Oxford Street, W.1.	Gerrard 0021
FASS	Federation of Association of Specialists and Sub-Contractors, Artillery House, Artillery Row, S.W.1.	Abbey 7232
FBBDO	Fibre Building Board Development Organisation, Ltd., Melbourne House, Aldwych, W.C.2.	Temple Bar 4561
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.	Sloane 1002
FDMA	The Flush Door Manufacturers Association Ltd. Trowell, Nottingham.	Ilkeston 623
FLD	Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.	Ulverston 201
FMB	Federation of Master Builders. 26, Great Ormond Street, Holborn, W.C.1.	Chancery 7583
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Whitehall 3902
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Langham 4041
FS (Eng.)	Faculty of Surveyors of England. 67, Oxford Street, W.1.	Gerrard 0021
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. 27, Grosvenor Place, S.W.1.	Sloane 2844
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 75, Eaton Place, S.W.1.	Sloane 5615
ICA	Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215

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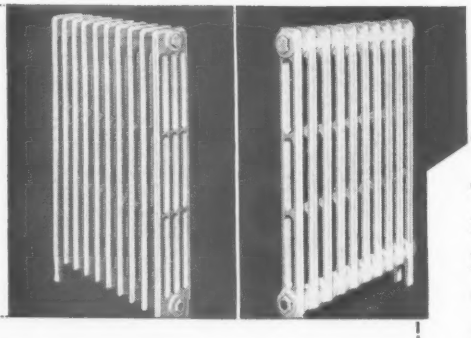
The Crane Pall Mall radiator, fitted in the British Electricity Authority offices, is a most adaptable design. It is available in either 2, 4 or 6 columns, with four different heights and can be stood on the floor or fitted on wall brackets. Its graceful lines look well in either contemporary or period interiors.

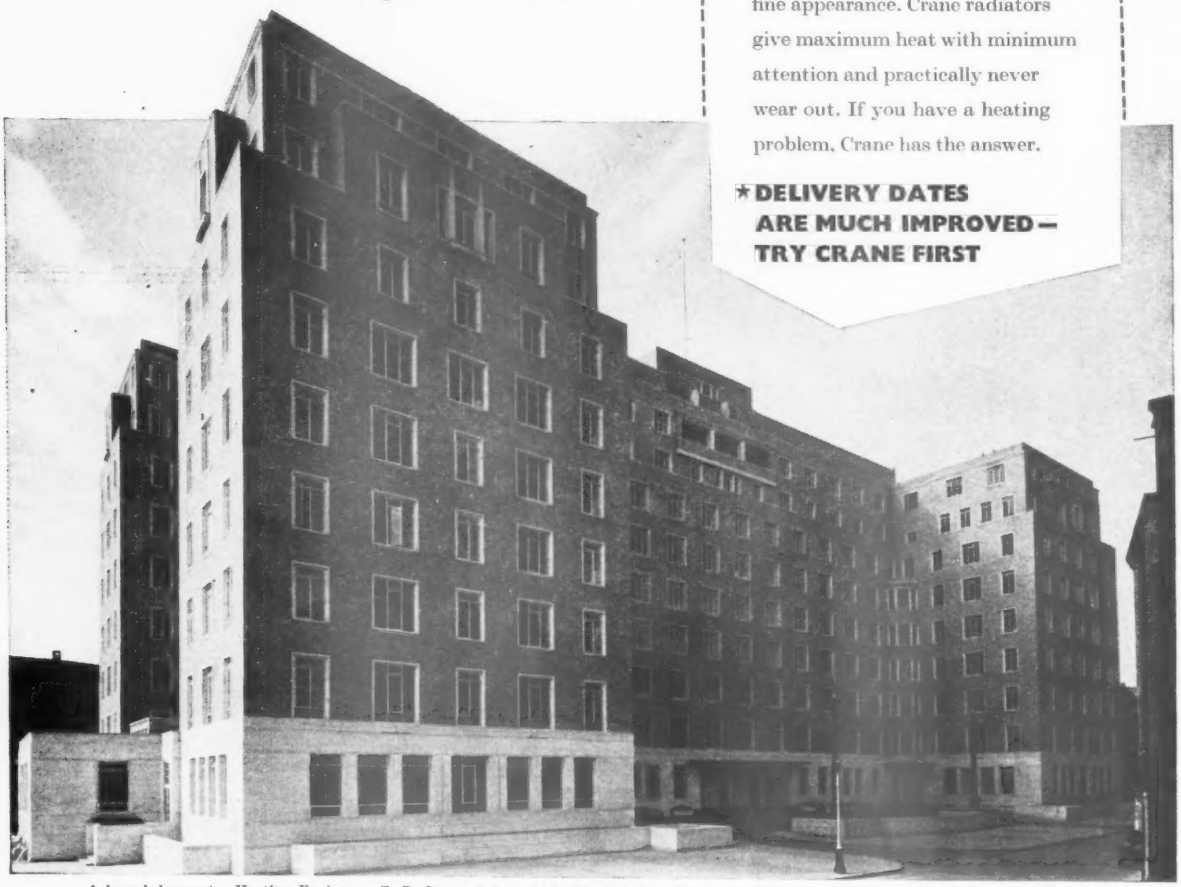


VISIT STAND NO. D.314 AT THE B.I.F.
CASTLE BROMWICH MAY 3—14th

Once again, radiators by Crane...

This fine new office block of the British Electricity Authority in London is heated throughout by Crane cast iron radiators—800 of which have been installed together with Crane valves and malleable iron fittings. The approval of Crane radiators, indicated by such large contracts as this, is due to their durability, scientific design and fine appearance. Crane radiators give maximum heat with minimum attention and practically never wear out. If you have a heating problem, Crane has the answer.

***DELIVERY DATES ARE MUCH IMPROVED— TRY CRANE FIRST**



Acknowledgements: Heating Engineers: Z. D. Berry & Sons Ltd., Westminster, S.W.1. Architects: W. Curtis Green, R. A., Son & Lloyd. General Contractors: Sir Robert McAlpine & Sons Ltd., London, W.1.

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BRANCHES: BIRMINGHAM, BRENTFORD, BRISTOL, GLASGOW, MANCHESTER.

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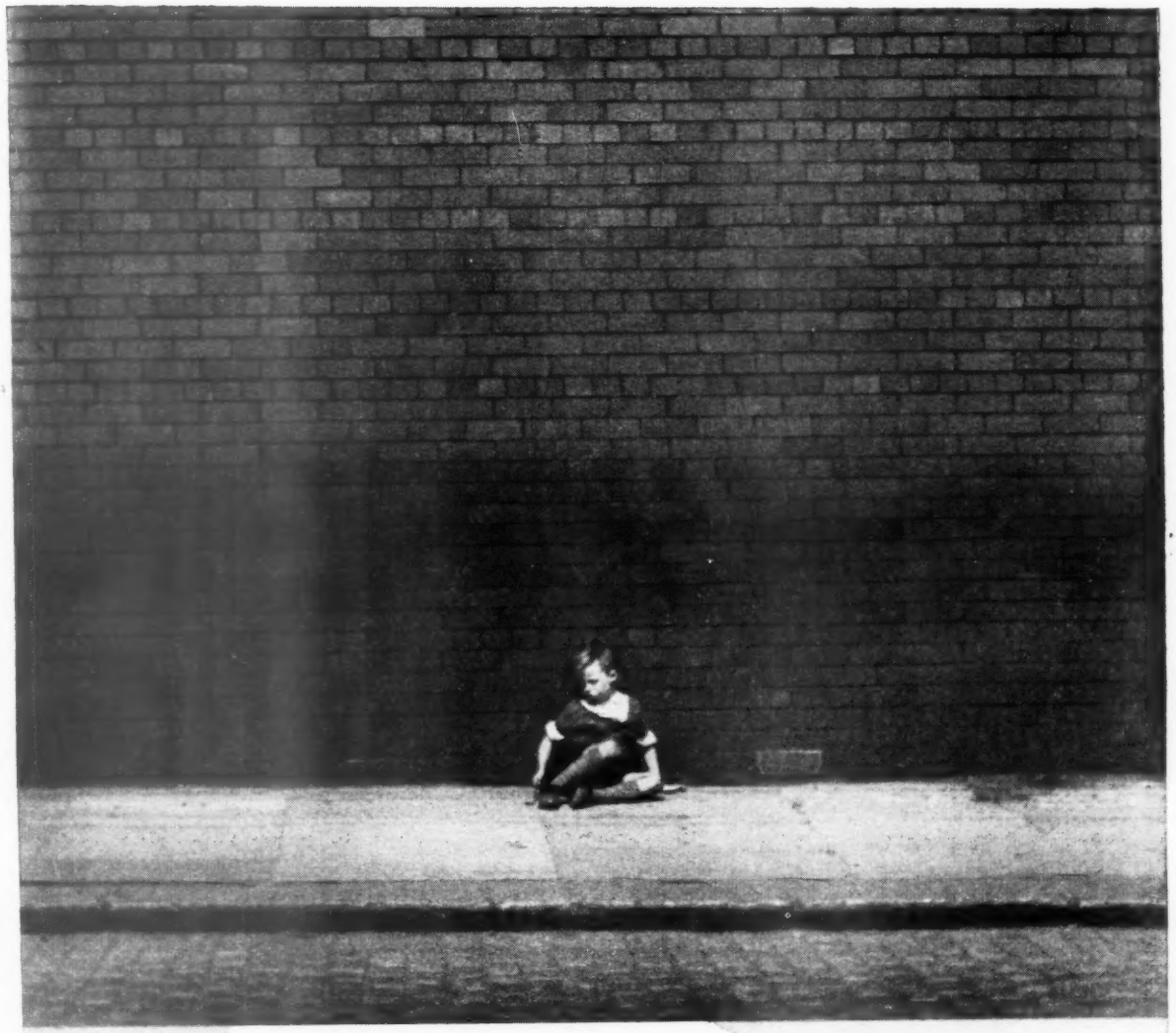

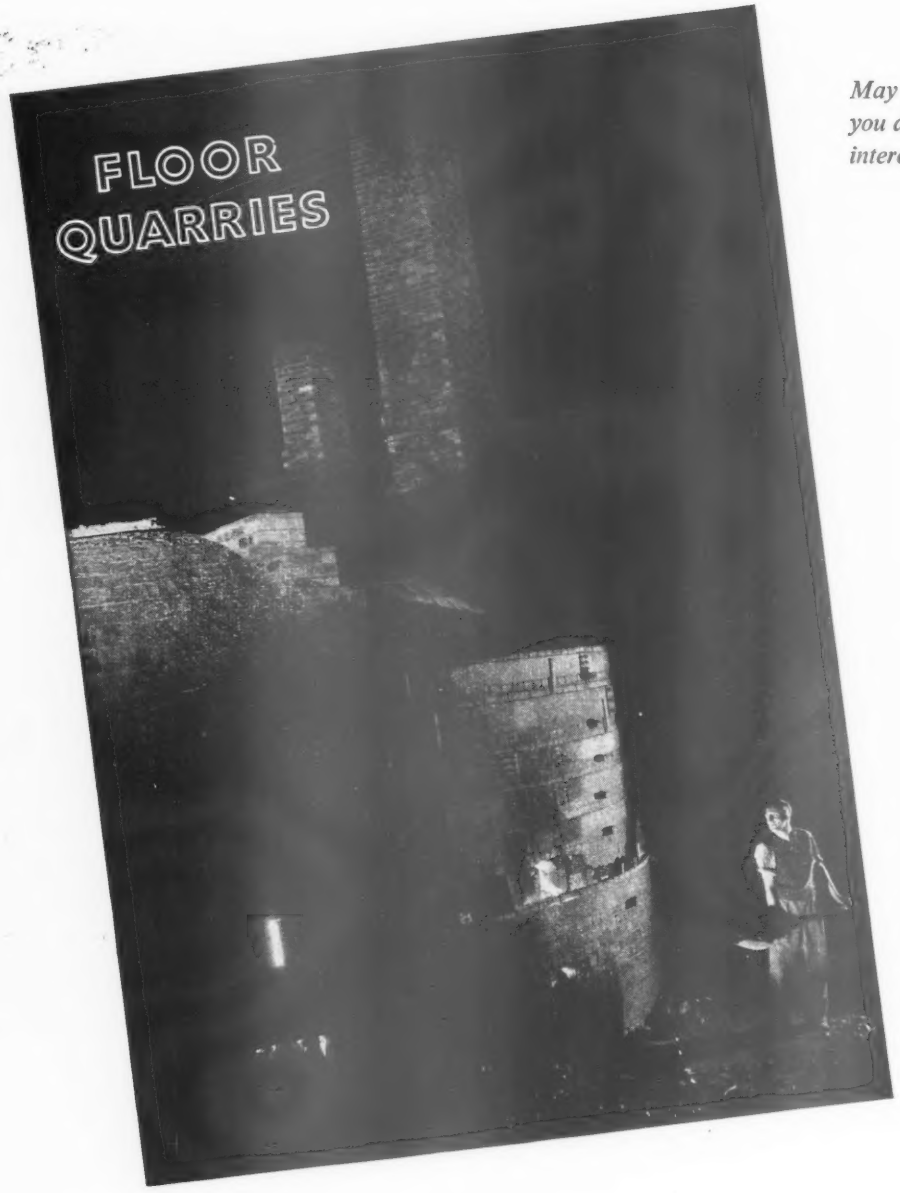

May we send you a copy of this interesting booklet?

WHEATLY

triton

This new Wheatly publication is intended primarily to show how floor quarries are made and it has been prepared for the information of architects, students and all interested in the methods of production of building materials. The book is concerned specifically with the manufacture of "Triton" Quarries at Springfield Tileries, Trent Vale, and is illustrated throughout with photographs specially taken at the Works by Walter Nurnberg, F.I.B.P., F.R.P.S.

Specimens of Wheatly Tiling may be seen at the Building Centre, London. Wheatly products include Single-lap Roofing Tiles, Ridge Tiles (blue and red), Floor Quarries, Air Bricks and Briquette Fireplaces.

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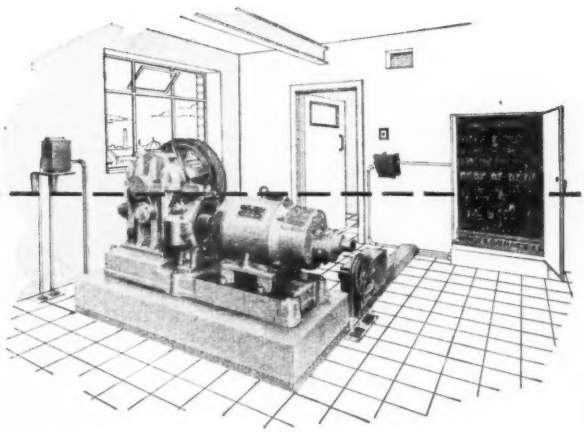
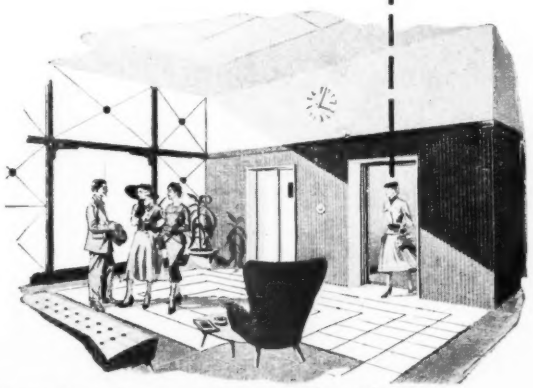


what is interconnected selective ?

A button is pressed . . . the automatic controller receives the request : ' 3rd. floor call for Ground '. Car No. 1 is ascending ; so the impulse is conveyed to Car No. 2 which is descending to collect passengers at the 6th. and 2nd. floors, stopping it also at the 3rd.

. . . that is interconnected selective, which H & C will gladly demonstrate.

H & C LIFTS



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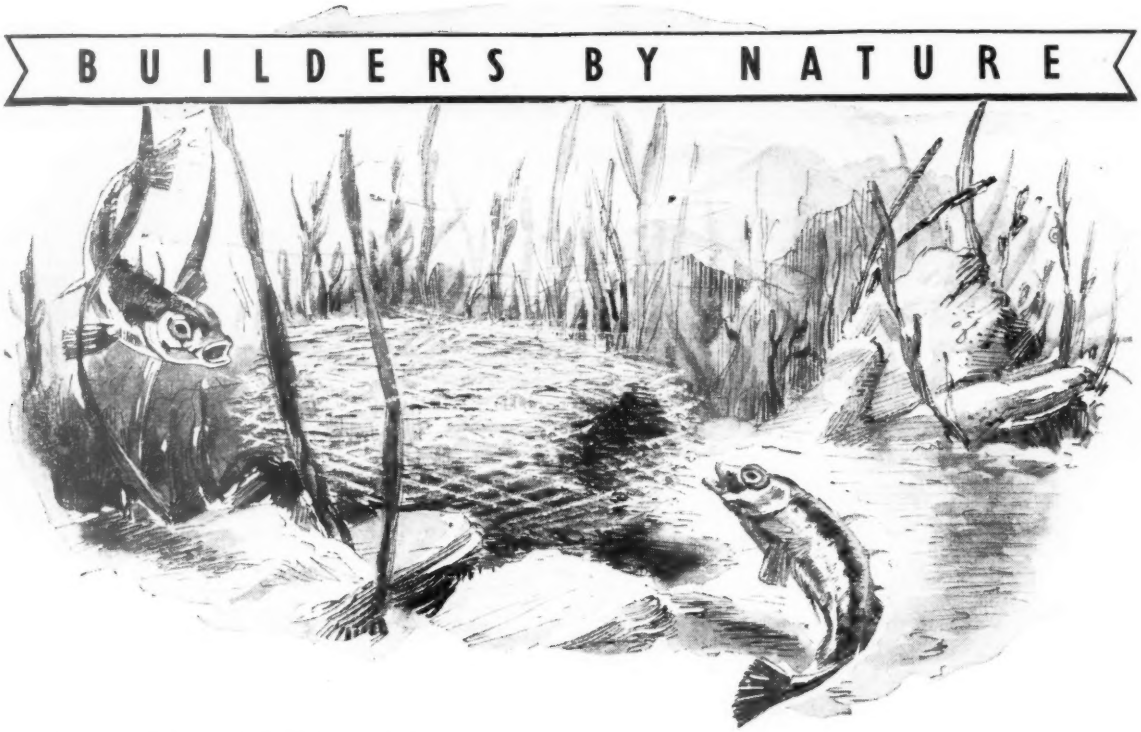
BUILDERS BY NATURE



No. 7. THE STICKLEBACK

Like a respectable Victorian suitor the male stickleback provides a home before choosing a mate. He undertakes its construction entirely on his own, acting as architect, builder and labourer all in one.

First he selects a suitable site where the water flows freely but not too swiftly. In salt-water he chooses shallows or a rock-pool, reached by the sea only at high-tide. Collecting together pieces of roots and stalks he cements them together with a sticky substance (mucus) from his kidneys. This mucus appears on the stickleback's sides and is removed when he rubs himself against the platform-like structure which he is making. He scatters mouthfuls of sand over this foundation to weigh it firmly down and satisfies himself that his work so far is strong by swimming against it and splashing vigorously.

Then he begins work on the barrel-shaped structure which forms the nest or nursery, working it together in the same way as the platform. He plasters it smoothly inside by swimming in and out and rubbing the mucus from his body on to the walls, where it hardens like varnish. The home is then completely ready to receive his mate and the eggs she will lay.

The **contemporary floor**

that fits modern furnishing needs . . .

Furniture by Bowmans

*plan for Accotile** **FLOORING**

With the growing popularity of contemporary style home furnishing comes the desire for flooring in harmony. No material fits this need so well as Accotile—the modern thermoplastic tile floor. First—it is *flexible* in design, for it is laid tile by tile. Second—there are 22 colours in the Accotile range, an assurance of colour harmony with any scheme of furnishing. Finally—Accotile provides a *close-fitting*, hygienic and draught-proof floor.

Accotile is alkali resistant, damp-proof and can be laid on concrete direct to earth; it can be quickly installed and ready for immediate use. Specialist Laying Contractors with over 90 Branches throughout the country are ready to collaborate with Architects anywhere. Send for Colour Range Folder 305H.

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Available in 12" x 12" and 9" x 9" tiles ⅛" and 3/16" thick, with 24" feature strip in widths from 1" to 5½" in multiples of ½". Top-set coved skirting available 4" high, 36" long with ½" radius cove.

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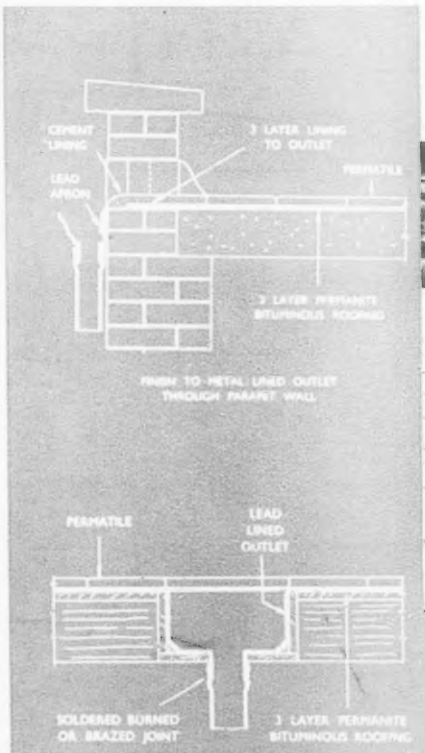
"PERMATILE" BUILT-UP FELT ROOFING



West Kent Technical College, Tunbridge Wells
S. H. Loweth, Esq., F.S.A., F.R.I.B.A., County Architect

"PERMATILE" BUILT-UP FELT ROOFING consists of two or three layers of "Permanite" Bituminous Felt bonded with hot bitumen and finished on top with heat insulating "Permatile" pumice tiles embedded in hot bitumen.

This roofing is ideal for Promenades, Terraces, Roof Gardens, etc., presenting an attractive and durable surface. Some typical finishes are shown on the left.

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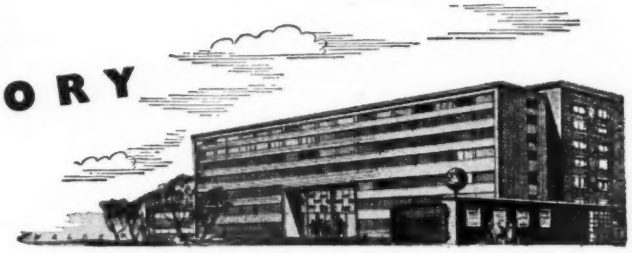
PLIMBERITE

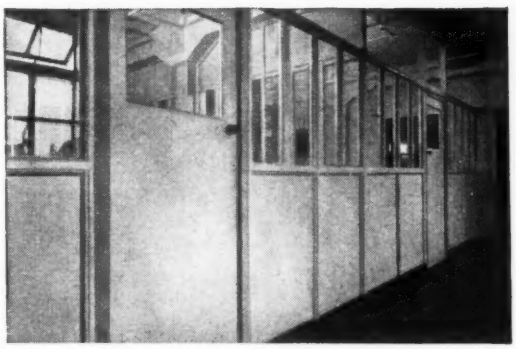
WOOD CHIPBOARD

IN OFFICE AND FACTORY



cuts costs of conversions

Speed up your conversion work with Plimberite and cut partitioning costs. A sheet (8 ft. x 4 ft. in thicknesses of ½" and ¾") of this versatile resin-bonded wood chipboard cuts readily to fit any angle, thus saving you time, trouble and money. Manufactured under heat and pressure to a density of 50 lbs/ cu. ft., Plimberite is rigid, flameproof, with good sound and thermal insulating qualities. Moisture movement and load tests, carried out on Plimberite by the Department of Scientific and Industrial Research prove its stability and strength. The surface of Plimberite, so ideal for painting, is also suited, because of its pleasing appearance, to staining, waxing and varnishing. To ensure best decorative results, ask for specifications of various finishes. Complete technical data on Plimberite is available from the manufacturers.



Offices constructed with ¾-in. PLIMBERITE and timber framing, by Messrs. Batger & Co., Confectionery Manufacturers, London, E.1.

See *PLIMBERITE* at:
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USE THE CENTRE
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Architect:
Laurence A. Williams, Esq.,
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The range of " Z " Type Metal Windows meets the demand for a standard range which incorporates many obvious advantages.
If the 1ft. 8in. Standard Metal Window is divided up with one vertical and three horizontal glazing bars, the dimensions of the pane are not so pleasing as when the " Z " unit is similarly divided. The panes in the latter instance would be square.
The Side Hung Casements in the 4ft. 0in. high " Z " range incorporate a slightly thicker web in order to retain a high degree of rigidity. Sublight types " F " and night ventilator types may be incorporated. Fixing methods are exactly as for Standard Metal Windows.

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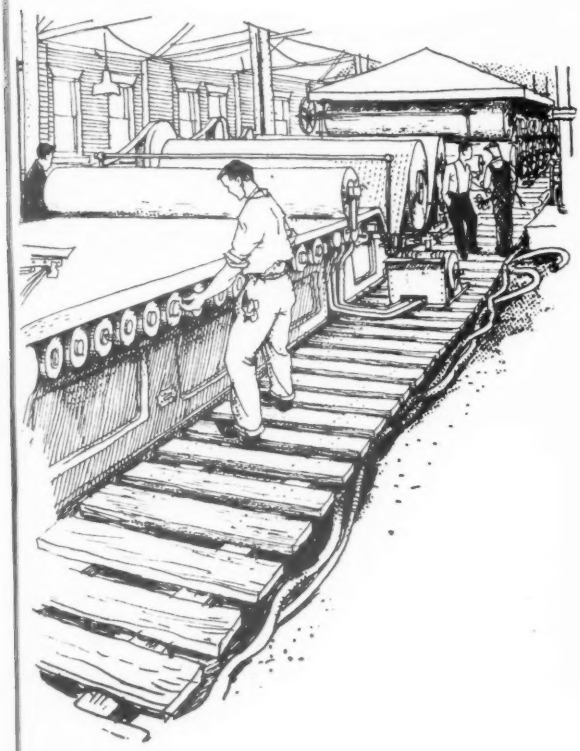
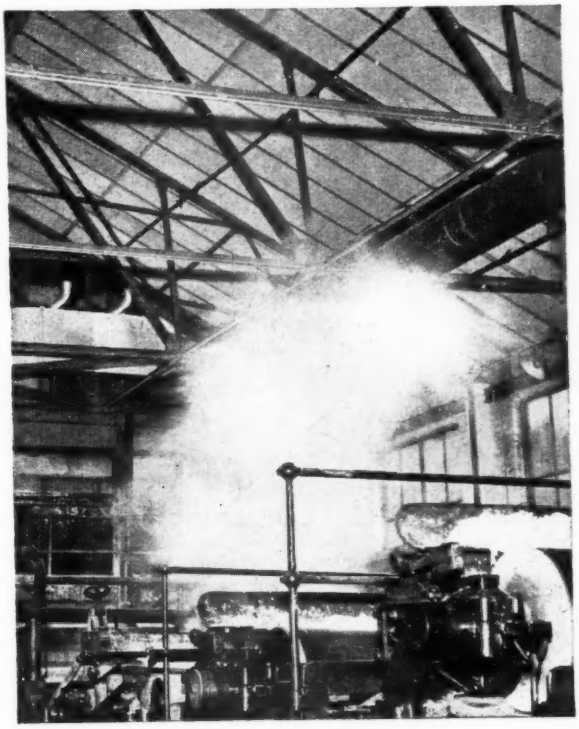
JW

'the place is full of steam...





. . . "The place is full of steam all day"—they told us at Cray Valley Paper Mills—"and dries out again at night. We can't have water dripping off the ceiling on to the machines." The ceiling, in other words, had to stand unlimited absorption and drying-out. It also had to be fire-proof, and to last indefinitely. A clear case for "Asbestolux", in fact. Time, humidity, heat, cold, chemicals, fungi, none of them can affect "Asbestolux", a silica-bonded pure asbestos board, which is made without cement. As for fire-resistance, a recent public test showed "Asbestolux" sheet standing up to a 1800°F flame for 13 days, 10 hours a day, without there being even the first sign of structural failure.

ASBESTOLUX

INCOMBUSTIBLE ASBESTOS INSULATION BOARD

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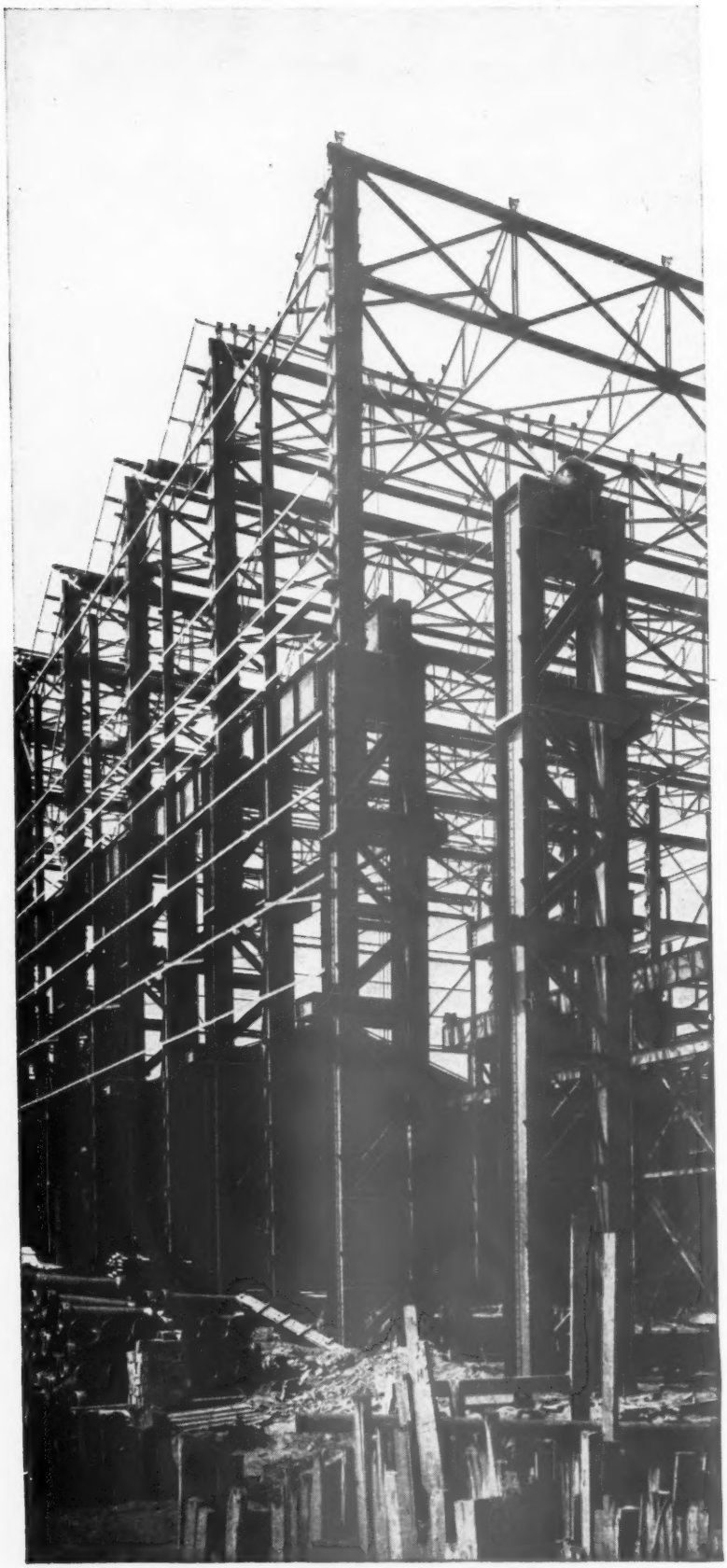

Banister, Walton build in steel

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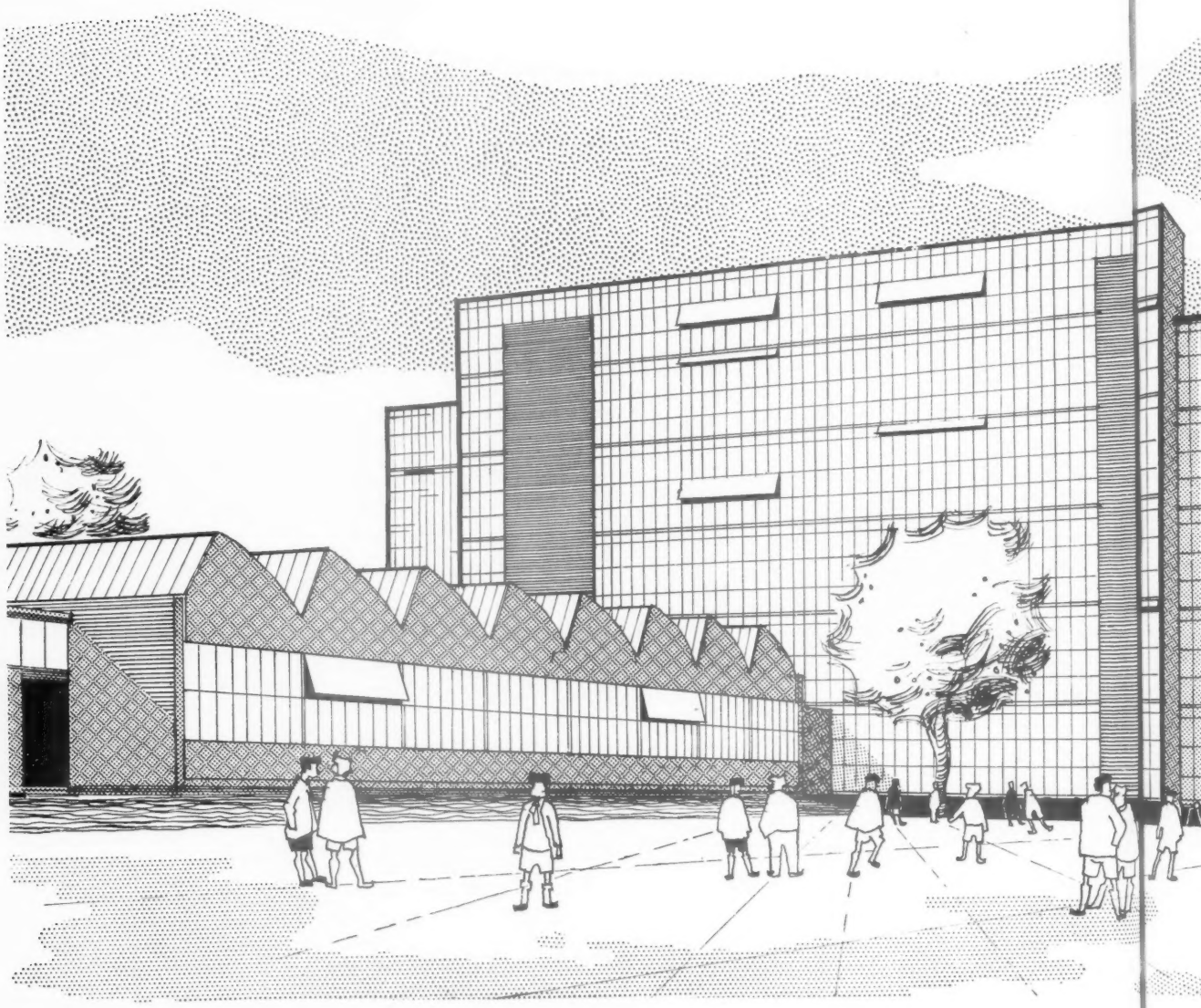
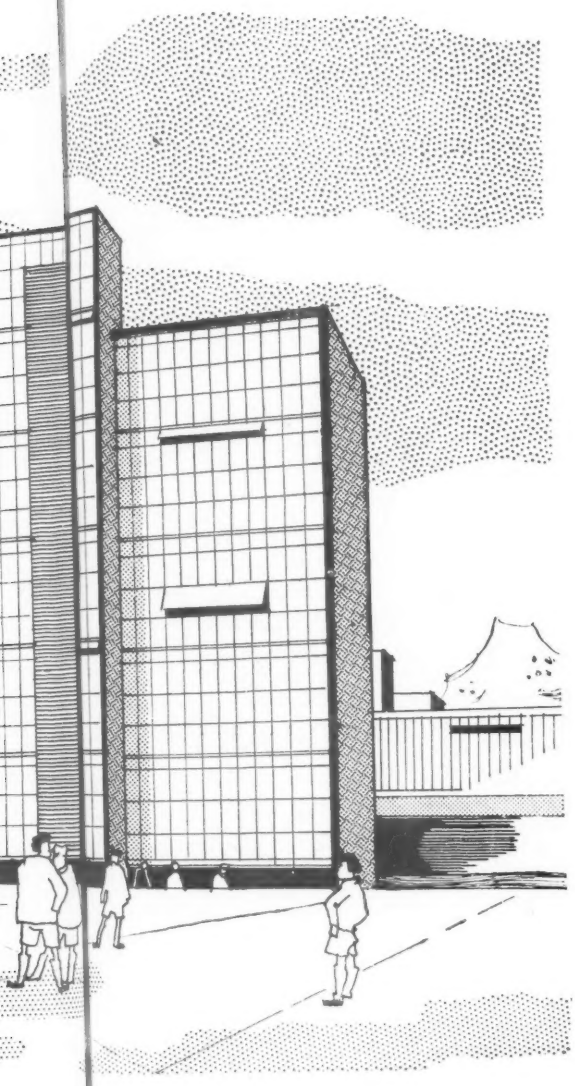


From a design by Edward D. Mills, F.R.I.B.A.

G SPECIFICATIONS

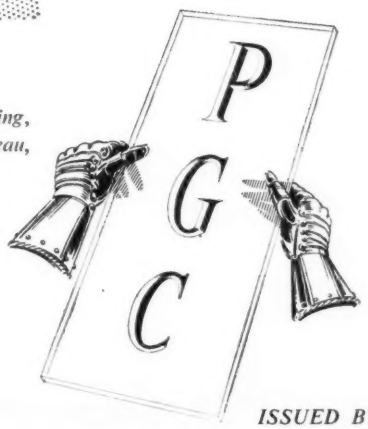


2. TOWN SCHOOL

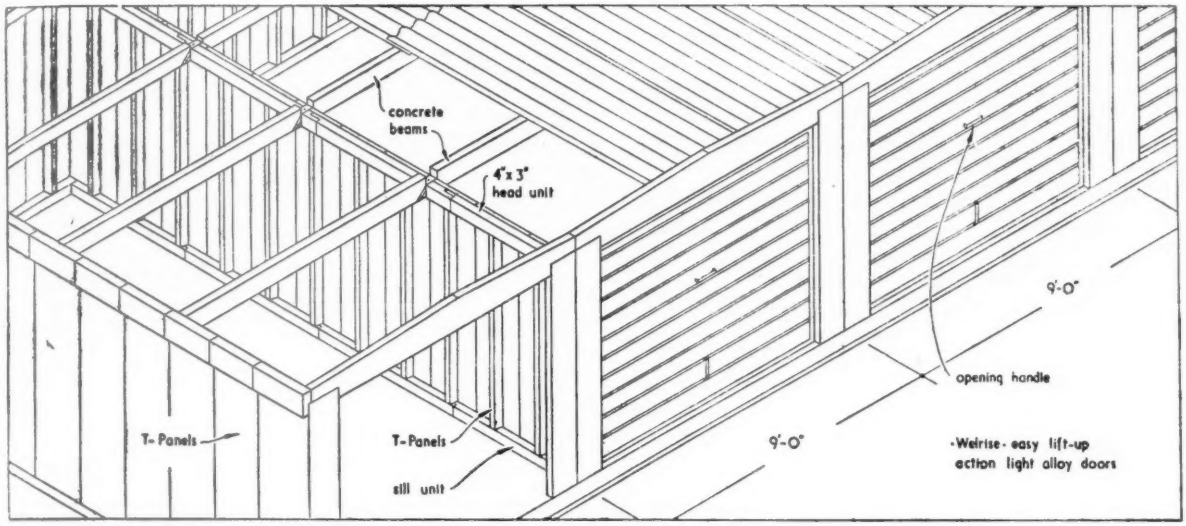
Schools in densely developed city areas must of necessity be built as multi-story buildings in order to provide as much open space on the site as possible. In order to produce economy in construction, such buildings must be designed so that materials are used as economically as possible and the structural frame kept to a minimum.

In such circumstances a light, easily maintained wall cladding, instead of the traditional brick or stone, has much to recommend it, and the example shown illustrates the application of patent glazing for such a purpose. In this case the wall cladding consists of Patent Glazing Bars glazed with ¼" Wired Cast glass up to cill level, and clear glass above. Opening lights are controlled by hand operated gear. The Workshop roof lights incorporated in the shell Northlight and vertical construction are composed of Patent Glazing Bars glazed with ¼" Wired Cast glass.

For all facts about patent glazing, write to the Information Bureau, The Patent Glazing Corference, Burwood House, Caxton Street, London, S.W.1.



ISSUED BY THE PATENT GLAZING CONFERENCE



FOR SINGLE STOREY BUILDINGS—

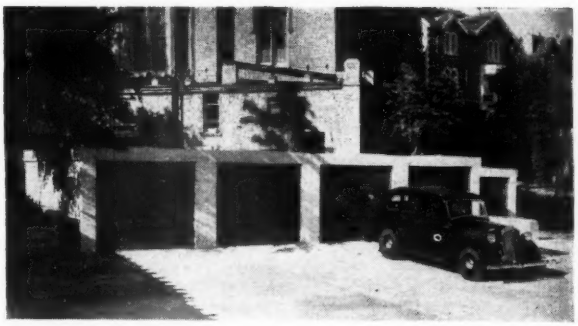
The "T-Panel" System of Light-weight Concrete Unit Construction

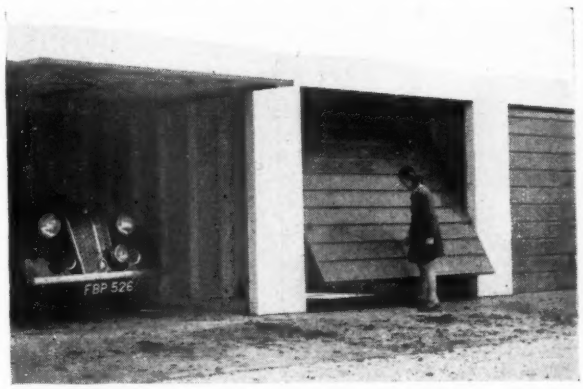
The range of precast concrete units for the "T-Panel" System is designed to provide buildings of two heights, 6ft. 8in. or 8ft. 6in., and of five widths, 9ft., 12ft., 16ft. 6in., 18ft. and 25ft. 6in. The length can be varied in multiples of 1ft. 6in. This system of construction will therefore fit the space requirements of a wide range of single storey buildings, such as workshops, stores, offices, small halls, and of garages, whether single or in batteries. The "T-Panel" System permits rapid dry construction at economical cost. The wall construction uses the patented "T-Panel" which is made of slightly aerated concrete to give high impermeability, light weight and good thermal insulation. The booklet describing the "T-Panel" System is available on request.

We are able to supply and erect complete "T-Panel" System buildings anywhere in England and Wales. Let us know the kind of single storey building in which you are interested, with approximate dimensions and we will supply details of how your requirements can be met by the "T-Panel" System of construction, together with the tender covering the whole of the work required.

We believe you will be agreeably surprised by the prices we can offer and the pace of erection which follows acceptance.

British Patent Nos.: 636586; 631227 and 679510. Patents granted and pending in many countries overseas.





The top illustration shows a standard battery of four garages actually erected in Weston-Super-Mare. The lower illustrates the ease with which the doors can be operated.

WOOLAWAY CONSTRUCTIONS LIMITED

Head and Registered Office: 11 CANON STREET, TAUNTON, SOMERSET. *Telephone:* TAUNTON 4496

Works: WEST BAY WORKS, BRIDPORT, DORSET. *Telephone:* BRIDPORT 2327

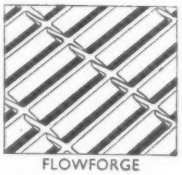
and at LANELAY WORKS, PONTYCLUN, GLAMORGAN. *Telephone:* PONTYCLUN 356.

W.5

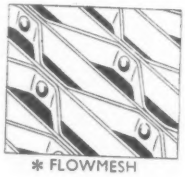
FISHOLOW

FLOORING SYSTEMS

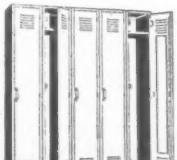
Put the factory on a sound footing



FLOWFORGE



* FLOWMESH



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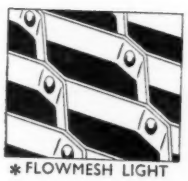

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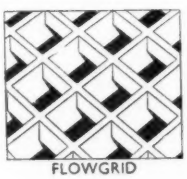

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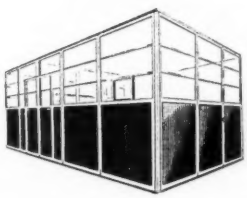

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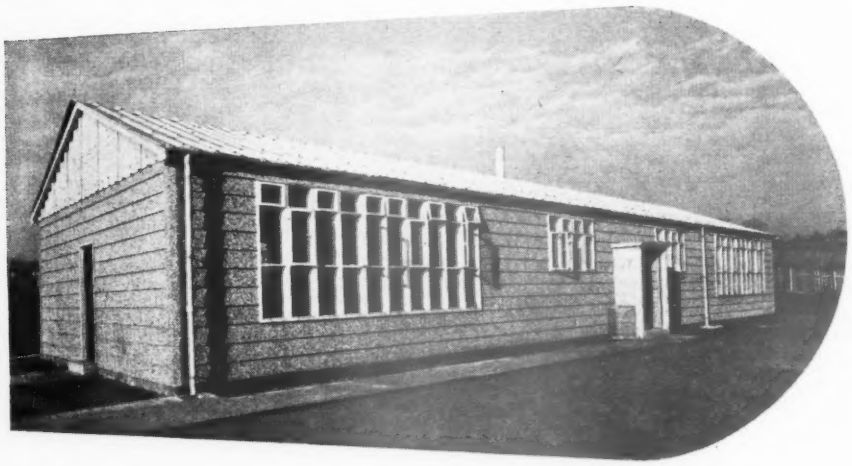

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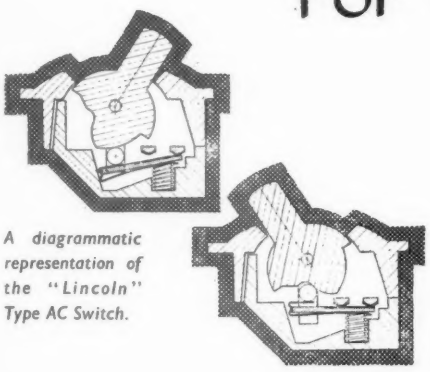

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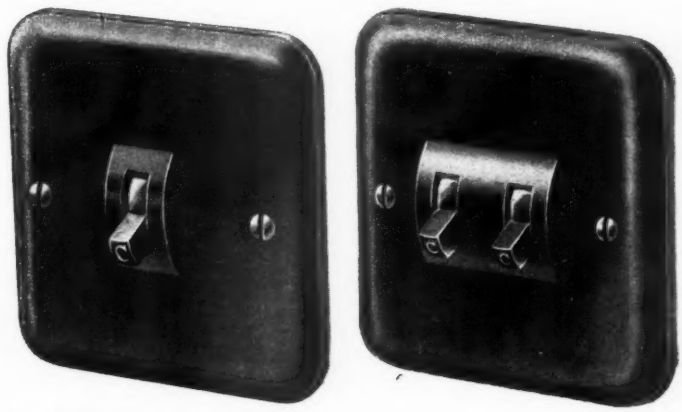

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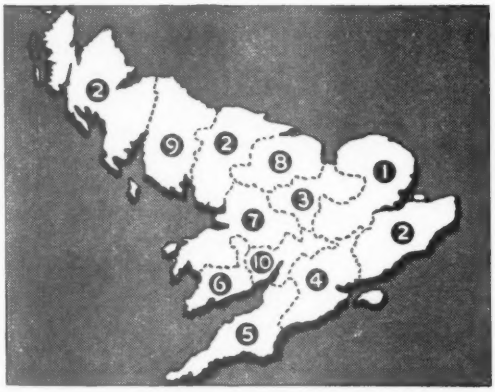

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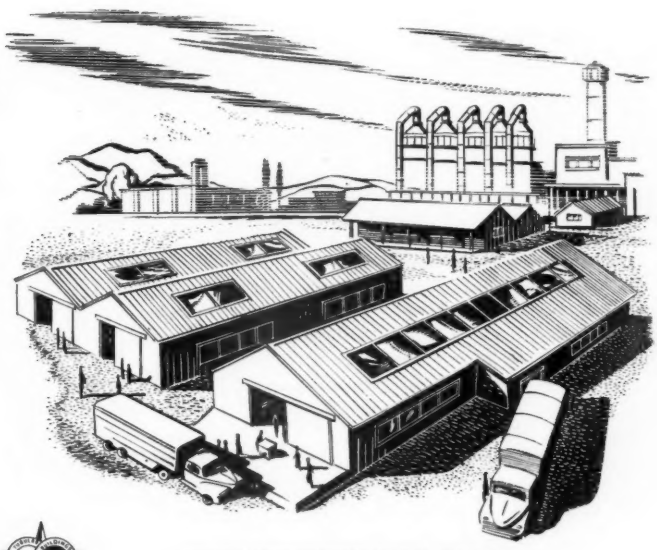

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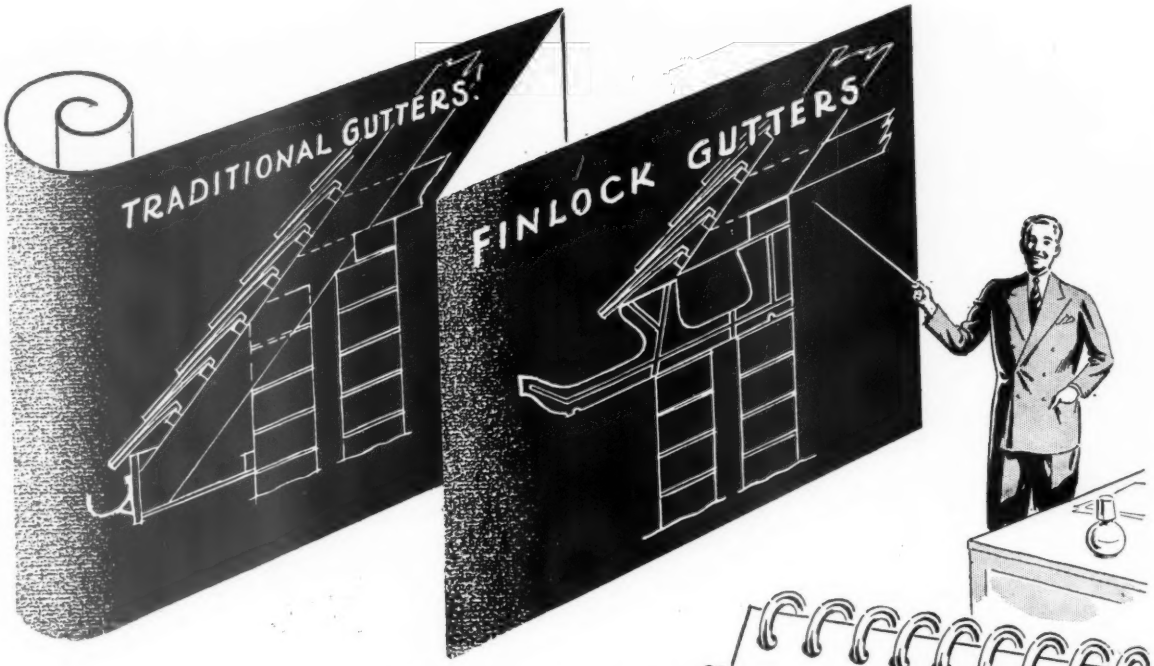

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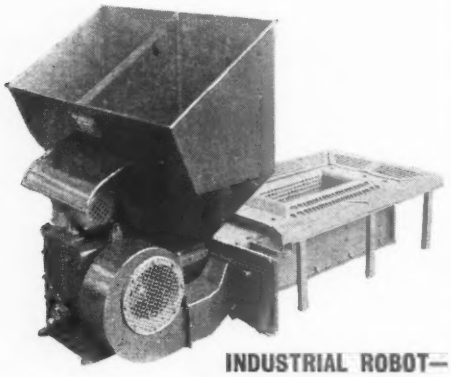

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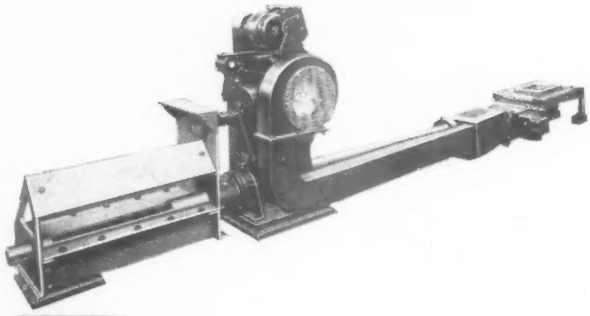

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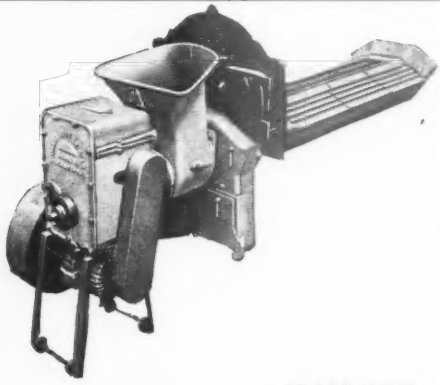

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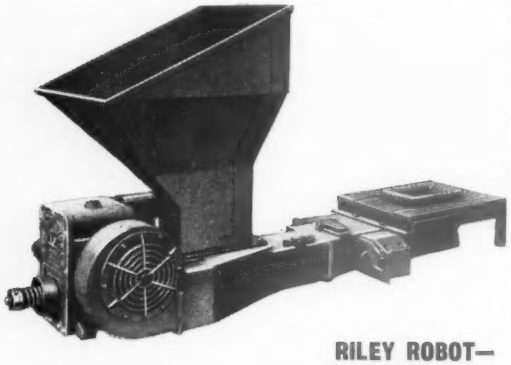

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Since the size is so great as to make it impossible to photograph the whole installation, the above illustration is taken from a scale model.

The other views show:

(2) the partly built tunnel, with transition from circular to octagonal shape.

(3) A corner, showing the aluminium alloy frames, and part of the tunnel completed.

(4) Looking along the aligned frames before the walls were fitted.

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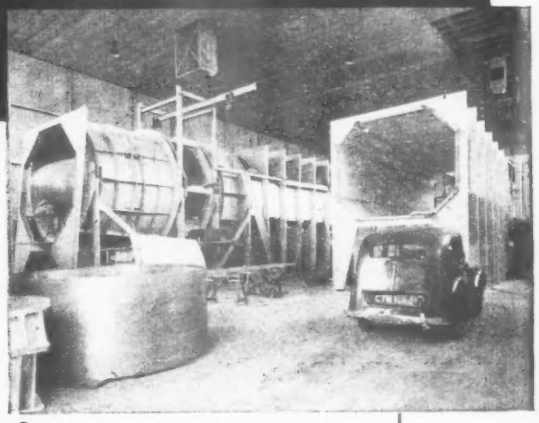

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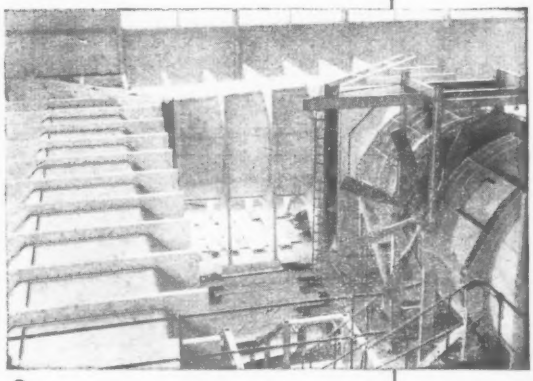

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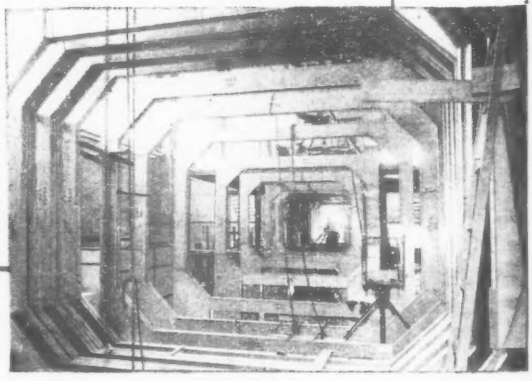

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No. 3087 April 29, 1954 VOL. 119

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DEFLATED BAG

What is wrong with the British Architectural Guild? Why does the RIBA refuse to recognize it? Isn't it rather a shame that an organization which was "launched with the sincere desire to be of service to the architectural profession" should be cold-shouldered in this way? The questions are not mine; they are asked by the Guild itself in a statement issued to the Press (see page 511). One quite sees that the new-born Guild must feel hurt at finding that nobody loves it. (Even the IAAS disclaims any relationship with it except for the part it played in the sincere launching.) But if it really loves the profession, and wants to be of some use, it cannot do better than to expire quietly, unless, of course, the RIBA finds that most of its members want a union and then fails to provide them with it. This, surely, is most unlikely.

*

The Guild is now asking salaried architects to give their support. If it gets enough members it will, it seems, continue to exist whatever the RIBA does. You will, I am sure, join with me in wishing little power to its elbow.

ROYAL RETURN

Preparations for the Royal return are already noticeable in Central London. The Coronation lamp-posts have been washed—it is surprising how clean they come up—and in obscure MOW yards prototype masts and decorations can be seen, each surrounded by the familiar knot of tooth-sucking labourers and black-hatted officials. Quite like old times. Nevertheless, Eric Bedford and his assistants in the MOW's architects' department must sigh for the freedom and chances permitted their counterparts in Fiji and Kandy and elsewhere . . . caparisoned elephants, triumphal arches built of camelia blossom and loaded with dusky maidens, carpets of rose petals, pagodas of tinfoil and sequins . . . What would the District Surveyor, the Ministry of Transport, the Commissioner of Police, and all the rest of them say about these, I wonder?

THE FULLER FIGURE

Just when the Great British Public has settled down with the Reg Butler—Political-Prisoner joke firmly clasped to its ample bosom alongside the Henry Moore—Hole-through-the-Middle joke (between them constituting half the English repertoire of jokes about art), the ingenious Mr. Butler has gone off on another tack, and his new exhibition at the Hanover Gallery contains a number of recognizable human figures, mostly female. One of them is pulling her sweater off over her head; the others are for the most part engaged in a private war with a number of space frames and scaffolds, manipulating them, balancing on them, impaled by them, or being centrifuged round them.

*

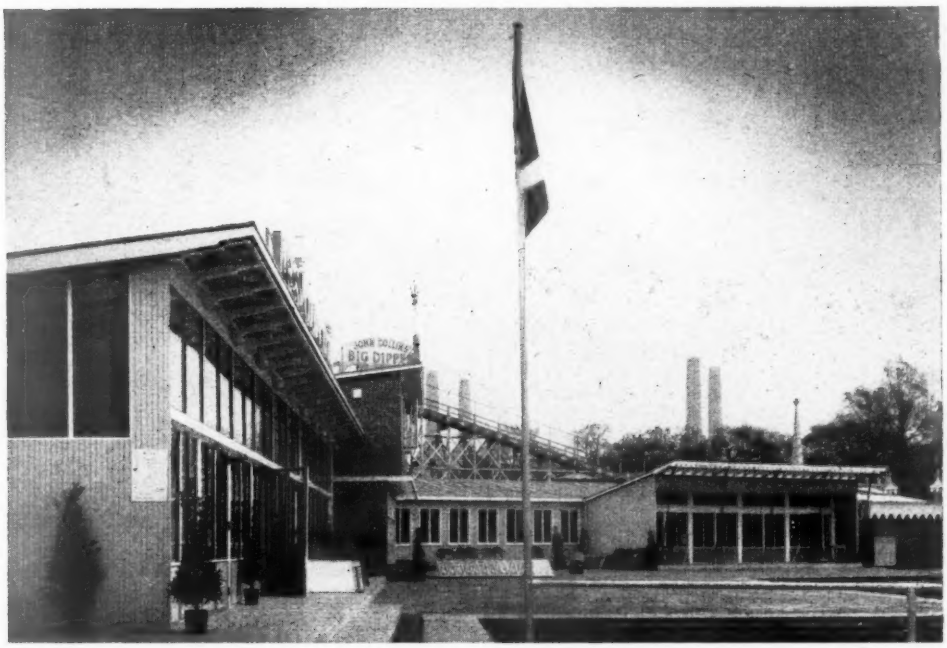
Present score: honours even, but the human race is panting a bit. On a more serious note: an exhibition not to be missed.

ART IN THE EAST

Down at Whitechapel there is another important exhibition of sculpture, a retrospective review of the work of Barbara Hepworth. It is very impressive to see this complete record of one of the most consistent and craftsmanly creative spirits of our time; it is equally pleasant to see how well it looks in the gallery, and to see a lot of people looking at it in the middle of a Tuesday morning. Admittedly some of these lookers were well-dressed idlers like ASTRAGAL, but many of them were locals, and Bryan Robertson, the director of the gallery, says that the response of the East End, in spite of what some pundits say the public ought not to like, has been very favourable. (You probably saw in your evening paper about the building contractor who insisted on doing the hoisting work on some of these heavy carvings for nothing.)

*

To stage an exhibition of national importance like this does very great credit



On page 508 there are two pictures which promise a not-too-bright future for Battersea's Festival Gardens. But ASTRAGAL *is glad to report that there is one rather more pleasant development in the fun-fair section—this restaurant beside the boating-lake, designed by architect Kenneth Graham.*

to the Whitechapel Gallery, and suggests that the days when it seemed liable to sink into a kind of Aldgate-East provincialism are now over. What adds even greater lustre to the achievement is the fact that, like all institutions of the kind, the Gallery is shorter of money than ever, and an exhibition of this kind is something of a gamble. Let us hope the boldness will be recognized and rewarded in the manner it deserves.

UNKINDLY LIGHTS

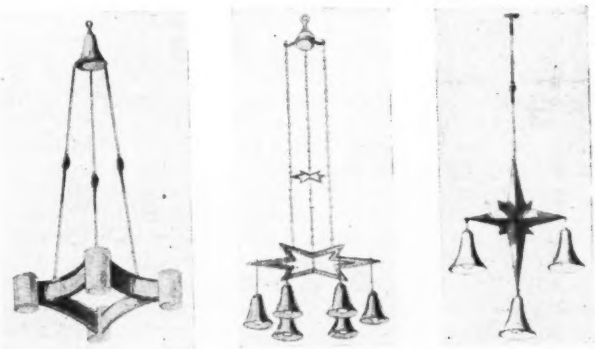
Anybody who has ever had anything to do with the designing—or even the choosing—of light fittings for a church will know just how difficult it is to arrive at any solution better than the candle. The Central Council for the Care of Churches has recently issued a leaflet offering some good advice which is unfortunately nullified by the illustrations that accompany it. (One or two of these are reproduced here.) It seems difficult to believe that the industry cannot do better than this lamentable collection of items which ASTRAGAL is sorry to read are all readily obtainable. Could not perhaps "Design Review" produce something a bit better? Apart from the candle, ASTRAGAL has always preferred a generous use of small-powered exposed lamps—as in Westminster Cathedral—but admittedly this solution may involve you in knowing all the hymns by heart. Perhaps the first move would be to improve the clarity of ecclesiastical printing?

*

The second move no doubt would be to have your way with the Chancellor of the Diocese—not always an easy task. Take the parish of St. Mary's, Goring, for instance, which recently had the courage and enterprise to commission some wall paintings by Hans Feibusch. The sketch designs were rejected by the Diocese Advisory Committee, and at the recently-heard appeal—where a member of the committee claimed to be "only a stupid ordinary man"—Mr. Feibusch, who was supported in evidence by Philip James, declared he would prefer to drop the work rather than compromise.

*

The whole business is still apparently *sub judice* and therefore not subject to comment, but . . .

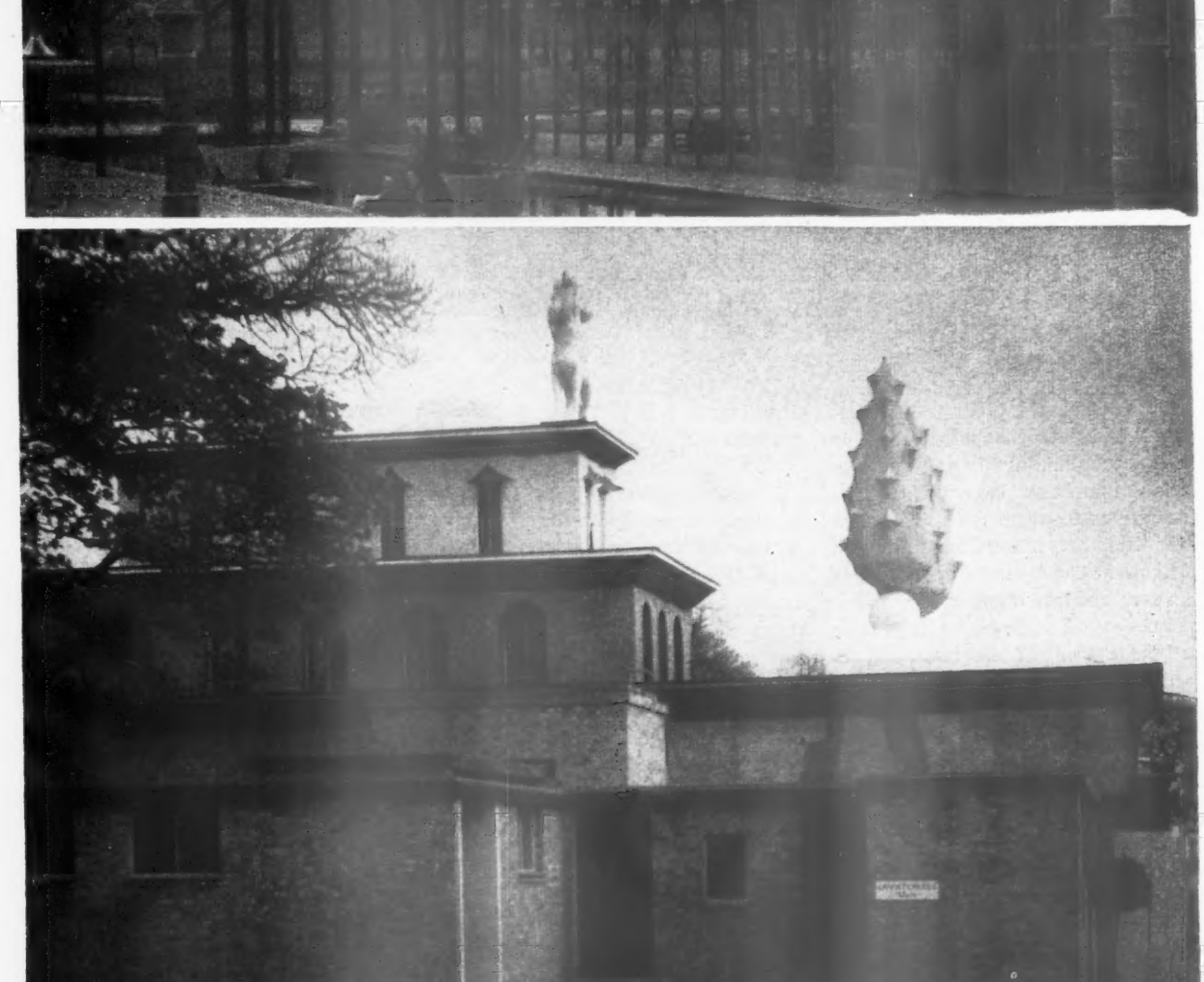


Some of the light fittings for churches recommended by the Central Council for the Care of Churches. (See "Unkindly Lights.")

POPULAR CARRIAGE

The above is the title of the third exhibition by the British Transport Commission; it should certainly attract the 100,000 odd visitors which these excellent exhibitions seem to average. Held in the old Shareholder's meeting room at Euston (in itself worth a visit), the exhibition consists of models, part-specimens of coaches, buses and carriages and their fittings—all demonstrating the evolution of road and rail carriage design through two centuries. The simple display, appropriately in keeping with the original display cases designed by Robin Day and John Reid, has been carried out—as last time—by Sheila Stratton and architect Peter Miller.

In addition to the obvious fascination for boy-at-heart ASTRAGAL of well-made models, there was a charming w.c. pan decorated with red and gold



Not-so-Festive Gardens

Last November we published a frontispiece showing the Osbert Lancaster-John Piper main vista at Battersea Gardens and the Hans Tisdall entrance to the adjoining fun fair section, and commented on the good news that these features were to be preserved. It seemed that Battersea would still have a chance of establishing itself as London's Tivoli, under the combined direction of the LCC and the new company, Festival Gardens (London) Ltd. But the Easter re-opening of the Gardens brought a shock to those who had admired them for their wealth of first-class details. The main vista by Osbert Lancaster and John Piper is still there (top picture), but its air of fantasy has been largely destroyed; the tents, shops, furniture, and all the other well-designed features that acted as a foil to it have gone, and in their place are incongruous park benches and a bleak municipal-park backcloth. At the other end of the Gardens the work of Hans Tisdall can now be seen (bottom picture) in startling contrast to that of a public convenience designer. There is still a lot of work to be done in the Gardens (now closed) before they open for the summer season, and it remains to be seen if the replanning will be typified by these photographs. (See also page 507.)

"Experiment," Stockton and Darlington horse coach, 1826

chrysanthemums and fine panelling. It was satisfying to discover draughtsmanship far better than is usually found today; and it was surprising to find that a modern first-class seat, although better sprung, is not nearly so comfortably shaped as a third-class seat of 1875 (try it for yourself and see—the former pushes one's head forward and fails to support the small of the back). My illustration shows "Experience," as one of the first-class coaches on the Liverpool and Manchester Railway of 1834 was called. She is on view next to the "Experiment," of 1826, used on the Stockton and Darlington Railway.

"Experience," Liverpool and Manchester Railway, 1834

Now people often sneer at the conservatism and apparent lack of design ability which caused the railways to use multiples of stage-coach bodies for railway coaches, but was it in fact such a foolish policy; was it not instead the creditable use of existing techniques which we would commend today? What more logical than to use the skills and experience, jigs and patterns of an existing coach-building industry, and doesn't eight years from 1826-1834 seem a relatively short time, even today, for the developments shown in my two illustrations to have taken place? Finally, readers of the *Architectural Review* will note with interest the use of sans serif lettering on the 1834 carriage—shades indeed of things to come.

ASTRAGAL

POINTS FROM THIS ISSUE

The Editors

TO HELP YOU PICK YOUR LEADERS

HOW does the average RIBA member make his choice when voting for architects nominated for election for the RIBA Council? Obviously, in nine cases out of ten, the voter will not have met the nominee, and in the tenth case the odds are against him having asked the nominee the pertinent question: "if you get on to the RIBA Council, what is your policy?" It must be that the ordinary member votes on the strength of hearsay: "I believe that so-and-so is a good chap," or because he recognizes the names of some of the nominees through their work being illustrated in the technical press. In a few instances he may have listened to, or read, a paper given by the nominee at the Royal Institute or elsewhere; or read of, or heard him asking, questions during a discussion. The only help the RIBA can give to the voter is to list in the RIBA Journal the degrees, prizes, publications, distinctions, type of experience and practice, and previous experience on committees, of the nominated candidates. Can any more help be given to voters than this? We think it can. Such a potted biography does not show how a candidate is likely to react to the many vital issues which should be discussed and on which action should be taken during the next two years. A reputation for being a "modern architect," or the possession of a large practice or senior public post, does not necessarily mean, as experience slowly teaches, that the candidate has any intelligent ideas for ensuring the prosperity and strength of the profession as a whole.

We feel that the additional service which a voter needs, in order to help him make his choice of candidates for election to the Council, is some form of personal statement of aims and beliefs by each candidate. We therefore propose asking all candidates nominated for election four pertinent questions, and we will publish their replies in the JOURNAL of May 13. The balloting paper will be issued by the RIBA the following week, and we hope that members will be helped in casting their votes by having studied these replies.

Readers of Professor Ian Bowen's articles in the JOURNAL, written as our Guest Editor during 1953, will recall several issues which he felt should concern the RIBA Council.

These issues have been borne in mind in the preparation of these questions, but at the same time we have posed problems well-known to everyone, and any potential Council member must therefore hold views on them. The four questions which we are sending to all candidates nominated for election are as follows:—

1 A majority of the profession want some form of trade union

or negotiating body allied to the RIBA. What, in the candidate's opinion, is the most urgent problem for such a body to tackle ?

2 What aspects of architectural education today most obviously merit study with a view to possible alterations to the present system of education ?

3 What further action can the RIBA consider taking on the problem of architectural practice undertaken by non-architects ?

4 What other problem does the candidate consider should be exercising the RIBA Council during 1954-55 ?

Additional nominations for election may be made by any seven members of the RIBA, and, as the names of these additional nominations will not be announced until after the RIBA's Annual General Meeting on May 4, *we ask that such additional candidates for election, who wish to get their ideas across to the electorate, send in their replies to the above questions forthwith* (*total word limit:* 300), and we will publish their views, together with the views of the Council's nominated candidates, in the JOURNAL of May 13.

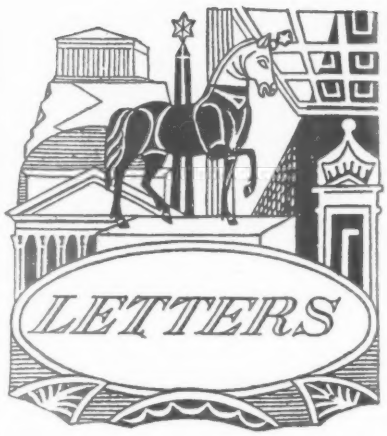
This action we are taking is, so far as we know, unprecedented. But we feel that the RIBA is, almost of necessity, such a large and amorphous body, and the times in which we live so crucial for this relatively new profession, that we must help to put the best qualified people in the most influential positions.

THE END OF BAG ?

On page 511 you will find a lengthy statement from the British Architectural Guild, the trade union that was registered recently by the IAAS. This statement, which has been issued to the Press as a reply to the RIBA's decision not to support the Guild, shows that the newly-formed union is sinking with all its guns firing politely. At least we hope it is sinking, though its statement, which concludes, in effect, with a word of forgiveness to the RIBA for its " initial opposition " to a good cause, suggests that it has some hope of living on and bringing enlightenment to other architectural bodies.

The existence of the Guild could be justified only in the unlikely event of the RIBA behaving irresponsibly in the matter of forming a trade union. If the Royal Institute found that most of its salaried members wanted a union, but failed to do anything about it, then the salaried architects who would like such a negotiating body could not be blamed for supporting the Guild.

We hope that readers who are in favour of a union will refrain from joining the Guild until the RIBA has decided what it intends to do about forming a union itself. And we hope that when the RIBA's decision *is* made, the British Architectural Guild will be able to withdraw gracefully, consoled by the thought that its own object—a " sincere desire " to help the profession—has been achieved by the Royal Institute.



M. W. Smith, A.R.I.B.A.

S. W. Milburn, F.R.I.B.A.

J. W. C. Miller and
K. O. Thoms, A./A.R.I.B.A.

The Turville Valley Case

SIR,—As a subscriber to your JOURNAL for over twenty years, I was sorry to see the recent appeal over the design of a farmhouse in the Turville Valley so sketchily reported, in contrast to the report in one of your contemporaries, but was gratified that you subsequently published the architect's perspective of the proposal so that your readers could judge for themselves the merits of the case. I now see that in the editorial of April 1 it is inferred that the advice tendered to the elected representatives on the planning committee—and I must stress that it is they who make the final decision—was from unqualified officers. In this instance the planning officer and I, his deputy, are, among other things, both members of the RIBA.

It is, I feel, dangerous to ask for special treatment for one section of the community, no matter how well qualified, in a democratically determined matter. Every design must surely be considered on its merits and in relation to its setting.

M. W. SMITH

Bucks.

Sighthill Competition

SIR,—I write to congratulate you upon the excellent illustration and review you have given upon the recent competition for a Church at Edinburgh, it is quite the best I can remember. A point which occurs to me, arising from the result which has produced many fine solutions to the problem. When an authority such as the Church of Scotland Extension Committee has in mind a large building programme covering many years, it would, I think, be most encouraging to competitors if after making the award of the first premium which would carry with it the appointment for the work, the assessors might be instructed to select up to say eleven other designs of outstanding merit and the promotors might undertake to give each of these a commission for work on some other site. I feel sure that this would make a very popular competition and that the promotors would get satisfactory results.

I have always been against a definite figure of cost being made a hard and fast regulation. I, however, do consider it desirable

that the maximum cost should be stressed in the conditions of competition, and that it should be an instruction to assessors that they should have regard to cost as well as other important matters in making their award, but that cost should not necessarily disqualify a competitor.

S. W. MILBURN.

Sunderland.

Architectural Education

SIR,—While we agree with much that ASTRAGAL says on the subject of architectural education in your issue of March 4, 1954; we cannot agree with him when he states, "But the school, with all respect, to which everyone looks for a lead is the AA School." He further states "the only truly independent school in the country." Does he mean by this that it is not connected in any way with any other academic body such as an Art School or University? Because, if so, this is the AA's loss, not gain. It is all to the architectural students' advantage, we think, to meet and talk and study with students of painting, sculpture, engineering, etc., etc. ASTRAGAL infers this himself in his paragraphs under "Prenez garde de la peinture."

Looking through the lists of RIBA Prizes and Studentships, the AA School is conspicuous by it's absence from the lists.

We understand, however, that the AA has a good bar and produces an excellent pantomime.

J. W. C. MILLER.
K. O. THOMS.

Nairobi.

NEWS

COMPETITION

Sighthill Winning Design to be Built

A. M. Doak and A. R. Whitelaw, the first prize winners in the competition for a church for Sighthill, Edinburgh, have been appointed architects for the building.

In making this appointment the promoters, the Church of Scotland National Church Extension Committee, have disregarded the recommendation submitted by the assessors, Robert Matthew, Harry Taylor and Professor Rev. J. Ridell. It will be remembered that the assessors recommended that none of the winning designs should be built, for they preferred eight "outstanding designs" which would, however, be too costly to build. (These designs, said the assessors, should be revised and submitted again.)

The winning and "recommended" designs in this competition were illustrated in the JOURNAL on April 8.

MOHLG

Circular on Conversions

Harold Macmillan, Minister of Housing and Local Government, is encouraging house owners to make better use of their property by improvements and conversions with the aid of grants under the Housing Act, 1949.

In a circular to local housing authorities in England and Wales the Minister says: "The owners have less and less incentive to maintain them properly as they fall steadily behind modern standards. It is a question of time only—and not a long time—before they become slums and a statutory responsibility to the local authority. If this process can be arrested by timely improvement, or conversion, at a charge to rates and taxes appreciably less than that imposed by building a new house to replace a slum, it is only elementary prudence to encourage the owners to do the necessary work."

The circular emphasizes a number of points on which existing law and procedure seem to have been "imperfectly understood, or too rigidly interpreted or applied," including:—

(1) Revision of the requirements a dwelling must satisfy after improvement to attract a grant. The purpose is to exclude or modify requirements which experience has shown to be unreasonable.

(2) From now the minimum estimated cost of improving or converting a dwelling before it can qualify for grant is reduced from £150 to £100.

(3) Reasonable expenditure on the professional fees of architects, surveyors, and engineers may now be included in the costs which rank for grant.

(4) Local authorities are told that schemes of improvement or conversion need no longer be reckoned as a part of their approved programme of new house building.

(5) Local authorities will no longer have to refer private owners' applications for grant to the Ministry.

Referring to revised requirements, the circular says that the Minister has always had power to waive one or more of the specified requirements in individual cases. "Many local authorities have been slow to invoke the Minister's power of waiver. Many owners have not appreciated its existence, and have been discouraged by a list of requirements, some of which they believe it to be impossible to satisfy.

"The Minister has decided, therefore, that it would be helpful to local authorities, owners, and indeed all concerned, if the requirements were revised to exclude or modify those which it would be unreasonable to make an absolute condition of grant."

The revised requirements are that the dwelling must, after improvement or conversion, be in a good state of repair and substantially free from damp; have each room properly lighted and ventilated; have an adequate supply of wholesome water laid on inside the dwelling; be provided with efficient and adequate means of supplying hot water for domestic purposes; have a readily accessible water closet; have a fixed bath (or shower), preferably in a separate room; be provided with a sink or sinks and with suitable arrangements for the disposal of waste water; have a proper drainage system; be provided in each room with adequate points for gas or electric lighting; be provided with adequate heating facilities; have satisfactory facilities for storing, preparing and cooking food; and have proper provision for the storage of fuel (where required).

The power the Housing Act of 1949 gave local authorities to make grants is permissive and not mandatory, but, the circular says, it was clearly intended that grants should be available to private owners willing to comply with the requirements.

In view of the provision made in the Housing Repairs and Rents Bill to remove altogether the upper limit of £800 laid down in the Act of 1949, the Minister says he is willing, on the application of a local authority, to consider using, now, his power under that Act to waive the upper limit for any individual scheme, although the grant will not normally exceed £400.

Student Awards

Student readers (on the RIBA Register) who wish to apply for one of the JOURNAL'S student awards (there are two, each of £200) are reminded that the closing date for the receipt of entries is May 3. Full details and entry forms appeared in the JOURNAL on April 8 and April 15.

Experimental Competition

The MOHLG have set up a working party to formulate conditions for a competition between teams of architects, quantity surveyors and contractors. The aim of the experiment is to bring down the cost of building flats and the proposal to hold a competition of this type has been approved in principle by the RIBA Council.

TRADE UNION

Guild's Reply to RIBA

The British Architectural Guild, the architects' trade union that was registered recently by the IAAS, has issued the following statement, which ASTRAGAL and the Editors write about on pages 505 and 509.

"The RIBA statement of its refusal to support the British Architectural Guild leaves unanswered a number of important questions. The question most relevant to the Guild itself is why this decision was taken, to quote the statement, '. . . irrespective of the result of the RIBA questionnaire on representation of the members in salaried employment. . . .'

"Is the questionnaire issued by the RIBA to be considered as a referendum and the wishes of the ordinary members considered?—or are these documents to be regarded merely as records to be filed away as unfulfilled aspirations, perhaps to serve as fodder for further discussions over another decade? Does the statement imply that even if there is a substantial majority in favour of an autonomous body of pure architectural membership, the Council of the RIBA reserves the right to take no action at all in the direction of forming a body?

"On the other hand, if the Council of the RIBA decides that a separate body should be formed, bearing in mind that the Royal Institute itself is prohibited from acting in the capacity of a Trade Union and that they would have obstacles to overcome in the setting up of such an autonomous body, the fact that the RIBA gives no reason for its refusal to recognize the British Architectural Guild leads the Guild to ask the question: in what respect do its Aims, Objects and Rules fail to fulfil the requirements of such a body as presumably has been envisaged by the representatives of salaried and official architects for many years who, as is well known, have given much time and thought to this problem?

"The Aims, Objects and Rules have been widely discussed already and, so far, the only criticism which has been expressed centres upon the Rule governing the constitution of the Council, a point which is covered when it is realized that the Council which is democratically elected, can alter its own constitution by simple resolution with two-thirds majority. Should, therefore, the Guild receive the support of the profession, the constitution of the Governing Council can be adjusted to accord with the wishes of the majority.

"The Guild was launched with the sincere desire to be of service to the architectural profession. Its Aims, Objects and Rules were carefully perpended, but as has been made abundantly clear to the RIBA, provision is made for the simple amendment of any Rule not found to be generally acceptable

"The Guild has kept scrupulously to its agreement not to enlist members until the RIBA had had an opportunity to consider the matter. Its future now is entirely in the hands of salaried members of the profession, who should finally decide the following:—

"(i) Do the salaried architects of the profession require an independent body to protect their own interests?; (ii) if so, do they desire that the body should be a purely architectural body and not be diluted either directly or indirectly by crafts and trades?; (iii) should such a body be free, throughout its history, from any suggestion of extreme politics either by active participation or by indirect moral support?; (iv) if the answers to these questions are in the affirmative how does the BAG fail to meet the requirements?

"If, in spite of all the demands for an autonomous body expressed during the past ten years, it is found that there is no desire by the individual members of the profession for such a body, the Guild naturally will cease to operate.

"The Guild, however, has decided to provide salaried members of the profession with an opportunity to express their support by inviting applications for membership from persons eligible to join; forms of entry and copies of the Rules—and details of special subscription rates to apply during the period of formation—can now be obtained.

"Should sufficient support be accorded to the Guild for it to be effective, it will continue in the interests of the profession, to seek—and will hope to deserve—the support of every body within the architectural profession. The Guild realizes that its ultimate success can be obtained only by working in harmony with existing professional bodies and any initial opposition must be forgotten in the realization of a cause."

IAAS

Relationship with Union

The IAAS now has nothing to do with the British Architectural Guild, the trade union which it registered a few weeks ago. The part the IAAS played in founding the Guild was "a completely disinterested" one, says its president, Colonel A. E. Henson.

"Once founded," writes Colonel Henson, "the Guild was, and is, an entirely independent body, autonomous and responsible for its own future. The IAAS deplores that its completely disinterested part in the founding of the Guild should be misinterpreted as an endeavour on the part of the IAAS to out-manoeuvre the Royal Institute.

"The IAAS has been actuated throughout in this matter, as incontrovertible evidence shows, by a sincere desire to be of service to the architectural profession generally, and whatever may be the future of the British Architectural Guild the IAAS believes that the creation of an exclusive protective body for salaried architects which this section of the profession could accept or reject at will was completely justified in the circumstances obtaining."

DIARY

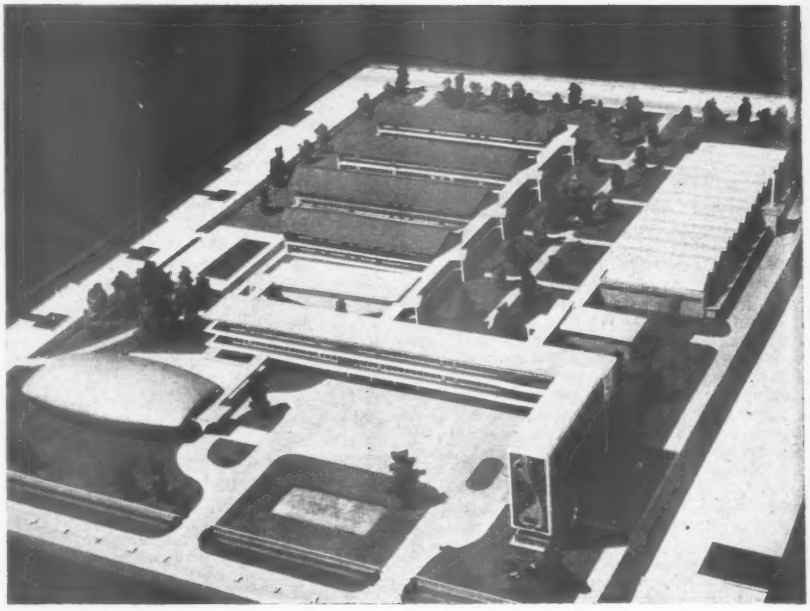
Don-Volga Canal. Coloured film. At BC, Store Street, W.C.1. 6 p.m. MAY 3 TO 6

Annual General Meeting. At the RIBA, 66, Portland Place, W.1. 6 p.m. MAY 4

Towards New Building. J. H. Forshaw. At the RSA, John Adam Street, W.C.1. (Sponsors: The Modular Society.) 7.30 p.m. MAY 5

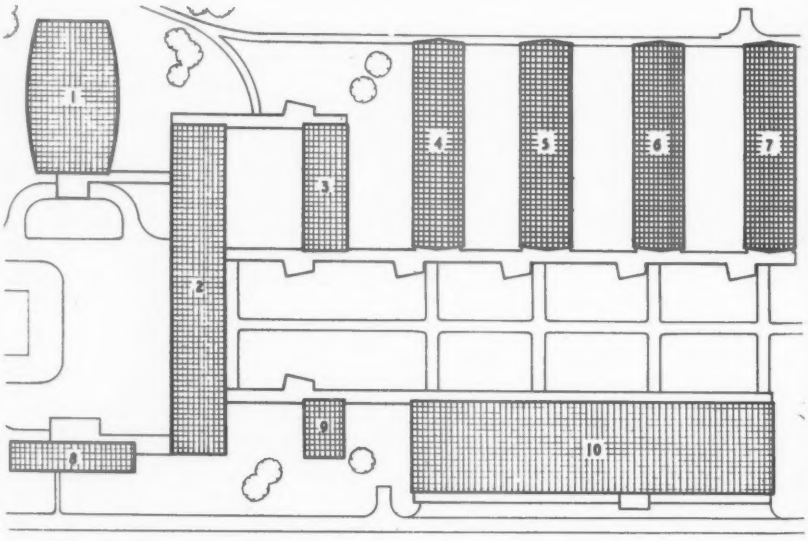
The Society's House and Earlier Homes. (Peter Le Neve Foster Lecture.) John N. Summerson. At the RSA, John Adam Street, W.C.2. 2.30 p.m. MAY 12

BUILDINGS IN THE NEWS



College for Rangoon University

The foundation stone for the building shown here in model form—an engineering college for the university of Rangoon—was laid last month. The architects, Raglan, Squire and Partners, hope some of the buildings will be finished by June, 1955. Other buildings such as the administration and laboratory block, the assembly hall and the lecture halls will not be completed until late in 1956.



KEY

1. Assembly hall
2. Mechanical engineering
3. First year lecture theatres
4. School of architecture and mining department
5. Electrical engineering and communications
6. Chemical and sanitary engineering
7. Civil engineering
8. Administration
9. Second year lecture theatre
10. Workshop block

Passenger-Handling Building at Renfrew Airport

Two views of the Passenger-Handling Building, designed by Rowand Anderson, Kininmonth & Paul, under construction at Renfrew Airport. Note the reinforced concrete parabolic arch supporting the roof at the entrance, shown in the photograph above, and, below, the curved roof, reminiscent of the Rome Railway Terminus.

In his talk at the AA on March 25 (reproduced in a condensed version here) Ove Arup discussed the question of finding a criterion by which to judge the "goodness," "rightness," "excellence" or "merit" of an architectural structure.

STRUCTURAL HONESTY

By Ove Arup

Anybody who talks of "structural honesty," the "truthful expression of structure" and such, is obviously of the opinion, that it is a good thing, a thing to be admired and aimed at, whatever the exact meaning of the term. I think it may be a good thing, if understood rightly. On the other hand, it may very well be understood wrongly, and just be a lot of nonsense.

I am not primarily interested in the meaning and validity of this particular term, but I am interested in the wider question of finding a criterion by which to judge the "goodness," "rightness," "excellence" or "merit" of an architectural structure—and therefore any structure; in other words in what to strive for, when designing a structure. And I want to look at the question, not exclusively from an engineer's or architect's point of view, but from the point of view of that ideal person, the architect, engineer, builder, the person who is an architect and also knows all there is to know about building science and practice. For the dual control is of course an unfortunate thing made necessary by growing specialisation, and should not reflect any difference of aim. The aim is, simply, to create good architecture.

We will therefore have to start with a definition of good architecture; then we have to consider the interrelation between structure and architecture and try to find out in what way the design of the structure can contribute to the common aim.

It might be argued that the concern about cost is a modern phenomenon which has nothing to do with the fundamental principles of architecture. I don't think that would be right. Cost may have nothing to do with the artistic value of the final result, but architecture is not only art. The architect who could produce the same amount of commodity and delight—assuming that it was possible to measure them—for a lower cost, would be a better architect, and his work would be better architecture. There may have been times when "money was no object"—which it certainly is now—but even then an ingenious scheme for producing still greater display for less expenditure of time and effort would have been greeted with considerable interest.

CHANGES IN TECHNIQUE

The technique of building has undergone many changes, especially in later years, but the structure is still that part of a building which holds the whole thing together, which transfers all loads and forces down to ground and ensures stability. It is an essential part, but only a means to an end. The structural design indicates the method of building, what practical steps we must take to get our building. Naturally, we don't want to be put to more bother and expense than necessary, and it is the engineer's job to see to that. Engineering means indicating practical and economical ways of building, and progress in engineering means that we can now do reasonably economically what before was very expensive or next to impossible. The engineer is supposed to be the man who can do for £1 what any fool can do for £2.

This used to be the architect's job too, before there were any engineers, and it really still is. He is just using the engineer to help him with it. There is a danger in this, and this danger increases when the architect cannot even take out his own quantities to make cost comparisons between different sketch schemes. Good building is still practical building, and practical building requires that the economic facts of life are considered when the scheme is first conceived. If the architect cannot himself use a slide rule, and if he cannot make a quantitive cost analysis of alternative planning solutions, he is in danger of losing touch with the foundation of practical facts, on which alone his art can flourish.

Early collaboration between architect and engineer is a great help, but it must be early, because the most effective step to economy is taken in the early planning stage.

Anyhow, the most obvious and direct contribution which the structural design has to make towards good building is to indicate a practical and economical method of building. But there are also the other points on my list to consider, and they are all concerned with the impact of structural design on "Excess Commodity" and "Delight," and their consideration invariably tends to put the cost up. We are then faced with the fundamental conflict between what we would like to have, and what we can afford; a conflict, which can to some extent be resolved by good design, but which generally leaves a painful policy decision which has to be made by the architect on behalf of the client.

If the feeling for structure *as structure* plays any role in architectural criticism, we have to ask ourselves *who* is having this feeling. Is it a layman, or is it a structural expert?

NON-TECHNICAL CRITICISM

The layman—and sometimes even the architect—has not much understanding of how the structure really acts. He only goes by appearances, and may not know the difference between the supporting and the supported parts of a building. His understanding, such as it is, is based on feeling. If he is sensitive, the proportions and relations of the masses may give him a sensation of balance of poise which will give him aesthetic pleasure. It may be a feeling of structural rightness, based perhaps on his experience of his own bodily sensations, or his experience of chairs and other familiar objects, or possibly derived from the contemplations of other buildings—but it is really a kind of aesthetic pleasure, and has very little to do with the truthful expression of structure. We get a similar kind of pleasure from a well composed picture, although there is no structure involved.

A new and daring construction may of course give him a feeling of structural insecurity. That *is* a kind of structural criticism, but that kind of shock is lost by repetition, and would seem an insecure basis for architectural criticism. There can obviously be no question of stopping the advance in structural technique for fear of evoking apprehension in the onlooker. He will get used to it. In some cases an effect of shock and surprise may be deliberately intended as part of the architectural effect—but this kind of thing will wear off in time.

If we go to the expert, on the other hand, he certainly can obtain a great pleasure from the contemplation of an elegant, ingenious or novel structure. He can understand its finer points, the economy of means employed. It is the craftsman's pleasure in a job well done.

The same kind of pleasure would of course be felt by the plumber, the heating consultant, the bricklayer, and the rest.

The opinion of the technical expert is of course important. But it is *not* architectural criticism. We cannot demand of the architectural critic that he should be an expert on structure as well. Structural "rightness" as much contributes to architectural quality through its beneficial effect on costs, its consonance with the architectural plan and its contribution to the aesthetic pattern; cost, commodity and delight. The two first are matters of fact, and can be understood intellectually, the last is a matter of appearance, and can only be felt. None of them demand the "truthful expression of structure" as a necessary condition, although it may in certain circumstances and with minor modifications be a useful means of obtaining both economy and delight.

No, the demand for "structural honesty" does not come from the layman or the structural expert. It comes from a certain school of architects. It is a piece of ideology, an aftermath of functionalism, and there can be a certain amount of sense in it. But before we consider this bit of sense, let us see whether we can find out what the term could possibly mean.

THE "RIGHT" SHAPE

What is the "right" structural shape? As far as I can see, it could mean two things, either related to what I would call the (1) organic structure, or to the (2) economic structure.

The "organic" structure is economical in the use of materials, the "economic" structure is economic in means of production. The two may coincide, but mostly they don't.

In an organic structure, the material would be disposed in the most advantageous way to resist the forces acting on it. In nature we often find shapes, like the structure of a leaf, for instance, which seem to follow this principle. Hence the name "organic." But although the structure of a cabbage leaf may be economic in the use of materials, it would certainly not be economic to imitate it in modern structural materials.

Each material made or fashioned by man, or rather by man-made machinery, has its own characteristic economic shape, and this is generally not an organic shape. Take a steel joist, for instance. The shape is designed to resist the maximum bending moment in the middle of the span. But it is not the right shape for the ends of the beam, where the bending moment is reduced and the shear forces prevail. The organic shape would be one which changed section all the time, and it would be an aesthetically attractive shape. But it could not be economically produced. The old "fish belly" cast iron beams had a shape which approached the structural or organic ideal, but they were superseded by modern mass production methods. That is the tendency throughout.

Reinforced concrete is the modern material which still lends itself to the creation or organic shapes, especially when it is cast *in situ*, and that is no doubt the reason why it is so beloved by some modern architects, in spite of its drawbacks in some other respects. And in large-scale structures, such as bridges, dams, large span roofs and some industrial structures, the "organic" shapes may be the economically correct ones, because it is most important to save material and reduce the dead weight of the structure. But in ordinary building simplicity of formwork tends to predominate over saving in concrete, from an economic point of view.

Moreover the "organic" shape is only correct for a particular set of forces. If the wind blows from another direction, or the maximum load occurs in the next bay, the shape should really be different to be effective. The "right" shape is therefore one which "envelops" all the organic

shapes appropriate to the varying conditions, and this is not likely to be nearly so interesting.

In pre-stressed concrete and all factory-produced concrete the shapes of the members are governed more by production technique than by the flow of the forces to which the members are eventually subjected. Mass production imposes its own mechanical stamp.

There are also cases where structural "nudism" comes into conflict with practical considerations of economy and commodity. Take the case of a block of flats in "box frame" construction. Should this frame be shown on the outside? Some architects think that this is the structurally honest thing to do, and it may or may not add to delight—according to how it is done—but surely the practical thing to do is to let the weather-proofing and heat-insulating skin cover the whole of the building, including the structure. The other may lead to complications or bad practice. It may even lead to the use of external additions to indicate the structure within—express it, as the saying goes—but what happens to "honesty" then?

It comes to this: If "structural honesty" means "practical and economical building," then it does not necessarily imply the display or expression of the structure, or the use of those "organic" structural forms so much in favour with the advocates of what might be termed "structuresque" architecture. If on the other hand it means the latter, then it may have very little to do with structural or economic necessity, but is in fact a possibly perfectly legitimate means of creating architectural delight. That would explain and justify the use of "organic" structural shapes which cannot be justified economically in this particular context or on this particular scale. But then it would seem, that the so-called "honesty" really turns out to be dis-honesty, not on the part of the structure, which is not capable of such complex behaviour, but on the part of the architect, who deceives himself and others by giving the wrong reason for what he is doing.

HONEST BUILDING

For it is, of course, true, that honesty cannot be found in structures, but will in architects and engineers. And honesty, to my mind, consists in knowing yourself what you are doing, and being open about it. It is perfectly honest to use the structure to create architectural unity, strength, interest, or what you will; or to use interesting structural shapes to achieve poise, crispness or "economy of means" in the aesthetic sense; and it is equally honest to try to keep the structure out of the way and out of the mind altogether—provided you make no bones about it and do not pretend to do for economic or "structural" reasons what you really do for economic reasons.

Having said all this, I will relent a little and admit that there may be a case for "structural honesty" after all—although it would not necessarily coincide with the truthful expression of structure. There is something very attractive about honesty and one cannot legitimately prevent people from using the term to indicate something which they happen to like. But it would be difficult to define it. But honesty—on the part of the designer who imparts this quality to his work—figuratively speaking—honesty could mean an honest endeavour to come down to fundamentals, to be direct, forthright, simple in conception, straightforward, to eschew anything fussy, complicated and tortuous—and having arrived at the solution which has the quality of being obvious, then to marry it to the architectural statement to produce a harmonic whole which needs no concealment to improve it.

I may not express myself very well, but I am sure you all know what I mean, and it is true that this kind of simplicity arrived at the difficult way through serious application to the problem may achieve that unity of delight and economy for which we are striving. And if somebody likes to call that Structural Honesty, it's O.K. by me!

DO NEW TECHNIQUES CREATE NEW ARCHITECTURE?

Another point I want to consider is the impact of new structural forms and techniques on aesthetic sensibility. Do they in themselves create new architecture? It is obvious that modern buildings look different from those built fifty years ago. It is equally obvious that this different look has been achieved by using techniques which were not available then.

But this does not mean that these techniques have created the new architecture. Such techniques do not become architecture in the true sense, before they have been assimilated by the architect, and subjected to architectural control. Architecture results from building technique plus artistic or aesthetic direction, and it is the latter which is the important factor, when we consider architecture as an art.

Building materials and methods of building are the raw materials for the architectural artist. Naturally, the material does influence the final result, just as the work of a sculptor is affected by whether he works in stone, timber or bronze. But the creative intention is the main thing.

What has happened in the last decade is therefore not so much that we have been forced by new techniques to change our architecture, but that we have changed our ideas about what kind of architecture we want to produce. We build modern buildings because we want to, not because we must. And we want to, because the aesthetic sensibility of our time has changed. The artistic climate has changed.

When Corbusier created his first modern buildings, it was not as a result of technical necessity. Technically, the buildings were probably not so very good—they were at any rate expensive and difficult to maintain in good condition. But his artistic vision demanded the free plan, the piloti and the rest.

But perhaps I am flogging a dead horse. If anybody doubts that artistic intention counts for more than building techniques in forming the new architecture, it should be sufficient to point to the difference between the Unilever Building in New York and the new official buildings in Moscow.

When this is said, it can be admitted that new technical developments have a share in creating the new aesthetic sensibility. The worlds opened to us by micro-photography, aerial photography and many other technical and scientific developments have enlarged enormously the reservoir of images from which artists draw their inspiration. And the feats achieved by engineers with the aid of new materials, the new bridges, long span roofs, light, spidery yet strong structures—these have fired the imagination of architects and have taught them to see new beauty in forms and patterns derived from the natural exploitation of the properties of new materials.

As architects experience engineering structures mainly in spacial forms, and less as devices for the transmittance of forces, their enthusiasm for, followed by imitation of these forms can lead to the creation of structural clichés which gradually lose their structural justification. It is a well known process in the history of architecture, and it seems to be repeating itself now.

Advance in technique may thus be a source of inspiration to the architect. But it also represents a serious menace to architecture, and this is my last point.

Advance in technique is governed by economic forces, and the two combined drive us relentlessly towards mass-production and standardization. It also prompts us to build on a scale which is out of proportion to the human scale, to the individual and his human values. Therein lies a great danger to architecture, which can only thrive where there is a freedom of choice, and where human values are respected, are, in fact, put first.

We can't stop this development. The social or moral atmosphere of our time urges us to extend the "good life" or at least the freedom from want, to the whole of the human race, and that can only be done by utilizing all advances in technique and production. But we can—or we should—insist on certain aesthetic and human standards as well as the standards of efficiency. There is nothing so ludicrous as efficiency gone mad, when the essential aim is forgotten.

When I recently visited the Copper Belt in Northern Rhodesia and saw the Native and European "Compounds" from the air—regular dots in a square grid—then I strongly felt, that somebody should say: It may be the simplest and cheapest way of building houses, but it is not what we want, and we won't have it!

But all this is a whole chapter by itself.

To sum up: We have found—That in judging the excellence or efficiency of an "architectural" structure we need only ask ourselves two questions: (1) Is it an economical way of providing the necessary stability?

(2) Does the shape, detailing and disposition of the structural members fit in well with the architectural plan and help the architect to create "delight"?

INTEGRATION NECESSARY

These two objects are of course often fighting each other. How much weight should be given to each depends on many things, mainly on the type of building we are dealing with. But if we want as far as possible to reconcile the two aims, that is to provide Delight without involving the client in too much extra cost, it is necessary to spend a good deal of thought and work on two different kinds of "integration":

(1) An integration of the architectural and structural idea, achieved by close collaboration between architect and engineer, and

(2) An integration of the structural idea and the method of construction, achieved by pooling the knowledge of structural design with the knowledge of the economics of contracting and manufacturing processes. This can best be achieved by an early collaboration in the design stage with a nominated contractor.

Much has been said about the first kind of collaboration, for instance by myself, and time does not permit me to add more to it here. But I should like shortly to point out that we are rapidly moving into a situation where collaboration between engineers and contractors will become increasingly important.

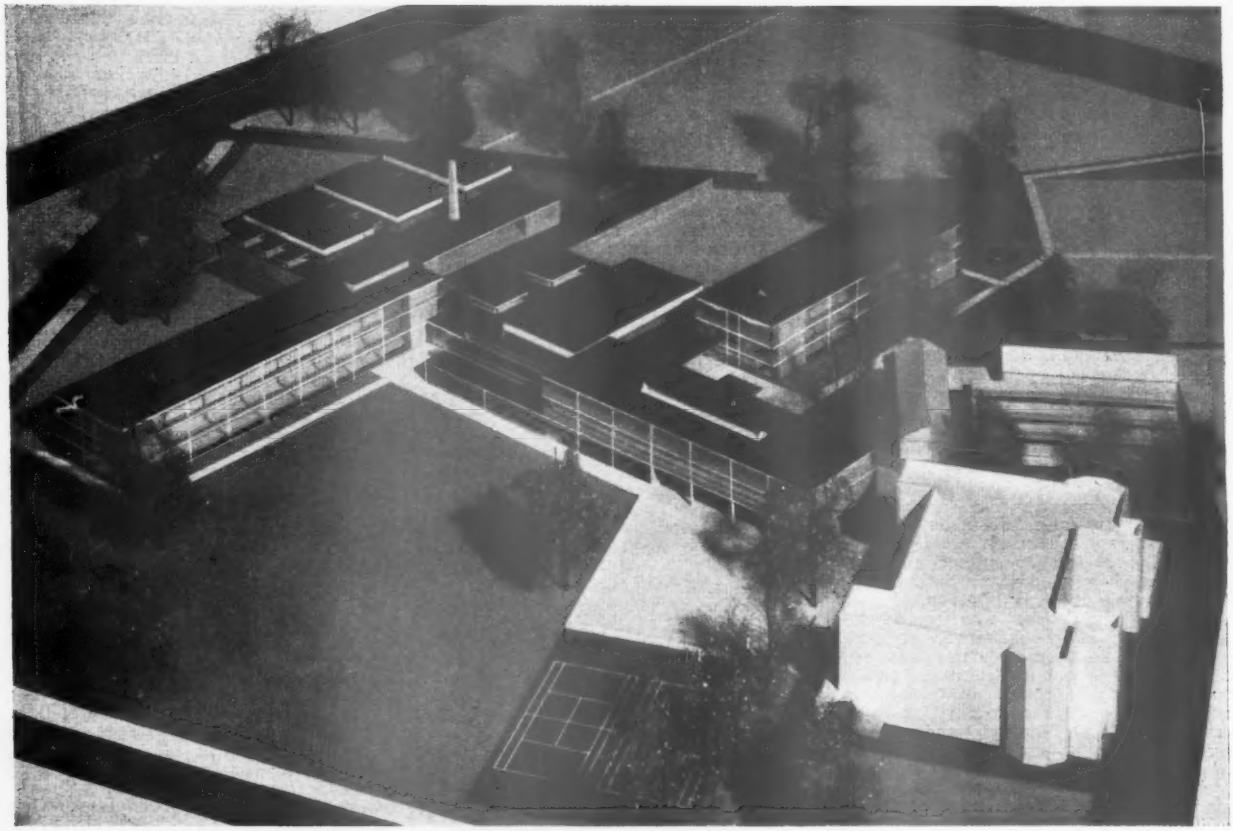
I have always maintained that this kind of collaboration, or at least the pooling of the two kinds of knowledge, was essential for the successful design of large engineering structures such as marine structures, tunnels, bridges, etc. It was of much less, or perhaps even of hardly any importance in the design of buildings constructed in the orthodox manner which had prevailed for centuries, simply because the architect knew all there was to know about building. But this situation is changing. So many new techniques have been developed, many of them based on mass production in one form or another, that the architect and even the engineer are unable correctly to assess their economic implications. And many of these techniques require elaborate plant, long preparation and may involve proprietary rights—thereby throwing the normal way of organising contracts out of gear. But to develop this theme would require another lecture.

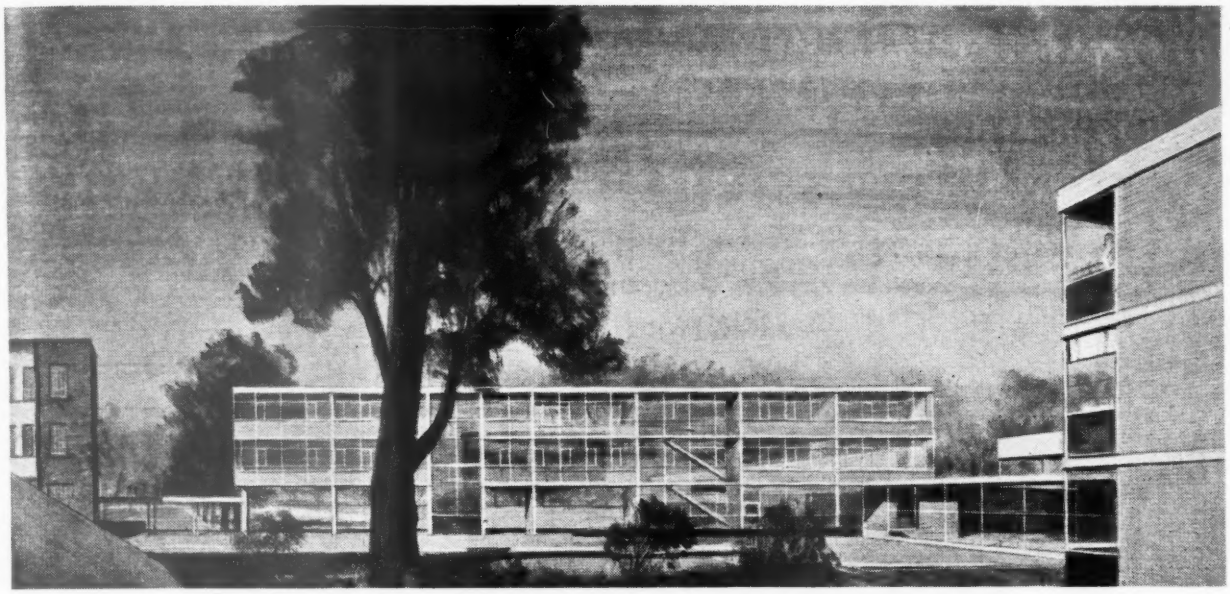
COMPREHENSIVE SCHOOL

extensions to MAYFIELD SECONDARY SCHOOL, PORTINSCALE ROAD, PUTNEY, LONDON, S.W.15
for the London County Council
designed by POWELL and MOYA, assistant architects, P. ELDON JONES and R. H. HENLEY,
consulting engineers (structural), OVE ARUP and PARTNERS, (heating), J. ROGER PRESTON
and PARTNERS, quantity surveyors, DAVIS, BELFIELD and EVEREST

The extensions to the Mayfield school will add 1,620 places to an existing girls' school, which now contains 500 places, and it will, after this, become a comprehensive school. The existing site of four acres is being extended to nine acres. Work was begun on the extension in August, 1953, and the school is being illustrated at this time largely in order to review the details of cost, which is working out at about £72 per place cheaper than the MOE ceiling figure for secondary schools at present in force. On the following pages some possible explanations of this reduction of about 22% on the permissible nett cost are given. It is anticipated the maintenance costs will also be low due to the choice of materials and finishes.

The model seen from the south-east.

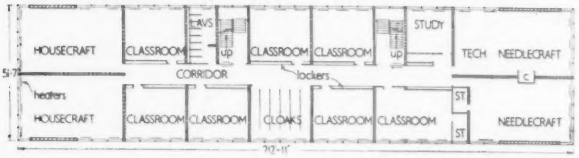




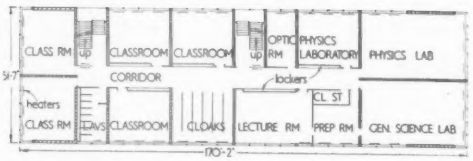
Top, a perspective view showing block C in the centre, seen from the north. Above, block C under construction. On the right is part of the existing school buildings.

PLAN.—The three-storey height was chosen for the classroom blocks so as not to dwarf the scale of the existing buildings, while also avoiding the need for lifts and lending itself to an economical form of construction. Although the school will be large the architects are aiming to keep the design as intimate in scale as is reasonably possible. The classrooms, in three blocks, are placed in such a way relative to each other and to the assembly hall and gymnasia, that only parts of the buildings can be seen at a time.

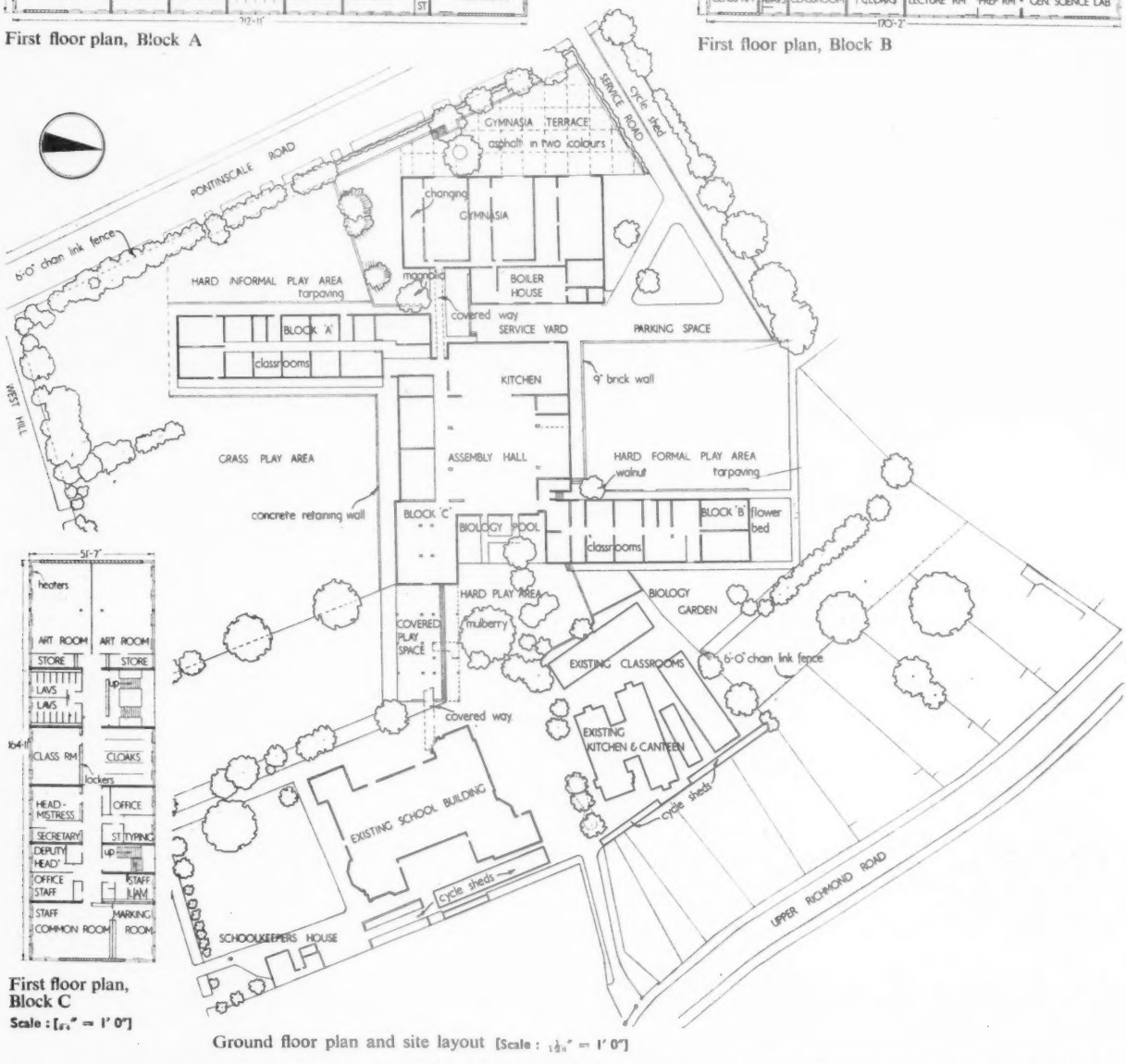
CONSTRUCTION.—The teaching rooms are divided by 9-in. load-bearing brick cross walls. Foundations are normal concrete strips underneath the cross walls only and the ground floor slab is of surface concrete. First and second floors of classroom blocks are of prestressed clay planks with hollow tile filling and structural concrete topping. These span from wall to wall as flat slabs. There are, therefore, no beams, and shuttering is not required. Roofs are generally of timber except for the main



First floor plan, Block A



First floor plan, Block B



First floor plan, Block C
Scale : [$\frac{1}{16}$" = 1' 0"]

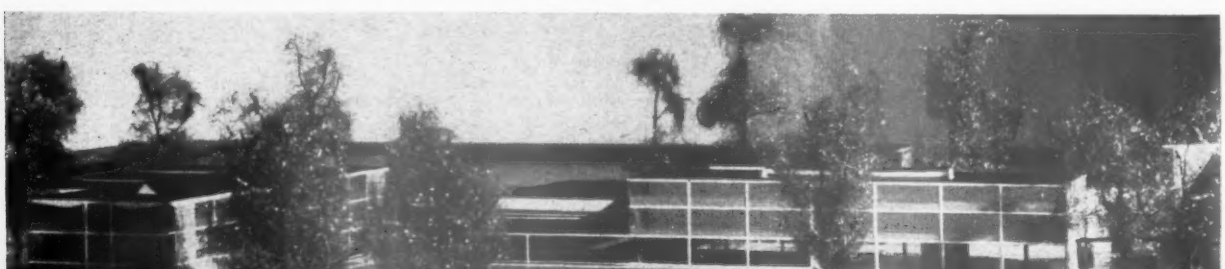
Ground floor plan and site layout [Scale : $\frac{1}{128}$" = 1' 0"]

Below, a view of the model, showing blocks A and C from the south.

assembly hall roof, which is of light steel trusses.

FINISHES.—External walls are faced with London stock bricks and the exposed external ends of cross walls are of white glazed bricks. Exposed edges of the concrete slabs are faced with 1-in. thick slate. Aprons below windows are glazed with coloured panels behind and 4-in. lightweight concrete blocks.

COST.—The allowable nett cost for a secondary



Left, the model seen from the north-west. In the foreground are the gymnasia. Below, progress on block C looking towards the existing school which will be linked to block C by a covered way. The framework of the large glazed areas will be formed of a combination of hardwood frames (for fixed glazing) with metal frames and sub-frames for all opening lights. This composite method has proved to be economical. It is hoped that a series of articles on this school will be published at regular intervals in the JOURNAL *while it is under construction.*

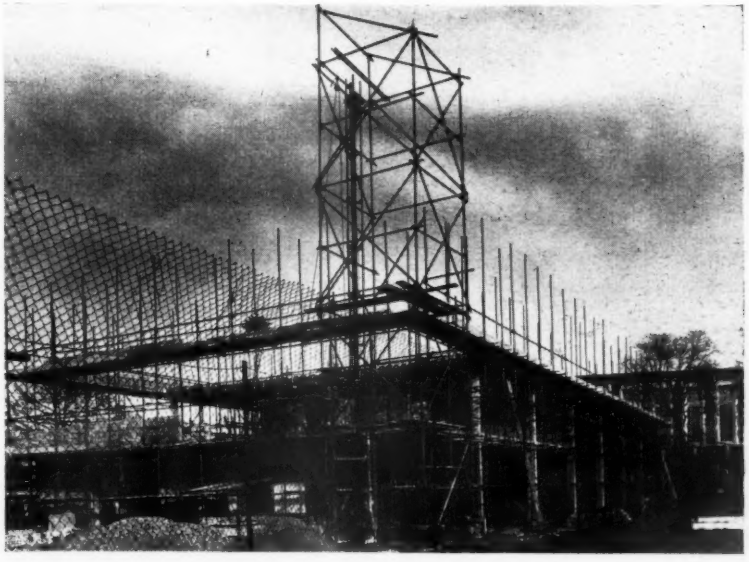
COMPREHENSIVE SCHOOL

at MAYFIELD, PUTNEY, S.W.15

designed by POWELL and MOYA

school is at present £250 per place which, on a basis of 1,620 additional places for this school, would be £405,000. In addition, an extra is allowable if site conditions, etc., warrant it and the gross cost allowable would be £430,661. The contract figure for this scheme (i.e., the gross cost) £314,311, or £194 per place. The nett cost is £288,650, or £178 per place. The architects attribute this considerable reduction in permissible nett cost to the following reasons: (*a*) the site is exceptionally good and allows for a low expenditure on foundations and external work; (*b*) for a school of this size, the site is comparatively small and this reduces expenditure on external works (affecting gross rather than nett cost); (*c*) since there is an existing school on the site, certain items can be saved, such as the caretaker's house (again this affects the gross cost); (*d*) the fact that the school is large allows greater economy in planning and services; (*e*) tendering at the time was very keen; (*f*) the majority of the extension is three storeys high with load-bearing walls, which is generally considered to be a most economical form of construction; (*g*) the superficial area per place is only 67 ft. which is below average and centre corridor planning is also economical. The blocks are kept reasonably short and cloakrooms are formed as extensions of corridors to the outside walls, thus avoiding the necessity for artificial ventilation of corridors; (*h*) the 9-in. brick cross walls are straight and easy to build and they are painted direct without plaster; (*i*) the upper floors are of prestressed units which appear to be an economical form of construction for the spans needed and no shuttering is required; (*j*) with a load-bearing instead of a frame construction, no grid planning is required, which in this case can, in the opinion of the architects, lead to savings in space and cost; (*k*) since the floor construction presents a completely flat soffit, there are economies in the erection of partitions and in finishes; (*l*) timber roofs, originally designed at a time of acute steel shortage, have proved to be economical;

The general contractors are C. Miskin & Sons, Ltd. Sub-contractors, page 534.



CREMATORIUM

in HOLLINWOOD CEMETERY, OLDHAM, LANCASHIRE

for the County Borough of Oldham

designed by SANGER and ROTHWELL

The Non-Conformist chapel, which was selected for conversion, was similar in appearance to the two remaining chapels in the cemetery. It comprised a main chapel entered through a porch in the base of the tower, a semi-circular apse, a mortuary to the right of the chapel, a vestry and an exterior lavatory. On examination the mortuary was found to be unsafe due to enemy action, the main gable wall was out of plumb and required rebuilding and the lavatory accommodation was inadequate. When alterations commenced dry rot was found in roof and floor timbers. The floors of the original chapel were at three different heights, but these have now been reduced to a common level, eliminating all internal steps.

The chapel and chancel, with the enclosed garden on the right.

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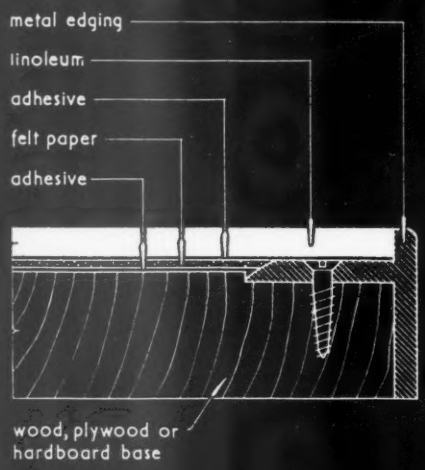
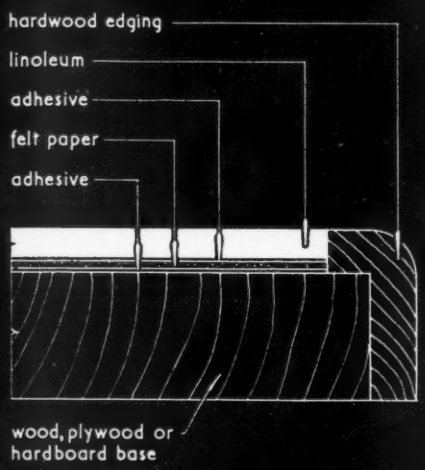
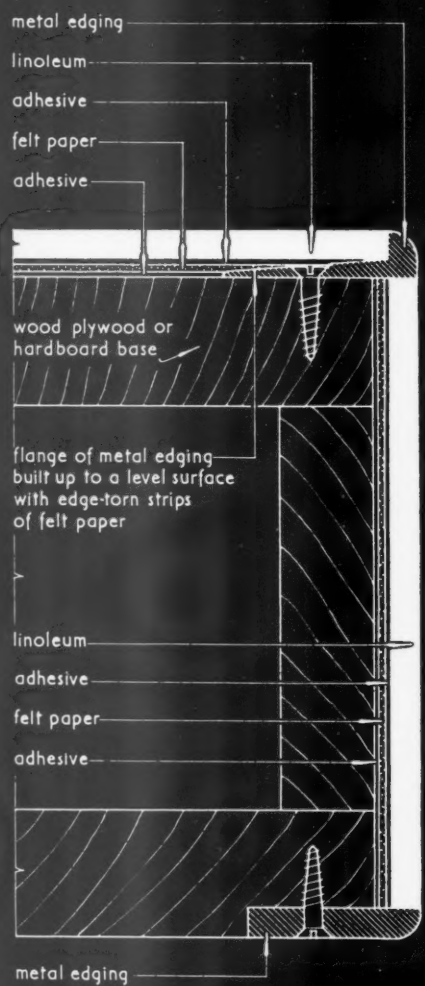


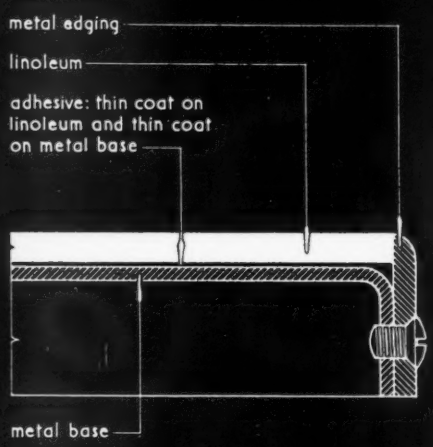
WOOD BASE: METAL EDGING.



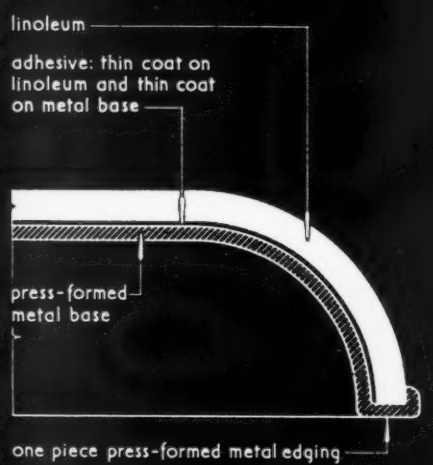
WOOD BASE: HARDWOOD EDGING.



TOP AND SIDE OF DESK.



METAL BASE AND EDGING.



COMBINED METAL BASE AND EDGING.

LINOLEUM: FIXING TO FURNITURE.

Compiled from information supplied by The Linoleum Manufacturers' Association.

19.G4 LINOLEUM: FIXING TO FURNITURE

This Sheet, the fourth of a group on linoleum, describes the fixing of linoleum to furniture. Information on the gauges and types of linoleum available and their uses is given on Sheet 19.G1, laying and fixing to sub-floors under various conditions on Sheet 19.G2 and specifications on Sheet 19.G3.

Linoleum

Linoleum can be installed on a wood or metal base, the gauge of linoleum being specified according to the use to be made of the furniture. For light usage, desk and table tops, the gauge can be between 2·00 mm. and 3·20 mm. Plain, jaspe and marble linoleums are the most suitable types for furniture. Special linoleum for desk tops is available in 2·00 mm. thickness in plain colours.

Felt Paper

The use of a dry felt paper underlay on a wood, plywood or hardboard base is recommended in order to take up any movement of material and to enable furniture to be stripped for replacement if required.

Adhesive

This should be specified as proof against surface liquids. The adhesive for bonding linoleum to metal should be a natural or synthetic rubber solution of approved type. The adhesive to be used for a wood, plywood or hardboard base should be of the gum spirit type.

Edging

All installations require either a wood, metal or plastics edging for sealing the edges and providing a finish. The top surface of the linoleum should be flush with the edgings. Where metal edging is used the corners should be rounded.

Fixing

The edging should be fitted to the furniture before fitting the linoleum. The linoleum should be cut to a tight fit to prevent surface moisture seeping through. It is important that there should be a good all-over bond between the base and the linoleum.

Wood, plywood or hardboard base: The surface should be smooth and level. The dry felt underlay and linoleum should be cut to shape before the adhesive is spread. A thin even coat of adhesive should be spread on the base and the felt underlay placed in position and rolled with a hand roller. Adhesive should then be spread on the exposed face of the felt underlay and the linoleum placed in position at once. The linoleum should be rolled from the centre towards the edges with a hand roller to eliminate air bubbles. Surplus adhesive should be wiped off immediately.

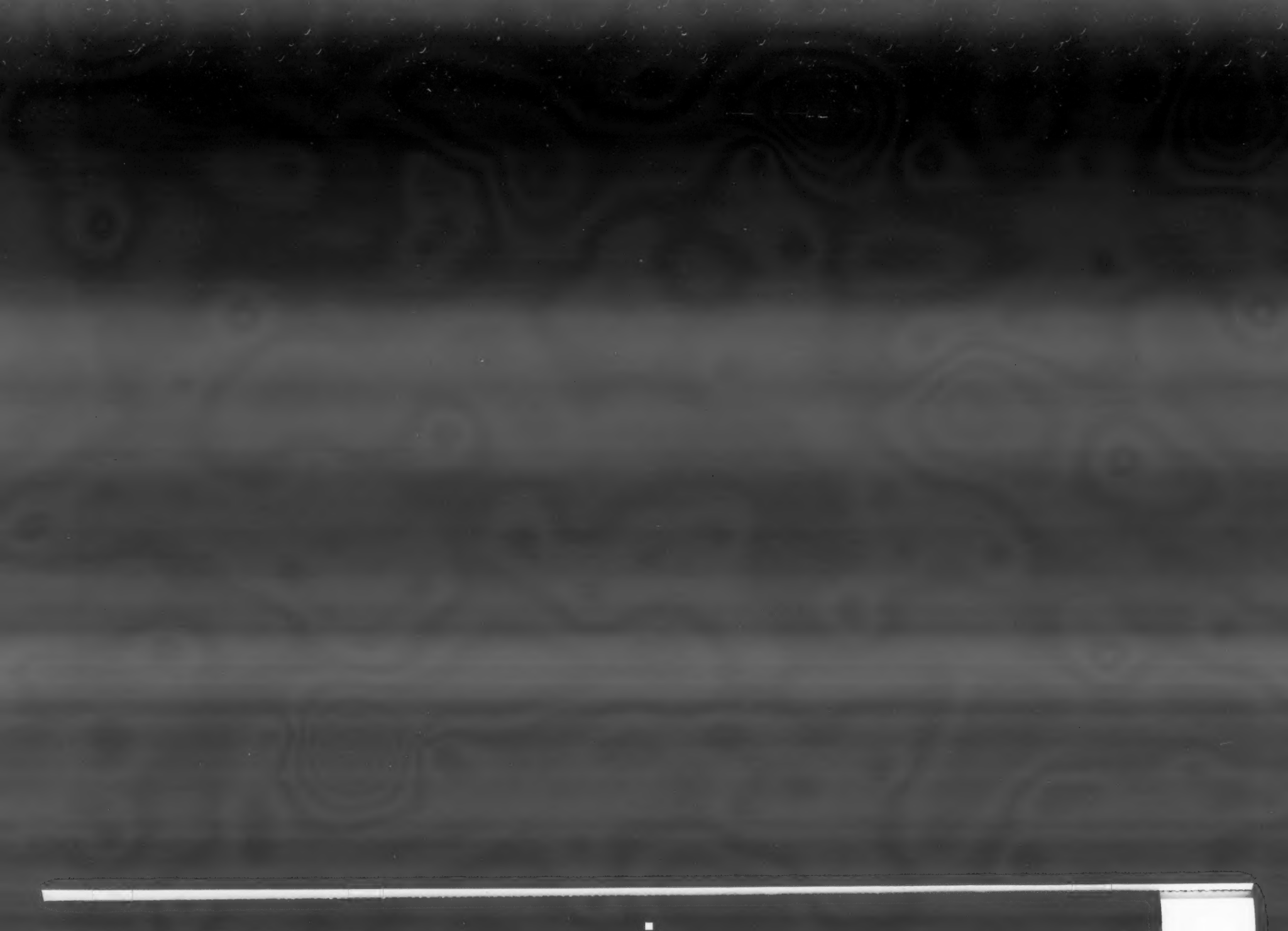
Metal base: Linoleum can be stuck direct to a metal base provided the metal is first thoroughly degreased. The linoleum should be cut to shape. A thin even coat of adhesive should be spread, one coat on the back of the linoleum and one coat on the metal base. The spirit solvent in the adhesive should be allowed to evaporate, the linoleum placed in position and rolled with a hand roller.

Counter tops: Counter tops are often subjected to hard usage and it is advisable to specify a gauge of linoleum between 4·50 mm. and 6·70 mm. The preparation and fitting of linoleum on counter tops of metal or wood follows the same procedure as that given for table, desk and cabinet tops

Polish

When the linoleum is fitted it should be given a coating of wax polish.

Compiled from information supplied by:
The Linoleum Manufacturers' Association.
Address: 127, Victoria Street, London, S.W.1.
Telephone: Tate Gallery 4218/9

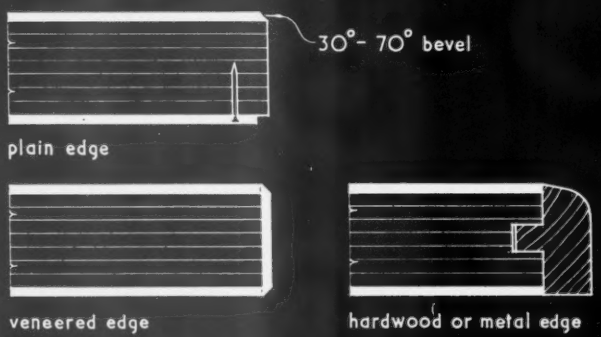


standard sizes of sheets: 4 ft. x 8 ft. and 9 ft.
3 ft. x 7 ft. (limited colour range)

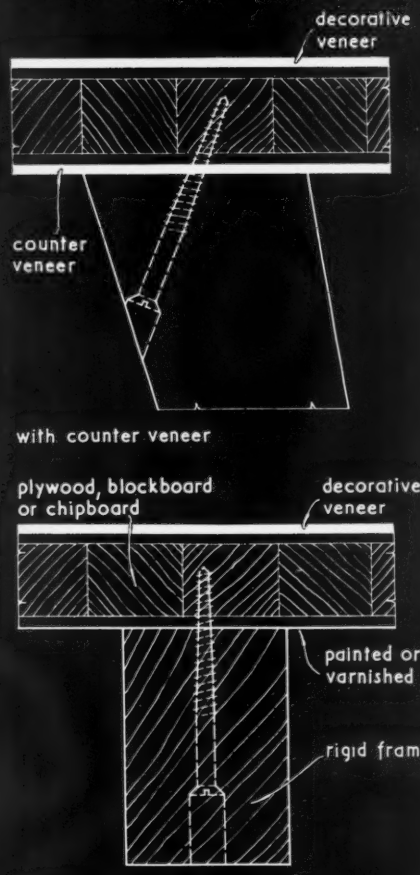
type of sheet	thickness	weight lb/sq. ft.	minimum radii of bends			
			9'-0" sheet ·		1" strip	
			cold	heated	cold	heated
veneer	1/16"	1/2	1'-6"	4"●	4"	3"●
	1/8"	1	2'-6"	1'-6"	8"	6"
panel	1/8"	1	2'-6"	1'-8"	9"	7"
	5/32"	1 1/8	not recommended		1'-3"	1'-0"

● special grade available for hot post-forming, giving minimum radii on sheet and strip of 1" for internal and external bends

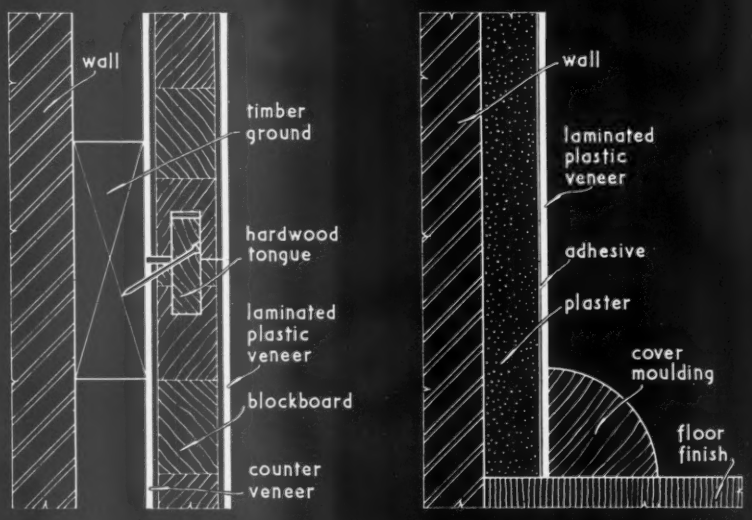
SIZES, WEIGHTS AND BENDING RADII.



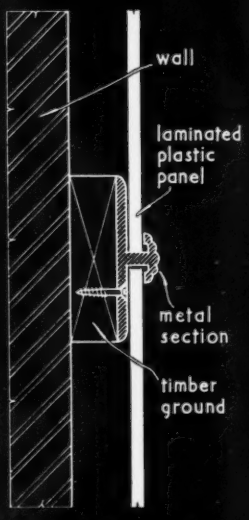
EDGE FINISHES (see also Sheet 15.T9).



FIXING OF VENEERS TO BASE IN RELATION TO TYPE OF FRAMING



APPLICATIONS OF VENEERS FOR WALL PANELLING
(see also Sheets 15.T6 and 15.T7).



APPLICATION OF PANELS
(see also Sheet 15.T8).

·FORMICA· LAMINATED PLASTICS: VENEERS AND PANELS: GENERAL DATA.
Manufacturer: Thomas De La Rue and Co. Ltd.

15.S6 'FORMICA' LAMINATED PLASTICS: VENEERS AND PANELS: GENERAL DATA

This Sheet is the first of a series dealing with Formica laminated plastics. They are available in the form of veneers, for application to boards or walls, or as self-supporting panels. The table on the face of the Sheet gives the sizes, thicknesses and weights of the sheets and relevant information. The drawings give a general indication of the ways in which the veneers and panels may be used.

Material

Formica laminated plastics consist of a compound assembly of paper sheets impregnated with synthetic resin, fused together under heat and pressure to form a homogeneous sheet. The core layers give resiliency and impact-resistance and are covered on one or both sides by a patterned and coloured sheet. The final layer is of clear paper impregnated with melamine resin, having a tough, hard-wearing surface which protects the colour beneath. The sheets for use as veneers have a decorative finish on one surface, the other being sanded to form a key for adhesives ; panel sheets have a decorative finish on both surfaces.

Sizes and Weights

The first table on the face of the Sheet gives general data on the size, thickness and weight of Formica laminated plastic sheets. Special sizes may be cut to order.

Bending radii : Both the veneer and the panels resist bending but they may be sprung and secured in position on curved surfaces. A narrow strip may be sprung to a curve of small radius but as the width of the surface to be curved increases, there is a corresponding increase in the radius to which the material can be safely bent.
With the application of heat, Formica may be bent to curves of smaller radius and on cooling the shape is permanently retained. This is a skilled operation requiring the attention of an expert.

Characteristics

Formica is unaffected by fruit juices, alcohol and soft drinks or by domestic detergents and bleaches. Alkaline solutions do not harm the material and organic or mineral acids in normal concentrations leave no mark if they are not allowed to dry on the surface. It is not subject to attack by destructive insects, is unaffected by prolonged dampness, the "cigarette-proof" grade (See *Grades*) excepted, and does not support fungoid growth. The surface transparency may deteriorate if subjected to strong, unfiltered sunlight, but the colours will not be affected.

Heat resistance : Boiling water or vessels containing it will not harm the surface or colour. The highest temperature that the material will safely withstand is 130° C. (265° F.)
Where Formica veneers are used it is desirable that the adhesive should be equally heat resistant.

Grades

Two grades are available, "standard" for general use and "cigarette-proof," which is more resistant to damage when small areas are subjected to high temperatures. The latter should not be used where persistently damp conditions prevail.

Finish

Two finishes are obtainable both giving a surface which is tough and resistant to scratches : satin matt which is recommended for general use on horizontal surfaces or for decorative panelling and glossy for washable vertical surfaces, including splashbacks.

Patterns and Colours

The sheets are obtainable in a wide range of faintly-patterned colours including prints of wood grain. Real wood veneers, colour inlays, prints of artists' original designs, lettering, etc., may also be incorporated in the finished surface.

General Applications

Veneers: The sheets may be applied to a base of plywood, blockboard, or chipboard which should be $\frac{3}{4}$ in. or more in thickness and have a smooth surface, free from knots or strong grain markings.
The whole under-surface of the veneer is uniformly bonded to the base by an adhesive, preferably of the casein or synthetic-resin type. The veneer seals and restrains movement of one surface of the base material. The other surface must also be restrained against movement caused by changes in humidity. The drawings on the face of the Sheet show how this may be done by securing the base to a rigid frame and sealing the undersurface with paint or varnish, or by applying a counter veneer of inexpensive industrial laminated plastic.
Edges should be finished in a similar manner to those shown: Sheet 15.T9 gives further detailed suggestions for edge finishes. The panels thus formed can be used for wall linings, furniture, etc., in the various ways illustrated on Sheets 15.T6 and 15.T7.
The $\frac{1}{16}$-in. thick veneer is suitable for all general purposes, the $\frac{1}{8}$-in. thickness only being used where exceptionally heavy wear is anticipated.
Veneers may also be applied direct to plaster walls.

Panels: These may be used for all purposes where lightweight lining or panelling is required. Methods of fixing are described in detail on Sheet 15.T8.

Maintenance

The surface may be cleaned with warm soapy water. Polishes are not required to retain the finish.

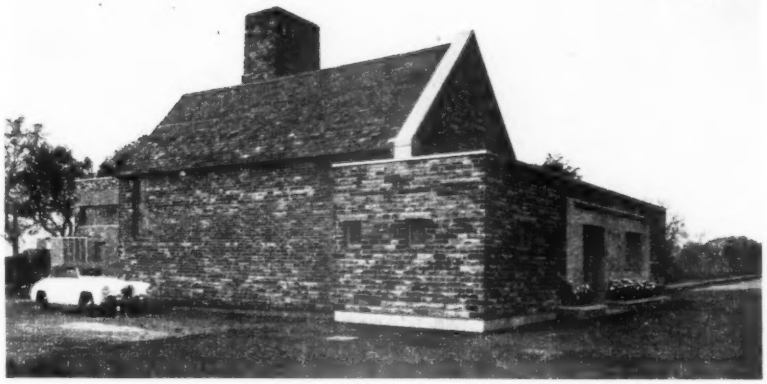
Further Information

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

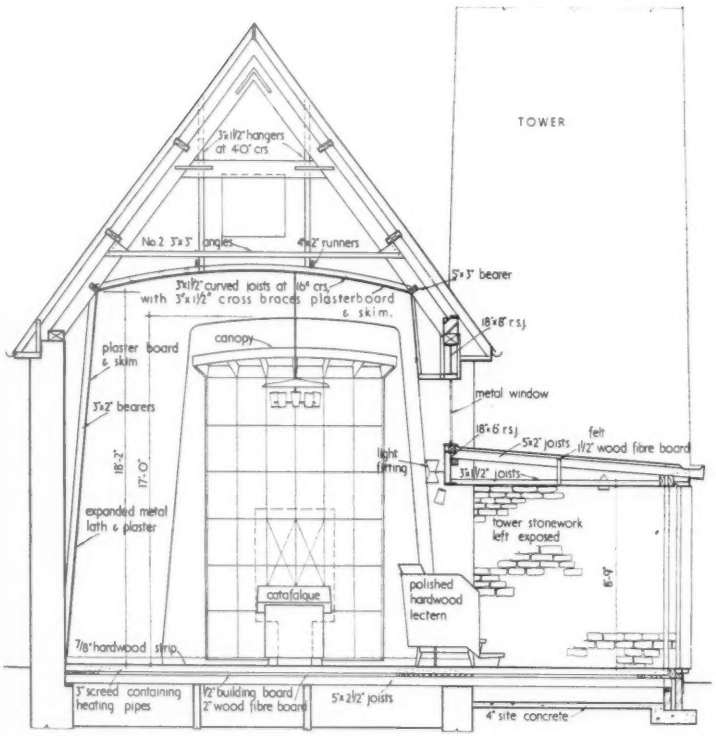
Compiled from information supplied by :
Thomas De La Rue & Co., Ltd.
Address : Plastics Division, Imperial House, 84/86, Regent Street, London, W.1.
Telephone : Regent 2901.
Telegrams : Delinsul, Piccy, London.

CREMATORIUM

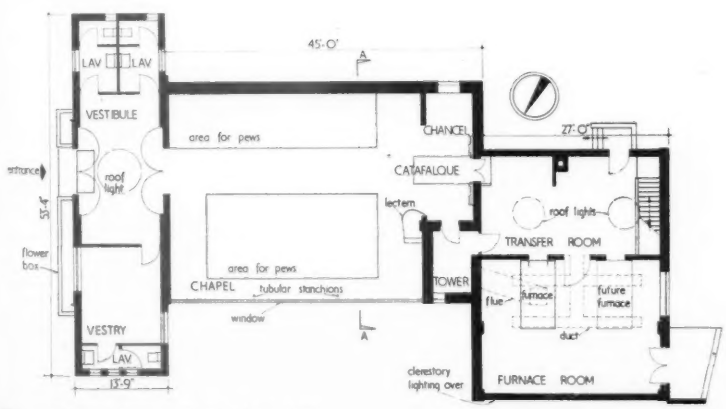
at OLDHAM, LANCASHIRE,
designed by SANGER and ROTHWELL



The chapel and crematorium from the south-east. The low block on the right contains the vestry, vestibule and lavatories.



Section A-A [Scale : ½" = 1' 0"]

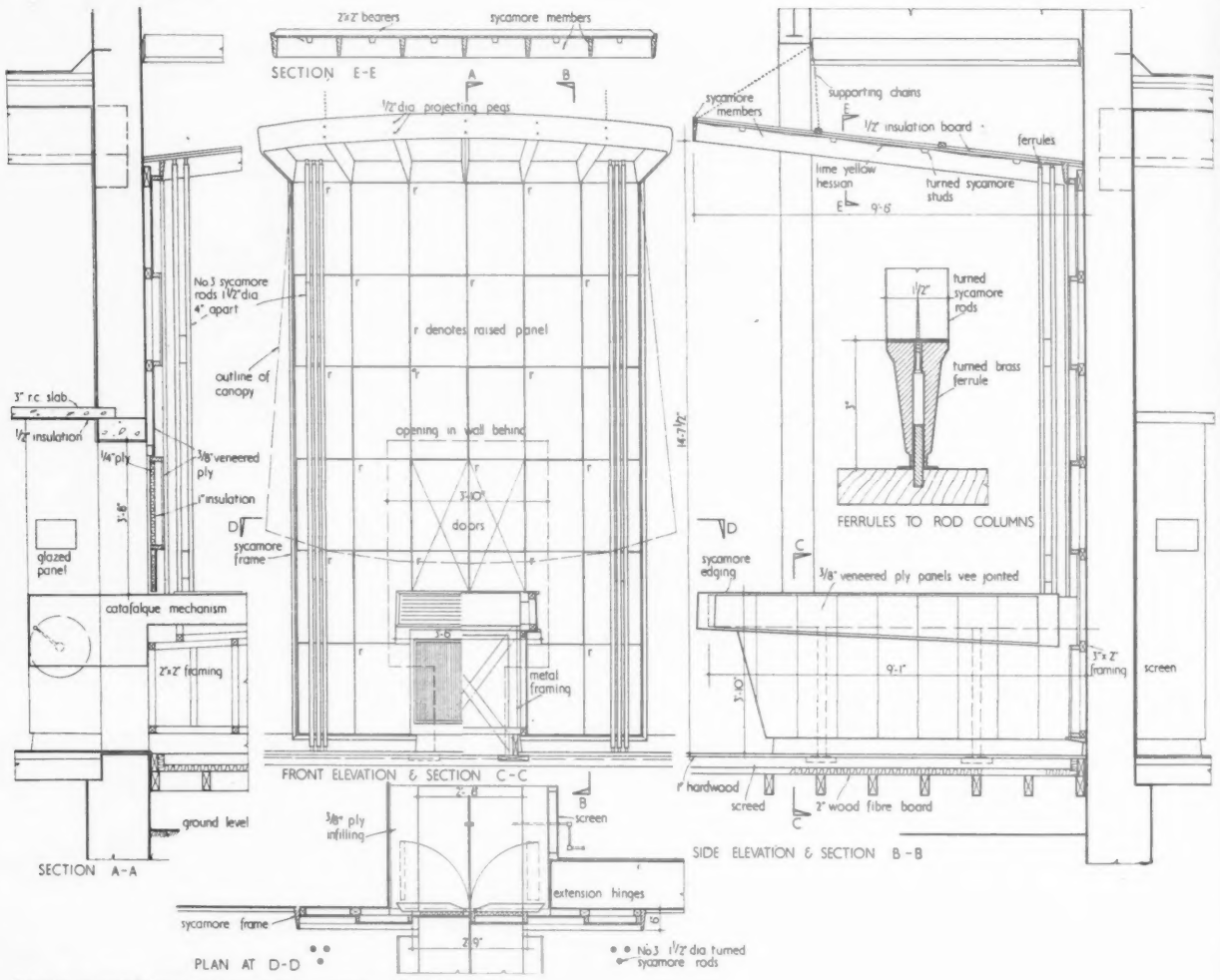


Ground floor plan [Scale : 1/16" = 1' 0"]

PLAN.—The new chapel seats about 130 people, the area previously occupied by the mortuary being incorporated in the chapel proper, and new pews have been installed. The complete right-hand wall of the chapel has been removed and reconstructed to form a large window from floor to ceiling and wall to wall, through which an enclosed garden can be seen. The vestry, vestibule and lavatories form a low block in front of the chapel; the vestibule contains a stand for the Book of Remembrance. Further additions, when the expenditure is allowed by the MOH, will include a porte cochere, verger's office, urn store; completion of the furnace room to accommodate four furnaces and decorated walling to the garden. The original, low arched ceiling in the chapel has been raised, given a slight curve and the side walls are sloped inwards to give an illusion of additional height.

CONSTRUCTION.—The new external walls are of cavity construction with a stone facing and an inner skin of brick. Most of the stone comes from the parts of the original building which were taken down, the remainder being obtained from demolitions at Crompton Hall. Two cement rendered walls to the furnace and transfer rooms are temporary and are designed for easy removal when the scheme is completed to the original designs.

FINISHES.—The vestibule and lavatory floors are covered with light grey speckled ceramic tiles; the vestry, chapel and chancel floors are of Burmese gurjun strips. The transfer room has a cork tile floor for acoustic reasons and the furnace room is finished with pale green terrazzo tiles. Externally, the main entrance door and vestry window are set in a panel of polished Derbydene fossil marble. Internally, the vestibule walls and ceiling are finished with acoustic tiles and plasterboard, a



Details of catafalque and surround [Scales : ½" and 1½" = 1' 0"]

large laylight forms the greater part of the ceiling. Vestry walls and ceiling are plastered and lavatory walls are faced with grey-blue eggshell glazed tiles to sill height and plastered above this level. Chapel walls and ceiling are plastered, except for the tower wall, which is of natural York stone. The chancel walls are lined with acoustic tiles, except for the wall to the furnace room, which is of pale blue glazed

CREMATORIUM

at OLDHAM, LANCASHIRE
designed by SANGER
and ROTHWELL

The chapel seen from the chancel. The left wall has been reconstructed and opened to the enclosed garden on the north side.

tiles, as are all the walls of the furnace room itself. General joinery work is of iroko; the catafalque and panelling behind it, the lectern and pews are of beech and mansonia, with sycamore edging.

SERVICES.—Heating is by panels embedded in the vestibule, vestry and chapel floors. Hot water circulating through these panels is from a gas-fired, thermostatically-controlled boiler in the basement. Hot water is from an electric unit heater. There is, so far, only one furnace installed; this is gas-fired with a single burner and is supplied with air by fans in the basement. The catafalque and concealed door opening gear are of a new silent type and can be either hand operated by an attendant, who receives a signal by electricity from the clergyman during the service, or by electricity. Music is provided by a record player and amplifier in the base of the tower. The general contractors were T. Partington & Son (Builders) Ltd. For sub-contractors see page 534.

Above, a general view of the chapel looking towards the chancel. In the centre is the catafalque, which, together with the panel behind is of beech and mansonia. The coffin passes from the chapel on to a bier, and thence to the actual cremator for committal.

RESTAURANTS

1. at 83, WIGMORE STREET, LONDON, W.1

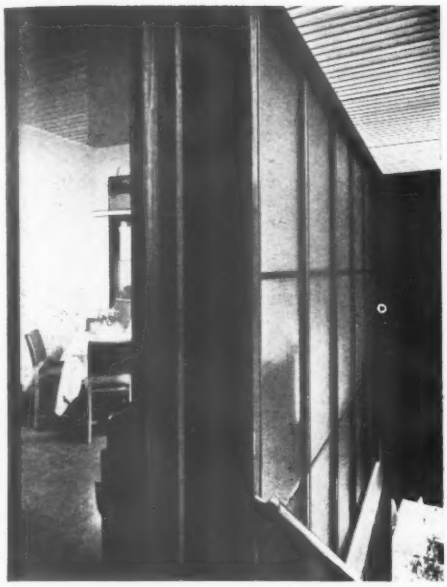
designed by JAMES CRABTREE, assistant PERCY RICKMAN

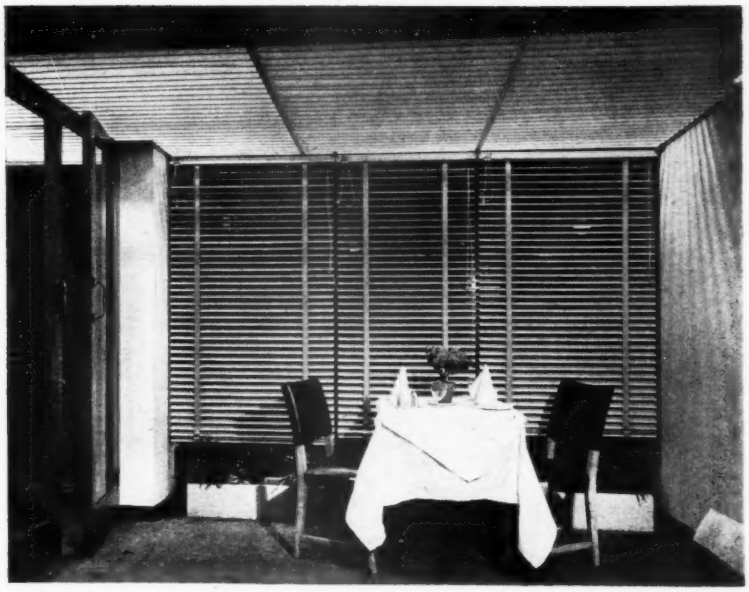
2. at 24, WARREN STREET, LONDON, N.W.1

designed by A. V. PILLEY

The building occupied by Plato's Restaurant is a Georgian house and, before the alterations and redecoration, consisted of a restaurant on the ground floor and a kitchen in the basement, and was in a dilapidated condition. The client wished to have the existing restaurant reinstated and also to increase the seating accommodation. Above the ground floor, domestic quarters have been redecorated for the proprietor and his family. Due to the poor condition of the premises and the new use of the basement as part of the restaurant, the two lower storeys are now supported on a steel frame.

The ground floor and outside terrace from Wigmore Street.

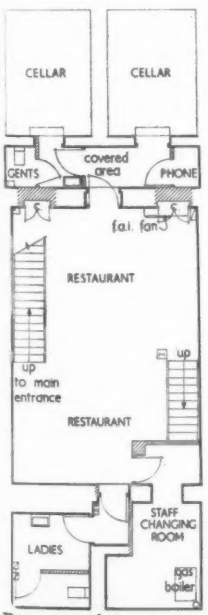




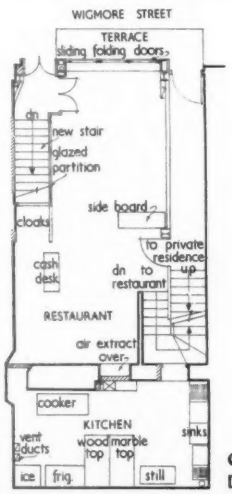
PLAN.—The kitchen was moved to an area at the rear of the ground floor because the basement was required for banquets and dancing and, at a later date, a bar. The basement vaults are used for lavatories, food stores and a boiler room. As a fire precaution it was necessary to construct a new stair from the entrance lobby to the basement, divided from the upper restaurant by a glazed, fire-resisting screen. The kitchen, which in its new position has natural light and air, is smaller than desirable, but has been made adequate to cater for 65 persons.

CONSTRUCTION.—Before work began it was found that the premises had settled badly and the foundations were in a poor condition; it was therefore decided to support the centres of the ground and first floors, the front wall and the upper portion of an old chimney breast on a steel frame, standing on new mass concrete foundations. The ground floor was also rebuilt and the basement water-proofed.

Top left, from the entrance lobby, showing the glazed screen beside the new staircase. Top right, part of the ground floor looking towards the street. Above, part of the basement with the new staircase on the right and the original staircase on the left.



Basement plan



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

RESTAURANT

1, in WIGMORE STREET, LONDON, W.1

designed by JAMES CRABTREE

FINISHES.—The front of the ground floor area can be opened up to the street by the use of sliding-folding doors, behind which are Venetian blinds. The fascia is of wood, protected by a clear cellulose spray, and the lettering is made of laminated wood. Floors are covered with nigger-brown carpet in the basement over thermoplastic tiles of the same colour. A portion of the carpet is removable for dancing. Colours used on walls include light grey, mustard yellow and dark red, and ceilings are dark grey.

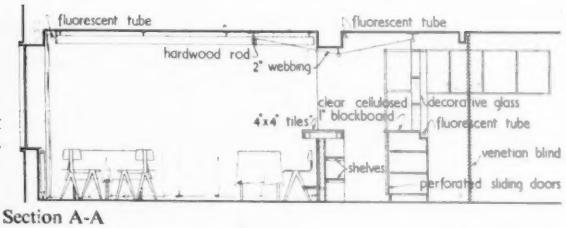
For sub-contractors see page 534.

Left, looking towards the curtained outside wall from under the webbing bar canopy. Below, looking towards the bar. The door on the left is faced with richly decorated cigar box lids, cellulose sprayed for protection.

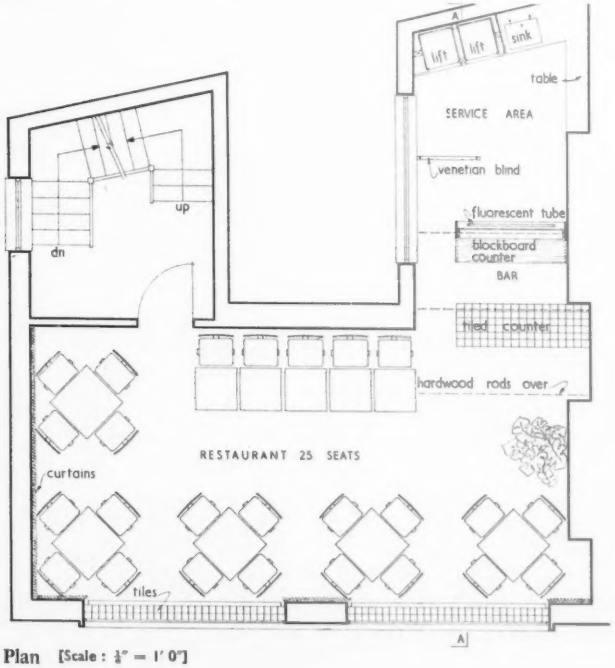
RESTAURANT

2. in WARREN STREET, LONDON, N.W.1

designed by A. V. PILLEY



Section A-A



Plan [Scale : ¼" = 1' 0"]

GENERAL.—The Fitzroy Club in Warren Street occupies second-floor premises originally used for storage and caters for local business men in the motor trade, who use the club mainly in the middle of the day. The client required a restaurant, bar, service area, (connected to a third-floor kitchen by electric service lifts) and a stillroom. The walls of the bar and restaurant are covered with natural coloured raffia cloth, imported from North Africa. The external and return walls of the restaurant are covered with a continuous patterned curtain in bright red and blue. The floor is covered with East African olive wood tongued and grooved boarding, wax polished. The canopy over the bar is made of brown webbing stretched over polished wood rods. The main lighting is by fluorescent tubes concealed behind pelmet boards hung from the ceiling which allow light to be thrown upwards and downwards. The contract price was £612. General contractors, W. S. Sharpin & Co., Ltd. Sub-contractors, page 534.

TECHNICAL SECTION

At the discussion which followed the paper on lifts which we print below a visitor from abroad made the point that we tend to lose the drama inherent in the lift by excessive concealment of the shaft and works. He contrasted our muffled lift installations with the more open lift shafts of Scandinavia and Holland and particularly with lifts of the Paternoster type which (as can be seen in the illustration on p. 528) have no doors at all.

This tendency to cover up mechanical installations—and indeed the pipe and cable runs of the services themselves—is, of course, characteristic of the British architect. It is partly due to his desire to conceal a form of untidiness and visual anarchy which he cannot control, partly perhaps to a feeling that mechanical things have nothing to do with "architecture." There is no call to argue in these columns for the need to change our view of these things. The problem is rather how to help the architect to achieve an understanding with the lift manufacturer—a problem which becomes more acute as the policy of building high extends. To state it in its most widely understandable aspect: lifts are costing far too much, with the result that the decision concerning them bulks disproportionately among planning considerations. The Code of Practice (CP 407.101:1951) represents only the first step in a long road. Increasing standardization and a steadier flow of orders from the big lift users (we remember the recent £329,600 contract placed by the LCC with the Express Lift Co.) ought to bring down basic costs considerably and the visual "opening up" of the shaft, if it has little influence on prices, would at least give people a better run for their money.

This week's special article

26 SERVICES AND EQUIPMENT
lifts

The number preceding the week's special article or survey indicates the appropriate subject heading of the Information Centre to which the article or survey belongs. The complete list of these headings is printed from time-to-time. To each survey is appended a list of recently-published and relevant Information Centre items. Further and earlier information can be found by referring to the index published free each year.

We print this week an abridged version of a lecture on "The Planning of Lift Installations in Commercial Buildings" given by P. T. Fletcher on April 13 at the RIBA. Mr. Fletcher, who is the Chief Mechanical and Electrical Engineer to the Ministry of Works, discusses the positioning of lifts in the building, the factors which should determine the number, size and performance of lifts, the case for automatic control and the placing of the motor room.

It is established by observation that most people when they enter a building prefer to occupy their time in action rather than to wait, so that it is not uncommon to find persons walking upstairs and wasting time rather than waiting for a lift simply because it is not available at the moment it is required. Many people will be tolerant of relatively long walks on the level but quite intolerant of a few seconds of waiting. Our concern therefore in planning a lift installation should be that of providing a judicious combination of walking distance on the level, lift availability for the random caller and

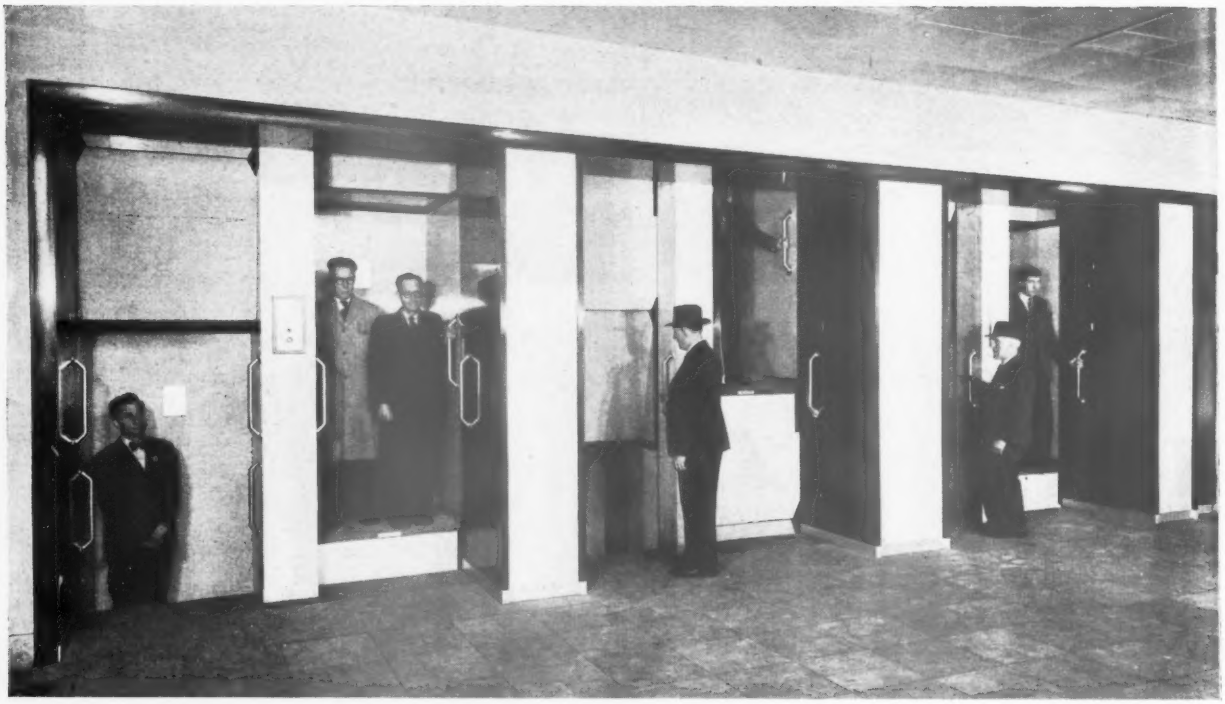


Fig. 1. A Paternoster lift installed in an office building in Newcastle.

adequate handling capacity for populating and depopulating the building. By taking advantage of modern technical developments in control and of grouping rather than dispersing lifts it is possible—at the expense of perhaps a little more walking time on the level than in older installations—to have lift cars very much more readily available to call. A building so equipped will give a sense of free flow of movement which I regard as dynamic quality. In planning, the problem must be reduced to the simplest possible terms—How many lifts should there be? What size should they be? What speed should they work at? Where should they be placed? In order to answer these four questions it is necessary to establish two limiting conditions: (1) The maximum rate at which people are to be moved to the upper floors of a building at the time of starting work—this has been established by long experience as the most onerous peak load duty. (2) The availability of lifts for interfloor traffic.

Before discussing the assessment of handling rate it is useful to establish an appreciation of the nature of the traffic undertaken by passenger lifts in office buildings. The calculation of maximum handling rate is simple for an escalator or the Paternoster lift. Escalators are seldom installed in office buildings, but one example operating in London with a travel rate of 90 ft. per minute and a 3-ft. stair tread can handle 6,000 persons per hour continuously. Such an installation is appropriate only to a very large building. The Paternoster lift, which is a series of cubicles without doors on an endless chain, has some vogue on the continent of Europe. The only example in this country carries 600 persons per hour per lift, using a two-person car running at a speed of 60 ft. per minute. (See Fig. 1.) The continuous availability and steady rate of movement are advantageous, but the confidence of the users has yet to be acquired in this country.

The normal passenger lift is an intermittently moving device and its working is influenced largely by human factors. Handling rates and availability are therefore more difficult to predict than for the continuous running devices.

CALCULATION OF MAXIMUM PASSENGER HANDLING CAPACITY

The maximum handling rate depends on several inter-related factors. To separate these it is necessary to make first approximations as to the size and speed of the lifts, then to calculate the number of lifts required and if necessary readjust the calculations in the light of interfloor availability and cost to reach a final conclusion. The factors which are first selected are lift speed, acceleration, door opening and closing time, and limit time at the end of travel. The inter-related variable factors are the car size and shape, the time to load a full car, the probable distribution of stops which will be made by a full car, the time to unload at the distribution stops. All the factors must be combined and related to the time in which the building is to be populated. In very high grade commercial buildings the time may be 20 minutes, though by suitable selection of the number, size, and placing of lifts a good quality of service may be obtained on the basis of a 30-minute populating time.

SPEED

Lifts in American skyscrapers may run as fast as 1,200 ft. per minute, the upper limit being set by the rate of change of barometric pressure which can be tolerated by the human ear. Speeds recommended for British practice are set out in British Standards Institution Code of Practice C.P.407.101 (1951), which recommends up to 600 ft. per minute for use of twelve floors and above with lower speeds for buildings with fewer floors. High speeds will only be advantageous where long journeys form a substantial part of the traffic.

Little information has been published about the rates of acceleration and retardation of lifts, and measurements are not easy to make. Acceleration is limited by power of equipment, rope slip and by human comfort. High retardation is limited by the ability of the lift to floor precisely without correcting overrun. For lifts of 500 ft. per minute, accelerations between 2 and 5 ft. per second per second are relatively common and give accelerating periods of from 2 to 4 seconds to reach full speed, and retardation periods of from 3 to 5 seconds, including the time for bringing the lift correctly to its floor level.

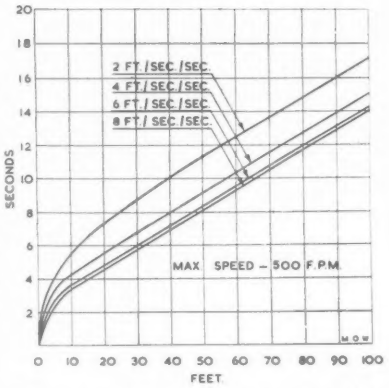


Fig. 2. Time-distance at 500 F.P.M.

In recent experiments on a 500-ft. per minute lift to ascertain the physical acceptability of increasing acceleration, changes were made progressively from 4 to 8½ ft. p.s.p.s. without any passenger complaint. High rates of acceleration are likely to show to advantage in small lifts with frequent interfloor traffic.

For the purpose of calculating handling capacity, transit-time curves have been prepared for a speed of 500 ft. per minute for a range of accelerations and are shown in Fig. 2.

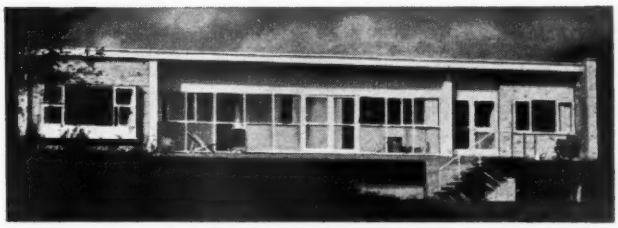
CALCULATION FACTORS

Door Movement: The door opening and closing on modern lifts is usually automatic. The time required varies with manufac-

ZINC in Zn plenty

TERRACE HOUSES AT COWLEY PEACHEY. *Architects—F. R. S. Yorke, F.R.I.B.A.; E. Rosenberg, F.R.I.B.A.; C. S. Mardall, A.R.I.B.A.*

Flashings and hoods, rainwater goods and weatherings — from roof to foundations zinc plays an important part in building. Our illustrations show contemporary houses roofed with zinc laid on the standing seam system. The roofing of the Cowley Peachey houses has an added interest because it has been laid on insulation boarding to combine good insulation with lasting protection.



HOUSE AT LUCCOMBE, I.O.W. *View from South-west. Architect and owner—F. R. S. Yorke, F.R.I.B.A.*

There are now no restrictions on the use of zinc. Supplies are plentiful and are likely to remain so for many years to come.

The price of zinc has dropped considerably and it is again one of the most economical roofing materials.

The Zinc Development Association will be pleased to send to potential users lists of stockists of all zinc building materials and of firms specialising in zinc work.

View of standing seam zinc roofing.

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turers' design but usually falls between 1½ and 3 seconds per operation for 3 ft. 6 in. centre opening sliding doors. Five seconds is a convenient design time for the complete open/close cycle.

Limit Time: The flooring devices at the top and bottom floors are set to make quite certain that the lift will in every case floor correctly without over-running to the extent of the automatic limit protection. This adds about 1 second to the normal transit time in any journey in which the lift reaches the top or bottom floor.

Car Size: The post-war Building Study No. 9, Mechanical Installations in Buildings, lists car sizes to accommodate 6, 8, 10, 15 and 20 persons with a load capacity equivalent to 150 lb. weight per person. Intermediate sizes are readily manufactured. The floor area recommended varies from 2½ sq. ft. per person for a four-passenger car down to 1·9 sq. ft. per person for a ten-passenger car. For a 25-passenger car the area per person may be reduced to 1·6 sq. ft. The equivalent handling capacity for goods is based on a floor loading of 75 lb. per sq. ft. of floor area. In determining the maximum handling rate it is necessary in the first instance to assess approximately the size of lift car which will be most convenient for the building and calculate on this basis. If as a first approximation this yields an unsatisfactory number of lifts either in relation to the availability of service or structural arrangement, then the handling capacity must be recalculated at a closer approximation to the ideal.

Time to load a Car: For satisfactory loading and unloading, lift cars should be either square or rectangular, and in the latter case with the width of the car greater than the depth. On cars handling eight passengers and upwards it is also preferable that doors should be centre opening. The deep, narrow lift or the lift with the door at one side leads to difficulty in loading and congestion for egress and should be avoided. There is no consistent data available to cover all of the factors affecting load time, but experimental observations made over a range of cars between eight and fifteen persons' capacity with centre opening doors are illustrated by the curve of Fig. 3.

Time to unload: Fig. 4 shows curves of unloading time extrapolated from experimental results reported by Annett from the United States. These have been verified by a number of spot checks in the region of the chart appropriate to British practice.

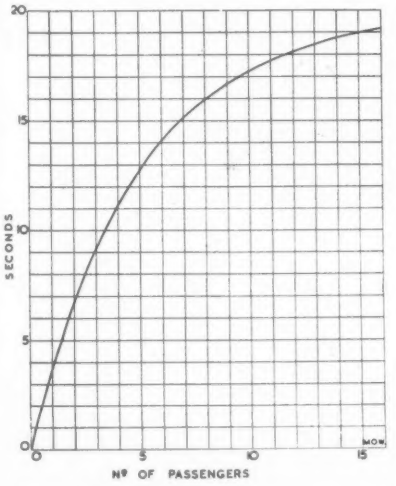


Fig. 3. The time for passengers to fill a lift.

Probable Distribution of Stops: The theoretical handling capacity is based on a hypothetical journey of a car starting full at the ground floor and distributing its passengers in a probable average manner to the upper floors. In the case of a lift

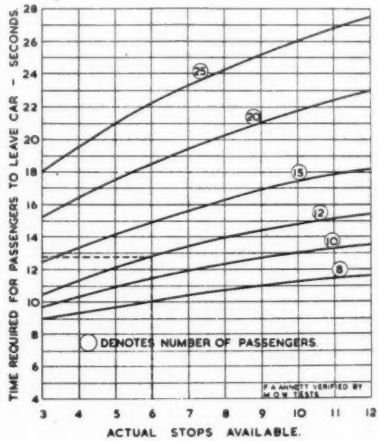


Fig. 4. The time for passengers to leave a lift.

loaded with P passengers for which there are S actual stops available then the probable number of stops which the lift will make, assuming that all floors have equal populations, is equal to $S - S\left(\frac{S-1}{S}\right)^P$

The assumption is made that the lift will complete the probable number of stops in sequence and then return to the ground floor. A full derivation of this probability is quoted by R. S. Phillips in *Electric Lifts*. Similar probability relationships were proposed earlier by Annett and Bassett Jones in the U.S.A. The curves of Fig. 5 have been plotted relating the lift car sizes to the actual and probable number of stops.

Example of Calculation. Phillips sets out very fully the type of analysis needed to arrive at the final selection of an installation. However, a single example will illustrate the use of the foregoing curves. Table I gives the steps in calculating the Round Trip Time. From this, the passengers handled in five minutes

$$= \frac{5 \times 60 \times 12}{114{\cdot}6} = 32 \text{ per lift.}$$

The population time is to be 30 minutes for 700—equally distributed. The lifts will

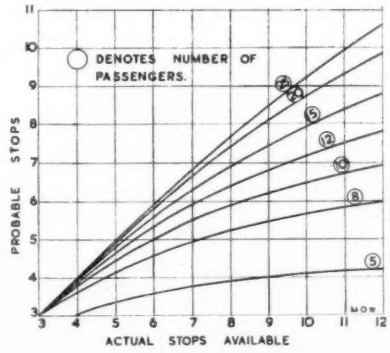


Fig. 5. The probability of stopping.

be required to handle 116 persons in five minutes and the number of lifts would, on this basis, be 3·6 This is, of course, an impossible number. Repeat calculations based on ten-passenger lift give a handling rate of 27 per five minutes per lift and a requirement of four lifts. The waiting interval would be 28 seconds. A further examination based on an eight-passenger lift gives a handling rate of 22 per five minutes per lift and a requirement of five lifts. with a waiting interval of 22 seconds. The convenient selection in this particular case would be four ten-passenger lifts.

Quality of Service. Attempts have been made to grade the quality of a lift service on the basis of combined waiting and travelling time. Phillips proposes that grading may be represented relatively by

$$Q = \frac{WI}{4} (2 + N) \text{ seconds, which represents}$$

the average standing and average journey time. WI is the waiting interval which equals the Round Trip Time divided by number of lifts. N is the number of lifts. He suggests that an excellent service is represented by Q being less than 45 seconds; good 45-55 seconds and fair 55-65 seconds. In the example quoted Q = 43 and the service would be graded as excellent.

Much of the working life of a lift can be spent in short inter-floor journeys. Availability for call for the single passenger is therefore important. Quality of service calculated according to Phillips is based on both the number of lifts and the round trip time and is therefore a measure of availability. Alternatively, for good interfloor traffic it seems desirable that there should be at least one lift for every 200 persons to be served, and for an excellent service one lift for 150 persons.

THE SITING OF LIFT SHAFTS

An examination of the theoretical calculation of the rate of handling of the lift shows that operations are divided into the loading time, the travelling time, the door operating time and the unloading time. In the calculation illustrated for a twelve-passenger lift the time for loading and unloading was 27 per cent. of the round trip time. This emphasises that the arrangement of the lifts should be such that loading and unloading are easily accomplished. Lifts should be grouped in such a way that intending passengers have no doubt as to the direction they should take and should easily be able to select the lift which would serve them first if there is more than one available. Equally, there should be no question of hesitation in leaving a lift as this obstructs other passengers trying to leave. Lifts should therefore be centrally placed for the building or well-defined section of the building which they will serve, and they should be associated with bold and clear indication of the direction which passengers should take. Lifts serving identical floors should not ordinarily be placed on opposite sides of a lobby since this leads to uncertainty in the passenger as to the direction he should take. Lifts should be grouped to take advantage of the facilities of collective systems of calling, giving individual callers the benefit of the first available lift, so improving the rate of interfloor traffic.

As I have already stated, there is marked preference for people to walk on the level to a point where there is a good lift service rather than to wait for an inadequate service, and the indication from this is that the distribution throughout a building should be based on radial movement to and from a lift centre rather than to dispersed lifts. Lift lobbies should not be broken by

Table I—Calculation of Round Trip Time

Step	Particulars	Seconds
1	Assume 12 passenger lift. Car speed 500 f.p.m. Acceleration 2 f.p.s.s. Serving seven floors to populate with 700 in 30 minutes, uniformly distributed between floors. Rise per floor 10 ft. 9 in. Loading time for 12 passengers from curve in Fig. 3	18
2	The probable number of stops from curve Fig. 5 is six. Time interval for rise of 10 ft. 9 in. from curve Fig. 2 is 5·7 seconds. Total time for journey is 6 × 5·7	34·2
3	The time to open and close doors, seven floors × 5 seconds	35
4	The time for passengers to unload, from curve Fig. 4	13·4
5	The time for the down trip = the time for the non-stop journey plus the limit time. The non-stop journey = 6 × 10 ft. 9 in. = 64 ft. 6 in. Time from curve Fig. 2 = 13 seconds and the limit time 1 second	14
	Total round trip time	114·6

Table II—Design Data for Installation of Four Lifts—Two Fast, Two Slow

——	Fast	Slow
Passengers per car	12	8
Dimensions	6 ft. × 4 ft. 3 in. deep	5 ft. × 4 ft. 7 in. deep
Door opening	3 ft. 6 in.	3 ft. 6 in.
Maximum speed (measured)	480 ft. per minute	208 ft. per minute
Door Operation—Open	2·3 seconds	2·3 seconds
Shut	2·4 seconds	2·4 seconds
Travel	Ground to 8 floors	10 ft. 9 in. rise per floor
Normal peak service	Ground to 5, 6, 7, 8	Ground to 2, 3, 4

staircases, or corridors between lifts, as these introduce cross traffic which interferes with loading and unloading. Emphasis should, in my view, be upon more small lifts rather than fewer large lifts. Not only does the selection of a larger number of lifts cover the needs of breakdown and routine servicing, but also the segregation of lifts for service duty.

Mr. Fletcher here discussed in detail an actual experiment for determining the handling capacity of an existing lift installation.

LIFT CONTROL

In some commercial buildings it may be desirable to have the attention of a commissionaire or lift operator as part of the atmosphere of service associated with the building. However, when it is desirable to give the best technical service to the population of a building familiar with its lifts there is no doubt that it is obtained by passenger operation. Unfortunately, passenger operation still carries a stigma of the "push-button" lift in which a passenger may be able to take the lift and use it at the expense of others at intervening floors and where a floor might be passed several times before a call is answered. This uncertainty is removed by "collective control." "Collective control" uses the principle of storage of information so that all calls are registered by the control system and are answered floor by floor in sequence in the direction of movement of the lift.

Collective Control: "Collective control" is defined in the BS Code of Practice as "A method of automatic control in which calls from the lift car and lift landings are registered and are answered by the lift car stopping in floor sequence at each lift landing from which a call has been registered until all calls have had attention. The landing calls are usually made from up/down buttons and are then answered in the direction in which the lift car is travelling." The mechanism which carries out this storage varies with different manufacturers. The principle remains the same that when a call is registered by the lift controller a searching device operated by the main lift mechanism seeks out the call which has been registered and ensures that when the lift is running in the appropriate direction it will stop in answer to the call. Applied to one lift it is known as a Simplex system, and improves the availability of the lift very appreciably. The terms Duplex, Triplex and Quadruplex are used to include two, three or four lifts. The control mechanism for a group of lifts will store the calls for the whole group so that the first lift out of the group moving in the desired direction will answer the call irrespective of the order in which calls have been made. When the system applies to two lifts one lift will normally return automatically to the ground floor ready for passengers arriving at the entrance. The other car will operate as a free car to answer landing calls for interfloor traffic. If both cars finish their calls at the ground floor, the first one to arrive at the ground will be the one which will leave in response to the next landing call. The arrangement can be extended with three and four cars to any arrangement of standing and free cars to suit the type of traffic, and switching arrangements can be provided to take individual lifts out of service or to split a quadruplex group into two duplex groups. It will readily be appreciated that such a system will have no alternative but to respond to the calls that are introduced to it. There are two possible difficulties in using collective control. If one important passenger is to have prior use, and uninterrupted use during his journey, then a complicated key or switch system has to operate or an attendant has to be provided who will operate a pass switch so that the calls made by others continue in storage while the lift completes its uninterrupted journey. The other difficulty arises from the fact that the collective calling will continue to operate even if a car is full and therefore a full car could stop but be unable to accept the caller. Some very recent installations have an automatic pass device so that when the car is carrying its full weight a call which it cannot answer is automatically transferred to the next lift or the next journey.

Automatic Control or Attendant Operator: It has been well established that the extra cost of installation and of maintenance of collective control passenger drive lifts is very quickly offset by providing a service at least as good as with attendant operation, but without the cost of an attendant. In large buildings where a group of lifts may be heavily loaded at starting time, it is useful to have one attendant who will be concerned with directing passengers into the lifts. Such a "despatcher" should understand the working of the installation and be able quickly to read the indication given by the lift directions signals and advise intending passengers of the next lift which is to come. He would also see that only sufficient passengers are directed to each lift to ensure a proper loading.

The passenger operates the lift by pressing a button on a car station or panel numbered with the floor to which he wishes to proceed. Each succeeding passenger registers his own call and a delay is introduced into the sequence to allow a normal flow of passengers to enter. About six seconds after the last call, the lift doors close and the lift starts. A push is usually provided on the car station to hold the car doors open, and doors are provided with safety edges arranged so that contact with the safety edge causes the door to retract.

While detailed statistics demonstrating the advantage of collective control passenger operation over attendant operation are not published, it can be recorded that in one installation recently surveyed identical lifts from a group of four were arranged so that two operated as Duplex passenger control and two operated with attendants. The lifts were 16 passenger, 500 ft. per minute serving ten floors. The Duplex lifts handled 39 passengers per five minutes for each lift. The attendant-operated lifts handled 33 passengers per lift. The Duplex lifts—25 trips for 188 passengers. The attendant-operated lifts—30 trips for 159 passengers. It has been reported of another installation that the introduction of Triplex passenger control to three of a group of four lifts has enabled the fourth to be shut down, a better service to be afforded and attendants to be dispensed with.

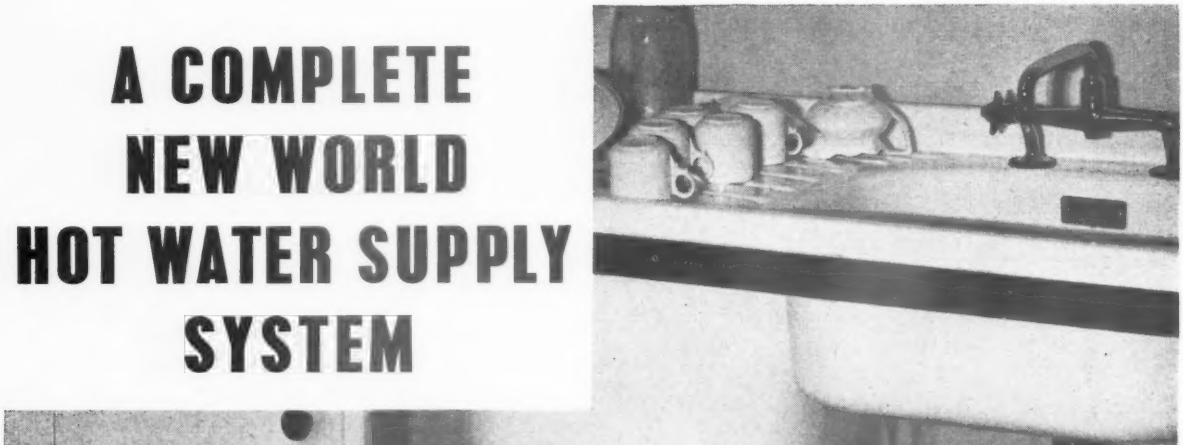
The technical facilities are used to best advantage by grouping lifts together and using multiplex control. This ensures that the lift nearest and next available takes on the job of work and the burden of interfloor traffic is shared between all lifts. It is premature to state design factors for relative effectiveness of collective control and attendant control installations—though the probability is that with "collective control" a 20 per cent. better handling capacity is available than with attendant operation. Certainly the interfloor availability is improved.

Mr. Fletcher here discussed the need for instructing the population of a building in how to use a new lift installation and drew attention to the need for the standardisation of signal conventions.

THE POSITIONING OF MOTOR ROOMS

The post-war Building Studies No. 9, Mechanical Installations, give guidance on the size of machine rooms and lift wells. This information serves for preliminary purposes but must be confirmed by the selected manufacturer. I would like particularly to stress the question of the positioning of the lift motor room. The provision of overhead motor rooms is often a difficulty since the protrusion may destroy the line of the top of the building

A COMPLETE NEW WORLD HOT WATER SUPPLY SYSTEM



FOR NEW BUILDINGS, CONVERSIONS AND IMPROVEMENTS

The universal demand for a complete hot water service which is reasonably priced, easily fitted and economical to use, has turned the attention of Architects and Municipal Authorities to the **NEW WORLD** Gas Storage Systems.

As an example, the **NEW WORLD** C.12.S. Circulator, fitted to a lagged 20 gallon cylinder, can be accommodated under the draining board in the kitchen. With the Economy Valve the user has the choice of heating 4 gallons for the sink and wash basin or 20 gallons when a bath is required. The temperature of the water is automatically controlled by the Regulo. If ventilation in the kitchen is adequate no flue is needed. This installation is being extensively used in new houses and flats, and for the modernising and conversion of old property.

A similar type of installation is available for use in an airing cupboard; and when the house contains no ball valve cistern, a combination unit complete with cistern mounted on the cylinder can be supplied. The **NEW WORLD** Circulator can also be used as an auxiliary to an existing solid fuel system and is available in three sizes, the largest of which is suitable for schools and institutions.

NEW WORLD Storage Water Heaters provide hot water at the same temperature, Summer and Winter—they can normally be operated on the existing Gas and Water Services and require a minimum of maintenance.

recommend NEW WORLD PRODUCT OF Radiation Ltd. ***gas storage water heaters***

Further information from: RADIATION GROUP SALES LTD., DEPT.WA, 7 STRATFORD PLACE, LONDON, W.1 *Phone:* MAYFAIR 6467

and architects may insist that the lift motor room should be placed in the basement. There is no engineering difficulty in placing the motor room in the basement, but there are consequent serious disadvantages both to arrangements within the building and in the future cost to the client. The total load on the structure of the building will be greater when the lift motor is in the basement than when it is on the roof. This arises from the double sheave and double rope arrangement needed for the basement motor and means that the lift shaft must accommodate an extra set of ropes. This may reduce the space available for the lift car and limit its size. The installation with the basement motor will require very nearly three times the amount of lift rope, which is an expendable item and which will suffer extra wear due to repeated flexing around sheaves and pulleys. Therefore wherever possible the lift motor room should be above the highest floor which has to be served.

Lift cars and guides are designed to reduce the clearances around lift cars and the introduction of magnetic or other forms of inductive devices which avoid the contact of switch arms or roller devices between the lift car and special ramps in the well has made a big contribution to simplifying the work in the lift well and the subsequent accuracy of control in the lift car.

SAFETY

There is no statutory legislation to cover the installation of lifts in this country except where in factories the Factories Act 1937 applies. Most other countries have some form of national or local legislation. However, the lack of legislation has certainly not led us to a low standard of lift installation. In many respects our installations are more conservative in their design and in their interpretation of safety requirements than in countries where there is legislation. This is a tribute both to our manufacturers and our users and insurance companies who influence British Standards, Codes of Practice and specifications.

I do not propose to describe the technical arrangements for safety. These are relatively complex but well proven and include lock mechanisms with mechanical and electrical interlocking, and safety gear to restrain the lift should ropes break.

DOORS

It is usual practice on lifts in this country to provide both car and landing doors. It is not uncommon practice on the continent of Europe to find lift cars flush fitted to the well and the door, very often a hinged door, on the landing only. There is no doubt that this arrangement can substantially speed up traffic, but I have no information with regard to the relative safety of lifts either with or without doors on their cars. Where sliding doors are used it is clear that these should be free of pockets or edges which can trap fingers. This is particularly a point to watch in the design of doors which include vision panels.

Preference varies considerably with regard to the fitting of vision panels. The modern high-speed lift of smooth acceleration introduces little sense of movement and some users prefer to have a small window in the door in such a way that the movement of the lift can be sensed visually. A vision panel, when lined up with the vision panel in an outer door, will also be a means of visual communication in the event of door mechanism failing to operate. Other users prefer the interests of general safety to avoid vision panels, which are incidentally quite expensive in metal-cladded insulated doors.

Perhaps the most unsatisfactory part of the automatic installations at this stage is door-operating gear. While this varies from one manufacturer to another (and it would not be appropriate here to comment relatively on different types) door-operating mechanism does provide as many calls for emergency service as other parts of the installation. Door mechanisms have to meet a very exacting requirement and I do not think that they are yet entirely meeting it. Perhaps the ideal solution is to have no doors at all and to use the Paternoster type of lift.

Mr. Fletcher here pointed out the need for expert maintenance.

COST OF PASSENGER LIFTS

It is impossible in a lecture of this type to quote basic prices for lift installations, but it will be of interest to indicate the effect of the car capacity and speed on the price for a typical installation of eight floors. The cost of a large number of post-war installations with collective control have been corrected for price variations and other variable factors, and the curves of Fig. 6 have been derived which show a unit cost per floor and per passenger for variable voltage lifts of 300 ft. per minute and 500 ft. per minute on an eight-floor installation. They afford some guidance in the selection of lifts where the alternative combinations of size and number must be considered against capital cost. A change of type of equipment is involved between 300 and 500 ft. per minute and it is therefore inadvisable to interpolate between curves.

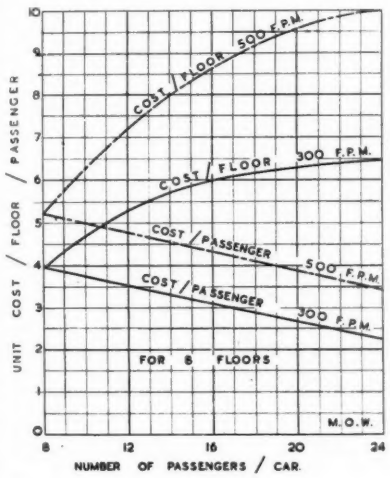


Fig. 6. Cost variation.

THE LIBRARY OF INFORMATION SHEETS

CANCELLATIONS

Sheet 15.S6 *published* 15.10.53 *has been cancelled and should be removed from collections. It has been replaced by Sheet* 15.S6 *published in this issue.*

THE INDUSTRY

From the Industry this week, Brian Grant reports on a combined hot water cylinder and refrigerator, a new boiler, a plastic conduit, domestic switchgear, and a new range of taps.

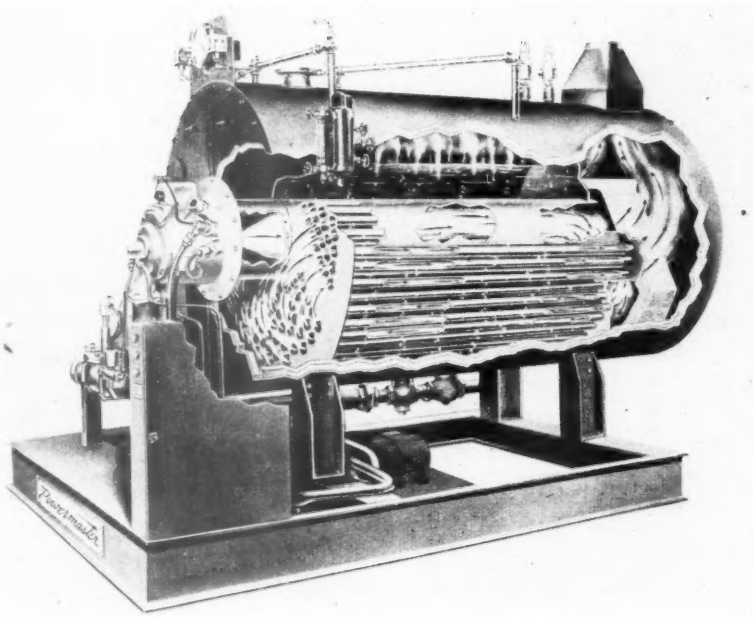
REFRIGERATION AND HOT WATER

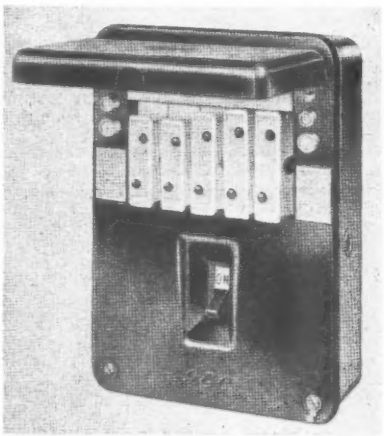
At the Building Exhibition last year there was shown a combined larder cooling and hot water unit developed from existing refrigerator parts by the South Western Electricity Board. The equipment was regarded as being no more than experimental, and had been tried out for several months in the houses of two employees. Now Messrs. Brentford Electric have developed a heat-pump unit working on similar principles.

The Duo-Therm combined water heater and refrigerator.

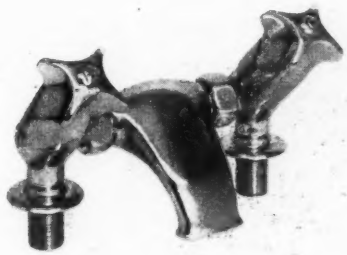
It is called the Duo-Therm, and consists of a 30-gallon hot water cylinder and a refrigerator unit (as illustrated): the latter is installed in the pantry or larder, and maintains it at a temperature of 40 deg. F., the heat extracted being transferred to the water in the cylinder, and maintaining it at a temperature between 140 and 160 degrees. The refrigerator unit also includes an ice box which will make twenty-four cubes and at the same time provide storage for eight pint bottles of milk.

The manufacturers have produced, after a series of tests, a dozen or so examples, and are asking for the co-operation of architects who would be prepared to install them on a field-test basis, with the co-operation of the appropriate Area Electricity Boards. So far as the final model is concerned, it is hoped that it will sell at somewhere between £150 and £200, including purchase tax. On first thoughts this may seem high, but one must remember that refrigerators can easily cost £120 or more, and, provided that the Duo-Therm provides adequate domestic hot





Above: The Powermaster boiler.
Left: The GEC composite unit.
Below: The Easilyne mixing valve.



water, the cost of the solid fuel boiler and its flue should be saved. Running costs are said to be about half the amount required with immersion electric heaters for the hot water, while the refrigerator is to all intents and purposes free. (*Brentford Electric Ltd., Kidbrooke Park Road, Kidbrooke, London, S.E.*3.)

While on the subject of heat pumps it may perhaps be worth mentioning that Messrs. J. & E. Hall have made use of this method of heating for the cabins in the Admiralty's new survey vessel *Vidal*, recently in the Thames. The method has the great advantage that it can also be used for cabin cooling in tropical areas.

"PACKAGED BOILERS"

The illustration above shows the Powermaster boiler, one of a range of American designs now being placed on the market in a number of sizes with outputs varying from 500 to 17,250 lb. of steam per hour. In America, where steam heating is far more widely used than hot water, these boilers are quite usual equipment for flat blocks, schools and other buildings. Here one would expect them to be more popular for small factories where both heating and process steam are required.

The boilers are arranged to burn gas or oil, and the change from one fuel to the other can, if necessary, be made in a few minutes. The most interesting point about them is that they need no special brickwork setting, and are delivered with the necessary steelwork base, needing connection only to the appropriate services. The boilers are horizontal fire-tube types, the diagram shows how the hot gases pass down the central cylindrical combustion tube, return to the front through the bottom bank of tubes and pass to the back again through the two banks of tubes on either side of the main combustion chamber. Since each boiler has a forced draught fan there is no need for a tall large diameter chimney, while the boilers themselves occupy only about half the space of the more conventional horizontal types. (*G.W.B. Furnaces Ltd., Dibdale Works, Dudley, Worcs.*)

SWITCHGEAR AND CONDUIT

Two new developments from the GEC are announced this month; plastic conduit and a range of domestic switchgear in enamelled pressed steel or in plastic cases. The switch fuses, splitter and composite units all have the slow break small gap switches now usual with AC supplies, and the fuses are either the cartridge type or re-wirable. The composite units have a hinged lid for access to the fuses, the contact clips of which can be arranged to take any required combination of fuse sizes: after the clips have been set for the appropriate current rating and the corresponding fuse base fitted, only a fuse holder of the right size can be used. Only a screwdriver, plus the necessary new base and holder, is necessary if the fuse rating has to be altered. These switches are known as the D.W. range.

The conduit is in PVC and has excellent corrosion resistance: it is particularly recommended for buildings where the humidity is high or where severe corrosion conditions exist. The conduit can be handled like steel, and no special threading gear is required, the only point to note being that more supporting saddles are needed than with steel conduit. The standard GEC range of malleable and pressed steel fittings can be used, but they should first be coated with pvc to give a completely protected system. These fittings cannot, however, be delivered from stock, and a simpler and cheaper alternative is to use a chlorinated rubber paint, and fittings so finished can be delivered in two or three weeks. The paint can also be used for touching up and sealing joints. (*The General Electric Co., Ltd., Magnet House, Kingsway, London, W.C.*2.)

SIMPLY-DESIGNED TAPS

The new Easilyne range of taps, one of which is illustrated on this page, are pleasant in design, and the wings on the cover are large enough to be used easily with soapy hands. All the designs conform to the relevant British Standards and there are bib and pillar types as well as the mixer model. (*Sanbra Ltd., Aston Hall Road, Birmingham,* 6).

INFORMATION CENTRE

INDEX FOR 1953

An alphabetical index covering Information Centre items and special articles published in the Technical Section during the twelve months ended December 31, 1953, is being prepared. Readers who wish to have a copy—it is free of charge—should complete the form below and post it to the Technical Editor,* THE ARCHITECTS' JOURNAL, *not later than May 10, 1954.

Please send me the Information Centre Index for 1953:

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Readers requiring up-to-date information on building products and services may complete and post this form to the Architects' Journal 9, 11 and 13, Queen Anne's Gate, S.W.1

ENQUIRY FORM

I am interested in the following advertisements appearing in this issue of "The Architects' Journal." (BLOCK LETTERS, and list in alphabetical order of manufacturers' names please.)

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Please ask manufacturers to send further particulars to :—

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29.4 54

Buildings Illustrated

Mayfield Comprehensive Girls' Secondary School in Portinscale Road, Putney, S.W.15, for the London County Council. (Pages 516-519.) Architects: Powell & Moya, A/A.R.I.B.A. General contractor: C. Miskin & Sons Ltd. Clerk of works: F. Wright. General foreman: F. Silk. Sub-contractors: excavation, J. D. O'Mahony; pre-stressed floor planks, Costain Concrete Co. Ltd.; facing bricks, Richard Parton (Builders' Merchants) Ltd.; structural steel, Carter-Horseley (Engineers) Ltd.; asbestos roofing, Alexander Macquire Ltd.; glass and patent glazing, Aygee Ltd.; precast and terrazzo flooring, W. B. Simpson & Sons Ltd.; water supply, gasfitting, ventilation, central heating, Barrett & Wright Ltd.; electric wiring, The Berkeley Electrical Engineering Co. Ltd.; plumbing, G. L. Haddon & Co. Ltd.; wood casements, Walter Lawrence & Son Ltd.; oak fencing, Yardale Fencing Co. Ltd.; chain-link fencing, Chain Link Fencing Ltd.; chimney shaft, Chimneys Ltd.; plaster and pavings, Plaster Decoration Co. Ltd.; metalwork, Birmingham Guild Ltd.; joinery, H. C. Janes Ltd., and C. Miskin & Sons Ltd.; wall and floor tiling, Harradine Rouse & Co. Ltd.; painting, Howley Decorations Ltd.; playground surfacings, A. C. W. Hobman & Co. Ltd.

Crematorium (conversion from existing chapel) at Hollinwood Cemetery, Oldham, Lancs, for the County Borough of Oldham. (Pages 520-523.) Architects: Sanger & Rothwell, A./A.R.I.B.A. Quantity Surveyors: Lay & Partners. General Contractor: T. Partington & Son (Builders) Ltd.; General Foreman: M. Mooney; Sub-contractors: asphalt, J. White & Son; stone masonry, S. & J. Whitehead Ltd.; structural steel, Spooner & Seth, Ltd.; tiles, Langley London Ltd. (floor), Pilkington's Tiles Ltd. (wall); glass, Pilkington Bros. Ltd.; timber strip flooring, A. Vigers & Sons Ltd.; central heating, G. N. Haden Ltd.; boilers, Ideal Boilers & Radiators Ltd.; electric wiring, Frank Wall & Co. Ltd.; electric light fixtures, Merchant Adventurers of London Ltd., and Arthur Greaves (Lees) Ltd.; plumbing, T. Fish Ltd.; sanitary fittings, Morrison Ingram Ltd.; stairtreads, Ferodo Ltd.; door furniture, Laidlaw & Thomson Ltd.; casements, George Wragge Ltd.; iron staircases, J. Davenport Ltd.; plaster, S. Robinson; joinery and church fittings, B. & J. Smith Ltd.; marble, Nine Elms Stone Works; tiling, J. Duncan (Oldham) Ltd.

Plato's Restaurant at 83, Wigmore Street, London, W.1. (Pages 524-525.) Architect: James A. Crabtree, A.R.I.B.A., assisted by Percy Rickman. The work was carried out by specialist contractors and by direct labour employed by the Clients. Sub-contractors: thermoplastic tiles, Marley Tile Co. Ltd.; glass suppliers, Chance Bros. Ltd.; waterproofing materials, Messrs. Sica (suppliers); central heating, ventilation, Heath & Co. Ltd.; gas fixtures, Bratt Colbran Ltd.; gasfitting, plumbing, Messrs. Murphy; electric light fixtures, Merchant Adventurers of London Ltd., and Troughton & Young Ltd.; door furniture, Comyn Ching & Co. Ltd.; folding doors gear, Hill Aldam & Co. Ltd.; sunblinds, terrace tiling, shop front signs, Roffé Decorations Ltd.; garden furniture lent by Ernest Race Ltd.

Club, Restaurant and Bar at 24, Warren Street, Euston Road, London, N.W.1. (Page 526.) Architect: A. V. Pilley, F.R.I.B.A., M.S.I.A. General contractor: W. S. Sharpin & Co. Ltd. Sub-contractors: fireproof construction, Armstrong Cork Co. Ltd.; Accotiles (in kitchen), laid by Vigers Bros. Ltd.; glass ("spotlyte" glass to dispense), Chance Bros. Ltd.; East African Olive floor boarding, Vigers Bros. Ltd.; electric wiring, Becker & Co.; electric light fixtures, Merchant Adventurers of London Ltd.; textiles, David Whitehead Ltd.; fabric, made and fixed by Esbee Furniture; wallpapers (raffia cloth), supplied by Eaton Bag Co. Ltd.; chairs, Hille & Co. Ltd.

CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcements

25s. per inch; each additional line, 2s.

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

COUNTY BOROUGH OF WEST HAM.

Applications are invited from suitably qualified Architects/Planners for the following appointments to work under Thomas E. North, O.B.E., F.R.I.B.A., Dist.T.P. (Borough Architect and Planning Officer), on the reconstruction programme of the Council. The posts are established.

(*a*) ONE SENIOR ASSISTANT, Grade A.P.T., VII.

(*b*) ONE ASSISTANT, Grade A.P.T., V/Va.

(*c*) ONE ASSISTANT, Grade A.P.T., I/III.

There are also a number of GENERAL ASSISTANT (Technical)—General Division Scale—posts available.

Application forms from 70, West Ham Lane, Stratford, E.15 (returnable by 10th May, 1954). 2316

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

Applications are invited from persons having general experience and holding the A.R.I.B.A. qualification or the A.R.I.C.S. qualification. Scale £520-£870 with placing according to age and experience. Posts are superannuable, subject to medical examination. Form of application may be obtained from the Principal Administrative Officer, 20, Trongate, Glasgow, C.1.

A. G. JURY,
City Architect and Planning Officer.
2309

COUNTY BOROUGH OF SOUTH SHIELDS.
ASSISTANT ARCHITECTS.

Applications are invited for appointment as Assistant Architects, in the Borough Engineer's Department, at a salary up to A.P.T. Division, Grade VI, according to qualifications and experience.

The appointments will be terminable by one month's notice on either side, and the successful candidates will be required to pass a medical examination for superannuation purposes.

Application forms to be obtained from the Borough Engineer, Town Hall, South Shields, should be returned to him not later than noon Monday, 10th May, 1954.

HAROLD AYREY,
Town Clerk.
2433

BRACKNELL DEVELOPMENT CORPORATION.

Applications are invited for the appointment of STRUCTURAL ENGINEER on the staff of the Chief Architect. Salary grade: £860×£50—£1,010. Applicants should be Corporate Members of the Institution of Structural Engineers, and have had good all-round experience. The successful applicant will be required to advise the Chief Architect on all matters relating to structural work and foundations to buildings, including factories, public buildings, etc., to prepare designs and to supervise and the specialist works.

Superannuation schemes. Medical examination. Housing available in due course. Apply by 10th May, 1954, giving age, education and qualifications; experience and appointments held (with dates and salaries), and two referees, to General Manager, Bracknell Development Corporation, Farley Hall, Binfield, Bracknell, Berkshire. 2432

BRACKNELL DEVELOPMENT CORPORATION.

Applications are invited for the post of ARCHITECT (salary: £860×£50—£1,010), to be engaged primarily on the design and erection of factories. Applicants must be Corporate Members of the R.I.B.A., and should have had considerable building experience, including the administration of contracts.

Superannuation schemes. Medical examination. Housing available in due course. Apply by 10th May, 1954, giving age, education and qualifications; experience and appointments held (with dates and salaries), and two referees, to General Manager, Bracknell Development Corporation, Farley Hall, Binfield, Bracknell, Berkshire. 2431

DERBYSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited from ARCHITECTS for appointments in the New Schools Section of the department, on A.P.T., Grades V, IV and III. N.J.C. conditions. Details of the appointments will be sent with application forms to be obtained from F. Hamer Crossley, St. Mary's Gate, Derby. 2396

LEEDS REGIONAL HOSPITAL BOARD

Applications are invited for the following permanent (superannuable) appointments in the department of the Regional Architect (Philip B. Nash, A.R.I.B.A.).

ONE SENIOR ASSISTANT ARCHITECT—Salary £875 × £30—£1,025 p.a.

Applicants must be Registered Architects with Final R.I.B.A. or Diploma in Architecture. Experience in Hospital planning and construction an advantage, and a sympathetic approach to contemporary design essential. The applicant selected will be responsible for control of a section of the Architectural staff.

ONE ASSISTANT ARCHITECT—Salary £600 × £25(7) × £30(3)—£865 p.a.

Applicants must be Registered Architects with Final R.I.B.A. or Diploma in Architecture. The commencing salary will depend upon the extent of the successful applicant's practical experience at full professional standard, but the number of additional increments given on this basis will not be more than the number of years by which the applicant's age exceeds 25.

Experience in Hospital planning and construction an advantage; sound knowledge of specifications essential. Flair for contemporary design desirable.

TWO ARCHITECTURAL ASSISTANTS — Salary £440 × £25(1) × £20(8)—£625 p.a.

Applicants must have passed the Intermediate Examination of the Royal Institute of British Architects. The commencing salary will depend upon the applicant's age and amount of practical experience since passing the Intermediate Examination, but will not exceed £525.

Applicants must have had a sound architectural training, and some practical experience in a practising architect's office is essential.

Applications, giving all relevant particulars, including training and experience, present appointment and salary, war service if any, and the names of two referees, should be forwarded to The Secretary, Leeds Regional Hospital Board, Park Parade, Harrogate, not later than 17th May, 1954. 2410

BUCKS COUNTY COUNCIL.

Applications are invited from Architects to fill the following permanent posts on the staff of the County Architect, and to work on a large and interesting building programme, including traditional and new building techniques:—

THREE ASSISTANT ARCHITECTS, A.P.T., Grade V (£620-£670 p.a.).

Applicants should have outstanding design ability.

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

Applications on forms, giving further particulars of the appointments, are obtainable from Mr. F. B. Pooley, County Architect, County Offices, Aylesbury, and returnable by 10th May, 1954. 2336

CITY OF ST. ALBANS.

Applications are invited from students R.I.B.A. or equivalent for an appointment of ARCHITECTURAL ASSISTANT in the City Engineer & Surveyor's Department. Salary A.P.T. III and IV, commencing within these grades according to qualifications and experience. Applicants must be suitably trained, good draughtsmen, and with experience in design and layout of housing contracts.

Housing available if required.

The appointment is for a period of not less than two years in the first instance.

Applications, stating age, qualifications, present and past positions and experience, with names and addresses of two referees, should reach me by 10th May, 1954.

W. B. MURGATROYD,
Town Clerk.
38, St. Peter's Street, St. Albans. 2409

BRITISH ELECTRICITY AUTHORITY.
EASTERN DIVISION.

Applications are invited for the following superannuable post in the Generation (Construction) Department at Divisional Headquarters in North London:—

SENIOR DRAUGHTSMAN (ARCHITECTURAL) Grade 4, £704-£819 p.a.

The commencing salary (which includes London Weighting) will depend upon experience and qualifications.

Candidates should have had experience in the design, construction and detailing of industrial type buildings.

Applications giving age, details of qualifications and experience, to the Controller, British Electricity Authority, Eastern Division, Northmet House, Southgate, N.14, to arrive by 14th May, 1954.

W. N. C. CLINCH,
Controller.
2421

YORKSHIRE ELECTRICITY BOARD.
HEAD OFFICE.
ARCHITECTURAL DRAUGHTSMAN.

The duties include the preparation of working drawings and details of sub-stations, etc. Applicants should have a sound knowledge of Industrial and Commercial Building Construction.

Salary: N.J.B., Schedule D, Grade 6 (£433-£567 per annum).

Applications, giving full details of age, qualifications and experience, together with the names of two referees, should be forwarded to the Secretary, Yorkshire Electricity Board, Wetherby Road, Scarcroft, Leeds, not later than 4th May, 1954. 2402

COUNTY BOROUGH OF BOURNEMOUTH.
BOROUGH ARCHITECT'S DEPARTMENT.

APPLICATIONS are invited for the following appointments:—

SENIOR ASSISTANT ARCHITECT; Established Post; Salary Grade A.P.T. VII £735-£810 p.a. This position is Section Head in charge of Educational Building and applicants must possess good knowledge of the requirements of the 1944 Act, be Registered Architects and members of the R.I.B.A.

ASSISTANT ARCHITECT; Established Post; Salary Grade A.P.T. V £620-£670 p.a. Applicants for this post must be Registered Architects, members of the R.I.B.A. and possess a comprehensive knowledge of general architectural works required by a local authority.

ARCHITECTURAL ASSISTANT; Established Post; Salary Grade A.P.T. III £550-£595 p.a. Applicants must have had one year's experience after passing R.I.B.A. Intermediate Examination.

The successful candidates will be appointed at their present salaries if such salaries are within the incremental scales of the respective advertised posts.

The above appointment will be terminable by one month's notice, in writing, on either side, and subject to the provisions of the Local Government Superannuation Act, 1937, also to the conditions of service in accordance with the National Scheme.

The successful candidates will be required to pass a medical examination.

No assistance can be offered regarding housing accommodation.

Applications, on forms to be obtained from the Borough Architect, Town Hall, Bournemouth, accompanied by copies of three recent testimonials, to be returned to the undersigned in envelopes endorsed "Staff Architectural" not later than 10 a.m., Saturday, 15th May, 1954.

A. LINDSAY CLEGG,
Town Clerk.
2420

COUNTY OF CORNWALL.

Applications are invited for the appointment in the County Architect's Department of a SENIOR ASSISTANT ARCHITECT (Team Leader), at a commencing salary of £840, on Grade IX (£840×£40—£960).

Applicants must be Associates of the R.I.B.A., have good all-round experience with a Local Authority, organising ability and recent experience in the design and supervision of buildings for Health and Welfare Services.

The usual conditions of the Local Government Service will apply.

Applications, accompanied by a copy of two recent testimonials, and the names of two persons to whom reference can be made, should be received by the County Architect, County Hall, Truro, not later than Saturday, the 8th May, 1954.

E. T. VERGER,
Clerk of the County Council.
County Hall, Truro.
13th April, 1954. 2398

NATIONAL COAL BOARD—NORTH-EASTERN DIVISION.

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT, Grade II, on the staff of the Divisional Chief Architect at Denaby Main, near Doncaster. Salary scale: £440×£20 to £540 per annum, and the appointment will be superannuable.

Applicants should have passed the Intermediate Examination of the R.I.B.A., and have had not less than three years' subsequent practical experience, and should be able to prepare Sketch Plans and Working Drawings under supervision, and have a sound knowledge of building construction.

The work in this office will consist chiefly of Pithead Baths, Canteens, Medical Centres, Offices, Laboratories, etc.

The point of entry in the above scale will depend on qualifications and experience.

Application forms may be obtained from the Divisional Chief Architect, J. A. Dempster, F.R.I.B.A., and on completion should be returned to him at the above address not later than 13th May, 1954. 2395

HUYTON-WITH-ROBY URBAN DISTRICT COUNCIL.
SHOPS AND FLATS—ST. JOHN'S ROAD EAST.

Tenders are invited for the erection of 11 shops and 18 flats on the above-named site. The flats are in two storeys above the shops. Bills of Quantities, together with relevant documents, can be obtained from the Chief Architectural Assistant, Council Offices, Derby Road, Huyton, upon receipt of a deposit of £2 2s., which will be returned upon a *bona fide* tender being submitted.

Plans, elevations, sections and detail drawings can be seen at the Architect's Department during normal working hours.

Tenders must be submitted in the plain addressed envelope provided, and received by the Clerk of the Council by Saturday, 15th May, 1954.

H. E. H. LAWTON,
Clerk of the Council.
Council Offices, Huyton.
April, 1954. 2401

KENSINGTON B.C. require an ARCHITECTURAL ASSISTANT. Salary: £620-£670 p.a., plus London weighting. Applicants must be Registered Architects. N.J.C. conditions. No housing provided. Applications, stating age, qualifications, experience, etc., with names of two referees, to reach Town Clerk, Town Hall, Kensington, W.8, by 7th May, 1954. 2393

COUNTY BOROUGH OF BARNSLEY.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.
APPOINTMENT OF CHIEF ASSISTANT ARCHITECT.

Applications are invited for the appointment of CHIEF ASSISTANT ARCHITECT, in the Borough Engineer and Surveyor's Department, at a salary in accordance with A.P.T., Grade VIII (£785-£860).

Applicants should be Associate Members of the Royal Institute of British Architects, and have had considerable experience in the design and layout of Municipal Housing Estates and other Public Buildings.

Housing accommodation will be provided for the successful candidate, if necessary, and a car allowance will be paid in accordance with the Scheme for Casual Users.

The appointment will be subject to (*a*) the Scheme of Conditions of Service for A.P.T.C. Staff; (*b*) any other general conditions of employment in operation within the Corporation from time to time; (*c*) one month's notice on either side; and (*d*) to the Local Government Superannuation Acts, for which purpose the successful candidate will be required to pass a medical examination.

Applications, stating age, qualifications, present and previous appointments, experience, etc., and giving the names of two persons for reference, should reach the Borough Engineer, Town Hall, Barnsley, not later than Wednesday, 12th May, 1954.

Canvassing will disqualify, and applicants should disclose whether they are related to any member or senior officer of the Council.

A. E. GILFILLAN,
Town Clerk.

Town Hall, Barnsley.
April, 1954. 2405

CITY OF BELFAST.
APPOINTMENT OF EDUCATION ARCHITECT.

Applications are invited for this post from Architects possessing high qualifications and wide experience in the design, planning and supervision of the erection of schools and other educational institutions.

Salary scale: £1,600×£105—£1,810×£55—£1,865 per annum.

The commencing salary may be fixed at a salary higher than the minimum in exceptional circumstances. Candidates must be not more than 45 years of age on 1st September, 1954, but this condition shall not apply to officers of the Council.

Preference will be given to candidates who have served in H.M. Forces provided the conditions of appointment are fully satisfied.

The appointment is subject to the approval of the Ministry of Education for Northern Ireland.

Further particulars of the duties and conditions of appointment may be obtained from the Director of Education, Education Office, Academy Street, Belfast.

Applications, setting out the candidate's age, qualifications and experience, must be lodged with the undersigned not later than 12 noon on Saturday, 15th May, 1954.

Canvassing in any form, direct or indirect, oral or written, will, if proved to the satisfaction of the appointing authority, disqualify a candidate for appointment.

JOHN DUNLOP,
Town Clerk.

City Hall, Belfast. 2403

CWMBRAN NEW TOWN (MONMOUTHSHIRE).

Applications are invited for the following superannuable posts in my department:—

(1) ASSISTANT QUANTITY SURVEYOR (£700×£25—£825).

(2) JUNIOR ASSISTANT QUANTITY SURVEYOR (£465×£25×£30×£30—£550).

Salaries will commence at points within the scales, in accordance with qualification and experience. Applicants for post (1) should be preferably Chartered Quantity Surveyors, and be fully experienced in taking-off, billing and abstracting, site measurement, valuation of work and preparation of final accounts. For post (2) applicants should preferably have passed the Inter. R.I.C.S. Examination, and should have a sound knowledge of working up, preparation of Bills and some taking-off.

Housing accommodation will be made available in suitable cases, or otherwise lodging expenses in accordance with the Corporation's scale will be allowed to married men for a limited period.

Applications, stating age, experience, qualifications, details of present and past employment (together with applicable salaries), must reach the undersigned by not later than Monday, 10th May, 1954.

J. C. P. WEST,
Chief Architect.

Victoria Street, Cwmbran, Mon. 2399

TRACER (WOMAN) required by The Crown Agents for Drawing Office. Commencing pay between 116s. 1d. and 134s. 10d. a week, according to age, rising by annual increments of 5s. a week to 140s. 2d. and 6s. a week to 147s. for 45½ hour week. Hours: 9 a.m.-5.30 p.m. (12 noon Saturdays). Paid holidays at rate of 18 days a year, inclusive of one Saturday morning (half day) off per month. Refreshment Club on premises—low charges for lunch and tea. Candidates must be 21 years of age or over, and preference will be given to experienced Tracers. Write, stating age and experience, to The Crown Agents, 4, Millbank, London, S.W.1, quoting O/225/AG. 2394

BOROUGH OF LUTON.
TECHNICAL STAFF.

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

(*a*) ARCHITECTURAL ASSISTANT (salary between General Division and A.P.T., V, according to qualifications and experience). Previous experience of schools and housing work an advantage.

Appointment is subject to National Conditions of Service and Local Government Superannuation Acts, 1937/1953.

Particulars of age, qualifications, experience, previous and present appointments and salary, with names of two referees, to the Borough Engineer, Town Hall, Luton, by 10th May, 1954.

A. D. HARVEY,
Town Clerk.
2406

MIDDLESBROUGH EDUCATION COMMITTEE.
APPOINTMENT OF ARCHITECT TO THE EDUCATION COMMITTEE.

Applications are invited from suitably qualified Architects for the appointment of Education Architect, on the permanent staff of the Education Committee, at a minimum salary of £1,050, rising by £50 per annum to a maximum of £1,250.

Applicants should have had suitable architectural experience, experience in the maintenance of buildings, and be fully competent to design and supervise the erection of modern school buildings.

The successful candidate will be expected to serve with the authority for at least three years.

Forms of application and particulars of the appointment may be obtained from the Director of Education, to whom completed applications must be returned by not later than 15th May, 1954. 2408

EAST ANGLIAN REGIONAL HOSPITAL BOARD.
ARCHITECT'S DEPARTMENT.

ASSISTANT QUANTITY SURVEYOR.—Applicants must hold, or have previously held, Corporate Membership of Royal Institution of Chartered Surveyors, and have experience in taking off and preparing Bills of Quantities and settlement of final accounts, etc. The person appointed will be engaged on preparation of preliminary estimates, Bills of Quantities, site measurements, and valuations for interim certificates and final accounts. Salary: £600×£25 (7)×£30 (3)—£865. Commencing salary may be fixed at point above minimum for candidates over 25 years of age where experience at full professional standard is shown.

Applications, stating age, qualifications, experience, details of present position, and names and addresses of three referees, to Secretary of Board, 117, Chesterton Road, Cambridge, by 10th May, 1954. 2397

BOROUGH OF ILFORD.
APPOINTMENT OF TEMPORARY CLERK OF WORKS (HOUSING).
BOROUGH ENGINEER'S DEPARTMENT.

Salary in A.P.T., III, commencing at £550 per annum, rising to £595 per annum, plus London weighting of £30 per annum at age 26 or over.

Applicants must have had considerable experience in a similar capacity, have a sound knowledge of building construction, and be capable of supervising housing contracts, including 3-storey flats.

The appointment will be subject to one month's notice on either side, to the provisions of the Local Government Superannuation Acts, to the National Conditions of Service, and to medical examination.

Application forms obtainable from the Town Clerk, Town Hall, Ilford, should be returned by the 10th May, 1954. 2392

Tenders for Contracts

6 lines or under, 12s. 6d.; each additional line, 2s.

BOROUGH OF OLDBURY.
THIRTY-SIX DWELLINGS AND A COMMUNITY CENTRE FOR AGED PERSONS.

TENDERS are invited for the erection of thirty-six bungalows and a community centre for aged persons at Pound Road, Oldbury.

Applications from contractors desirous of tendering should reach the Borough Engineer at Municipal Bank Chambers, Birmingham Street, Oldbury, near Birmingham, not later than 30th April, 1954, accompanied by a deposit of £3 3s., which will be refunded on receipt of a *bona fide* tender which is not withdrawn, or upon the return of all documents not later than the closing date for receipt of tenders.

Bills of Quantities and Forms of Tender will be issued shortly after the 30th April, 1954, together with directions for submission of tenders.

The Corporation does not bind itself to accept the lowest or any tender.

KENNETH PEARCE.
Town Clerk.

Municipal Buildings, Oldbury.
16th April, 1954. 2400

Architectural Appointments Vacant

4 lines or under, 7s. 6d.; each additional line, 2s.

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she is, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

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

APPLICATIONS are invited for the following appointments:—

(*a*) ASSISTANT ARCHITECTS, of Intermediate R.I.B.A. standard, capable of preparing sketches, working drawings and details under supervision of Senior Architects.

(*b*) TAKER-OFF, with experience of commercial/industrial buildings.

(*c*) Three WORKERS-UP (commencing salary up to £600 p.a., according to age and experience).

The appointments are permanent and offer prospects of up-grading. Successful candidates will be required to undergo medical examination for compulsory superannuation scheme.

Applications, stating age, experience, qualifications and salary required, to W. J. Reed, F.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 99, Leman Street, London, E.1. 2247

JUNIOR ASSISTANTS and ARCHITECTURAL DRAUGHTSMEN required by Multiple Shop Co. in the London area. Excellent working conditions, staff canteen, superannuation, 5-day week. Experience required in surveys, ¼ in. scale working drawings and details under supervision. Please reply, stating age and salary required, to Box 2150.

ARCHITECTURAL ASSISTANTS required. Applicants should have completed their National Service and have had at least 2 years' office experience. Apply in writing, stating age, training and experience, to the Chief Staff Architect, Ilford, Ltd., Romford, Essex. 2254

REQUIRED for Architects' office, Central London area, young qualified ASSISTANTS interested in design and construction. Write, stating experience and salary required. Box 2182.

ARCHITECTURAL ASSISTANT, up to Inter. R.I.B.A. standard, required for Architect's Department of Progressive Furniture Combine, with H.Q. in London and branches throughout the country. Ability to survey existing premises and prepare working drawings and details with minimum of supervision. Salary: £450-£550. Contributory superannuation scheme. Write, stating age and giving details of experience, to Box 2343.

ARCHITECTURAL ASSISTANT wanted for country practice in North Essex. Salary: £400 p.a. Write, stating experience, etc., to Box 2342.

ARCHITECTURAL ASSISTANT required. General practice. Quick and accurate draughtsman. Age, experience, and salary required, to A. W. J. Mullins, L.R.I.B.A., 78, Thoro'fare, Woodbridge, Suffolk. 2332

QUALIFIED and experienced SENIOR ASSISTANT required by provincial private practice with varied works in hand. Apply giving full details and salary required to Deacon & Laing, 9, St. Paul's Square, Bedford. 2262

REQUIRED for Architects' office, Central London area, young qualified ASSISTANTS interested in design and construction. Write, stating experience and salary required. Box 2325.

SENIOR AND JUNIOR ARCHITECTURAL ASSISTANTS and Draughtsmen or women required in busy office in the Home Counties. Some experience essential. Large varied practice. Please state experience and salary required. Box 2137.

ARCHITECTURAL ASSISTANT required immediately. Experienced in the preparation of working drawings and details from sketch drawings. Apply stating qualifications, age, experience and salary required to—Welch & Lander, 38, Gloucester Place, London, W.1. 2273

A SENIOR ARCHITECTURAL ASSISTANT required, full experience in preparation of Working Drawings, Details, and supervision of office and Industrial Buildings in the London Area. Good knowledge of construction and design essential. Apply in writing giving full particulars of qualifications, age, experience and salary required to Box 9829.

JUNIOR ASSISTANT (pre-Inter. standard) required immediately in Surrey office. Applicants must have office experience and be quick and neat draughtsmen. Apply, stating age, experience, and salary required, to Box 2381.

FOR the information of applicants, the SENIOR and JUNIOR vacancies advertised last week are permanent new posts in the Leicester branch of C. Edmund Wilford, A.R.I.B.A., 2, Hastings Street, Leicester. 2422

WANTED: JUNIOR ASSISTANT, age 17-21 in Architect's and Surveyor's office, Curzon Street. Free lunches. One Saturday on in three. Salary according to age and experience. Box 2424.

ARCHITECT'S ASSISTANT required for Glasgow Office. Apply stating age, experience and salary required to Messrs. Launcelot H. Ross & Lindsay, 79, West Regent Street, Glasgow, C.2. 2430

ARCHITECTURAL ASSISTANTS: one senior qualified. Two intermediate standard for Belfast (Northern Ireland) office. Please reply stating details of experience, salary required, etc. Box 2429.

ARCHITECTURAL ASSISTANT near Final Standard. General practice S. Kensington. Completed or exempt National Service. No Saturdays. Apply stating age, experience and salary required. Box 2423.

ARCHITECTURAL ASSISTANTS required for busy practice engaged upon schools, industrial buildings, offices, etc. Write, giving full particulars of qualifications, experience and salary required, to Johns & Slater, F./A.R.I.B.A., 32, Foundation Street, Ipswich. 1536

SENIOR ARCHITECTURAL ASSISTANT required for West End office. Varied and interesting work. Previous office experience essential. Salary by arrangement. Box 2411.

ARCHITECTURAL ASSISTANT of intermediate R.I.B.A. standard required immediately for industrial and general work. Apply stating age, training, experience and salary required to William K. Gill, A.R.I.B.A., 73, Saltergate, Chesterfield, Derbyshire. 2412

RONALD WARD & PARTNERS require several ARCHITECTURAL ASSISTANTS, intermediate standard. Apply Sloane 8291, or 17, Lowndes Street, S.W.1. 2419

ARCHITECTURAL or LIGHTING ENGINEERING student as tracer for Thorn Electrical Industries Ltd., Atlas Lighting Illuminating Engineering Dept., pension scheme, 5-day week. Apply in writing: Staff Manager, 233, Shaftesbury Avenue, W.C.2. 2417

ARCHITECT'S ASSISTANT required. Must be neat and accurate draughtsman with experience in preparing working drawings and details. Knowledge of Specifications and making surveys an advantage.
Apply in writing with details of age, education, and experience. G. H. Dickinson, L.R.I.B.A., 53a, High Street, Grantham. 2414

ARCHITECTURAL ASSISTANT required in London with knowledge of housing and hospital work. Reply stating experience and salary required to Box 2413.

JUNIOR ARCHITECTURAL ASSISTANT, Intermediate R.I.B.A. standard, required immediately by London Architects. Apply, stating age, experience, and salary required, to Box 2383.

ARCHITECTS in Portsmouth require ASSISTANTS for Industrial and Commercial work. Apply, with full particulars and salary required, to Box 2382.

ARCHITECTURAL ASSISTANT required, Inter. R.I.B.A. standard. Experience in large housing contracts desirable. Write, stating age, experience, and salary required, to Box 2380.

WANTED, immediately, JUNIOR ASSISTANT (having completed National Service), with some Architect's office experience. Please reply, stating age, salary, and experience, to Lambert & Oliver, Chartered Architects, Bridport, Dorset. 2378

ARCHITECTURAL ASSISTANT, Intermediate or Final standard, required for busy West End office. Experience of Industrial premises and Office buildings desirable. Box 2379.

REQUIRED, at once, ARCHITECTURAL ASSISTANT. Office experience essential. Good draughtsman, working drawings and details. Good salary paid. West Lancashire area. Private practice. Write, with details. Box 2375.

ARCHITECT'S ASSISTANT required in West End office. Should be good draughtsman, with some knowledge of design and construction. Please write, stating age, experience, and salary required, to Box 2374.

ARCHITECTURAL ASSISTANT required, of Inter. standard, with office experience. Reply, stating salary required, to Stroud & Nullis, AA.R.I.B.A., 25, Ebury Street, S.W.1. SLOane 4726. 2373

ARCHITECTURAL ASSISTANT required by Liverpool Architects, at least Intermediate standard, with office experience. State details and salary. Box 2372.

SENIOR ARCHITECTURAL ASSISTANT required for London offices. Salary: £850-£900. Good draughtsman, experienced, and capable of undertaking work with minimum supervision. Full details to Box 2365.

ARCHITECTURAL ASSISTANT, of Inter. standard, required for London offices. Salary: £550-£600. Some office experience essential, and must be neat draughtsman. Full details to Box 2366.

QUALIFIED ARCHITECT ASSISTANT required for practice which deals extensively with commercial work. Previous London experience essential. Salary up to £1,000 p.a., according to experience. Write Box 2363.

EXPERIENCED SENIOR ASSISTANT required, capable of carrying out work from sketch plan to completion, in a private practice dealing with commercial work, offices, shops, factories, etc. Please write, stating experience and salary required, etc., Lewis Solomon, Son & Joseph, 21, Bloomsbury Way, W.C.1. 2362

ARCHITECTURAL ASSISTANT required, Intermediate R.I.B.A. standard. Write, stating previous experience and salary required, to Graham Crump & Denis Crump, F./A.R.I.B.A., 43, George Street, Croydon, Surrey. 2361

ARCHITECT'S ASSISTANT (Qualified) required in East Anglian office of London firm of Consulting Engineers and Architects. Must be capable of working independently. Salary: £600-£700 p.a. Applications to Box 2359.

ARCHITECTURAL ASSISTANT, between Intermediate and Final standard, required for Architects' Department of a large Firm of Civil Engineering Contractors situate in the Midlands. The successful applicant must have a sound knowledge of construction in both the Industrial and Domestic field, with an aptitude for design and be a quick and accurate Draughtsman. This post offers excellent prospects in a progressive and expanding Company in the development of their own estates. Reply in writing, stating age, qualifications, experience, and present salary, to Box 2364.

ARCHITECTURAL STAFF required for wide range of work in Architects' Department. Salaries: £500-£900 p.a., dependent upon experience and ability.
ARCHITECTURAL DRAUGHTSMEN and JUNIORS also required for duties entailing assistance in the preparation of working drawings and details for New Tradition Housing, Multi-storey Flats and Maisonettes. Salaries dependent upon experience and ability.
All appointments on permanent basis in Hammersmith. Write, giving brief details of qualifications and experience, to Chief Architect, George Wimpey & Co., Ltd., 27, Hammersmith Grove, London, W.6. 2360

GOLLINS, MELVIN, WARD & PARTNERS offer responsible posts on large and unusual projects to ASSISTANTS with initiative, imagination and experience of working drawings, especially interested in Contemporary Architecture. Reply by letter, giving full particulars, salary required, and telephone number, to 15, Manchester Square, London, W.1. 2358

SENIOR ASSISTANT required in London (West End) office. Must be quick and accurate draughtsman, with sound experience of working drawings and details. Age about 35/40 years, and possessing firmness and tact in the handling of Junior staff, about six in number. Qualifications are desirable, but not essential, and experience is the main consideration. The practice has a large volume of work, including several school projects. Salary: £900 to £1,000 per annum. Staff pension scheme under consideration. Box 2404.

ASSISTANT required, of Inter. standard. Good draughtsman, with at least 3 years' office experience, essential. Salary up to £520, according to age and experience. Apply in writing, stating age and experience, to R. Jelinek-Karl, F.R.I.B.A., 22, Chancery Lane, W.C.2. 2376

JUNIOR ASSISTANT (up to Inter. standard) wanted by Chartered Architect in Lincoln, with small but expanding practice. State fully details of experience and salary required. Box 2407.

Architectural Appointments Wanted

ARCHITECTURAL DRAUGHTSWOMAN requires post Central London from end April. Three years' office experience London and Nairobi, à in. and working drawings. Box 874.

ARCHITECT, with wide international experience in most aspects of the profession, including housing, schools, prefabrication, industrial design and interiors, wishes to participate in projects or research—architectural or industrial. Free lance, group or part-time. Box 2384.

SENIOR ARCHITECT, A.R.I.B.A. (36), seeks responsible position with private architects or company. School trained, with 15 years' varied experience in private practice. Contemporary outlook. Capable of taking charge of contracts, office administration and staff control. Box 877.

SENIOR ASSISTANT (30), school trained, car driver, with several years' valuable experience of housing layouts, design, working drawings and specifications, requires post South and West of line from Worcester to Southampton. Box 878.

EXPERIENCED SENIOR ARCHITECTURAL ASSISTANT (31), clean draughtsman, and able to manage contracts, contemporary outlook, seeks responsible progressive position, with prospects, in the London or South Country areas. Salary in the region of £750 per annum. Please write Box 867.

B. ARCH. (L'POOL), fully qualified, private and L.G. Exp., seeks position where imagination, initiative and responsibility will be amply rewarded. West or South England or overseas. Age 28, settled, car driver, pract. contemp. outlook, salary by arrangement. Box 876.

Other Appointments Vacant

4 lines or under, 7s. 6d.; each additional line, 2s.

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

EFFICIENT QUANTITY SURVEYOR required, with sound experience of modern office, welfare and canteen buildings for industry. Applications will be treated in confidence. Reply, stating age, qualifications, experience, salary expected, and when at liberty, to Box 2297.

ENGINEER.—Senior Mechanical/Civil Engineer required in connection with a large Factory Extension Scheme. Applicants should be qualified, preferably A.M.I.C.E. or A.M.I.Mech.E., and have a wide experience covering Structural and Mechanical Engineering, Heating and Ventilation, Electrical, and other services relating to Industrial Building and Plant.

Application in writing, stating age, full details of training and experience, and salary required, should be sent to: Staff Officer, Handley Page, Ltd., Claremont Road, Cricklewood, N.W.2. 2319

BUILDING and Civil Engineering DRAUGHTSMAN required, with experience in one or more of the following: Structural Steelwork, Building Construction, Heavy Foundations. Apply immediately, stating age, experience, etc., to The Chief Engineer, Guest Keen Baldwins Iron & Steel Co., Ltd., East Moors, Cardiff. 2328

DRAUGHTSMAN, experienced in general building details, required in Wembley district. Reply in writing, stating age and salary required, Box 2371.

SECRETARY, part-time, required in small practice, W.C.2. Experience with Architect or Surveyor essential. Simple book-keeping etc. State experience, age, and salary required. Box 2377.

JUNIOR with office experience required. Salary according to experience and qualification. Telephone William Crabtree. Welbeck 8918. 2426

ARGYLL COUNTY COUNCIL require a QUANTITY SURVEYING ASSISTANT for the County Architect's Department. Salary scale: £550-£595, superannuable. The County Council may be able to assist the successful applicant in obtaining housing accommodation.

Apply, with details of qualifications and experience, along with copies of two recent testimonials, to County Architect, County Offices, Dunoon, not later than one week after the date of publication of this advertisement.

A. D. JACKSON,
County Clerk.
2368

QUANTITY SURVEYING ASSISTANT required immediately on staff of busy Architects' office to work under qualified Surveyor. Suit young man passed Intermediate standard studying for Final. Experience in taking off, working up, interim certificates and final accounts. Salary offered: £500-£550, or according to experience. Unfurnished flat available if required. Apply, stating age and experience, to Ruddle & Wilkinson, F./L./A.R.I.B.A., Long Causeway Chambers, Peterborough. 2369

TAKER OFF required large Midlands Office—Permanent Position—Five-day week—Assistance with accommodation if required. Salary £850-£1,000. Write stating age and experience. Box 2415.

ASSISTANT QUANTITY SURVEYOR required immediately, S.W. Surrey. Salary: £520. Replies, stating qualifications and experience, to Box 2370.

VACANCY arises for Articled Pupil (Architectural or Building Surveying) in City Firm. Box 1720.

OFFICE BOY required by Architect, N.W.3 area. Box 2367.

Services Offered

4 lines or under, 7s. 6d.; each additional line, 2s.

EXPERIENCED LONDON ARCHITECT with own office able to give assistance to Architects, etc. Gladstone 7355. Box 1640.

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