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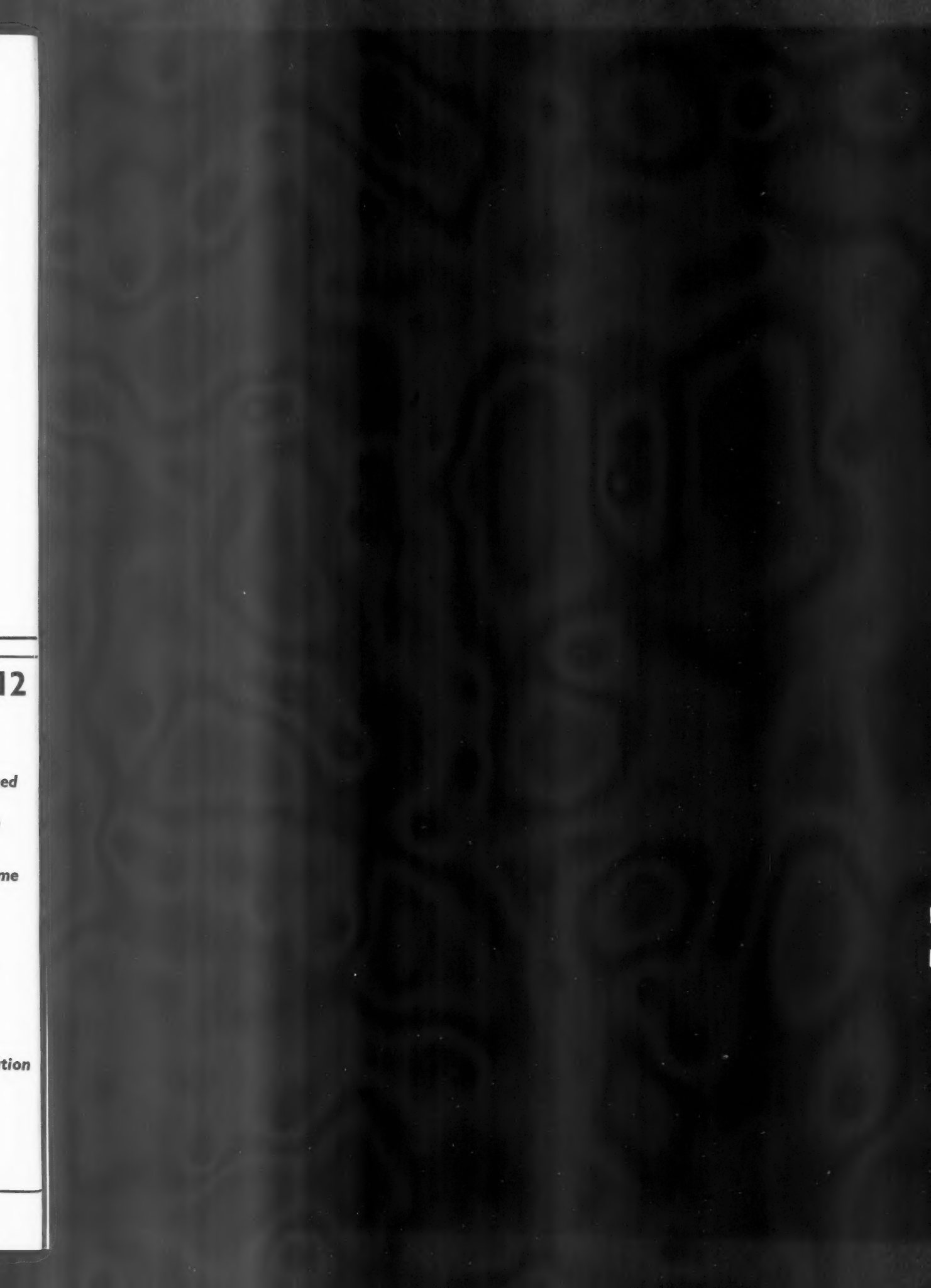
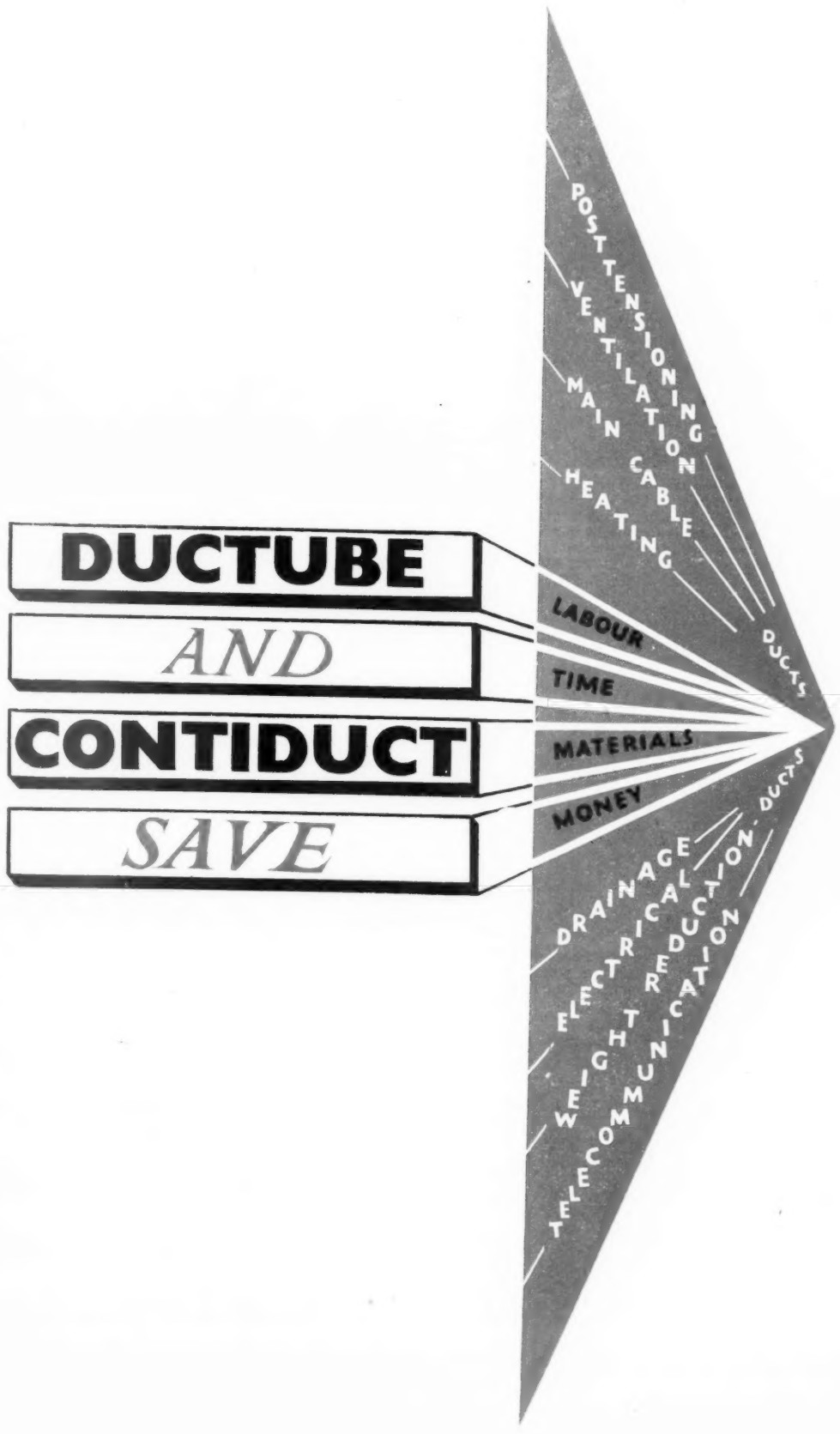
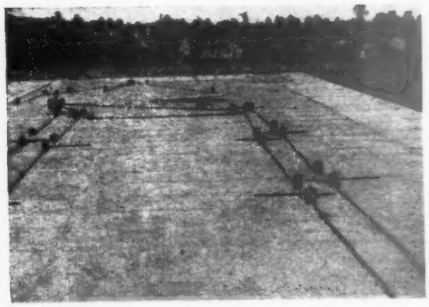
★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ie one week, Ig to Z the next. In all cases where the town is not mentioned the word LONDON is implicit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



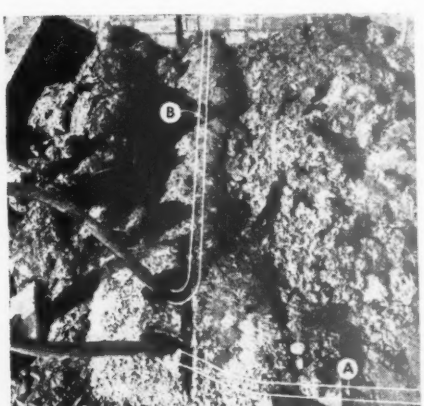

DUCTUBE
AND
CONTIDUCT
SAVE
LABOUR
TIME
MATERIALS
MONEY
POST TENSIONING
VENTILATION
MAIN CABLE
HEATING
DUCTS
DRAINAGE
ELECTRICAL CONDUCTION
LIGHTING
TELECOMMUNICATION
DUCTS

DUCTUBE for ELECTRICAL INSTALLATIONS

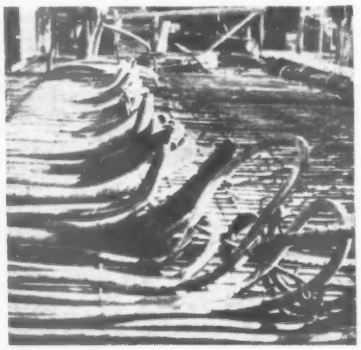


Ductube used in conjunction with ORLIT system of construction for internal electrical installations in schools. Layout at roof level showing tubing temporarily held in position by cast iron " flower pot " holding pieces.

Ductube forming ducts in hollow pot floors, for complete lighting and power layout, terminating in consumer panel



Ductube used for looping feeder mains saving cost of earthenware pipes. A single incoming service main from road, (A) to one of a pair of houses is continued to meter position of other house (B).



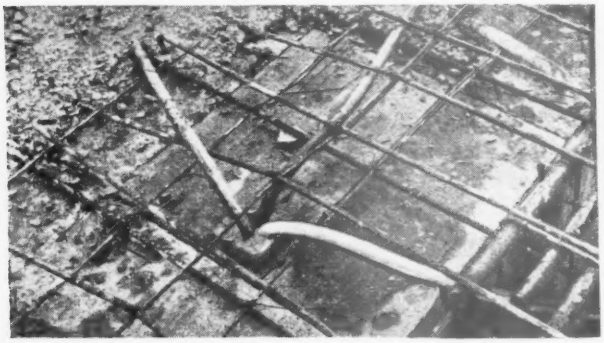
Formation of electric installation ducts. Note simple method of bending even larger sizes. Laying took only 1½ working days against estimated time of 1½ weeks for metal conduit.

The 'Hole' Story

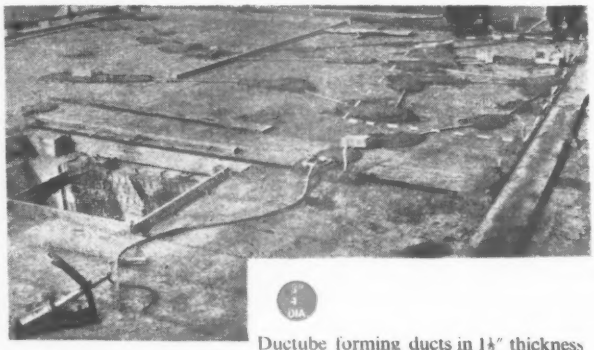
Just four years ago, in April 1950, the first length of ' Ductube ' pneumatic tubing was produced in England. It was 1½" in diameter, and 60 feet in length.

This was the result of four years of experiment by the American inventor, Mr. E. T. Hunter, who had conceived the idea of an inflatable rubber core which **detached itself** from the surrounding concrete, and was reusable many times. The greatest difficulty was to ensure that the tubing, when inflated, was uniform through its length, but this, as well as all the other intrinsic problems of this revolutionary idea, was overcome. By the end of the year four sizes of ' Ductube ' were available up to 3" in diameter. Shortly afterwards ¾", 3½", and 4" were added to the range, and these continued until the middle part of 1953. After further continual experiments during this period the first length of 6" ' Ductube ' was produced, which enabled 5", 7", 8", 9", and 12" also to become available.

To describe the individual uses of our tubing would take more space than we have available, but we have divided the types of use into five main categories, of which examples are shown on this and the following pages.



Ductube used to form ducts in 5" " in situ " concrete floors.



Ductube forming ducts in 1½" thickness of screed over precast concrete floor beams, at first floor level.

DUCTUBE COMPANY LIMITED

DUCTUBE for ELECTRICAL INSTALLATIONS

The first common use is for **INTERNAL ELECTRICAL INSTALLATIONS,** and provided 1½" of concrete is available 'Ductube' can be used in any type of floor construction. Typical examples are shown of its use with hollow pot floors, precast hollow beam floors, in-situ concrete floors, and two of the proprietary flooring systems.

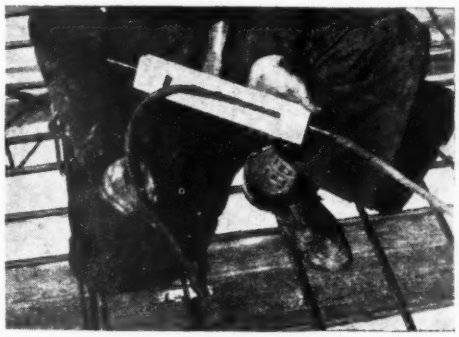
It is no more difficult to use 'Ductube' for the down drops and rising mains than it is to use it for the ceiling layouts, and photographs exemplifying such uses are shown.

Not merely, of course, can 'Ductube' be used to reduce costs on internal electrical installations by up to £10 a unit, but it can also be used for providing ducts through which the mains lead into the buildings. By using 'Ductube' to provide one main duct to a block of terraced houses, and then by running the 'Ductube' through the site concrete of the other houses, over £5 per house can be saved.

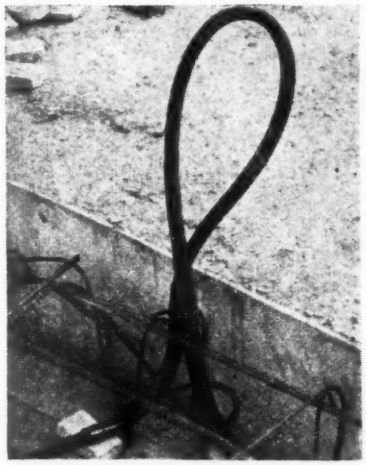
More and more Consultants and Local Authorities are specifying the use of our material for electrical purposes.

The use of 'Ductube' pneumatic tubing in **PRECAST CONCRETE PRODUCTS** was an obvious method of forming cavities as and where required, and also of reducing the weight of the products.

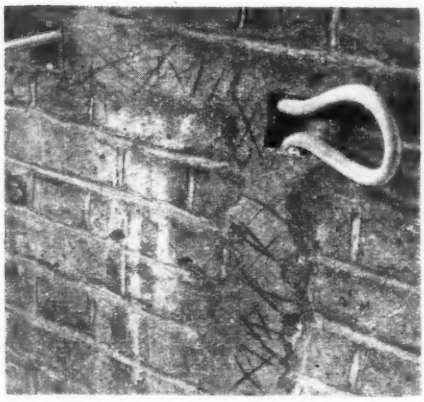
continued overleaf



¾" DIA Precast concrete purpose-made blocks being used at switch drop positions to prevent tubing rising during concreting.



¾" DIA Ductube used with plastic conduit for turning up to socket outlet position.



¾" DIA Example of Ductube forming duct in chases let in a brick partition wall to supply B.S.S. wall fittings.

1" DIA Left:—
Ductube forming wiring ducts in machine shop floor for power supply to machines.

¾" DIA Underside view of precast concrete floor beams showing Ductube looped through B.S.S. ceiling point fittings.

1½" DIA Part of wiring circuit with Ductube laid over MYKO floor before final floor topping.

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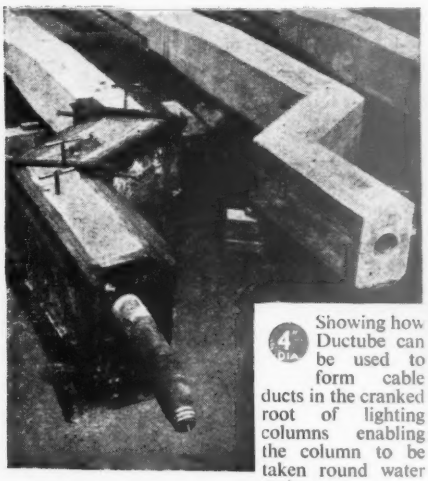
SEE OVERLEAF - DUCTUBE FOR PRECAST CONCRETE PRODUCTS

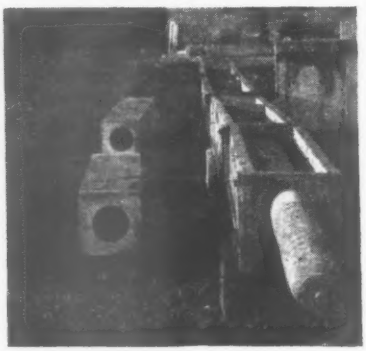
DUCTUBE for PRECAST CONCRETE PRODUCTS

6" & 7" DIA. Ductube used for forming ducts in prefabricated wall slabs in Sweden.

1½" & 3" DIA. Ductube used for electrificaton ducts in street lighting columns, showing mould filled with 3" Ductube protruding from base of column. 1½" Ductube was used in the stem.



4" DIA. Showing how Ductube can be used to form cable ducts in the cranked root of lighting columns enabling the column to be taken round water mains, etc.



6" DIA. Ductube used to form cavity in hollow sections of 30 ft. high columns.

'Ductube' is now widely used for precast concrete beams, lighting standards, transmission posts, fence posts, bus shelter posts, etc., etc. The introduction of the larger sized tubing has further developed this side of our activities, and our 6" and 9" tubing are currently being used in Bombay and Iraq in the construction of hollow piles. Experiments are similarly being carried out in this country with our 12" tubing.

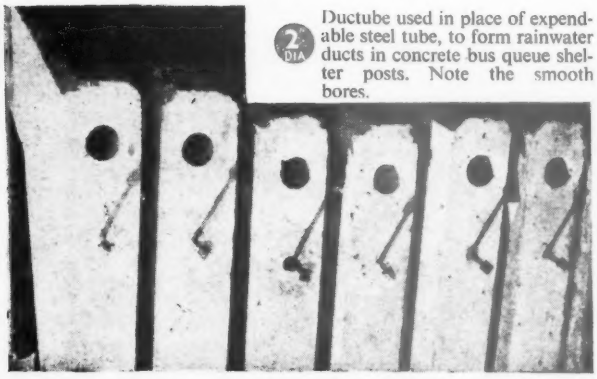
Under factory conditions we have found that the life of our tubing materially increases, and the Liverpool Artificial Stone Company of Rotherhithe inform us that they have achieved some seven hundred (700) uses of our 1½" tubing. In India eight hundred (800) uses of our 3½" tubing were obtained under similar conditions.

We are now introducing on to the market OVACORE, of which a photograph appears on a later page into which lengths of 'Ductube' are inserted so that bigger and better holes may be produced of any practical shape.

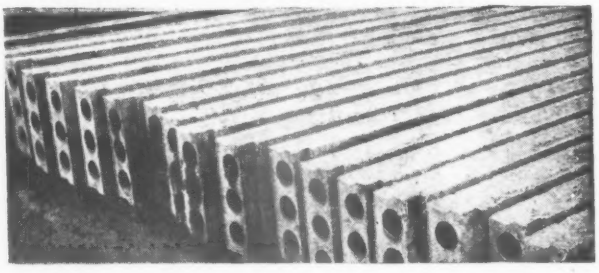
The rapid conversion of the building trade in this and other countries to the use of **POST-TENSIONED CONCRETE** provided us with another outlet for our material, and for this purpose we have available 1 5/16", 1½", 1¾", 2", and 2½" 'Ductube.'

Several Contractors have in the past found our tubing difficult to control while casting, but this problem has now been overcome, and provided our recommendations are adhered to, no such trouble is now being met.

It is, of course, much easier to use 'Ductube' in post-tensioned work when the work is being carried out in a factory, inasmuch as the repetitive use of the material enables the workmen concerned to understand fully its practical applications. The comparison of cost supplied to us by one of the leading English contractors from a site contract is on next page.



2" DIA. Ductube used in place of expendable steel tube, to form rainwater ducts in concrete bus queue shelter posts. Note the smooth bores.



3" DIA. Ductube used to form 3" holes in slabs to save weight and increase insulating capacity.

DUCTUBE COMPANY LIMITED

DUCTUBE for DRAINAGE

which, being expensive to buy unless the job is of some extent, is also available for hiring.

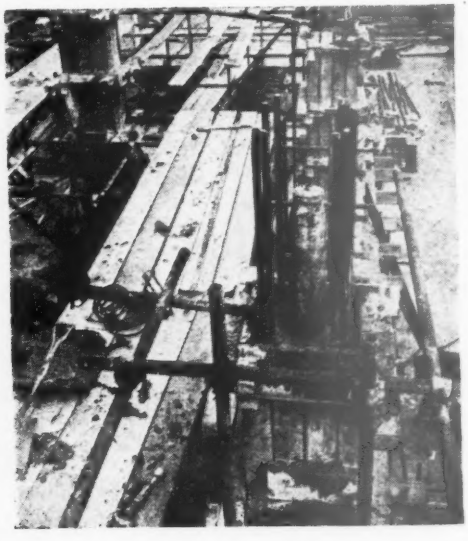
Amongst the major uses of our material is the use of our medium diameters, namely 3", 3½", 4", and 5" tubing for **MAIN CABLE DUCTING**, and typical examples of its use in Power Stations, Airfields, Generating Stations, and so on, are shown.

Most Government Departments, including the Air Ministry who specify us, have used our material at one time or another, with the exception of the Post Office. For nearly four years we have been endeavouring to persuade the Post Office to use our material for their work, without success. Although we have pointed out to them that the possible savings must be in the region of £500,000 per annum, they insist that technical considerations preclude its use. If this were so we are surprised that the Posts and Telegraph Departments of Norway, Sweden, Denmark, Greece, Kenya, Nyasaland, Australia, and so on, have not found the same difficulties.

The last main use of our materia is for **HEATING AND VENTILATION.** A bungalow designed by the owner, Mr. J. C. P. Allsebrook of the firm Guthrie Allsebrook, Engineers, of Reading, has been constructed using 'Ductube' to form

4" DIA Ductube forming storm water drains in Western Australia. The tubing was supported by means of timber saddle pieces which were removed 20 minutes after concreting.

9" DIA Ductube forming surface water drains in Hampshire



6" DIA Left:— Ductube used to form vertical ducts in re-inforced concrete columns for roof water drainage

6" DIA Right:— Ductube used for surface water drains in Dorset.

DUCTUBE COMPANY LIMITED

ducts through which hot air is used to heat the premises, and this has given the utmost satisfaction. In Sweden and Finland the possibilities afforded by our larger diameter tubing were immediately recognized, and typical examples of their pioneer work in such uses of our tubing in this field are shown.

It will be seen that the sizes favoured are 4", 6", 7", and 8", and we believe that in due time this development will follow throughout the World. The American Embassies at both Stockholm and Copenhagen used 4" 'Ductube' for forming the ducts for hot air heating.

A novel use of our material in Sweden is for the formation of ducts into which electric cables are inserted for the heating of road ways, of which, again, examples are shown.

These are the main uses of our material, but to detail individua special uses would, as has been stated, take considerable space.

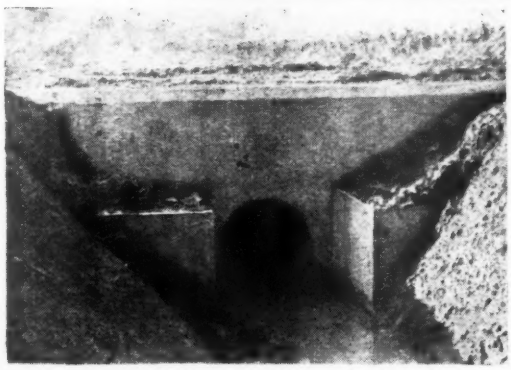
The tubing has been used for the formation of bolt holes, for jointing rings when caulking concrete pipes; for construction joints in reservoirs; for contraction joints, with porous concrete for water filter beds; Baffle walls, in boiler installation, etc., etc. The list is endless. We have even supplied the tubing to furniture manufacturers for manufacturing veneers!

continued overleaf

CONTIDUCT *for* DRAINAGE

30" Dia.

Contiduct used on the construction of the Baghdad-Baiji road to form 50 ft. culverts of 30" diameter through road embankment



33" Dia.

The photographs on left and below show 33" Contiduct formation of drains and culverts in Equatorial Africa

36" Dia.

Below :—
Egg-shaped drains at Bordeaux formed by Contiduct laid on specially shaped steel formers.

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SEE OVERLEAF - DUCTUBE FOR POWER & TELECOMMUNICATIONS

Amongst the famous contractors and structural engineers whom we are proud to call our customers are:—

Christiani & Nielsen Ltd.
W. & C. French Ltd.
Howard Farrow Ltd.
Holloway Bros. (London) Ltd
John Laing & Son Ltd.
John Mowlem & Co. Ltd
Mitchell Construction Co.
Sir Robert McAlpine & Sons Ltd.
Taylor Woodrow Construction Ltd.
Tarmac Ltd.
G. Wimpey & Co. Ltd
G. P. Trentham Ltd.
Trussed Concrete Steel Co. Ltd.
Yorkshire Hennebique Contracting Co. Ltd.

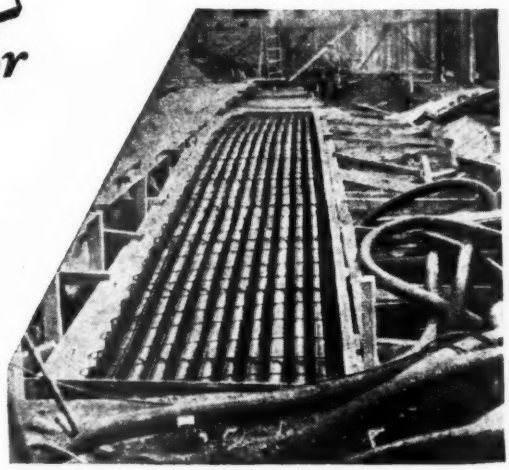
Precast concrete manufacturers who use our material are:—

Tarslag Ltd.
Concrete Utilities Ltd.
Costain Concrete Co. Ltd.
Girlings Ferro-Concrete Co. Ltd.
Stent Precast Concrete Ltd.
Shockcrete Products Ltd.
Udalls Prestressed Concrete Ltd
Dow-Mac (Products) Ltd.
The Stanton Ironworks Co. Ltd.
Liverpool Artificial Stone Co. Ltd.

In the electrical trade many of the Electricity Boards use our material as well as:—

British Relay Wireless Ltd
Drake & Gorham Ltd.
Holiday, Hall & Stinson Ltd.
Pinching & Walton Ltd.
Rashleigh Phipps. & Co. Ltd.
Tanjon (Newcastle) Ltd.
Thorpe & Thorpe Ltd.

DUCTUBE *for* TELECOMMUNICATIONS



3½" DIA

Right:—
Ductube used to form 22-way telegraph cable ducts by the Department of Telegraphs, Sweden. Photograph shows Ductube in position ready for concreting.

3½" DIA

Ductube used by the Swedish Telegraph Works in Stockholm to form 15-way cable ducts. Photograph shows Ductube inflated ready for concreting and precise control of the tubing is clearly illustrated.

3" DIA

Ductube forming 14-way telephone cable ducts in Sweden. Note the close proximity of the ducts.

3½" DIA

Ductube used to form 8-way telephone ducts in in-situ concrete in Norway.

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SEE OVERLEAF - DUCTUBE FOR HEATING & VENTILATING ETC.

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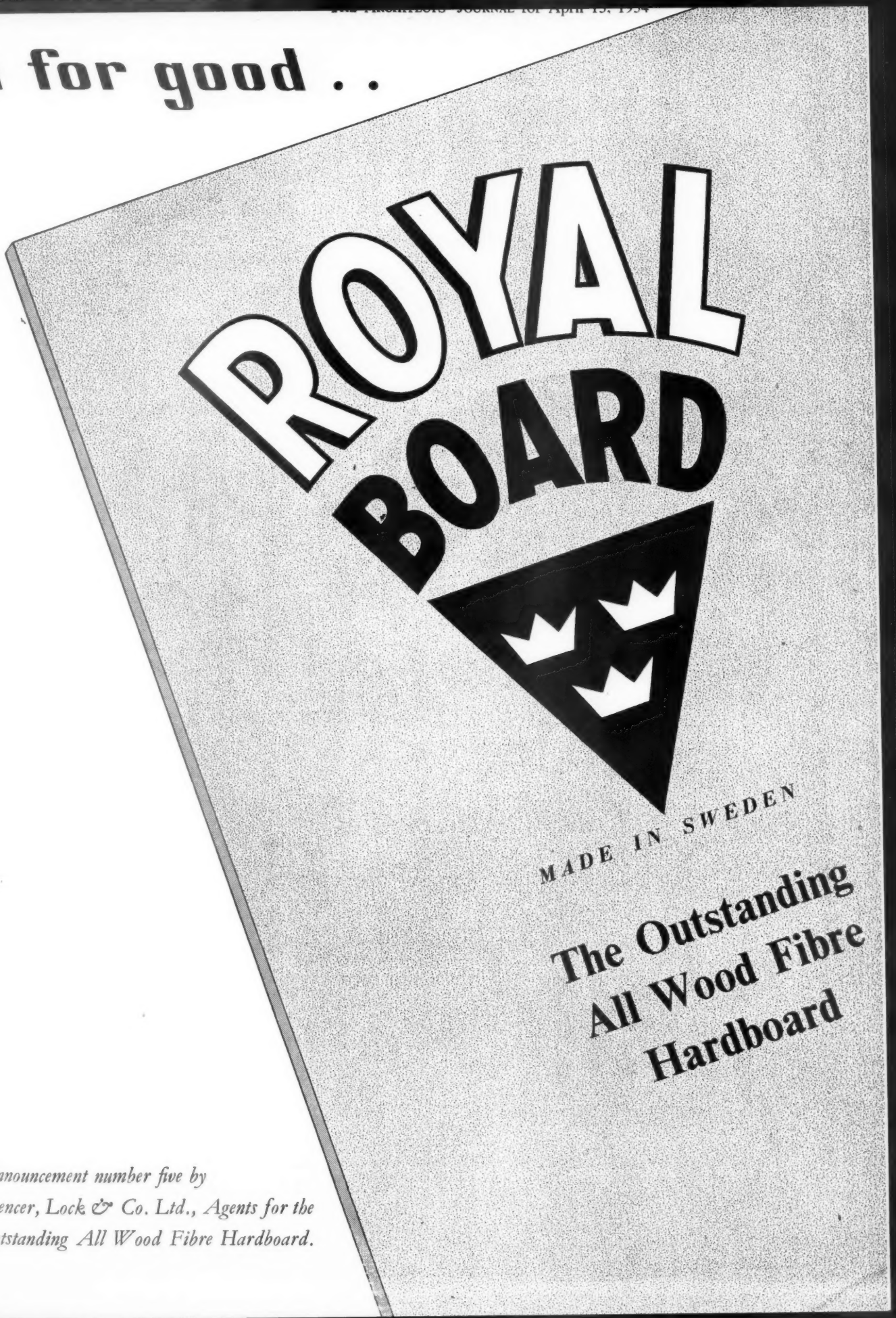

Announcement number five by Spencer, Lock & Co. Ltd., Agents for the Outstanding All Wood Fibre Hardboard.








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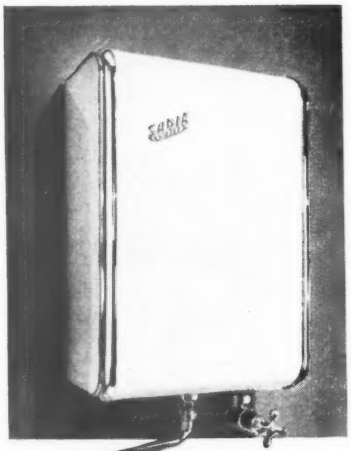
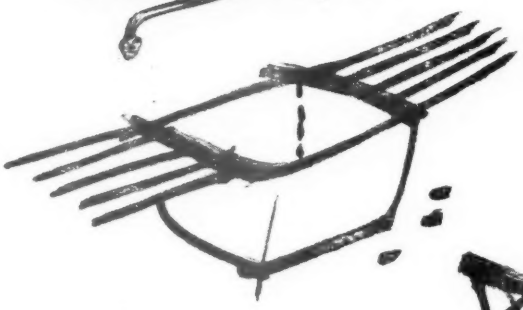
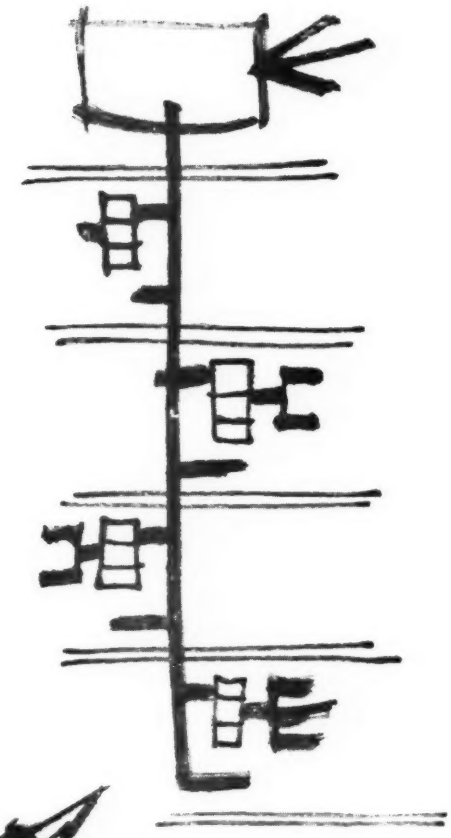
Telephone: Colmore 4141. *South Western District Office:* 11 Orchard Street, Bristol, 1. Telephone: Bristol 23004/5
Northern District Office: Gascoigne Street, Boar Lane, Leeds, 1. Telephone: Leeds 20771.

BY APPOINTMENT
BRICKMAKERS TO
THE LATE
KING GEORGE VI

LB27







* ..at a single point or... ..in a whole block of flats

Constant Hot Water

Whatever the supply required at wherever it is needed there's a natural answer in the Sadia range of units. For 30 years we have specialised exclusively in hot water by electricity. The wealth of this experience is available to you in our products and in our advice if you require it.

SADIA
Hot Water by Electricity

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Insulating GYPROC *WALLBOARD*

AND

Insulating GYPROC *LATH*

FOR

THERMAL INSULATION AND FIRE PROTECTION

These are standard GYPROC products with a thin sheet of *polished aluminium foil* firmly bonded to one side, giving laminated materials that combine the valuable heat reflecting properties of aluminium foil with the fire resistance properties of gypsum plaster-board.

THERMAL INSULATION

The thermal conductance of *Insulating* GYPROC Wallboard and *Insulating* GYPROC Lath (including 1" cavity) is 0.42 B.Th.U./sq. ft./hr./°F. difference in temperature.

The materials are fixed with the metal foil side against the framing members, which should be of sufficient thickness to provide an air space of not less than ¾" to ensure that the maximum heat insulation efficiency is obtained.

FIRE RESISTANCE

Insulating GYPROC Wallboard and *Insulating* GYPROC Lath possess "surfaces of very low flame spread," being classified in the Class I Group for Surface Spread of Flame—British Standard 476.

The gypsum core of these materials resists the penetration of fire until the hydrated character is completely destroyed and the aluminium foil adds to the fire resistance by retarding the escape of water vapour from the core.

Insulating GYPROC **Wallboard** is supplied in standard sizes of dimensions 3 ft. and 4 ft. wide; 6 ft.–12 ft. in length, and ⅜ in. and ½ in. thick. It is available with square edges or recessed edges, the latter to ensure flush jointing.

The unfoiled surface presents an excellent interior wall or surface finish for direct decoration.

Insulating GYPROC **Lath** is supplied in standard sizes of dimension 16 ins. wide and ⅜ in. thick, in lengths 32 ins., 42 ins., 45 ins., 48 ins. and 54 ins.

The unfoiled surface presents a perfect base for PARISTONE Browning Plaster, or GYPSTONE Board Finishing Plaster.

Makers of PARISTONE *Browning Plaster (Haired, Unhaired and Metal Lathing Grades),* PARISTONE *Wall Finishing Plaster,* CRETESTONE *Concrete Bonding Plaster,* GYPSTONE *Board Finishing Plaster,* GYPLITE *Vermiculite Insulating Plaster (Undercoat and Finishing Grades).*

GYPROC PRODUCTS LIMITED

Head Office: Westfield, Upper Singlewell Road, Gravesend, Kent. *Telephone:* Gravesend 4251-4 *Telegrams:* Gyproc, Gravesend. Glasgow Office: Gyproc Wharf, Shieldhall, Glasgow, S.W.1. *Telephone:* Govan 2141-3. *Telegrams:* Gyproc, Glasgow. Midland District Sales Office: East Leake, near Loughborough. *Telephone:* East Leake 231. London Office: Morris House, 1-5 Jermyn Street, London, S.W.1. *Telephone:* Whitehall 8073-4

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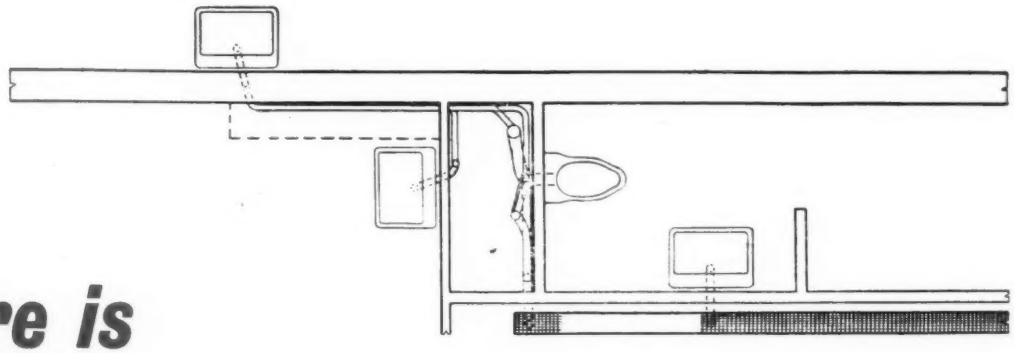
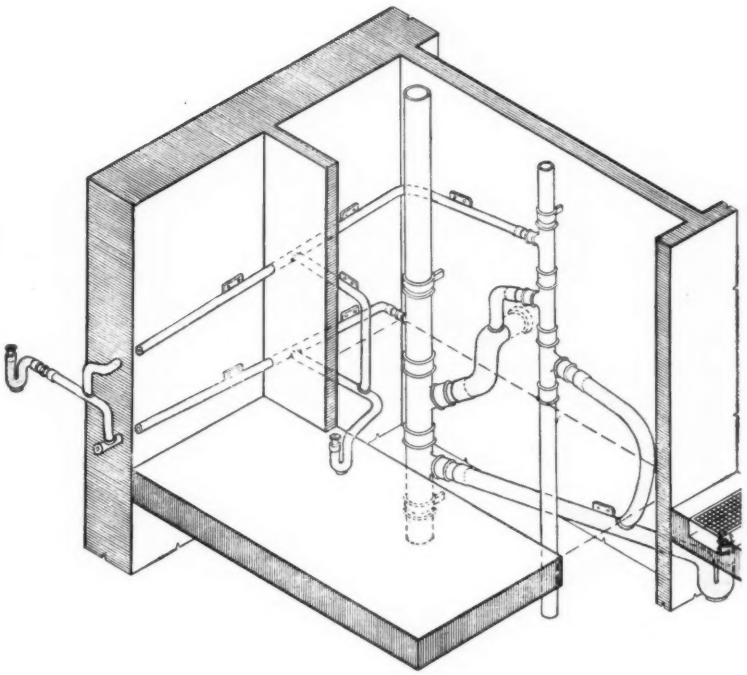


there is more to hospital plumbing than meets the eye

In fact, the pipework is best concealed. For hidden pipework there is no better material than lead pipe because of its high corrosion resistance and the ease with which it can be used for compact work. The illustrations are from "Plumbing for Hospitals," copies of which are available on request.



LEAD LASTS

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

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in association with LEAD DEVELOPMENT ASSOCIATION · EAGLE HOUSE JERMYN STREET · LONDON S.W.1

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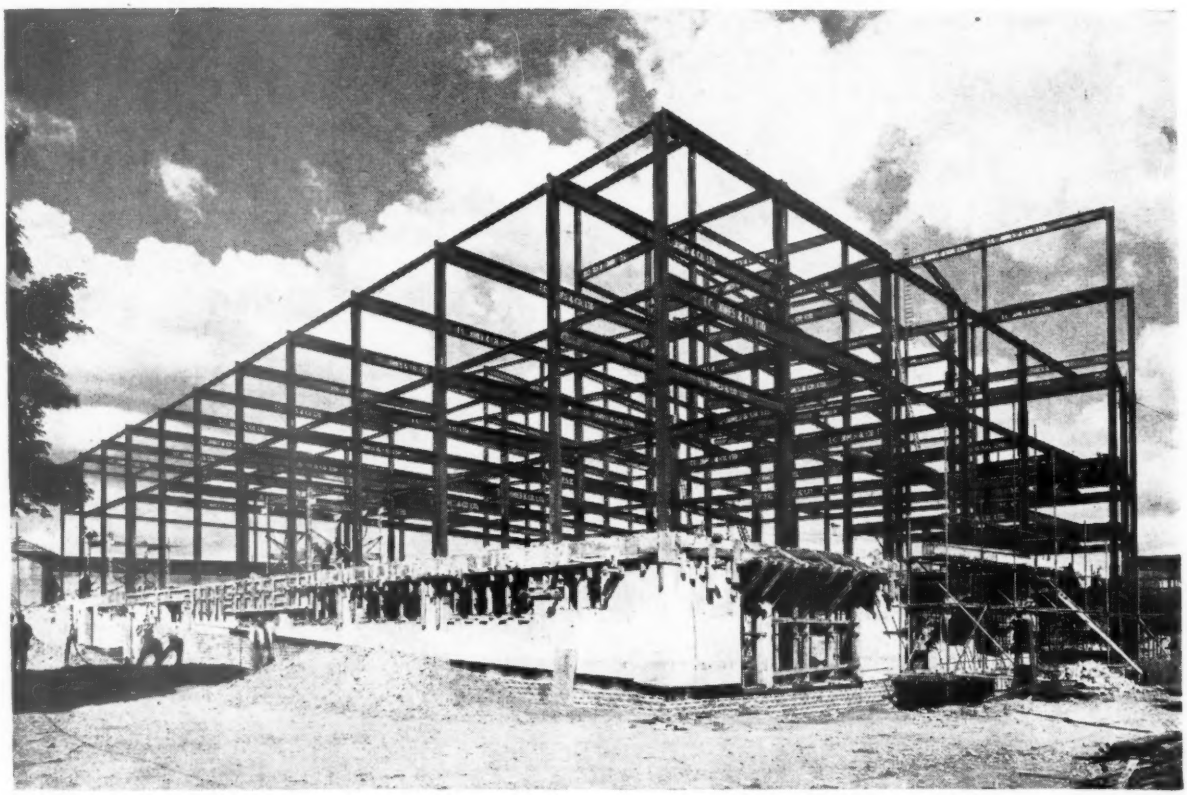

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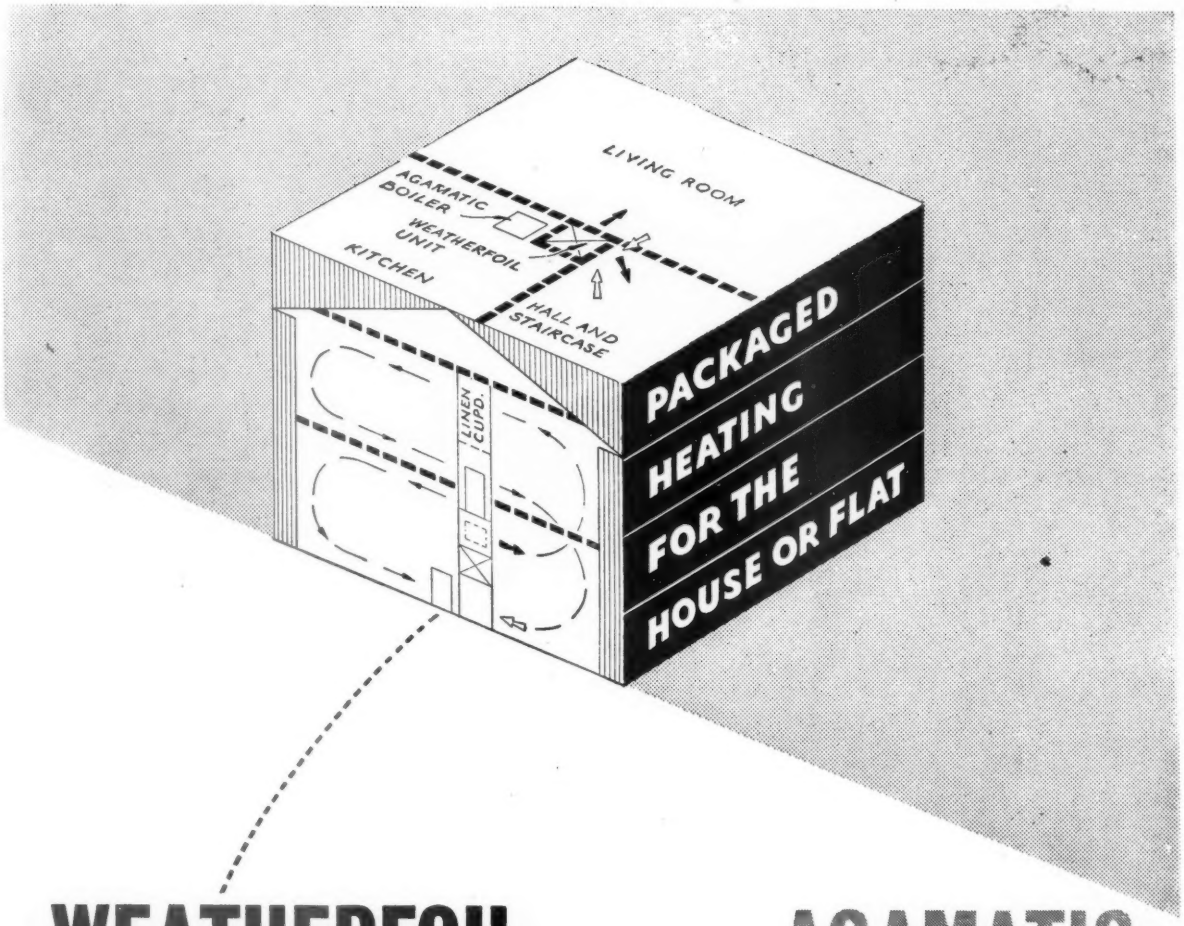

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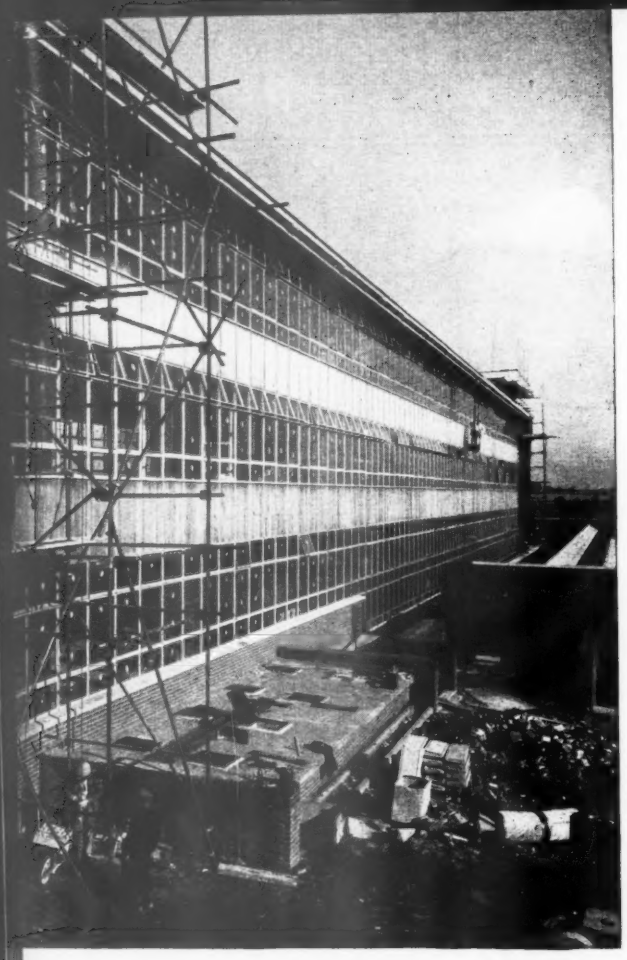

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Both front and rear facades of this building comprise continuous parallel runs of purpose-made metal windows, separated horizontally by narrow infillings of red cedarwood vertical slatting. Three such windows run 250 feet long, to a total height of 34 feet, giving the 8,500 square feet of the front facade an almost complete glass effect, uninterrupted by any visible piers or stanchions. The erection of these 'mammoth' glass facades necessitated a special travelling and vertical gantry from which the work could be carried out.

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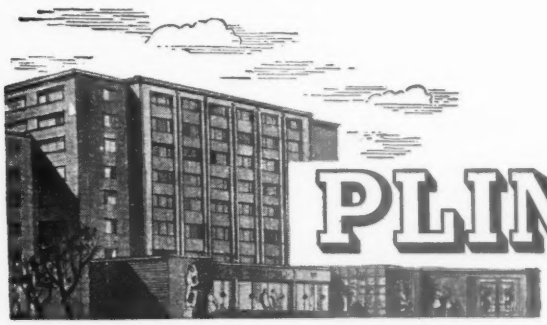

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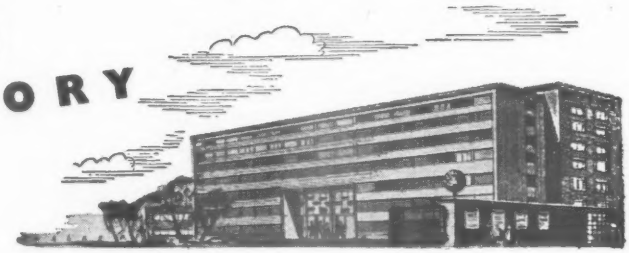

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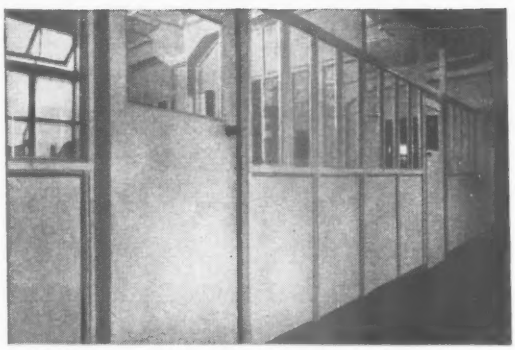

Offices constructed with ½-in. PLIMBERITE and timber framing, by Messrs. Batger & Co., Confectionery Manufacturers, London, E.1.

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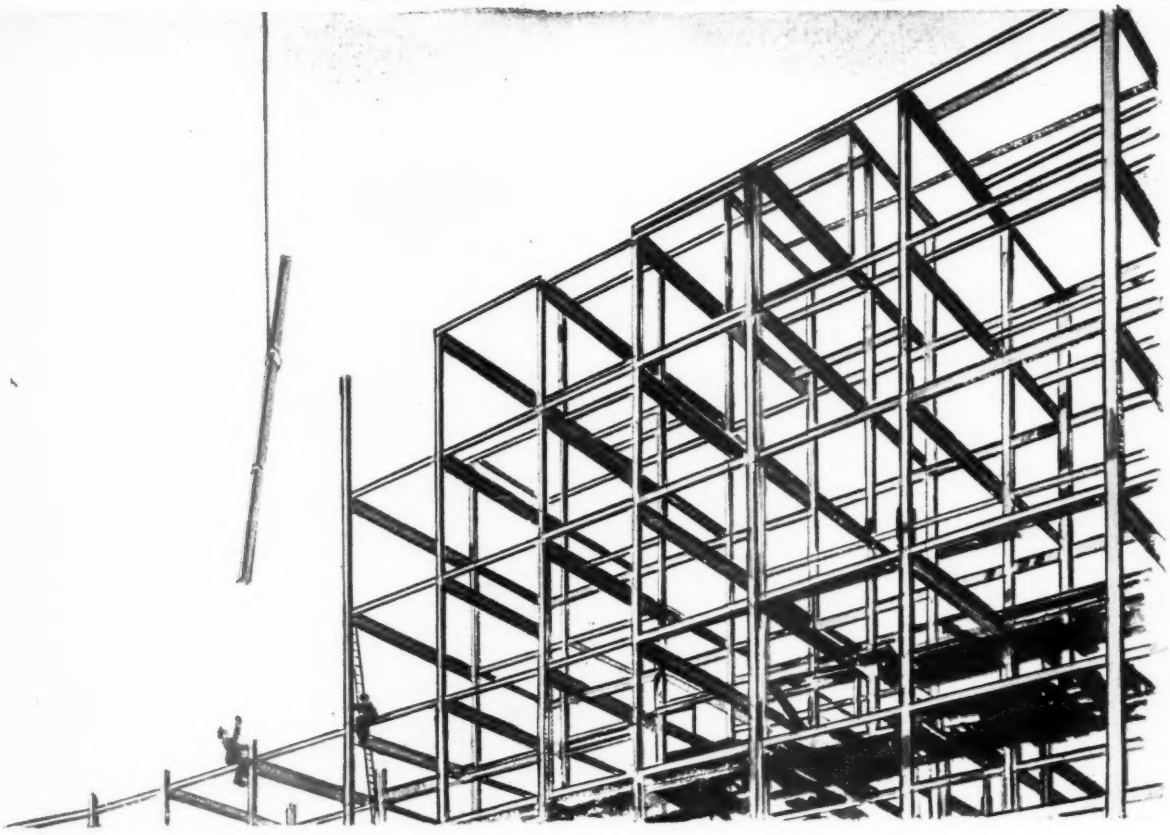

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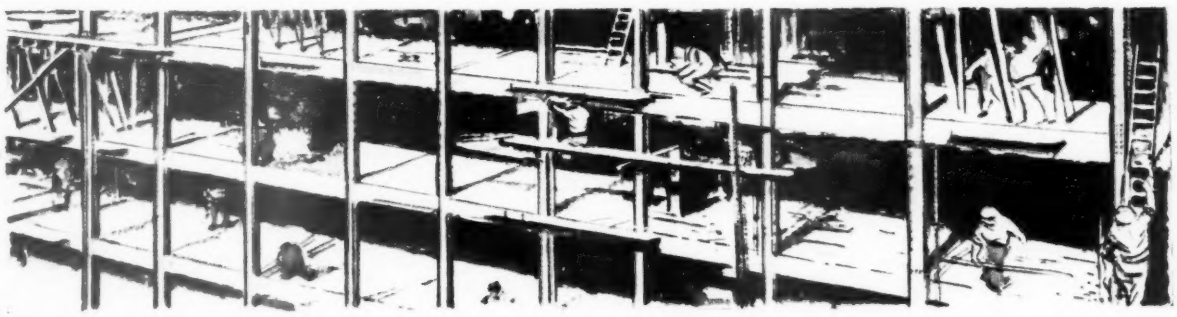

Ferodo Stairtreads at Bentalls' Kingston-on-Thames

In any setting

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Design & Fabrication of Structural timber-work by :—
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Architects :—
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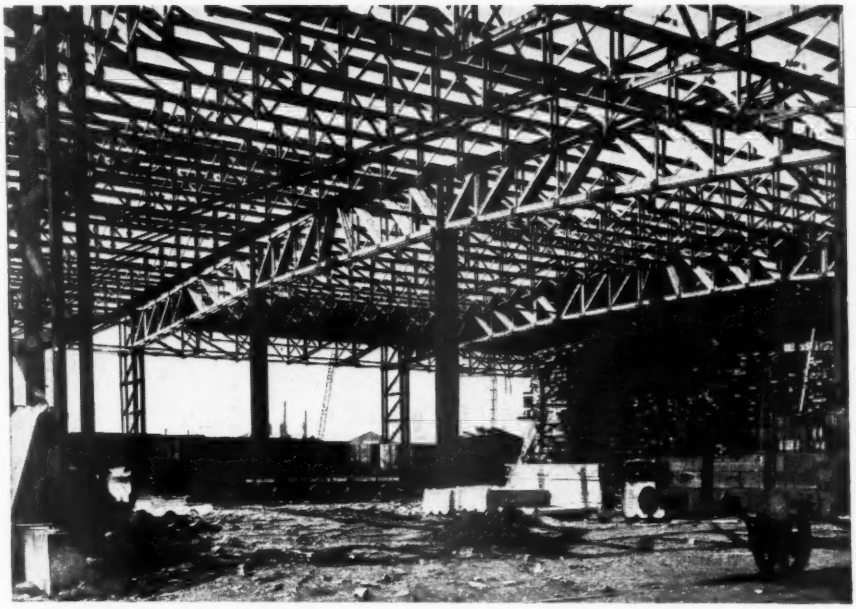

"CORONATION SHED" at Victoria Dock, Hull, erected for Horsley, Smith & Co. Ltd. Illustration shows timber framework in course of erection.

This fine timber-framed storage building is 440 ft. long by 163 ft. wide, with 25 ft. clear minimum working height. A triple centre rail track under cover serves 16 stacking bays each approximately 60 ft. by 55 ft. Valley gutters have been eliminated in the design and there are only 14 internal columns

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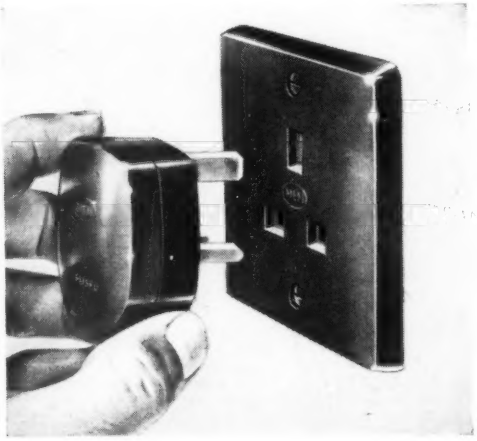

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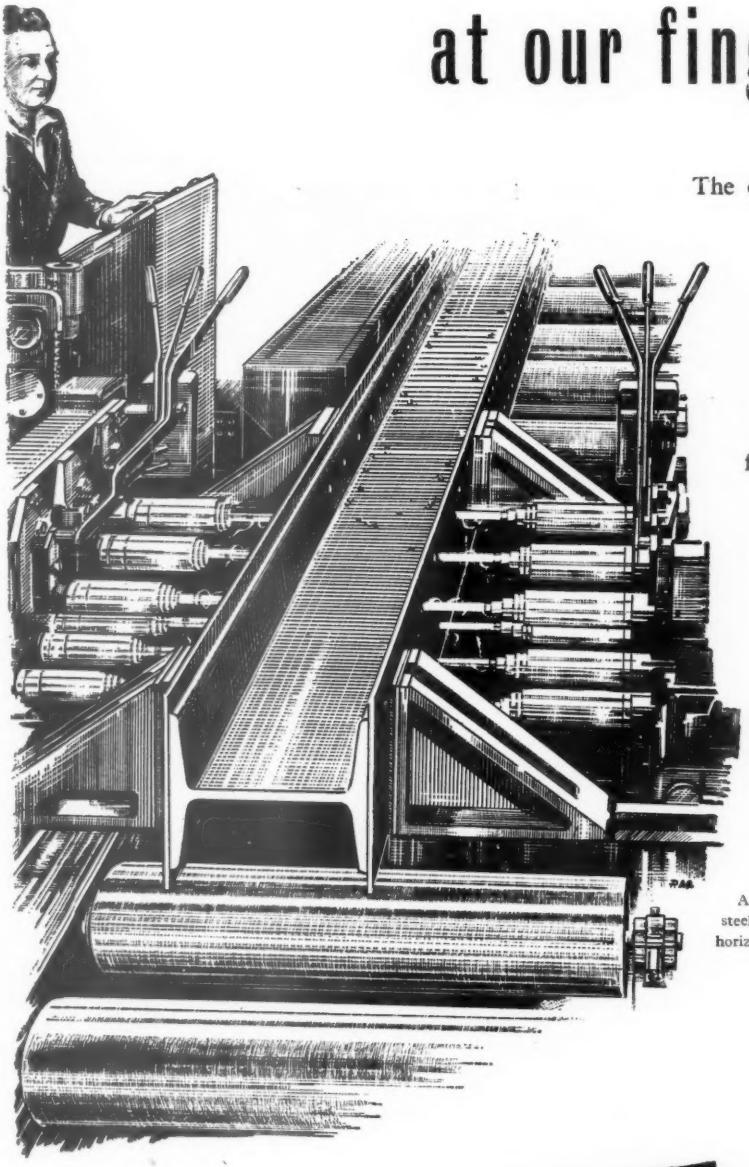

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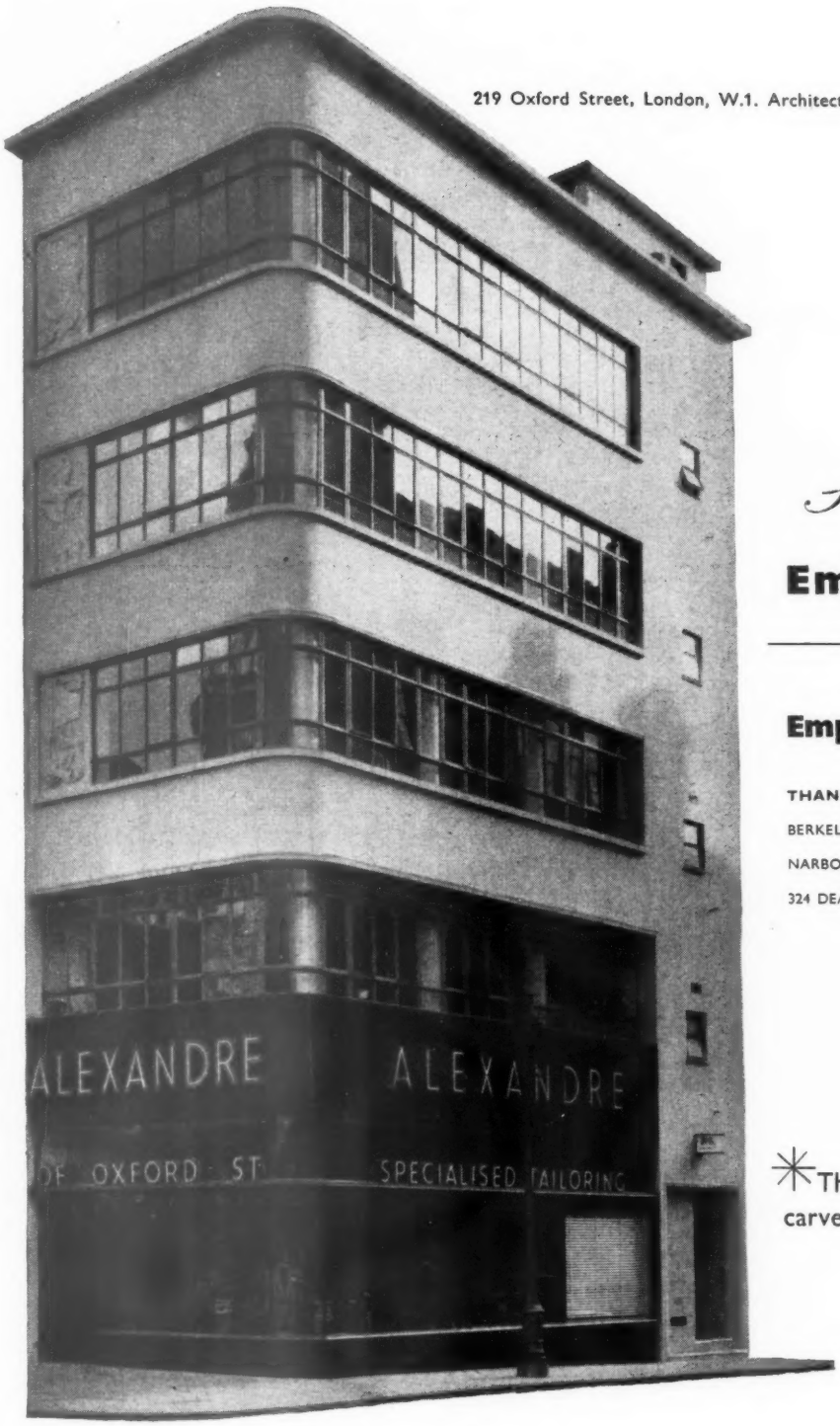

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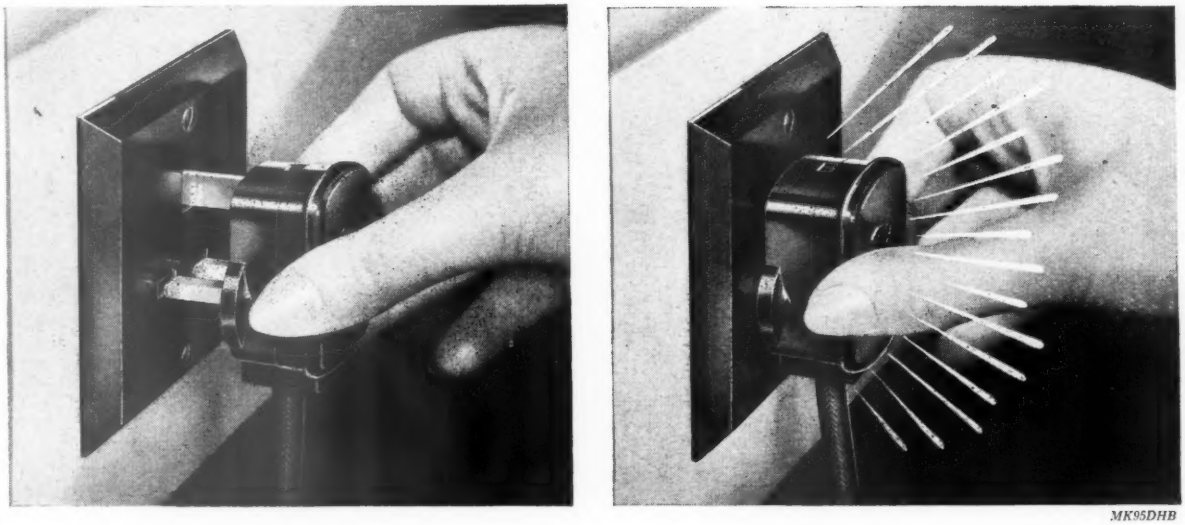

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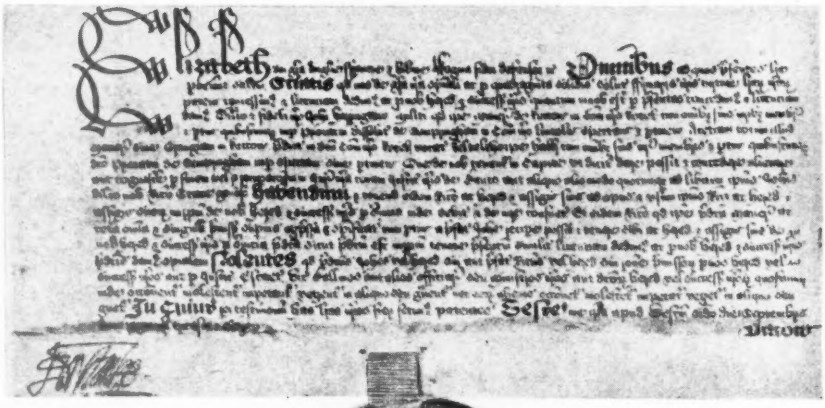

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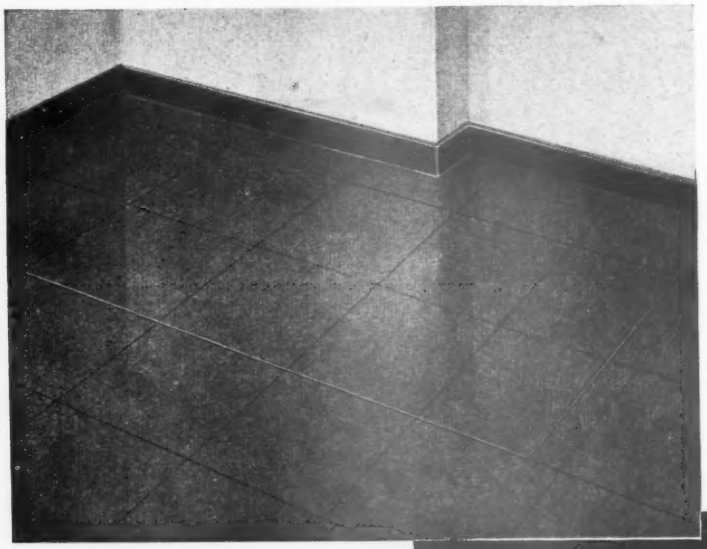

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FACTS and FIGURES

★ A standard Newbold grate with deepening bar, and gas burner for easy lighting. A safety plate can be provided as an extra. Standard boiler 12″ × 6¾″ × 5″ in C.I., Steel or Copper, tapped 1″ B.S.P., reversible to permit R. or L.H. side connections.
Flue-way under boiler 2″ high with 1½″ vertical flue-way formed by boiler and steel casing.

★ Damper frame. Removable for cleaning back flue and access to boiler manlid.

★ Damper. 4½″ opening for chimney sweeping.

TYPICAL PERFORMANCE FIGURES WHEN BURNING COKE AS A FUEL	
Capacity of Grate	0.50 cu. ft.
Rate of Burning	0.8—3.0 lb. per hr.
Radiant Output	Max., 8,000 BTU/hr.
Hot Water Output	Max., 14,000 BTU/hr.
Overall Efficiency	51% with max. hot water. 46% with max. radiation.

The unit provides adequate space heating and a constant supply of hot water. It is self-contained and fits into a brick opening of not less than 22¾″ wide by 25½″ high by 13½″ deep.

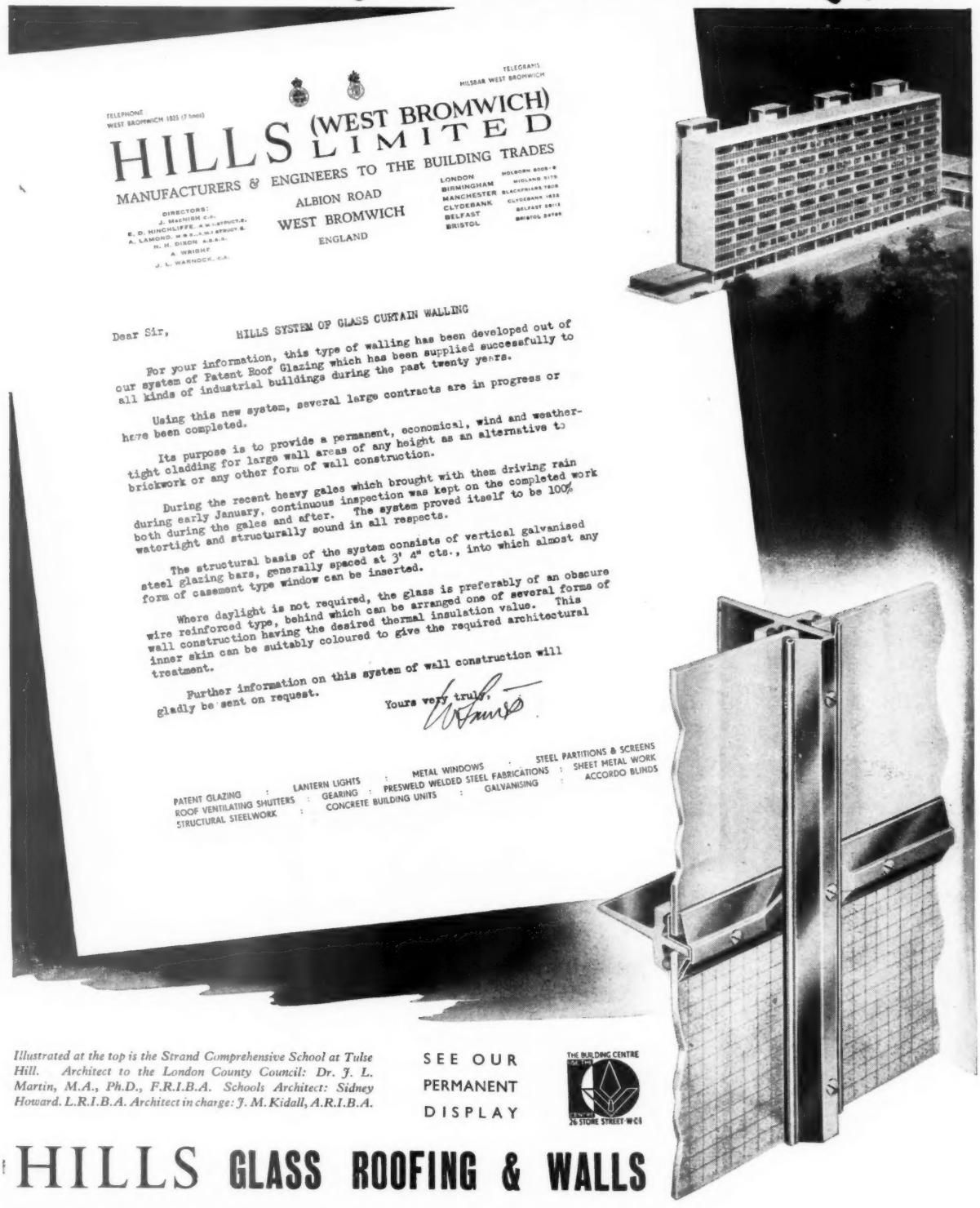
the FLAVEL BOILER SET

FLAVELS of LEAMINGTON

• MAKERS OF FINE COOKING AND HEATING APPLIANCES SINCE 1777 •

INTRODUCE GLASS ROOFING AND WALLS INTO YOUR MODULAR PLANNING AND

Reduce Building costs with this **NEW** *system!*



TELEPHONE WEST BROMWICH 1025 (7 lines)

TELEGRAMS HILSBAR WEST BROMWICH

HILLS (WEST BROMWICH) LIMITED

MANUFACTURERS & ENGINEERS TO THE BUILDING TRADES

DIRECTORS: J. MACNISH, C.C. E. D. HINCHLIFFE, A.M.I.STRUCT.E. A. LAMOND, M.B.E., A.M.I.STRUCT.E. N. H. DIXON, A.R.A.I. A. WRIGHT J. L. WARNOCK, C.A.

ALBION ROAD
WEST BROMWICH
ENGLAND

LONDON HOLBORN 8005-6
BIRMINGHAM MIDLAND 3175
MANCHESTER BLACKFRIARS 7808
CLYDEBANK CLYDEBANK 1626
BELFAST BELFAST 28112
BRISTOL BRISTOL 24795

Dear Sir, HILLS SYSTEM OF GLASS CURTAIN WALLING

For your information, this type of walling has been developed out of our system of Patent Roof Glazing which has been supplied successfully to all kinds of industrial buildings during the past twenty years.

Using this new system, several large contracts are in progress or have been completed.

Its purpose is to provide a permanent, economical, wind and weather-tight cladding for large wall areas of any height as an alternative to brickwork or any other form of wall construction.

During the recent heavy gales which brought with them driving rain during early January, continuous inspection was kept on the completed work both during the gales and after. The system proved itself to be 100% watertight and structurally sound in all respects.

The structural basis of the system consists of vertical galvanised steel glazing bars, generally spaced at 3' 4" cts., into which almost any form of casement type window can be inserted.

Where daylight is not required, the glass is preferably of an obscure wire reinforced type, behind which can be arranged one of several forms of wall construction having the desired thermal insulation value. This inner skin can be suitably coloured to give the required architectural treatment.

Further information on this system of wall construction will gladly be sent on request.

Yours very truly,

PATENT GLAZING : LANTERN LIGHTS : METAL WINDOWS : STEEL PARTITIONS & SCREENS
ROOF VENTILATING SHUTTERS : GEARING : PRESWELD WELDED STEEL FABRICATIONS : SHEET METAL WORK
STRUCTURAL STEELWORK : CONCRETE BUILDING UNITS : GALVANISING : ACCORDO BLINDS

Illustrated at the top is the Strand Comprehensive School at Tulse Hill. Architect to the London County Council: Dr. J. L. Martin, M.A., Ph.D., F.R.I.B.A. Schools Architect: Sidney Howard. L.R.I.B.A. Architect in charge: J. M. Kidall, A.R.I.B.A.

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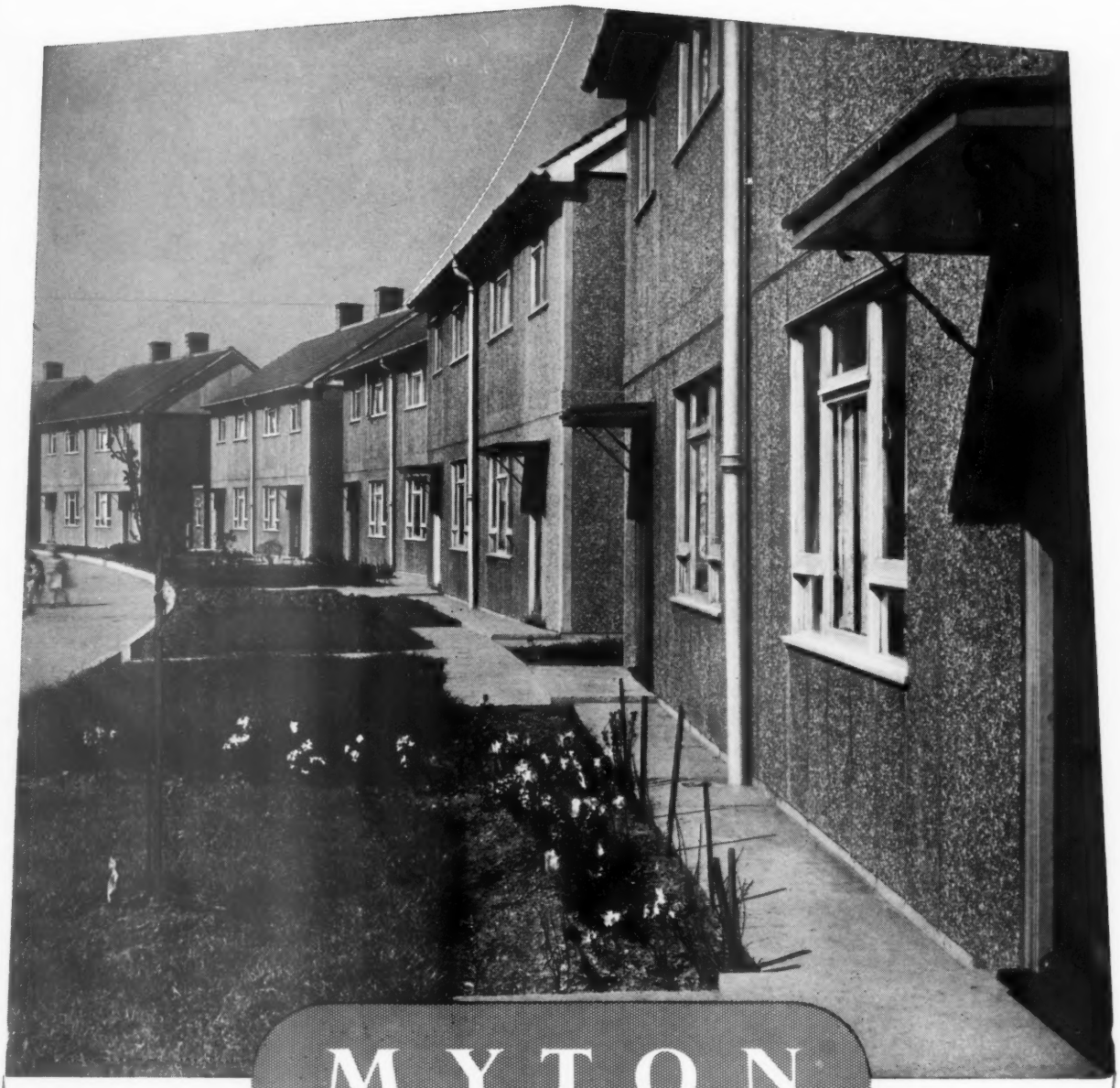

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PERMANENT HOUSES IN THE NEW TRADITION

The Myton New Traditional House is the result of a building technique which effects a considerable saving of scarce materials and site labour, yet maintains the aesthetic appeal of the best traditional architecture. Enquiries are invited for specifications, bills of quantities and plans.

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AJ

THE ARCHITECTS' JOURNAL

9, 11 & 13, Queen Anne's Gate, Westminster, London, S.W.1 Whitehall 0611

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SAME AGAIN ALL ROUND

Budgets always produce comment of one sort or another, but this year there is virtually no difference for any of us, though the contractors will presumably be slightly better off. Mechanical equipment is expensive to buy, and inevitably has a very tough existence, so that it deteriorates rapidly; more realistic allowances will presumably encourage builders to mechanize themselves still further. Similar allowances are being made to manufacturers, for whom factory extensions will be cheaper —good news for architects.

*

Otherwise there is little to say except that the British film industry, which seems bent on suicide, is dissatisfied with its small relief, as are the other sporting types. Mr. Butler, by giving virtually nothing to anybody, has given us all the opportunity to feel ill-used.

THAT TRADE UNION AGAIN

If the RIBA forms a Trade union after considering the results of the questionnaire on the subject which it has sent to members, there may be two rival trade unions, exclusive to the architectural profession, in existence—a state of affairs which would have a most damaging effect on the public's view of the profession. In a statement published on page 450 the RIBA says it is "not prepared to support the British Architectural Guild"—the trade union registered by the IAAS. If BAG sticks to the contentions it made at a recent Press conference it will not withdraw gracefully, but will continue to exist whether the RIBA forms a union or not.

*

ASTRAGAL hopes that the IAAS will give way to its senior body in this matter. If it has the interests of the profession at heart it will surely not want to encourage a minority to work in opposition to the Institute.

*

What, one wonders, are the feelings of architects who are members both of the RIBA and of the IAAS? Which body are they to support?

ARCHITECTURE MAKES NEWS

It was certainly something to see the *Manchester Guardian* devote special supplements on two successive days to architecture and building—one way and another the art of putting up shelter is getting itself more and more in the public eye. Nor was the *Guardian's* treatment of the subject "popularized" in the bad sense of the word; the articles were all serious ones by reputable experts—in fact, one wonders if they weren't just a bit too stiff for non-specialist readers, however intelligent. Apart from Robert Matthew's statesmanly introductory essay, and Paul Reilly on "Materials for the Modern Interior," the articles were for the most part the sort that ASTRAGAL would cut out and file away under "technical."

*

But there is one article which, if it is kept, will be filed under "unconscious humour," a lumbering reply from "our local government correspondent" to the *Architectural Review's* campaign against New Town sprawl. This gentleman still thinks that the architectural character of a town is given by its public buildings and not (I quote him) "the buildings in which the ordinary folk live, work, buy their groceries and educate their children," so that when the public buildings have been completed in Harlow and other New Towns, the *Review's* objections will be brought to nothing.

CAUTIONARY NOTE

A small, chill warning from the Court of Appeal, addressed to those accustomed to clamber up the scaffolding; the safety provisions of the Building Regulations, 1948, are not intended for your protection, only for that of those employed by the contractor. A Middlesex County Council clerk of works on a school site recently ran into some poles and lost the sight of both eyes. Regulation 5 says that safe means of access shall be provided to any place "at which any person has at

any time to work." A clerk of works—even an architect—may work on the job, but he is not " any person " within the meaning of that Regulation. " Any person," so the Court of Appeal held in the action that followed this accident, means " any person employed by the contractor." Watch your step, the flowers of safety (and of damages) so elaborately wrapped in the Building Regulations are not for the profession to pick.

SIR COLIN ANDERSON

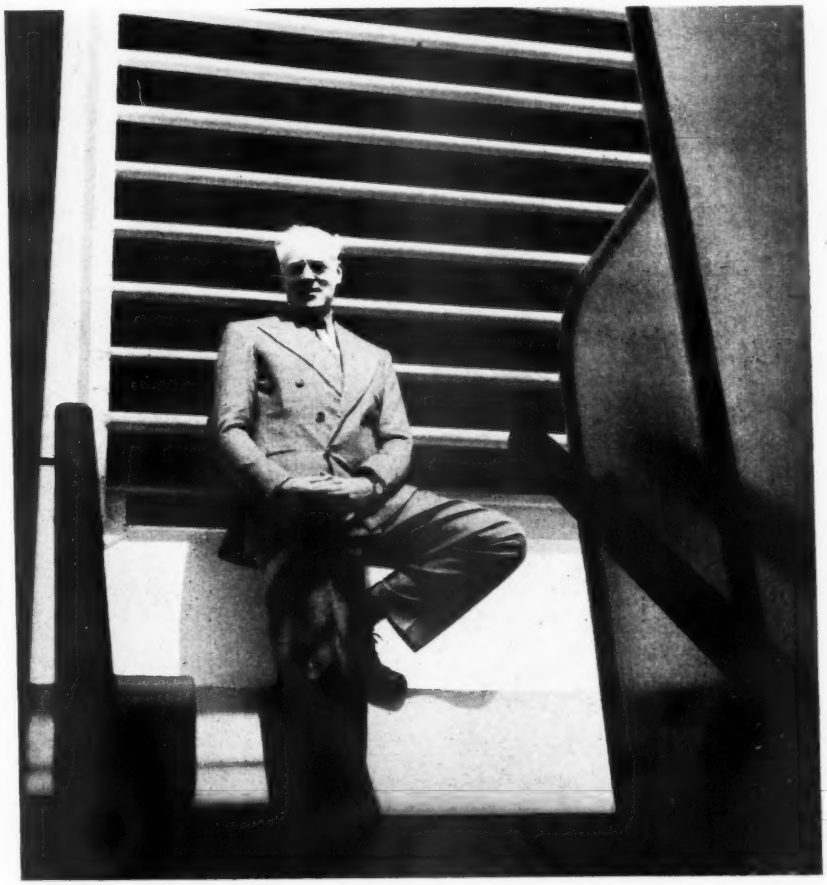
Most people will probably recognize the wind-blown figure on the right, posed against an extract (or intake) ventilator, as Sir Colin Anderson—shipowner: banker: lover of pictures: Old Etonian; and author of that famous piece of advice to industrialists: " (1) Have taste. (2) If you haven't taste, hire it. (3) When you've hired it, pay a salary higher than that of a jobbing gardener."

*

Sir Colin is one of the blessed few who practises what he preaches: (1) He not only has taste (he has a fine private collection of pictures). (2) He hires it constantly in the service of his company. (3) And none of his hirelings—whether painters, architects, or professors at the RCA, of which he is Council Chairman—look much like jobbing gardeners—at least not unless they *want* to. How extraordinary it is that he is almost alone among British shipowners in carrying the standard of good, sensible and imaginative design. ASTRAGAL is perpetually baffled by his isolation. Many men have the fortune to be educated at Eton and Oxford, to be reasonably well off, to hold positions of authority, to be (presumably) accustomed to seeing and appreciating good architecture, good furniture, good painting . . . yet where are they? What happens to them? Are they blind as they sit in their hideous boardrooms? Are they dumb as they approve of their hideous products? For it is certain they cannot escape blame.

*

Good design gets nowhere unless it is the personal concern of top management—only at that level can a design policy be adopted and followed through. Admittedly Sir Colin never looks a lonely haunted figure—except two days before sailing on a maiden voyage, and that's nothing to do with being lonely—but it would be nice if there were a few more patrons about of his quality and imagination.

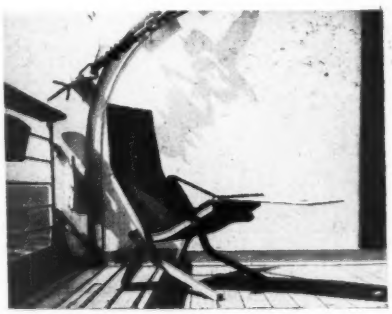


Above, Sir Colin Anderson, photographed on the maiden voyage of the " Orsova " (Architect : Brian O'Rorke) See ASTRAGAL'S *note on this page, which also refers to the new Race deck chair designed specially for the ship. (Photograph below.)*

RACE AGAINST TIME

Before we leave the Promenade Deck there's that other picture on this page. The standard deck chair used in most ships had not been redesigned since 1860—until Ernest Race was commissioned to re-think the problem for the Orient Line's new *Orsova.* Effects of time, wind and weather, he found, must be given special attention, though the comfort of the passenger cannot be entirely ignored. Two particular enemies of longevity and easy maintenance are hinged joints and (surprisingly) sulphuric acid. The first loosen up with the sort of treatment that deck chairs have to expect, the second descends from the funnel in the form of soot, which when combined with water, fresh or salt, eats its way into varnish and through canvas.

The Race solution, illustrated here, is of formed, laminated beech wood,



finished with a synthetic lacquer, and is collapsible and hingeless. Arm straps are of woven nylon* and squabs are a mixture of rubber foam and hair (specially chosen to dry out quickly in humid climates), covered with tartan. p.b.c. fabric.

ASTRAGAL

* The small chairs are of the same construction and finish.

A Railcar Named "Mon Repos"

There are so many attitudes toward housing which are enjoined on us today that many of us must have despaired of seeing the complete mid-century house. Yet the structure above (in Gloucestershire) comes close to qualifying. It is prefabricated, yet it preserves an ancient structure from decay; it was factory-made and delivered to site, yet it incorporates local materials; it is fully technological (two TV sets, slow combustion stove, etc.), yet it preserves rustic amenities, at least as far as its gable end is concerned; it shows an advanced attitude to colour in its two-tone rendering of the long elevation. It has everything, in fact, and yet how glad we should be if it had never happened; if the visual education of the English had never sunk so low as to permit the arting-up of the end gable and the ruining of the effect with ill-sited vertical excrescences; if it had never been necessary for the English to live in disused trams and railway coaches anyhow. But there is no need to go on with these "ifs"—the problem is to create a situation where native ingenuity will no longer need to be squandered on structures of this kind.

LETTERS

I. B. Wilson, A.R.I.B.A.
Gordon Steele
W. Tanswell

Planning Officer v. Architect

SIR,—In "Planning Officer v. Architect" (AJ April 1) you mention cases in which planning authorities refer to the advisory panel only the "difficult" or unusual designs.

Sometimes these designs are recommended by the panel, so that the planning body may feel reluctantly compelled to approve them.

After that, when similar designs are submitted, it is not unknown for the planning authority to take care that these are turned down out of hand without reference to the advisory panel, the use of which is voluntary. Eventually the only cases referred to it may be those in which the planning authorities feel confident that the panel will back up their own likes or dislikes.

This method of using an advisory panel seems to be an extreme example of the upside-down values to which you refer.

Kent. I. B. WILSON.

The Sighthill Competition

SIR,—When the conditions for the Sighthill church competition first appeared, I was, to say the least, surprised at the restriction to architects "resident in Scotland." The presumable intention of this restriction was to prevent the work going south of Scotland—a laudable principle as far as it goes, but one which surely should take second place to the intention to have the best possible building. Any doubts about regional fitness could have been allayed by appointing an assessor acquainted with local conditions—as was, in fact, done. Had it still been felt necessary to restrict competition, surely a limitation to architects resident in Scotland or of Scots birth or descent would have been more apt.

The publication of the assessors' most unsatisfactory report has greatly strengthened my conviction that the initial restriction was ill-judged; this, together with the recent fiasco in Dublin, would seem to indicate a need for more careful and less frequent use of restrictions to competition.

London. GORDON STEELE.

Urban Vernacular

SIR,—The illustrations showing the winning design, for the Falmouth school competition, in your issue of March 25, does indeed show the infancy, as you suggest, of Contemporary Architecture.

May I suggest, that before an Urban Vernacular comes about, a common approach to the basic problems of design must be universal. Arbitrary use of techniques and materials, pulled together by well tried clichés, are weekly being designed in the name of Contemporary. Architecture, I know, is not alone in producing an age worthy to be retold in history, but it must contribute, and be understood by the majority at least in its presentation.

I cannot see this happening for a considerable time, not until the social, economic, and political ideals also tend to have the same mass appeal.

It is my suggestion therefore that Urban Vernacular is being forced to run before it's even born, and that it will emerge in its own good time. Dare we say approximately 1980?

W. TANSWELL.

Wolverhampton.

POINTS FROM THIS ISSUE

The Editors

THE ROYAL SOCIETY OF ARTS

WHEN the Royal Society of Arts celebrated its second centenary on March 22 its record of achievement in the "encouragement of the arts, manufactures and commerce," it had well earned the praise and gratitude of all men of good will. It has made its mark on the history of these Islands and the world in a number of different and surprising ways—among other things it must accept some responsibility for the mutiny on the *Bounty*, for the Great Exhibition of 1851, and for the introduction of physical training in British schools. In the first century of its existence it organized premiums and competitions which stimulated inventive activity in agriculture and industry, and was largely responsible for the first steps toward mechanized farming, by its prizes for practical seed-drills—an invention whose descendants have transformed the appearance of vast stretches o this planet's surface.

In that first century it showed extraordinary acuteness in judging which were the vital things to invent and improve, the key industries to foster, and the student geniuses of the fine arts to encourage and assist. Even when it had ceased to be a prize-giving society, and changed to a learned body which met to hear papers, to form committees and to advise other societies, after the grant of the Royal Charter in 1847, it still retained its ability to run with the hares of progress, to interest itself in the camera, the phonograph, the telephone and radio, to organize series of vital lectures on colour printing, industrial hygiene and education.

But there can be no doubt that during the last century its lectures, though distinguished, have developed a more and more historical tinge, and have tended more and more to deal with inventions, discoveries and attitudes of mind that are safely established. The Society seems to be passing over into a phase of genial fogey-ism and an unfortunate brand of cheerful public contempt which has been unkindly summed up in the phrase "F.R.S.A. . . . the easiest four letters to get after your name." Its functions have had to be usurped by such bodies as the Royal College of Art and the Council of Industrial Design, and its contribution to the Festival of Britain was, literally, an exhibition for exhibition's sake. This is a sorry pass to have reached on a two-hundredth birthday, and, though the RSA undoubtedly has its difficulties at the present time, one must hope that in its third century it will endeavour to regain that pre-eminent place in the forefront of industrial, technical and artistic progress which its history enjoins upon it.

RIBA

"No" to Trade Union

At their meeting on April 6, the council of the RIBA considered the documents submitted by the British Architectural Guild.

The council decided that, irrespective of the result of the RIBA questionnaire on representation of members in salaried employment, they are not prepared to support the British Architectural Guild. Members and students are advised accordingly.

The views of the council on the representation of members in salaried employment will be announced when the analysis of the results of the RIBA questionnaire has been considered.

At the time of going to Press the British Architectural Guild has made no comment on the RIBA's statement.

MOW

Street Decorations for the Queen's Return

The streets of Westminster are to be decorated to mark the occasion of the Queen's return to this country. They are being designed by the Architects' Department of the MOW, under Eric Bedford, the chief architect.

UNESCO

New Headquarters in Paris

The United Nations Educational Scientific and Cultural Organisation (UNESCO) announces that contracts are to be awarded on an international basis for the building (£2,000,000) and equipment (£350,000) of its new permanent headquarters in Paris. Building operations will begin on 1st September, 1954, for completion in July, 1956.

The continental system of awarding separate contracts for each part of the work is expected to be used. Bidding will be by invitation. United Kingdom firms interested in this work should give details of their experience and standing to UNESCO Headquarters who will compile a list of firms to be invited to tender. Further details and application forms may be obtained between 20th and 30th April from Room B, UNESCO House, 19, Avenue Kléber, Paris, between the hours of 9 a.m. and 6.30 p.m.

Firms not represented in France may obtain application forms by post. Completed application forms should be returned to UNESCO before 16th May, 1954. UNESCO will then draw up lists of selected tenderers and proceed to invite bids for the work.

COMPETITION

Architectural Photography Wanted for Exhibition

The Associate and Student Section of the Edinburgh Architectural Association is organising an Exhibition of Architectural Photography in Scotland which will be held during this year's International Festival of Music and Drama. The Association is holding an open competition, with prizes of £20, £7 and £3, for the best photographs submitted. Anyone can submit photographs, and the criteria by which they will be judged are "Architectural Interest and Photographic Merit."

The closing date for entries will be July 1. Entry forms may be obtained from the Exhibition Secretary, 15, Rutland Square, Edinburgh. There is an entry fee of 5s. for which sum any number of photographs may be submitted by any one person.

DIARY

Exhibition of prize-winning drawings in competition for Secondary Modern School, Falmouth. At the RIBA, 66, Portland Place, W.1. APRIL 21 TO MAY 1

The Architect and the Builder. Howard Robertson. At the RIBA, 66, Portland Place, W.1. (Sponsor: LMBA.) 6.30 p.m. APRIL 23

The Cathedral of Santiago De Compostela, Spain. J. M. Ruiz-Morales. At the Victoria & Albert Museum, South Kensington, S.W.7. 6.15 p.m. APRIL 28

Design in Poland. Paul Hogarth. At the Polish Cultural Institute, 81, Portland Place, W.1. 8 p.m. APRIL 30

British Architects' Conference, Torquay. For full particulars apply to the Secretary, RIBA, 66, Portland Place, W.1. MAY 26 TO 29

AJ STUDENT AWARDS

WHY DO YOU WANT £200?

If you are a student reader (on the RIBA Register) here is your chance to spend £200 on the research work you most want to carry out. All you have to do is to tell us why you want the money.

Win without working

It is as simple as that. Unlike most organizers of research scholarships we are not asking you to work before you win—or fail to win—the prize money. We think that if you have a good and original reason for needing £200 for research you should be given that sum without having to waste precious time on preliminary work. If you are not successful in getting the money then you will have wasted no more time than it takes to fill in the form opposite. If you *are* successful you will spend £200 doing whatever you said you wanted to do with that sum.

Two awards to be won

The two awards of £200 will be given to the two students who, in the opinion of the assessors, have the most original and creative reasons for wanting the money. These reasons must be written on the entry form opposite. On the other side of the form you may fix sketches or other illustrations to amplify what you have to say. If you are placed on a short list by the assessors (the JOURNAL editors and a principal of one of the architectural schools) you will be asked to call on them. And at this interview you may be asked to produce examples of your work.

How the winners will be chosen

What, you may be wondering, will the assessors be looking for? If there is no competition in the ordinary sense of the word, how can the judges select the winning entrants? Their task will, in fact, be very simple. They will be looking for original, unorthodox ideas. This is not an orthodox scholarship for the kind of people who invariably win scholarships with flying colours. It is designed for the student who does *not*, as a rule, win scholarships—the student who is full of brilliant ideas for his own higher architectural education, but is short of the cash to carry them out. In other words, the assessors will be looking for the entrant who, though allergic, by temperament or conviction, to the whole idea of scholarships, would know very well how to put scholarship money to a good use. So if you think you may have brilliant and unorthodox ideas, here is your chance to prove it to yourself. You may even have the chance of proving it to JOURNAL readers for any reports that the prizewinners prepare as a result of their research will be considered for publication in this paper.

Closing date

Entries (marked COMPETITION) must be received by the Editors, THE ARCHITECTS' JOURNAL, 9, Queen Anne's Gate, S.W.1, by May 3. The Editors reserve the right to withhold the prizes if no adequate entries are submitted. If there is a good response to the competition it may become an annual event.

Cut along this line

ENTRY FORM FOR AJ STUDENT AWARDS

Entries cannot be accepted unless the competitor is on the RIBA Register of Students. Nor can they be accepted unless they are submitted in the spaces allotted on each side of this sheet. Written statements and sketches may be made on separate sheets of paper only if they are pasted (not pinned) in the space available. Entries must be in the assessors' hands by the first post, May 3, 1954.

Name in full..... Date of birth.....

Name of School..... Full or Part-time student?.....

Address.....

State in the space below how you would use £200 to further your architectural education. If you wish to amplify your answer with some form of illustration, please put it on the back of this page.

Cut along this line

I hereby declare that if I win one of the two prizes of £200 I shall use it for the purpose stated above.

Signature of competitor.....

Date.....

AJ STUDENT AWARDS

Any illustration needed to amplify your answer on the previous page should be provided here. Sketches on separate sheets of paper will be accepted only if they are pasted (not pinned) within the space available.

Cut along this line

Bus t

BUS TERMINUS and OFFICES

in STORE STREET, DUBLIN, IRELAND

designed by MICHAEL SCOTT, assistant architects PATRICK SCOTT, WILFRED CANTWELL, KEVIN FOX, PATRICK HAMILTON PATRICK HAUGHEY, and NORMAN PEACHEY,

consulting engineers, OVE ARUP and PARTNERS,

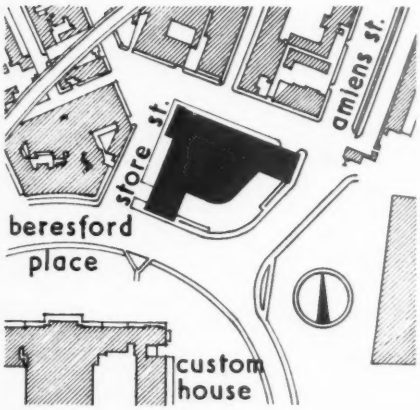
consultants (drainage and electrical) NICHOLAS MATHEWS,

(mechanical services) J. VARMING and PARTNERS

Bus terminus and Custom House.

The bus terminus, which was begun in 1946, was designed (in 1945) to concentrate the services and offices of the National Transport Services. It was later taken over by the Department of Social Welfare, which has leased part of the building as a bus terminus. The site is in a central position in the city and is close to Gandon's eighteenth century Custom House, which can be seen across the river Liffey in the photograph on the left. The building cost approximately £1,000,000.

The bus terminus from the south.



Site plan

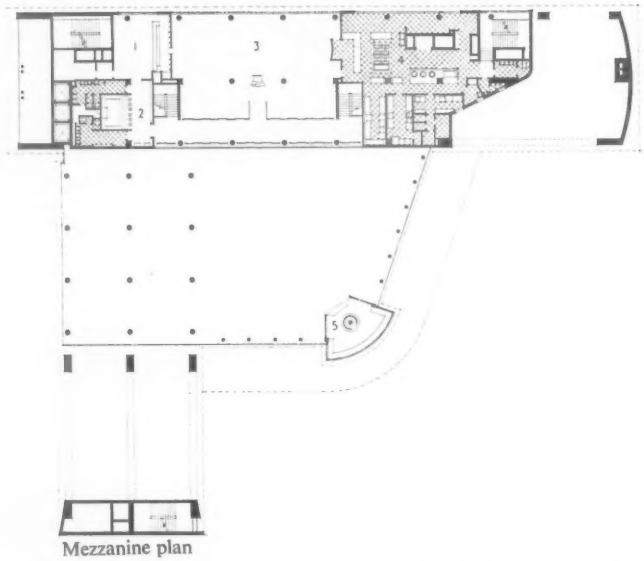
BUS TERMINUS

in STORE STREET, DUBLIN

designed by MICHAEL SCOTT

KEY

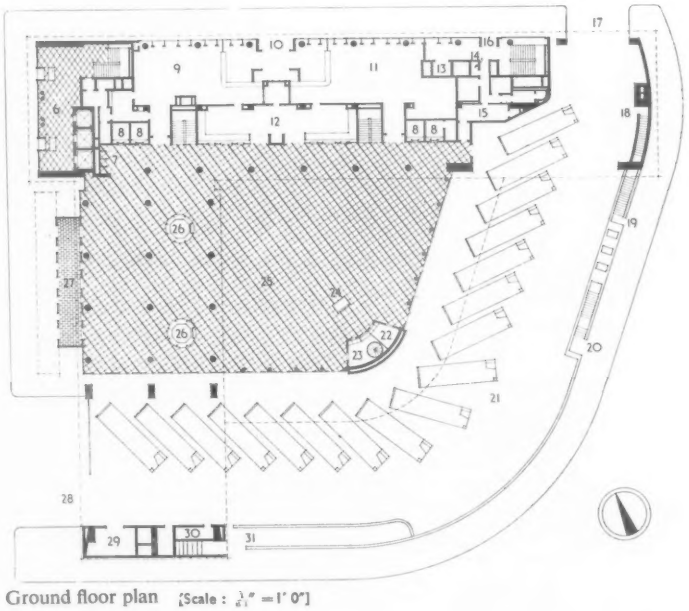
1. Liquor bar.
2. Snack bar.
3. Restaurant.
4. Kitchen.
5. Control room.



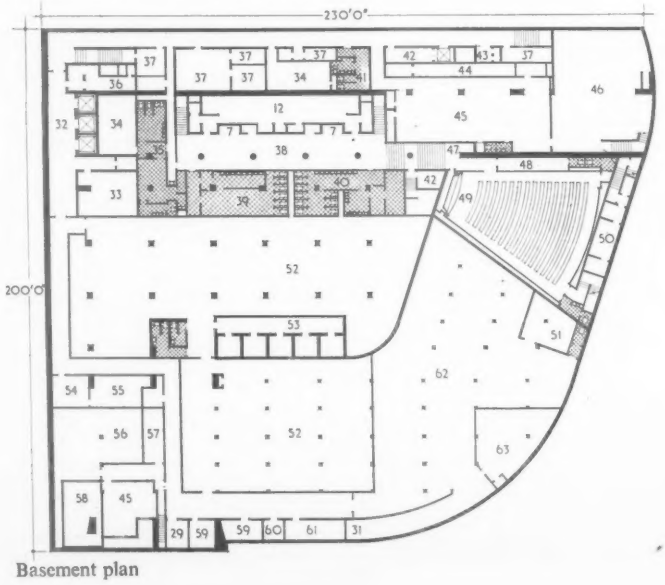
Mezzanine plan

KEY

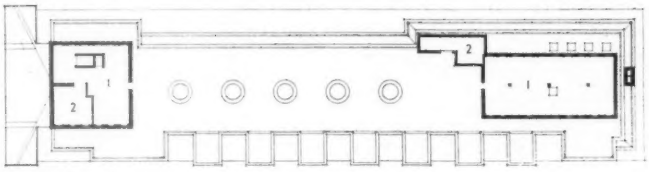
6. Office entrance hall.
7. Public telephones.
8. Shop.
9. Goods inwards.
10. Goods entrance and exit.
11. Goods outwards.
12. Left luggage.
13. Goods lift.
14. Checker's office.
15. First aid station.
16. Service entrance.
17. Bus exit.
18. Entrance to boiler room.
19. Entrance to cinema projection room.
20. Cinema emergency exit.
21. Bus yard.
22. Ticket office.
23. Information bureau.
24. Timetable.
25. Concourse.
26. Kiosk.
27. Passenger entrance.
28. Bus entrance.
29. Transformer.
30. Busmen's toilet.
31. Ramp to cycle park.
32. Lift hall.
33. Maintenance workshop.
34. Rest room.
35. Male staff toilet.
36. Vacuum cleaning plant.
37. Stores.
38. Passenger public foyer.
39. Men's toilet.
40. Women's toilet.
41. Female staff toilets.
42. Machine room.
43. Book lifts.
44. Ducts.
45. Ventilation plant.
46. Boiler room.
47. Cashier.
48. Cinema manager's office.
49. News cinema.
50. Projection room.
51. Calorifiers.
52. Filing.
53. Strong rooms.
54. Engineer's room.
55. Stockroom.
56. Plant room.
57. Booster equipment.
58. Cold water storage tank.
59. Switch room.
60. Engine room.
61. Battery room.
62. Office staff cycle park.
63. C.I.E. staff cycle park.



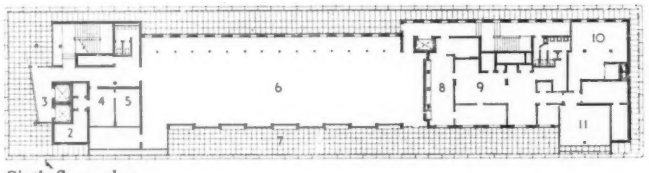
Ground floor plan [Scale : $\frac{1}{64}$" = 1' 0"]



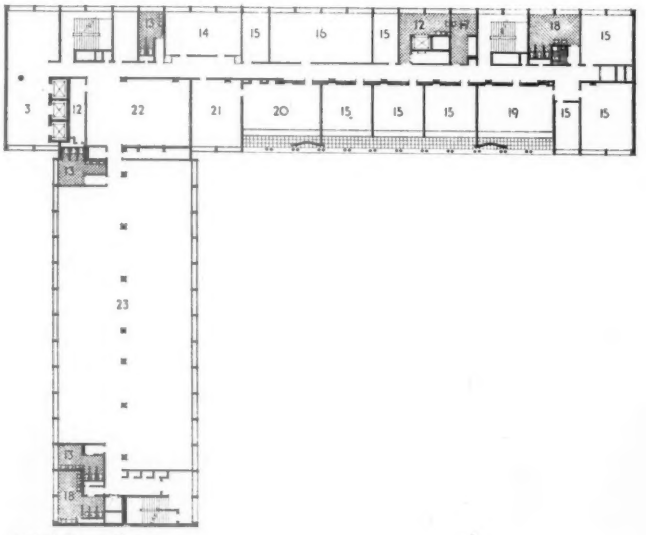
Basement plan



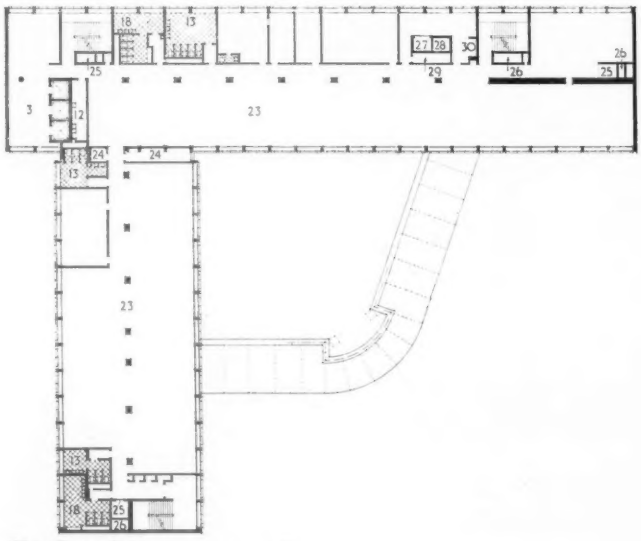
Penthouse plan



Sixth floor plan



Third floor plan



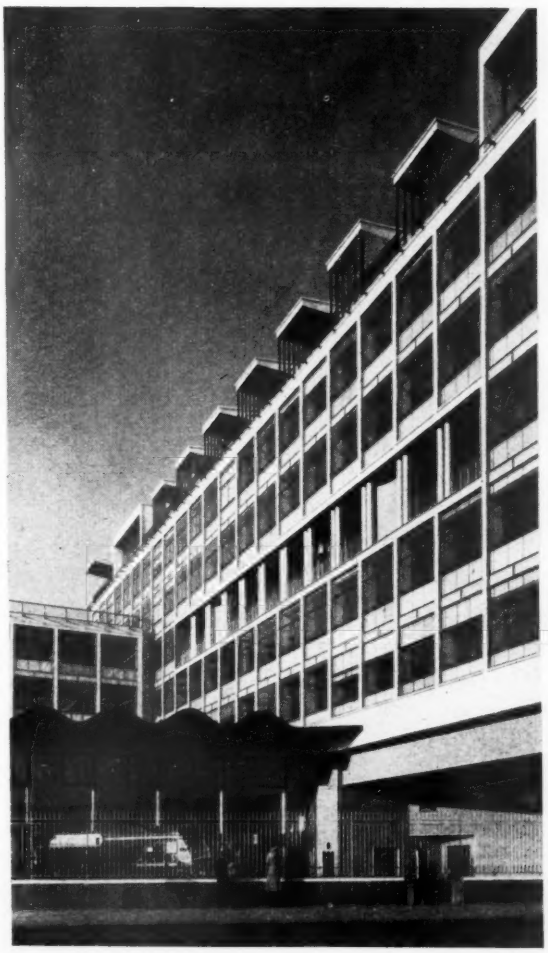
First floor plan [Scale : $\frac{1}{8}$" = 1' 0"]
(The second, fourth and fifth floors contain similar office accommodation.)

Key

1. Air conditioning room.
2. Lift motor room.
3. Lift hall.
4. Matron's office.
5. Rest room.
6. Office staff restaurant.
7. Outdoor dining balcony.
8. Servery.
9. Kitchen.
10. Printing room.
11. Kitchen staff dining room.
12. Cleaners' room.
13. Women's toilet.
14. Typing pool.
15. Private office.
16. Conference room.
17. Messengers.
18. Men's toilet.
19. Secretary to department.
20. Minister.
21. Secretary to minister.
22. Filing.
23. Offices.
24. Store.
25. Main air extract duct.

Key

26. Main air intake duct.
27. Goods lift.
28. Plenum duct.
29. Rising electrical duct.
30. Book lifts and messengers' room.



Right, the south facade of the north block. The recessed balcony on the third floor marks a special suite of offices for the Minister for Social Welfare.

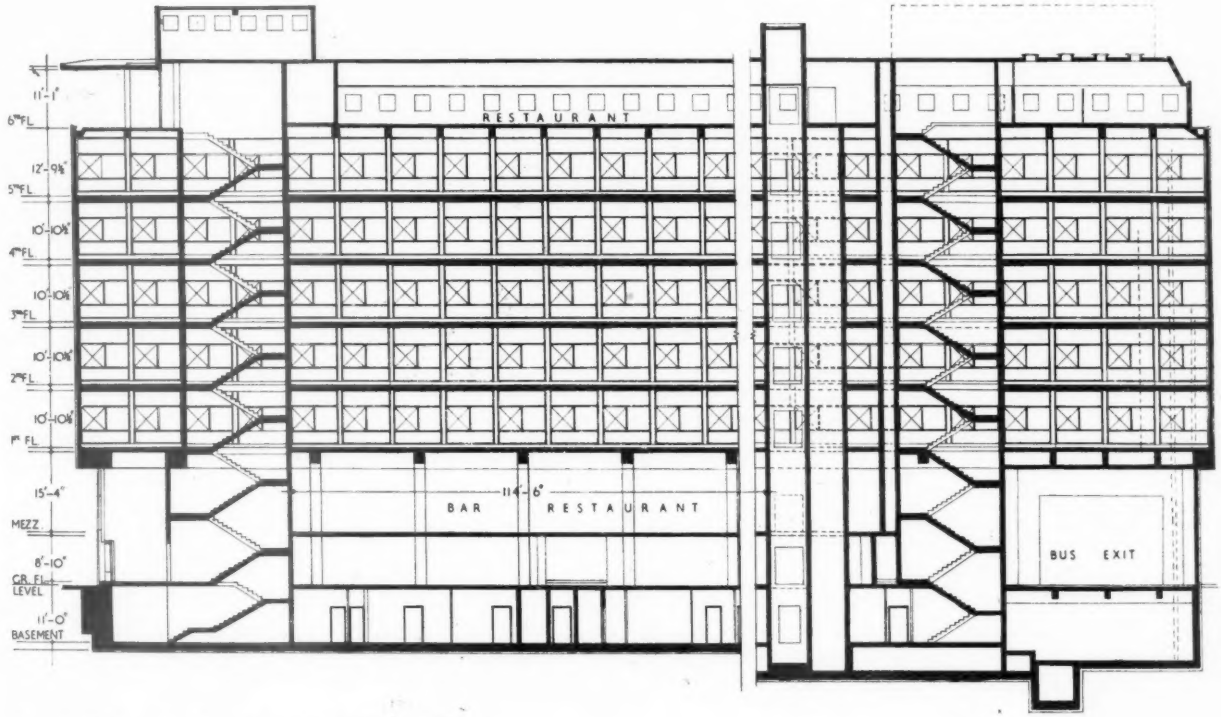
BUS TERMINUS

in STORE STREET, DUBLIN
designed by
MICHAEL SCOTT

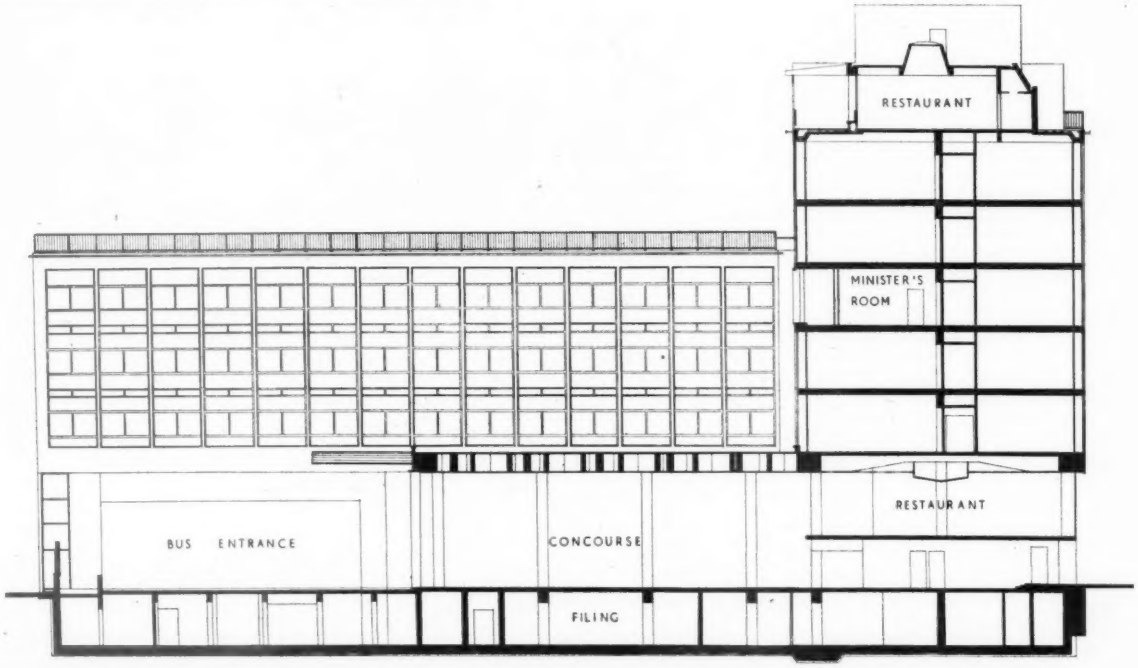
SITE.—When the site was chosen by Coras Iompair Eirann (Transport Company of Ireland) and approved by the Dublin Corporation there had been three alternative sites, at Aston's Quay, north of Christchurch Cathedral and at Smithfield. The last of these was turned down as it was too far away from the centre of the city. The Store Street site was the cheapest, is also central and was approved by Professor Abercrombie. It is intended to link the site by a new road to a proposed bridge over the Liffey to the south. The main approach to the building is from the city centre to the west and entrances for buses, passengers and office workers are all on the west side of the site. At the rear of the nearby Custom House and forming a foreground to the new building is a formal garden which contains a pool and fountain as a memorial to the 2nd Battalion, Dublin Brigade of the I.R.A.

A corner of this garden is decorated by a picturesque ruin consisting of fragments of a part of the Custom House destroyed by fire in 1921. Buses arrive from the west, are parked saw-tooth fashion around the perimeter of the concourse and leave the city to the north on an outer ring road.

PLAN.—The bus station occupies the basement, ground floor and mezzanine. The mezzanine floor was introduced because the scheme had to be designed to accommodate double-decker buses. Passengers enter the buses through sliding doors in the concourse wall under a corrugated canopy. The organization of arrival and departure is controlled by loudspeakers from a central room at mezzanine level. Amenities for passengers include a news cinema and lavatories in the basement, a shopping arcade, kiosks, baggage and freight rooms



Longitudinal section through north block on west-east axis



Cross-section through north block and concourse on south-north axis [Scale : $\frac{1}{32}$" = 1' 0"]

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in STORE STREET, DUBLIN

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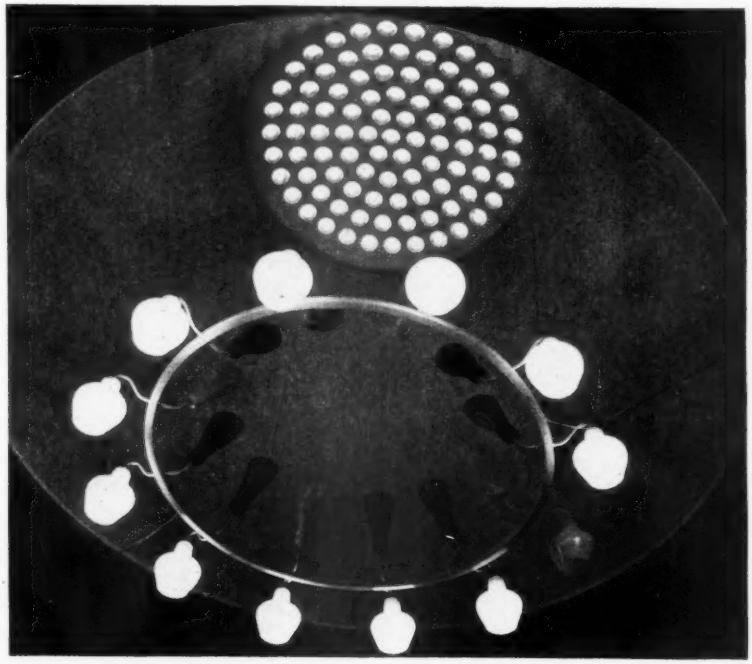
Top, the main ground floor concourse looking towards the passenger exit doors leading to buses. Above, the north wall of the concourse with left luggage windows on the right.

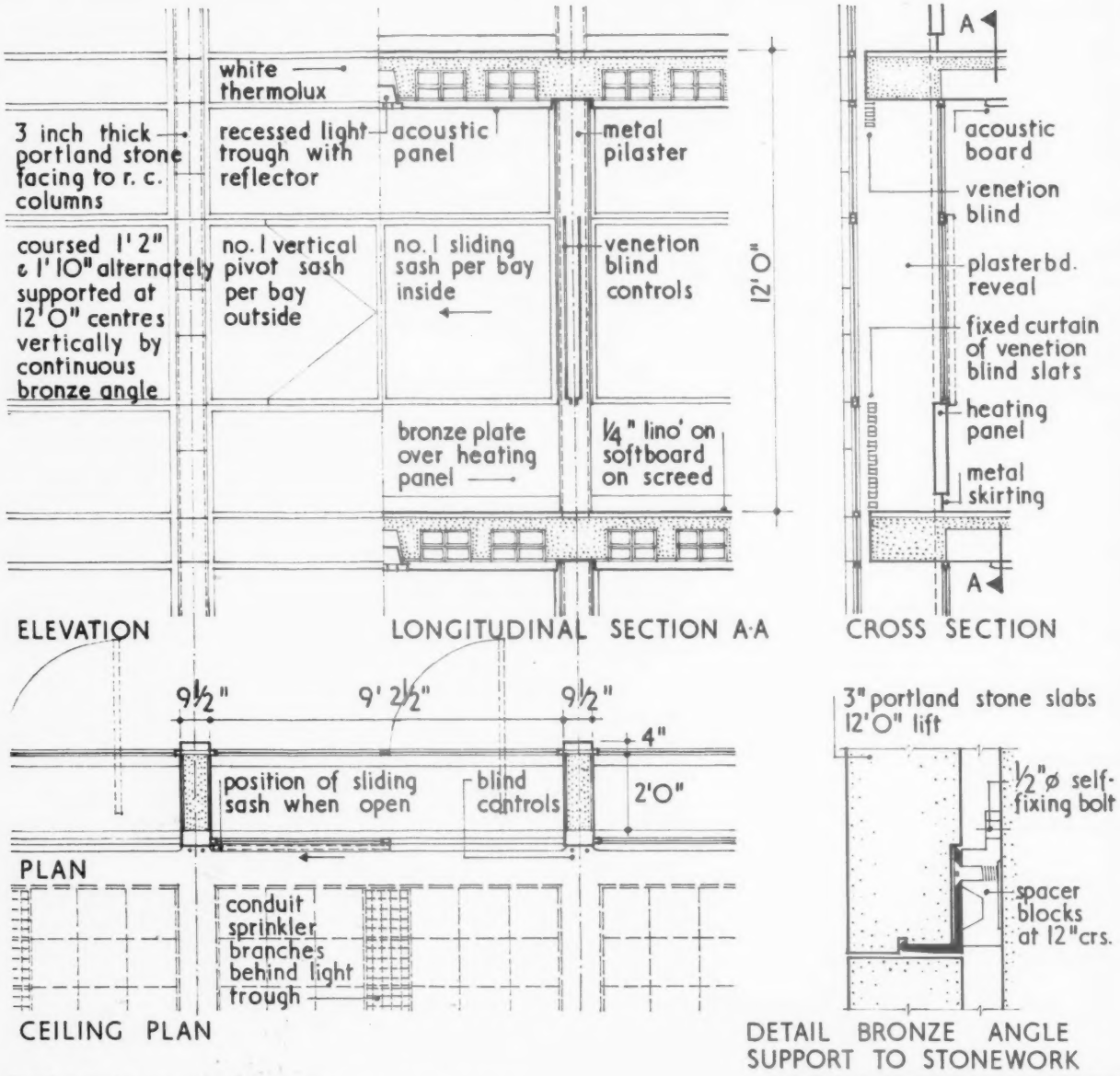
on the ground floor and a restaurant and bar at mezzanine level. The four-storey office block to the south and the six-storey block to the east are planned on a 10-ft. grid and allow office space to be divided up by movable partitions as required. The third floor of the tall block is designed as a suite for

the Minister of Social Welfare and his secretaries. This suite has a recessed balcony on the south side. Vertical access is by three lifts and a staircase at the junction of the two blocks. The sixth floor contains a restaurant for the staff of the Social Welfare Department and its own kitchen. The mezzanine restaurant and kitchen are operated by the Transport Services. An open terrace with projecting canopies on the south side of the sixth floor restaurant is designed to be used for outdoor dining, and on the north side small dining booths have a window at the end of each table, giving a view over north Dublin.

CONSTRUCTION.—The building is about 242 ft. long on the north side, 200 ft. long on the west side and both wings are 55 ft. wide. The north wing is about 112 ft. high above the pavement and the west wing is 58 ft. high. The structure, which is entirely of reinforced concrete, is designed for office and restaurant loadings on the upper floors, while the open part of the ground floor over the basement is designed to carry bus traffic. The structure is carried on a raft foundation which forms the basement floor, and as the area is subject to tidal water the whole of the area below ground is waterproofed with asphalt on the external faces of the structural concrete. The major part of the basement floor is 11 ft. below street level and consists of an 18-in. thick slab, with increased depth under columns. Elsewhere the floor is 16 ft. 6 in. and 19 ft. below street level and consists of 30-in. and 36-in. thick slabs respectively owing to the greater water pressure and the lack of intermediate supports in these areas. Steel reinforcement was assembled in the pit prior to asphalting, hoisted up while asphalting was carried out and then lowered into position for concreting. The ground floor is of orthodox solid slab and beam construction, designed to carry pedestrian or bus traffic where required. The external portions of this slab are asphalted and have a paving of *in situ* concrete. The columns between ground and first floor are inset from the building line above and enclosed in the glass frontage. These columns are spaced at 20-ft. centres, while the vertical

Below, a typical ceiling lighting cone, lined with yellow mosaic, in the sixth floor restaurant. Bottom, the office staff restaurant on the sixth floor of the north block.





Details of typical external wall construction [Scales : ¼" and 3" = 1' 0"]

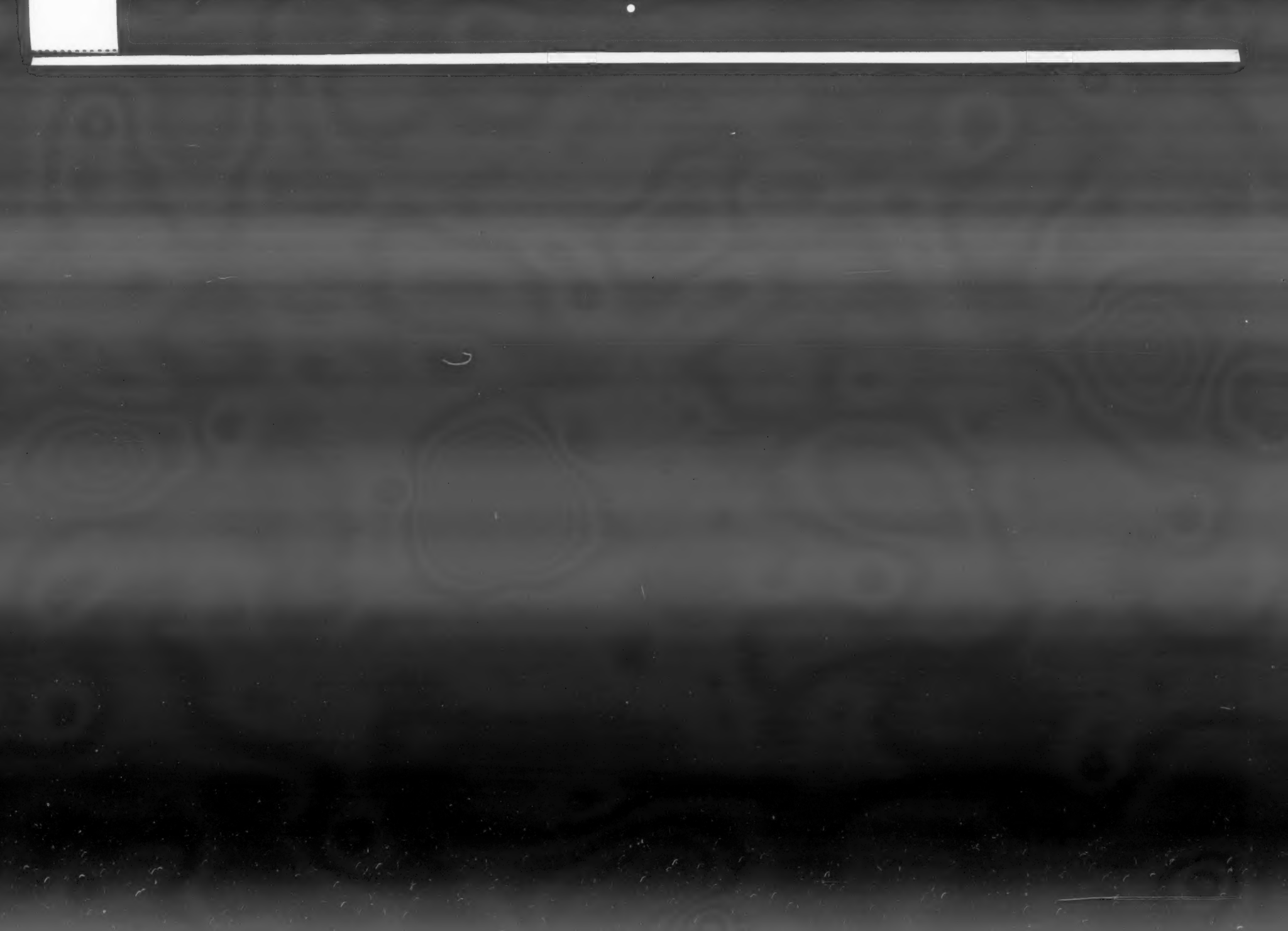
Right, part of the south-east elevation of the fourth storey office block.

BUS TERMINUS

in STORE STREET, DUBLIN

designed by MICHAEL SCOTT

fins above are at 10-ft. centres. The loads from these fins are transferred to the columns under an edge beam 3 ft. 9 in. deep overall by 4 ft. 6 in. wide acting in bending and torsion, while the cantilever movement at the columns is taken by transverse beams which are reduced in depth towards the centre row of column supports to allow ventilating ducts and other services to pass between the beams and a false ceiling which covers the whole of the soffit of the first floor. The superstructure over the large openings which provide an entrance and exit to the bus yard is carried on three portal frames in each case. In five of these frames the beams are 9 ft. deep by 2 ft. and 2 ft. 6 in. wide, while in the



thickness mm.	2·00	2·50	3·20	4·00	4·50	6·00	6·70
full size							
nominal thickness in.	5/64"	3/32"	1/8"	5/32"	11/64"	15/64"	17/64"

PLAIN LINOLEUM.

thickness mm.	1·40	1·80
full size		
nominal thickness in.	1/16"	5/64"

PRINTED LINOLEUM.

thickness mm.	2·00	3·20	4·50
full size			
nominal thickness in.	5/64"	1/8"	11/64"

INLAID LINOLEUM.

thickness mm.	2·00	2·50 (on felt base)	3·20	4·50	6·70
full size					
nominal thickness in.	5/64"	3/32"	1/8"	11/64"	17/64"

GRANITE, JASPE, MOIRÉ AND MARBLE.

thickness mm.	2·50	3·20	4·50	6·70	8·00
full size					
nominal thickness in.	3/32"	1/8"	11/64"	17/64"	5/16"

CORK CARPET.

thickness	1·40 mm. (1/16") to 3·20 mm. (1/8")	3·20 mm. (1/8") to 4·50 mm. (11/64")	4·50 mm. (11/64")	6·00 mm. (15/64") and 6·70 mm. (17/64")
application	domestic	showrooms, offices, shops	hospital wards, restaurants, shops, offices, hotels, ships, cinemas	ships, cinemas, theatres, public buildings, hotel bars

APPLICATIONS OF LINOLEUM ACCORDING TO THICKNESS.

LINOLEUM: SUMMARY OF TYPES.

Compiled from information supplied by The Linoleum Manufacturers' Association.

19.G1 LINOLEUM: GENERAL DATA, TYPES AND USES

This Sheet supersedes Sheet 19.G1 published 5.4.51. It is the first of a group on linoleum and covers general data, types and uses. Information on the laying and fixing of linoleum is given on Sheet 19.G2, and specifications on Sheet 19.G3. 19.G4 deals with specialised applications such as to furniture and fittings.

Material

The principal ingredient in the manufacture of linoleum is oxidised linseed oil. This is mixed at a high temperature with thoroughly ground cork or wood flour and colouring pigments. Linoleum is dried or seasoned in heated chambers for from two to six weeks according to thickness.

For all gauges, the plastic mass, when in the unseasoned state, is applied under pressure to a jute canvas or bitumen-saturated paper felt backing.

On plain linoleum up to and including 2·50 mm. gauge the canvas backing may or may not be painted. Gauges thicker than 2·50 mm. always have unpainted backings.

In other types of linoleum, gauges up to 4·50 mm. may or may not have a painted canvas backing according to quality.

All linoleums of gauges greater than 4·50 mm. have an unpainted backing except in some cases (jaspe and marble patterns).

Where the backing is of paper felt it is usually left unpainted, no matter what gauge or type the linoleum. Linoleum does not absorb water and does not support combustion.

Types

The types of linoleum obtainable are listed below. The standard range of thicknesses in which the various types are obtainable is set out diagrammatically on the face of this Sheet.

The gauge of linoleum is usually given in millimetres, but for convenience approximate inch equivalents are given.

Plain linoleum: This is available in the following standard colours—brown, dark brown, light green, dark green, light blue, dark blue, terra-cotta, crimson, brick, white, black, grey and biscuit.

Printed linoleum: This consists of a surface print on a base of plain linoleum and is produced in a very wide range of patterns. This type of floor finish is commonly used where an inexpensive covering is required.

Inlaid linoleum: This is made by inlaying a variety of colours to form a pattern which goes right through to the backing. The individual components of the pattern are cut, laid in position and keyed to the backing under pressure, or by laying the linoleum material onto the backing through a series of stencils. This type of linoleum is suitable where a pattern is required combined with resistance to heavy wear.

Granite, jaspe, moiré and marble linoleums: These are formed by the blending of a variety of coloured linoleum mixtures during the manufacturing process.

Cork carpet: This is a resilient floor covering with a softer tread than ordinary linoleum, being largely composed of granulated cork. Standard colours available include brown, blue, green and red. It is chiefly used in situations where quietness is desirable. When used as an underlay beneath linoleum, cork carpet has valuable sound insulation properties and provides increased resilience underfoot.

Applications

An estimate of the amount of traffic to be provided for will govern the gauge of the linoleum to be used. The diagram on the lower part of the face of this Sheet gives approximate gauges recommended for some common applications.

Plain, marble or jaspe linoleum may be cut into tiles, strips and insets and arranged to form any design.

Maintenance

Under ordinary conditions all linoleums may be kept clean by the use of mild household soap and a clean wet cloth. Scrubbing with harsh soaps or powerful alkali cleaning agents is injurious. To maintain the surface it should first be cleaned of all dirt and a light, even coat of wax polish, or two coats of liquid floor dressing (water emulsion type), applied. At frequent intervals, once daily if possible, all loose dirt should be removed with a damp cloth and the surface repolished with a polishing machine or pad. Linoleum should not be over-waxed: when this condition develops the coatings should be cleaned off with white spirit or paraffin, and a light even coat of polish, or two of liquid dressing, applied.

Relevant British Standard

B.S. 810 : 1950 *Sheet linoleum and cork carpet.*

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

The Architects' Journal Library of Information Sheets 464. Editor: Cotterell Butler, A.R.I.B.A. REVISED 15.4.54

SPECIFICATIONS FOR THE INSTALLATION OF LINOLEUM

This Sheet, the third of a group on linoleum, gives typical specifications for laying and fixing to old and new floors for both timber and concrete and should be read in conjunction with the drawings on the face of Sheet 19.G2.

Sheet 19.G1 gives information on the gauges and types of linoleum available and 19.G4 deals with specialised applications, such as to furniture and fittings.

Preparation of Surfaces

New solid concrete floors :[1] All surfaces to be covered with a ¾-in. minimum screed[2] (or any greater thickness required) the proportion of the mix to be Portland cement and washed building sand 1 : 3.

The screed to be dense-textured, free from all foreign matter, and finished with a wood float or steel trowel.[3]

All expansion joints in the top concrete or screeding to be filled in with a non-shrinking filler of the rubber-latex/cement or bitumen-emulsion/cement " quick patch " or underlay.

Surfaces to be free from all dust and foreign matter, dry, and swept clean immediately before the linoleum is laid.

Existing solid concrete floors and similar paving:[4] Carry out the measures specified under (the appropriate section of the general specification) for damp-proofing (if this applies).

Fill up any unevenness with a non-shrinking filler of one of the types previously mentioned.[5]

Treat all surfaces where they are " dusting " with either concrete hardener or densifier, or bituminous or other primer to bind the surface of the screed. Concrete hardeners or densifiers should not have any alkaline material in their composition. If primers are used, care should be taken that the adhesive selected to bond the linoleum will bond successfully with the primer.

Surfaces to be free from all dust and foreign matter, dry, and swept clean immediately before the linoleum is laid.

Suspended Concrete Floors (Old and New)

Fill up any unevenness with a non-shrinking filler of one of the types previously mentioned.[5]

Treat all surfaces where they are " dusting " as recommended above.

Surfaces to be free from all dust and foreign matter, dry, and swept clean immediately before the linoleum is laid.

New Wood Floors[6] (Tongued and Grooved)

The boarding[7] to be closely driven up, nailed through the feather. All surface irregularities to be smoothed off.

The boarding to be covered with 6-ft. wide dry felt paper, not less than 1 mm. in thickness. The paper to be laid across the run of the boards. Cut carefully to fit against vertical surfaces and butt close at seams ; the paper is to be completely stuck to the boards with the adhesive specified and rolled from the centre of the sheet outwards with a 150-lb. roller. The adhesive specified should not be such that it will completely penetrate the body of the paper underlay and cause the paper to become hard when the adhesive dries.

(Alternative for greater resilience). The boarding is to be covered with . .mm. gauge cork underlay in a similar manner to that described for felt paper.

New Wood Floors (Rough Boarding, Plywood or Hardboard Faced)

The boarding to be (.. in. minimum thickness) end nailed, with all nail heads punched in and with all surface irregularities smoothed off. .. in. plywood (alternative .. in. hardboard) to be nailed to the floor boarding with taper headed nails 1½ in. long, spaced 6 in. on all edges and 12 in. throughout the body of the plywood (or hardboard) in staggered rows. Joints in succeeding rows to be staggered. All edges to be close fitting in a manner to leave the surface free from irregularities. The boarding to be covered with dry felt paper, carefully cut to fit against vertical surfaces and with close butt fit at seams ; the paper to be completely stuck to the boards with the adhesive specified and to be rolled from the centre of the sheet outwards with a 150-lb. roller.

Existing Wood Floors[8]

All loose boards are to be securely fixed, all exposed nail heads are to be punched in and all surface irregularities are to be removed, if necessary with a sanding machine. All boards which have been sanded should be primed in order to prevent excessive penetration of water or solvent from adhesive used.

1. New solid concrete floors should be designed with a sandwich membrane of bitumen or pitch, minimum thickness ⅛ in., tanked up all vertical surfaces. Concrete and screed, 2½ in. minimum thickness, should be laid on top of the membrane. An alternative construction consists of solid concrete laid direct on hardcore finished with ½-in. minimum mastic asphalt screeding. Linoleum is laid direct on to this screed with adhesives of the bitumen-emulsion or gum spirit type.

2. If the surface of the concrete is smooth and level, screeding may not be required, but usually concrete is not finished smooth enough and requires the addition of a screed to obtain a level finish for linoleum.

3. Irregular surfaces give a poor bond with adhesive.

4. Existing solid concrete floors should be tested for dampness with a small hygrometer, which will give position reading of the amount of moisture contained. Linoleum should not be laid direct if the dial registers a relative humidity of more than 80.
If found to be damp, suitable measures should be taken to prevent penetration. Appropriate measures will depend upon severity of moisture penetration, but under most circumstances a ½-in. thickness of mastic asphalt will be found adequate. A ½-in. mastic asphalt screed should be applied to existing bricks, tiles or stone slabs if damp is present or likely to occur. If no damp is present or likely to occur a cement screed would be quite adequate.

5. Where unevenness is considerable it may be more economical to apply a complete screed rather than to attempt to fill up unevenness. If so, specify new screed as for new work.

6. N.B.—Specify ventilation as necessary to prevent dry rot.

7. Boards should be narrow and of equal width. Boards of very unequal widths have various degrees of shrinkage. The wider the board, if the linoleum is stuck, the greater the risk of splitting. The ideal for a linoleum floor is an absolutely level surface.

8. The condition of the surface will determine whether or not it can be made sufficiently smooth without surfacing other than felt.

9. Where required for heavy wear, as well as sound insulation, cork slabbing covered with plywood or hardboard may be specified. This should be fixed to the cork slabbing as follows :
Apply a thin coating of bitumen to surface of cork slab and bed plywood or hardboard into bitumen. Use linoleum adhesive to stick linoleum to plywood or hardboard surface.

10. Cork slabbing from $\frac{1}{16}$ in. to ⅜ in. (inclusive) should be stuck to the sub-floor with linoleum adhesive. For slabbing from ½ in. to 2 in. (inclusive) bitumen, hot or cold, should be used to stick the slabbing to the sub-floor. This is to prevent cork slabbing moving or prevent water getting between sub-floor and cork slabs.

19.G3 SPECIFICATIONS FOR THE INSTALLATION OF LINOLEUM

The boarding to be covered with dry felt paper, carefully cut to fit against vertical surfaces and with close butt fit at seams; the paper to be completely stuck to the boards with the adhesive specified and to be rolled from the centre of the sheet outwards with a 150-lb. roller.
(Alternative) .. in. plywood (alternative .. in. hardboard) to be nailed to the floor boarding with taper headed nails 1½ in. long, spaced 6 in. on all edges and 12 in. throughout the body of the plywood (or hardboard) in staggered rows. Joints in succeeding rows to be staggered. All edges to be close fitting in a manner to leave the surface free from irregularities.

Insulation[9] (on Wood or Concrete Sub-Floors)

The surface is to be covered with .. in. cork slabbing and carefully fitted, with alternate rows staggered so that no joints run continuously. The slabbing should be laid in bitumen.[10]
(Alternative, stuck with linoleum adhesive.)[10]

Floor Finish

The whole of the floor surfaces are to be covered with the linoleum (or cork carpet) specified ; neatly cut and fitted with the fewest possible seams, to the architect's approval. It is to be rolled into the adhesive specified, from the centre of the sheet outwards, with a 150-lb. roller, to obtain complete adhesion and to remove air bubbles. The seams of the linoleum or cork carpet (on wood floors) are to run at right angles to the run of the boards and care is to be taken to avoid any seams in the underlay coinciding with those of the surface material.

Skirtings[11]

Carefully trim the floor finish and provide and fix the prefabricated linoleum skirting specified with the fewest possible joints. All joints (and mitres if not prefabricated) to be carefully executed and the skirting to be pressed well into the adhesive specified, working from the centre towards the joints. The skirting to be weighted and held in position with sand bags, or other suitable weights, until the adhesive has set.
(Alternative) Form skirting[12] on site with standard sheet linoleum, .. mm. gauge. The wood core to be fixed in position before forming cove.[13]
Carefully trim the floor finish .. in. back from walls and form border and coved skirting .. in. high, of similar material. All joints (and mitres if not prefabricated) to be carefully executed and the skirting to be pressed well into the adhesive specified, working from the centre towards the joints. The skirting to be weighted and held in position with sand bags, or other suitable weights, until the adhesive has set.

Materials

Felt paper: The felt paper is to be that recommended by the suppliers of the linoleum[14]
Cork underlay:[15] The cork underlay to be .. mm. gauge cork slabbing or cork carpet.
Linoleum or cork carpet: The linoleum or cork carpet is to be .. mm. gauge of ..... colour and to be similar in all respects to the sample deposited with the architect. All linoleum or cork carpet is to be kept in an atmosphere of 65° F. for at least 24 hours before unrolling.

Adhesives[16]

The adhesives for felt paper, cork underlay, linoleum or cork carpet are to be .....[17] and are to be used strictly in accordance with the manufacturers' instructions. They are to be spread upon the sub-floor with a notched steel trowel to provide a sufficient key and even coating.[18]

British Standard Codes of Practice

B.S. 203 : 1951 *Sheet and similar floorings*

11. Skirtings can be applied to cement, plaster or wood finishes : a wood or prefabricated linoleum cove is supplied and fixed in position. See Sheet 19.G2.

12. See Sheet 19.G2. Linoleum up to 3·20 mm. gauge may be used.

13. Unless cove is preformed of cement, plaster or other material on the site.

14. Felt paper should be supplied in 6 ft. widths and not less than 1·0 mm. in thickness.

15. Thickness dictated by the degree of resilience or insulation required.

16. Linoleum adhesives are supplied by linoleum manufacturers also by a number of special adhesive manufacturers. Appropriate adhesives for specified installations can be recommended by linoleum manufacturers and also by laying contractors. Linoleum adhesives are manufactured under the following broad headings and marketed under a number of trade names:—

(*a*) Vegetable starch and casein glues.

(*b*) Asphalt or bitumen-based adhesives of aqueous emulsion or solvent type.

(*c*) Gum spirit adhesives.

(*d*) Natural or synthetic rubber solution types.

Linoleum adhesives vary in price, application and performance. Vegetable starch and casein glues are strong in bond, but subject to deterioration under conditions of dampness.

Bitumen-based adhesives are strong in bond and when matured the bituminous contents are normally semi-hard. Embedded heating panels with temperatures of 90° F. or over may cause these adhesives to soften.

Gum spirit adhesives are very strong in bond, quick-setting and durable.

Natural or synthetic rubber solution adhesives cover a wide range of types for industrial purposes. Linoleum adhesives in this range are widely used. The rubber solution adhesives are normally applied to both surfaces. Bitumen-based, resin-methylated spirit and rubber solution adhesives are usually proof against surface water. Linoleum adhesives should not be used as a damp-proof layer.

17. According to the type of sub-floor.

18. Unless stated otherwise in manufacturers' instructions.

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Telephone : Tate Gallery 4218/9.

BUS TERMINUS

in STORE STREET, DUBLIN

designed by MICHAEL SCOTT

The north corner of the building and the junction of the four- and six-storey office blocks.

Left, cantilevered canopy at the west end of the sixth floor. Below, detail of red, white, blue and yellow glass mosaic finish under this canopy. Bottom, outdoor dining terrace on south side of office staff restaurant. Under the canopies are coloured mosaics and the walls are faced with faience.

sixth frame, under the centre of the north wing opening, the beam takes the form of a 24-in. thick wall between first and second floors. Where these openings occur, the first floor construction is cellular with a r.c. vault slab in place of the false ceiling provided elsewhere under the first floor. The outline of the concourse roof was dictated by the outline of the site, and it is supported by the main structure on two straight sides and by slender concrete columns, which are enclosed within a glass screen along the remainder of its periphery. The cantilevered canopy, which shelters passengers boarding buses, has an overhang of 20 ft. The concourse roof construction consists of a two-way diagonal beam system with a solid 3-in. slab. The average spans in either direction are approximately 77 ft. and 80 ft. and the overall depth of construction is 3 ft. 9 in. The layout of the beams is arranged so that they intersect on the centre of the periphery columns, which are spaced at 10-ft. centres. The canopy consists of a 3-in. thick corrugated slab, with the valleys of the corrugations arranged to occur at the columns where the main roof beams meet. The upper floors of both wings are practically identical, consisting of a 13½-in. thick hollow tile floor supported on a spinal beam 3 ft. 7½ in. deep

General view of the two office blocks from the north-west. On the right is Store Street.

BUS TERMINUS

in STORE STREET, DUBLIN

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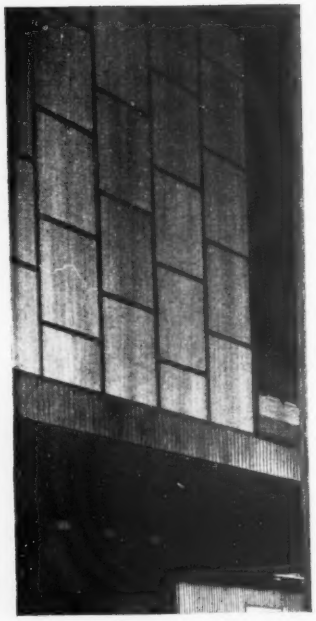
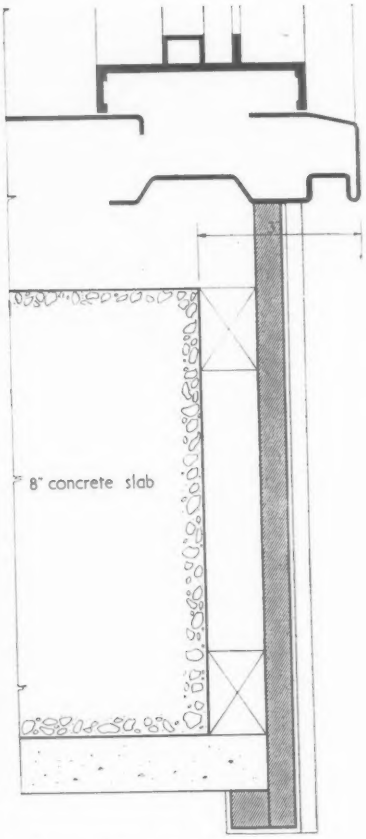
by 18 in. wide, spanning 20 ft. between columns and by edge ribs 21 in. wide within the depth of the floor spanning 10 ft. between fins. The spinal beam occurs over one wall of a central corridor, which contains a service duct overhead. Floor ribs are 6 in. wide spaced at 1 ft. 10 in. centres with double rows of 8 in. by 10 in. fireclay tiles set on edge in between. The roof of the north block consists of beam and slab construction with cantilevered canopies on the south elevation and at the west end. The latter is a double cantilever with the wings sloped upwards slightly towards the edges. Concrete shafts running the full height of the building are provided for three main passenger lifts, a goods lift, and air intake and exhaust ducts. The boiler flue is constructed in concrete with firebrick lining and glass-wool insulation between concrete and brickwork. The flue rises 21 ft. above the top roof level. Apart from the concrete air ducts mentioned, the various metal supply ducts, etc., have been arranged where they can be effectively concealed by false ceilings without impairing the planning, and all the necessary openings, ferrules, etc., have been formed in or built into the structural members in predetermined positions for branches, ducts, cables, etc. This applies to mechanical, electrical, plumbing, sprinkler, vacuum, postal and telephone services in the building. No holes, however, were formed for fixing the stonework or windows to the structure as it was considered that the positions of such holes could not be predetermined with sufficient accuracy and would complicate the shuttering unnecessarily. Such holes were made in exact positions required as and when stonework and windows were fixed. Attention was paid, nevertheless, to avoiding such holes in detailing reinforcement.

With the exception of the 3-in. corrugated canopy where the concrete mix was 1 : 1½ : 3, all r.c. work was of 1 : 2 : 4 mix. The aggregate used was washed sand and gravel and the cement was from Drogheda. The cube strength after seven days averaged between 3,500 and 4,500 lb. per sq. in. with maximum values about 6,000 lb. per sq. in.

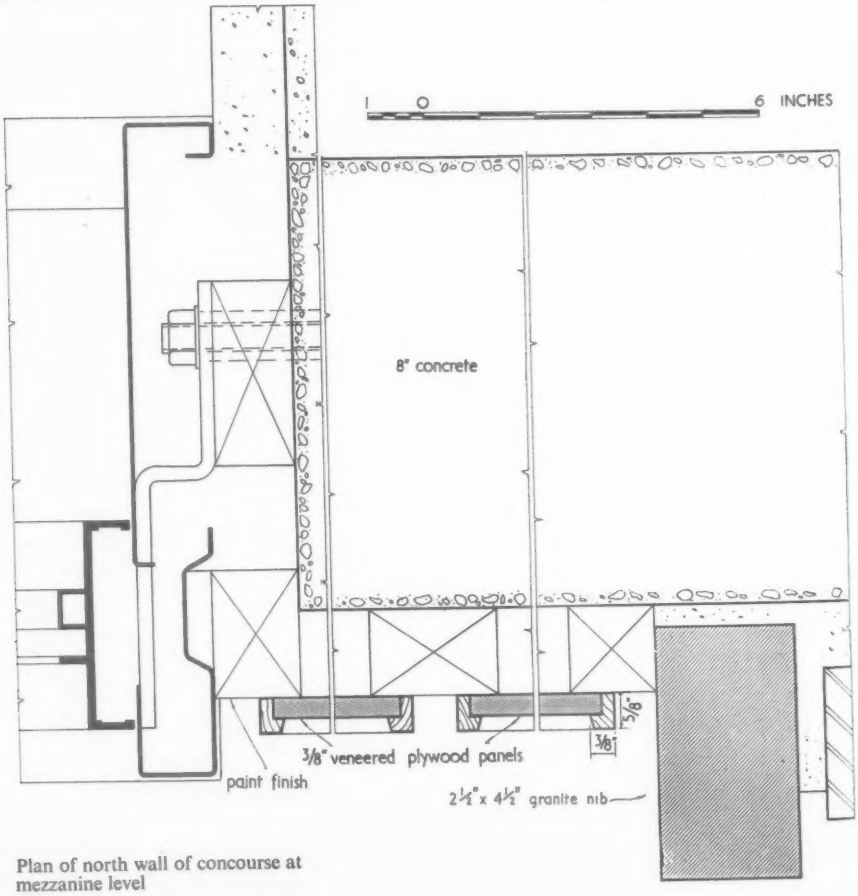


Top, the north wall of the main concourse, showing glazing to the mezzanine snack bar and restaurant. Above, detail of plywood panelling on part of the same wall.

Plan of hardwood trim



Section through window



Plan of north wall of concourse at mezzanine level

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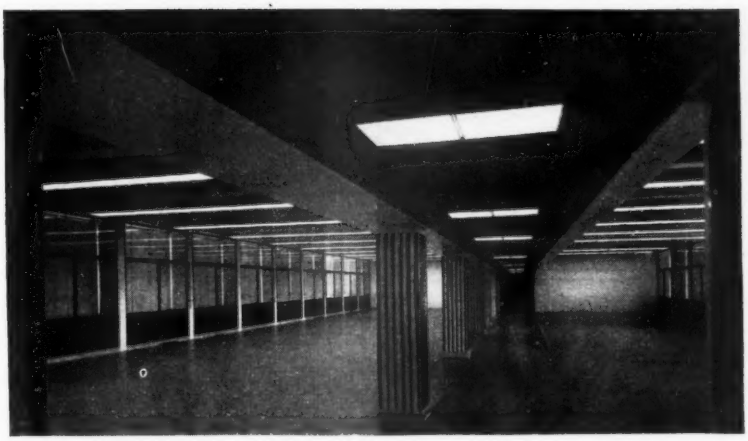
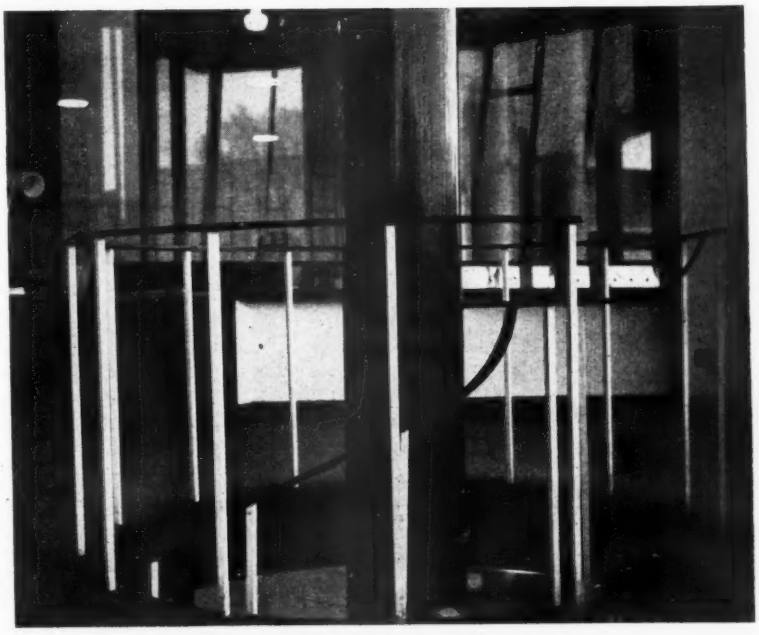
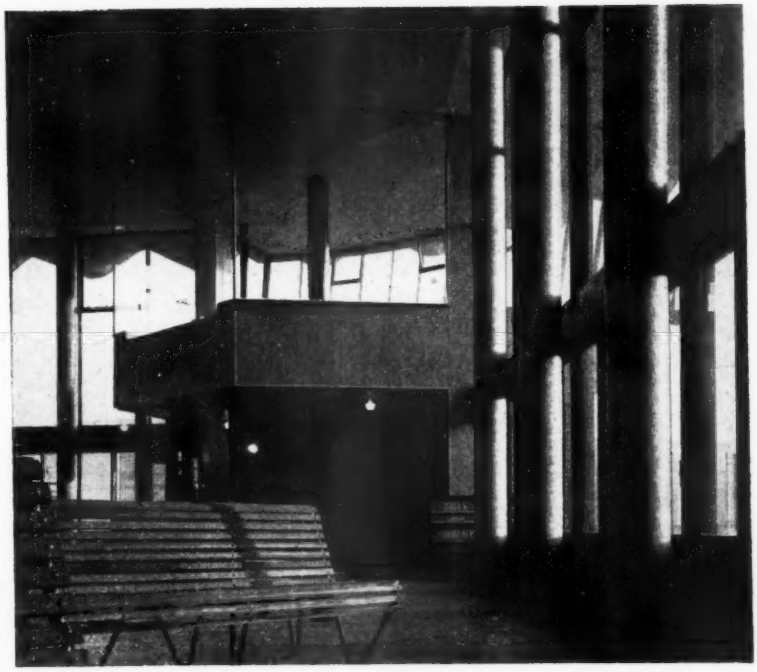


Right, typical office floor looking down central corridor before partitioning had been fixed. Below, spiral staircase approach from ground floor to control room. Bottom, the control room at mezzanine level above the concourse. On the right the passenger exit doors.

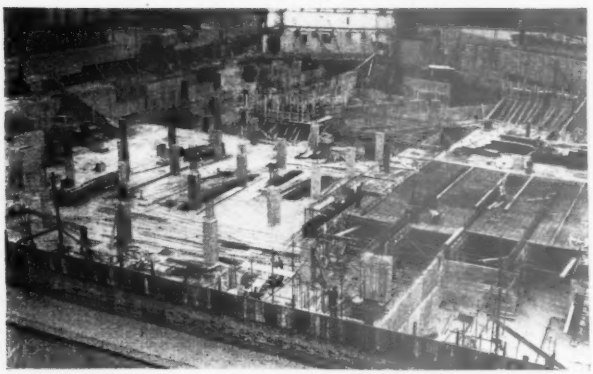


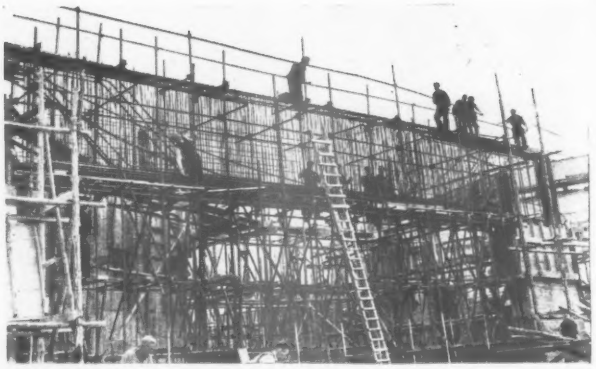
Steel reinforcement, which was according to BSS, was obtained from Irish, British and Continental sources as supplies became available.

FINISHES.—The main external finishes are Portland stone facing to the r.c. structure and glass set in bronze frames. Other finishes include brick, faience and glass mosaic used on the ground floor and penthouse. Internally, the finishes include stone, glass mosaic and ceramic tiles. Ceilings are finished with acoustic board composed of perforated hardboard on a softboard base in offices and acoustic tiles in the concourse. Floors in offices are covered with linoleum on softboard. The underside of the corrugated canopy is painted dark blue-grey and the glass mosaic panel below the control room window is in four shades of blue-green. The underside of the canopy at the west end of the north block is of red, yellow, blue and white mosaic. In the office entrance hall the walls are covered with travertine and the columns with grey mosaic. The columns in the concourse are finished with dark purple and grey mosaic.



SERVICES.—Because the building serves two distinct functions with different working hours the heating and ventilating systems are separated into two groups, except for a common boiler plant. Most areas are heated by air conditioning plants with: air intakes (situated on the roofs of both wings), continuous viscous oil filters, preheaters, airwashers, main heaters and a number of booster heaters. Correct temperature and humidity is maintained in the building in cold weather. As an insulation





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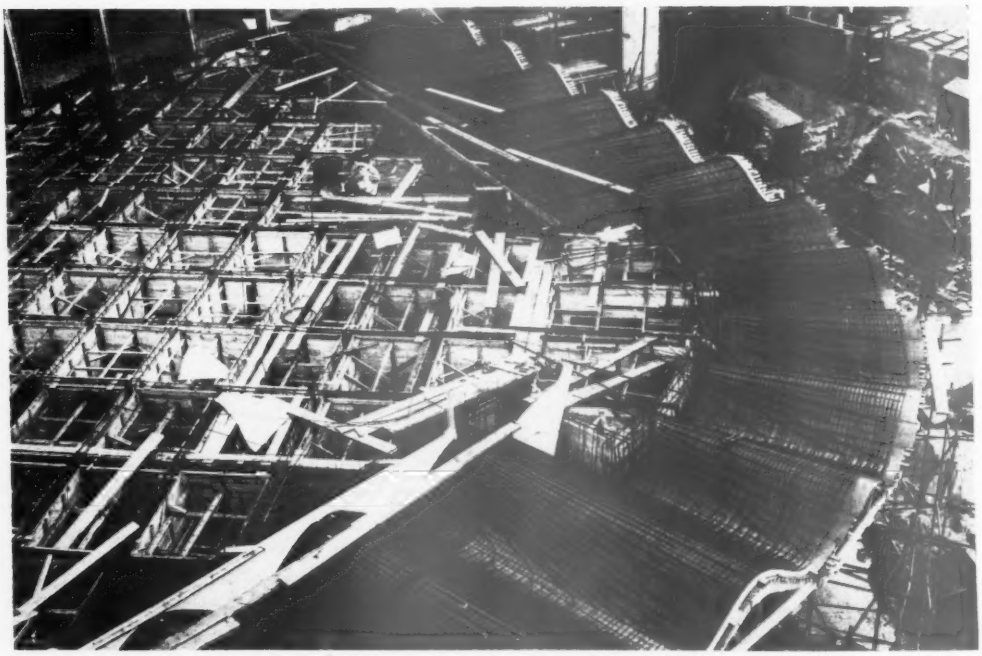
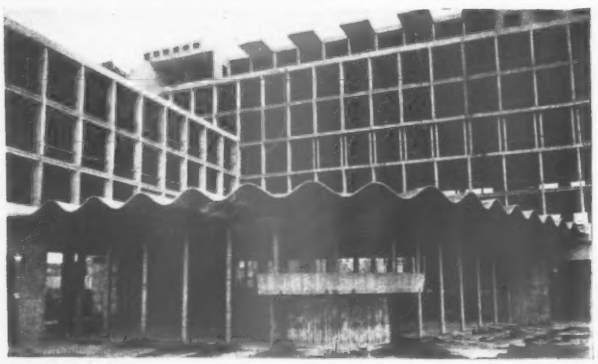
against noise and dust all office floors have double glazing with a system of heating coils between the windows. Although these coils play no part in the main heating system except during extreme winter conditions, they make possible a reduction in the



Top left, view of the basement, showing ground floor construction commencing. Top right, portal frame girder over bus exit carrying whole structure above. Above and left, concourse roof and corrugated canopy, showing steel reinforcement and under view (above). Below, view from the south, with close-up view of concourse, showing slender columns.

capacity of the air-conditioning plants, inlet ducting and automatic control system, and prevent condensation and draughts. Automatic sprinklers are installed throughout, with the exception of the concourse and the cinema. In case of an electrical power failure a 200-volt battery is installed in reserve. There is a vacuum cleaning plant in the basement with outlets from each floor.

The general contractors were John Sisk & Son, Ltd. For sub-contractors, see page 474.



TECHNICAL SECTION

When the architect has taken the trouble to consult his electrical engineer while his project is still at the drawing-board stage, he tends too often to assume that he has obtained sufficient guidance on all matters concerned with electricity. It is, however, no derogation of the electrical engineer to point out that the telephone installation does not properly come within his scope. This is an item which, at the present time, seems to be causing havoc in design arrangements. Switchboards fall under the aegis of the GPO, whether they are installed by the GPO or by private firms; they have to fulfil exacting conditions and they can easily cause major planning difficulties if they are not thrashed out at the right time. The wiring for telephones presents a problem for different reasons: first, because the pattern of wiring is different in its nature from that of the other electrical services, and, second, because telephones are more liable to be moved about after they are installed. Unlike ordinary electrical points, 'phones are not usually wired in parallel, but must each be connected back to the central equipment by an individual pair of wires. For these reasons, duct systems, which are designed to suit other electrical services, tend to be quite unsuitable for telephones. Architects are understandably loath to extend the long list of specialists who must be consulted early, but, remembering that the criterion of good architecture at the technical level is a tidy building, here surely is a " must."

This week's special article

21 CONSTRUCTION: MISCELLANEOUS
site operations

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.

Since it is generally recognized that raw materials amount to less than 10% of the total cost of building, it follows that one of the most likely sources of building economy is to be found in operational studies, and more specifically in the use of mechanical equipment on the site. This is a form of building research which has been followed with exceptional thoroughness in Germany. This week Rolf Rosner presents some of the data he has gathered in the course of a recent tour of the German building industry.

Although mechanization decisively influences productivity and therefore building costs on most sites and particularly on housing sites, it has on the whole remained a mere auxiliary to traditional methods. In the field of housing, mechanization is confined to isolated elements in the building process: to bulldozers and diggers for works below ground level; to concrete and mortar mixers; and to hoists for the transport of materials and of units for walls and floors. In various Continental countries tower cranes and conveyor belts are also widely used for combined vertical and horizontal transport. Nevertheless, the speed of erection, and hence productivity, still depend chiefly on the composition and on the output of teams of craftsmen, foremost among whom are the bricklayers and concretors, for their potentialities are rarely harmonized with those of the machines. The number of

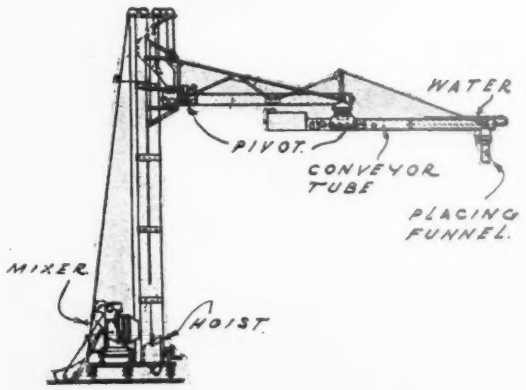
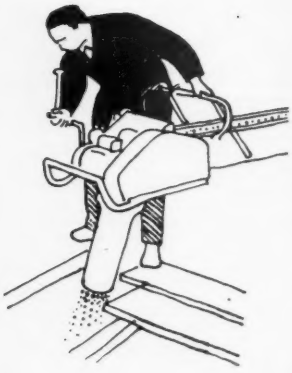
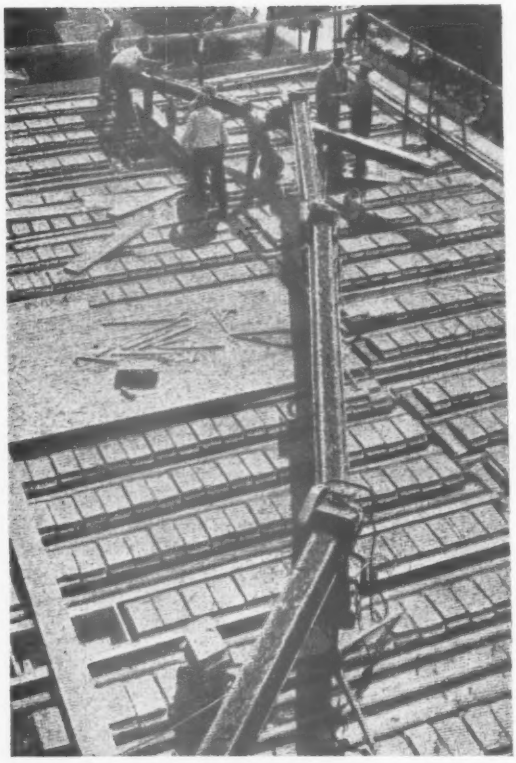


Fig. 1. (left). Combined concrete mixer, hoist and conveyor.





Figs. 2 and 3. (above and right). The conveyor belt in action.

Fig. 4. (below). A conveyor belt on a site in Cologne.

bricklayers required is determined by the type and the volume of brickwork, and the full potentialities of the mechanical devices are inadequately synchronized with the labour available.

Mixers are often used no more than 10-30 per cent. of their optimum capacity. For example, a power-operated mortar mixer is capable of producing 40 cubic metres in 8 hours, whilst manually it would take 40 hours to produce the same quantity; if, therefore, a mixer only turns out 20 cubic metres daily, 20 man-hours are wasted, which is equivalent to 2·5 operatives being idle during one day. This problem of wastage, which is still inadequately appreciated at managerial level, is one of the objectives of German research.

For the attainment of its maximum output, each machine must be geared to several inter-related phases. These together form an "operational unit," and the combination of several machines together with their inter-related phases forms an "operational combine." As an example of such a combine we might quote a concrete mixer and the hoist or concrete pump which relates to it. Thus a combine includes the machine itself, the transport of materials within the intake area and the transport of the finished product from the machine towards its destination within the dispersal area.

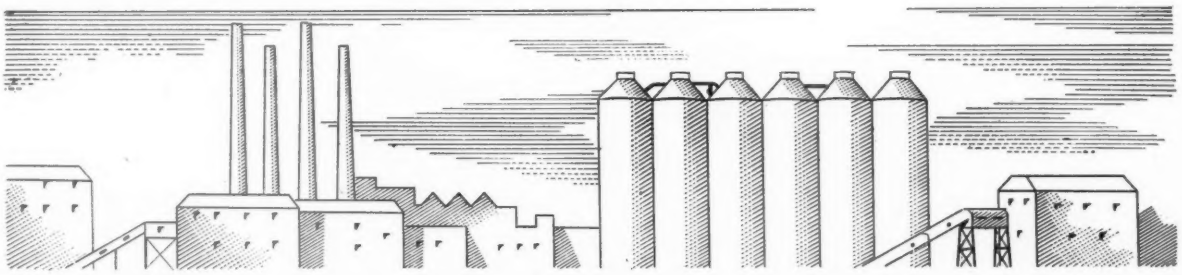
Since in the building industry manual operations are still of primary importance and mechanical operations are subservient to them, the precise relation between the operational combine and the requirements of the group of operatives who have to work it has still to be found.

Each machine works to a certain optimum number of operational cycles per hour. To this, three elements must be geared: (i) the number of operatives and their labour; (ii) the types and numbers of the various auxiliary implements (barrows, etc.); and (iii) the quantity, and particularly the location, of materials. Research into this subject has hardly begun. So far, performance statistics for machines give mere averages recorded from site observations: the respective savings when a hoist carries bricks, mortar, concrete, roofing tiles or large prefabricated parts, the output of the auxiliary equipment used, and the man-hours required for transport to and from the hoist in each case.

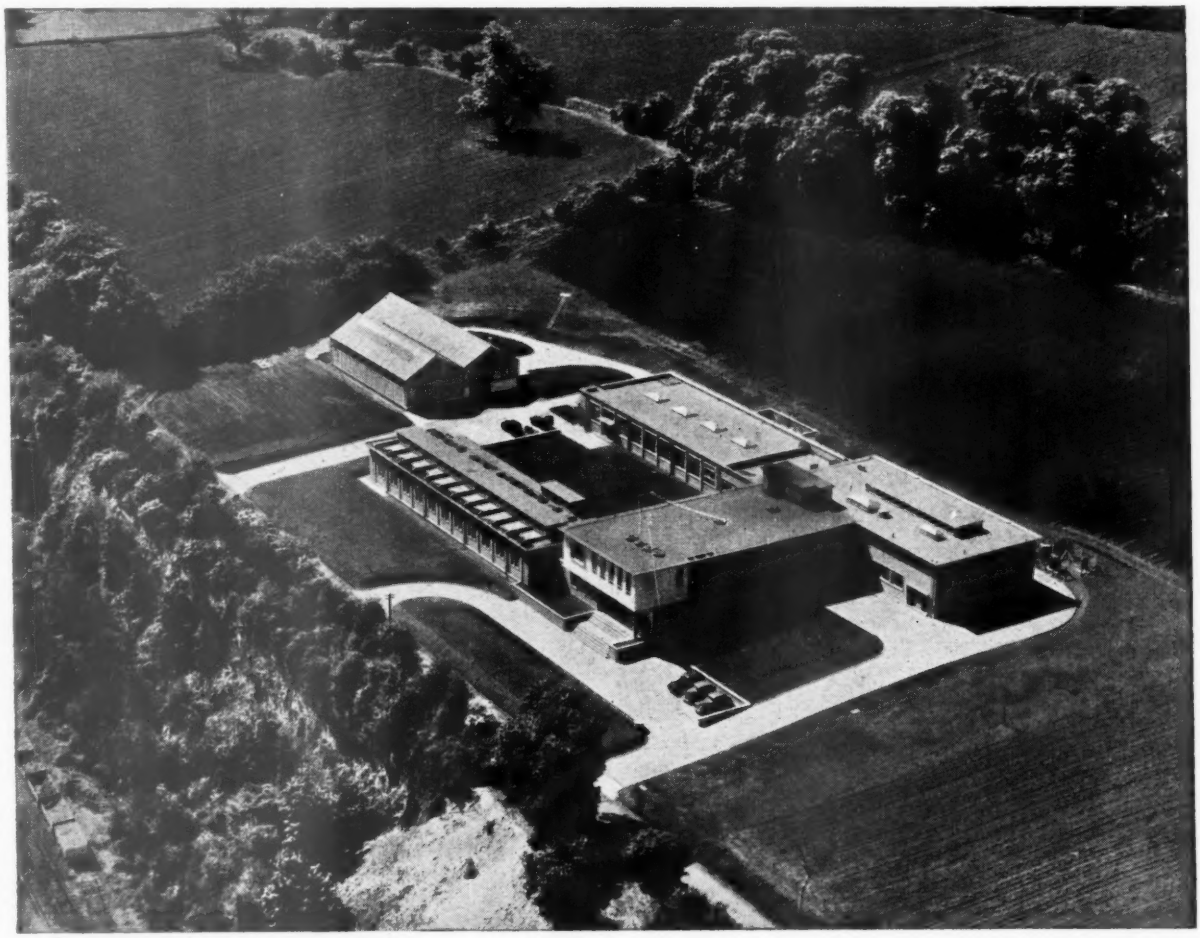
I am giving here a brief outline of those plant operations which have so far been the subject of statistical research.

Figs. 1-4 show the equipment used in a typical combine, Figs. 5 and 6 show diagrammatically the deployment of this combine on the site, and Figs. 7, 8 and 9 present in tabular and graph form the relative performance figures.

The illustrations of equipment are



Building for the Industries of the World



CEMENT

The new Research Laboratories of the Associated Portland Cement Manufacturers Ltd., recently constructed by Richard Costain Ltd. to the design of the Architects, Westwood, Sons & Harrison, FF.R.I.B.A.

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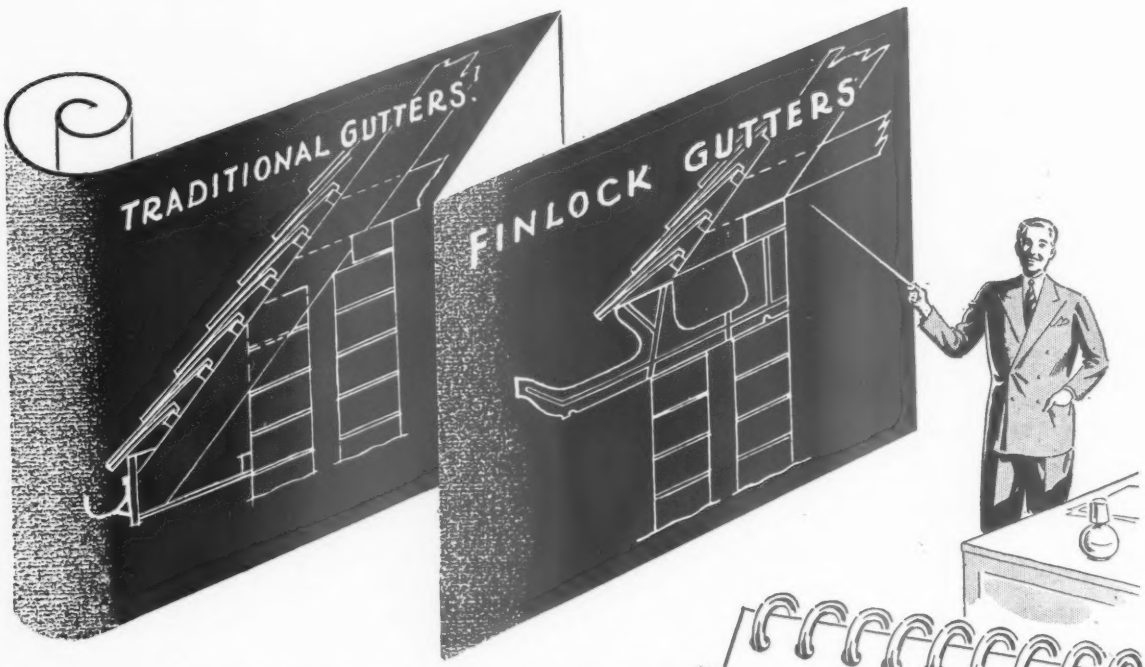

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largely self-explanatory, but the site layout, illustrated in Figs. 6 and 7, calls for some comment. It must be emphasized that the exact location of plant, materials, etc., should be carefully worked out in advance and should be represented in drawings.

As regards the intake area, it should be noted that the platform of the hoist should be slightly below ground level at its lowest position, so that all approaches slope towards it; this will facilitate the transport of materials. Their replenishment must be constantly assured, *e.g.*, whilst stack 1 is being used up, stack 2 must be filled to full capacity. Stack 3 serves as a reserve.

Various routes through wall openings in the dispersal area must be planned in advance, to allow for the moving of the bricklayers from one part of the block to another.

Fig. 7 lists the data relating to the transport of bricks and mortar by means of a hoist and standard barrows. It will be noted that the use of the latter is not 100 per cent. efficient. The hoist's carrying capacity is 0·4 ton, 25 per cent. of which is wasted, since two barrows can load no more than 0·3 ton. The research thus indicates that an adjustment is required.

Fig. 8 analyses the operational cycle at different delivery heights Material quantities and manual labour are based on one machine-hour. It can be seen that man-hours within the intake and the dispersal areas differ. Delivery heights for the hoists are given at intervals of 10 ft.

The figures given here are extracted from a more comprehensive table which also analyses the simultaneous transport of bricks and mortar and the separate transport of bricks and mortar in two barrows during either one or eight machine-hours.

Fig. 9 represents graphically some of the statistics given in this comprehensive table. The two curves which relate to one and two barrows loaded with bricks permit readings at intermediate heights.

Either barrow and hoist or conveyor belt or light tower crane may be used for transport. Fig. 10 records the relative merits of the different methods of transportation. On a fairly large site, concreting with the aid of mixer, mechanical hoist and conveyor belt required 0·9 hour per square metre of floor.

For some sections of the structure outside the range of the conveyor belt, a special barrow was used. This required 2·3 hours to lay one square metre of flooring. The extra time resulted from the use of different implements (barrow and conveyor belt) which could not be synchronized for continuous working. In another instance where the conveyor belt and barrows were used for the laying of a concrete floor which was reinforced by steel fabric, 1·49 hours were

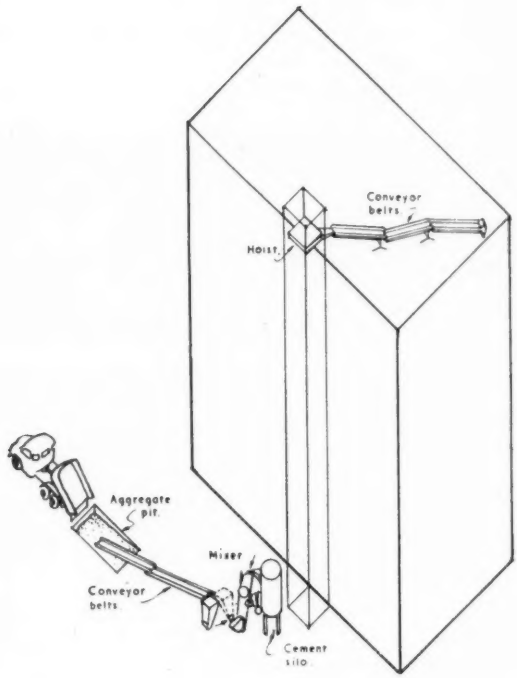
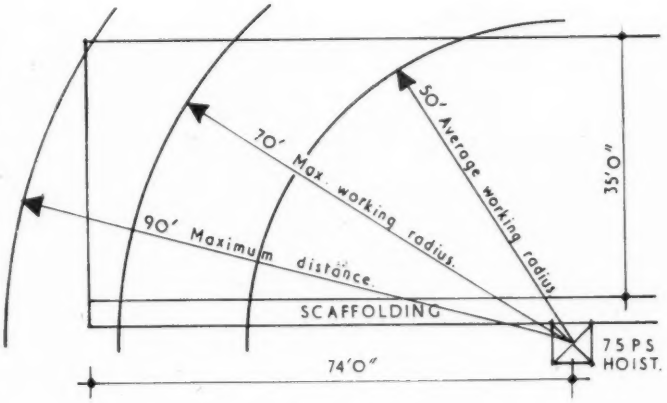
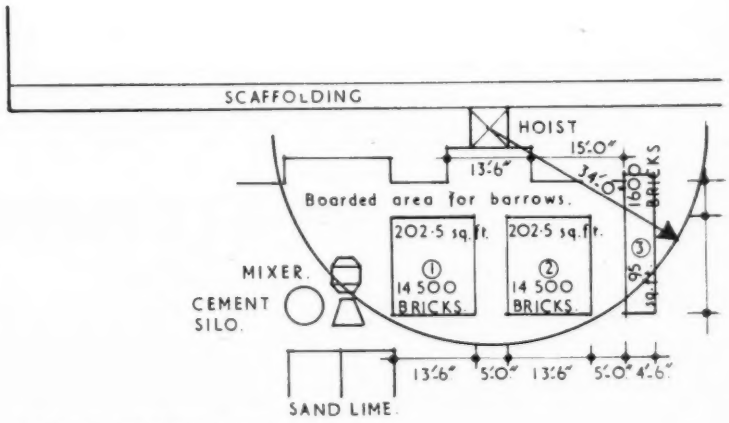


Fig 5 (right). Axonometric diagram showing the relation between the hoist and the intake and dispersal areas.

Fig. 6 (below). Diagrams showing the radii of operation in the dispersal area, and the layout of the site in the intake area.



PLAN AT UPPER FLOOR LEVEL. DISPERSAL AREA.



PLAN AT GROUND LEVEL. INTAKE AREA.

required for one square metre of floor. If a single device had been employed for both horizontal and vertical transport, *e.g.*, a tower crane, the time would have been reduced to 1·02 hours per square metre of floor.

To sum up, economy in laying concrete depends on the position of the mechanical equipment in the local traffic network, on the price of materials, and on the choice of machinery and shuttering. Concerning this last factor, it is interesting to note that concrete laid with the aid of a pump and timber shuttering required 11·2 hours per cubic metre, while, when hoist, conveyor belt and special steel shuttering were used at the same site and under the same conditions, it required only 6·6 hours per cubic metre.

RATIONALIZED WALL CONSTRUCTION

Apart from the rationalization of site work, German building technicians have concentrated their attention on certain non-traditional methods of wall construction which were first developed on an appreciable scale thirty years ago. Since the last war the use of pumice concrete blocks for load-bearing walls several storeys high has become predominant in the valley of the Rhine and at the present time external walls of large lightweight concrete blocks, rendered externally, are being increasingly introduced along the northern seaboard, which has a climate identical to that of Britain. Here the Swedish "Siporex" block, manufactured under licence, is most in evidence. The basic systems of non-traditional wall construction may be divided into four groups:

1. Self-supporting units, whether solid or hollow, each one storey high (as illustrated in Fig. 11);
2. As above, but not storey high;
3. R.C. frame and panel walls;
4. Steel frame and panel walls;

In order to make a comparison of man-hours for these groups it is essential that similar working conditions should prevail both during the manufacture of the components and during erection. German research, the results of which are presented in the diagram in Fig. 12, shows that the man-hours required for pre-fabricated panel and hollow block construction are less than those for ordinary brickwork. Those methods which used the least number of different components are the most economical both in manufacture and in erection. Of all the different methods in common use those employing load-bearing walls of perforated bricks or hollow blocks proved the most economical, being 35-40 per cent. cheaper than ordinary 15-in. brickwork. The use of perforated bricks weighing 1,300 kg. per cubic metre in place of ordinary bricks weighing 1,700 kg. per cubic metre reduced the cost by 10 per cent. It

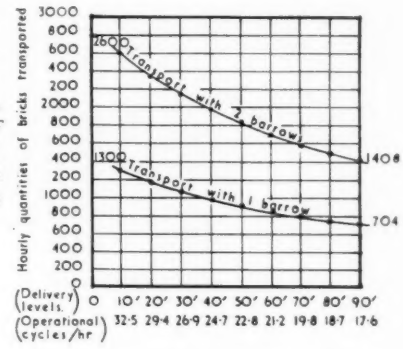
Operation	Transport of bricks and mortar
Transport ..	1. Hoist : *Carrying capacity:* 0·4 tons. *Electric motor:* 7·5 PS 5·5 kW. *Delivery heights:* 10ft. 20ft. 30ft. 40ft. 50ft. 60ft. 70ft. 80ft. 90ft. *Operational cycles per hr.:* 32·5 29·4 26·9 24·7 22·8 21·2 19·8 18·7 17·6 2. Barrow : *Carrying capacity:* 40 bricks (140 kg.). 18 gals. of mortar (145 kg.).
Intake area (see Fig. 2)	*Maximum radius:* 34ft. *Operation:* Filling of barrows with bricks or mortar, transport of loaded barrows to hoist or return of empty barrows to stacks and mortar silo.
Dispersal area (see Fig. 2)	*Maximum radius:* 70ft. *Operation:* Transport of loaded brick and mortar barrows from hoist to bricklayers. Return of empty barrows to hoist.
Barrows required	If 2 barrows are required per 1 operational cycle to transport 1m³ of brickwork (400 bricks and 61·6 gallons of mortar): 2 barrows are needed in dispersal area 2 barrows are needed in hoist area 6 barrows are needed in intake area

Fig. 7. Table giving data for the transport of bricks and mortar by means of a hoist and standard barrows.

		Delivery levels for hoist								
		10ft.	20ft.	30ft.	40ft.	50ft.	60ft.	70ft.	80ft.	90ft.
A. Transport of one brick barrow per operational cycle of hoist	Number of bricks	1,300	1,176	1,076	988	912	848	792	748	704
	Man hrs. within:									
	Intake area ..	2·20	1·89	1·73	1·59	1·47	1·36	1·27	1·20	1·13
	Dispersal area	1·75	1·59	1·45	1·33	1·23	1·13	1·07	1·01	0·95
B. Transport of one mortar barrow per operational cycle of hoist	Gals. of mortar:	512	517	471	434	401	373	348	329	309
	Man hrs. within:									
	Intake area ..	1·12	1·01	0·93	0·85	0·79	0·73	0·68	0·64	0·60
	Dispersal area	1·17	1·06	0·97	0·89	0·82	0·76	0·71	0·67	0·63

Fig. 8. Table analysing the operational cycle at different delivery heights. (Note.—This is an extract from a more comprehensive table.)

Fig. 9. Graph illustrating the transport of bricks at different levels. The one barrow graph represents column A in Fig. 8.



—	Hoist	Conveyor belt	Light tower-crane
Capital cost	800 to 3,000 DM	2,500 to 6,000 DM	10,000 to 20,000 DM
Number of operatives	5 to 9 men	3 to 5 men	3 to 7 men
Maximum load	440 to 1,760 lb.	Single loads up to 88 lb.	1,100 to 2,640 lb.
One operational cycle	2 to 3 min.	Constant run	2·5 to 4 min.
Performance per hour	12 to 24 tons	Up to 30 tons	7·5 to 28 tons
Running costs per day	4·50 DM	4·20 DM	14·40 DM

Fig. 10. Table giving the relative output of three different methods of transportation.

was found that a 10-in. wall laid with perforated bricks and possessing an insulation value equal to that of a 15-in. wall of standard bricks could be completed in half the time needed for the 15-in. wall. It must be noted that this saving relates only to the actual construction, which constitutes only one-seventh of all the factors which combine to produce one cubic metre of brickwork. The time required in respect of the other factors, *i.e.*, manufacture, transport to and on the site, scaffolding, the preparation of mortar, etc., can likewise be reduced, though to a less spectacular degree.

Lastly, it was found that walls built with (*a*) perforated bricks or hollow concrete blocks each 10 in. thick, (*b*) prefabricated units 6 in. thick, (*c*)

My point of view . . .

. . . is that the Avon Range of A.C. Switches has been designed with considerable thought. For instance when fitted in their plaster depth boxes they have a simple method of adjusting the switch depth whilst the switch is in position.
Points like these mean a great deal to chaps like me. They also show that apart from producing a jolly good switch at a very competitive price Ediswan Designers have given quite a lot of thought to making them simple to install.

Publication CE. 1693A. gives full details of the Avon range. We'll be pleased to send a copy on request.

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A catalogue and price list of the complete range of Ediswan electrical accessories is available on request.

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lightweight *in situ* concrete 8 in. thick, and (*d*) ordinary concrete 12 in. thick, were almost identical in both man-hour requirements and cost, all of them being from 38-40 per cent. cheaper than 15 in. solid brickwork.

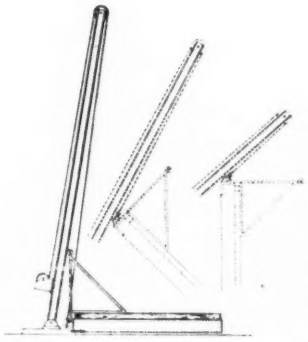
REPETITIVE OPERATIONS

"Taktverfahren," which may be freely translated as the precise phasing of labour for the sake of greater economy, has been investigated on various sites. Blocks of identical design were built by teams of operatives who established the precise effect of constant repetition in hastening the completion of the work. Man-hours for foundations were reduced by 30 per cent., for *in situ* concrete walls by 35 per cent., and for floors by 40 per cent. In these operations the greatest savings were achieved on the shuttering, the least on the placing of concrete. It was also noticed that the time required for a new type of wall construction was progressively reduced to a maximum saving of 42 per cent. between the first and the fifth house, but that subsequently it remained constant. In another instance when the same team was employed, the man-hours for laying concrete floors were reduced by 40 per cent. from the first to the third house. At the fourth house a new type of construction was introduced, and hours at once rose to the number required for the first block, falling again as familiarity was once more established.

The most elaborate attempt at building by "Taktverfahren," which incidentally has been used for the erection of long rows of terrace houses in Holland, was carried out in Schleswig. Here, a housing estate consisting of identical 4-storey blocks of flats with R.C. floors and walls of large lightweight concrete units, was phased from commencement to completion. Several basic phases were defined, a preparatory phase for the transport and orderly stacking of materials close to their final location, an operational phase for the placing of materials and a reserve phase for work during bad weather.

SUMMARY

Everyone connected with the German building industry, and particularly with housing, has a very real desire to reduce costs, which were extremely high during the first post-war years and which were further increased by nearly one third as an indirect result of the Korean war. Space standards are low, being at least 40% below those of this country. It is only to be expected, therefore, that the rationalization of building technique should receive much attention. As will have been noticed, this takes the form of a rationalization of traditional methods in preference to full scale prefabrication.



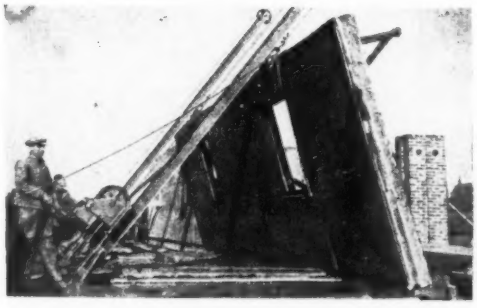


Fig. 11. Method of raising storey wall units.

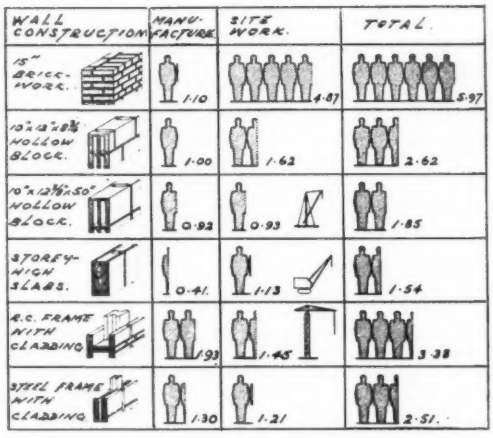
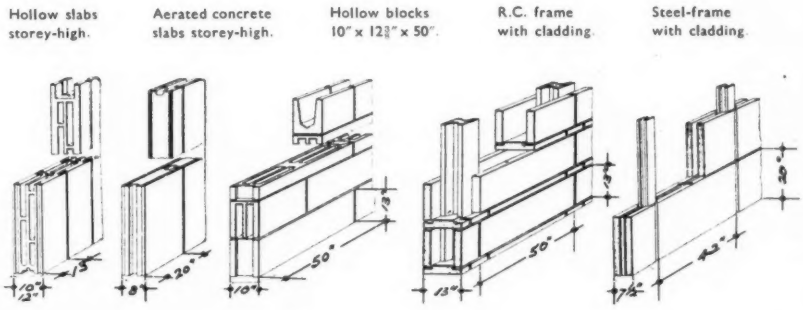


Fig. 12. (right). Diagram showing man-hours related to six different types of wall construction.

Fig. 13. (below). Typical German walling details.



THE INDUSTRY

Brian Grant this week devotes his report from the Industry to a description of equipment shown at the Electrical Engineers Exhibition.

Compared with the three weeks or so of the Ideal Home, the Electrical Engineers Exhibition at Earls Court is comparatively short lived, and this year lasted only for five days. It should be made clear at once that this is a show for technicians, and, probably for this reason, there was an agreeable absence of stunts. The majority of the exhibits were naturally concerned with such things as street lighting, transformers and high voltage switchgear, but there were still a few things which may be new to architects.

Dealing first of all with the domestic equipment, English Electric were showing the cooker described, and illustrated, a month ago in these notes, while Ferranti (*Kent House, 36 Kingsway, London, W.C.2*), who originated the parabolic reflector fire many years before the war, were showing several new models, including the Safera, this model having a safety device which switches it off automatically as soon as it is tilted, lifted by the handle, or knocked over. The rating is 1,250 watts, and the Safera is produced either as a free-standing panel fire or for building in: as well as the usual guard there is also a

A New Old Fashion

NOT so long ago, when prefabrication was wished upon us as the solution to the Housing problem, the word "traditional" became almost a term of abuse, but at least it was used with a knowledge of its meaning.

Now what are we to make of a recent statement by our Parliamentary Secretary to the Ministry of Housing and Local Government? "A 'new tradition' house", he says, "is the new name for a non-traditional house".

What, indeed! Can method or design be both new *and* traditional? Either may find favour, but let us at least pay to each the compliment of distinguishing it from the other.

The new provides us with the excitement of a venture into what must be, to some extent, the unknown and the untried, for the new is necessarily the experimental. The satisfactions to be derived from the traditional are of a different order. Here we have the sense of security of the known and the well-tried. When we follow tradition (and how closely knit in our common speech are the verb and the noun) we tread in the firm steps of those who have toiled before us. It is of the essence of tradition that we do not have to make our own.

What was once new has made the tradition of today, yet not all new things become, in the fullness of time, secure traditions. Those which have value and meaning for us now are but a handful of the activities of the past, for most novelties fail to stand the test of time and the need for adaptability to changed conditions.

We can neither make the traditions of today, nor consciously mould the traditions of tomorrow. Only as those who come after us accept or discard, repeat or supersede, the new things of today, will traditions be established.

"New traditional"? Surely not.

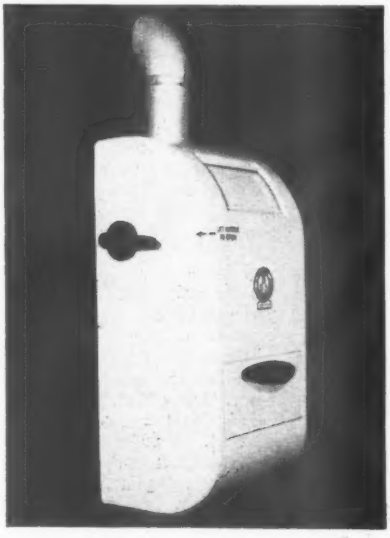
(Reprinted from 'The Brick Bulletin')

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

patented shield over the heating element itself, so that it is impossible to touch it—even deliberately.

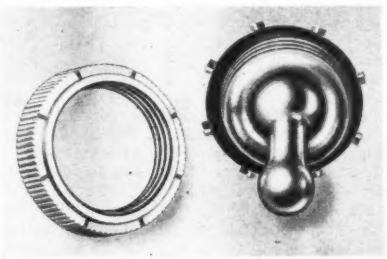
Nearly all the switch and socket manufacturers were exhibiting, and this show is perhaps the best of all for architects who want to compare the products of different makers all under one roof. Some of the most interesting types were shown by The Wandsworth Electrical Co., Ltd. (136 *Cromwell Road, London, S.W.7*), who have for many years been producing sparkless mercury switches and sockets for use in the explosive anæsthetic atmospheres of hospital operating theatres, dental clinics and similar buildings. Switches of this kind are fairly normal practice; they have the standard dolly action, but the circuit is made and broken by tilting a porcelain lined glass tube containing mercury. They are thus quite expensive, 24/- for a 5 amp single pole, 49/- for a double pole, while the 15 amp types cost about half as much again. Messrs. Wandsworth Electrical also produce similar switched sockets in which the switch and the plug are interlocked so that the plug cannot be withdrawn (and thus perhaps produce a spark) if the switch is on, and vice versa: these are made in 5, 13 and 15 amp sizes. Sparkless bell pushes are also produced, as are switches with hinged lids which are proof against water entry if the wall should be washed down with a hose. The list also includes various types of bedside unit with ordinary A.C. switches: these have 5 and 3 amp sockets, a socket for radio headphones plus a change-over switch from Home to Light. One may wonder, *en passant*, whether hospitals are ever wired for the Third; presumably not, since it is a medical axiom that all patients have a mental age of 11 minus.

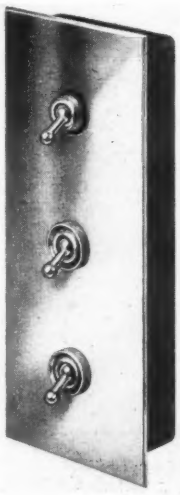
Another Wandsworth product, for hospitals and offices, is the Bunnie electric incinerator. This has an industrial furn-



The Bunnie electrical incinerator, for use in hospitals and offices, made by the Wandsworth Electrical Co., Ltd.

ace type heating element consuming only 800 watts, and a combustion chamber lined with refractory material, plus an automatic extractor fan which removes combustion products. The timing of the combustion cycle is normally set at 7 minutes, but can be adjusted to anything between five and ten, or longer times can be arranged if required. The standard model is intended for a maximum of fifty or sixty users. Installation is quite simple as no special flue is required, only an outlet to fresh air: weight is only 56 lb., so that it can be fixed to the lightest of partitions. Price is £36.





Right, a plate of flush mounted switches, made by J. H. Tucker & Co. Ltd., of Birmingham, with the threaded ring removed from the top switch. The photograph above shows in detail the ratchet plate and ring, designed to prevent the ring from working loose.

In considering switchgear, one or two relatively minor items are worth mentioning. Plates of flush mounted switches are secured by a threaded ring: with a single switch the plate will fall off if the ring unscrews, but with two or more switches in a single plate one or more of the rings may be left loose and will hardly ever be replaced. J. H. Tucker & Co., Ltd. (*Kings Road, Tyseley, Birmingham* 11), have evolved a simple ratchet plate and ring which should never shake off. The hole in the switch plate has a series of small projecting ribs formed in its circumference, and there are corresponding slots in the back of the ring, so that it screws up with a series of clicks and should never work loose. When the rings have to be removed, light pressure on the face of the plate will release the ratchet.

Mention of surface plates makes me wonder why so many of them are square. Admittedly many switch bodies nowadays are square, and their boxes are too: square plates therefore use the minimum of metal, but how many of the squares still have their sides vertical after six months use? At least one manufacturer has reverted to circular plates and the multiple units have corners of single plate radius; the ones shown are said to be for Mr. Gibberd's London Airport buildings, but this sort of job is large enough to have special fittings without any noticeable extra cost. Tuckers, incidentally, produce a range of large flange plates which are secured by two captive screws per switch to prevent the plate from rotating, the screws themselves being concealed by a flanged locking ring which can only be removed with a key. There is a good range for schools or public buildings. For buildings of this type switches with removable dollies or some other form of simple key are often used, but these are only a moderately efficient discouragement, and it may be mentioned that Wandsworth Electrical (address given above) produce a model controlled by a proper pin tumbler lock which should be proof against any interference. A 5 amp type is available now, to be followed by a 15 amp version later.

Not new, but not mentioned in these notes before, is the ejector plug by Clang, Ltd. (*Crown Yard, Cricklewood, London, W.2*). This is quite normal in appearance, but in the centre of the withdrawal knob there is a press button, connected to a spindle which passes right through the plug and bears on the face of the socket in the centre of the triangle formed by the three pins. The plug is removed by pressing with one's thumbs on the centre button and at the same time gripping the knob with the fingers. The button and spindle provide a reaction to the withdrawal pull, and there is no tendency to tear the socket off the wall. 5 and 15 amp 3 pin sizes retail at 2s. 11d. and 3s. 9d. each.

Lampholders with pins which pierce T.R.S. cable and provide a simple method for decorative outdoor lighting have been produced for some years. Now Nettle Accessories, Ltd. (*Harper Road, Wythenshawe, Manchester*) have gone one better and produced 100 ft. lengths of cable with rubber lampholders (B.C. or large or small Edison screw pattern) spaced at anything from 6 to 36 in. centres. This firm also makes weatherproof and watertight cable couplers, plugs and sockets, both in rubber and neoprene. This provides a complete system of outdoor lighting which can be rapidly assembled and which at the same time should give a minimum of trouble.

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.

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Buildings Illustrated

Bus Terminal and Offices, Dublin, Ireland. (Pages 453-466.) Architect: Michael Scott, F.R.I.A.I. Assistant Architects: Patrick Scott, Wilfred Cantwell, A.R.I.B.A., Kevin Fox, Patrick Hamilton, Patrick Haughey and Norman Peachey, A.R.I.B.A. Consulting Engineer: Ove Arup and Partners. Consultant (basement drainage and electrical equipment): Nicholas Matthews, M.I.C.E.I.; (other mechanical services), J. Varming and Partners). Contractors: reinforced concrete structure, John Sisk & Son Ltd.; heating and plumbing, Matthew Hall & Co. Ltd.; sanitary fittings, Shanks & Co. Ltd. (supplied by Smallmans Ltd.); oil burners, Clyde Fuel Systems Ltd.; pumps, Rhodes, Brydon & Youatt Ltd.; radiators and valves, Ideal Boilers & Radiators Ltd.; sanitary fittings, Ideal Boilers & Radiators Ltd. (supplied by Davis King Ltd.); convectors and grilles, Copperad Ltd.; control panels, Rheostatic Co. Ltd.; control starters, Brookhirst Switchgear Ltd.; copper fittings, Fyffes Ltd.; main switchgear, English Electric Co. Ltd.; fluorescent fittings, electrode boilers, General Electric Co. Ltd.; fluorescent lamps, Thorn Electrical Inds. Ltd. (supplied by Brownlee Brothers); V.I.R. cables, conduit, accessories, etc., Walsall Conduits Ltd., and Standard Telephones Ltd.; British Insulated Callender's Cables Ltd., and Siemens Shuckerts Ltd.; emergency lighting equipment, Tudor Accumulator Co. Ltd.; cable trunking, Power Centre Co. Ltd.; bronze windows, Williams & Williams Ltd.; faience, Hathernware Ltd.; boundary railings, Smith & Pearson Ltd.; bar and goods lift, Evans Ltd.; sprinkler system, Mather & Platt Ltd.; kitchen equipment, Benham & Sons Ltd.; paints, The Walpamur Co. Ltd.; plasterboard and plaster, Gypsum Industries; Rawlplugs, The Rawlplug Co. Ltd.; public address system, Tannoy Sound Systems Ltd.; "Don" stairtreads, Small & Parkes Ltd., and Tenax Ltd.; scaffolding, Mills Scaffold Co. Ltd.; metal lathing, The Expanded Metal Co. Ltd.; pumps, Ames Crosta Mills & Co. Ltd.; nosing tiles, The Adamite Co. Ltd.; veneered panels, William Mallinson & Sons Ltd.; metal faced plywood, Flexo Plywood Inds. Ltd.

Announcements

Derek Phillips, B.ARCH., Jon Prescott, B.ARCH., Brian Rothera, DIP.ARCH., and Tom Stout, A.R.I.B.A., have set up in practice at 25, Parkfield Road, Liverpool 17 (Tel.: Lark Lane 1822), and at 28, Daleswood Avenue, Whitefield, Lancashire, where they will be pleased to receive trade catalogues, etc.

L. Copeland Watts, M.I.MECH.E., has taken into partnership J. R. Harrison, B.SC. The firm will continue to practise under the style of J. Roger Preston & Partners at 15, North Audley Street, Grosvenor Square, W.1 (Tel.: Mayfair 1376/9).

Murray D. Scott has retired from active management of Marryatt & Scott Ltd., but will remain as chairman of the company. L. W. Honey and L. J. Gooch have been appointed joint managing directors, Mr. Honey operating from Hounslow and Mr. Gooch from the London Office at 40, Hatton Garden, E.C.1.

F. T. Curtis, East Midlands manager for Harrison Clark Ltd., has resigned owing to ill-health. The office has removed to 16, Lyncrest Avenue, St. James, Northampton (Tel.: Northampton 2048), and H. C. Fairey and P. F. Warren are now looking after the East Midlands area.

The Solid Smokeless Fuels Federation has moved into new offices at 74, Grosvenor Street, W.1 (Tel.: Mayfair 0382).

Panelec (Great Britain) Ltd. will be at 27, Hatchlands Road, Redhill, Surrey (Tel.: Redhill 3461) as from April 20.

Some BOOKS on English architecture and social life

The Architecture of England by Frederick Gibberd, F.R.I.B.A., A.M.T.P.I. This popular book (70,000 copies of it have already been sold) presents in text and pictures the complete evolution of English architecture and explains, briefly, its relation to the historical background and social life of the times. Size 11½ ins. by 9 ins. 48 pages, with over 150 drawings and about 80 halftone illustrations. New edition (70th thousand). 10s. 6d. net, postage 7d.

English Architecture at a Glance by Frederick Chatterton, F.R.I.B.A. Illustrated by J. D. M. Harvey, B.A. A simple review in pictures of the chief periods of English architecture, accompanied by brief historical notes on the various styles and their details. Nearly 100,000 copies of it have already been sold, and its popularity is accounted for by the fact that it enables the amateur to identify the periods literally " at a glance." It contains over 90 line drawings and some halftone illustrations. Size 8¼ ins. by 5½ ins. Eighth Impression of the Fifth Edition. 4s. 6d. net, postage 3d.

A History of the English House by Nathaniel Lloyd, O.B.E. The most authoritative and exhaustively illustrated history of the English house ever published. 498 pages with 900 illustrations. Size 12¼ ins. by 9 ins. £3 13s. 6d. net. postage 1s. 10d.

A Miniature History of the English House by J. M. Richards. Specially written for those who need a small inexpensive handbook on the English house, this is a complete outline history of our domestic architecture from primitive hut to present-day house. Many illustrations are drawn from the late Mr. Nathaniel Lloyd's standard work (described above); but Mr. Richards' text is entirely original and, moreover, continues beyond the early 19th century, tracing the subsequent development of the house down to the nineteen-thirties. Size 8¾ ins. by 5⅝ ins. 72 pages with over 90 illustrations. Seventh impression. 4s. 6d. net, postage 3d.

Parliament House: the Chambers of the House of Commons by Maurice Hastings, Ph.D. To understand the traditional plan adopted for the new Chamber of the House of Commons we have to go back to 1547 when the King's chapel of St. Stephen's became the home of the Commons. Dr. Hastings makes a brilliant and learned reconstruction of this place where so many high events and great Parliamentarians moved; he also describes Barry's Chamber and that opened in 1950, designed by Sir Giles Gilbert Scott, showing how the choir-stall seating plan has continued unchanged through the centuries. Bound in full cloth boards. Size 8½ ins. by 5½ ins. 200 pages with 78 illustrations. 12s. 6d. net, postage 6d.

English Panorama by Thomas Sharp, M.A., D.Litt. The first carefully studied and original account of the evolution down the centuries of the English scene in town and countryside, this book ends with a penetrating analysis of the problems of town and country planning which now confront us. First published in 1936, it has now been revised with much new material and is almost entirely newly illustrated. Bound in full cloth boards. Size 8½ ins. by 5½ ins. 148 pages, with over 50 halftone and line illustrations. 12s. 6d. net, postage 6d.

English History at a Glance: a chart designed by H. A. Vetter. With a historical digest by Peter Dantry and Ernest Savage. Dr. Vetter's large coloured chart is an original method of presenting history in a visual way. It is divided vertically by lines representing dates and horizontally into a series of different sections which cover the following subjects: The Land, Science, Economics and Social History, Exploration, Politics, Literature, Drama, Painting, Sculpture, Architecture, Music, Religion and Philosophy. On their correct date-lines, and in their appropriate sections, appear the names of the men who have influenced the development of English life and achievement; and these are printed on coloured labels representing the period to which they belong. The historical digest which follows the chart gives a brief account of the development of each activity, and outlines the achievement of the men named in the chart. At a glance, therefore, the reader can follow the development of, say, literature through the centuries, and, at a glance also, can see who was contemporary with whom—for instance, which writers were contemporary with which composers, and which prime-ministers with which philosophers, and so on. An unbelievably large amount of information in every field of English history, in its broadest sense, is contained in this book. Size 13¾ ins. by 10⅝ ins. Containing a coloured chart (6 pages), text (which includes 70 halftone illustrations), a bibliography and index. 8s. 6d. net, postage 8d.

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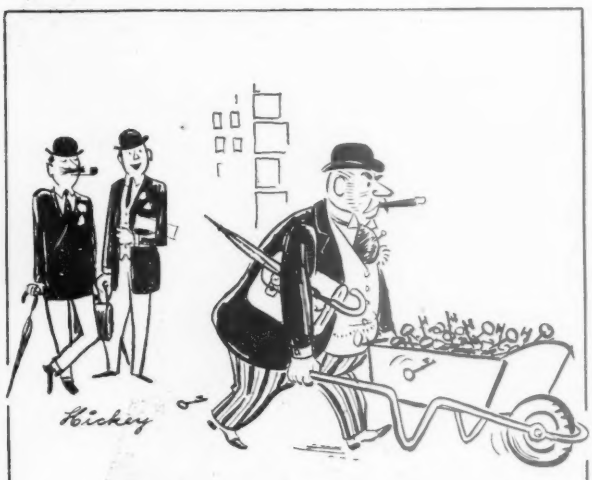

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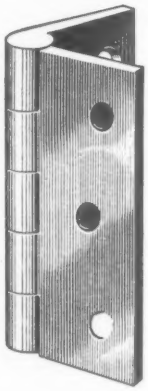

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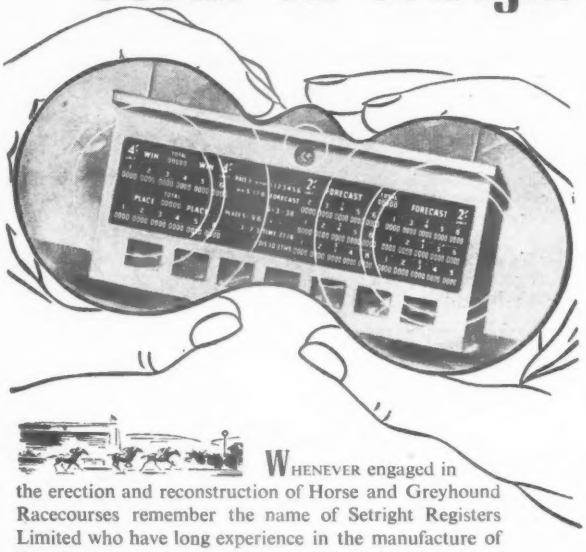

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Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

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Vacancies exist in the Chief Architect's Division, in London, Cambridge, Colwyn Bay and Bristol for ARCHITECTURAL ASSISTANTS. Must have had at least three years' architectual training, one year's experience in an architect's office and be of Inter. R.I.B.A. standard.

London salary: Up to £670 per annum. Starting pay up to £580 per annum according to age and experience. Salary outside London slightly lower. Although not established posts, many have long-term possibilities. Reasonable promotion prospects; competitions held periodically for establishment.

State age, nationality and full details of training and experience to W.G. 10/C.A.4, Ministry of Works, Abell House, John Islip Street, London, S.W.1. 2075

COUNTY BOROUGH OF WALLASEY.

(*a*) ARCHITECTURAL ASSISTANT, Grade A.P.T. V(*a*) (£650 to £710).

(*b*) TEMPORARY ARCHITECTURAL ASSISTANT, Grade A.P.T. V (£620 to £670).

Applications are invited by 26/4/54 for the abovementioned positions in the office of the Borough Architect. Forms of Application and Conditions of Appointment obtainable from the Borough Architect, Town Hall, Wallasey, to whom completed applications should be returned.

A. G. HARRISON,
Town Clerk.
2296

CHELSEA BOROUGH COUNCIL require SENIOR ARCHITECTURAL DRAUGHTSMAN, Borough Engineer and Surveyor's established staff. Salary: £580-£625, plus London weighting, A.P.T., Grade IV. Candidates must have a sound knowledge of architectural drawing, building construction, and the measurement of existing buildings, and preference will be given to candidates who have passed R.I.B.A. Intermediate Examination or recognised equivalent. Apply, stating age, experience, qualifications, and three referees, to the Town Clerk, Town Hall, Chelsea, S.W.3, by 23rd April. Endorse "Architectural Draughtsman." Canvassing disqualifies. 2248

CIVIL SERVICE.

QUANTITY SURVEYORS and ASSISTANT QUANTITY SURVEYORS required throughout the United Kingdom by Admiralty, Air Ministry, War Office and Ministry of Works, occasionally overseas by War Office. Although unestablished, these posts have long term possibilities. In London, salaries for those suitably qualified and experienced over 26 years of age, range from £650 to £1,320 per annum. Slightly lower in the provinces. Vacancies also exist for QUANTITY SURVEYING ASSISTANTS and others, having some experience of quantity surveying at salaries ranging from £350 per annum upwards (plus pay addition). Write quoting reference J.Q.S. to room 403, M.L.N.S., Technical and Scientific Register, 26, King Street, London, S.W.1. 2294

CANNOCK URBAN DISTRICT COUNCIL.
(Population—41,030.)
QUANTITY SURVEYOR.

Applications are invited for the above-named post in the Architect's Department. Commencing salary according to experience within Grade A.P.T. VI of Scheme of Conditions of Service (£695-£760). A.R.I.C.S. or equivalent required.

HOUSING ACCOMMODATION AVAILABLE.

Forms of application and further particulars obtainable from the undersigned.

Closing date: 28th April, 1954.

W. C. SPEEDY,
Clerk of the Council.
Council House, The Green, Cannock, Staffs.
7th April, 1954. 2292

NEWCASTLE REGIONAL HOSPITAL BOARD.
REGIONAL ARCHITECT'S DEPARTMENT.

Appointment of: (*a*) ONE ASSISTANT ARCHITECT; and (*b*) TWO ARCHITECTURAL ASSISTANTS.

Applications are invited for the following permanent (superannuable) appointments on the Headquarters Staff of the Regional Architect, Philip H. Knighton, M.B.E., A.R.I.B.A.:—

(*a*) *One Assistant Architect*—

Associateship of Royal Institute of British Architects and good experience of design and construction of public buildings essential. Commencing salary within Grade £600 to £865 according to length of practical experience since registering.

(*b*) *Two Architectural Assistants*—

Inter. R.I.B.A. and some practical experience essential. Commencing salary within grade £440 to £625 according to practical experience since passing Intermediate Examination and not exceeding £525.

Posts offer opportunity for gaining all-round general as well as hospital experience and for doing good-class work in an expanding department. Evening study facilities for Final available at King's College of Durham University in Newcastle.

Whitley Circulars P.T.B. 19 and 20 prescribe salary scales and service conditions.

State training, experience, whether married, present post and salary, war service, date available and names of three referees of whom at least two should be architects.

Applications to the Secretary by 30th April, 1954. Dinira, Osborne Road, Newcastle-on-Tyne, 2.
2305

HARROW URBAN DISTRICT COUNCIL.
ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT, A.P.T. Grade IV, salary scale £580 to £625, plus London "weighting," in the Department of the Engineer and Surveyor (Mr. J. H. Melville Richards, A.M.I.C.E., M.I.Mun.E.).

Candidates should have good office experience, and preference will be given to those holding recognised professional qualifications. The duties of the post will include the preparation of drawings and specifications, and supervision of works on new buildings or works of maintenance and repair.

The appointment will be subject to the provisions of the Local Government Superannuation Acts; the passing of a medical examination; and the National Joint Council's Scheme of Conditions of Service.

The Council is unable to assist in obtaining housing accommodation.

Canvassing will be a disqualification.

Forms of application may be obtained from the undersigned, to whom they should be returned not later than Friday, 7th May, 1954.

D. H. PRITCHARD.
Clerk of the Council.
Council Offices, Harrow Weald Lodge, Harrow, Middlesex. 2290

BRECONSHIRE COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Applications are invited for the following permanent appointments:—

(*a*) ASSISTANT QUANTITY SURVEYOR (Grade A.P.T., VII, £735-£810 p.a.).

(*b*) ASSISTANT ARCHITECT (Grade A.P.T., V, £620-£670 p.a.).

For post (*a*) Corporate Membership of the Royal Institute of Chartered Surveyors, and for (*b*) Associate Membership of the Royal Institute of British Architects, or equivalent qualifications, must be held. The successful applicants will be required to reside in or near Brecon. No housing accommodation can, however, be provided by the Council. Canvassing, directly or indirectly, will definitely disqualify candidates for the appointments. Application forms and conditions of appointment may be obtained from the County Architect, Mr. H. C. W. Strickland, Rhyd Offices, Brecon, and completed applications must be received by the undersigned not later than 30th April, 1954.

C. M. S. WELLS,
Clerk of the County Council.
County Hall, Brecon. 2266

STAFFORDSHIRE COUNTY COUNCIL
EDUCATION COMMITTEE.

Applications are invited for the following appointments in the County Education Architect's Department:—

(1) ASSISTANT ARCHITECTS. A.P.T., Grade V to VI (salary: £620, rising to £760 p.a.), according to qualifications and experience.

Applicants must be Members of the R.I.B.A., and have had experience in an Architect's office.

(2) JUNIOR ARCHITECTURAL ASSISTANTS. A.P.T., Grade II to IV (salary: £520, rising to £625 p.a.), according to qualifications and experience.

Applicants should hold the Intermediate Examination of the R.I.B.A., and have some office experience.

Applications, stating age, education, qualifications, present and past appointments, the names and addresses of two referees, together with copies of two recent testimonials, should be submitted to:—

A. C. H. STILLMAN, ESQ., F.R.I.B.A.,
County Education Architect,
Green Hall, Lichfield Road, Stafford,
not later than the 30th April, 1954.

T. H. EVANS,
Clerk of the County Council.
2270

WAR DEPARTMENT.
C.R.E. SHOEBURYNESS.
ARCHITECTURAL ASSISTANTS.

Vacancies exist on the establishment of the Commander Royal Engineers for ARCHITECTURAL ASSISTANTS—Males.

In addition to usual draughtsman's qualifications, applicants should be capable of preparing detailed working drawing and be able to survey and level.

Applications are invited from persons between the ages of 21 and 50 years.

Salaries payable will be from £360 p.a. at age 21 to £500 per annum at age 28 or over, subject to deductions for provincial service ranging from £20 per annum to £30 a year at the max. All basic salaries carry at present an addition of 10 per cent. "cost of living bonus."

Letters of application giving details of experience, and stating age and qualifications, should be addressed forthwith to:—The C.R.E., Old Ranges, Shoeburyness, Essex. 2293

STAFFORDSHIRE COUNTY COUNCIL
EDUCATION COMMITTEE.

Applications are invited for ELECTRICAL ENGINEERING ASSISTANTS within the salary Grade A.P.T., I to IV (£490 to £625).

Applicants should have passed Part I of the I.E.E. Associate Membership Examination or hold equivalent qualifications, and must have had experience in design and specification of electric lighting, power and heating installations for large public buildings, schools, etc.

Commencing salary will be in accordance with qualifications and experience; the appointments are permanent and superannuable, subject to satisfactory medical examination and in accordance with the Service Conditions of the N.J.C.

Applications should state age, qualifications, full details of experience, present salary, present and past appointments, together with copies of two recent testimonials, and are to be received by the County Education Architect, Education Architect's Department, Green Hall, Lichfield Road, Stafford, not later than the 29th April, 1954.

T. H. EVANS,
Clerk of the County Council.
2269

STAFFORDSHIRE COUNTY COUNCIL
EDUCATION COMMITTEE.

ASSISTANT DEPUTY EDUCATION ARCHITECT (salary: J.N.C., Scale "C"—£1,050×£50—£1,250).

Applications are invited from candidates who are Members of the R.I.B.A., to act as Liaison Officer between Building Sites and Office, and who have had considerable experience in supervision and erection of large buildings, preferably educational establishments.

Applicants must be car owners; a car allowance on the County Council scale will be granted to the successful applicant.

Form of application and further information can be obtained from:—

A. C. H. STILLMAN, Esq., F.R.I.B.A.,
County Education Architect,
Green Hall, Lichfield Road, Stafford.

The completed form of application must be returned not later than Monday, 3rd May, 1954.

T. H. EVANS,
Clerk of the County Council.
2268

METROPOLITAN BOROUGH OF SHOREDITCH.

The Council requires the services of ARCHITECTURAL ASSISTANTS within the following salary grades:

(*a*) A.P.T. V—£650-£700.
(*b*) A.P.T. VI—£725-£790.
(*c*) A.P.T. VII—£765-£840.

Applicants should have had a recognised architectural training, and be competent to undertake the design of municipal buildings including multi-storey flats. For appointment (*c*) applicants should be corporate members of R.I.B.A. with considerable experience in the administration of contracts.

Applications stating age, training and details of experience and giving three referees to the Borough Architect, Town Hall, Old Street, E.C.1, by 23rd April, 1954. 2281

BLYTH RURAL DISTRICT COUNCIL.
ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of Junior Architectural Assistant. Salary: Grade II, A.P.T. (£520-£565). Candidates should be capable draughtsmen, experienced in house design and construction, and who have passed the Intermediate of the R.I.B.A. or equivalent examination.

Applications, stating age and experience, present occupation and when available, accompanied by two recent testimonials, to be sent to the undersigned not later than 21st April, 1954.

JOHN W. YALLOP,
Clerk to the Council.
Council Offices, Rendham Road, Saxmundham, Suffolk. 2253

DENBIGHSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of BUILDING INSPECTOR (Ruthin Area) A.P.T. VI (£695-£760). Candidates must hold the Building Inspector's Certificate of the Surveyor's Institute or the R.I.B.A. Further details and application form may be obtained from the undersigned, to whom the completed forms are to be returned by 30th April, 1954.

W. E. BUFTON,
Clerk of the County Council.
County Offices, Ruthin. 2295

COUNTY BOROUGH OF WEST HARTLEPOOL.
BOROUGH ARCHITECT'S DEPARTMENT.
APPOINTMENT OF ASSISTANT ARCHITECT.

Applications are invited for the position of Assistant Architect, in the Borough Architect's Department, on Grade A.P.T., V (£620-£670), or Grade VI (£695-£760), according to qualifications and experience.

Applicants for the position on Grade A.P.T., V, should be Registered Architects, and applicants for this position on Grade A.P.T., VI, should be Associates of the Royal Institute of British Architects.

The appointment is subject to the Scheme of Conditions of Service of the National Joint Council for Local Authorities' Administrative, Technical and Clerical Services, and the Local Government Superannuation Acts, 1937-1953. The successful candidate will be required to pass a medical examination.

Applicants should state the Grade applied for and give details of age, experience and qualifications, together with copies of not more than three testimonials.

Applications should be addressed to the Borough Architect, Municipal Buildings, West Hartlepool, and be received by him not later than 30th April, 1954.

ERIC J. WAGGOTT,
Town Clerk.

Town Clerk's Department, West Hartlepool.
3rd April, 1954. 2252

HAMPSHIRE.

Applications are invited for the appointment of TECHNICAL ASSISTANTS in the County Planning Department, on Grade III of the National Scales (£550-£595), to work in the Headquarters Office at Winchester and in the South-West Area Office at Lyndhurst. Candidates should have passed the Intermediate Examination of the Town Planning Institute or of a related professional body, and have had experience in the Planning Department of a Local Planning Authority. The appointments are pensionable and will be subject to satisfactory medical reports.

In approved cases the County Council are prepared to assist newly appointed staff to meet removal expenses.

Applications, stating age, education, qualifications and experience, together with a copy of one testimonial and the names and addresses of two referees, should reach the County Planning Officer, Litton Lodge, Clifton Road, Winchester, by the 21st April. 2261

WARWICKSHIRE COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of ASSISTANT ARCHITECTS who should be Members of the Royal Institute of British Architects: (*a*) A.P.T. VII (£735-£810)—In connection with new Divisional Police Headquarters and Courts. (*b*) A.P.T. VI (£695-£760), (*c*) A.P.T. V. (£620-£670)—Experience in non-traditional types of construction will be an advantage.

The appointments will be subject to the provisions of the Local Government Superannuation Acts 1937-1953 and the successful candidates will be required to pass a medical examination.

Applications should be made on forms which can be obtained from G. R. BARNSLEY, F.R.I.B.A., County Architect, Shire Hall, Warwick, to whom they are returnable not later than 30th April, 1954.

L. EDGAR STEPHENS,
Clerk of the Council.

Shire Hall, Warwick. 2304

HERTFORDSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of an ASSISTANT Architect, Grade V (£620-£670). Previous Local Government experience not essential.

Applications, together with the names of three referees, to County Architect, County Hall, Hertford, Herts., not later than 24th April, 1954. 2267

NORTHERN IRELAND HOSPITALS AUTHORITY.

Appointment of PRINCIPAL ASSISTANT ARCHITECT (salary: £1,000×£40—£1,200).

Applicants must be Fellows or Associate Members of the Royal Institute of British Architects, and preferably have a University qualification.

Application form, together with further particulars, may be obtained from the Secretary, Northern Ireland Hospitals Authority, 44-46, Queen Street, Belfast, to whom completed forms should be returned not later than 30th April, 1954 2250

CARDIGANSHIRE COUNTY COUNCIL.

Applications are invited for the post of QUANTITY SURVEYOR (Grade A.P.T. VIII-IX—£785-£960), commencing salary depending on experience and qualifications.

Applicants must be members of the R.I.C.S. and must be thoroughly experienced in the preparation of Bills of Quantities, estimating, interim valuations, final accounts and general contract procedure for large building projects.

Candidates must disclose whether to their knowledge they are related to any Member or Chief Officer of the Authority.

Forms of application and details obtainable from the County Architect, County Hall, Aberayron.

Closing date—22nd April, 1954.

J. E. R. CARSON,
Clerk of the County Council.

County Office, Aberystwyth. 2282

CORBY DEVELOPMENT CORPORATION.

Applications are invited from suitably qualified persons for the following appointments:—

(*a*) SENIOR ASSISTANT ARCHITECT. £780×£45 (3)×£35—£950.

(*b*) ASSISTANT ARCHITECT (TWO). £630×£30 (4)—£750.

(*c*) JUNIOR ASSISTANT ARCHITECT. £525×£25 (2)—£575.

The appointments are required in connection with large-scale construction projects associated with the development of a New Town. Candidates must have had suitable experience in, for appointment (*a*) the design and execution of large-scale housing and other building works, etc., and (*b*) detailed design and construction in an architect's department.

All appointments are subject to one month's notice on either side, the provisions of the Local Government Superannuation Acts, and to the passing of a medical examination.

Applications, stating age, education, training, qualifications, experience, past and present appointments and salaries, together with the names of two referees, must be received by the undersigned not later than the 28th April, 1954. Housing for married candidates available.

R. F. BROOKS GRUNDY,
General Manager.

The Stone House, South Road,
Corby, Northants. 2308

URBAN DISTRICT COUNCIL OF BILLERICAY.

Population 46,000 approximately and is increasing rapidly. Acreage 27,020.

ARCHITECTURAL ASSISTANT.

Applications are invited for this appointment in the Surveyor's Department. Salary: A.P.T. Division, Grade V. Applicants must have passed the Final Examination of the R.I.B.A.

Consideration will be given to offering housing accommodation to the successful candidate.

Applications, on forms to be obtained from the Surveyor, Council Offices, Billericay, must reach the undersigned not later than 30th April, 1954.

A. HATT,
Clerk of the Council.

Council Offices, Billericay, Essex. 2271

LANCASHIRE COUNTY COUNCIL.

Applications are invited from suitably qualified applicants for the following appointments on the permanent staff:—

(*a*) SENIOR ASSISTANT LAND SURVEYORS and VALUERS, A.P.T. Grade VIII (£785-£860).

(*b*) SENIOR ASSISTANT QUANTITY SURVEYORS, A.P.T. Grade VIII (£785-£860).

Application forms, to be returned by Monday, 3rd May, 1954, obtainable from the County Architect, County Hall, Preston. 2280

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 ARCHITECTURAL ASSISTANT required for Works Department in large Engineering Firm. Knowledge of construction and capable of working in close conjunction with contractors. Temporary post 1/2 years. Ideal for Student. State experience and salary required. Box 2284.

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

THE ROYAL FREE HOSPITAL,
GRAY'S INN ROAD, W.C.1.

APPLICATIONS are invited for the appointment of an ARCHITECT to the Staff of the above hospital. Applicants must be Registered Architects and Fellows or Associates of the Royal Institute of British Architects. The appointment will be for a period of five years in the first instance, when the position will then be reviewed and be subject to one month's notice on either side. The salary will be at the rate of £1,300 per annum. Candidates should have had sound practical experience of planning, constructions and supervision of contracts. Applications giving all necessary details, including any experience in hospital planning and constructions, and the names of three referees, should be sent to The Secretary at the above address, to arrive not later than 30th April, 1954. 2189

SENIOR ARCHITECTURAL ASSISTANT required, with minimum qualification of Intermediate R.I.B.A. Preference will be given to applicants having several years of office experience in the design of industrial buildings and housing. Write, stating age and details of experience and qualifications, to: Staff Officer, Handley Page, Ltd., Cricklewood, London, N.W.2. 2215

ARCHITECTURAL DRAUGHTSMEN required for design work on industrial buildings. Experience on similar work and intermediate R.I.B.A. standard essential. Five-day week. Staff pension scheme. Good transport and canteen facilities. Salary according to age, qualifications and experience. Write giving full details to:—Personnel Manager, Metropolitan-Vickers Electrical Co. Ltd., Trafford Park, Manchester, 17. Mark envelope "Architectural Draughtsman." 2125

ARCHITECTURAL ASSISTANT of intermediate R.I.B.A. standard required immediately in expanding City office, accurate and quick draughtsman with sound knowledge of modern building techniques, minimum 3 years' office experience. Apply with full particulars of age, experience, qualifications and salary required to Box 2204.

SENIOR ARCHITECTURAL ASSISTANT required. Please write, giving particulars of experience. Leonard J. Multon, F.R.I.B.A., 6, Greenfield Crescent, Birmingham, 15. 2022

ASSISTANTS—one Inter. standard and one Final standard—required for general practice in small Midland manufacturing town. Full details of experience and salary required to Box 2238.

ASSISTANT required for Architect with general practice. Prospects for suitable applicant with experience up to Final standard. Box 2218.

ARCHITECTURAL ASSISTANT, Student R.I.B.A., with office experience, required for responsible position in Lincolnshire office, state age, experience and salary required. Box 2200.

ARCHITECTURAL ASSISTANT required. Salary £494-£520. Co-partnership firm with opportunities for keen man. Apply Co-operative Planning Ltd., 73b, South Side, Clapham Common, S.W.4. 2191

SENIOR ARCHITECTURAL ASSISTANTS required. Associates R.I.B.A. with previous office experience. Knowledge of industrial work an advantage. Salary £800-£900 according to capabilities. Write Priestman & Lazenby, 101, Spring Bank, Hull. 2193

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

ARCHITECTURAL ASSISTANTS: one senior qualified. Two intermediate standard for Belfast (Northern Ireland) office. Please reply stating details of experience, salary required, etc. Box 2175.

£800-£1,000 p.a. SENIOR ARCHITECTURAL ASSISTANT urgently required for Mayfair architect in private practice. Must have good general experience. Small very busy office with varied work, mainly commercial. Permanency if suitable. Box 2176.

ARCHITECTURAL ASSISTANT, up to Intermediate standard, some experience of heavy Industrial work required. Westminster area. Write, stating experience and salary to Box 2236.

JUNIOR ASSISTANT urgently required. Intermediate standard; in Ilford area. Please reply, stating age and salary required. Box 2239.

ASSISTANT (Inter. to Final standard) required in small lively practice; ability in quick, simple, perspectives essential; salary £400-£450. J. D. & B. Y. Tetlow, A/A.R.I.B.A., A/A.M.T.P.I., Bank Chambers, 1, Bird Street, Lichfield. 2256

RONALD WARD & PARTNERS require several ARCHITECTURAL ASSISTANTS, intermediate standard. Apply Victoria 5531, or 17, Lowndes Street, S.W.1. 2258

ARCHITECTS in Glasgow require qualified and intermediate standard ASSISTANTS; salaries £600 to £650 and £450 to £500, according to age and experience. Apply to Box 2263.

BOOTS PURE DRUG CO. LTD., NOTTINGHAM
ARCHITECTS DEPARTMENT.

APPLICATIONS are invited for the appointment of six ASSISTANT ARCHITECTS or ARCHITECTURAL ASSISTANTS to the permanent staff of the above department, which is expanding. Applicants should preferably have had several years experience in an architect's office and be capable of carrying out a job from sketch plan to building stage. Thorough knowledge of building construction and ability to prepare neat, accurate working drawings and attractive sketch plans is essential.

The department has in hand works of a very varied nature including retail shops, alterations and extensions to shops; laboratories, factories and office buildings. Permanent and progressive appointments for the right men who may be required occasionally to visit building works in progress in all parts of the British Isles.

Successful applicants, who must have completed or have been excused their obligatory National Service, will be required to pass a medical examination and to join the Company's pension scheme after not less than six months satisfactory service. The working week is five days.

Applications will not be considered unless made on the appropriate form which may be obtained from :—Chief Architect, Boots Pure Drug Co. Ltd., Station Street, Nottingham. 2259

THE Co-operative Wholesale Society Ltd., invite applications for the appointment of ASSISTANT ARCHITECTS on the staff of the Manchester Architects Department.

Candidates must have had several years experience, preferably of commercial or industrial projects, possess a sound knowledge of construction and be able to prepare working drawings and details from preliminary sketches.

The appointments are permanent with prospects of promotion. Successful applicants will be required to undergo a medical examination for entry into a compulsory Superannuation Scheme.

Applications stating age, experience, qualifications and salary required to be addressed to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society Limited, 1, Balloon Street, Manchester, 4. 2106

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 with sound knowledge of construction and specification writing. Salary £600 per annum. S. Dodson & Son, L./A.R.I.B.A., Museum Buildings, Priestgate, Peterborough. 2261

SENIOR ARCHITECTURAL ASSISTANT required immediately. Apply, stating age, experience, and salary required, to Francis W. B. Yorke, Harper & Harvey, 191, Corporation Street, Birmingham, 4. 2276

ARCHITECTURAL ASSISTANTS required immediately—passed R.I.B.A. Intermediate; also fully qualified—by busy London architects. Office experience essential. Apply Box 2275.

QUALIFIED ARCHITECT required immediately, preferably with Mid-East or tropical experience, to take complete charge of large contracts in Aden. Approximately 18 to 24 months' contract in first instance. Full particulars to Box 2303.

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

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

ARCHITECTS require ASSISTANT. First class draughtsman for general detailing on hospital. Yorke, Rosenberg and Mardall. 2264

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.

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

A. M. GEAR, A.R.I.B.A., at 12, Manchester Square, London, has vacancies for ARCHITECTURAL ASSISTANTS of Intermediate or Final standard interested in the design of prefabricated structures. Apply above address. 2274

YOUNG ARCHITECTURAL DRAUGHTSMAN required for London office; full particulars and salary required to Box 2260.

WESTWOOD, SONS & HARRISON, F/F.R.I.B.A., require SENIOR ASSISTANT with good all-round experience. Design ability essential. Salary £750 approx. Written applications only, to 46, Baker Street, W.1. 2283

SAMUEL MORRISON & PARTNERS require ASSISTANTS for interesting contemporary work in the following spheres: schools, housing, factories and shops, with particular emphasis on industrial design. New offices are to be opened and they will be situated in a pleasant old vicarage in its own grounds. Salary according to ability and experience. Derwent House, Full Street, Derby. 2301

ARCHITECTURAL ASSISTANT required in small private office. Intermediate to Final standard. Write, stating experience and salary required, to: A. F. Bennett, 35, Queen's Gate Mews, London, S.W.7. 2285

ARCHITECT requires additional SENIOR and JUNIOR ASSISTANTS for Leicester branch. Apply in writing to C. Edmund Wilford, A.R.I.B.A., 2, Hastings Street, Leicester. 2287

EXPERIENCED ASSISTANTS required in Structural and Building Engineering Office, to prepare, develop and check schemes. Progressive posts and first-class experience for graduates or similar. Apply Box 2299.

ARCHITECTURAL ASSISTANT required immediately for general practice. Office experience essential. Write, stating experience and salary required, to Stewart & Sutcliffe, 5, Hinton Road, Bournemouth. 2302

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Alphabetical Index to Advertisers

For Appointments (Wanted or Vacant), Competitions Open, Drawings, Tracings, etc., Education, Legal Notices, Miscellaneous Property, Land and Sales, xci, xcii, xciii, xciv.

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