The Architects' JOURNAL for October 9, 1958

THE ARCHITECTS' JOURNAL

standard contents

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

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THE ARCHITECTURAL PRESS

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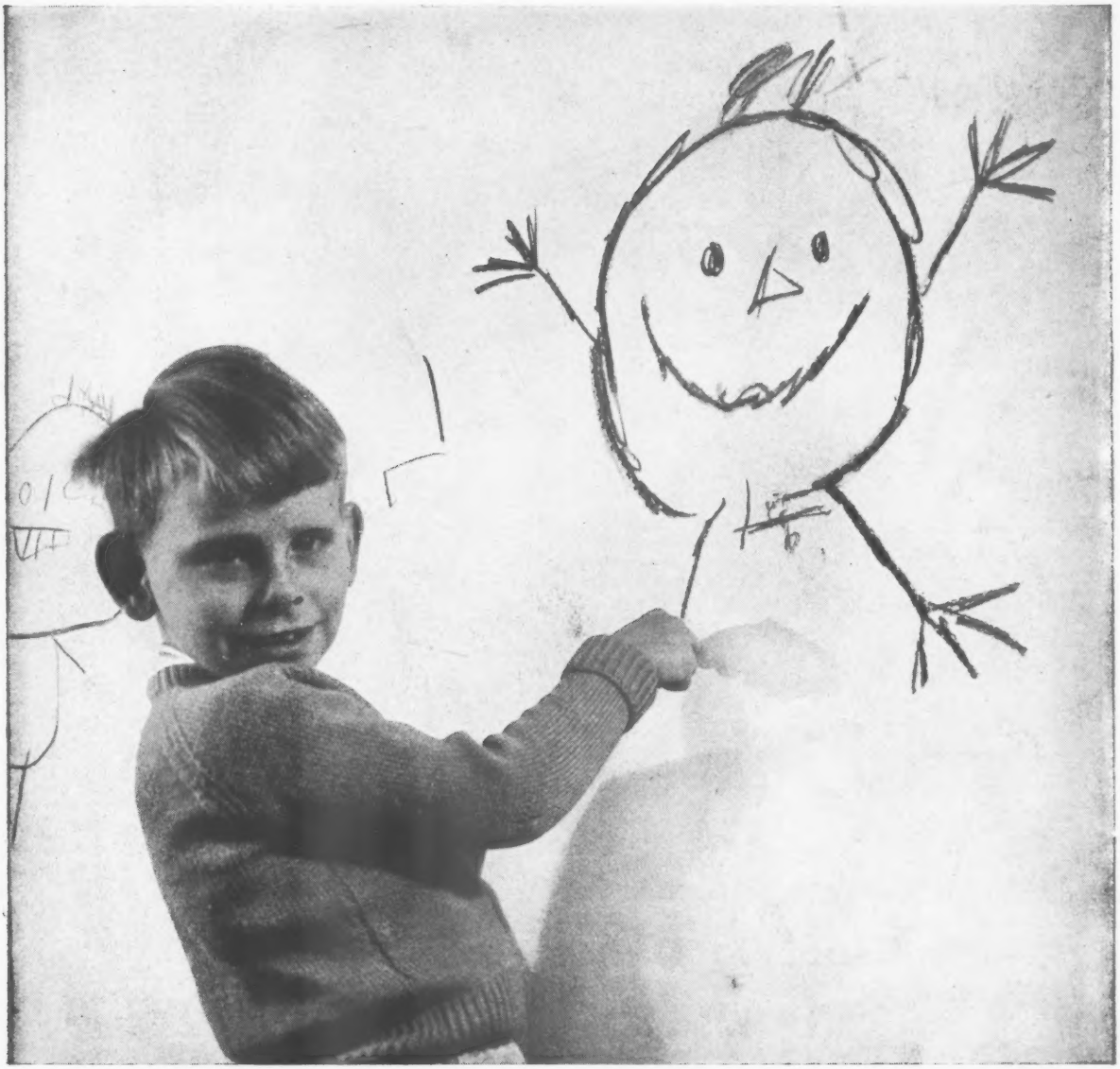
Registered as a Newspaper.

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

ILA	Institute of Landscape Architects. 2, Guildford Place, W.C.1.	Holborn 0281
I of Arb	Institute of Arbitrators. Hastings House, 10, Norfolk Street, Strand, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7179
IQS	Institute of Quantity Surveyors. 98, Gloucester Place, W.1.	Welbeck 1859
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3.	Avenue 6851
IRA	Institute of Registered Architects. 68, Gloucester Place, W.1.	Welbeck 9966
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128
JFRO	Joint Fire Research Organisation (DSIR & Fire Offices' Committee). Fire Research Station, Boreham Wood, Herts.	Elstree 1341/1797
LDA	Lead Development Association. 18, Adam Street, W.C.2.	Whitehall 4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
MAFF	Ministry of Agriculture, Fisheries and Food. Whitehall Place, S.W.1.	Trafalgar 7711
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1.	Mayfair 9400
MOH	Ministry of Health. 23, Savile Row, W.1.	Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1.	Whitehall 4300
MOLNS	Ministry of Labour and National Service, 8, St. James's Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, W.C.2.	Gerrard 6933
MOT	Ministry of Transport, Berkeley Square House, Berkeley Square, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine Owners and Manufacturers Council. 94/98, Petty France, S.W.1.	Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1.	Abbey 4813
NBR	National Buildings Record, 31, Chester Terrace, Regent's Park, N.W.1.	Welbeck 0619
NCBMP	National Council of Building Material Producers, 10, Storey's Gate, S.W.1	Abbey 5111
NEFMAI	National Employers Federation of the Mastic Asphalt Industry. 21, John Adam Street, Adelphi, W.C.2.	Trafalgar 3927
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4451
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1.	Whitehall 1693
NHBRC	National House Builders Registration Council. 58, Portland Place, W.1.	Langham 0064/5
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NRDB	Natural Rubber Development Board. Market Buildings, Mark Lane, E.C.3.	Mansion House 9383
NSAS	National Smoke Abatement Society. Palace Chambers, Bridge Street, S.W.1.	Trafalgar 6838
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1.	Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1.	Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Fountainbridge 7631
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5533
RICS	Royal Institution of Chartered Surveyors. 12, Great George Street, S.W.1.	Whitehall 5322/9245
RFAC	Royal Fine Art Commission. 5, Old Palace Yard, S.W.1.	Whitehall 3932
RS	Royal Society. Burlington House, Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Trafalgar 2366
RSH	Royal Society of Health. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19.	Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1.	Victoria 2186
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, E.C.3.	Mansion House 3921
SIA	Society of Industrial Artists. 7, Woburn Square, W.C.1.	Langham 1984/5
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1.	Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen	
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1.	Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2.	Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4.	City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4.	City 5040
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1.	Whitehall 4341
ZDA	Zinc Development Association. 34, Berkeley Square, W.1.	Grosvenor 6636



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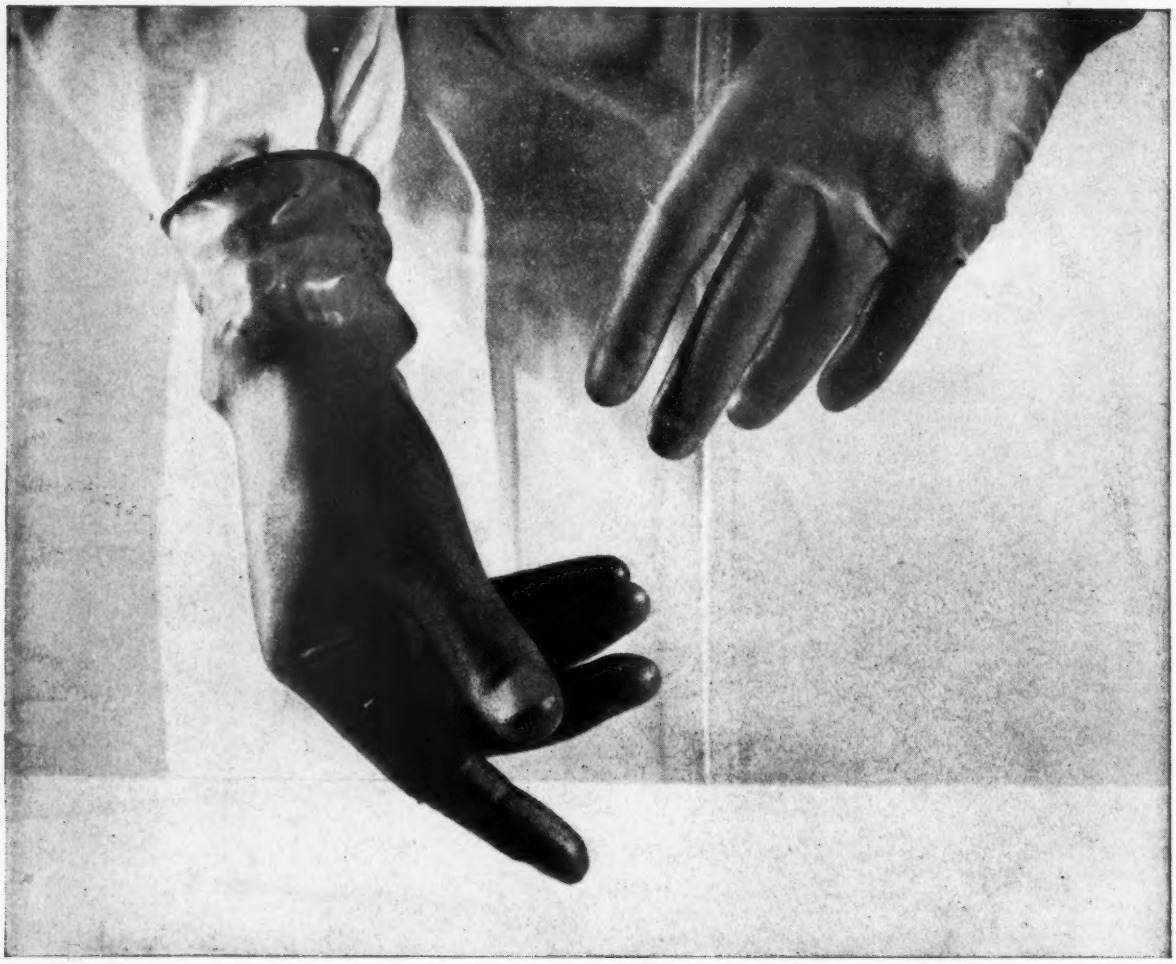

With Electric Cable, too— a name can be reassuring

An appendectomy may be a minor operation nowadays but—when it is your own appendix—the name of a great surgeon can be vastly reassuring. Because of his experience; because, faced with an unusual difficulty, his hands will do the right thing instinctively.

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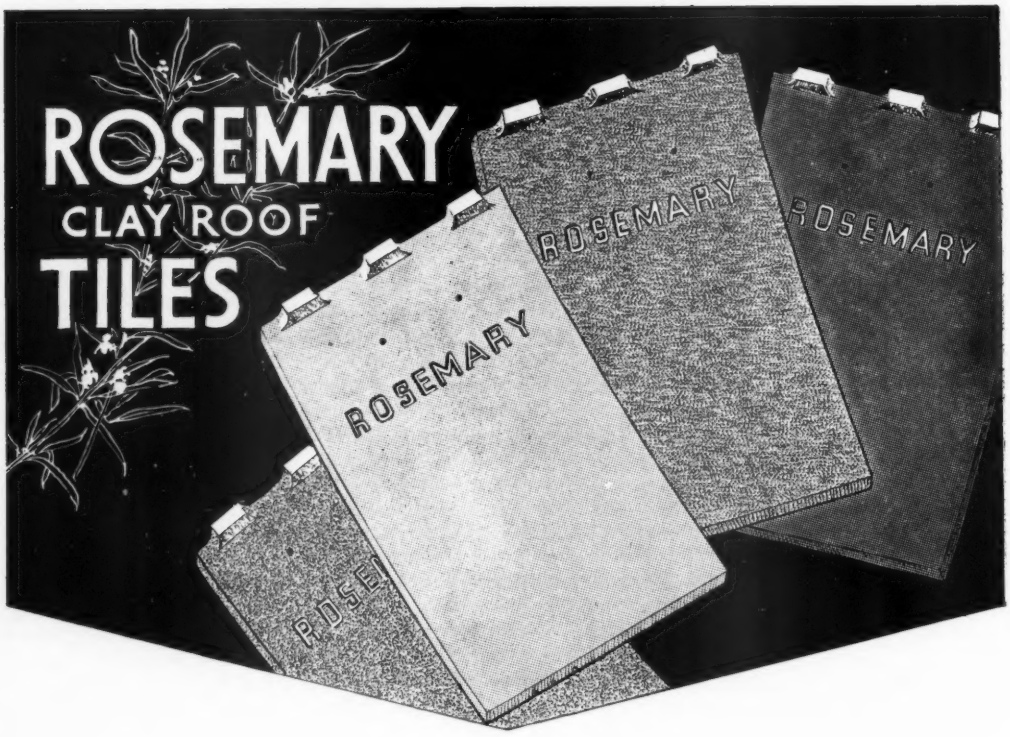

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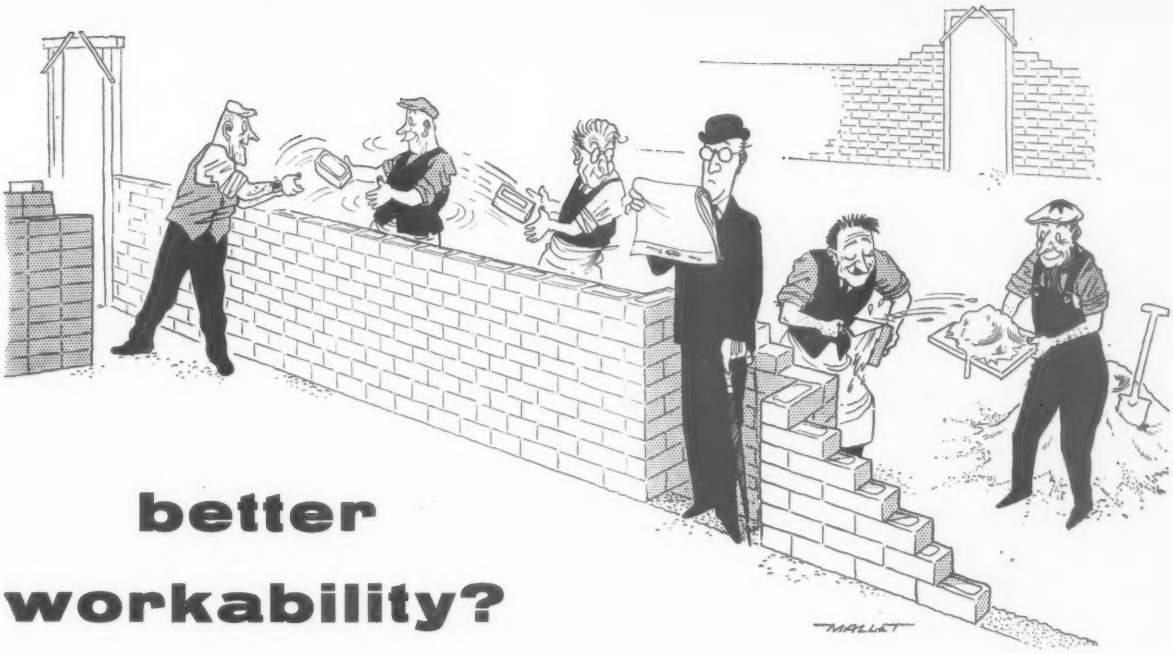

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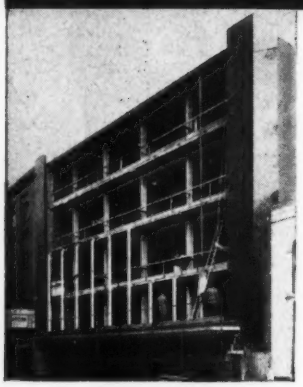

MARCH 18th, 1958
Erection commences.

The erection of this Muragard Curtain Wall, covering an area of just under 3,000 sq. ft. at the new Broad Plain premises of Gardiner of Bristol, architect, A. E. Powell, Esq., A.R.I.B.A., took only eight working days from start to finish. Note the complete absence of scaffolding, erection is effected from inside the building. *For future planning and speed of erection specify Muragard, the Curtain Wall with the TWO-HOUR fire grading.*

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FIRE RESISTING TWO-HOUR FIRE GRADING

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Glazing and spandrel infillings to the architect's choice.

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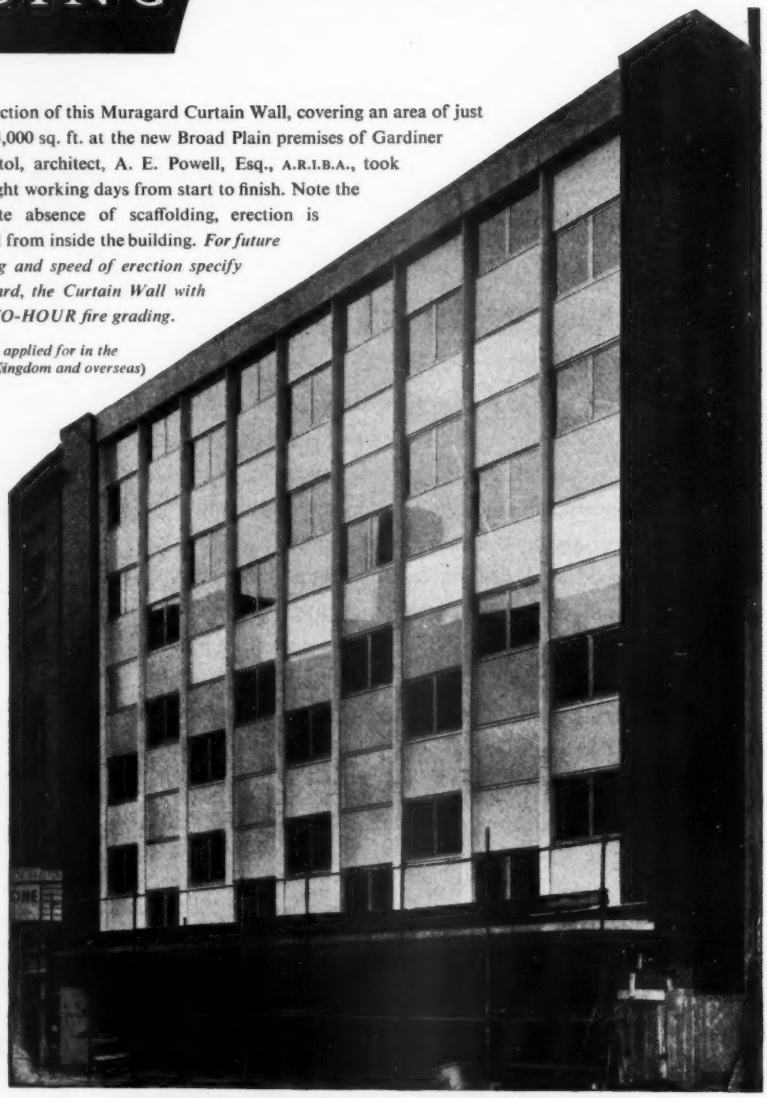


MARCH 27th, 1958. The completed Curtain Wall.

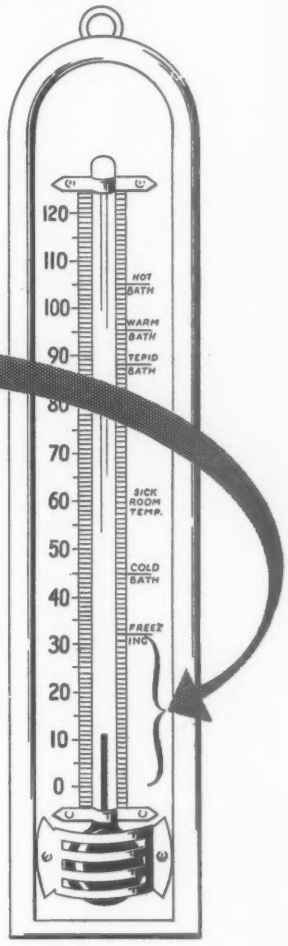
GARDINER

Gardiner, Sons & Co. Ltd., Midland Works, Willway Street, St. Philip's, Bristol 2, and 8 William IV Street, Strand, London W.C.2

H-W.186

Cold Facts

Small Estate Private Houses, Stanstead Abbots, Hertfordshire. Contractors: Gray Conoley & Co. Ltd. London, E.16.



The bricks are well bonded, the joints impervious, the concrete is sound and the plasterwork perfect —YET THESE HOUSES WERE ERECTED DURING THE COLDEST WINTER FOR TEN YEARS!

The builders' excellent organisation combined with the use of FEBSPEED PLUS during the 1955/56 winter—with day temperatures of 24° F. falling to 12° F. at night—made it possible to continue with erection work—WITHOUT A BREAK.

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Early in June a price reduction was announced:

. . . it amounted to approximately 10% of ex-works prices ruling up to the end of May. The reduction was, and is, effective for all orders placed on or after 2nd June 1958, and at the same time a standard delivery charge was adopted instead of the old sliding scale. This significant contribution towards the reduction of building costs makes Hy-Rib, more than ever, economic and worthy of specification.

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New price list and data sheets from

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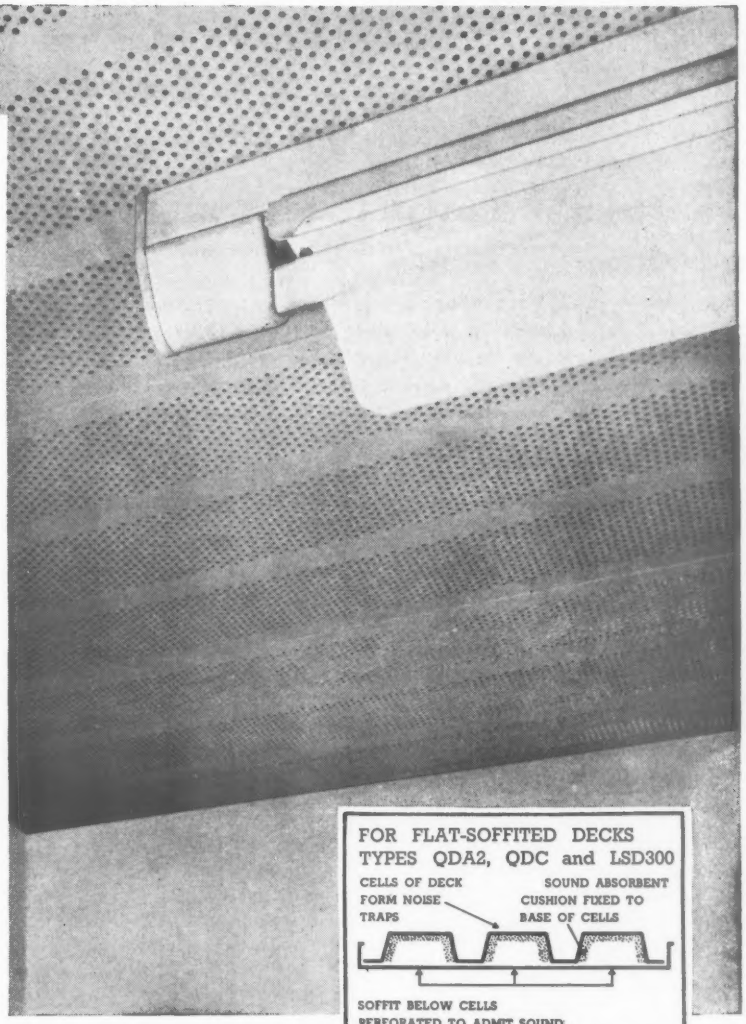
Another notable advance in Roof-Deck development

—ACOUSTICALLY-TREATED Q-DECK



- **HIGH ACOUSTICAL EFFICIENCY PROVIDED AT MODEST COST**
- **THE TREATMENT IS BUILT INTO THE SOFFIT**

Economy : Acoustically-treated Q-deck generally represents a more economical method of providing for sound absorption in the ceiling than can be secured by most of the conventional alternatives, applied in situ to the underside of the decking.
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The measure of sound-reduction obtainable with acoustically-treated Q-deck compares favourably with a similar specification of perforated tiles or of spray applied treatments.
The absoption co-efficients quoted are derived from proving tests carried out at the National Physical Laboratory.

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Acoustically-treated Q-Deck provides an attractive ceiling; the alternative perforated and imperforate bands creating a decorative pattern.

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FOR FLAT-SOFFITED DECKS
TYPES QDA2, QDC and LSD300

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FREQUENCY	ABSORPTION CO-EFFICIENT
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250 „	0.50
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says Major J. H. HACKETT

Director of Hackett (Builders) Limited, Norwich

'A job which would have taken several weeks by traditional methods was completed in under a week with Key Pitch Fibre pipes', says Major J. H. Hackett, of Hackett (Builders) Limited. 'In this time, the entire main sewage pipe to a new estate was laid by a team of only three men. Labour costs for laying and jointing were cut from 1/2d. to 1¼d. per foot run. The need for concrete bedding was completely eliminated. With performance at least the equal of best quality materials used by former methods, Key pipe gave me an overall saving of at least 28% on the job'.

Major J. H. Hackett handling Key Pitch Fibre pipe on one of the building sites of his company.

Key Pitch Fibre pipes, which were supplied to Hackett (Builders) Limited by Robert R. Ruymp & Son Ltd., Norwich, through B. Finch & Co. Ltd., Essex, (Key distributors), are cutting costs on all the building sites of this company. They are also providing a far more effective answer to the problems of an area with exceptionally bad conditions of loose earth and subsidence. This modern form of drainage could bring equivalent or even greater advantages in performance, economy and speed of laying in your own building projects.

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Key pipes comply with the requirements of B.S. 2760, 1956, and carry the B.S.I. 'Kite' mark.

NO CRACKING THROUGH SETTLEMENT

The resilience of pitch fibre pipes eliminates cracking under normal conditions of earth settlement, making bedding concrete unnecessary.

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IN ANY WEATHER!

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ADJUSTABLE SHELF SUPPORT

for good looks and functional efficiency

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

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

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

UNOBSTRUCTED ACCESS

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

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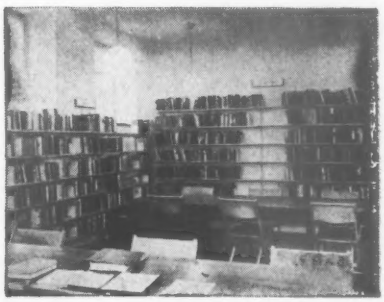
Uprights are available in lengths up to 94½ in., and brackets are supplied in seven standard sizes up to a maximum of 18½ in. Loadings have been calculated for each size, and the largest will support 1½ cwt.



WALL FIXING OR FREE STANDING

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

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

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S.J. 1

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You save time, materials and labour on site if you insist on specifying Standard Maclean metal windows. Standard Maclean make the full range under B.S.S. 990, or will tailor to your requirements.

In any case, Standard Maclean make a good Metal Window

Standard Maclean also make
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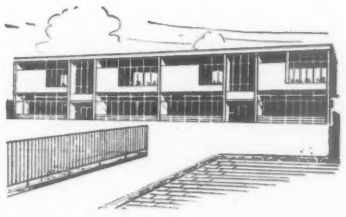
Standard Maclean Limited



A Standard Maclean Metal Window installation; Moredun Primary School Edinburgh.

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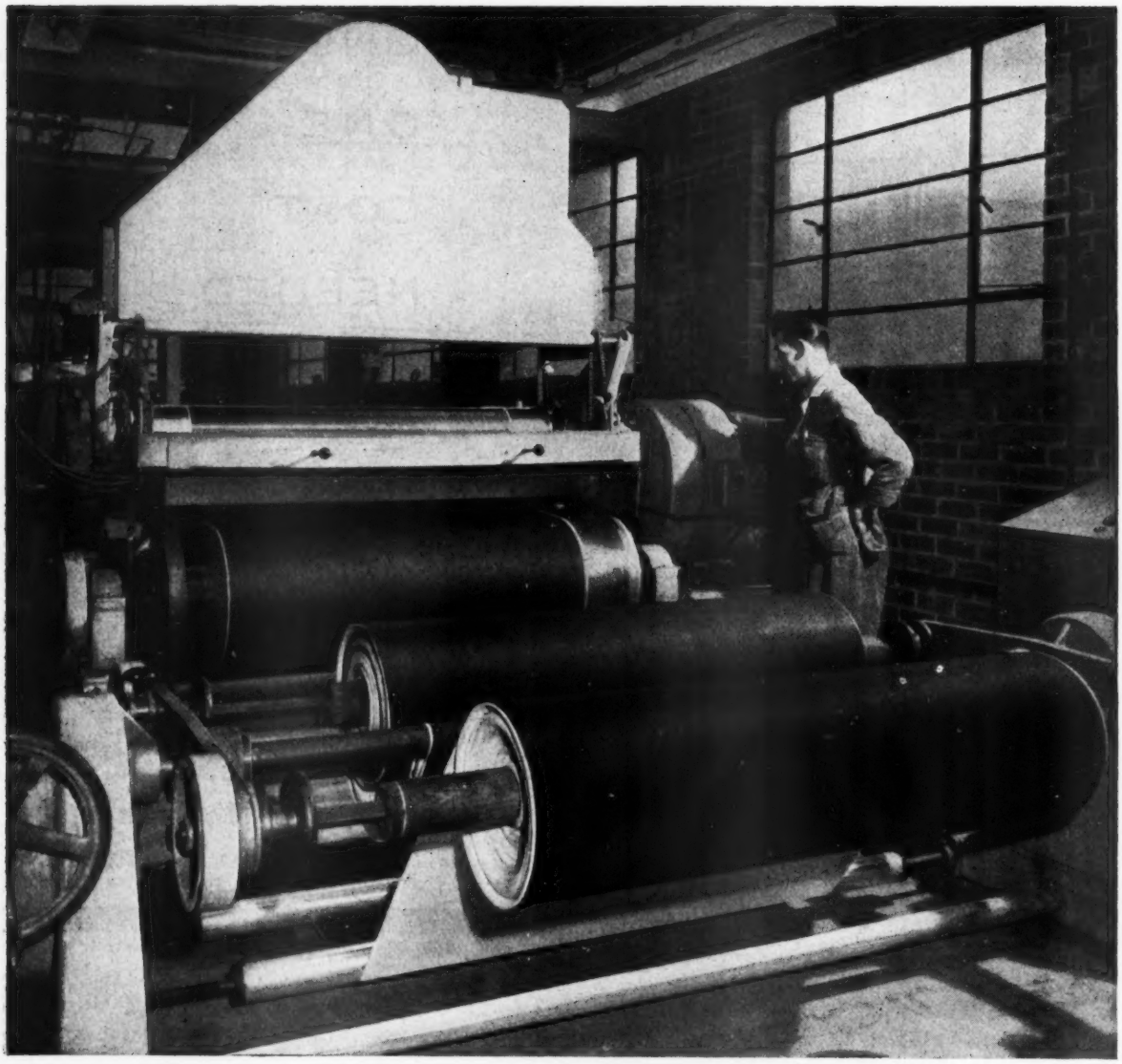
O.C.3



P.V.C. embossing unit for leathercloth or coated fabric. Picture by courtesy of the Belstaff Manufacturing Co. Ltd.

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Specially designed to meet your needs

Protection of personnel against hazards of radiation is of paramount importance.

If you are planning an x-ray department or radiation laboratory involving x-ray or gamma ray sources, let us help you with that extra knowledge of protection which we have as specialists in x-ray engineering.

Where you may be concerned with the problems of one such installation over a long period of time, we are encountering fresh and varied problems every day.

Our service includes the supply and correct application of

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Lead rubber for protective gloves, aprons and other clothing.

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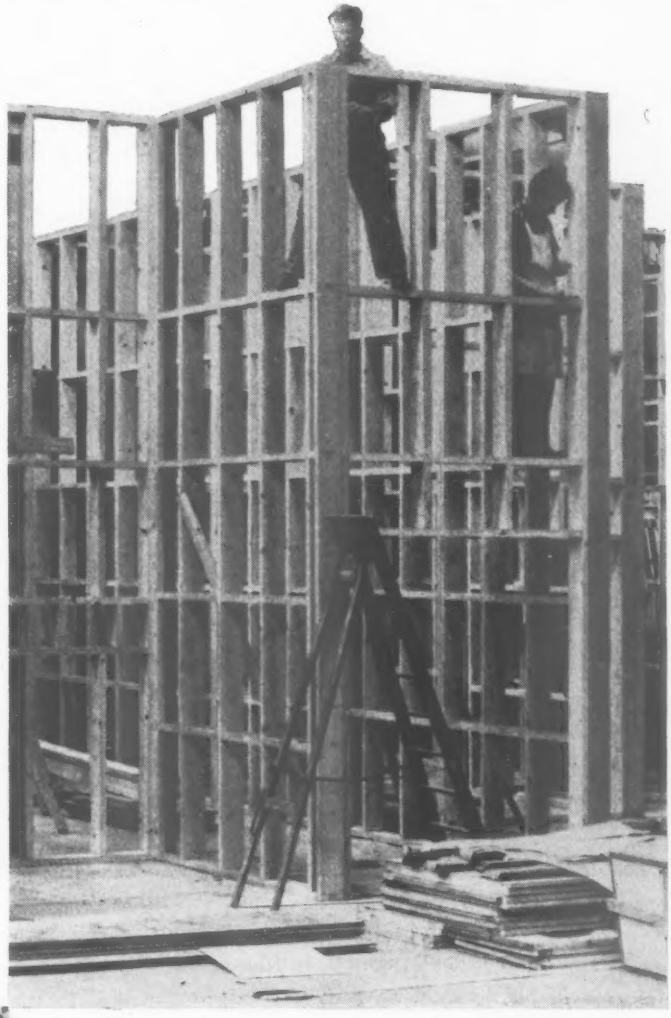
A COMPLETE SERVICE FROM NEWTON VICTOR

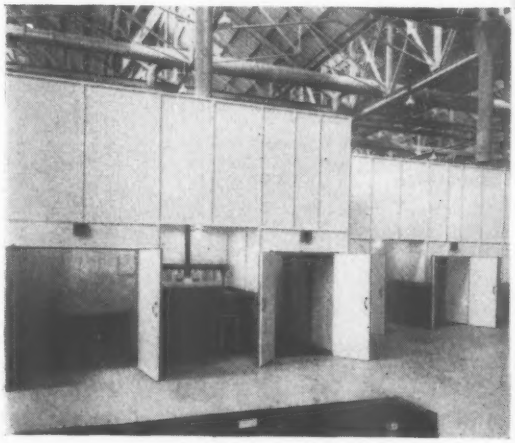
Design Newton Victor are prepared to submit full specifications and detailed drawings conforming to required measures for protection of personnel.

Fabrication They will also undertake the entire fabrication of lead ply structures, including, if required, installation on site. Installations may include entire coverage of walls, floors and ceilings, special partitions, control cubicles, hung or sliding protective doors. Ancillary equipment such as cassette hatches and observation windows can also be supplied.

Adaptation When it is necessary to change a layout to accommodate additional equipment or to strengthen protective values, lead ply panelling can be re-used with little waste. Newton Victor are prepared to advise on any such adaptations.



A Newton Victor Lead Ply Panelling Installation, incorporating partitions, door and observation windows, while under construction at the Banwell Works of the Bristol Aircraft Company Limited.



The completed installation at the Banwell works. In addition to design, manufacture and erection, Newton Victor can carry out any required finish to materials used.

For further details, you are invited to write for booklet ' X-Ray Protective Lead Ply '

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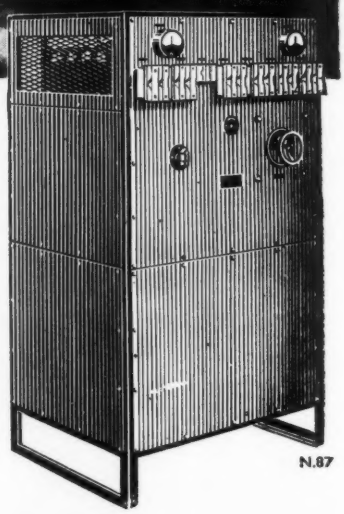

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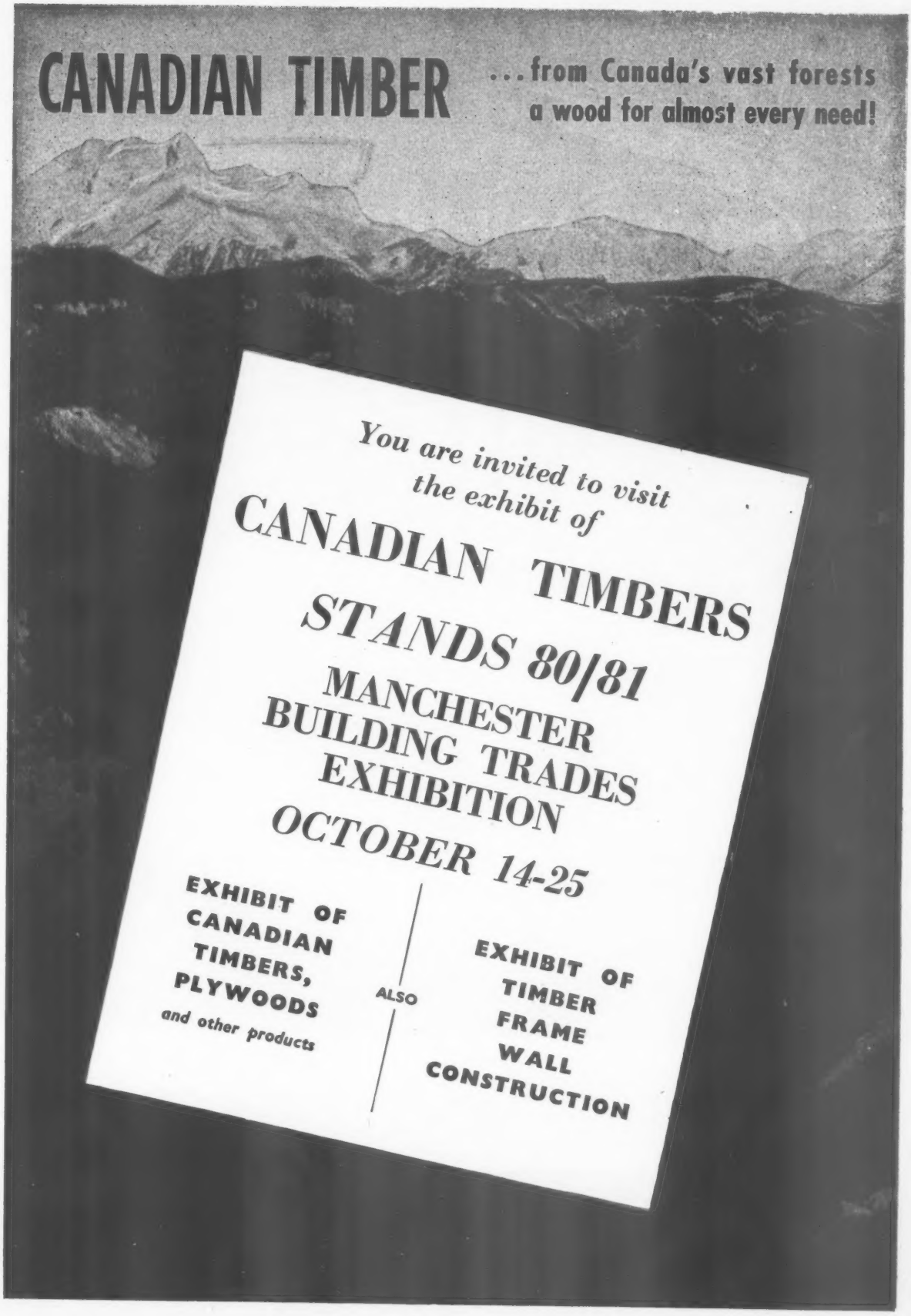
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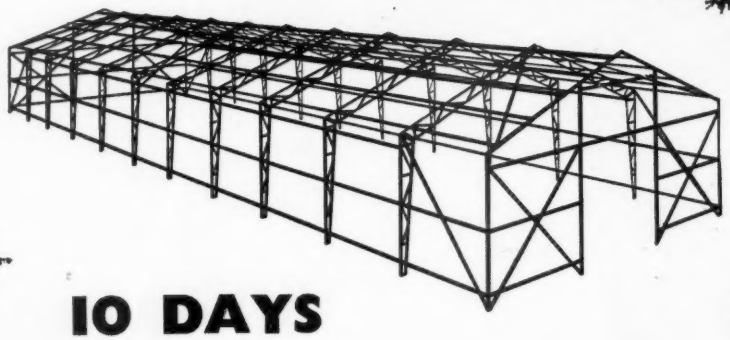
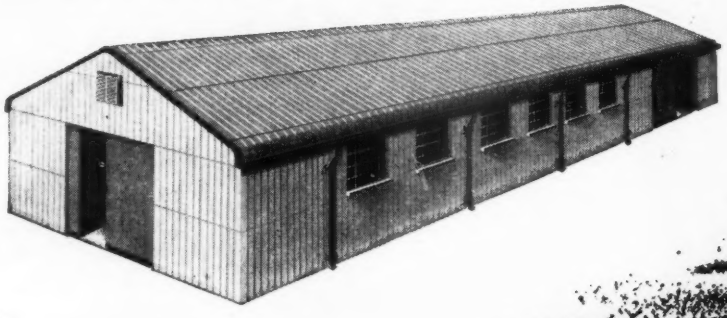


10 DAYS



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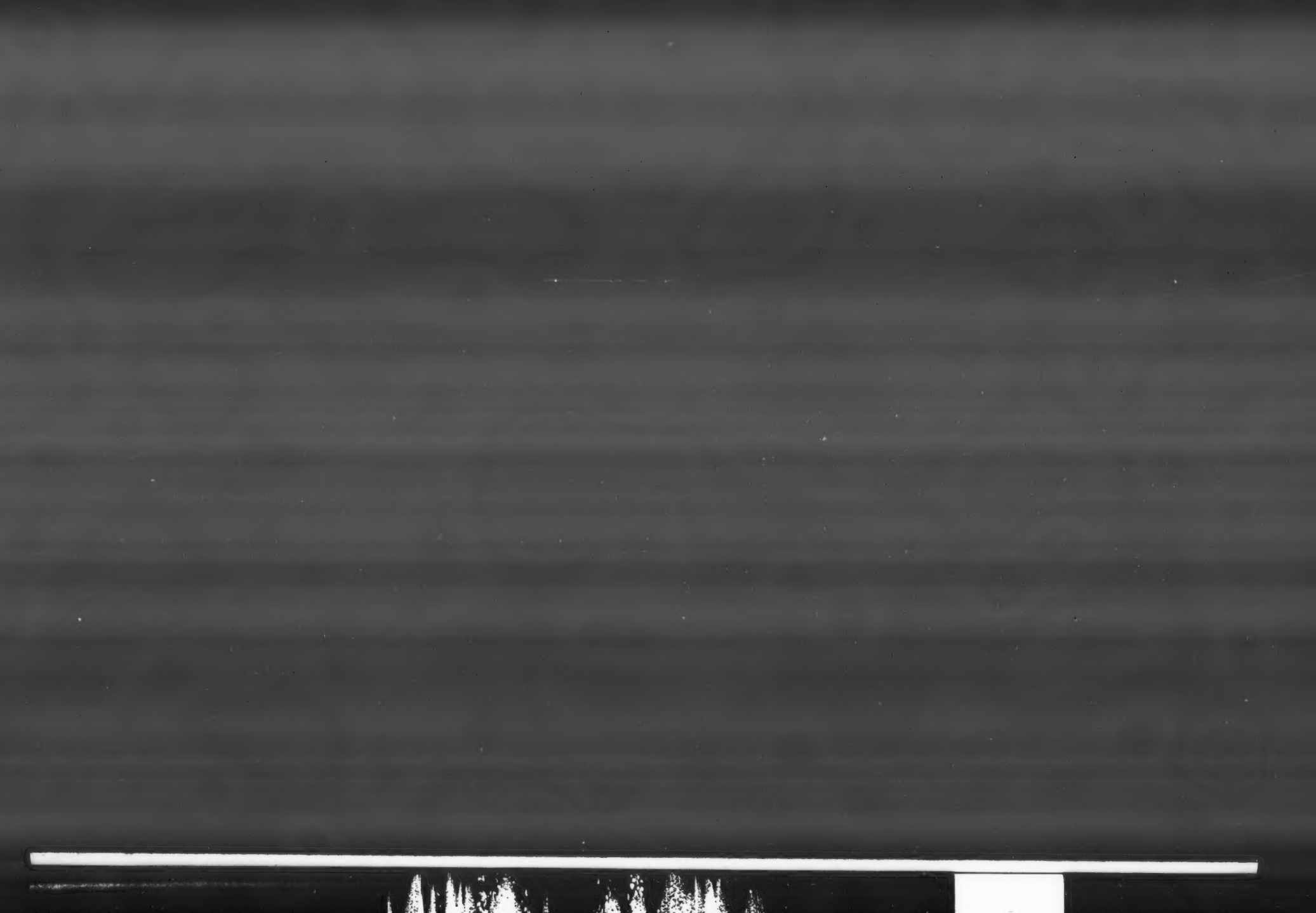

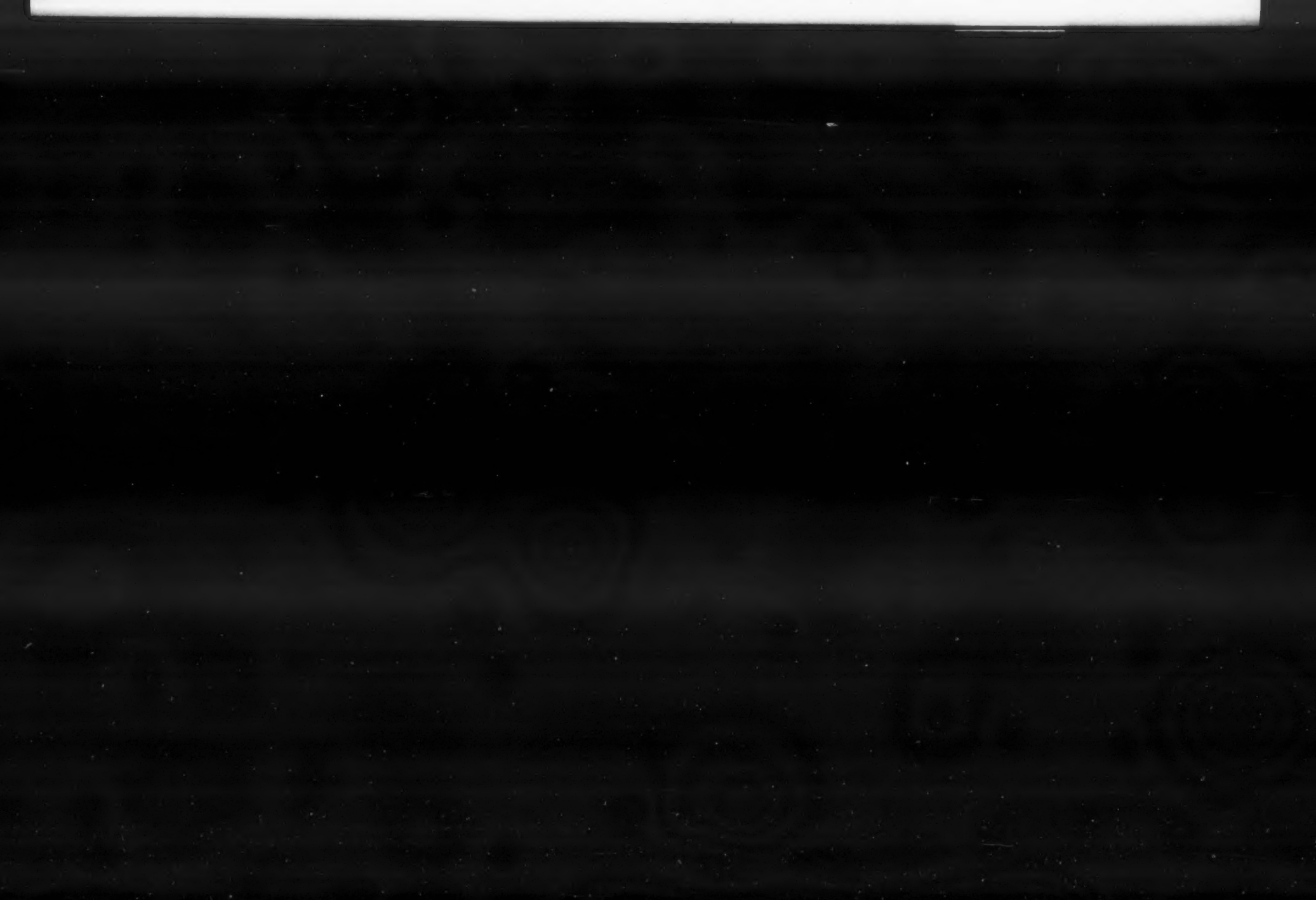

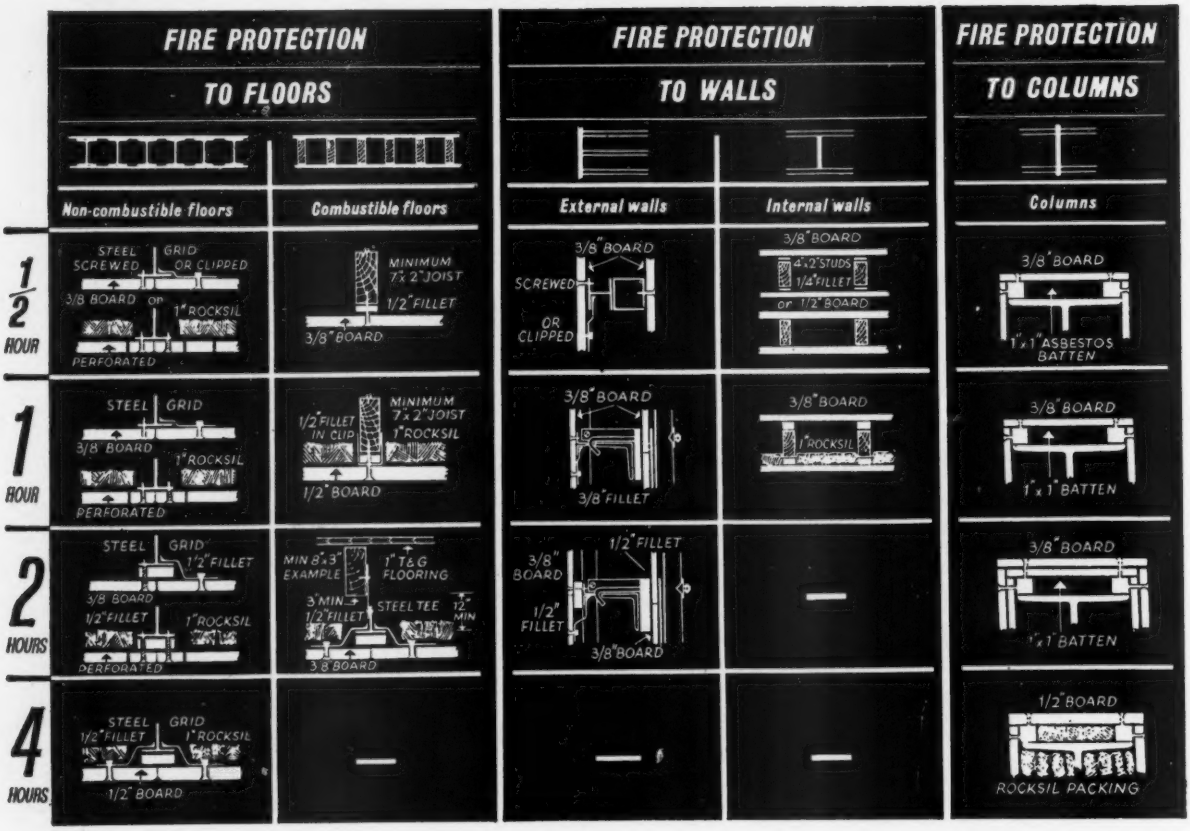

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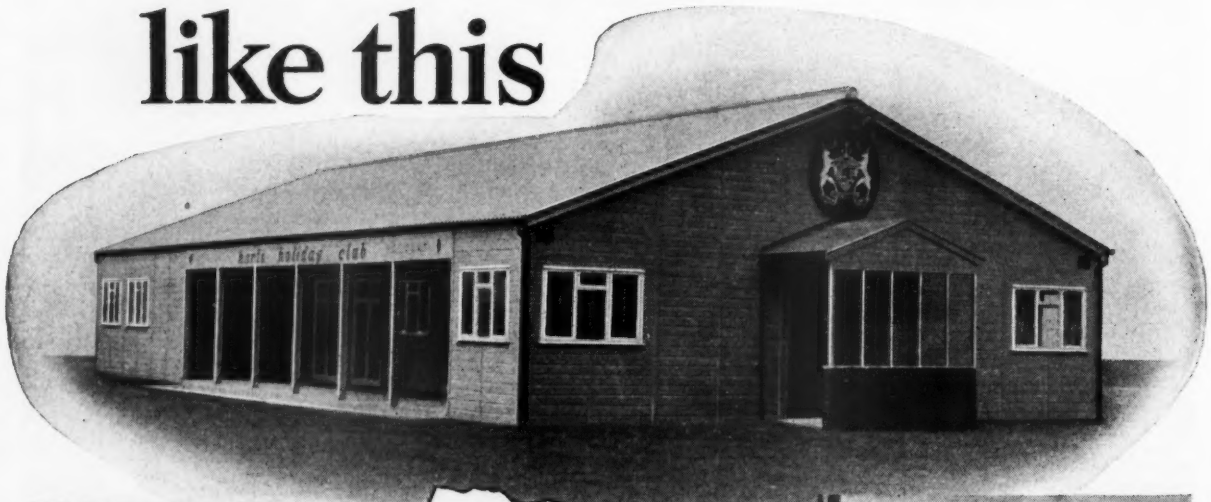

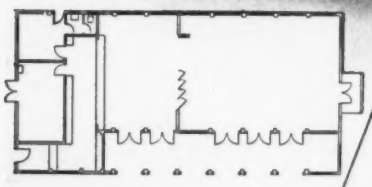

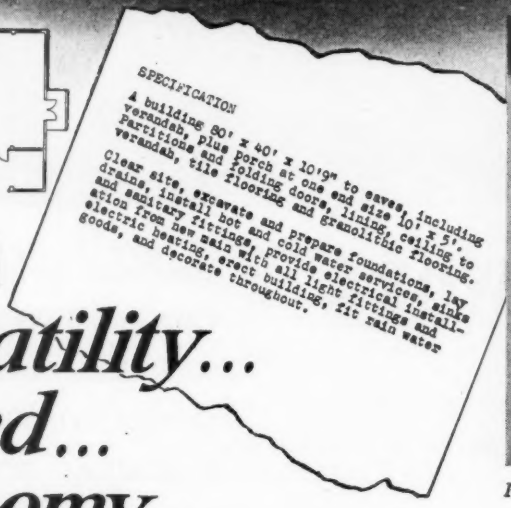

SPECIFICATION

A building 80' x 40' x 10'9" to eaves, including verandah, plus porch at one end size 10' x 5'. Partitions and folding doors, lining, ceiling to verandah, tile flooring and granolithic flooring.

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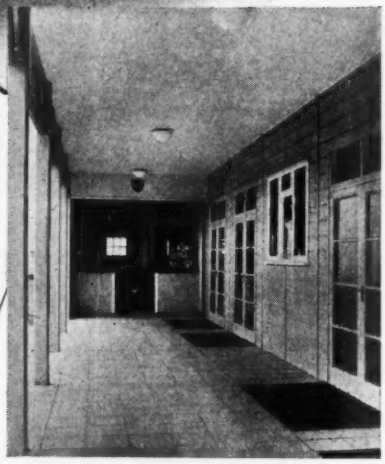

Photographs by courtesy of Hart's Holiday Club, Leysdown, Isle of Sheppey

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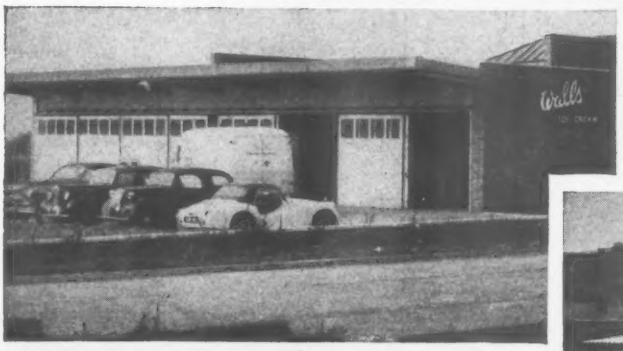
Photographs show Wall's Distribution Depots at Wigan, Lancs. Bootle, Lancs. and Wythenshawe, Manchester.

Architects : Messrs. Broadbent, Thompson & Wilson, Hillary Chambers Hillary Place, Leeds 2.



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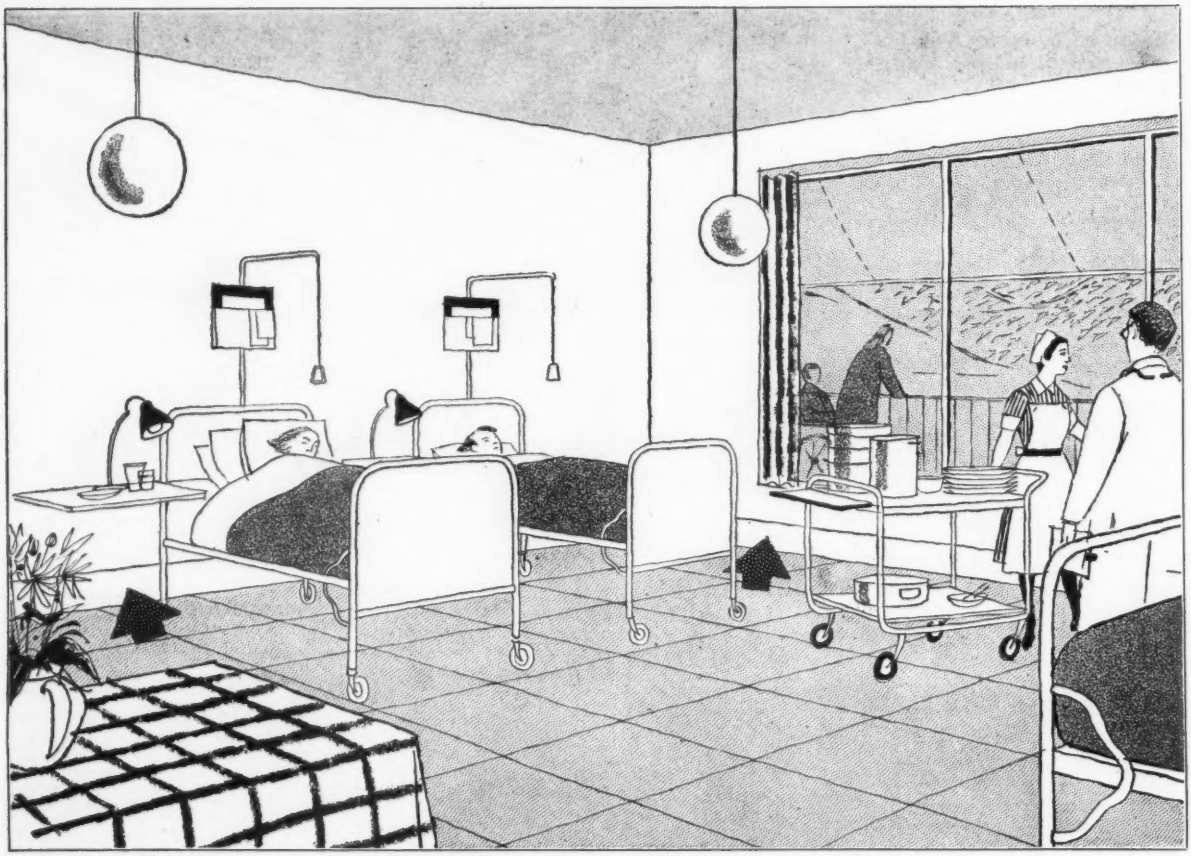

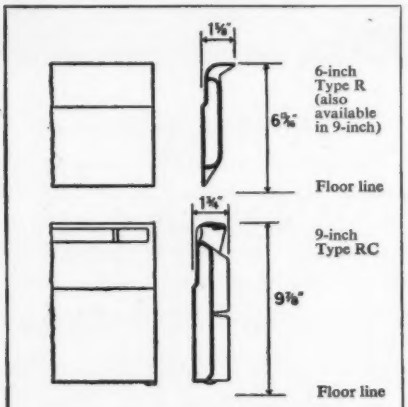

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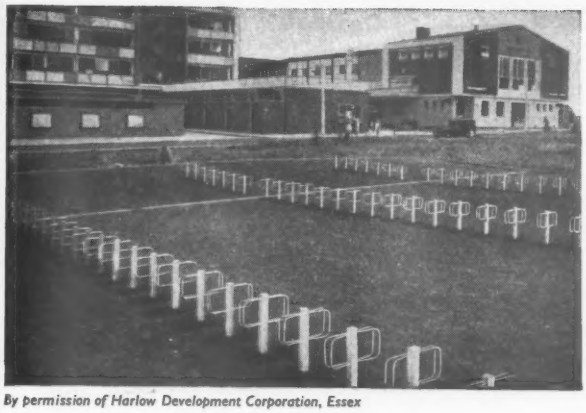
COMPLETE freedom in the disposition of the pieces of furniture in a room is always highly desirable, but probably never more clearly demonstrable than in the instance of the hospital ward. Here, one must pay full regard to flexibility in the placing of beds as well as to the need for daily ward cleaning. The question may be asked, which heating system will measure up to these stringent demands?

A heating system which finds favour with more and more architects faced with this sort of problem is Crane Skirting Heating. This system employs heating panels in place of the normal skirting boards and therefore (a) is unobtrusive; (b) is easy to keep clean; (c) is not obstructive to free arrangement; and (d) eliminates 'hot-spots'. In the accompanying illustration arrows mark the position of the panels.

Crane Skirting Heating panels are made in two types. Used here is the 9-inch Type R (radiant) which is also made in the 6-inch size for smaller heat requirements. Type RC (radiant-convector) is made only in the 9-inch size. All panels are in 2-ft and 1-ft lengths and are made of cast iron, which gives them considerable resistance to accidental damage. The operations of calculating heat requirements and designing the pipework are in principle no different from those for conventional radiator heating systems.

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

CRANE skirting heating



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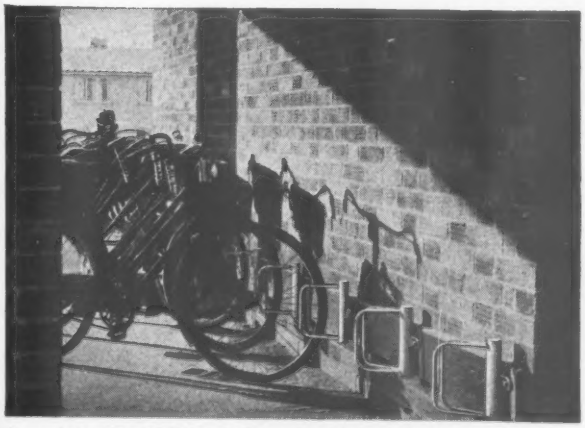

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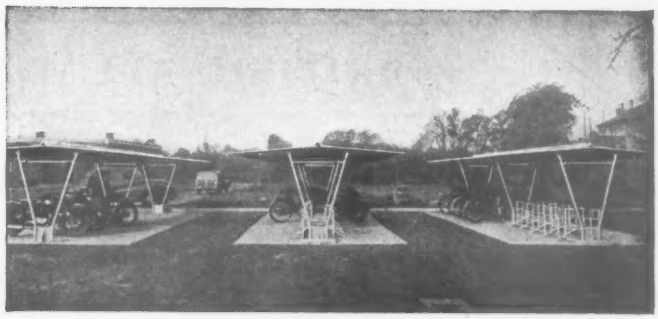

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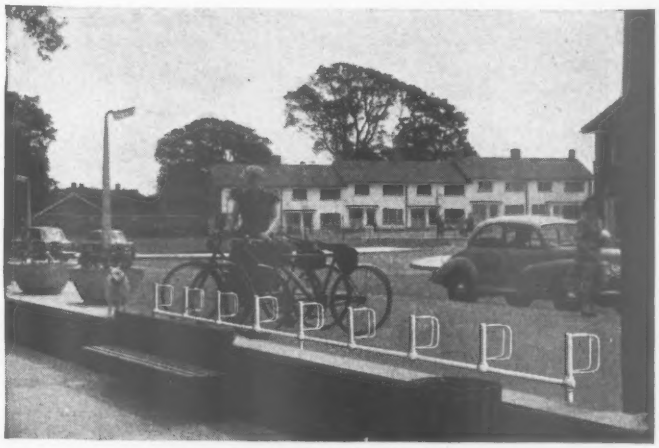

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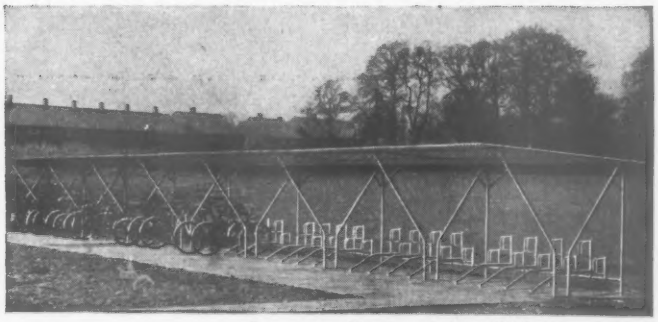

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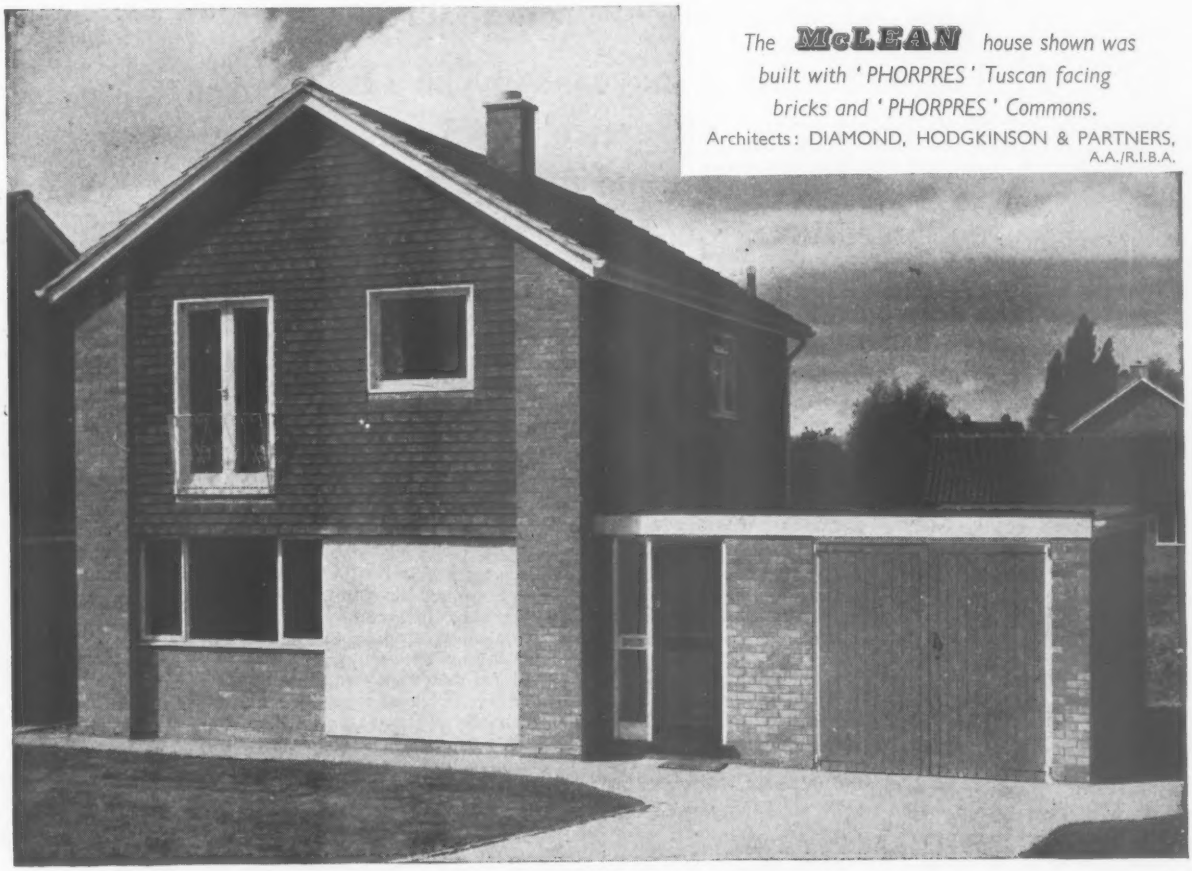

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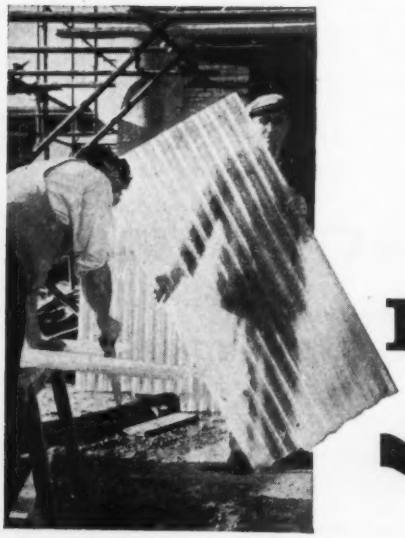

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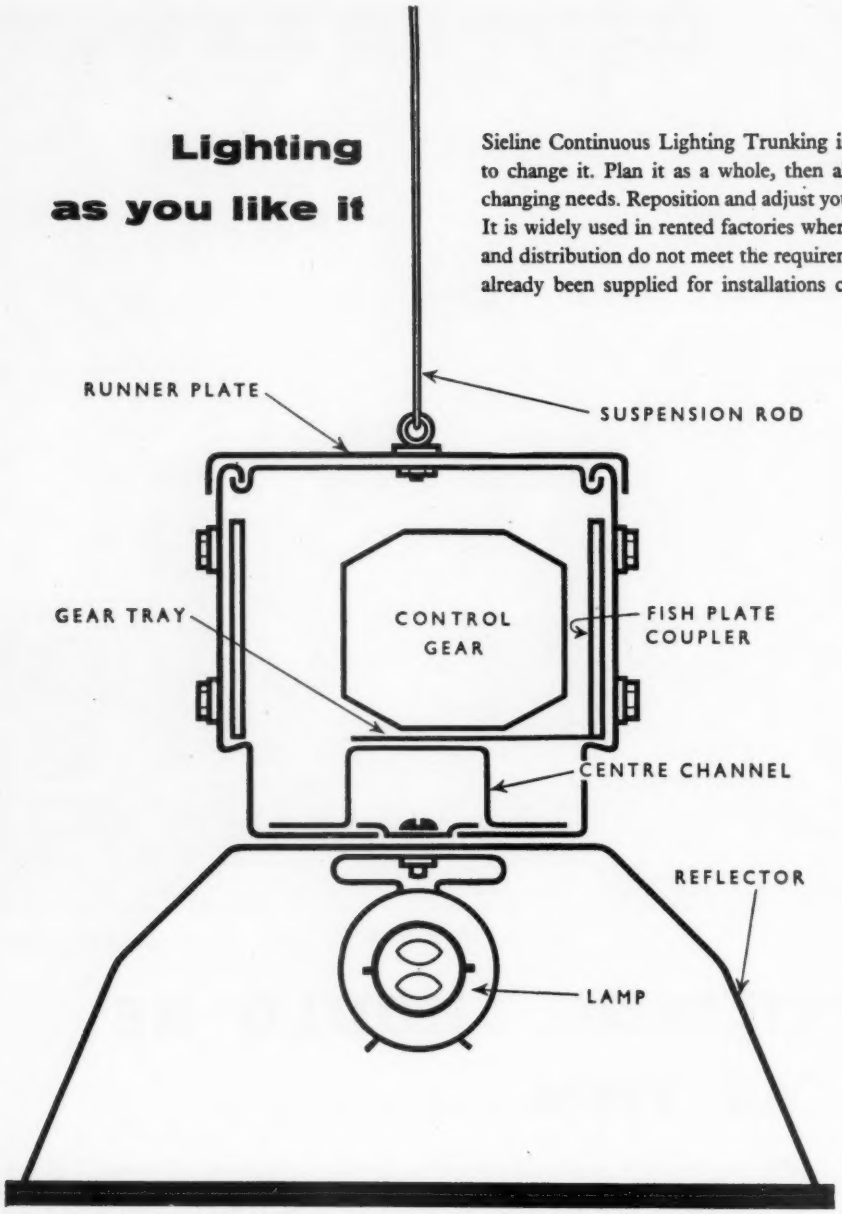
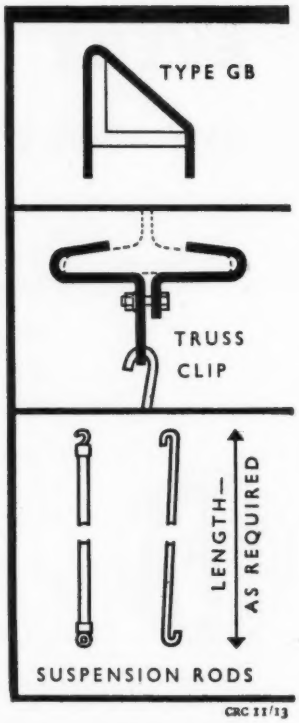


The trunking is delivered in an advanced state of assembly for easy erection. Control gear and lighting units can be spaced at any intervals. A complete range of suspensions (specimens illustrated) provides for erection under any type of roof. If you would like complete information about Sieline Continuous Lighting Trunking, write for leaflet F.22 or get in touch with your local Siemens Ediswan lighting engineer for advice—no obligation.



SIELINE continuous lighting trunking

SIEMENS EDISWAN

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Lamps & Lighting Division: 38/39 Upper Thames Street, London, E.C.4
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Architects specify...

'Rufflette' BRAND

Pat. & Regd.

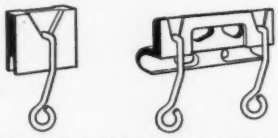
DOUBLE TRACK

Double Track is completely unobtrusive and meets the demand for a curtain track of better than usual appearance with concealed cording mechanism. Equally suitable for installation in new or existing buildings, it is the ideal system for any straight window curtain problems. The track is of pressed steel in a fine ivory enamel finish within which nylon gliders provide noiseless and smooth operation. Fitting to window recess or ceiling is simplicity itself; and the smooth, effortless cord control action puts "Rufflette" Brand Double Track in a class by itself.

For hotels, hospitals, schools and in large commercial buildings "Rufflette" Double Track is the ideal curtain suspension system.

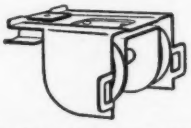
TRACK LENGTH

This diagram shows the beautifully designed lines of the track providing dust-free housing for the internal components.



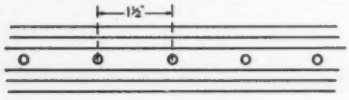
SINGLE & MASTER GLIDERS

These gliders are made in nylon to give a high degree of efficiency with a minimum of noise. Curtains hang from the eyes attached to the glider.



DOUBLE PULLEY UNIT

Vertical double pulleys made in nylon are fitted in this neat housing which is affixed to the end of the track.

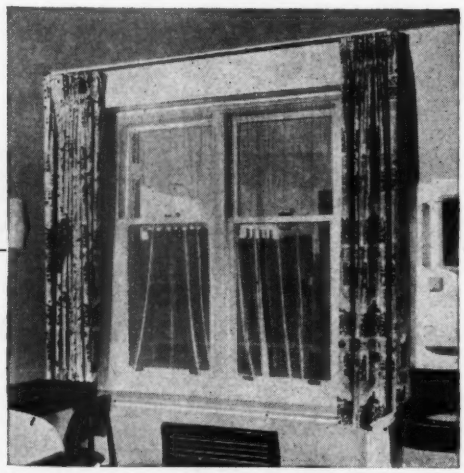


FIXING HOLES

Holes of $\frac{1}{16}$" diameter are drilled at intervals of 1½" along the full length of the Double Track section to facilitate fixing. Face fixing brackets are available if required.

SINGLE PULLEY UNIT

The single horizontal pulley made in nylon is fitted in this neat housing at the opposite end of the track.

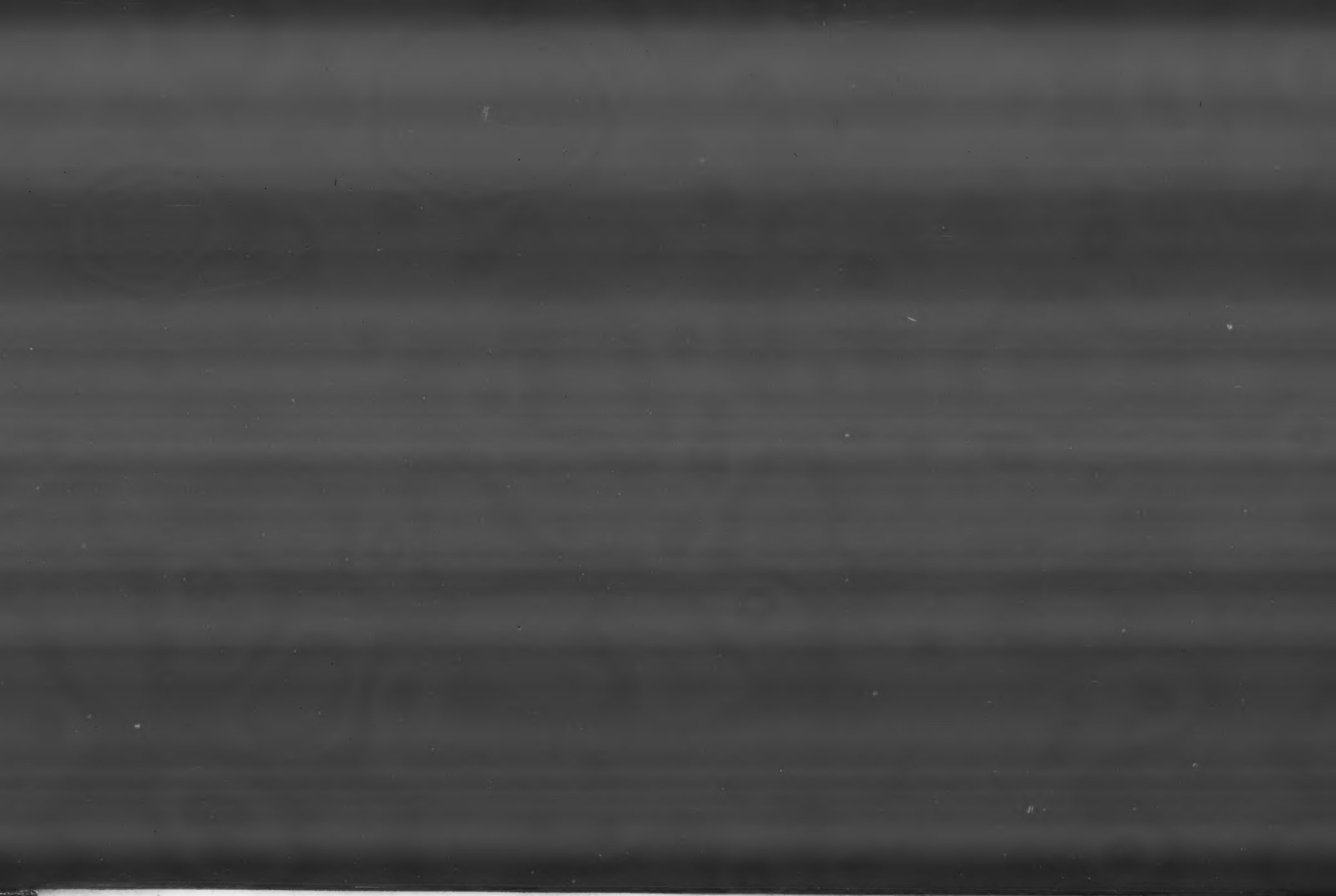


One of the many windows equipped with 'Rufflette' Double Track at the Strand Palace Hotel, London (by courtesy of J. Lyons & Co. Ltd.)

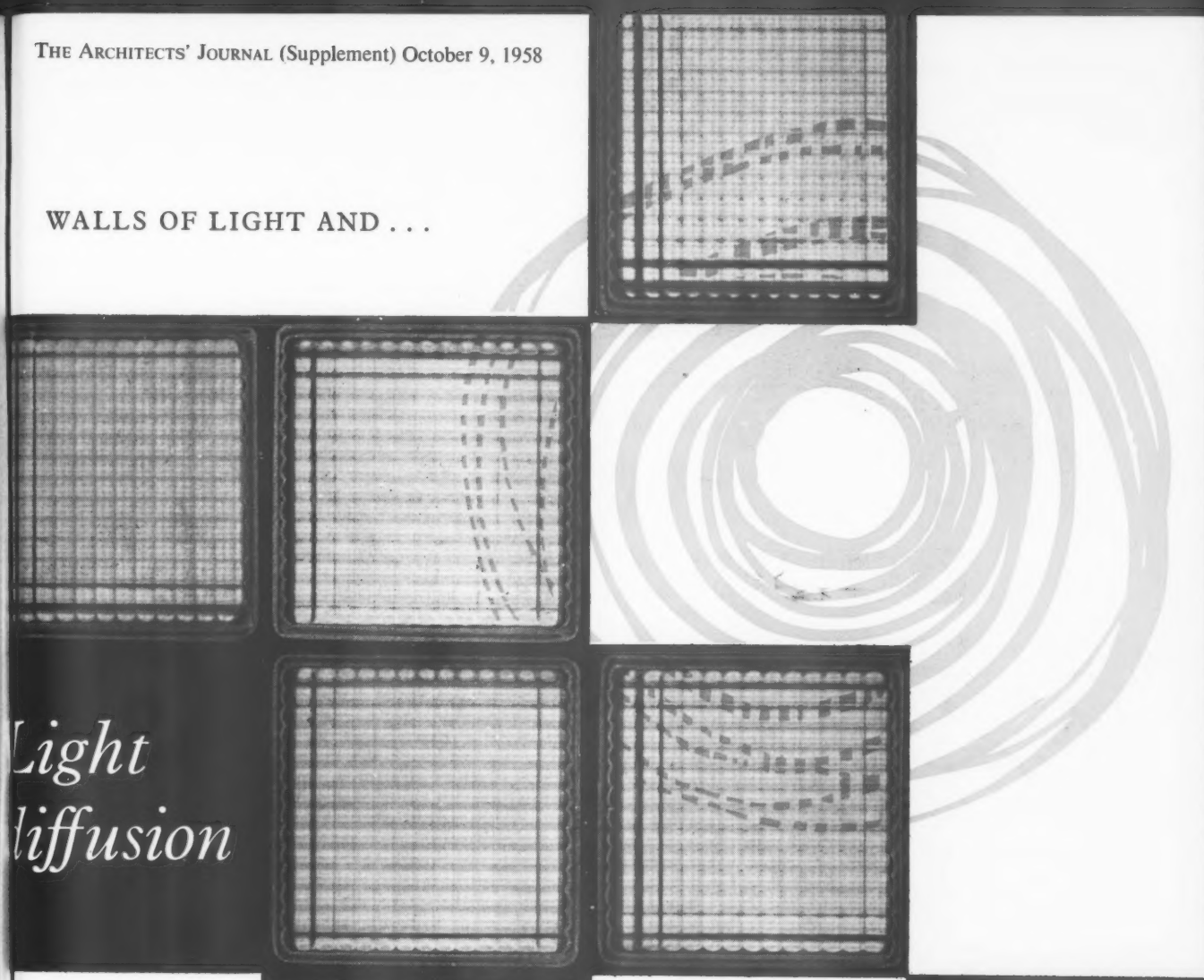
Full information about Double Track suspension on request to:

THOMAS FRENCH & SONS LTD., CHESTER ROAD, MANCHESTER, 15.

London Office: Dundas House, 59 St. James's St., S.W.1. *Also at Wythenshawe. Associate or Subsidiary Companies in Canada, New Zealand and France*



WALLS OF LIGHT AND . . .



Light diffusion

The important diffusion properties of 'INSULIGHT' Hollow Glass Blocks mean that part of the light is directed upwards. The result is that more direct light, as well as reflected light from the ceiling, is received at points furthest from the daylight source. The diffusion of light also helps to cut down sun or sky glare.

'INSULIGHT' Hollow Glass Blocks make possible light-transmitting walls and roofs without the disadvantages of lost heat and invasion of noise. They provide in one element good light transmission with outstanding diffusion, resistance to fire, insulation against sound as well as reduction of heat losses and incoming solar heat. With their maintenance-free and weather-proof surfaces, 'INSULIGHT' Hollow Glass Blocks are the ideal material for non-load-bearing panel walls.

'INSULIGHT' is a registered trade mark of Pilkington Brothers Limited. Supplies are available through the usual trade channels.

"INSULIGHT" *Hollow Glass Blocks*

A UNIQUE MULTI-FUNCTIONAL MATERIAL

For further information write to the manufacturers

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Beautiful

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

"Standard"

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

Durable...

Whilst the beauty of these appliances can be appreciated at a glance, it takes a lifetime to discover how durable they are. For with Vitreous China comes a higher resistance to harsh treatment than with ordinary ware. Much higher. Their beauty lasts; it is difficult to mar even by accident. And because "Standard" Sanitary Ware made of Vitreous China lasts and lasts, its cost for each year of service is much lower.

Hygienic...

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

Vitreous China

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

Visit our Stand No. 29 at the Building Trades Exhibition, Manchester, October 14th-25th.

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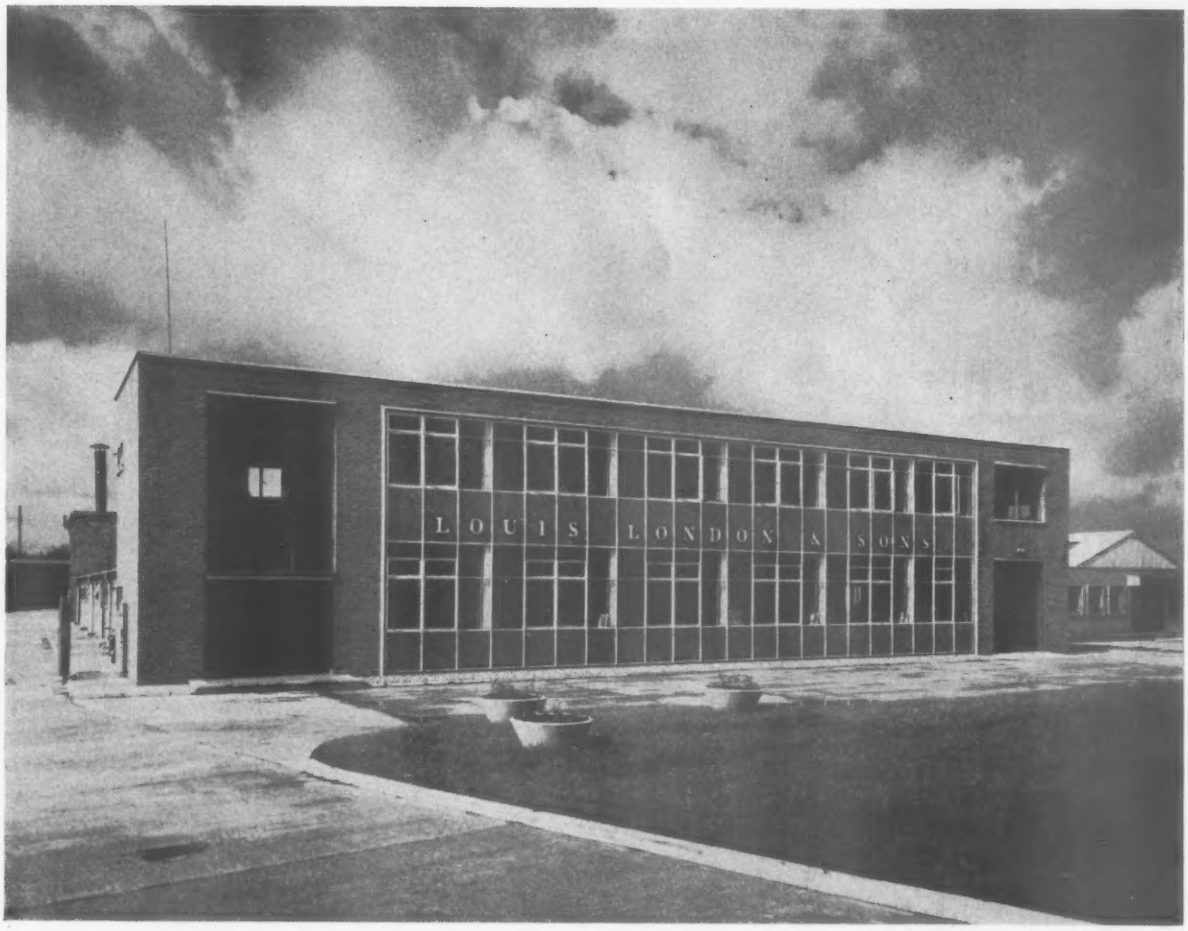

Office Block, Louis London & Sons, Cheney Manor, Swindon
J. Loring Morgan A.R.I.B.A., A.M.T.P.I. Borough Architect
Metal Windows by Williams & Williams Ltd.
General Contractors: Pope Bros.
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TRICO

VITREOUS ENAMEL
Weatherproof Building Panels

COMPOSITION: Mild Steel Sheets with or without flanges, covered all over with weatherproof vitreous (glass) enamel. May then have a backing material such as asbestos, cork, insulating board, glass or mineral wool, etc.

ADVANTAGES: Hard, weatherproof, scratch and corrosion-resisting surface of permanent colour. PLUS strength (cannot crack through). Erection possible in all weathers.

MAINTENANCE: Washing down only.

COLOURS: Available in an almost unlimited choice.

TEXTURES: Full gloss, satin finish, stencilled, marbled, stippled, roughcast.

WEATHER RESISTANCE: Permanent.

THERMAL INSULATION: Readily obtained down to U=0·2 or lower if required.

PREFABRICATION: Complete at factory. Can be moved entire from one site to another.

WEIGHT PER UNIT AREA: 3-10 lbs. per 59 sq. ft. Average area 12 sq. ft. Preferred maximum size about 6 ft. by 4 ft.

Data Sheets and detailed information available on request.

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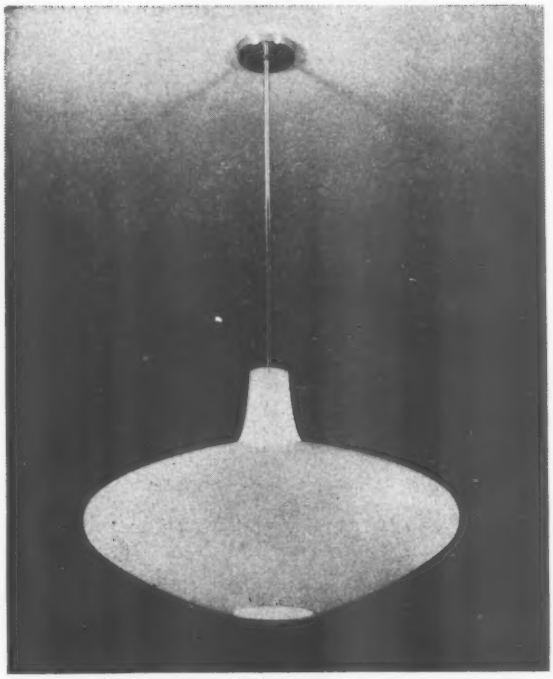
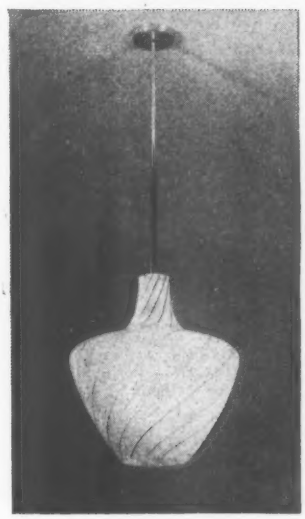
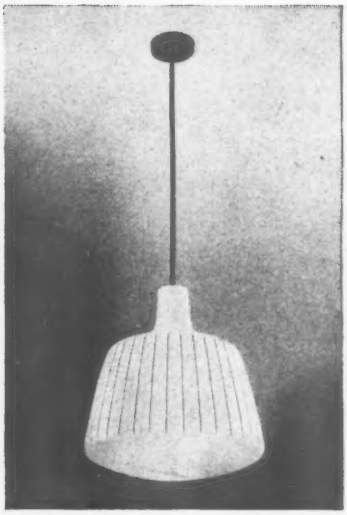
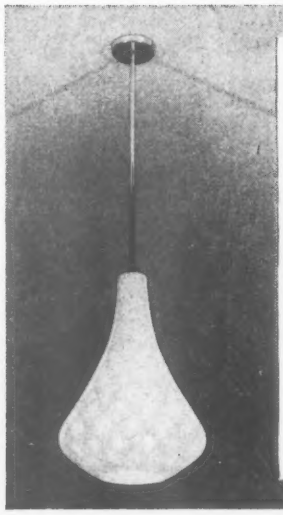


interesting new fittings

in decorated glassware







Top **A.521**
White flashed opal glass, satin finished 20 in. diameter.

Left **A.535**
Obscured glass with alternate mauve and white spirals 12 in. diameter.

Centre **A.528**
White flashed opal with alternate black and yellow lines 12½ in. diameter.

Right **A.547**
White flashed opal with bubble decoration 10¼ in. diameter.

Normal overall length supplied 3 ft.

These new designs by Troughton & Young are the latest additions to the MONDOLITE range of lighting fittings and consist of four basic shapes available in plain flashed opal glass, plus a selection of decorative effects. All glassware is open at the bottom to allow re-lamping, and to prevent the accumulation of dust and insects. Lamp size up to 200 watt. The glassware is easily removed for cleaning without the aid of tools. Suspensions are available in satin black or polished brass.

Write for leaflet ref: TYL 14/AJ

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TROUGHTON & YOUNG (Lighting) LTD., *The Lighting Centre,* **143 Knightsbridge, London, S.W.1.**
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SPECIAL FEATURES

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Parallel Arm fitted with hold-open device List No. PA1166LH (hand required must be specified) PA1166RH
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Standard Closer complete with soffit bracket . . List No. SB66
Standard Closer fitted with hold-open device and complete with corner bracket List No. CB1166
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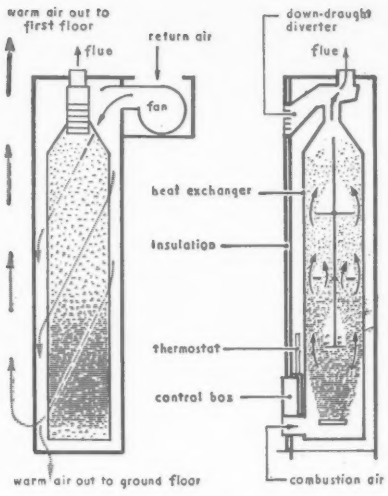
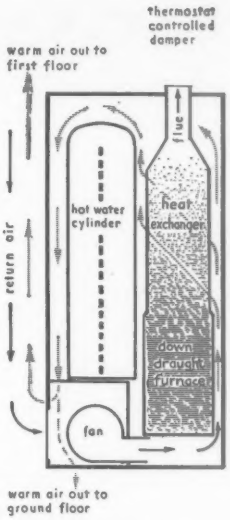
DUCTED WARM AIR

gives a HIGHER COMFORT STANDARD than ANY OTHER HEATING SYSTEM





The best DUCTED WARM AIR system is called RADIATION DUCTAIR

These are the main advantages of ducted warm air heating:—

Speed of response—adjustment of the room thermostat alters temperature faster than is possible by any other system (e.g. to raise a room of 1500 cu. ft. from night background temperature of 55°F to 'breakfast-time' 60°F takes only 20 minutes, where insulation is to Egerton standards.) As soon as the thermostat calls, the full rated output of the unit is made available.

Flexibility. Speed of response means fuel economy can be effected by turning down the thermostat when rooms are not in use, knowing that the temperature can be restored quickly when required. (This is very valuable in, e.g., schools where intermittent heating is required.) For further economy whole rooms can be "turned off" by closing outlet grilles.

Uniformity of temperature distribution. *Low level* discharge and high level return allow very low temperature gradients. This avoids that "cold feet and hot head" feeling characteristic of some older systems.

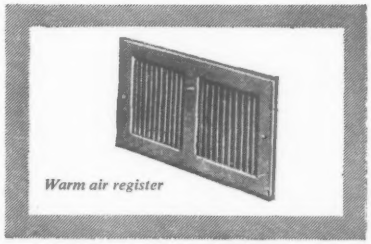
Freedom of planning—by heating the *whole* building *all* the enclosed space becomes useful space. Ducts are easily accommodated at planning stage and they make no demands on wall space. Outlet and return grilles are unobtrusive. Ducted warm air makes both "open" and conventional planning easier and offers scope for new ideas.

Clean heating—since warm air is "moved" into the room—instead of merely rising from an outlet—there is no discoloration of walls. (The warm air has, of course, no contact at any point with flue gases.)

Ventilation—the circulation of warm air is stimulating to the occupants and does away with the "heavy" feeling associated with earlier forms of central heating.

Clothes drying—efficient drying cupboards can be incorporated simply and cheaply. This is of particular value in multi-storey flats.

Drying out. A warm air system can be used



Warm air register

to speed the drying out of new buildings for early occupation.

Here are the reasons why:—

Running costs—Radiation engineers take running costs to be the true efficiency index of an appliance. Here is a short example—many others, in detail, may be seen on request. *Bungalow at Oulton Broad, Suffolk. 1500 sq. ft. insulated to Egerton standard. Heated by Ductair 0.50. Average oil consumption over 2 years (heating period 1 Oct. to 31 March) . . . 625 gallons domestic fuel oil. Standard of heating attained: Living room 60° F. Bedrooms 55-60° F (day and night averages.) N.B.* plus *domestic hot water during heating season. Out of season hot water by immersion heater.*

Installation costs—the Ductair system is cheaper than, for example, a fully thermostatically controlled radiator system using comparable fuel. Detailed comparisons are available.

Precision construction—tailored to the particular requirements of each contract, all Ductair is of the highest workmanship. This is essential in producing units of accurately predictable performance to give years of trouble free service.

Nationwide network of Radiation-trained stockists. To speed design and on-site work, Radiation have established more than 40 fully trained area stockists to provide real "head office" attention near your site. Regional design specialists can be called in by any stockist to meet new or unusual problems. Radiation offers a full after-sales service for Ductair equipment.

10 years' working experience in Britain. After a detailed examination of the best American practice in this field and research, Radiation have developed the Ductair system over ten years. This gives Radiation unrivalled experience *under the actual climatic and living conditions peculiar to this country.*

50 year background of research and experiment Radiation technicians, for well over 50 years, have been concerned with making better use of fuel. This is reflected in the simplicity of the highly efficient equipment they have evolved. It means too that Radiation engineers have an unusual ability to see their own system against a background of many alternative systems—an understanding particularly valuable at discussion stage.

RADIATION DUCTAIR is more than just another central heating system. It offers a fully integrated service to architects and builders. Its aim is to raise comfort standards and to make possible the more efficient use both of fuels and building space.

DUCTAIR units (of all sizes, powered by Solid Fuel, Gas, or Oil) have been successfully installed in buildings of all kinds—from houses to shops, flats to schools, churches to pubs. Write to us about the sort of buildings that are of interest to you. We particularly welcome new problems—we've been solving them all our working lives.

DUCTED WARM AIR *systems offer all these advantages and, where required, hot water can be produced by utilising the heat of the appliance "when idling". There is clearly a strong case for warm air heating as such—but which particular system? We believe that* Radiation Ductair *is best able to answer your needs.*

Radiation DUCTAIR

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FUNCTIONAL . . . ATTRACTIVE . . . INEXPENSIVE . . .

90 in. diameter ARKAY Glass domes of ⅜ in.–½ in. Rough cast plate. Architects: Adie Button & Partners. Photograph by courtesy of A.P.V. Ltd., Crawley, Sussex.

Rectangular and spherical Arkay glass domes possess many advantages in introducing light from flat roofs.
Single glazing units, they thus:—
Provide maximum light transmission
Eliminate maintenance
Are easy to clean
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Can incorporate any normal ventilating system
Are available from stock in standard sizes and can be delivered to site within one week.
Regular production also includes domes in ¼ in. Wired Cast, ⅜ in. and ½ in. Rough Cast glass. Special sizes and shapes can be produced to specification.
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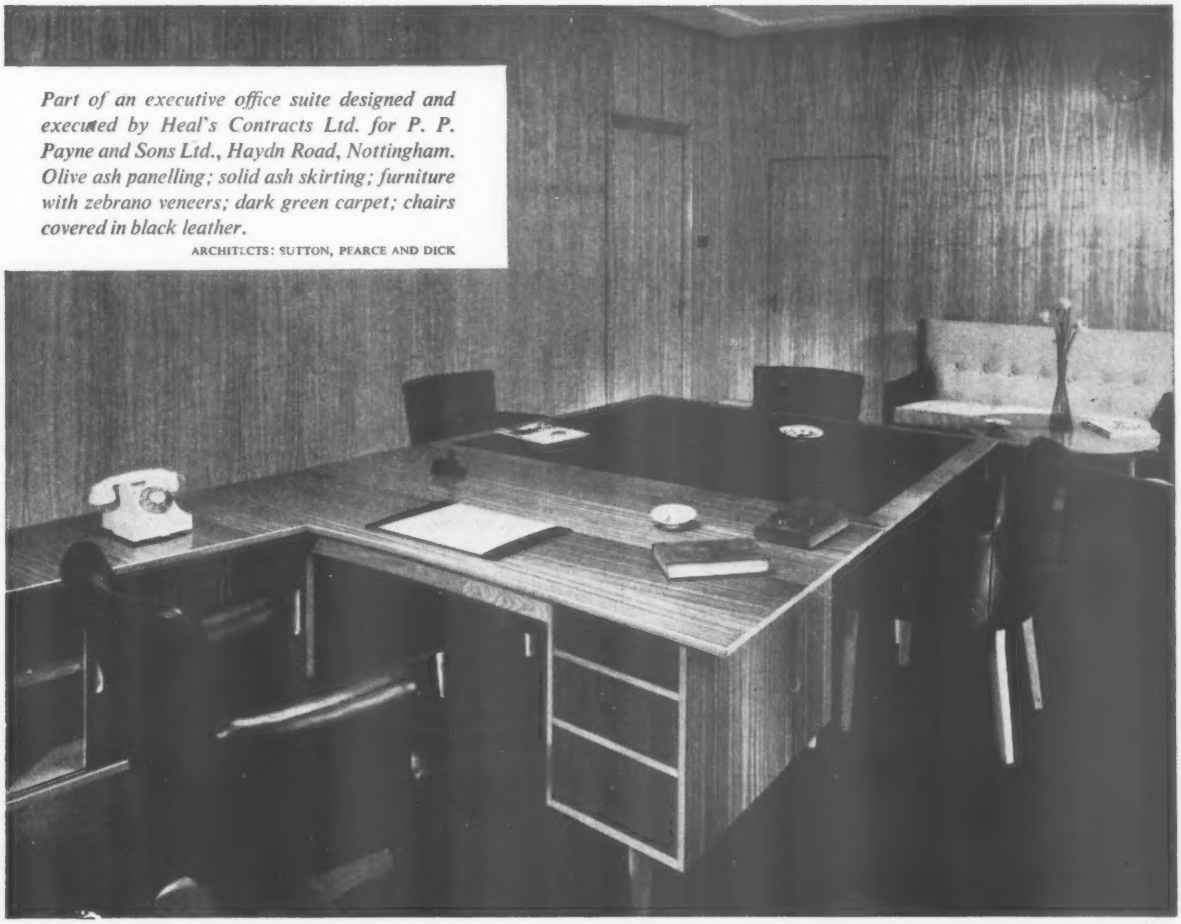

Part of an executive office suite designed and executed by Heal's Contracts Ltd. for P. P. Payne and Sons Ltd., Haydn Road, Nottingham. Olive ash panelling; solid ash skirting; furniture with zebrano veneers; dark green carpet; chairs covered in black leather.

ARCHITECTS: SUTTON, PEARCE AND DICK

Problem at the summit

Time and again our senior representative has found when talking to company chairmen that many of them have experienced a need for an office-cum-boardroom on occasions when the use of the boardroom is inappropriate. When, for instance, two or three directors are called together to discuss a business matter with the chairman. Or when a client brings several advisers along to a consultation.

Most chairmen find it easier to control such meetings when they take place round a table, and so we at Heal's Contracts have devised a chairman's desk (with many special fittings) which has an extension (any length) round which business can be discussed and listened to more easily.

We should be happy to discuss the possibilities of this idea either in our showrooms or by appointment at your office.

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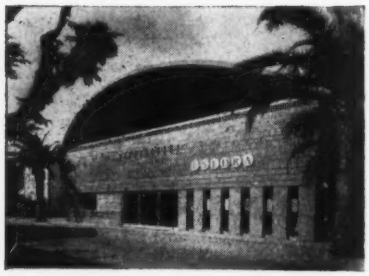
ar

OCTOBER

Cinema in the Pineta; designed by Eugenio M. Rossi, and sited near the Roman Coast, its design involved some ingenious thinking about late-night ventilation in a close, damp climate.

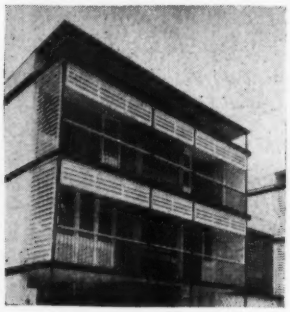


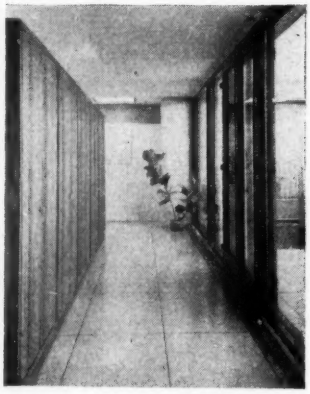
Brick and Concrete at Ham; a detail of wall, floor-slab, ventilator and gargoyle from a new flatted development at Ham Common by James Stirling and James Gowan.

Air Line Office; a tall black column in the new booking offices of Air France in Bond Street; designed by Charlotte Perriand (in collaboration with Peter Braddock), the first work in England of a designer who assisted Le Corbusier on some of his most famous interior work.

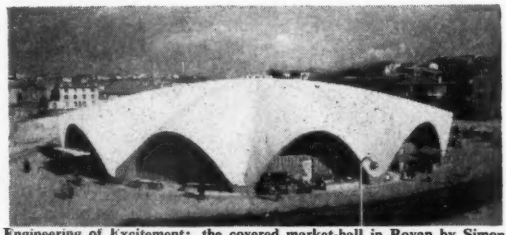
NOVEMBER

Sun-screens in Apapa; housing for the Nigerian Ports authority—this, and other recent work in West Africa by Architects' Co-Partnership will be described and illustrated in the October issue.





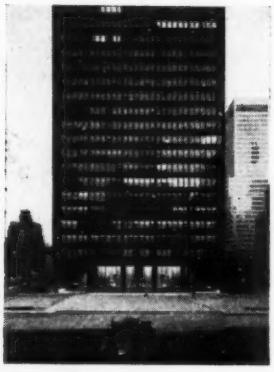
Toronto Modern: the central gallery of the Parkin House, Toronto, one of a group of buildings by the outstanding Canadian design office John B. Parkin Associates, illustrated in this issue.



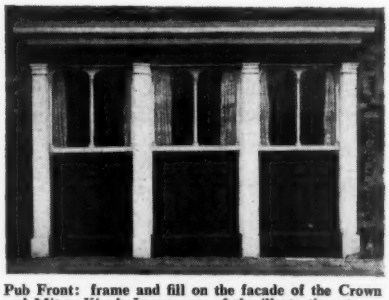
Engineering of Excitement; the covered market-hall in Royan by Simon and Morisseau, one of the buildings discussed by Robin Boyd in his article on the impact of new structural shapes on the architectural imagination.

DECEMBER

Seagram completed; and dwarfing even the Cadillac in foreground, the glass and bronze Seagram Building by Philip Johnson and Mies van der Rohe will be fully discussed and—tentatively—evaluated.



Workshop Annexe: new stores, paint shops, etc., for the Old Vic, ingeniously packed under some awkward daylighting angles by Lyons Israel and Ellis, and fully illustrated in this issue.



Pub Front: frame and fill on the facade of the Crown and Mitre, King's Lynn: one of the illustrations to an assessment of the aesthetic and functional aspects of pub exteriors and their future.

The Architectural Review's new standard binding, with alternate years bound in black and white, and alternate volumes initialled A and R, makes easier the identification of individual volumes, and their proper replacement on the shelf. The binding is buckram, and the price of binding per volume is 25s. Copies to be bound should be addressed, with the appropriate index, direct to the Architectural Press warehouse, Abbey House, 8 Victoria Street, London, S.W.1.

The annual post free subscription rate payable in advance is £3.3.0 sterling; in U.S.A. and Canada $10.50; elsewhere abroad £3.10.0.

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

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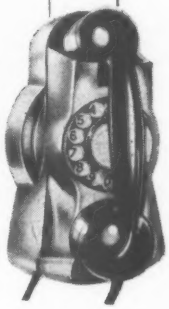

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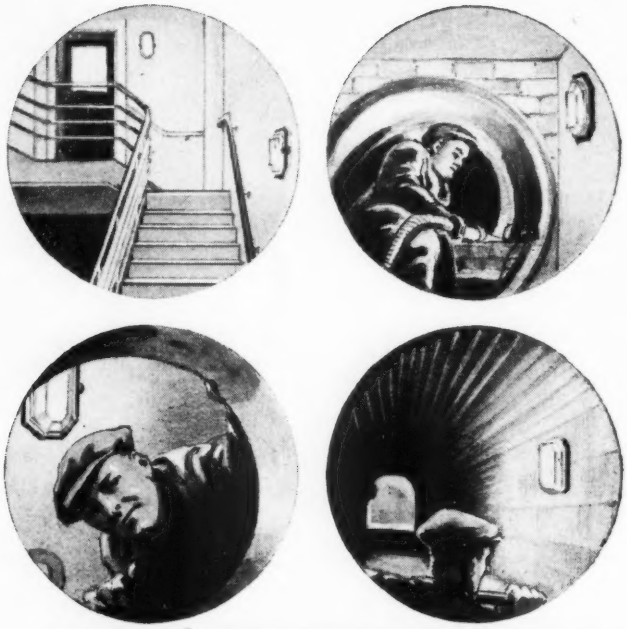

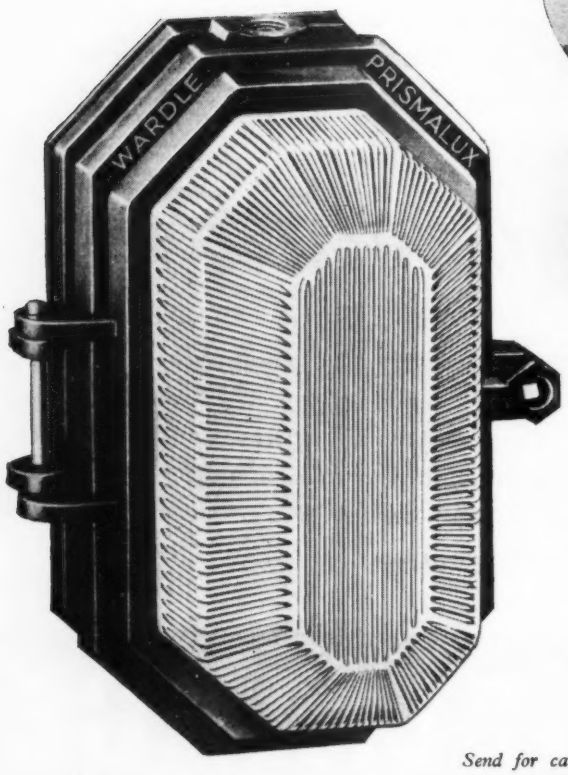

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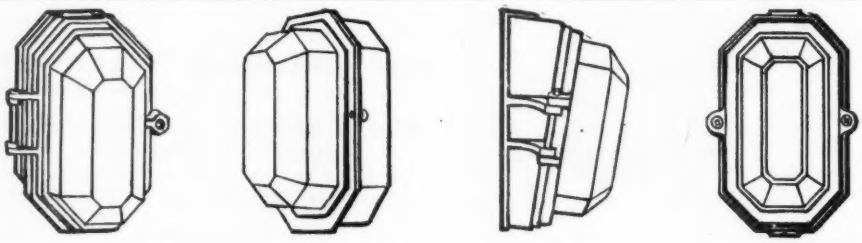

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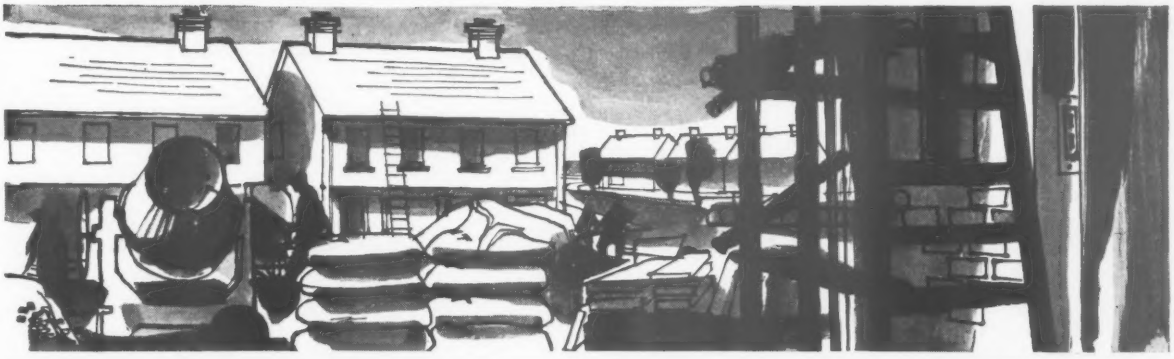

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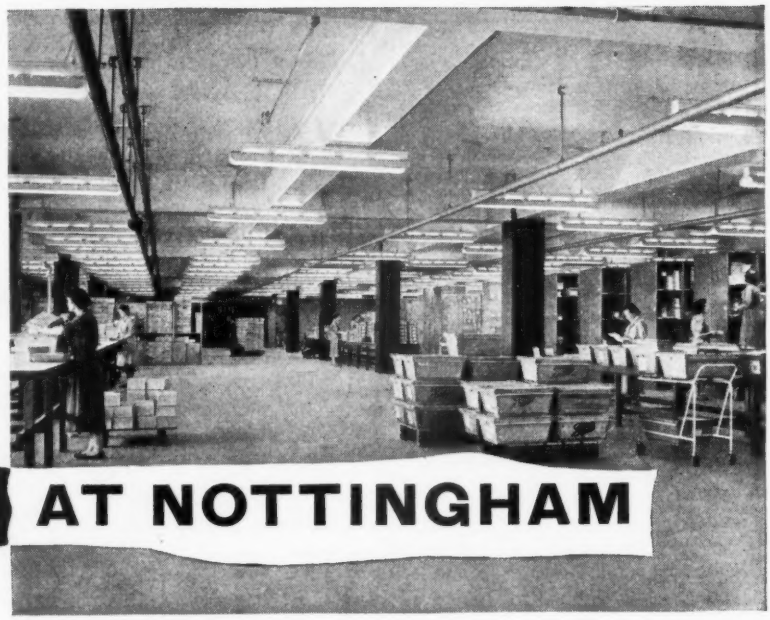

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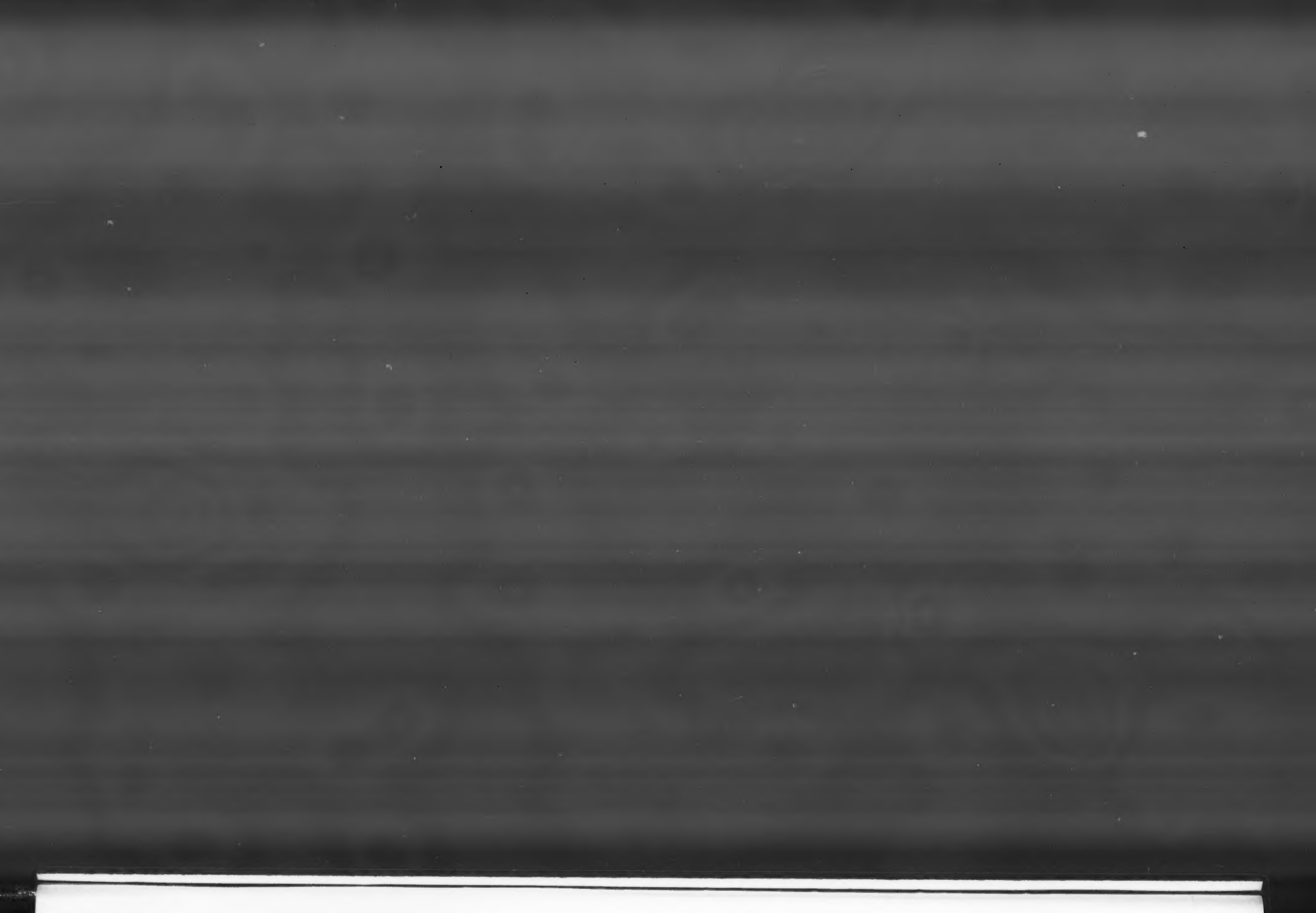

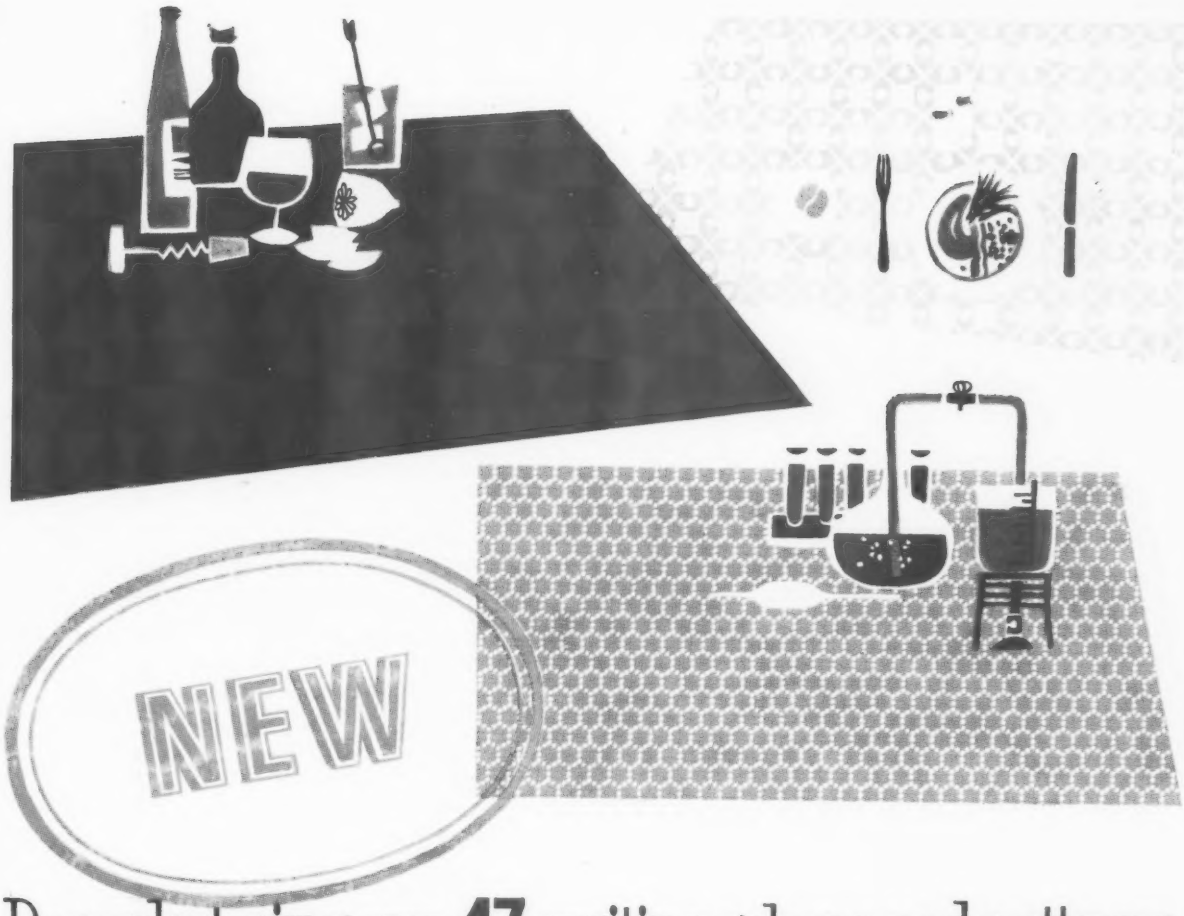

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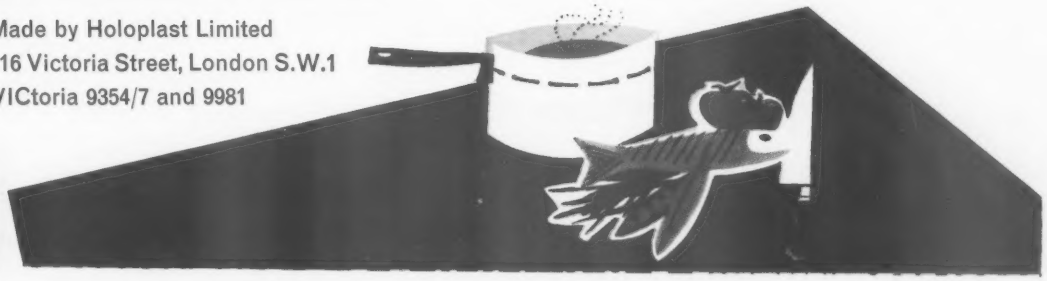

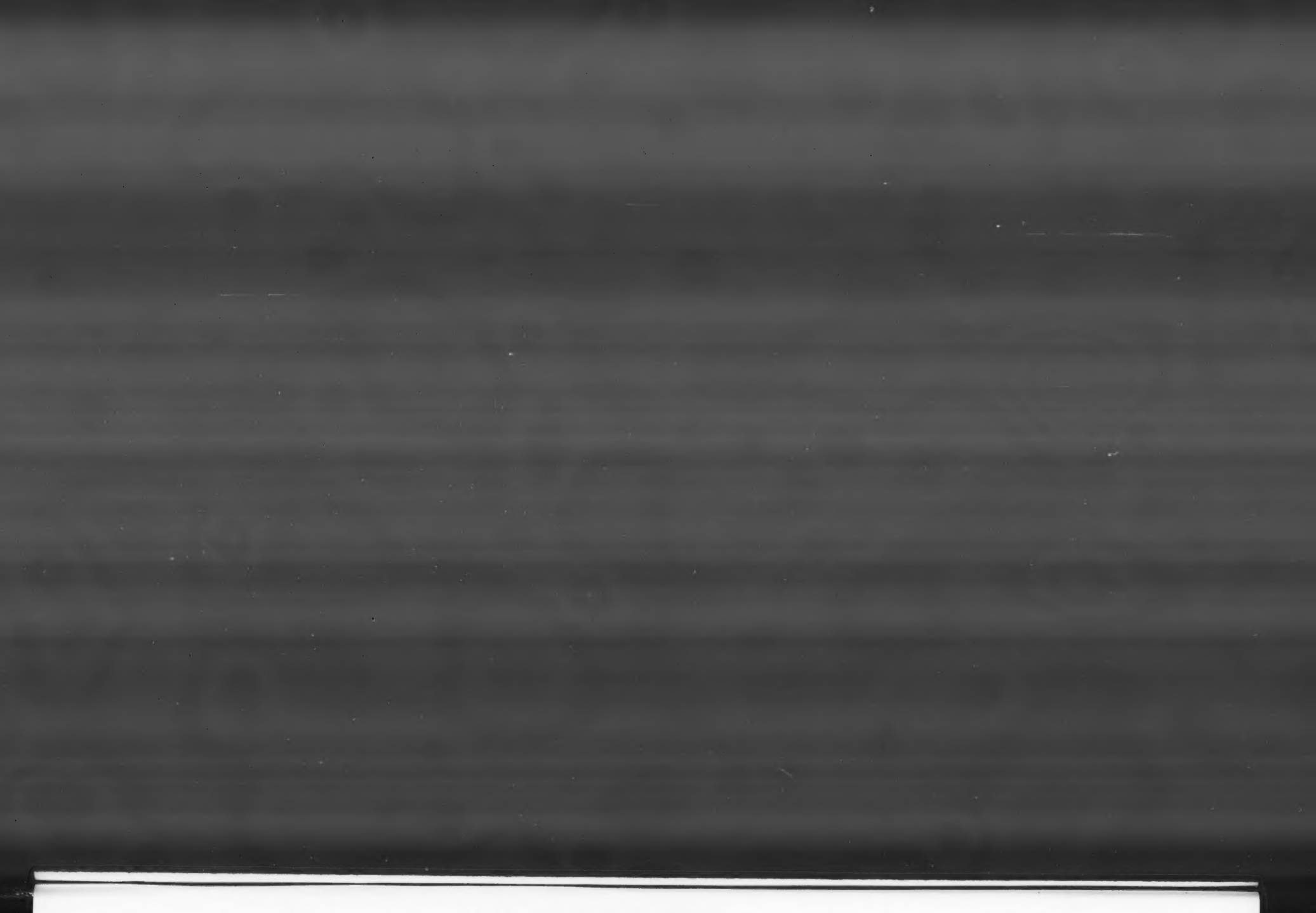

Walton-on-Thames, Hersham and Oatlands Hospital, Sidney Road, Walton-on-Thames.
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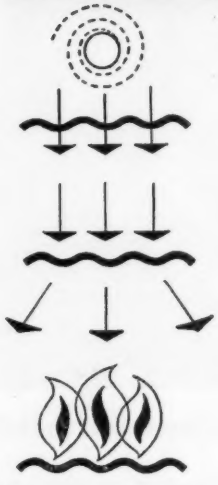

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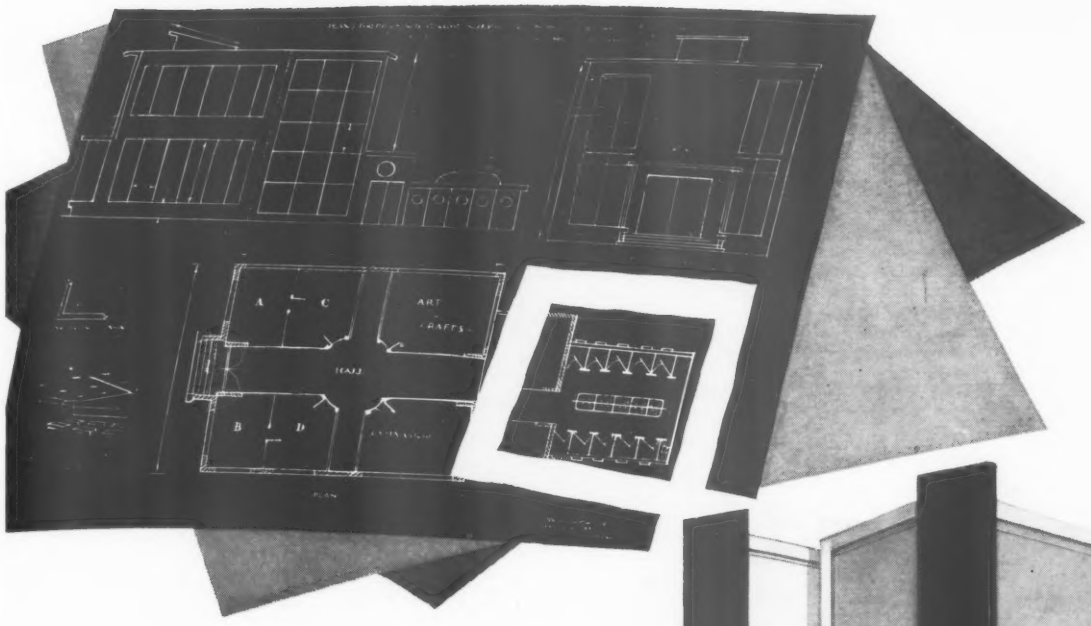

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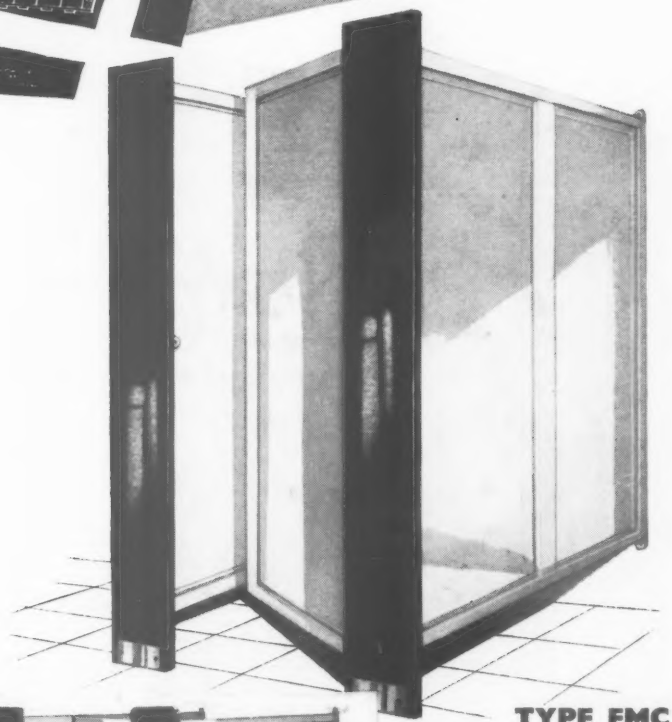

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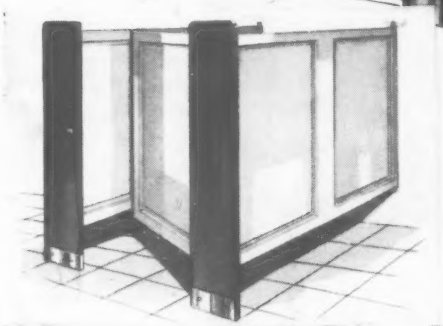

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THE ARCHITECTS' JOURNAL

No. 3319 Vol. 128 October 9, 1958

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Architecture and building in the USSR

by Cleeve Barr

CONTENTS PAGE

ARCHITECTURE

The author of the following articles, Cleeve Barr, who reported the IUA Moscow Congress on August 28 and September 11, made a rapid tour, following the Congress, of architects' offices and building sites in Moscow and Kiev. Having a knowledge of the language, he has done his best, by question and answer and by supplementary reading, to make the articles as factual as possible. He asks us to state, however, that within the time available, and notwithstanding the friendly help of Russian architects themselves, any general conclusions can only be regarded as his personal and very tentative impressions.

Readers may find it interesting to compare these articles with that on Architecture and Building in the USSR *by Cecil Handisyde in the AJ for October 22, 1953.*

All photographs were taken by the author, excepting Figs. 24, 46, 50 and the photograph below, which are by Russian official photographers, and the photograph on page 513 and the small photograph on this page, which were taken by J. B. Benson.

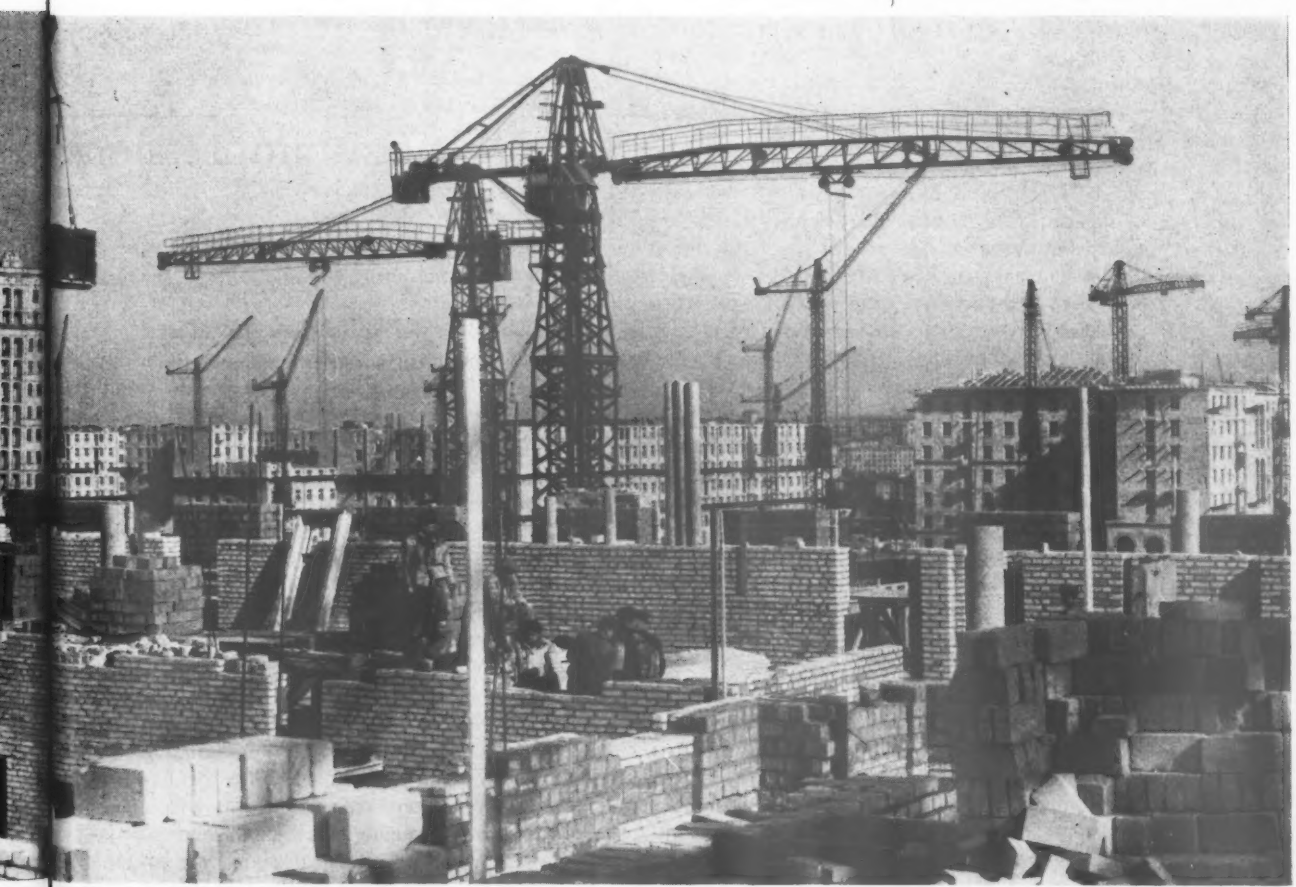
One of the old wooden houses typical of pre-revolutiona Moscow, many of which still survive despite the tremendo tempo of new construction illustrated in the larger photograp

Below, a general view of typical 8-storey housing under co struction in Moscow's South-West Region. Walls are of loa bearing brickwork with brick or hollow-tile facing (on left These facings superseded an area of rendering on rough brick work, and are now being superseded by large factory-ma panels. Note the number of cranes, the corbel-scaffold a the absence of guard rails for the workers on the left.

AND BUILDING IN THE USSR

The holding of the IUA Congress in Moscow this year not only produced an interesting series of papers on the theme of the Congress itself—the post-war construction, and reconstruction, of towns—but enabled at least a few western architects to take a peep into the surprising world of Soviet architecture and building today. The picture which emerges is of considerable significance for architects everywhere—not least on account of the new fluidity of thought in Russia, the admitted failure of neo-classicism, and the widespread groping and striving for a new aesthetic and philosophical basis for architecture. For twenty five years reactionary academicism, allied with megalomania in town planning, has dominated architectural thought in the USSR. Contemporary architecture in the west has been ridiculed as barren, bankrupt, puerile and poverty-stricken. Today, however, western architecture is being seriously studied in the Soviet Union—especially by the research institutes of the Academy of Building and Architecture. A number of current projects, particularly town planning and housing layouts, as well as detailed designs for flats and for mass-produced furniture, are, in fact, directly derivative from western schemes.

The current slogan, which the architects have adopted from the politicians and from the builders and engineers, is " away with extravagances and waste." Enormous sums of money have been saved since 1955 by rehashing and condensing town plans, by



slicing off colonnades and classical ornamentation, and by standardising plans and elevations to assist factory-production and the mechanisation of building. It is easy, however, to slice off the trimmings and to borrow ideas on low-cost housing from abroad. It is immensely more difficult to rid oneself of an essentially Beaux Arts planning approach, a monumental way of thinking of buildings always from the outside in. Will the Russians in fact succeed in doing this?

As yet there appears to be very little originality in the new architectural thought in the USSR. The profession is openly wearing sackcloth and ashes and doing its utmost to atone for the excesses and copyism of the past. However, the bases of physical and economic planning, and of the industrialisation of building in the USSR, are developing on such a scale and at such a tempo that in the next few years the architectural profession, in order to cope with the situation, must either transform its whole approach or go out of business. The really significant elements appear to be the building engineers, backed by the politicians. They are changing building sites into assembly shops for standardised factory-made parts—and how radically the architects are being forced to re-think the whole basis of their art!

Now is surely the point in time when a great service can be performed to architecture all over the world by a few more exchanges between east and west. On the large-scale organisation of building, on town and country planning, on standardisation, industrialisation and new techniques, there is much of direct interest for the west in the USSR. On the role of architects in relation to all these things, and on the nature of architecture itself, there is a great deal we could now profitably discuss in common.

THE EDITORS

ARCHITECTURE AND BUILDING IN THE USSR by Cleeve Barr

Some general impressions

The big change

The dominant impression which one receives from Russian architects and from building sites is that of change—of transition from one kind of architecture and building to another, from one level of organization to a more highly centralized system, and from a traditional, craft-level of workmanship to a predominantly mechanized and factory-based industry. The positive direction of the change in architectural design is by no means clear. Certainly, the era of historical stylism is finished, although there are buildings still in construction with classical ornamentation. Since 1955, the politicians have given the architects a frightful walloping on account of extravagance—both in surface decoration and in uneconomical planning and construction—and the great majority of buildings for the next few years will be in the form of standardized type-blocks, an increasing proportion of which will be factory-produced. I saw no evidence of any original thinking on the lines of better western contemporary architecture, but some recent housing schemes are clearly derivative from Britain and Scandinavia.

Many students are undoubtedly looking to the west for architectural inspiration (God help them), but they receive a very inadequate selection of western journals. Most western journals are available in certain libraries in big centres—but the difficulty of obtaining foreign currency is an almost complete barrier to students or individual architects obtaining personal copies.

Town-planning

In the absence of private ownership of the land, and given a tremendous pride in their country and its achievements, Russian town-planning is on a breathtaking and magnificent scale. Mostly it has been on classical lines, with huge squares and open spaces, flanked by symmetrical groups of buildings with major and minor axes. Post-war residential areas have consisted of corridor streets (but what streets!—minor roads with 30-ft. carriageways and 20-ft. pavements or verges with double rows of trees) with eight-storey blocks ranged around wide internal quadrangles containing trees and children's playgrounds. So far as residential layouts are concerned.

this is now changing. I saw two housing schemes with a free planning of blocks, and several such projects in preparation.

A number of Russian architects expressed great admiration for Harlow and the general conception of British new towns. The idea of planning sympathetically to the contours seems just to have been rediscovered and to be firing their imaginations at the moment. Leningrad is to have two satellite towns by 1963, each of about 60,000 people, with housing densities at 200-250 persons per hectare (80-100 per acre). Moscow is to have similar satellites at a distance of 50-60 km. (31-37 miles), one of which may be called "Sputnik." These will be full towns within their own rights, and one of their main functions will be to take industry, as well as people, from the major cities, in this way aiding the re-development of the cities themselves. Drastic working over these plans is going on at present, to eliminate "extravagancies" and to improve amenities and to ensure economical building.

Organization

There are no private architects or consultants in the western sense. All are employed either by government, by local authority or by similar public agencies. There are the all-union and the republican planning offices, which prepare regional and town plans and co-ordinate these with the national economic plans. However, within the confines of the major cities, the city architect is the chief architectural and planning authority under the city soviet.

The city architect prepares the master plan of the city, showing not only zoning for various uses, traffic arteries, residential standards, and so on, but also the main architectural principles to be followed. His control may vary from a simple height limitation and density standard, to the preparation in his own office of a complete project for a major group of public buildings, which he will himself carry out.

On the other hand, the greater part of non-industrial building work is designed by the city "project institute" (Mosproekt, Kievproekt, and so on—taking its name from the city in each case). The "project institute" may be under the city architect or may have its own chief, but in any case it receives sectors and briefs from the city architect and works within the limits which he sets. Mosproekt—equivalent to the LCC architect's constructional divisions—has 16 drawing offices, each under a district architect. Each has a staff in the region of 150, including some 40 to 50 architects, with all necessary structural and specialist engineers and draughtsmen. The atmosphere is more like a large engineering drawing office than the traditional English architect's idea of a cosy practice. Then there are various state "design institutes" for type buildings in Moscow, which liaise with similar institutes in the republics. These produce, not type plans, but type blocks (elevations, constructional methods, working drawings and the lot) which may be built all over the Soviet Union. The USSR is divided into three climatic zones, and modifications to the type blocks are made for each zone (particularly room heights and thermal insulation), as well as for a variety of methods of construction—according to the capacity of local building organizations. The vast majority of schools, hospitals, housing, shops, cinemas and ancillary buildings are now being built from type designs. It is a matter for the city soviet to decide whether it wants type blocks, or buildings individually designed by its own architects. One Russian architect complained that the design work of the various city "project institutes" was being reduced to simply composing layouts of type blocks received from Moscow. Others disagreed, but none denied that the system was producing drastic economies.

Again, a number of ministries and state organizations have their own design institutes, producing standard buildings particularly in the industrial field. Industrial architects are tending to become specialists and to practise only in this field (see page 522).

Any organization building within city limits has to conform with the city plan and to liaise with the city "project institute." Various sub-departments of the City Architect's organization provide site surveys, building lines, levels, information on all services, and on all normal town planning requirements.

Each city has one large general building organization (they used to have several)—called Glavmosstroi, Glavkievstroi, according to the city name—which is subdivided into regions. There are special city organizations or sub-departments for the supply of materials, for the supply and maintenance of mechanical plant and for other specialized functions.

The Union of Architects is the national social and professional body for all architects in the USSR (something like the RIBA, except that it does not control education). It is not a trade union—architects join the union of the place of their employment. To be eligible for membership, architects must qualify at an architectural school and have three years' practice. They can then participate in meetings and excursions. Fees are very low and members have the right to stay at certain holiday centres at extremely low cost. The discussions held by the union are obviously of considerable importance. For example, the master plan for Kiev—not just the plan but the whole architectural conception—was the subject of a major discussion at a local conference of the Union *before* it was presented to the City Soviet.

Perhaps the most important organization of all is the Academy of Building & Architecture of the USSR. which embraces architects, engineers and scientists engaged in building. (Note—"Planners" and "builders" are not separate professions, they are architect-planners or building-engineers.) The former Academy of Architecture was abolished early in 1956 by a Government order, and the new Academy of Building and Architecture created. The order of words in the title is significant. This action was taken by the Executive Committee of the Party and of the Soviet of Ministers because the architects were alleged to have failed to meet the demand for quantity production in housing and other social building types and because they were guilty of excessive extravagances and of uneconomic building. To what extent the blame should have been shared equally with the politicians, who directed the building committees is not clear.

The new academy is, however, an excellent organization whose main function is research and the training of post-graduate specialists. It directs a series of extensive research institutes, which are concerned with all aspects of architecture and building—materials, prestressed concrete, welding, mechanization of site operations, city planning, historical restoration work, and so on. The amount of money and staff devoted to research and to experimental building in the USSR is most impressive. The Academy employs over 8,000 scientific research workers. Leading academicians also have their own individual design offices, and are entrusted with the design of important public buildings. It is a great privilege for a student to be allowed to work in the office of an academician. In spite of the big change in architectural outlook now taking place, one finds that the academicians, or at least many of them, are regarded with both affection and admiration by young architects.

Tall buildings in Moscow

Actually there are only seven skyscrapers in Moscow. They are around thirty storeys high, and have been sited carefully as foci or accents, in studied relation to the topography of the city. They are the State University, the Ukraina and the Leningradskaya (hotels), the Vostaniya and the Kotelnichiskaya (flats), and the Lermontovskaya and the Smolenskaya (offices). They are maintained and managed by a special state organization for high buildings.

My first impression was of surprise at their colour which is buff with, on some only, considerable areas of dull red with yellow ornamentation. They are all surmounted with spires and the state emblem, or a star, gilded. The scale is enormous and it is difficult to tell if one is a mile or three miles away from them.

Fig. 1. The tall buildings, of which there are seven on the Moscow skyline, "impose a new scale of grid on the city over and above that of the street skyline pattern."

Fig. 2. Detail of a corner tower on the Hotel Ukraina "from my bedroom window."

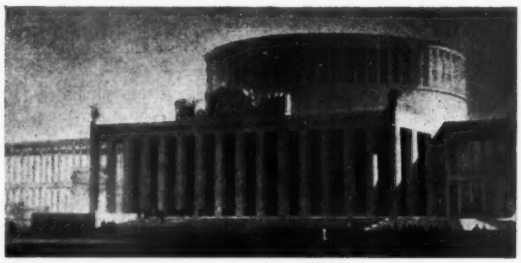


Fig. 3. In the recent competition for a new design for the Palace of the Soviets, no first premium was awarded. Two designs—one by Barchin and Novikova (above) and the other by Davidenko and Meerson—were awarded second prizes. Four designs were awarded third prizes, and a number, including schemes by Academicians Zholtovski, Vlassov and Abrosimov, were highly commended. It is not yet clear what happens next. The main elements of the scheme were three large conference halls.

The university has a welded steel frame cased in concrete. The rather crude external cladding of all seven consists of ceramic tiles, which are similar to ordinary unglazed hollow clay partition blocks about 2½ in. thick, but made L-shaped, with a nib horizontally, at the bottom, for building in to the brick backing. I found the town-planning idea intriguing, but the blocks coarse in form and detail. They have the effect of making the city layout almost instantly comprehensible, seen from some point of vantage, and impose, as it were, a new scale of grid on the city, over and above the street sky-line pattern. (Figs. 1 and 2.)

The interiors are lavish, with vast halls and ceremonial suites at ground level. Rooms generally are about 12 ft. high with heavy veneered doors 8 ft. tall, and baroque chandeliers and furniture. As hotels they are comfortable. The lifts are fascinating and travel eight floors in ten seconds, by my watch, but are very slow in levelling-up which they do perfectly, but taking 15 seconds each time to do it. (Reckon 25 seconds for 9 floors with one stop, but much more, of course, if there are frequent stops.) A complete floor, about half-way up, is given over to services installations. The mechanical extract ventilation of internal bathrooms is not particularly efficient. Workmanship generally is below western standards, especially wall tiling which is incredibly bad.

The architect of one of the seven told me that the costs were very high—about five times the cost of ordinary multi-storey housing. He also said that each building had two staircases from top to bottom for fire escape purposes. While I believe him, I could not find the staircases at the Ukraina, and the floor maid on duty who looks after the room keys (there is a maid on duty on each floor in the central lift lobby) said there were no stairs, but in case of fire I was not to worry since the lifts were "perfectly safe." Another architect told me that the stairs were probably approached by what looked like a room door from the corridor, but were kept locked by the Director.

The Palace of the Soviets, the enormous wedding cake which was designed before the war, and was to have been the tallest building in the world, was in fact never built owing to the interruption of the war. The foundations, a great raft of concrete fifteen feet thick, were actually constructed, and can be seen not far from the Kremlin. It has now been decided, however, by the government, that such a large building would be inappropriate and out of scale near the Kremlin, and a new site has been chosen in Moscow's South-west Region, behind and on the axis of the State University. The original design has also now been thrown overboard, and a competition was held recently to select a new design. No scheme was considered good enough to receive the first premium and none was awarded. However, two second and four third premiums were awarded and a number of honourable mentions. All were for long, low horizontal buildings. What steps will now be taken to prepare the final scheme is not yet clear. (Fig. 3.)

Functionalist architecture of the late twenties

At the request of several members of the British group, Professor Kolli, an elderly architect of the Academy, conducted a small party around some of the so-called functionalist buildings of the late twenties. Most younger architects appear unaware of the existence of these buildings, which to western eyes are fascinating as period pieces in the direct line of development of contemporary architecture. It is safe to say that only an elderly architect like Professor Kolli, who has lived all his life in Moscow, would have been able to find some of them in order to arrange such a tour.

From the point of view of maintenance they were patchy, and neither better nor worse than most other buildings in Moscow. Cement rendering peels badly off many buildings in Moscow, including post-war blocks of flats. The most disappointing building was the large reinforced concrete block of balcony-access duplex flats by Ginsberg built in 1926 (Fig. 4). The architect had planned a wide balcony approach at first floor level, on the north side, with a series of open boxes or balconies on the open side of it overlooking a landscaped square. This may not have been a particularly practical thing to do. Certainly it was not used as intended and was divided up into a series of boxes with cardboard and wood for storage purposes. A double glazed curtain-wall to an apparently unused annexe was also in a shocking state of disrepair.

The *Pravda* newspaper office building by Golosov, 1928 (Fig. 5), apart from a few bad patches of main-

Fig. 4. This block of flats built by Ginsberg in 1926 is rather the worse for wear.

Fig. 5. The Pravda newspaper offices built by Golosov in 1928 still look in very good shape.

The Centrosoyuz building (now the Central Department of Statistics) is "one of Le Corbusiers major works and deserves to be much better known." Fig. 6 *(above left). The main street frontage. Fig.* 7 *(above). The west facing block, which returns at right angles to the block in Fig.* 6. *Fig.* 8 *(below). The rear entrance with the large conference hall over. The stone facing is of natural red tufa, which "has weathered excellently." Fig.* 9 *(left). Inside the rear entrance looking up towards the meeting point of two spiral ramps.*

Fig. 10. *A service taking place in the restored Vladimir Cathedral, Kiev. The restoration work is superb.*

tenance externally, looked in good shape, as did a small office block with continuous ribbon windows by the same architect.

Best of all, however, was the Central Department of Statistics office building (originally designed as the Centrosoyuz or Trade Union building) by Le Corbusier, dating from about 1930 (Figs. 6-9). The engineer in charge of the building said that it certainly worked well and had worn well. The exterior facings of natural tufa certainly looked, and had weathered, very well indeed. All this rather surprised and pleased the author who remembers seeing the building, as a student, in 1934. It was then still under construction, and had been for four years, and appeared to be without hope of ever being finished. It was obviously beyond the capacity of the then-existing building industry to build it properly—reinforcement rods were sticking out of staircase soffits, and the intended double-glazing (for plenum air-conditioning) was in a bad state, with some wooden frames and some metal ones as available.

Actually this is one of Le Corbusier's major buildings and deserves to be much better known. A minor post-war absurdity, which one hopes will some day be removed, is the addition of Doric fluting in cream stucco, terribly badly finished, to the circular concrete columns carrying the main hall over the rear entrance (Fig. 8).

Restoration Work

The restoration of historical buildings, palaces, monasteries, churches and so on is excellently done. Specialist architects-cum-art-historians have been trained for the work, and first-class craftsmen have been concentrated on it. The Kremlin palaces and cathedrals are now completely restored inside and out, and work is proceeding on lesser churches in Moscow. In Kiev, work is in an advanced state on all the major and truly magnificent groups of cathedrals and monasteries. Copper domes have been recovered, re-gilded or re-painted; external and internal frescoes and

mosaics cleaned and restored; and surrounding shacks and non-descript buildings taken away. Some monasteries and churches are still in active use (Fig. 10), but many are preserved as "historical and architectural museums." There are few architectural experiences as rich and overwhelming as the interior of a Russian church, lined over walls, vaults and piers with mediæval mosaics and frescoes, and filled, as it were with a wall of gold, by a huge glittering sanctuary screen.

In the Lavra at Kiev, the earliest monastery and cradle of christianity in Russia, the main Uspenski cathedral was blown up by the Germans as they departed. Only one large wall, part of a vault, and a heap of rubble remain. These it is intended to keep as a war relic, as Coventry is keeping the spire of its bombed cathedral. However, the belfry campanile, several smaller churches and all the monastic buildings are being fully restored as architectural museums. Part of the monastery is still inhabited and run by monks, who also have charge of the catacombs, deep rock-hewn subterranean passages in which the mummified bodies of mediæval notables, including the architects and builders, lie in dim grottoes in velvet and be-jewelled shrouds.

Landscaping

Tree-planting has been taken up by the Russians since the war with a zeal second only to that of the Chinese (AJ, August 28, 1958, p. 302). The art of transplanting 15-year-old trees was acquired and practised on a grand scale in the first few years after the war. For example, the central area of Kiev was destroyed as completely as Hamburg or Warsaw, but the newly planted avenues and parks, not to mention the balconies on all new housing schemes, fully justify the popular name for Kiev, the "green city" (Fig. 50). The trees, which are now around 25 years old include predominantly horsechestnuts, limes and poplars.

The parks are excellently maintained with a great variety of colourful flowers, shrubs and trees, as well as water gardens and fountain displays. They are well equipped with children's play facilities and with bandstands, open-air concert platforms, kiosks and waste-paper urns. They are marred by trite statues of political leaders and sometimes by loudspeakers.

In Moscow 13·7 per cent. of the city area is now "under greenery." In the USSR generally, in residential areas, the current standard is to provide 50 per cent. of the site areas as grass and trees. Outside residential blocks, grass and trees are planted at a norm of 10-12 sq. metres per person.

Architectural education

Architectural schools have a six-year course, and after three or four years the student opts either to continue as an ordinary architect or as an architect-planner. In the Moscow school, students now specialize after three years and become either architect-planners, non-industrial architects (schools, housing, hospitals, theatres, airports and so on), or industrial architects (factories, power stations, docks and large-scale engineering works). There is some controversy about this specialization, but the school director is convinced about it and says it corresponds to the needs of the economy of the republic.

History is taken for five years of the six. Each student gets one or two months' practice in an office or on a site, after the spring examinations in each year.

Each school year consists of two terms. The holidays are shorter, and the students get through a considerably greater volume of work than in English schools. In the Moscow school, drawing techniques were "old-fashioned" to western eyes (Beaux Art water-colours on simply colossal sheets of paper), but the Director said that the students were proficient and did not spend much time on drawing out. Certainly the draughtsmanship was of a very high standard.

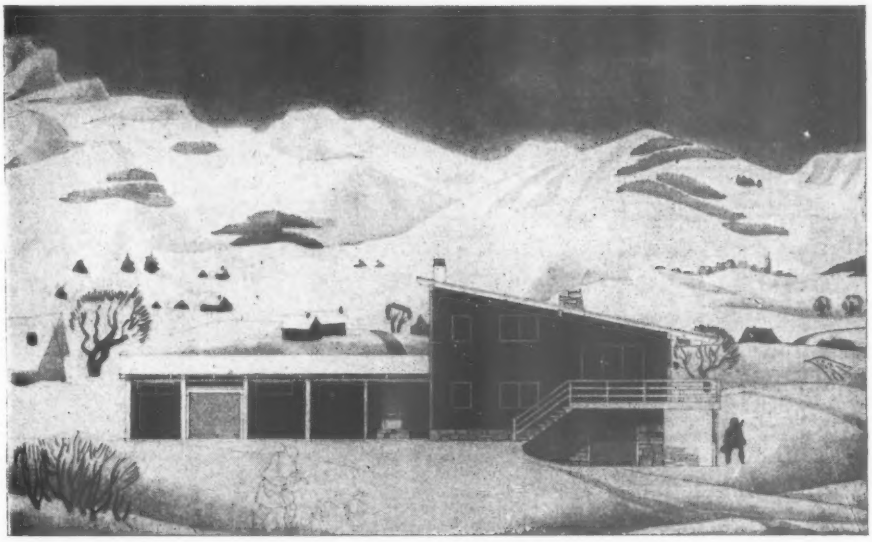
Facts on financial grants to students were conflicting, but the general situation would seem to be not far different from Britain. Students receive grants, which vary according to the parents' income, but cannot live on them without parental support and holiday work. The very best students, however, receive substantial awards according to their progress.

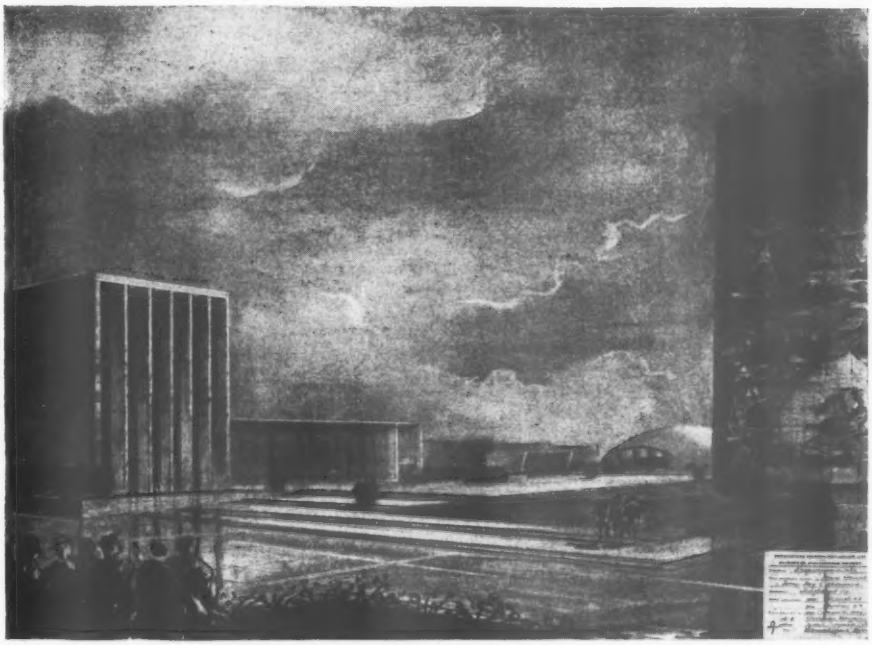
The current year's work shown at the terminal exhibition of the Moscow School of Architecture was most encouraging, and compared pretty well—although different in presentation and in emphasis on drawing—with the output of British schools. Nervi is undoubtedly the chief source of inspiration from the West at the moment, and small editions of the Rome Sports Hall—half a table-tennis ball on match sticks—figured in many schemes. Students also admitted to an admiration for Frank Lloyd Wright. The journal they mostly seemed to get, and admire, was *L'Architecture d'Aujourd'hui*. There is undoubtedly a real breakaway from the past in the students' schemes we saw in Moscow. They contained, however, no particular message for the future, and seemed to me to lack originality, and also to have little relationship with the industrial revolution, and standardization, which are now transforming building all over the Soviet Union. Figs. 11-13 illustrate some of the best schemes from the current year's work at the Moscow School.

Standard schools

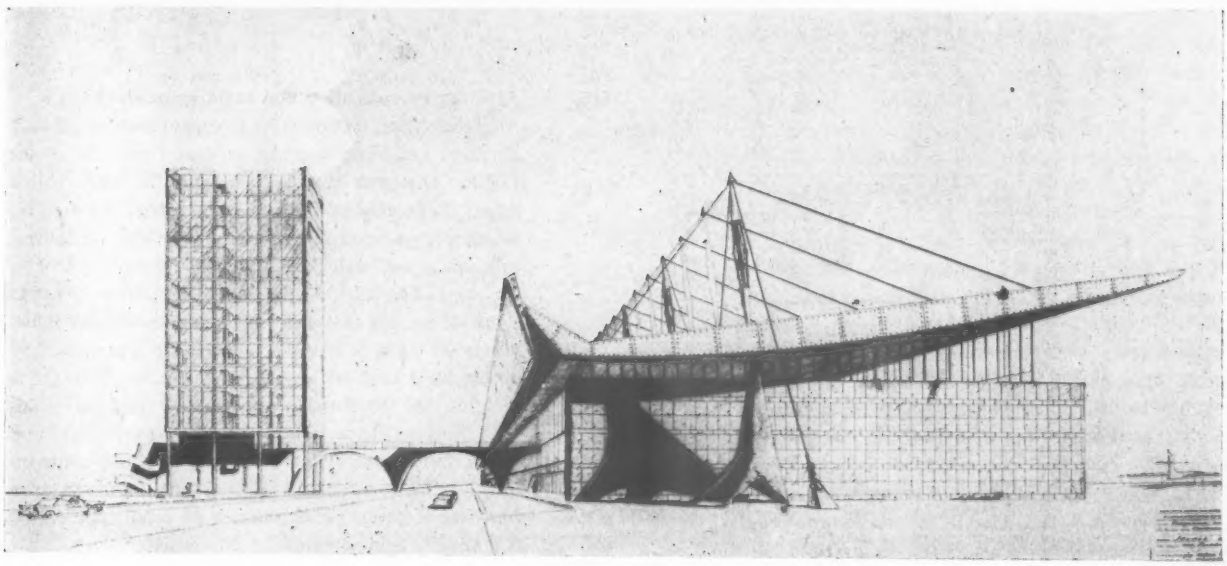
Every residential sector has nursery schools for 2 to 4 year olds, infant schools for 5 to 7 year olds, and a "ten-year" school for 8 to 17 year olds up to which age education is obligatory for all (at least in urban areas). These standard schools, designed by the state school design institute, are constructed with load-bearing walls built of traditional brickwork, rendered, or of large panel construction.

In the report by V. Shkvarikov to the IUA Congress, he states that: "The schemes in use do not as yet fully meet the necessary pedagogical and sanitary-hygienic requirements. New and more convenient standard projects are being elaborated. The number of stories is being reduced, and workshops are being housed in separate premises connected with the main building by covered passages. The complex of buildings for sports activities is becoming larger and more convenient." School sites in new districts are at present 1 to 1.5 hectares (2½ to 3¾ acres) with a radius of service up





Work of the Moscow School of Architecture. Fig. 11 (*left*), "*individual house with a garden.*" *Design by second-year students S. Barhin and Anixt. Fig.* 12 (*below left*). "*Town Planning of Temir-Tau.*" *Design by Pregraduation Sixth Year student Mordvintsev. Fig.* 13 (*below*). "*Aeroport.*" *Design by Pregraduation Sixth Year student V. Loktev.*



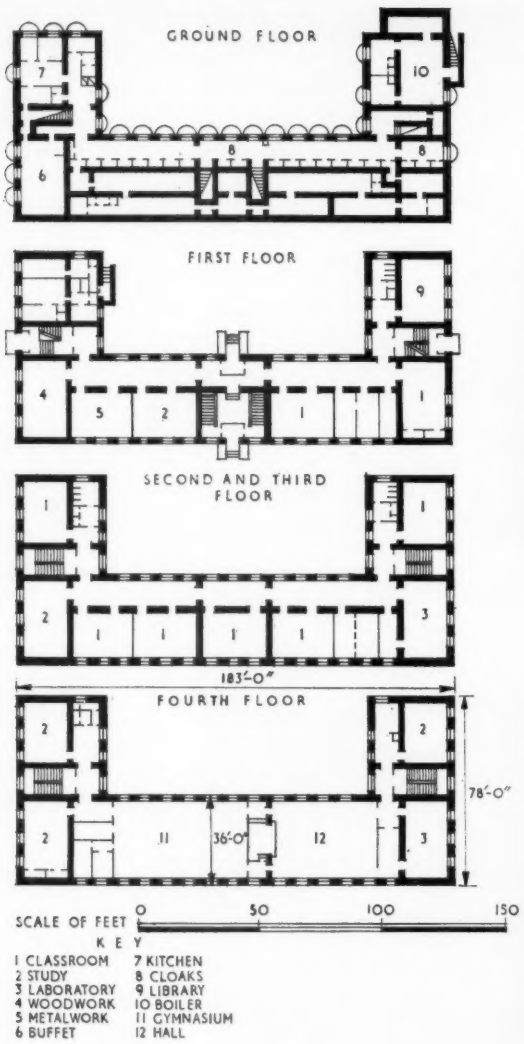
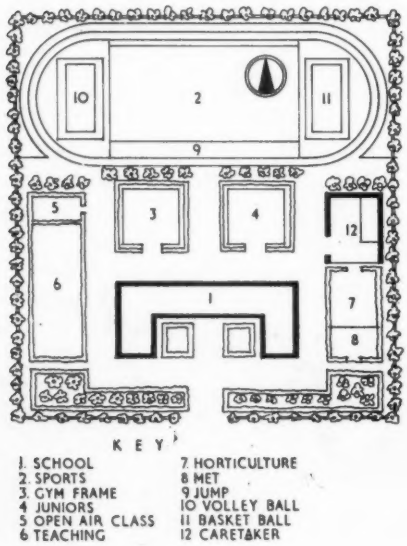


Fig. 14. *Floor plans (above) and layout of site (below) of a standard* 10*-year school at Chokolivka, Kiev (see Fig.* 52 *for layout of residential area). The school is built for* 920 *pupils, with a total floor area of approx.* 34,320 *f.s.*



to 400-500 metres. Figs. 14-16 illustrate floor plans and photographs of a standard "ten-year" school in course of construction.

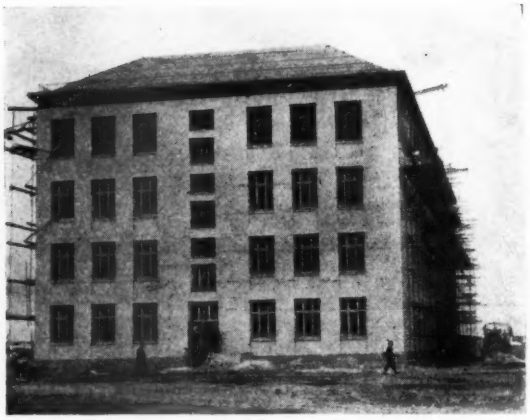


Fig. 15. *A standard school (plan as Fig.* 14*) in construction in Kiev.*

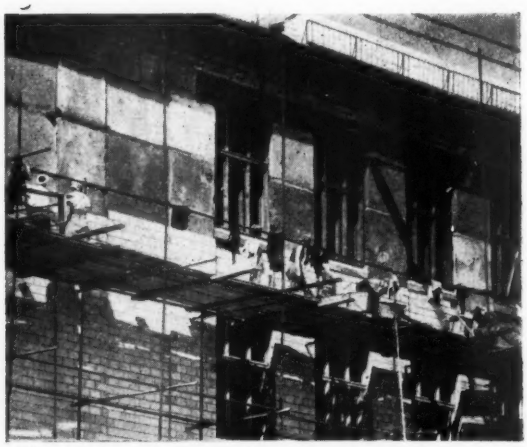


Fig. 16. *Women building workers tiling the exterior of the Kiev school. The load-bearing external walls are built of large crane-handled slag-concrete slabs.*

Modular co-ordination and building productivity

Modular co-ordination is an accepted fact in all standardized buildings, housing, schools and so on in the USSR. The basic modular dimension is 10 cm. with a larger module of 40 cm. In standardized housing (in which pre-cast concrete hollow floor slabs are universal), spans and wall panels are usually multiples of 40 cm. viz., 2.4, 3.2, 3.6, 4.0 and 4.4 metres. Only in a few of the pre-cast walling techniques do wall thicknesses yet seem to have been related to a module, *e.g.*, in blocks 8 and 14 at Cheremushki (p. 530). On a building site the Russian approach to modular building appears characteristically commonsensical, and rough and ready. If there is a gap it is just made up *in-situ*. The module has arrived not so much as a function of design, as a function of production which is gradually being assimilated into design.

Labour productivity in building work in the USSR is said to have increased 5.3 times from 1928 to 1957. It is programmed to be raised another 52 per cent. by the end of the current five-year plan. The value of large-scale organization, coupled with mechanization, is shown by the fact that in the building organizations of Moscow and Leningrad, labour productivity is respectively 23 and 37 per cent. above average.

Housing

Some 80 to 100 per cent. of urban housing is now carried out to standard designs prepared by the State Institute in Moscow. These are for complete standard buildings, and supersede the standard plans issued in the years up to 1956. To quote K. Alabian*, member of the Academy of Building and Architecture.

" Various series of standard designs for three- to five-storey flats have been worked out for each of the three climatic regions. The first comprises buildings with brick walls, concrete block walls, or walls of masonry blocks; the second buildings with walls of large concrete slabs; the third buildings with walls of large prefabricated panels. The flat plans, the structural layout of supporting walls, the floor and staircases elements are the same for the three series. They differ only in the materials used for the walls and in the weight of building elements designed for different types of cranes (1½, 3 or 5 tons). Special series have been worked out for major cities such as Moscow, Kiev, Leningrad and a few others. . . . Terrace houses have not been used in the Soviet Union to any large extent. However, standard designs have now been developed, and will be used in a wide scale in zones reserved for dwellings of reduced height. . . ."

Until recently it had been common to plan shops, nursery schools†, clubs, small offices and other accommodation in the lower floors of blocks of flats. The tendency now, however, is to plan them in separate buildings. This has simplified standardization and prefabrication, and gives improved amenity, particularly as all food shops stay open until midnight, each night, and all the week-end.‡

Net floor areas in urban housing (excluding kitchens, bathrooms, stores, halls and circulation space) are as follows:

1 room flats:	18-20 sq. m.	(198-220 f.s.)
2 room flats:	27-30 sq. m.	(297-330 f.s.)
3 room flats:	36-40 sq. m.	(396-440 f.s.)

The minimum living room area is: 16 sq. m. (176 f.s.)
Single bedrooms: 6-8 sq. m. (66-88 f.s.)
Double bedrooms: 10-12 sq. m. (110-132 f.s.)

The proportion of flats of different sizes may vary, but an average ratio is as follows:

1 room flats:	10-20 per cent.
2 room flats:	40-60 per cent.
3 room flats:	25-35 per cent.
4 and 5 room flats:	5 per cent.

As a result of the work on the experimental housing site in Moscow, New Cheremushki (see p. 529), the bulk of housing for the next few years will consist of standardized 4-storey staircase-access blocks, with a proportion of 8-storey point-blocks. The main reasons for this are economic, combined with a growing appreciation of the advantages of the kind of housing layout now common in Scandinavia and in Britain. The extra cost of the New Cheremushki 8-storey blocks with lifts over the 4-storey blocks without lifts was said to be only 6 per cent. Individually designed 8-storey blocks of the kind formerly being built were much more expensive.

Plans and constructional methods are described further in the following pages. It will be noted in Figs. 28 and 46 that the plans show beds in the living-rooms and (unventilated) bed-recesses directly off living-rooms. This is not unusual in continental plans generally, and it should be remembered that many millions of families still live two families or more to a flat. The aim of one family per flat is certainly on the board, and is being realized in new accommodation, but, given the high rate of population increase, it is not planned to achieve it fully for another ten to fifteen years.

Traffic

The volume of traffic in the Soviet Union is, as yet, small as compared with that of western countries, and there seems to be an assumption that the enormous width of the roads and open spaces is a guarantee against future traffic or car-parking problems. Or, it may be, that there is no such assumption, but that the traffic problem has just not so far been envisaged in terms of every family becoming a potential car-owner, for it may take decades before consumer goods, such as private cars, are produced in such quantities. However, it can be taken as a sign of the times, and an augury of things to come, that the first Soviet " cinerama " opens—in lieu of the American thrills on the Big Dipper—with an equally hair-raising drive in a new Soviet car, with a Russian family, scorching across the open countryside—a virgin field for automobile thrills.

At the Congress a Soviet architect said that " in the Socialist countries the development of automobile transport is relatively a sore point," but the number of cars would inevitably grow, and might reach 40 to 60 cars per 1,000 population, but he did not say when. He stressed that emphasis would first of all be on taxi-services, which now existed in 770 towns. The number of taxis had trebled since 1950.

The Moscow road pattern, which resembles a spider's web with several concentric ring roads and radials leading out from the Kremlin at the centre, is probably as good as, if not better than, that of any city in the world. The main arteries are all dual carriageways, taking seven or eight lanes of traffic in each direction—with a centre strip used by ambulances and fire engines in an emergency, and as a pedestrian refuge. Refuge is the proper term—for crossing such roadways, even at the official crossings, and with the present volume of traffic, is quite a hazard. The squares, too, are all on the scale of the Place de la Concorde with

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* A brief summary of Alabian's speech to the IUA Congress appeared on September 11.

† In these nursery schools, mothers going out to work can if they wish leave children over-night (except at weekends), as well as for the day.

‡ This practice derives from the fact that most married women go out to work, although I was told by several people that more and more mothers with children are no longer doing so. The fact that shops and kiosks stay open so late transforms the life of an urban residential quarter, which is, of course, no longer dead in the evening but bright and bustling with traffic and people at least till midnight.

refuge islands simply marked out in white lines on the road-surface.

Gunther mentions in his book, published earlier this year, that there is only one clover-leaf crossing in the USSR—I saw a second one at Kiev (illustrated in Fig. 17) which has been constructed in the last few months. It uses earth embankments and stone piers. The architectural detailing is simple and well carried out.

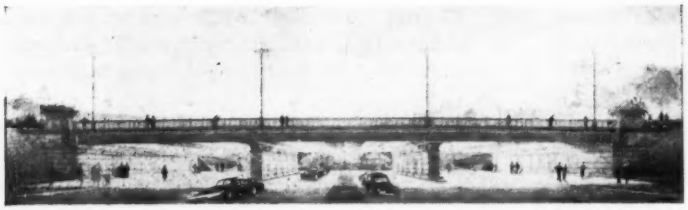


Fig. 17. Perspective of the second road clover-leaf intersection built this year at Kiev.

Moving buildings on rollers

One of the most fascinating things I saw in Moscow, and that quite by chance and in passing, was the preparations for moving two existing four-storey blocks of flats, plus basements, a distance of 50 metres with no disturbance (other than noise) to the inhabitants (Figs. 18-21). The blocks happened to be sited on the line of a main road, Vostochny Luch, now under construction to serve the new residential area of south-west Moscow. It was considered more economic to move them 50 metres, than to build new blocks and to demolish the old. This kind of thing is, apparently, quite a frequent operation in Moscow. In the widening of Gorki Street, for example, several dozen buildings some of them of historic interest, some not, were moved back a 100 or 200 metres and even turned round at a different angle to the road.

The technique appears to be something as follows. The perimeter walls and internal load-bearing walls or columns are exposed by excavation down to foundation level. They are then cut out in sections and r.s.j.'s inserted and connected together until the entire weight of the building is resting on a grid or diaphragm of r.s.j.'s. Two longitudinal excavations are made (if the building is to move in the direction of its long axis) under this r.s.j. diaphragm, and steel tracks laid, on top of which steel rollers are inserted (Fig. 20). The building is finally towed on to adjacent prepared new foundations by electrically operated cables anchored to the r.s.j.'s. As the building moves over the steel rollers, these are collected as they come out at the back end of the building, brought round to the front end and re-inserted.

The preparation of the new foundations, the insertion of the r.s.j.'s and all preparatory work takes about four to five months. The actual move on rollers takes about one to two hours. During the whole operation, including the move on rollers, people continue to live in the building. All services—sanitation, gas, water, heating, electricity and telephones—are maintained during the preparatory period and during

Moving buildings on rollers. The four photographs below show preparations for moving a 4-storey block of flats, with basement, some 50 metres to prepared foundations on a new site, in order to make way for widening a main road.

Fig. 18. Inserting r.s.j.'s to carry the load of the external walls.

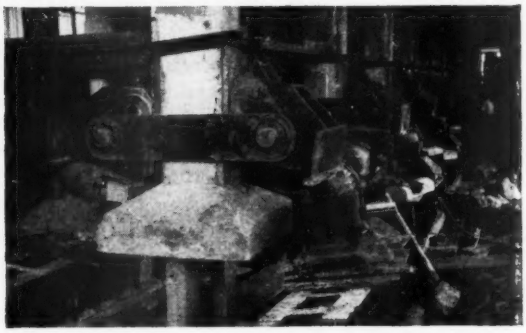


Fig. 19. In the basement, a series of heavy steel cramps grip the columns just above the foundations, as the earth is removed from below and r.s.j.'s are inserted.

Fig. 20. Steel rollers being placed under the r.s.j. framework on a track along which the building will be pulled when it is ready to be moved.

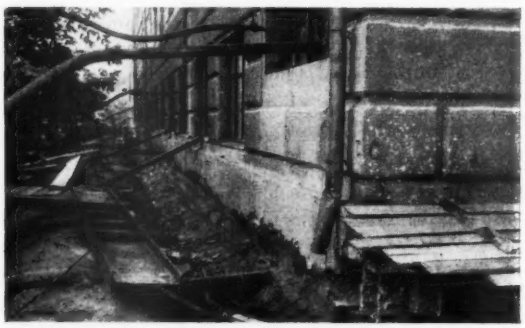


Fig. 21. Temporary flexible connections passing through the basement windows enable all services—gas, electricity, sanitary plumbing, water, heating, telephones—to be maintained during the moving of the building.

the actual moving operation, by flexible pipes (Fig. 21).

Women and cranes

The observations on labour which Handisyde made on his 1953 visit (AJ, October 22, 1953), remain generally valid today. There appear to be more women, young and old, working on building sites than men, and they seem to do almost all the hand-digging and general labouring. I also saw one woman operating a tower crane, and many plastering, painting and fixing tiles (terribly badly by British standards, but that goes for finishes generally in the USSR). I asked one bewhiskered and experienced craftsman who—I thought—might have mature views on the subject, how the women worked. He was quite genuinely full of praise for them and said that there was no work which a man could do which they could not perform just as well.

Fig. 22. Women building workers on a housing site at Kiev. The tool in the foreground is a hand-carrier, or barrow without a wheel, for carrying by two workers. It is surprising to see such equipment on a site which, at the same time, is heavily stocked with tower cranes, and prefabricated wall components.

There is said to be a great shortage of labour, but, from simple observation on building sites, one would have said that there was labour to spare. For example, the women in Fig. 22 whose job of trundling mortar by hand to a point 20 yards distant where it was picked up by a crane, would appear to be redundant if the crane and the cement mixer had been sited intelligently in relation to each other. The crane was working on hoisting concrete units, the caulking and grouting up of joints being done by a team of women. Again, on the same Kiev site, which was studded with cranes, there was a group of about 20 women hand-excavating foundation trenches—actually they are all behind the spoil heap in the foreground of Fig. 53. This may be taken as a further indication of the transitional state of Russian building practice, and the fact that the full meaning of mechanization (even the value of putting a wheel on the traditional two person carrying-board seen in Fig. 22, and converting it into a one-person wheelbarrow) has not yet penetrated to the man, or woman, on the job.

Scaffolding

One was constantly surprised by the absence of guard rails on buildings, and the practice of strutting flimsy looking platforms and hanging scaffolds off buildings in construction (Fig. 23). Obviously this derives from a tradition, and forms of usage, which are quite different from ours, but such methods must assist cheap building. It would be interesting to be able to compare accident statistics in the Soviet building industry with those in Britain.

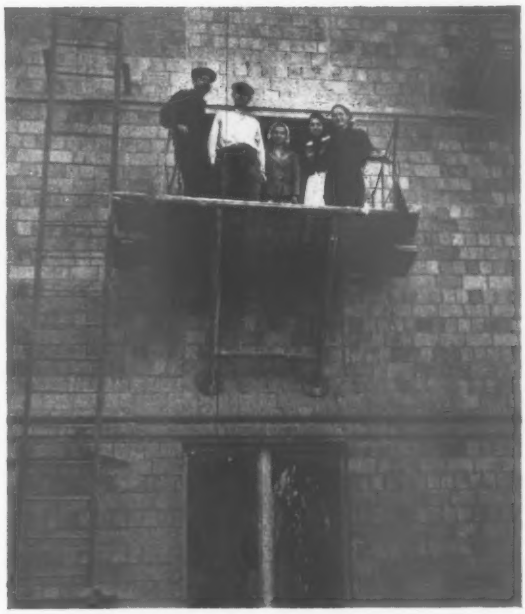


Fig. 23. A typical bracket scaffold (see also page 514). Ordinary scaffolding seems to be hardly used at all, at least during the constructional stages of building.

Precast concrete

The USSR now claims to hold first place in the world in the use of pre-cast reinforced concrete construction, with an output for the current year of 16.9 million cubic metres. In 1960 the output is programmed for 28 million cubic metres, in 1965 42 million, of which about a quarter will be pre-stressed.

On account of shortage of time, I was not able to visit any of the several concrete factories, which are now pouring out precast concrete building components on a 24-hour-a-day basis. The latest types of concrete wall and floor units are, I understand, not "cast" in static moulds but are "rolled" in continuous lengths like the production of steel in rolling mills. There is little doubt that in the new few years high quality precast concrete units with a variety of aggregates and finishes, will become the basic components of the Russian building industry. Brickwork will be quite superseded. From the design point of view, this will face architects with enormous problems, and a need for new thinking. While Russian architects appeared very conscious of this need, I saw little indication at all that they had, as yet, any original contribution to make to this subject.

Fig. 24 (above). Model of the centre part only of Moscow's new south-west Region. Beyond the wooded Lenin Hills, bordering the River Moscow, is the State University (dead centre) behind which will be the new Palace of the Soviets (yet to be designed) and a 750 acre park. In the foreground are the Lenin stadium and two new double-decker bridges, now in construction. The residential development on the left, which is probably about one-third completed, is largely in the form of 8-storey blocks of flats. Cheremushki, where a freer planning of 4-storey blocks with 8-storey point blocks is now developing, is off the picture to the left. Fig. 25 (far left). Typical pavement view in Moscow's south-west. Wide pavements, verges and roads. Shops at ground floor level of 8-storey flats. In current layouts all shops and communal facilities are in separate buildings. Fig. 26 (left). A quadrangle with gardens and children's play areas enclosed by 8-storey blocks (the rear of the blocks in Fig. 25).

ARCHITECTURE AND BUILDING IN THE USSR

Experimental building in Moscow

New Cheremushki, Sector No. 9

One of the most interesting and significant developments in Russian architecture and building at the present time is the experimental housing sector No. 9, at New Cheremushki in south-west Moscow. The whole of the southern and south-western outskirts of Moscow, which stand in much the same geographical relationship to the Kremlin as, say, Putney and Roehampton to Westminster, are being developed as residential neighbourhoods at great speed and on a grand scale. The ten-year plan for the region, in which building started in 1951, provides for some 70,000 flats, 37 schools, cinemas, stores and all necessary social and amenity buildings. The centre of the region—a big cousin of the South Bank idea—contains the State University, finished in 1953, and will also contain the new Palace of the Soviets, a number of embassies now in construction and a 750-acre central park with artificial lakes (Fig. 24).

Construction is well advanced in the area, and typical housing layouts are of the kind indicated in Fig. 24 with enormously wide streets, laid out with trees and grass (Fig. 25) and internal quadrangles (Fig. 26). Sector No. 9 is different (Figs. 27 and 28). It is derivative directly from Scandinavian and British housing, with its free placing of blocks away from street frontages, its informal siting of shrubs and trees and curvilinear pathways (but why should they copy crazy paving?), its wholly delightful children's paddling pools and play apparatus and even the architecture of its eight-storey point-blocks and four-storey staircase access flats. Derivative it may be—but it is a most significant change in Russian architectural thinking, and one looks forward to seeing how the humanist ideas which it embodies will be developed in Soviet hands. The most original aspect of the scheme is the technique, or rather techniques, of building. The whole sector has been treated as one large experimental building site for the purpose of testing out in practice advanced methods of construction. Certain lessons having been learnt, it is now proposed to standardize the design of blocks of flats on these lines throughout the Soviet Union—with modifications as necessary due to climate and local conditions.

The Sector No. 9 project was worked out by a special team of architects, builders and engineers, called SAKB,* of the Moscow City Architect's office, with the collaboration of "Mosproekt" (see p. 517) and of the research institutes of the Academy of Building and Architecture. Actual building work is being carried out by a special group of "Glavmostroi," the direct building organization which undertakes all normal and non-industrial building for the City Soviet. The purpose of the development was not only to try out new constructional methods, materials and equipment, but also to try out more economical forms of planning.

The plan forms were based on the winning designs in an all-Union architectural competition held in 1956. Areas, in square metres, are as follows ("living-space" including only the living-room and bedrooms):

	Living-space	Service space	Total
1-room flats	18-20 (198-220 f.s.)	12 (132 f.s.)	30-32 (330-352 f.s.)
2-room flats	27 (297 f.s.)	13-15 (143-165 f.s.)	40-42 (440-462 f.s.)
3-room flats	36 (396 f.s.)	14 (154 f.s.)	50 (550 f.s.)

Room heights are 2·50 metres (8 ft. 3 in.) in the clear. The w.c. is planned in the bathroom. Variations in planning which have been tried, are the location of the kitchen near the entrance, in the middle, or at the far end of the flats (with the plumbing either in ducts or cast in wall panels), and variations in siting cupboards and equipment. Built-in cupboards are provided.

The layout contains 16 blocks of flats, of which 13 are four-storey (Fig. 28), and three are eight-storey point-blocks (called "tower blocks" in Russian). In all there are some 984 flats.

The cost per square metre of floor area in this scheme is 8 to 11 per cent. lower than for flats built in 1957. In addition to the blocks of flats, the sector includes a telephone exchange, a cinema to seat 875 people, a nursery for 100 toddlers, a kindergarten for 125 children, a school for 960 children (ages eight to 17), and a two-storey administrative block, which at the moment also houses a building exhibition showing all the new materials and equipment used on the site and describing the methods of construction. There are also shops, a few private garages (a quite new innovation), shelters for old people, and paddling pools and children's play spaces.

Blocks Nos. 1, 2, 3, 4, 9 and 12 are in traditional load-bearing brick construction. Blocks Nos. 5, 6, and 10 also have load-bearing walls, but these are built of large factory-made brick "blocks" or slabs of brickwork (Figs. 29, 38), which are crane-handled and hoisted into position. The advantage of such a technique is that the bricklaying is highly mechanized and carried out under factory conditions. A worker lays the bricks in position on a tray, but the pouring of mortar is done mechanically by a machine, which in one action spreads a whole layer of mortar the width and length of the wall unit. The worker follows up with another course of bricks, laid within a jig framework, which drops the whole unit a course at a time so that the bricklayer is always working at the right level. The mortar-trowelling machine places another layer, and so it goes on.

*Special Architectural-Constructional Bureau.

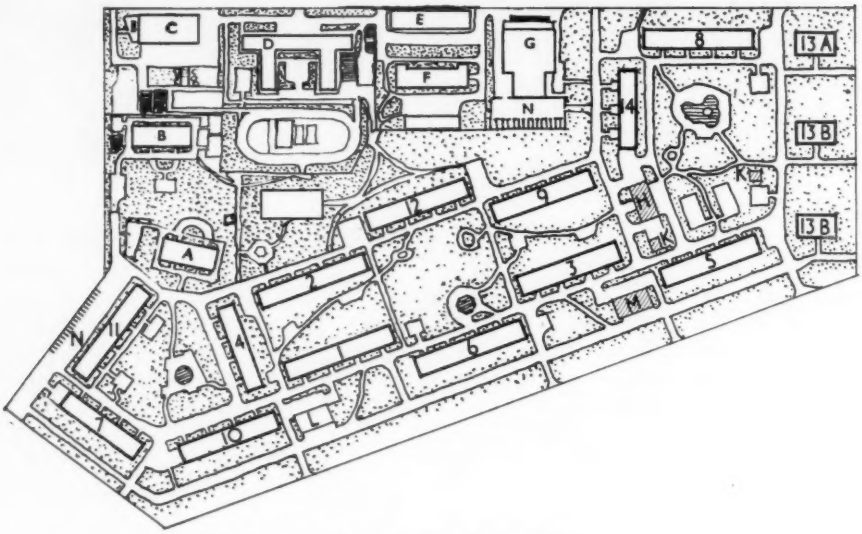
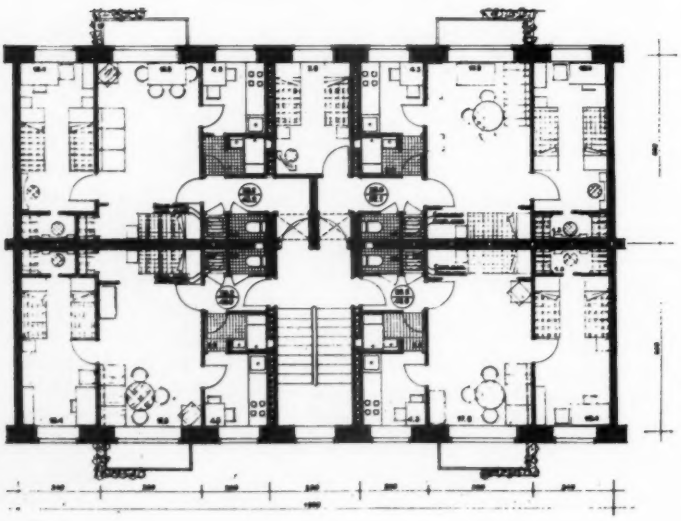


Fig. 27. Layout of Sector 9, New Cheremushki.

KEY:
Blocks 1-12, and 14: 4-storey staircase-access flats
Blocks 13a, 13b, 13c: 8-storey point-blocks
A. Nursery school (100 places)
B. Kindergarten (125 places)
C. Snack-bar dining-rooms which also serve meals to flats within a certain radius
D. School (880 places)
E. Universal store
F. Telephone exchange
G. Wide-screen cinema (875 seats)
H. Housing administration
K. Transformer stations
L. Meat, fish and vegetable shops
M. Grocery and provisions
N. Garages

Fig. 28. Typical floor plans of 4-storey staircase-access blocks on Sector 9, New Cheremushki. There are a number of variants as regards internal planning. Most blocks contain 64 flats, of which half are 2-room, a quarter 1-room and a quarter 3-room. For room areas, see text.



Block No. 11 (Fig. 40), and the 8-storey point-blocks Nos. 13a, 13b, 13c, are built with load-bearing walls of large slag-concrete slabs which are simply painted externally. Block No. 8 uses large precast wall panels, approximately 16 in. thick, made of light-weight concrete with a burnt clay aggregrate (keramzit) (Fig. 39).

Block No. 14, called the "house of Lyagutenko," has the lighter weight and is the most advanced of all in constructional technique. It is constructed entirely of large, self-finished, pre-cast, load-carrying units. These are described in detail below.

Throughout the sector, extensive use has been made of structural, pre-cast, lightweight or hollow concrete elements, which provide insulation, as in roofs and basement walls, and reduce weight, as in staircase flights. Compared with previous practice, this has also economized in the use of cement and steel. Foundations also are generally pre-cast (Fig. 29).

The services, in a number of blocks at Cheremushki, are cast into the factory-made wall floor and staircase elements (Fig. 34), and all joints between units are made by site welding. This practice was said to have reduced installation costs considerably. Site welding is certainly very extensively used. In some of the blocks, iron or steel hot water pipes are cast into pre-cast concrete building units, which act as radiators. These units may be in the form of crude radiators (Fig. 37), or they may be structural units such as staircase flights or landings, or even a 2 ft. 6 in. width of storey-height pre-cast concrete wall section, which is finished by wall-papering direct (Fig. 29).

The heating mains are distributed from a central chamber in which the temperature is automatically controlled in accordance with the external air temperature. The chamber itself receives mains from the district heating station (Fig. 65).

A number of finishes, new to Russian building practice, have been used within the flats, including sheet rubber

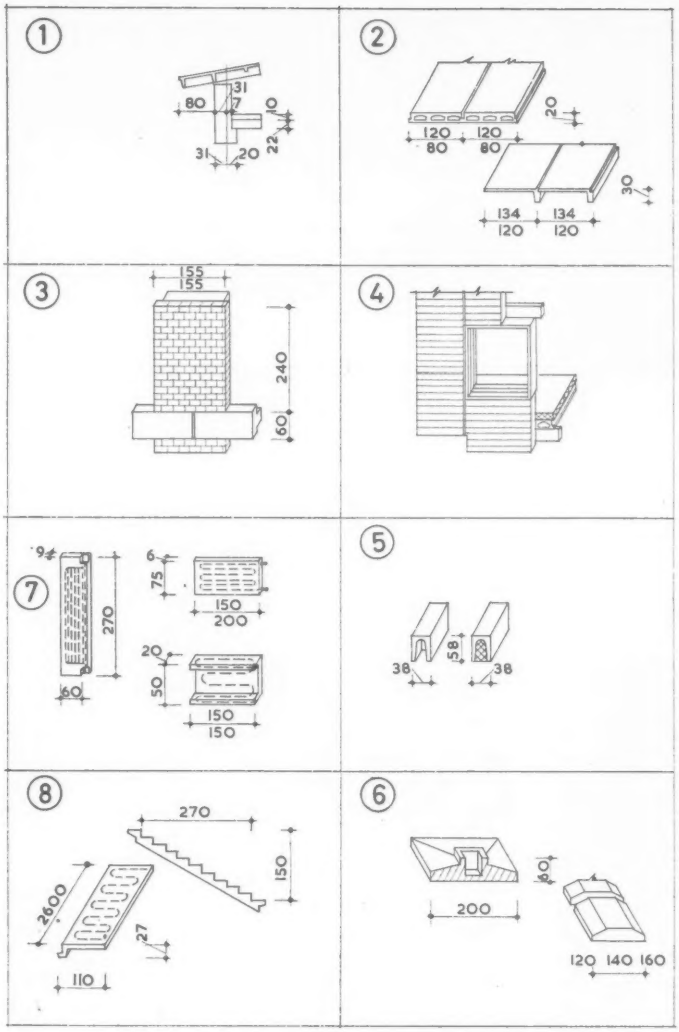


Fig. 29. Typical details of some of the experimental flats in Sector 9, New Cheremushki (see also Figs. 38 to 40). Dimensions are in centimetres.

KEY:

1. Ribbed precast concrete roof-slabs doubling up precast concrete ceiling slabs to top floor flats (See Fig. 40)
2. Alternative precast concrete floor slabs
3. Factory-made perforated brick wall "slabs," 2·4 × 1·55 m. (7 ft. 10½ in. × 4 ft. 11 in.), tied in with precast edge beams made of slag-concrete. (See Fig. 38)
4. An alternative system of factory-made perforated brick wall "slabs," with reinforced concrete window frame "boxes," tied in with precast edge beams on the internal face only. (cp. Fig. 38)
5. Reinforced concrete wall beams for basements, or as edge beams for floors, giving intrinsic thermal insulation either by the cavity or by filling with very lightweight concrete. (See Fig. 40)
6. Typical precast foundation units for piers or for use as strip footings
7. Precast concrete units—radiator units with iron pipework cast-in (see Fig. 37). The vertical unit is an ordinary concrete internal wall panel, which forms part of a normal wall, and is wallpapered direct.
8. Precast concrete staircase flights and landings with heating pipes cast-in. All joints are site welded. (cp. Fig 34)

Fig. 30. Blocks Nos. 8 and 13a. The point block walls are cream-painted slag-concrete panels. The lower block also has precast wall panels painted. Undersides only of balconies are painted in primary colours.

Fig. 31. A children's paddling pool, and a shelter with brightly painted roof. Note planting although building work is hardly yet completed.

Fig. 32. Point-blocks 13a and 13b. Again note planting.

Fig. 33. Blocks 3 and 9, looking towards blocks 1, 4 and 2. On the site are three children's paddling pools.

Fig. 34. *Precast concrete panel wall construction at New Cheremushki showing services cast-in to the structural panels. On the right is a staircase wall panel with vent ducts from adjacent kitchens. In the centre panel are three metal pipes for services—on the left water and soil, on the right gas. Connections are by site welding.*

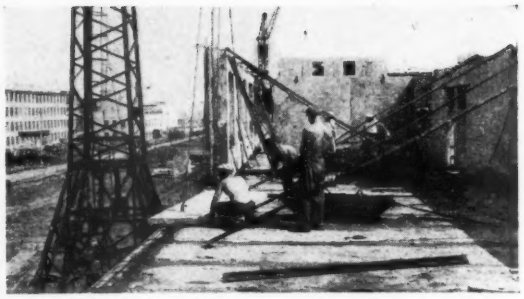
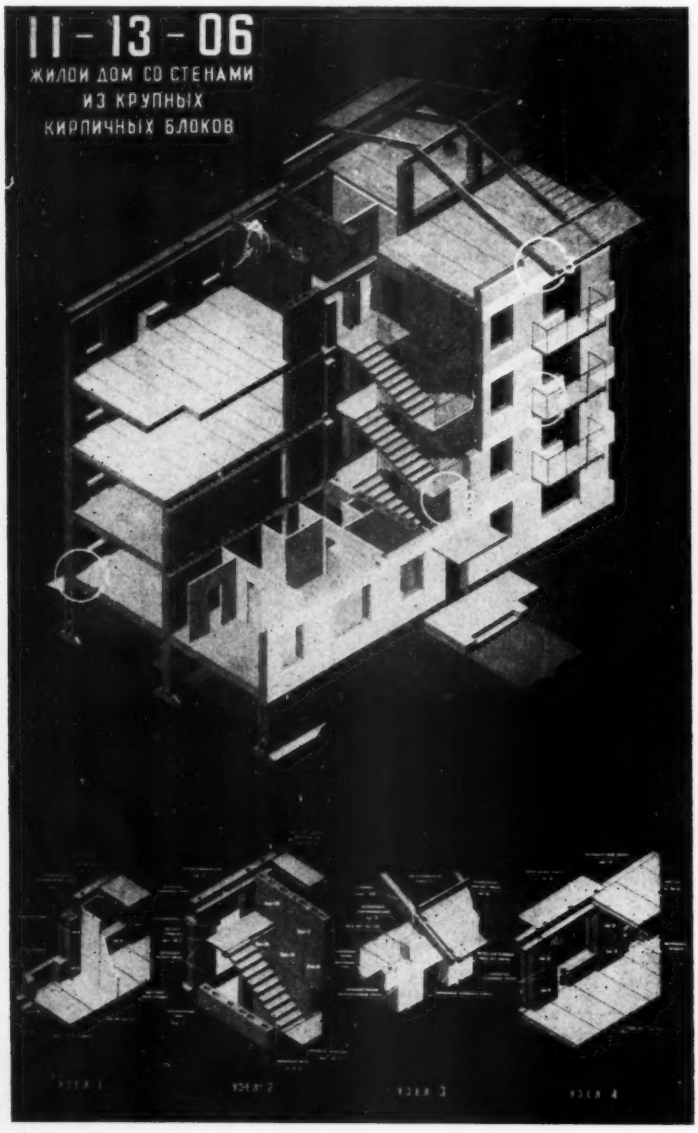


Fig. 35. *Precast concrete panel wall construction at New Cheremushki. Men placing a crane-handled balcony slab in position. Note absence of guard-rails. The women at the back are grouting up wall panels.*

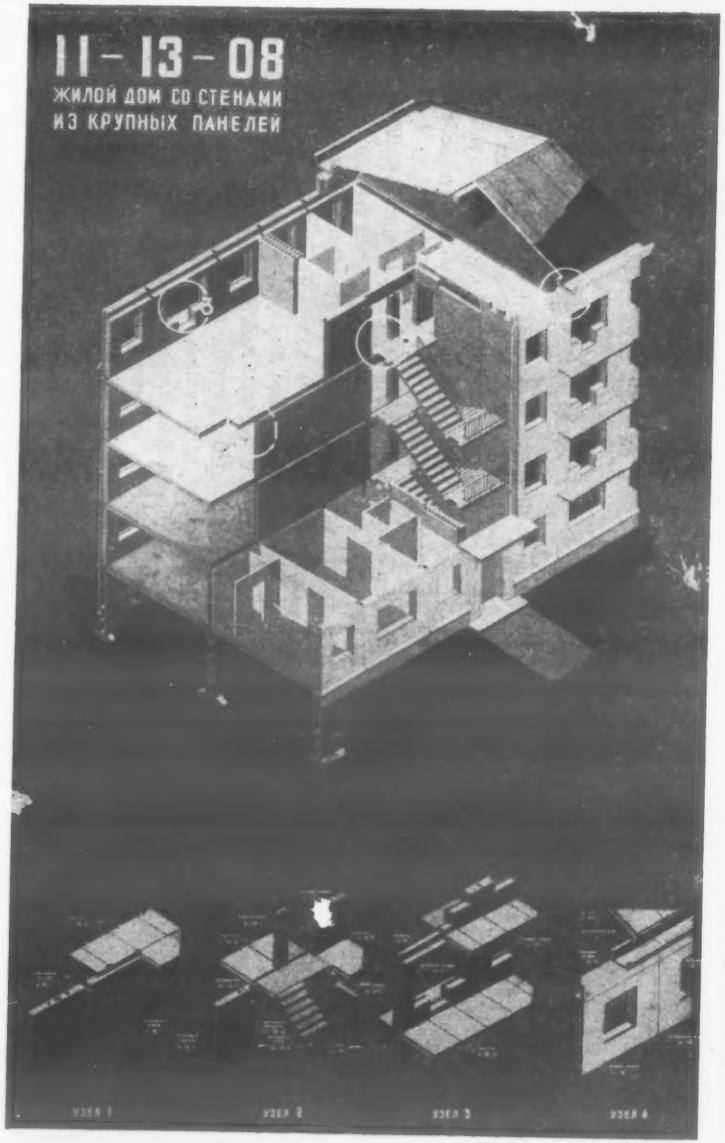
Fig. 36. *Detail showing factory-made brick wall "slabbing."*

Fig. 37. *A reinforced concrete radiator under a kitchen window sill. See Fig.* 29 (7).



and p.v.c. floor finishes; wood-wool slabs finished with a synthetic enamel; hard-boards and super-hard-boards as flooring; washable wallpapers, and so on. Smaller sized baths and sinks have also been used for the first time. A simplified wooden window frame has been introduced for double glazing, which economises in the use of timber as compared with double frames, and admits more light for a given area of window.

Fig. 38. *Diagram showing constructional system used in block No.* 6—*large factory-made brick slabs crane-handled into position, and tied together at floor levels with slag-concrete edge beams. The small illustrations refer to details marked with circles.*



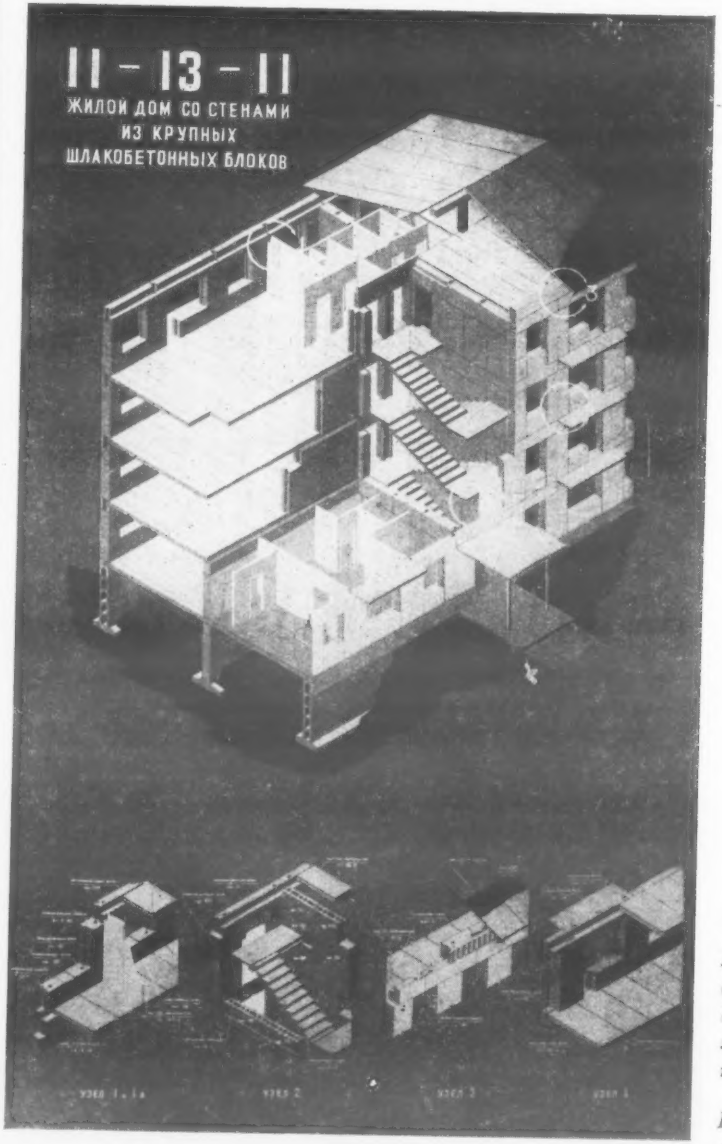
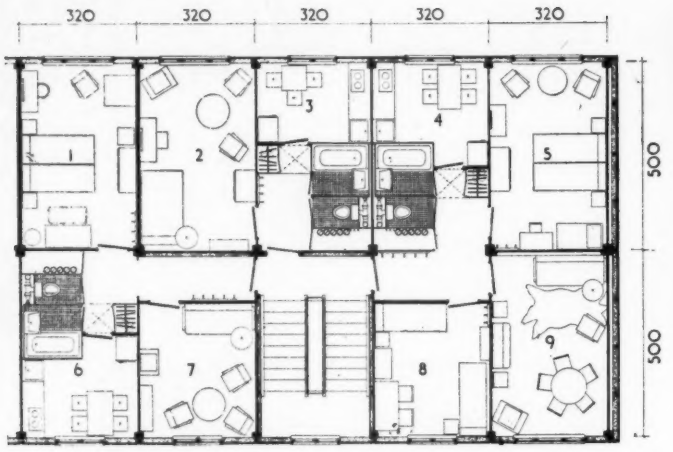
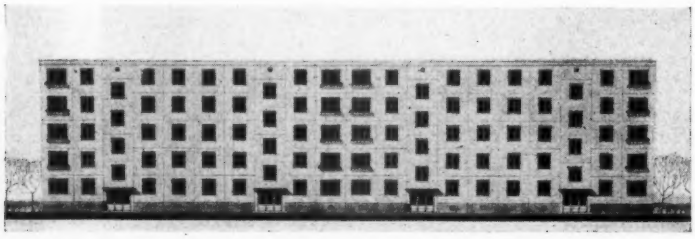
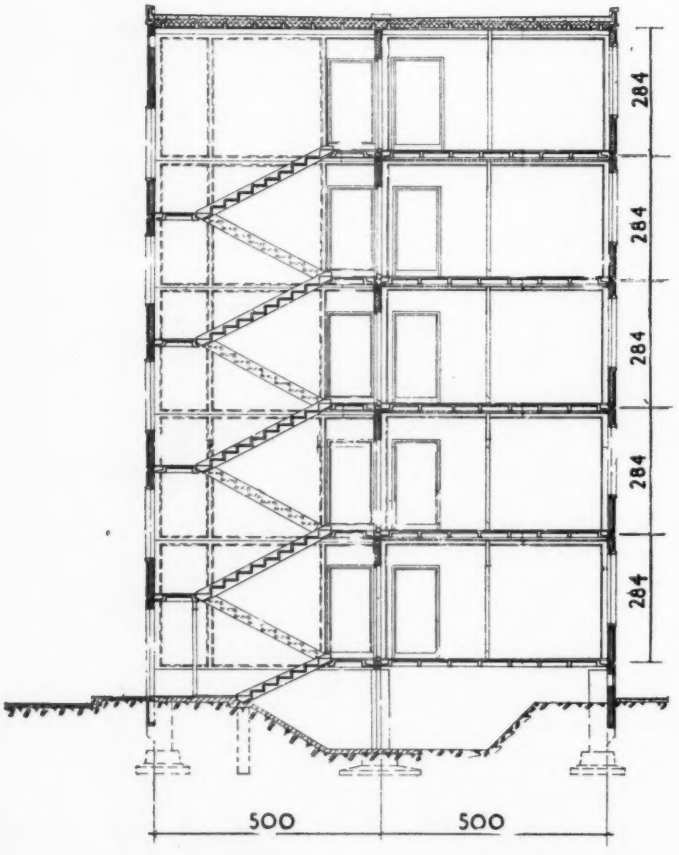


Fig. 39 (*far left*). *Diagram showing constructional system of block No.* 8—*large precast concrete panel walls. The small illustrations refer to details marked with circles.*

Fig. 40 (*left*). *Diagram showing constructional system of Block No.* 11—*large precast concrete slabs with foamed slag aggregate. The point-blocks are built in the same system.*







Top to bottom: Unit plan (Fig. 41), elevation (Fig. 42) and section (Fig. 43) of the "House of Lyagutenko"—block No. 14, in Sector 9, New Cheremushki. Note the reduction in wall thicknesses (cp. Fig. 28)

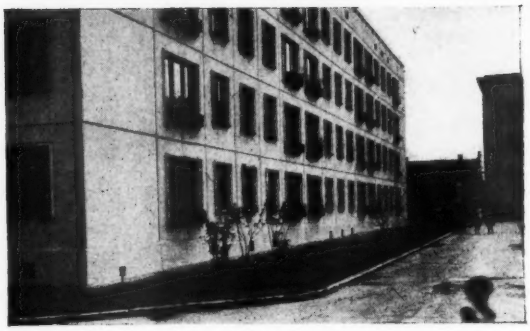


Fig. 44. General view of the "House of Lyagutenko."

The house of Lyagutenko

Plans, photographs and details of the "house of Lyagutenko," are shown in Figs. 41 to 48. Although there is only the one block, No. 14, in Sector No. 9, it is no isolated stunt. Further blocks are in construction on adjacent sectors and it is considered one of the systems which have proved themselves in the course of the experimental work. Unfortunately, for economic reasons, the attractive facings of small ceramic tiles on the external wall panels of Block 14 are omitted in later blocks. In these the concrete panels are simply painted with a cement paint.

The load-bearing wall units consist of room-sized factory-made concrete panels, with a web only 4 cm. thick, with no intermediate ribs, but with deep ribs on all four edges. All panels have mild steel lugs around the edges, which serve both for crane handling and for jointing the panels together. The lugs are welded, and then the spaces at the junctions between panels are caulked, and grouted up with a light-weight aerated cement.

External panels are filled with a new, very light-weight foamed insulating material (penokeralit), which has a honeycomb structure and which is finished, in the factory, with a skim-coat of plaster. The floors consist of room-sized, ribbed, precast panels, also with steel lugs at the edges which are welded to lugs in the wall panels. The sheet rubber floor finish is struck down direct on to the pre-cast floor units. Suspended ceilings are made of what appears to be a medium hard-board sandwich with a honeycomb centre filling. They look very neat. Internal walls are papered direct on to the thin concrete panels and also look well (Fig. 47). The standard of finish in these blocks is far higher than in those with less highly mechanized processes of manufacture.

One can deduce from this that higher standards of finish in Russian building are likely to come, not so much from stepping up the craft training of the hundreds of thousands of semi-skilled bodgers who at present pass for craftsmen in the building industry, as from a forward leap into a method of building which will turn the site into an assembly shop for highly finished, factory-made components

Details of junctions between components, wall panels, floor units and so on are shown in Fig. 45.

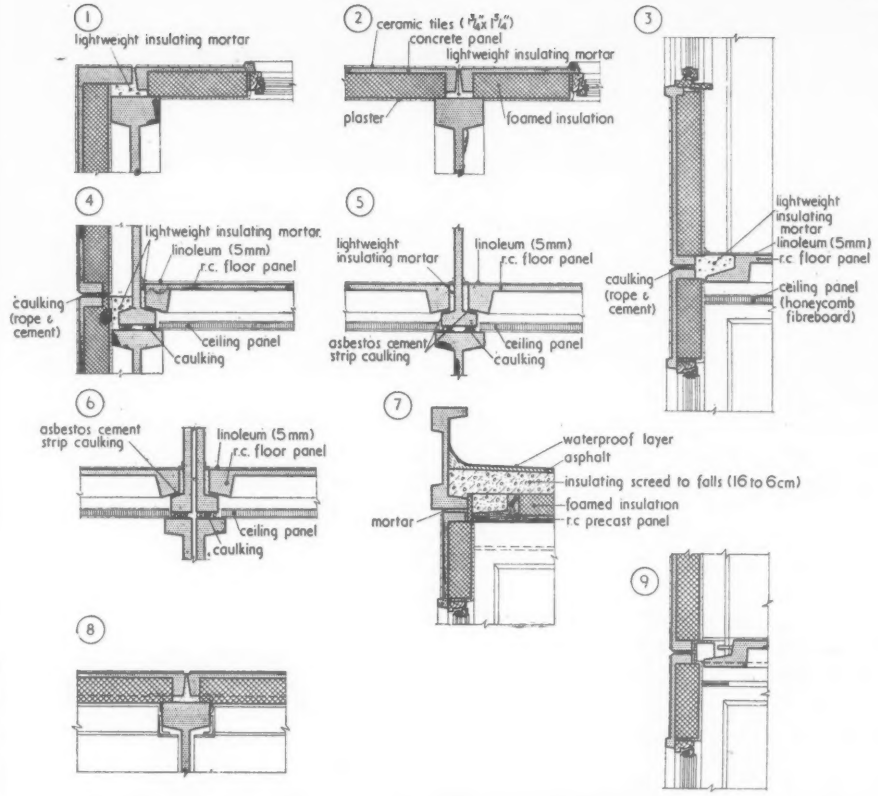


Fig. 45. *Details of the construction of the "House of Lyagutenko."*

KEY:

1. External corner wall junction
2. Junction between external wall panels and internal load-bearing cross partition
3. Junction between floor and longitudinal external walls
4. Junction between floor and external cross walls at ends of block
5. Junction between floor and internal cross partitions
6. Junction between floor and cross partitions dividing flats
7. Junction between external wall and roof

8 and 9. Junctions as at (2) and (3) showing steel lugs at edges of panels, which serve both for crane handling and for welding the panels together

Fig. 46 (*above*). *Interior of a new flat in south-west Moscow. Note the bed-recess off the living-room* (*cp. plan, Fig.* 28).

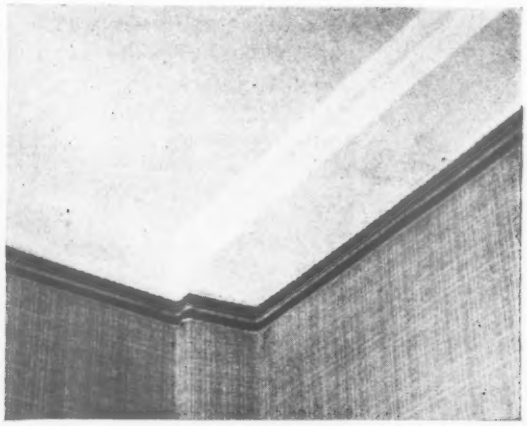


Fig. 47 (*above right*). *Detail of the corner of a room showing papering direct on to the 4-cm. thick precast concrete wall panels, and the exposed junction of the ribs in the corner. The concrete finish in this block the "House of Lyagutenko" was exceptionally good.*

Fig. 48 (*right*). *A corner of the "House of Lyagutenko." Note the extremely good finish of small ceramic tiles* (*approx.* $1\frac{3}{4}$ *in.* × $1\frac{3}{4}$ *in.*)—*not returned at the corner—which are cast on to the concrete panels in the factory.*

ARCHITECTURE AND BUILDING IN THE USSR

New developments in Kiev

Architects in Kiev, as in other cities, seem to have had a tremendous spree in the years up to 1955, designing the most ornate and exuberant individual buildings, concert halls, department stores, offices, blocks of flats, and so on, which must have cost several times the level to which they are now working. The site of Kiev is extremely beautiful. The city is built on a series of hills and ravines, which rise straight up from the west bank of the Dnieper, and look out over the sandy bathing beaches of the east bank to the infinite horizon of the Ukraine. The planning conception of the tree-lined thoroughfares, the parks and recreation facilities on the Dnieper, the changes in level across wide streets, with raised or sunk pavements, and the deliberate opening up of the city centre to embrace closed compositions of steps, buildings and trees climbing the hills on either side, has been well-handled (Fig. 49). The individual buildings, however, with hardly a square inch of surface undecorated, are a curious conglomeration, with stylistic borrowings from all periods and all places (Fig. 50).

This era finished, however, with the resolution of the Central Committee of the Party and the Soviet of Ministers of the USSR of November 4, 1955, which decided on the elimination of extravagance and waste in architectural planning and the construction of buildings. This resolution is frequently referred to as one of the historic events in the annals of architecture and building. In the same year, the Ukrainian Soviet of Ministers decided to limit the height of buildings in Kiev as a general rule to 5 storeys. Further resolutions both of the USSR and of the Ukrainian Republic instructed the architects and builders to increase output by mechanizing the industry, to reduce costs per square metre by specific percentages and to give special priority to the provision of new residential areas.

The result of all this political activity led, of course, to a complete revision of town plans and building programmes all over the Soviet Union. In Kiev, for example, in the city office, schemes in preparation were shorn of extravagant decoration, and 198 approved projects, in various stages of work, were stopped and reconsidered, with a resultant saving of 37·5 million roubles (£3,400,000). The office also started in earnest on the development of residential areas on available sites, making maximum use of standardized plans

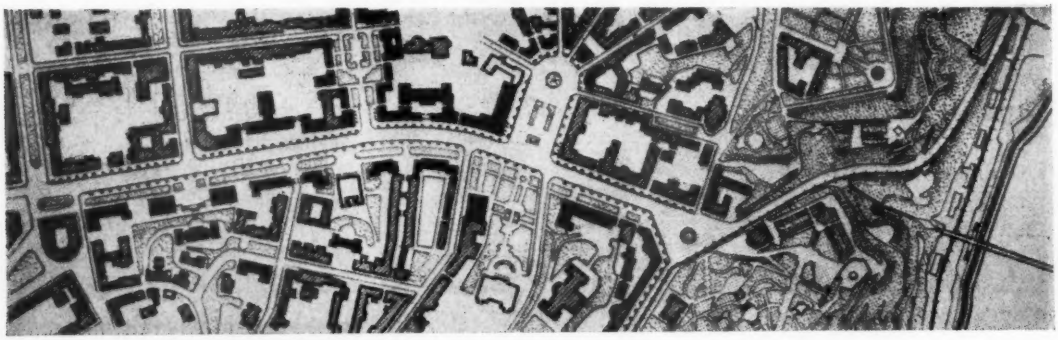


Fig. 49 (*above*). *Plan of Kreshchatik, the war devastated and now rebuilt main street of the city. New buildings are shown in black, restored buildings are hatched. The west bank of the Dnieper is at the right of the plan.*

Fig. 50 (*left*). *The south side of Kreshchatik. Note the upper and lower pavement levels and the planting. All these trees were* 15 *years old when planted after the war. The buildings are flats, typical of the period up to* 1954. *They cost one and a half to twice as much as current standardised housing.*

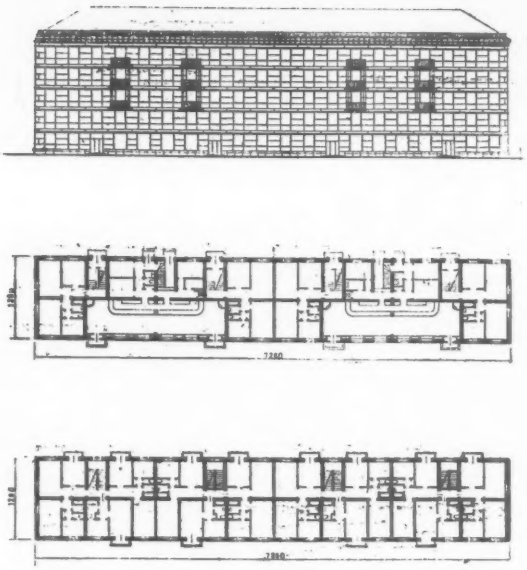


Fig. 51. Typical floor plan, ground floor plan and elevation of standardized 5-storey housing in Kiev in the period since 1955. Lifts are not provided. Note the large shops on the ground floor. In future, the shops and communal facilities are being provided separately and construction will be highly mechanized but the elevations so far are pretty much the same (see Fig. 53).

(Fig. 51). One of the first of these, of which Kiev is most proud, is Chokolivka (Fig. 52). It is on the outskirts of the city on virgin territory.

All housing at Chokolivka and similar sites is on the basis of formal layouts of 5-storey staircase-access flats, the earlier blocks having nursery schools, club-rooms, shops and other ancillary accommodation on the ground floor. It can certainly be said of the new Russian suburban housing estates in general, that they are not just "housing" areas. They are well provided with all necessary amenity buildings—schools, shops, club-rooms, children's play areas and equipment, cinemas, ice-cream and drink kiosks, park benches, and so on. The landscaping, with many hundreds of 10 to 15 year old trees is also well established before the builders leave the site. I saw, for example, rows of trees planted in a new sector at Chokolivka, only a few yards away from the blocks of flats, at a time when they were only up to lower floor levels.

The layout in Fig. 52 is significant in that it shows the first attempt on the part of the city architect's office to break away from rigid quadrangle and corridor-street planning to something freer. The eastern half of the sector has just been replanned, for the third time, using new types of 8-storey point-blocks, combined with 4-storey staircase-access blocks, arranged along the contours. The site falls steeply towards the east, and one can scarcely imagine a less

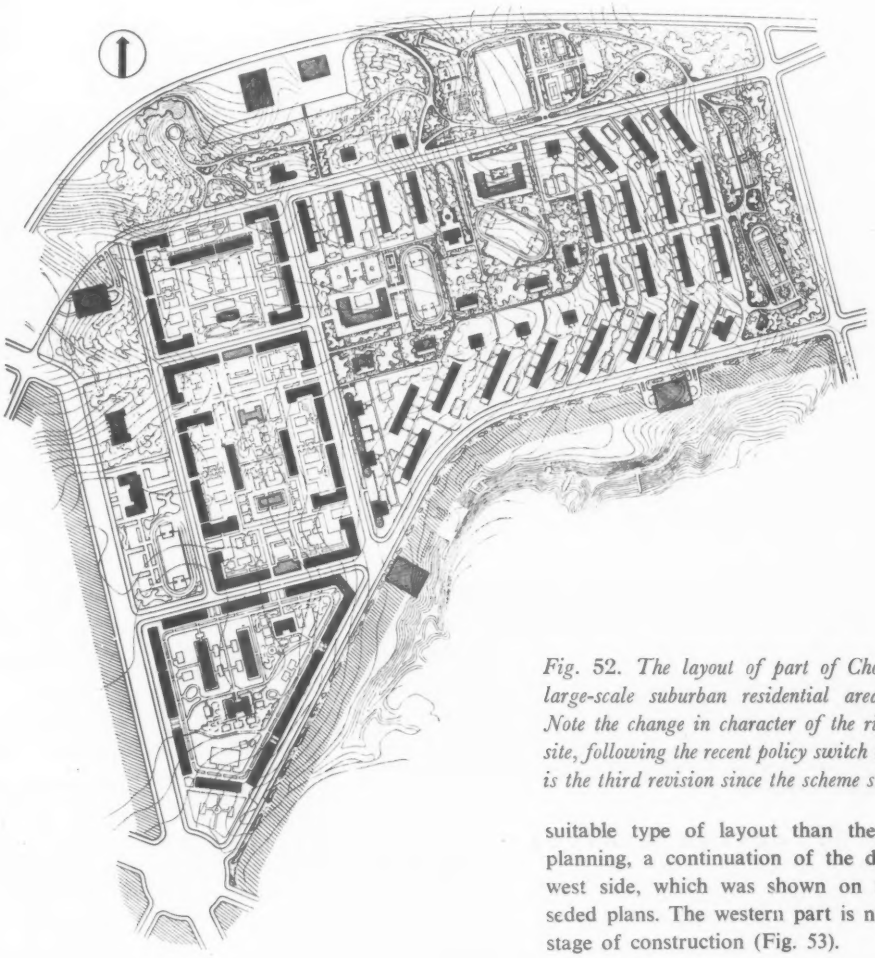


Fig. 52. The layout of part of Chokolivka, Kiev's first large-scale suburban residential area, started in 1956. Note the change in character of the right-hand part of the site, following the recent policy switch to freer layouts. This is the third revision since the scheme started.

suitable type of layout than the formal courtyard planning, a continuation of the development on the west side, which was shown on the recently superseded plans. The western part is now in an advanced stage of construction (Fig. 53).

Fig. 53. A massive array of tower cranes at Chokolivka, where the organization of building was said to be on the "continuous flow" method (see text). Behind the spoil heap in the foreground, in surprising contrast to the mechanization going on in the background, were a group of about twenty women carrying out excavation by hand.

Within the layout shown, the maximum distances from any dwelling on the site to buildings or areas of public or social service have been calculated as follows:

Schools:	350 m.
Kindergartens and nursery schools:	300 m.
Shops of all kinds, buffets, etc.:	350 m.
Garages:	300-400 m.
Sport and general recreational area (at N.E. of site):	1,000 m.
Club, cinema and restaurant:	800 m.
Boiler-house (district scheme):	1,000 m.

The first main step to industrialization at Chokolivka, which was started in 1956, was the organization of housing sites on a "continuous flow" method. This means in practice, flooding the site with cranes and planning the sequence of erection so that there is a continuous flow of labour and materials from standard block to standard block. Thus, theoretically, when foundations are being placed for the last block, the first has reached the stage of finishings, and in between are a series of blocks at intermediate stages, each representing one stage of construction in advance of the one next to it. The second step forward was the introduction of larger elements of construction for the walls (Figs. 54-57). Floors were already precast in fairly large units (Fig. 56) although these also are now being made in wider slabs. Progress here closely followed the Moscow pattern, and pre-fabrication was in terms of large, factory-made brick slabs (Figs. 54-55) or slag concrete slabs of similar size (Fig. 16) and then larger room-size panel units of slag-concrete (Fig. 29). The latest constructional advance is described as the "box and panel" system.

In 1956, the output of housing in Kiev was raised by the new methods to 208,000 square metres of "living-space" (area of living rooms and bedrooms only). For the three years 1957-9, the plan calls for a total of 1,500,000 square metres, well over twice the 1956 rate of output.

Below: typical scenes at Chokolivka.

Fig. 54. A lorry load of factory-made brick walling-slabs.

Fig. 55. A girl worker preparing a brick walling-slab for hoisting by a tower crane. Owing to the multiplicity of different kinds of wall panels, it sometimes takes quite a long time to find the right one—an acknowledged disadvantage of the system.

Fig. 56. Hollow precast floor slabs stacked ready for crane-hoisting.

Fig. 57. Detail on the ground level of a block of flats built of factory-made brick slabs. The enormous rainwater pipe is said to be to cope with snow and ice. Now that in the latest blocks plumbing is being cast in to wall panels, arguments have been found for reducing the pipes in size.

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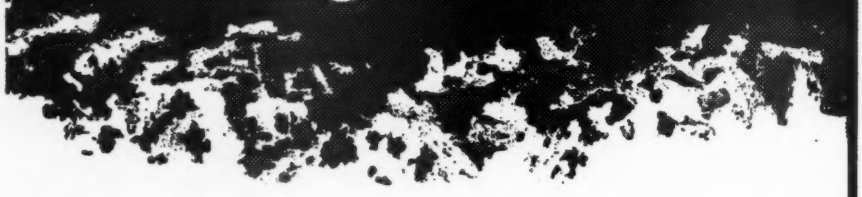

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"Box and panel" construction

In Kiev

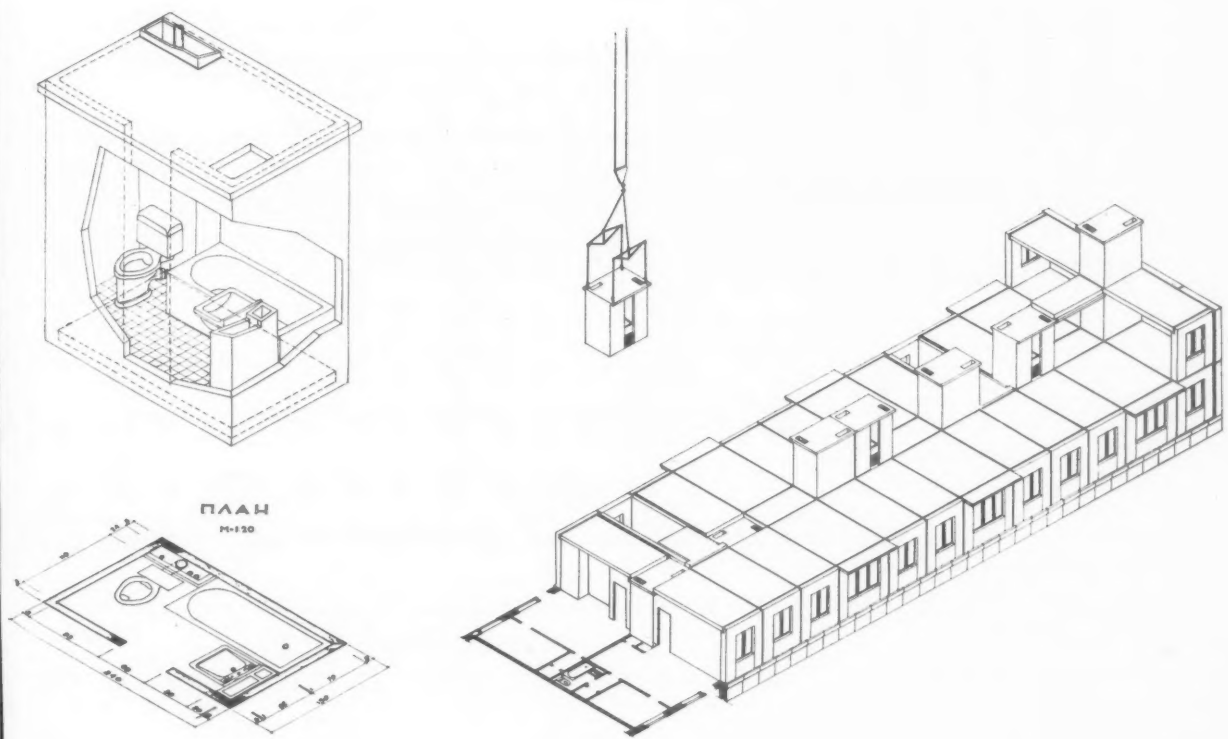
The architects of the Kiev city office, "Kievproekt," in collaboration with research institutes of the Ukrainian Academy, have certainly taken a bold step in the design of multi-storey housing with a system called "box and panel" construction. This system takes another big step forward in transferring building work into the factory, and in converting the building site into an assembly shop.

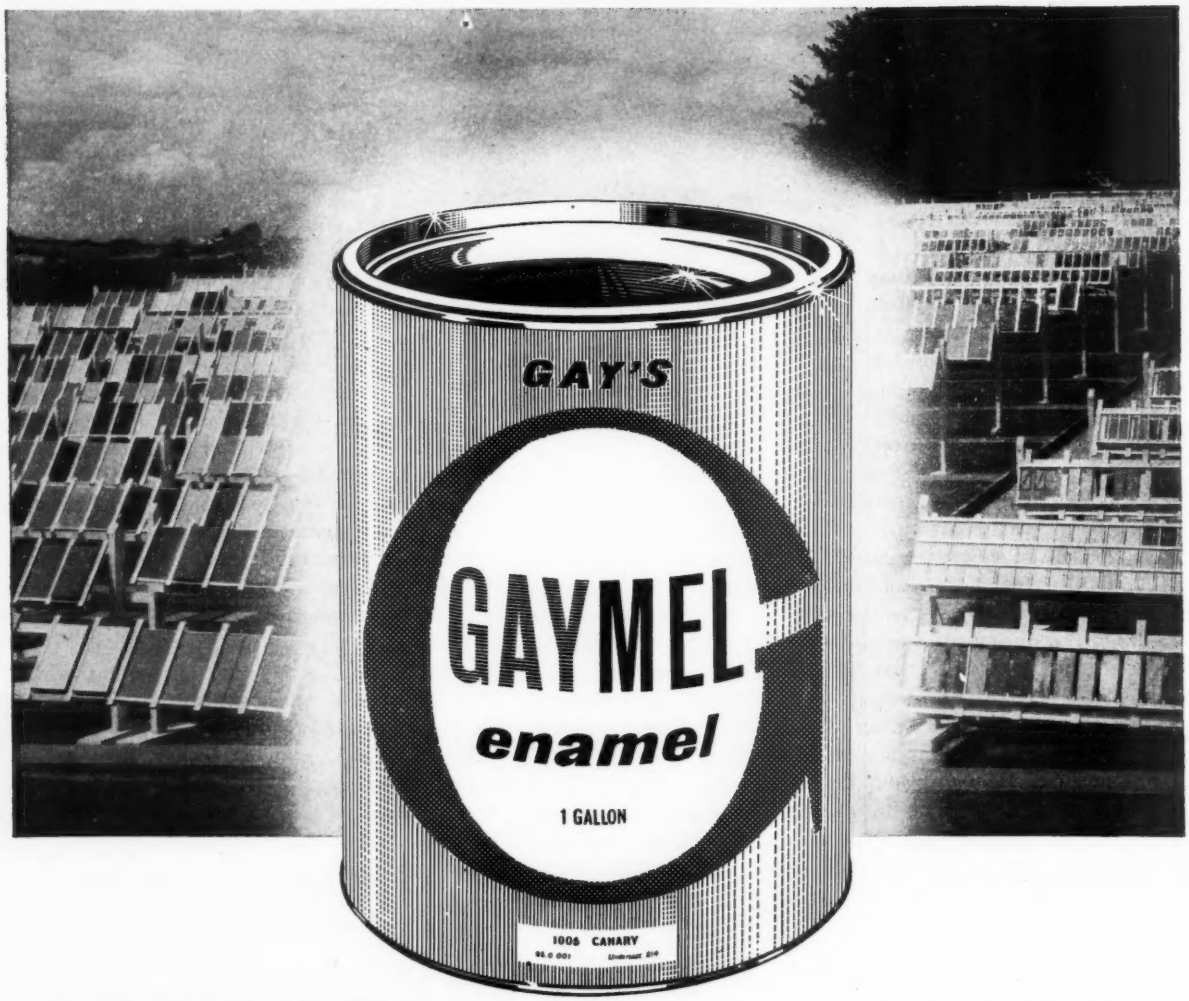
The structural basis of the system, and the erection sequence of the elements, is indicated in Fig. 58. The bathroom, which includes the w.c., is a prefabricated reinforced concrete "box," with its own floor and ceiling. It is constructed, serviced and finished, at the factory, and is delivered to the site complete with bath, w.c. and wash-basin, plumbing and electrical installations and all interior wall, floor and ceiling finishes and decorations. The "boxes" are then simply stacked up on top of each other, on precast foundations, to form a series of structural "columns" along the centre spine of the building.

The external walls are also load-bearing, while the staircase walls consist of large prefabricated reinforced concrete panels, using slag aggregate. The staircase walls have ventilation ducts and services, for the kitchens, cast in. Staircase flights and landings are precast. Partitions are also factory-made. The floors consist of large, room-size precast units with hollow cores (as in Fig. 56). The bathroom boxes were originally designed with walls of 8 cm., subsequently reduced to 6 cm., and weigh between 3 and 4 tons. They are said to be easily handled by a standard SBK-2 tower crane, which has a lift of 5 tons at 15 metres. All connections of services and structure are site welded.

The research institutes say that the traditional bathroom-w.c. arrangements seriously hold up the speed of erection of multi-storey flats. Some twenty different types of building operations have to be concentrated in these small apartments in quick succession, from

Fig. 58. Diagram showing "box and panel" construction as developed by Kiev architects and builders. Bathroom units, with walls, floors and ceilings are factory-made, concrete boxes, which form a structural spine along the centre of the building. They are completely fitted out and decorated in the factory. External walls are room-size slag concrete panels.





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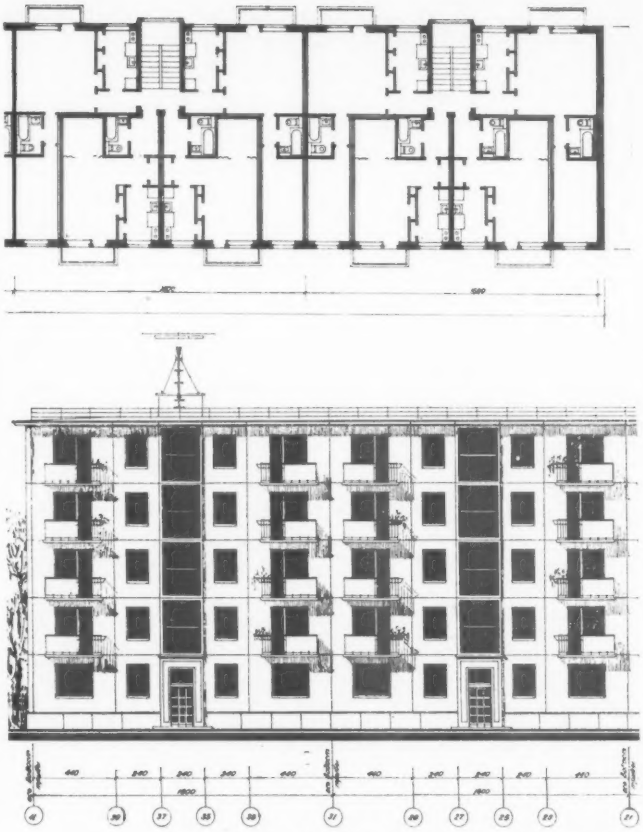
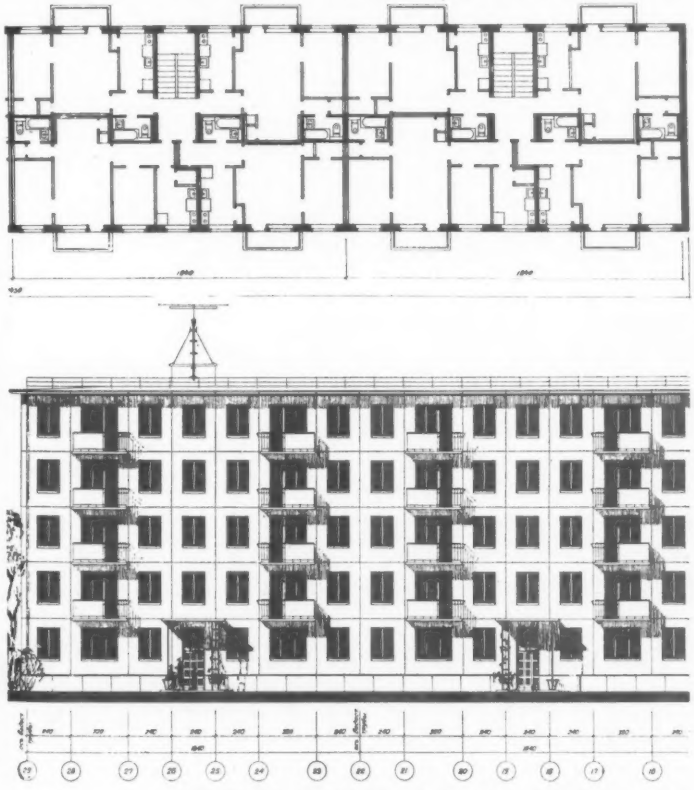


Figs. 59-60. *Half-plan and elevation of* 5-*storey block, in "box and panel" construction, with* 1 *and* 2-*room flats.*



Figs. 61-62. *Half-plan and elevation of* 5-*storey blocks in "box and panel" construction, with* 2 *and* 3-*room flats.*

general building work to different kinds of finishes, fittings, plumbing, ventilation and electrical installations. By transferring all this work to the factory there is a saving in building time and manpower; the weight and volume of materials can be reduced; higher standards of work can be achieved; and much waste and delay due to breakages is avoided. This policy is also in accordance with a directive of the Central Committee of the Party and of the Soviet of Ministers of the USSR, that the industrialization of building shall be speeded up, and the labour content per dwelling reduced.

So far this method of building has only been tried out on a pilot scheme. It is intended to perfect it in the near future, however, and to make it the basis of standardized factory-produced housing. The bathroom "boxes" will be cast and finished on a conveyor belt system of production.

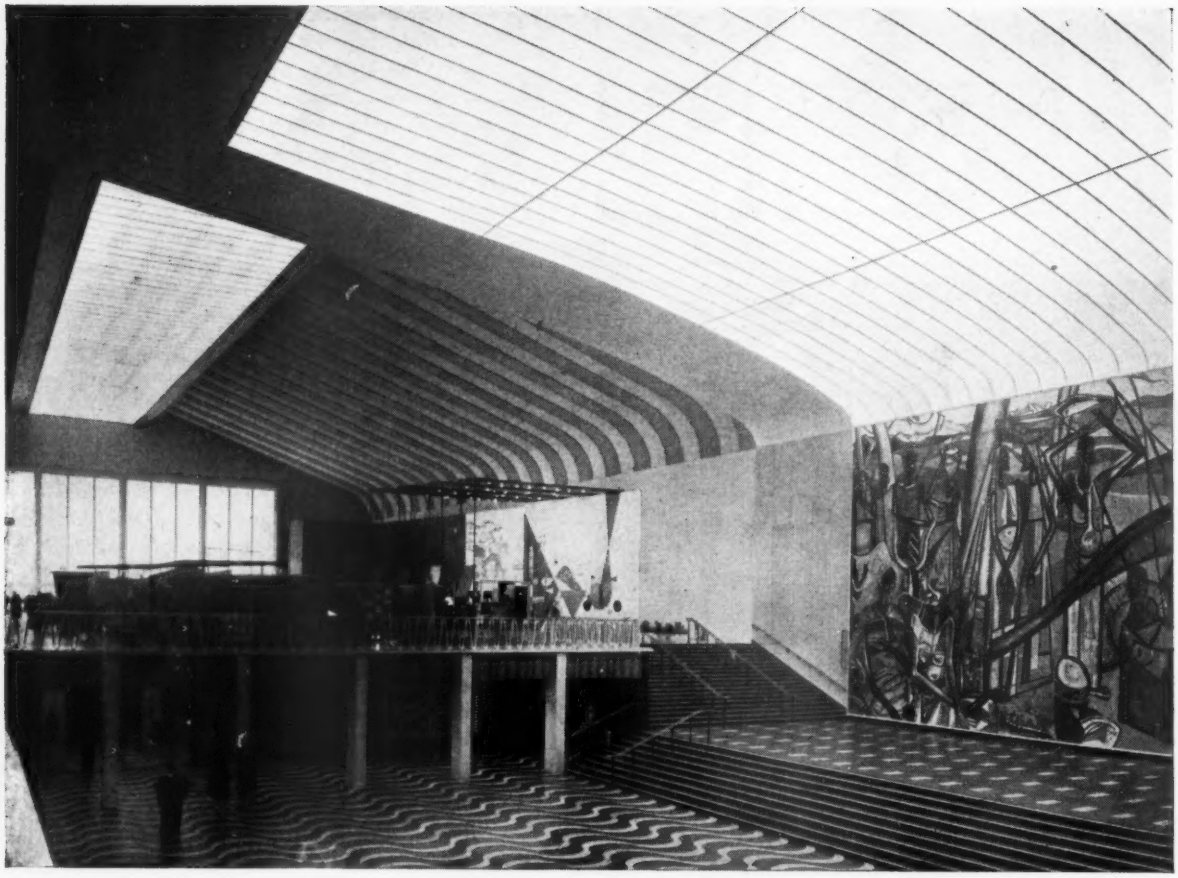
Figs. 58-62 illustrate the plans and elevations of the two blocks now under construction in the pilot scheme. One block contains 1-room and 2-room flats, four to a staircase on each floor; the other contains 2-room and 3-room flats, also with four flats entered off a single staircase in each floor. The bathroom "box" units, precast wall panels, floor and stair units, are standard for both blocks. Both blocks have a depth, back to front, of 11.9 m. (39 feet). Spans on both sides of the "box" spine are standardized at 4.4 m. (14 ft. 5 in.). Floor to floor heights are 3 m. (9 ft. 10 in.), giving room heights of about 9 ft. The overall size of the bathroom "boxes," externally, is 2.4 × 1.5 m. (7 ft. 10 in. × 4 ft. 11 in.).

External slag concrete wall panels are standardized at two widths only, 2·4 and 3·2 m. (7 ft. 10 in. and 10 ft. 6 in.). They are 35 cm. (13¾ in.) thick. Average frontages (dividing block lengths by the number of flats) are 4 m. (13 ft. 1 in.) in the block of one and two-room flats, and 4·6 m. (15 ft. 1 in.) in the block of two- and three-room flats.

In Moscow

In Moscow, a special group representing certain research institutes of the Academy, in collaboration with "Glavmostroi," the city building organization, and "Mosproekt," the executive architectural office, have actually carried the development of "box and panel" construction a good deal further than Kiev. One detected definite symptoms of an inter-city rivalry in this respect, particularly in Kiev. A five-storey block of flats containing 60 bathroom "box" units (Figs. 63, 64) has been erected in Section 14 of the South-West Region of Moscow, adjacent to the New Cheremushki experimental area. In these the walls of the "boxes" are only 5 cm. thick and the total weight of each bathroom-w.c. unit, complete with fittings and finishes, is 3 tons. The "boxes" are delivered to the site two at a time on a standard transporter. The erection time, on the pilot scheme, including all ancillary work and the connection of services, was less than four hours per unit.

The "boxes" for this scheme were cast in steel moulds and steam cured. The outer formwork was heavily insulated against heat loss and steam pipes



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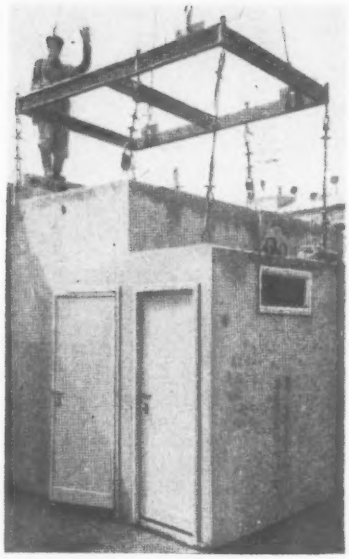
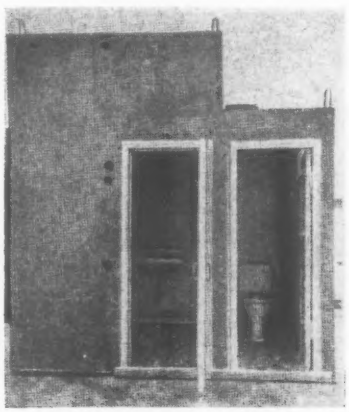




Figs. 63-64. *Views of the bathroom-w.c. unit in the Moscow version of "box and panel" construction. Each unit in the pilot scheme weighed about* 3 *tons complete. As a result of further research the weight of each unit (bathroom plus w.c.) has been reduced to* $1\frac{1}{2}$ *tons.*

were fed through to the inner forms. Pressure was maintained for a total of five hours per casting—two hours to raise the temperature of the "box" to 100 degrees centigrade, and three hours maintaining it at this temperature. Cooling down took 11 hours. The whole cycle of preparing formwork, fixing reinforcement, casting, curing and removing the unit from the formwork took only 20 hours. The "boxes" were then fitted with doors, interior finishes, vent grilles, plumbing and electrical installations and fittings. The close-coupled w.w.p. and pan (Fig. 64) appear to be standard practice in Russian housing.

The savings effected in cost and in man days, in the pilot scheme, are shown in tables 1 and 2.

Following the pilot scheme in south-west Moscow, modifications have been made to the detailed design and further experiments are being carried out. It is intended to start up conveyor-belt factory production next year. Schemes involving some 400 units are being carried out during 1958. In these, the use of various lightweight aggregates is being experimented with, as a result of which walls have been reduced to 2·5 cms. thick, and the overall weight per unit to $1\frac{1}{2}$ tons. Experiments are also proceeding, using 1 cm. thick asbestos-cement sheets for the walls. There is also talk of making the "boxes" of plastics. Plastics—for floor finishes, staircase handrails, furniture or any other applications—have only this year begun to appear on the Soviet building scene.

Table 1
*Comparative costs**

	Bathroom-w.c. unit in traditional construction	Prefabricated construction per unit
	£	£
General building work on site	90	—
Work in preparing and casting unit in factory	—	112
Plumbing and fittings	185	140
Electrical work	15	10
Finishes	47	45
Expenditure on transport and erection:		
(*a*) transport	—	4
(*b*) crane handling and erection	—	9
(*c*) services connections	—	6
Total	£337	£326

Table 2
Comparative outputs

	Bathroom-w.c. unit in traditional construction	Prefabricated construction per unit
Man-days expended	20·4	2
Labour costs	£36	£3½

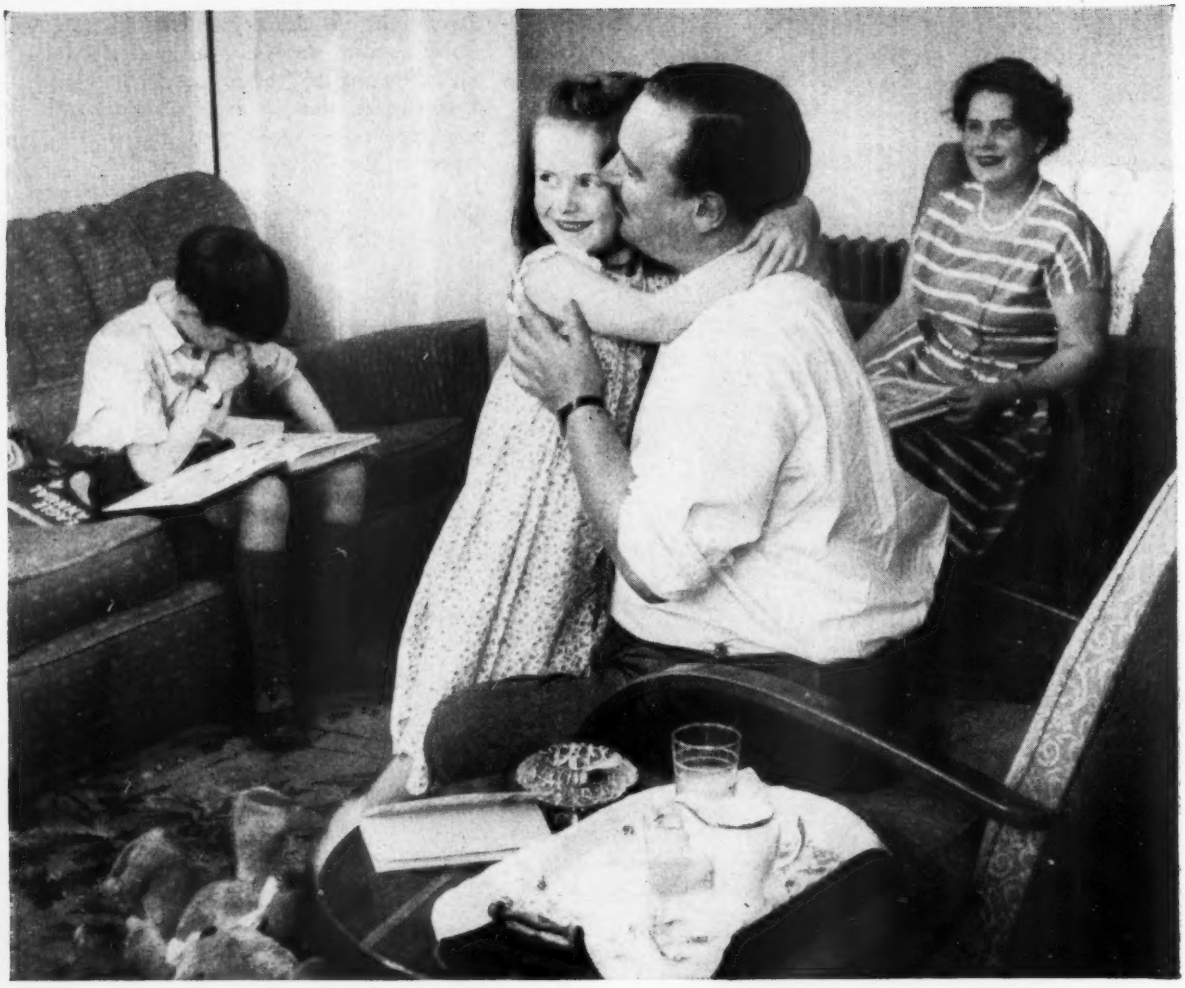
Fig. 65. *More than* 160 *Russian towns now have district heating schemes. This photograph shows insulated district heating mains, about* 2*ft.* 6 *in. in diameter, being laid in a suburb of Moscow. The duct is subsequently covered with precast concrete units.*

* Costs have been translated into stirling at the official rate of exchange of 11 roubles to the pound. Wages and salaries at this rate of exchange bear some relation to English levels. Price levels in shops, however, are bizarre, and are set by the government as a matter of economic or social policy—as a means of rationing articles in short supply, or influencing demand for other reasons. Because of the bizarre price levels, foreign tourists and congress delegates are given 27·6 roubles to the £ (which are still inadequate for normal "tourist" shopping).

Examples (calculated at 11 roubles to the £):

Wages and salaries: A provincial city architect, £1,600 a year; a specialist architect restoring famous old buildings, £2,700 a year; Moscow architects, £2,200 a year upwards; an hotel waitress, £650 a year; bus driver, £750 a year; student stipends (best students) £650.

Price levels: Ordinary cheap men's suits, £130-£150; cheap cotton shirts, £3; cheap nylon shirts, £10; men's shoes, per pair, £16-£22; hotel dinner, third class, without drinks, £1 10s.; fried egg in cheap buffet, 1s.; glass of tea, 6d. to 1s.; bread per kilo, 2s. 8d.; cheapest apples per kilo, 7s. 6d.; oranges per kilo, £1-£2; Metro, anywhere, 11d.; motor scooters, £300-£600; rents, typical, 2 or 3-room flats, incl. heating and all services, 30s. a week.



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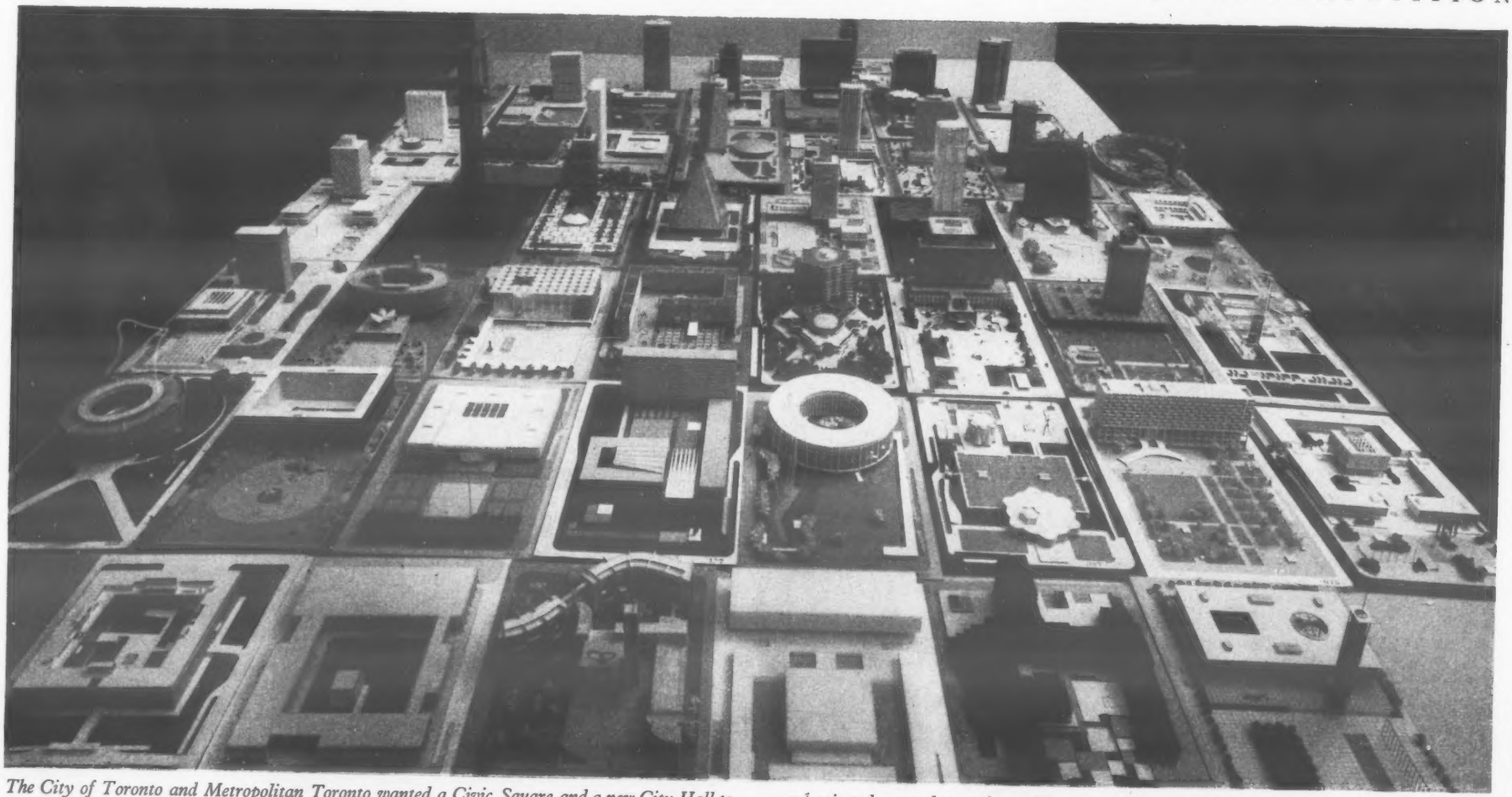
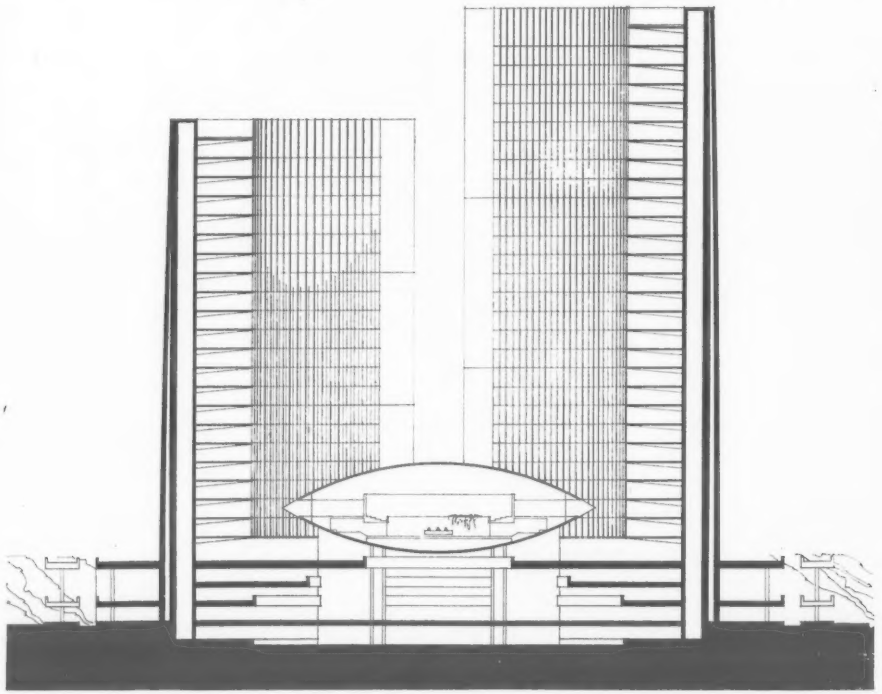
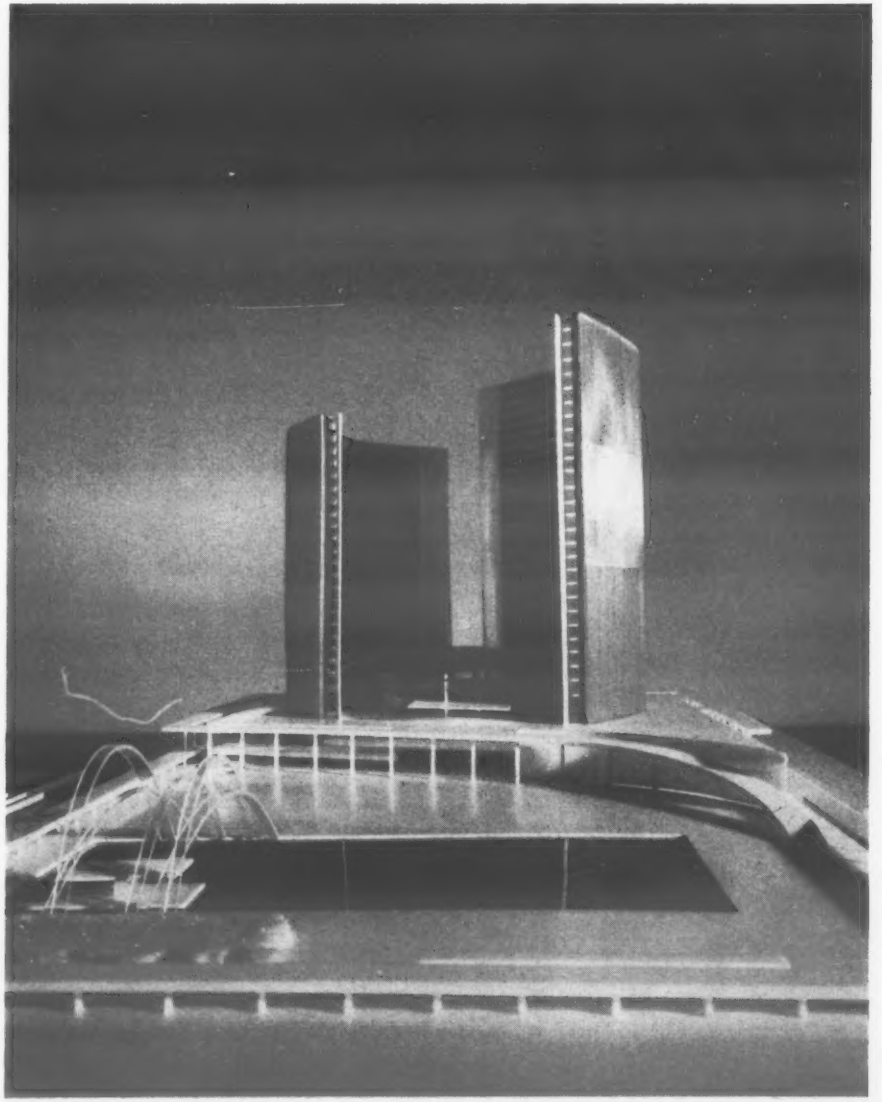
ARCHITECTURAL ABUNDANCE FOR TORONTO CITY HALL AND SQUARE COMPETITION



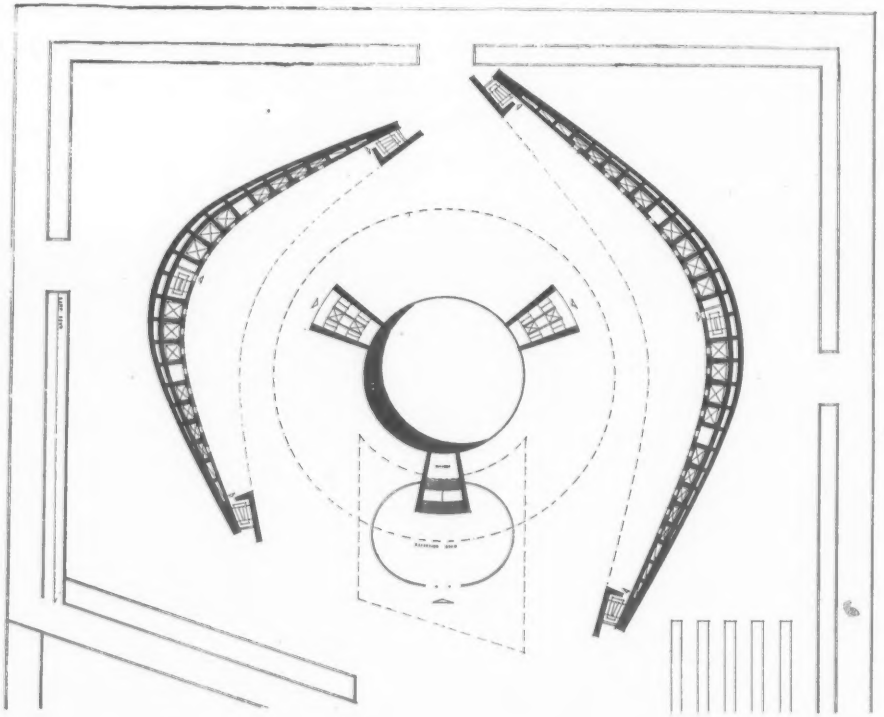
The City of Toronto and Metropolitan Toronto wanted a Civic Square and a new City Hall to replace the existing 19th c. romanesque hall, so they organised a two-stage international competition and called in an all-star jury of the following: Sir William Holford, C. E. Pratt (Vancouver), Ernesto Rogers (Milan), Eero Saarinen (Michigan) and Gordon Stephenson (Toronto, but former professor of Civic Design, Liverpool) to assess the entries. The competition conditions were prepared by Professor E. R. Arthur of the Toronto University School of Architecture. 520 from 42 countries entered for the competition, and a few of the models submitted —and rejected—are shown above. The competition conditions stated " One of the reasons for this competition is to find a building that will proudly express its function as the centre of civic government. How to achieve an atmosphere about a building that suggests government, continuity of certain democratic traditions and service to the community are problems for the designer . . . These, however, are spiritual attributes. Of equal importance are the physical qualities . . . Modern planning and modern techniques ensure flexibility at minimum cost . . . these are essential qualities . . ." The degree of mental flagellation to achieve this aim which

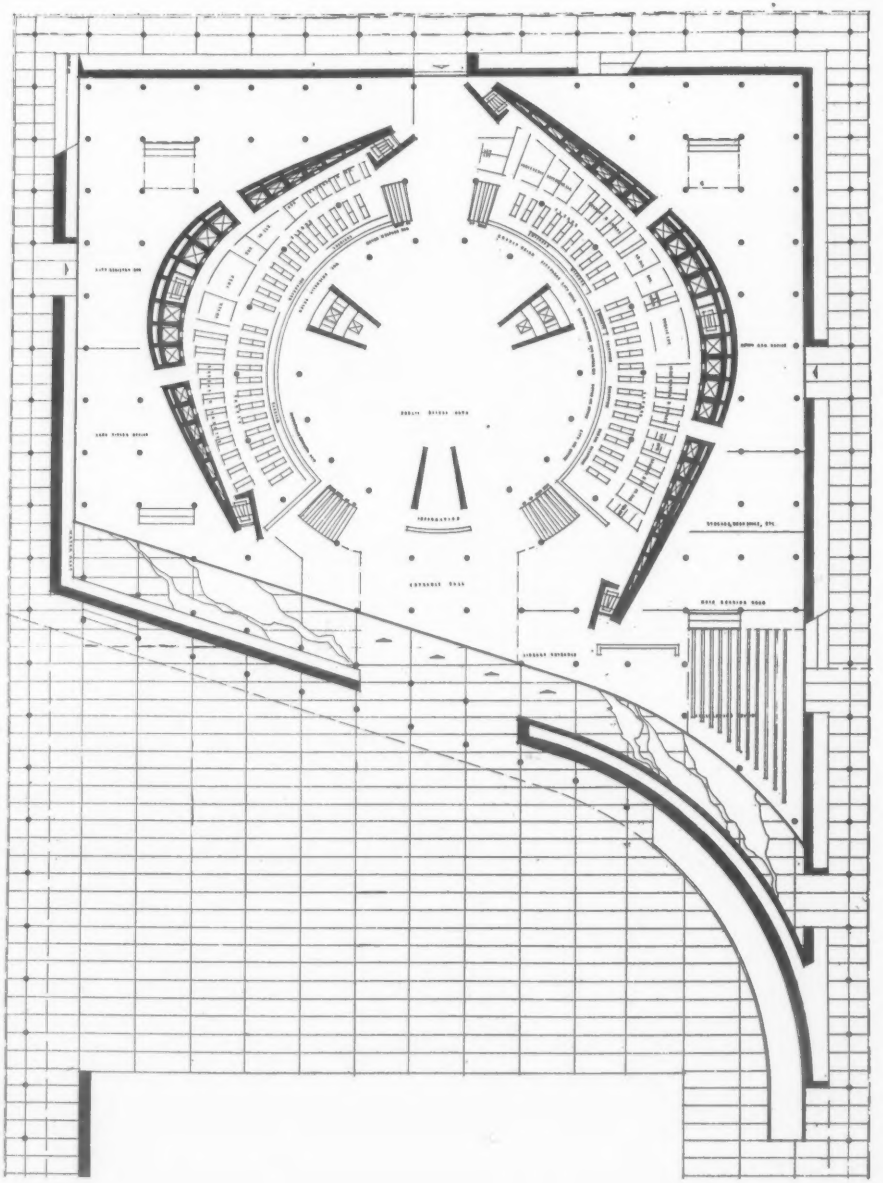
FINN'S WINNING DESIGN FOR TORONTO CITY HALL AND SQUARE COMPETITION





architects have undergone, in this age when, in structural and design terms, hardly anything is impossible, can be judged from a study of the slabs, towers, squares, spirals, circles, pyramids and polygons shown on p. 542, now ready for the dustbin, or perhaps, Scott-like, for some unwitting railway authority. However, eight schemes were permitted to enter the second stage of the competition and seven of these received, consequently, prizes of $7,500. *They were by: Hulldor Gunnlogsson and Jorne Nielson, Copenhagen (20-storey slab over 3-storey block); Mikatowski, Rafferty and Rafferty, Minnesota (axial, 14-storey hollow square); John H. Andrews, New York (axial, 6-storey mastaba); Perkins and Will, New York (axial, 4-storey block on tall pilotti wrapped round central core); W. B. Hayward, Philadelphia (axial, multi-storey slab within low square); David E. Horne, Toronto (two simple rectangular blocks); I. M. Pei, New York (axial, 4-storey hollow square cantilevering over solid-seeming plinth); and by Finnish architect Viljo Rewell, who won the first prize of* $25,000 *(being the first instalment of a* $1,000,000 *fee for a* $18,000,000 *building) with the design shown in section, above, and model, right. Two half-opened books, stood on end, could describe the office accommodation,*





and these rest on a three-storey podium containing " all those activities in which the public are likely to be interested." An oyster-like structure is poised over the podium and contains the council chamber and the executive suites. The roof of the podium forms a high level plaza overlooking the rest of the square which is simply detailed and enclosed by an arcade. The plan at plaza level, above, shows the boomerang outlines of the office blocks, formed of buttressed reinforced concrete with floors cantilevered off on the inner face only. The ground floor plan, right, shows the main public hall round which is a counter " where all business can be transacted." Two of the jury, Professors Holford and Stephenson, while accepting the majority decision of the jury that Viljo Rewells design is the most original submitted, with " monumental qualities . . . composition of great strength . . . shape is distinctive and dramatic " submitted a minority report in which they criticise the design for: presenting blank 300-ft. walls to the surrounding

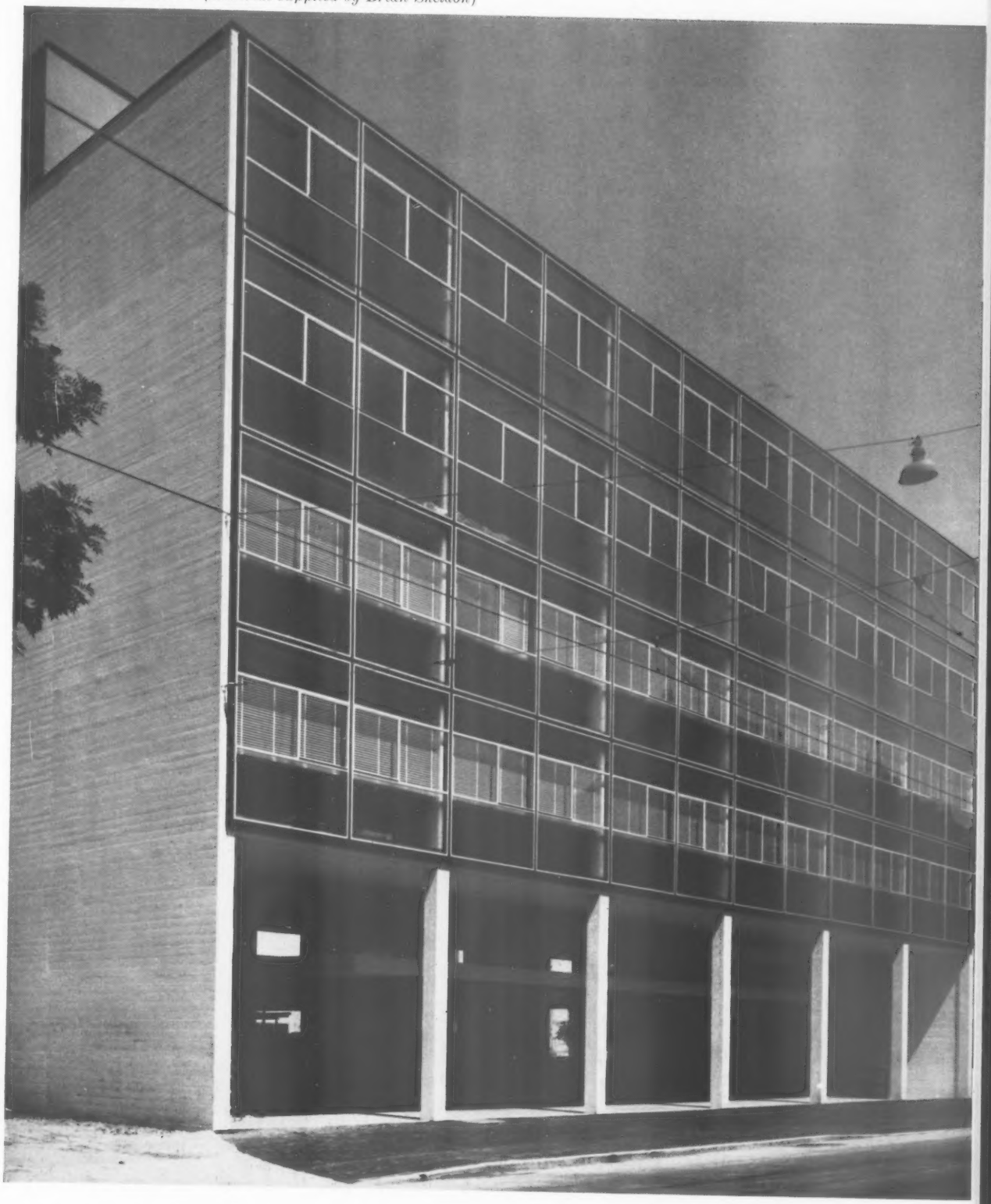
FINN'S WINNING DESIGN FOR TORONTO CITY HALL PLACED IN ITS SETTING

streets, a stark square, complicated circulation, long horizontal lines of communication, a poor outlook for the council chamber and an expensive form of slab construction. The minority report continues: " Because of the variety of unusual structural forms, and the considerable space demanded for circulation the design . . . would, in our estimate, cost much more than the figure the Council had in mind . . . Both in the conditions of competition and in the report of the Jury on the preliminary stage the need for reasonable economy was stressed. In order to realise the design and preserve its integrity, even with the revision suggested, the Council should be prepared to increase the sum voted." Fair criticism, but bearing in mind the extreme conservatism of Canadian architectural taste, this design is a welcome, if rather brash introduction to Canadians of the excitement inherent in modern architecture. Its effectiveness, in terms of town planning, can be judged from the view of the model, above, placed in its setting before the old town hall in the middle-distance, right.

working detail

CURTAIN WALL: OFFICES IN BASLE

Hans Fischli, architect. (*Material supplied by Brian Sheldon*)



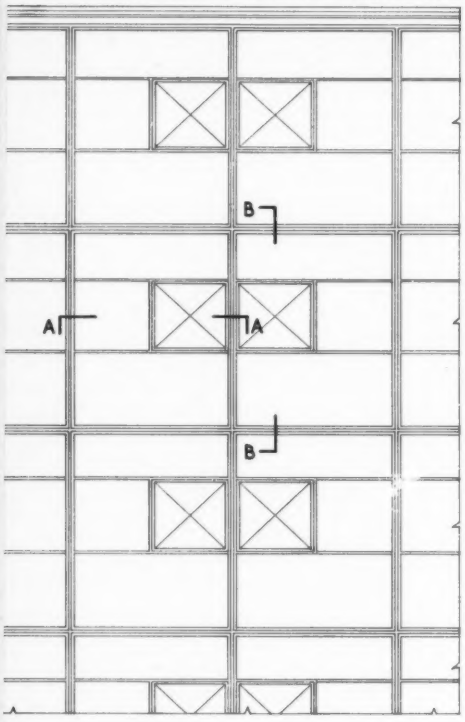
Points to notice about this neat German version of the curtain wall are the use of inward-opening casement windows (which are usual in Germany) and the inclusion of a thermoplastic condensation channel at storey height. This last is accommodated on the top side of the web of the horizontal rolled steel sections which attach the wall to the floor.

on the preliminary stage the need for reasonable economy was stressed. In order to realise the middle-distance, right.

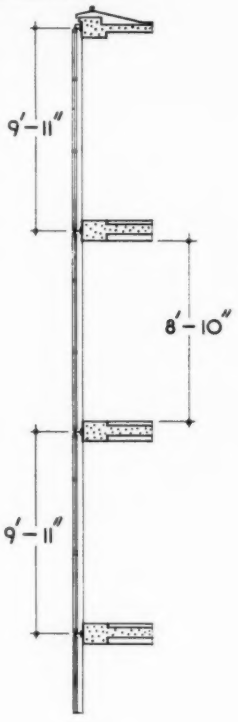
working detail

CURTAIN WALL: OFFICES IN BASLE

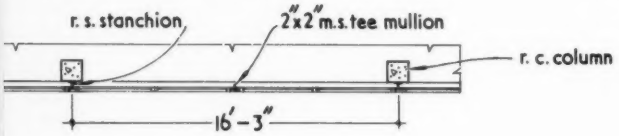
Hans Fischli, architect. (*Material supplied by Brian Sheldon*)



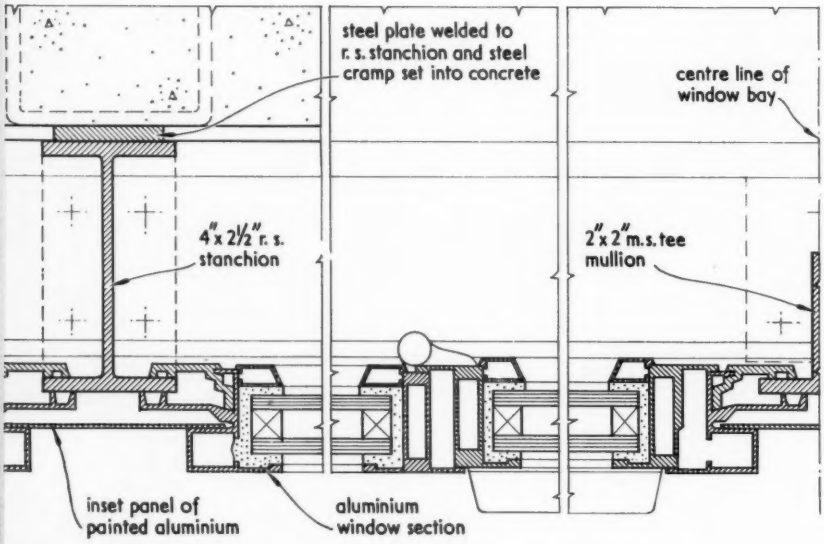
ELEVATION. scale 1/8" = 1'-0"



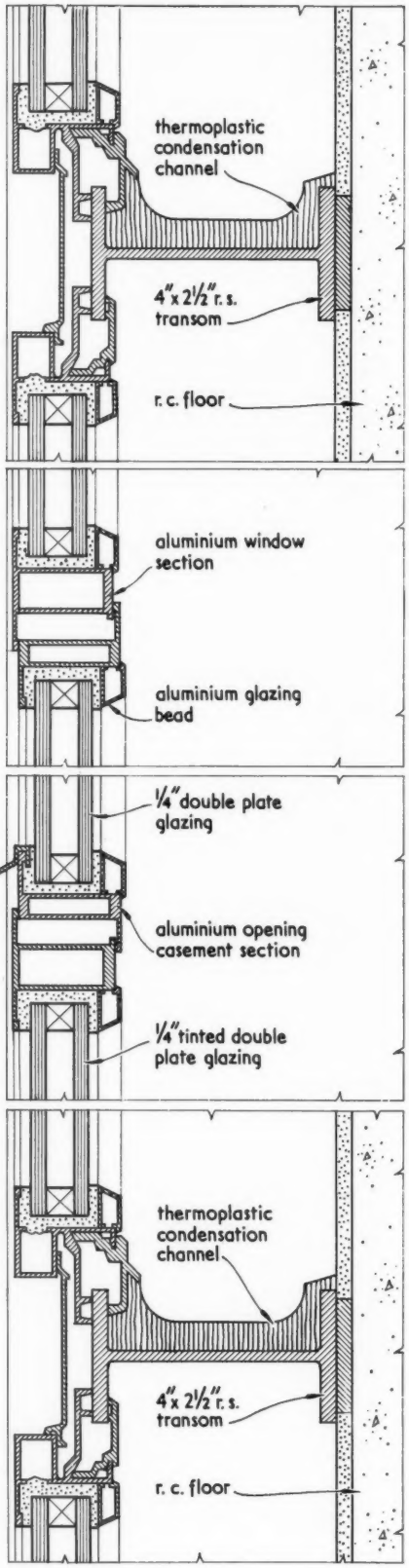
SECTION.



PLAN. scale 1/8" = 1'-0"



PLAN AT A-A. scale 3/8 full size



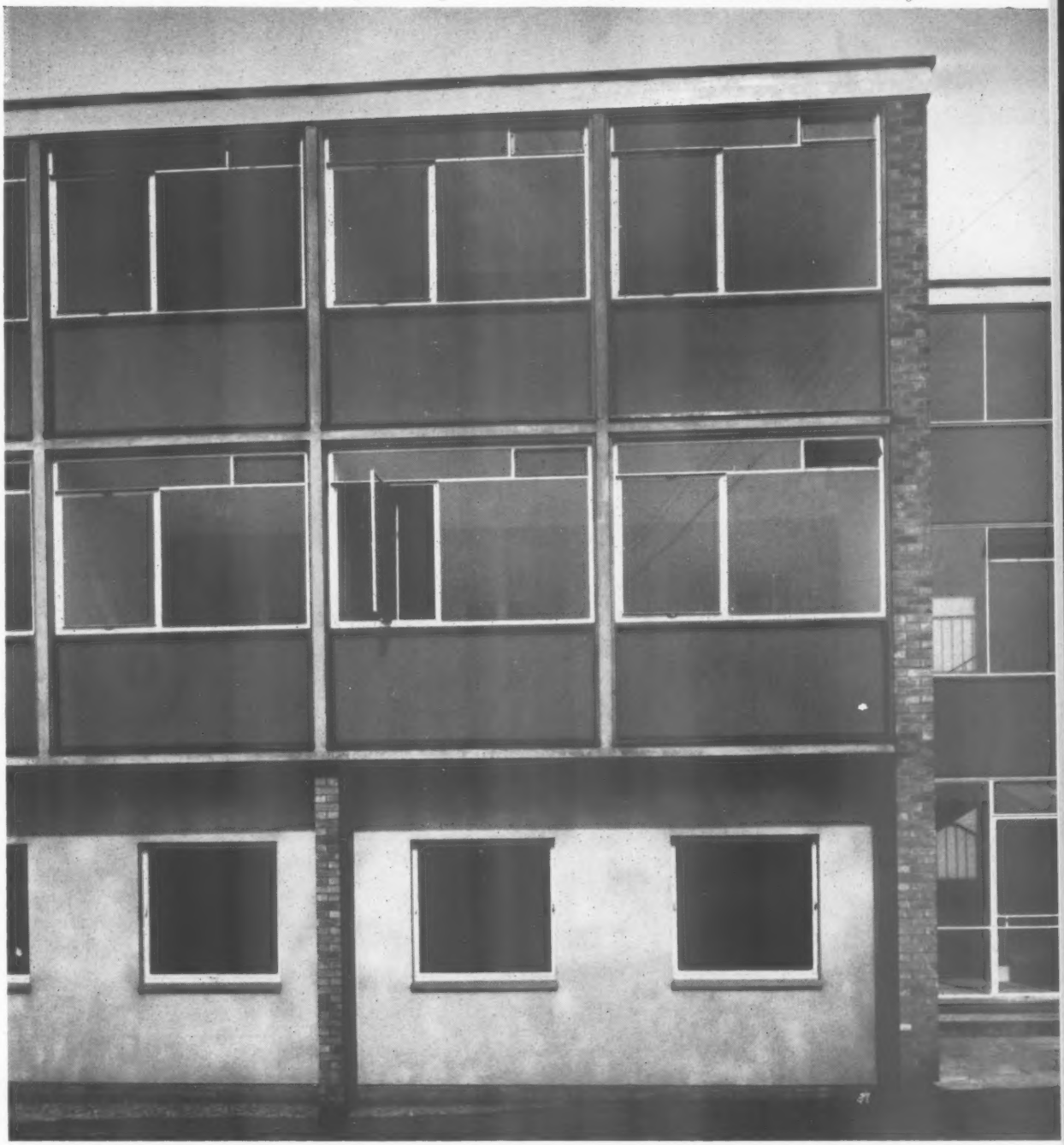
SECTION B-B. scale 3/8 full size

note: figured dimensions in feet and inches are approximate

working detail

WINDOWS: NURSES' HOME, HOSPITAL IN EDINBURGH

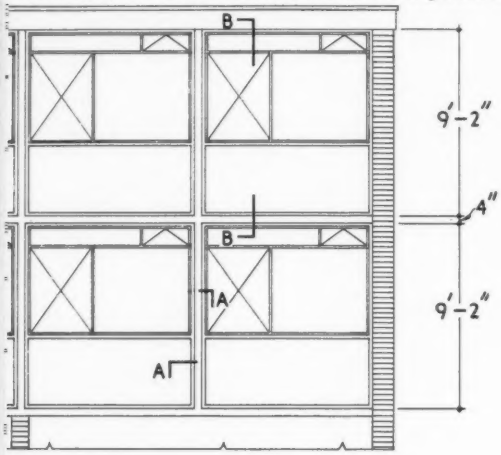
John Holt, Architect to the South Eastern Regional Hospital Board (Scotland); Eric P. Davidson, architect-in-charge



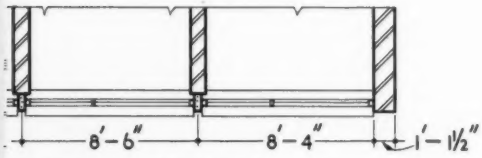
This facade is interesting as an application of the curtain wall aesthetic to cross wall construction. Precast concrete mullions, 4 in. wide at the face, are placed in front of each cross wall, tied back to the wall by iron cramps; the front edges of the floor slabs are reduced to an equal thickness.

WINDOWS: NURSES' HOME, HOSPITAL IN EDINBURGH

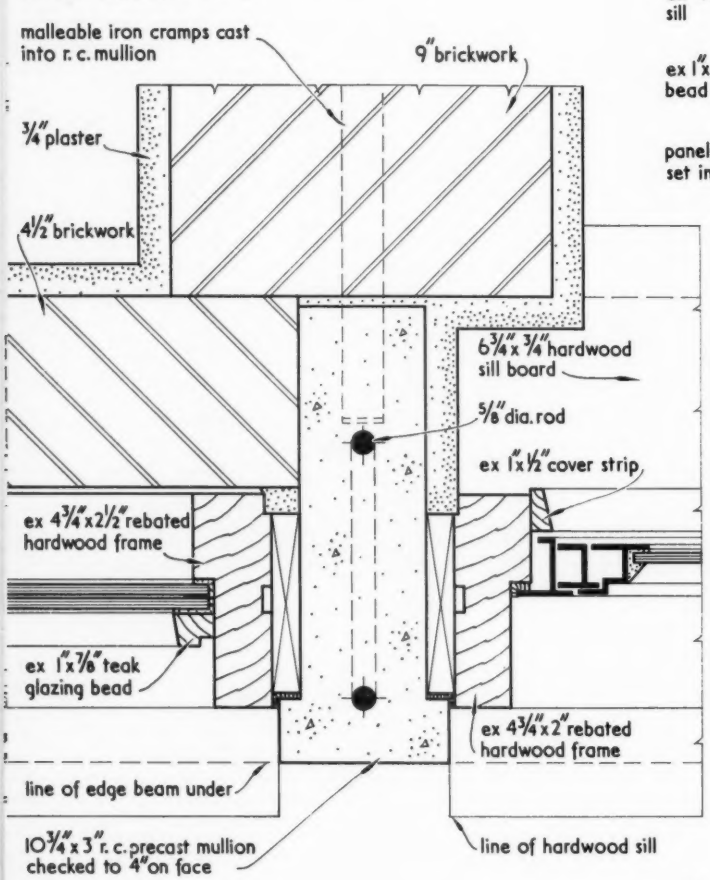
John Holt, Architect to the South Eastern Regional Hospital Board (Scotland); Eric P. Davidson, architect-in-charge



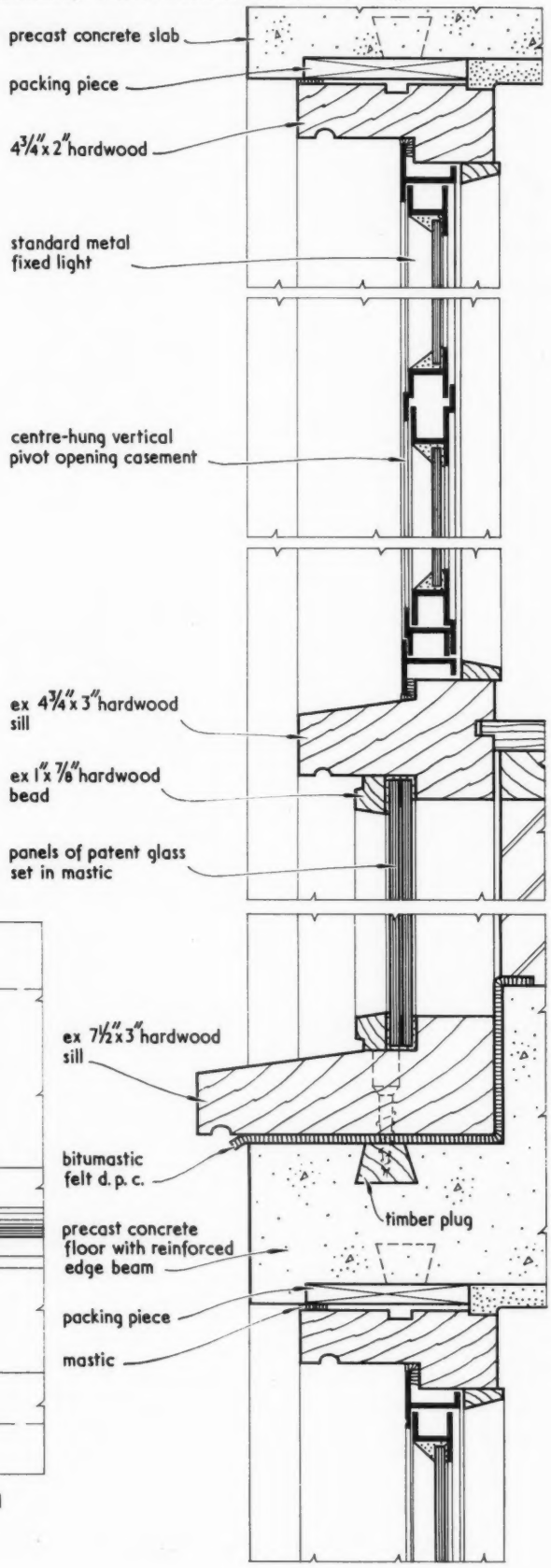
ELEVATION. scale 1/8" = 1'-0"



PLAN. scale 1/8" = 1'-0"



PLAN AT A – A. scale ¼ full size



SECTION B – B. scale ¼ full size

BROUGHTON MOOR LIGHT SEA GREEN STONE

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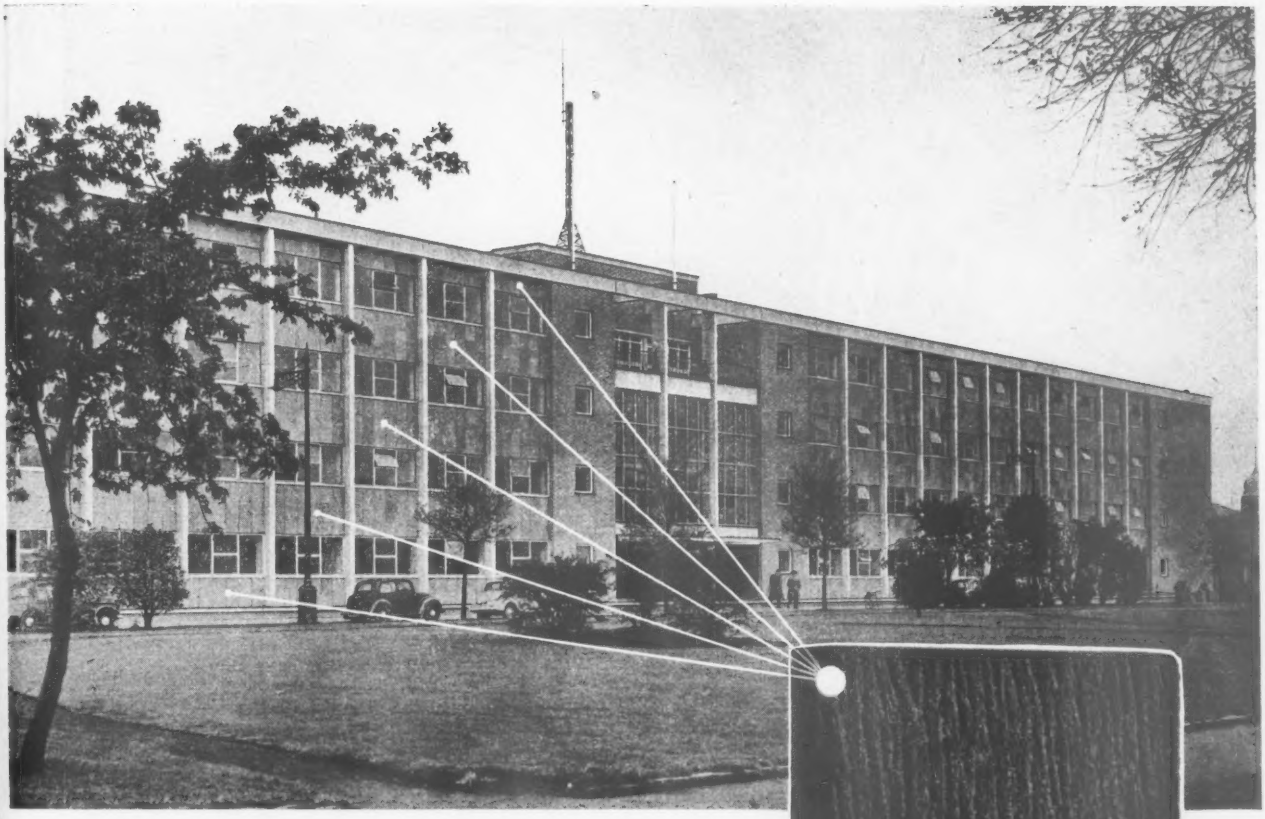

at the new Central Police Headquarters, Hull.
(*Architects: Messrs. Priestman & Lazenby.*)

Broughton Moor Green Stone is ideally suited for use both as internal and external facing, and remains sound for centuries. It can be supplied in a variety of beautiful finishes, including frame sawn, sanded, fine rubbed or naturally riven. It was these characteristics which caused it to be chosen for the facing of this impressive building. Fixing is normally effected by means of non-ferrous cramps and dowels, grouted into drillings in the stone, and brickwork or concrete.

Approximate area of slabs supplied:—12500 ft. sup. in sizes ranging from 3′ 6″ × 2′ 0″ to 2′ 0″ × 2′ 0″.

A section of Broughton Moor Stone, showing the distinctive appearance and texture of the frame sawn finish.

Technical pamphlets showing typical methods of fixing are available as follows: 1, Flooring; 2, Facings; 3, Coping; 4, Cills; 5, Riven Face Slabs.

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NEWS

RFAC

Sir Leslie Martin Appointed

Sir John Leslie Martin, Professor of Architecture in the University of Cambridge, has been appointed a member of the Royal Fine Art Commission in succession to Sir Howard Morley Robertson, who has resigned on account of increasing professional commitments.

BRISTOL

Design Exhibition

The first provincial Design Centre in England has been started in Bristol by three local architects, backed up by a panel of designers (writes a correspondent).

It all started from a paragraph in a CoID Report which stressed the need for the work of the London Design Centre to be brought to the rest of the country. In spite of this, when approached, the CoID were not at first helpful. They insisted that a very large grant of money would be essential, and they were very worried in case the standard of display proved to be poor. Furthermore they were strongly against the use of the words "Design Centre." Because of this the name Design Exhibition has been chosen. It has been launched with very little financial aid, as a department of the Bristol Building Centre; and at last has the blessing of the CoID.

The exhibition, which is restricted to CoID approved goods, is set out, Finnish Pavilion fashion, on a series of differently textured planes, mounted on open metal cubes—an arrangement which provides opportunities for many variations of level and layout. (Display budget, £200.)

Design Centre habitués will recognize many of the articles on display—all of them having been shown at the Haymarket before; but for Bristol, this is a revelation. Only two or three firms out of many hundreds in the region produce CoID approved goods. This is a disastrous state of affairs, which the exhibition hopes it can help to improve. It has been open now for a few weeks, and is attracting an average of about 70 visitors per day—21,000 per year if the grape-vine spreads the good news effectively, and the number of visitors can be kept up.

The staff are managing to cope with enquiries satisfactorily, and they are building up a literature service and Design Index. The future of the exhibition depends directly on the support of exhibitors. If they are satisfied that their display rentals are covered by the trade resulting from them, Design Exhibition Bristol has come to stay.

BUILDING MANAGEMENT

New Courses

Two new courses for the building industry are to be held by Urwick Orr and Partners Ltd.

The Site Management course (3 days, November 19-21, 1958) is designed expressly for the site management team: site agents, site general foremen, etc. It will deal with recent developments in three of the most important techniques affecting site management—work study, contract planning, and site cost control.

The work study and contract planning course (2 days, February 26-27, 1959) aims at relating these two management techniques one with the other. It is designed for senior and intermediate building managers, excluding the site management staff for whom the previous course specifically caters.

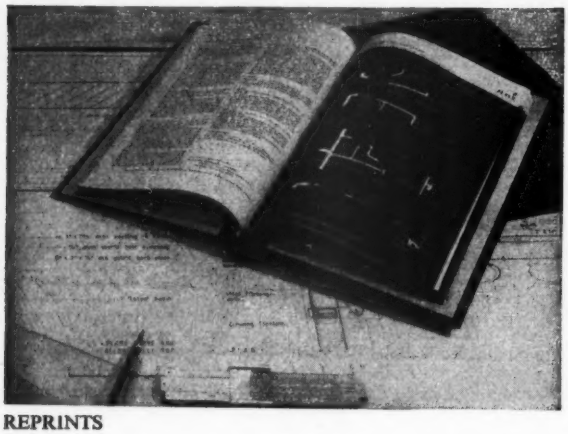
The firm's periodic course on management and productivity in building and civil engineering (one-week) will in addition be run from December 15-19, 1958. This is for senior and intermediate managers and covers the whole field of management techniques.

All the courses are residential and are held at the Urwick Management Centre in its new premises at Baylis House, Slough, Bucks. The maximum number of applicants accepted for any one course is 20. Syllabuses and application forms may be obtained from the Urwick Management Centre at the above address, or from any of the firm's other offices in London, Leamington, Manchester, Leeds, Glasgow, and Dublin.

HONG KONG

Architecture and Engineering Amalgamated

The Council of the University of Hong Kong has recommended to the Court that the Faculties of Architecture and Engineering be amalgamated from September 1. It has been decided not to fill the Chair of Architecture vacated by Gordon Brown nine months ago. The head of the Department of Architecture will be W. G. Gregory, B.ARCH., A.R.I.B.A., and the Professor of Engineering is S. Mackey, B.SC., PH.D., A.M.I.C.E.



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REPRINTS

All Information Sheets published since the new series was started in October, 1947, have been reprinted. Specially-designed binding cases to hold approximately 100 Sheets may be obtained at the price of 6s. 0d. each. (Postage 1s. 1d.)

Individual Sheets may be ordered (3d. each). Readers requiring sets or individual Sheets should fill in the form below. Sets in classified order (without binders) are available as follows:

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Announcements

PROFESSIONAL

Graham Dawbarn, C.B.E., F.R.I.B.A., who, with the late Sir Nigel Norman, founded the firm of Norman & Dawbarn in 1933, relinquished his partnership on September 30. He will become Advisor to the firm which will be carried on under the same name by the remaining partners: R. F. Lloyd Jones, Alick Low, Herbert Wilson, Walton H. Lindsay and Greville Rhodes.

Richard Sheppard & Partners, F/A/ A.R.I.B.A., A.M.T.P.I., will in future practise as Richard Sheppard, Robson & Partners. Their address will remain 5, Southampton Place, London, W.C.1.

TRADE

Heal's Wholesale & Export Ltd. have changed their name to Heal Fabrics Ltd.

Corrections

Only the manufacture of Broad-Acheson lightweight cellular blocks, produced by the Concrete Products Division of Cawood Wharton & Co. Ltd., Cavendish House, Woolwich Road, London, S.E.7, has been transferred from their West Drayton factory to their works at Blackwall Lane, S.E.10. In the JOURNAL of September 11 we stated incorrectly that the whole Division had been transferred.

In the issue of September 25, on page 469, we attributed the restoration of the seven Commonwealth windows in the Halifax Parish Church to Gordon G. Pace. In fact the architect for the restoration was George A. Coutts, of Messrs. Walsh, Wilkinson and Coutts. We apologise to both architects for our mistake.

DESIGN IN TIMBER

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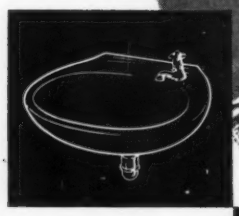
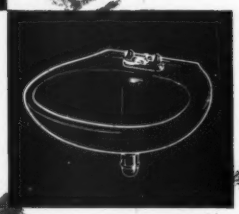


'Meritex' basin with [illegible] tap and [illegible] waste



'Meritex' basin with mixer fitting and pop-up waste

'meritex' wash basin

Design, strength, ease of cleaning, the Meritex scores high on every count. Its smooth-flowing lines, maximum bowl area and front anti-splash rim make it a hands-down winner in every way. The 'Meritex' is Armitage GENUINE VITREOUS CHINA all through for strength, non-absorbency and permanent hygiene. Its brilliant high-fired glaze resists scratches and accidental knocks, is completely unaffected by frost and other atmospheric conditions and guaranteed non-crazing. Above all, the 'Meritex' is sensibly designed: both the basin and surrounding walls are easy to clean—of vital importance to school, hotel, office and factory cloakrooms

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All fittings chromium plated
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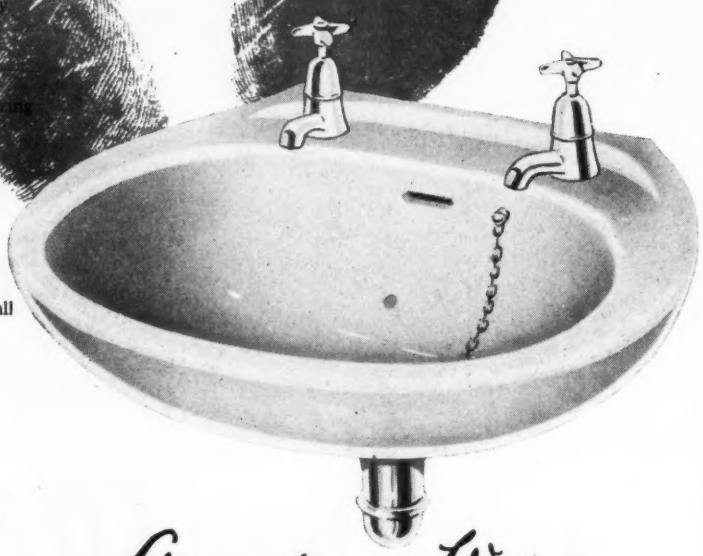

specification:

V4148 Armitage Ware 'Meritex' basin 20" x 18" and 15" x 13" complete with:

600 ½" pillar taps
400 1¼" waste, with brazed link chain and Armithene plug
672 supply pipes to wall with stopcocks and wall flanges
497 1¼" bottle trap with extension to wall and wall flange
C724 concealed hangers (screw to wall)

For full specification, alternatives and extra fittings write for leaflet 1537

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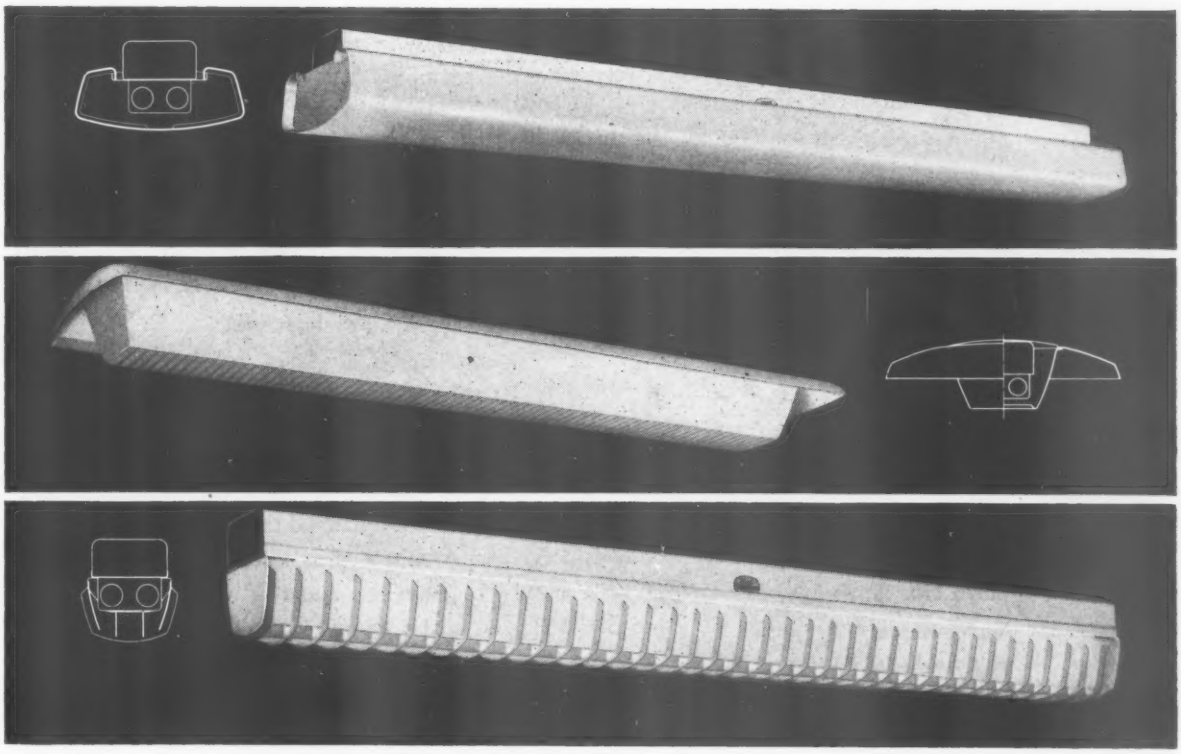
3 new atlas atlantic fittings



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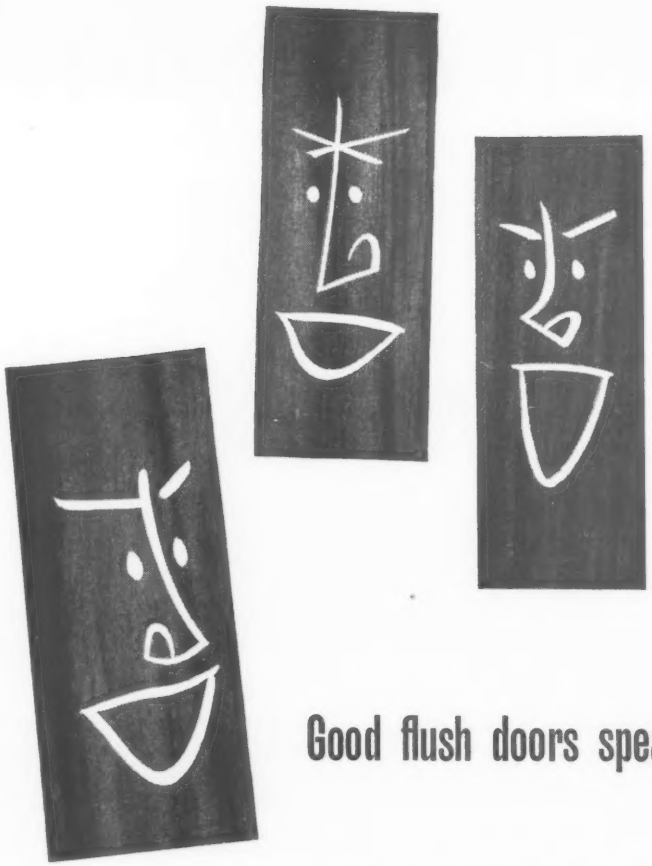

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Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

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

Public and Official Announcements

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

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

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

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

Application form and full particulars from Hubert Bennett, F.R.I.B.A., Architect to the Council, the County Hall, S.E.1, quoting ref. AR/EK/36/58. (1428) 1074

COUNTY BOROUGH OF WEST HAM
BOROUGH ARCHITECT & PLANNING OFFICER'S DEPARTMENT

Applications invited for permanent posts on A.P.T. Grade I (£575 × £30—£725 p.a.) (and London allowance).

(*a*) ARCHITECTURAL ASSISTANTS (2).
(*b*) PLANNING ASSISTANT.

For posts (*a*) applicants should have passed the R.I.B.A. Intermediate Examination.

For post (*b*) preference given to applicants who have passed the T.P.I. Intermediate Examination.

Starting point in Grade according to qualification and experience.

Application form and details from Borough Architect & Planning Officer, 70, West Ham Lane, Stratford, E.15, returnable by 21st October, 1958. 1587

GOVERNMENT OF NORTHERN IRELAND

Applications invited from ARCHITECTURAL ASSISTANTS with recognised training and fair experience for unestablished posts in the Chief Architect's Branch, Ministry of Finance. Salary scale £565—£875; starting pay for candidates who have passed R.I.B.A. Intermediate examination will be £705. Preference will be given to ex-servicemen. Application forms obtainable from the Director of Establishments, Ministry of Finance, Stormont, Belfast. 1571

SHEFFIELD REGIONAL HOSPITAL BOARD

Applications are invited for the post of ASSISTANT ARCHITECT on the Board's Architectural Staff. Candidates must be Registered Architects and have passed the requisite examinations. Salary according to age and experience within scale £700—£1,015 per annum. Appointment is subject to Whitley Council terms and conditions of service, to the National Health Service (Superannuation) Regulations, and to one month's notice on either side. Applications, together with the names of three referees, should be sent to the Secretary to the Board, Sheffield Regional Hospital Board, Fulwood House, Old Fulwood Road, Sheffield 10, by 17th October, 1958. 1613

COUNTY BOROUGH OF BARNSLEY
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT
APPOINTMENT OF JUNIOR ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment on the temporary establishment at a salary in accordance with Grade A.P.T. I (£575—£725 per annum).

The post is suitable for a young man in his early architectural training, and offers a good opportunity for gaining further experience.

The appointment will be subject to (*i*) the Scheme of Conditions of Service for A.P.T.C. Staff; (*ii*) any other general conditions of employment operating within the Corporation from time to time; (*iii*) one month's notice on either side, and (*iv*) to a medical examination.

Applications, stating age, present and previous appointments, qualifications, experience, etc., together with the names of two persons for reference, should reach the Borough Engineer, Town Hall, Barnsley, by Friday, 17th October, 1958.

Canvassing will disqualify.

A. E. GILFILLAN,
Town Clerk.

Town Hall,
Barnsley.
September, 1958. 1564

CWMBRAN DEVELOPMENT CORPORATION

Applications are invited for the undermentioned superannuable posts:—

(*a*) PRINCIPAL ASSISTANT ARCHITECT. New Towns A.P.T. VIII on the Salary Scale £1,139 × £57—£1,366.

The successful candidate who will be responsible to the Chief Architect for the Housing Section of his Department should be an Associate of the R.I.B.A. and preferably hold a Planning qualification and have good experience in housing design, construction and layout and management of large contracts.

(*b*) ASSISTANT ARCHITECT. New Towns A.P.T. V on the Salary Scale £844 × £37—£1,029. Candidates should be Associates of the R.I.B.A with some office experience and preferably have had experience in housing design, construction and layout and/or shop and commercial development.

Housing accommodation will be provided in suitable cases or otherwise lodging allowance will be paid to married men for a limited period.

Applications stating age, qualifications, experience, present and former employment (together with applicable salaries) and the names and addresses of two referees, should reach the undersigned by first post on 3rd November, 1958.

J. C. P. WEST, A.R.I.B.A., M.T.P.I.,
Chief Architect.

Victoria Street,
Cwmbran, Mon. 1636

CITY & COUNTY OF CANTERBURY

Applications are invited for the temporary appointments of ARCHITECTURAL ASSISTANTS, Grades A.P.T. I (£575—£725) and A.P.T. II (£725—£845).

The successful candidates will be engaged on the design and construction of housing projects including maisonettes, two-storey houses and old persons' bungalows.

The appointments offer considerable scope for initiative and experience in all aspects of housing and are likely to extend over a number of years. Opportunities occur from time to time for promotion within the Department.

Applicants for the appointments must have passed the R.I.B.A. Intermediate Examination.

The commencing salary will be fixed within the Grades according to ability and experience.

Applications, together with the names of two referees, must reach the City Architect & Planning Officer, Mr. J. L. Berbiers, F.R.I.B.A., A.M.T.P.I., not later than Thursday, 16th October, 1958.

J. BOYLE,
Town Clerk.

Municipal Buildings,
Canterbury. 1577

FEDERAL GOVERNMENT OF NIGERIA
CHIEF ARCHITECT, PUBLIC WORKS DEPARTMENT

To supervise the administration of the Architectural Branch of the Federal Public Works Department and to be responsible for the design and execution of an extensive building programme under the direction of the Assistant Director, Buildings.

Contract appointment for one tour. Salary £2,775 p.a. plus gratuity. Free passages for officer and family. Allowance for children maintained outside the territory. Quarters, if available, at rent of £150 p.a. Generous home leave. Free medical attention.

Candidates (under 55 years of age) must be A.R.I.B.A. and have a minimum of 10 years' experience in design and administration.

Write Director of Recruitment, Colonial Office, London, S.W.1, giving briefly age, qualifications and experience, quoting BCD 112/14/028. 1617

NEWCASTLE REGIONAL HOSPITAL BOARD
REGIONAL ARCHITECT'S DEPARTMENT

Applications are invited for the following permanent (superannuable) posts on the staff of the Regional Architect.

In addition to its normal building programme the Department is concerned with the planning and execution of a number of major hospital projects and the posts offer ample opportunity for gaining all-round general as well as hospital experience, and for doing good-class work in an expanding department.

(i) ASSISTANT ARCHITECT. Salary £700 × £25 (3) × £30 (1) × £35 (6)—£1,015.

Applicants for this post should be registered architects and should have had practical experience of the planning and construction of public buildings. In this case the commencing salary will be fixed within the Grade by reference to relevant experience and to age.

(ii) SURVEYING ASSISTANT (Lands and Buildings). Salary £525 (at age 21 or over) × £20 (4) × £25 (5)—£730.

Applicants for this post should have passed the Intermediate Examination of the Royal Institution of Chartered Surveyors, or an examination recognised by the Institution as equivalent, and should be experienced in surveying sites and buildings. The successful applicant will be required to assist with the making of a survey of all hospital sites and buildings in the Region and the preparing of record plans.

The commencing salary within the grade will depend upon the applicant's age and the amount of practical experience.

Applications, stating age, qualification, past and present appointments, present salary and details of experience and training, together with the names of three referees (of whom at least two should be architects) should be forwarded to the Secretary to the Board, Benfield Road, Newcastle on Tyne, 6, not later than 16th October, 1958. 1637

CARMARTHENSHIRE COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT

Applications invited from suitably qualified and experienced persons for appointment as JUNIOR PLANNING ASSISTANT (A.P.T. I). Appointment superannuable and subject to medical examination.

Applications giving details of age, qualifications and experience with names and addresses of two referees to be received by undersigned by 15th October, 1958.

W. S. THOMAS,
Clerk of the County Council.

County Hall,
Carmarthen. 1621

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

Applications are invited for the appointments of ASSISTANT ARCHITECTS in the grades shown below, the salary ranges of which are:—

Special Grade £750—£1,030
A.P.T. III £845—£1,025

Applicants should have had good experience in the design and construction of modern buildings.

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

Applications, on forms obtainable from this office, must be delivered not later than the first post on Tuesday, 14th October, 1958.

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

Bishopgarth,
Westfield Road,
Wakefield. 1611

BIRMINGHAM REGIONAL HOSPITAL BOARD
ARCHITECTURAL APPOINTMENTS

(*a*) ASSISTANT ARCHITECTS, £700 × £25 (3) × £30 (1) × £35 (6)—£1,015, according to age and experience. Applicants must be Registered Architects having passed requisite examinations. Experience of hospital planning and construction an advantage. Sound knowledge specifications essential.

(*b*) ARCHITECTURAL ASSISTANTS, £525 × £20 (4) × £30 (1) × £25 (5)—£730. Point of entry according to experience. Inter-R.I.B.A. essential.

(*c*) ASSISTANT QUANTITY SURVEYORS, £700 × £25 (3) × £30 (1) × £35 (6)—£1,015, according to age and experience. Final R.I.C.S. and experience in taking off and preparing bills of quantities and settling final accounts essential.

All appointments superannuable. Apply, naming two referees, to Secretary, R.H.B., 10, Augustus Road, Birmingham, 15, by 20th October. 1585

CITY OF CHESTER
DEPARTMENT OF CITY ENGINEER
ARCHITECTURAL DRAUGHTSMAN

Applications are invited for the above appointment at a high level within Miscellaneous Grade 5 (£625 × £20 × £20 to £685 max.). Candidates should be able draughtsmen with experience of building construction. Applications, with two testimonials, should reach the City Engineer, at 49, Northgate Street, Chester, by the 17th October, 1958. Canvassing directly or indirectly will disqualify. 1643

BIRMINGHAM REGIONAL HOSPITAL BOARD
APPOINTMENT OF REGIONAL ARCHITECT

Applicants must be registered architects having passed the requisite examinations. Salary £1,885 × £80 (1) × £85 (4) × £50 (1) to £2,355. Further particulars of the duties of the post, and application form may be obtained from Secretary of the Board, 10, Augustus Road, Birmingham, 15. Applications naming three referees to be received by 30th October, 1958. 1628

QUANTITY SURVEYING ASSISTANTS required by AIR MINISTRY in LONDON and PROVINCES. Duties include abstracting and billing, site measurement and preparation of estimates. Commencing salary and grading according to age, qualifications and experience. Salary ranges in London: (*a*) £545 at age 25 rising to £745 for candidates with minimum three years good experience under Quantity Surveyor or Building Contractor; (*b*) £695 at age 26 rising to £870 for candidates with O.N.C. (Building) or (Builders Quantities) or equivalent and good experience under Quantity Surveyor or Building Contractor. Approved full time study will count towards period of experience. Salaries somewhat lower in Provinces. Promotion and pensionable prospects. Five-day week, 3 weeks' leave a year. Appointments carry liability for service anywhere U.K. or overseas. Applicants normally should be natural born British subjects. Write stating age, qualifications and previous appointments including type of work done, to Manager, Professional and Executive Register, Ministry of Labour and National Service, Atlantic House, Farringdon Street, E.C.4, quoting reference PE 105/745. No original testimonials should be sent. Only applicants selected for interview will be advised. 1627

METROPOLITAN BOROUGH OF CAMBERWELL
ASSISTANT ARCHITECTS
(BOROUGH ARCHITECT'S DEPARTMENT)

The Council have vacancies for Assistant Architects within a salary range of £605 to £1,055 inclusive of £30 London weighting (Grades A.P.T. I or II or III of the National Scales). The work of the Department includes design and construction of public buildings, housing estates, including multi-storey construction. Application form from Town Clerk, Town Hall, S.E.5. Closing date Wednesday, 15th October, 1958. 1607

CITY AND royal BURGH OF DUNFERMLINE
BURGH ARCHITECT'S AND TOWN PLANNING DEPARTMENT

Applications are invited for the post of PLANNING ASSISTANT on the salary scale A.P. IV-V (£705—£820 per annum), with placing according to qualifications and experience.

Preference will be given to Associate Members of the Institute of Town Planning.

Applications stating age, experience, qualifications, and present appointment, together with copies of two recent testimonials should be lodged with Leonard Howarth, Burgh Architect and Town Planning Officer, 6, Abbot Street Dunfermline not later than 13th October, 1958.

Priority housing may be arranged for suitable applicants.

Applicants must disclose in writing whether to their knowledge they are related to any member or senior officer of the Town Council, and canvassing either directly or indirectly will be a disqualification.

J. DOUGLAS,
Town Clerk.

City Chambers,
Dunfermline.
26th September, 1958. 1623

LANCASHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

ARCHITECTS who are qualified are invited to apply for a post with a salary scale of £750 per annum rising to £1,030; the starting point in the scale will depend on experience. Interesting general programme of work with responsibilities according to ability.

Application forms, obtainable from the County Architect, G. Noel Hill, F.R.I.B.A., M.T.P.I., P.O. Box 26, County Hall, Preston, to be returned by Monday, 27th October, 1958, quoting Ref. A/AJ. 1624

EDINBURGH CORPORATION
CITY ARCHITECT'S DEPARTMENT

Vacancies:—

SENIOR ASSISTANT ARCHITECT to act as Group Leader. Salary £965 × £1,133. Must be qualified by examination and have had good general experience of handling building contracts.

ASSISTANT ARCHITECT—AP1-6. Salary £595—£955. For salaries above £700 applicants must be qualified by examination, otherwise must have passed Intermediate Examination and be continuing studies towards full qualification.

Placing according to qualifications and experience. Applications, giving age, full details of experience and the names of two referees as to character, should be sent marked "Confidential" to the City Architect, City Chambers, Edinburgh, 1, not later than 17th October, 1958. 1639

CITY OF HEREFORD

Applications are invited for the following permanent and pensionable post in the Department of the Architect (Housing):—

ASSISTANT ARCHITECT, Grade III (£845—£1,025).

Applicants should have experience of Local Authority Housing work, and should preferably be members of the R.I.B.A.

Housing accommodation may be provided in an approved case.

Canvassing disqualifies.

Forms of application, which can be obtained from Norman Roberts, A.R.I.B.A., Architect (Housing), Town Hall, Hereford, should be returned to reach me not later than Friday, the 17th October, 1958.

T. B. FELTHAM,
Town Clerk.

Town Hall,
Hereford.
9th October, 1958. 1651

METROPOLITAN BOROUGH OF FULHAM
TEMPORARY ASSISTANT ARCHITECTS
BOROUGH ARCHITECT'S DEPT. Experienced Assistant Architects required for conversion and improvement schemes. Grade Special Scale £780—£1,060 p.a. Surveying existing properties, details, specifications and supervision of works. Temporary appointments for approximately two years. No age limit. Details from Town Clerk, Town Hall, S.W.6. Closing date 25th October, 1958. 1660

SOUTH AUSTRALIAN SCHOOL OF MINES AND INDUSTRIES
NORTH TERRACE, ADELAIDE

Applications are invited for the position of LECTURER IN THE DEPARTMENT OF ARCHITECTURE.

Applicant should hold a degree or diploma in Architecture, and be a corporate member of an appropriate professional body. Previous experience as an architect is essential.

Normal salary range: £A1,650—£A1,870 p.a., commencing according to qualifications and experience. The upper limit of salary may be extended to £A2,050 p.a., for a person holding an appropriate Honours Degree or higher qualification.

The successful applicant may be required to lecture and conduct classes in subjects of the Architectural, Town Planning, Building, or Quantity Surveying Courses for which he is qualified, and to devote the whole of his time to the duties of the office.

The position carries liberal sick leave, and superannuation benefits. Assistance will be provided for sea passage of the successful applicant and for transport of personal effects.

Applications close Thursday, 20th November, 1958.

Agent General for South Australia,
Marble Arch,
London, W.1. 1666

CITY OF BELFAST

Applications are invited for the following positions in the Education Architect's Department.

ARCHITECTS, CLASS I:

Applicants must be registered and qualified by examination, have a flair for design and have experience in the supervision of architectural staff. Persons selected will be engaged on a new College of Art and on Technical Schools and should preferably have some experience in modern school design and construction.

Salary £970 × £40—£1,250 per annum.

ARCHITECT, CLASS II:

Applicants must be registered architects with experience in general design and construction of modern buildings.

Salary: £620 × £30—£860 × £35—£1,000 × £40—£1,040 per annum.

ARCHITECTURAL ASSISTANT, CLASS I:

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

Salary: £590 × £30—£770 × £35—£875.

STRUCTURAL ENGINEER:

Candidates must hold a recognised qualification in Civil or Structural Engineering, *e.g.*, A.M.I.C.E. or A.M.I.Struct.E., and have sound experience in the design of structural steelwork and reinforced concrete, including foundation work, and should also have a practical working knowledge of site investigation and general experience of levelling work. A minimum practical experience of five years after qualifying, including three years office designing, is also necessary.

Salary: £970 × £40—£1,250 per annum.

Commencing salary in each case will be fixed according to ability and experience. Superannuation contributions of approximately 6 per cent. of remuneration will be payable. Reciprocal pension arrangements exist between the Corporation and certain other Public Authorities.

Canvassing will disqualify.

Application forms, etc., are obtainable from the Education Offices, 40, Academy Street.

Completed applications must reach the undersigned by Friday, 31st October, 1958.

JOHN DUNLOP,
Town Clerk.

City Hall, Belfast, P.O. Box 234. 1657

ROYAL BOROUGH OF KINGSTON-UPON-THAMES
APPOINTMENT OF FIRST ARCHITECTURAL ASSISTANT

Special Scale £750 × £40 to £1,030

Commencing at £950 per annum plus London weighting.

Applicants must be qualified and capable of supervising the work of assistants under the direction of the Chief Architectural Assistant.

Housing accommodation will be provided on a service tenancy if necessary.

Application forms and further details obtainable from the Borough Surveyor, Guildhall, Kingston-upon-Thames, and returnable by the 25th October, 1958.

A. B. ROGERS,
Town Clerk.

Guildhall,
Kingston-upon-Thames.
30th September, 1958. 1661

NEWTON-LE-WILLOWS URBAN DISTRICT COUNCIL
APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited for the above-mentioned appointment at a salary in accordance with A.P.T. II. The National Scheme of Conditions of Service and the Local Government Superannuation Acts will apply. Provision of housing accommodation will be considered.

Preference will be given to applicants who have had experience in municipal housing.

Applications stating age, qualifications and experience, together with the names of two referees, to be received by the Clerk of the Council, Town Hall, Market Street, Newton-le-Willows, Lancashire, not later than 24th October, 1958. 1674

PEMBROKESHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments on the permanent staff of the County Architect's Department.

(*a*) TWO ASSISTANT ARCHITECTS, Grade III A.P. & T. Division. Salary £845 × £35 to £1,025 p.a.

(*b*) ONE ARCHITECTURAL ASSISTANT, Grade I A.P. & T. Division. Salary £575 × £30 to £725 p.a.

Applicants should be Members of the R.I.B.A. by examination or have equivalent academic qualifications with experience of contemporary architecture and structural design.

The appointments will be subject to the Local Government Superannuation Acts and the National Joint Council's Scheme of Conditions of Service, and will also be subject to a satisfactory medical examination.

Forms of application can be obtained from Walter Barrett, M.B.E., A.R.I.B.A., County Architect, County Offices, Haverfordwest, and should be returned duly completed to the undersigned not later than 25th October, 1958.

H. LOUIS UNDERWOOD,
Clerk of the County Council.

County Offices,
Haverfordwest.
30th September, 1958. 1654

Architectural Appointments Vacant

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

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

APPLICATIONS are invited for the appointment of ASSISTANT ARCHITECTS with experience of work on commercial and industrial projects, capable of preparing working drawings from preliminary details. Five-day week in operation. Applications stating age, experience, qualifications and salary required to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, 4. 9585

ARCHITECTS' CO-PARTNERSHIP require ASSISTANTS for working drawings and detailed design. Salary according to experience. Write 44, Charlotte Street, London, W.1, or telephone Langham 5791. 1515

ARCHITECTURAL ASSISTANTS required immediately for private practice LONDON. Intermediate standard, having sound knowledge of construction and surveys, capable of handling projects from sketch plan onwards with minimum supervision. Salary by arrangement. Write giving brief particulars, present salary, etc.: Box 1493.

ARCHITECTURAL ASSISTANTS required. Starting salary £915 per annum, Glasgow office, five-day week. Schools, offices, etc. State experience. Box 1532.

A DESIGNER with imagination and progressive ideas required. Apply Trehearne & Norman, Preston & Partners, Architects & Surveyors, 83, Kingsway, W.C.2. HOL 4071. 1537

RECENTLY qualified ARCHITECT required, capable of making a real contribution to projects in the design stage, for which purpose a high standard of draughtsmanship is essential. Write stating particulars to Box 1260.

THREE additional ARCHITECTURAL ASSISTANTS required—two up to Intermediate standard, the other fully capable of handling jobs throughout. Busy and varied practice. Salaries by arrangement. D. C. Denton-Smith and Partners, Chartered Architects: Surveyors, 40, Regent Street, Cambridge. 1629

ARCHITECTURAL ASSISTANTS required for Office, University and Laboratory Buildings; some office experience necessary. Intermediate or Final standard. Five-day week. Apply Adams, Holden & Pearson, 38, Gordon Square, W.C.1. 1630

ARCHITECTURAL ASSISTANTS required. Excellent salaries and opportunities offered to suitable applicants. Five-day week. Write giving full particulars of experience to Sandon & Harding, A/A.R.I.B.A., 14, Lower Brook Street, Ipswich. 1631

SENIOR ASSISTANT wanted for small W.1 office. Good draughtsmanship and sound knowledge of building surveying and construction essential and ability in specification writing an advantage. State qualifications, full particulars of experience, when available and salary required, to Box 1632.

PART-TIME ASSISTANT required for expanding practice in St. Albans. Write giving details of experience and time available. Box 1633.

ANNEXATION

ARCHITECTURAL ASSISTANT or SURVEYOR required for Office in Montrose, Scotland. Experience of quantities, capable of taking charge. Good conditions. Salary by arrangement. Box 1673.

GRENFELL BAINES & HARGREAVES, Architects and Planning Consultants, invite applications from enthusiastic chaps to work on a Big Job in their new DERBY office. Salary plus share of income after basic expenses have been met, all according to age, experience and ability. Superannuation scheme optional. Apply giving full particulars to Martins Bank Chambers, Market Place, Derby. 1671

JUNIOR ARCHITECTURAL / SURVEYING ASSISTANT required by Public Property Company. Experience in housing design and estate layout desirable. Good draughtsmanship essential. Intermediate R.I.B.A. or R.I.C.S. Write giving full details of experience, positions held and salaries earned to Ref. 0020/232, Land & General Developments Ltd., 8/9, Berkeley Street, London, W.1. 1672

PRESENTATION, PERSPECTIVES AND MODELS—ASSISTANT required for this department in large London private practice, with considerable experience. Apply in writing only with full particulars to Box 1670.

EXPERIENCED ARCHITECTURAL ASSISTANT required to work on varied and interesting Contracts. Salary by arrangement. Apply: Wilcockson & Cutts, 12, Saltergate, Chesterfield, Derbyshire. 1668

INTERMEDIATE STANDARD ASSISTANT required in London Office. Reply stating age, experience and salary required. Apply Box 1642.

ARCHITECTURAL ASSISTANTS required for work of a contemporary nature, Schools, Factories, Churches. Apply stating age, experience and salary required to W. & J. B. Ellis, F/A.R.I.B.A., Barclays Bank Buildings, St. Helens. 1640

ARCHITECTURAL ASSISTANT required for small office with varied practice. Five-day week. Please write, stating age, training, experience and salary required. Alexander Graham, F.R.I.B.A., 15, The Tything, Worcester. 1644

DERBYSHIRE. ARCHITECTURAL ASSISTANT required, Intermediate standard, with office experience, for varied practice. Write, stating experience and salary required, to A. Percy Taylor, Chartered Architect, Midland Bank Chambers, Belper, Derbyshire. 1620

ARCHITECTURAL ASSISTANT required approaching or at Intermediate stage—with office experience. One day per week for studies. Write, with details of education and experience, D. Plaskett Marshall, 59, Gordon Square, W.C.1. 1619

APPLICATIONS are invited for the appointment of ASSISTANT ARCHITECTS, in the office of the Society's Architect, with experience of work on commercial and industrial projects of contemporary character. Salary in accordance with A.P.T. scale. Applications, stating age, experience, etc., to Bristol Co-operative Society Ltd., G.P.O. Box 64, Bristol, 1. Envelopes to be endorsed "Assistant Architect." 1622

ARCHITECTURAL ASSISTANTS of Intermediate standard required to work on a varied and interesting programme. Salary range £550 to £750, according to experience. Pension Scheme, canteen, sports grounds and other amenities available. Write, stating age and previous experience, to: Staff Manager, Mitchells & Butlers Ltd., Cape Hill Brewery, Birmingham. 1608

FREDERICK GIBBERD'S London office requires ARCHITECTURAL ASSISTANT with office experience for a variety of interesting jobs. Salary £600—£750 according to experience. Apply in writing, giving full particulars to 8, Percy Street, London, W.1. 1645

FIRST CLASS SENIOR ASSISTANT required. Must have good office experience in London. Very interesting work. Five-day week. Morris de Metz, F.R.I.B.A., 2, Ludgate Hill, London, E.C.4. Telephone CITy 4086. 1655

THE Architects' Department, Messrs. Parker's Burslem Brewery Ltd., Brewers, Burslem, Stoke-on-Trent, have a vacancy for a qualified SENIOR ASSISTANT in Stoke-on-Trent. Previous experience of licensed premises, with interest and experience in interior decorations and furnishings would be an advantage but not essential. Commencing salary about £800, according to experience; five-day week. Particulars of training, experience, past and present appointments, qualifications, age and whether married or single, together with copies of references, should be forwarded to the Chief Architect, Messrs. Parker's Burslem Brewery Ltd., Pitt Street East, Burslem, Stoke-on-Trent. 1650

ARCHITECTURAL ASSISTANT, Intermediate standard, required for private practice Gravesend or Rochester. Salary range £450 to £650 according to experience. Apply, stating age and experience, to George E. Clay & Partners, A/A.R.I.B.A., 10, New Road, Rochester, Kent. 1663

ASSISTANT ARCHITECT (30-35) for responsible senior position resident West Indies requiring initiative, drive and ability, contemporary design. Tropical experience preferred. Write, giving full particulars, to W. H. Watkins & Partners, F/F.R.I.B.A., 1, Clare Street, Bristol, 1. 1649

A DESIGNER with architectural experience, imagination and progressive ideas required. Apply Trehearne & Norman, Preston & Partners, Architects & Surveyors, 83, Kingsway, W.C.2. HOL 4071. 1537

ARCHITECTURAL ASSISTANT (Intermediate standard) with experience of working drawings required for small Manchester office. Should have sound knowledge of building construction and specifications. Salary £750 per annum. Apply, stating age and experience, to Box 1664.

ARCHITECTURAL ASSISTANT required by Construction Department of Leading Merseyside Commercial Organisation undertaking extensive development programme. The work is varied and interesting, covering building projects throughout the British Isles, and offers considerable scope for man with initiative who has attained Intermediate R.I.B.A. standard. Age not over 35. Five-day week. Staff Life Assurance and Pension Scheme. Commencing salary commensurate with experience. Applicants should in the first instance give full details of experience and salary expected to Box 1658.

EXPERIENCED ARCHITECTURAL ASSISTANT of seven years' standing for modern building, exhibition and interior work; small progressive studio. State previous employer, age, salary. Box 1641.

QUALIFIED ARCHITECT required on large scale housing development. Applicants must have wide experience in all types of housing. Good salary. Pension Scheme. Taylor Woodrow Homes Ltd., Taywood Road, Greenford, Middlesex. 1635

ARCHITECTURAL ASSISTANT (Intermediate standard) required. Applications to Kenneth Wakeford, Jerram & Harris, 3, Upper Berkeley Place, Clifton, Bristol, 8. 1652

FULLY competent ARCHITECTURAL ASSISTANT required immediately for about six months on interesting project. WELbeck 6543. 1653

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