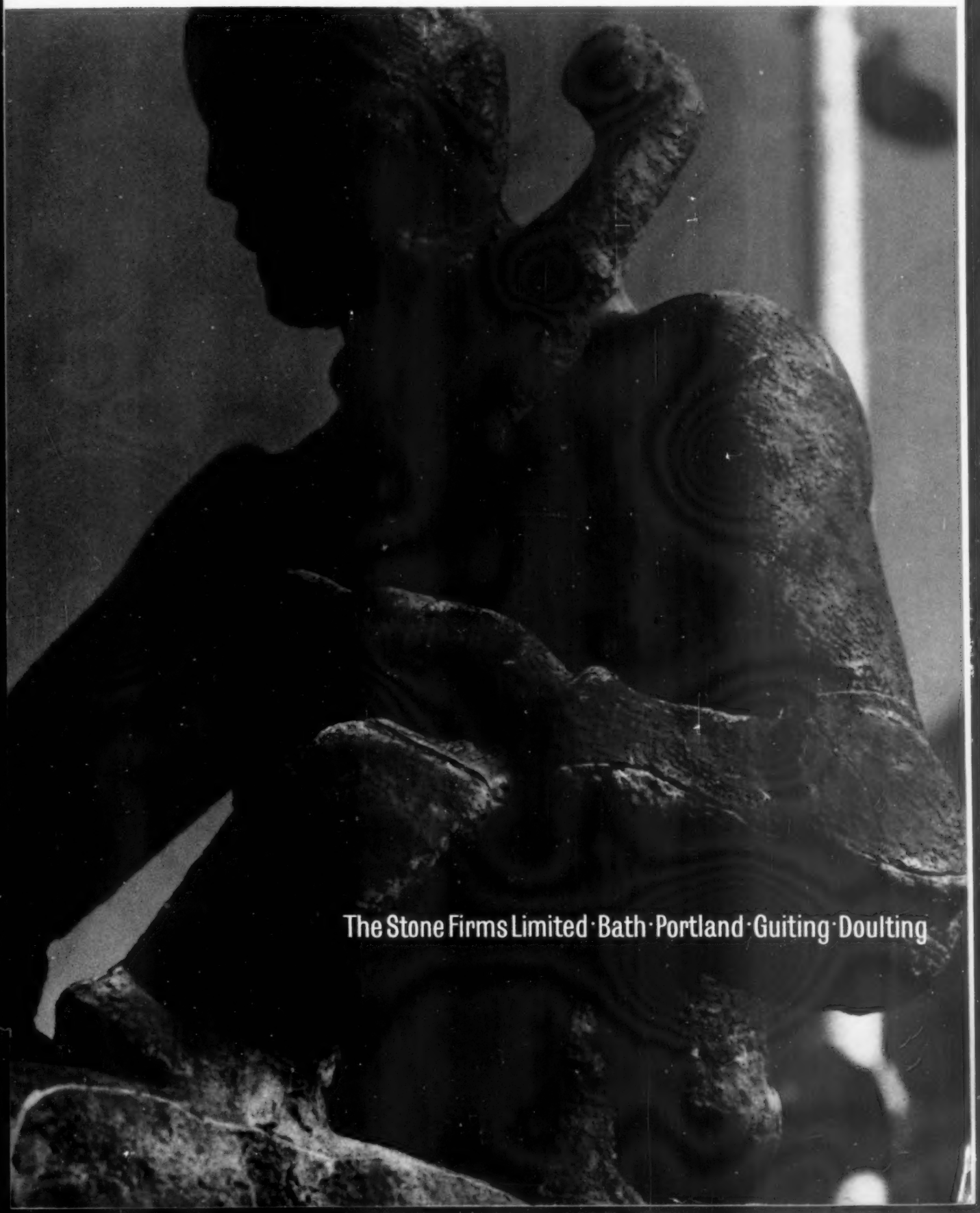
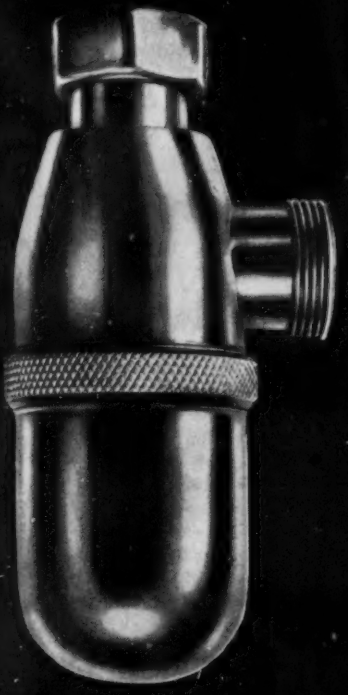
The Architects' Journal

IUA Congress number
June 29 1961 Volume 133 No 3454 Price 1s

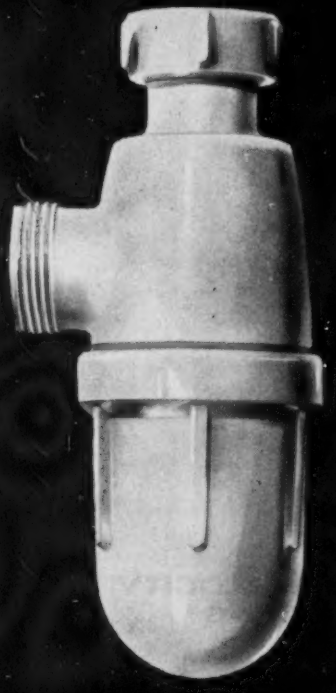




The GREVAK MONITOR in Cast Brass

- ★ Completely resistant to induced and self-siphonage.
- ★ No anti-siphon pipework required.
- ★ Maintains seal against flow of over 100 galls./min.
- ★ Removable base for easy cleaning.
- ★ Available in natural brass or chrome finish.
- ★ Size 1¼" B.S.P. with 'P' or 'S' outlet.

GREVAK anti-siphon traps



The GREVAK MONITOR in Hostalen

- ★ Identical anti-siphon safeguard as Brass.
- ★ Hostalen is a high density polyethylene.
- ★ Resistant to acids and detergents.
- ★ Unaffected by boiling water.
- ★ Available in White and Off-White finish.
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"GREVAK" ANTI-SIPHON TRAPS are fully patented.

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Heavy duty pattern anti-siphon trap for commercial use with 'P' or 'S' outlet available in cast iron, brass and lead. Brass and Cast Iron are bitumen coated internally.

GREVAK JUNIOR

Light duty pattern anti-siphon trap with 'P' or 'S' outlet available in cast iron, brass, copper and lead. Brass and Cast Iron are bitumen coated internally.

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GREENWOOD and HUGHES LIMITED · CARLISLE HOUSE, 8 SOUTHAMPTON ROW, LONDON, W.C.1. Telephone CHAncery 9377 (3 lines)
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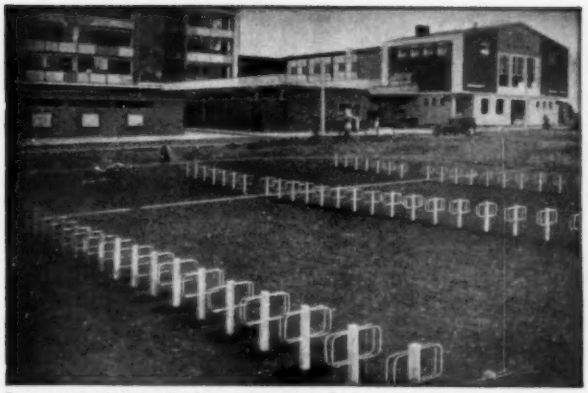

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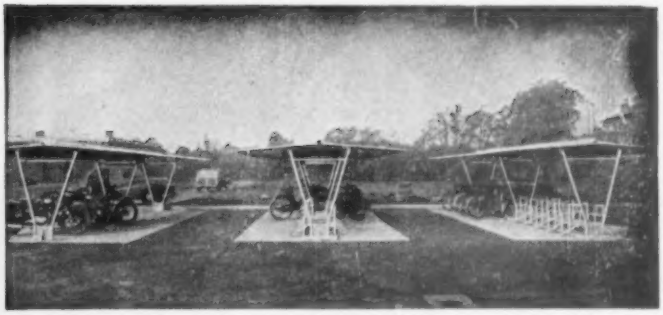

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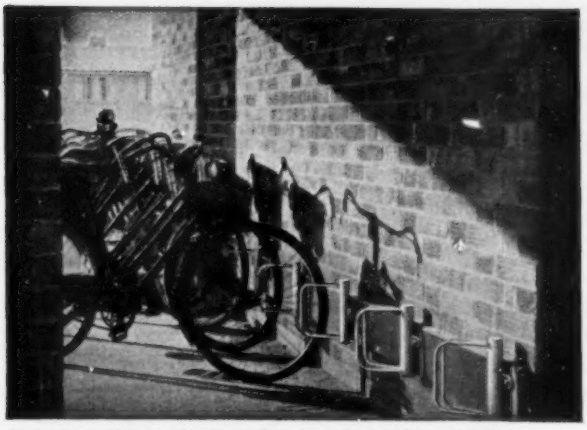

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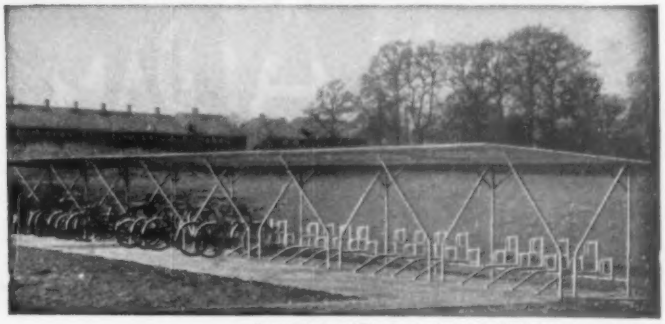

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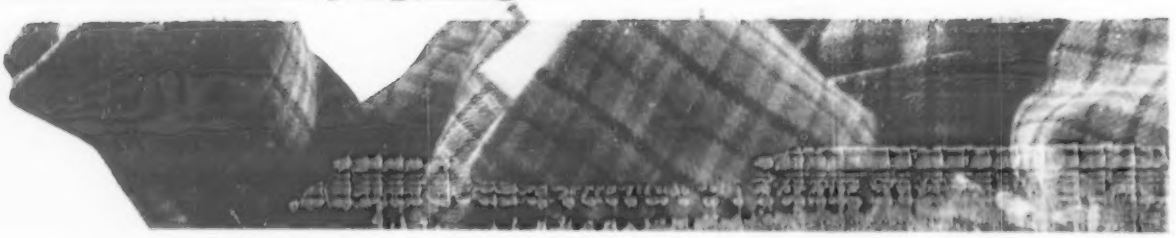
NYLON
too for
CORNAWAY



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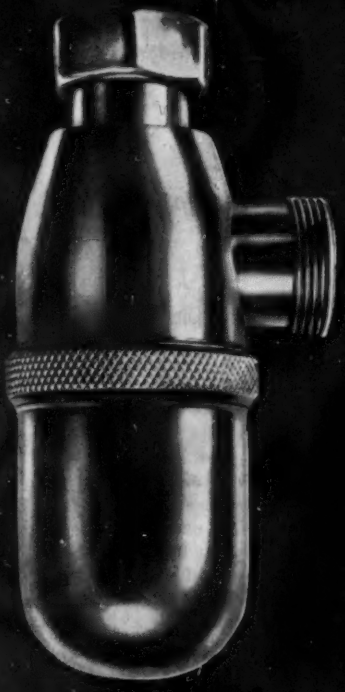

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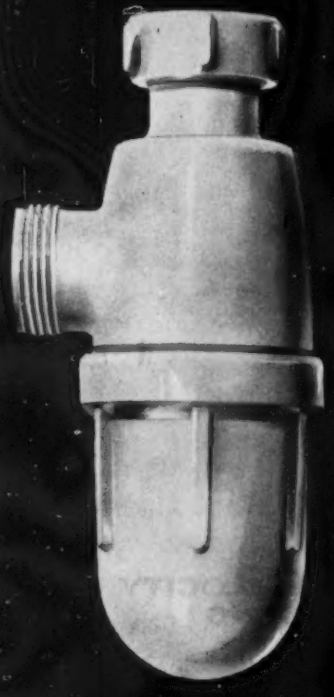

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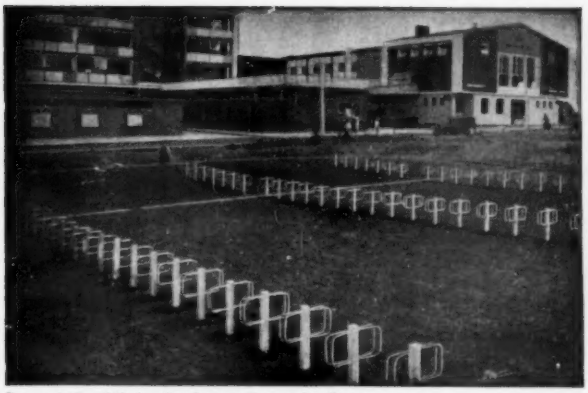

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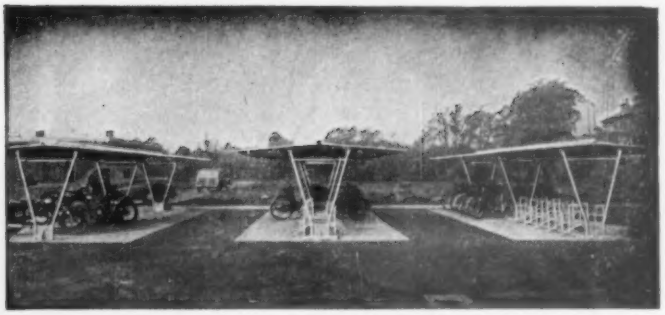

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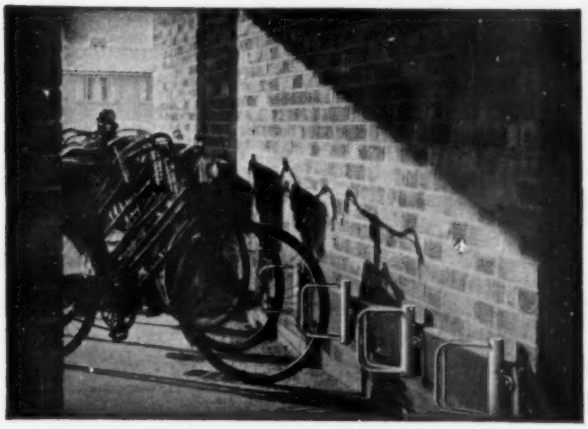

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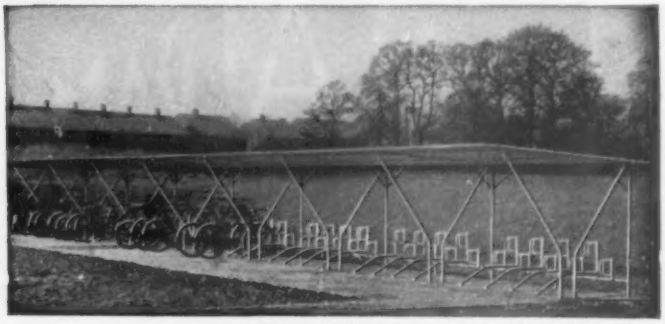

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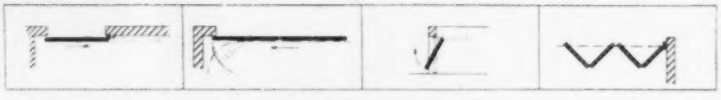

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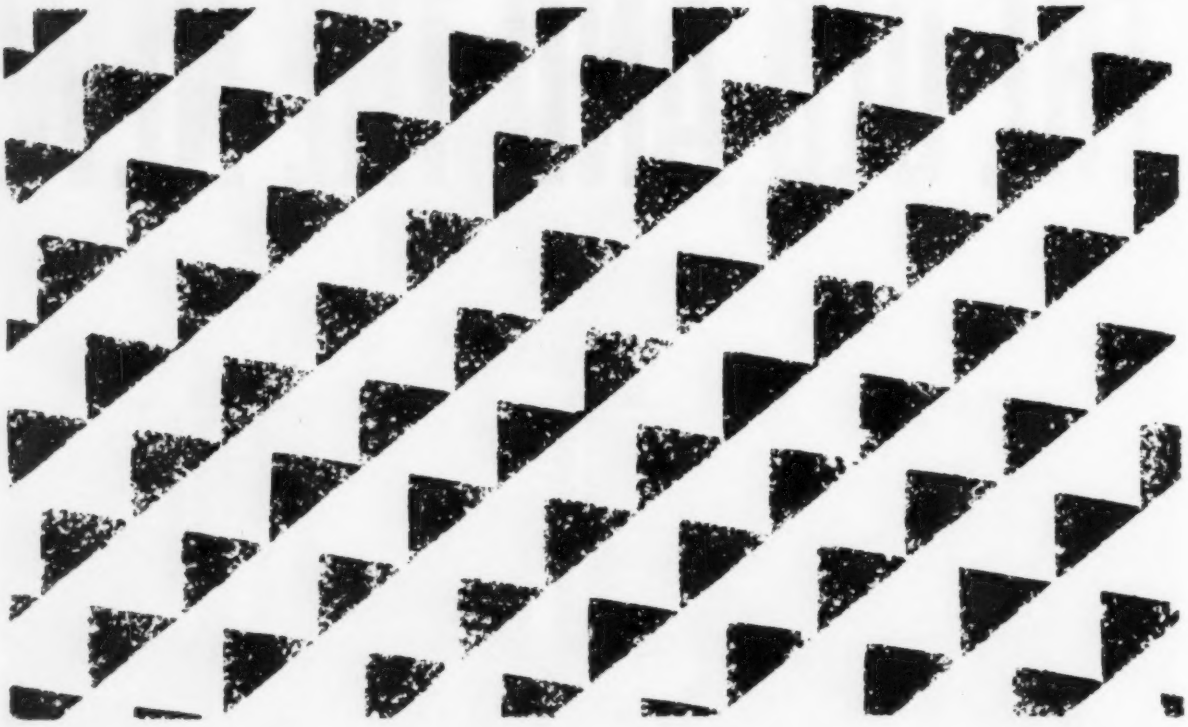

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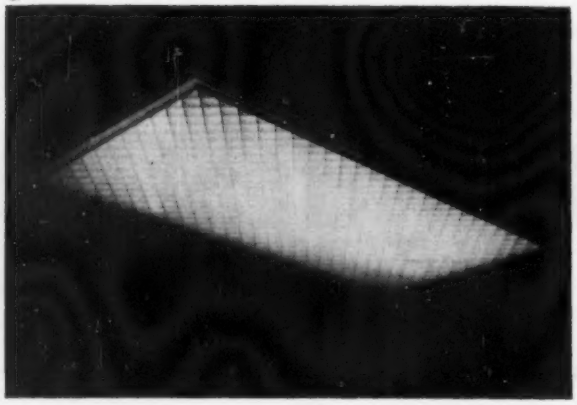

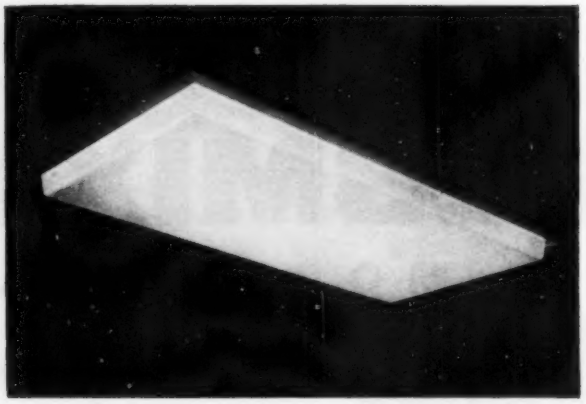

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AP 137

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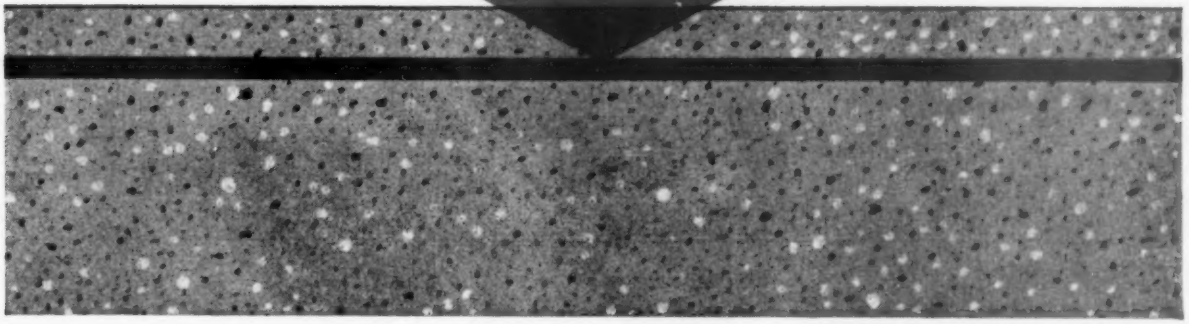

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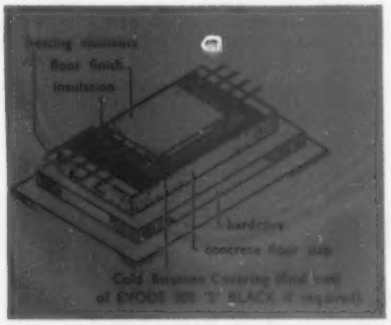
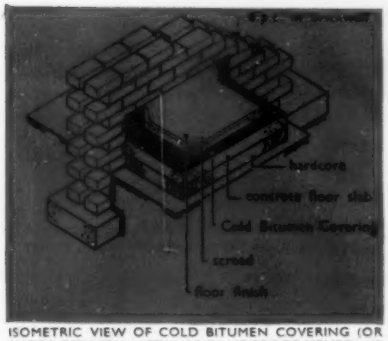
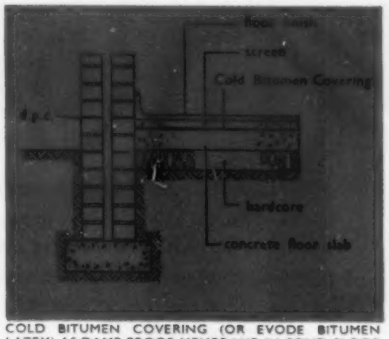


COLD BITUMEN COVERING (OR EVODE BITUMEN LATEX) AS MOISTURE OR VAPOUR BARRIER IN FLOOR HEATING SYSTEM



ISOMETRIC VIEW OF COLD BITUMEN COVERING (OR EVODE BITUMEN LATEX) AS DAMP-PROOF MEMBRANE IN SOLID FLOOR



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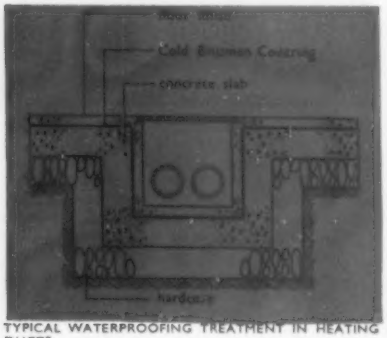

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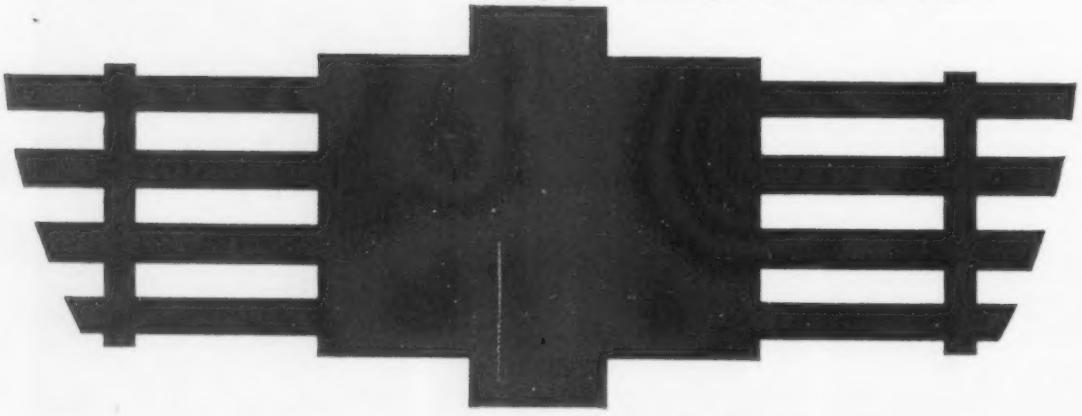
M.W.180

PAVING THE WAY FOR THE I.U.A

Paving layout — IUA Congress 1961 — South Bank, London



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HALF DOME END CONTINUOUS ROOFLIGHT VENTILATORS.

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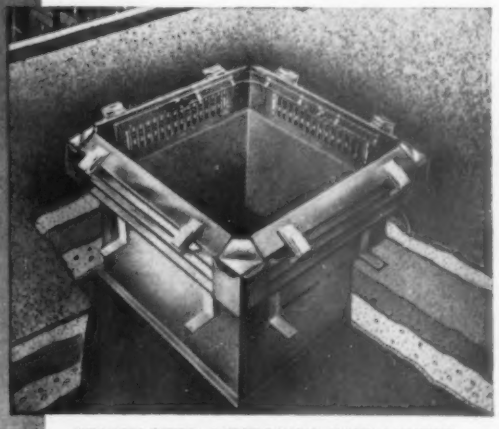
To fit circular domes from 18″ x 72″ diameter or rectangular domes from 30″ x 30″ to 48″ x 72″ in glass, "Perspex" or fibreglass. Constructed of heavy gauge steel, galvanized after manufacture, and fitted with weatherproof external louvres.



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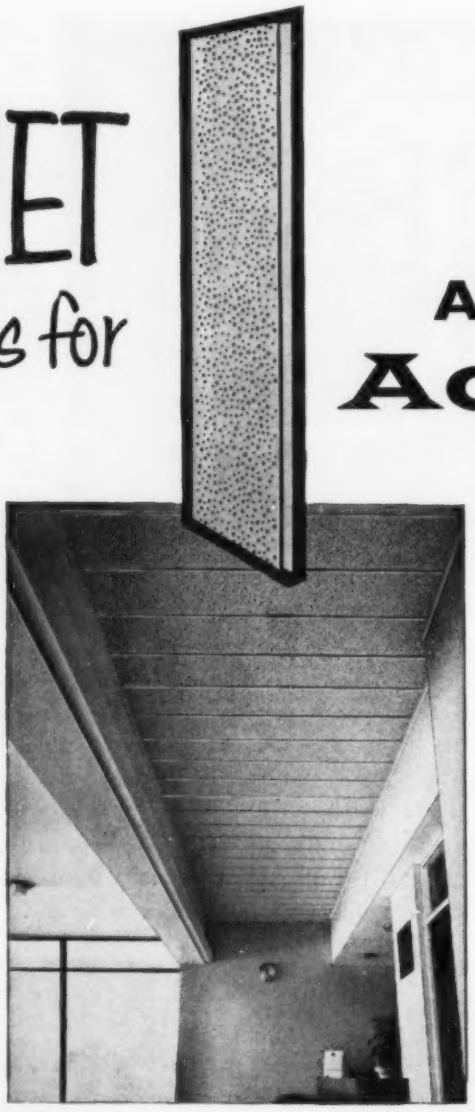
QUIET calls for



Entrance Hall, Yorkshire Electricity Board, No. 6 Sub Area, Hull

Architect: J. Houghton A.R.I.B.A., Hull

Main Contractors: Geo. Houlton & Sons, Ltd., Hull

Ceilings by: Dawber, Townsley & Co. Ltd., Hull

SCA

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easily adaptable to every fixing system

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Reception Hall, Midland Industries Ltd., Wolverhampton

Architects: Bertram Butler

Main Contractors: William Whittingham & Co. Ltd., Wolverhampton

Fixing Contractor: Rudders & Paynes Ltd., Birmingham

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SHERBOURNE PRE-ENGINEERED BUILDINGS

IN 19 SPANS — FROM 135 ft. TO 15 ft.

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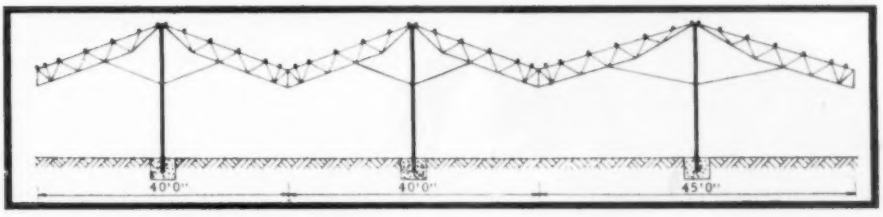
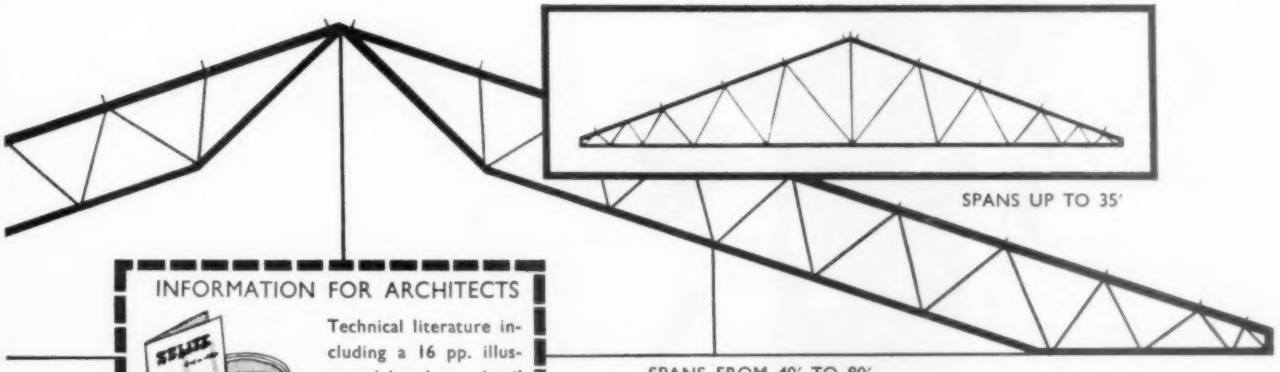
1961 looks like being an even better year than 1960. Not only has the number of standard spans been increased to 19, there have also been a number of important developments in span design. More headroom, an increase in available storage space, increased floor grid and, not the least, lower constructional costs, are some of the resultant advantages. Sherbourne Buildings are ideally suited for use as factories, administrative buildings, showrooms, assembly halls, warehouses, transport depots, garages, service stations, etc.

NEW SPAN DEVELOPMENTS, INCORPORATING NEW PRINCIPLES, GIVE THE DESIGNER MORE SCOPE



SPANS
75', 90', 105',
120', 135'



SPANS UP TO 35'

SPANS FROM 40' TO 80'

INFORMATION FOR ARCHITECTS

Technical literature including a 16 pp. illustrated brochure, detail drawings and information sheets, covering the complete range of spans, is available on request.

Sherbourne Buildings offer the architect complete freedom in the design of exteriors. Their low 18° to 20° slope facilitates the erection of parapet walls where necessary. Practically any form of exterior cladding may be chosen. All forms of corrugated roofing may be specified and the provision of roof glazing presents no difficulties.

BUILDINGS

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SEAT Shires famous 'Continental'. Slim and strong. No buffers. Cover in choice of ten colours.

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made by Shires of Guiseley *for your convenience*

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City of London College Extension

Architects: R.E. Enthoven, F.R.I.B.A., F.S.A. and R.J. Mock, A.I.A

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TOMO coupled double-glazed WINDOWS also offer the advantages of finely-controlled ventilation and total indoor window-cleaning. They are suitable for inward or outward opening, and can be top-hung, bottom-hung, side-hung or pivot-hung.

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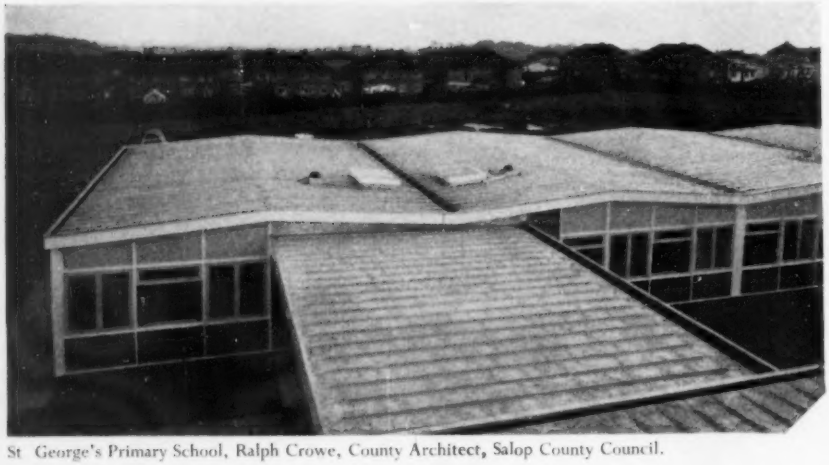

St George's Primary School, Ralph Crowe, County Architect, Salop County Council.

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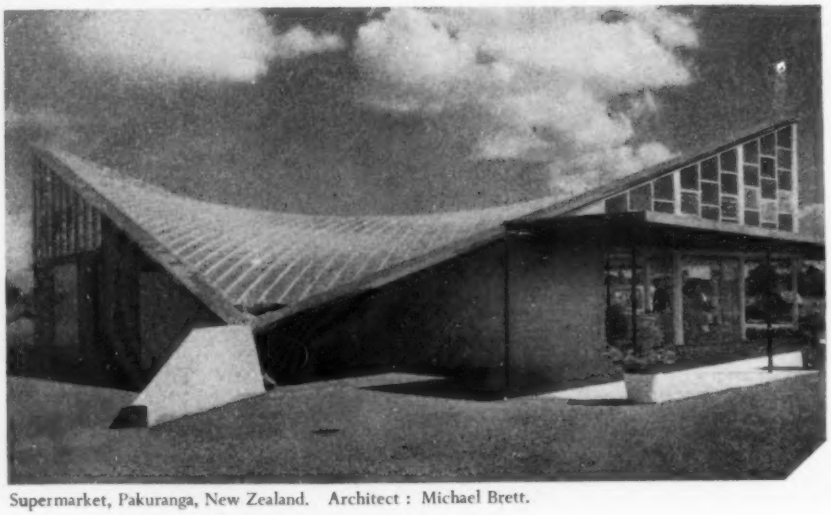

Supermarket, Pakuranga, New Zealand. Architect : Michael Brett.

Silver Cornet Public House, King's Heath, Northampton. Architect: Phipps Northampton Brewery

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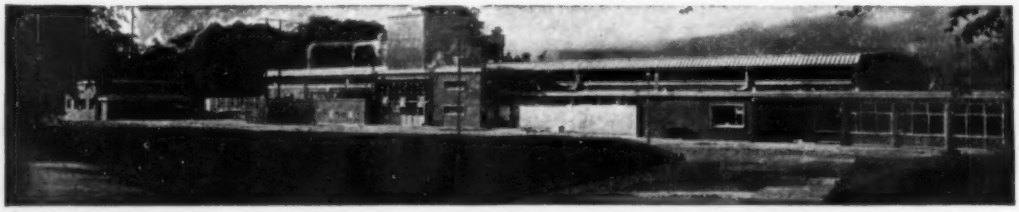
THE ARCHITECTS' JOURNAL (Supplement) June 29, 1961

THE ARCHITECTS' JOURNAL (Supplement) June 29, 1961



Ulster Chipboard Factory, Coleraine.

Architects: McCutcheon & Wilkinson L/ARIBA Coleraine and Ballymena.

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in black or ivory

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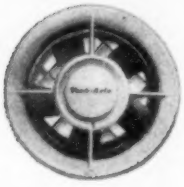
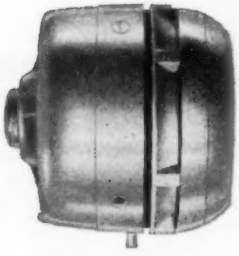


7½″


9″


12″


Vent-Axia introduce a complete new range of elegant window and wall models. Both types are virtually silent and can be equipped with a variety of optional fitments.

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* Choice of Control: Single Direction (Type SD) or Reversible (Type R), both giving three speeds including boost for extra performance.

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TYPE R

CONTROL SWITCH
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WALL MODELS
with ivory fascia

6″

7½″

9″

12″

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We never call our decorative finish a paint, because it is so much more than just that. Cementone number seven stays on in all its original freshness long after ordinary paint has packed up and gone. Furthermore, you will see Cementone number seven in places never mentioned in the company of ordinary coverings. New cement, plaster work, asbestos sheeting and the like. It is important to remember that number seven finishing (flat or gloss) has a big brother *Decorative PRIMER*, that stands up to most alkali containing surfaces. In some locations—concrete floors, asbestos roofing, swimming pools—the primer is often used as a decorative finish. Two coats are enough.

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THE UNIVERSAL DECORATIVE FINISH

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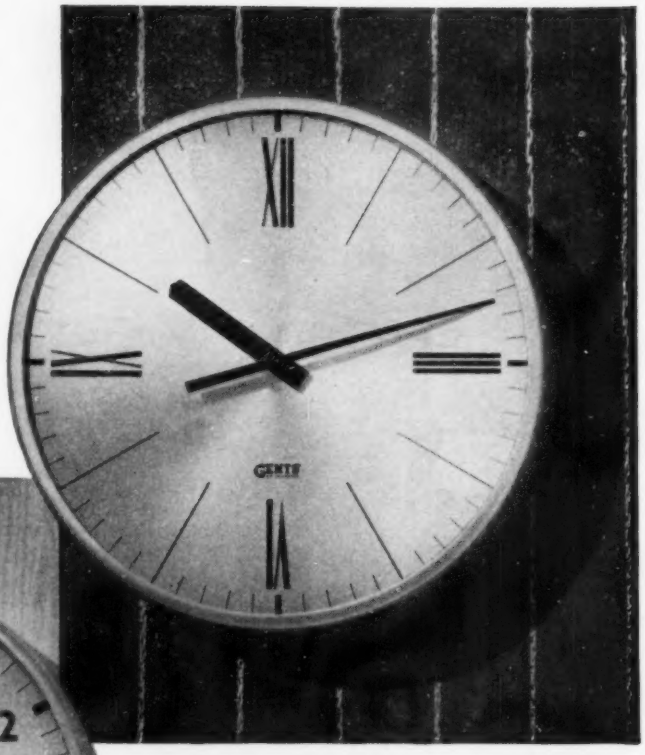
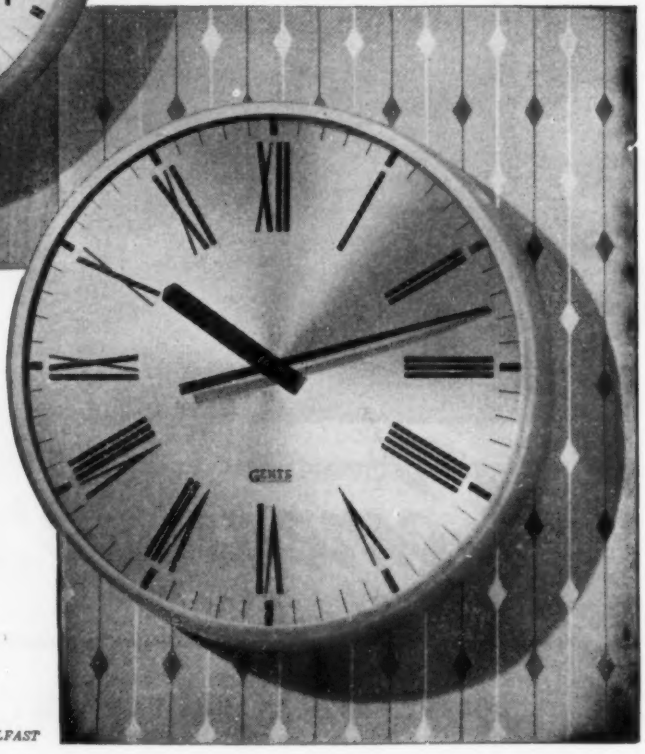
All are available for operating either on A.C. Mains or as part of a Master Clock System.



In every way...Right!



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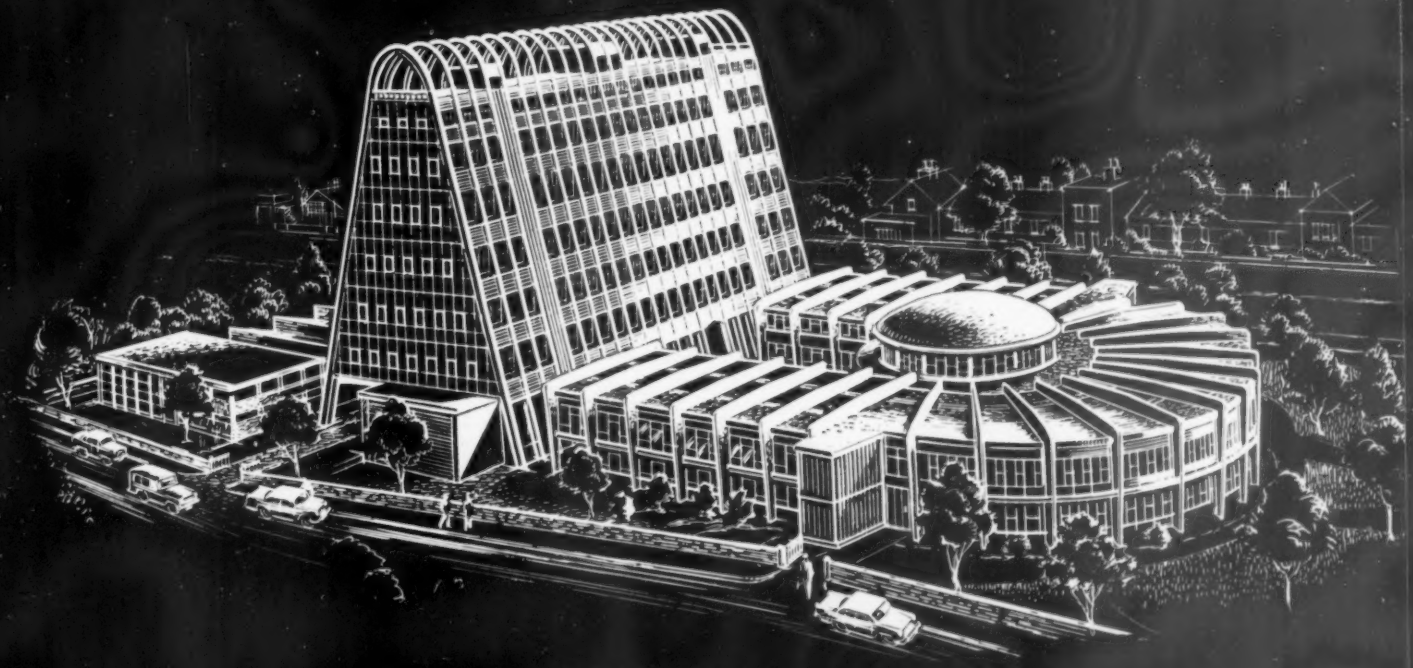

Domestic & Trades College, Fallowfield, Manchester.
Architect: Leonard C. Howitt, Dip.T.P., D.P.A., F.R.I.B.A., M.T.P.I. (City Architect).
Consulting Civil Engineers: L. G. Mouchel & Partners.

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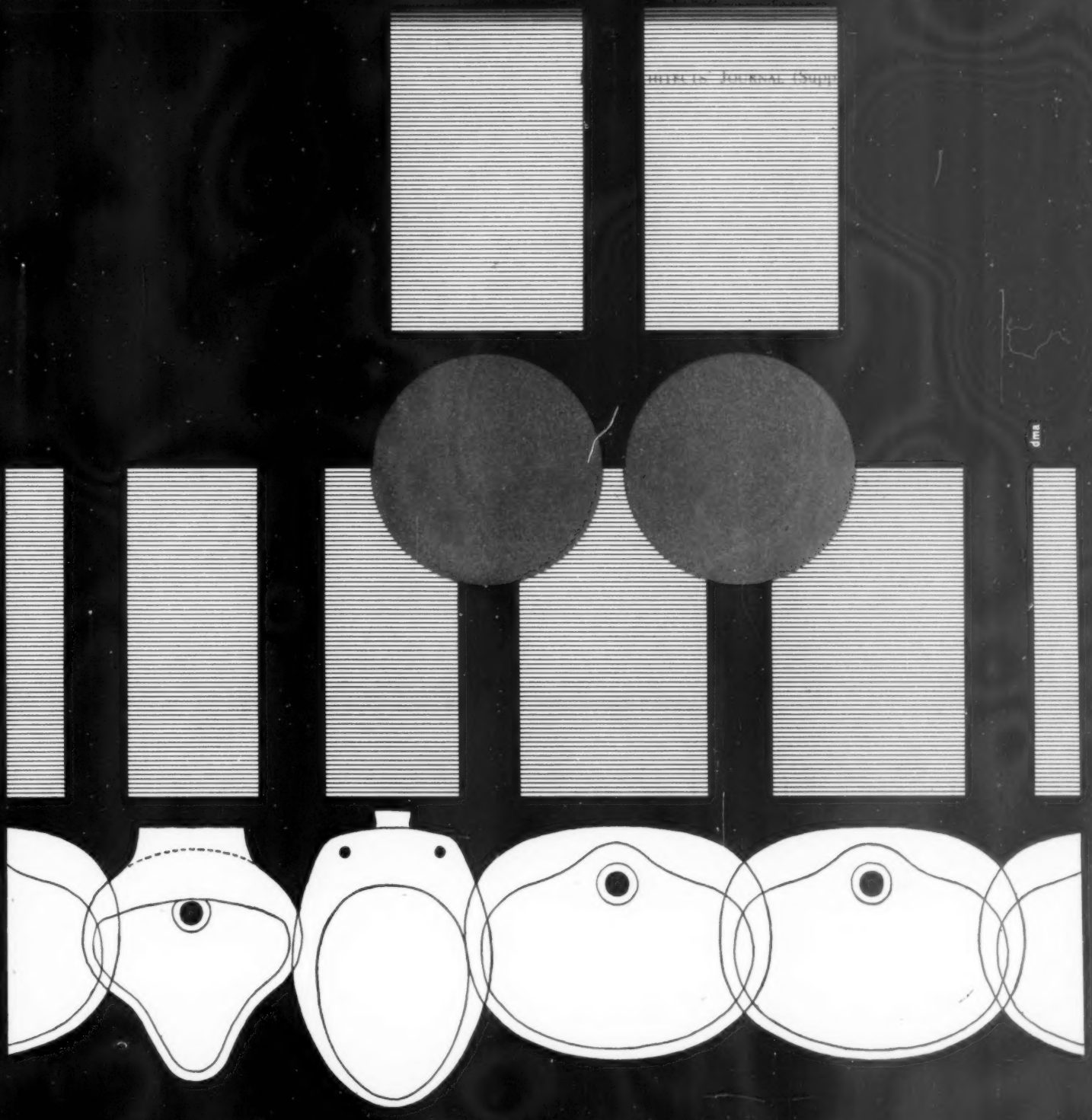

Xth Triennale 1 Gold Medal
X11th Triennale 1 Gold Medal

6th IUA Congress London 1961
28 Adamsez fittings chosen
for the Headquarters Building

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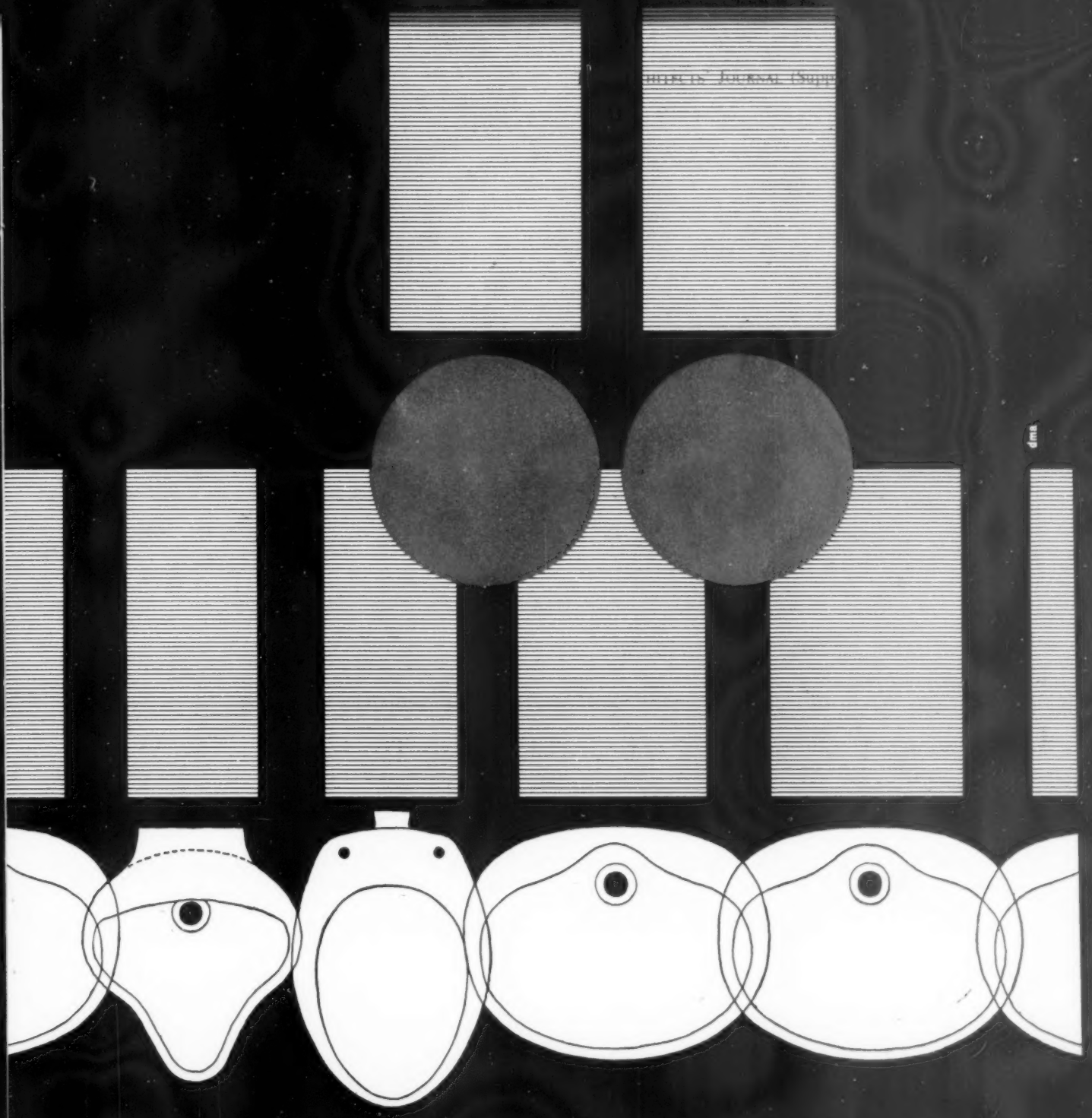

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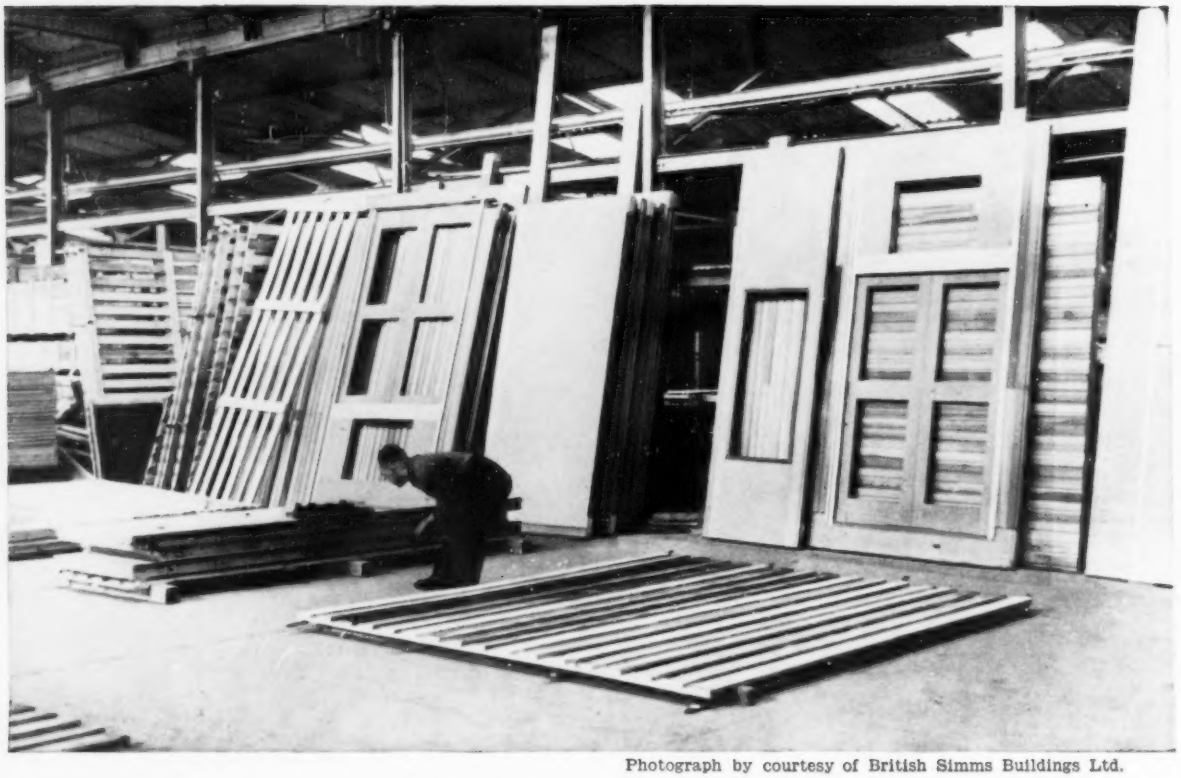

Photograph by courtesy of British Simms Buildings Ltd.

Elements of construction

Prefabricated panels, made economically in timber, require protection from fungal decay and insect-grubs. Termites too are their enemy in warmer climates and fire can strike anywhere. 'Tanalith' C impregnation will impart resistance to all forms of biological hazard (grubs, termites, fungi) however severe the exposure, and it will never wash out. Alternatively, 'Pyrolith' impregnation offers similar protection, in addition to its primary function—flameproofing. Treated permeable species comply to the Class 1 spread of flame rating as defined in BS:476. 'Pyrolith' treated timber in composite structures assists in obtaining the desired fire endurance demanded by Bye Laws and minimises flamespread. Neither treatment has any unpleasant side effects and the timber remains clean and attractive. It can still be cross-cut, glued, screwed, bolted, nailed and painted. Only a pleasant greenish colour indicates that a piece of timber is 'Tanalised' whilst a yellowish-green identifies 'Pyrolith' treatment.

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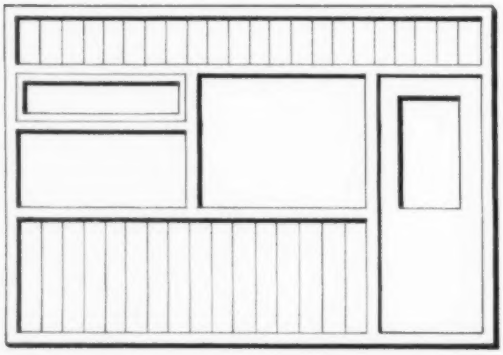

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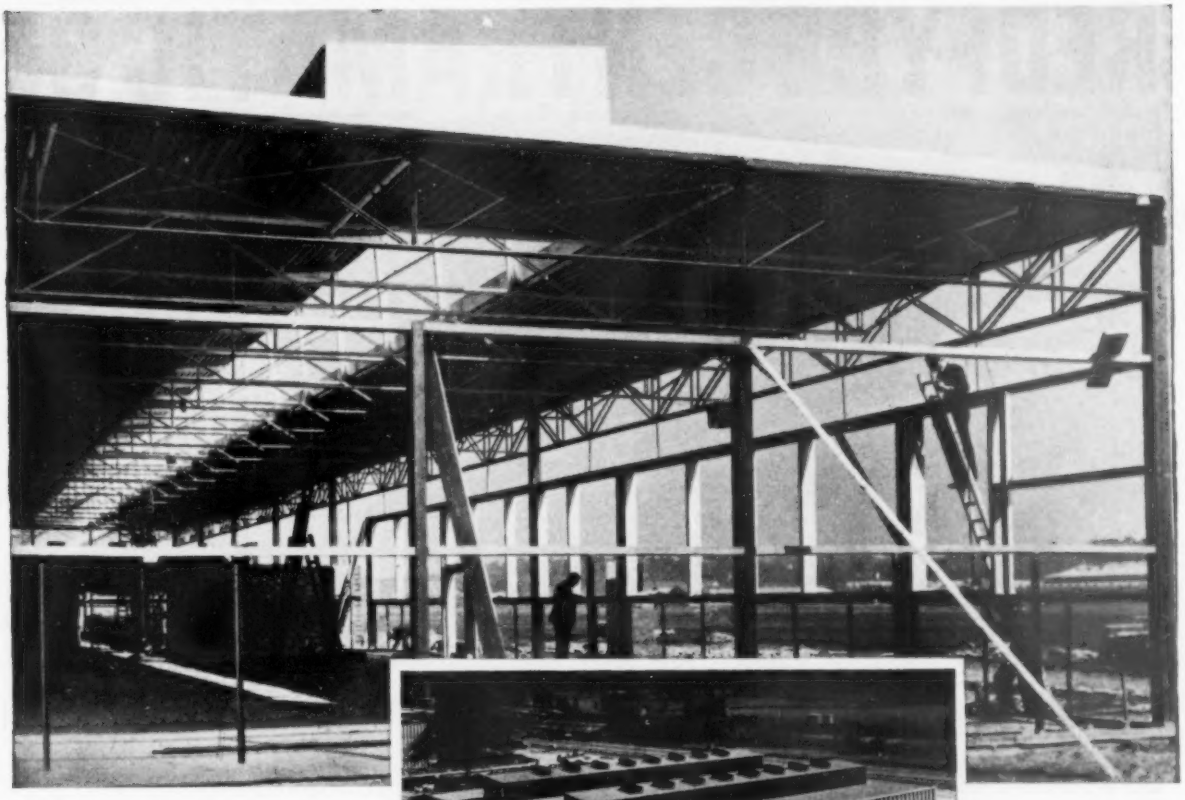

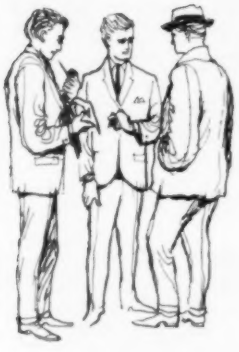

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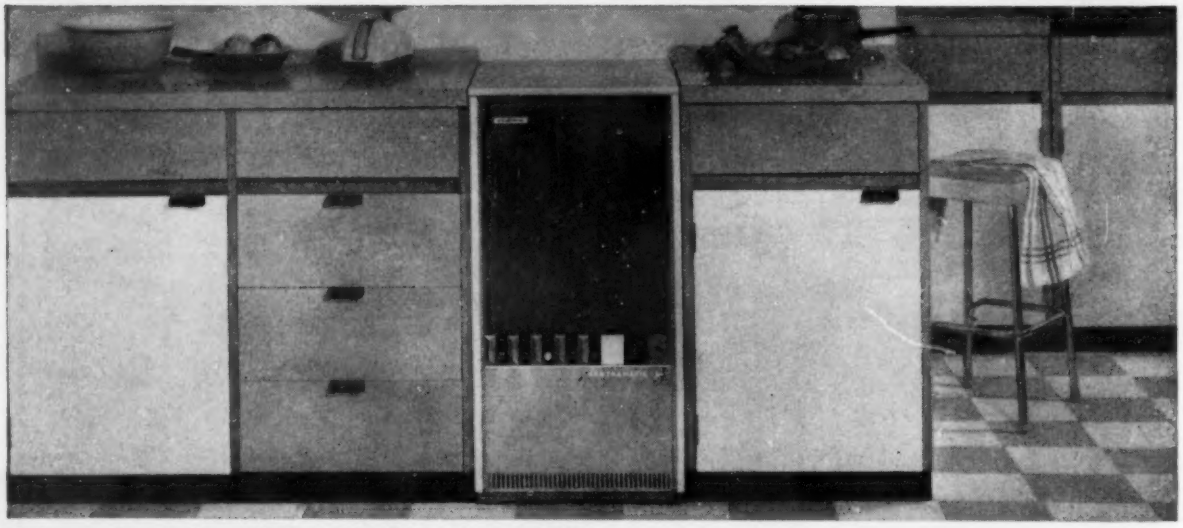
REDFYRE CENTRAMATIC 35



fully automatic oil-fired boiler—specially designed for smaller houses

Unique automatic control system
Indicator lights on the Redfyre Centramatic 35 act as a constant reminder of the temperature selected by the user and the boiler is automatically operated to this setting by a sealed printed-circuit control unit. When the correct temperature is reached, the boiler switches itself off.

Exceptional fuel economy
When heat is needed the Redfyre Centramatic 35 lights itself electrically and reaches full operating efficiency almost at once. No pilot flame or low-pressure 'idling' to dribble away the fuel wastefully.

Perfect for the kitchenette
The Redfyre Centramatic 35 has dimensions to fit the smallest kitchen. The attractive enamelled casing is in white or cream; the bottom front panel is anodised aluminium; and for the easily interchangeable top front panel there is a choice of: Atlantic Grey, Nursery Blue, Eau-de-Nil, Flame Red, Cream, White, Buttercup, and Lilac. And because the 35 is totally enclosed, permanently installed, and fed with oil from outside the house, it is of course always safe.

Automatic combustion
The Redfyre Centramatic 35 does not rely on a good constant chimney draught to provide air for correct combustion. The fan on the unit does this and a 5" diameter chimney flue (top or back outlet) with some updraught is all that is needed.

Brief specification
Output — 35,000 B.Th.U's/hr. continuous rating (water transfer). Overall size — 36" high x 18" wide x 21" deep. Steel boiler with 1¼" B.S.P. tappings.

Retail price of the Redfyre CENTRAMATIC 35 is £93-9s.

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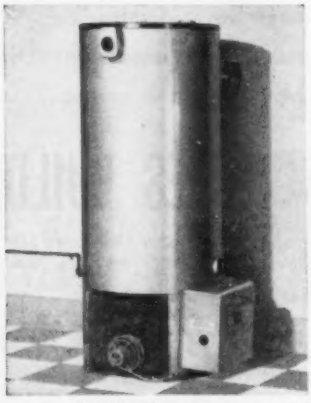

The Redfyre Centramatic 80

There are now three Redfyre Centramatics — the 35, described above, the 50 (50,000 B.Th.U's/hr.) price £134-8s (each of these models will fit beautifully into the kitchen) and the 80 (80,000 B.Th.U's/hr.) price £156-9s. All three Redfyre Centramatics are fully automatic and suitable for use on either gravity or small bore systems.

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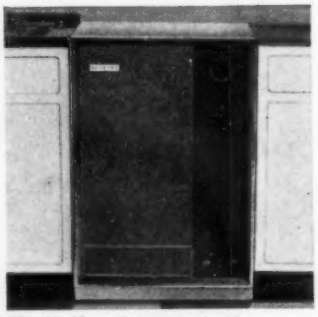

The Redfyre Centramatic 50

Newton Chambers and Company Limited, Redfyre Products, Thorncliffe, Sheffield
Please send me detailed technical literature on the Redfyre Centramatic 35

NAME _____

ADDRESS _____

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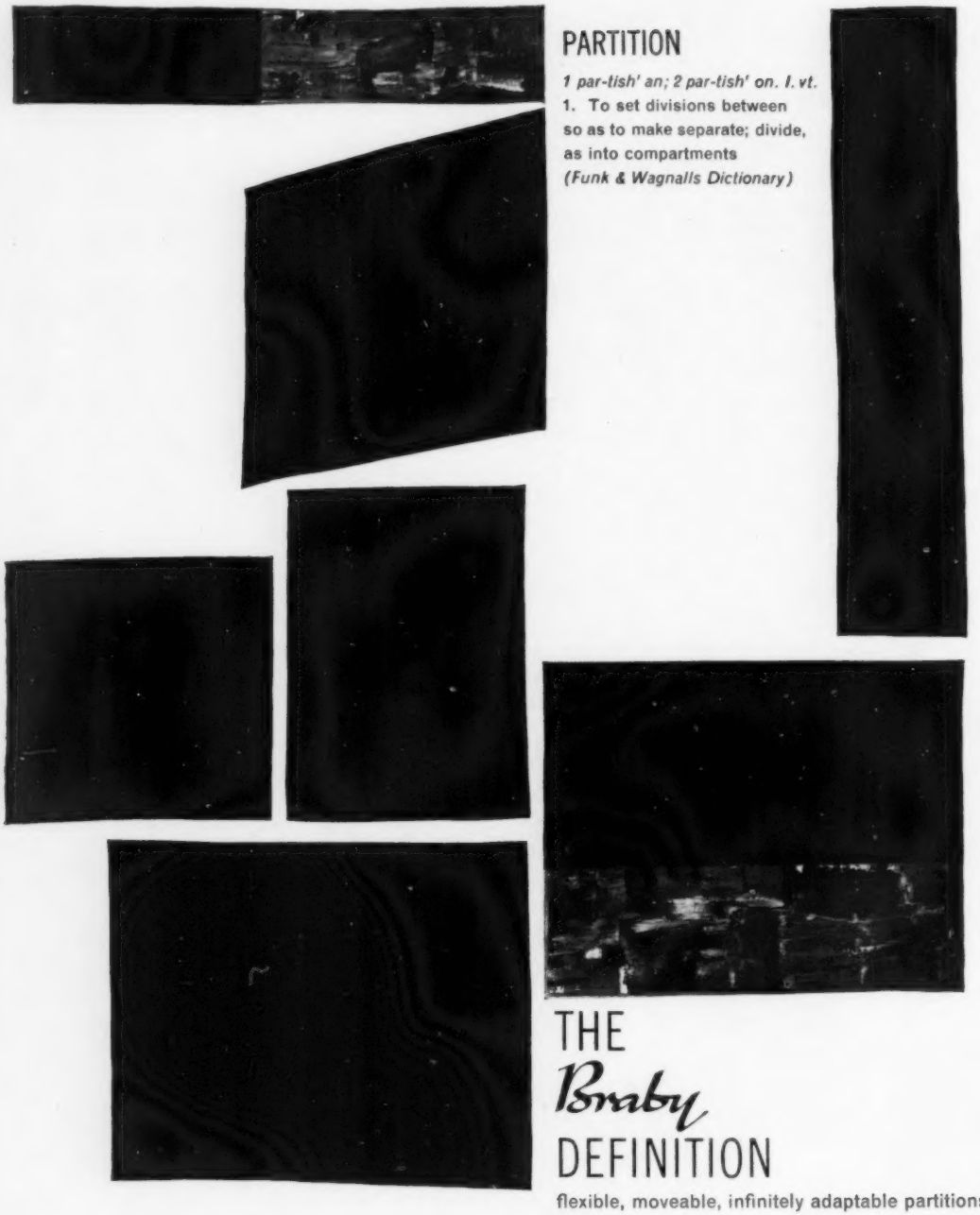
REDFYRE



PARTITION

1 par-tish' an; 2 par-tish' on. I. vt.
1. To set divisions between so as to make separate; divide, as into compartments
(Funk & Wagnalls Dictionary)

THE *Braby* DEFINITION

flexible, moveable, infinitely adaptable partitions fabricated from extruded aluminium alloy for the disposition of the Architect in the service of better space-utilisation.

Braby Bar-Form metal partitions are available in a range of standard units, or can be purpose-made for special applications.

Other Braby components for the Architect include curtain walling and metal windows in steel and aluminium; copper, zinc and aluminium roofing; pressed-steel internal stairs; fire escape stairs and pressed-steel door frames.

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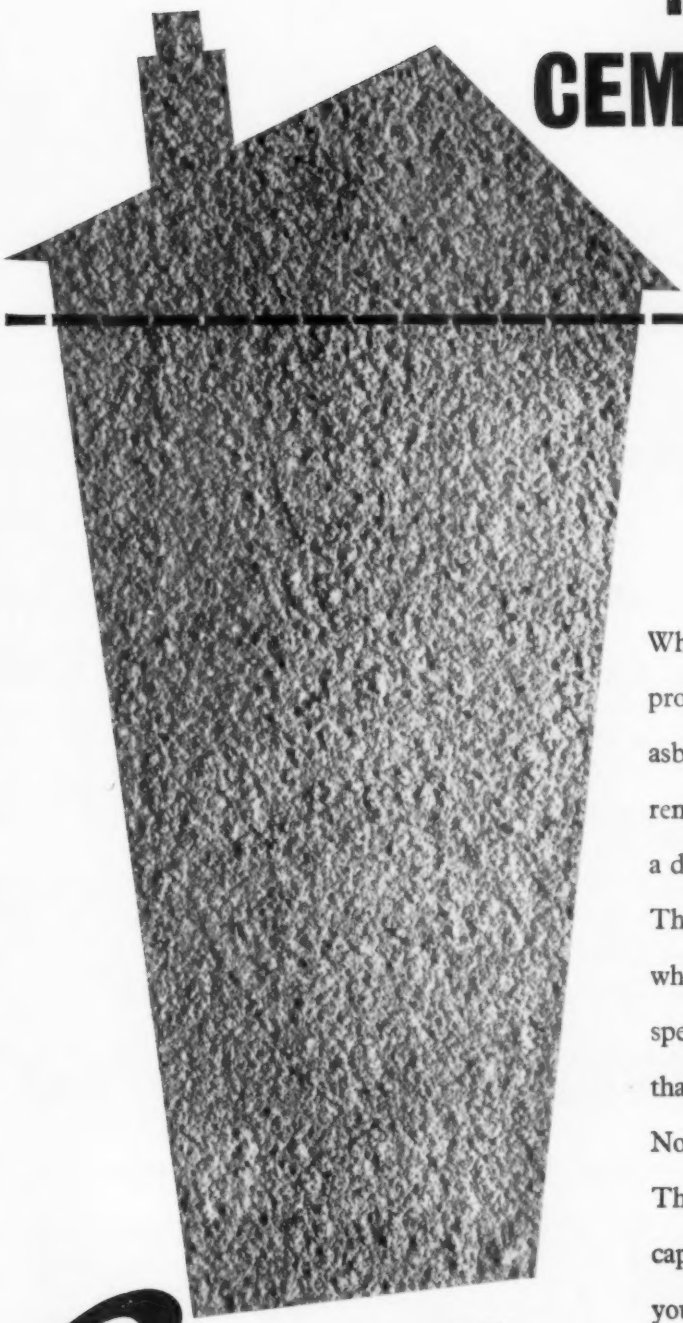

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No primer is necessary.

There are 20 colours. Covering capacity is 25% more. So don't forget your bonus when you cost!

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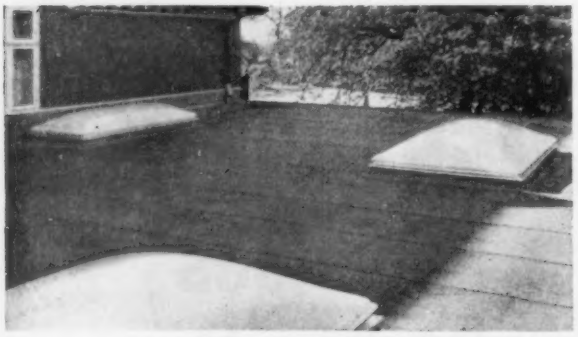
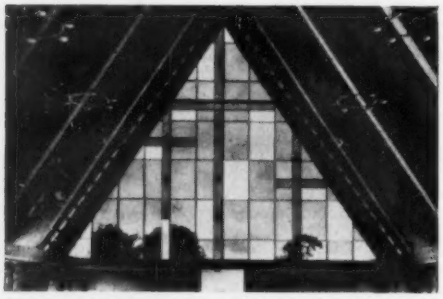
JOSEPH FREEMAN SONS & CO. LTD.

Cementone Works • London • S.W.18 • Telephone: VANdyke 2432 (10 lines)



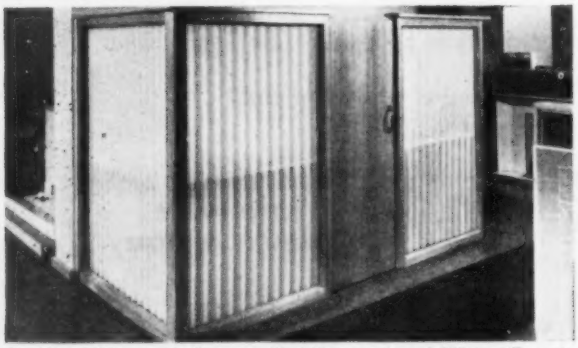
'Duplus' domes made from 'Perspex' acrylic sheet by Duplus Domes Limited, Chatham Street, Leicester, on roof of dining room at Barton Grange Hotel, near Preston. Architect, George H. Broadbent, L.R.I.B.A., A.I.A.A.

'Crelene' bath made from green 'Perspex' by Troman Bros. Ltd., Shirley, Solihull, Warwickshire.

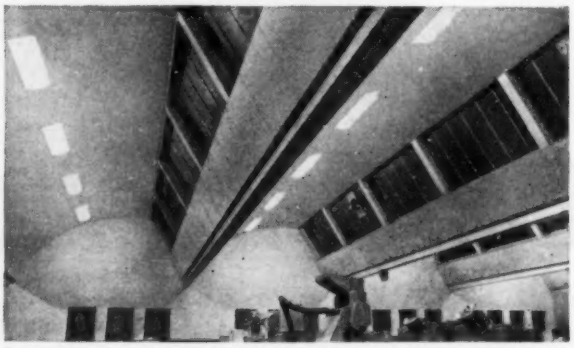


Large triangular window made from 'Perspex' acrylic sheet in red, blue, yellow and neutral grey, for a new Roman Catholic Church in Kingston, Jamaica. The church was designed and constructed by Leonard I. Chang (Engineers) Ltd.

'Moorecraft' double sink and sliding drainer unit made from 'Perspex' by Harold Moore and Son Limited, Bailey Street, Sheffield 1.



Curtain walling made from profiled 'Perspex' opal 030 to offices in Messrs. Palmer and Company Limited's Showrooms in Wilmslow Road, Cheadle, Cheshire.



Fluorescent lighting fittings with clear 'Perspex' covers installed in a shell concrete roof structure. Manufactured by A.E.I. Lamp and Lighting Company Limited, Melton Road, Leicester.

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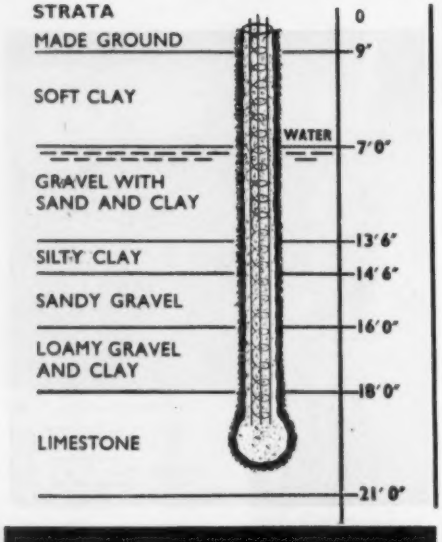
BOROUGH OF BEDFORD CENTRAL AREA RE-DEVELOPMENT



PROBLEM

The nature of the strata in this re-development area precluded the use of ordinary footings for twelve-storey structures, and deep mass concrete foundations would have proved too costly in view of the high water table and the depth of excavation that would have been necessary to carry the high concentrated loading.

SOLUTION

In the face of keen competition, Franki driven type in-situ piles were selected for this contract as they offered:— (1) maximum security coupled with (2) speed of execution—as many as nine or ten piles were driven by one machine in a day, and (3) economy; all of which are of paramount importance with projects of this nature.

Contract No: 3088 · **Client:** Bedford Corporation
Borough Engineer and Surveyor:
F. W. Dawkes, B.Sc. (Eng) A.M.I.C.E., M.I.Mun.E., A.M.T.P.I.
Chief Assistant Architect: C. A. E. Beacher, A.R.I.B.A.
R. C. Engineers: Truscon Limited · **General Contractors:** Drabble Construction Co. Ltd.
Type of Structure: Twelve-storey Flats · **Number and Type of Piles:** 354 Franki Driven
Working Load: 60 tons · **Average Length:** 17'6"

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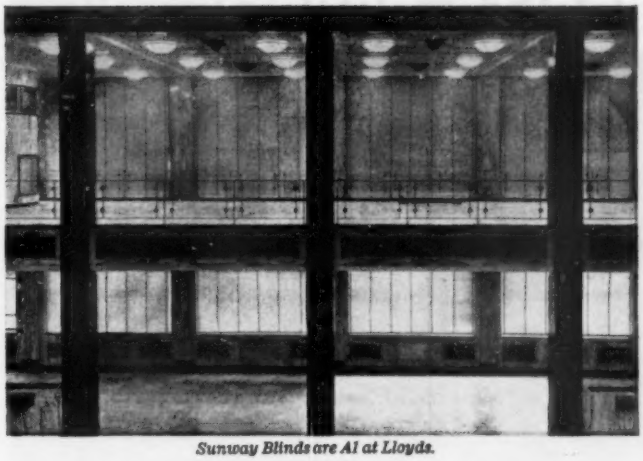
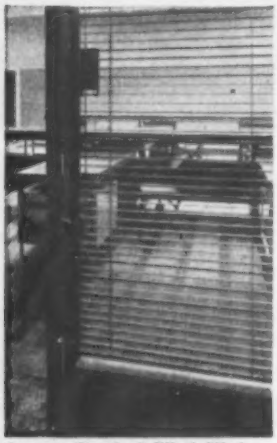


Sunway Blinds are AI at Lloyds.

Sunway Skylight Blinds fitted to glass roof of office.



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

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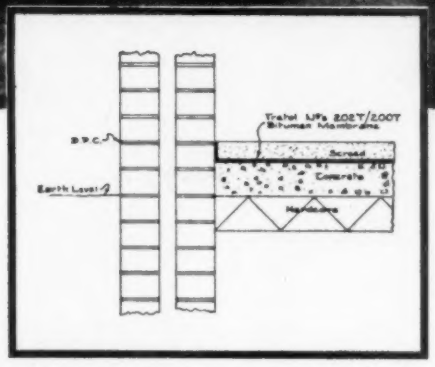

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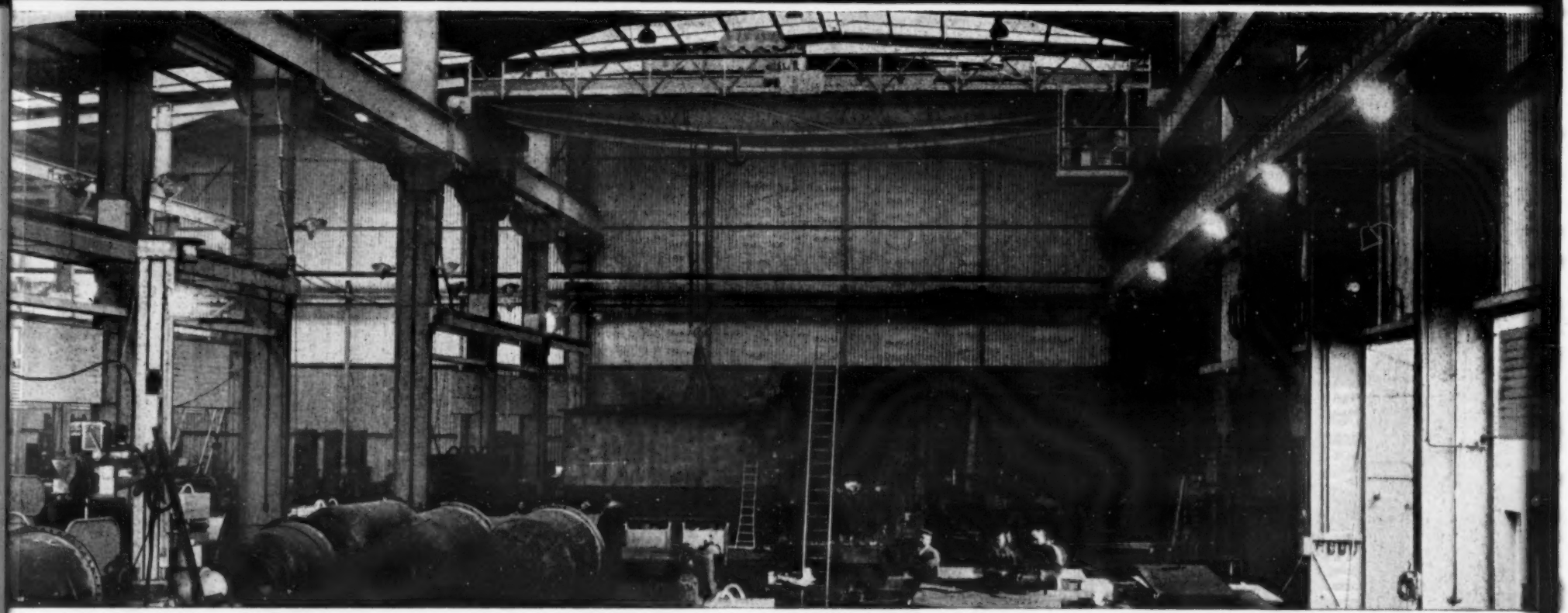
THE ARCHITECTS' JOURNAL
for June 29, 1961



Architect: T. M. Ashford F.R.I.B.A.—A.A. (DIPL) Birmingham

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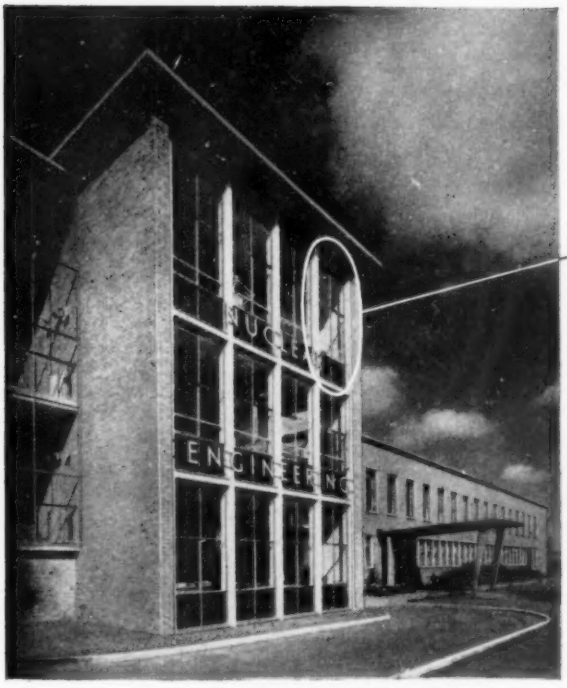

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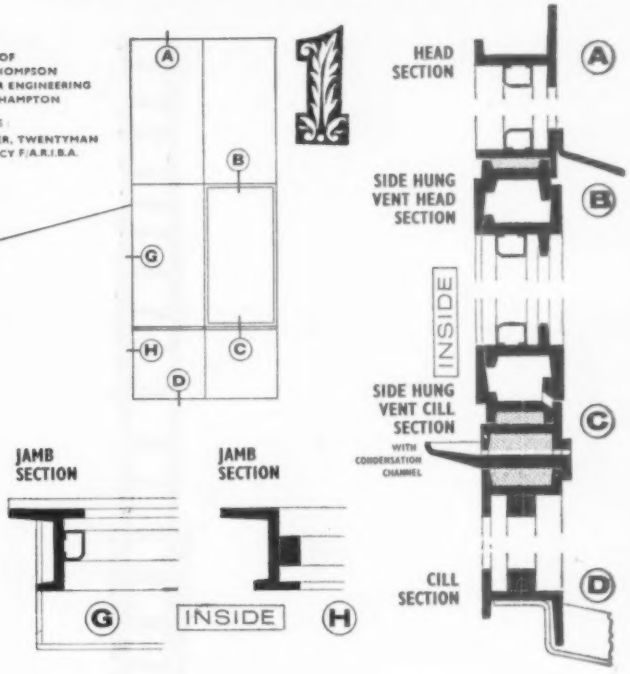
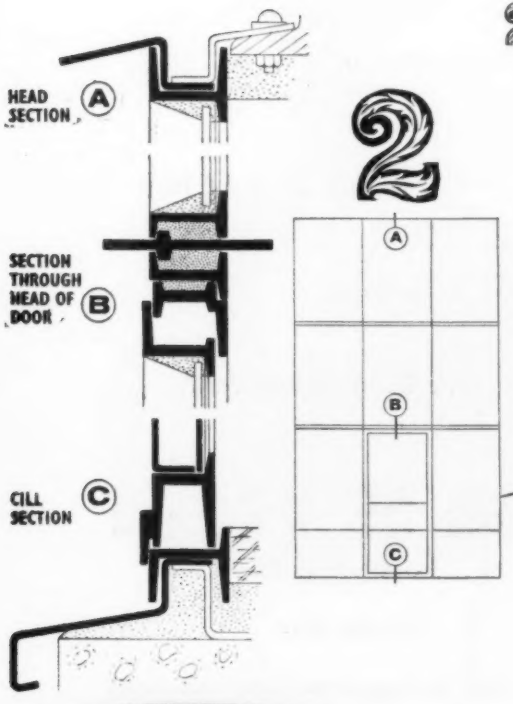


1 The Architect has achieved a bold elevational effect by setting Steel windows, between the verticals and horizontals of his concrete structure — the result has many of the advantages of curtain walling but avoids the usual flat effect.



2 The Architect has used a dark massing effect of brickwork to set-off the glass areas of the Assembly Hall of this school. These Steel windows are coupled horizontally and incorporate outward opening doors in case of emergency.

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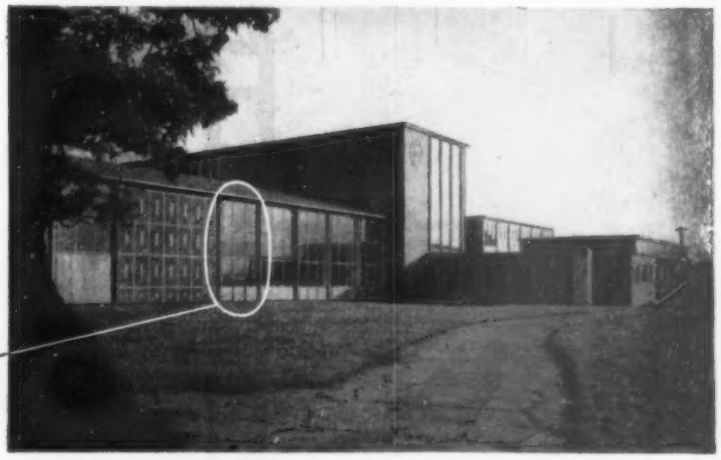

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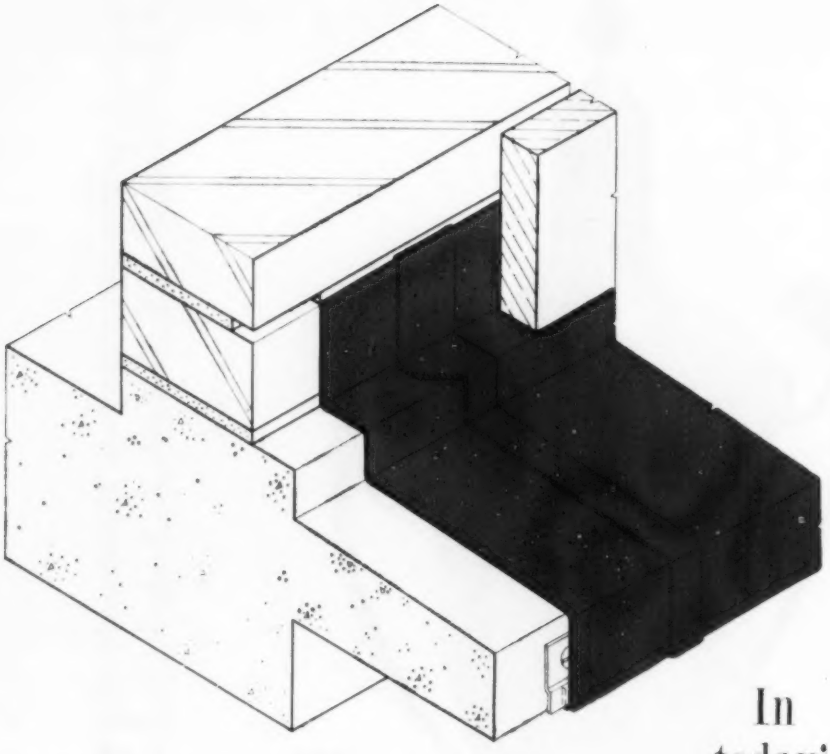

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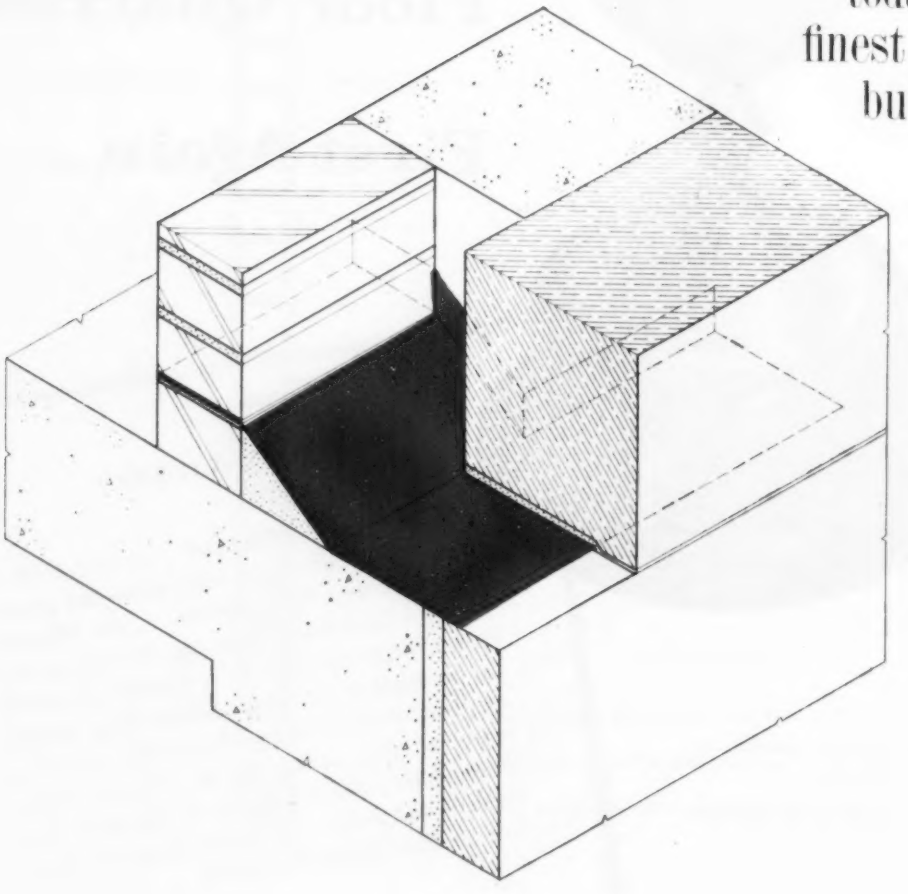

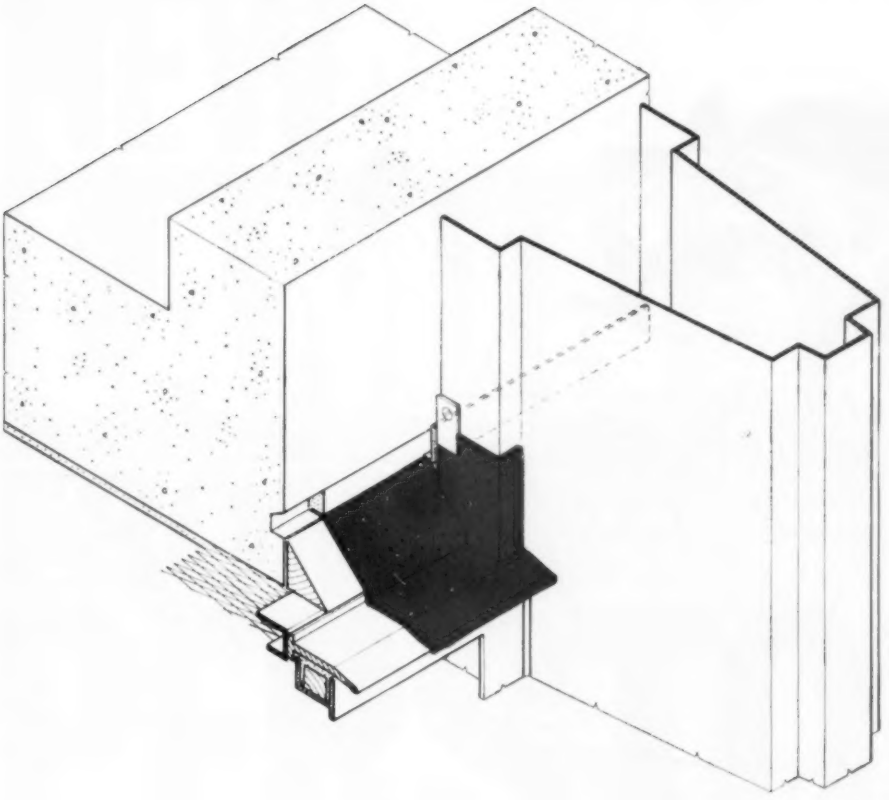

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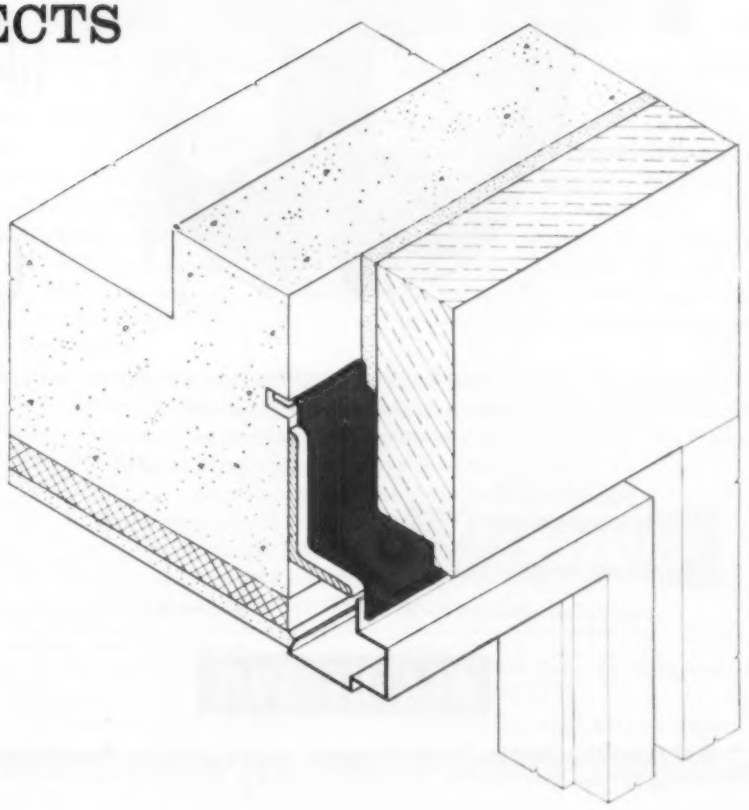

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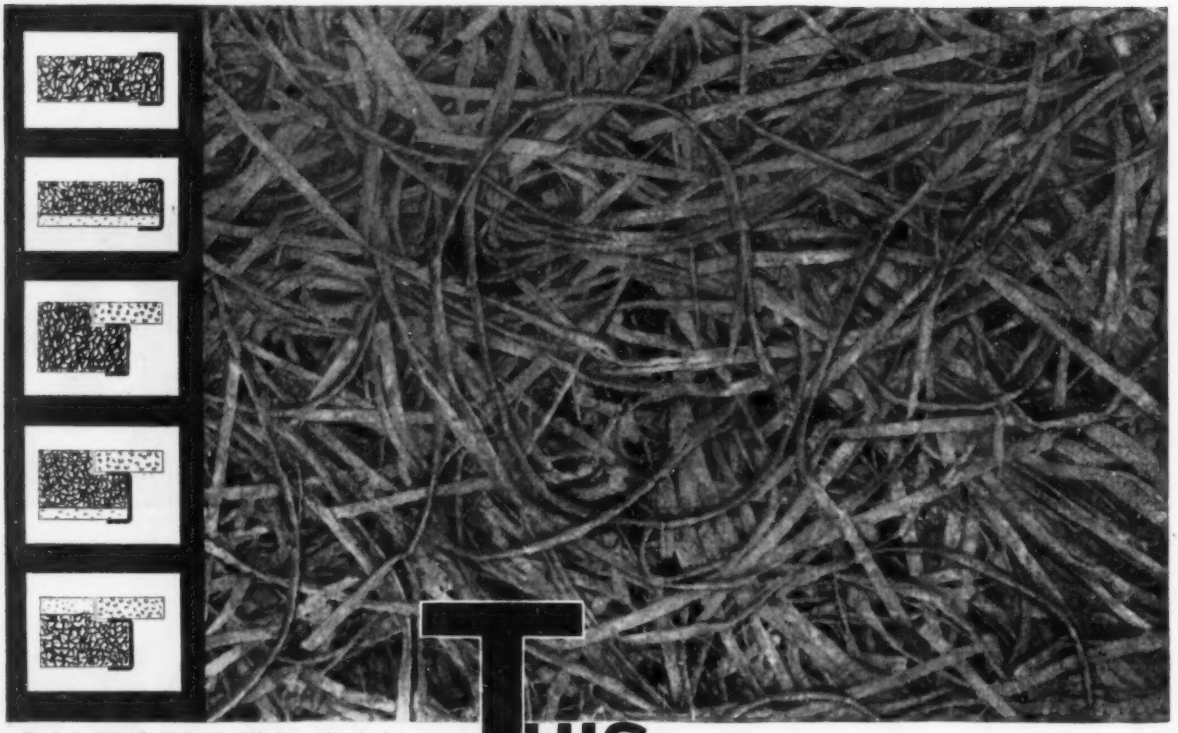

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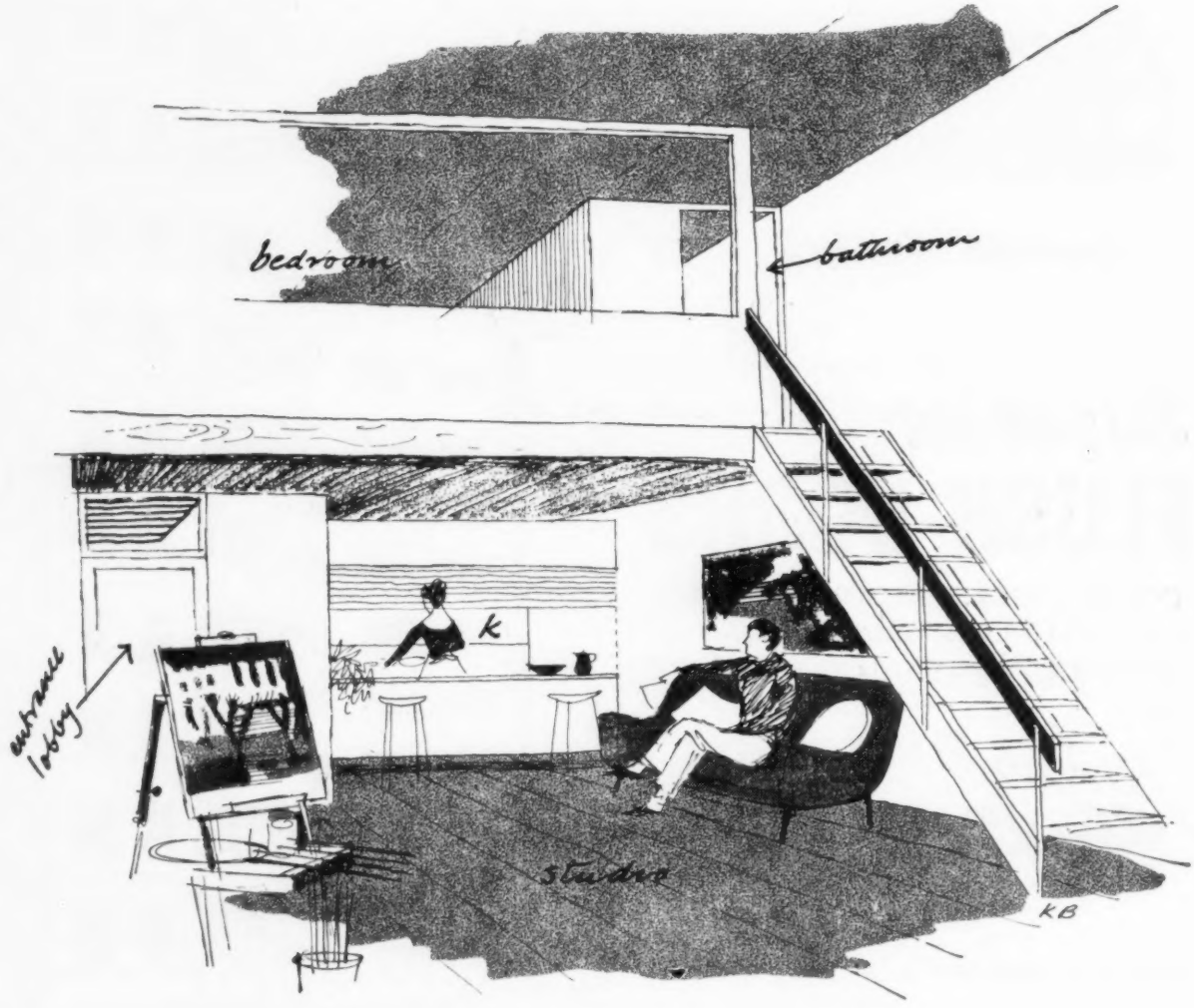
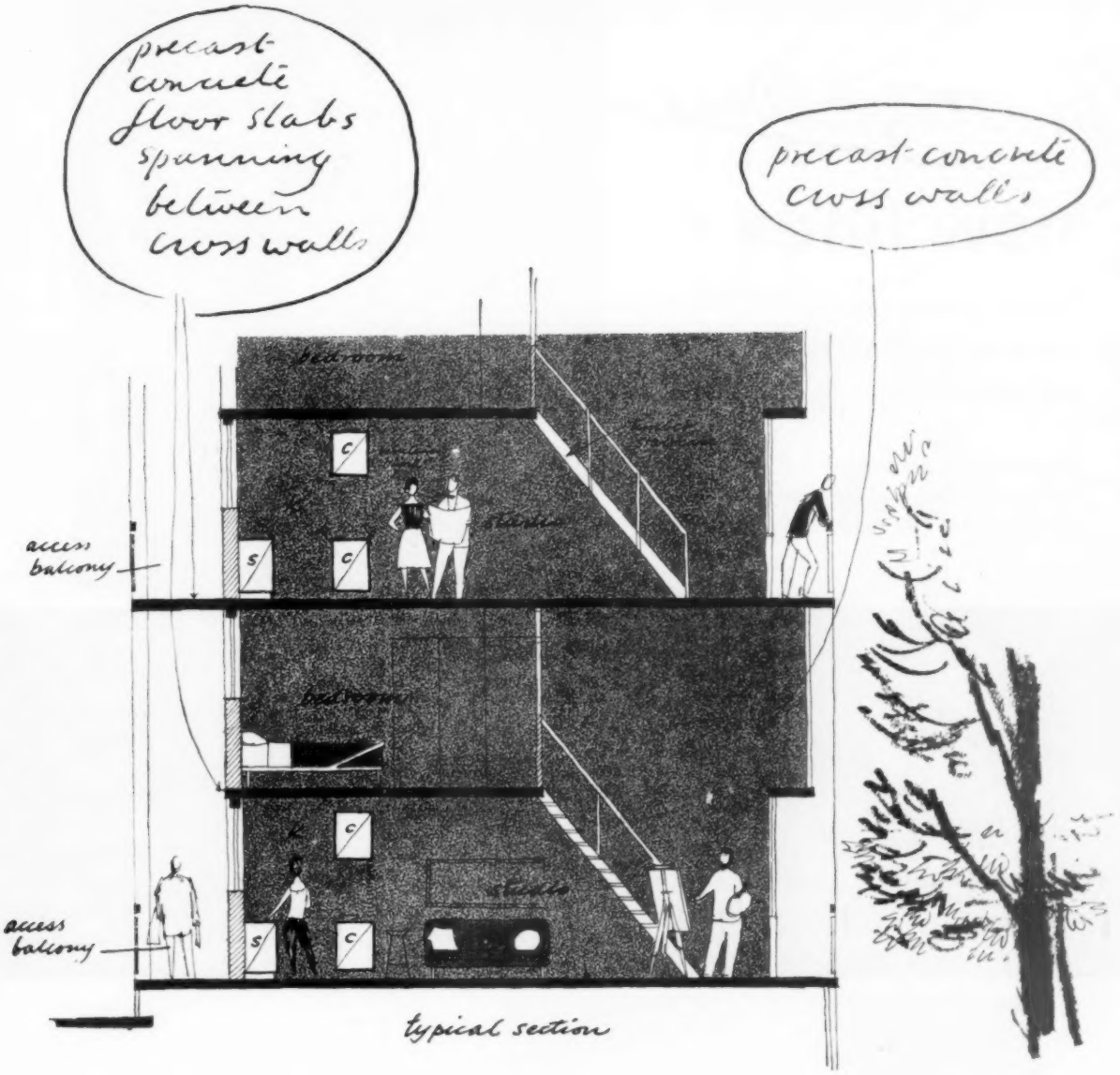
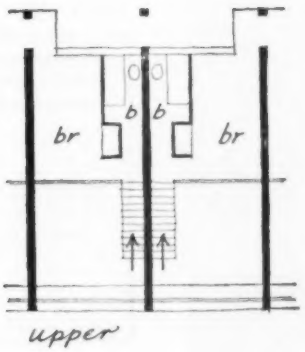
construction:	successful application of precast concrete frame construction to unorthodox plan. Cross wall construction in precast concrete with r.c. floor slabs spanning between walls. Balcony and other exposed features precast and fairfaced. Main staircases leading to flats precast in flights.
erection:	fast and economic. Structure erected with tower crane by Concrete Ltd. in 6½ weeks.
General Contractor:	F. G. Minter Ltd
Consulting Engineers for foundation:	Bylander, Waddell & Partners




precast-concrete floor slabs spanning between cross walls
precast-concrete cross walls
bedroom
access balcony
bedroom
access balcony
typical section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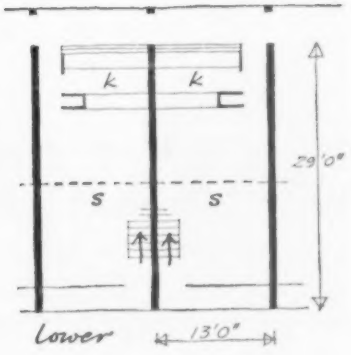
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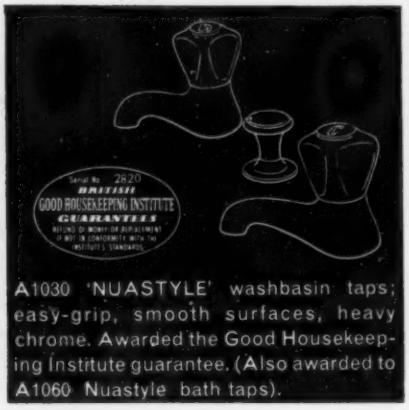

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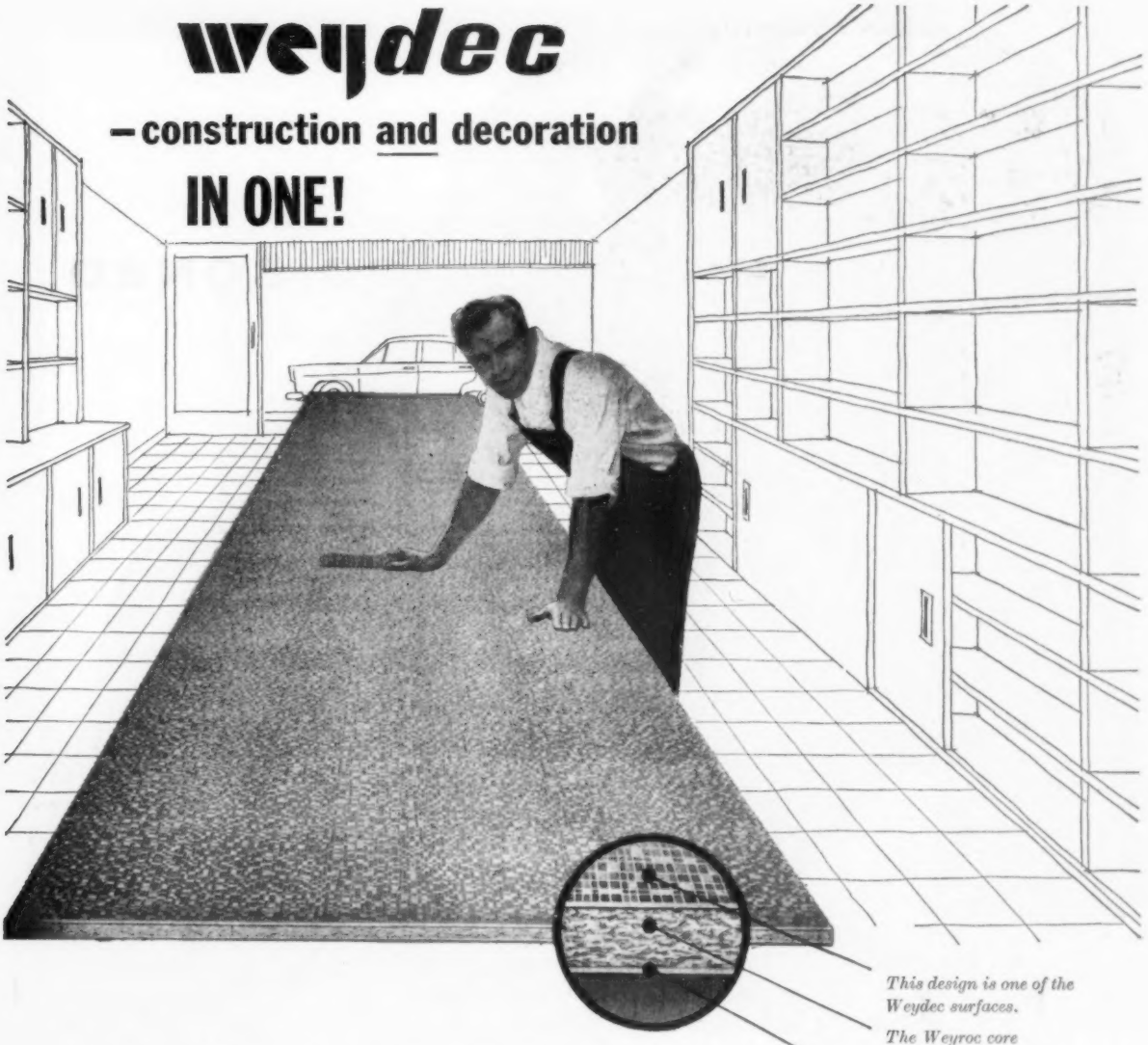

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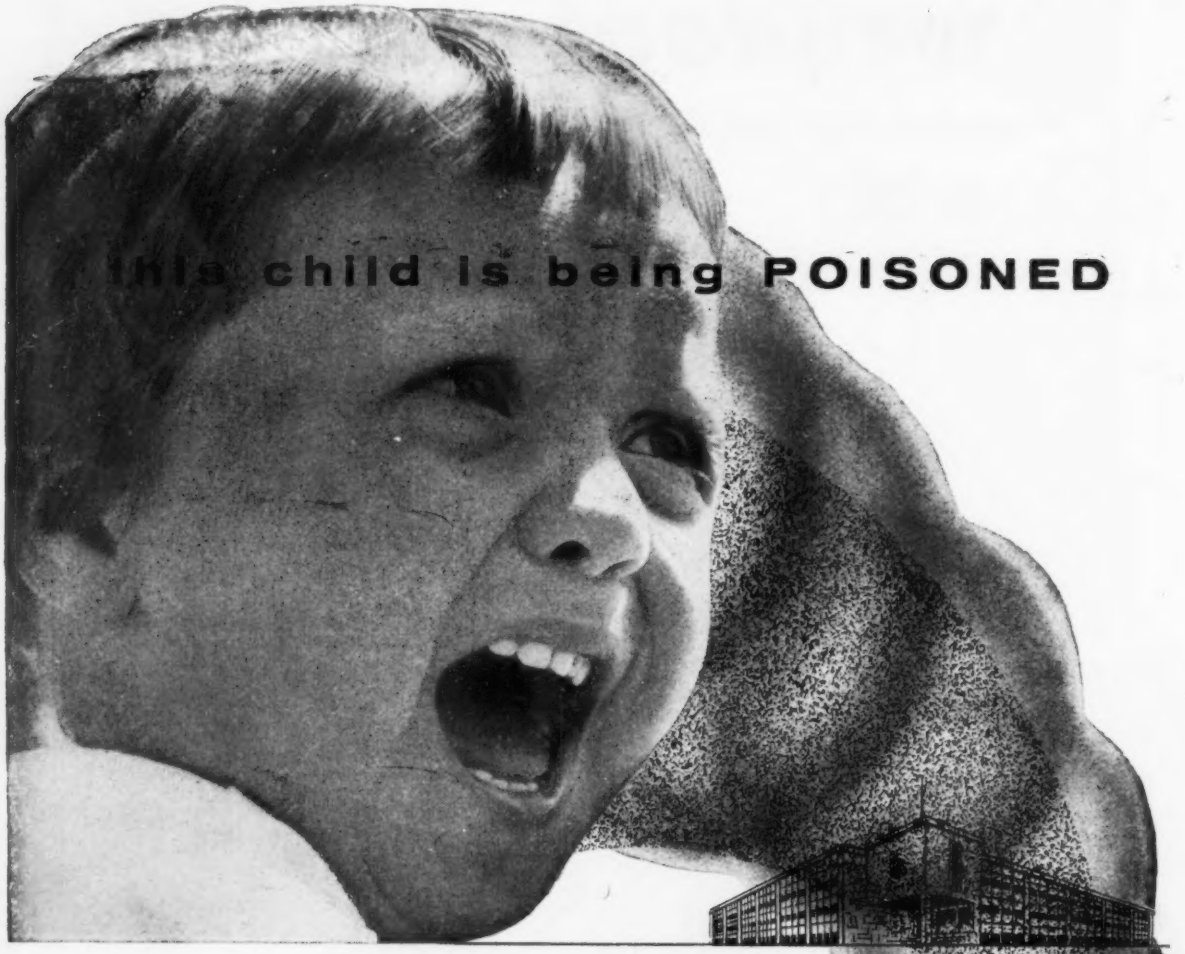

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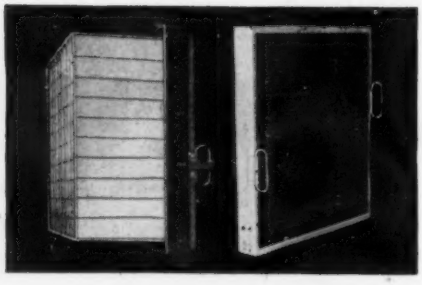

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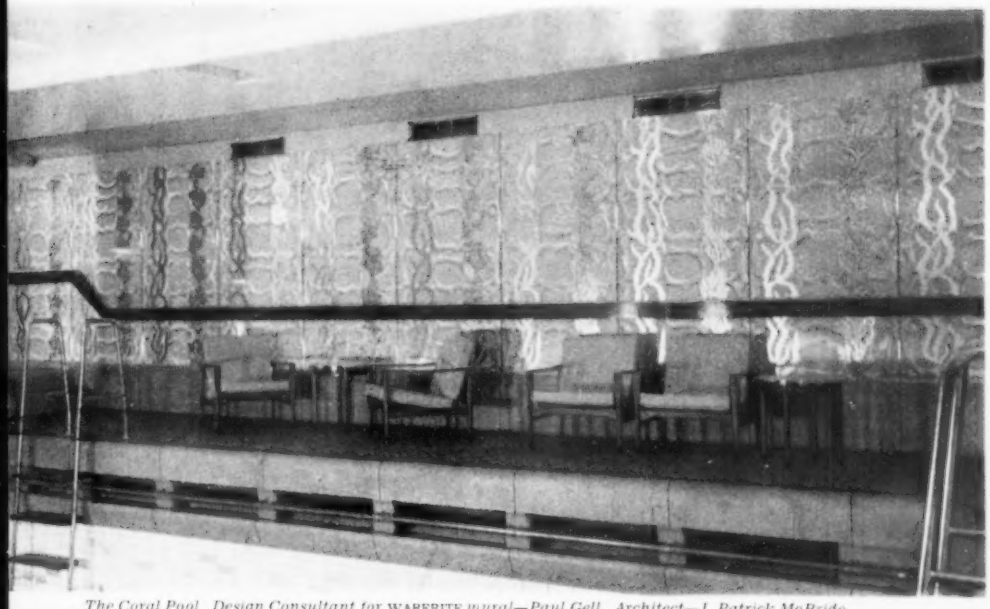

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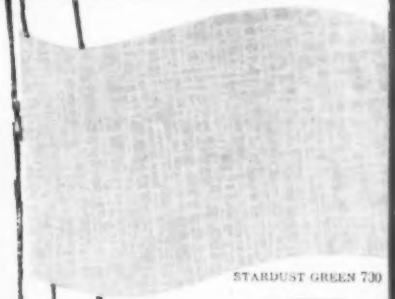
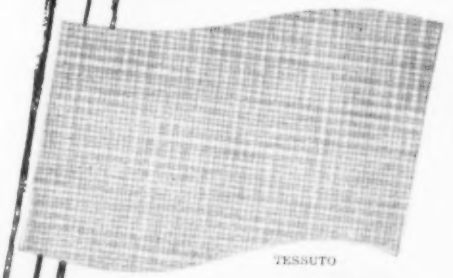


STARDUST GREEN 730

GOLDUST ON YELLOW

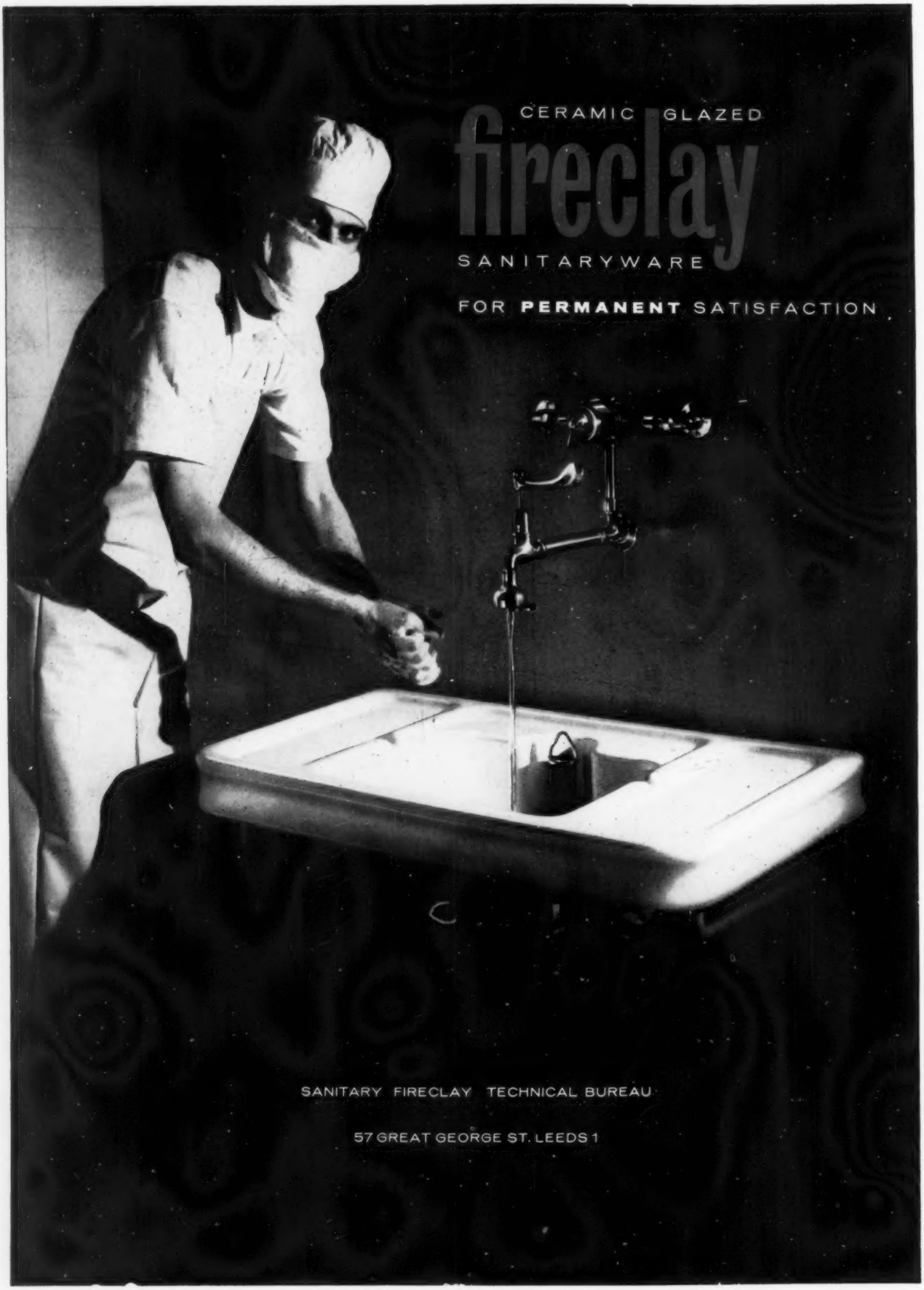
STARDUST RED



TESSUTO

DIABOLO

These flags represent some of the many standard WARERITE *patterns available.*


CERAMIC GLAZED
fireclay
SANITARYWARE
FOR PERMANENT SATISFACTION
SANITARY FIRECLAY TECHNICAL BUREAU
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CERAMIC GLAZED FIRECLAY IN THE MODERN HOSPITAL

'Wash me in steep-down gulfs of liquid fire!'
Othello, v. ii.

By A. F. B. Nall, A.M.I.San.E., A.M.Inst.W.

Fireclay is a deep-mined clay which is subjected to a temperature of 1,200°C. to fuse the porcelain-like glaze to its strong, dense body to produce a homogeneous whole. The finished ware has, in effect, been washed in fire, for it is sterile and aseptic, clean and wholesome. Modern designs avoid germ traps and facilitate maintenance, so that this initial sterility may be preserved through a long and useful life.

Cross-infection—the bane of hospitals today—is alien to fireclay appliances: their gleaming surfaces are readily maintained in spotless condition, easily matching the cleanliness of the operating theatre.

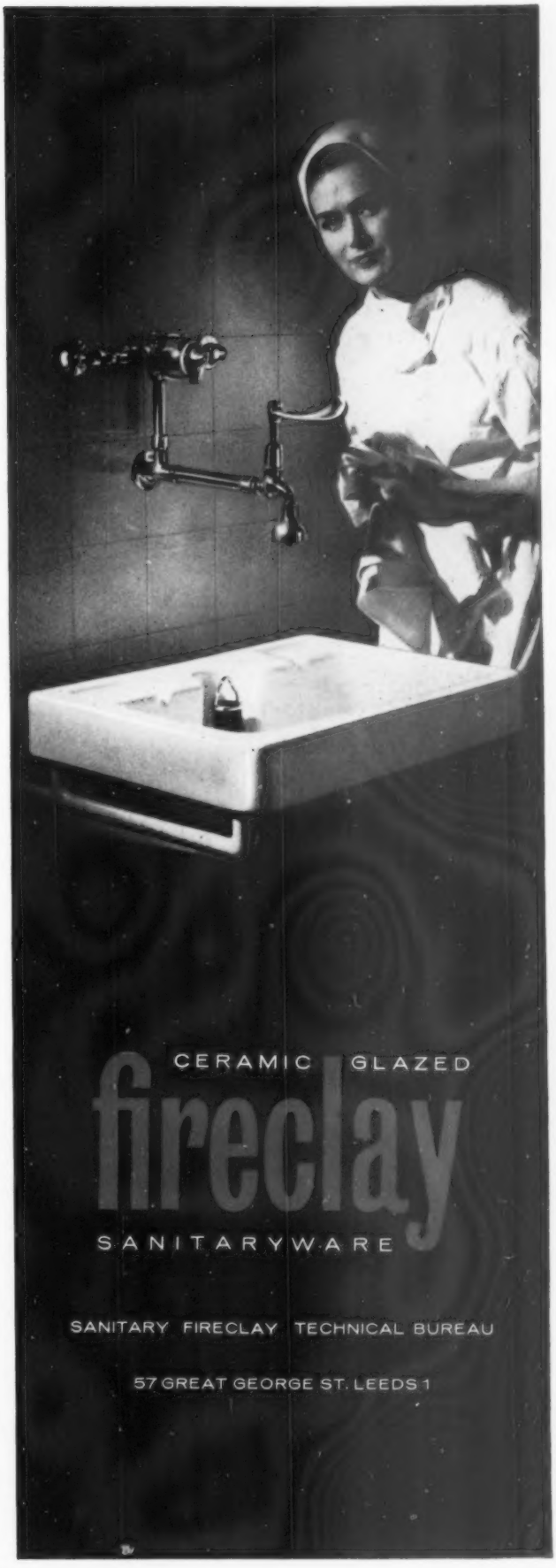
One cannot have a first-class glazed or enamelled surface without a robust base; the immense strength of the fireclay body provides an unequalled foundation for a ceramic glaze: this is of prime importance, because it is on the performance of its glaze that any sanitary ware is judged. Fireclay's resistance to thermal shock and to physical strain contribute to a glaze of unmatched durability and lustre. This basic strength and toughness are illustrated by the fact that it is in fireclay alone that the larger items of ware can be produced without failing in the kiln.

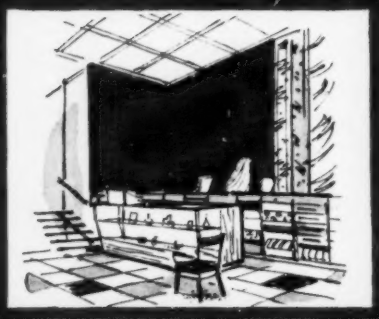
Here then, is a material that meets any demands of cleanliness and durability that it might encounter, that is robust enough to withstand hard and continuous use and that will preserve its pristine lustre for a maximum time with a minimum of attention. Neither acid nor alkali will impair its gleam, no sudden change in temperature will warp its shape or crack its glaze. Functional design has resulted in smooth, untrammelled surfaces and the elimination of sharp, awkward corners and inaccessible ledges—clean lines in every sense.

Sinks, washbasins, w.c. pans, slop-hoppers, urinals, baths, drinking fountains and mortuary tables of ceramic glazed fireclay are as much a part of the modern hospital as aseptic surgery, antibiotics and ultra-high-voltage X-rays.

A fully illustrated booklet, published in the interest of more and better hygiene and sanitation is available on request.

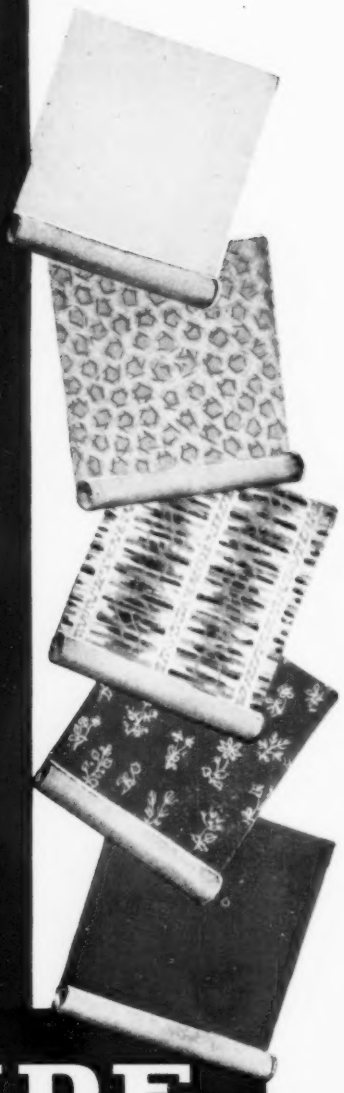
See the exhibits at the Building Centres, London, Manchester, and Bristol.





The quiet revolution

Whilst modern interior design has been making its unparalleled strides of recent years, a minor revolution has been taking place quietly in the background. This is the swing to vinyl as a wall covering. Now, with the introduction of Muralionide, this movement has gained rapidly in momentum. Muralionide is the first range of P.V.C. coated fabrics in the country to include patterns on large modular scales designed specifically for use as a wallcovering. It is most durable. Kicks, scratches and general wear and tear make little impression on its tough P.V.C. surface. Fabric-backed, Muralionide is chip-proof, peel-proof and washable. And the colours, fused in under high temperature, are resistant to fading. Yet practical as it is, Muralionide, with its matt finish and thick embossed texture, has the look and feel of luxury.



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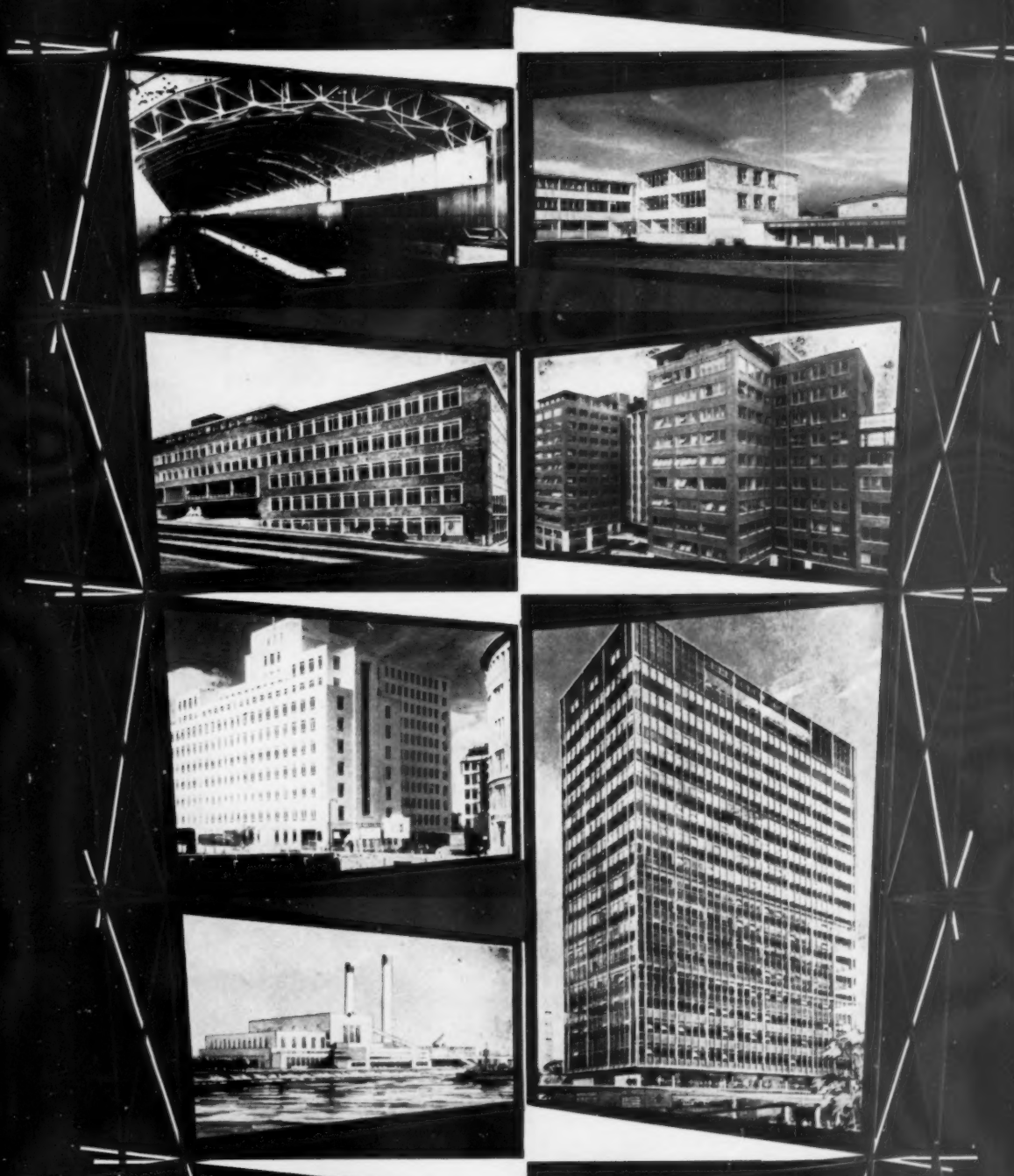

- National Ships, Hydrodynamics Laboratory, Feltham.
  Architects: Ministry of Works Architects Dept.
  Contractors: Sir Robert McAlpine & Sons Ltd.
- Taylor Woodrow Group Overseas Companies & Myton Ltd., Western Avenue.
  Architects: T.P. Bennett & Son, F/F.R.I.B.A.
  Contractors: Taylor Woodrow Construction Ltd.
- Garrard House, Gresham Street, E.C.2.
  Architect: Major A. S. Ash, F.R.I.B.A.
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TOP TO BOTTOM

- Nightingale County Secondary School, Wanstead.
  Architects: Tooley & Foster, F/A.R.I.B.A. in collaboration with H. Connolly, C.B.E., F.R.I.B.A., County Architect.
  Contractors: J. & J. Dean Ltd.
- Knightsbridge Development for Malkay Investments Ltd.
  Architects: Guy Morgan & Partners, F.R.I.B.A.
  Contractors: Humphreys Ltd.
- Moor House, London Wall.
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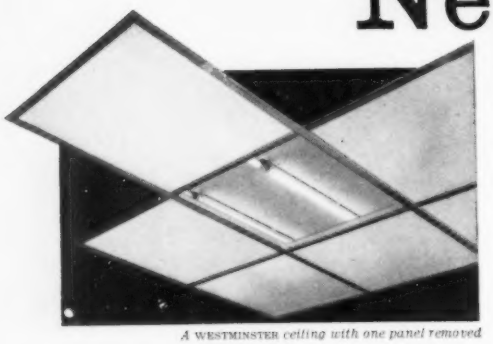

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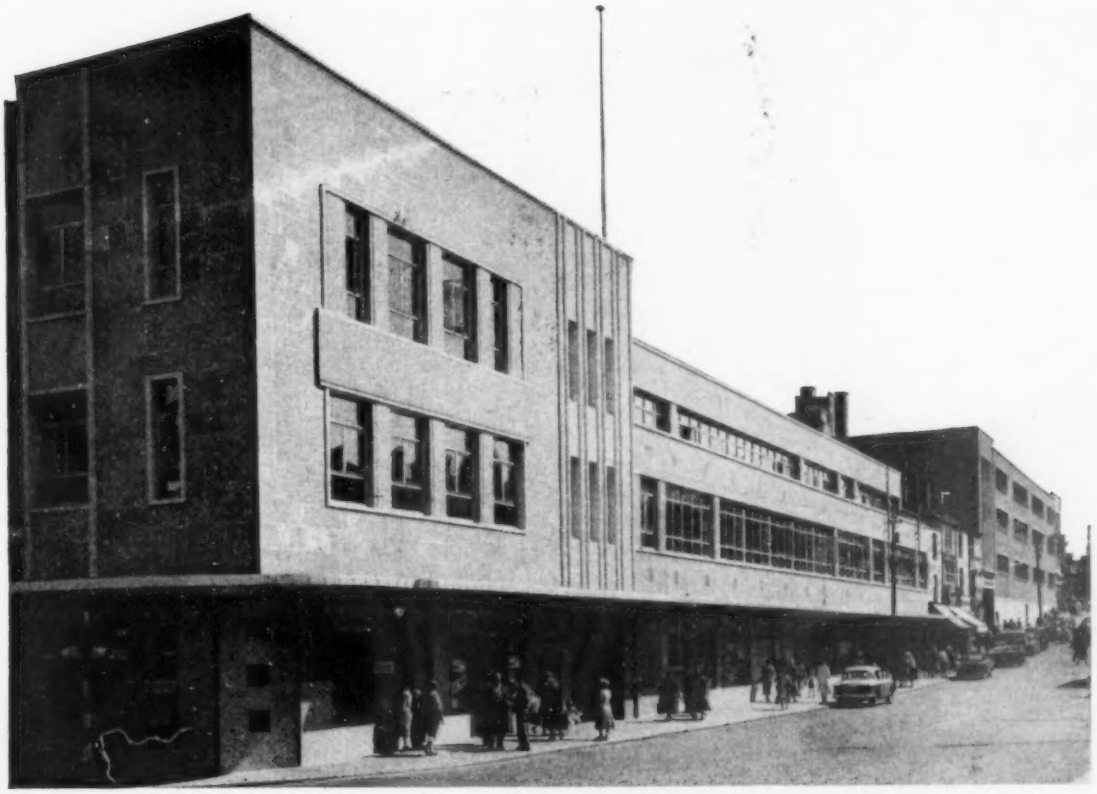

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The transformation which allowed for no substantial changes in the structure of the existing buildings, posed several problems which were successfully overcome with the help of Booth Steelwork.

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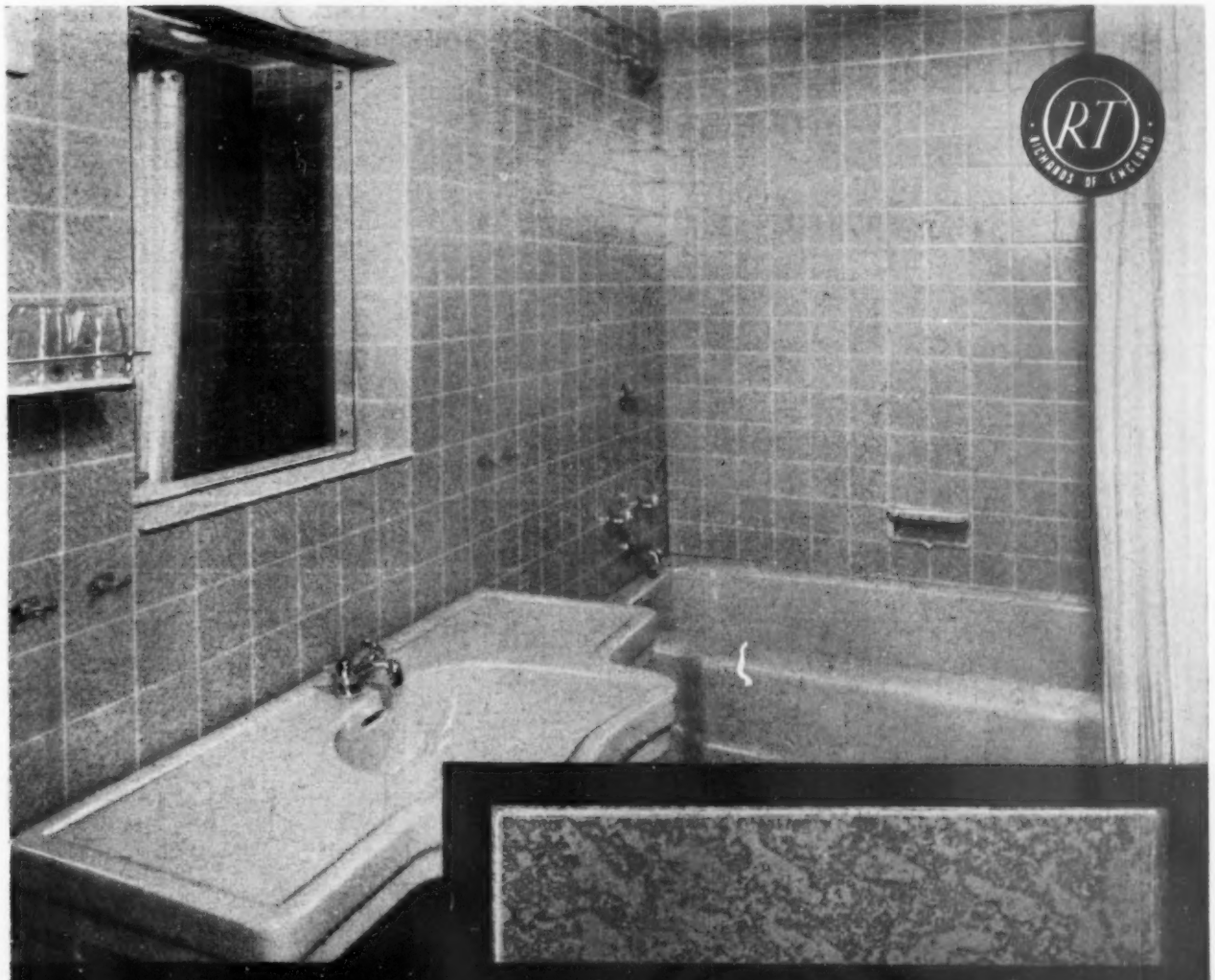

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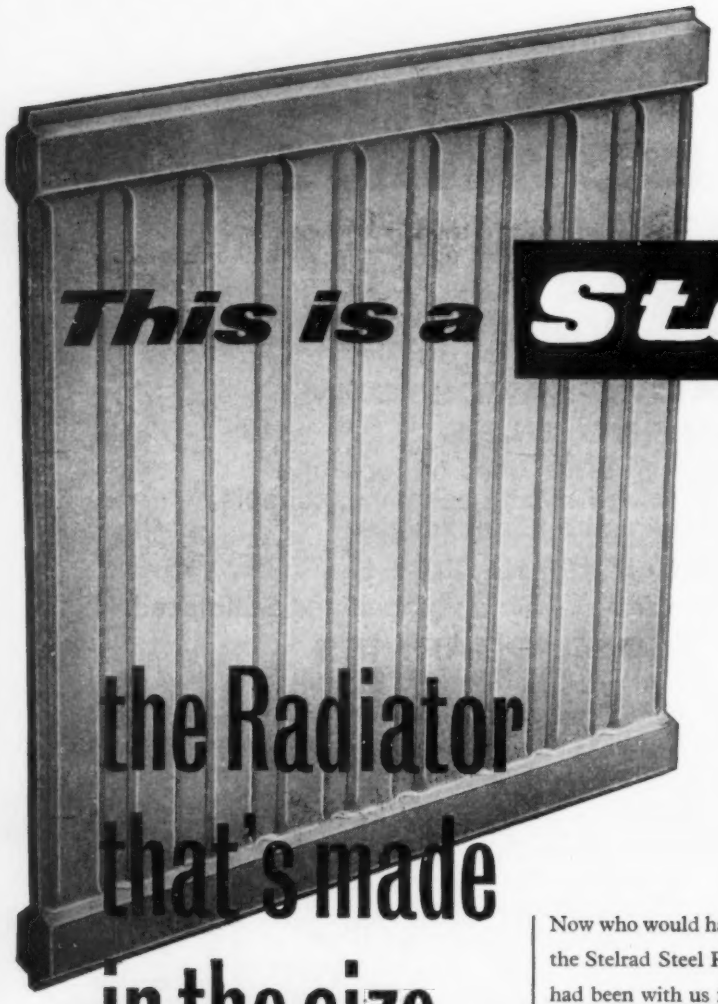

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the Radiator that's made in the size you want, and in the shape your client likes

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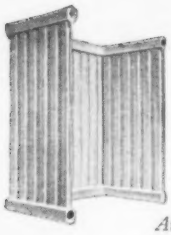
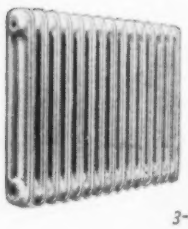
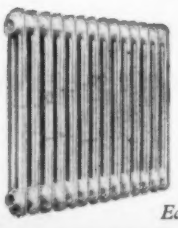


Angle-Wall



3-Column

Now who would have thought the Stelrad Steel Radiator had been with us for nigh on twenty-five years? Why, you can probably remember people telling about it at the time.



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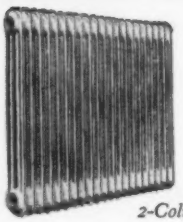
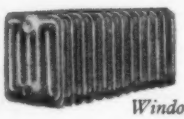
Some were doubters, holding forth about steel and how the only Radiator to use was one that was not only heavy to handle but ungainly to behold. But where is the Stelrad today? In buildings large and small throughout the length and breadth of the land, and in a range so wide there is not a single nook a Stelrad cannot heat.



2-Column



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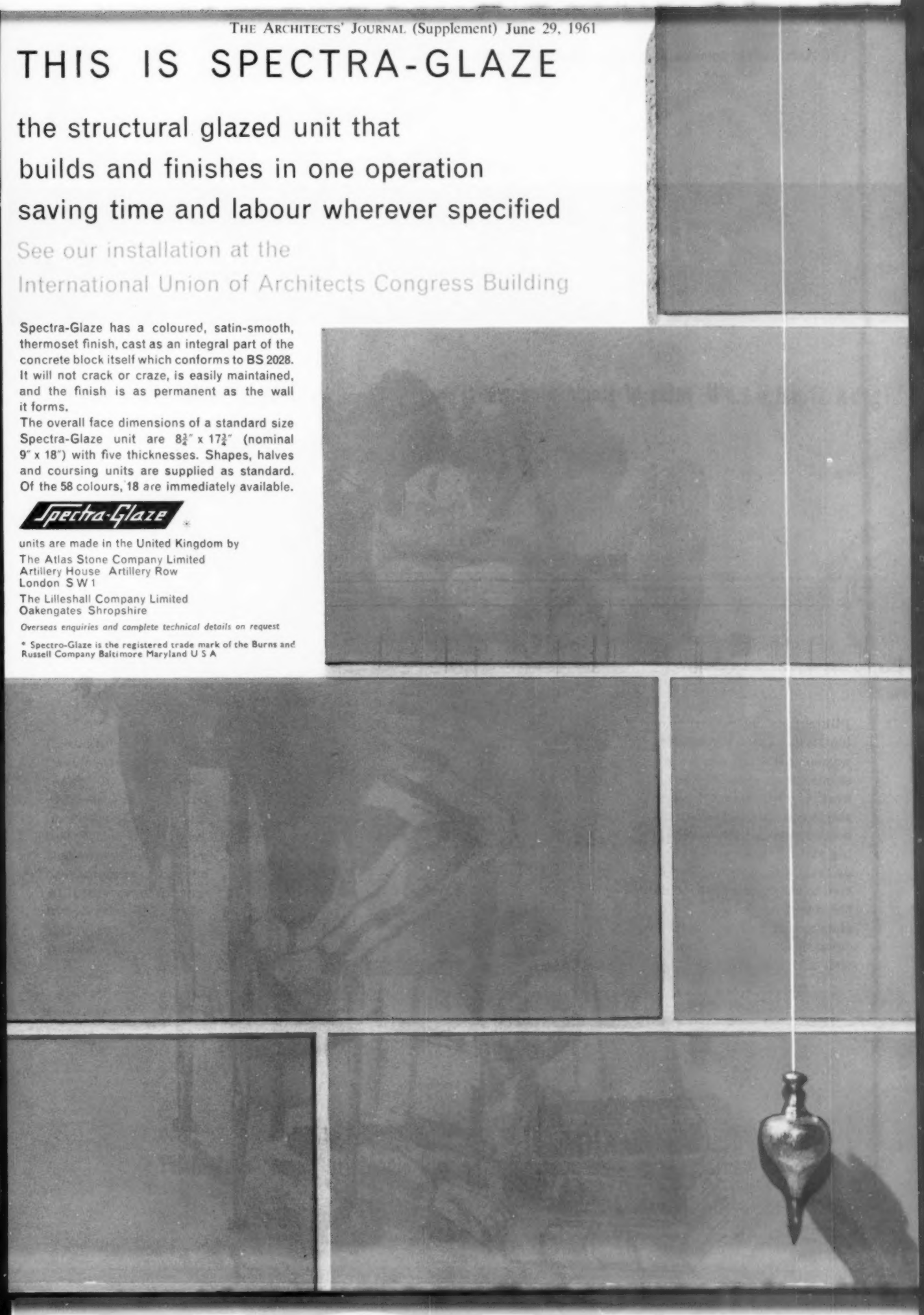

double glazing

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halves heat losses

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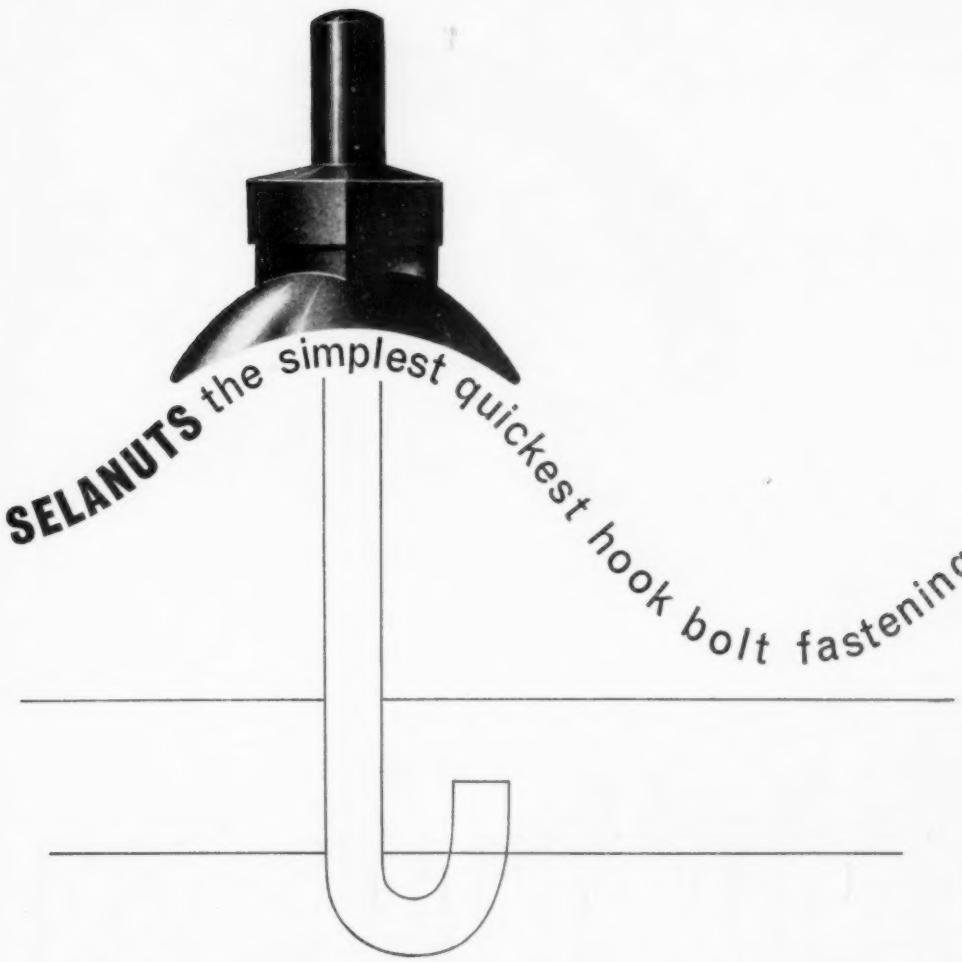

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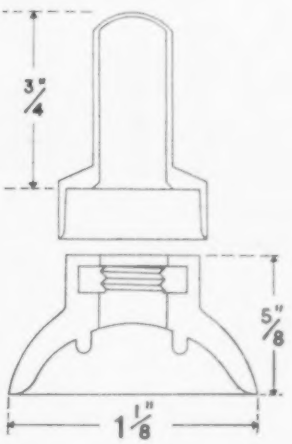

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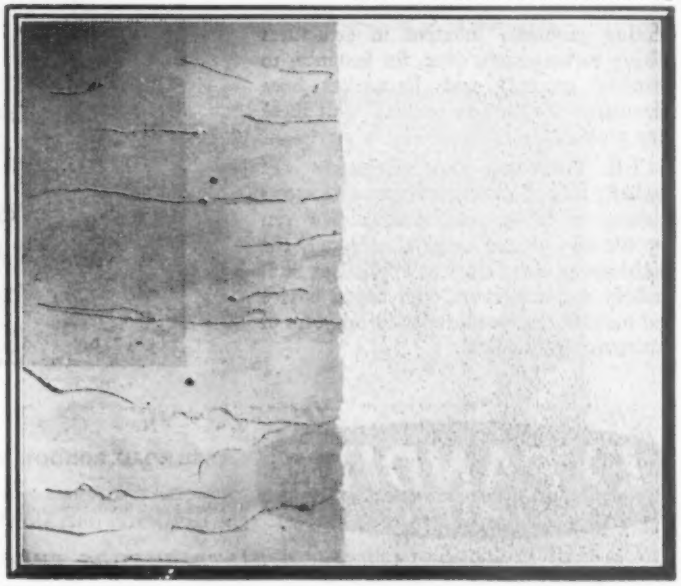

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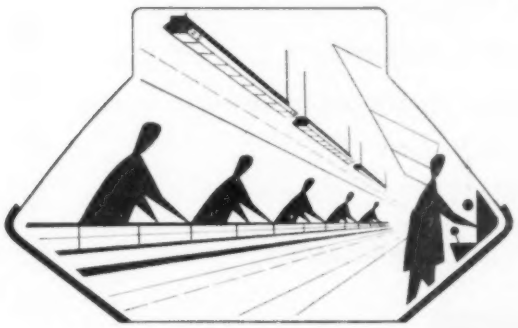

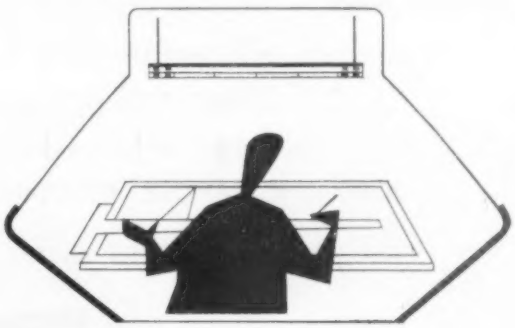

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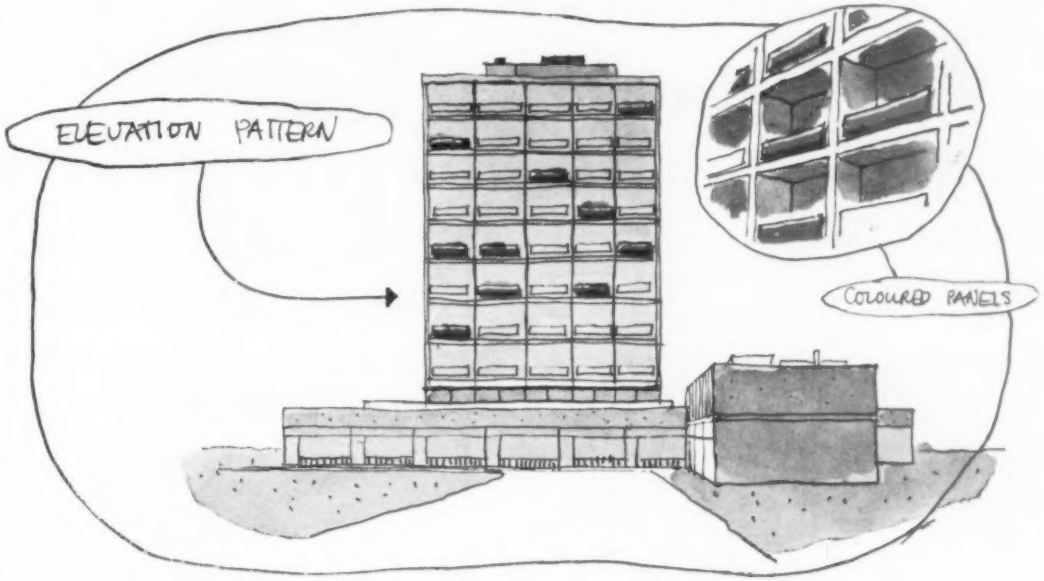

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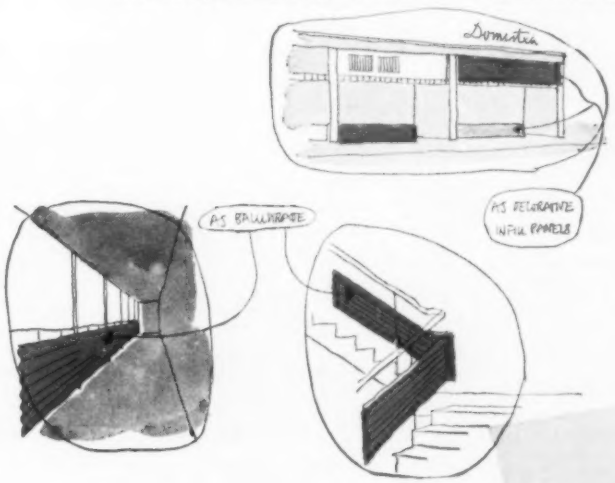

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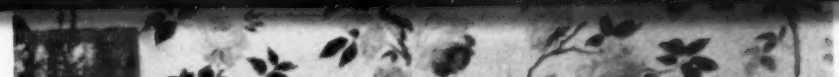

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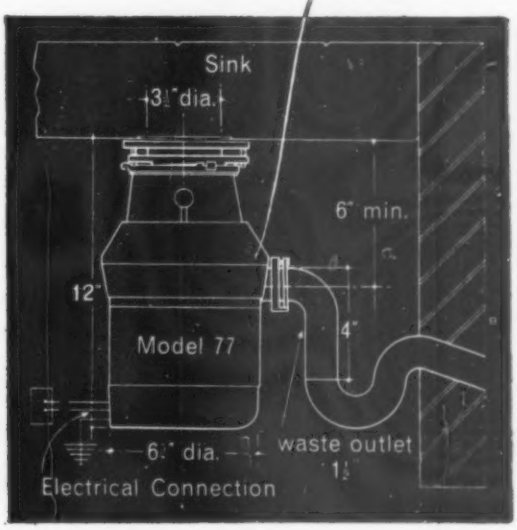

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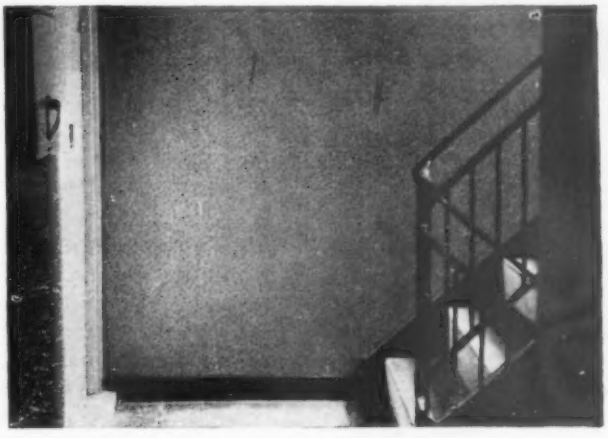

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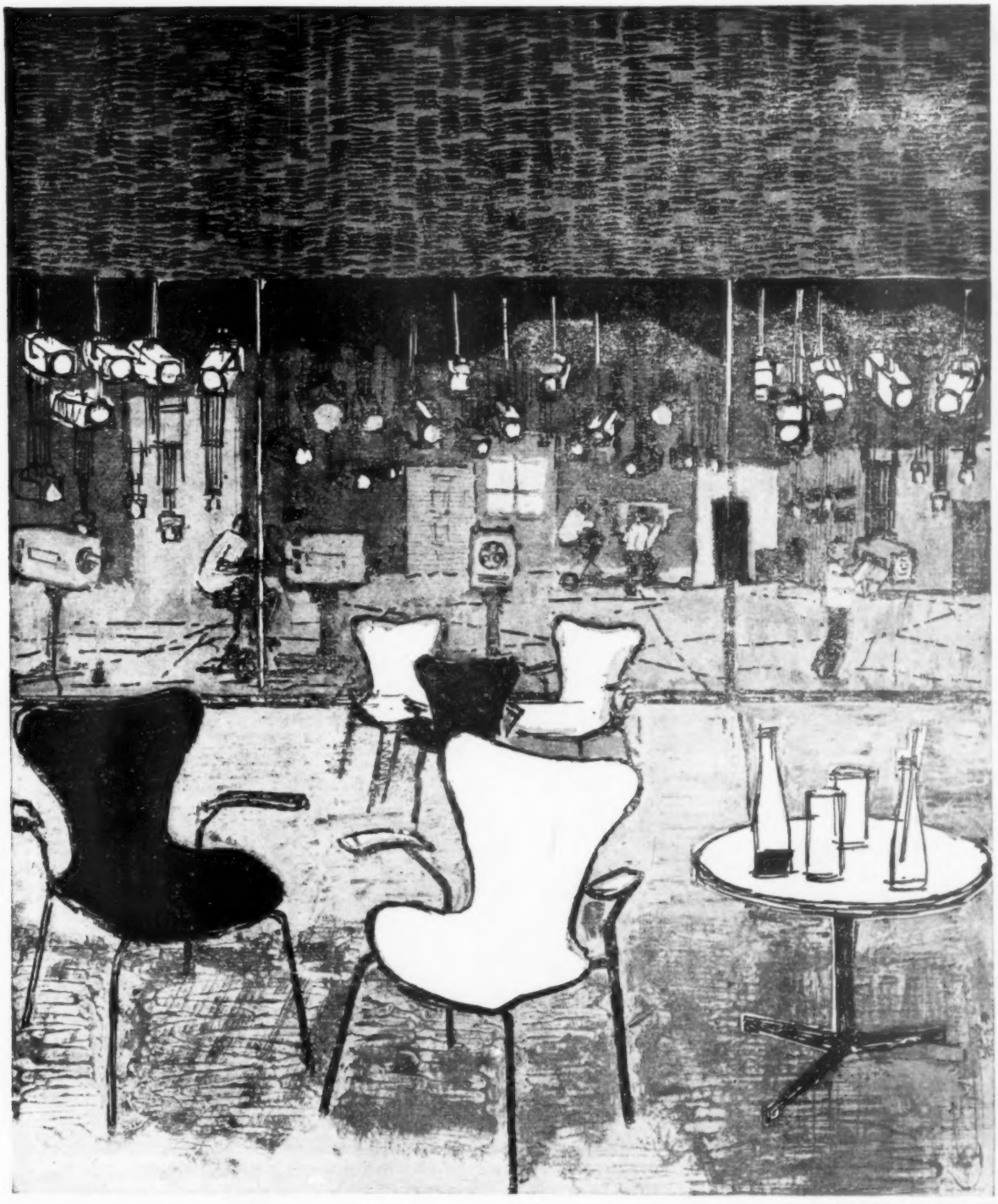

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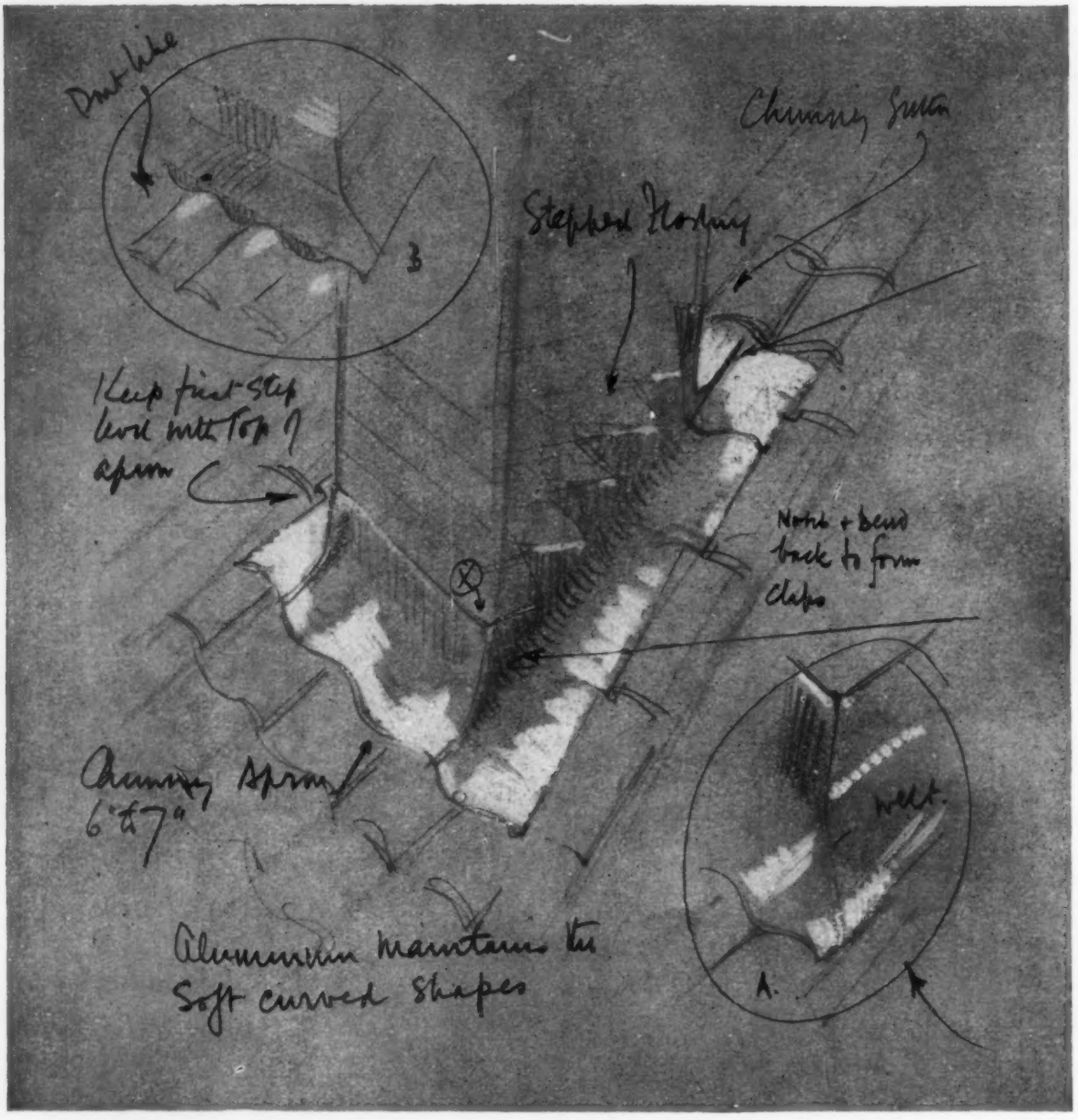

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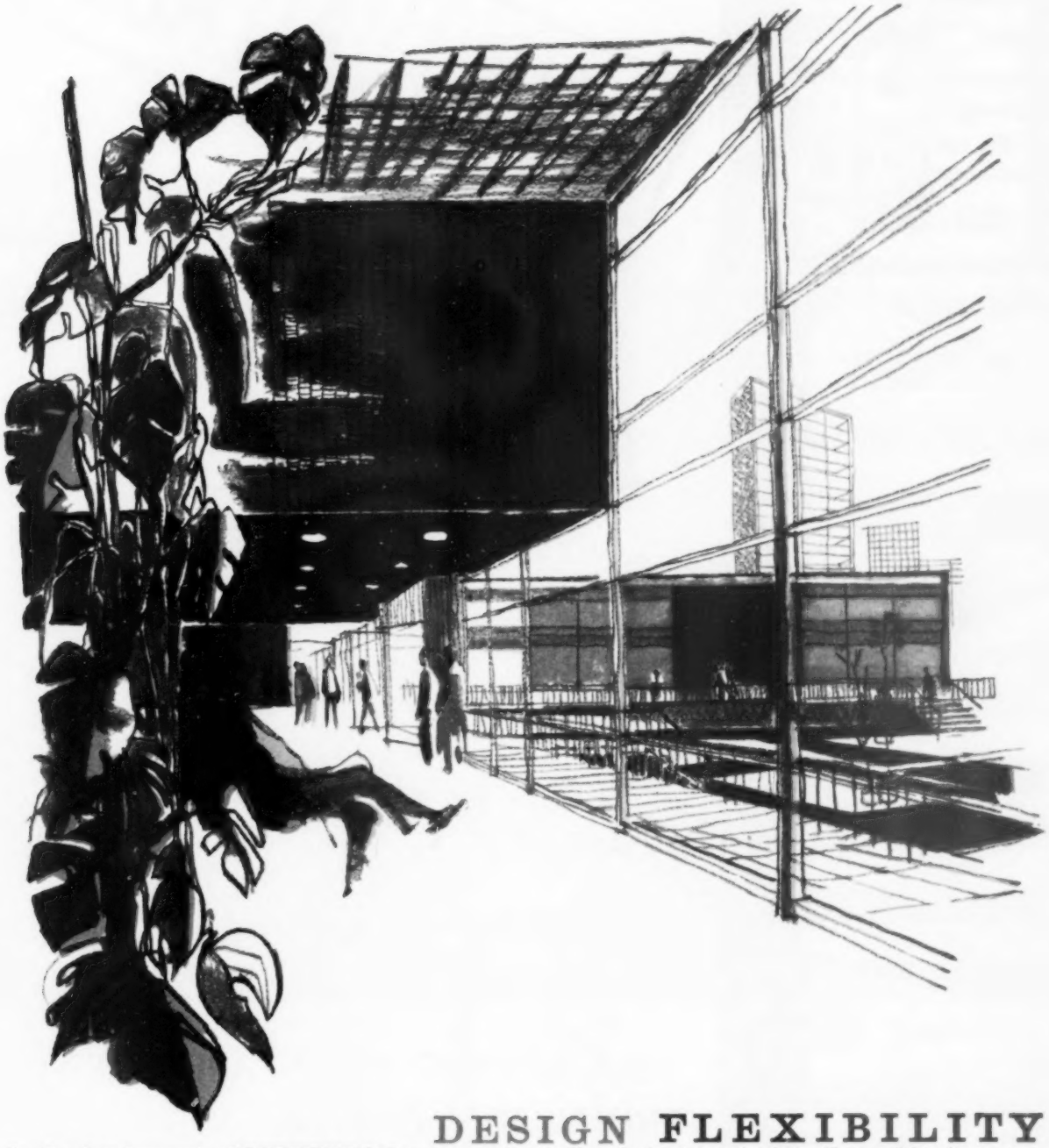

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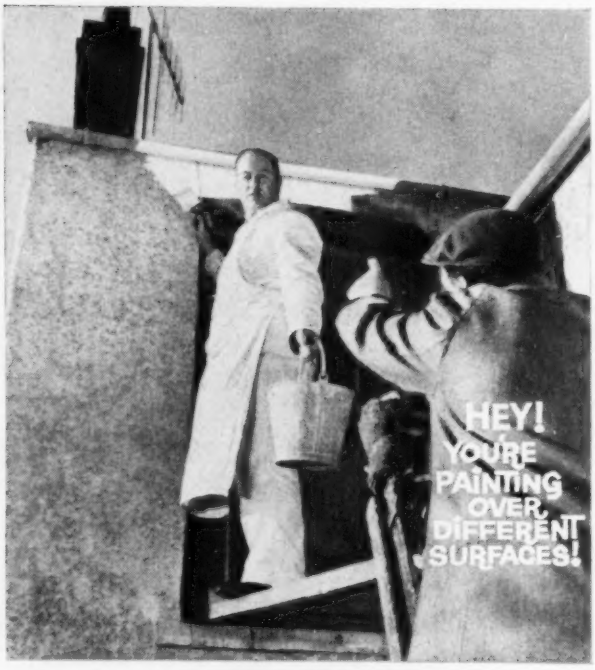

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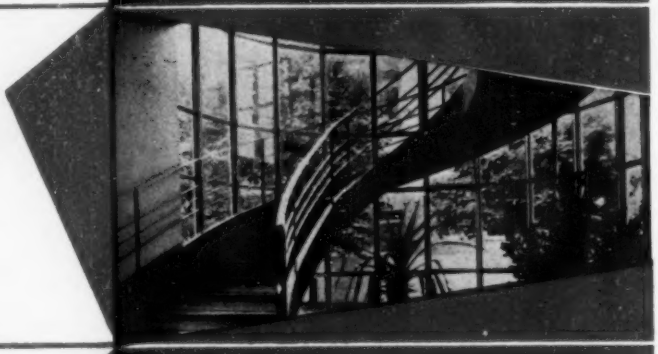

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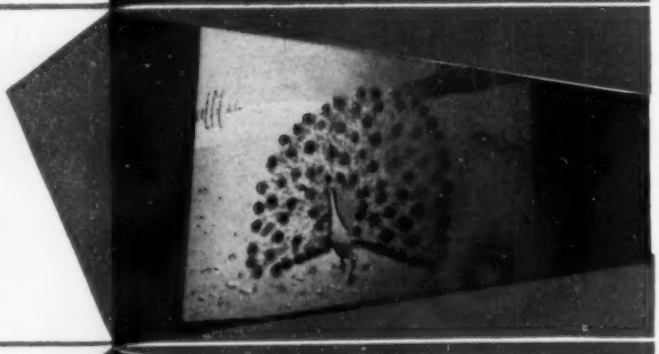

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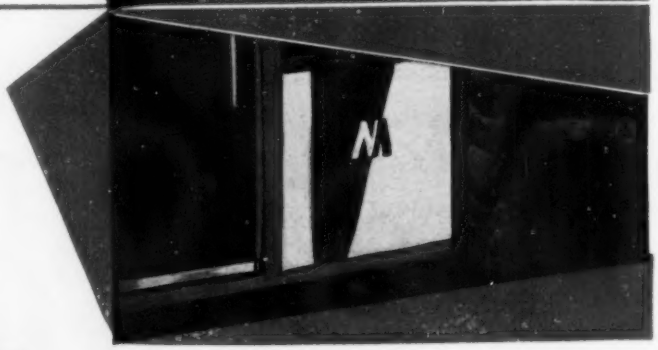

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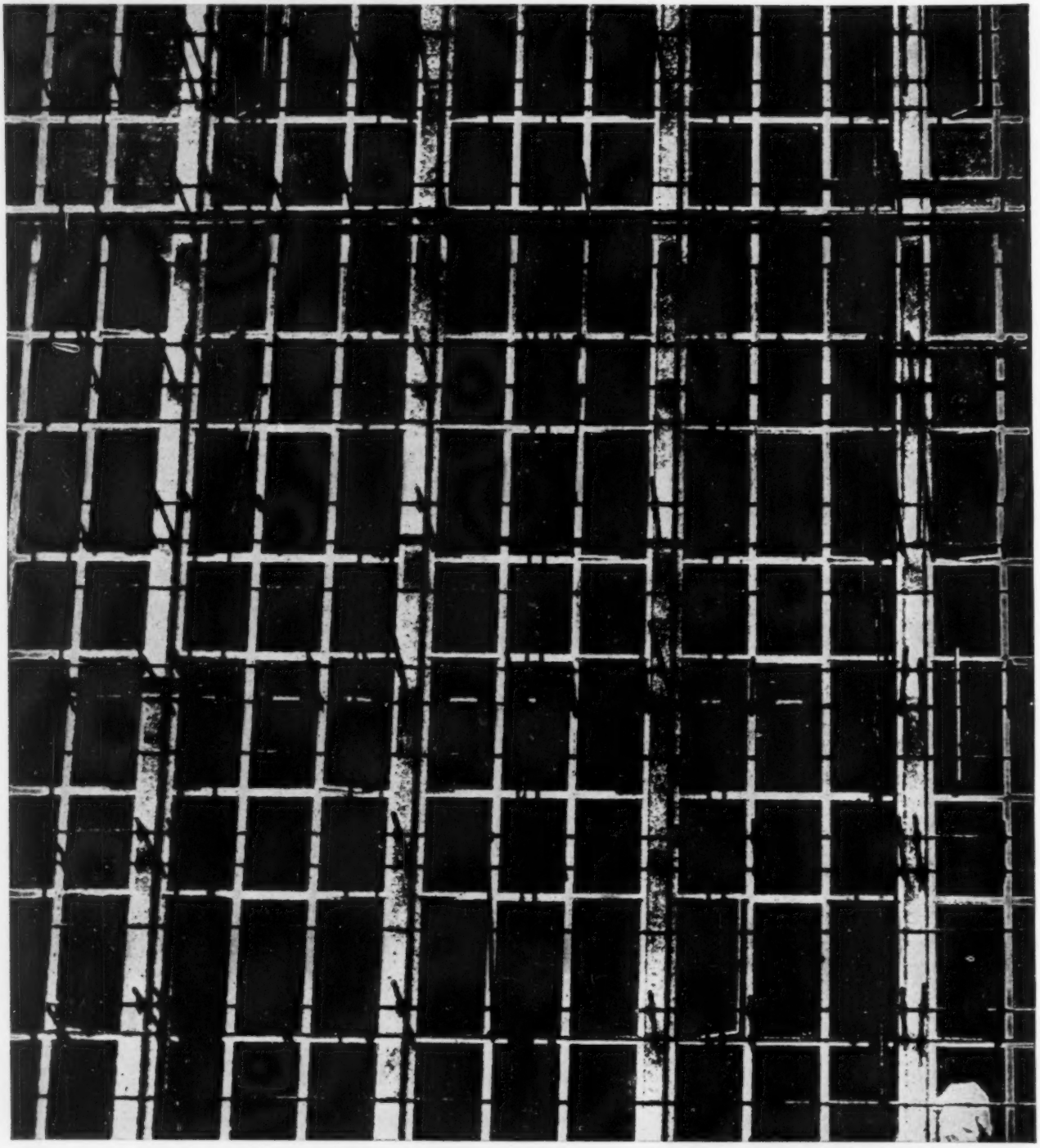

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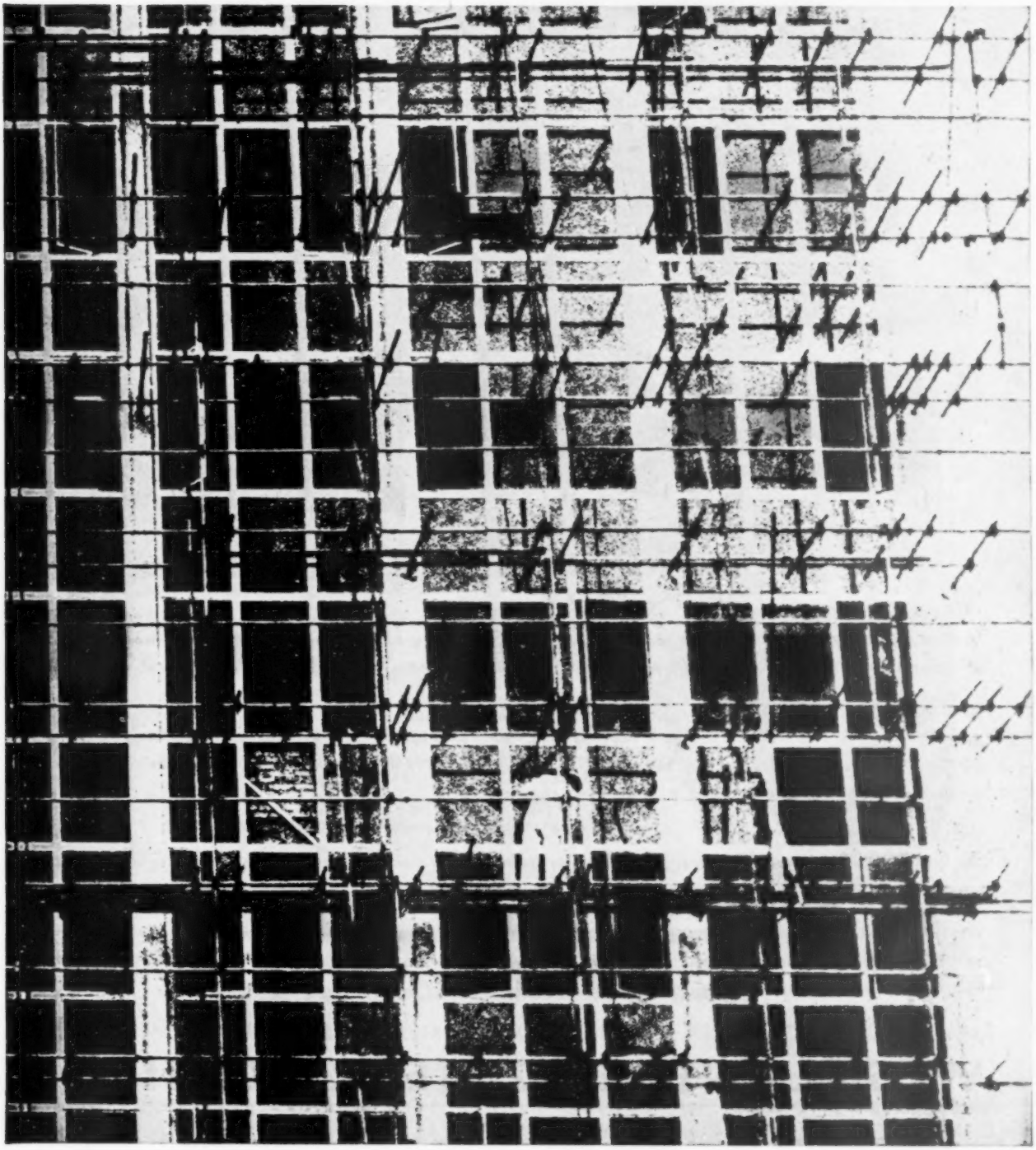

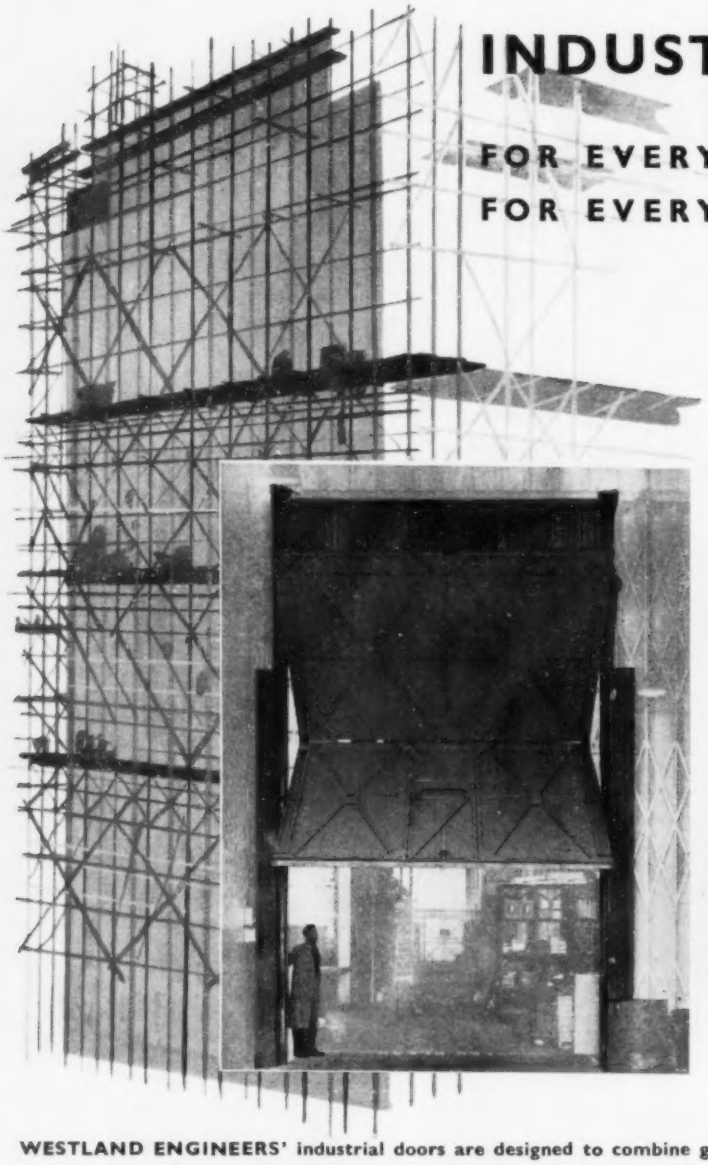

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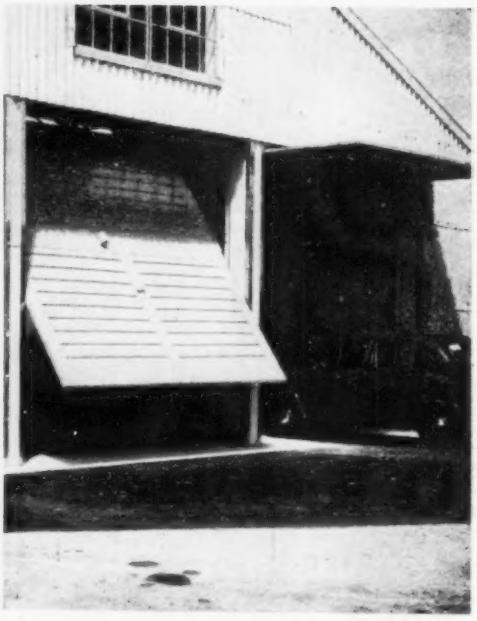

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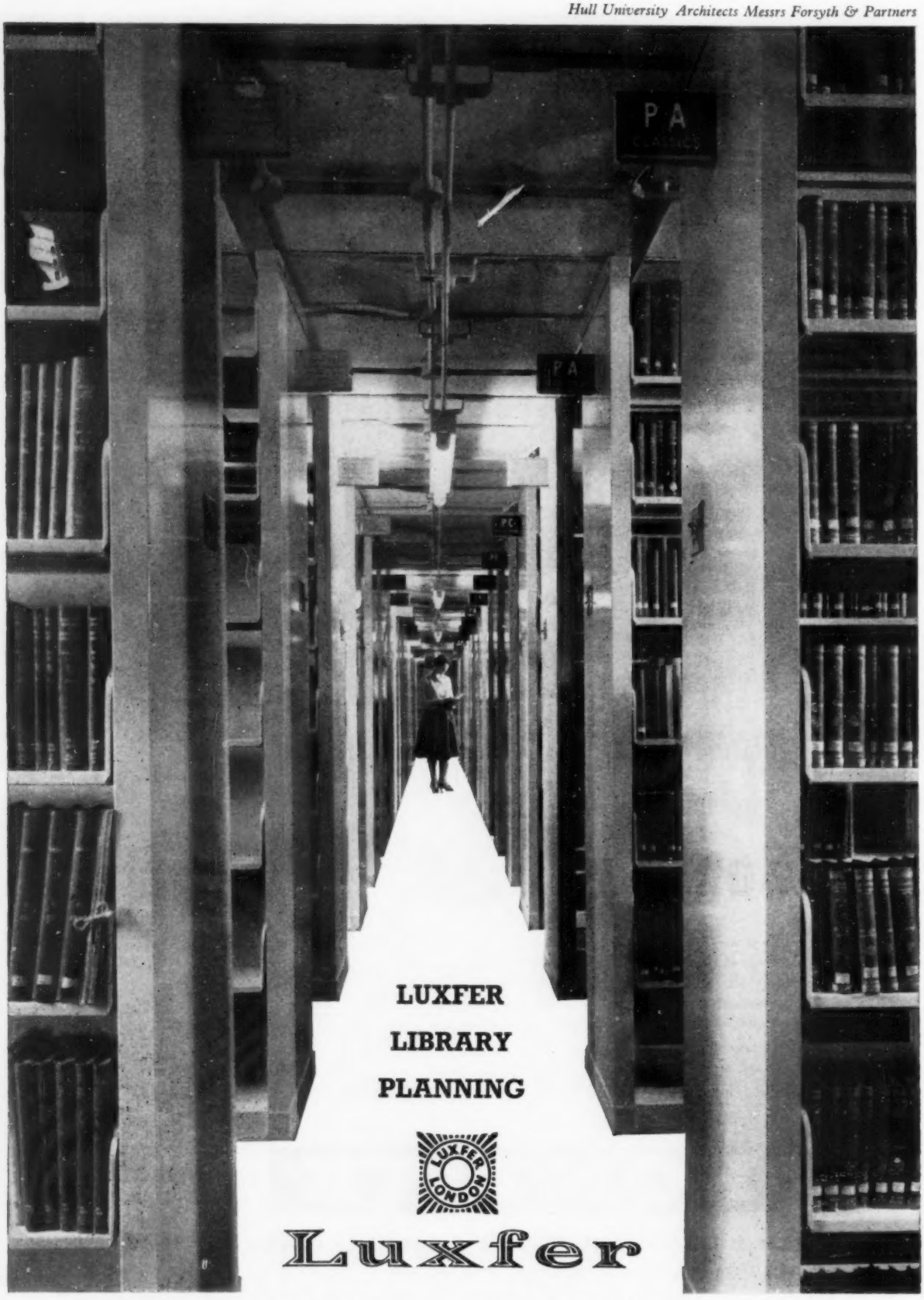

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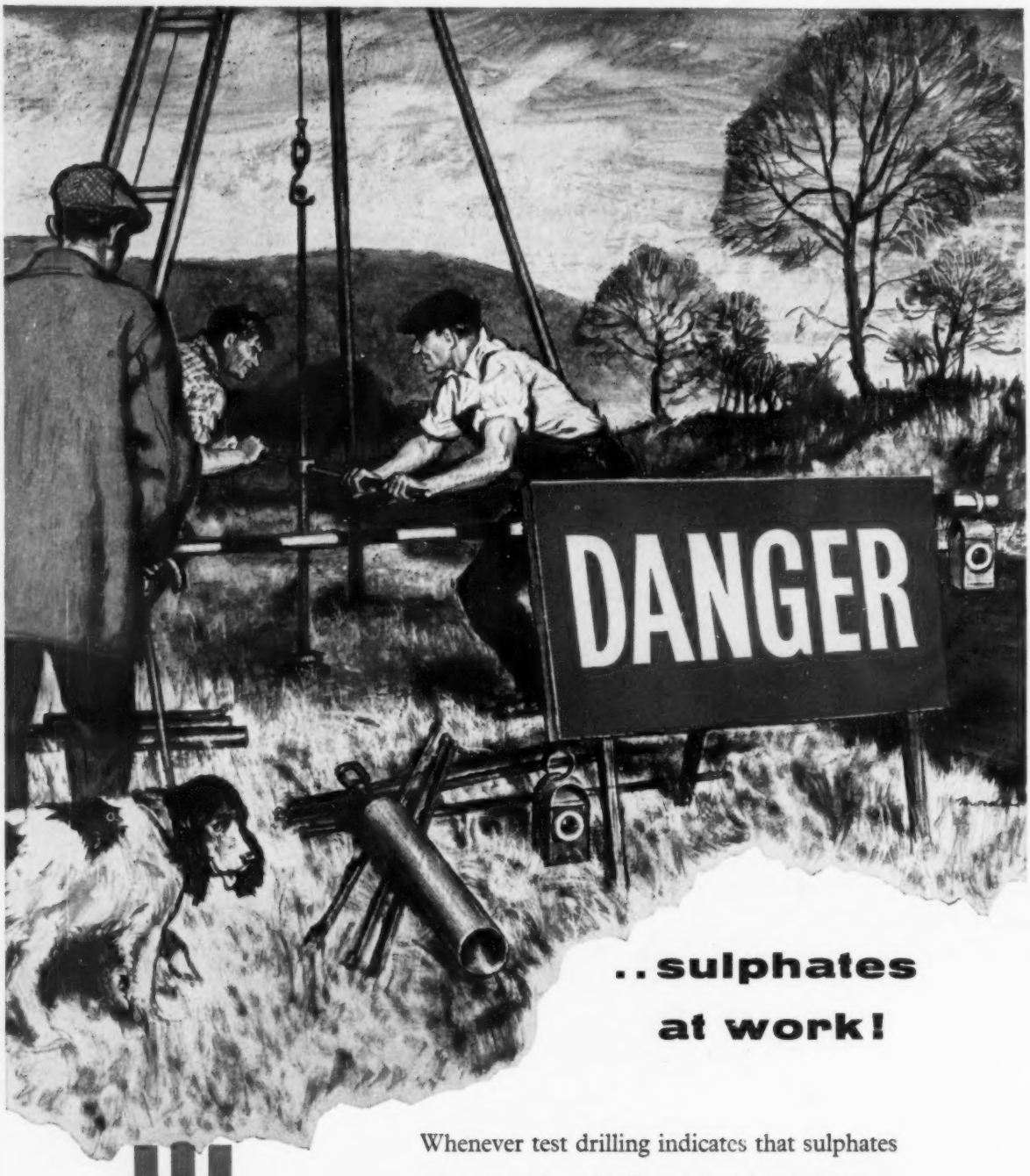

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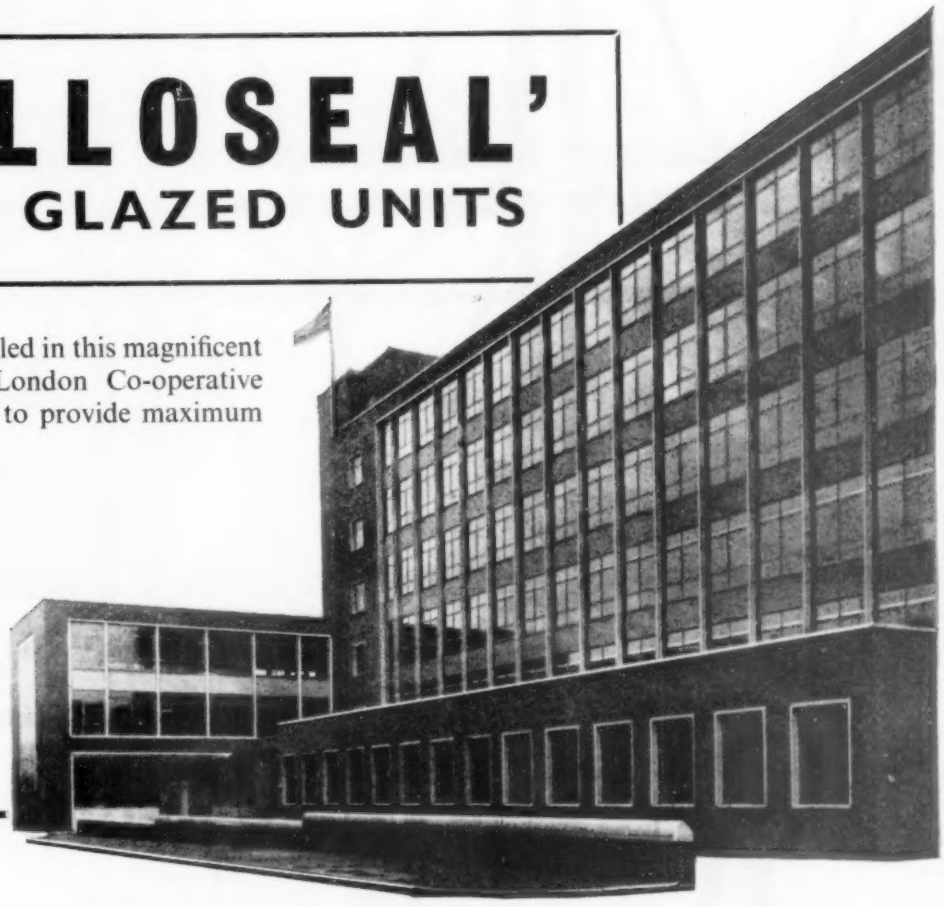

Architects:
C.W.S. W. J. Reed, F.R.I.B.A. (ret'd).
R. C. Steel, A.R.I.B.A. (new chief)
F. P. Harrison, L.R.I.B.A. (Sen. Architect in charge)
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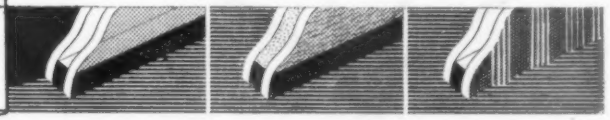

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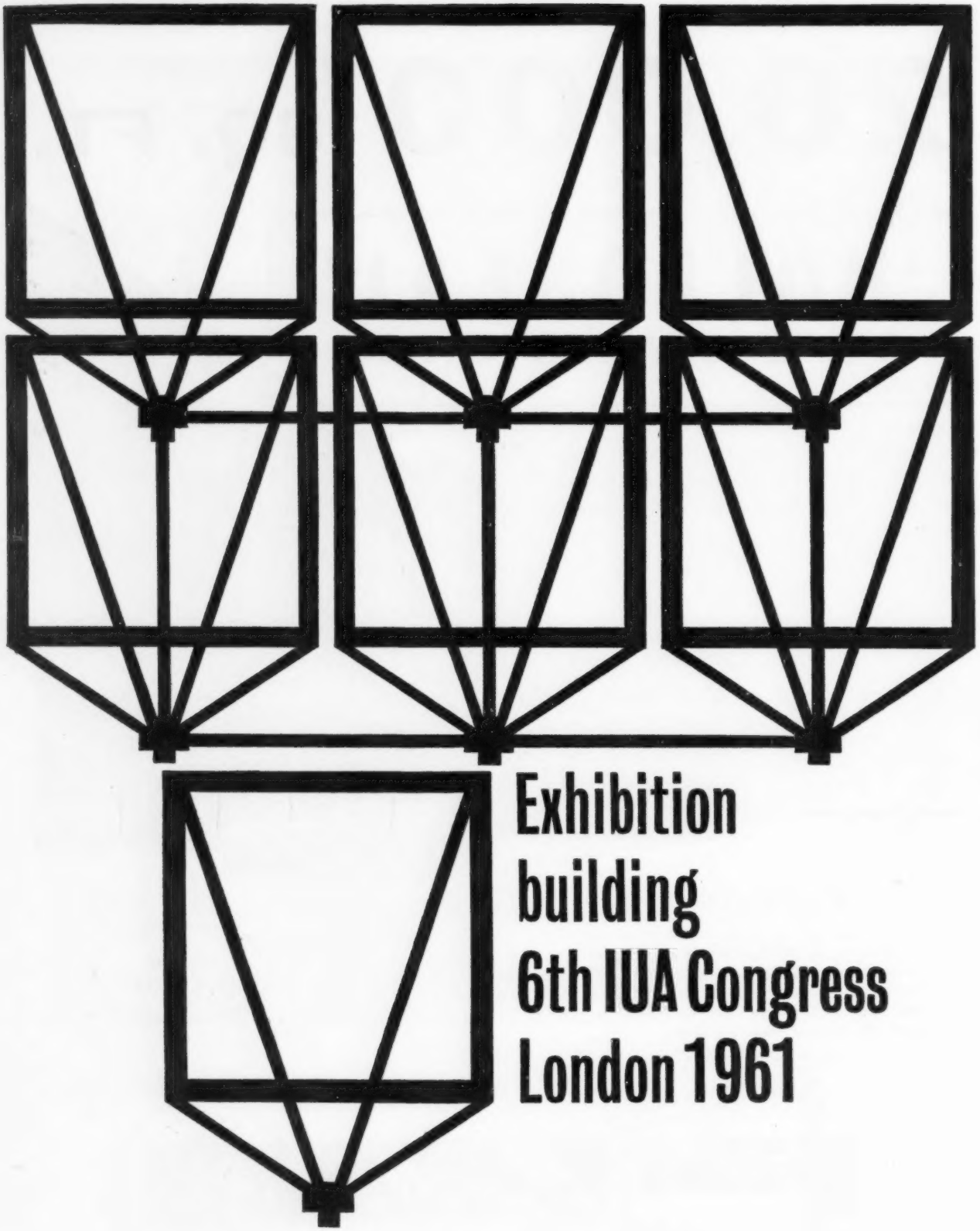
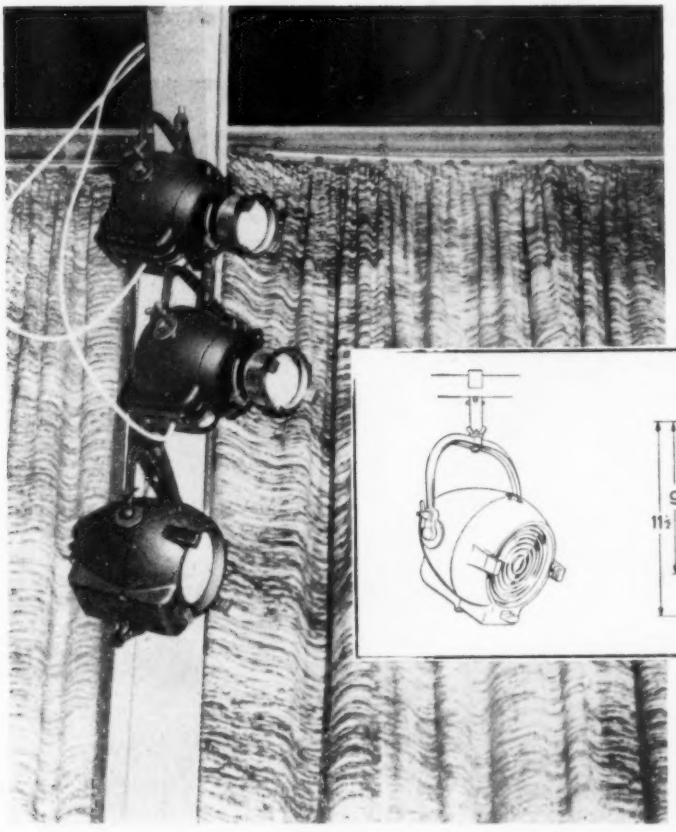
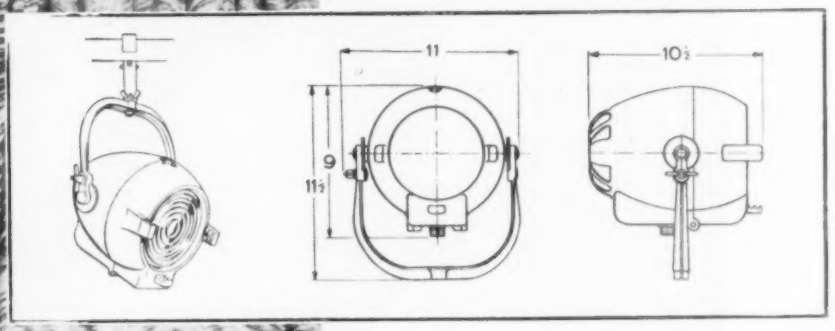


This pre-fabricated space frame was hot galvanized to prevent rust. For further information please write to the Hot Dip Galvanizers Association, an affiliated member of the Zinc Development Association, 34 Berkeley Square, London W1. tel: GRO 6636



Strand Patt. 123 and 23 Baby Spots are neatly styled and of small dimensions so that concealment is often unnecessary.



Ideally this type of lighting should be built in. Often this is not practicable. For example, rostrums in Town Halls or temporary stages in Public Assembly Halls can often be effectively lit only from lanterns in full view of the audience.

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The Architects' Journal

No. 3454. Vol. 133. June 29, 1961

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IUA CONGRESS LONDON

A special supplement in the three Congress languages—French, Spanish and Russian—is included between pages 952 and 953 of copies of the JOURNAL being distributed to foreign delegates.

Starting with next week's issue (July 5) THE ARCHITECT'S JOURNAL will be published one day earlier: Wednesday instead of Thursday.

To mark the occasion of the IUA Congress a special issue of *The Architectural Review* has been published. The contents are planned to stimulate Congress discussions and to emphasise Britain's place in the development of new materials and techniques. A pictorial survey of international design trends is also given. Copies can be purchased (price 5s.) from the Architectural Press, 9-13, Queen Anne's Gate, London, sw1, and from any bookseller.

THE NEW TECHNOCRACY

To survive the change-over from craftsman to manufacturer, the architect himself must adopt new techniques. This first essential step, implicit in the theme of the Congress, but ignored by the three main papers, is the subject of this article

LA NOUVELLE TECHNOCRATIE

Pour palier au remplacement de l'artisanat par l'object manufacturé, l'architect lui-même doit adopter de nouvelles techniques. Les conférenciers principaux du Congres, malgré le thème de celui-ci, ne tiennent aucun compte de ce fait essential

LA NUEVA TECNOCRACIA

Para sobrevivir, después del cambio desde artesano a fabricante, el propio arquitecto debe adoptar nuevas técnicas. Este primer paso esencial, implícito en el tema del Congreso y en el asunto de este artículo resulta ignorado por los periódicos principales

НОВАЯ ТЕХНОКРАТИЯ

Чтобы пережить переход от кустарно-ремесленного способа строительства к промышленному, архитектор сам должен освоить новые технические методы. Этот первый необходимый шаг, предусмотренный в тематике Конгресса и являющийся предметом данной статьи, игнорируется в главных докладах

On the occasion of the first meeting of the International Union of Architects in Great Britain it is salutary to remember our failures as well as our achievements. Professor Luigi Nervi may build his great sports palaces and Professor Hitchcock may persuade us that such are the values of some High Victorian design they should be preserved for ever. But at a time when the nations' main brain power considers building child's play and concentrates on conquering space we know that many of those now living in slums will eventually die in them too. And children yet unborn will grow up in conditions which would sicken the members of this Congress if they allowed themselves to contemplate them. We can explode hydrogen, but we cannot destroy slums faster than they are created. To live in damp, cramped, cold houses, out of sight of sun, grass and trees is the greatest degradation of the family. We have deplored it, in words, for decades, but we have not cured it. And the slums of the homes are matched by the slums of industry, the slums of the railways, the slums of offices, the slums of shops, the slums of schools and playgrounds, and the slums of the no-man's-land between town and country.

We have passed laws, approved estimates and launched building programmes until we can almost convince ourselves that the evil of slums is practically cured. But we are wrong. Great Britain is not unique in the western world in being incapable of rebuilding at a rate which will enable us to live in an environment worthy of our achievements in scientific fields. But if the western world has failed to house its population adequately how much worse off is the rest of the world—whether living in the mud hovels of India, the shanty towns of Africa or the UNRRA huts for refugees.

This Congress seems, to this JOURNAL, an opportunity for architects to exchange ideas on how to improve their humble but essential service to mankind. In the statements and articles that follow we are not concerned with the niceties of aesthetic theory. On the contrary we deplore the fashion of styles that has crept back into architecture and the concomitant loss of social conscience and growth in self-seeking. The odd dramatic gesture apart, the purpose of architects is to lead the building industry, and the manufacturers of products for it, to devise better, quicker, and more economic ways of building, and also, by study with the client, to evolve structures which enable mankind to live a fuller, richer and more varied life within them. This is the architects' duty to society—a duty which comes before any romantic notions of self-expression. The crisis which faces the profession is to realise the responsibilities that it carries and, through this Congress, learn how to discharge them more efficiently. We believe that many of the so-called leading architects and engineers of the western world are leading us up a blind alley of fashion. In the pages that follow we suggest, somewhat diffidently, a harder, less glamorous, but ultimately more rewarding role for the architect to play.

THE EDITORS

*TECHNOCRACY: Organisation and management of a country's industrial resources by technical experts for the good of the whole community.
The Concise Oxford Dictionary

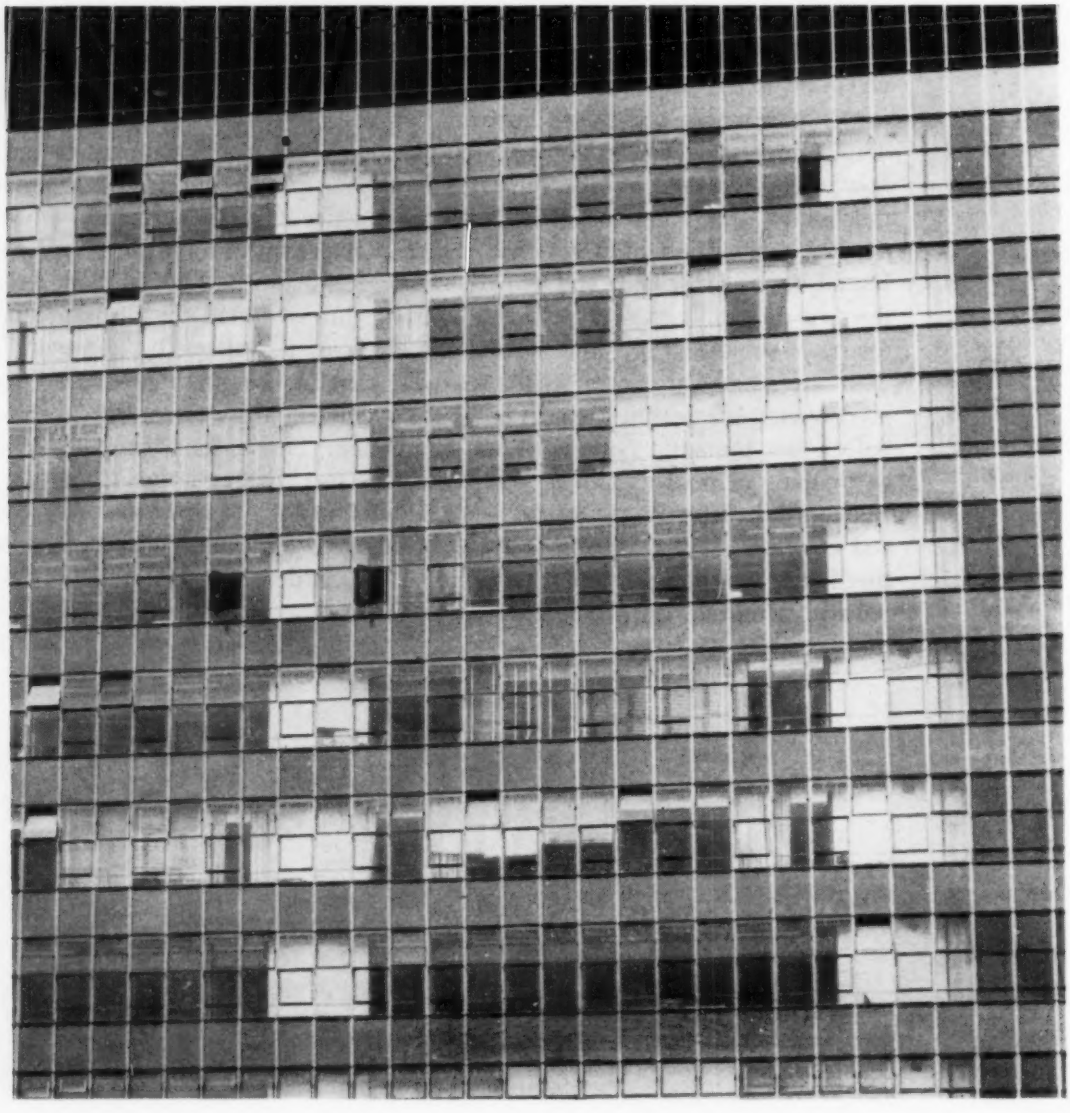
THE PRESENT CRISIS

Architecture today in many parts of the world is moving in two opposite directions; one, towards a mechanistic or catalogue architecture, buildings which are mere assemblies of manufactured products the architect has not designed; the other, in reaction to this type of building, towards a revival of hand-made materials and out-of-date methods of construction, and an aesthetic based upon them. Both are symptoms of failure to face reality; both are moving towards non-architecture.

Catalogue architecture

Every year, more of the elements of building are produced in the factory instead of by craftsmen on the site. Buildings are becoming merely the assembly of products, which the architect has not designed. The architect reluctantly accepts this situation because it is the only way in which many projects can be

Offices in London; Sir Owen Williams & Partners



completed on time, at reasonable cost, and provided with the necessary equipment and services.
Yet this type of building raises all sorts of difficulties: it is hard to shape to particular client's requirements, the various components do not assemble together satisfactorily, and the architect spends his time trying to reconcile them. This mechanistic building was predicted by leaders of the modern movement, but the reality of today has failed to measure up to the promise of the twenties.

Expressionistic architecture

It is only natural that there should be a violent reaction against this catalogue architecture, and this has happened exactly where you would expect it in those countries where industrialisation is furthest advanced. It is seen in the revival of hand-made materials and textures, often tinged by the attempt to imitate products of a disappearing peasant culture, in free form which obviously cannot readily be constructed out of machine-made elements
This movement recalls the Luddites of nineteenth-century Britain, who tried vainly to halt mechanisation in the factories by smashing the machines.
Because it rejects the potentialities of prefabrication, it denies the responsibilities that the profession has to accept, to provide quickly and economically for the growing needs of an advanced society.

SOME CHANGES THAT ARE ALREADY TAKING PLACE

Changes are already taking place, however, by which the architect is being forced to move away from the position he has held, ever since the Renaissance, as an individualistic designer.

Size

The bulk of the building industry in most countries is now concerned with the large-scale construction of the main building types, such as houses, schools, factories. The individual patron is being replaced by groups representing the building's owners, big corporations, Government departments, local authorities, with whom a new architect/client relationship has to be developed.

Complexity

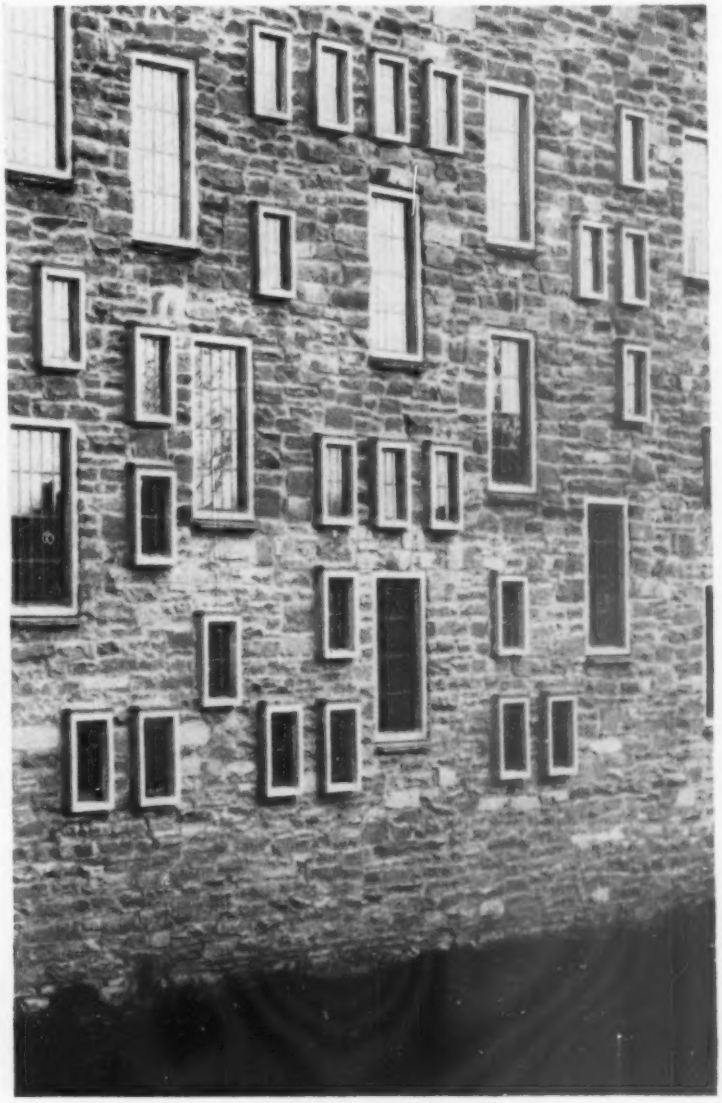
With the advance of technology, the design of buildings has become so complex that it is impossible for the

The two directions in which architecture today is moving, symptoms of the present crisis; left, towards buildings straight out of the manufacturer's catalogue; and right, a violent reaction which revives out-dated peasant techniques.

Deux tendances de l'architecture contemporane illustrent la crise actuelle. A gauche, des bâtiments sortis tout droit du catalogue du fabricant; à droite, une réaction violente ressuscite des techniques paysannes démodées.

Las dos direcciones que sigue hoy en día la arquitectura, síntomas de la crisis actual: a la izquierda, hacia edificios sacados directamente del catálogo del fabricante, y a la derecha, una reacción violenta que da nueva vida a técnicas campesinas anticuadas.

Две тенденции в развитии современной архитектуры — симптомы теперешнего кризиса: слева — здания прямо из каталога фирмы-изготовителя; справа — крайняя рекация, возрождающая устарелые крестьянские методы.



Chapel at Llandaff; George Pace

individual architect to be personally responsible for all the design features of a building. He must become the co-ordinator of a whole team of people with different functions.

Lip service to functionalism, to building on time at the right price will not do. The architect has to develop new organising ability or the job will be taken out of his hands and given to others.

Status

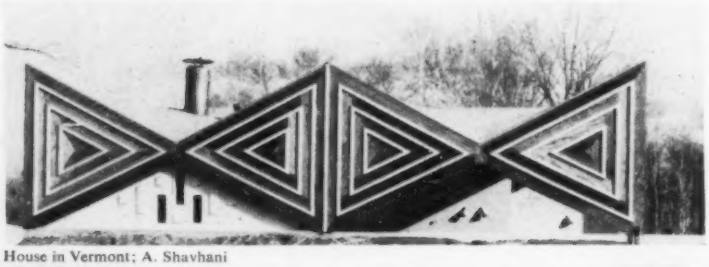
To meet these changed requirements the trend towards larger architect's offices is inevitable. At the same time, more and more architects are employed directly by the State, and local authorities, or by industries and the large corporations, who want specialists to produce buildings to their particular requirements. In Britain, for instance, about half the profession now works for central government or local authorities, while about 25 per cent are principals in private practice. Methods have therefore to be found whereby the architect within a big office can still have freedom and individual responsibility.

These Changes Unrecognised

Yet these changes are almost unnoticed: many architects seem to suffer some kind of psychological blockage which prevents them looking to the future of their profession—and forebodings anyway are stifled by a building boom which has brought full employment to the entire profession.

So most current architectural thought, criticism and education is still based on an increasingly out-of-date conception—that of the architect as an independent, and individualistic designer acting for an individual patron. Teamwork, organising ability, the analysis of functional requirements, so that buildings are planned as the outcome of close attention to the need, of the occupants, completed on time and at the cost planned, all are ignored in favour of one criterion, the purely visual assessment of critics. Such criticism covers the whole gamut of architecture from A to B. The paper by Professor Hitchcock is a typical example of this concentration upon one single aspect of architecture, and the distortion that results.

Given such standards it is only natural that the critic gives most attention to architects who appear to



House in Vermont; A. Shavhani

House in Connecticut; Ulrich Franzer

House in Brazil; Francisco Bolonha

Indoor rockery from Ladies' Home Journal

2. Should the profession concentrate upon originality (left), or should it attempt to answer pressing human needs for large-scale building (right)?

Quel est le rôle de l'architecte—faire oeuvre originale, ou tenter de donner à la population les grands ensembles dont elle a un si pressant besoin?

¿Debe concentrarse la profesión en la originalidad o tratar de resolver las urgentes necesidades humanas que exigen la construcción en gran escala?

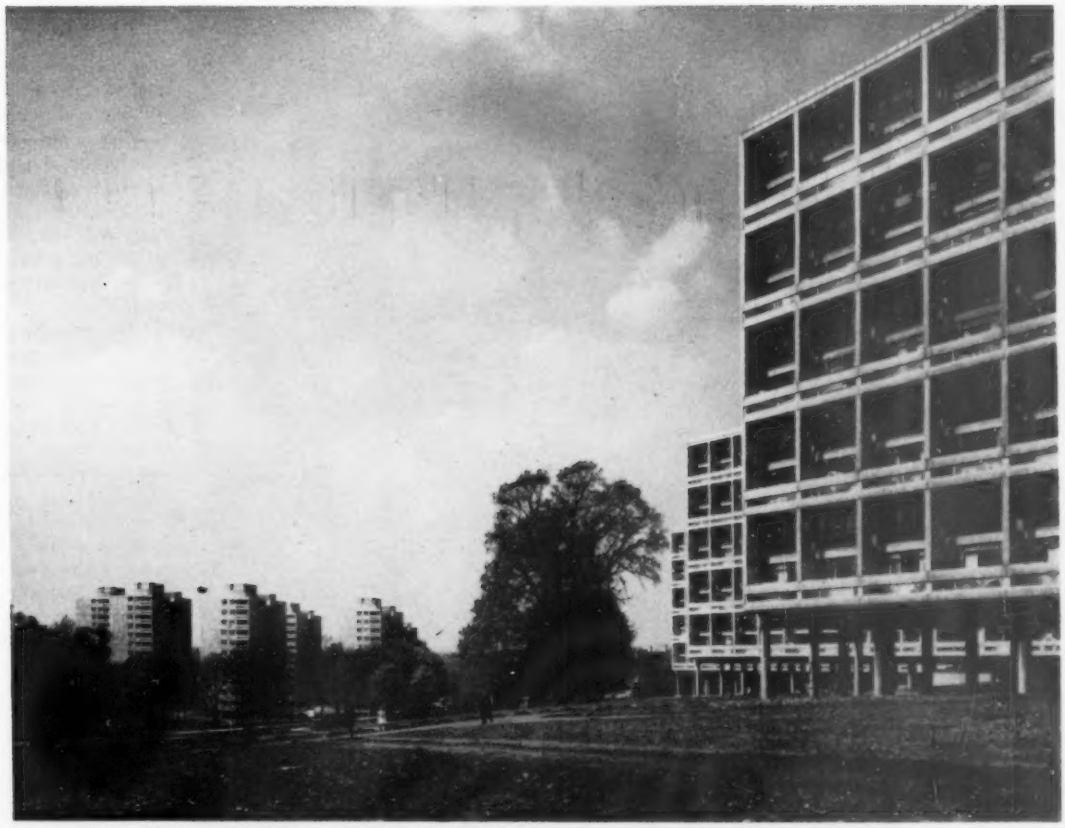
Следует архитекторам концентрировать свои усилия на оригинальности, или же они должны пытаться выработать ответ на насущные потребности человечества в строительстве в крупных масштабах?

We are going through a foggy chaos. Let us enjoy the multiplicity of it all. PHILIP JOHNSON.

Architecture is no longer central to the business of building, but has become a marginal or luxury activity. REYNER BANHAM

Architecture . . . is showing signs of making a voluntary and positive contribution to the community, far in advance of all other branches of art. DUTCH DELEGATION

One may wonder what architects, who will continue, come what may, to believe in imagination, sensitivity and even dreams, will be able to invent, now that their freedom is being daily curtailed by the codes governing the use of industrial production . . . FRENCH DELEGATION

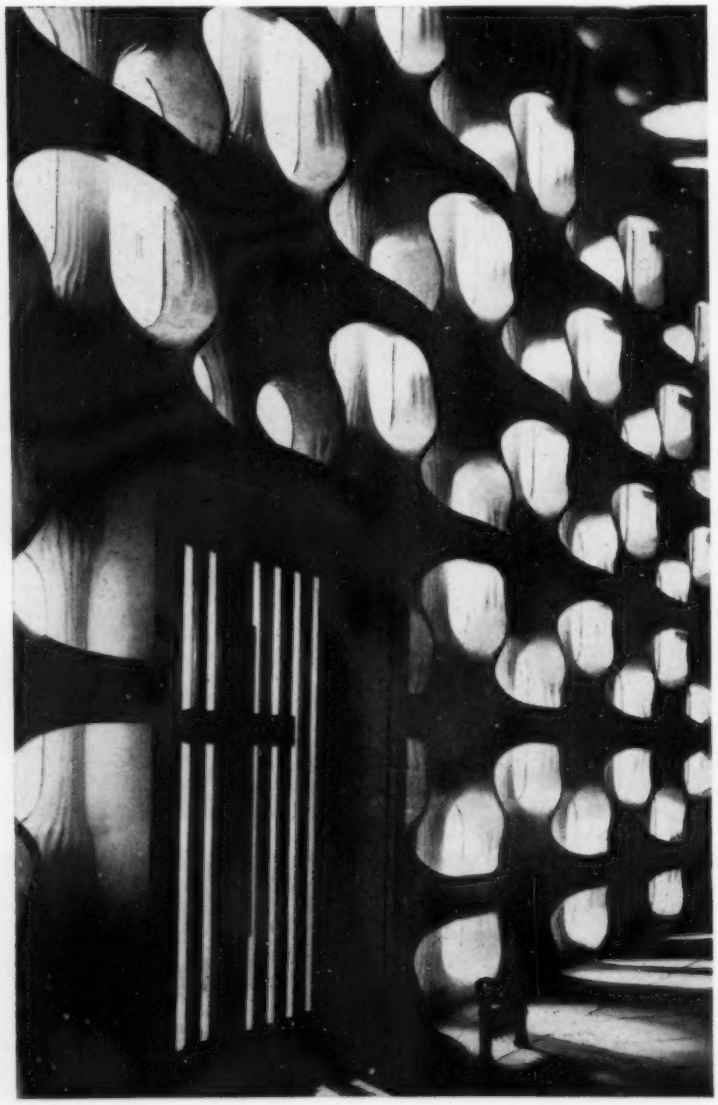


Above and below: **Roehampton (Hubert Bennett, Architect to the LCC)**

produce what is aesthetically the most daring, original work. In the U.S. particularly, such " leaders " of the profession soon find themselves in difficulties. They find fame on the basis perhaps of only one or two small buildings (usually houses) because they show extreme originality. As a result of this publicity, they get larger commissions, the designs for which are eagerly awaited. If these do not continue to be original, they run the danger of being dropped by the critics. The bizarre results of this process are very familiar, at least in the architectural magazines of western Europe. The danger of it lies in a disregard for functional requirements, and finally a denial of the architect's responsibilities to his client and to society.

A similar effect results from current historical studies of the recent past. The slow cycle of change that occurred before, say, 1800, does not seem to apply to the present century. We are expected to believe that fresh and fundamental stylistic changes happen about once a fortnight.

There is a parallel failure in architectural education, at least in many of the schools of architecture in Britain. Their basic aim is still, in many cases, to produce architects who can function in the Renaissance manner, but unequipped for the organisational tasks now required. And what sufferings the newly qualified architect often has to undergo in the first few months of his office experience while he reorientates himself. Many " leaders " of architectural thought, criticism and education are thus sticking to outdated concepts of the role of the architect. The longer they entrench themselves in this position, the nearer they bring the profession to total disaster.



Is the profession to be pushed on the sidelines, to produce the occasional, splendid, exotic building, or can it adapt itself to take over and control the large building programmes ?

L'architecte se laissera-t-il reléguer à la périphérie, d'où il créera à l'occasion un bâtiment somptueux et exotique, ou s'adaptera-t-il suffisamment aux impératifs du jour pour prendre la tête des programmes de construction des grand ensembles ?

¿ Debe la profesión preocuparse en la producción de un espléndido edificio de aislado o puede adaptarse para dominar y dirigir los grandes programas de construcción ?

Суждено ли архитекторам быть вытесненными на задний план и производить иногда отдельные блестящие экзотические здания, или же они сумеют приспособиться и взять в свои руки руководство крупными программами строительства.

Church and offices in Lambeth; P. J. Darvall

THE WAY FORWARD

The architect has to adopt fresh techniques to match the new situation which has emerged from the impact of industrialisation and the vast building programmes a rapidly changing society demands, and there is now sufficient experience in Britain to suggest how this can be done.

This suggests that the way forward for the architect is by full participation in the large-scale activities of the building industry *full enough to begin to direct them*; in the closest attention to the human needs of the occupants of buildings, as the prime basis for any advance in design; and in the reorganisation of the large office to give the individual architect freedom for action and initiative.

Current British experience, particularly in school building, suggests how these objectives can be achieved. One hopes that parallel experience in other countries, at present largely unknown, will be brought to light in the Congress discussion. The results of these techniques in Britain are as yet relatively clumsy and crude, but we are now at the stage when the architect can begin the process of refinement and consolidation.

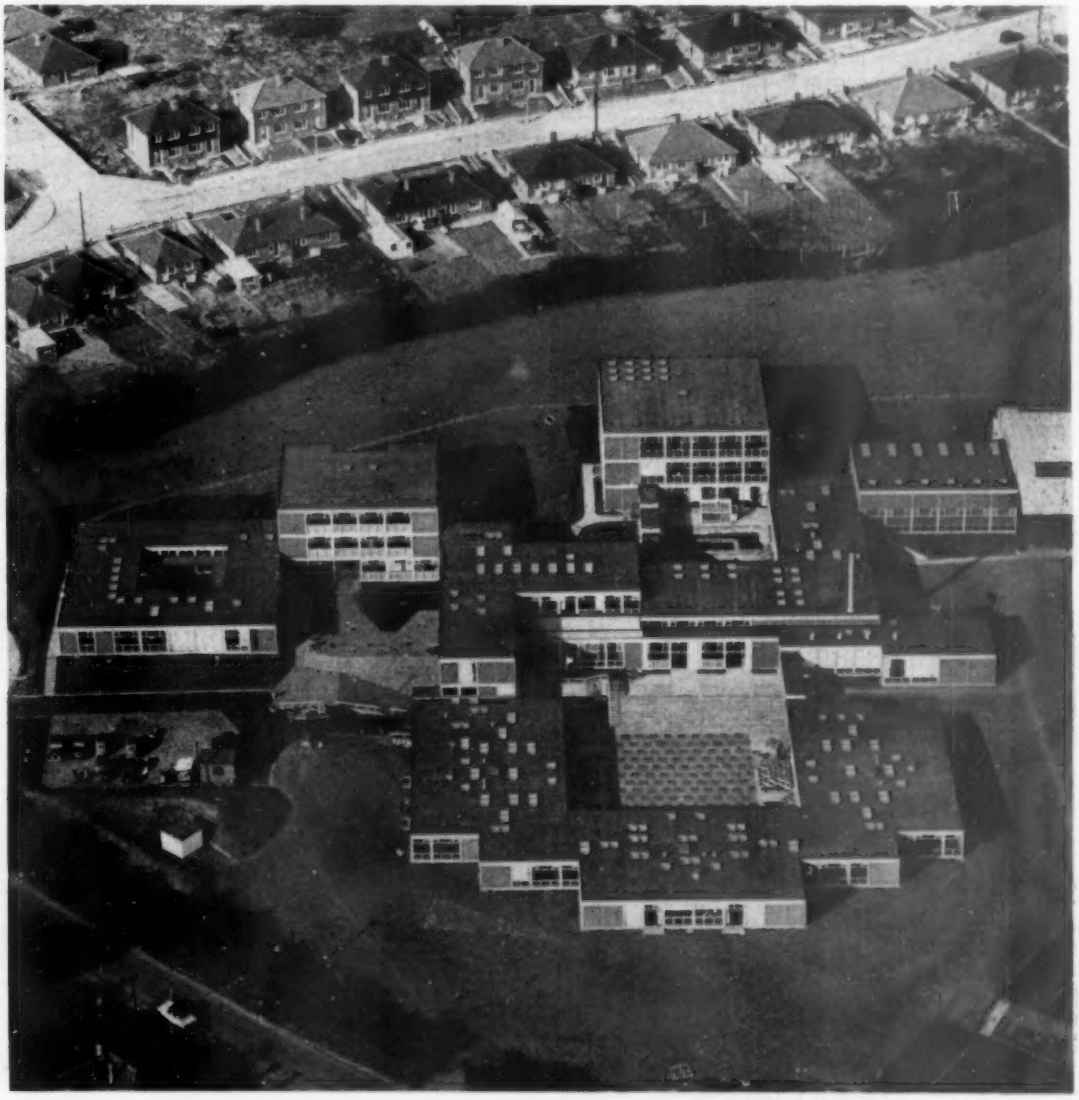
CLIMATE FOR ADVANCE

To do this the right climate for creative activity must be deliberately fostered in at least two ways. First, there should be good forward planning, so that offices can undertake a continuous programme of activity. This is known in Britain as programmed building. Second, the need for research—a necessity in any activity as complex and changing as ours. Such work undertaken by architects in Britain, usually in a team with administrators, engineers and the other allied professions, is known as development.

(a) Programmed building

Before any rationalisation can be achieved, there must be continuity in the architect's output, and a steady programme of work, which maps out the future requirements in terms of individual projects for three to five years ahead or even more. Such continuity allows a long-term working relationship to be developed between the architect and all others concerned with

Arnold High School, Nottinghamshire (Development Group, Architect and Building Branch, MOE, in collaboration with D. E. E. Gibson, then County Architect)



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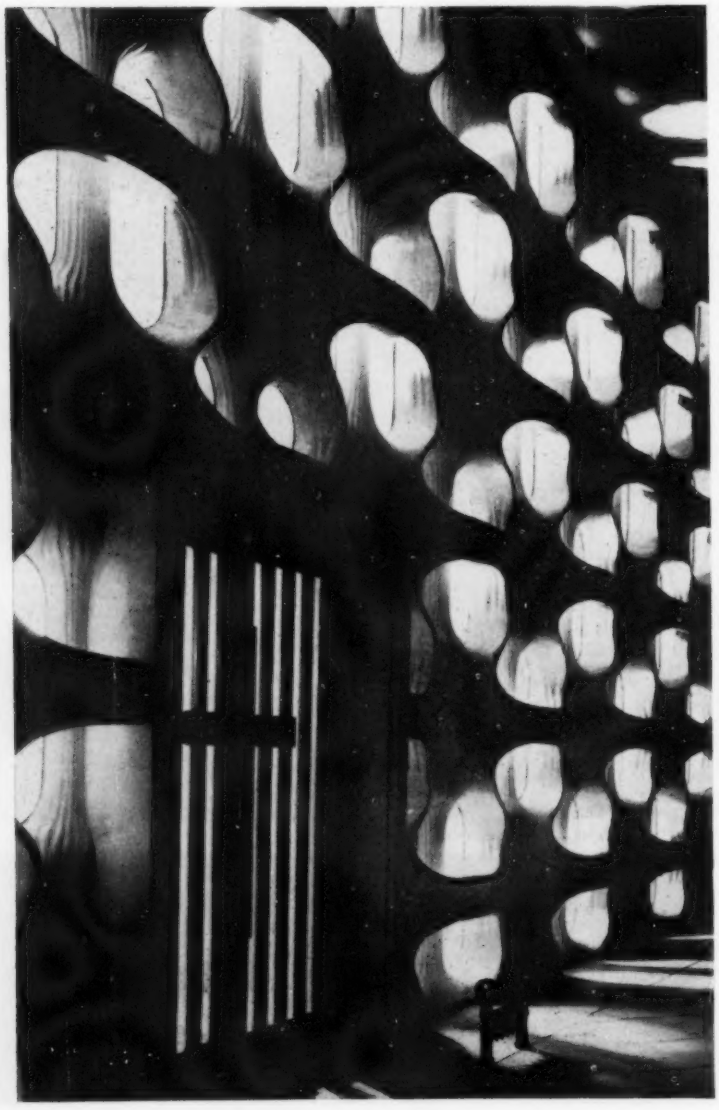

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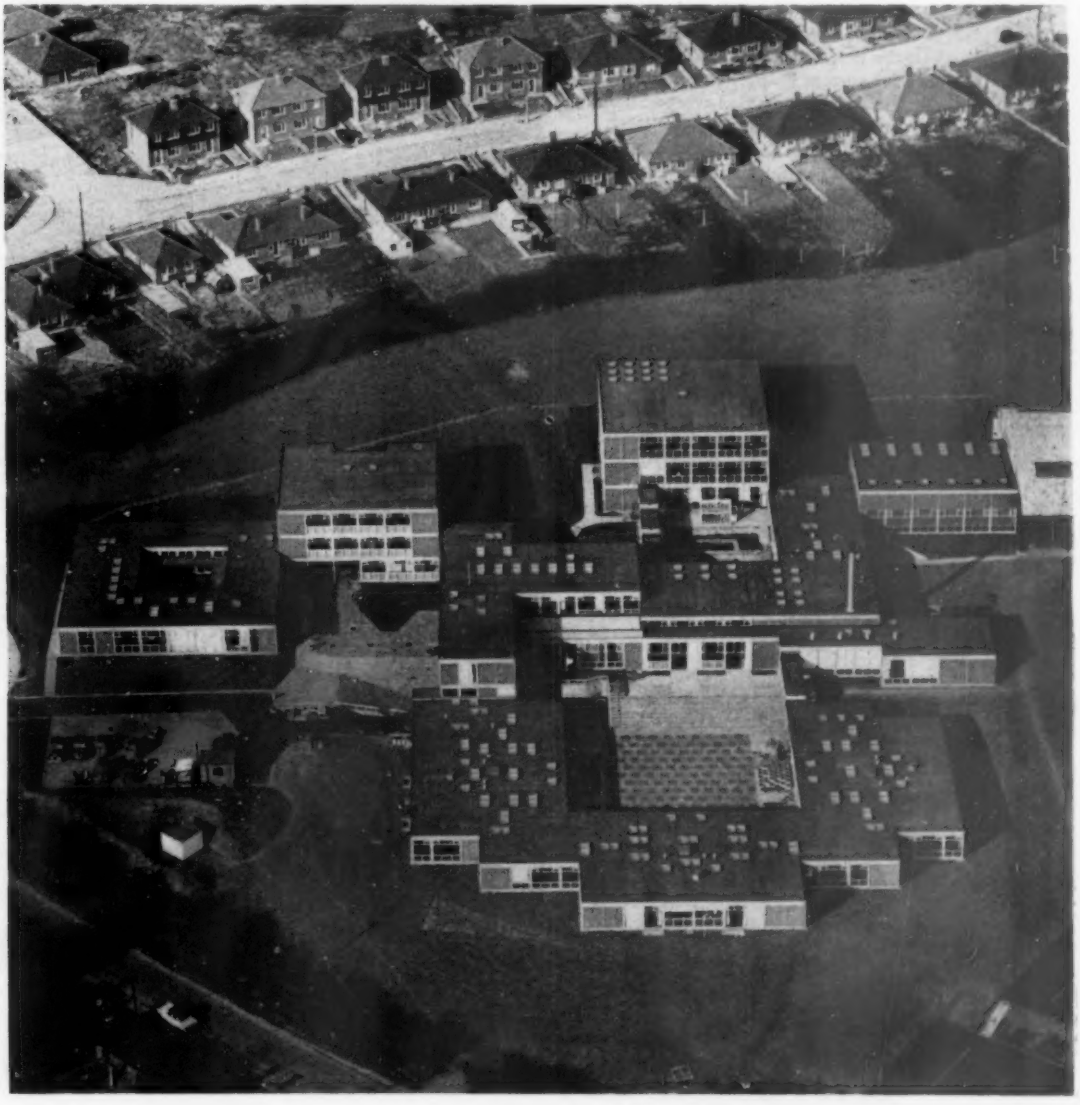


the programme. Clients, engineers, quantity surveyors and building contractors can develop a common expertise.

There is nothing very new in this proposal, indeed much of the best architecture in the past resulted, in a more or less haphazard way, from this kind of continuity between client, architect and builder. But for this type of continuity to be deliberately developed implies the adoption of the necessary policies. For instance, it has meant in Britain the abandonment in many cases of the traditional method of approving individual projects within the country's annual budget in favour of long-term forward approval of building programmes. This method was first adopted by the Ministry of Education, and other Government departments are now following suit.

Second, it implies offices which have a sufficiently large programme of work for such continuity to be achieved. Much of the success of the building programme in Britain has been due to the fact that design and erection are the responsibility of counties or county boroughs with a minimum population of about 250,000 able to support a reasonably sized architects' office in steady and continuous activity. Where, as in Switzerland or Denmark, for instance, school building is often initiated by very small authorities, it would seem to be difficult to achieve a uniformly high standard, purely because of the lack of continuity. The architect in those countries seems to be seriously hampered by the structure of the administrative machine.

(b) Development work

Having established continuity, the office concerned can then set aside some of its potential for research and development. Otherwise the pressure of the normal routine of design and erection will prevent any proper assessment of an office's output, and improvements that might be made. British experience in development work so far, which is still in its infancy, suggests that it can best succeed if the work undertaken by the team is comprehensive, dealing with all aspects from the investigation of the client's brief to site organisation, as well as the examination of quite small and limited problems.

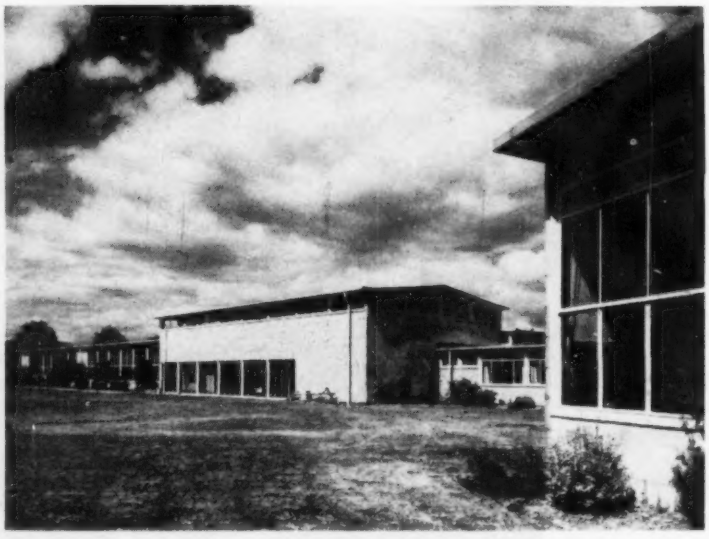
Those concentrating on this work need enquiring minds, full administrative backing—and a long enough time schedule to carry through a continuous process of trial and investigation. Such development work over a fourteen-year period, in the County of Hertfordshire, has produced a building programme of over two hundred prefabricated schools, using techniques which have been continuously developed and refined.

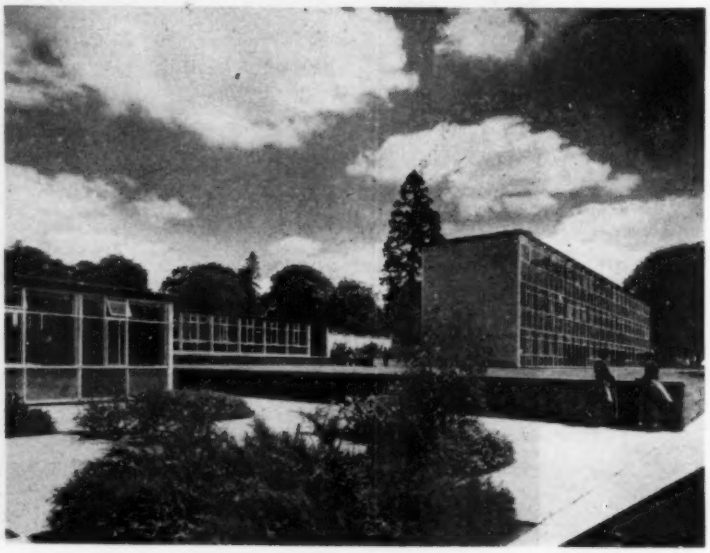
At Hertfordshire there has been a continuous process of development from the prototype, top, put up in 1947, to the current output, bottom. This programme has provided over two hundred prefabricated schools.

Dans le Hertfordshire, le prototype de haute, construit en 1947, s'est transformé, par un processus continu d'évolution, dans le bâtiment illustré en bas. Tous deux appartiennent à un programme de construction qui a donné au département plus de deux cents écoles préfabriquées.

En Hertfordshire se ha mantenido un progreso continuo de perfeccionamiento desde la producción del prototipo, arriba, construido en 1947, hasta la producción actual, abajo. Por medio de este programa se han podido construir más de doscientas escuelas prefabricadas.

В графстве Хартфордшир наблюдался непрерывный процесс развития от прототипа 1947 года (Вверху) до текущей продукции (внизу). В ходе прогаммы было построено свыше двухсот префабрикованных школ.





Top: Cheshunt, Hertfordshire (C. H. Aslin, late County Architect)

Bottom: Secondary School at Stevenage, Hertfordshire (G. C. Fardell, MBE, County Architect)

(c) Development work on a national scale

If there is a case for individual offices to undertake such development work, it is even more essential that it should be undertaken on a national scale by Government depa.tments. Such centralised work, aimed at whole sectors of a nation's building programme, prevents unnecessary overlapping of effort, and can be financed to carry out long-term and forward-looking studies which are obviously beyond the capacity of the individual office. The development group at the Ministry of Education, the first in Britain, continues to be outstandingly successful in its objective of raising the genera! standard of all aspects of school building. Among other work this group has built a small series of schools, the planning and detailed design of which was based upon very careful study of the educational requirements, and has developed various systems of prefabrication. From its experience, it has been able to suggest methods by which administrative control over the schools programme could be improved, and give considerable advice on design to all schools architects.

This success has led to the adoption of the same method by other Government departments, including the Ministry of Housing and Local Government, Ministry of Health (hospitals), University Grants Committee (universities) and the War Office (barracks, amenity buildings, workshops, etc.). All these, it should be noted, cover sectors of the national building programme which are directly or indirectly financed by State funds. No such work exists at the moment for building types which are mainly or completely financed by private capital. Yet the need for such work in these fields is obvious.

ARCHITECT AND CLIENT

Experience in this country makes clear that if a development group undertakes the long-term study of a particular building type in close conjunction with the users, new concepts of planning and design can result. This may apply to the general layout of a building, or to the detailed design of small items of equipment. For example, the development group at the Ministry of Education made a fresh study of junior schools (for ages 7 to 11) and arrived at a planning requirement fundamentally different from that hitherto accepted, which was tried out in the design of a school at Amersham. Equally, in this building, the need emerged for new types of equipment, such as classroom sinks and light fittings.

These two buildings built at about the same time are intended to fulfil exactly the same function, that of a secondary school. Top, functional needs forced into a predetermined machine aesthetic; bottom, a prefabricated school planned after an extended study of the educational requirements, the first project carried out by the Ministry of Education development group.

Deux versions contemporaines d'un lycée. En haute: les impératifs fonctionnels ont été insérés de force dans une esthétique standardisée préexistante; En bas: le premier projet réalisé par le groupe d'études du Ministère de l'Education Nationale—une école préfabriquée basée sur une étude approfondie des exigences pédagogiques.

Estos dos edificios, construidos approximadamente al mismo tiempo, están destinados a cumplir las mismas funciones, como escuelas secundarias. En el arriba, las necesidades functionales se han incorporado a una estética mecánica predeterminada; abaja, una escuela prefabricada proyectada después de prolongado estudio de las exigencias pedagógocas, siendo éste el primer proyecto realizado por el grupo de investigación del Ministerio de Educación.

Эти два здания, построенные примерно в одно и то же время, служат для выполнения одинаковой функции — школы второй ступени. вверху функциональные нужды втиснуты в догматические рамки механической эстетики. внизу: префабрикованная школа, спроектированная после продожительного изучения требований просвещения, — первый проект, осуществленный группой развития Министерства просвещения.

Hunstanton: Peter and Alison Smithson

Wokingham: Development Group, MOE Architect and Building Branch

So far, such development studies in Britain have usually been on the basis of current needs. It is now clear that the development architect must, together with the client, look forward and attempt to predict what future changes are likely, and try to cater for these trends as closely as possible.

Such intimate joint study on a long-term basis by client and architect can lead to architectural progress on a basis which we believe to be better founded than questions of aesthetics. Moreover, such work allows the architect to fulfil a function which no other profession is equipped to carry out.

Architecture . . . does not accept the results of technical progress passively, but participates actively in their development and exploitation. YUGOSLAV DELEGATION

The latest works of Le Corbusier, Aalto and the latest American School . . . based on a rejection of rationalism, and Professor Hitchcock's discussion of a more "Baroque" concept of style . . . do not promise real progress in architecture. EAST GERMAN DELEGATION

Hitchcock's argument gives a profound insight into the background and motives of modern architecture, with all its techniques and materials. DUTCH DELEGATION

Unfortunately, today many architects concern themselves with the publicity angle of their work, with over-developed pseudo-originality, (but) without giving much thought to the nature and the purpose of the building . . . SPANISH DELEGATION

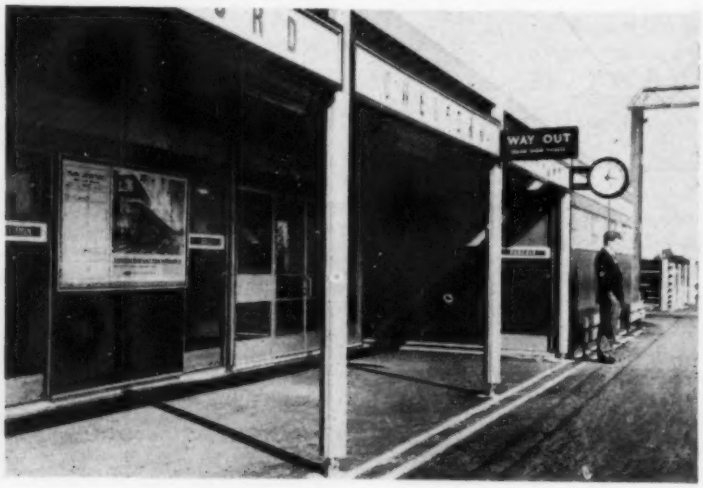
Some British failures. Prefabrication has not succeeded in the rebuilding of railway stations, left, for two reasons: failure to set up a continuous programme for exploiting the method; failure to achieve the right type of organisation, the architect being under the direction of engineers rather than acting together as a team. Right: this building is in many ways a brave attempt at prefabrication, but it fails because the needs of the occupants for a good working environment have been forgotten.

Quelques échecs britanniques. La technique des éléments préfabriqués a fait fiasco dans la reconstruction des gares (photo de gauche), faute d'être servie par un programme cohérent de mise en oeuvre de la méthode et d'une organisation appropriée, basée sur la collaboration de l'architecte et des ingénieurs et non sur la subordination du premier aux seconds. A droite: une tentative hardie, à de nombreux égards, d'utilisation des éléments préfabriqués condamnée pour avoir oublié de fournir à ses occupants un cadre de travail agréable.

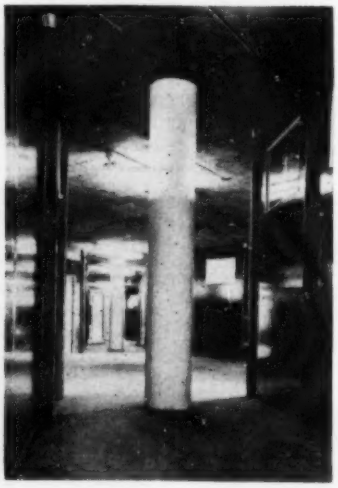
Algunos fracasos británicos. La prefabricación no ha tenido éxito en la reconstrucción de estaciones de ferrocarril, a la izquierda, por dos razones; la falta de un programa continuo para explotar el método; fracaso en el establecimiento del tipo conveniente de organización, por estar el arquitecto bajo la dirección de ingenieros en lugar de trabajar como un conjunto combinado. El edificio de la derecha es, en muchos sentidos, una valerosa tentativa de prefabricación, pero fracasa porque no se han tenido en cuenta las necesidades de los ocupantes en cuanto a procurarles buenas condiciones ambientales de trabajo.

Некоторые неудачи в Англии. Метод префабрикации не увенчался успехом в восстановлении железнодорожных станций (слева) по двум причинам: из-за неспособности выработать систематический план эксплуатации метода и из-за неспособности организовать строительство должным образом —архитектор подчинен инженерам, вместо того чтобы действовать с ними в коллективе. Справа — смелый опыт в деле префабрикации, который однако потерпел фиаско, так как в проекте не были учтены потребности в хороших окружающих условиях для работающих в здании людей.

Chelford Station, London Midland Region (Regional Architect W. R. Headley)



Dartford Technical College, Kent (County Architect E. T. Ashley Smith)



ARCHITECT AND MANUFACTURER

Development work provides obvious opportunities for the architect to make his demands upon the industry, rather than to have to accept what the manufacturer provides. Success will, of course, depend upon close collaboration with manufacturers, since the architect must work within the limits of what can be readily produced both technically and economically.

Various systems of prefabrication have been developed in this country, again largely for schools, including several produced by Hertfordshire, and by the Ministry of Education development group. The method has equally been used for items of equipment and furniture. And one of the facts that emerges is the advantage that can result from control exercised by architects on manufactures. In the case of CLASP (a group of local authorities who voluntarily pool their resources for research and development) it has been possible for a system of construction to be developed, all virtually architect-designed, the components being purchased in bulk for an annual programme now in excess of £7,000,000. Not only does this reduce building costs (see page 958) but provides the architects with a vocabulary of interrelated components which they themselves have designed. The implication is obvious: the architect is able to control the manufacturer in a way which echoes the traditional architect/craftsman relationship, but which reaps the full benefits of mass production. The CLASP system itself is as yet relatively crude, and relies to a certain extent upon traditional methods. Continuous development is likely to make it gradually more successful in fully exploiting the potentialities of industrialisation whilst improving it as a flexible vocabulary of design. This we believe is an example that the Congress should examine as a means by which the architect can overcome the present crisis.

ARCHITECT AND CONSULTANT

Various experiments are under way in this country, such as architects working in a team with structural and services engineers. But the degree of collaborative understanding necessary to meet current demands has not yet been generally reached.

An exception to this generally unsatisfactory position is provided by quantity surveyors. (This profession has for some time in Britain been established as a separate entity, mainly occupied with the preparation of bills of quantities upon which contractors may tender.) With the growing need for buildings to be completed on time at a fixed price, ways have been developed, largely by the Ministry of Education, whereby the quantity surveyor collaborates with the architect to carry forward the project in economic terms as much as its physical planning characteristics.

This is achieved by breaking down the cost of the building into those of the various functional elements such as external walls, floor finishes and heating installation, and keeping these elemental costs under constant review jointly by architect and quantity surveyors. At the early design stage, such elemental costs are likely to be only approximate, but guidance can be obtained by reference to the analyses of the elemental costs of completed buildings of a similar type.*

(Cost analyses of this type are regularly published in the Journal. They are based on a standard list of elements priced per unit floor area of the building.) As the design proceeds, and decisions are made up to the completion of drawings and specification, the cost of each individual element can be checked to ensure that the building is still within its budget. With programmed building, of course, such an exercise can be carried out with a very high degree of accuracy. This single example of close collaboration between two allied professions, although as yet adopted only by the minority, has proved satisfactory because the quantity surveyors have adapted their method to suit the needs of the architect, who has had to take command of the situation.

ARCHITECT AND CONTRACTOR

The traditional method of appointing contractors for buildings in Britain and many other countries rests on the traditional method of competitive tendering. This precludes any contact between contractor and architect before construction starts, and leads to delays and higher building costs. The contractor, if appointed before the building is designed, could usually point out changes to simplify erection, take advantage of site equipment, thus saving time and achieving economies. In Britain, at least, the profession is threatened by organisations which provide both design and erection, known as the " all-in service." This takes advantage of such collaboration.

Because of this threat, alternatives to competitive tendering are currently in use by architects. One is the use of negotiation with a single contractor. Another, made possible by programmed building, is to appoint a contractor for a whole series of buildings on the basis of competitive tendering for the first. There would seem no doubt that the old competitive tendering method must be superseded.

THE INDIVIDUAL ARCHITECT : HAS HE A FUTURE?

The picture emerges of the individual architect working in a fairly large office, engaged in one part of a programme of building, using a standard set of prefabricated components. But can he still function as an architect? British experience suggests that in the long term this can be achieved by a series of policies.

1. Regulation

Most types of building, in Britain at least, have to be designed within regulations, which ensure minimum standards. They should, however, be restricted to stating in the simplest, shortest terms, the functional standards required. Such things as type plans, regulations governing minimum ceiling heights, window

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*ANALYSIS OF BUILDING COSTS

As explained in this article, the technique has been developed in Britain of designing buildings within a precise cost. This is done by setting target costs for the various functional elements of the building, before designing starts, and checking them against the drawings and specification at each stage of the design process. Such a breakdown is essential to convert building costs into a form which the architect can understand and therefore control.

Adjustments are made as necessary so that the overall cost of the building will not exceed the maximum figure. Much of the success of this method depends on having available analyses in terms of these functional elements of buildings of a similar type. It is for this reason that the Journal regularly publishes such analyses, costs being expressed in terms of cost per unit floor area of the building. If this breakdown, or a similar one, were adopted internationally, the costs expressed in terms of some convenient unit, such as the average hourly wage for building operatives, then there could be useful international exchange of cost information.

areas, etc., however well meaning, are restrictive and hamper experiment. Such simplicity has been achieved by the Ministry of Education in their school building regulations, and this step has had a beneficial effect on school design.

2. Communications

The individual architect will depend very largely for design data upon the work of development groups. These results must be widely published. Development groups undertaking work on a national basis should publish small reports as soon as results are available rather than attempt full-scale reference works, which take several years to prepare and publish, and may go rapidly out of date.

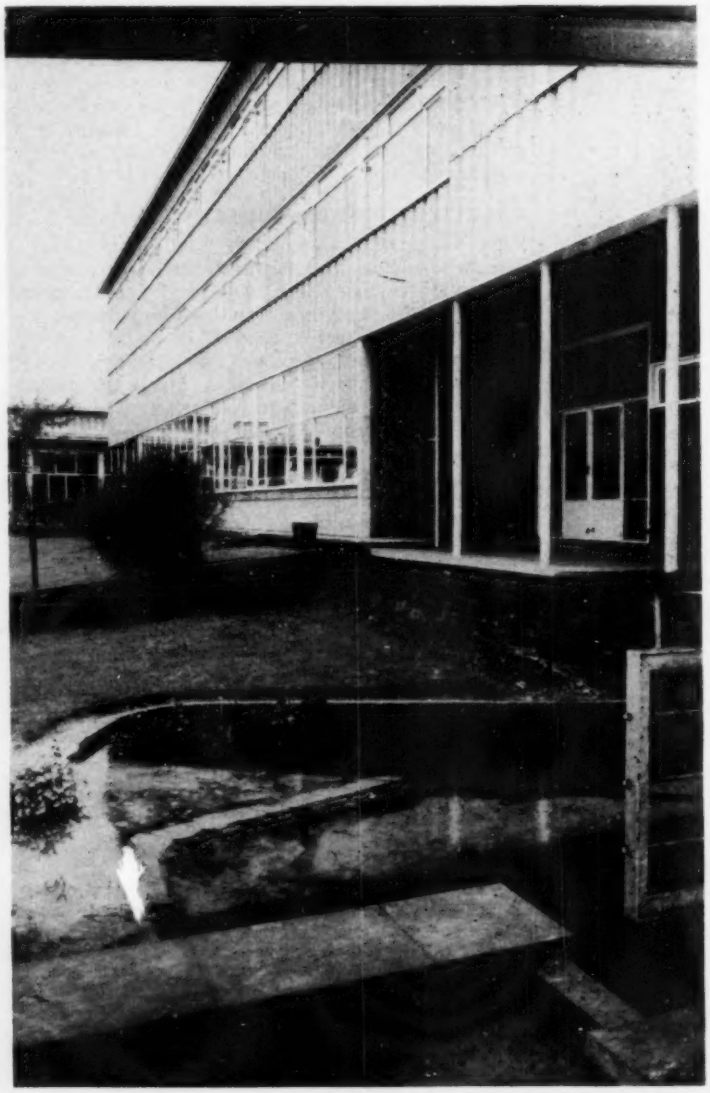
The series of Building Bulletins produced by the Ministry of Education are a successful example of how a development group can keep the profession informed.

Continuous development: right, a development project by the Ministry of Education; top right, this system was modified for the first CLASP school; bottom right, a recent school in the same system.

Evolution dans la conception architecturale. Un projet d'aménagement du Ministère de l'Education Nationale; au centre : le projet modifié pour la première école CLASP; en bas: une école récemment construite dans la même série.

Desarrollo constante: a la desecha, un proyecto de desarrollo del Ministerio de Educación; arriba a la derecha, este sistema se modifico para la primera escuela del programa CLASP; abajo a la derecha, una escuela recientemente construida por el mismo sistema.

Систематическое развитие: справа — строительный проект Министерства просвещения; наверху справа — модификация системы для первой школы, разработанной группой CLASP внизу справа — одна из новейших школ той же системы.



School at Belper, Derbyshire, designed by Development Group, MOE Architect and Building Branch, in collaboration with F. Hamer Crossley, County Architect

3. Vocabulary in prefabrication

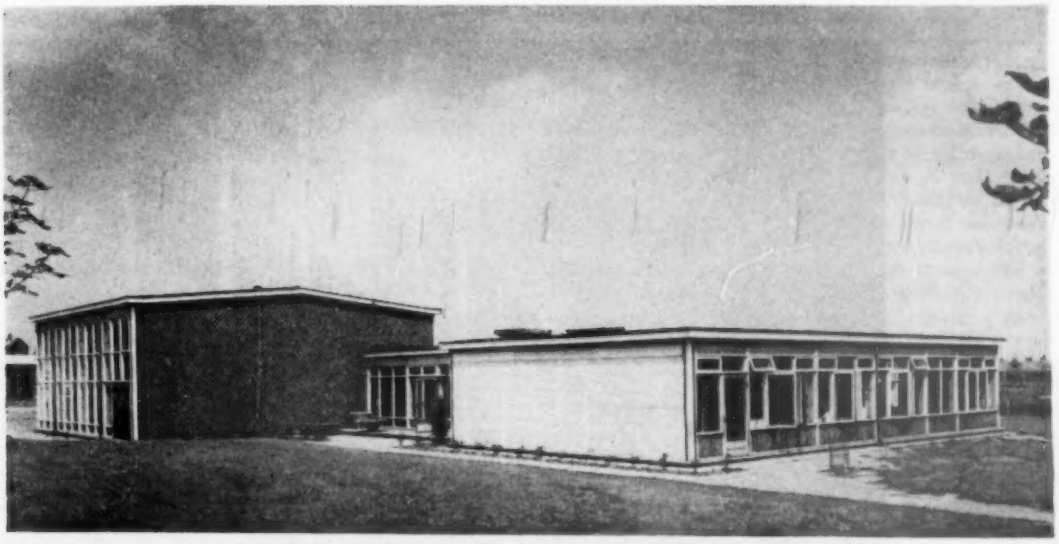
from problems of detail, and can concentrate his

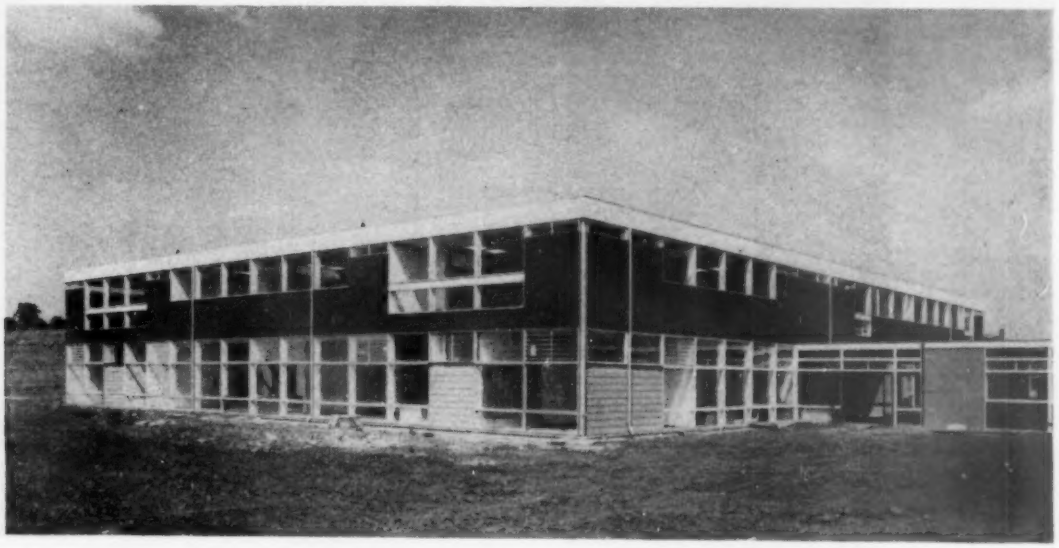
The danger is that architecture may become monotonous and utterly boring . . . WEST GERMAN DELEGATION

Nothing but frustration can result from labelling nascent developments with catch-words . . . before the creators themselves are clearly aware of what they are aiming at, and before it is certain that the forms produced are of any historical worth. PETER COLLINS

There is appearing . . . a fermenting obsession with a volkswagen civilisation. DUTCH DELEGATION

In our long history, we Japanese have, without industrialisation, developed a special standardisation of measurements in our wooden architecture and succeeded in making an infinitely flexible space within the module. JAPANESE DELEGATION





Above: West Bridgeford Boys Grammar School, Nottinghamshire. Below: Bancroft Lane, Mansfield, Nottinghamshire (County Architect W. D. Lacey)

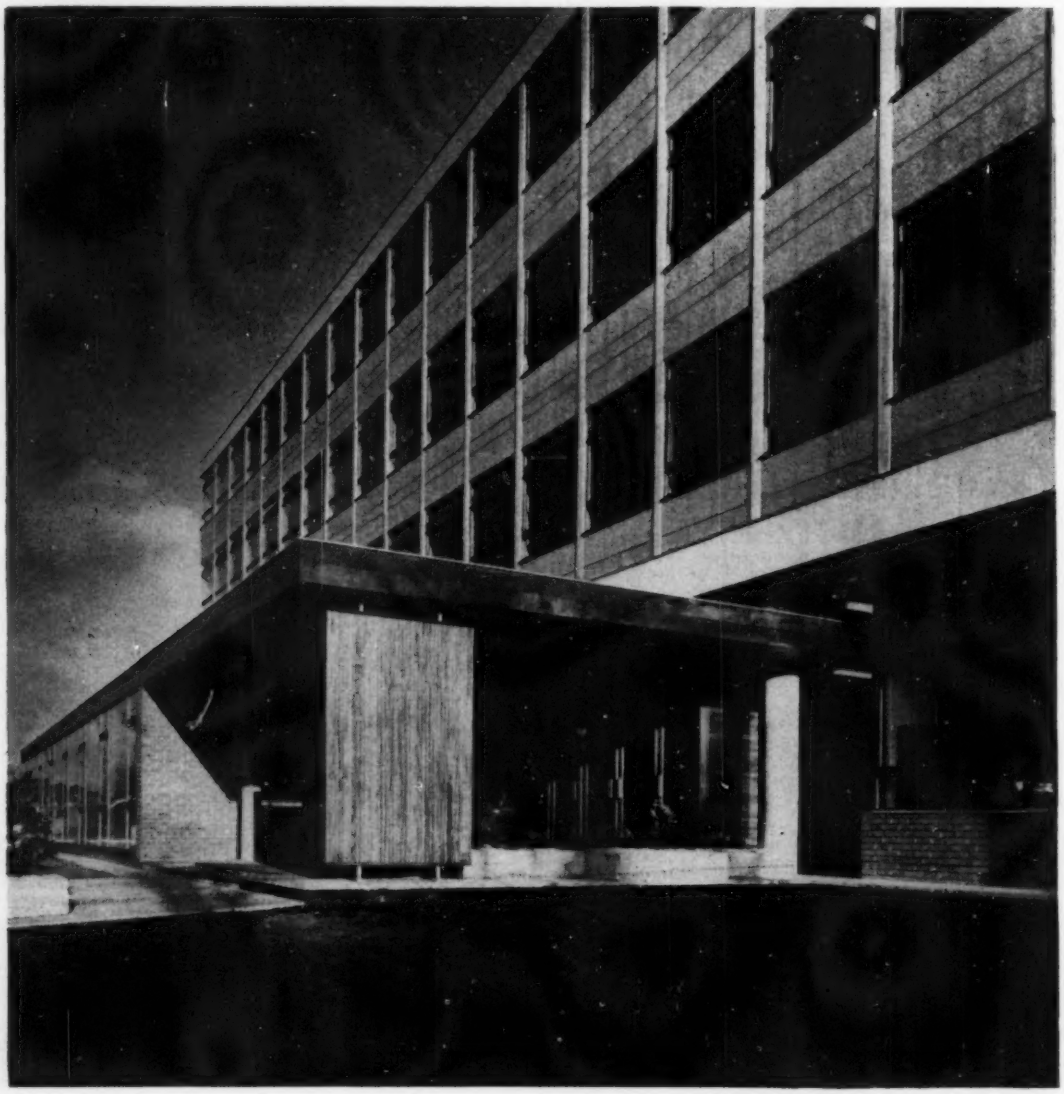
It is to be feared that in the grandiose *common objective in clearly defined terms*

3. Vocabulary in prefabrication

The prefabrication systems designed by architects in Britain have concentrated upon giving the individual architect as much planning flexibility as possible within a very limited range of components. This implied, right from the early Hertfordshire experiments, that the commercial systems of prefabricated spans in one direction only, allowing freedom in length only, should be rejected in favour of flexibility in both directions on plan.

In the more recent development work, systems of prefabrication offer a wider choice of elements. The original Hertfordshire system offered only one type of external wall cladding, but the current one, and that of CLASP, offers a number of alternatives. Components for external walling are also becoming more flexible in use, thus offering a wider choice of expression. Once the discipline of architect-controlled prefabrication has been accepted, it is possible to refine all the details of structure, finishes, fittings and equipment providing a freer and better vocabulary of design. This is only in its very early stages in Britain, but holds unlimited possibilities. The individual architect, of course, considerably benefits in compensation for the discipline imposed. He is liberated from problems of detail, and can concentrate his energies upon the basic issues of planning and design. The situation is thus parallel to the stability of the eighteenth century in Britain, when there was a similar command over detailing because of a common language between architect and craftsman.

Great Eastern House, Cambridge (Regional Architect H. H. Powell)



4. Responsibilities within a large office

CLASP) or Hertfordshire, is that all design work must be undertaken only by qualified architects, the

It is to be feared that in the grandiose symphony which the technical future offers us, the architect has but a small part to play . . . FRENCH DELEGATION

The tragedy of the situation lies in the fact that everyone concerned would like to see the architect take the lead in the industry, but up to this moment . . . the architectural profession has singularly failed to grasp this nettle. HARRY VINCENT, BUILDING CONTRACTOR

. . . the critic, to survive and keep any self respect . . . will have to go with the architect and understand his factual, organisational and other problems . . . for a decade or so, it is not going to be safe to pass judgment simply on the grounds of what a building looks like. REYNER BANHAM

. . . the professions must go with the times, they must be prepared to work together with the building team, with a common objective in clearly defined terms and not try, as is all too often the case, to place themselves on a higher rarified plane because they design and the builder constructs . . . This hypothetical distinction between the so-called professional class and the restqis sheer snob nonsense . . . HARRY VINCENT

It would seem quite reasonable business to set aside one per cent per year of a capital programme . . . to finance a development group. (They) will save their own salaries in terms of actual cost over and over again. HENRY SWAIN

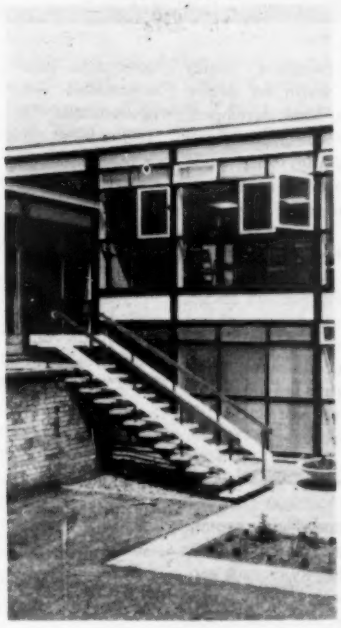
Schools prefabricated systems have been found valid for other types of building, particularly where speed and cost are of importance. Far left, offices in a precast concrete schools system, the four upper floors being supported on an in-situ concrete ground floor; below a fire and ambulance station in the CLASP system; bottom right, a building housing an electronic computer, with other offices.

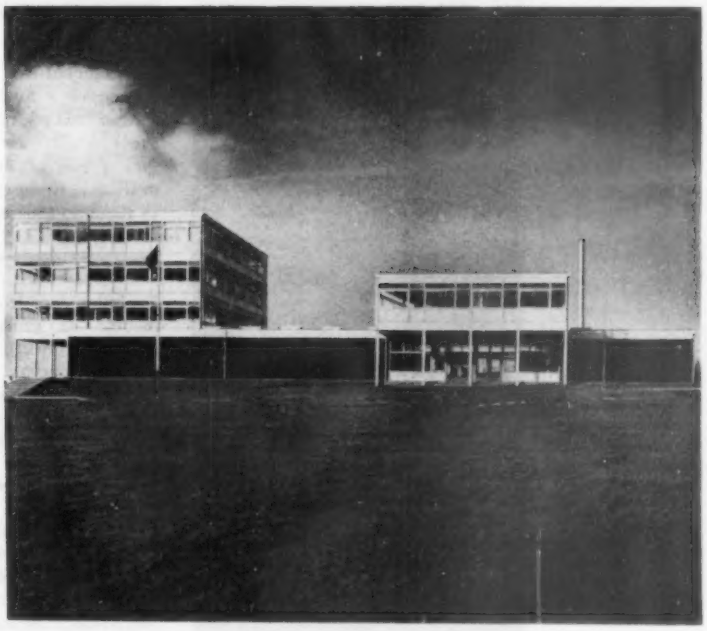
Le système employé pour les écoles préfabriquées a trouvé d'autres applications, notamment dans les cas ou l'économie de temps et d'argent joue un rôle important. A gauche: un immeuble administratif construit, comme certaines écoles, avec des blocs de béton prêts à poser; les quatre étages supérieurs sont posés sur un rez-de-chaussée en béton construit sur place. Un poste d'incendie et d'ambulance du système CLASP. A droite: ce bâtiment abrite un cerveau électronique et des bureaux.

Los sistemas de escuelas prefabricadas han encontrado aplicación en otros tipos de construcciones, especialmente en aquellos en que la rapidez y el costo tienen importancia. A la izquierda, oficinas construídas según el sistema para escuelas con cemente premoldeado; los cuatro pisos superiores se apoyan sobre un piso bajo de cemento construído *in situ*. Centro, un parque de bomberos y ambulancias construído según el sistema CLASP. A la derecha, un edificio en el que se aloja una calculadora electrónica con otras oficinas.

Система префабрикованных школ с успехом применяется и для других типов строительства, особенно когда важное значение придается соображениям быстроты и экономности. Слева — конторское здание из префабрикованных бетонных блоков — четыре верхних этажа смонтированы на сооруженном на месте бетонном нижнем этаже; внизу слева — станция пожарной бригады и скорой помощи системы CLASP внизу справа — здание, в котором помещается электронная счетно-решающая машина и другие учреждения.

Left: Fire and Ambulance Station, Sutton in Ashfield, Nottinghamshire (County Architect W. D. Lacey). Right: Robert Matthew and Johnson-Marshall in association with D. E. E. Gibson, Director General of Works, War Office





The successful solution lies in collabora-

a name-plate on the front door, while the

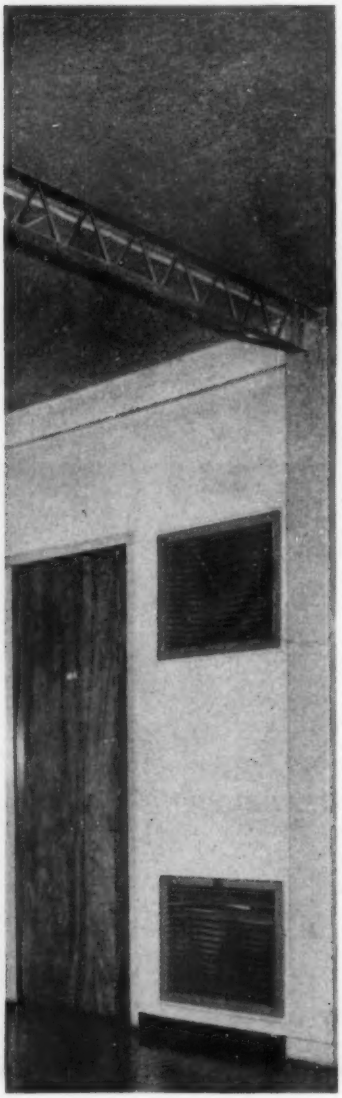
4. Responsibilities within a large office

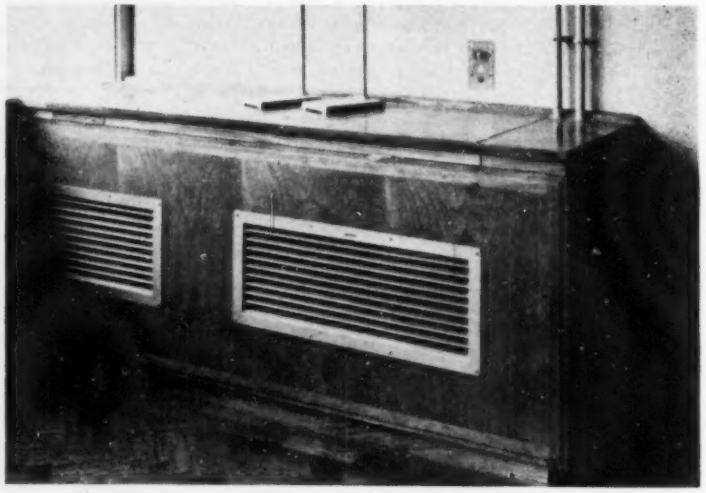
All these ideas will be negated unless the individual architect in the larger offices has much freedom, initiative and responsibility. With this in mind, the more progressive offices in Britain are adopting a new organisational method. Each architect who has qualified for a year or more is given responsibility for all aspects of an individual project.

Where projects are large, and must occupy several architects, this responsibility of job architect is taken in turn regardless of seniority. The job architect is in charge of a group working on a project, its members responsible to him for various detailed aspects, and he is normally accountable for the project directly to the head of the office. This can only work if there is personal contact. The very large office would seem to fail in this respect.

This method has distinct advantages over the traditional pyramid structure of large offices, leading to much closer attention to the detailed aspects of design, and continuity between the overall concept of a building and its detailed realisation. The democratisation that results encourages rapid growth of experience and ability at the lower, younger end of the profession.

Implicit in the job architect method, as applied by such offices as that of Nottinghamshire (a member of CLASP) or Hertfordshire, is that all design work must be undertaken only by qualified architects, the only way in which a suitable standard can be achieved.





Development of equipment: early version of a forced warm air heater cabinet, left; version later developed, above, which can be compactly fitted into a run of benching, with wide flexibility, being capable of heating up to about 70 square metres of floor area.

Evolution dans le chauffage: un ancien modèle de radiateur à air chaud (photo du haut), et sa présentation nouvelle, moins encombrante, plus souple et dotée d'une capacité thermique suffisante pour une surface au sol de 70 mètres carrés environ.

Развитие конструкции оборудования: ранний вариант отопительного шкафа с принудительной циркуляцией теплого воздуха (слева); усовершенствованный вариант, который можно помещать под скамьи, отличается компактностью и эластичностью в применении и может обогревать площадь до 70 кв. метров.

Perfeccionamiento de equipo: un modelo inicial de instalación calefactora de aire caliente a presión (izquierda), modelo perfeccionado posteriormente que se puede alojar en poco espacio dentro de una fila de bancos, con amplia flexibilidad y capaz de calentar hasta 70 metros cuadros de superficie.

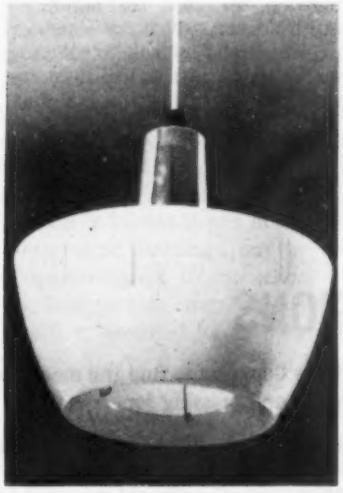
FUTURE IMPLICATIONS

The successful solution lies in collaboration between architects and industrialists from the very outset of their work. FRENCH DELEGATION

Having accepted the development of industrial methods . . . our job is not to submit to it but to direct its evolution . . . FRENCH DELEGATION

Everything indicates that the creative work of the architect is sub-divided into two stages. The first is the creation of the archetype as standard, and the second the architectural creation where the elements or the component parts are assembled. SPANISH DELEGATION

Some years ago the work of the Ministry of Education's development group was little known in other (Government) departments. Now it has become the fashionable solution. There is, however, the serious risk that the change will be of title rather than of outlook, of putting a name-plate on the front door, while the work that goes on upstairs is little altered. Even if the new groups bring administrators, architects, engineers and quantity surveyors closer together, the benefits of doing so will only be modest unless each group has a superabundance of vitality and strong backing. ELIZABETH LAYTON: Building by Local Authorities.



Development of equipment: first attempt at a light fitting based upon a careful analysis of the functional requirements of efficiency and freedom from glare; later versions designed with the same objective.

Perfeccionamiento de equipo: primer modelo de iluminación basado en el cuidadoso análisis de las necesidades functionales de la eficacia y la eliminación del deslumbramiento; ejemplos posteriores del mismo modelo proyectados con el mismo motivo.

Evolution dans l'éclairage: première tentative de création d'un corps d'éclairage basé sur une analyse approfondie des exigences fonctionnelles d'efficacité et d'absence d'éblouissement; modèles récents basés sur les mêmes principes.

Развитие конструкции оборудования: первая попытка сконструировать осветительную арматуру на основании тщательного анализа функциональных нужд в мощности и отсутствии ослепляющих прямых лучей; более поздние типы, сконструированные для той же цели.

Left: Designed by Development Group, MOE Architects and Building Branch

Troughton and Young Ltd.

Right: Merchant Adventurers Ltd.

FUTURE IMPLICATIONS

By these techniques the profession can participate in the current large-scale building programme, control and direct the process of industrialisation, and yet offer the individual architect a growing freedom of responsibility and initiative. But this trend is still resisted by a large section of the profession in Britain, who have not yet identified it as the way forward for architecture in an industrial society. That prefabricated systems will succeed in the future is already certain. The large-scale programme of schools has resulted in building of high quality being erected more quickly than by traditional techniques and at no greater cost. Evidence of their success is that these methods are now spreading from the school building programme to other building types financed or controlled by the State.

The emphasis of this large-scale programme has been a practical action, and it has been achieved ahead of any consolidated success in the field of modular co-ordination. There is no reason, however, why in the future the components of the various systems in use should not be widened to overlap. This is already evident in the Hertfordshire programme, where there are common components used for the 2 ft. 8 in. system (recently developed particularly for technical colleges) and the 8 ft. 3 in. system originally developed by the County. Current work on CLASP includes an interrelated system which can be used for buildings, mainly of a domestic character, which have shorter spans than in schools. This trend is likely to continue towards the ultimate goal of interrelated systems which can be applied to virtually all types of building.

CONCLUSIONS

It will be the job of the Congress to find the means by which architects can play their full part in society, by popularising and pressing for

1. Programmed building with well-defined forward planning;

2. Training and employment of sufficient numbers to undertake necessary research work;

3. Group research combining the talents of architects with administrators, engineers, and building users to increase knowledge of users' requirements, develop and test with practical trials architect-designed components, equipment and prefabrication systems, improve teamwork in the erection of buildings, and the administration of building programmes.

4. More democratic organisation of the architect's office, to give the individual architect wider responsibility and greater opportunities to use initiative and gain experience.

5. The Congress should also examine the means whereby there can be a more continuous international exchange of information.

evolved for Essendon and Cheshunt, developing and ment group, whose approach was similar to that of

The Story of Clasp

The importance of MOE Building Bulletin No. 19, *The Story of CLASP*, is not merely that it describes the way in which a group of local authorities have voluntarily pooled their resources for research, development and the bulk purchase of building components, and that by such means they have been able to provide schools quicker, more cheaply and with a bigger teaching area than the national average. Its fundamental significance equally lies in the fact that a quite small and informal group of architects, joined together without any elaborate constitution or book of rules, have been able to co-ordinate their demands on manufacturers for architect-designed components used in a system now being applied at the rate of about £7 million a year. This is the first time that architects have succeeded on such a scale in reaping the full benefits of mass production, whilst retaining complete control of the design and refinement of the system employed. This is, therefore, one way in which the architect can succeed in retaining his central position during the inevitable change-over in the building industry from craftsman to manufacturer. (See *The New Technocracy*, p. 934.) How can these lessons be applied by other local authorities? The present CLASP members believe they can increase the size of their programme, but that any more members would tend to break down the present satisfactory method of control by a working party small enough to gather together round a table. If the method is to spread, it can only be by the creation, on the initiative of local authorities themselves, of similar parallel organisations. The greatest urgency, of course, is in those areas of the country in or near large centres of population where building prices are rising rapidly, and conventional methods are failing to provide schools and other types of buildings fast enough, of a suitable quality and at the right price. But will any other authorities be prepared to surrender some of the freedom they at present enjoy with their building programmes? Many such authorities, if they continue on the present basis cannot possibly succeed in meeting current educational and other requirements; such joint action like CLASP would seem to be the only possible alternative. Already a second group is being formed largely on the initiative of Shropshire (County Architect Ralph Crowe) together with West Sussex (County Architect F. R. Steele), Hampshire (County Architect S. Low) and also possibly Gloucestershire (County Architect R. F. Fairhurst); we wish this new organisation all success.

One of the incidental pleasures of this Bulletin is that it sets out for the first time to tell the official story of development work in the schools programme, starting from the very early days at Hertfordshire, and culminating with the international recognition given to the school erected at the Milan Triennale last summer. This we summarise below. The Bulletin also covers the structural system, including modifications which have been developed since it was first launched by Nottinghamshire (described in AJ, October 10 and 27, 1957; see also buildings illustrated, AJ, April 30, 1959, and February 9, 1961).

Early steps in Hertfordshire

Faced with an acute shortage of school places and other immense immediate post-war difficulties, the Hertfordshire County Council recognised it was necessary to break away from pre-war methods of school building. War-time experience had taught many of the authority's officers to face their problems as "planned operations" and the war-time development of light industries equally influenced the new approach. There was also a deeply held belief that school buildings existed to serve the needs of children and should not be conceived as public monuments or adult workshops.

The severe post-war shortage of manpower, and an even greater shortage of craftsmen, meant prolonged delays in conventional building. The light industries, hitherto on war production, were looking for a new range of peace-time jobs. Thus it seemed sensible to follow the site labour, especially the craftsmen, into the factory by using light industries to produce prefabricated units for school building. Most of the work had previously been done by engineers who tended to regard the house as a prefabricated unit and similarly school prefabrication was regarded in terms of putting together a number of basic classroom units. A far more flexible system was obviously needed if the design of each school was to be treated individually to meet special local educational requirements.

The Hertfordshire Authority therefore decided it was necessary to design a set of components—structural elements, windows, roof deck units, etc.—which could be handled and assembled easily with the minimum of building labour and which would still produce a wide range of different buildings for different requirements. In 1946 the authority decided to make the infants' section of Cheshunt Primary School a prototype building, designed on a square grid of 8 ft. 3 in., a dimension suggested by the Wood Committee. This school, one of the most important post-war British buildings, has profoundly influenced the development of other systems of prefabricated school construction. The prototype posed only the problems raised by a group of classrooms and their ancillary accommodation, but at Essendon and the second stage of Cheshunt the planning and structural problems of a complete school had to be considered.

For its 1947 programme of eleven primary schools, the Hertfordshire authority decided to build in the system

evolved for Essendon and Cheshunt, developing and improving the components used there in order to increase standardisation and reduce the variety of components, thus simplifying and cheapening factory production while retaining freedom in design and versatility in assembly.

The three main problems were:

(1) flat roofs were needed to give adequate freedom in planning without complicating the design of the components;

(2) suspended ground floors were too costly;

(3) the design of columns required stardardisation to simplify beam connections and to cater for a sufficient range of room heights and changes of floor level.

Though the plan of each school was quite different, the same range of standardised components was to be used for all eleven. Advance orders for many of the components for the whole annual programme were placed, and the 1947 Hertfordshire programme of prefabricated schools was the first to be mounted on a serial production basis.

While these schools were being built, development proceeded for the set of component parts for the 1948-9 programme of 21 primary schools. The method of construction remained basically the same but, to take advantage of the experience gained, a number of alterations in detail were introduced.

Ever since then development work along these lines has continued in Hertfordshire. The 8 ft. 3 in. planning grid system has been successfully applied to multi-storey building, and further development has led to the introduction of a 2 ft. 8 in. planning grid system.

M.O.E. development group

By 1949 the post-war school building programme had built up considerable momentum. Admirable in many ways, the new schools were, however, on average far too costly and were taking too long to build, mainly because of the labour shortage. The general problem was much the same as had faced Hertfordshire locally in 1946: it was increasingly clear that the building labour force could not provide in time all the new school places needed and that if costs continued at the 1949 high level they would outrun financial and other resources.

The present CLASP system of construction is lineally derived from the parallel development of systems suitable for multi-storey building with a 3 ft. 4 in. planning grid which the Ministry of Education's Development Group first tackled in 1949.

This group of the Ministry's Architects and Building Branch was set up in 1948 to study changing educational requirements, their effects on school buildings and to develop building techniques applicable to new schools in existing conditions. The results of these studies and their application were demonstrated and tested in a number of small "development projects"—schools built for local authorities at their invitation under the normal controls, in no way models for adoption by others but showing some of the results of the educational or technical work of the development group, whose approach was similar to that of Hertfordshire.

Free from the continuous pressure of large annual building programmes, the group had time to study in detail a wide range of problems in the context of the long-term educational building programme. Technically its work has not been concerned exclusively with new systems of construction. One of the main problems in each project was to balance the need for freedom and variety in planning with the discipline of standardisation for economic factory production without recourse to "standard plans."

Experimenting with a smaller dimension—the 3 ft. 4 in.—to co-ordinate components, the construction used for the Wokingham Secondary Modern School project (described in Building Bulletin No. 8), was further developed to lower costs at the Woodlands Comprehensive School, Coventry.

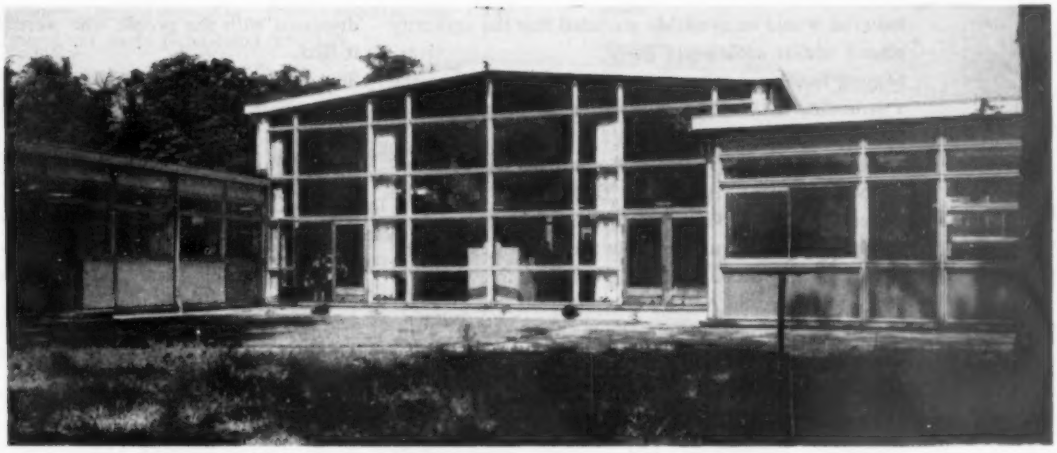
Wall-panels faced with aluminium were used for the single-storey primary school project at Limerick Wood, Coventry, a system further developed for use in multi-storey buildings at Ling Hall, Coventry. A third system, a pre- and post-tensioned concrete frame and concrete plank cladding, using the 3 ft. 4 in. dimension, was developed in the Worthing Secondary Technical School project.

A more direct link with CLASP was the Derbyshire project, the Belper Secondary Modern School. The educational objective was the study of problems of the secondary modern school in general and of a three-form entry mixed school in particular. The technical objective was to explore the use of the cold-rolled sections as the structural frame in a system to meet the needs already described. The aims were to secure freedom in design and planning, economy in the production of components, speedy erection without special plant, and assembly with a small force of craftsmen. On the completion of this project the manufacturers and developers of the steel frame continued to operate commercially, and educational buildings of various types were erected for other authorities using the same system.

Evolution in Nottinghamshire

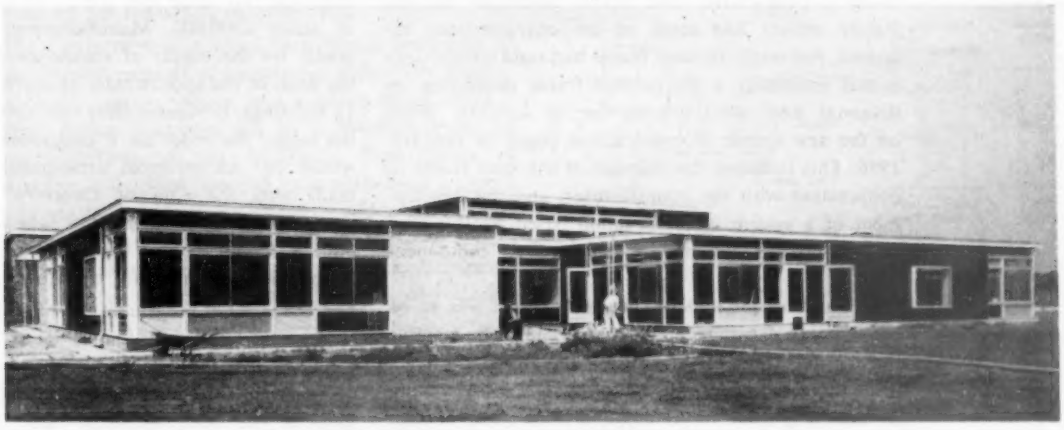
In 1955 Nottinghamshire, with an annual school building programme of about £1 million, faced an acute need for new school buildings. Moreover up to 10 per cent of the net cost of schools went on precautions against mining subsidence, and even so they were still liable to serious damage.

So that staff could be found in the County Architect's Department to carry out an intensive research and development programme, the authority decided to build their next annual programme of 14 schools in a proprietary system of construction and to commission private architects. In the autumn of 1955 a technical survey was carried out, drawing extensively on the general experience of post-war school building, to settle the general lines of future development work. Bricklayers and plasterers were very scarce in the county, and the whole range of building work was competing for their services. Some schools were taking three years to complete. It was assumed that any

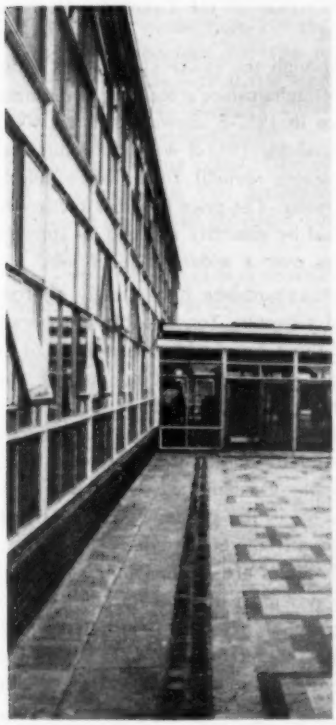


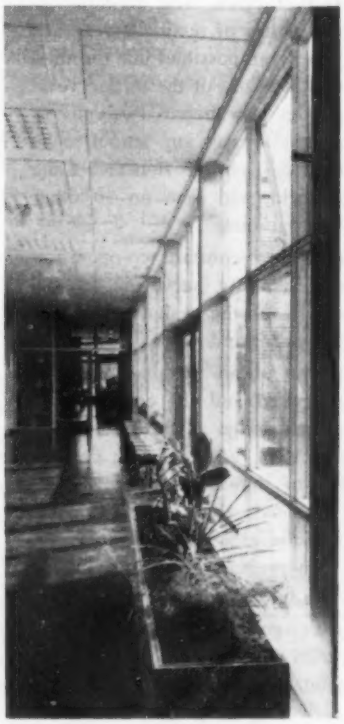
On this page are three examples of recent CLASP buildings

Bramcote Hills Primary School, Nottinghamshire (County Architect W. D. Lacey)



Long Eaton Primary School, Derbyshire (County Architect F. Hamer Crossley)





Arnold and Carlton College of Further Education, Nottinghamshire (County Architect W. D. Lacey)

Bramcote Hills Primary School dining space

material would be available provided that the authority placed orders sufficiently early.

Mining incidence was an important factor in devising a structure that would adjust itself to movements of the ground.

Thirteen complete systems of construction were examined and the Architects Department, with the Education Department, re-examined the character of school planning requirements in the light of experience gained in the decade since the end of the war and the 1944 Education Act. It was concluded that different requirements could be met by using the 3 ft. 4 in. planning grid with external walls which could change direction at 6 ft. 8 in. and 10 ft. intervals.

Traditional construction methods were rejected by the Authority. Pre-stressed and pre-cast prefabricated concrete, a rigid construction, was not suitable for mining sites. But steel in the type of construction using a cold rolled steel frame developed for the Belper project had some of the characteristics required. Although the steel frame had rigid connections it was essentially a pin-pointed frame depending on diagonal steel wind bracing for its stability. Work on the new system of construction began in January, 1956. This included the redesign of the steel frame in conjunction with the manufacturer, and the development of a system of construction based on this steel frame and a new range of standardised component parts.

This was a major undertaking, although it was to be based on an existing steel frame. It had to be suitable for a wide variety of educational buildings, articulated throughout to enable the buildings to follow mining subsidence ground movement, and to be cheap enough to allow sufficient teaching area in schools within the Ministry of Education cost limits. The development was based on the general policy of retaining well-tried materials and details wherever possible, but the final design showed many modifications of the earlier work. A set of standard drawings was prepared initially to cover all construction conditions in any school to be designed, but to be used first on the Bancroft Lane Infants School at Mansfield, and then on 10 other schools in the 1957-8 programme.

The whole design period saw constant co-operation between architects and quantity surveyors in the preparation of cost targets for the design of various elements such as roofs and windows.

By means of a pilot plan of an imaginary school, sketch standards were revised and the cost checked and controlled. The overall design of the system was the result of careful team work, each different element being the responsibility of different architects. The majority of standard drawings, about 80, were completed by July, 1956, and the group of architects who had worked on them then prepared the job drawings for the first school in the new system.

During this development stage there was collaboration with several manufacturers in the design of a number of non-standard components, e.g. concrete cladding units. At an equally early stage a general contractor was nominated to build the first school so that the design of the standard system as it developed could be discussed with the people who were going to build in it first.

Site work for the first school started in January, 1957, at a target maximum price of 71s. per square foot. A method of cost planning similar to that advocated in Building Bulletin No. 4 was adopted. The actual cost—74s. 3d.—was something of a disappointment, but it is quite usual for the cost per square foot of the first school in a new system to work out considerably higher than that of subsequent schools. The authority's faith that the CLASP system was inherently capable of securing substantial economy in the cost of school building was amply justified later.

First programme

In the 1957-8 Building Programme the Nottinghamshire Authority committed all its new schools to the newly-developed system, and eleven educational projects and two other jobs were started to a total value of about £900,000. Manufacturers were invited to tender for the supply of standardised components on the basis of the approximate quantities required for all 13 buildings. It became clear that up to a certain point the bigger the order for a component, the cheaper it would be. An informal arrangement was therefore made with the City of Coventry and Derbyshire County Council to build in the same system. Coventry built a school in the 1957-8 programme, and both Authorities assisted with the development work.

For this 1957-8 programme, Nottinghamshire invited competitive tenders for the school at Tuxford with the condition that the successful tenderer might be invited to negotiate the remainder of the programme on the basis of the same measured rates. This serial main contracting reduced the level of cost considerably. The tender for the Tuxford project was 68s. per square foot.

Although the CLASP system was initially intended for Nottinghamshire's building programme alone, experience in 1957-8 showed that the 400 tons of steel required for 1957-8 was not enough to obtain the full economic benefit from the available manufacturing capacity. The price of other factory-made components could be similarly reduced by spreading greater quantities over a wider range of jobs.

Nottinghamshire had already approached Derbyshire and Coventry for possible co-operation in this field. All three, faced with the problem of mining subsidence sites, saw advantage in pooling their resources to carry out technical work. Previously the task of co-ordinating the requirements of different authorities had been left to the manufacturers. In 1949 the London County Council began to build a large number of schools in the system developed by Hertfordshire, but gradually the LCC's requirements diverged, and further differences arose when more authorities began to use the system. It thus became very difficult for the manufacturer to organise his production effectively where a dozen different customers all required something slightly different, nullifying the economic advantages of quantity production. Nottinghamshire thought it more satisfactory for the customers themselves to co-ordinate their varying needs by associating in a con-

sortium to standardise their requirements and strengthen their purchasing position.

Clasp created

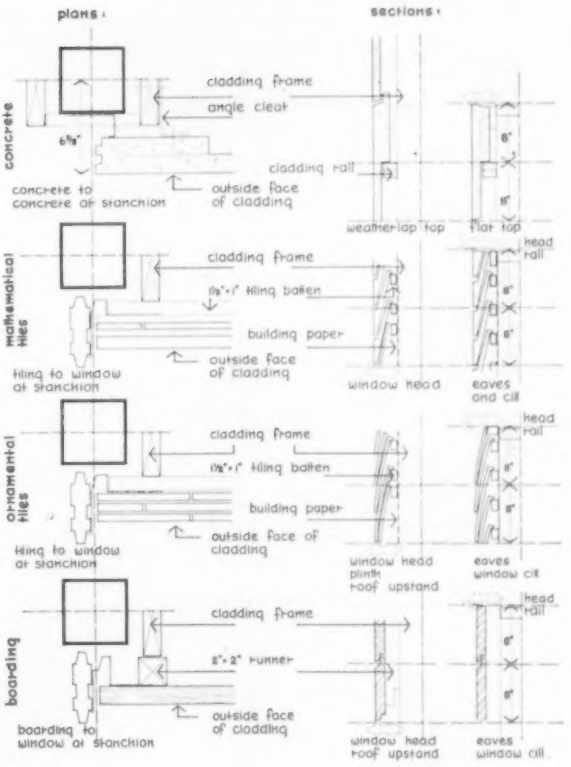
On July 24, 1957, interested local authorities at a meeting under the then Minister of Education Lord Hailsham were asked if they would like to join a bigger group to utilise the system of construction developed by Nottinghamshire. Membership was open to any authority prepared to build three jobs in the system during the coming year. CLASP, an unprecedented consortium, was formed and 31 schools to a total value of £2,500,000 were submitted for its 1958-9 building programme. In each subsequent year the programme has increased and the 1961-2 estimated work is £7 million. It has remained a purely voluntary organisation, without legal status, evolving progressively and informally, without constitution and without standing orders. Both its creation and its effective working are the result of team spirit.

The Consortium is directed by a Board, consisting of the Chief Architects of its member authorities, responsible for settling policy and meeting three times a year. Policy is carried out by a Working Party of representatives of the Architect's Departments of member authorities, meeting informally once a month and small enough to be seated round a moderately-sized conference table. The Working Party divides out among its members jobs of seeking tender quotations and of carrying out specific tasks of technical development: it receives back reports on tenders received and action taken. Minutes of Board and Working Party meetings are almost the only paper work of the consortium apart from photo negatives of drawings, quotations and specifications.

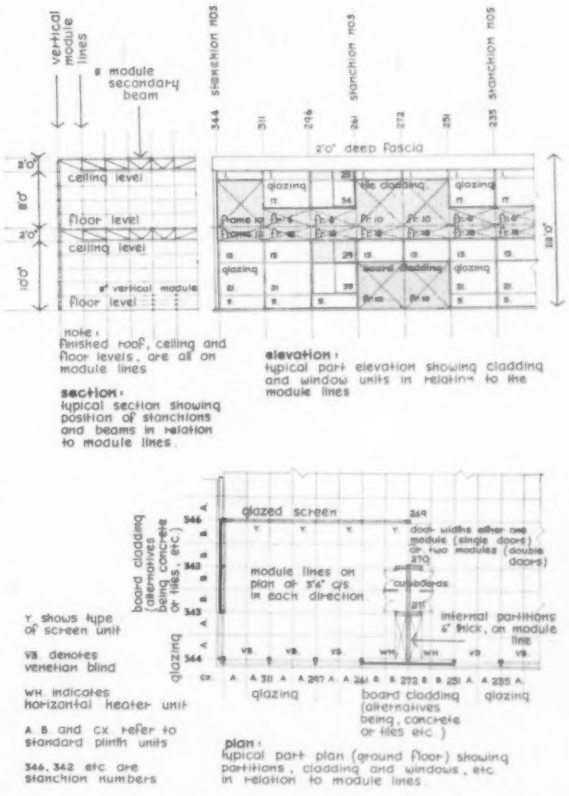
The Working Party estimates the total requirements of the whole consortium for each of the main standardised components for the next annual building programme, members invite tenders for their supply and report back. Member authorities invite tenders from general contractors for their CLASP jobs as they would do for any other. One of the few conditions of membership is that authorities take delivery on the dates they have proposed and had agreed by the Working Party.

Since the first school was completed in 1957, development work has continued on various component parts of the CLASP system, to make improvements, to lower manufacturing and erection costs, and to reduce the site labour required. For example it proved possible in the development of the Mark II range of window to introduce a greater diversity in design from a smaller number of sections.

Experience has shown the principal lines on which development work could most profitably be undertaken. The general need to do a greater amount of work off site in the factory is increasingly obvious and to secure an even higher quality of finished building and an even greater diversity of design. Development of the Mark II window range led to the Consortium decision to invest in development and research work one-quarter of 1 per cent of the gross capital cost of this building programme, with each member



External cladding: Types of cladding and methods



The dimensional system: Modular arrangement in plan, section and elevation

authority contributing staff in that ratio or making a cash contribution.

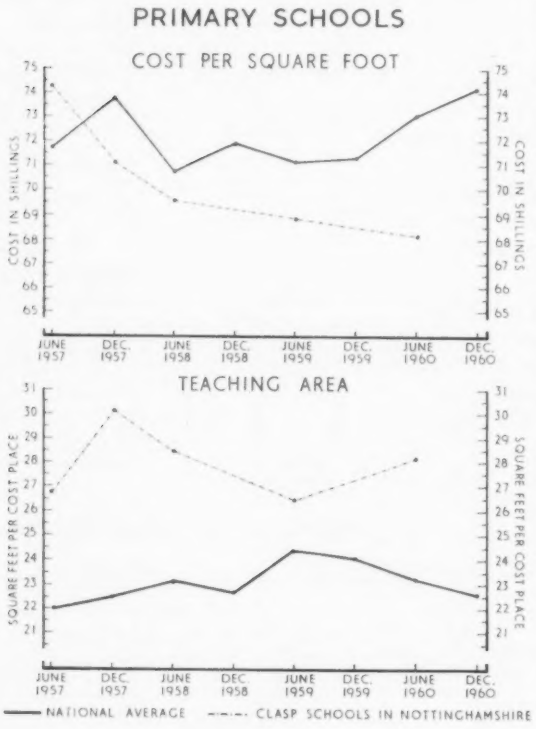
Some of the advantages

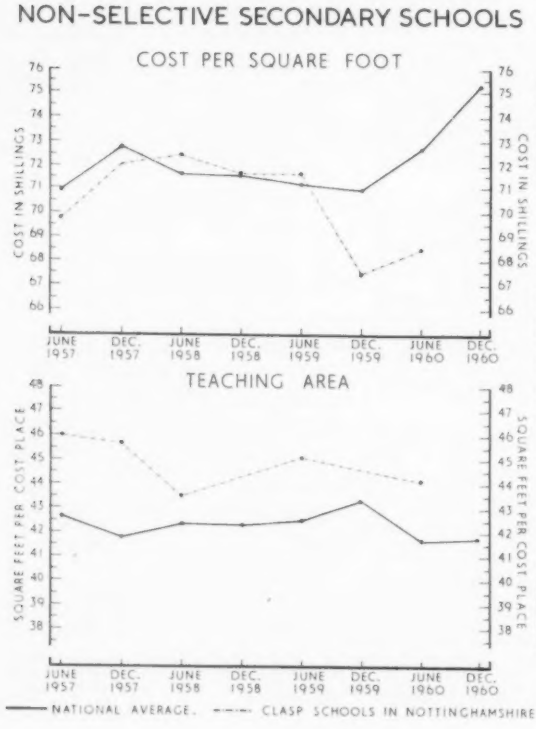
Principal economic advantages are threefold. Firstly, good schools can be built in the CLASP system at prices well within the cost limits laid down by the Ministry of Education: secondly, its use enables buildings to be erected rapidly on site with a small labour force: thirdly, it dispenses with the need for costly special precautions against mining subsidence.

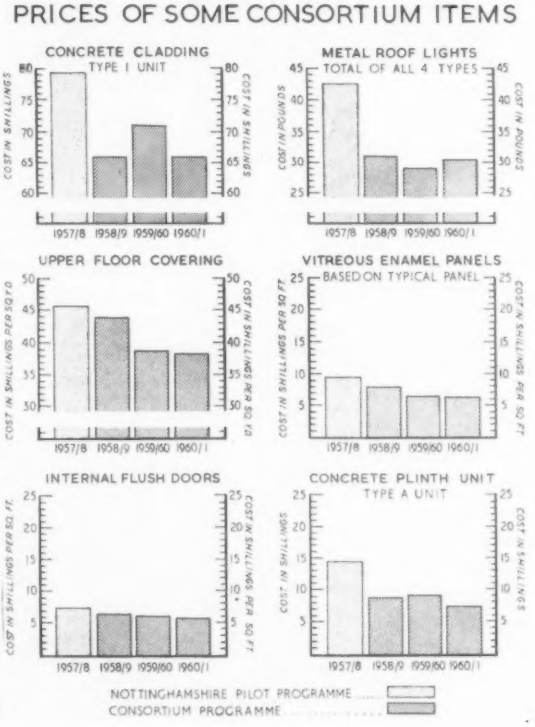
Tendering for the total supply of components required by all Consortium members for the whole year's building programme has brought significant savings in the cost of individual items. A more economic price is achieved by the production of components in larger batches: e.g. the basic average cost for steel frame components is 8s. 9¾d. per square foot, but in 1961-2 a graded scale of rebates will reduce it to 7s. 11¼d. per square foot, a saving to the Consortium of approximately £67,360.

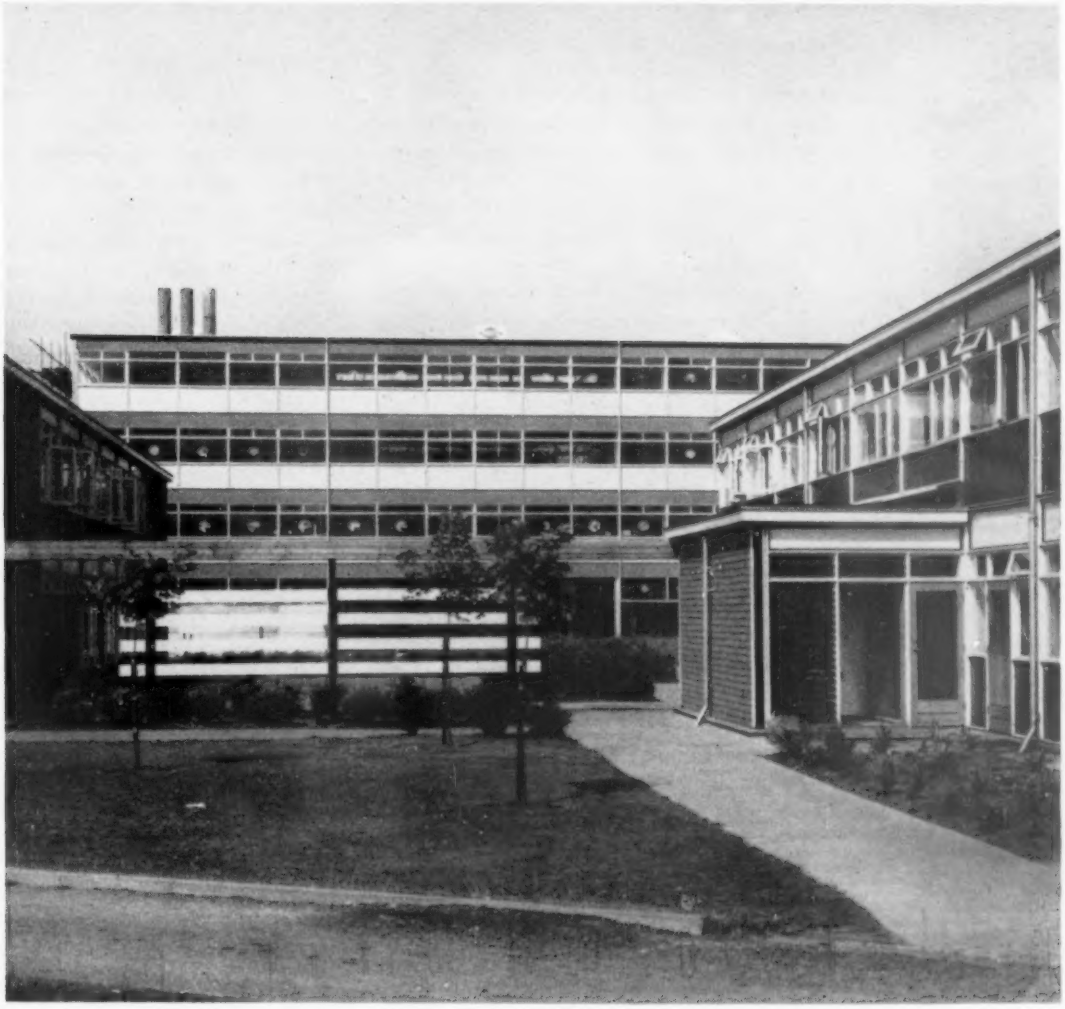
Consortium components amount altogether to about half the cost of CLASP schools, and the progressive price reduction of many of these items is naturally reflected in the overall cost per square foot. Construction prices for CLASP buildings seem to be rather more stable than overall building prices in periods of a sharp rise in building costs, due in part to the procedure adopted of seeking quotations at fixed prices—that is, half at least of the cost of the CLASP programme is stabilised for the next year's programme.

The fairly consistent level of cost is also due in part to serial contracting. Selected firms tender for a typical new school based on a bill of quantities where the specifications and descriptions are correct but the quantities only approximate. The contractor submitting the lowest tender can negotiate for a series of jobs on the rates submitted. Contractors submit keener prices on the expectation of carrying out a programme of jobs rather than a single one, and can organise their men and materials: experience gained in earlier jobs is used to good effect. Architects and quantity

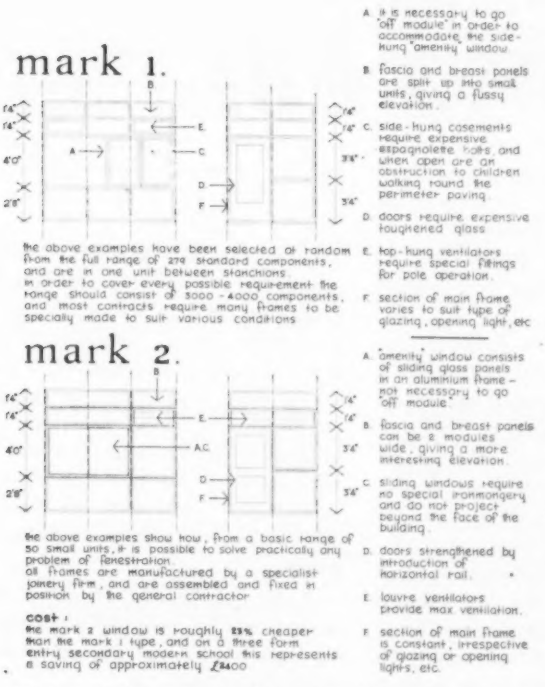




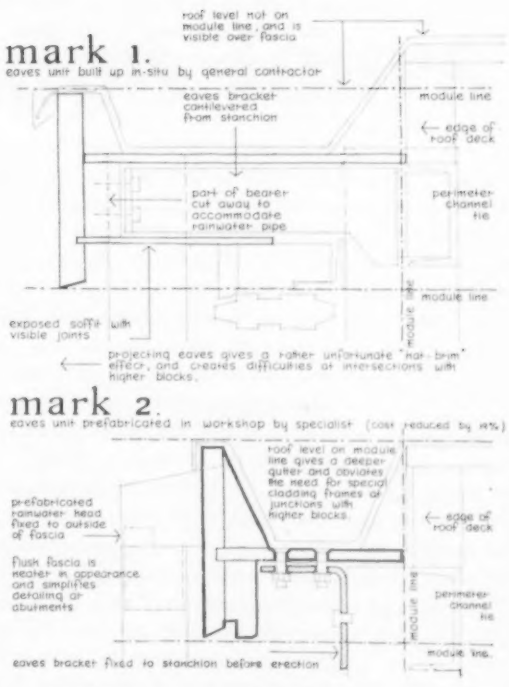




Birley Comprehensive School, Coventry. (City Architect: Arthur Ling.)



Window development: Analysis of problem and its solution.



Roof development: particularly applied to eaves.

surveyors can estimate the cost of jobs accurately in advance on the basis of known rates.

For some time now many Consortium authorities have used elemental bills of quantities which have played an important part in cost control, providing a ready-made cost analysis which assists in programming the work. The operation sequence within the element is more easily understood by the architect and site operatives, cost is related to the terms in which the architect designs the building: it simplifies the preparation of interim certificates and enables the quantity surveyor to assess more readily the value of the suggested variations permitting him to deduce the overall unit costs of functional parts of the building.

CLASP schools compare favourably not only in cost with the national average, they also achieve a high standard of quality and finish for their cost, and so are exceptionally good value for money. The casual visitor to a CLASP school in Nottinghamshire is impressed at once by the high quality of the building compared with other schools designed within the same cost limits. It must also be remembered that CLASP buildings do not require any costly special precautions against mining subsidence.

Speed in erection is another advantage. A survey of the construction period of primary and secondary schools in the Midlands in the period 1957-1960 shows that the average time taken to provide one hundred school places in primary schools was 4·80 months in the CLASP system compared with 5·86 using conventional construction, and for secondary schools, 4·39 months compared with 6·33.

The future

The role of the architect in designing a CLASP building will remain as important as ever. The system certainly does not produce a complete and ready-made construction. It is possible to design both good and poor schools in the method, and good architectural design and planning are as essential as in traditional material.

Consortium items have all been designed by Consortium architects, and it is open to the Consortium to redesign any component for use in a future annual programme. In traditional construction the architect is usually limited to a choice from the range made available by the manufacturers. In compensation the architect of a CLASP building has greater freedom in internal spaces than he would in a traditional method of load-bearing brick walls.

The CLASP system is still very much in its infancy and will no doubt be greatly improved and modified. The system and its components were originally designed to meet the needs of an annual building programme of about £1 million a year. The current 1961-2 Consortium programme amounts to £7 million and is 60 per cent larger than in 1960-1.

The design of a component which is the most satisfactory and economical for manufacturing in small quantities may not necessarily be the best possible one for an order ten times the original size. It will therefore be necessary in the near future to review the major elements of the system. Modification or even complete redesign of some components may produce the same or better performance at a lower cost, and careful modifications may reduce the site labour needed to erect some of the components.

A review of Consortium contractual procedure will be equally necessary to consider whether a particular component needed in a given quantity is better prefabricated by specialists.

Development work, an integral part of the Consortium's arrangements, may ultimately lead to the establishment as a separate entity of a development group for the Consortium as a whole.

Interest has been shown abroad in the success of the CLASP system in the United Kingdom and in the CLASP school exhibited at the 1960 Milan Triennale. Under a fifteen-year agreement, from October, 1960, arrangements have been made for the use of the CLASP system in West Germany, with the Consortium supplying CLASP working drawings and information sheets, and a full exchange of information about future developments. In return the Consortium will receive a percentage of the gross revenue of the West German suppliers of CLASP components. The Ministry of Education act as agents for the Consortium in negotiating overseas agreements.

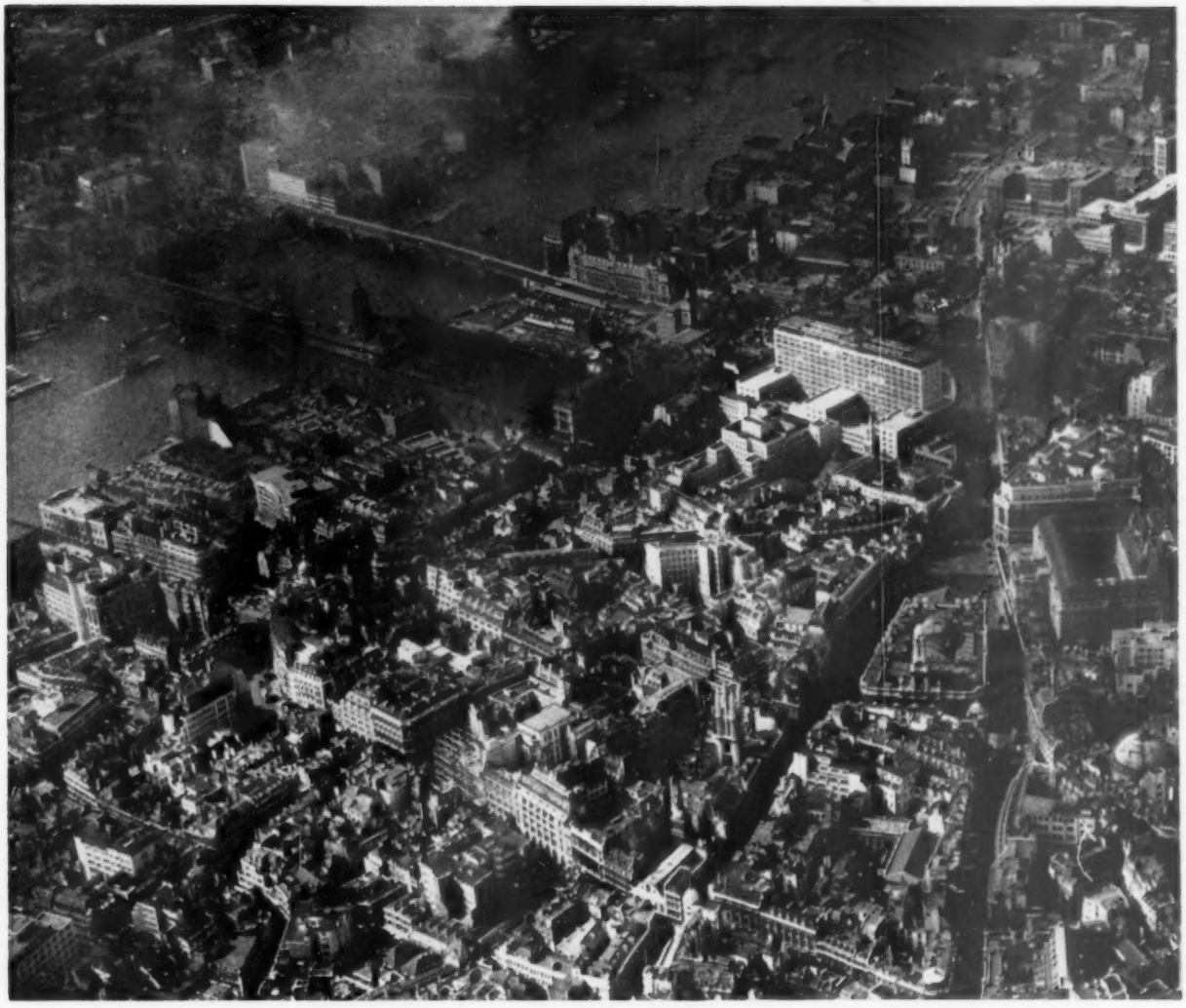
It is very doubtful whether the Consortium can continue to expand indefinitely without losing the close touch of informal operation on which its success so largely depends. For smooth working the number of members must be restricted to a body that can be accommodated comfortably round a table for free discussion.

On the other hand it should be possible for the present Consortium Members to increase their annual CLASP building programme without upsetting the present smooth arrangements. There is a danger that the quantity of some components required for a year's programme may exceed the reasonable production capacity of moderate-sized manufacturers which may tend to increase the price of some components.

The problems faced by Hertfordshire in 1945, the Ministry of Education in 1949, and Nottinghamshire in 1955, have not materially changed. It is still as difficult as ever to find sufficient craft labour on building sites. The building industry is fully extended in most areas.

The challenge can doubtless be met by the effective use of any one of the prefabricated systems of construction now available which minimise the need for scarce types of craft labour on building sites; but the desirable freedom in design will not be achieved unless the individual components are specifically designed on the principle of the CLASP system for a wide variety of possible combinations. Nor will the full economic advantages of this approach be obtained until the standardised components are required in the quantities associated with a really large building programme.

And this, in the case of many authorities, can be secured only by means of a voluntary association on the lines of, but not necessarily identical with, the CLASP Consortium.



Ian Nairn :

IUA London Tours

For July 4, 5 and 6 a sequence of eight coach tours of London has been organised by the RIBA. This illustrated guide by Ian Nairn is a very short indication of the worthwhile things to be seen on the routes, well known or obscure. As any one person can go on only three of these tours, the author suggests that Congress delegates should select one historical tour, one modern, and one just London. "Just London" must mean the river, *i.e.*, Tours C or D. Modern London is best served by Tours E, F, G and H, historical London by Tours A and B. Ian Nairn's combination would be Tours A, C and G2. There are two E, G and H tours, in each case the second tour is virtually the first tour taken in reverse order.

VISITES GUIDEES

Cet article illustre quelques-unes des curiosités, intéressantes mais moins connues, de la ville de Londres, qui figurent au programme des visites—guidées officiellement organisées par l'Union Internationale des Architectes.

EXCURSIONES

Este artículo constituye una relación visual de algunas de las vistas más interesantes pero menos evidentes de Londres, que se podrán ver en las excursiones por la "City," patrocinadas oficialmente por la UIA.

ЭКСКУРСИИ

В этой статье в форме иллюстраций запечатлены некоторые интересные, но менее известные достопримечательности Лондона; их можно увидеть в ходе официальных экскурсий по городу, организуемых Международным союзом архитекторов.

Route **A**

The City of London: The Temple—St. Paul's and City Churches.

This tour starts not from the Royal Festival Hall but from the front of the Shell Building. There is, alas, a perceptible difference. Over the bridge is Somerset House, by Sir William Chambers, 1776, its careful academism better in small doses like the units facing onto the street (1), than the long over-petty river front. Historically, it must be about the only major public building in London completed exactly as the designer wished it (in 1856) at enormous cost.

Behind it rears, if that is the word, English Electric House by Adams Holden and Pearson, 1960 (2) which is *not* an auspicious beginning to a tour of London's modern buildings. The silver nudes in front by Sir Charles Wheeler have attracted ridicule and deserve it.

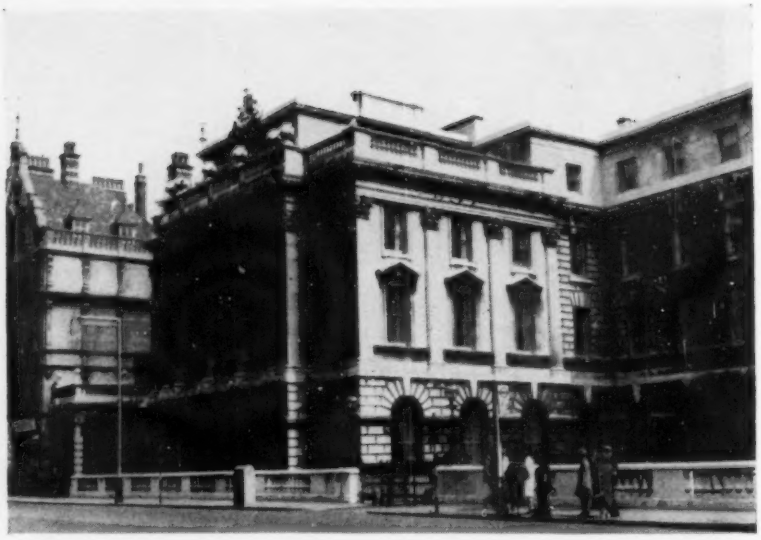
Down Fleet Street, a look at the figures and the statue of Elizabeth from Ludgate incorporated into St. Dunstan in the West (John Shaw, 1830) one of the nicest examples of the very typical London habit of reusing and fitting in, not demolishing wholesale.

The view ahead is the famous counterpart of dome and tower of St. Paul's and the spire of Wren's St. Martin Ludgate (3) now augmented with a decent new office block by T. H. Birks. It is difficult to say whether the railway bridge, on the site of the old city gate, adds to the view or spoils it. It generates more spatial tension but impedes the clear view: decide for yourselves.

2.15 p.m. St. Paul's. If you want a pub, the only near one is the Flying Wheel, inconspicuously down an alley opposite N.W. tower. Try the Worthington E. Most outside views of St. Paul's must be well known, but for an unfamiliar and incredible one, go round the north side to an alley, exactly opposite the north transept. Down to the end, turn around, and the whole world is St. Paul's, falling down right on top of you (4). If you want an architectural definition of terrabilita, here it is.

A choice here: St. Paul's in detail or the Wren city churches. The best thing is probably a quick look inside the cathedral and then round the city. Of the churches, two are particularly worth while—St. Stephen Walbrook for its fantastic, serene double space—domed central octagon and aisled nave simultaneously (6) and St. Benet, Paul's Wharf, for its delightful Dutch exterior, its dark luminous unrestored interior (it was never blitzed), which tells more about the real City spirit than a dozen pompous speeches.

Two more churches within a few yards are worth more of a look than the others on this walk: Hawksmoor's St. Mary Wool-



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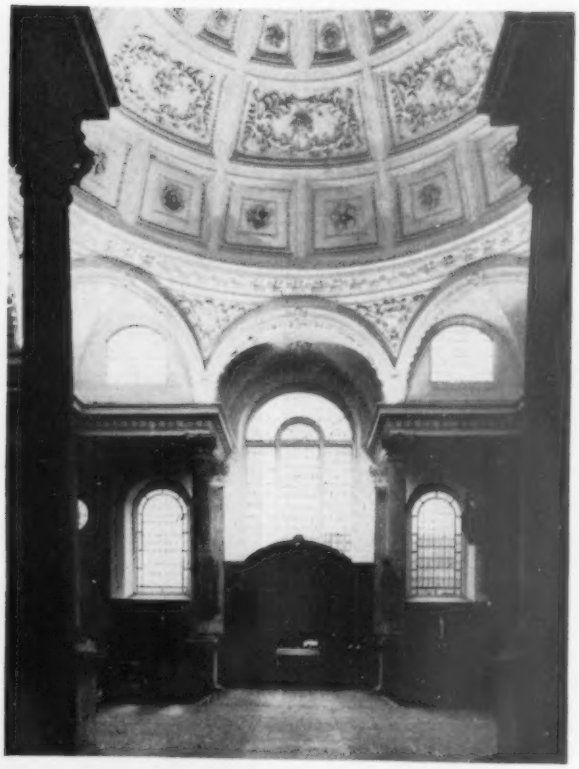

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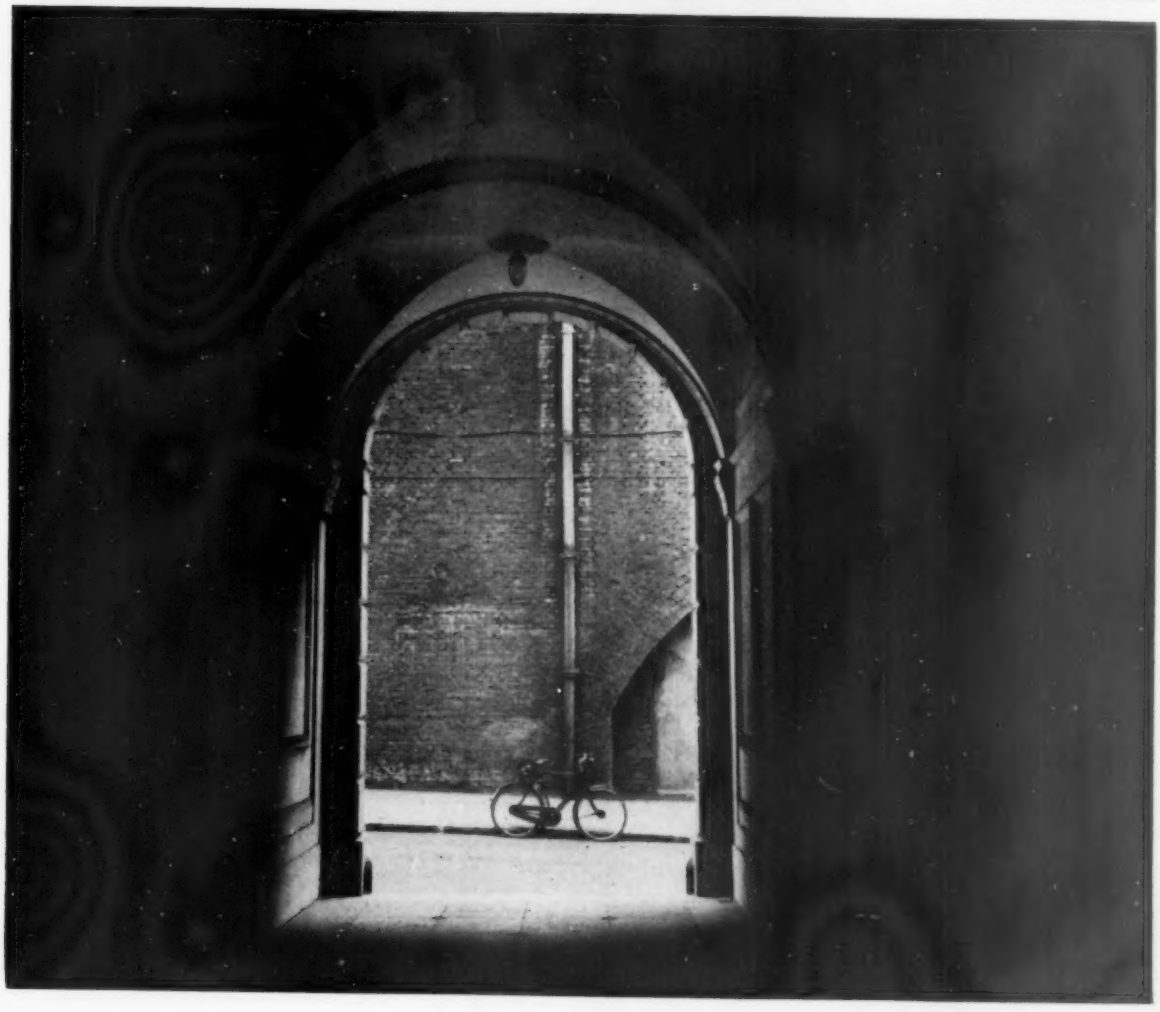

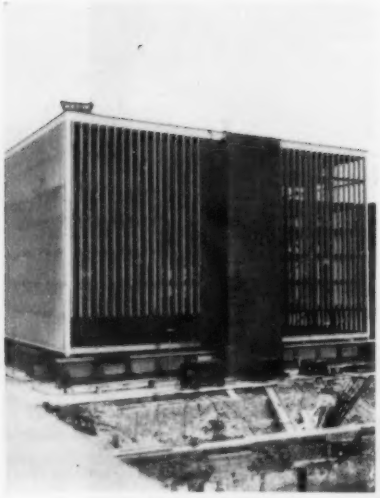

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noth, 1716, just beyond the Mansion House, with the best classical interior in central London, and Wren's disarming and frilly Gothic church at St. Mary Aldermary, a few yards from St. Stephen Walbrook, full of plaster fan vaults.

The building next to St. Stephen is the Mansion House by George Dance the Elder, 1739, with vast Venetian arches lifted straight from Hawksmoor—a form of flattery which has by no means ceased among architects. Down Dowgate Hill, on the way to St. James Garlickhithe (usually locked) is the Skinners Hall (8) by William Jupp, 1790, one of the best of the remaining old City Companies Halls. Walk down the passage and into the tiny courtyard again, you will experience the real pattern of the City. The other thing—that is, the false inflated idea of what big business ought to look like in the twentieth century, is only too evident all around this walk. Whether the results wear pilasters or curtain walls doesn't matter very much really. The most honest new building houses cars, not people: the City's first multi-storey car park, on the river a few yards from St. James Garlickhithe (7). Along Upper Thames Street is one of the best and latest of Wren's steeples, St. Mary Somerset The College of Arms is a jolly bit of mid-seventeenth-century fun, but no more, and that brings you back to St. Paul's, with a superb view of the dome which when all the clichés are said, is still one of the half-dozen best things in England.

On the way to St. Bartholomew's, another Wren steeple (8) and again one of the best—Christchurch Newgate, with its perfect balance between the closed and open stages. The coaches will stop in West Smithfield, opposite the market, which looks like an urban square and in fact houses a cobbled spiral ramp called Smithfield Goods Station, a wonderful bit of Cockney surrealism—and a townscape opportunity crying out to be realised.

St. Barts-the-Great is cathedral Norman and no nonsense, slapping you firmly round the ears with its insistent triforium arches, four-inside-one. The east end is a reconstruction (Aston Webb) but a worth-while one. There is one of the prettiest old houses in London just over the churchyard wall (9): John Betjeman uses part of it as an office. Its young brother, St. Barts-the-Less, is also well worth a visit. Dive in through the stout baroque entrance to Barts Hospital (Edward Strong, 1702; a statue of Henry VIII looking very fed up). Gothic, octagonal, by George Dance the younger, master of Soane. The door, instead of being locked, has a note on it above the handle: "Please try this, it works." In a city where many incumbents seem determined to keep the visitor out, this is very refreshing. So is the English mixture of church and hospital all hugger-mugger in a precinct at the heart of a city. I suppose today we would zone it and prohibit one or the other as a non-conforming user. A notable advance?

Down to the Embankment via a job lot of office space, Ancient and Modern. The Embankment details (by Bazalgette, 1864) are worth noting: heavy, but coherent and humane. Seats with camels as supports, and

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so on. The Temple, the next stop, is one of England's quintessential places (14) a kind of super-college with myriads of small quads, large quads, closed quads, open quads. That many of the buildings are post-war rebuildings in weak Georgian style makes surprisingly little difference (e.g. in the space in front of the Temple church).

The Temple Church, blitzed and now repaired, is a masterpiece. both the circular nave (15), one of the earliest Gothic buildings in England (1180), in feeling very like the Canterbury quire, and the spacious choir classic English thirteenth-century architecture—Salisbury purged of its mannerisms. A hall church, with aisles the same height as the nave, and a very elegant way of fitting in the triple lancets to the space left by the vault. The Middle Temple Hall with a grandly conservative hammerbeam roof of 1574 (none of that new-fangled Elizabethan stuff) is worth a visit too.

The trip back has two accents, apart from the overpowering backcloth of the Houses of Parliament: Waterloo Bridge (12) designed in 1934 by Sir Giles Gilbert Scott and Sir Owen Williams and still the best modern bridge in Britain, and the admirable asymmetric tension between the two blocks of Norman Shaw's New Scotland Yard (1888 and 1912) seen over your left shoulder as you cross Westminster Bridge: it saves you trying to look for the famous view of St. Paul's: the Shell Building has done for it.

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Route B

Georgian and Regency London: Lincoln's Inn—Bloomsbury—Regent's Park Carlton House Terraces.

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The same way out as Tour A, and nothing special here until Lincolns Inn Fields. Here Lincolns Inn is sufficiently like the Temple to be worth missing out, if you have been on Tour A: instead, pop into the Soane Museum on the north side of the square, for a look at something which is unique in England or Europe, one lonely man's probing of space as though it were a mistress to be known utterly. If only there for a few seconds, ask for the breakfast room and see more spatial thought and imagination than most architects achieve in a lifetime. On the way State House rears its head above the trees, (1) and is worth going into Hol-

born to see, not so much for the building itself which is a gallant failure (Trehearne & Norman Preston, 1957), but for the superb placing of a superb Barbara Hepworth sculpture in the courtyard. Opposite is a good pub, the Old Red Lion. Draught Bass and all that.

The tour of Bloomsbury starts with probably the least spoilt of the Georgian Bloomsbury streets, Bedford Place, a paradigm of quiet urbanity reinforced by the brown-and-cream painting—no pastel colours needed here. Beside it, the better known setpiece of Bedford Square is somehow contrived, with its flat centre pieces to each side and the way in which space leaks out at the corners. If you already know the AA, the 20 minutes of time might be better spent with a quick look round the corner at the British Museum, the only building where Smirke was inspired to feel deeply as well as act correctly, like a self-contained man shaken out of himself. As far as I can see, you will pass this anyway because the proposed route has been overtaken by the traffic pattern and if followed will result in multiple prosecutions. Then, up through northern Bloomsbury—and no thanks to London University who demolished the best side of Gordon Square to put up the erection (2) which improbably enough houses the Courtauld Institute. What is left of Bloomsbury is really a matter of pretty vignettes between trees—and Wilkins's portico of University College (3) a really grand unit in itself, but leading nowhere and attached to nothing: a man winning the VC in a pointless action after the armistice has been signed.

More trouble with one-way streets and then Fitzroy Square, by Adam—Sir John Summerson once wrote "more movement than a flat row of houses might be thought capable of." In fact, it is not so capable, as you will see for yourselves. For visitors to the Soane Museum, then Soane's Grecian Church of Holy Trinity Marylebone is a sad illustration, always relevant, of the fact that most genius is intermittent. Holy Trinity was designed cerebrally, not organically, and looks it.

The next hour is all Nash, Repton and sensuous scenographic pleasure. Forget architectural syntax, forget the shoddy building, just lie back and enjoy it. The highlights are Park Crescent (4) (1812) the first terrace, smooth and sober (the bit in the photograph has just been put back after being demolished in the blitz), then York Gate (5), a formal frame to Hardwick's Marylebone parish church. Nash had the *mot juste* for every situation. Here it was so *juste* that the church had to be made more imposing to fit the scale of the frame. The next two terraces were designed by Decimus Burton when he was the same age as a first year architectural student, then a pair (Hanover and Sussex) which Nash must have done between drinks.

Walking across the park, stop at the exact point where the path meets the lake for the second time, near the island. Across the water, weeping willows, and just one-third of a smooth stucco villa visible, the whole of picturesque landscaping in a glance,

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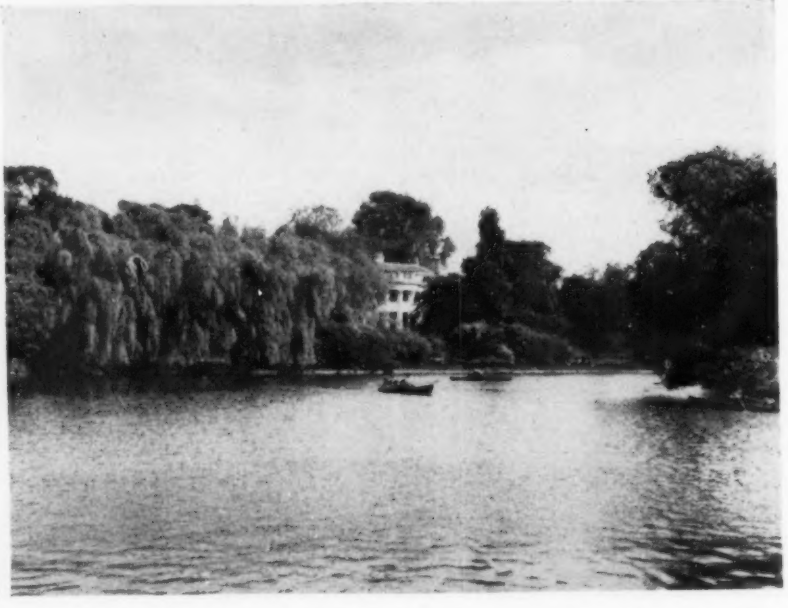

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augmented by the view of Castrol House seen above the trees from the bridge. Then, on the other side of the park, at Chester Gate, the old rogue pulls out a whole family of rabbits from his hat: Chester Terrace, a dizzy perspective of columns framed in papery triumphal arches (7), Cumberland Terrace beyond to the north like a setting for simultaneous performances of half a dozen Handel operas. You known it is absurd, and you don't care.

From here back to St. James's was mostly Nash and Adam, but the twentieth century has pretty well done for it. Spare a backward glance near Oxford Circus for the way the exquisite visual effect of Nash's witty, chic church of All Souls Langham Place has been senselessly ruined by the BBC extension (8). Regent Street keeps Nash's superb plan, but the 1920 elevations are a mockery except at the heavy but impressive Quadrant next to Piccadilly Circus (Sir Reginald Blomfield, 1920, adapting the Norman Shaw design of Swan & Edgar's). In Haymarket it is also a little odd that the COID showrooms are in the ground floor of one of the very worst postwar office blocks.

Waterloo Place, the afternoon's last stop, is still all Nash. Other architects may have done some of the building, but the overall hand of the Great Townscaper is everywhere—in the wonderful St. Petersburg scale of Carlton House Terrace in the calculation of the push-me-pull-you steps around the Duke of York's column, playing hide and seek with the view up Regent Street, in the miniature city of Carlton Mews (9). The Mews is worth a special visit because I fear that it won't be there much longer—facing the column, turn left and go into the hole in the stucco. And finally, as a contrast to the flamboyant planning, is the society of the clubs (10)—from left to right Decimus Burton's Athenaeum, then the grand proud pair of Travellers and the Reform both done by Barry (1829 and 1837) before he became corrupted by eclecticism and overworked by the Houses of Parliament. The view in the trip along Piccadilly will mostly be the red backsides of London buses: in St. James's Street much more than can be mentioned. Two things particularly: on the left Boodles Club (11) flamboyantly Adamesque and not in the least living up to the image of the polite restrained late eighteenth century. Next to it a new building is going to go up for the Economist by Peter Smithson. And at the end of St. James's Place on the right (half-way down a narrow street, so sharp eyes are needed) the exciting block of flats by Denys Lasdun, 1960, triumphant vindication of putting completely modern buildings right next to the eighteenth century. It is a real tour-de-force (14) and only a very few British architects could have brought it off. For once, the man and the job were exactly matched.

The way back is down Whitehall, with far too many buildings to mention. Perhaps the oldest is the Treasury, whose Soane-Barry façade just at the moment has absolutely nothing behind it.

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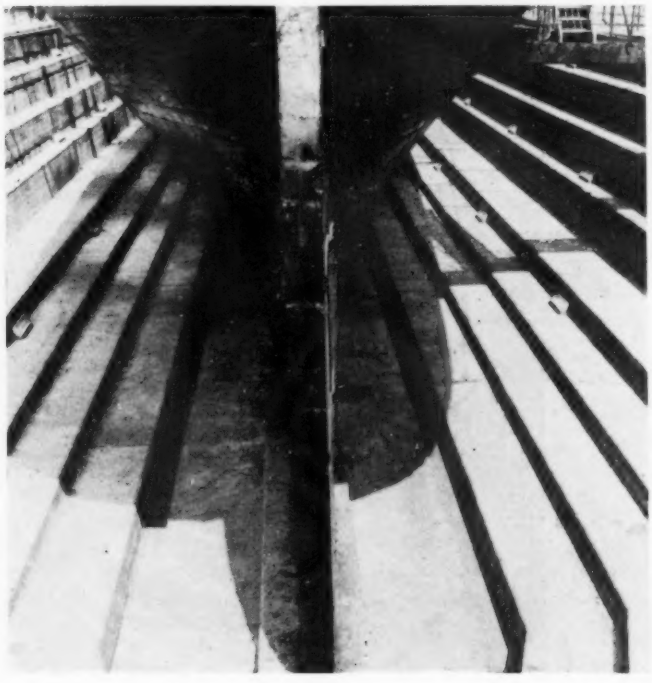
Route **C**

Greenwich: (Cutty Sark—Royal Naval College—Queen's House—Greenwich Park—Royal Observatory)

This one starts on the Thames, and whatever intellectual pretensions you may begin with, the simple pulsing river rhythm (1) will get you before you arrive at Greenwich (I hope). West of Tower Bridge it is the pattern of steeples behind warehouses (1) downstream the rhythm of dock cranes and water and timber on decks takes over from anything so small scale and static as individual buildings. Somehow, naval architecture makes ordinary architecture seem a bit superfluous, a point emphasised by the beautiful and utterly functional hull of the Cutty Sark (2). Aboard, the captain's cabin is a copybook example of richness without ostentation. (2) If you can spare five minutes from the Cutty Sark, nip into the market just off Nelson Street, as neat a piece of comprehensive planning as exists anywhere (3) (by Joseph Kay, 1830). The pub here, right in the market, is the Coach and Horses, and Treble Gol is the thing to ask for. But be quick, they close at 3. Nelson Street itself has been done up in grey and lilac in a Civic Trust-type scheme: a pity, here, where the formal unit is small enough and robust enough for the original yellow stucco to do very well.



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The main hospital buildings must be well enough known and in fact Wren here is almost as slapdash as Nash, concerned more with his axis than with the details (the original bits by John Webb are the better than this). But two less-well-known parts are worth a look. One is the astonishing variety of forceful things Vanbrugh managed to pack into a small corner when completing the scheme (4), as wild and wild could be. And the other is the inside of the chapel with its extraordinary miniscule decoration by William Newton, Ashman Stuart's assistant; the effect of extreme pomp on a tiny scale is extraordinarily fine.

The outside of Inigo Jones's Queens House will probably be familiar too: what cannot be shown in photographs is the sure and crisp spatial sense of the cubical spaces inside, firmer and more solid than their Italian prototypes. Up the hill is Wren's enchanting bit of fun (5), the Observatory—"a little for pompe," and all but Jacobean. The outside makes the point that all architects should relax as often as they can: the astronomical contents, along with things like the figureheads in the Cutty Sark (6) and the detail from William Kent's State Barge

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in the Maritime Museum reflect a really golden age when art and science were quite indivisible, and a technical advance was given a beautiful form quite naturally. Now we have Sir Owen Williams sneering at aesthetics and architects complaining about engineers: God bless us.

From here the route is across Blackheath (see tour D) to Morden College (7) a comely, homely, very English building of 1695, which Wren did not in fact design, he ought to have. Its lovable proportions will dog you in Salisbury or York or Chester. Opposite, and perhaps more worth a look because more uncommon, is the Paragon (8) Michael Searle's stupendous suburban speculation of 1790—a true Paragon, seven detached houses connected by colonnades spaced gravely around a quarter-circle, a perfect once-for-all balance between individual freedom and corporate unity. It makes even the most careful of our present-day attempts at arcadia look frenetic and tickled up.

Back down Croom's Hill the land of irregular fitting-by-accident streets that is an English speciality. The Presbytery, at the top, is one of London's few seventeenth-century houses (1631). Greenwich Chuch itself at the bottom of the hill is one of Hawksmoor's wonderful sequence for Queen Anne's Commissioners (1714): the weak steeple of 1730 is *not* Hawksmoor's and looks it—rather like Bloggs and Bloggs adding an extra tower to Ronchamp or La Tourette.

The way back is a long and uninspired drive through Deptford and Bermondsey. There is much more to blame than to praise in the modern housing which has gutted two Cockney boroughs and not given back anything in return. In Evelyn Street, a good example of the bulky asymmetry of the original London Board Schools of the 1870s (on the right). The new LCC housing in Rotherhithe New Road (10) though crisp and neat—the way the rhythm of the two-storey flat units has been handled on the slab blocks is particularly skilful—but is no real solution in either townscape or social terms to rehousing London families. This is better provided by the LCC Lawson Estate by Burnet, Tait & Partners (9), which in spite of some coy mannerisms has the spaces and details right—it is a *place*, not a collection of isolated blocks. This would be worth a five-minute stop if the coach driver will wear it, especially as immediately behind it is Chamberlin Powell & Bon's Two Bishops School. The last part of the tour is through a bit of Southwark that has been reduced to gloomy aridity by over-zoning, first natural and then planned. Two things are worth a look—Trinity Square, a complete 1830's square with a Grecian church in it and a prodigious statue of a king in front—the same date, size and scale as the late fourteenth-century statues in Westminster Hall, and hence a great rarity as well as an impressive bit of sculpture. And right at the end of the trip is the Old Vic Extension, by Lyons, Israel & Ellis, blotched and stained and bloody-minded but very English.

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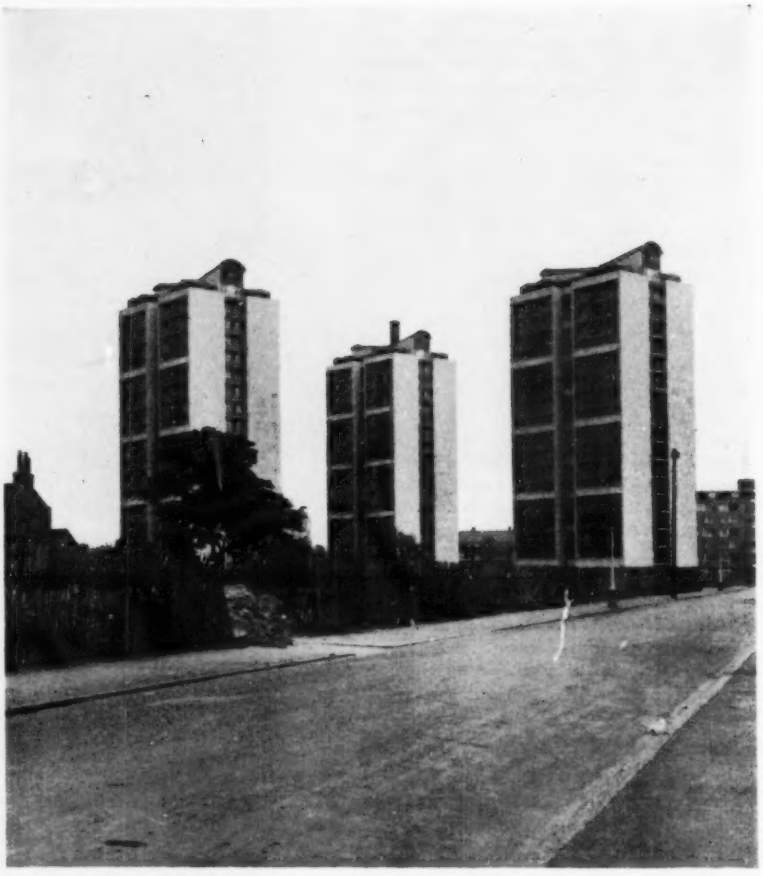
Route **D**

Blackheath: Camberwell B.C. Housing, SPAN housing, The Paragon and Morden College.

The visit to Camberwell and Blackheath is a set of agreeable inflections, not a lot of masterpieces. Unlike the previous tours, most of the good things are modern, and this is true of almost every trip through the outer boroughs of the County of London. Camberwell, Lewisham and Wandsworth are some of the best places in England for seeing good modern buildings of all types and ranges of expression.

The first inflection comes immediately past the Lying-in Hospital of 1830, "licenced for the reception of pregnant women" as it says over the door: the Addington Street extension or LCC's County Hall, put up last year, soberly and richly detailed. Then, at the start of Kennington Road, a flamboyant Gothic Revival steeple (with stars and stripes on it—it was paid for by dollars) attached to a combined new office block and church. The old church was blasted and had to be demolished: the result is a mature, humane compromise. Kennington Road itself was laid out on a grand scale in the 1820s: urban Georgian terraces behind big trees. The pattern is still there but has been shockingly neglected, by allowing the old buildings to fall down and by refusing to replace them in a similar rhythm. A pity, because these streets south of the river are some of the best in London.

At traffic lights, and almost hidden by trees, is one of Prince Albert's cottages—a model dwelling designed by the Prince Consort, moved here from the 1851 exhibition and now under repair. Mildly Elizabethan and surprisingly nice. Then down Camberwell New Road, with a look left at the thickly detailed but effective point blocks of the LCC's Brandon Estate (1) and right at the steeple of one of G. E. Street's best churches, St. John Kennington, 1870. Farther down the street Clifton Cottage of 1833 (2) shows how effortlessly jobbing builders could combine urbanity and domestic charm before the Gothic Revival got at them. Then on the right, just before the railway bridge, a simple but very well detailed R.C. secondary school by Hudson and Hammond, 1959. The spandrel panels, particularly, are deep and rich and haven't faded; and there's no applied art work. Camberwell Green is a nice space lost to municipal clutter, and the candy-striped spire beyond is Sir Gilbert Scott's big Camberwell church, 1844; imposing, soulless, and utterly typical. But Sceaux Gardens, the first stop, is neither cluttered nor soulless. It is not so much the design of the tall blocks, something which we really have not done successfully, but the care taken over the landscaping and the way the existing thick planting has been kept so



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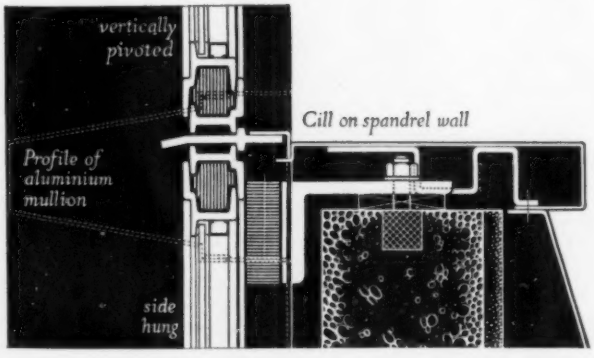

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that the effect is really jungly (3) not a set of big buildings looking at each other over a shrub or two. Mercifully, the planting too has been kept unfenced, and the loss in scrubby grass and litter is more than balanced by the fun the kids get out of it (4). This is the only buildings-in-landscape scheme that I have seen which really works for a heavy incidence of Cockney children, who can be rather like locusts when they feel in the mood; and this was done not by the LCC but by a borough council. Even the French names to all the blocks make sense, because Camberwell and Sceaux are twinned towns. The licensed premise here is the Walmer Castle on the main road: either Ordinary or Director's bitter will do you nicely.

Just beyond this, right, is Peckham Comprehensive School (5) by Lyons, Israel and Ellis. Beautifully proportioned, beautifully landscaped, but the colours and finishes a little bit impersonal and undemonstrative. Then a long stretch where people are more fun than buildings, until New Cross. Here, on the right, a real masterpiece: Deptford Town Hall. The architect was E. A. Rickards, the date 1905, the style Edwardian baroque. But it is still a masterpiece. This bloke had the gift, and there's no substitute for it.

Up the hill to Blackheath, which like so much of London or England is not a matter of individual buildings but of bits of façades (1780, 1860, 1920) peeping out between trees at odd angles, of a central green space full of footballers, red buses, lorries going to Chatham, fairgrounds, kids licking ice cream, and oddities like the

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Victorian church (Benj. Ferrey, 1857) stuck on the sward like a postage stamp.

Blackheath Park, beyond, is very different; please keep off the grass, dear, and what the damnation is your poodle doing on my lawn. Just as nice, but completely different: *chacun à son gout*. That I myself would stifle inside three weeks in Blackheath Park is my own loss. The lush arcadian landscape of the various Span estates is incredible (6) each of the sites and treatments different yet keeping the Eric Lyons house style—a very exciting theme-and-variations effect. Whilst walking round, don't miss a very good house by Peter Moro (7) (corner of Blackheath Park and Foxes Dale), and, directly opposite, a spiky estate church of 1830 by George Smith from the original development. The tower is clapped on to the east end, and this leads to some surprising things inside. Many original houses still remain, and the proportion of Span to stucco is just about right now; more Span here would be too much of a good thing. But, dear Heaven, what a little Span would do to the interminable bow-fronted 1890 wastes of East Dulwich or South Peckham, where there seems no hope of any rebuilding.

From here, Morden College and the Paragon are next door (see tour C). Greenwich College and the river trip (in reverse) are also mentioned there, but on the way down from Blackheath the coach passes a very odd bit of Englishness—Vanbrugh Castle on Maze Hill, his own house, built 1717, fiercely castellated, and part of perhaps the very first estate of detached surburban houses. It is simultaneously very ugly and quite unforgettable.

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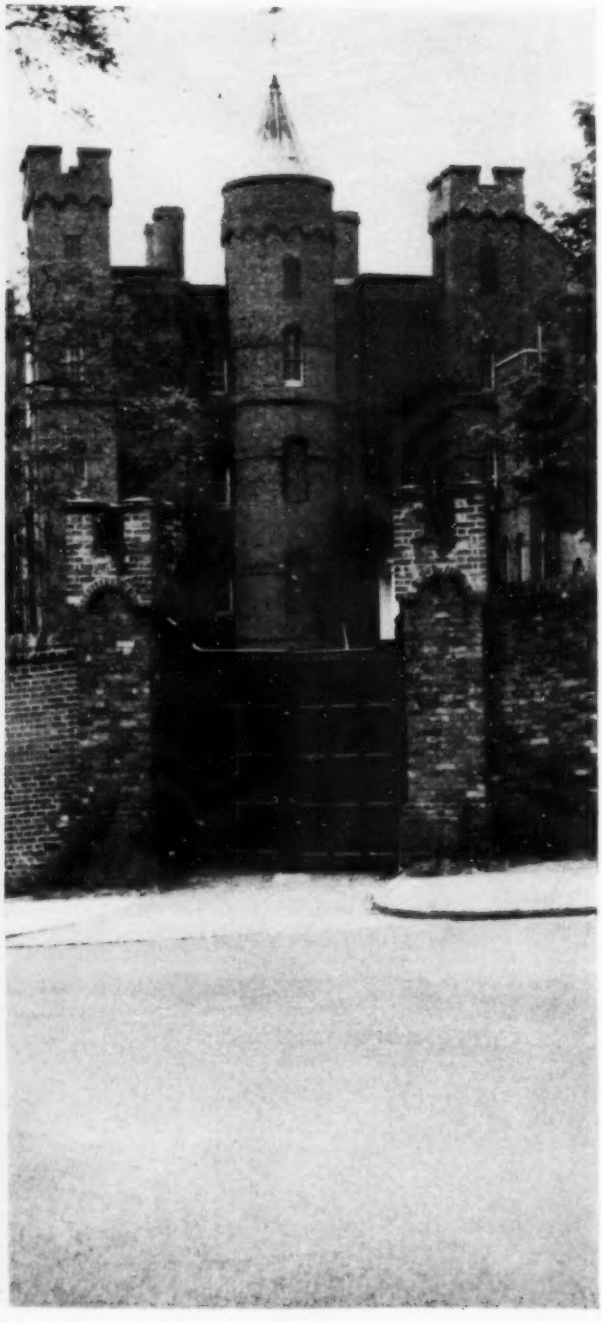

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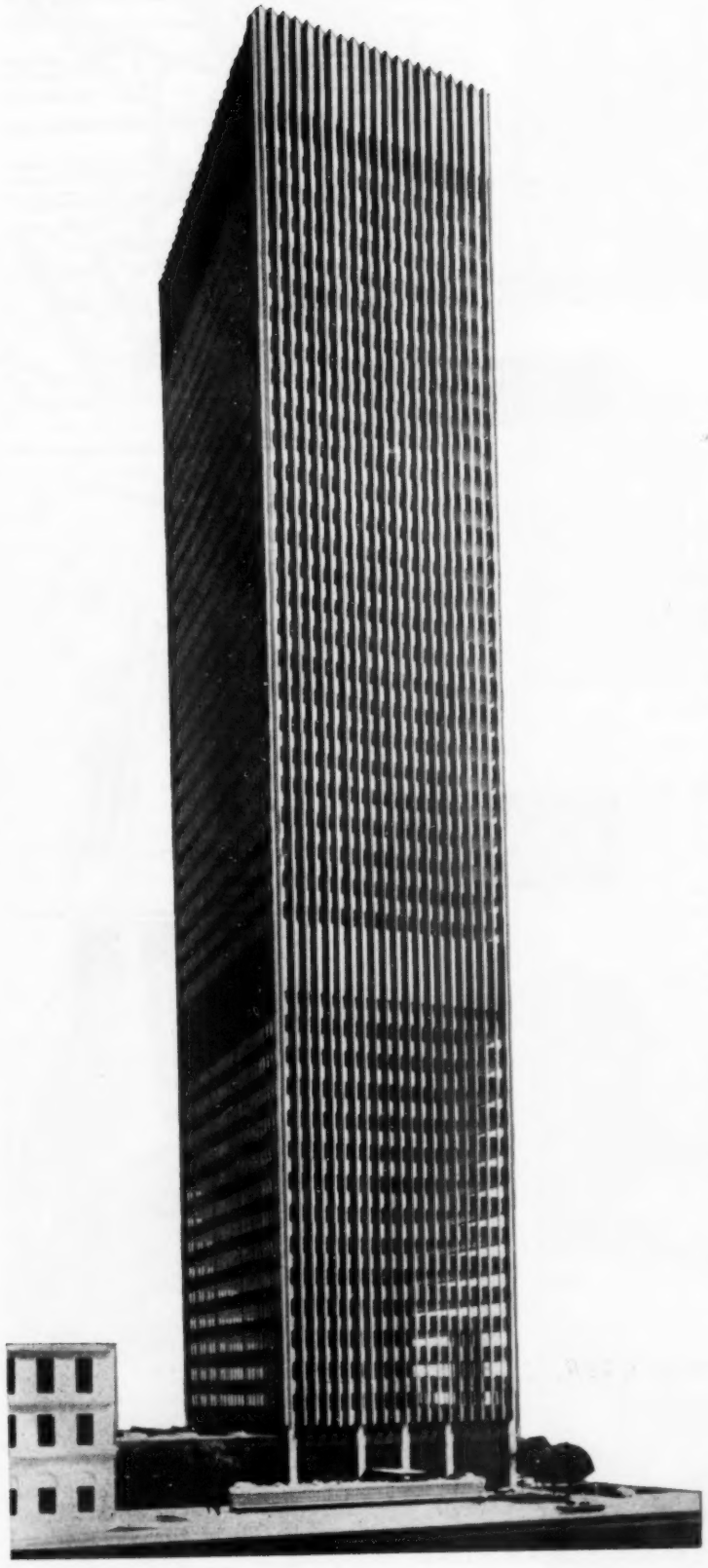

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Route **E**

L.C.C. Housing Estates: Ackroydon—Alton—Roehampton.

As far as Kennington Oval, this is the same as Tour D; thereafter a long drive south-west through Clapham and Wandsworth, again along streets which, if the original large-scale pattern had been understood—which does not mean copied—could be very fine. Along it, first a newly completed small LCC estate with a Roehampton like slab block which is actually all the better for being one item in a mixed view rather than a complete environment. On the left, just before Stockwell, a very fine-drawn and elegant LCC Primary School; but just after Stockwell a pair of estates show that everything is not entirely light and joy either in the LCC or the Boroughs: LCC on the left, Borough (Lambeth) on the right. Then on the right a delightful Ionic portico of *c.* 1840, St. James, Clapham Park (1) done with real elegance and sensitivity, miles better than the mechanical agglomerations of Greek detail dumped down all over south London. (There is one on this route at St. Mark's, Kennington, by the Oval). It is not in the reference books and I don't know who the architect was. Clapham Common is a very English urban open space with churches and houses peering round the edges of what is really an enormous transplanted village green. Nothing special here, or through Wandsworth, except an urban terrace of 1720 beside the rather ugly Georgian stockbrick parish church of Wandsworth (right) which must have looked quite extraordinary when Wandsworth was not a part of London, but a separate secluded village. Young's Brewery, next to it, is a good mixed-up bit of functional tradition. (Note for the bibulous: the best beer from any brewery is often found at the pubs right beside it. Young's Special is a nice drop at any time, so The Ram, here, ought to repay a visit.) Halfway up West Hill on the right is Powell & Moya's Mayfield School (2). This is a real masterpiece, one of the best post-war buildings in Britain, and one which you never tire of even if you see it a hundred times. Subtle, elegant, humane, has worn well: what more can you ask?

Then Ackroydon. The point blocks (3) are the earliest and probably the best of all the LCC designs, large scale and simple and blessedly free from whoring after strange (architectural) gods, but the housing around hovers unhappily between urbanity and Garden City boskiness. The lamp-standards, quite obviously, are *not* by the LCC Architect's Department. Refreshments here in the Burghley Castle, a Truman's house (and a neat bit of social irony: it is not, as it looks, a late bit of Brewers' by-pass Tudor, but one of the pre-war Wimbledon houses converted to serve the com-

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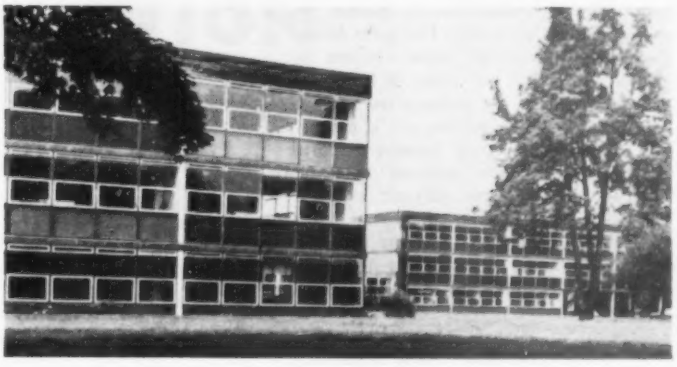

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pletely different climate that has grown up around it).

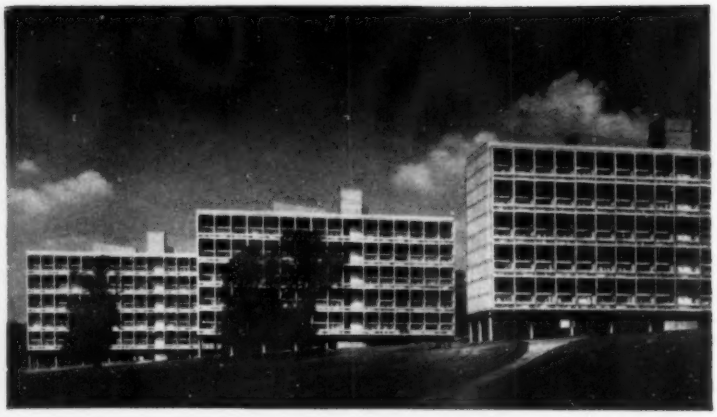
At Alton estate in contrast the point blocks are heavier and less successful, but the terraces around, houses and maisonettes, are amongst the best that the LCC has put up. Especially nice is Horndean Close (4) a cul-de-sac of two-storey houses painted in a colour sequence of greens and olives. It is right opposite where the coaches will stop in Bessborough Road.

And, finally, Roehampton itself. This is the queerest mixture, and one which probably needs repeated visits to assess properly. My own opinion changes every time I go there. The point blocks and slab blocks, very Corbusian, are admirable, and create one effect of real majesty (5) where the slabs are stepped up and around a sloping green. Modern architecture in Britain has nothing grander than this. The point blocks can be set astonishingly close together (6) and still produce a real effect of buildings-in-landscape. Yet the maisonettes and, to some extent, the bungalows, are a pathetic case of an architectural pattern imposed regardless (7). If the different kinds of excellence on the three different estates—Ackroydon, Alton, Roehampton — could have been combined on one site it would undoubtedly be the most exciting in Britain. From here I suppose I would opt for tea, and certainly for a quick look at Richmond Park with its Tudor hunting landscape, never enclosed and never made consciously picturesque. Historically it is now quite a rarity among our chequer-board pattern of small fields.

The route back, through Putney and then York Road, Battersea, has very little in it. To liven up the long barren stretches there are only a few things until the end of the trip, by Vauxhall. First of them is the weird yet effective site of East Putney Station (8), jammed in between two railway lines, a tiny courtyard with a tree and flower-stall in front—no architecture at all, but with a lot of spatial lessons for architects. At one end of York Road a decent stockbrick Telephone Exchange by the Ministry of Works; at the other a decent reinforced concrete and glass office block of BISRA (9) by Samuel Morrison & Partners. In between, a long drab street, London's Inner Ring at its worst, built just too late and too solidly to be condemned, yet in its total effect from the outside far worse than the cheerful squalor of the East End slums.

On the left, by the river, Sir Giles Gilbert Scott's Battersea Power Station undeniably impressive in spite of the moral dilemmas the viewer may force himself into over brick cathedrals and such. The thing is that it is a nineteenth century building, not a twentieth century one, and that amount of brickwork allied to good proportions is bound to be impressive. Wherever Sir Giles tried to add art, as in the vertical fluting, the result was disastrous.

Albert Embankment has become a cliff of offices in the last 10 years. The best are by Frederick Gibberd (10), the rest are mediocre, and the overall effect somehow very depressing indeed, a whole environment done completely without love. This is the best place to see the Vickers Tower (p. 980) by



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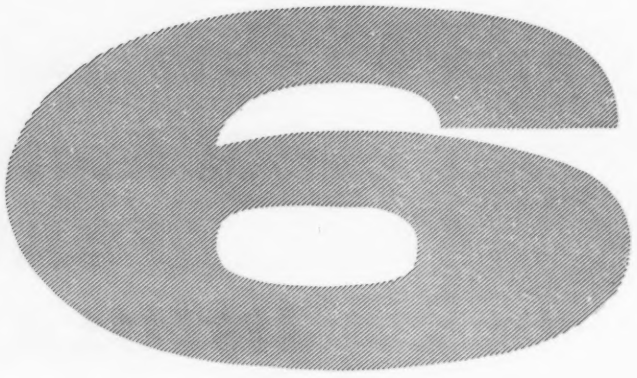
THE LOGICAL USE OF COLOUR IN BUILDING



Colour names

The English language is an accommodating language. It acquires and quickly assimilates ideas, manners of expression, and words of other languages. Its vocabulary, ever changing ever widening, receives from those who use it almost daily additions of words created or coined to express a sensation, object, scene or experience.

It is of interest then to examine the names given to colours by the English language. These are few — blue, green, yellow, red and purple. Purple was the name given to Imperial Crimson and is related to status rather than colour. The remaining four words dig deep into the history of the language and have been used for centuries as basic words to describe the sensations evoked by differing fluxes received by the eye. These four colours are also those showing little or no change in hue with change in luminance—they remain fixed. The nature of the sensation in each case is distinct ; red is not yellowish, greenish or bluish, and so on. By physical methods of measurement these colour names can be fixed in wavebands of the visible spectrum. They are the names given to the basic hues which, together with black and white, can create the whole of the colour range that we know today. They are also the basic fluxes that give us colour vision; three parameters—yellow-blue, red-green, and light-dark.

All other colour names (and they are now legion) are derived words or names of association. Aquamarine (a blue-green) is the name of a blue-green gem. Jasmine (a yellow) is the name of a shrub with a yellow flower.

Although colour names are useful in preparing a decorative scheme, it is advisable to use a subjective system of nomenclature such as the Munsell or Adams system, or some physical criteria such as selective reflective power, in determining colours suitable for functional decoration. Associative colour names can be a trap to the unwary since the association may not be a true one.

Ronald Ward & Partners, which promises to be an office block—at long last—with more to it than the soulless provision of so much floor area. The concave-convex curtain walling is working out much better than I ever expected (and the reasons why are probably just as rational, and capable of scientific assessment, as the structure and the planning). Comparisons are invidious, but it you look downstream to the Shell Tower you are welcome to practise your invidity.

The last inflection on this tour is pure London: the red brick 15-century gatehouse of Lambeth Palace (11) (not a good gatehouse, incidentally: the chapel and hall inside are much more fun). It is just like us to provide a residence for the Archbishops of Canterbury 50 miles from its Cathedral, now abutting on to a traffic roundabout and facing the headquarters of the Ministry of Works.

Tour E.2 is almost E.1 in reverse, except that a variation at Roehampton will allow a quick glimpse of the extraordinary Lutyens-Archer condominium that forms the centre of St. Mary's Hospital. Archer in 1710 gave it a vast and exciting open pediment, but Lutyens 200 years later soon did for that comprehensively.

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Route F

Central Area Redevelopment: Bunhill Fields/Barbican.

This begins with an oddity, a single arch of Rennie's original Waterloo Bridge preserved in the present bridge abutment. Then, in Stamford Street, a Unitarian church of 1821 on the right with a thumping great Greek Doric portico. Among all the warehouses and offices it is just like a small man shouting very hard. Over the river and along Farringdon Street, one of the dullest streets in London, then off up the Clerkenwell Road, St. James's Church, on the left, (1) is not a stray from the City but a copy of 1785 by a local man who "evidently at a loss for a recent precedent, imitated late Wren and produced a competent result," as Sir John Summerson said, dead right as usual.

The buses stop in Golden Lane, but a walk a few yards back to Old Street might be worth while. On the north side a group of idiosyncratic flats by Joseph Emberton, 1956, more Continental than English (2), with beyond them the staccato obelisk-steeple of St. Luke, by George Dance, Senior, the idea lifted from Hawksmoor. The rest of the church was demolished very smartly in 1960 after a dangerous structure notice had been served. On the south side a Victorian iron-and-glass front has just been made the filling in a curtain-wall sandwich, very successfully, by Morgan & Branch. Up here also two Whitbread pubs. The Cock and The Cheauers. Either ordinary or Tankard bitter can be recommended; and it can doubtless be augmented in the tour of Whitbread's brewery, which has some good eighteenth-century industrial buildings.

Golden Lane itself is a funny place. All the basic ideas and the planning is admirable, yet on each visit the depressingly stained finishes and occasional gaucheries like the joins of different blocks (3) take the edge off the effect. In any case, go up the tall block for the superb views from the roof and a close look at the *jeu d'esprit* on top which is just a jolly bit of fun and thank goodness for it: most architecture is far too serious (most architects, too?). The new curved terraces on Aldersgate Street have a very ingenious system of canted windows on the curve and look as if they will wear much better. In passing, on the south side of Fann Street is a brand new church which is depressingly typical of the average standard of church building in Britain today.

Whitbread's is a lovable haphazard jumble of eighteenth-century buildings. Beyond it, City of London architecture gets going in real earnest. Some of it is "modern" (4), and some of it isn't. There is not a lot to choose. But a few steps up a cul-de-sac on the left will be rewarded by a nice view of the Artillery Company's Headquarters at Bunhill Fields with a foreground of

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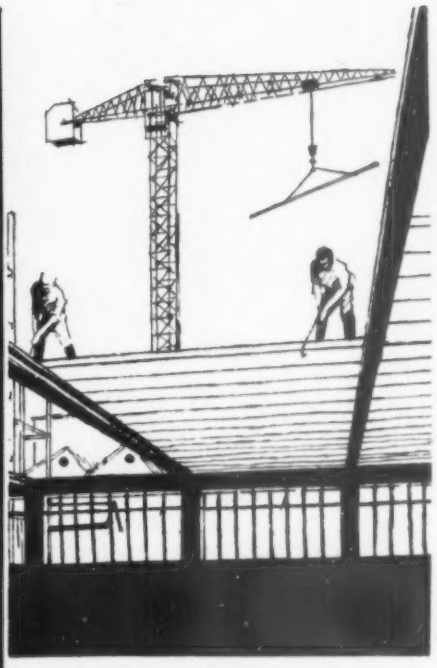

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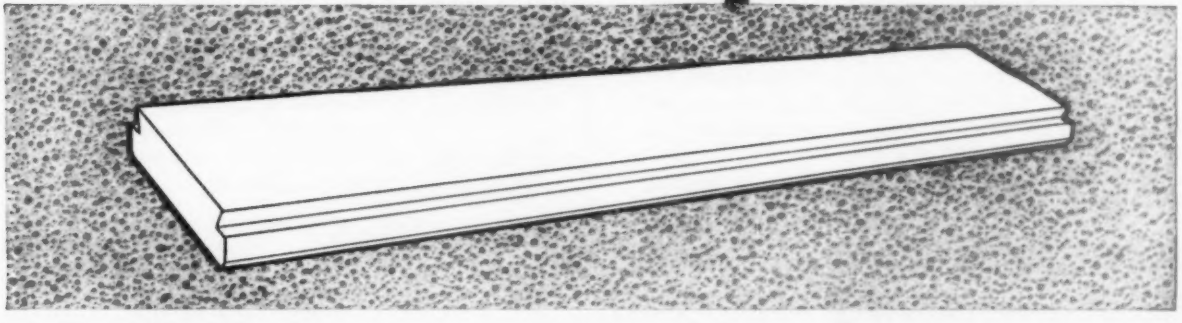

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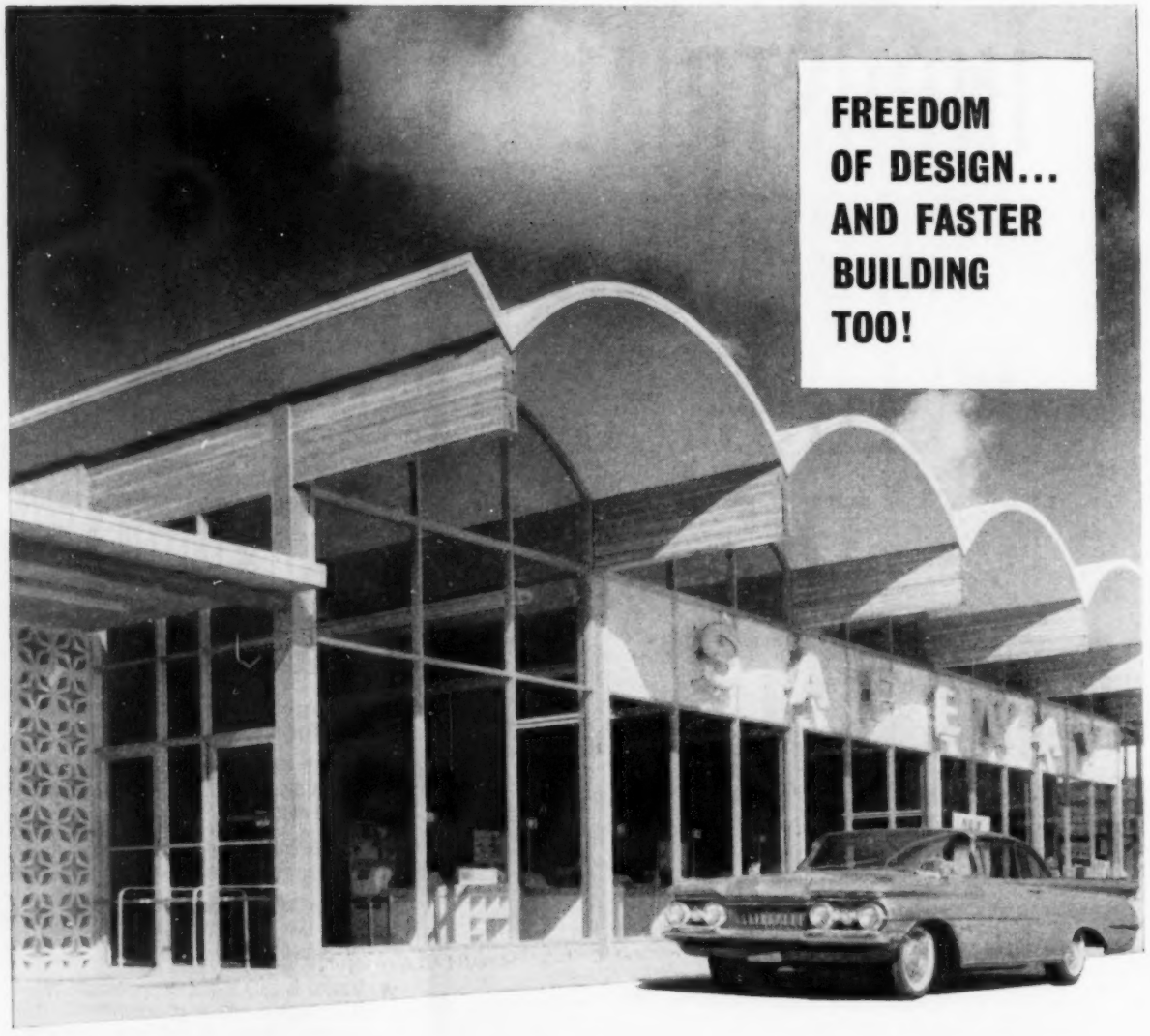

The Canadian Douglas fir plywood panel arches chosen for the roof system of this shopping centre are undeniably graceful, thoughtfully designed with the definite intention of attracting the customer. To the engineer, architect and builder, however, their appeal is just as much one of pounds, shillings, and pence. Consider these facts: a total of 180 arches for this building and another in the same group was fabricated off the site in less than a week.

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E.2.

cricket screens (and cricketers, if you are lucky). The Comprehensive Development Area lies just south of this, along Route 11, that strange bit of dual carriageway that starts and ends nowhere. The main feature of this will be five parallel 24-storey slab blocks basically designed in the City of London Planning Office. The first has one of the best curtain walls in London: close set projecting mullions, a good deep green for the solid panels and for once a really effective treatment of the roof so that it neither stops abruptly nor seems top heavy. Some of the things on the site are not so jolly (5) and neither are the lamp-standards along Route 11. As Kenneth Browne has pointed out, if details as bad as this are to be universally used, all the comprehensive planning in the world won't save the site.

One or two nice pre-blitz buildings are still in view—Armourers' Hall, for example, in Coleman Street (6), a nicely self-confident early Victorian building by J. H. Good, and of course, St. Giles Cripplegate (7) where you pick up the buses again. This is a big church which although purely Gothic was in fact built well into the sixteenth century, after the Dissolution. It might just be possible to infer this from a slight slackening in the vitality of the design. All around is desolation, the typical Barbican view with a Roman hollow stone bastion as a pregnant reminder of London's age. Work is just beginning on the great scheme by Chamberlin, Powell & Bon, which, if it succeeds, will be our best bit of town building since Nash. From here the way back is along Gresham Street, terrifyingly sterile, though the rich classical Goldsmiths' Hall by Philip Hardwick, 1829, does its best to redress the balance (8) (on the left, at the corner of Foster Lane). Thereafter, round St. Paul's and along the Embankment, the ground has all been covered in Tour A.

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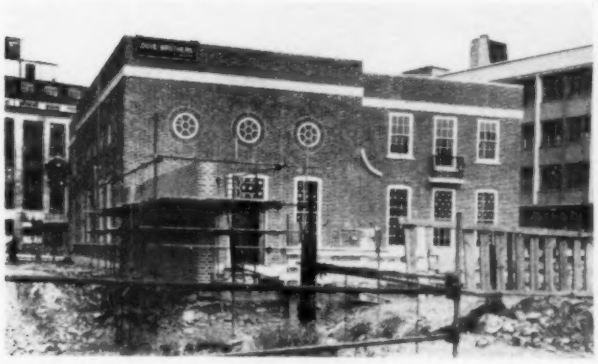

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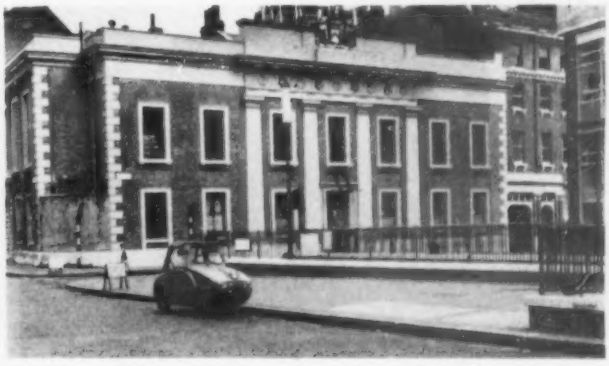

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Route **G**

L.C.C. Schools and Youth Hostel and Holland Park.

Along Millbank, the effect is the reverse of the end of Tour D; the Vickers Tower close up and an impressive contrast to the gabled foreground, (1); the Albert Embankment a prim little cliff. In a little while, Churchill Gardens, the famous Pimlico scheme by Powell & Moya, comes into view and then becomes the view. That is the trouble (something that I am sure the architects will agree with)—that it now goes on too long. Bits of Churchill Gardens scattered all over Pimlico would have been marvellous. Now, the best effects can be seen where old and new counterpoint each other, like the views of the retained Balmoral Castle (2).

The rest of the Embankment seems all trees, at least in July, with buildings peeping out behind it: the grand sober front of Wren's Chelsea Hospital all the better for having its formality understated. Carlyle's famous remark "designed by a gentleman" is so completely and comprehensively true that there is not much point in trying to say anything else about it. The next thing to appear behind trees is a lot of thick curly 1880 brickwork, some of it by Norman Shaw (3). A little goes a long way because even Shaw seemed compelled to put as much detail on a narrow 3-bay front as he would have spread out comfortably over a biggish country house. As you turn into Old Church Street, the Old Church is on the right (4) completely and meticulously rebuilt after being completely blitzed. It is a nice point in the ethics of restoration. Plenty of Chelsea vignettes here, like Justice Walk on the right (5). The two pre-war houses further north are not worth much more than a look (6): they have dated in a way that cannot be obscured by waving around such international names as Mendelssohn (No. 64) and Gropius (No. 66) who were in fact the architects. This is, of course, relative, and compared with the neo-Georgian gruel next to it, put up twenty years later, they are masterly.

Queen's Gate next, a very handsome mid-nineteenth century street: wide, tree-lined, with dignified stucco frontages. We underrate it, perhaps, because in Kensington or Bayswater there is no let-up—all the streets are like that, or more often the same mass of building in a narrower street and without the trees. On the right is a Butterfield church, St. Augustine (7) not a terribly good one: the amount you can see of it behind the trees is just about enough. Beyond, there are nineteenth century houses by almost everybody, and then the terrifying banality of the new Imperial College (8) as surprising in a building of this importance as it is coming from the office of Norman & Dawbarn. The Royal College of Art is in that

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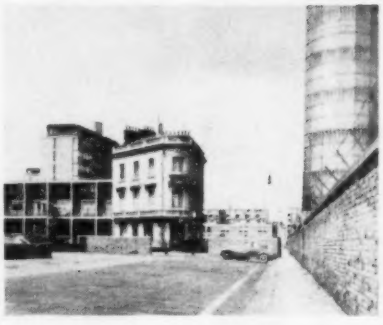

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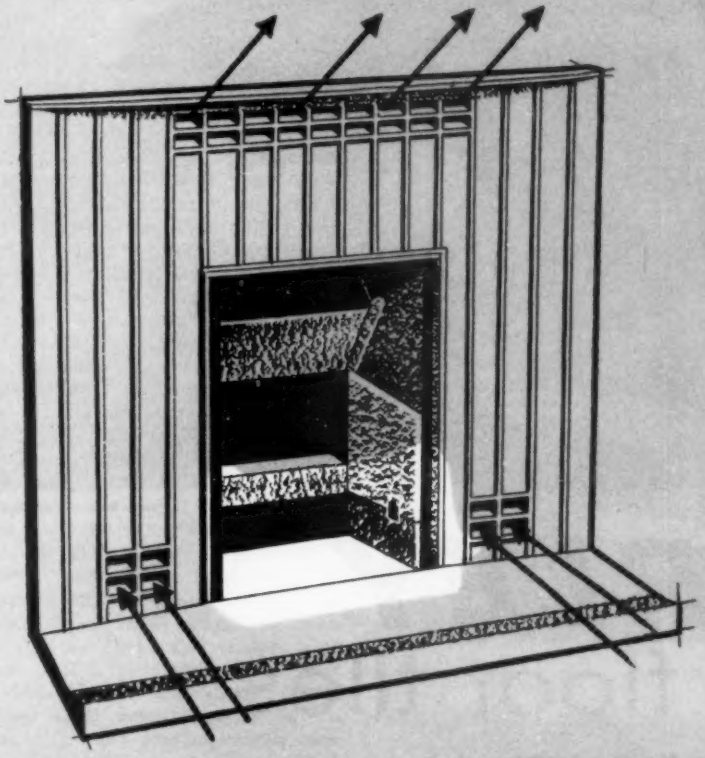

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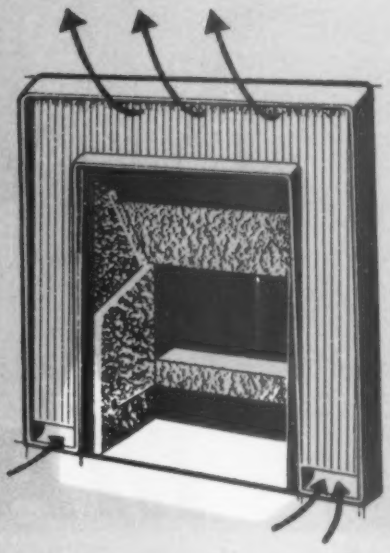

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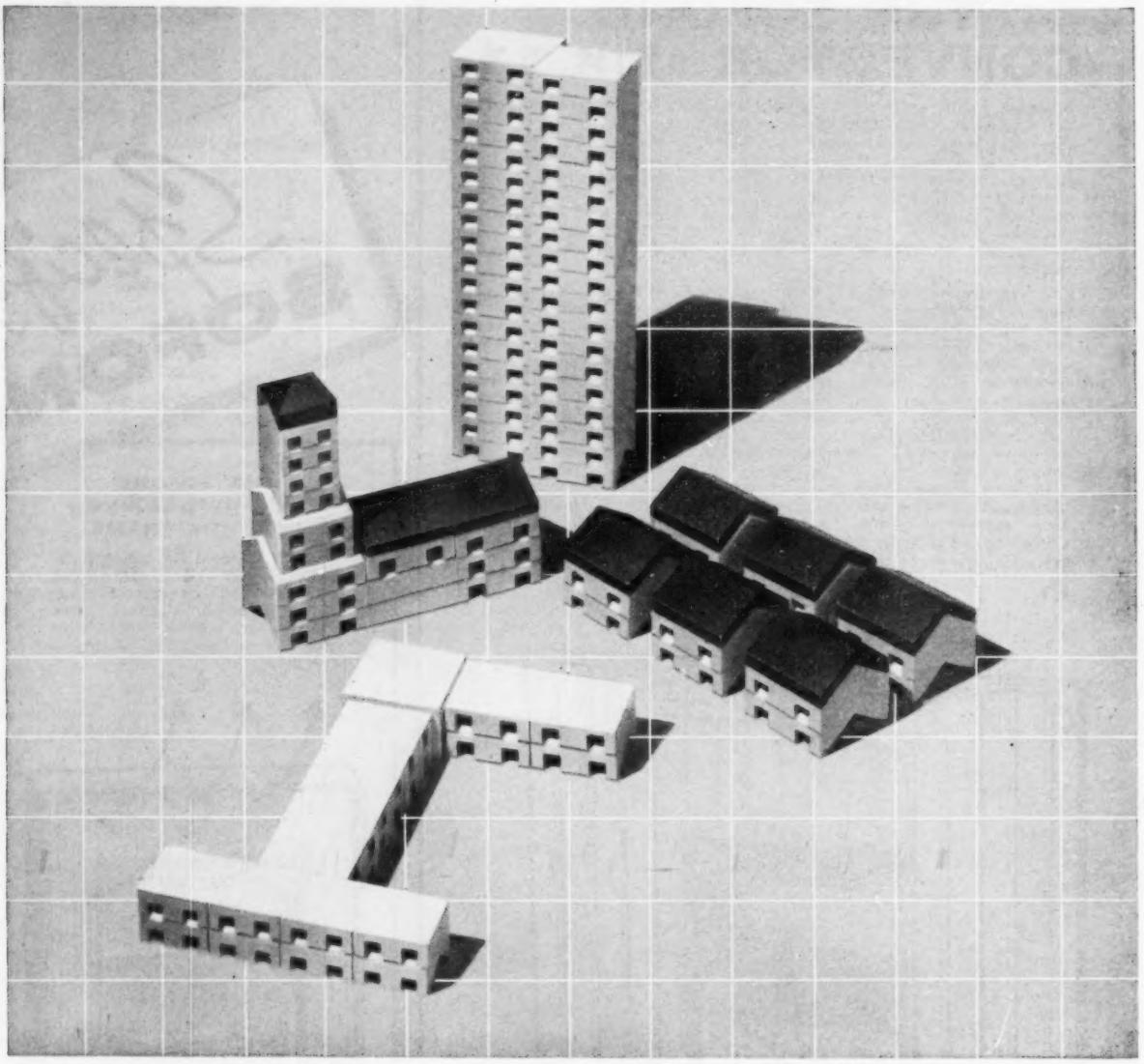

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exasperating state when it is all but finished yet the scaffolding makes any proper appreciation impossible. There is plenty more to see here, from the Albert Memorial which you can't miss, to the Royal College of Organists just behind the RCA (9) a bizarre building obviously connected with the empirical style of the Albert Hall. It resembles nothing so much as a giant Persian carpet cut up and pasted on the stucco in squares: good fun, though. It was done by Lieutenant Cole of the Royal Engineers in 1875. Behind this again, in Prince Consort Road, a Bodley church of 1902 with a beautifully thought-out interior which is really worth the visit if you can get in. What there is not, to my knowledge, is a public house within half a mile—this is the nineteenth century at its most stuffy.

Across Hyde Park, with a sideways glance along the Serpentine to see the improbable skyline of the Houses of Parliament popping up where you least expect it (a lot of other things have been popping up above the trees in Hyde Park recently, and some of them are no joke). Good old Nash, too, for the Armoury just north of the Serpentine: simple, yet beautifully done, with a splendid sense of knowing the right bloke to borrow a style from—Soane and Henry Holland, in this case.

Westbourne Terrace, north of the park, is like Queen's Gate but nicer because a little earlier. Backing on to it is the long block of Eastbourne Terrace, (10) by Cecil Elsom—a good view of it as you cross over the Paddington rail tracks. This is worth stopping for, as the only superblock in London to avoid monotony yet preserve the street-line. The detailing, thoughtful, but without any affectation, is worth a special look too. Now it has been done it seems easy, but the simplicity is deceptive.

The Sarah Siddons School, by the LCC, is newly completed and is a very nice example of the School's Department's recent thick mildly Stirling-and-Gowan style (11). Especially good the tough-minded mixture of materials: purple brick and exposed aggregate panels. Just opposite the school is Paddington church (12) an original and delicate design by John Plaw, 1788, with a greek cross plan. Go in—if you can; I have been there a dozen times and never yet found it open.

Back over the rail tracks and past Hallfields estate (13), by Drake and Lasdun, 1952 onwards. This is really worth a visit, if at all possible, because although the idea of imposing jagged overall patterns on the façades of the slabs does not entirely come off, the siting and landscaping is very good, and the elevations are full of imaginative touches. In particular, the pair of schools at the back of the estate with their famous long low corridors and a real sense of being built for children rather than in spite of them, ought to be looked at.

The next thing of interest is Notting Hill (14), now more than half built. It is turning out far better than I feared, perhaps led on by the architectural reputation of the designers (Monico Site, Big Top at Birmingham). It will not be great, but it will not be a disaster either. And on the south side the inside of The Hoop is the *only* pub-

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like modern pub I know in London. As a Finch's house, they sell good stuff too.

Villas and trees next, with a sideways glance at Holland Park Mews (15) a kind of cathedral among mewses. Beyond that, alas, is a long vista of what the Ilchester estate chose to put up to replace their Victorian villas. The coach stops for Holland Park in another street-full.

Holland House itself, badly damaged in the war, was almost demolished a few years ago in a way the ins and outs of which have never quite been sorted out. Only one wing now remains, very frilly and Jacobean, attached to Sir Hugh Casson's new Youth Hostel. This is delightfully proportioned and coloured (the two shades of green on the main block are especially nice), but I wish that the detail had been a little thicker, more like his Sidgwick Avenue scheme at Cambridge. Over the park fence just beyond, incidentally, is a big new LCC Comprehensive School.

There is actually more to be seen just outside Holland Park than in it. Going south from the coach stop, Melbury Road is on the right, one of the most famous roads of good Victorian houses in London. Their future is in doubt at the moment; it ought to be preserved entire if possible. The first two houses on the right-hand side set the scene perfectly: Fildes House, No. 11, by Norman Shaw, 1877, bright and perky and very good, then Tower House, designed for himself by that fairy-tale architect William Burges in 1875. The furnishings have gone, but it still has some wonderful tricks inside. Opposite this is a new group of houses and flats, Park Close, which is extraordinarily well landscaped and detailed, one of the best in London, by M. C. D. Richmond and Arthur Baker. Beyond this is the shell of Robert Matthew and Johnson-Marshall's Commonwealth Institute, already intriguingly shaped although the hyperbolic paraboloid roof has yet to go on it.

The pace then flags a bit, through Earls Court to Bousfield School by Chamberlin, Powell & Bon (16). This is utterly delightful, as good as Mayfield school in a completely different way, and probably the firm's best building to date. Ingenious landscaping from The Boltons—no fence, but a pool instead. Apparently the only people to have fallen in it are the staff and school inspectors, a very proper state of affairs. The Boltons, beyond, is a good bit of mid-Victorian estate design—stodgy houses, but laid out to an elegant oval plan with plenty of trees. On the way back—you may well be suffering from a surfeit of buildings by now, for this is probably the fullest of the tours—three things are all I have space for. One, the irregular shape of Bowater House, left, by Guy Morgan & Partners, a partly successful good try—driving through and under it into Hyde Park is great fun. Two, on the left again, the grand pair of 1850 stucco palaces designed by the great Cubitt to frame Albert Gate, an effect we have not yet learnt how to equal. And finally, three, the one moment at the east end of Victoria Street (17) where all the Westminster verticals range themselves in line: column, Abbey, St. Margarets, Big Ben. As Gordon Cullen said: 'View? It is more like organ music.' And making an unwanted fifth beyond, unless you choose the view carefully?—why your friend and mine, the Shell building.

Tour G.2 is G.1 in reverse, except that the journey to Paddington is via Park Lane and Edgware Road. The effect of Park Lane, where it has been respected by architects A & M, is of seafront terraces inexplicably confronted by a park instead of the briny, best seen at the top end, by Marble Arch. Now that the north-bound carriageway is actually inside Hyde Park you can get the feeling nicely. This also means that you get to Sarah Siddons before they shut. Two pubs here look intriguing, both opposite Paddington church. One is the King and Queen, biggish, and the other the Omnibus and Horses, which is minute. It is the same size as, and right next to, a shoe repairers'. I can well imagine asking the landlord for a pair soled and heeled, and the shoemaker for a pint of best bitter.

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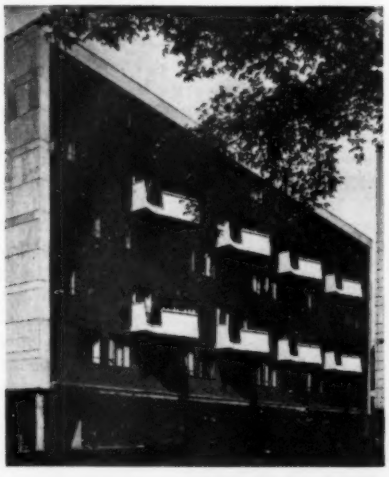

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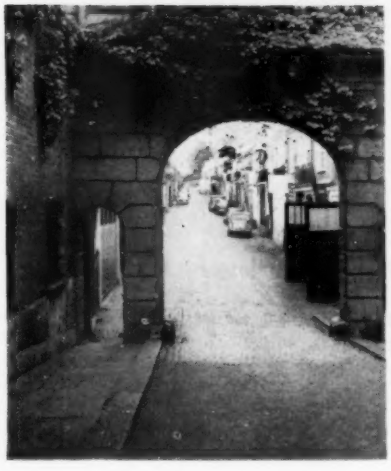

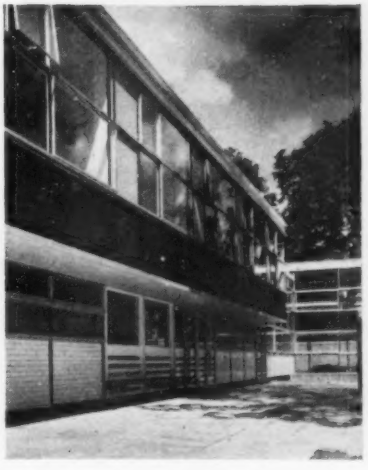

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THE ARCHITECTS' JOURNAL for June 29, 1961

Route **H**

East End Comprehensive Development/ Stepney/Poplar.

The first bit is industrial Southwark: Stamford Street, then a long haul down Southwark Street where the air of unrelieved commercialism and the traffic problem is not helped by the recent erection of what is claimed as the largest office block in Europe. Most of it, ironically enough, is occupied by the Ministry of Transport. Beyond, the Hop Exchange is worth looking at (1) for its really inventive nineteenth-century details (R. H. Moore, 1866). The Dive in the basement looks fun too. Then Southwark Cathedral, rammed up against warehouses (2) very unexpected and very much London. There is a proposal to open it out to the river, but in a way it is better the way it is, secret and surprising. All the way, now, down Tooley Street it is warehouse London: there will be a good high level view (3) from the traffic jam across Tower Bridge, a Gothic Revival (J. W. Barry and Horace Jones, 1894) which is indigestible by day, but the most romantic and mysterious of all London's bridges at night. Beyond it, on the right, some of Telford's magnificent stockbrick warehouses for St. Katharine's Dock, 1825, and then Smirke's smooth dull Royal Mint. The traffic here is some of the worst in London.

From here into the deepest part of the Docks is depressing and partly unnecessary desolation (unnecessary, because the grandiose vision of total rebuilding has meant the neglect of places like Wellclose and Swedenborg squares). Halfway along, a Piranesian apparition, Hawksmoor's St. George-in-the-East, gutted but superb (4), and, at the other end, the Royal Foundation of St. Katharine has just one Georgian house (5) to show what could have been done with dozens, given a little care. Now, alas, it is too late.

Limehouse hardly exists, today: it has been done for by cold-mutton rebuilding. But nothing can take away the effect of Hawksmoor's steeple to St. Anne's (6), his first London church (1712). There is nothing like these anywhere in Europe—yet there is some doubt about the future both of St. Anne's and of the even greater Christchurch Spitalfields. We English are a funny race.

And Lansbury, beyond, is a funny mixture. The south part is ten years old, the north part, by the LCC, is just being completed. I wish I could say that 1961 was better than 1951, but in fact—even discounting the fact that the planting has grown up—none of the new Lansbury is going to have the cheerful character of the Bridgwater & Shepheard houses (7) or the Booth & Ledeboer old people's home (8). The new stuff (9) will never look like this. So what's gone wrong?

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If I had to guess, I would say too large an organisation and too many extraneous ideas, political and architectural. This is not at all a matter of style—for Gibberd's Market Place, which looked prissy and ill-shaped in 1951 still looks so today (but there is a pub in it). It is much more a matter of feeling, of understanding not what is supposed to be "good for these people," but being able to interpret what they really want themselves. The best individual building is probably the Yorke, Rosenberg & Mardall school in Ricardo Street.

There is really no point in another stop at Barchester Street (one of these streets is much like another) and the St. Anne's neighbourhood, although better, is one more illustration of the fact that crisp details and Moore-ish play sculpture (10) are no substitute for homely effects like those still provided by terraces next door in Galt Street (11) which will, I suppose, probably be pointed out as "sub-standard accommodation about to be replaced." When will we learn what townscape and planning for people really means?

What is extraordinary, after the time spent here, is that one of the most interesting new buildings in London seems to be passed casually immediately afterwards. This is St. Paul, Bow Common (12) by Robert Maguire, at the corner of Burdett Road and St. Paul's Way, and it must have five minutes of your time. It was built a hundred years after Butterfield's All Saints Margaret Street, and it has an astonishingly similar feel—deliberately angular, done with passionate sincerity. Without doubt the best new church in London; the Liturgical Movement, whose aims it exemplifies, will probably grow rigid and mechanical as all movements do, but in these early days the effects are exciting.

The next stop is Clive Street (13); the mixture as before. Small blocks and tall blocks, and there must be a nice view from the top. The way back is through a series of squares that *could* have been taken in hand, and along Cable Street, famous or infamous as one of the few really rough streets left in the East End. Certainly, the Stepney Borough Council rebuilding on one side of it will do for that. And yet, even at this extreme, with nothing at all to be said for the buildings, Cable Street has something (14). Life, in a word; and I'd go to any lengths to preserve that.

At least, there will be no argument about the Tower; the original keep is splendidly cubical and heavy, though wrought around with far too many Victorian keeplets. The trip inside is worth while, because the Chapel

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of St. John, hollowed out in the walls, is one of the European masterpieces of early Romanesque. Incredibly solid, and forceful, an architecture of pure Will.

Back along Lower Thames Street, a good hurly-burly way to end the last tour: Billingsgate Fish Market, Wren churches, warehouses, bridge approaches. Spare a backward look for the Coal Exchange (15) in case it disappears in the next few months (it has been threatened and reprieved so many times that I don't know where I am. This may be the idea). Heavy outside, but magical inside with a big central, domed space full of galleries approached by ramps either side of the corner tower. The last view is the Tower framed in London Bridge approach (16): a hubbub of lorries, fish, typists, red buses and funnies like myself taking photographs of London. Come into it from 9 to 5 and it will simply ride roughshod over you, but get to know its secret places and secret times and it is the greatest city in the world, absolutely inexhaustible, the companion that never flags or bores or ceases to excite.

Tour H.2 involves an earlier look at the Tower, This involves being there when the pubs are open, which could well involve a visit to the Tiger Tavern, which has a nice atmosphere and keeps its beer well. You can drink outside around an impenetrable circular stockbrick object which says "London Hydraulic Power Company. Tower Subway. Constructed 1868." London never disappoints.

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Your guide to the Congress

On this page: IUA—what it is and what it does, plus Congress programme. On following pages: summaries of the three main papers

The International Union of Architects was created in 1948 at a meeting of architects at Lausanne with 23 member countries. Before that there had been two bodies, the International and Permanent Committee of Architects, which was formed in Paris in 1867, and the International Reunion of Architects, set up by the French architect Pierre Vago in Paris in 1932. After the war these two bodies were amalgamated to form the present Union. Since this first Lausanne Congress, in which 400 architects from 30 countries took part, there have been a series of meetings, usually every other year, each time numbers increasing. The most recent congresses were in the Hague 1955, Paris 1957, and Moscow 1959. For the current one in London at least 1,800 architects from 57 countries are expected.

The IUA owes its existence and growth largely to Pierre Vago who has, since its inception, acted as honorary secretary, the business of the Union being run through one small office on the south bank in Paris a few yards from the Beaux Arts building.

The aims of the IUA are set out in its constitution:—

1. The IUA has the aim and purpose of uniting, on a democratic basis, the architects of the entire world, of strengthening the bonds of friendship as well as the intellectual, artistic and professional ties between the architects of all countries, schools, formations and tendencies; of developing progressive ideas in the field of architecture, town planning and their practical application for the welfare of the community.

2. A further aim of the Union is to represent the profession on an international level: to see that the social and cultural role of architecture and town planning should be recognised by public opinion and by the official and semi-official organs; to maintain their confidence in the integrity and ability of architects, by demanding from its members high professional standards.

The IUA have also adopted a code of professional conduct which is on very similar lines to that of the RIBA. One of the main aims of the IUA has always been to raise professional standards of competence and status, and one of its permanent committees concentrates on these professional problems. The idea of adopting this international code of conduct was to act as a guide for member countries where such standards had not yet been established.

The IUA is also concerned with the exchange of technical information, experience and ideas, an important aspect of its work dealt with by a number of permanent committees which meet regularly for this purpose. These committees cover various building types and also the field of architectural education. The IUA also controls international competitions and its regulations have brought order to what was previously a rather chaotic situation. Equally they protect the individual competing architect.

All these activities are carried out within a very limited budget, the IUA being self-supporting apart from a small grant from UNESCO.

Congresses are not the only type of meetings organised by the IUA. There is the Assembly, which meets every two years in the same place as the Congress, and is really the Council for the Union, consisting of from one to five representatives from each national section. This year the Assembly is meeting in London at the RIBA on June 30 and July 1. Amongst other things it will elect the executive committee, the President and other officers. The British representatives on the assembly are Howard Williams, A. W. Cleeve Barr, A. G. Ling and Percy Johnson-Marshall. The IUA also has an executive committee which meets at least once every year, consisting of from 15 to 20 members each elected for four years. No country may have more than one member, the British representative on the executive committee being currently Professor Robert Matthew. The present executive committee is meeting in London today, June 29, and the new executive will meet on July 8. Congresses are organised by the host nation. The place, date and theme of the Congress is decided, however, by the IUA Assembly. The Congress is primarily a gathering of international architects for discussion and for the exchange of ideas, but is open to architects from any country, whether members of IUA or not.

PROGRAMME

Sunday, July 2

9 a.m.-7 p.m.: Registration at Congress headquarters, South Bank. Headquarters open until July 7, 9 a.m. to 6 p.m., but closes 4.45 p.m. on July 6.

9.30 a.m.-7 p.m.: Preview for Congress members of international exhibitions.

Monday, July 3

9 a.m. onwards: Registration at Congress headquarters for late-comers.

10 a.m.: BASA exhibition of work from British schools, RIBA (open 10 a.m. to 7 p.m. until July 5).

11.30 a.m.: Inauguration of international exhibitions, South Bank, by LCC Chairman (open 10 a.m. to 6 p.m. except Sundays until July 29, but opens 9 a.m. during Congress).

2.15 p.m.: Opening plenary session at Royal Festival Hall.

6.30 p.m.: Government Reception, Lancaster House (by special invitation only).

Evening: Privately sponsored parties for other foreign members.

Tuesday, July 4

9.30 a.m.: Working sessions for Full Members: Group A, Royal Festival Hall; Group B, National Film Theatre; Group C, County Hall.

9.45 a.m.: Organised visits for Associate Members (meet at place stated on ticket).

2 p.m.: Tours, leaving South Bank by coach. (Book in advance or enquire at Congress headquarters.)

Evening: Receptions at London University, Design Centre, Building Centre and ILA.

Wednesday, July 5

Morning: Working sessions and organised visits (as Tuesday).

Afternoon: Tours (as Tuesday).

Evening: Receptions by Lord Mayor of London and LCC Chairman.

Thursday, July 6

Morning: Working sessions and organised visits (as Tuesday). Informal visit by HRH Prince Philip, Duke of Edinburgh.

Afternoon: Tours (as Tuesday).

5.30 p.m.: Garden Party at Wexham Springs, Bucks., Cement and Concrete Association. (Those on tours will continue direct to party; coaches for remainder leave South Bank 4.30 p.m.)

Friday, July 7

2 p.m.: Closing plenary session, Royal Festival Hall.

9 p.m.-3 a.m.: Gala Evening, RIBA.

Note: All these events (except exhibitions) are open only to Congress members or by invitation.

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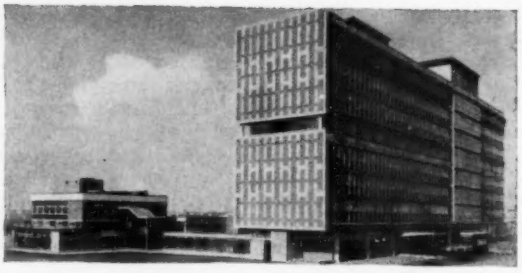

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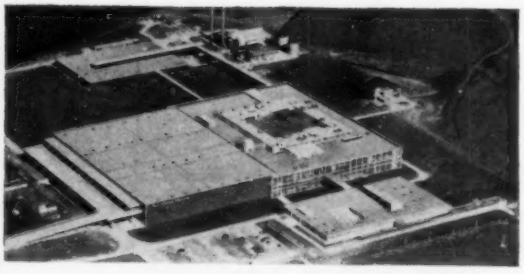

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Your guide to the Congress

Paper one: Prof. Henry Russell Hitchcock

A general survey of architectural change caused by the emergence of new techniques and materials

In considering how architecture develops from the materials it employs, particularly the new materials available over the past two hundred years, history offers relevant and interesting evidence. But architecturally an old material truly becomes a new one when the technique of its employment is drastically modified, as, for example, wood and balloon-frame construction. Frank Lloyd Wright's attitude towards the nature of materials is not easy to define. Wood, he was ever aware, came from a tree and had served structural ends while part of a living organism, before it was sawn up for the service of man. In using local limestone for Taliesin he was still more aware that the horizontality of its natural bed must be respected. He delighted in the patinas of copper and bronze, but did not respond as readily to those materials with which we are today chiefly concerned. He rarely used steel or any kind of cage construction, and vacillated on the surface treatment proper to concrete.

Many architects today think they have come to know, partly from vicarious and partly from direct experience, what the nature of concrete is—a material shaped by forms, preferably of roughish wood, whose surfaces leave a grained texture in reverse on the finished casting, a rather Wrightian approach. But in the 20s it might well have been Le Corbusier who produced the Guggenheim Museum and Wright the Dominican monastery at Evreux! The contribution any material makes to a building, aesthetically and expressively, has both objective and subjective aspects. The appropriate expression of various materials, modified by various techniques, a very important part of what makes constructive science a true art, is an old assumption, descending from Pugin and Ruskin. But there is an opposite assumption that the purpose of structure is only to hold a building up, that construction need be expressed only symbolically since the architect's prime aesthetic responsibility is to create spaces, within, and masses or volume without, that affect us emotionally by their very geometry.

History warns us of the extent that development of new materials is influenced on the one hand by general economic, industrial and even social developments and, on the other, by the imagination.

The vision foreseen by many writers at the time of the Crystal Palace of an architecture largely of glass supported by light metal elements very soon dimmed, only to be revived in certain Chicago facades of the 90s and in a range of department stores in Paris, Brussels and Berlin erected around 1900.

It appeared fully-fledged in Mies van der Rohe's first glass-skyscraper project of 1919, followed by relatively modest actualisations from the mid-20s to the mid-30s. Now, with Costa's Ministry in Rio de Janeiro just before World War II and the U.N. Secretariat just after, it has reached classic expression in Skidmore, Owings and Merrill's Lever House and Mies's Lake Shore Drive apartment towers. Since then the type has become internationally ubiquitous. This brief case-history stresses the element of the aspiration and creative imagination operating over a century, not the economic background. Concrete long appealed chiefly as an ersatz material, to be disguised. When Perret first employed ferro-concrete more boldly and rationally, he still cladded the members of his visible frame in terra-cotta. He recurrently masked it with stone or marble, only in the late 20s arriving at a type of finish for exposed concrete wholly satisfactory to himself.

Steel requires protection by other materials against fire and a paint film for protection against rust, and the history of construction in ferrous metals illustrates the conquering of these problems. The non-ferrous metals are still subsidiary rather than prime materials in the building industry.

Development of new building materials and control of the techniques for using them have depended more and more on mathematical analysis over the last 150 years. The mathematics of design has had support since antiquity. Now the almost revolutionary potentialities of computers will make possible more elastic and more imaginative developments in structural techniques. Of deeper significance to architectural development is the conceptual effect of mathematics. The conceptual core of most of Wright's many "styles" will usually be found in some simple geometrical figure, that serves like a musical theme.

Theorists of the 20s, especially J. M. Richards, saw the achievement of certain firmly established standards of contemporary building as the major problem of the 20th century, an idea realised so far that many react against it. Social, economic and industrial pressures will surely continue to encourage further standardisation of building methods. Brasilia, however, illustrates a definite reaction against standardisation and a determined aspiration to achieve focal monuments of great originality.

The mid-20th century, at least as regards the personal ideals of certain of its most potently creative figures, was rejected as inadequate rationalism, or pseudo-rationalism, in architectural design. The ideals and prejudices of the 20s, romanticisation of the machine and its products, hampered the most logical and effective exploitation of new materials and techniques.

The architectural millenium, foreseen then, has never quite come into being. It was naive to suppose that it could.

Yet to the extent that architecture is a popular art it has been more largely realised than we generally recognise. To the extent that it is an *art maîtresse*, giving expression to the deep character of its period, a serious concern with new materials and new techniques is still a healthy approach for leaders in current developments, the most stimulating and optimistic approach.

The second quarter of the 20th century achieved a new architecture by the imposition of a particular style. With our more subtle and sophisticated approach to materials and the methods of their use, we might hope to reach a richer style somewhat as the baroque was the broader and more elastic successor of the doctrinaire Renaissance of 1500.

Your guide to the Congress

Paper two: Prof. Pier Luigi Nervi (Italy)

The influence of reinforced concrete and technical and scientific progress on the architecture of today and tomorrow

This remarkable phenomenon, the sudden change in the art of building in the last fifty years, giving us buildings and other structures totally unlike anything previously created by mankind, deserves the closest examination. Everyone contributes to architecture: the client, the architect—catalyst of the deep feelings of his society—the general public. A work of architecture has a two-fold character: its physical existence, dependent on materials and technical necessity, and an emotional content, difficult to define, in which dimensions and materials play little part.

Steel, concrete, light alloys and plastics have supplemented, if not largely replaced, brick and timber. Building science is only about a hundred years old, before which every work of architecture was designed, proportioned and built by virtue of intuition and experience. It has eliminated restriction to a few simple forms, makes possible new and daring structural forms, and completely transforms architectural language and thought.

Added to these revolutionary changes is the socially fundamental importance of low cost, the economic return of building, an imperative study for every architect.

The realisation in vital and expressive architecture of the unprecedented structural forms demanded by railway stations, airports, seaports, enormous bridges, very high buildings and factories was made possible by the use of new and increasingly efficient materials and the tests devised by building science. The complete transformation in the external appearance of a great many modern works of architecture, the inevitable result, makes the dispute between the upholders of the old forms and the champions of the new utterly pointless.

Turning to the past and employing useless columns and a profusion of marble, Fascism and Nazism demonstrated the impossibility of halting or reversing this trend, disgusting us with their empty rhetoric which fossilised the moral poverty and falseness of the ideas which inspired them.

The radical and architecturally-enriching changes effected by progress in building methods are exemplified by reinforced concrete, which was first used purely as a structural technique hurriedly hidden as soon as it had served its purpose.

To obtain a mix with an interesting surface, regular but not too uniform, is not at all easy. Careful control of every detail is necessary formwork, the quality of timber in contact with the mix, oil coating, the quality of the mix, compaction or vibration, distance pieces, casting programme and expertise of the management and operatives of building firms.

Even to-day the importance of these technical factors is not sufficiently understood or considered by designers and builders. By coming into possession of a material which is highly resistant and has the disconcerting property of starting off plastic and able to take the shape of whatever mould it is poured into, architecture has acquired a wealth of forms.

The use of a certain type of mobile framework, capable of further improvements and extension to large dimensions, has permitted an appreciable advance towards a freer and more aesthetic disposition of structural ribs. It demands experience in creator and designer, technicians, site foremen and skilled workmen.

Two other efficient methods I have found in over thirty years' research aimed at freeing concrete structure from the formal and structural slavery of wooden formwork are "ferro-cemento" and structural prefabrication. "Ferro-cemento" is building slender structures of cement mortar with a widely-spread reinforcement built up of multiple layers of metal netting and rods of small diameter into a concrete structure of great strength. It is practically waterproof, will not crack and allows a freedom and variety of architectural interpretation impossible with any other system of construction.

Yet the building process richest in structural and architectural possibilities is prefabrication, prefabrication of whole load-bearing units and structural prefabrication—the subdivision of a building into relatively small sections which can be prefabricated and then skilfully joined together to form both a structural and an architectural unity.

Besides its economic advantages and relative ease of construction, structural prefabrication offers an unlimited wealth of shapes and architectural features. Its most significant aesthetic result seems to be the effect of the repetition of identical sections which can be designed with a complete freedom of form, made with absolute accuracy, enriched by the necessity of joining.

To use this and the previous processes the designer needs a complete mastery of building technique in its smallest detail, the building organisation needs personnel experienced in these operations among both office technicians and site workmen.

The process of prestressing concrete allows a slenderness of support, an elegance unequalled in the whole field of building.

Future designers must increasingly consider building technique, a development which is essentially different from the mental attitude of the architect fifty years ago, who was a simple designer of decorative forms. The architect of to-morrow in his true role of head builder, will restore the title of architect to its true nobility.

Determined by economic and social necessity, the number of works of great structural daring—each work dominated by its structural requirement—will continually increase. Disobedience to structural laws means intolerable increases in cost and waste of material. Clearly, pressure in favour of structurally better solutions will become continually more decisive.

Our century will be renowned for initiating a "style" which is the adherence to the laws of physics, an authentic style of truth, inspired by *true* ideal forms, which can become the guide of mankind's aesthetic taste, promoting universal brotherhood. To fulfil these marvellous promises, architectural sensibility must be united with the new techniques, architects must work with engineers and must, above all, learn to love the truths of building science as the composer loves his instruments.

Your guide to the Congress

Paper three: Prof. Jerzy Hryniewiecki (Poland)

The effect of industrialisation on architecture

Almost alone in its outmoded adherence to the principles of craftsmanship and handicrafts, architecture is far behind other fields of production technique.

Industrialised building means that prefabricated elements predominate as far as means of transport are available to cope with their size, or cranes to support their weight. When transport and assembly are not mechanised, there can be no true industrialisation of building.

The three main trends are:

1. Housing, where increasing use of industrial products on big sites encourages the building of large on-the-spot factories for manufacturing components.

2. Construction of large one-purpose buildings, where site work is usually reduced to assembly of elements produced in factories, steel works, etc.

These are two clearly-defined tendencies in prefabrication: permanent factories with well-organised transport systems, and mobile factories.

3. Assembly at long distance, with elements transported prefabricated to the sites, or prefabricated near the site.

Only in the 20th century have innumerable new building materials been added to the store of traditional ones, and new methods of production and application used. In our world of factory products, practically everything surrounding us is machine-made; the hand-made is now an epitome of luxury. The effect on housing was first noticeable in interior fittings. Architecture came to provide a mere shell and, compared with the industrialisation of interior equipment and fittings, the construction of buildings lagged sadly behind. In housing particularly, we have very far to go before we exploit fully the possibilities of assembly-line production.

How can housing catch up with the marked increase in world population, and demands for a higher standard of amenity?

Concentration on blocks of flats was the first step towards meeting these housing needs, utmost economy through mass production the next. Postwar reconstruction demanded the replacement of craftsman building by economic, rapid and labour-saving techniques—the factory production of more and more parts, and standardisation.

From an almost atavistic understanding of such materials as brick, stone and timber the architect had to experiment in a steadily increasing number of new materials.

We are used to factory products in every other sphere of our everyday life, but in housing construction we continue to abide by the old principles of dimensions, space allocation, outward appearances, and so on.

Industrialisation is inevitable because:

1. Quantity and low cost. These are the first considerations in meeting the need for a tremendous number of new dwellings and public buildings, such as schools, hospitals, offices, trade and cultural centres, etc.

2. High labour costs, manpower shortage and health standards—minimum work on the site in countries with a high standard of living; increased output aimed at in other countries; a move in all countries to send as many workers as possible into factories, where they achieve better results under better conditions.

3. The time factor. Speed means better profits and the elimination of seasonal (non-winter) work.

4. Mechanisation in building, particularly transport.

To cope with the growing needs of the world population, present-day architecture must industrialise its technical processes. But how can this be achieved without encroaching too far on our manpower, economic and material resources? New methods of assembly-line serial industrialisation, on the precedent of TV sets, refrigerators, furniture, clothing, footwear and motor cars, is the way ahead, but it is beset by many difficulties: force of habit and tradition, the need to limit the expected life of houses, the high initial cost of any revolutionary change in production methods and distribution.

Architecture is now dynamic, and from a monumental construction the present-day house is becoming a shell adapted to climatic conditions. Once more in the history of architecture aesthetic theory is confirmed by considerations of technique and cost. Standardisation and uniformity are not, however, entirely products of economic necessity. Their *raison d'être* lies in the general tendency to bring equality and fairness into everyday life.

The shape of our houses is slowly influenced by elements used exclusively to render them weather, sound and humidity-proof, to protect them against too strong a light or impure air. The better architects can solve the problems of fluctuating daylight and weather conditions, the better will they serve modern man.

Architecture is coming to life for 24 hours a day, all the year round, letting in or shutting out light, exposing or hiding interiors. Removable and movable walls, known to us from China and Japan, are coming into use.

The changes and rich prospects ushered in by the evolution of building materials, brought about by industrialisation, are at the same time restricted by standardisation in type and size imposed by the laws of industrial economy. Hence the fear that industry may impede architectural development, and the tendency of architects to ignore mass production.

Almost up to our own age architects used local materials, a practice now ended by industrialisation. We are now witnessing far-reaching international exchange of products in this field. And when the industrialisation of housing has reached its peak, it should wipe out geographical differences. Perhaps that is why so many architects oppose this campaign against habit and tradition by defending organic 'natural' architecture.

Surely universality, transportability, independence are what modern man hankers after. However, the outstanding examples of modern architecture are not typical of industrialised architecture but rather point the way to the perfection obtainable if architecture relies entirely on assembly-line products.

A new building industry is awakening in every corner of the globe from mass prefabrication of simple parts, to the prefabrication of multi-purpose elements fulfilling several functions, to large assemblies of equipment ready for use.

Architects' Journal 29.6.61

The Architects' Journal Library of Information Sheets 825. Editor: Cotterell Butler, A.R.I.B.A.

BUILDING LIMESTONES: GENERAL DATA

This Sheet is the first of a series on building limestones and gives general data on six types of stone, their properties and suitability for differing applications. Other Sheets in the series deal with cladding, stone-faced precast panels, details of treatments at openings, copings and soffits, and finishes for the stonework.

General

Limestone is largely carbonate of lime, derived from the accumulation of shells and the chalky remains of marine or freshwater organisms deposited as sediment. This Sheet deals with Portland, Bath, Doulting, Clipsham and Guiting stones, which are oolitic limestones, and Beer stone which is a cretaceous limestone. Oolitic limestones are of marine origin and date back 145,000,000 years. The stone consists of ovoid grains, visible to the naked eye, which are the result of lime carbonate collecting round a fragment of shell or sand. Cretaceous limestones are of more recent origin, being 120,000,000 years old.

Types

Portland: This is a creamy white stone of the upper oolite series quarried only on the Isle of Portland, Dorset. Its three main beds are roach, whitbed and basebed.

Roach is the first bed encountered in a quarry after the cap has been removed. It has a fairly pronounced shell formation ranging from coarse to fine texture: when worked it gives a cellular surface. Owing to its high shell content it is less suitable for masonry requiring fine arrises but has an interesting texture for ashlar work.

Whitbed is close-grained, fairly even-textured and contains a proportion of shell throughout its mass, as well as in thin layers. It is less hard than roach and can be worked with comparative ease, and it has good weathering properties; it is therefore the bed most used for general building applications.

Basebed, the lowest of the three beds, is fine-grained, even-textured with little shell detritus: it can be worked freely and is used extensively for decorative work and monumental masonry.

Portland stone polishes well and is an excellent decorative material for interior facings, the varieties with a high proportion of shell giving the most attractive finish.

Bath: This is the name given to a series of stones found in the Bath area. Two of the series, quarried at Corsham and Box respectively, by The Stone Firms Ltd., are Monk's Park and St. Aldhelm's Box Ground. Monk's Park is light cream in colour and of fine, compact grain. Box Ground varies from cream to light brown and has a coarser grain. Both varieties are freely worked, but the latter has the advantage of being resistant to frost and is therefore more suitable for plinths and copings.

Doulting: This stone varies in colour from cream to light brown or buff. It is a fine-grained stone which works well. It is quarried at Doulting, near Shepton Mallet, Somerset.

Beer: Beer stone is from the chalk series and warm white in colour. It is fine and even-textured and is easily worked. It comes from Beer, near Seaton, Devon. It is mainly recommended for interior ornamental work, e.g., in churches.

Clipsham: This stone varies in colour from cream to buff and is medium-grained with some shell detritus. It is very well known and is quarried at Oakham, Rutlandshire.

Guiting: Guiting stone is cream or buff in colour. It has a medium grain with minute shells and is easily worked. It has been used locally for centuries and is quarried at Temple Guiting, near Cheltenham, Gloucestershire.

Sizes

The maximum sizes normally obtainable in natural bed are as follows:

Portland: Roach, Whitbed, Basebed } 10 ft. 0 in. long by 5 ft. 0 in. wide by 4 ft. 6 in. high

Bath: Monk's Park—10 ft. 0 in. long by 4 ft. 0 in. wide by 2 ft. 9 in. high.

Box Ground—6 ft. 0 in. long by 4 ft. 0 in. wide by 4 ft. 6 in. high.

In addition this stone is available in the following standard range units, " range " being the trade term for prepared stones of specific bed widths and course heights.

The stones are in random lengths, 4 in. wide, in heights of 2¾ in., 5¾ in. and 8¾ in., for laying with ½-in. joints. A mixture of various Bath stones can be obtained in these sizes giving a slight variation in texture and colour. The various heights are supplied in the following proportions 8¾ in. (20 per cent), 5¾ in. (40 per cent) and 2¾ in. (40 per cent).

Clipsham: 6 ft. 0 in. long by 4 ft. 0 in. wide by 5 ft. 0 in. high.

Doulting: 9 ft. 0 in. long by 3 ft. 0 in. wide by 2 ft. 9 in. high.

Beer: 10 ft. 0 in. long by 5 ft. 0 in. wide by 5 ft. 0 in. high.

Standard range units are also available from 6 in. to 1 ft. 3 in. long by 4 in. wide on bed by 2¾ in. (15 per cent), 5¾ in. (40 per cent) and 8¾ in. high (45 per cent).*

Guiting: 10 ft. 0 in. long by 5 ft. 0 in. wide by 4 ft. 0 in. high.

Properties

The following table gives properties of the six types of stone.

Type	Weathering	Resistance to pollution	Density (lb./cu. ft.)	Porosity (per cent)	Absorption (per cent)	Failing stress (tons/sq. ft.)
Portland:						
Roach	Excellent	Excellent	130·5	21·4	4·3	260
Whitbed	"	"	146	12	3·7	529
Basebed	"	"	138	16·9	5·7	329
Bath:						
Box Ground	Excellent	Excellent	129	23·2	6·8	95
Monk's Park	Good	Good	140	17·5	7·76	140
Clipsham	Excellent	Excellent	144	14	4·7	242
Doulting	Excellent	Good	150	17	8·6	142
Beer	Fair	Fair	130	30	13	104
Guiting	Excellent	Good	123	20	9·7	150

* Normally supplied in these percentages but other percentages may be specially ordered. Heights and bed-widths other than standard can also be supplied to order.

5.A1 BUILDING LIMESTONES: GENERAL DATA

Selection

When the architect has decided on the type of stone which appears to be suitable for its function, the architectural requirements of his design, and its environment, The Stone Firms Ltd. will advise on its suitability and the technical aspects of masonry and fixing. If possible, the architect should arrange to visit the quarry or works but where this is not practicable, samples can be sent and discussions arranged. Samples are also on display at the Building Centre, 26, Store Street, London, W.C.1. It should be appreciated, however, that a small specimen cannot give a reliable guide to the appearance of large areas of the material or of the effects of weathering. The company will, however, supply on request, for the architect's information, a list of contracts in which similar stone has been used.

Weathering and Finishes

Where limestone is used as a facing material, it is important to know the effect on its appearance of time and exposure. Where it is free from attack by soluble salts or a heavily polluted atmosphere, weathering can take the form of erosion by rain and wind or obscuration by dirt and vegetable growths. Both of these affect the colour and texture of the stonework, erosion accentuating the texture and sooty deposits etc. altering the colour. The stone can be tooled or machine-finished to emphasize the effect of weathering (see Sheet 14.P7) and slabs may be incised or joints accented. Uneven weathering is not desirable, but can be avoided by the knowledge and skill used in quarrying and by the mason.

Maintenance

Limestones are most effectively cleaned by fine sprays of water accompanied by hand-scrubbing with bristle brushes. The stone can be thoroughly cleaned by jets each using 2 gallons an hour without the water penetrating to the inner face of the stone. The water is sprayed for 1 to 2 hours to soften deposits which are cemented to the surface by calcium sulphate. The latter dissolves in water and the deposits can then be brushed away. Where the stone is in good condition soft wire brushes or wooden scrapers may be used and the removal of deposits may be hastened by careful scouring.

The Stone Firms Ltd. operate a complete stone-cleaning service and will inspect and advise without charge.

Restoration

Stone restoration is a highly specialised and skilled task. The Stone Firms Ltd. will undertake treatment of decayed stonework and the choice of suitable materials for replacement, which may not necessarily be in stone quarried by the company. A thorough survey is carried out without fee or obligation before the appropriate treatment is recommended.

Further Information

The Stone Firms Ltd. maintain a technical advisory service available to prepare drawings and advise on all problems dealing with the use of stone in buildings. Advice can be given on all natural cladding materials apart from those quarried by the company.

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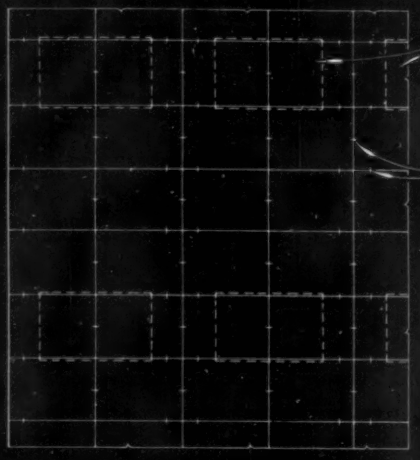
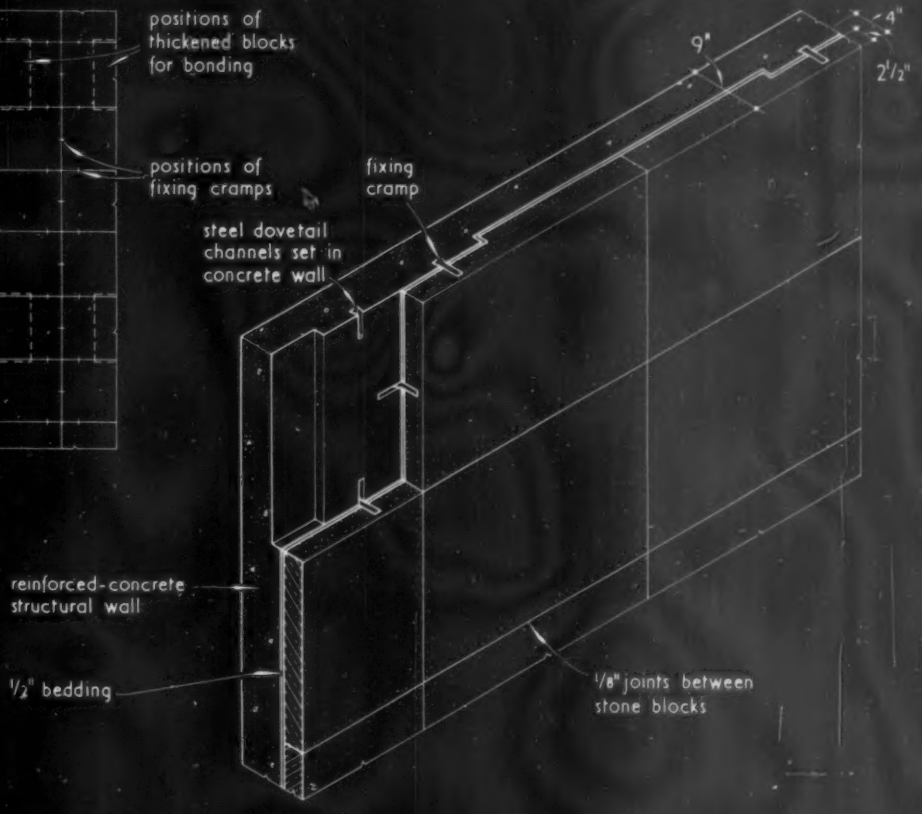
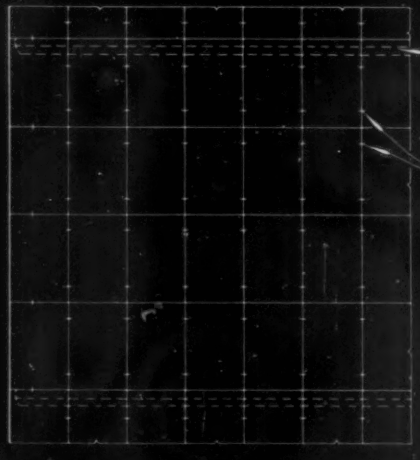


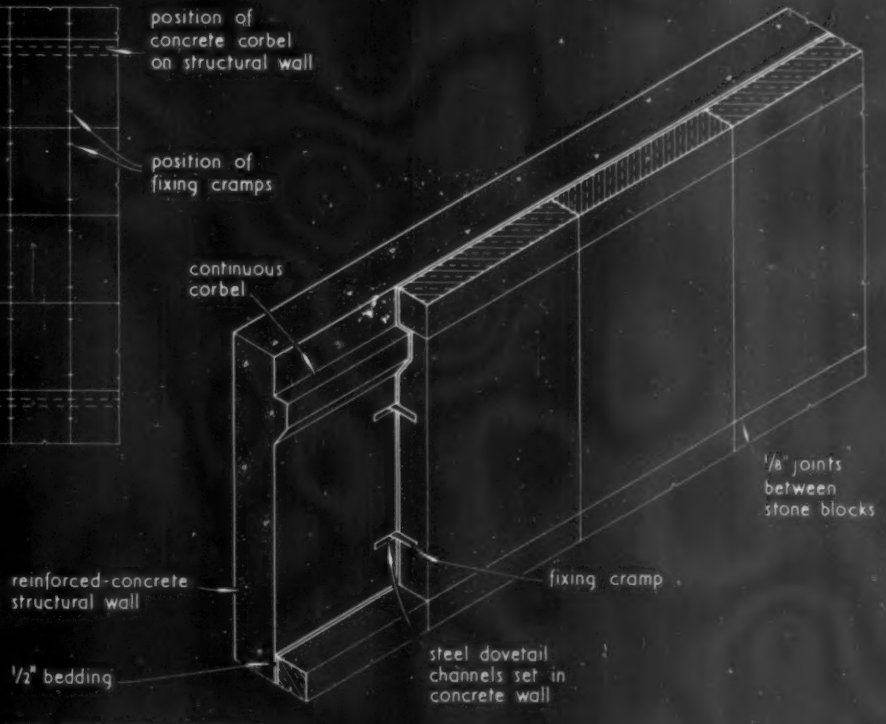
elevation of typical layout



ASHLAR FACING WITH BONDING BLOCKS



elevation of typical layout



ASHLAR FACING TO WALL WITH RETAINING CORBELS

ASHLAR FACING TO REINFORCED CONCRETE WALLS.

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14.P1 ASHLAR FACING TO REINFORCED CONCRETE WALLS

This Sheet is one of a series on building limestones and describes methods of cladding reinforced concrete walls: cladding to brickwork is described on Sheet 14.P2. Sheet 5.A1 gives general data on six types of limestone, their properties and suitability for differing applications. Other Sheets in the series deal with Thinwall stone cladding, stone-faced precast panels, details of treatments at openings, copings and soffits, and finishes for the stonework.

General

Two methods of cladding reinforced concrete walls are illustrated. In the first, courses of special bonding blocks are introduced, at intervals which depend on the size of the stone facing units and the type of jointing required. The bonding blocks are accommodated by indents in the face of the reinforced concrete against which the stonework is fixed. They are held by cramps secured in dovetail channels provided in the concrete as shown.

The second method of cladding shown on the face of the Sheet illustrates the use of corbels or nibs in the r.c. frame at every floor to take the weight of the stonework separately at each level. The stonework is held, as previously described, by cramps in dovetail channels cast in the concrete.

Sizes

The minimum practicable thickness for stone slabs is 2½ in. Maximum heights or widths vary between 3 ft. 0 in. and 4 ft. 0 in. according to thickness.

Fixing

Mortar and jointing: The recommended mix for the stone blocks is 7 parts stone-dust, 5 parts hydrated lime, 2 parts white cement. Joints and beds should be ⅛ in. and there should be ½ in. grouting between stone and concrete.

Fixing cramps: Phosphor bronze dovetail anchors and dowels should be used and galvanised steel channels should be cast into the concrete to receive them. Four anchors are normally required to each stone block.

Division of work: The builder should cast the reinforced concrete structure including the channels to take the cramps. The mason should fix the stone blocks and the cramps.

Programming

The masonry contractor requires ⅛ in. scale plans and elevations, showing the fully-dimensioned overall layout, and a complete set of structural engineer's details. The elevational drawings at least should be available to the masonry contractor before the structural frame is started. The stone can be fixed as soon as the concrete is cured.

Further Information

The Stone Firms Ltd. maintain a technical advisory service available to prepare drawings and advise on all problems dealing with the use of stone in buildings. Advice can be given on all natural cladding materials apart from those quarried by the company.

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Architects' Journal 29.6.61

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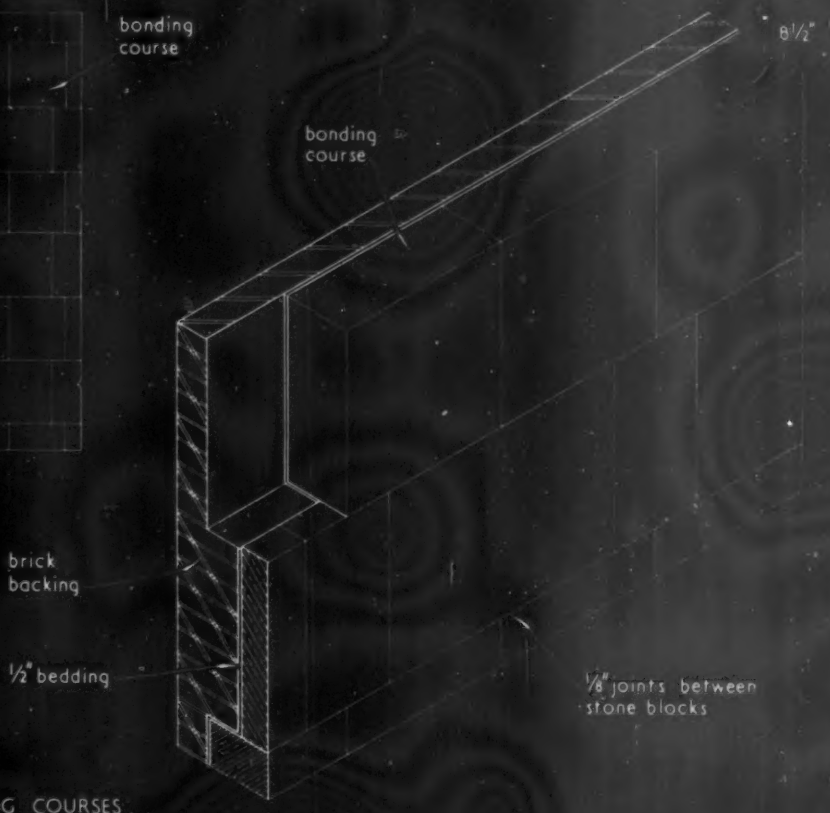
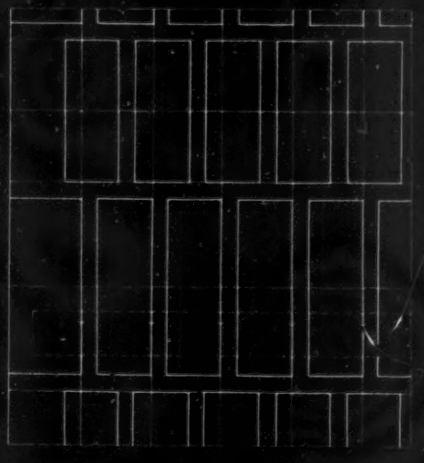
elevation of typical layout



• ASHLAR FACING WITH BONDING COURSES



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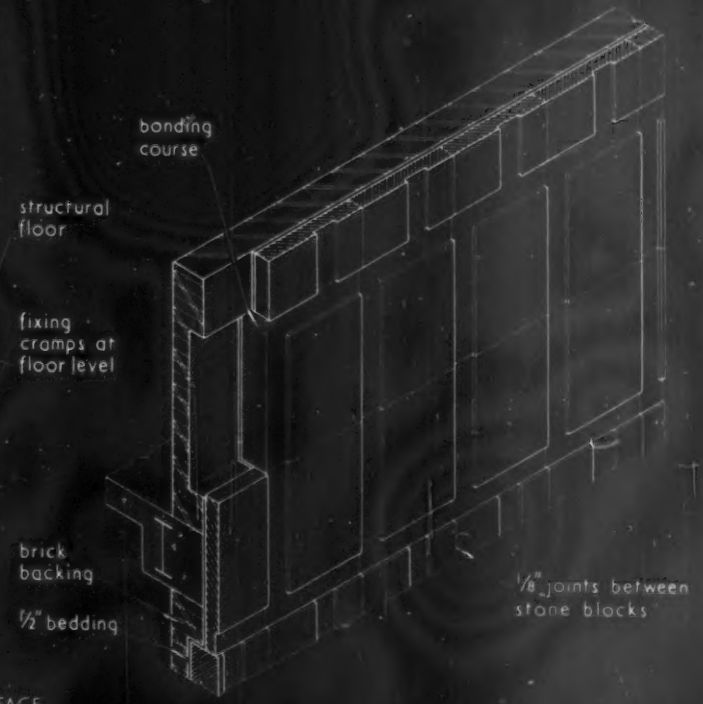

ASHLAR FACING WITH PATTERNED SURFACE

ASHLAR FACING TO BRICK WALLS

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14.P2 ASHLAR FACING TO BRICK WALLS

This Sheet is one of a series on building limestones and describes methods of cladding brick walls: cladding to reinforced concrete is described on Sheet 14.P1. Sheet 5.A1 gives general data on six types of limestone, their properties and suitability for differing applications. Other Sheets in the series deal with Thinwall stone cladding, stone-faced precast panels, details of treatments at openings, copings and soffits, and finishes for the stonework.

General

The drawings on the face of the Sheet show two examples of the conventional technique of bonding stone blocks into brickwork. This type of construction can either form a very solid load-bearing wall or be used as infill panels to a reinforced concrete framed structure.

Sizes

The minimum practicable thickness for stone slabs is 2½ in. Maximum heights or widths vary between 3 ft. 0 in. and 4 ft. 0 in. according to thickness but heights should, of course, be to brick course dimensions.

Fixing

Mortar and jointing: The recommended mix for the stone blocks is 7 parts stone-dust, 5 parts hydrated lime, 2 parts white cement. Joints and beds should be ⅛ in. and there should be ½ in. grouting between stone and brickwork.

Fixing cramps: Phosphor bronze dovetail anchors and dowels should be used where concrete occurs at the back of the stonework, e.g., at the face of a beam. Galvanised steel channels should be cast into the concrete to receive them.

Division of work: The builder should cast the r.c. structure, including any channels to take cramps, and build the brickwork. The mason should fix the stone blocks and the cramps.

Programming

The masonry contractor requires ⅛ in. scale plans and elevations, showing the fully-dimensioned overall layout, and a complete set of structural engineer's details. The elevational drawings at least should be available to the masonry contractor before the structural frame is started. The stonework and brickwork are erected simultaneously.

Further Information

The Stone Firms Ltd. maintain a technical advisory service available to prepare drawings and advise on all problems dealing with the use of stone in buildings. Advice can be given on all natural cladding materials apart from those quarried by the company.

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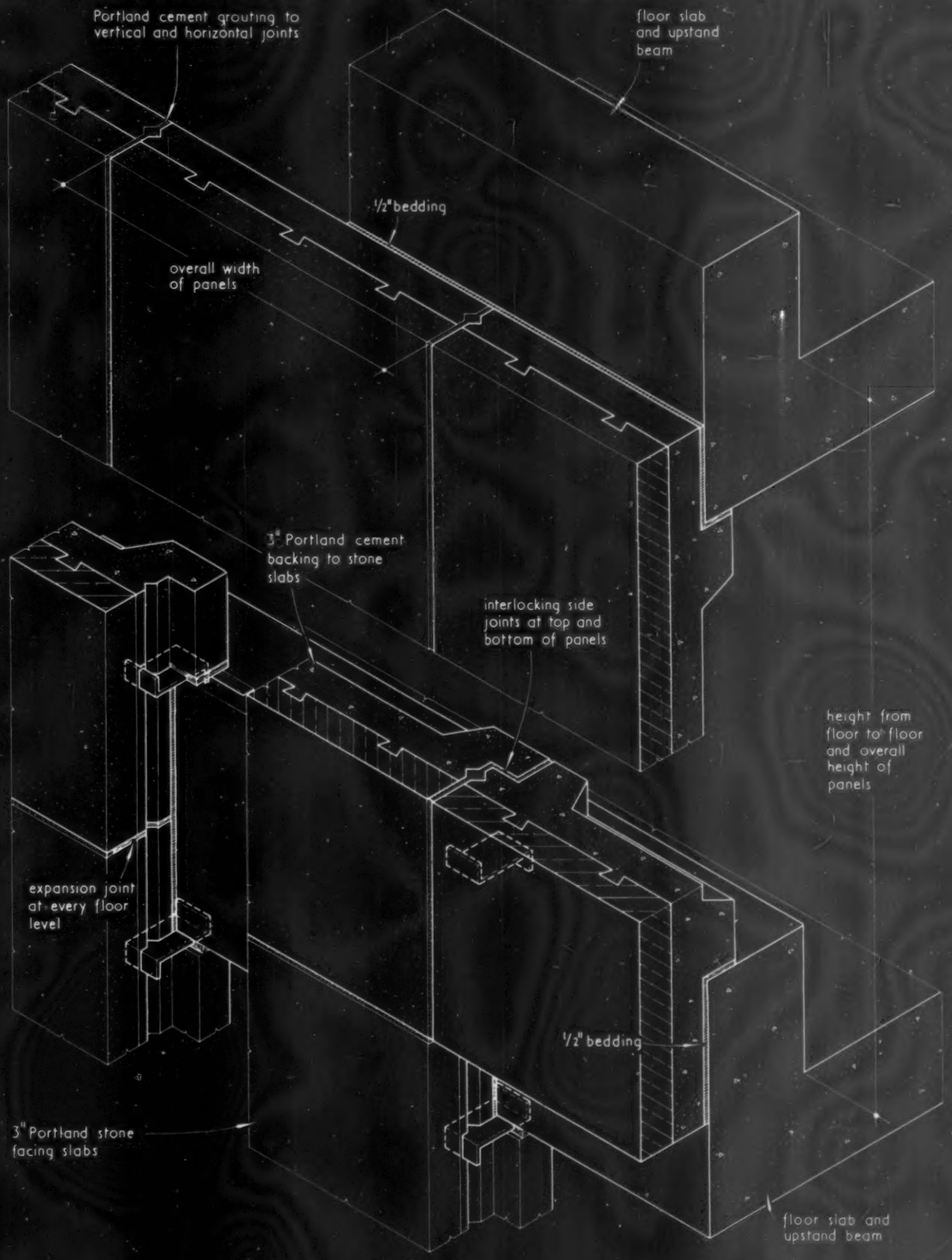

ISOMETRIC VIEW OF TYPICAL APPLICATION TO R.C. FRAME

STONE-FACED PRECAST CLADDING PANELS.

Compiled from information supplied by : The Stone Firms Ltd.

14.P3 STONE-FACED PRECAST CLADDING PANELS

This Sheet is one of a series on building limestones and describes stone-faced precast cladding panels. Sheet 5.A1 gives general data on six types of limestone, their properties and suitability for differing applications. Other Sheets in the series deal with Thinwall stone cladding, methods of cladding reinforced concrete and brick walls, details of treatments at openings, copings and soffits, and finishes for the stonework.

General

The drawings on the face of the Sheet show storey-high units consisting of stone panels cast on to a concrete backing. When cast, the units can be very rapidly erected with a minimum number of fixing cramps and are suitable for reinforced-concrete framed buildings with repetitive floor-to-floor elements.

Sizes

The minimum practicable thickness for stone is 2½ in. The maximum height of slabs should be between 3 ft. 0 in. and 4 ft. 0 in., according to thickness, and the width 2 ft. 4 in. The maximum size of the precast panel would then be a storey height of 12 ft. 0 in., 2 ft. 4 in. in width.

Fixing

Mortar and jointing: The recommended mix for the stone blocks is 7 parts stone-dust, 5 parts hydrated lime, 2 parts white cement. Joints and beds should be ⅛ in. and there should be ½ in. grouting between stone and concrete.

Fixing cramps: These are in phosphor bronze and are as shown on the face of the Sheet. There are two cramps to each unit.

Division of work: The builder should cast the reinforced concrete structure including the channels to take cramps. The mason should fix the panels and the cramps.

Programming

The masonry contractor requires ⅛ in. scale plans and elevations, showing the fully-dimensioned overall layout, and a complete set of structural engineer's details. Full details of the stonework should be completed before the structural frame is started.
The stone panels are cast on to the concrete backing on the site.

Further Information

The Stone Firms Ltd. maintain a technical advisory service available to prepare drawings and advise on all problems dealing with the use of stone in buildings. Advice can be given on all natural cladding materials apart from those quarried by the company.

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14.P4

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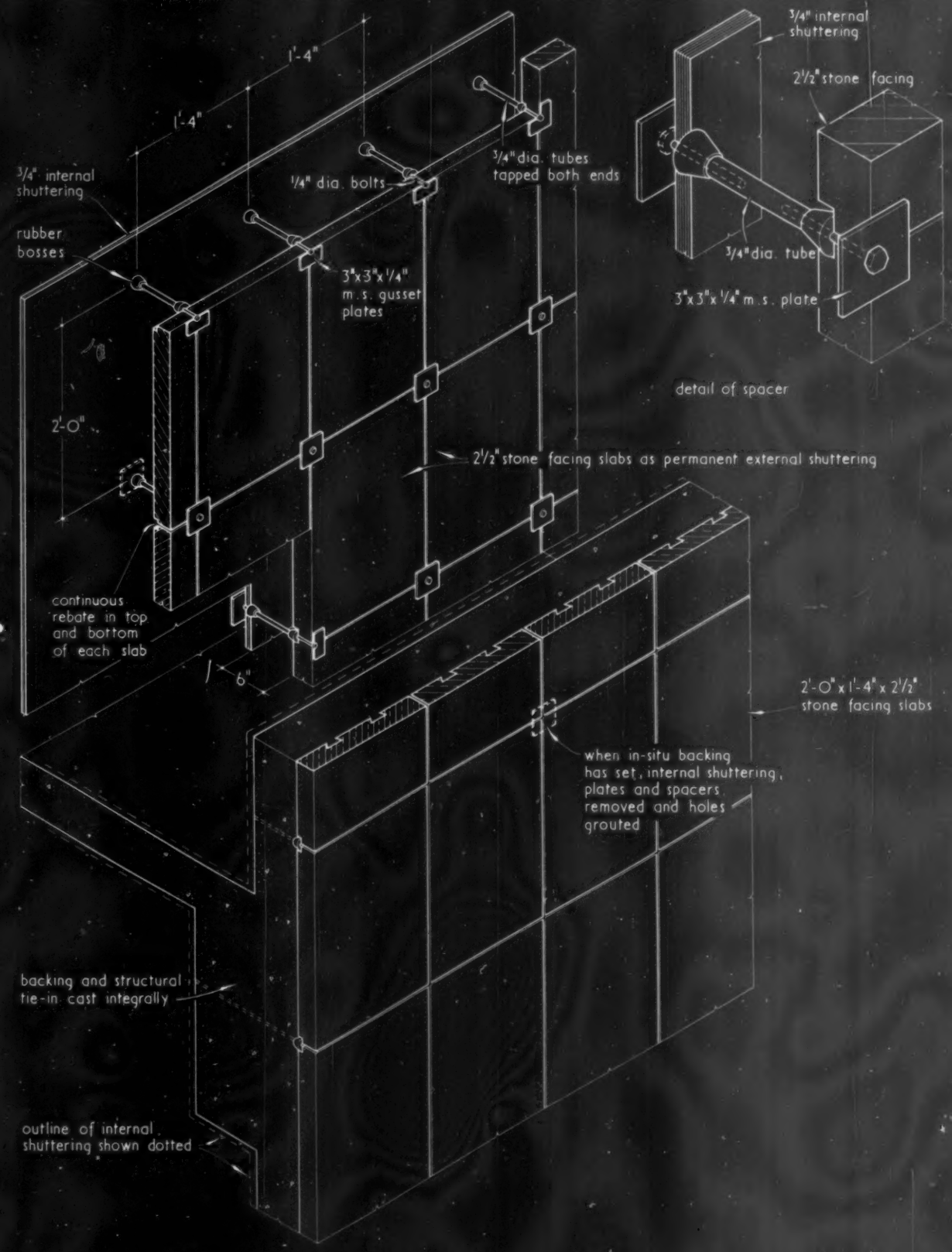

ISOMETRIC VIEW OF TYPICAL ARRANGEMENT

THINWALL STONE CLADDING WITH IN-SITU CONCRETE BACKING.

Compiled from information supplied by : The Stone Firms Ltd.

14.P4 ·THINWALL· STONE CLADDING WITH IN-SITU CONCRETE BACKING

This Sheet is one of a series on building limestones and describes Thinwall stone cladding, a system of permanent shuttering for concrete walls. Sheet 5.A1 gives general data on six types of limestone, their properties and suitability for differing applications. Other Sheets in the series deal with stone-faced precast panels, methods of cladding reinforced concrete and brick walls, details of treatments at openings, copings and soffits, and finishes for the stonework.

General

In the Thinwall system, thin slabs of stone are used as permanent shuttering to a concrete wall, as shown in the drawings on the face of the Sheet. It is particularly useful for cladding flank walls where a minimum overall wall thickness is desirable, either to reduce weight or to increase the floor area of the building. It is economical as it is rapidly erected, requires no temporary external shuttering, and, where the design permits, repetitive sizes of stone can be used. The Thinwall system is the subject of a provisional patent.

Sizes

The recommended thickness for the stone slabs is 2½ in. A modular size for the stone slabs is economical to produce and to fix: approximately 1 ft. 8 in. by 2 ft. 8 in., for example, would be a suitable size.

Fixing

Mortar and jointing: The recommended mix for the stone blocks is 7 parts stone-dust, 5 parts hydrated lime, 2 parts white cement. Joints and beds should be ⅛ in. and there should be ½ in. grouting between stone and concrete.

Fixings: The stone slabs and the temporary internal shuttering are held until the concrete is poured as shown in the drawings on the face of the Sheet. ¼ in. diameter snap-bolts are used in combination with plates and spacers and these are removed when the concrete backing has set.

Division of work: The mason should erect the skeleton framework and fix the stonework. The builder places the concrete backing.

Programming

The masonry contractor requires ⅛ in. scale plans and elevations showing the fully-dimensioned overall layout and a complete set of structural engineer's details. The elevational drawings at least should be available to the masonry contractor before the structural frame is started.

Further Information

The Stone Firms Ltd. maintain a technical advisory service available to prepare drawings and advise on all problems dealing with the use of stone in buildings. Advice can be given on all natural cladding materials apart from those quarried by the company.

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BUILDING SLABS | STONE | COPINGS AND SOFFITS

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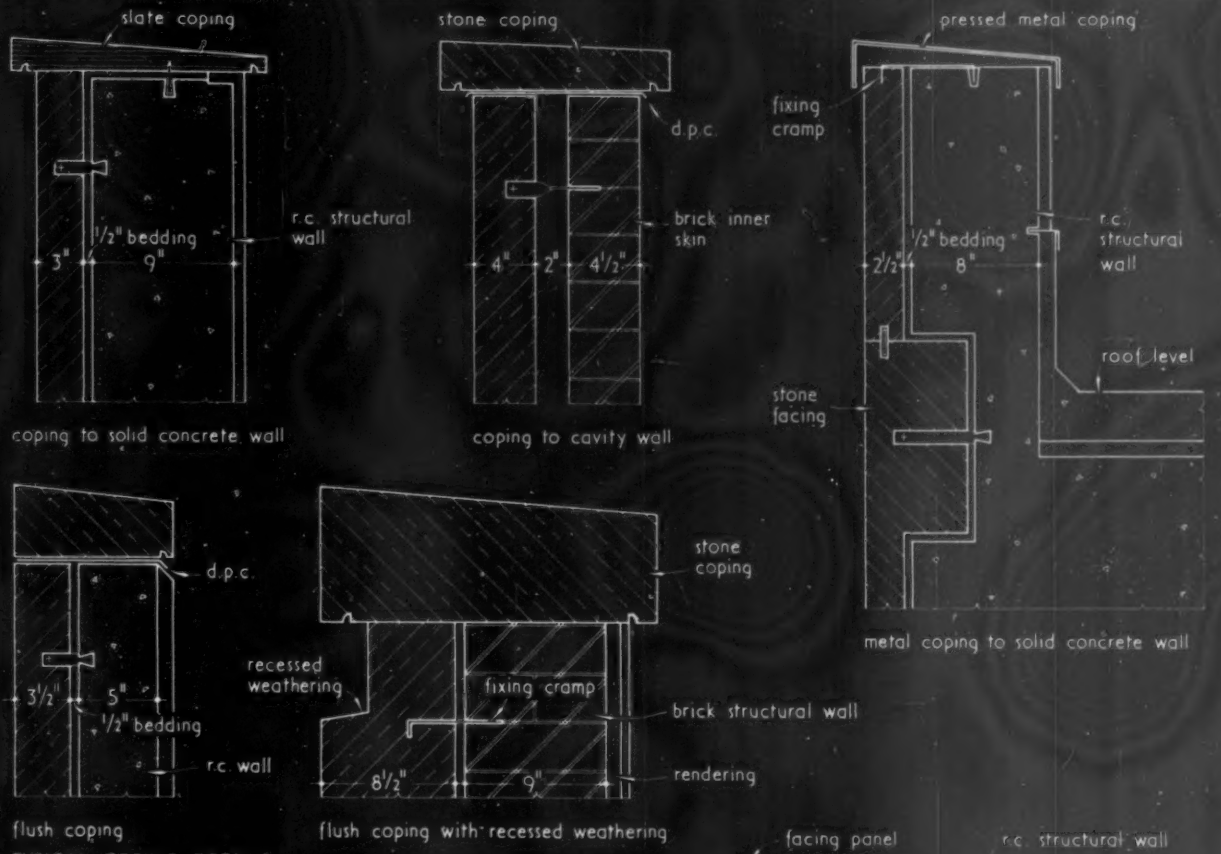
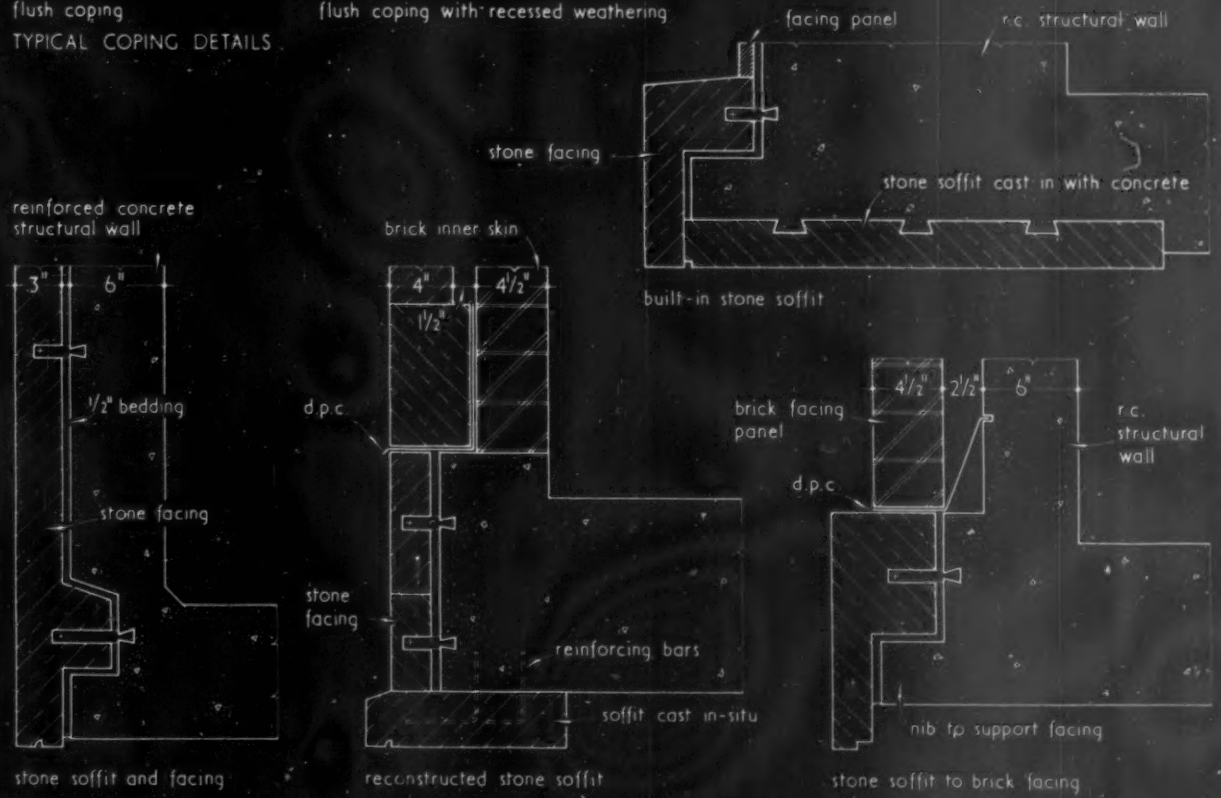


TYPICAL COPING DETAILS



TYPICAL SOFFIT DETAILS

COPINGS AND SOFFITS TO STONE-FACED STRUCTURES

Compiled from information supplied by : The Stone Firms Ltd

14.P5 COPINGS AND SOFFITS TO STONE-FACED STRUCTURES

This Sheet is one of a series on building limestones and illustrates typical fixing details for copings and soffits. Sheet 5.A1 gives general data on six types of limestone, their properties and suitability for differing applications. Other Sheets in the series deal with methods of cladding reinforced concrete and brick walls, Thinwall stone cladding, stone-faced precast panels, details of treatments at openings and finishes for the stonework.

General

The drawings on the face of the Sheet illustrate normal methods of fixing stonework at copings and soffits, and waterproofing the adjacent structural work. Many variations are possible depending on the architect's design and the examples given should be regarded only as typical. The soffit detail subheaded *Built-in stone soffit* shows stone used as permanent shuttering.

Sizes

The minimum practicable thickness for the stone slabs is 2½ in. Maximum heights or widths vary between 3 ft. 0 in. and 4 ft. 0 in. according to thickness.

Fixing

Mortar and jointing: The recommended mix for the stone blocks is 7 parts stone-dust, 5 parts hydrated lime, 2 parts white cement. Joints and beds should be ⅛ in. and there should be ½ in. grouting between stone and concrete.

Fixing cramps: Phosphor bronze dovetail anchors and dowels should be used where necessary for fixing to concrete and galvanised steel channels cast into the concrete to receive them. Other types of non-ferrous cramp may be used, as shown, for building into brickwork.

Division of work: The builder should cast the reinforced concrete structure including the channels to take the cramps. The mason should fix the stonework and the cramps.

Programming

The masonry contractor requires ⅛ in. scale plans and elevations, showing the fully-dimensioned overall layout, and a complete set of structural engineer's details. The elevational drawings at least should be available to the masonry contractor before the structural frame is started. The stone can be fixed as soon as the concrete is cured. Any brickwork backing that is required should be built up with the stonework.

Further Information

The Stone Firms Ltd. maintain a technical advisory service available to prepare drawings and advise on all problems dealing with the use of stone in buildings. Advice can be given on all natural cladding materials apart from those quarried by the company.

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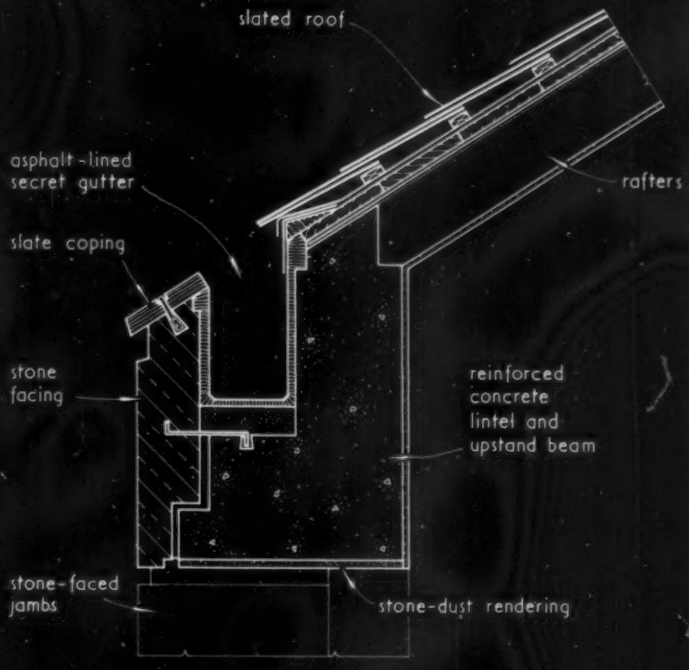
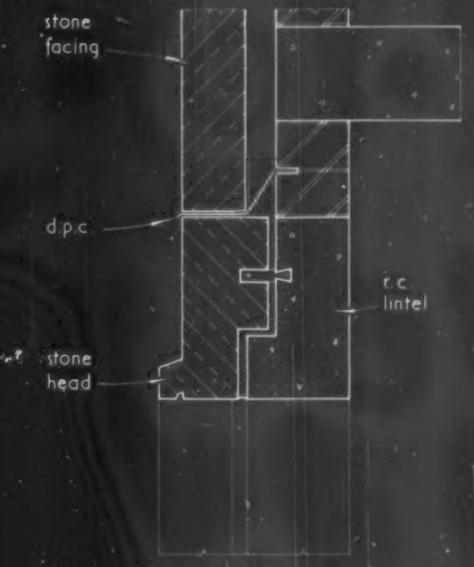
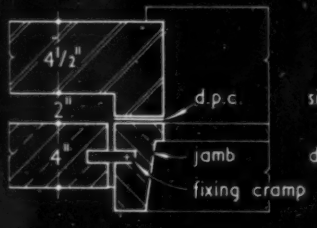


built-up head forming secret gutter

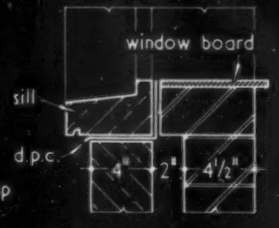


window head in cavity wall

TYPICAL HEAD DETAILS



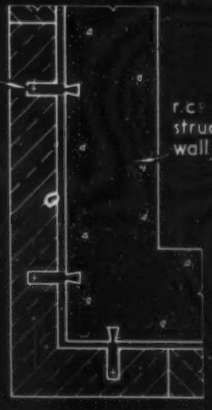
jamb in cavity wall



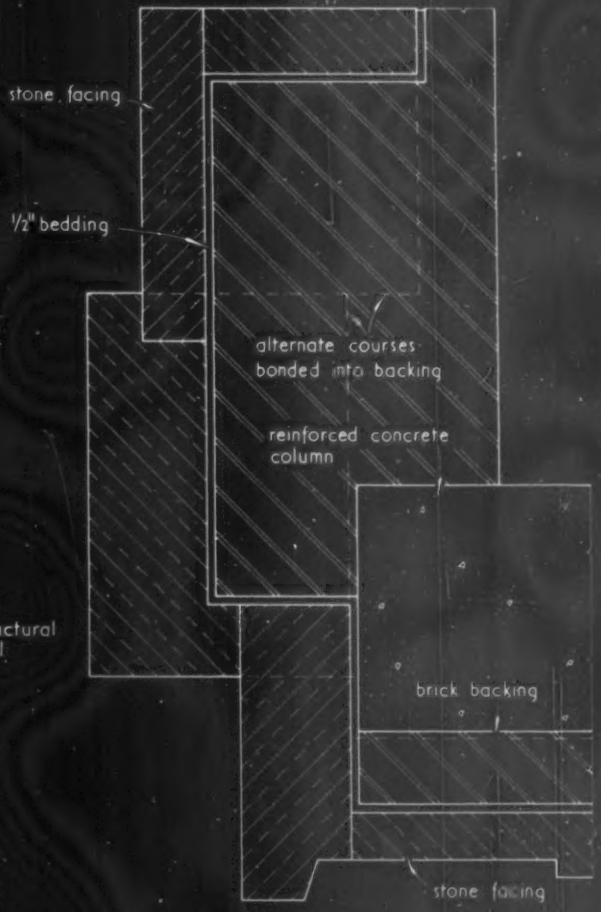
sill in cavity wall

TYPICAL JAMB AND SILL DETAILS

external angle: built-up



external angle: one-piece



internal angle: built-up

TYPICAL DETAILS AT CORNERS

MISCELLANEOUS DETAILS ON STONE-FACED STRUCTURES.

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14.P6 MISCELLANEOUS DETAILS ON STONE-FACED STRUCTURES

This Sheet is one of a series on building limestones and illustrates typical fixing details at openings, corners, etc., on stone-faced structures. Sheet 5.A1 gives general data on six types of limestone, their properties and suitability for differing applications. Other Sheets in the series deal with methods of cladding reinforced concrete and brick walls, Thinwall stone cladding, stone-faced precast panels, details of treatments at copings and soffits, and finishes for the stonework.

General

The drawings on the face of the Sheet show typical solutions to the normal fixing problems frequently encountered when facing structures with stone.

Sizes

The minimum practicable thickness for the stone slabs is 2½ in. Maximum heights or widths vary between 3 ft. 0 in. and 4 ft. 0 in. according to thickness.

Fixing

Mortar and jointing: The recommended mix for the stone blocks is 7 parts stone-dust, 5 parts hydrated lime, 2 parts white cement. Joints and beds should be ⅛ in. and there should be ½ in. grouting between stone and concrete.

Fixing cramps: Phosphor bronze dovetail anchors and dowels should be used and galvanised steel channels should be cast into the concrete to receive them. The number required depends on the size and function of the stone unit but 4 is average.

Division of work: The builder should cast the reinforced concrete structure including the channels to take the cramps. The mason should fix the stone blocks and the cramps.

Programming

The masonry contractor requires ⅛ in. scale plans and elevations, showing the fully-dimensioned overall layout, and a complete set of structural engineer's details. The elevational drawings at least should be available to the masonry contractor before the structural frame is started. The stone can be fixed as soon as the concrete is cured. Any brick backing should be built up with the stonework.

Further Information

The Stone Firms Ltd. maintain a technical advisory service available to prepare drawings and advise on all problems dealing with the use of stone in buildings. Advice can be given on all natural cladding materials apart from those quarried by the company.

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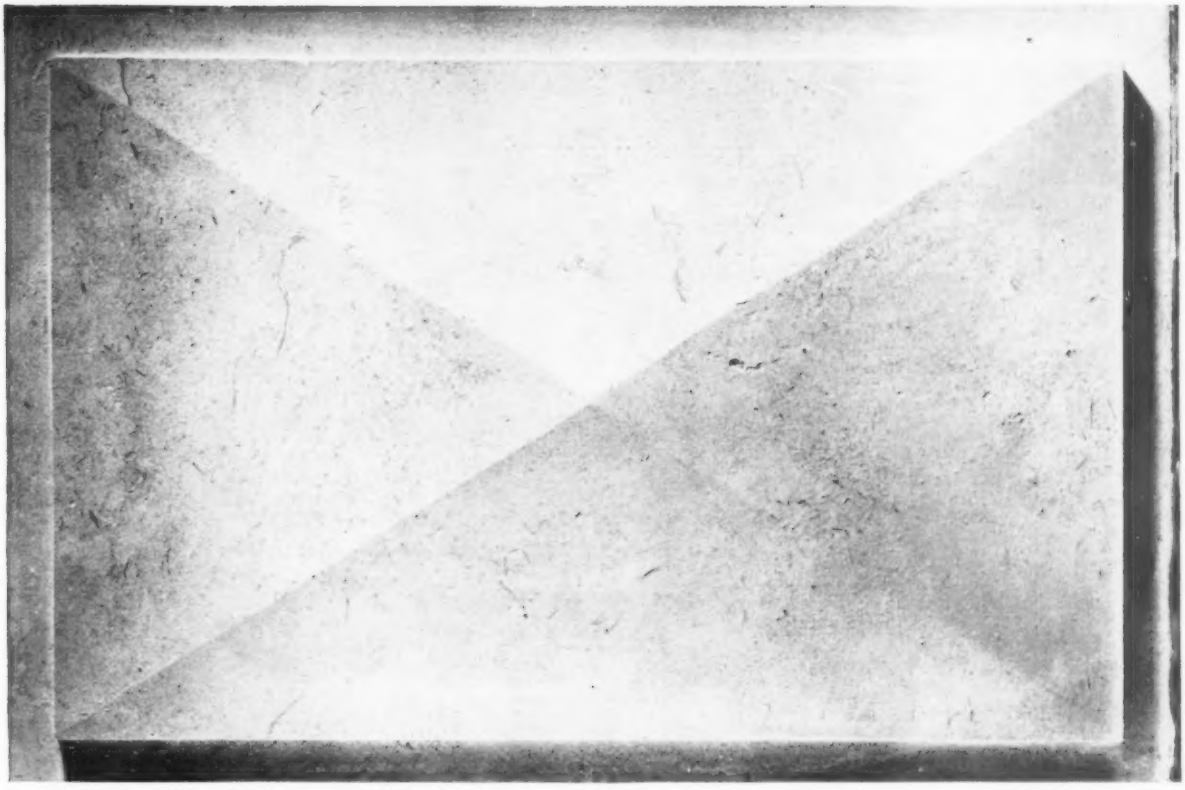
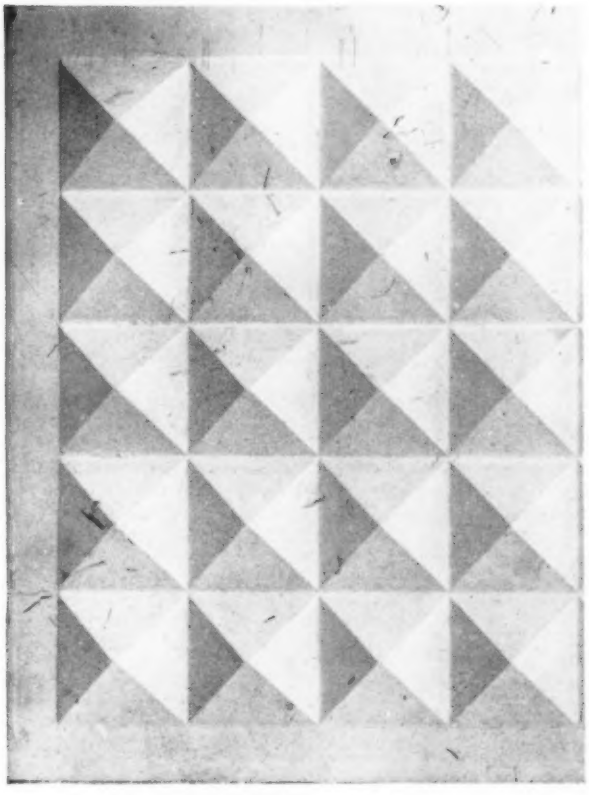
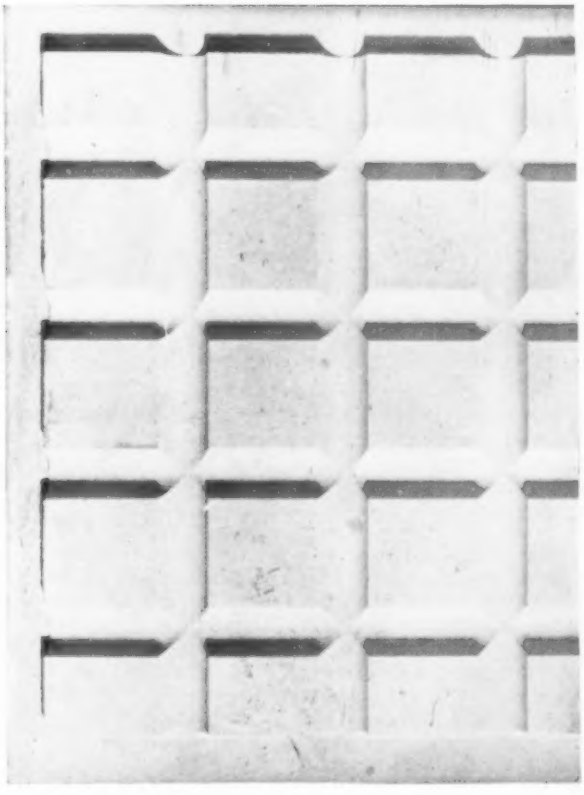
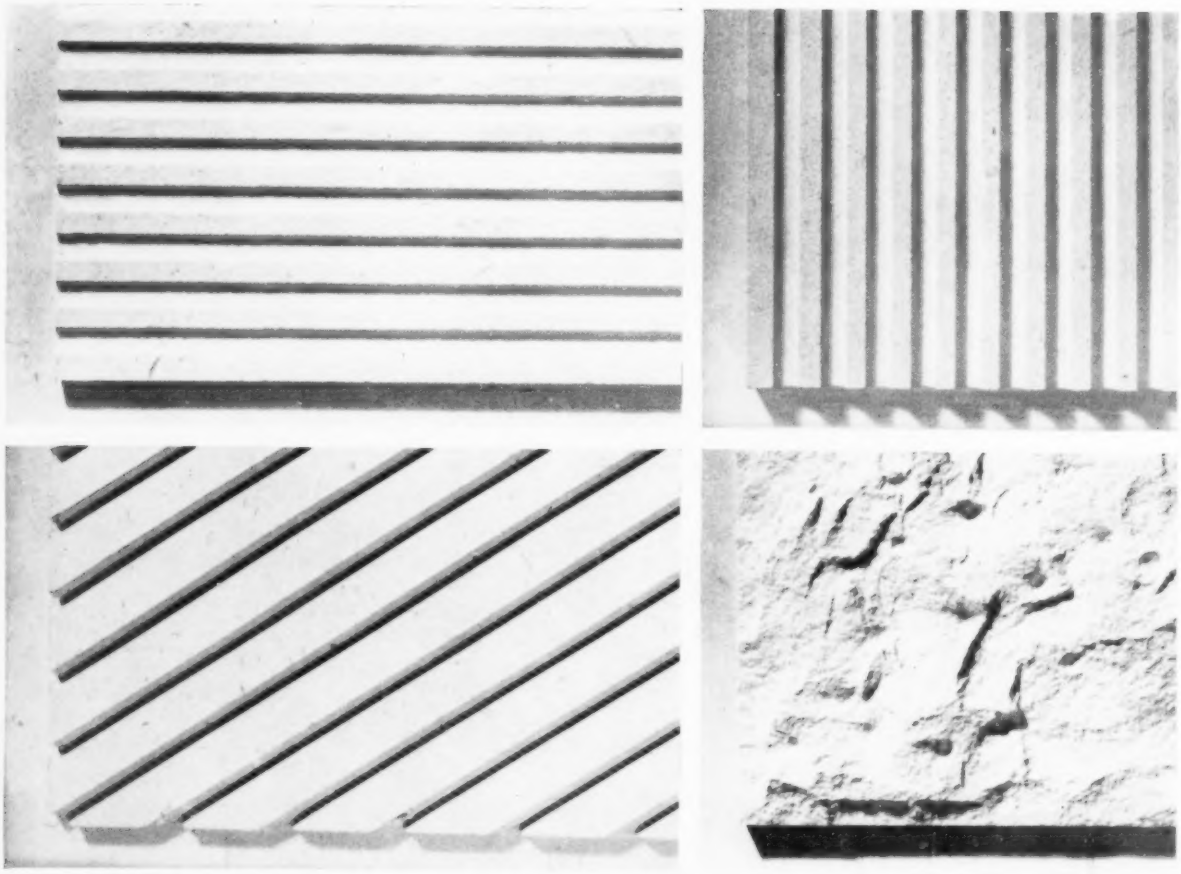






BUILDING LIMESTONES : FINISHES

14.P7 BUILDING LIMESTONES : FINISHES



This Sheet is one of a series on building limestones and shows a selection of finishes for stone slabs. Sheet 5.A1 gives general data on six types of limestone, their properties and suitability for differing applications. Other Sheets in the series deal with methods of cladding reinforced concrete and brick walls, Thinwall stone cladding, stone-faced precast panels and details of treatments at openings, copings and soffits.

General

The patterns illustrated are all produced entirely by machine processes with the exception of the rough-punched panel illustrated above at the lower right. This latter is a hand-produced natural finish: the rustication round the edges is machine-produced.

The machined panels can be readily produced in all types of Portland stone. When stone from the shelly tier or from the various grades of roach is used, the arrises are likely to be broken by shell holes, a point that must be considered when deciding on the type of patterning and general effect required. The patterns illustrated are typical, but considerable variation is possible to meet the architect's design requirements. For example, the scale of the patterning can be varied and many variations are possible on any one principle.

The patterning in each case is carried out on a raised ground and internal stops and mitres are avoided. The width of the margin for protection round the edges of the slabs shown on this Sheet is $\frac{3}{4}$ in. but it can be varied considerably to suit requirements.

Sizes

The maximum practical size for a single slab is 6 ft. 0 in. by 4 ft. 0 in. for 4-in. or 5-in. thick slabs. For 3-in. thick slabs, the maximum size is 3 ft. 0 in. square.

Further Information

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working detail

CURTAIN WALL: OFFICES IN ZURICH

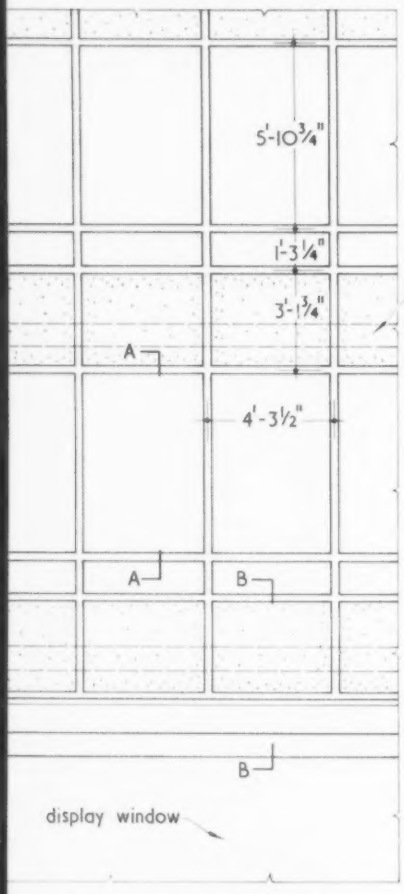
R. Zürcher, architect (material supplied by S. E. Ward)

This is an aluminium curtain wall with double-glazed lights some of which are fixed, some vertically centre-pivot hung and a few inward-opening bottom hung.

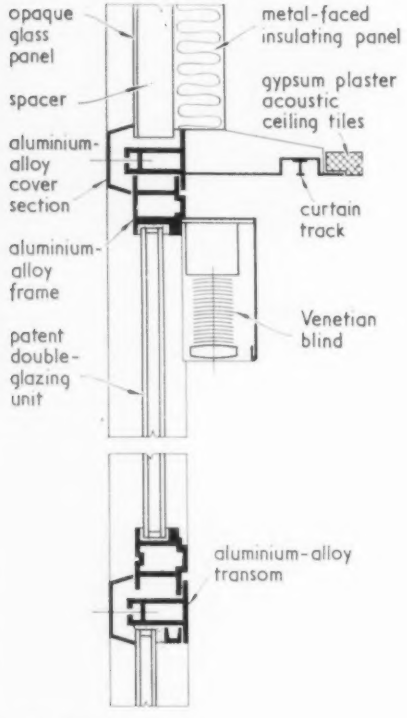
working detail

CURTAIN WALL: OFFICES IN ZURICH

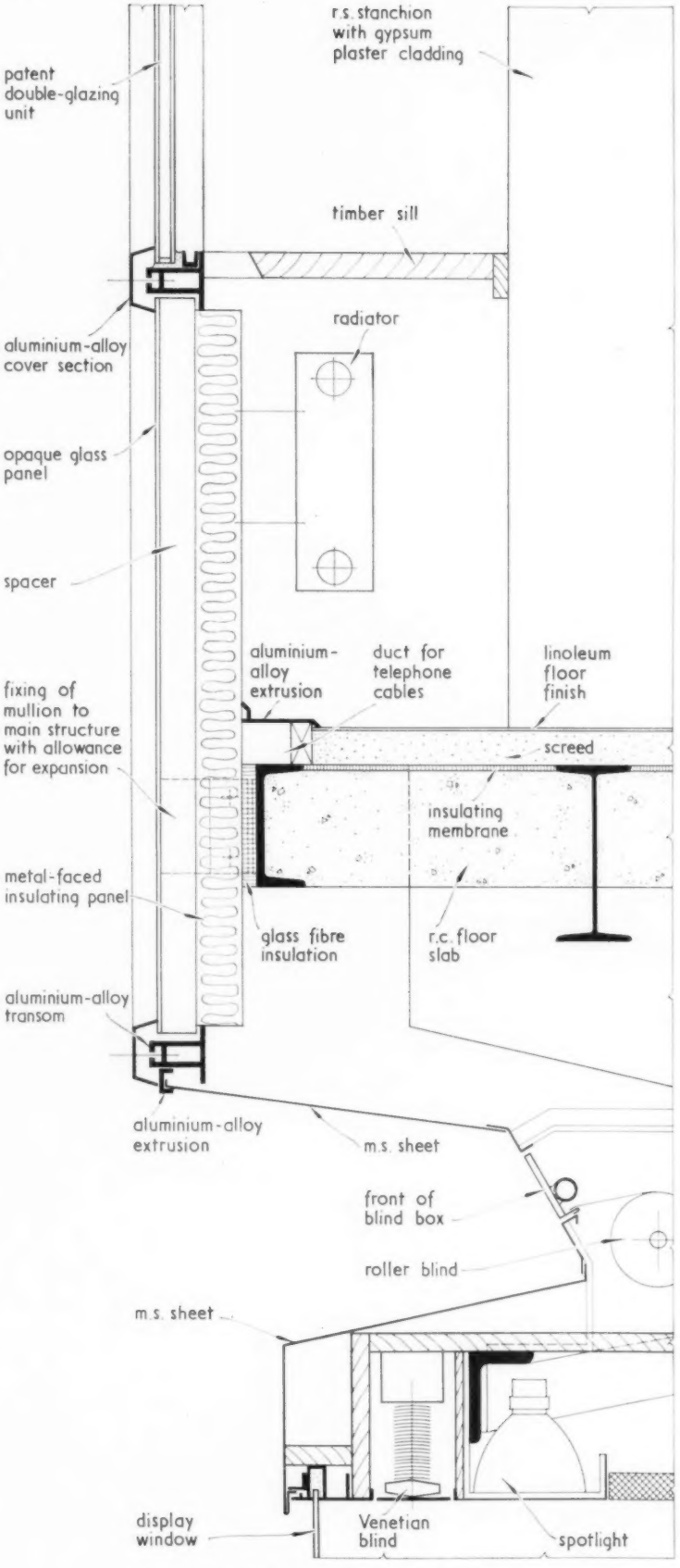
R. Zürcher architect (material supplied by S. E. Ward)



ELEVATION. scale 3/16" = 1'-0"



SECTION A-A.
scale 1½" = 1'-0"



SECTION B-B.
scale 1½" = 1'-0"

note: figured dimensions in feet and inches are approximate

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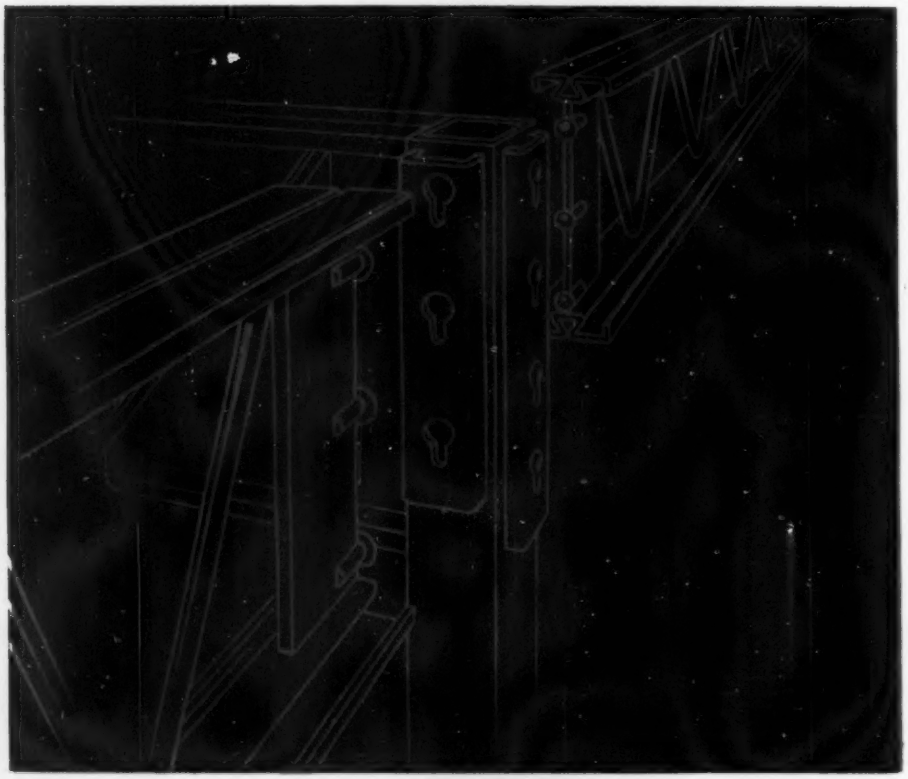

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Dominance of man or machine?

Lewis Mumford's gold medal address given at the RIBA on June 27

After drawing attention to the fact that this is the first time that the Gold Medal has been awarded to a writer, and expressing his debt to his British predecessors such as Ruskin, Morris, Letherby and Geddes, Mumford took the opportunity of putting forward some very strong views about the present situation, ideas which if not entirely worked out, have great relevance to the theme of the IUA Congress.

He started with a reminder that no part of our daily life today, no family expectations, no professional plans, no long-term hopes and creative prospects for the world at large have any likelihood of fruition unless the forces that grievously threaten us are mastered. The ultimate madness of our age is to assume that all its current signs of madness are entirely normal and inevitable. The world is still awaiting leaders alert enough to the dangers of the present situation to take the right action and precipitate the needed change. Mumford admits that he is canvassing for a miracle. If the world is to be saved from a nuclear holocaust, it would only be through a miracle of regeneration such as Britain experienced after Dunkirk.

Assuming the bold assumption can be made, that this miracle will actually happen, and even granting our biological survival for at least another century, the very factors that have made it so hard to keep nuclear energy and other genuine triumphs of science from being turned against mankind will, unless we radically change our ideas, continue inexorably at work. If we carry on automatically with our present goals of technical expansion with no reference to other human ends, the final result in another hundred years may not be much different from a single, gigantic catastrophe. Already one American space scientist has defined the new status of man: a human being is simply the cheapest mass-produced servo-mechanism as yet available for operating an otherwise completely automatic machine. Samuel Butler's old joke that man might soon be reduced to serving as a machine's agent for producing another machine comes daily closer to reality.

Mumford explained that he had a special reason for raising this problem: it greatly concerns architecture, town planning and regional design. The machine cannot hope to deliver us from the disabilities of automatism, or that an expanding economy will provide adequate reward for a constantly contracting mode of life.

A century ago it was natural for progressive minds to believe that technics and science alone were the key to progress in society. This Victorian attitude

towards technical progress, once so clearly justified, is now absurdly musty and old-fashioned, since it takes no account of the disastrous results that follow this creed to its conclusion. Every year the external shell of our existence becomes more complex, more mechanically refined, more monumental and abstractly elegant, but the human content becomes more empty and the human purpose more incidental. This condition is perfectly mirrored in the sterile images of the City of the Future. Le Corbusier openly proclaimed the necessity for altering human dispositions to fit his architectural idiosyncrasies in his defence of the absurd constrictions imposed by the Marseilles Unité; Mies van der Rohe makes such peremptory demands without even bothering to defend them. So far from architectural forms being fashioned to serve and delight the user, the house-dweller is selected, like an astronaut for a space capsule, so as to conform physically and psychologically to formalistic and financial requirements, the sole factors which govern the design.

This cold indifference to vital human requirements is sometimes disguised as a new type of humanism. In a new dormitory block in an American university for instance, the architects went out of their way to flout every personal and social need for rest, study, and small-scale sociability to create a hideously prison-like structure with rooms like punishment cells and ostentatiously wasteful public spaces. Such brutalised rationalism, such fraudulent humanism which sacrifices human need to arbitrary aesthetic concepts, does far more violence to the human spirit than the crudest utilitarianism. The Neo-Libertarians mistake novelty for originality, and never stay long enough with any new mode of construction to relate it to human needs or to explore its possibilities.

In town planning this same dehumanisation has already gone far. In many American centres the planners have already effectually destroyed the city in order to give pre-eminence to the private motor car.

After pointing to reactions against mechanisation such as the Ronchamp Chapel, Mumford pointed the moral that life itself must not be denied. One must render to the machine only what belongs to the machine, and render to man all that belongs to him. This is not an easy counsel, because in a disintegrating society, destruction becomes a sort of negative creation. Even Frank Lloyd Wright with his central theme of family, home and garden, at the end of his life projected the empty technological stunt of the mile-high Skyscraper, an anti-urban and anti-human form without practical value or aesthetic significance.

Those who wish to reject this thesis, Mumford feels, would make their task easier if they misinterpreted his words as an attack on modern science or treated it as an attempt to go back to archaic handicraft technology. But he believes there is no instrument of technics however complex and elaborate that modern man should not welcome readily when it is under constant human control and operated strictly for human ends. Our present plight comes not from science and technics as such, but from those who have turned the expansion of scientific knowledge and technical power into absolutes, to which every other human interest and desire must be sub-ordinated. Every day the exploding universe of technics moves farther away from the human centre where it originated; the human figure continues to shrink.

Mumford summarised his theme in one sentence to which his whole work might be considered as a preface: the primacy of organisms and personalities over mechanisms and systems; the primacy of life itself above all its instruments and agents. This leaves the architect in the central position he has always occupied, as the mediator between natural conditions, mechanical necessities and human purposes. The new order must make man himself the visible master of his domicile. The human race always behaves best when the odds are against it and if we do not flinch or retreat, life may still happily surprise us.

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Technical Information Service

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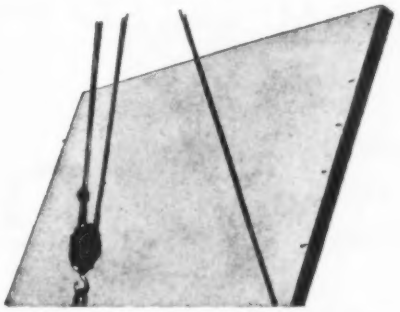

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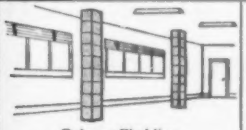

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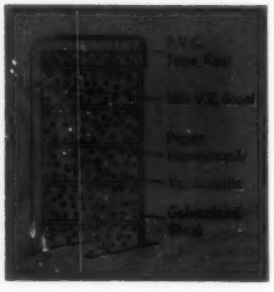

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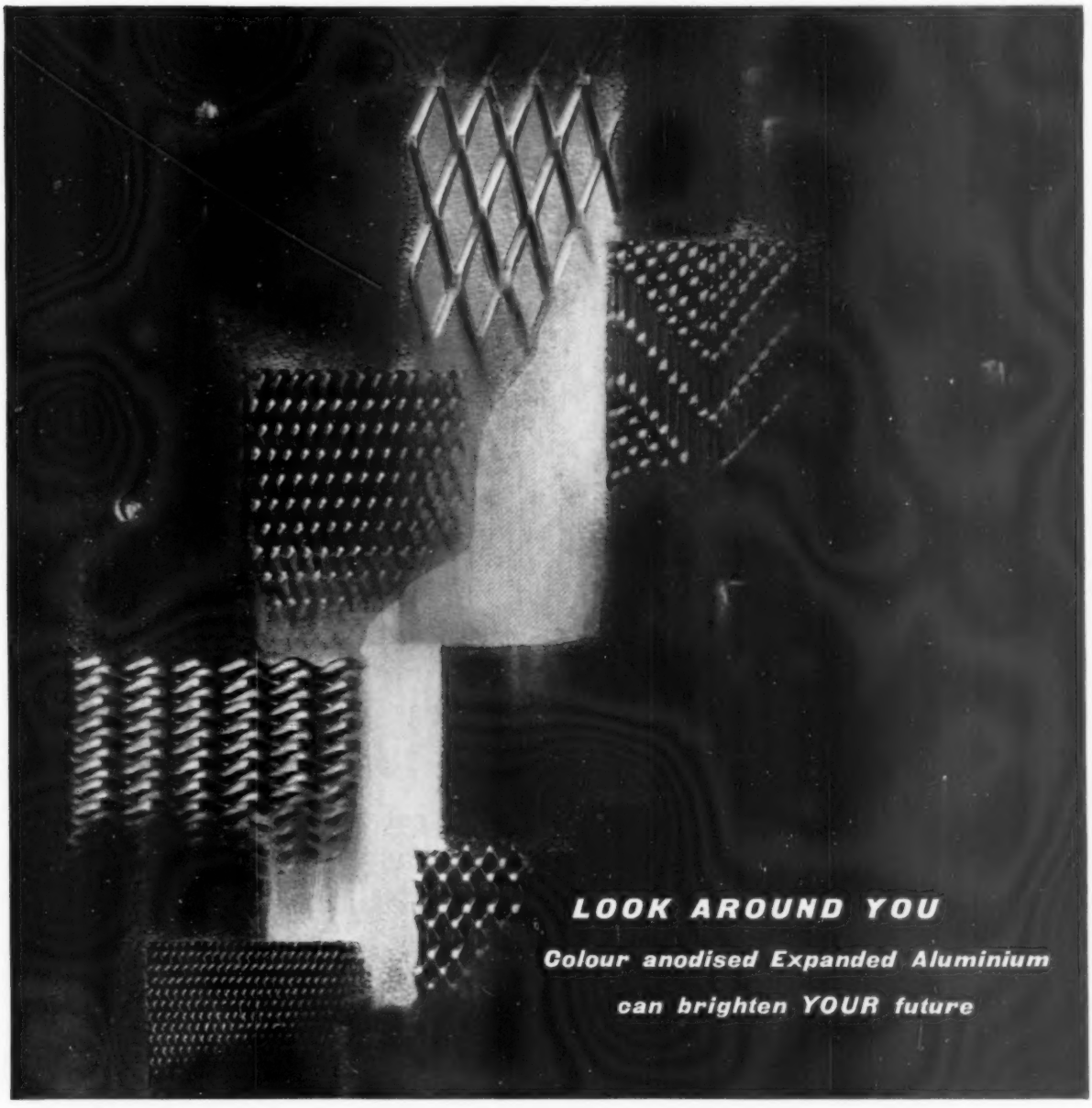

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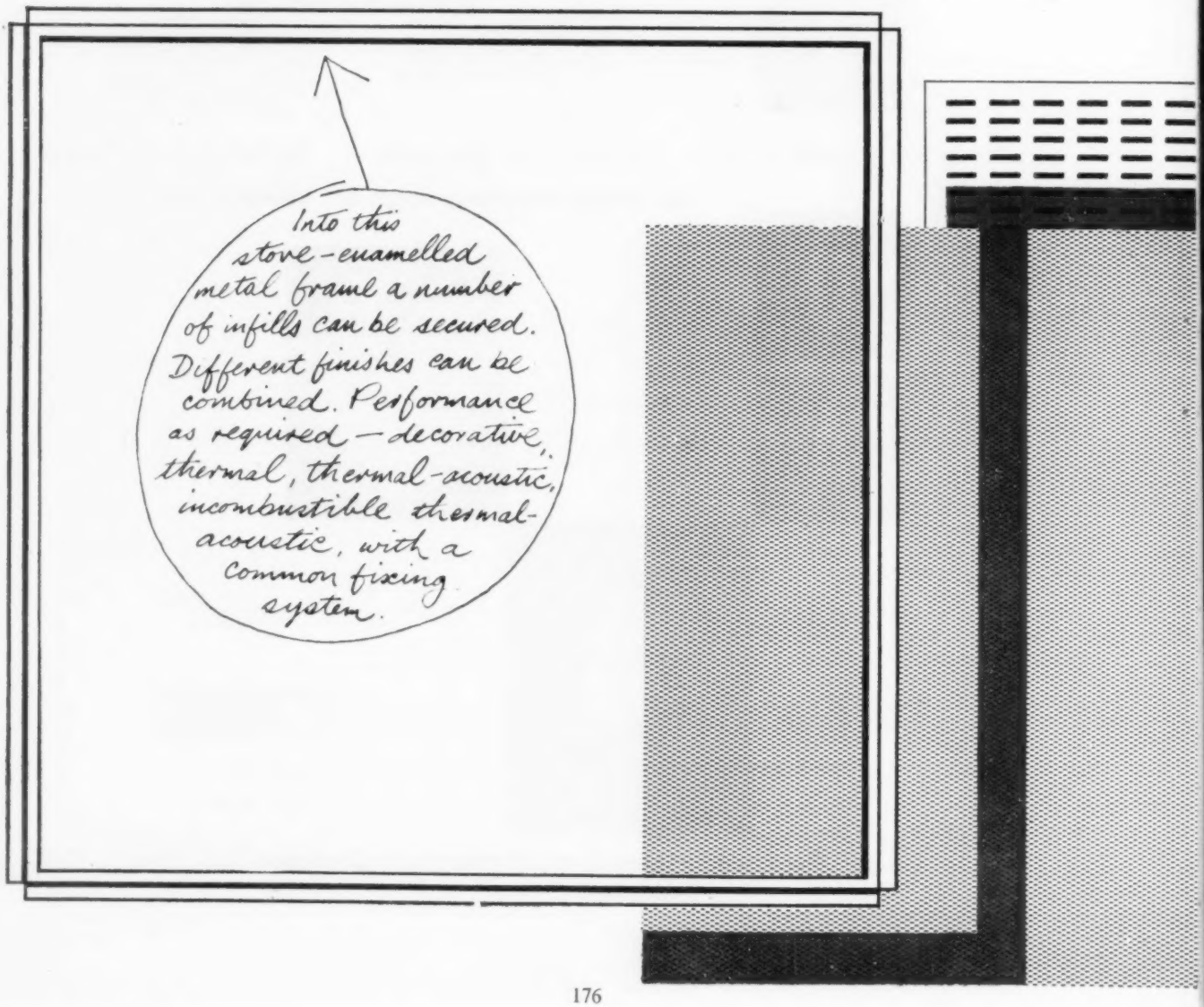

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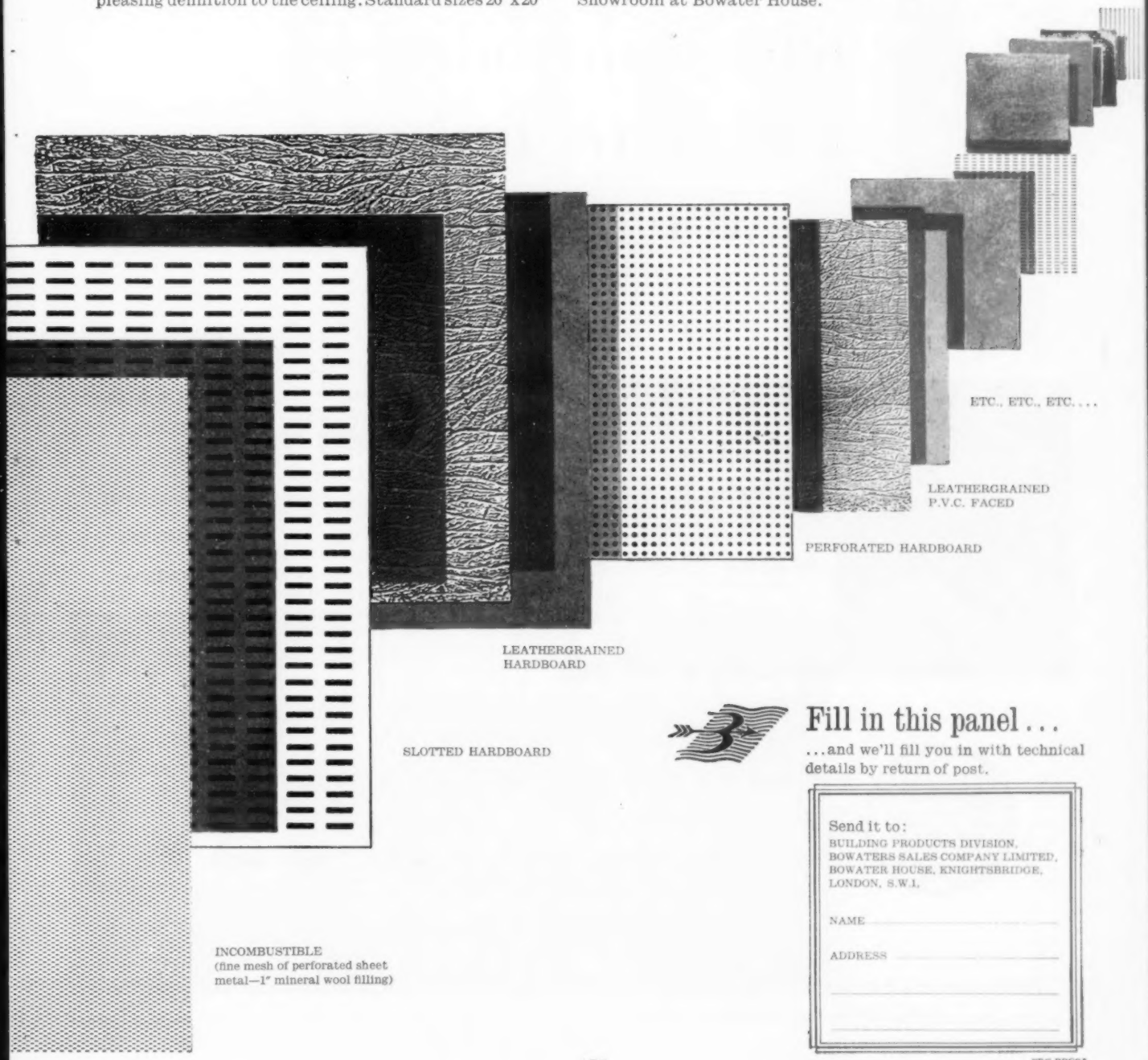

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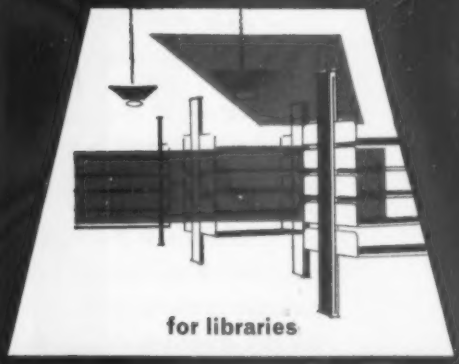

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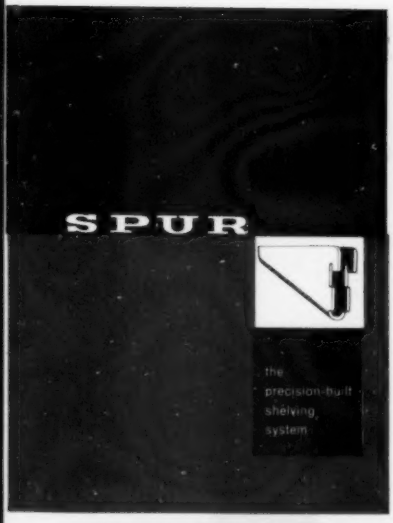

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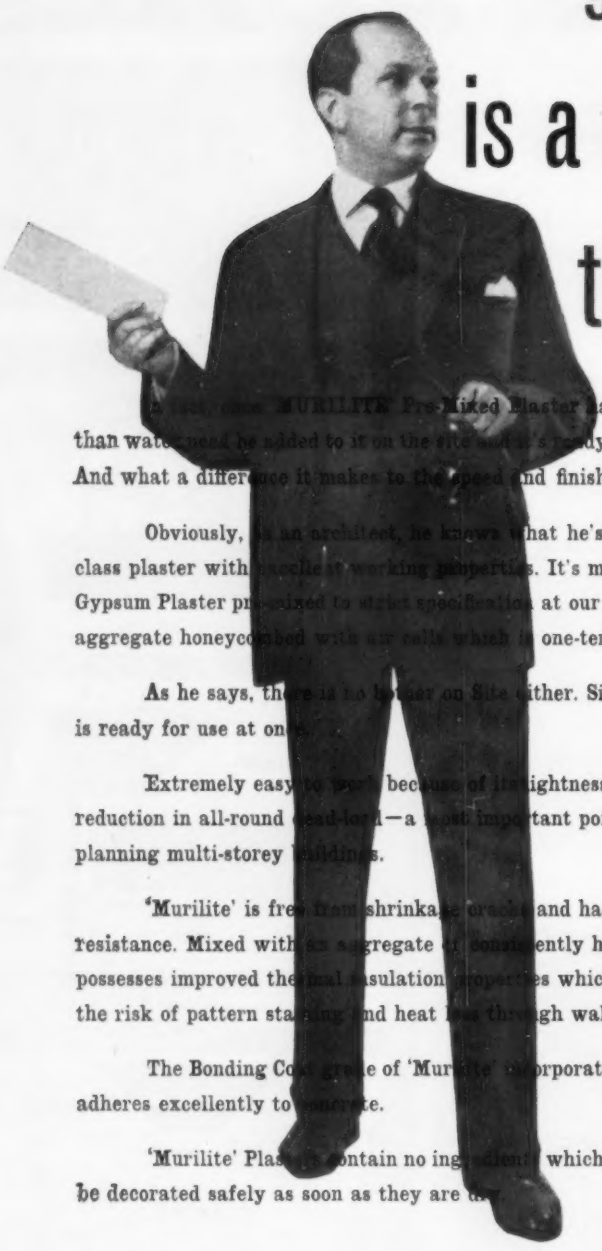

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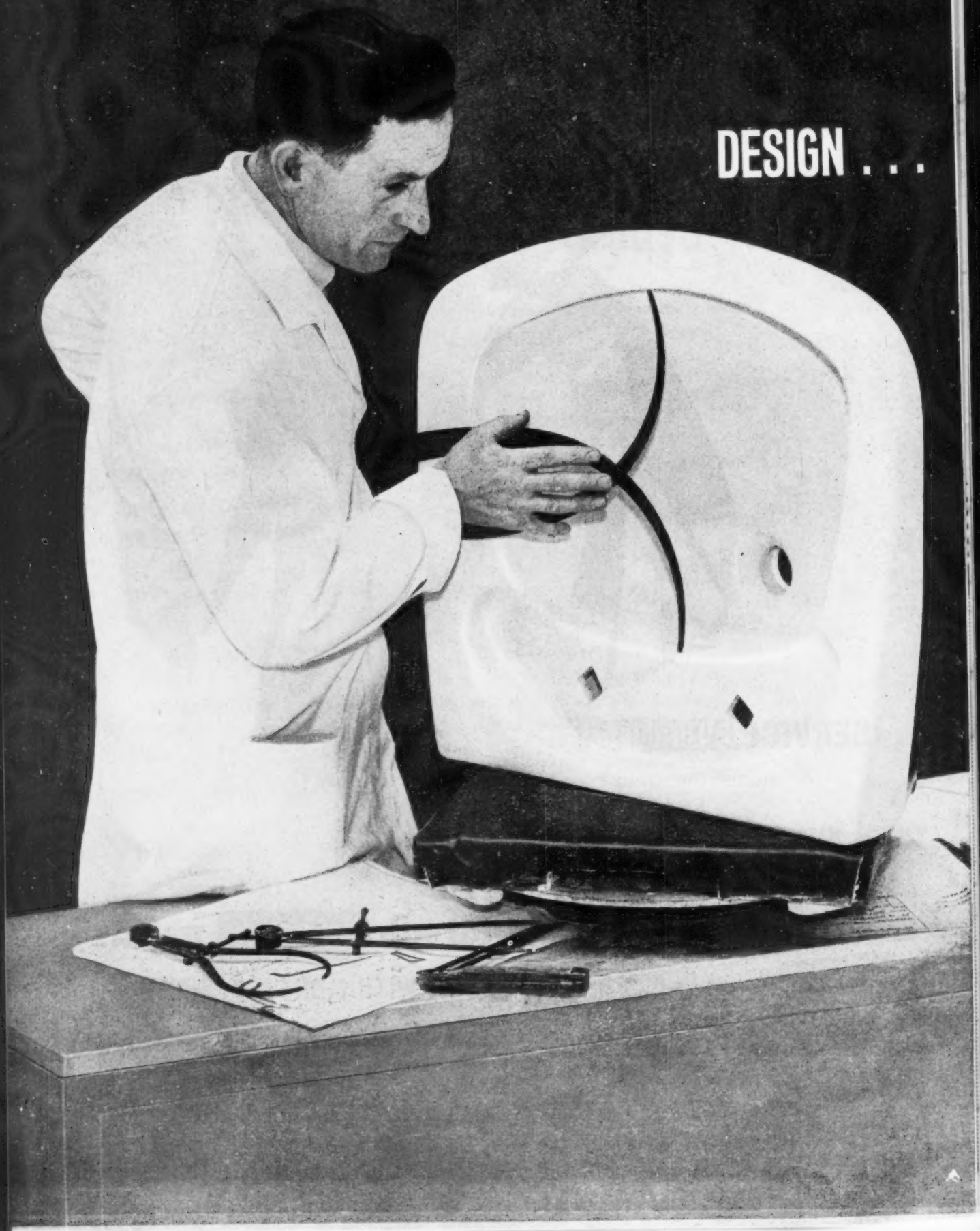
THE ARCHITECTS' JOURNAL
for June 29, 1961

NEWS FROM HULL

DESIGN . . .



AND MATERIALS COMBINE TO MAKE THE ARCHITECTS' JOB EASIER

For the architect specifying equipment, good design and a high standard of material quality are essential. When he can find the best of both combined in one single range of equipment, his job is made a lot easier.

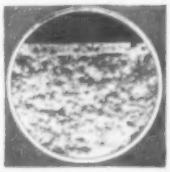
And this is the case when the layout of bathrooms and washrooms is under consideration. 'Standard' bathroom equipment leads the industry in design—and by the exclusive use of vitreous china, 'Standard' have made sure of their reputation for quality, hygiene and durability.

Vitreous china

It is impossible to dispute the fact that vitreous china is the most suitable material for sanitary ware. Unlike other materials, vitreous china does not rely on its glaze alone to keep it permanently sanitary—it is a dense, non-porous material and is only glazed for the sake of appearance.

With the use of vitreous china, the risks of absorption and contamination have been eliminated. Unpleasant odours become a thing of the past, and because of the high temperature at which the china is fired, complete amalgamation between the body and glaze is ensured. This means that the ware is less likely to chip. Vitreous china equipment, too, is extremely durable, elegant in design, and keeps its good looks throughout a long life.

Contaminated porous ware



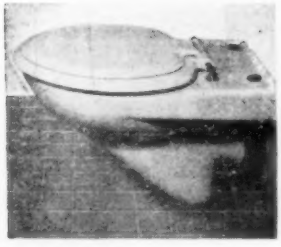
Vitreous china ware

'Standard' leadership in Design

The high temperature to vitrify the raw materials presents problems for the designer. He and the modeller have to take into account changes in shape and size caused by the tremendous heat—much higher than the temperature at which ordinary ware is fired.

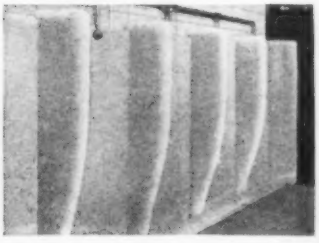
At one stage in the kiln, the castings are within a very few degrees of melting. Exact supervision by the most up-to-date technical means, allied to individual skill and experience, ensures that only controlled changes take place.

Despite these difficulties, a very high standard of design has been achieved. Illustrated here are four items of 'Standard' sanitary equipment, which, each in their own way, represent new thinking in the field of design.



The Sanwall

water-closet has achieved a pleasing modern design in an item of equipment which, because of obvious technical necessities, leaves the designer very little scope. From the practical point of view, the job of cleaning the floor has been made far easier. Details of the method of fixing the Sanwall are available from the address below.



The Vitural

is the first full-length slab urinal to be made from vitreous china. This is an important technical development as the firing difficulties mentioned above are magnified as the equipment gets larger. Many years of experiment and research have produced the Vitural, which is now being widely installed in public conveniences. Its great advantage is that normal cleaning alone keeps it free from the unpleasant odours that in the past have been a feature of many public conveniences.

The Kingston bathroom suite

was the first breakthrough to bring modern design to the bathroom. It began the trend away from chunky, 'fussy' equipment and its simple, elegant lines soon found a huge following in this country. Like all other 'Standard' equipment, the Kingston is available in five attractive colours plus white.

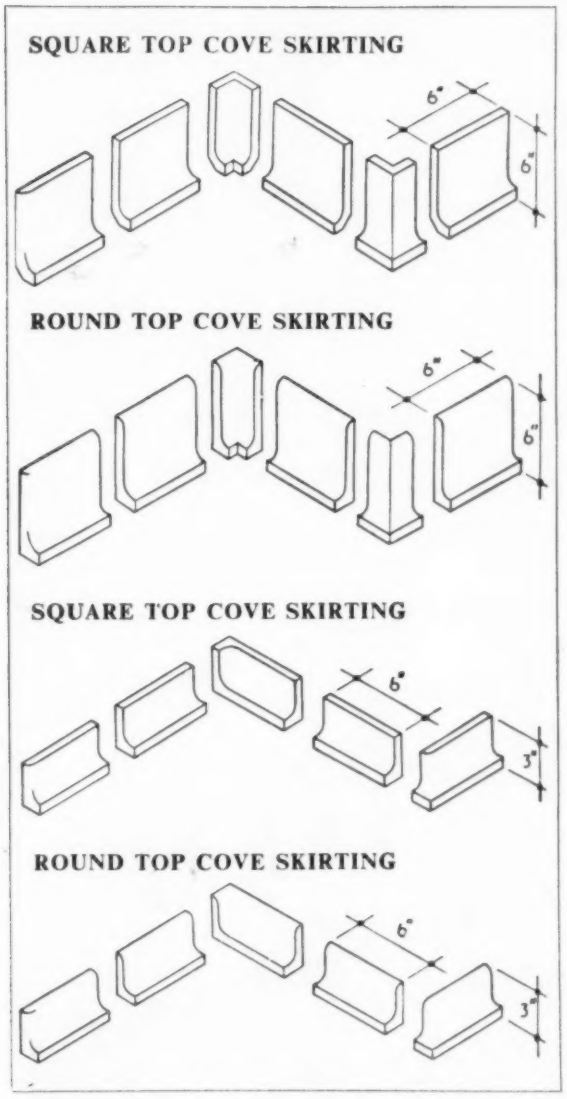
The Trimline

bathroom suite has been designed specially for low-cost housing projects. The standard of design is well above that of normal equipment in the same price-range, and the Trimline brings all the advantages of vitreous china to the user at a lower cost. The Trimline has already been used in several new municipal and large private housing projects, and typifies the 'Standard' policy of combining good materials and good design.

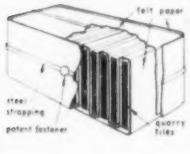
IDEAL BOILERS & RADIATORS LTD., Ideal Works, Hull.
London Showrooms:—Ideal House, Great Marlborough Street, London, W.1.

559

FOR HARD WEAR- WHEATLY triton QUARRIES



EXPORT Our special Floor Quarry pack generally ensures their safe arrival overseas. Special consideration will be given to other forms of pack if required. The quarries are packed in bundles of about 20, with a strip of felt paper passed concertina-fashion between the quarries, and then around the outside of the bundle. Steel strapping is then passed round the length of the bundle, and secured by a patent fastener.



Wheatly Triton Floor Quarries are particularly suitable for flooring which is subject to heavy wear. They have been used extensively in many overseas markets for a wide variety of purposes, including schools, domestic uses, factories, etc.

PATTERNS AND COLOURS

The illustrations show a typical selection of quarry fittings which are available from stock. The range of colours is as follows: Red, Blue, Russet Brown and Buff. Also available from stock is a wide selection of round edge quarries for window bottoms in the same colour range.

FURTHER INFORMATION

Further details of floor quarries and fittings will be forwarded upon request. The illustrated Leaflet No. 58 gives full details of the wide range of Wheatly Triton quarries and fittings. A similar leaflet deals with Wheatly Triton Quarry Window Bottoms. Each pattern is illustrated with a ¼th scale isometric drawing, and correct descriptions, key numbers and principal dimensions are included. The leaflets have been specially designed to simplify the problems of detailing in the drawing office and of ordering.

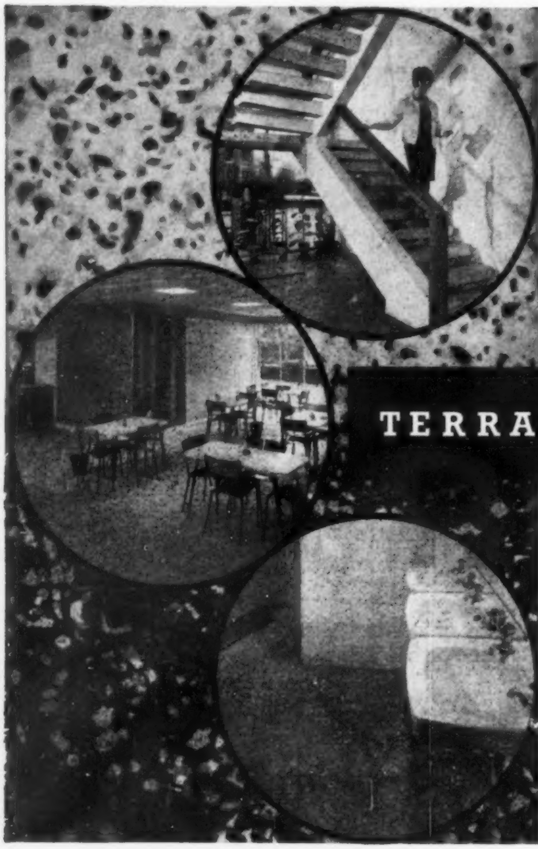
WHEATLY
triton

OVERSEAS AGENTS

AUSTRALIA Lee, Monteath & Biggs Pty. Ltd., Wilson House, 35 Charlotte Street, Brisbane.
NEW ZEALAND P. M. Taylor & Co., P.O. Box 2131, Wellington.
CANADA Acalor Chemical Construction (Canada) Ltd., 1947 Avenue Road, Toronto, 12.
BRITISH WEST INDIES, WEST AFRICA, EAST AFRICA, EGYPT & SUDAN, PERSIAN GULF, GIBRALTAR MALTA, CYPRUS, MALAYA, CUBA, IRAQ Langley London, Ltd., 163/7 Borough High Street, London S.E.1

WHEATLY & COMPANY · LIMITED
Springfield Tileries, Trent Vale, Stoke-on-Trent · *Tel:* Newcastle (Staffs) 66251 · *Grams:* Wheatly Trentvale
WH111

THE ARCHITECTS' JOURNAL for June 29, 1961



TERRAZZITE *Decorative* FLOORING

Left Hand Illustration: **Works Canteen with Terrazzite decorative flooring.** Photograph by courtesy of Hunt Barnard & Co. Ltd., Aylesbury.

Right Hand Illustrations: Staircase balustrade and cloakrooms using Terrazzite. Photos by courtesy of R. Seifert & Partners, Chartered Architects, London W.C.1.

For full details send for illustrated brochure.

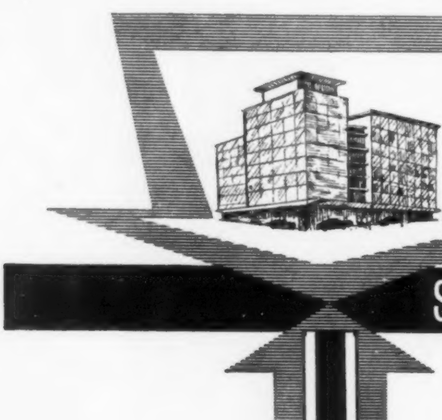
Terrazzite is a revolutionary new flooring material which is formed by bonding special resins with the hardest of known aggregate to produce a tough and resilient but extremely attractive surface. It can be laid in almost any combination of colours and patterns over an unlimited area without danger of cracking or crazing, on almost any dry sub-floor such as concrete, steel, wood, etc. It can be laid in situ or in pre-cast panels as required.

Terrazzite floors are warm and quiet and the colour-fast surface is easy to clean and maintain as it has no dust-creating qualities nor can it absorb moisture. It is unaffected by oils, greases, etc.

PLASTICS & RESINS LIMITED

16, BRYANSTON STREET, LONDON, W.1. TEL: WEL 0871/2.

Laying Contractors:
T. G. CONSTRUCTION CO., LTD., TARMAC LTD., Wolverhampton and 50 Park Street, London, W.1.
W. MILLER (LONDON) LTD., Wingfield Rd., London, E.17, and Walsden Rd., Todmorden, Lancs.



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Branches in London · Bristol · Birmingham · Manchester · Glasgow
Australasia: West's Shell Piling (A/sia) Pty. Ltd., Melbourne, Sydney, Adelaide & Wellington, N.Z.
France: Compagnie Continentale d'Enterprise et Ceramique, Paris.
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THE ARCHITECTS' JOURNAL for June 29, 1961

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Advertisements should be addressed to the Advertisement Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and must reach there by first post Friday morning for inclusion in the following Wednesday's paper.
Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

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

Public and Official Announcements

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

AYCLIFFE DEVELOPMENT CORPORATION
(NEW TOWN OF NEWTON AYCLIFFE)
ASSISTANT ARCHITECTS
AND
ARCHITECTURAL ASSISTANTS

Applications are invited for the above appointments at salaries within the range of Grades A.P.T. IV and VI of the Whitley Council for New Town Staff salary scales, i.e. £1,140—£1,565 p.a. The commencing salary and grade will be fixed according to the qualifications and experience of the successful applicant.

The principal work for the successful applicants will be in connection with the development of the Town Centre of the new town.

Appointments subject to N.J.C. Conditions, superannuation, medical examination and to one month's notice, in writing, on either side.

Housing accommodation available, if required.

Applications, stating age, qualifications and experience, together with the names of two referees, to be sent to the undersigned.

A. V. WILLIAMS,
General Manager.

Churchill House,
Newton Aycliffe,
Nr. Darlington. TC6672

CORPORATION OF LONDON
CITY PLANNING OFFICE

TWO PLANNING ASSISTANTS in the following salary ranges: (*a*) £1,195—£1,480; (*b*) £1,055—£1,310 are required.

The City Planning Office has interesting Planning projects on hand and others in active preparation, e.g. large scale development is now proceeding in Barbican commercial zone where separated pedestrian walkways are planned for a large area.

The vacancies exist in the Civic Design Section for qualified Architectural or Planning Assistants to join small group working on the present important phase of rebuilding in the City. Opportunities for advancement should occur from time to time.

Local Act Superannuation.

Apply to the City Planning Officer, Guildhall, E.C.2. TC7719

ADMINISTRATIVE COUNTY OF LEICESTER
(*a*) PRINCIPAL ASSISTANT ARCHITECT, £1,410—£1,565.
(*b*) CHIEF ASSISTANT ARCHITECTS, £1,310—£1,410—£1,565.
(*c*) SENIOR ASSISTANT ARCHITECTS, £1,140—£1,310.
(*d*) ARCHITECTURAL ASSISTANT, £815—£1,140 (according to qualifications).

Candidates for (*a*) must be members of the R.I.B.A., have had sound experience and be capable of acting as Group Leaders on an extensive programme of education buildings. Candidates for (*b*) must be members of the R.I.B.A., have had considerable office experience and be capable of taking charge of contracts from inception to completion. For (*c*), should be members of the R.I.B.A., have had office experience and be capable of taking charge of small contracts. For (*d*), should have Intermediate or Final qualifications of the R.I.B.A. and be capable of executing working drawings. Lodging allowance and removal expenses may be paid to a married man. Apply on form obtainable from County Architect, 123, London Road, Leicester. TC7478

LEYTON CORPORATION
(Municipal Borough in Essex. Population approximately 100,000)

Applications invited for appointment of:
ASSISTANT ARCHITECTS. Salary within Grade A.P.T. III, £960—£1,140 per annum plus London weighting.

Housing accommodation will be provided. Five-day week. National Joint Council Conditions of Service.

A large and varied programme of architectural and building works in hand and projected offers good opportunities of gaining experience.

Apply for details to Borough Engineer, Town Hall, Leyton, E.10, not later than 6th July, 1961.

D. J. OSBORNE,
Town Clerk.

Town Hall,
Leyton, E.10. S8124

BOROUGH OF LUTON
BOROUGH ARCHITECT'S DEPARTMENT
PRINCIPAL ASSISTANT ARCHITECTS
Salary Scale A (£1,380—£1,565)

Applications from experienced architects are invited for the above appointments (four posts) at commencing salaries according to qualifications and experience.

Applicants must be Associate Members of the Royal Institute of British Architects.

Housing accommodation available for married applicants and reasonable removal expenses will be paid.

Luton is a rapidly developing borough with a large and varied programme of capital works in hand or projected which offers exceptional opportunities of gaining experience.

Forms of application may be obtained from the Borough Architect, Town Hall, Luton, by whom applications should be received not later than 10th July, 1961. S8136

METROPOLITAN BOROUGH OF POPLAR
ASSISTANT ARCHITECTS required by Poplar Borough Council for immediate appointment. Salary scale A.P.T. III/IV (£960/£1,140 p.a.; £1,140/£1,310 p.a., plus £45 p.a. "weighting"). Commencing salary according to qualifications and experience. Projects include multi-storey flats and maisonnettes, etc., in redevelopment areas, and municipal buildings. Application forms from Borough Engineer and Surveyor, Poplar Town Hall, Bow Road, E.3. P137

CUMBERLAND COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments. Commencing salaries within the scales shown according to ability and experience.

(*a*) SENIOR ASSISTANT ARCHITECT: A.P.T. Grade V, £1,310—£1,480. Must be a qualified and experienced Architect, capable of taking charge of a group of Assistants employed on major projects.
(*b*) ASSISTANT ARCHITECTS: A.P.T. Grade III/IV, £960—£1,310. Must have Final R.I.B.A. Exam. Preferably with some experience.

Further particulars and forms of application from the County Architect, 15, Portland Square, Carlisle, to whom completed applications should be returned not later than 12th July, 1961.

G. N. C. SWIFT,
Clerk of the County Council.

The Courts,
Carlisle. S8125

AIR MINISTRY requires QUANTITY SURVEYING ASSISTANTS, Grade III, at R.A.F. and Ministry of Aviation stations throughout the United Kingdom. The work includes abstracting and billing, site measurement and preparation of estimates.

Salary, which is dependent upon age, qualifications and experience, ranges from £726 (age 23) to £961 maximum in Grade III. There are pension prospects and also opportunities of advancement to numerous posts in the higher grades, viz.,

Technical Grade II:	£961—£1,098	123 posts
Technical Grade I:	£1,098—£1,348	42 posts
Technical Grade B:	£1,348—£1,552	6 posts
Technical Grade A:	£1,439—£1,697	6 posts

Vacancies occurring in the higher grades are, as a rule, filled by promotion of existing staff.

Overseas tours for which special allowances ranging at present up to £1,800 p.a. are payable in addition to a higher salary. Financial assistance and time off allowed for recognised courses of study leading to higher qualifications. Five-day week with 18 days paid leave a year initially.

Applicants who must be natural born British subjects, must hold O.N.C. (Building or Builders Quantities) or equivalent and have had good experience under Quantity Surveyor or Building Contractor. Knowledge of W.D. Schedule an advantage. Forms from Manager (P.E.2), Ministry of Labour, Professional and Executive Register, Atlantic House, Farringdon Street, London, E.C.4. Candidates selected will be interviewed in Air Ministry, London, and certain expenses reimbursed. Only applicants selected for interview will be advised. S7028

CORPORATION OF LONDON

Applications invited from Associate Members of R.I.B.A. for post of ASSISTANT to Site Architect on a large building project for 12 months at a salary of £1,420.

Candidates should have had good general experience in preparation of working details and of contract works.

Applications, stating age, appointments held, and experience, with names of two referees, to The City Engineer, Guildhall, London, E.C.2, by 10th July, 1961. S8219

BOROUGH OF STOCKTON-ON-TEES
(population 81,198)
ASSISTANT ARCHITECT

Applications are invited for the appointment of an Assistant Architect at a salary of A.P.T. IV (£1,140—£1,310). The work is interesting and includes new school development and health and welfare building.

Housing accommodation will be provided for married persons.

Applications should give details of qualifications and experience to the Borough Architect, 28 The Square, Stockton-on-Tees, not later than the 8th July, 1961.

JOHN B. HAWORTH,
Town Clerk.

Municipal Buildings,
Church Road,
Stockton-on-Tees. S231

COUNTY OF RADNOR
COUNTY ARCHITECT AND PLANNING OFFICER

Applications are invited for the appointment of COUNTY ARCHITECT AND PLANNING OFFICER at a salary in accordance with the maximum scale recommended by the Joint Negotiating Committee for Chief Officers of Local Authorities for authorities in the 20,000/30,000 population group, namely £1,635—£1,860 per annum, the point of commencement in this scale to be determined according to qualifications and experience.

The person appointed will be responsible for all the architectural work of the Council and its Committees, the architectural work within the County on behalf of the Mid-Wales Police Authority and for the administration of the County Planning.

Candidates must be Fellows or Associates of the Royal Institute of British Architects or have an equivalent qualification, must be competent to undertake educational and general architectural work for a local authority and should preferably have experience in the application and administration of the Town and Country Planning Acts.

The appointment will be subject to the National Conditions of Service, to the provisions of the Local Government Superannuation Acts and to termination by three months notice in writing on either side.

Applications should be made on forms obtainable from the undersigned to whom they must be delivered not later than Monday, the 3rd July, 1961.

D. C. S. LANE,
Clerk of the Council.

County Hall,
Llandrindod Wells,
Radnorshire. S8082

CITY OF GLASGOW
ASSISTANT ARCHITECTS

The Architectural and Planning Department has a number of vacancies for qualified ASSISTANT ARCHITECTS.

The Department has in hand a large, varied and interesting programme of work, including Comprehensive Redevelopment, Multi-Storey Flats, Schools and Civic Buildings. The work will provide scope for personal initiative in the preparation of designs and details of schemes upon which construction work will follow.

The salary scale for these assistantships is up to £1,560 with placing according to experience.

A five-day week is in operation.

Advances up to 100 per cent. of valuation will be made available, where needed, for the purchase of suitable houses in or near Glasgow, by successful applicants.

Forms of application may be obtained from the Principal Administrative Officer, 20, Trongate, Glasgow, C.1.

A. G. JURY,
City Architect and Director of Planning.
S8092

WARWICKSHIRE COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Appointment of GROUP ARCHITECT, GRADE "C" (£1,560—£1,825) and DEPUTY GROUP ARCHITECT, GRADE "A" (£1,450—£1,565).

Applications are invited from qualified and experienced architects for these appointments which are for educational projects. The posts carry a high degree of responsibility and need a good standard of design ability in all forms of construction. Experience in the organisation and day to day running of a group dealing with large projects is essential.

The Council have schemes for the payment of removal expenses and a lodging allowance to married officers. Five-day week worked.

Application forms and full conditions applicable to the appointments can be obtained from Eric Davies, F.R.I.B.A., A.M.T.P.I., County Architect, Shire Hall, Warwick.

L. EDGAR STEPHENS,
Clerk of the Council.

Shire Hall,
Warwick.
June, 1961. S8161

Applications are invited for the post of LEADING ASSISTANT ARCHITECT in the office of the Architect, Eastern Region, British Railways, at King's Cross Station. The office is engaged on a wide range of interesting buildings, and gives responsibility for design, administration and site supervision to those with ability. Applicants should be qualified with some years' practical experience. Starting salary £1,230 per annum. Modern working conditions, five-day week and substantial rail travel concessions. Apply in writing to the Architect, British Railways, Eastern Region, King's Cross Station, London, N.1. S187

COUNTY BOROUGH OF WEST HAM

A vacancy exists for a GROUP ARCHITECT in the Borough Architect and Planning Officer's Department, J.N.C. Scale "B"—£1,485/£1,670 p.a., plus Essential Car Allowance.

There are also a number of vacancies for SENIOR ASSISTANT ARCHITECTS, J.N.C. Scale "A"—£1,400/£1,565 p.a.

An expanded programme of work, including numerous official buildings, Fire Stations, Primary and Secondary Schools, high density housing, and Town Centre Redevelopment Scheme, is on hand.

Applications, with details of qualifications and experience (together with names of two referees), to be addressed to Thomas E. North, O.B.E., F.R.I.B.A., Dist.T.P., M.T.P.I., Borough Architect & Planning Officer, 70, West Ham Lane, Stratford, E.15, by 11th July, 1961. S146

SENIOR ARCHITECTS
ARCHITECTS
ARCHITECTURAL ASSISTANTS

We have vacancies in the Architects' Department in LONDON & EPSOM for qualified men and those who have passed the Intermediate R. I. B. A. Examination.

These are permanent positions:
Luncheon vouchers, five day week, pension scheme.

Please write fully in confidence to the

Personnel Manager,
W. S. Atkins & Partners,
158, Victoria Street, London, S.W.1

NORTH RIDING OF YORKSHIRE COUNTY COUNCIL

SENIOR PLANNING ASSISTANTS

in County Planning Headquarters, Northallerton

4 Senior Assistants, Grades A.P.T. IV—V (£1,140 to £1,310 and £1,310 to £1,480); salary and grading in accordance with qualifications and experience.

Experience on Development Plan and Town Maps essential for three of the posts. One assistant will have special duties relating to the North York Moors and Yorkshire Dales National Parks. Further particulars available from the undersigned. Travelling allowance for 10 h.p. car.

Applicants must disclose in writing relationship to any member or senior officer of the County Council. Canvassing disqualifies. Applications, giving age, qualifications, previous appointments and experience, with addresses of two referees, to the Clerk of the County Council, County Hall, Northallerton, by 10th July, 1961.

ASSISTANT DESIGN ENGINEER

An Assistant Design Engineer is required in the Building and Architectural Section of the Central Drawing Office.

The successful candidate will be responsible for supervising the design work of other draughtsmen.

Candidates should have had at least 5 years experience in the design of Industrial type buildings and should have as a minimum qualification Intermediate R.I.B.A.

Please write for application form to:—

Superintendent, Personnel Services,
THE STEEL COMPANY OF WALES LIMITED
(STEEL DIVISION)
Abbey Works, Port Talbot, Glam.

ATCOST
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BOROUGH OF TWICKENHAM
TECHNICAL STAFF

Applications are invited for the following posts:—

(*a*) SENIOR ASSISTANT ENGINEER, A.P.T. IV (£1,140—£1,310).

(*b*) PLANNING ASSISTANT, A.P.T. III (£960—£1,140).

(*c*) ASSISTANT ARCHITECT, A.P.T. I to IV (£645—£1,310).

(*d*) ASSISTANT ENGINEER, A.P.T. I to IV (£645—£1,310).

Posts (*a*) must have passed the Final of an appropriate examination, (*b*) commencing salary in accordance with qualifications and experience, (*c*) and (*d*) please state commencing salary required if appointed.

All plus London weighting allowance. Five-day week.

Canvassing will disqualify, and relationship to members or senior officers should be disclosed. If married, consideration will be given to the provision of housing accommodation, assistance with removal expenses. Applications, giving age, experience, etc., to the Borough Engineer, Municipal Offices, Twickenham.

W. H. JONES,
Town Clerk.

8112

METROPOLITAN POLICE
RECEIVER'S OFFICE

Applications are invited for the following positions in connection with the design and erection of Police Housing, Police Stations, Single Men's Hostels, Cadets' Residential Training Centres and Magistrates' Courts within the Metropolitan Police District and schemes for major alterations to various Police buildings.

ASSISTANT ARCHITECTS—Salary: £991 p.a. at age 25, rising by annual increments to £1,490 p.a. (Maximum salary on entry £1,318 p.a. at age 34 or over.) Qualifications: Must be registered Architects.

LEADING ARCHITECTURAL ASSISTANTS—Salary: £1,048 p.a. rising by annual increments to £1,220 p.a. Qualifications: Inter-R.I.B.A., H.N.C. or equivalent.

ARCHITECTURAL ASSISTANTS—Salary: £658 p.a. at age 21 rising by annual increments to £1,048 p.a. (Maximum salary on entry £960 p.a. at age 28 or over.) Qualifications: O.N.C., Inter-R.I.B.A., or equivalent.

TECHNICAL ASSISTANTS, III—Salary: £752 p.a. at age 21 rising by annual increments to £1,043 p.a. (Maximum salary on entry £939 p.a. at age 28 or over.) Qualifications: Inter-R.I.B.A. / R.I.C.S. (Building) or equivalent.

J. INNES ELLIOTT,
B.Arch., F.R.I.B.A.,
Chief Architect & Surveyor.

Apply to:
Chief Clerk,
Architect & Surveyor's Department,
New Scotland Yard,
S.W.1.

8145

CITY OF CARLISLE
CITY SURVEYOR'S DEPARTMENT
PRINCIPAL ASSISTANT ARCHITECTS

Applications are invited from qualified Architects for the above posts. A great deal of interesting and sizeable work is in progress and projected. Salary according to A.P.T. V (£1,310—£1,480 per annum) and staff houses are available.

Application forms obtainable from the City Surveyor, 18, Fisher Street, Carlisle. Closing date noon on July 10th.

H. D. A. ROBERTSON,
Town Clerk.

S8100

BOROUGH OF EALING

1. ARCHITECTURAL ASSISTANT within Scale A.P.T. IV, £1,185—£1,355 inclusive.
2. JUNIOR ARCHITECTURAL ASSISTANT, A.P.T. I, £645—£815, plus London weighting.

Full particulars and forms of application from Borough Engineer, Town Hall, Ealing, W.5.

Closing date 17th July, 1961.

E. J. COPE-BROWN,
Town Clerk.

S8311

CITY OF WORCESTER
APPOINTMENT OF SENIOR ASSISTANT ARCHITECTS

The Architectural Section of the City Engineer and Surveyor's Department has been increased in establishment and applications are invited for Two Senior Assistant Architects within A.P.T. Grade IV (salary £1,140 to £1,310). Applicants must hold the A.R.I.B.A. qualification.

Housing accommodation will be offered if necessary, and the Corporation are prepared to make a contribution towards removal expenses.

Casual Users' car allowance will be applicable.

Applications, stating age, present and previous appointments, and experience, together with the names of two referees, are to be sent to the City Engineer and Surveyor, 22, Bridge Street, Worcester, by the 5th July.

BERTRAM WEBSTER,
Town Clerk.

Guildhall,
Worcester.

S8162

STOKE NEWINGTON M.B.C. requires ARCHITECTURAL ASSISTANT A.P.T. III (£960—£1,140) plus London weighting. Should possess suitable qualifications. No housing accommodation. Application forms from Town Clerk, Town Hall, Stoke Newington, N.6, returnable by 7th July, 1961. 8227

NEWCASTLE REGIONAL HOSPITAL BOARD
EXPANSION OF ARCHITECTURAL DEPARTMENT

P. H. KNIGHTON, M.B.E., A.R.I.B.A., Regional Architect

ARCHITECTURAL STAFF

The Board has prepared a 10-year programme containing a large number and variety of major hospital projects. Planning and building is already current on schemes costing about £15,000,000. As the programme includes also a wide range of buildings which are not peculiar to hospitals, good general experience as well as specialist experience may be gained.

Applications are invited for the following (superannuable) posts:—

1. SENIOR ASSISTANT ARCHITECT (£1,300 × £60 (5)—£1,600).

Open to registered architects with experience in the design and construction of major public buildings. Experience of hospital work desirable but not essential. Assistance with removal-expenses if appointee at present in a lower-graded Health Service post.

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

Applicants must have passed the R.I.B.A. Final Examination. For registered architects increments can be given above the bottom of the grade in accordance with relevant practical experience.

Qualified but unregistered architects can enter the Architectural Assistant scale at a salary point of £865 per annum with a view to entering the Assistant Architect grade when registered.

3. ARCHITECTURAL ASSISTANTS (£625 × £30 (8) × £35 (1)—£900).

Intermediate R.I.B.A. and preferably some practical experience.

4. ARCHITECTURAL DRAUGHTSMEN (£475 × £25 (6) × £30 (2)—£685).

Three years' previous experience in an architect's drawing office and good draughtsmanship required.

Evening study facilities available at King's College of Durham University in Newcastle.

5. SURVEYING ASSISTANT (Lands and Buildings) (£625 × £30 (8) × £35 (1)—£900).

Intermediate Examination of the Royal Institution of Chartered Surveyors, or an examination recognised by the Institution as equivalent, together with experience in surveying sites and buildings. Commencing salary within grade dependent upon applicant's age and practical experience.

Details of training, qualifications, experience, present salary etc., with the names of three referees, should reach the Secretary to the Board, Benfield Road, Newcastle upon Tyne, 6, not later than 14th July, 1961. Canvassing will disqualify.

8229

STAFFORDSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT
VACANCIES

ASSISTANT STRUCTURAL ENGINEERS	£1,310—£1480 £1140—£1310
ASSISTANT QUANTITY SURVEYORS	£1140—£1310
ASSISTANT ARCHITECTS	£1310—£1480 £1140—£1310
ARCHITECTURAL DRAUGHTSMAN	£555—£625

A minimum of four years' experience in a similar capacity is required for the posts of Architectural Draughtsmen.

The Architect's Department is a busy and expanding office dealing with a wide variety of projects.

Good working conditions, five day week, assistance with removal expenses, etc. The Council has a scheme for loans to employees wishing to purchase their own houses.

Forms of application from P. Woodcock, F.R.I.B.A., County Architect, Green Hall, Lichfield Road, Stafford.

Closing date 5th July, 1961.

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

8307

COVENTRY

Applications are invited for Planning Division posts:—

(*a*) PLANNING OFFICERS at Grades:
A.P.T. III or IV (£960—£1,140 or £1,140—£1,310) and
A.P.T. V or possibly Scale "A" (£1,310—£1,480 or £1,350—£1,565).

Posts range from Area Officer to deputy to Assistant Principal (Development Control). Duties, responsibilities, grading and designation dependent on qualification and ability. Development Control experience desirable. Interesting duties in development control and enforcement work and preparation of appeal evidence with close liaison with Planning Policy and Redevelopment Groups.

(*b*) DEVELOPMENT CONTROL ASSISTANT, A.P.T. II (£815—£960).

All posts permanent and pensionable subject to satisfactory medical certificate. Housing accommodation recommended in approved circumstances or up to 95 per cent. advance for house purchase considered. Removal expenses loan. Five-day working week.

Application form from Department of Architecture and Planning, Council House, Coventry, returnable within 10 days publication.

8226

CAERNARVONSHIRE COUNTY COUNCIL

Applications are invited for the following appointments:—

ASSISTANT ARCHITECT, A.P.T. V—£1,310/£1,480.

ASSISTANT ARCHITECTS, A.P.T. IV—£960/£1,310.

Further particulars and application forms from Clerk of the County Council, County Offices, Caernarvon. 87926

BOROUGH OF WREXHAM
ENGINEER & SURVEYOR'S DEPARTMENT

Applications are invited for the following appointment:

ASSISTANT ARCHITECT. Salary in the range of A.P.T. Grade III (£960—£1,140 per annum).

Applicants should have passed Parts 1 and 2 of the R.I.B.A. Final Examination or equivalent.

Casual car allowance will be paid on the instructions of the Borough Surveyor and the Council will consider the payment of removal expenses. Housing accommodation is available if required.

Further particulars and form of application from the Borough Engineer and Surveyor, Guildhall, Wrexham.

Applications to be returned to the undersigned not later than Monday, 10th July, 1961.

PHILIP J. WALTERS,
Town Clerk.

Guildhall,
Wrexham.
June, 1961.

S8241

BOROUGH OF SUTTON & CHEAM
BOROUGH ENGINEER & SURVEYOR'S DEPARTMENT
ARCHITECT—A.P.T. V
(£1,310—£1,480 p.a.) plus London weighting (£45 p.a.) with essential car user's allowance.

Applications are invited for this permanent and superannuable post from qualified members of the Royal Institute of British Architects. The post ranks No. 3 in order in the section and the person appointed will be expected to take a measure of responsibility under the Chief Architect, Mr. P. H. Masters, F.R.I.B.A.

Work is of a varied and interesting nature comprising public and industrial buildings and comprehensive redevelopment including multi-storey flats, and experience in all or any of these types of buildings would be an advantage.

Provision of housing accommodation will be considered if required.

Application forms from Mr. C. Needham, M.I.C.E., M.I.Mun.E., A.M.I.Struct.E., Borough Engineer and Surveyor, to be returned with two recent testimonials not later than July 17th, 1961.

Canvassing will disqualify.

A. PRIESTLEY,
Town Clerk.

Municipal Offices,
Sutton,
Surrey.
June, 1961.

8309

BOROUGH OF ROYAL TUNBRIDGE WELLS

Applications are invited for the following posts in the Borough Surveyor and Water Engineer's Department:

(*a*) ARCHITECTURAL ASSISTANT
Salary within A.P.T. Grade II (£815/£960 p.a.). Applicants should have had suitable training, be good draughtsmen and have reached the Intermediate Examination standard of the R.I.B.A.
Housing accommodation will be provided if required.

(*b*) SURVEYING AND GENERAL ASSISTANT
Salary within A.P.T. Grade I (£648/£815 p.a.). Applicants should have had experience in surveying and general municipal engineering.

Both appointments will be subject to the provisions of the Local Government Superannuation Acts, the National Scheme of Conditions of Service and the passing of a medical examination.

Applications giving details of age, qualifications, experience and the names and addresses of two referees, must reach the Borough Surveyor, Town Hall, Tunbridge Wells, by noon on Monday, 10 July, 1961.

M. J. H. GIRLING,
Town Clerk.

Town Hall,
Tunbridge Wells.

8303

CITY OF BIRMINGHAM EDUCATION COMMITTEE
BIRMINGHAM COLLEGE OF ARTS & CRAFTS
SCHOOL OF ARCHITECTURE

Principal:
MEREDITH W. HAWES, A.R.C.A., N.R.D.
Director of the School of Architecture:
A. DOUGLAS JONES, Dip.Arch.(Liverpool), F.R.I.B.A.

Applications are invited for the appointment of a full-time SENIOR LECTURER IN ARCHITECTURE. An able designer with a broad outlook and with enthusiasm for architecture and for teaching is required for this post.

Salary will be in accordance with the Burnham (Further Education) Scale, 1959, for Senior Lecturers (£1,550 × £50 — £1,750 per annum). The successful applicant will be required to take up duty in September 1961 or as soon as possible thereafter.

Forms of application may be obtained from the Principal, College of Arts and Crafts, Margaret Street, Birmingham, 3, on receipt of a stamped addressed foolscap envelope and must be returned not later than 7 July, 1961.

E. L. RUSSELL,
Chief Education Officer.

8304

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD
HOSPITAL DESIGN

Did you see our advertisements for ASSISTANT ARCHITECTS and ARCHITECTURAL ASSISTANTS in the issues of 16th June and 23rd June?

The closing date for applications, which should be sent to the Secretary, North West Metropolitan Regional Hospital Board, 40 Eastbourne Terrace, W.2, is 17th July. 8240

FIFE COUNTY COUNCIL

QUANTITY SURVEYING ASSISTANT required for COUNTY ARCHITECT'S DEPARTMENT, QUANTITY SURVEYING SECTION. Salary Scale £975—£1,055 per annum and in the case of those qualified A.R.I.C.S. £850—£1,150 per annum. Placing may be given on the salary scales. Candidates must have passed the Intermediate Examination of the R.I.C.S. not later than 1960 and must be fully experienced in the remeasuring and final adjustment of all trades, with particular reference to Schools. Superannuation Scheme. Housing may be available. Applications stating age, experience and accompanied by copies of recent testimonials to the undersigned by 22nd July, 1961. No canvassing.

MATTHEW POLLOCK,
County Clerk.

County Buildings,
Cupar-Fife. 8249

COUNTY BOROUGH OF BIRKENHEAD
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the following permanent positions:—

(*a*) PRINCIPAL ASSISTANTS, A.P.T. V (£1,310—£1,480).

(*b*) ARCHITECTURAL ASSISTANTS, A.P.T. III (£960—£1,140).

Applicants for post (*a*) must be fully qualified and (*b*) suitably qualified. Salaries commensurate with qualifications and experience. Assistance given to provide housing accommodation by rental or mortgage. The Corporation's building programme affords many opportunities for a variety of interesting and important work and advancement in the profession. Application form from Borough Architect, 3, Conway Street, Birkenhead, to be returned by 11th July 1961. Relationship to members or senior officers of the Council must be disclosed. 8251

THE URBAN DISTRICT COUNCIL OF FELLING
SURVEYOR'S DEPARTMENT
APPOINTMENT OF ASSISTANT ARCHITECT

Applications are invited for the appointment as Assistant Architect in the Surveyor's Department. The salary payable will be within Grade A.P.T. IV of the National Salary Scales (£1,140—£1,310 per annum).

Applicants must have passed the Final examination of the Royal Institute of British Architects.

Forms of application together with particulars and conditions of employment can be obtained from the undersigned to whom they must be returned not later than the 7th July, 1961.

Housing accommodation will be provided by the Council if required or alternatively the Council will grant a 100 per cent mortgage for the purchase of an approved private dwellinghouse.

Canvassing will disqualify any applicant.

JOHN DONKIN,
Clerk of the Council.

Council Buildings,
Felling,
Gateshead 10. 8245

CUMBERLAND COUNTY COUNCIL
APPOINTMENT OF SENIOR ASSISTANT COUNTY ARCHITECT

Applications are invited for the above appointment in the County Architect's Department. Salary within J.N.C. Scale "D." £1,710—£1,975, according to experience and qualifications. Housing accommodation available.

The post requires a well qualified and experienced Architect with outstanding design ability and capable of leading a design team engaged on a large programme of educational and other County work.

Further particulars and form of application from the County Architect, 15 Portland Square, Carlisle, to whom completed applications should be returned not later than 19th July, 1961.

G. N. C. SWIFT,
Clerk of the County Council.

The Courts,
Carlisle. 8228

LEEDS REGIONAL HOSPITAL BOARD
PROPOSED NEW GENERAL HOSPITAL AT HUDDERSFIELD
CLERK OF WORKS (BUILDING AND STRUCTURAL)

Applications are invited for the appointment of Clerk of Works (Building and Structural), in connection with the construction of a new General Hospital at Huddersfield (500 beds: approximate total cost £3,500,000). Salary £1,200 per annum (under certain conditions this figure may be increased to provide a maximum of £1,350 p.a.).

The project is being carried out in consecutive phases under the direction of the Regional Architect, P. B. Nash, A.R.I.B.A., and Messrs. George Trew and Dunn, Private Architects. The main building contract has now been running for one year and building on the site will continue for another three years. The Clerk of Works will have an Assistant Clerk of Works (Building) and a Clerk of Works (Mechanical and Electrical) to assist him in his duties.

Applicants must possess a thorough knowledge of all aspects of the building trade and must have had extensive experience as Clerks of Works on multi-storey reinforced concrete framed buildings. Membership of the Institute of Clerks of Works or the possession of the Clerk of Works Diploma of the Association of Building Technicians an advantage.

Applications, stating age, qualifications, previous experience, together with the names of two Architects to whom reference may be made, to the Secretary, Park Parade, Harrogate, by 15th July, 1961. 8243

CITY OF MANCHESTER
SENIOR ASSISTANT PLANNING OFFICERS

required in the City Surveyor and Engineer's Department at a salary within J.N.C. Scale "B" (£1,420—£1,670).

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

These appointments offer practical experience on large scale projects.

Housing accommodation and removal expenses.

Applications stating age, education, qualifications and experience with the names of two referees to the Town Clerk, Town Hall, Manchester, 2, not later than the 17th July, 1961. 8301

ARCHITECTURAL ASSISTANT

required by UGANDA GOVERNMENT, MINISTRY OF WORKS, on contract for one tour of 21-27 months in the first instance. Salary according to age and experience in scale (including Overseas Addition) £1,143 rising to £1,773 a year. Gratuity at rate of 25 per cent. of total substantive salary drawn. Education allowance. Outfit allowance £30. Free passages. Liberal leave on full salary. Candidates must have passed Intermediate R.I.B.A. and have had good architectural experience. Experience in tropical building problems an advantage. Single female candidates will be considered.

Apply to CROWN AGENTS, 4 Millbank, London, S.W.1, for application form and further particulars, stating age, name, brief details of qualifications and experience and quoting reference M2B/50878/AG. 8253

WEST SUFFOLK COUNTY COUNCIL

Applications are invited for the post of SENIOR ASSISTANT ARCHITECT within Grade "A" (£1,320—£1,565).

N.J.C. Service conditions; post pensionable; medical examination.

Application forms obtainable from the County Architect, 13 Westgate Street, Bury St. Edmunds, to be returned as soon as possible. S8254

STAFFORDSHIRE COUNTY COUNCIL
COUNTY PLANNING AND DEVELOPMENT DEPARTMENT

Applications are invited for the appointment in the County Planning and Development Department of a PLANNING ASSISTANT on A.P.T. Grade IV (£1,140—£1,310 per annum) or A.P.T. Grade V (£1,310—£1,480 per annum). The commencing salary and grading will depend on qualifications and experience.

The successful applicant will be particularly responsible for Development Control with special attention to Design and Amenity, Caravans and Advertisements. Applicants should have a final professional qualification in planning, architecture or landscape design and should be experienced in planning administration.

The Council are prepared to grant lodging allowance of 35s. per week for a period of six months and second class railway travel home every two months during the initial six months to married applicants maintaining a home outside the geographical county. Consideration will also be given to the granting of financial assistance in appropriate cases towards removal expenses.

Applications giving details of age, education, qualifications, present and previous appointments, experience and the names of two persons to whom reference may be made should be sent to D. W. Riley, County Planning and Development Officer, 41a, Eastgate Street, Stafford, not later than 12th July, 1961.

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

T. H. EVANS,
Clerk of the County Council.
8308

COUNTY BOROUGH OF SUNDERLAND
APPOINTMENT OF PLANNING OFFICER

The Council have decided to set up a separate Planning Department and now invite applications for the appointment of Planning Officer. The person appointed will, in the first instance, be expected to advise and make recommendations on the setting up of the new Department and will be required to devote the whole of his time to the duties of his office and not to undertake or engage in any other employment.

The salary will be within the range £2,875 to £3,250 per annum.

The appointment will be subject to the conditions of service recommended by the Joint Negotiating Committee for Designated Chief Officers of Local Authorities: will be superannuable and subject to three months' notice of termination on either side. An essential car user allowance will be paid. Consideration will be given to a payment towards removal expenses, to a lodging allowance for the applicant for a limited period and to a generous mortgage advance in respect of house purchase.

Forms of application and full information as to the duties, terms and conditions of appointment may be obtained from my Office, Town Hall, and applications must be received by me not later than 31st July, 1961.

G. S. McINTIRE,
Town Clerk.
8269

ISLE OF ELY COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments:—

(*a*) ASSISTANT ARCHITECTS (2), A.P.T. III or A.P.T. IV according to experience. Applicants should be A.R.I.B.A. or have completed Parts I and II of the R.I.B.A. Final Examination, or have satisfactorily completed a course at a School of Architecture. Housing may be made available.

(*b*) QUANTITY SURVEYOR, A.P.T. IV or A.P.T. V according to experience. Applicants must be suitably qualified.

(*c*) ARCHITECTURAL ASSISTANT, A.P.T. I or A.P.T. II or A.P.T. III. Gradings will depend on qualifications and experience.

In fixing commencing salaries, ability and experience will be taken into account. All posts are subject to N.J.C. Conditions and the passing of a medical examination.

Application forms and further particulars from the County Architect, County Hall, March, Cambs. to whom they should be returned not later than 17th June, 1961.

R. F. G. THURLOW,
Clerk of the County Council.
8302

ARCHITECTURAL ASSISTANTS; DRAWING OFFICE ASSISTANTS REQUIRED BY AIR MINISTRY H.Q. IN LONDON. Salary (inner London scale) Grade II, £1,048 to £1,220; Grade III, £658—£1,048 (£866 at age 25). Drawing Office Assistant, £404 (age 18) to £695 (men), £731 (women)—starting salary depends on age, qualifications, and experience.

The work includes a wide range of domestic, administrative and technical buildings in varying forms of construction offering imaginative scope. Candidates should have had adequate training and drawing office experience. O.N.C. (Building) an advantage but architectural design ability important for Grade II. Financial assistance and time off may be allowed for recognised courses of study, e.g., R.I.B.A. Five-day week with 18 days' paid leave p.a. initially. Promotion and pension prospects. Some overseas tours with special allowances, in addition to salary. Applicants, who must be natural born British subjects, should write to AIR MINISTRY, W.G.d., LACON HOUSE, THEOBALDS ROAD, LONDON, W.C.1, or to any employment exchange (quoting Kings Cross 837/838), giving age, details of training, qualifications and full particulars of former posts held. Candidates selected will normally be interviewed in London and certain expenses reimbursed. Only candidates selected for interview will be notified. S8273

METROPOLITAN BOROUGH OF BERMONDSEY
CHIEF ASSISTANT ARCHITECT
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT

Applications are invited from persons under 51 years of age on 10th July, 1961, for the appointment of Chief Assistant Architect, J.N.C. Scale "B" (£1,410—£1,670 per annum); commencing salary according to experience. Candidates must be Associates of the R.I.B.A., capable of organising and supervising the work of the Architectural Section, and experienced in design of multi-storey dwellings.

Applications, on forms to be obtained from the undersigned, to be submitted by 10th July, 1961.

J. S. LAMBERT,
Town Clerk.

Municipal Offices,
Spa Road, S.E.16. 8271

ARCHITECTS
WAR DEPARTMENT WORKS ORGANISATION

This new civilian organisation, concerned with major works projects, including design of a variety of buildings at home and overseas, offers 40 pensionable posts to Registered Architects (men and women).

Five Senior Grade posts, £2,140 (or more)—£2,452.

Fifteen Main Grade posts, £1,506 (or more)—£2,010.

Twenty Basic Grade posts between £976 (age 25) and £1,308 (or more over age 34)—£1,480.

Outer London salaries quoted. Promotion prospects. Local government etc. superannuation may be transferred.

Write Civil Service Commission, 17 North Audley Street, London, W.1, for full particulars and an application form, quoting S/5331/61. Closing date 9th August, 1961. 8272

BOROUGH OF CHATHAM
SENIOR ASSISTANT ARCHITECT

Applications are invited for this appointment from professionally qualified and suitably experienced persons. Salary within A.P.T. V (£1,310—£1,480).

Applications, with the names and addresses of two referees, should be delivered to Mr. J. A. T. Richards, Borough Engineer and Surveyor, Town Hall, Chatham, not later than Monday, 10th July, 1961.

Housing accommodation will be available in an appropriate case.

The appointment will be (*a*) in accordance with the National Scheme of Conditions of Service, (*b*) terminable by one month's notice on either side and (*c*) superannuable, subject to satisfactory medical report.

In accordance with their usual practice, the Council will require the successful candidate to give an undertaking to remain in the Council's service for two years.

ROWLAND NEWNES,
Town Clerk.

Town Hall,
Chatham. 8278

DURHAM COUNTY COUNCIL
ARCHITECT'S DEPARTMENT
ARCHITECTURAL AND QUANTITY SURVEYING ASSISTANTS required. Salary A.P.T. V, £1,310 to £1,480. Must be A.R.I.B.A. or A.R.I.C.S. Particulars from the County Architect, South Street, Durham, to whom completed application forms are returnable as soon as practicable.
Personally canvassing members of the Council is prohibited and the Council may declare any candidate infringing this rule to be disqualified for appointment.

J. K. HOPE,
Clerk of the County Council.
8242

HAMPSHIRE COUNTY COUNCIL
PLANNING ASSISTANT, A.P.T. II/III (£815—£1,140), required for S.W. Area Office at LYNDHURST, in the New Forest. Commencing salary according to experience and qualifications. Candidates should have passed the Intermediate examination of the T.P.I. or other appropriate professional body and have had development control experience in the Planning Department of a Local Authority. Separation allowance and assistance with removal expenses in approved cases.
Applications stating age, education, qualifications and experience and the names of two referees should reach the Clerk of the County Council, The Castle, Winchester, by 11th July.
8268

BOROUGH OF POOLE
Applications are invited for the following appointment in the Borough Architect's Department:—
SENIOR ASSISTANT ARCHITECT.
Grade A.P.T. IV (£1,140—£1,310).
Applicants for this post must be fully qualified and a high standard of design ability is required. The successful applicant will be engaged on a variety of projects of which Educational buildings will form an important part.
Application forms from the Borough Architect, Municipal Buildings, Poole, Dorset, to be returned to me by Friday, 21st July, 1961.

J. G. HILLIER,
Town Clerk.
20th June, 1961. 8279

THE UNIVERSITY COLLEGE OF SUSSEX
CLERK OF WORKS FOR ENGINEERING SERVICES
Applications are invited for the above appointment at a salary in the range of £1,000 to £1,300 per annum.
The Clerk of Works will be employed by the University to supervise the installation of Engineering Services in Stage I of an extensive development programme. The services installations include a high pressure hot water boiler house and external and internal distributions for heating and hot and cold water supplies, fire services, gas, compressed air, vacuum etc., ventilation, electrical and plumbing and drainage works.
The first two buildings of Stage I are now under construction and a further four buildings are proposed. Subject to satisfactory service, there is a possibility of continuity of employment through a prolonged building programme.
Further details may be obtained from T. C. Green Esq., B.Arch., A.R.I.B.A., Buildings Officer, The University of Sussex, Stanmer House, Brighton, Sussex.
Applications, giving age, qualifications, experience, present post, salary and names of two referees should be forwarded to Steensen, Varming & Mulcahy, Consulting Engineers, 146 New Cavendish Street, London, W.1, by Monday, 17th July, 1961. 8280

THE UNIVERSITY OF LIVERPOOL
TOWN PLANNING ASSISTANT
Town Planning Assistant required in the office of the University Planning Consultant for work connected with the Development Committee programme of the University. A large building programme is at present being carried out involving construction of new buildings in the University Precinct and on outlying sites. The duties will include examining site planning problems, traffic and car parking, the allocation of sites and the preparation of drawings and illustrations of alternative proposals. Applicants should be skilful draughtsmen with 5-10 years' experience. Apply, quoting Reference CV/TAJ, stating salary required, to the Registrar, The University, Liverpool, 3. 8199

HARLOW DEVELOPMENT CORPORATION
Architect Planner: FREDERICK GIBBERD, C.B.E., F.R.I.B.A., M.T.P.I.
Executive Architect: VICTOR HANNETT, B.Sc., A.R.I.B.A., Dip.T.P., A.R.I.C.S., A.M.T.P.I.
Applications invited from qualified architects for the post of ASSISTANT ARCHITECT, A.P.T. IV (£1,140—£1,310).
Ability to organise the preparation of working drawings and experience in the running of building contracts an advantage and an all-round general architectural background desirable.
Housing will be made available to rent in appropriate cases.
Applications giving full details of training, qualifications and experience, together with names of two referees to the General Manager, Terlings, Harlow, Essex, within ten days. 8200

PERTH COUNTY COUNCIL
Applications are invited for a vacancy in the COUNTY ARCHITECT'S DEPARTMENT, Perth, on salary scale £1,000 to £1,300. Applicants must be fully qualified A.R.I.B.A. Placing on the scale may be given according to experience. Particulars and forms of application from The County Clerk, P.O. Box 15, County Offices, York Place, Perth. Applications to be lodged by 10th July, 1961. 8209

STAFFORDSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT
APPOINTMENT OF ENGINEERING ASSISTANT (ELECTRICAL)
GRADE A.P.T. II (£815—£960)
Applications are invited for the above post from suitably qualified persons, having experience in the design of electrical installations for all types of buildings.
Good working conditions, assistance with removal expenses, etc. The Council has a scheme for loans to employees wishing to purchase their own houses.
Forms of application from P. Woodcock, F.R.I.B.A., County Architect, Green Hall, Lichfield Road, Stafford.
Closing date 10th July, 1961.

T. H. EVANS,
Clerk of the County Council.
8298

METROPOLITAN BOROUGH OF ISLINGTON
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT
Applications are invited from persons not more than 50 years of age for the following appointments:—
ARCHITECTURAL STAFF (Permanent)
(*a*) Two SENIOR ARCHITECTURAL ASSISTANTS, A.P.T. V (£1,310—£1,480 p.a.)
(*b*) Three ARCHITECTURAL ASSISTANTS, A.P.T. III (£960—£1,140 p.a.).
All Plus London weighting.
Applicants for:
(*a*) should be Associate Members of the R.I.B.A. with wide experience including multi-storey housing;
(*b*) should have passed the Intermediate examination of the R.I.B.A. and be suitably experienced.
Application forms, returnable by first post on Monday, 10th July, 1961, obtainable from C. N. Cowney, Borough Engineer and Surveyor, Town Hall, Upper Street, N.1.

H. DIXON CLARK,
Town Clerk.
8204

METROPOLITAN BOROUGH OF ISLINGTON
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT
Applications are invited from persons not more than 50 years of age for the following appointments:—
ENGINEERING STAFF (Permanent)
Two SURVEYING/TECHNICAL ASSISTANTS, A.P.T. III (£960—£1,140 p.a.). Plus London weighting.
Applicants should have the Intermediate examination of the Municipal Engineers or Chartered Surveyors or other appropriate qualifications, and preference will be given to applicants with a sound knowledge of the Town and Country Planning Acts and London Building Acts.
Application forms, returnable by first post on Monday, 10th July, 1961, obtainable from C. N. Cowney, Borough Engineer and Surveyor, Town Hall, Upper Street, N.1.

H. DIXON CLARK,
Town Clerk.
8205

HAMMERSMITH COLLEGE OF ART AND BUILDING
Lime Grove, Shepherd's Bush, W.12
Applications are invited for the post of VICE PRINCIPAL to assist the Principal in the academic and other administration of the college, particularly in the field of inter departmental projects and study.
Applicants should be familiar with the work and organisation of art and technical colleges and should have had administrative experience as a head of department or in some similar capacity. The appointment will involve teaching periods of not less than ten hours per week.
Salary £2,038 × £50—£2,201.
Further particulars and forms of application from the Secretary to be returned within 14 days, quoting (FE.3a/A/1660/6). 8211

BRITISH OVERSEAS AIRWAYS CORPORATION
ASSISTANT STAFF ARCHITECT
A vacancy exists for an Assistant Staff Architect based at London Airport to assist in the design, execution and control of new building works and alterations to existing buildings, including Sales Shops and their interior furnishings in the United Kingdom and European areas. Applicants should have a contemporary design outlook, and also have knowledge of estimating. The applicant should be prepared to travel overseas for short periods.
Essential Qualifications:
1. Age: 25-35 years.
2. Associate Membership of the R.I.B.A.
The post is permanent and pensionable, and offers a secure future with excellent opportunities. The appointment will be made in the salary range from £1,176—£1,417 10s. Commencing salary in accordance with experience.
Apply to Recruitment Manager, B.O.A.C., London Airport, Hounslow, Middlesex. 8213

METROPOLITAN BOROUGH OF CAMBERWELL
ARCHITECTS
Vacancies for Architects in the Borough Architect's Department within a salary range of £855 and £1,525 (Grades A.P.T. II to V of the National Scales). Grade and commencing salary according to qualifications and experience. 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.
TC7928

CORPORATION OF THE CITY OF ABERDEEN
Applications are invited for the post of SENIOR ASSISTANT, TOWN PLANNING DEPARTMENT, from candidates qualified in Town Planning and/or Architecture, and having appropriate experience. Salary Scale £1,220—£1,390 per annum, with placing in accordance with qualifications and experience.
Applications by letter, with usual particulars and names of two referees, should reach the Director of Town Planning, 5 Bon-Accord Crescent, Aberdeen, on or before 24th July, 1961.

J. C. RENNIE,
Town Clerk.
Town House,
Aberdeen.
June, 1961. 8288

BOROUGH OF HEYWOOD
APPOINTMENT OF ARCHITECTURAL ASSISTANT
Applications are invited from persons who have passed the R.I.B.A. Intermediate Examination for the above-mentioned appointment in the department of the Borough Engineer and Surveyor, at a salary in accordance with A.P.T. Grade II (£815—£960) of the Scale of Salaries.
The appointment will be subject to the provisions of the Local Government Superannuation Acts, to the National Joint Council's Conditions of Service and to one month's notice in writing on either side.
The successful applicant will be required to pass a medical examination.
Consideration will be given to the provision of housing accommodation.
Consideration will also be given to day release for attendance at the Regional College of Art.
Applications endorsed "Architectural Assistant," stating age, qualifications and experience and accompanied by copies of two recent testimonials should reach the undersigned not later than Thursday, 20th July, 1961.
Canvassing in any form will be a disqualification.

W. R. PARKER,
Town Clerk.
Municipal Buildings
Heywood.
14th June, 1961. 8265

EAST KILBRIDE DEVELOPMENT CORPORATION
ARCHITECTS, ARCHITECT / PLANNERS AND CIVIL ENGINEERS
The following staff are required for the rapidly expanding programme of industrial, commercial and housing developments in East Kilbride New Town:—
1. ARCHITECTS and ARCHITECT/PLANNERS.
Salaries range from £815 to £1,670 per annum.
2. CIVIL ENGINEERS.
Salary scale rising to £1,480 per annum.
Commencing salaries will be in accordance with qualifications and experience and appointments are subject to the Corporation's Conditions of Service and Superannuation Agreement. Five-day week. A house or flat will be made available if required. Selected candidates will be required to pass a medical examination. The Corporation will be prepared to consider applications from suitably qualified persons who have reached retiring age or who may be about to retire from their present posts. Application forms may be obtained from the General Manager, East Kilbride Development Corporation, Torrance House, East Kilbride, for return not later than 20th July, 1961. 8257

ROYAL COUNTY OF BERKSHIRE
SENIOR ASSISTANT ARCHITECTS
GRADE J.N.C. B, £1,425—£1,670
Owing to the rapid increase in the population and consequent growth of the work, the Council wishes to increase its Architect's Department and there are now a number of vacancies on various grades including the above.
For these higher posts candidates will have to show they are capable of handling large projects at all stages or alternatively produce evidence of exceptional ability in one branch of the profession.
The programme includes a Teachers' Training College (£750,000), Court Houses and Divisional Police Headquarters, and a great variety of work, very few of which are less than £20,000 projects.
Candidates for lower posts will be engaged on salaries ranging from £815 to £1,480, according to experience and ability.
There is a number of staff houses and flats, some of which become available from time to time, and assistance up to 75 per cent. of removal expenses is given.
Application forms obtainable from J. T. Castle, A.R.I.B.A., A.M.T.P.I., County Architect, Wilton House, Parkside Road, Reading, are to be returned by July 11th, 1961. 8299

ROYAL BOROUGH OF KINGSTON-UPON-THAMES
APPOINTMENT OF ARCHITECTURAL ASSISTANT
(A.P.T. Grade II, £815—£960 per annum plus London weighting)
Applications are invited for the above-mentioned appointment. Details and application forms obtainable from Borough Surveyor, Guildhall, Kingston-upon-Thames, and returnable by 14th July, 1961.

L. V. POWELL,
Town Clerk.
Guildhall,
Kingston-upon-Thames. 8258

THE ARCHITECTS' JOURNAL for June 29, 1961

SOUTH EASTERN REGIONAL HOSPITAL BOARD, SCOTLAND

Applications are invited for the superannuated post of PRINCIPAL ASSISTANT ARCHITECT (Furnishings) in the Regional Architect's Division, Edinburgh. Salary scale £1,665 × £50 (1) × £75 (2) × £85 (2)—£2,035.

Applicants should be registered architects and possess ability in the design and selection of furnishings for hospital buildings. The successful candidate will be expected to liaise with architects and hospital staff in the development of interiors. Application forms for this post may be obtained from the Regional Architect, 18 Rothesay Terrace, Edinburgh. 8201

COUNTY OF SOMERSET

Applications are invited for the following new posts in the County Architect's Department for an expanding programme.

LAND SURVEYOR, A.P.T. V, £1,310—£1,480 p.a.
LAND SURVEYOR, A.P.T. IV, £1,140—£1,310 p.a.

to set up small team to inspect buildings and sites, handle consultations and acquisitions, surveys and records and to supervise contracts for accommodation works. Candidates should be qualified surveyors, engineers or architects. If suitable candidate is available, this section will also be responsible for soil investigation, investigation of materials and keeping technical information for the whole department.

The Department handles a programme of nearly £2 million per year.

These posts are subject to N.J.C. conditions; starting salaries within grades according to experience; approved removal expenses, disturbance and lodging allowances may be payable.

Apply to County Architect, The Crescent, Taunton (Tel. Taunton 3451) not later than 12th July, stating experience, qualifications, age. 8285

COUNTY BOROUGH OF GREAT YARMOUTH EDUCATION COMMITTEE
SCHOOLS ARCHITECT'S DEPARTMENT

Applications are invited from Associate Members of the R.I.B.A. for the appointment of a SENIOR ASSISTANT ARCHITECT at a salary within A.P.T. IV (£1,140 to £1,310).

Candidates should have a thorough knowledge of school design and construction.

Housing accommodation will be available to the successful candidate if married and assistance with removal expenses may be made in suitable cases.

Full details of present and past appointments, age, qualifications and experience, together with the names of two referees should reach the Schools Architect, 22 Euston Road, Great Yarmouth, by 17th July, 1961.

D. G. FARROW,
Chief Education Officer.

22 Euston Road,
Great Yarmouth
Norfolk. S8297

ANTRIM COUNTY COUNCIL
PLANNING ASSISTANT

Applications are invited from holders of a qualification in Planning and/or Architecture for the position of Planning Assistant in the Council's Planning Department.

Salary Scale: A.P.T. Grade IV, £1,140—£1,310, subject to deductions under the Local Government (Superannuation) Act (N.I.), 1950.

Applications, together with the names and addresses of two referees, must be delivered to the Secretary, County Courthouse, Crumlin Road, Belfast, 14, not later than 8th July, 1961. 8284

AMENDED ADVERTISEMENT
GHANA CIVIL SERVICE

Greatly improved terms of service are now offered to candidates for vacancies for ARCHITECTS in the DIVISION OF PUBLIC CONSTRUCTION, MINISTRY OF WORKS AND HOUSING.

Duties: To design, prepare working drawings and supervise the construction of new Government buildings such as quarters, offices, hospitals, schools, law courts, etc., and also at times to carry out duties as an executive architect responsible for the organisation of direct labour works and perform administrative duties.

Qualifications: Candidates must: (i) have passed Parts I and II of the Final examination of the Royal Institute of British Architects; or (ii) be Licentiates of the R.I.B.A.; or (iii) be Associate members of the R.I.B.A. by the Institute's special examination; or (iv) have a qualification which is recognised as exempting from Parts I and II of the R.I.B.A. examination. Salary in range £1,180—£2,080 p.a. An additional increment may be granted to candidates who have attended an approved short post-graduate course in the human aspects of Tropical Architecture.

Appointments on limited engagement terms for three tours of duty each of 15-18 months. In addition to salary a tax free gratuity at the rate of 10 per cent. of aggregate salary is payable at the end of each tour of duty, and a tax free resettlement gratuity of 20 per cent. of aggregate salary is payable on the satisfactory completion of contract. Free passages for officer, wife and up to three children under 18 years, and in addition an education allowance for children when not resident in Ghana and attending full-time school of £100 a child for up to three children under 18 years. Accommodation at low rental and generous leave on full pay. Interest free advance for car, and car maintenance allowance may be granted. Income Tax at low local rate.

For application forms, please send postcard to The Director of Recruitment, Ghana High Commission, 248, Tottenham Court Road, London, W.1. 8305

BOROUGH OF WEMBLEY
DEVELOPMENT CONTROL
PLANNING ASSISTANTS, A.P.T. IV or III

Applications are invited from persons with suitable experience of development control. The post will afford opportunity for interesting and varied experience in the control of a wide variety of development with the added advantage of taking part in redevelopment planning. The higher grade will be offered to a candidate with appropriate professional qualifications.

The commencing salary for each of the above posts will be determined having regard to experience and qualification.

The Council are unable to offer housing accommodation.

Application forms returnable by 10th July, 1961, are obtainable on request to the Borough Engineer and Surveyor, Town Hall, Wembley, or by telephoning ARNold 1212 ext. 46.

N. CUMPSTY,
Town Clerk.

Town Clerk's Office,
Town Hall,
Wembley, Middx.
19th June, 1961. 8289

BIRMINGHAM REGIONAL HOSPITAL BOARD
APPOINTMENT OF ARCHITECTURAL STAFF

(*a*) SENIOR ASSISTANT ARCHITECTS, salary scale £1,300 to £1,600 (Arch. 31).

(*b*) ASSISTANT ARCHITECTS, salary scale £905 to £1,310 (Arch. 32).

Qualifications for (*a*) and (*b*): Registered architect by examination.

These posts are not necessarily restricted to those with previous hospital experience. They offer opportunities for gaining knowledge and experience of the whole field of hospital architecture ranging from adaptation schemes to comprehensive new hospital projects. The Birmingham Region covers the counties of Warwickshire, Staffordshire, Worcestershire, Herefordshire and Shropshire; there are 27 Hospital Management Committees, administering 218 hospitals totalling 43,958 beds and the population is about 4,688,400. The annual capital allocation for the region is now in the order of £2,000,000 plus substantial allocations from the Ministry's central funds. This is expected to increase considerably over the next few years thus offering much interesting and satisfying work of a contemporary nature. A good proportion of the work is dealt with within the Regional Architect's department and the remainder is handed to private architects. At present the total staff establishment of the department is 80 and the office is organised on a group basis where individual responsibility and initiative is encouraged.

Superannuable. Five-day week. Applications (quoting appropriate reference) stating qualifications, age, experience, present position and salary and naming two referees to Secretary, 10 Augustus Road, Birmingham, 15, by 10th July, 1961. 8259

DERBYSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT
SENIOR ARCHITECTS required. Senior Officers' "A." Salary £1,370 × £70 (2) and £55 (1) to £1,565 per annum.

This department provides scope for qualified and enthusiastic architects who possess considerable experience, and have a sound knowledge of modern trends in design and the latest forms of construction. A knowledge of large-scale public building projects such as: Schools, Welfare and Children's Homes, Hostels, Clinics, Occupational Centres, Police, Fire- and Ambulance Stations, in addition to Housing will be an advantage.

Local Government Superannuation Scheme. Five-day week. Scheme of allowances towards removal and lodging expenses in appropriate cases. Nationally negotiated conditions of service. Canvassing disqualifies.

Application forms from: F. Hamer Crossley, Dipl.Arch. (L'pool), F.R.I.B.A., County Architect, County Offices, Matlock, Derbyshire, to whom they should be returned as soon as possible. 8260

PADDINGTON BOROUGH COUNCIL
TECHNICAL (HOUSING) ASSISTANT
(£845—£1,000)

Starting salary according to merit. Experienced in repair, maintenance, improvement and conversion of civic and residential properties. Able to conduct price negotiations with contractors and to prepare plans, specifications and estimates. Applications to me giving age, qualifications, experience, present and past appointments and names of two referees by 10th July, quoting A 544.

W. H. BENTLEY,
Town Clerk.

Town Hall,
Paddington, W.2. 8263

PLYMOUTH COLLEGE OF ARTS AND CRAFTS
SCHOOL OF ARCHITECTURE AND BUILDING

Principal: ALFRED FORREST, A.R.C.A., A.T.D.

Required on 1st September or as soon as possible thereafter, Two LECTURERS IN ARCHITECTURE, one to specialise in Design Construction at Final Level, another to specialise in History and Appreciation of Architecture, both to act as Studio Year Masters in Design. Applicants should be A.R.I.B.A. and hold a degree or diploma in Architecture. Previous teaching experience an advantage. Salary in accordance with the Burnham Scale (£1,370 rising by four annual increments of £35 and one of £40 to a maximum of £1,550) (under review).

Forms of application and conditions of employment (s.a.e.) may be obtained from the Clerk to the Governors, Education Offices, Cobourg Street, Plymouth, to whom they should be returned as soon as possible. 8264

Architectural Appointments Vacant

3s. per line; minimum 12s. Box Number, including forwarding replies, 2s. extra.

BRYAN & NORMAN WESTWOOD require ASSISTANT ARCHITECTS and DESIGNERS. Salaries up to £1,200. Apply to 21, Suffolk Street, S.W.1. Trafalgar 1106. TC7932

£850-£1,600. ARCHITECTURAL ASSISTANTS required. Long term prospects. Non-contributory pension and life assurance schemes. Five-day week. Telephone or write: Ronald Ward & Partners, 29, Chesham Place, Belgrave Square, S.W.1. Belgravia 3361. TC6105

SENIOR ASSISTANTS required. Please apply to P. G. Frizzell, A.R.I.B.A., 80, Portland Place, W.1. LANgham 1732. TC4943

ARCHITECTURAL ASSISTANTS of all grades required in a busy provincial practice. Good salaries to right applicants. Pension Scheme. Accommodation. Apply with full details to:
Ruddle & Wilkinson, F/L/A.R.I.B.A.,
Long Causeway Chambers,
Peterborough. TC6984

EDWARD D. MILLS & PARTNERS require additional qualified STAFF for a variety of new work including housing, schools, industrial and churches. Enthusiasm and initiative important. Five-day week. Write giving full details to 9/11, Richmond Buildings, Dean Street, London, W.1. TC7051

£950-£1,500. ARCHITECTURAL ASSISTANTS with imagination and designing ability required to assist with large and important new developments in the central London Area. Telephone or write: Trehearne & Norman, Preston & Partners, 85, Kingsway, W.C.2. HOLborn 4071. TC4934

ARCHITECTURAL ASSISTANTS of all grades, particularly Intermediate standard, required on varied and interesting projects. High salaries will be paid in accordance with skill or experience of applicant. Lewis Solomon, Kaye & Partners, City 8811. TC5970

ARCHITECTURAL ASSISTANTS required in busy Bloomsbury office with varied practice. Good salary and prospects for suitable applicants. Five-day week. Write giving particulars of age, qualifications, experience, etc., to Box 918, c/o 7, Coptic Street, W.C.1. TC5647

SENIOR ASSISTANTS required for work on large Hospital programme, excellent opportunities for the right men, salary £1,000—£1,400. Luncheon Vouchers and five-day week. Write giving full particulars to W. H. Watkins, Gray and Partners, 57, Catherine Place, S.W.1. TC5633

BRYAN & NORMAN WESTWOOD & PARTNERS require ASSISTANT ARCHITECTS. Salaries up to £1,200. Apply to 21, Suffolk Street, S.W.1. TRAfalgar 1106. TC6736

SENIOR AND JUNIOR ASSISTANTS. Only those who prefer a small office and an interesting variety of work on both old and new buildings should apply to: L. H. Bond & R. W. Read, 44, Castlegate, Grantham. TC6404

LEICESTER. SENIOR ARCHITECTS AND ASSISTANTS required for general practice. Appropriate salary paid. Apply by telephone or in writing for an interview to Herbert, Son & Sawday, 18, Friar Lane, Leicester. Tel. 56476. TC5307

ELIE MAYORCAS requires ARCHITECTURAL ASSISTANTS with a minimum of three years' office experience in this country. Write, giving brief particulars of architectural education and experience, and salary required, to: 13, David Mews, Baker Street, W.1. TC7014

SENIOR ASSISTANTS required immediately. Salary by arrangement. Theo. H. Birks, 38, Portland Place, London, W.1. LAN. 7236. TC1486

ORKE, ROSENBERG AND MARDALL have some vacancies for experienced STAFF, starting salary according to qualifications and experience, in the range £960—£1,200. Ring AMBassador 4521 for appointment. TC6200

IMMEDIATE VACANCIES in leading Bristol office for all grades of ARCHITECTS and ARCHITECTURAL ASSISTANTS. Modern approach to design essential and considerable freedom of expression allowed. Top salaries paid according to ability and experience. Outstandingly good working conditions; five-day week; annual bonus; contributory pension scheme available; existing holiday commitments honoured. Apply giving particulars of age and experience to W. H. Watkins, Gray and Partners, 8, Colston Avenue, Bristol. Telephone Bristol 292333, reverse charge calls accepted. TC7675

SIR JOHN BURNET, TAIT & PARTNERS have vacancies for ARCHITECTURAL ASSISTANTS of all grades. Salaries from £1,000 per annum upwards. Non-contributory pension, life assurance, medical schemes and luncheon vouchers, five day week, generous holidays. Apply 10, Bedford Square, London, W.C.1. TC7648

LANCHESTER & LODGE urgently require ARCHITECTURAL ASSISTANTS of all grades. Work includes hospitals, laboratories, universities, offices, housing, etc. Write full particulars or ring for interview: 10, Woburn Square, W.C.1. MUS 0845-6-7. TC7248

A FEW vacancies still left for experienced and confident ARCHITECTS to fill positions of responsibility in a growing and varied practice with industrial and commercial work throughout the southern half of the country. Applicants must have initiative as well as architectural ability to carry through contracts up to £100,000, working directly with Principals but with minimum supervision. Apply in writing to Thomas Mitchell & Partners, 20 Bedford Square, London, W.C.1 TC7443

SENIOR and JUNIOR ASSISTANTS urgently required for busy City Office. Excellent modern facilities and long term engagements. Holidays with pay this year. Salary increments and bonus. Luncheon Vouchers. Qualifications unnecessary but experience and ability imperative. Salaries varying from £1,000 to £1,650 according to ability. Box S7642.

£1,000/£2,000 p.a. will be paid to experienced competent ARCHITECTS by a private practice in the City of London. The work will be primarily on the drawing board on new and interesting projects of magnitude. A high standard of design and detailing ability is required. Please apply in writing to Box TC9360.

ARCHITECTURAL ASSISTANTS required immediately for interesting work in private practice situated 12 miles south of Birmingham. Five-day week and luncheon voucher scheme in operation. Apply Hasker & Hall, Longdon House, High Street, Knowle, Solihull, Warwickshire. Telephone Knowle 3502. TC7538

SENIOR ASSISTANT ARCHITECT required in private practice South East Coast town. Must be experienced with ability to handle contracts from sketch plan to completion. Work consists of industrial, flats, schools, shops, etc. Starting salary £1,200 or according to ability. Housing accommodation available. Apply in own handwriting. Box TC7452.

ARCHITECTS' ASSISTANTS required. Final and Intermediate standard, to work on large and interesting projects. Salary £850 to £1,000. Applicants must be good draughtsmen, with sound knowledge of detailing. Please write giving full particulars of experience, age, etc., to: F. W. Beech & E. Curnow Cooke, F./L.R.I.B.A., 15, Dix's Field, Exeter. TC5945

DOWTON & HURST require ARCHITECTURAL ASSISTANTS. Present work includes Hospitals, Shops, Schools and Commercial buildings. Salary £700/£1,100, according to experience, and bonus. L.V.s provided. 10, Portman Street, Portman Square, W.1. HYD. 1822. S8048

TWO Senior and two Intermediate standard ARCHITECTURAL ASSISTANTS required in rapidly expanding practice for wide range of interesting contracts. Must be capable of accepting responsibility. Excellent future prospects for right type of man. Apply Brewer, Smith & Brewer, 11, The Green, Richmond. RIC 0667 and 6118. S8182

SENIOR QUALIFIED ARCHITECT required, age 35/50, preferably with experience of public house construction, alterations and maintenance. Good salary offered to man with experience. Contributory Pension Fund. Apply in confidence, with full particulars, to the Managing Director, The Birkenhead Brewery Co. Ltd., 73, Oxton Road, Birkenhead. S7994

GEORGE, TREW & DUNN

Hospitals, University, Prestige Office, Ships. We need your help.

Please write to us at 50, Eastbourne Terrace, W.2. TC8000

SENIOR ARCHITECTURAL ASSISTANT required by Huntingdon Firm of Architects. Vehicle available for private and office use. Apply Box S8085.

WE require qualified ASSISTANTS to completely run own contracts from beginning to end. Salary to match ability. Only ambitious men need apply.
Dalling and Partners, Chartered Architects, 14, Bloomsbury Square, London, W.C.1. CHAncery 4725. TC7997

ASSISTANTS of all grades required by Lewis Solomon, Kaye & Partners, for important large London developments, including multi-storey hotel and comprehensive office developments. Applicants should have a good knowledge of design and construction for this type of development and London experience is an advantage. Apply Thavies Inn House, 5, Holborn Circus, E.C.1. Tel. No.: CITy 8811. S8045

ROBERT MATTHEW AND JOHNSON-MARSHALL require ASSISTANTS in their EDINBURGH and DUNDEE offices to work on an exceptionally interesting range of HOSPITAL AND MEDICAL RESEARCH projects.
Minimum starting salaries:—
(a) Passed R.I.B.A. Intermediate ... £750
(b) Completed full-time technical education £900
(c) Elected A.R.I.B.A. £1,100
(d) At least two years' experience since election A.R.I.B.A. £1,300
Write to 13, South Charlotte Street, Edinburgh, 2, or telephone CALedonian 3638. S8042

ENFIELD, Middlesex office requires SENIOR ASSISTANT and INTERMEDIATE ASSISTANT. Wide and interesting range of work available without the tedium and expense of travelling to town. Practice established over 25 years. Projects in hand include Hospital, Industrial, Domestic and Commercial schemes. Five-day week. Three weeks' annual leave.
Write giving full details of training, experience and salary required to:—
E. WILLIAM PALMER & PARTNERS,
Chartered Architects,
8 The Town, Enfield, Middlesex. S8123

WELL-ESTABLISHED ESTATE AGENTS, Kingston/Surrey area offer "EXCITING OPPORTUNITY" to TOP ARCHITECTURAL ASSISTANT/DRAUGHTSMAN—full time (not necessarily qualified) or ARCHITECT—part-time to help or take charge of Development Dept. building 30/40 Units annually (solid programme ahead—land acquired). Final A/cs, contract supervision, good drawing board and planning experience essential. Box 8110.

ARCHITECTURAL ASSISTANT, Intermediate standard, required for office with large general practice in Southampton. Write stating experience and salary required. Box 8119.

wanted, left-handed assistant, or would sell left-handed tee-square. telephone whi 0865 S151

ASSISTANTS REQUIRED by expanding firm of Architects in modern office next to Baker Street Station. Interesting work includes hotels, houses, flats, commercial and industrial premises. Opportunity to participate in all branches of the profession. The following vacancies occur:

An experienced assistant to work on sketch schemes, details, specifications.

A draughtsman with several years' drawing office experience.

Salaries according to experience, with good prospects of advancement. Apply to Box S8094.

ASSISTANT ARCHITECT urgently required. Salary £1,250; five-day week. Wilburn and Son, Architects, 11, South Parade, Doncaster. S8084

ARCHITECTURAL ASSISTANT required, experienced in preparation of working drawings, details, contract supervision, commercial practice. Pension scheme and other benefits. Salary £1,000—£1,200 p.a. Eric H. Davie, F.R.I.B.A., A.M.T.P.I., Chief Staff Architect, Hillier Parker May & Rowden, 77, Grosvenor Street, London, W.1. Mayfair 7666. S8086

ASSISTANTS and ASSISTANT ARCHITECTS required within the salary range £1,100—£1,350 on a variety of projects. Qualifications in landscape architecture an advantage which would affect salary. Large progressive office offering outstanding opportunities for people of ability, both at home and overseas. Excellent working conditions: five-day week; three weeks' leave; lunch vouchers; bonus scheme and generous sick pay provisions. Write or telephone Norman & Dawbarn, Architects and Consulting Engineers, 7, Portland Place, London, W.1. LANgham 8011. TC8088

WYE VALLEY — ASSISTANTS required, Intermediate to Final standard. R. J. A. Wilson and MacMillan, A./A.R.I.B.A., 4a, St. Peter's Street, Hereford. S8089

GOTCH AND PARTNERS, Architects, of 8, City Road, London, E.C.1, have vacancies in their London, Brighton, Bournemouth and Bristol Offices for keen and energetic ASSISTANTS. Salary range between £13/1700 per annum, according to ability. Write or telephone for appointment. Monarch 3235. S8173

D. PLASKETT MARSHALL & PARTNERS require ARCHITECTURAL ASSISTANTS of Intermediate standard. Some experience essential. Scope for those with initiative and sense of responsibility. One day off per week for study if required. Apply in writing, giving full details of education and experience to: 59, Gordon Square, W.C.1. S8171

ARCHITECTURAL ASSISTANT, Intermediate. Final standard with some years' office experience.
Salary £750—£1,250 p.a.
Forward looking firm of quality Building and Civil Engineering Contractors with wide and varied interests in the West Country.
Please write giving particulars, salary required etc., or telephone for appointment to:—
J. HAWKINS & SON LTD.,
BEACH AVENUE, CLEVEDON, SOM.
Tel.: Clevedon 2244. S8176

SENIOR ARCHITECTURAL ASSISTANTS Intermediate or Final standard, required immediately for offices at Leigh and Wigan. Varied and interesting programme including Schools, Churches, Municipal Buildings, Housing, etc. Bonus and pension schemes, five-day week and three weeks holiday. Top salaries paid commensurate with ability and experience. Applications giving full particulars to J. C. Prestwich & Sons, Bradshawgate Chambers, Leigh, Lancs. S8179

ARCHITECTS. Experienced ASSISTANTS required for work on interesting major schemes, able to take initiative and responsibility. Bonus, Pension and Life Assurance Schemes. Salary according to experience and ability. Five-day week. Full particulars to Hadfield Cawkwell & Davidson, 17 Broomgrove Road, Sheffield 10. S8183

PREFABRICATION. Unique opportunity, in London consultant architect's office, for QUALIFIED MAN to initiate and control development of advanced, sophisticated new TIMBER BUILDING SYSTEM. Excellent long-term prospects, immense scope. Only those with initiative, imagination, technical competence and relevant experience should apply. Full particulars to Box S8167.

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