THE ARCHITECTS' JOURNAL

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HE ARCHITECTURAL PRESS

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Registered as a Newspaper.

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

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. Marlborough Whitehead, " Dyneley," Castle Hill Avenue, Berkhampstead, Herts.	
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5721
ABT	Association of Building Technicians. 1, Ashley Place, S.W.1.	Victoria 0447–8
ACGB	Arts Council of Great Britain. 4, St. James' Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
ArchSA	Architectural Students' Association. 34/36, Bedford Square, W.C.1.	
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Langham 8738
BAE	Board of Architectural Education. 66. Portland Place, W.1.	Langham 5721
BATC	Building Apprenticeship and Training Council. Lambeth Bridge House, S.E.1.	Reliance 7611, Ext. 1706
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 105, Uxbridge Road, Ealing, W.5.	Ealing 9621
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Fremantle 8494
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Glasgow Central 2891
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Chancery 7772
BINC	Building Industries National Council. 11; Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Whitehall Gardens, Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
BRS	Building Research Station. Bucknalls Lane, Watford	Garston 2246
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. British Standards House, 2, Park St., W.1.	Mayfair 9000
BTE	Building Trades Exhibition. 32, Millbank, S.W.1.	Tate Gallery 8134
CABAS	City and Borough Architects Society. C/o Johnson Blackett, F.R.I.B.A., Civic Centre, Newport, Mon.	Newport 65491
CAS	County Architects' Society. C/o F. R. Steele, F.R.I.B.A., County Hall, Chichester.	Chichester 3001
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Sloane 5255
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611 Ext. 1284
CDA	Copper Development Association. Kendals Hall, Radlett, Herts.	Radlett 5616
CIAM	Congrès Internationaux d'Architecture Moderne. Doldertal, 7, Zurich, Switzerland.	
COID	Council of Industrial Design. 28, Haymarket, S.W.1.	Trafalgar 8000
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.1.	Sloane 4280
CUC	Coal Utilization Council. 3, Upper Belgrave Street, S.W.1.	Sloane 9116
CVE	Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.	Reading 72255
DGW	Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1.	Reliance 7611
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
DPT	Department of Overseas Trade. Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
EJMA	English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1.	Regent 4448
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 68, Gloucester Place, W.1.	Welbeck 9966
FASS	Federation of Association of Specialists and Sub-Contractors, Artillery House, Artillery Row, S.W.1.	Abbey 7232
FBBDO	Fibre Building Board Development Organization, Ltd. 47, Princes Gate, Kensington, S.W.7.	Kensington 4577
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	Regent 0221
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.	Sloane 1002
FDMA	The Flush Door Manufacturers Association Ltd., Trowell, Nottingham.	Ilkeston 623
FLD	Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.	Ulverston 201
FMB	Federation of Master Builders. 26, Great Ormond Street, Holborn, W.C.1.	Chancery 7583
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Whitehall 3902
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Langham 4341
GBPA	Gypsum Building Products Association, 11, Ironmonger Lane, E.C.2.	Monarch 8888
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. 16, Hanover Square, W.1.	Mayfair 5454
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 75, Eaton Place, S.W.1.	Sloane 5615
ICA	Institute of Contemporary Arts. 17–18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. 1, Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, Victoria Embankment, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215
IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266

BY APPOINTMENT
TO HER MAJESTY QUEEN ELIZABETH II
BRICK MAKERS

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Partner-in-charge: G. J. Easton, A.R.I.B.A.
Consulting Engineer: F. J. Samuely, B.Sc.(Eng.), A.M.I.C.E., M.I Struct.E.
Quantity Surveyors: Cyril Sweett & Partners.
General Contractors: F. G. Minter Ltd.

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Midland District Office: Prudential Buildings, St. Philip's Place, Birmingham, 3. Telephone: Colmore 4141
South-Western District Office: 11 Orchard St., Bristol, 1. Telephone: Bristol 23004/5
Northern District Office: St. Paul's House, 20-22 St. Paul's Street, Leeds. Telephone: Leeds 20771
LB47

TRETOL INFORMATION SHEET **For Your Files**

THE USES OF MORTAR PLASTICISERS

The need for reduced costs and greater efficiency is resulting in the increased use of mortar plasticisers throughout the building industry. This information sheet gives a brief description of the function of these workability aids.

THE THEORY governing mortars for brickwork is that the mortar joint should always be weaker than the brick, so that when thermal or moisture movement takes place in the structure as a whole, the joints craze or crack in preference to the possible formation of major structural cracks in the bricks.

To obtain this weak mortar joint it is necessary to use a mix with low cement and high sand content. These mixes easily become unworkable, particularly where sharp sands are used and it has been the practice in the past to recommend the addition of hydrated lime as a plasticising agent.

The development of mortar plasticisers now makes it possible to adopt lean cement and sand mixes without resorting to the addition of lime.

Underlying Principles.

Tretol Morta-Mix, the mortar plasticiser, works on the principle of entraining in a mix approximately 10 per cent. more air than normal. This air is in the form of minute stable bubbles, and these, by reducing internal friction within the mortar, provide a marked improvement in plasticity and workability.

The air entrainment is obtained by a physical and not a chemical action and there is, therefore, no deleterious effect on the mortar. Tretol Morta-Mix removes surface tension from the gauging water and to a certain extent, acts as a lubricant for the sand.

Because of the air entrainment the mortar is given a minute cellular construction which provides more tolerance for movement within the mortar, thereby reducing cracking and crazing to a minimum. The thermal insulation provided by this cellular construction of the mortar prevents the penetration of frost beyond the initial face of the mortar or rendering and provides a high degree of resistance to damp penetration.

Mortars for brickwork.

By allowing the elimination of lime the use of Tretol Morta-Mix will enable typical mixes of 1:1:5 or 1:1:6 to be adjusted to 1:6 using, if preferred, coarse sharp sands; Mixes of 1:2:9 and 1:3:12 can similarly be adjusted to 1:8. In addition to easier flow, improved wetting properties of the mortar will be obtained, ensuring better bonding between brick and mortar joints, greatly reducing the tendency to crazing and shrinkage of the mortar joints.

External renderings.

Mixes of 1:6 as indicated for brickwork, using really coarse sharp sands, can well be employed with the aid of this plasticiser without the slightest objection being raised by plasterers. The renderings hang extremely well in their wet state and can be brought to a good finish without necessity for over-trowelling; thus avoiding bringing the "fat" to the surface with resultant crazing. By the use of selected sands, and by employing these lean mixes, a valuable contribution is made towards reducing crazing and shrinkage cracks.

The plastic nature of the mix provided enables very easy working of surfaces to obtain texturing where necessary, also, by improved wetting, improved adhesion between thrown or embedded aggregate on to the surface of the final coat of rendering is obtained.

Internal cement renderings for backing coats.

The advantages gained by the use of lean mixes are particularly apparent on breeze blocks and other internal surfaces not possessing high physical strength. Renderings consisting of cement, sand and Tretol Morta-Mix only, eliminating completely the need for lime, will provide excellent backing coats for plaster finishes and will not cause any chemical reaction resulting in blowing, or other physical damage to the setting coats. This will apply to all typical plasters used for work of this nature, including Hemihydrates, Anhydrous, Anhydrites, Keenes, etc.

For further details please write for Tretol Morta-Mix leaflet AJ/1

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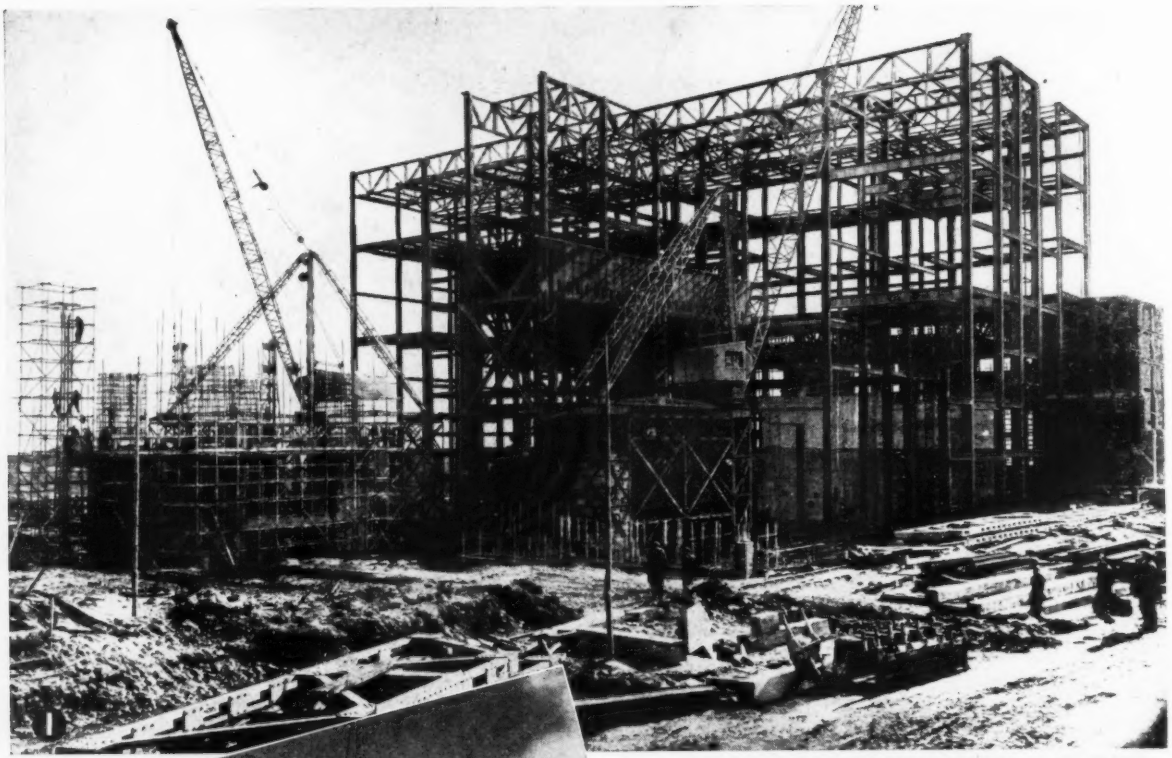
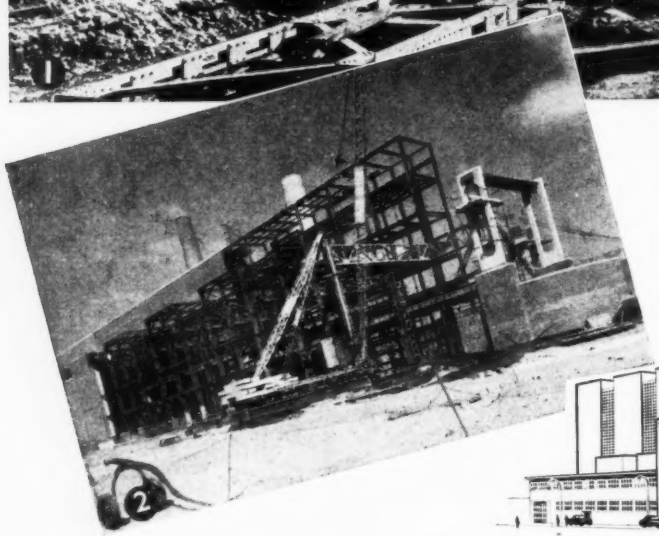
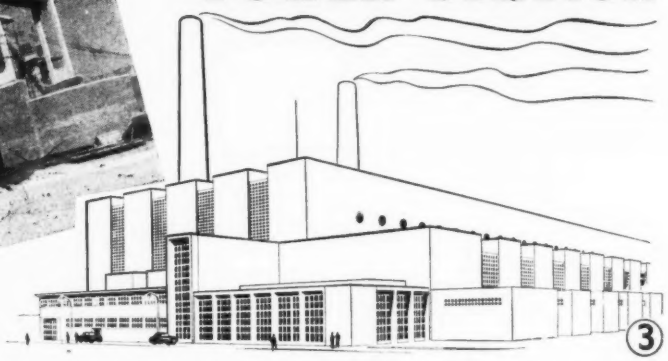




CARMARTHEN BAY POWER STATION



1. View towards South-East across No. 1 Boiler House site showing also No. 1 Chimney Plinth in course of construction.
2. Main Building. General view of No. 3 Turbine Room and tank annexe steelwork from South side, looking North-West.
3. Main building. General view of Station building from foreshore, looking North-East.

Photographs by courtesy of the Central Electricity Authority, South Wales Division.
Engineers and Contractors: Messrs. Balfour, Beatty & Co. Ltd.

STRUCTURAL STEELWORK BY

SOUTH DURHAM

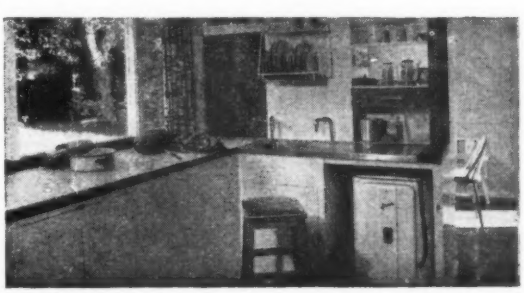
SOUTH DURHAM STEEL & IRON CO. LTD. (incorporating CARGO FLEET IRON CO. LTD.)
Central Constructional Department, Malleable Works, Stockton-on-Tees. Telephone : Stockton-on-Tees 66117.

Klinger Bill's Capers No.1

Bill is just a normal lad,
sometimes good and sometimes bad,
but everywhere he goes they find
he leaves a mark or stain behind.

If only everybody knew
about a surface strong and true,
they'd all use more and more and more,
of smart and *stainproof* Klingdecor.

If you're planning or building offices, houses or schools, play safe and use Klingdecor—the surface that tops everything. It's not only stain-proof but cigarette- and heat-resistant. It will not easily scratch, it's pliable and you can cut and fix it in no time. Klingdecor comes in a wide range of patterns and colours and costs less than you think!
It will pay you to find out more about Klingdecor. Please send us a postcard and we will send you FREE samples and details.



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the surface that TOPS everything!

Another KLINGER Product. *Manufactured by* Richard Klinger Ltd., Klingerit Works, Sidcup, Kent.

Enquiries to: Klingdecor Dept., Horton Bridge Road, West Drayton, Middx. Telephone: West Drayton 3036

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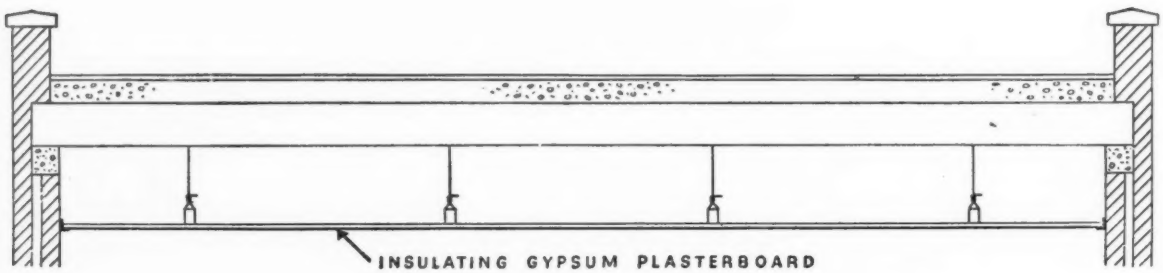
Example: Job No. FR.7483 Construction: Concrete roof, felt covered, with a suspended Insulated Gypsum Plasterboard ceiling.

SUSPENDED CEILING

Area	956 sq. yds.
Contract cost (erected)	17/7d. per sq. yd.
'U' value (roof only)	0.53
'U' value (roof and ceiling lining)	0.23
Flame Spread Rating	Class 1 (B.S. 476)



Whatever the building, fire hazard must be minimised. Gypsum plasterboard is fire resisting to a higher degree than any other board of comparable cost.

INSULATING GYPSUM PLASTERBOARD
gives the essential degree of thermal insulation with fire protection at lowest cost.

For information and literature please write to one of these addresses:

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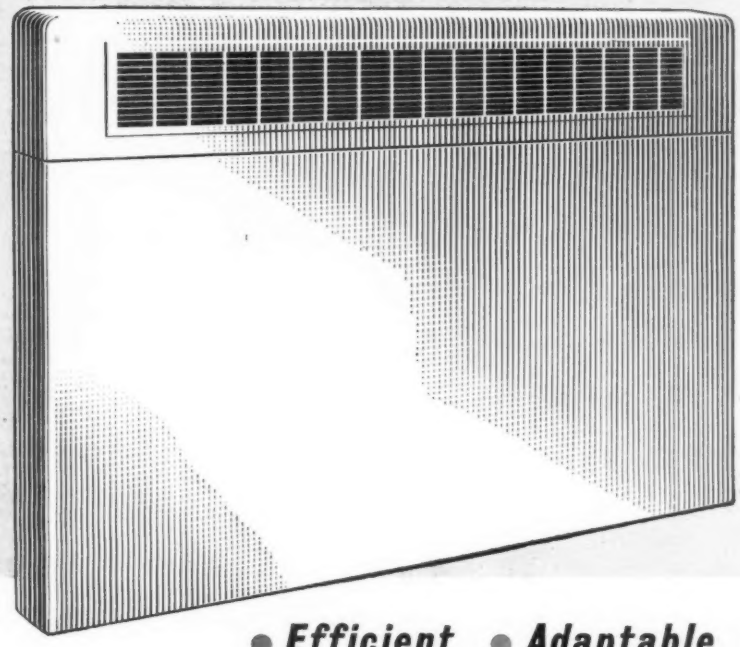
GYPROC PRODUCTS LIMITED, SINGLEWELL ROAD, GRAVESEND, KENT Gravesend 4251
PLASTER PRODUCTS (GREENHITHE) LIMITED, GREENHITHE, KENT Greenhithe 2251/5
THE BRITISH PLASTER BOARD (MANUFACTURING) LIMITED, BATH HOUSE, 82 PICCADILLY, W.1 Grosvenor 7050

Published by The Gypsum Building Products Association

G16



RADIANT WARMTH with the IDEAL RAYRAD

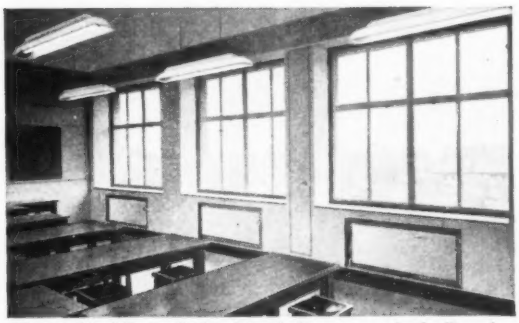
● *Efficient* ● *Adaptable* ● *Unobtrusive*

The Ideal Rayrad is an unobtrusive and adaptable means of heating by low temperature radiation. Distributing radiant heat from the whole of its flat surface, the Rayrad creates a healthy and direct bodily comfort and ensures a uniform temperature in every part of the room The heating effect is rapid with correspondingly quick cooling, giving extreme flexibility of control.

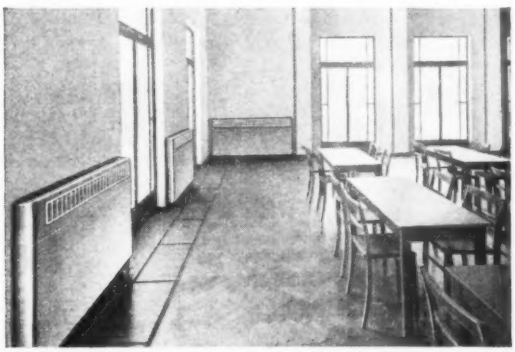
Primarily intended for fixing in window recesses, the No. 44 Rayrad has vertical cast-iron waterways elongated at the back and finished with a fin to provide considerable convective heating surface. The No. 45 is similar except that the face plate is shaped to form an enclosure with a detachable top which enables it to be fitted unobtrusively against a wall.

Made in a variety of styles to suit different requirements, Ideal Rayrads are an adaptable, efficient and hygienic means of heating for all buildings.

Install Radiant Heating—*and save fuel!*



No. 44 Ideal Rayrads fitted in window recesses in the Drawing Office of the Municipal College, Anglesea Road, Portsmouth.



No. 45 Ideal Rayrads installed in the Dining Room of Leatherhead County Secondary School, Leatherhead, Surrey.

Ideal RAYRAD

306

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STRUCTURAL CONCRETEWORK

WOOLAWAY CONSTRUCTIONS LTD.

specialise in design, manufacture and erection of prestressed and reinforced concrete frames for many types of single storey building. This illustration shows the use of G.K.P. prestressed concrete trusses which span from 21'0" to 45'0". Early delivery and rapid erection can be arranged at economical prices. Tenders for complete buildings can also be submitted.

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24 WEST BAY WORKS, BRIDPORT, DORSET
Telephone : Bridport 2327

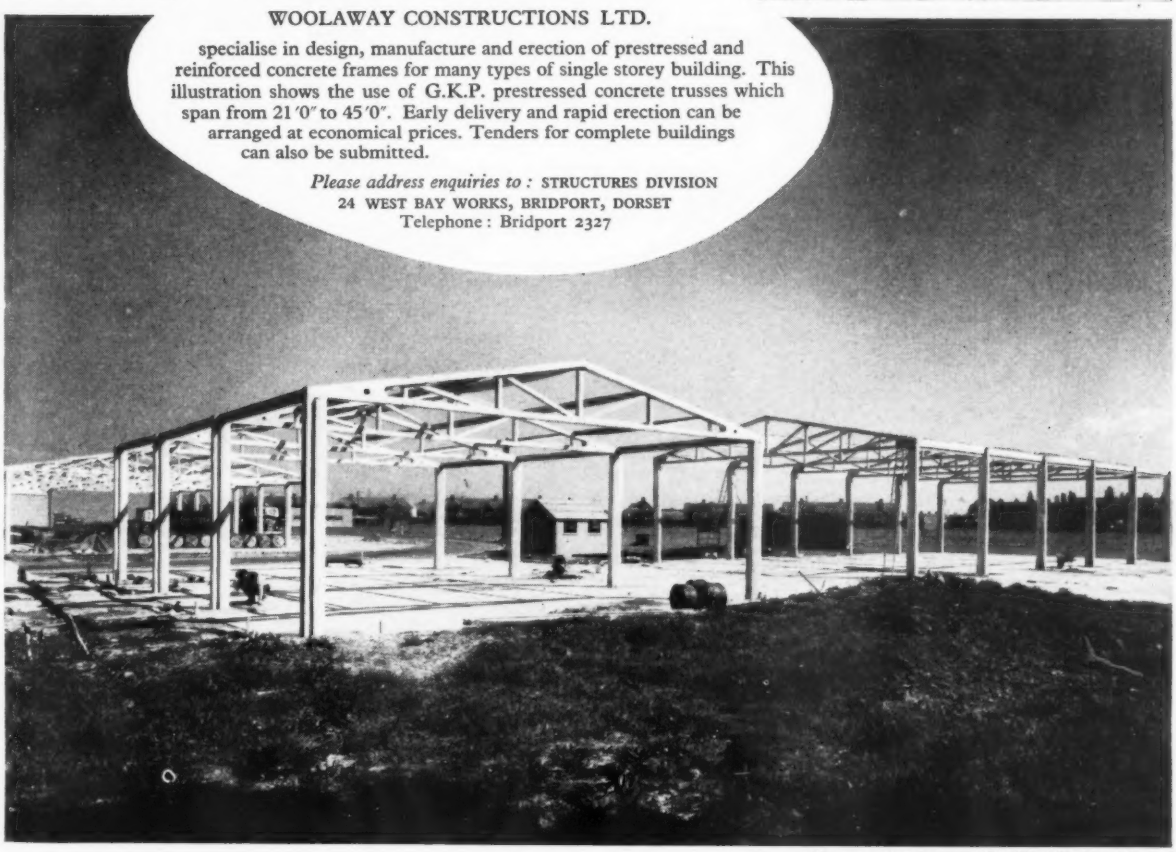
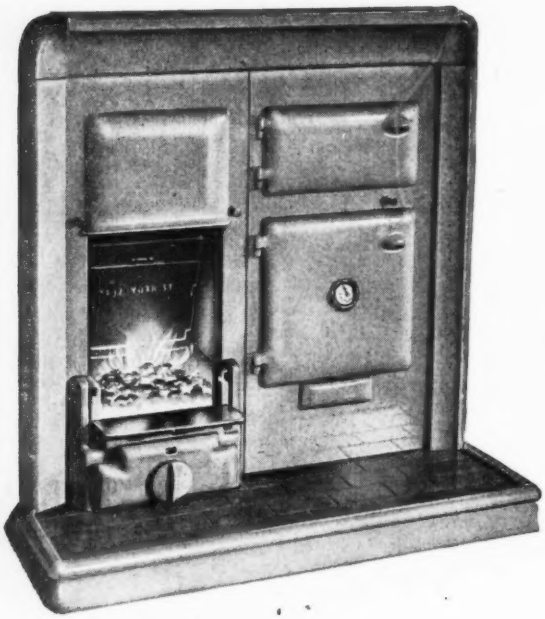


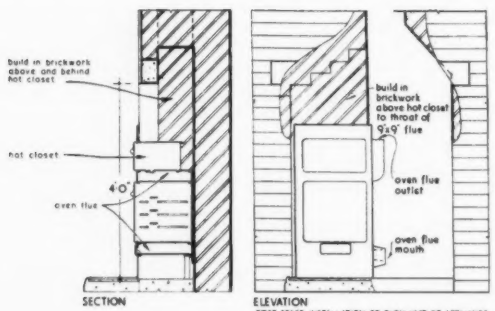
Illustration by courtesy of British Cellophane Limited

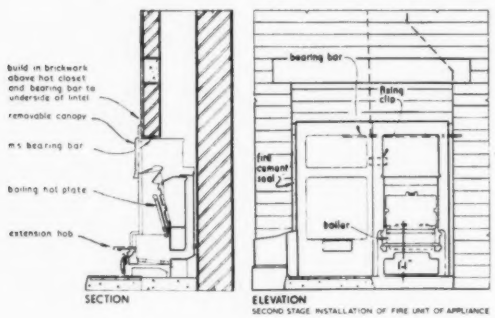


The facts about the Radiation YORKIST 12 combination grate

DESIGN

For a modern kitchen-living room the Yorkist No. 12 has outstanding merit owing to its compact, space-saving design—it occupies a floor space of only $44\frac{3}{4}''$ x $13\frac{1}{2}''$. This continuous-burning side-oven combination grate is made to harmonise with a living room. It has an open fire fitted with a drop-down fire cover for overnight burning and for use as a fast-boiling hotplate. The large cooking oven has an insulated door; and heat is evenly distributed by a loose sheet convection plate. An open fire with a very low front for increased radiation is obtained by lowering the fall bar and polished hob. The overall dimensions (without mantel, jambs and hearth) are: 38″ wide x 38″ high x 14″ deep.





PERFORMANCE

The Yorkist No. 12 has a boiler rating of 100,000 B.Th. U/24 hr. Under cooking conditions it will heat about 10 gallons of water an hour from 50°F. to 140°F. and give cooking and hot water facilities to a household of 6-8 people. The open fire is particularly welcome in a combined kitchen-living room: it will heat a room up to 1,600 cu. ft. The shovel-type ashpan normally need only be cleared once in 24 hours. Weekly fuel consumption is $1\frac{1}{2}$-2 cwt. in normal use, including daily cooking. A wide range of fuels is used, including smokeless fuel such as coke.

INSTALLATION

The hot water storage cylinder should be not more than 30 gallons capacity. It should be lagged and placed as near to the boiler as possible. The flow and return pipes—1″ B.S.P.—should be not more than 30 feet long and should be lagged if they exceed 15 feet. The Yorkist is suitable for an opening 40″ wide x 45″ high (from hearth level) x 14″ deep, and should be connected to a uniform 9″ x 9″ flue.

An additional advantage is the method of delivery. The Yorkist is packed in two self-contained units—the oven and fire units—ready to be assembled. This saves time and precious man hours in installation.

Exceptionally easy to maintain and keep clean, an all-purpose cooker, domestic fire and water heater, the Yorkist 12 has proved its solid value in thousands of well-run homes.

SPECIFY THE YORKIST 12 MADE BY

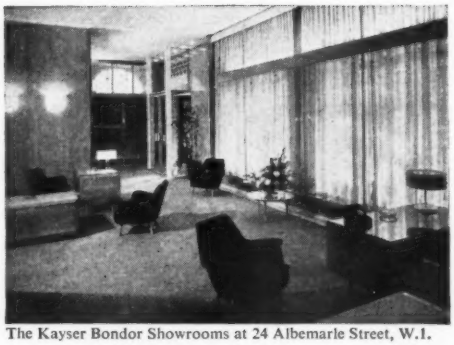
Radiation

PIONEERS OF SMOKE REDUCTION

√ *Approved by the Ministry of Fuel and Power*

Technical Information Sheet for the Yorkist 12 (and for the oven-over-fire Yorkist 20) from Radiation Group Sales Limited (Solid Fuel Division), Belper, Derby.

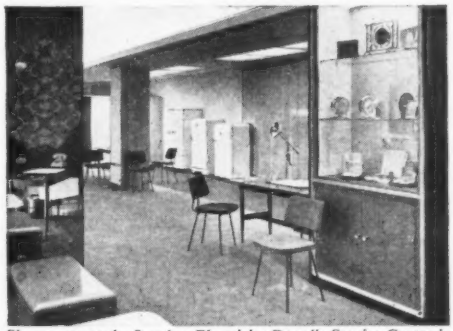
Product of Radiation Ltd



The Kayser Bondor Showrooms at 24 Albemarle Street, W.1.

The Board Room of the Drapers' Chamber of Trade in Harley Street, W.1.

Typical office at the Associated Groups of the Esso Petroleum Company in Davies Street, W.1.



Showroom at the London Electricity Board's Service Centre in Regent Street, W.1.

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- *Rugs don't creep as on normal-pile carpets.*
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- *Choice of 7 grades . . . 12 stock colours, other colours dyed to order.*
- *Each carpet produced individually for you.*
- *The one and only genuine Curlsax . . . there is no substitute.*

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Telephone: GROsvenor 5734. HYDe Park 9359
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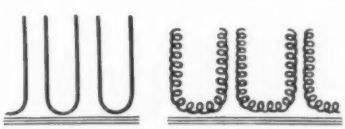
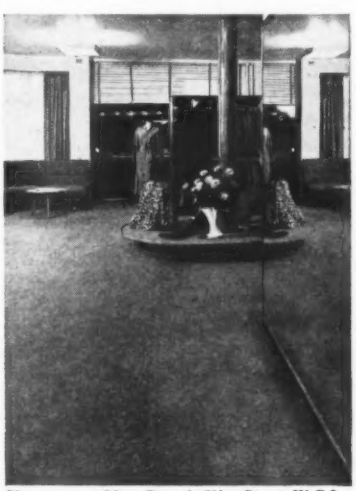


Normal weave Curlsax weave

This sketch shows that the same amount of yarn is incorporated in Curlsax carpets as in ordinary types; that the depth of pile is reduced intentionally *(it is coiled like a spring) to ensure maximum resistance to crush marks and to wear.*



Showroom at Moss Bros. in King Street, W.C.2.

There is no DAYLIGHT ROBBERY here!

Cascalite

gives glare-free shadowless lighting

Shown above is a part of a building of London Brick Company Limited fitted with 8ft. Cascalite Big Six untinted sheets. Notice how evenly the lighting is distributed over the whole area. There are no shadows nor is there non-diffused sunlight glare.

What is Cascalite?—Cascalite is moulded from resin and fibreglass, and is a pioneer material produced by Cascelloid of Leicester, whose research and experience over many years have assured consistently high quality. Installations of Cascalite are being made all over the world, and conform in every way to the rigid specifications required.

Cascalite Cuts Down Heat.—The thousands of tiny glass fibres in Cascalite diffuse the heat of the sun's rays, and consequently reduce the heat under its surface. Working conditions are made more pleasant because of this restriction of sun heat. There is no need for roofs to be whitewashed or fitted with blinds as in transparent roofing.

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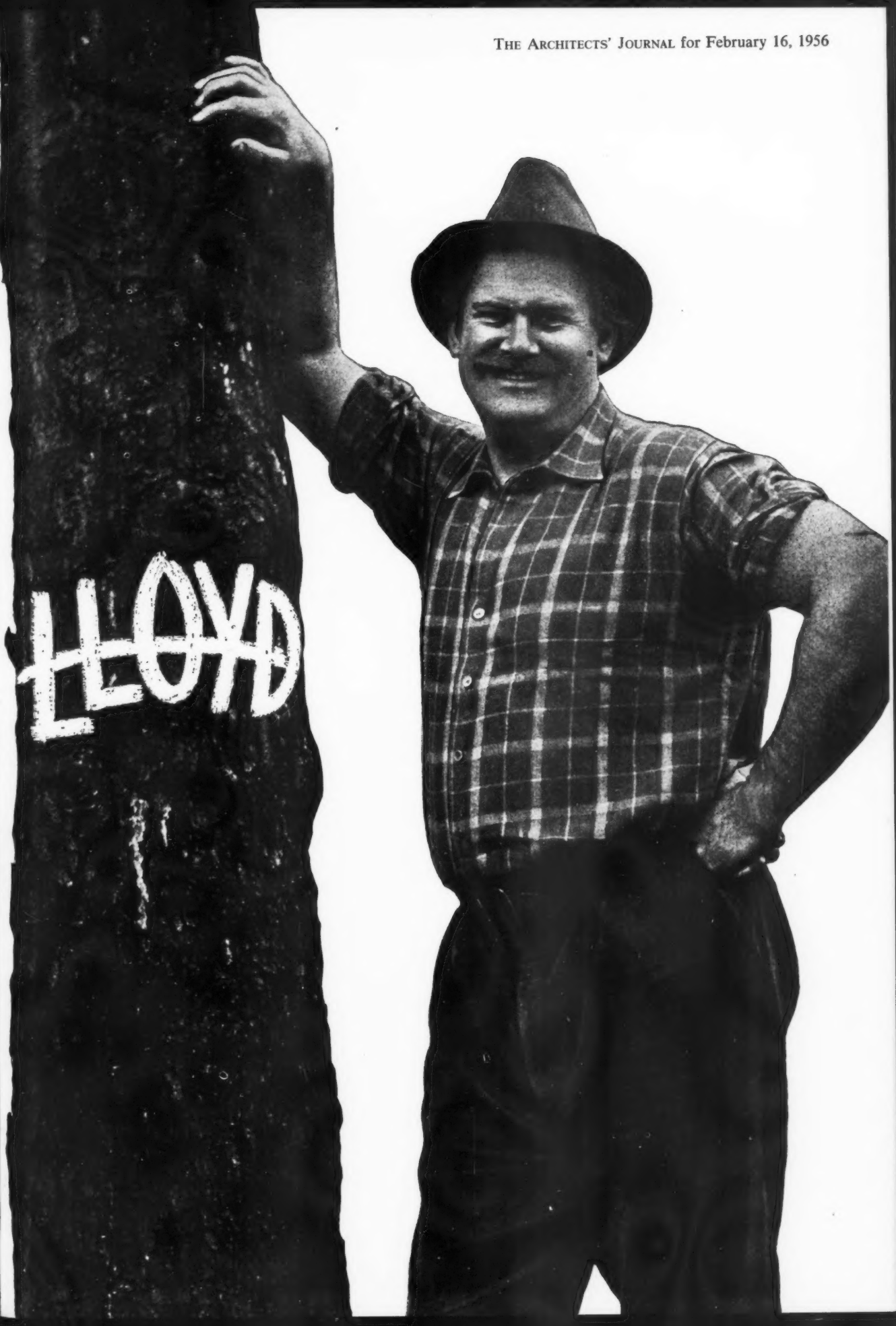
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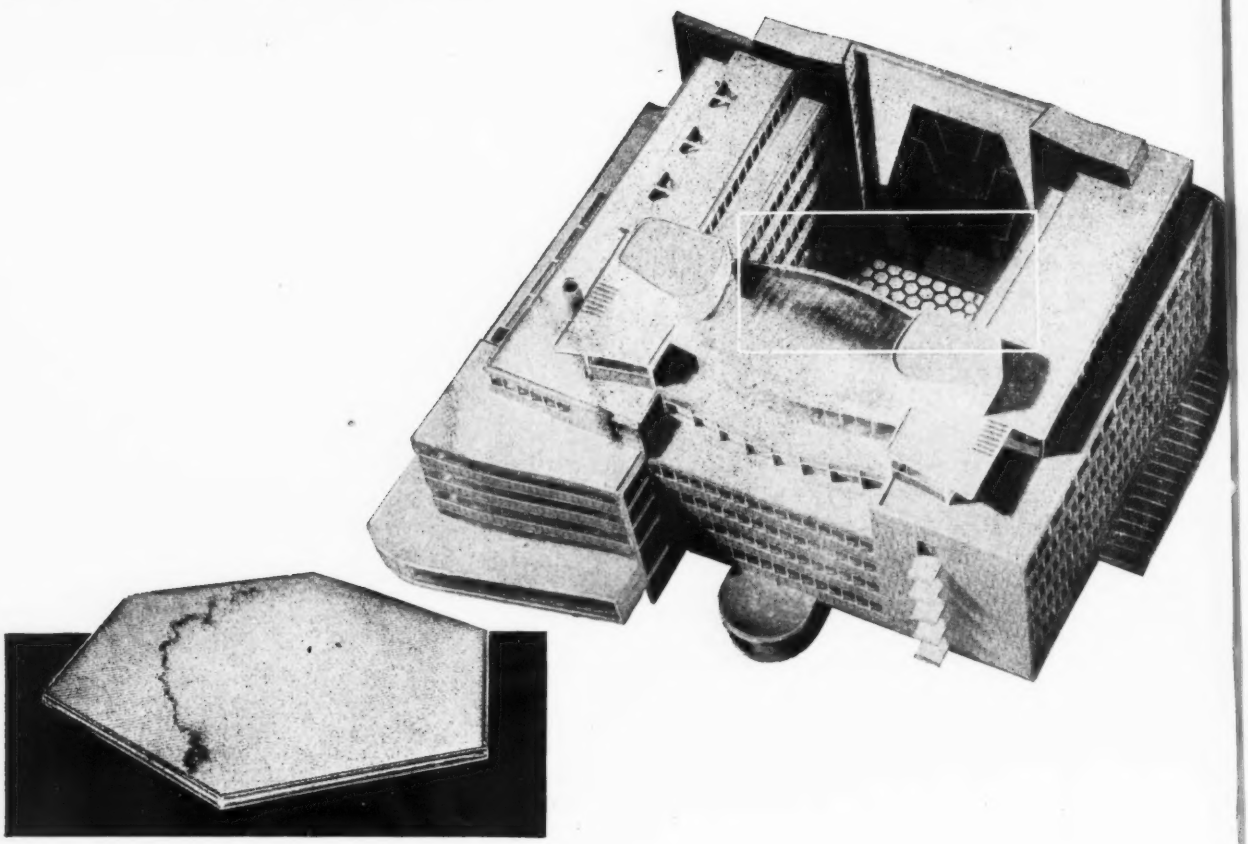

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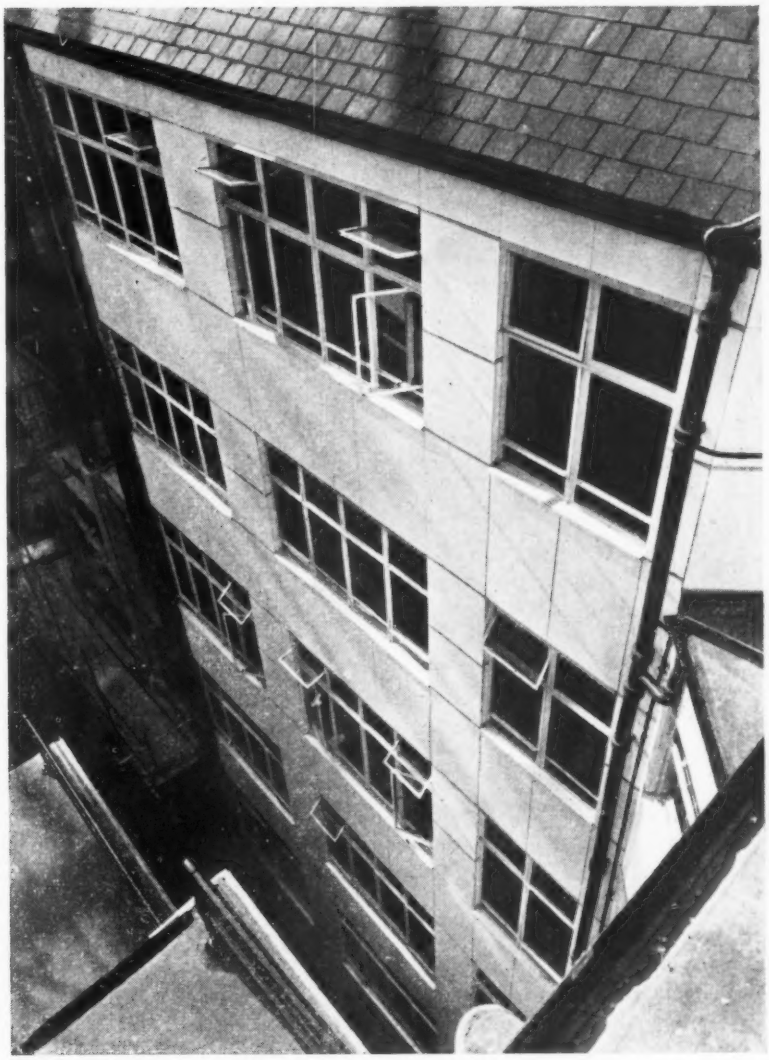

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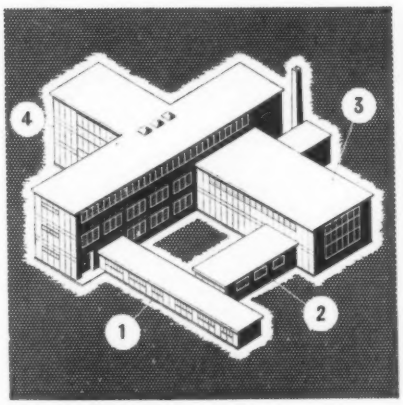

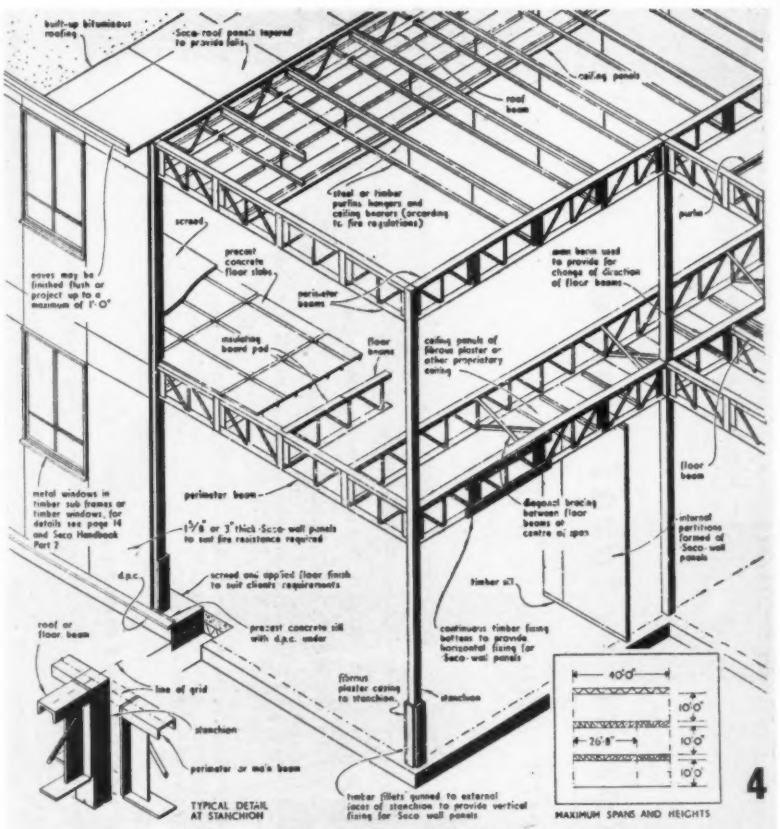

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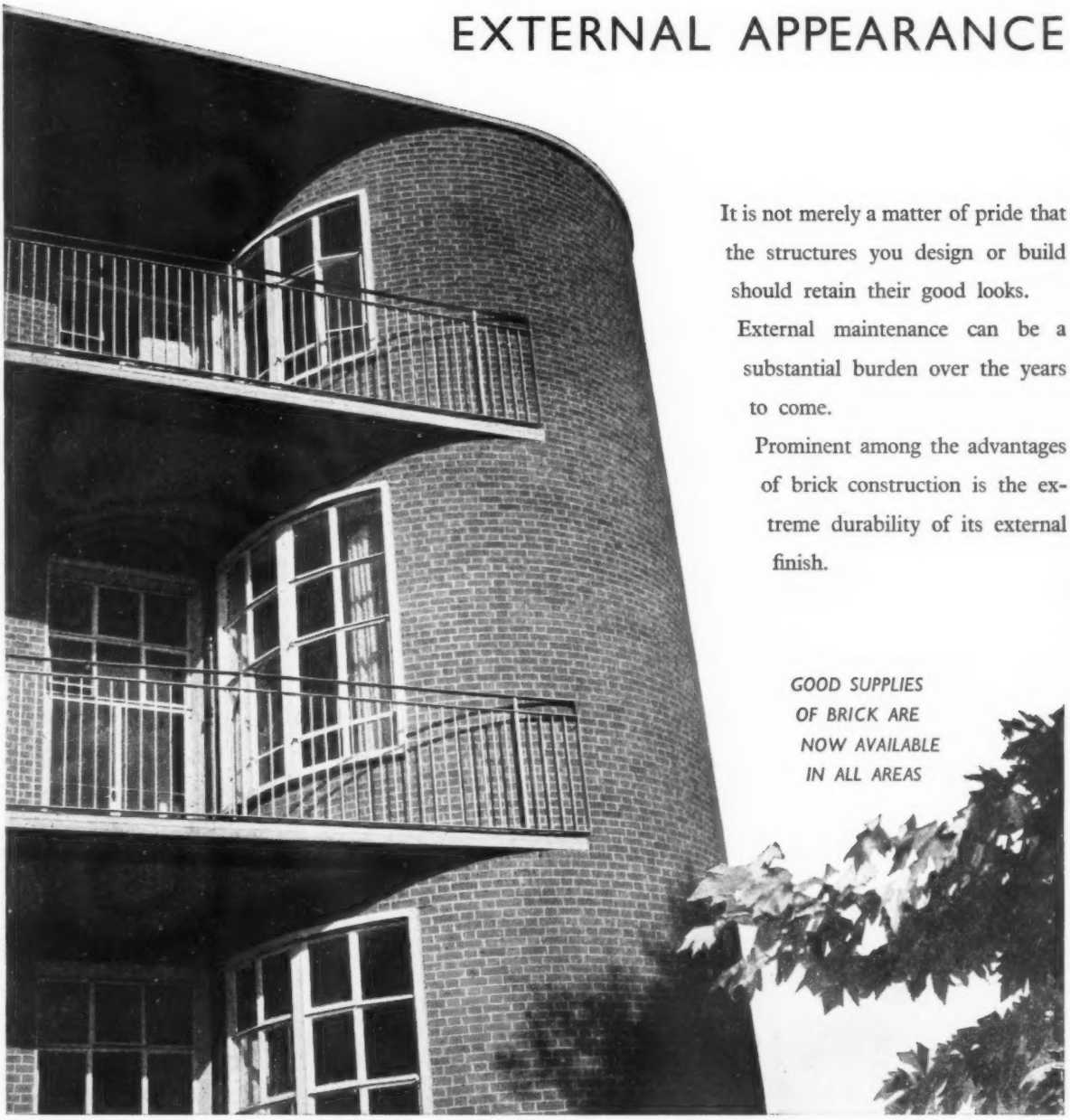

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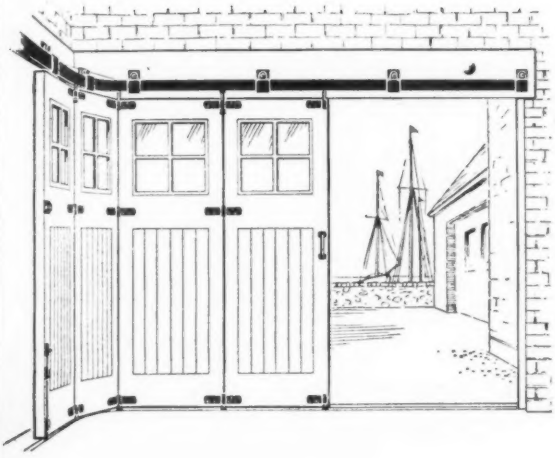

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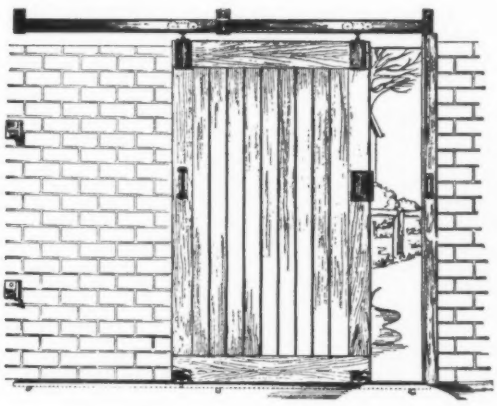

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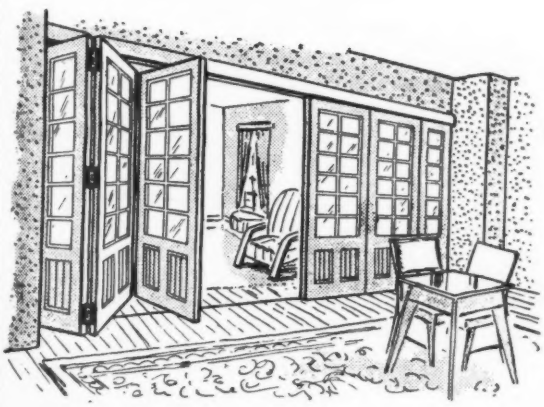

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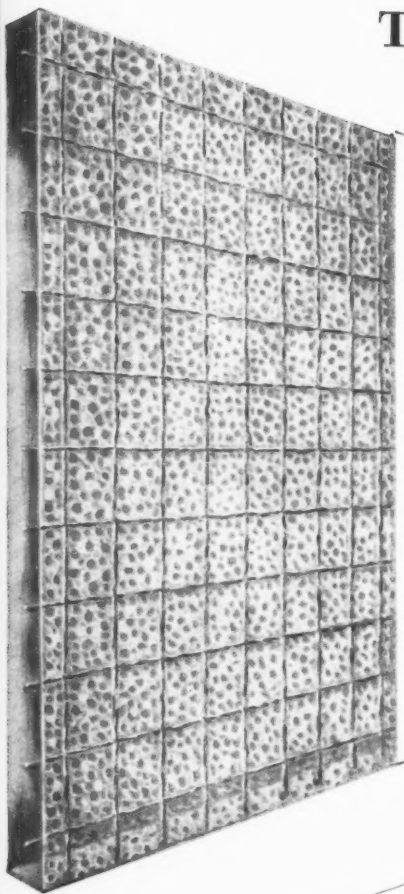

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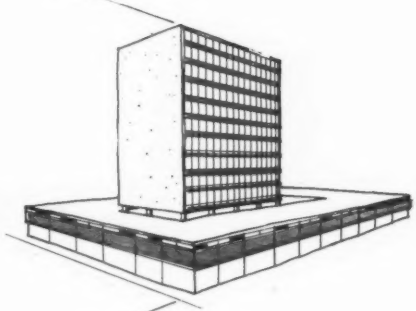

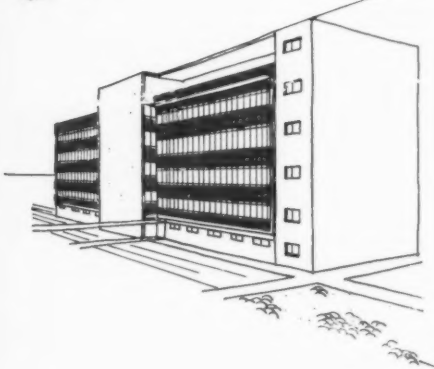

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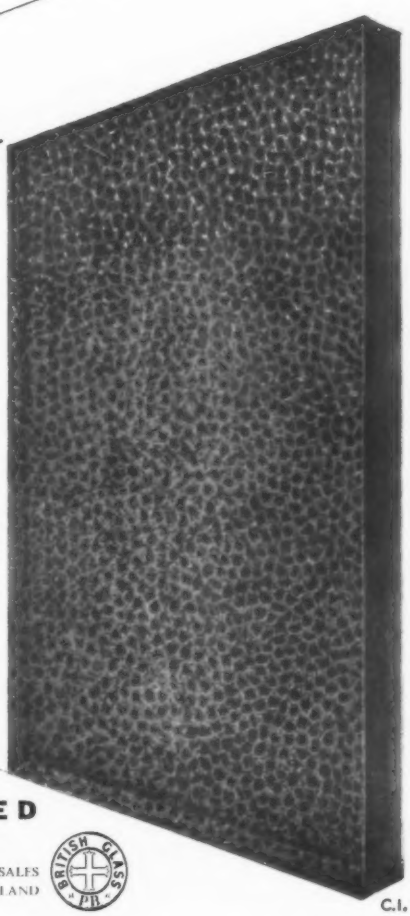

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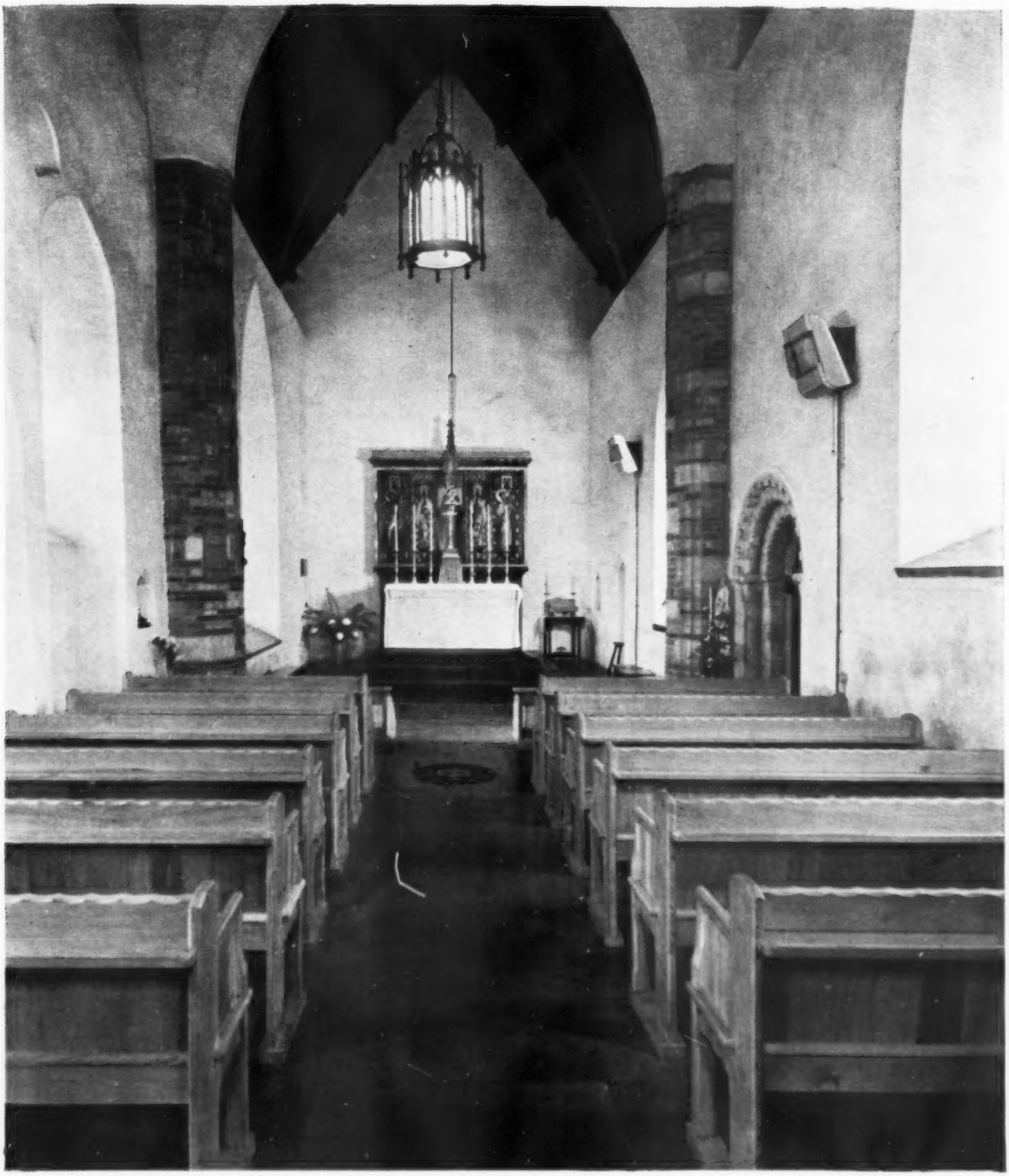

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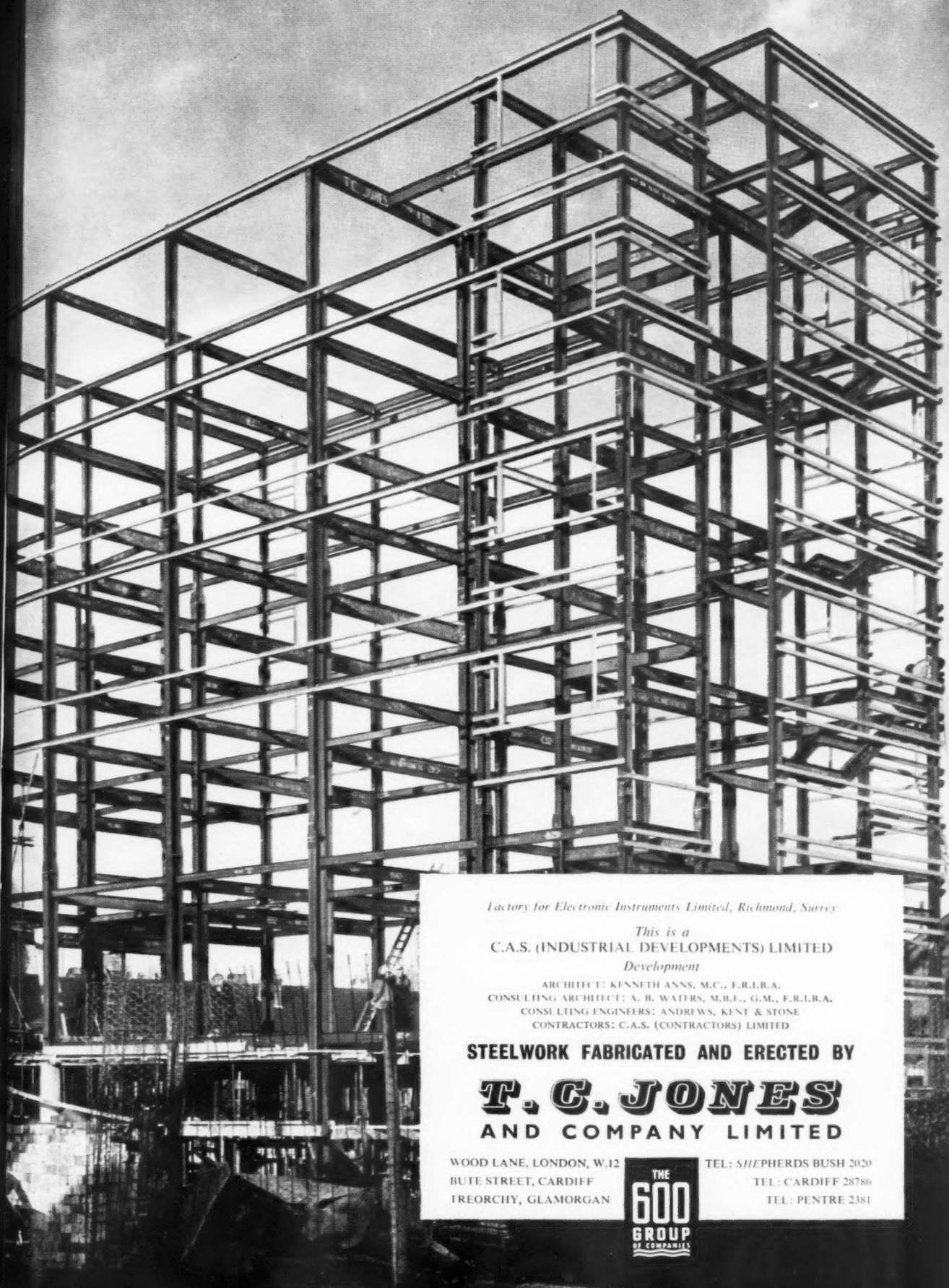

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THE ARCHITECTS' JOURNAL

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

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CONTROL BY THE UNFIT

The running fight between people who want to build good houses and get good architects to design them and local councils who refuse consent to designs because they appear unusual continues. A court of inquiry was held last week at Amersham, as a result of an appeal to the Ministry by a client of Ernö Goldfinger's, against the Amersham Rural District Council's refusal of consent to a little house Goldfinger had designed to go in the garden behind one of the big houses in the High Street.

*

This seems to be a classic case of its kind, with all the usual elements included—officials with no architectural qualifications passing architectural judgments, panels of local architects being brought in in the wrong way, councils occupying everyone's time questioning architects' designs while spec-builders' houses go up unquestioned round the corner, and so on. I cannot comment in detail while the case is *sub judice* but will certainly return to it when the result has been announced.

WHY DON'T WE FIX FIXED PRICES?

Lawrence Holloway, retiring LMBA president, has earned a reputation for forthright speech during his term of office. At a January press conference last year he said that although the architect was the rightful leader of the building team, his inability to appreciate the business and economic aspect of building might cause leadership to pass into other hands. Later in the year, stung by the appearance of an inefficient building apprentice in a broadcast play, he invited the BBC to the presentation of LMBA medals to make amends for their "constant niggling and often ludicrous criticism."

*

Now, in his retirement speech, he has proposed a return to fixed price tendering for jobs up to £10,000—or rather that a study group should be set up to see how far builders could go towards fixed prices. Fixed prices would save all architects tedious work in settling final accounts, and would give the clients a more reliable picture of their commitments at the start of a job. If cynics (or realists?) say that builders would add to their tenders to cover, especially in a time of heavy demand on the industry, it should be remembered that £10,000 represents a comparatively small job—and short contract time, during which there are unlikely to be substantial fluctuations. In any case the main wage fluctuation is the February sliding scale one which can be foreseen.

*

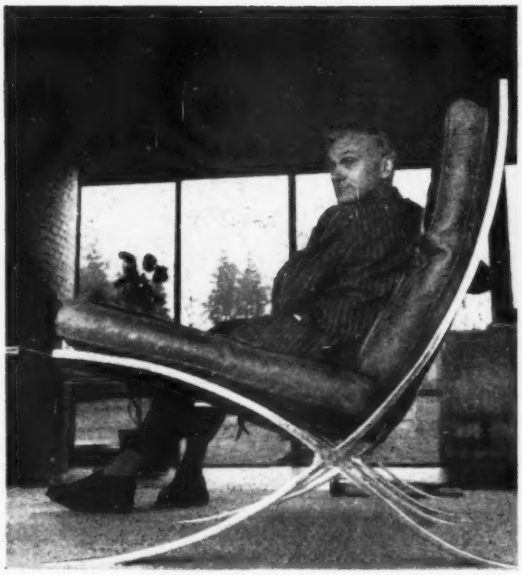
The LCC, the MOW and the Department of Health for Scotland already operate fixed price contracts to a limited extent. Is this the beginning of a return to what we laughingly call "pre-war stability"?

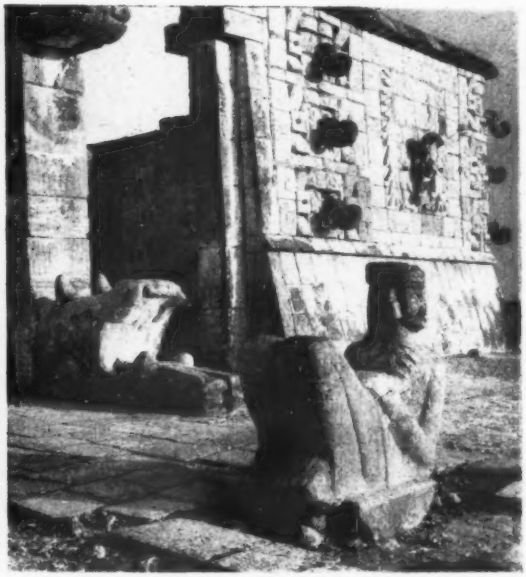
BACK TO PALLADIO

If you were, in Llewellyn Davies' phrase, too idle or too shy to join him in beating ASTRAGAL over the head for being rude about Mondriaan, but nevertheless followed up the sporadic correspondence afterwards, you were probably baffled (me too!) by the fact that there seemed to be more Palladio than, say, Mies in it. Just how one gets backwards and sideways from Miesian Squares to the Master of Vicenza may seem a rather acrobatic feat, but people really do it, and in built architecture too, for in a recent issue of *Architectural Record* there was quite a bit—article, illustrations and a building—to show how it is done.

*

Architect-author John Johansen says "We are amused, interested and reassured to find Palladio again. His qualities and principles can be as well carried out in space frame, columniation or plastic as in bearing wall." He backs up his points with little sketches comparing the walling of one of his own, quite Miesian, designs with the Basilica at Vicenza, and the plan of one of his own little villas with that of the Rotonda. ASTRAGAL admits to being amused and interested by this, but not reassured. Both planwise and wallwise





Two of the photographs by the American artist and photographer, Roloff Beny, which were recently on view at the ICA. Left, Philip Johnson in his Glass House; right, chacmool figure, Temple of the Warriors, Chichen Itza, Yucatan.

this comparison seems structurally nonsensical, on the grounds first brought up (though not in his letter) by Reyner Banham—that a planning grid that depends on the continuity of solid walls is not to be compared with ones that depend only on the decision of the architect to put his stanchions in straight rows and wrap the building round them.

*

And in any case, wasn't Palladio's intention to recreate the houses of the ancients, which seems a pretty moth-eaten programme for the middle of the technological century.

IMPERIAL INSTITUTE

I am glad that *The Times* has taken up the cause of the Imperial Institute and at the same time taken the Government to task for being so secretive about its intentions. What will posterity say of us if this splendid example of late Victorian architecture, with its tower which is an essential part of the complex of towers that give character to the Kensington skyline, is so unnecessarily swept away?

*

I say unnecessarily, because here is an ideal opportunity to continue the tradition of picturesque planning already established in South Kensington and use the Colcutt building as a foil to the modern buildings required by the Imperial College of Science, thereby preserving historical continuity in the area.* The Government's declaration that they must pull everything down and start again, because that is the only way to house enough students on the site is, as *The Times* points out, the very negation of good planning. If space is needed for more students than can be housed with proper regard to the civic decencies, the space must be found elsewhere.

* See Gordon Cullen's scheme in the *Architectural Review* for July, 1955.

Two illustrations from Cedric Dawe's book, How to Draw (*Studio Publications, 5s.*) *One is an example of how to draw; the other is an awful warning. Join* ASTRAGAL *at the bottom of the class if you rather like the left-hand picture.*

The Elephant and Castle

The LCC describe the Elephant and Castle as the main gateway to central London from the south, and the model shown above depicts in general terms the Council's proposals to solve the traffic problem at this six-road intersection and to make an architectural setting worthy of this important shopping centre. The opportunity to provide multi-level crossings for vehicular traffic has had to be abandoned because of opposition from the Ministry of Transport, and instead two simple roundabouts are proposed, as shown above. It is hoped, however, to be able to build pedestrian subways and create a sunk centre to the main roundabout which will make a wide pedestrian link—with small shops and a park for 100 cars—between the two shopping areas situated top left and centre right, above. The suggested building development is markedly peripheral, following all too closely the road plan. This is due in part to the small area—30 acres—which the LCC has acquired. Nevertheless, in such features as the broad shopping concourse, centre right, and the familiar feature of an axially placed "lingam" (a seventeen-storey office block), Dr. J. L. Martin, the architect to the Council, and his planning group maintain the high standards of central area redevelopment for which they are renowned. The scheme will be illustrated more fully in a future issue.

BUILDING TRAINING

A colleague tells me that the recent all-day conference on building training at the RIBA found most of the delegates still fumbling with the principle of co-ordinating the training of architects, builders, surveyors and engineers. This conference, which was organized by the Joint Consultative Committee of Architects, Surveyors and Builders, was held at the suggestion of the McMorran Committee. Mr. McMorran himself spoke at the Conference and apparently brought trouble on his head by coming down heavily against training exclusively by means of full-time recognized schools. He not only doubted whether architecture could be taught at all, but he said that too little time was spent on "working drawings," that the design examination "must sooner or later be made to cease," and that the other professions "cannot help us to do good designs."

*

When he was quietly but firmly challenged by another member of the McMorran Committee, he denied carrying on a "private vendetta" against the recognized schools. One wonders what the builders thought, listening to this architects' domestic quarrel.

*

Apart from this one bit of excitement, my colleague says he would have felt less discouraged if the Conference had been less woolly—if the members had managed to agree if co-ordination should be in the primary or the post-graduate stages—or even defined what they meant by freely-bandied terms like "theoretical," "practical" and "management." When we remember that over 30 years ago Gropius recognized the disaster of the architectural student's isolation, and accumulated what surely must be vital experience in his attempt to heal it, it seems pathetic that we are only now timidly fingering the problem.

*

One of the best contributions to the Conference came from Bill Allen (apparently almost the only "progressive" invited to attend), who proposed comprehensive training for all in a University Faculty of Building; *not* under an Arts Faculty, and *not* catering only for senior management levels, and *not* necessarily under an architect.

ASTRAGAL

The Editors

FIRST PAY THE PIPER

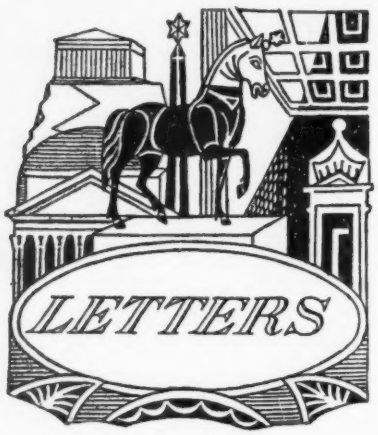
ARCHITECTS, like the professional Press, are often heard to complain that the RIBA has not taken any—or sufficient—action over a certain matter. It is as well, every now and again, to check to see whether the Royal Institute has the means and the men to carry out its tasks easily and well.

Those who complain about the RIBA's occasional appearance of inactivity should bear in mind two things. First, the RIBA functions through committees which involve a considerable number of architects (still largely architect-principals in private practice) in lengthy discussion. Committee-work, as those who have tried it know, is an arduous grind, the only reward for which is the hope that the practice of architecture is possibly being made easier, or improved. To help these committees there is only a small handful of not very highly paid officers.

The second point to bear in mind is that the subscription rate for membership of the RIBA is barely over the prewar level. The prewar rate for associates of three guineas should be at least doubled, or even trebled, and similarly the rates for licentiates and fellows, to give the RIBA its relative prewar income. Even this would probably do little more than ease domestic financial strain. For those who, very reasonably, expect the Institute effectively to publicize the profession (because, as individuals, they cannot advertise); to keep the world's finest library; to initiate studies, to provide expert advice to senior civil servants and politicians and to promote research—for after all, the RIBA is a *learned* body—the cost may well be more than even a trebled subscription will bring in. The profession might well consider an alternative method of supporting the Institute: such as a flat rate subscription coupled with an additional levy based on income.

TEN YEARS OF BRITISH ARCHITECTURE

All architects will be delighted with the action of the Arts Council in staging an exhibition of British post-war architecture (see illustrations, page 203). The buildings chosen by the selection committee, which consisted of Lionel Brett, Robert Jordan, J. M. Richards, Peter Shepheard and John Summerson, are therefore, inevitably, in the various modern styles which now replace the numerous debased historic styles used today only by the older generation of architects. In this excellent exhibition there would seem to be only one major omission—although one or two rather slight exercises in shop design could be dispensed with—and that is the absence of examples of the results of development work by the Nuffield Investigation and the MOE. It is these fundamental essays which are the really important core of post-war architectural development, and it is to be noted that John Summerson, the historian in the selection committee, partially repairs this omission by referring to them in the really excellent introduction he has written to the catalogue.



W. Keith Thomson
"A Chip Off The New Block"
K. D. Burbidge, A.R.I.B.A.
Freda N. Baker
Andor Gomme
H. Parsons

"Specialists In Building"

SIR,—Your correspondent, Mr. Gordon Tomalin (January 12, 1956), being a structural engineer has, probably, a very shrewd idea of the answers to his own questions. Your Guest Editors, however, have asked for readers' opinions; and, no doubt, it was Mr. Tomalin's intention, when writing, to try and elicit such comments.

First, your correspondent is in error in thinking that "precise dimensional information . . . is unworthy of a place in the vast scheme of things." An architect's responsibilities in this respect are very clearly laid down by Clause 4 of the RIBA Standard Form of Contract, which states:

"The Architect shall furnish to the Contractor, either by way of carefully dimensioned drawings, or by personal supervision at the time of setting out the Works, such information as shall enable the Contractor to set out the enclosing walls of the building at Ground Level, after which the Contractor shall be responsible, and shall, at his own expense, amend any errors arising from his own inaccurate setting-out, unless the Architect shall otherwise direct."

From this it necessarily follows:

1. That a precise survey of any London building site is most essential.

By precise I would specify that the Survey should include all the following information:

(*a*) Proposed building lines, and their relation to existing buildings on the opposite sides of any streets which bound the site.

(*b*) All relevant details of Party Walls, Ancient Lights, etc., necessary to prepare an Award or Awards.

(*c*) The heights of all adjacent buildings likely to be affected by Rights of Light and Air.

(*d*) A precisely dimensioned plan survey to an accuracy of $\frac{1}{8}$ of an inch.

(*e*) The lines established and used for the purpose of making the survey should be permanently marked by chisel cuts or studs, in a position where they are unlikely to be disturbed, so that they can be re-used for setting out the work at a later date.

The degree of precision and accuracy specified under (*d*) would not, of course, be necessary on an open site in the country, and I should, therefore, disagree with your Guest Editors when they say that a "precise survey is necessary for *all* building projects."

The accuracy obtained when working from a "blown-up" Ordnance map is often good enough for country projects where there is not to be "whole-site" coverage, but it would be highly dangerous to work in this way for town work, where "whole-site" coverage is the rule.

2. This survey should be prepared as early as possible; but, here again, I would disagree with your Guest Editors. In my opinion, the precise survey should precede working drawings, but should follow *after* approval of sketch plans.

For sketch plans it should be sufficient to work from the Ordnance Survey, after checking the main dimensions on site. The cost of a precise survey might well be wasted if incurred earlier. The requirements of the L.C.C. might be so onerous as to make the project uneconomic, or the client, on hearing the estimated cost, might abandon the scheme.

3. This is the more important because in view of Clause 4 of the Contract, the responsibility for the production of this survey rests with the Architect.

Not many Architects' offices today are equipped for the production of this type of survey economically, any more than they are equipped for carrying out other specialized services, as your earlier correspondent pointed out.

The Architect, therefore, has two courses open to him:

(*a*) He can, and very often does, tie himself to one of the steel firms by asking them to prepare a scheme and produce a survey. They will need this before they can fabricate, but in all probability it will not include all the information required by the Architect. By this method, the Architect and his client lose any benefit to be obtained from competitive tendering, but much of the cost of the survey is hidden within the over-all steel price, and so, is borne by the client, instead of by the Architect, whose responsibility it is.

(*b*) He can go to a surveyor who specializes in this type of survey. (And he must specialize. The average Land Surveyor is rather worse at this type of survey than the average architect, because he hasn't got the background knowledge of building construction.)

Off-hand, I can only think of one firm that does do this type of specialized work; though, no doubt, the RICS could furnish a list of others.

4. As far as the cost of such a survey is concerned, I know of no scale of charges laid down for this type of work.

The Surveyor might be able to give some idea of the cost from his knowledge of comparable jobs. It should be remembered that size of site is no criterion.

As the responsibility for the production of this information is the Architect's, and he, and not the client, should foot the bill, I would suggest that an estimate of the cost is unnecessary. The fairest basis for charging would be on normal scale fees for time taken, plus out of pocket expenses, plus a fair percentage for over-heads and profit.

London. W. KEITH THOMSON.

Planning In London

SIR,—The third point in Edmund Howard's article on "Why I Haven't Built as I Wished" (page 80, JOURNAL of January 19) says, in effect, that the planning authorities named—by the application of increasingly difficult planning standards—are forcing his company to consider "modernizing" rather than rebuilding on its small sites, and thus, we infer, these authorities are making no contribution to the better planning of such areas.

It is well known that small sites generally go with narrow streets, with sub-standard daylighting and amenity, absence of parking facilities, and are such that deliveries to shops and business premises must be trucked across narrow and crowded footways. These are the very areas which need the full application of planning standards to thin out too dense a development and thus there are circumstances in which it would be morally indefensible to "modernize" such areas.

Admittedly there doesn't appear to be much future for the existing small site in densely built-up business areas, but new sites can be parcelled out of larger areas of redevelopment, which can be laid out to accord with planning requirements.

You, now, Mr. Editor, appear to suggest on page 76 of the same number that Mr. Howard has done well to "jolly" a reluctant planning authority into accepting a contemporary design, yet it may be presumed that the Fenchurch Street project (which as Mr. Howard states got rid of the set-backs in the roof, etc., when placed on an enlarged site) undoubtedly would be acceptable to the planning authority for the reason that it was designed to comply with London's current planning standards.

"A CHIP OFF THE NEW BLOCK."

London.

Pressure Groups And The RIBA

SIR,—Now that the first "full" interim report of the "Representation of Members" ad-hoc committee has appeared, members are faced with the puzzle of sorting out the facts.

What were the committee supposed to do? In plain words:

1. As a matter of urgency advise the Council on the immediate action required to answer protests raised at the AGM of 1955 concerning representation of members.

2. Interview a "small" number of the members who protested.

3. As a matter of urgency advise the Council on appropriate machinery and programme of work for investigating the structure of the profession.

And what has the Committee done?

1. Examined the report of the Salaried and Official Architects Committee and advised the Council to instruct this Committee to establish formal liaison with all existing organizations already concerned with this matter.

2. Interviewed five of these members.

3. Advised the Council that the "Representation of Members" committee cannot do this job and that a "senior" officer should be appointed to do it.

This "immediate" action represents a year's work. Not much more will be done by the AGM of 1956.

What promises to be the result?

1. Several more years of miscellaneous talk by a Committee that is manifestly ill-balanced and without clear purpose (see report). During which the RIBA will be further outflanked by organizations which are quite clear on their purpose.

2. Nothing apparently. There is no mention of points raised at these meetings in the "full" report.

3. If a "genius" is found something may happen in three or four years' time if he can outmanœuvre existing pressure groups on the inside. If only a fairly average type is found the whole matter can be considered as "shelved."

At the risk of being dubbed a "Pressure Group," I must confess that I saw only one hopeful sign in the whole report, and that was outside the terms of reference. It was the statement in the last paragraphs that members were ignorant of the "manifold activities" of the Institute (read para 26) and as a result the Council have agreed to publish more reports in "full."

Can we not request that *any* reports, minutes, etc., of *any* committee should be made available to *any* "bona-fide" member on request. For how else can we vote sensibly in our "democratic" elections.

Middlesex. K. D. BURBIDGE.

No Squalor

SIR,—I hasten to write in defence of the civic pride of the City of Birmingham and the Borough of Solihull, this—to quote J. M. Richards, page 109 of the JOURNAL for January 19—" region traditionally given over to industry (and therefore to squalor)."

Industry, yes, and we are rightly proud of our industry, but to describe the whole region out of hand as given over to squalor shows that J. M. Richards does not know Birmingham and Solihull. And, in any case, why assume that because there is industry there is squalor? We are not just breaking out of the dark times of the Industrial Revolution.

Will you please correct this misstatement.

FREDA N. BAKER.

Warwickshire.

[J. M. Richards writes: Taken out of its context my comment certainly looks unfair to Solihull; but I was contrasting new industrial areas, such as those attached to the new towns, with parts of England, such as the Midlands, where industry is traditional, and it was the industrialized Midlands in general, rather than Solihull in particular, to which I attributed a tradition of squalor.]

Bradford Cathedral

SIR,—Bradford Cathedral is now more than ever difficult to see. In addition to the enormous post office right in front of it in Forster Square, and the warehouses and office-blocks which hem it in, part is screened off by corrugated iron, and one enters by the meanest of back alleys. Sometime, however, all this is to change: the post office will be torn down, even the corrugated iron is to go, and an enlarged and beautified, almost a new, church will appear—one worthy, as the notice inside warns us, of a great city.

The advantage of the church after all this has happened will be that it will be visible, instead of being, as it is now, the most disgracefully treated cathedral in the country. But everything else will be changed, too. A grand series of approach steps in strange, whimsical curves which make the ascent twice as long as necessary, gives the first hint of city grandeur: the church seems to be being conceived as Bradford's answer to Birmingham's civic centre, and the approach is treated accordingly. So is the west front of the church itself, now to be altered out of recognition. The tower, which is solidly dignified rather than soaring, is to have three wings grafted on to it. They are, alas, wings only in the architectural sense. A stubbornly Gothic west porch (with a dash of *art nouveau* on the front) cuts off the base of the tower, now flanked by two large square boxes that seem designed to emphasize the secular nature of the scheme. There, style is almost impossible to describe—a sort of modernistic Tudor (complete with bay window) unfortunately lacking a Tudor sense of relation to the rest of the building, so that the west front will now be weighted to the ground as never before. The boxes are to contain vestries, cloakrooms, and, on the north side, a "song room." This, all that is yet finished, only confirms the suspicions aroused by the drawings: it is heavy, dull, ill-mannered and ill-proportioned. Inside it is the same story, where the ceiling displays a series of sketches of musical instruments, whose weird stylization does little to conceal the poverty of the drawing.

All this is bad enough: it is the work at the east end which seems calculated to utterly crush the shape and proportions of the church. At present it has an oddly abbreviated chancel; but Gothic craftsmen generally knew what they were about, and in fact the chancel neatly balances the long and splendid nave. Presumably, however, it is unworthy of a great city: so it will be heightened, lengthened, broadened—in short, destroyed (the fine east window seems to be nowhere). An enormous mass of masonry is to be erected, complete with another tower over the crossing (even solider than ever), Lady Chapel festooned and encumbered with buttresses, clerestory (more of the queer Tudor—this time with fancy additions), tall ambulatory (very Gothic) and another smaller tower of unidentified purpose (belfry? chimney?) stuck on the side—the whole in such stylistic confusion that the main trouble is spotlighted at once—not wrong style, simply no style at all. The old tower's final loss of significance and the total upsetting of balance stem from this stylistic nullity and confirm it.

Sir Edward Maufe's task, as architect for these alterations, was clearly not an easy one; but surely a better attempt could have been made than this. Only something exceptionally light and well-sprung would have stood a chance of success: as much glass and as little masonry as possible (or why not glass and steel?)—something, in fact, really and boldly modern, not modernistic and not sham Gothic. It was an opportunity for something really adventurous, a twentieth century parallel to the Perpendicular remodelling at Gloucester.

ANDOR GOMME.

Cambridge

Poaching

SIR,—Unlike Mr. Atherton (AJ: October 13) I have followed the recent correspondence on "poaching" with great interest and attention and, having been employed by local authorities since 1946, can also claim to have some inside knowledge on this subject.

Mr. Atherton's letter shows some confusion of thought, he is informed that council building inspectors, subsidized by the ratepayers, prepare plans at cut rates, and thinks that the Institute should take some effective action in the matter.

I believe that the average building inspector to a local authority is seldom a member of the RIBA, and the usual qualification of the council's surveyor is that of membership of the Royal Institute for the Promotion of Health. What action does Mr. Atherton think the Institute can take in the case of plans prepared by these two classes of local authority employees?

A study of the conditions of service of local authority architects would reveal that they are generally forbidden to engage in private practice, and if this condition is not honoured architects run the risk of dismissal, I have yet to hear of any such restriction being imposed upon surveyors, building inspectors, or other classes of local authority employees.

It would be interesting to know what proportion of the total number of plans submitted to local authorities are prepared by surveyors, building inspectors and other than architects. In country districts at least the answer might surprise members of the Institute, and when one considers the surveyor's duty to inspect and recommend on plans submitted, and subsequently to inspect and approve the buildings, the matter should not be without interest to the local councillors.

H. PARSONS.

Sir Hugh Casson designed this "Wimpey" bar, for J. Lyons and Co., at 101, Finsbury Pavement, London.

NEWS

RIBA

Speeches at the Annual Prizegiving

C. H. Aslin, the RIBA president, talked about salaries and "the new pattern" in architects' offices when he introduced G. Grenfell Baines at the RIBA prize-giving last week.

"It is obvious to most people," he said, "that the actual pattern of architects has changed completely in the last 50 or 60 years. At the beginning of the century there was a relatively small number of architects engaged in private practice, and a large number of people without any training happy to serve as assistants, with very little hope for most of them of ever becoming Principals. At the present moment all architects are trained in the same way, and there is no division in education between the architect who runs a private practice, or a local, or national office, and those who, for a variety of reasons, spend their time as assistant architects in one or other of these organizations. The whole pattern has now changed, and though a large number of qualified architects act as assistants to the more fortunate ones, it is essential that a pattern of work should be devised, so that each architect should have an opportunity of exercising to the full the qualities and knowledge which have been developed during the Course which has resulted in his becoming a qualified architect.

"I believe the solution to this problem is absolutely essential to the well-being of the profession. I can see no reason why this new pattern, which is inevitable under the new circumstances, should not be accomplished, but there is one point, about which architects appear to be in some sort of dilemma, and that is as to how the qualified architect should be appropriately paid. Some part of the profession seems to have got it in mind that the only way any body of people can be assured of a proper reward, is by means of some form of Trades Union. I think this to be an erroneous idea, because the moment one thinks of reward alone, and makes an Institution whose sole object is to get that reward, you then have a condition which I believe to be fatal to architecture.

"In my opinion, the moment a body of people enter into an organization whose prime aim is directed towards remuneration, then the appropriate incentive to do the best possible work, particularly in this profession, is taken away. I believe the way to obtain an adequate reward is to demonstrate that the work done is of such a quality that it will earn the reward quite automatically. Some people have thought in the past that an extension of the Registration Act in order to make it compulsory for an architect to be engaged on every building, would be a good thing. I do not hold this view, because I believe that architects can control all building by demonstrating that their work is so important that no individual or firm would dream of putting up a structure without the aid of the profession.

"It is quite clear that during the whole course of this Institute's existence over the last 130 years, it has spent its time in keeping up its high prestige, and I am quite sure that in the future, with your help, and in spite of the difficult and changing circumstances under which we work it will hold and enhance its position, and produce architecture of which our successors are able to be proud, and at the same time help the large number of young members in all the problems and difficulties in which they are likely to be placed in the coming years."

Before Mr. Grenfell Baines gave his criticisms of work submitted for the RIBA Prizes and Studentships, he made some general remarks.

"To-day," he said, "the strain of stretching a limited amount of building fabric over a greater field of need is almost intolerable. These opposing forces, diminution of resources and expansion of demand are at the root of the continuing demand for economy. While the architect has a social responsibility to produce balanced design, where economy is given its rightful emphasis and false economy searched out and rejected, he must literally develop an economy sense as acutely as his feeling for form and structure. This can be done and we are being helped by the Ministry of Education as well as the technical papers, one of which has done outstanding work, to equip ourselves for this new responsibility."

Mr. Grenfell Baines went on to speak about "awareness of purpose."

"Faced with the choice between the speculation of pleasing posterity—a presumptious assumption anyhow—and the probability of serving the present," he said, "I would rather strive to do something useful now in the hope that it will live, than do something unacceptable now in the hope that it may come to life in an unpredictable future. If this is a doctrine of safety it is one which requires more discipline, more control and imagination, sterner exercise of *mind*, as distinct from merely the eye; it is therefore more likely to lead to forgetfulness of self, and thus a greater likelihood of Art arising, than any egotistical attitude relying on the philosophy of magnificent failure.

MODULES

What Architects Want

The following is a summary of a paper given to the Modular Society by W. E. Tatton-Brown, Deputy County Architect, Hertfordshire, and a member of the Council of the Society, on January 19. (Mr. Tatton-Brown emphasized that he was putting forward personal views which were not necessarily shared by his official colleagues.)

The Hertfordshire County Council school programme, said the speaker, was based from the beginning on a system of construction employing factory-made *components* rather than prefabricated *buildings* or *sections* of buildings; and an essential tool for the manipulation of such a system is grid planning. The chief advantage to the architect of such a tool was the great saving in drawing time achieved by simpler dimensioning and easy calculation of areas. Administratively also, further advantages were obtained. By standardising components in conformity with the grid it was possible to place orders for sub-contracts on a programme basis and to forecast to within 10% the requirements of steel components and concrete cladding units even before a school was designed. This in turn facilitated bulk quotations based on continuous batch production with resultant savings, in cost, in delays on site and in administration. Furthermore, it could be claimed that the improvement in erection times of 60-80 sq ft. of building per man month as against the 40 sq. ft. achieved by traditional building could also be attributed to grid planning.

However, it must be appreciated, Mr. Tatton-Brown went on, that grid planning had hitherto been used in "closed" systems of construction, in which it was extremely difficult to modify one component without also modifying the others, or to exchange a component for one that lay outside the system.

Modular co-ordination could overcome this difficulty, against which grid planning alone was inadequate, and the first task of the Modular Society should be to enlarge the range, choice and interchangeability of standard articles; in a word, to "open-up" the closed system.

Experience with both 99 in. and 40 in. grids suggested that no single grid dimension would be universally satisfactory. Different grids were probably needed for different classes of buildings, and the appropriate grid should be selected to permit the maximum use of the largest convenient components. To join two small units on the site when one big one could do the job, simply in order to satisfy some dimensional dogma, was lunacy. Consequently, the Modular Society should accept a simple set of planning grids or number patterns which make it possible to use the maximum size of components that industry can produce consistent with ease of handling.

"Another task," said the speaker, "is to make it possible to use different components of different thicknesses and tolerances and of different manufacture in conjunction with one another on the same building. Carpenter and joiner is the name of the trade responsible for joining one piece of wood to another by dovetailing, morticing, tusk-tenoning, mitring or scarfing and a variety of other highly complicated and ingenious ways devised after years of development to meet a set of specific requirements. A similar set of joints is required for joining modular components.

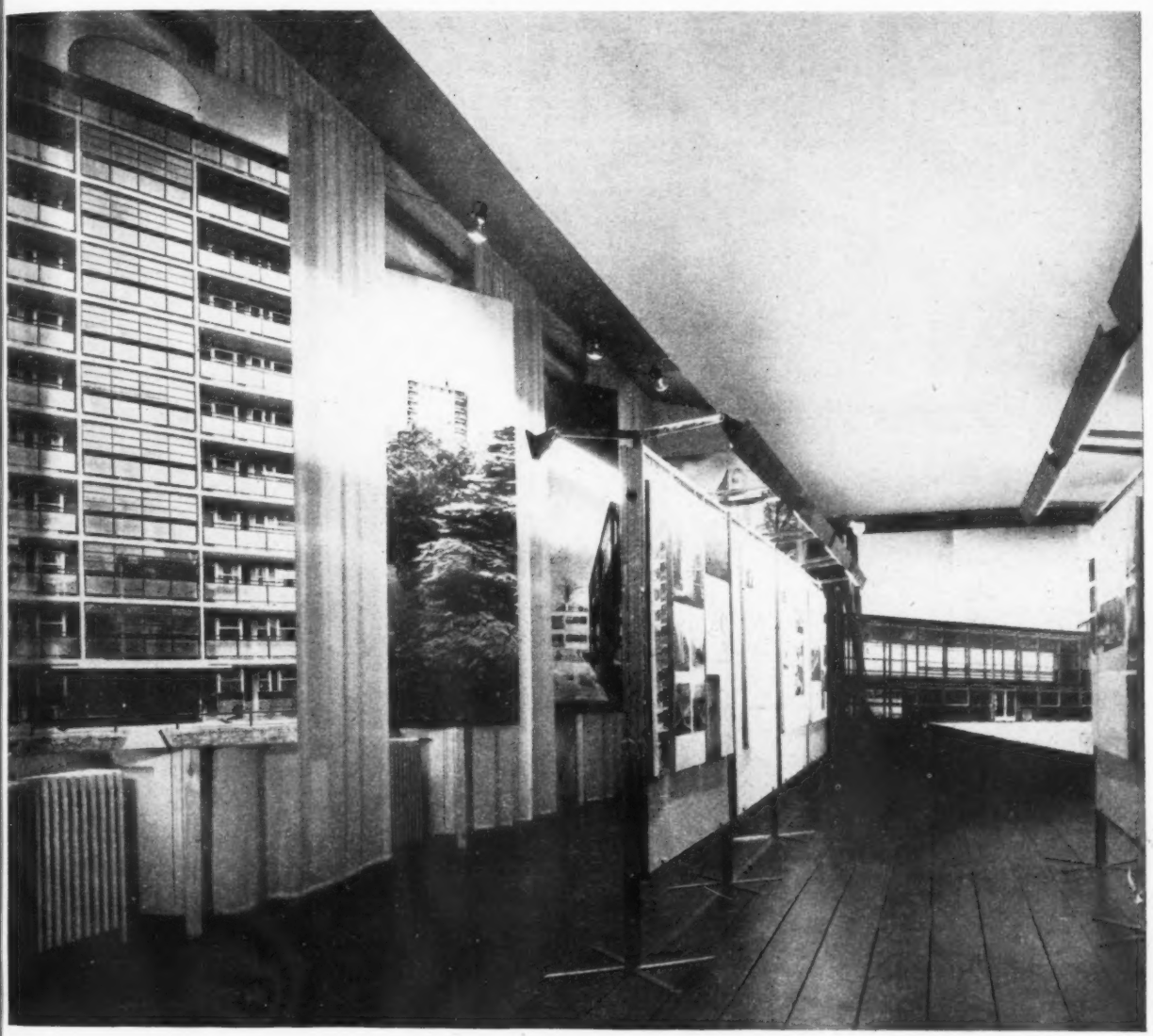
"In traditional building we already have a set of conventions or generally accepted methods of dealing with this problem. The use of rough grounds for fixing joinery to brickwork, for instance, the use of cover moulds, cornices and architraves to mask the junction of one traditional material with another is accepted practice. A new set of conventions needs to be worked out for joining modular components with its own grammar of design laying down accepted rules for determining such things as the thickness, tolerance, co-ordinating face and so on. We need the builders' equivalent of the zip fastener."

Even when these demands had been met, said Mr. Tatton-Brown, the fullest benefits could only be enjoyed if a Trade of Assembler-Jointers had been built up who were familiar with the jointing conventions that had been established, and it should be a further aim of the Modular Society to encourage the inception and growth of such a trade.

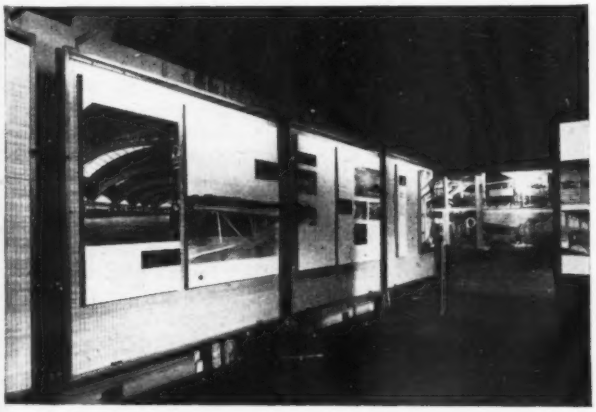
Finally, effort would be needed to make sure that the speedier erection inherent in modular construction was taken full advantage of, and that the consequent financial savings were equitably shared between Contractor and Building Owner. For this, a new Contract procedure might be necessary and one possibility was as follows: "After describing an area of screen wall to be fixed, the quantity surveyor would say that the target time for fixing is 1,000 men/hours and all the allowable profit, say, 5 per cent. If the contractor fixes in two-thirds of this time, the allowable profit will be, say, 20 per cent. Assuming for the sake of simplicity the rate is £1 an hour. In the first case the target would be £1,000, the contractor's profit would be £50, and the total cost £1,050: in the second case the cost of labour would be £666, the contractor's profit goes up to 20 per cent. on this, namely, £133, and the total cost £799. This represents a saving of £251 over the amount in the Bill."

Mr. Tatton-Brown said this method of profit-sharing had already been tried out successfully on the manufacture of a set of components for a modular-framed building. He would like to see the Modular Society exploring this and similar ideas with a view to propagating a Contract System which would give fair shares of the immense advantages to be reaped by the manufacturer, the contractor and last, but not least, the client.

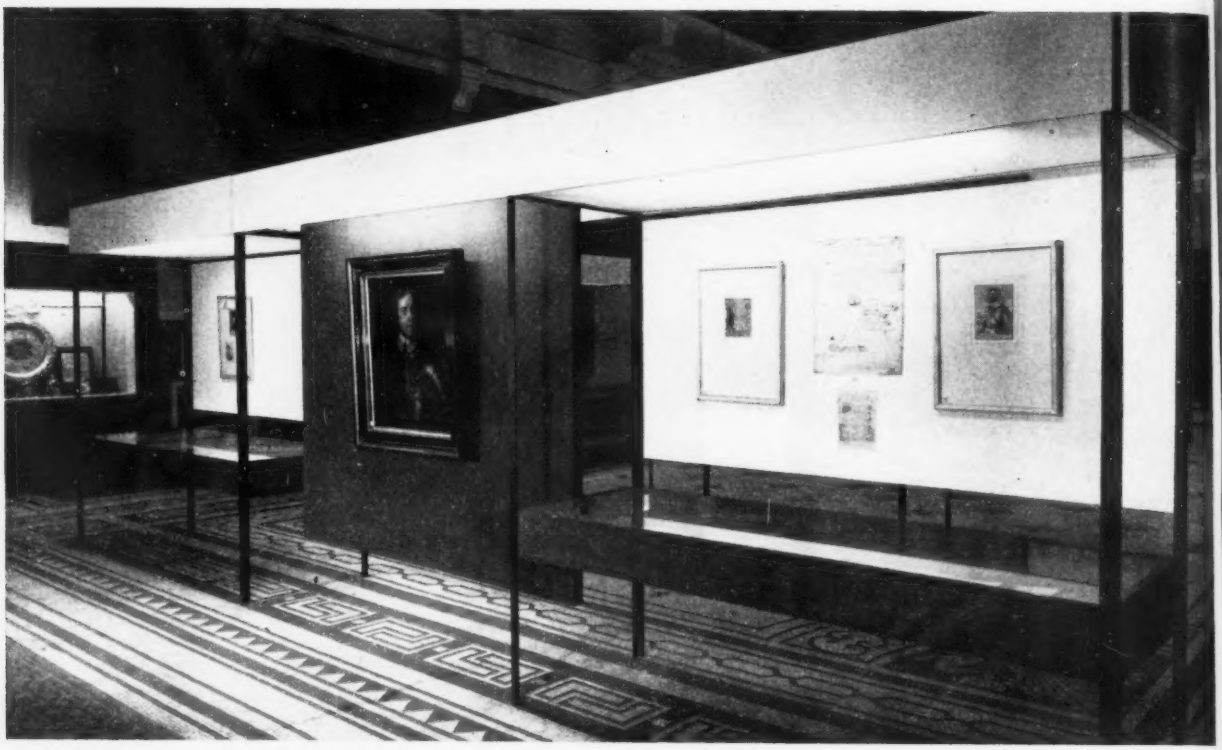
TEN YEARS OF BRITISH ARCHITECTURE: '45 TO '55

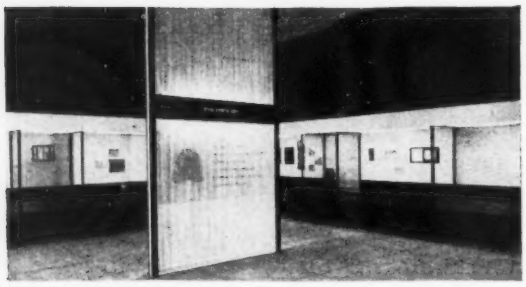


From now until March 7 the Arts Council's exhibition "Ten Years of British Architecture, '45-'55" will be on view at 4, St. James's Square, London. The exhibition, including the free-standing screens has been designed by Trevor Dannatt. The exhibits were selected by Lionel Brett, R. Furneaux Jordan, J. M. Richards, Peter Shepheard and John Summerson. Mr. Summerson also wrote a most informative introduction to the catalogue. Most of the buildings shown have been illustrated in the JOURNAL, *and will therefore be familiar to architects. Nevertheless the exhibition, together with Summerson's invaluable essay, provides an admirable opportunity for surveying and assessing the differing trends of post-war modern architecture. The exhibition is simply laid out. Huge photographic enlargements of such buildings as the Smithson's school at Hunstanton and the Drake and Lasdun junior and infants' school at Paddington contrast with each other and, for instance, with clusters of very small photographs of Herts. schools, thereby exercising the mind of the visitor to discover which, if any, the selectors found particularly significant. Identifiable, above, are flats at Pimlico, by Powell and Moya; at Wimbledon, by J. L. Martin, architect to the LCC; and the Hunstanton school.*



EXHIBITION OF ANGLO-JEWISH ART AND HISTORY





This exhibition, which is on at the V and A Museum until the end of February, was designed by Misha Black and Ronald Ingles of DRU. The display units above are 1½-in. steel angle irons with painted white block-board and glazed showcases of mahogany. On the left is the introductory section. The centre panel carries the tercentenary symbol designed by Abram Games.

For the English reader the history of the architecture of Japan is insufficiently documented. The publication of a new book on the subject, of the weight we have come to expect in the Pelican History of Art is therefore an event which calls for notice.

BOOK REVIEW

Japanese Architecture

The Art and Architecture of Japan by Robert Trent Payne and Alexander Soper. Penguin Books. 45s.

This is, in fact, two books which have been bound together for the publishers' convenience to form the sole Japanese volume in the Pelican History of Art: the Paint and Sculpture of Japan being written by Robert Treat Paine, assistant curator of the Boston Museum of Fine Arts, and the Architecture of Japan by Alexander Soper, Professor in the History of Art at Bryn Mawr College, Pennsylvania. It is the second of these which chiefly concerns us here.

In the matter of Japanese culture the English reader has a distinct advantage over other Western peoples. For even if he knows no more about Japanese Art than can be got from a study of Whistler, and no more about Japanese Architecture than can be got from one or other of the English writers on the Modern Movement, the analogy between Japanese experience and English experience is so remarkable that the key to understanding is continually being put into his hand. It is chiefly a matter of geography. The Japanese, like the English, were by turns attracted and repelled by a powerful "classical" tradition emanating from the nearby mainland; by such ideas as symmetry in town planning and architecture, centralized government in politics or universalism in thought. When left to themselves they tend always to prefer the informal and the particular: their art is not lofty and philosophical, it is descriptive, realistic, dramatic. Japanese architecture owes its character to two limitations: it is in the first place an architecture of wood—only for a brief spell during the sixteenth century was stone used for walling, and then only for purposes of defence—and in the second place it is an architecture in which the idea of the truss is unknown. The Japanese did not hit on the notion of bridging a large span by triangulating a number of relatively short lengths of timber. The towering confection which holds up a Japanese roof (and which resembles nothing more closely than a pile of spillikins) is no more than a system of lintels and posts resting on a heavy beam. In such an architecture spans are limited

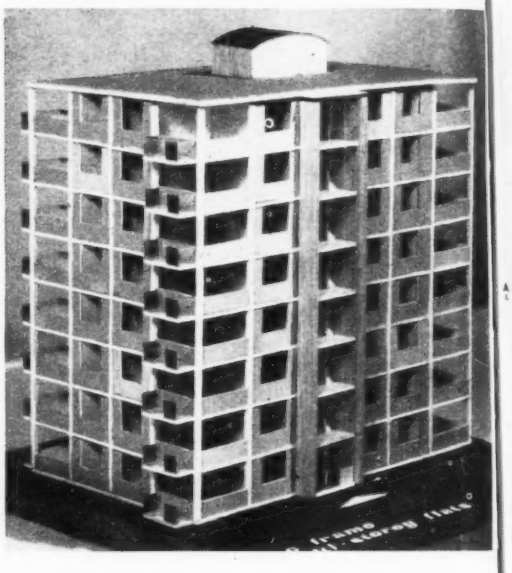
(*Continued on page* 211)

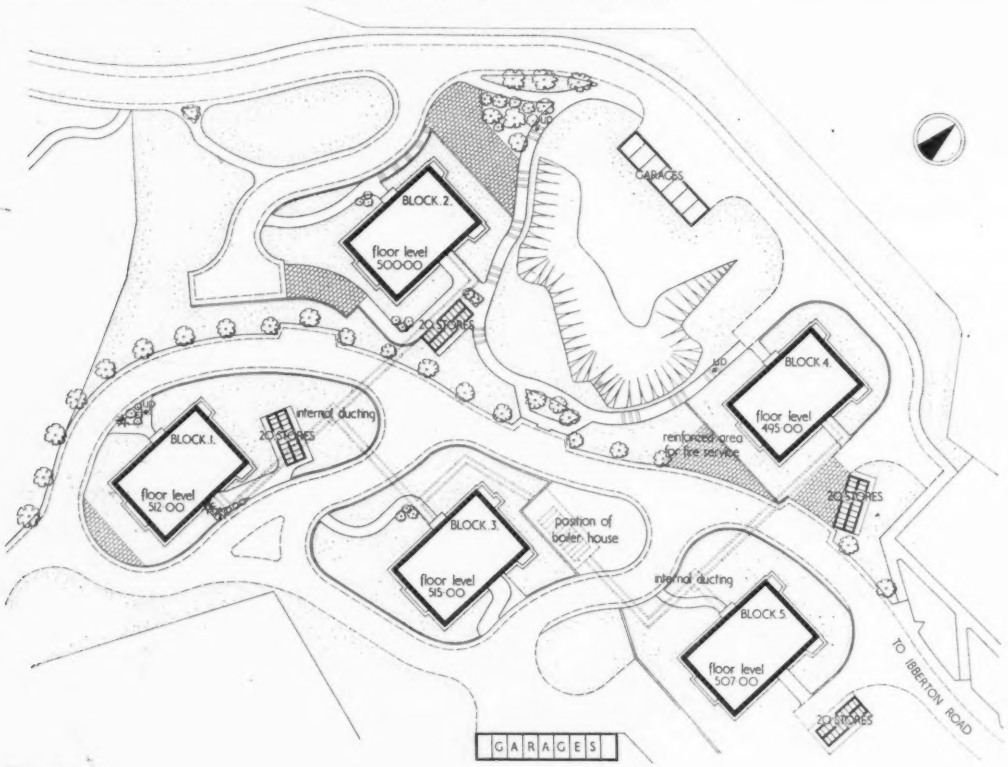
BIRMINGHAM PUTS STRUCTURE BEFORE PLAN

The flat scheme shown on these pages by perspectives, models, plans and sections, was prepared in the office of the Birmingham City Architect, A. G. Sheppard Fidler. Mr. Fidler felt that the normal design procedure for flats, "which subordinated structure to planning," was wasteful, both of manpower and materials, and was anxious to test the effect of reversing the process and designing dwellings to fit an economic structural frame. He wanted a frame that was independent of internal subdivisions and would be exposed on elevation, providing a vertical grille of columns and floor edges into which external wall panels, of standard overall dimensions, could be built or fitted. He also wanted to standardize the plans of the flats and their fenestration, reducing the number of basic types for wall panels to a minimum. As the engineers of the Trussed Concrete Steel Company showed an interest in this proposal, they were asked what would be the most economic structural frame for supporting six, eight or eleven floors, in rectangular blocks, measuring approximately 62 ft. × 54 ft. on plan. It was found that the cost of floors would be the decisive factor and that maximum

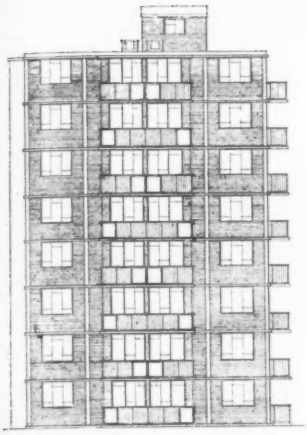
BIRMINGHAM PUTS STRUCTURE BEFORE PLAN (continued)

savings occurred with 9 in. × 9 in. columns set out on a regular grid approximately 12 ft. square. The floors were at first designed as a series of square panels in 7-in. pot construction, with two-way reinforcement supported on all sides by wide solid slab bands of reinforced concrete, completely recessed into the floor thickness and acting as beams on the grid. This would allow internal partitions to be sited in any position beneath a flat ceiling unbroken by beam projections. The idea was then returned to the city architect for planning consideration. Planning within the suggested frame proved simpler than had been expected. Four flats per floor were grouped around a central core containing the entrances and public circulation areas, where it was found that the lift shaft walls could serve as a structural element in the design. To provide an economic floor area for the flats (rectangular blocks, 69 ft. 6 in. × 46 ft. 10 in.) the structural grid dimensions were slightly reduced, while, to meet fire protection requirements, the columns generally were given extra cover, and those adjoining the staircase bay were projected from the wall face to

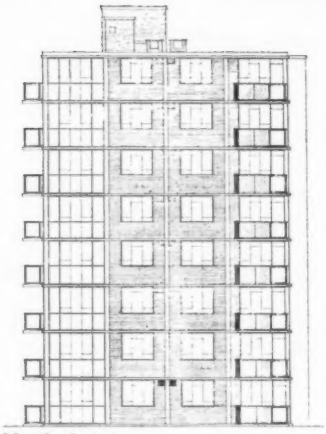




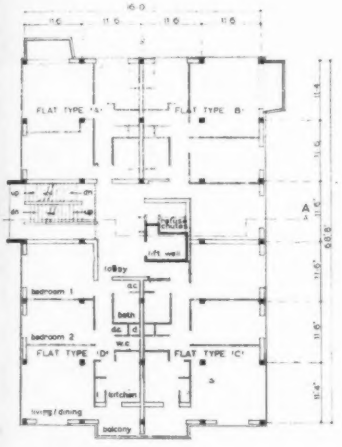
Site plan



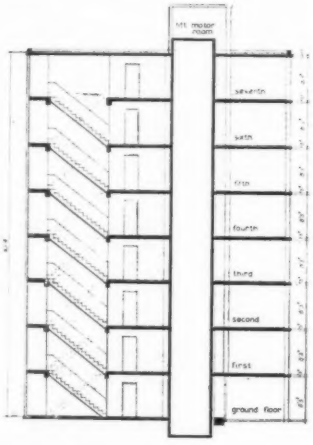
South elevation



North elevation



Typical floor plan

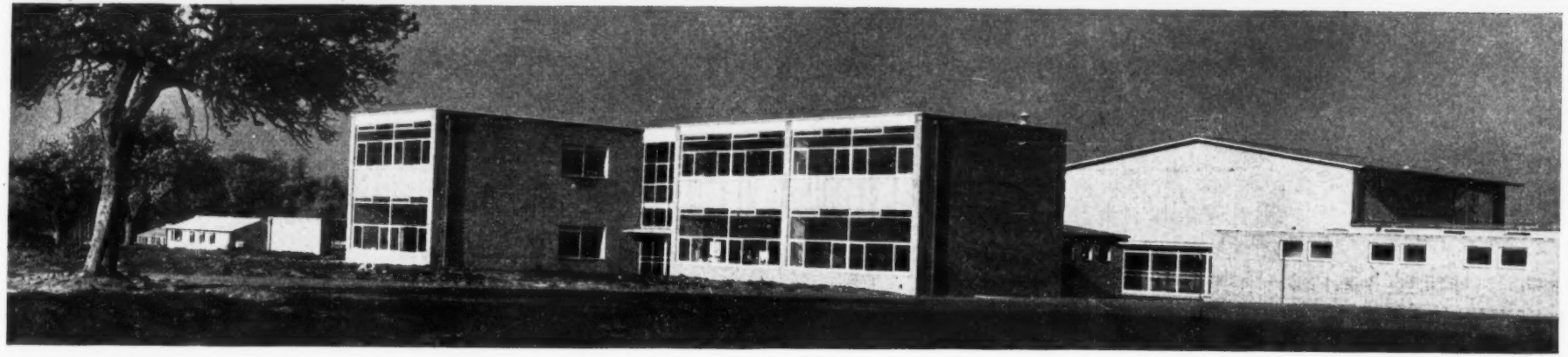


Section A-A

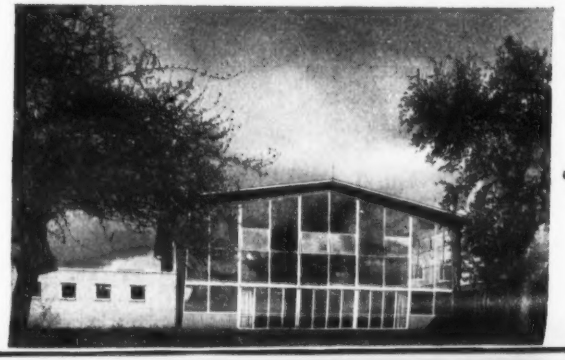
form fire breaks. The plans were then returned to the engineers for structural design in detail. After investigation they suggested that slab floors without any beam projections should be used. A "plate floor" of this type was then adopted for the flats in place of the original composite design. The basic structural grid is 11 ft. 6 in. square with columns 10 in. square throughout their height. The floors of in situ reinforced concrete plate construction will be only 5 in. thick with unbroken upper and lower surfaces. The scissor staircase will consist of precast carriages spanning in situ landings. Partitions will be in non-load-bearing blocks with wet finishes, while the external walls will be treated in contrasting panels of cavity brickwork and window bays with coloured glass stallboards. The blocks will be supported on normal strip foundations, as there are no basements. The architects working under A. G. Sheppard Fidler are: J. R. Sheridan-Shedden, deputy city architect; J. W. Boddy, principal architect (housing); F. M. Jones, assistant principal architect; R. R. Burton, group architect; and R. M. Cope, architect-in-charge.

Typical floor plan in detail [Scale : ½" = 1' 0"]

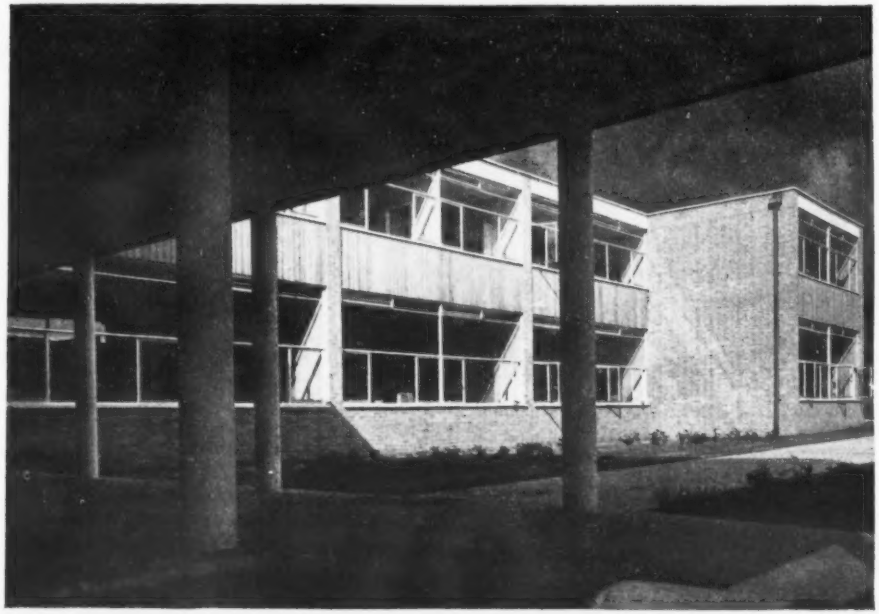
SECONDARY MODERN SCHOOL AT EVESHAM, WORCESTERSHIRE



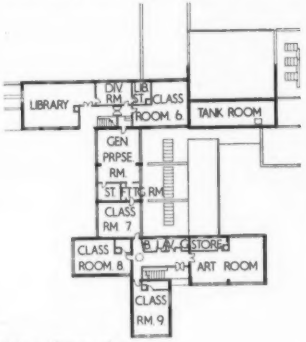
The Secondary Modern School in Four Pools Lane, Evesham, was designed for the Worcestershire County Education Committee by Richard Sheppard and Partners; assistant architect-in-charge, Monica E. Burrows. Structural engineer, C. F. Bath, electrical consultants, A. F. Myers and Partners and quantity surveyors, E. C. Harris and Partners. The photograph above is a general view from the north-east; left is the main entrance from Four Pools Lane; below right, the glazed west facade of the assembly hall; on the opposite page, bottom left, the classroom wing from the cycle store; right, top to bottom, the single-storey south wing, containing the science and woodwork rooms; the main entrance hall and staircase, the assembly hall stage and the art room. The school, which has been built in an old orchard on south-east side of the town, is a two-form entry school with one additional classroom and workshop. Owing to the difficulty in planning this size of school within the price limits, because of the higher proportion, compared with a larger school, of administrative accommodation, changing rooms, etc., in relation to teaching areas, the circulation areas in this school have been reduced to a minimum and economies made in finishes and external works. Each of the two staircase landings serve four first floor teaching spaces, with no corridor connections. The construction generally is of load-bearing brickwork, with hollow tile floors and roofs. A 10-in. slab spans 20 ft. between cross walls in the normal classrooms, providing a completely flat ceil-



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

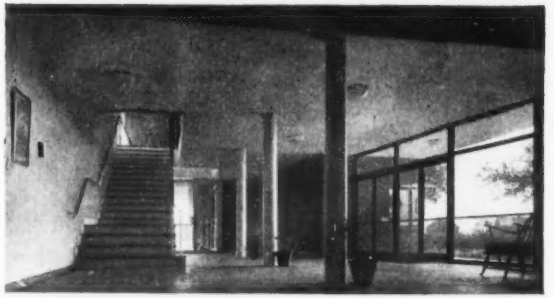


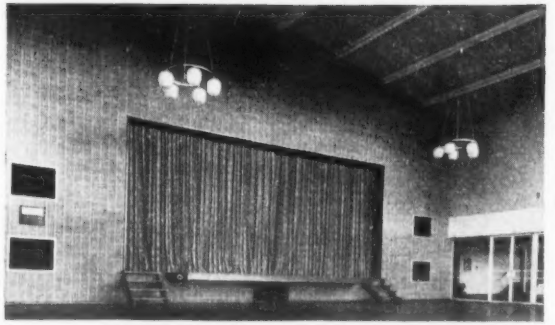
providing a completely flat ceiling. In the larger practical rooms there is a central beam. Staircases are of 3-in. thick r.c. with a zig-zag section, cantilevered from 13½-in. brickwork.



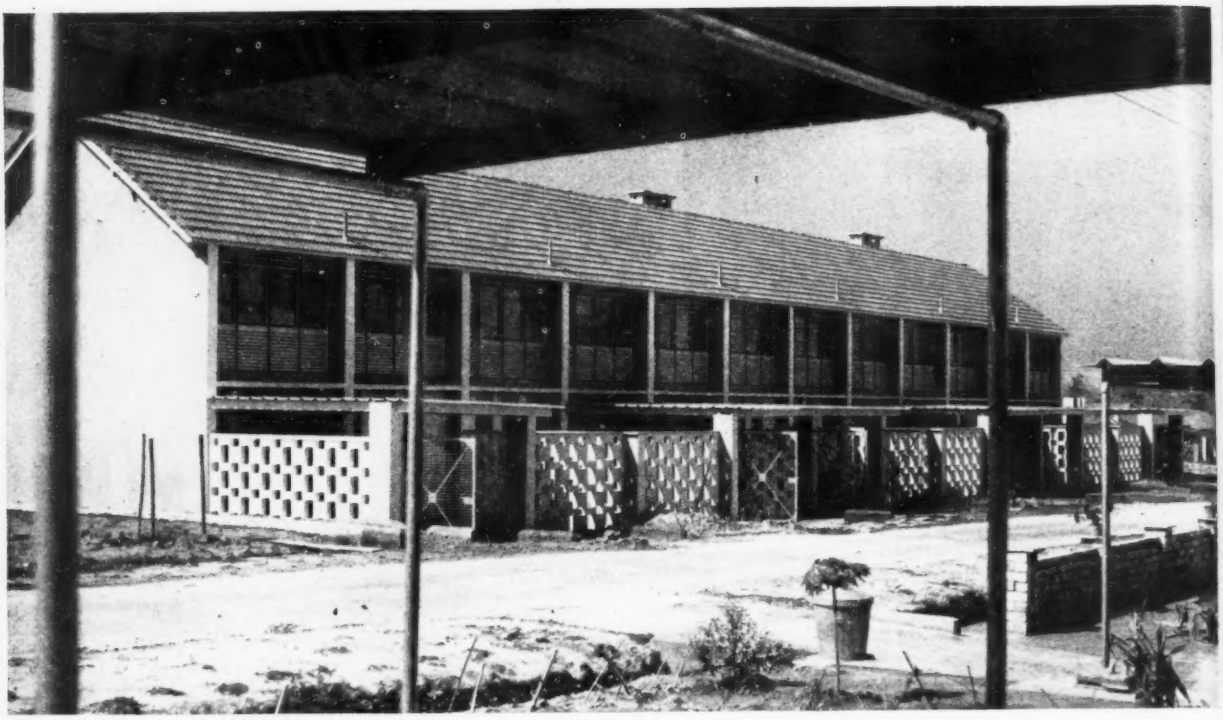
First floor plan

In the assembly hall and gymnasium welded steel portal frames are used, roofed with reinforced woodwool slabs finished with ½-in. screed and 3-layer green mineralised felt. External finishes include Buckinghamshire facing bricks, vertical cedar boarding, steel framed windows with timber sills, 3-layer bituminous felt with white spar chippings on flat roofs and main entrance doors in abura hardwood. Internal finishes include emulsion paint on plaster, wallpaper in assembly hall and joinery in abura. The general contractors were Espley & Co.





HOUSING AGENCY FORMED IN MALAYA BY TH



On this and the opposite page is some of the housing work done by a central housing agency, organized by architects, in the Federation of Malaya. The design unit consists of: Vernon Z. Newcombe, formerly assistant chief architect-planner, Stevenage Development Corporation; R. H. H. Davis, formerly senior architect, Peterlee Development Corporation, and E. J. Felts, formerly deputy engineer and surveyor, Ampthill RDC.

BY THREE BRITISH ARCHITECTS

(Book Review—*continued from page* 204)

by the lengths of timber available for the heavy beam, and great breadth and great height were from the start ruled out. Within this rather cramping framework the Japanese managed to realize at least three major building types: the monastery-temple of the Nara period (AD 710-784)—a square centralized plan with low aisles all round—the country house of the Heian period (784-1185), the Shindin-Zukuri as it is called, with long strings of passage rooms, each looking on to a garden court; and lastly the small compact house of the sixteenth century onwards with its standardized mats and movable partitions. It was Buddhism which taught the Japanese to use architecture with deliberation, as a means of expression: in this sense "architecture" meant the elaboration of the eaves with intricate bracketing; but it was the national religion, Shinto, which accounts for their most characteristic contribution to our stock of architectural ideas, which we may call the house/garden relationship. The central tenet of Shinto is that "the Gods made Japan." For the Japanese, therefore, the garden offers an occasion for intimacy not with nature but with his ancestral gods. We cannot insist too much that the Japanese is a contemplative architecture: one, that is, which aims at making contemplation easy. It is doubtless this which attracts the uprooted westerner.

These two books are skilfully put together. Casual readers may find them difficult because it is a convention in art histories of this rank to assume that readers have the same background of knowledge for each of the subjects. The writers have therefore included only as much reference to religion, sociology and technique as is strictly necessary to carry their story on. In particular, the architect reader will feel the lack of technical information in Alexander Soper's part of the book. This is an unfair criticism, because the architect is himself a specialist and building construction described in extenso is even more indigestible to the general reader than art historians' name-and-date expertize.

Of the volume as a whole we may say that the promise of revelation, implied by the superb portrait of Yoritomo on the dust cover, is expertly fulfilled inside.

DIARY

Soviet Methods of Industrial and Domestic Building. Illustrated talk by J. M. Forshaw, Chief Architect to the MOHLG, and R. C. Bevan, Senior Principal Scientific Officer of the BRS. Chairman: Basil Spence. At the RIBA, 66, Portland Place, W.1. 6 p.m.
FEBRUARY 21

Revaluation: Futurism. Illustrated lecture by Reyner Banham. At the ICA, 17, Dover Street, W.1. 8.15 p.m. Members 1s. 6d., Guests 3s. FEBRUARY 21

Some Overspill Problems and the Aims of Decentralization. Talk by Sir Humphrey Gale (Chairman, Basildon New Town Corporation). At the RICS, 12, Great George Street, S.W.1. 5.30 p.m. MARCH 5

TECHNICAL SECTION

This week's special feature

28 MISCELLANEOUS

the new British Standard colour range of building and decorative paints

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

A new British Standard " Colours for Building and Decorative Paints," B.S.2660 : 1955 *was published in January. There is a danger that to many it may seem* " *just another range to choose from.*" *In truth, it is something quite different. Like the MOE's Archrome Range, it is intended* (*among other things*) *as an instrument to assist architects to use colour. Where the Archrome Range was designed for use in schools only, the new BS range is designed to cover all architectural uses and it comes to us with the blessing of the paint trade, of BRS and, above all, of the RIBA. It is in fact an architect designed range. So that it may be understood and, we hope, used by our readers, we have asked Michael Keyte, ARIBA, one of the architects who worked on it at BRS, to describe how it has been compiled and why. His article is published by permission of the Director of Building Research.*

In 1952 the paint industry represented by the Paint Industry Colour Range Committee, approached the RIBA pointing out the problems that were being created by the increasing tendency for users to order special colours or to specify from the continually widening number of available colour ranges. This had led them to propose, with advice from the British Colour Council, a set of approximately one hundred colours from which it was intended that a range of about 50 or 60 colours should be selected. The aim was that it should be suitable for universal application particularly by large users such as government departments and local authorities, and should replace a number of existing ranges. The industry were anxious to obtain the co-operation and advice of the Institute in selecting a range, bearing in mind current trends in the use of colour in buildings. The importance of the task was apparent, and a special committee was set up by the Institute.

The committee had difficult problems to face. Colour in architecture has for long been associated almost exclusively with artistic feeling, and to some architects the idea of accepting a limitation in the number of colours they should use, or of applying a process of reasoning along with their feel-

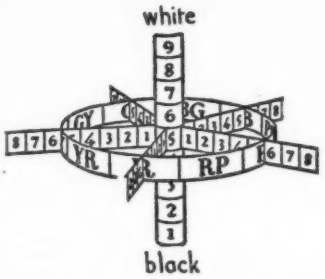


Fig. 1. Three dimensional diagram showing the organization of the Munsell Atlas. The "spoked wheel" shown demonstrates the ramification of hue and chroma for value 5. Similar "spoked wheels" could be drawn for any other "value" on the vertical scale. By the same token the "spokes" of the wheel have been drawn only at the five pure colours, purple, blue, green, yellow and red. Similar "spokes" could be drawn passing through any intermediate position on the hue circumference.

ings in the choice of colours, might be repugnant.

The fact that the paint industry is increasingly turning to mass production and is becoming less able, taken as a whole, to deal economically with orders for small quantities of "special" colours is not the whole of the other side of the story. If it were, then architects would have every reason to encourage a method, recently introduced, whereby the pigment and the bulk paint are supplied separately, the pigment being added by the user in pre-determined proportions to produce a very wide selection of light and very light colours. This new technical development may very well foreshadow more precise and economical methods of manufacture inside the paint factories and it may be of advantage to the domestic user buying his paint at the counter, but it must not be assumed that the practising architect's real need is for the largest possible number of colours.

In fact, there are strong arguments in favour of a limited range of colours from consideration of design alone, quite apart from questions of economical manufacture. For example, the visual environment in a building is a complex of light, shade and shadow, texture and pattern as well as colour, and some proportion of the colour itself will be contributed otherwise than by paint. All these elements temper each other and produce a variety of effects beyond those that are intrinsic in the colours as displayed on the colour card. In these circumstances, it seems evident that skill and understanding in the use of colour depend not on having an infinity of colours to choose from but in accepting a range, provided it is well-designed, and in learning more about interrelated effects.

Studies at the Building Research Station in the application of colour have shown that when the qualities of colours are broken down into their components of hue, lightness and strength (which is where the Munsell Atlas comes in), it is possible to reduce the number of alternatives in each, without serious detriment to the functional or aesthetic properties of colour.

When the technicalities of paint manufacture and application are also brought into account, the arguments for agreement on a limited range are strengthened. The complexities of paint manufacture were such that it was not possible to generalize. The practice has always been to review each colour on its merits with regard to such questions as covering power, types of paint, permanence, and, in the case of the strongest colours, the limits of pigmentation. If, therefore, the number of colours in use were limited, this would permit greater attention to be given to the technical considerations governing each. By a "category of colour" is meant colour for a particular architectural use (*i.e.*, low chroma colours for use on large areas, fairly strong chroma to provide contrast, etc.).

A somewhat false position has existed from the standpoint of architectural colouring when the selling of paints has hinged on the colours and the captivating names given to them rather than on the properties of the paints as such. Many manufacturers who adopt the new BS range in whole or part will no doubt give names of their own choosing to the colours, but provided the link with the BS range is made apparent, architects will be able to defend themselves from captivation by referring to the BS cards.

These were some of the points in the background of the RIBA committee's task. After careful consideration they arrived at a selection of approximately 100 colours, which were submitted to the Paint Industry Colour Range Committee as an alternative to that made by them to the RIBA. It was eventually found possible for the two bodies to reach agreement on a range of colours very largely based on that suggested by the RIBA committee. Certain modifications were made to allow for the technology of paint production, and there was joint agreement that the range should go forward to BSI as a proposal for a new standard.

Further modifications were made so that the range could become the medium through which all Government Departments could co-ordinate their demands upon the industry and it has, in fact, been used for this purpose since March 1, 1955.

SIGNIFICANCE OF MUNSELL REFERENCES

On the BS colour cards a Munsell reference is given against each colour and a note is included in the text stressing that these references are approximate.

Their purpose is not to give precise scientific definitions of the colours, but to aid the eye in picking out the differences and the similarities between all the colours of the range. To some extent these comparative qualities are made explicit by the division of the range on ten separate cards and by the arrangement of the colours within the cards, but the references for individual colours give a more detailed indication. The Munsell Atlas[1] displays about 1,000 colours graded in equal steps of difference in Hue (green as distinct from blue, etc.). Value or Lightness (graded from black through 10 main steps to white) and Chroma or Strength (graded in steps from grey to the strongest samples). Each of the 40 pages of the Atlas is devoted to the variations of one Hue at a time, while the variations of Value shown on a vertical scale from dark up to light, and of Chroma shown on a horizontal scale from grey on the left to strong on the right are repeated on each page and form a chequer arrangement of colour patterns. Colours on the same page, therefore, have the same Hue and all carry the same notation given at the top of

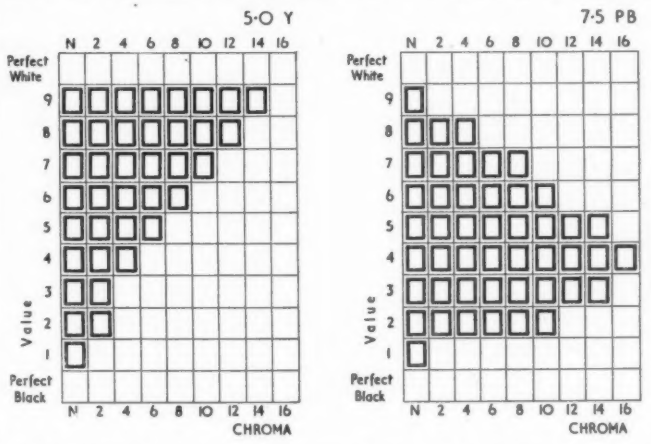


Fig. 2 (above). Diagrams of two hue pages in the Munsell Atlas. All patches on any one page are of the same hue. They are arranged so that each horizontal row of patches is of uniform value or lightness, and each vertical column is of uniform chroma or strength. The neutral scale of greys, in ten equal steps from black to white, is included on the extreme left of each page for reference purposes. On the yellow page, the strongest patches are occurring at high value levels, whereas on the Purple-Blue page they are occurring at low value levels.

Fig. 3 (left). The Munsell hue circle. There are five major hues, with a further five intermediate hues. Each of the ten segments is then subdivided into 10 smaller units. In the Munsell Atlas, each segment is represented by four hue pages, as for example the yellow, at 2.5 Y (slightly reddish yellow), 5.0Y (true yellow), 7.5Y (slightly greenish yellow) and 10Y (on the border between yellow and the next hue segment, green-yellow). There are thus 40 hue pages in the Atlas, covering the hue circle at equal intervals.

the page consisting of the initial (R for red, Y for yellow, YR for yellow-red, etc.), prefixed by a figure which indicates the variations within each Hue region (*e.g.*, 5Y indicates true yellow, 2.5Y slightly redder than true yellow, 7.5Y slightly greener than true yellow, and 10Y on the borderline between yellow and the next group of green-yellows, the GYs). Similarly, all colours throughout the Atlas at the same vertical position, indicated by a numeral from 2 up to 9, have the same value or lightness and virtually the same reflection factor, while those at the same horizontal position, indicated by an even numeral from 2 onwards, have similar strength. The Atlas has a separate scale for strictly neutral greys, which have neither Hue nor Chroma, designated by the numeral indicating Value and the prefix N. A complete reference for a colour follows the order Hue, Value/Chroma, as for example, 5Y8/2 or 5YR8/2 indicating two colours of similar high lightness and similar weak strength, one a true yellow, the other a true yellow-red.

The scales for each of the three qualities are capable of sub-division or, in the case of Chroma, of extension, and if a reference has to be given for a colour which cannot be adjusted to coincide with any of the patches in the Atlas (including the supplementary charts recently made available), it can be given by estimating its deviation in each quality in turn. For example, the reference 5YR3.5/3 would indicate that the colour is nearest to page 5YR in Hue, about half-way between Value 3 and 4 in lightness and about half-way between 2 and 4 in strength in comparison with the patches in the Atlas.

The close attention to the appearances of the colours relative to each other is the outstanding attribute of the new range when it is compared with the general run of paint ranges. The reason for this attention is, in the first place, common sense. If the designer is looking for a green it is easier for him if the greens are grouped together (the tendency for paint manufacturers to jumble their Hues up in their cards or swatch books can be as aggravating on occasions as it is meant to be enamouring). It is also a normal habit for him to consider whether he wants a light or a very light colour, and how strong or how weak it should be.

The layout of the new BS range and the Munsell references allow this normal process in the choosing of colours to be followed with greater ease by the user and, at the same time, facilitate a greater degree of precision.

It is not intended that the Munsell co-ordinates should inhibit the designer in the use of the range. It is rather that by thinking in terms of the three Munsell attributes of Hue, lightness and strength, as separate entities, he may be liberalized in his approach to any particular problem and have a greater control over the medium of colour.

A Technical Basis

Mainly through the co-operation and advice of the paint industry, the architect who uses the range can avoid many of the problems that are inherent in the manufacture of paints, though it must be remembered that the standard is concerned with colour, not with paint formulation. He knows, for instance, that all the paints in the range are capable of being manufactured economically in a stable and reliable form. He also receives guidance on the cards concerning the more suitable finishes for each colour.

In general the limitations suggested followed two relatively simple facts. These are that the stronger and darker the colour, the more difficult it becomes to produce in a semi-gloss or matt finish and that certain colours, notably purples and red-purples, are not suitable for external use, having a limited light fastness.

Presentation of the Range

To display the range in the form of a useful instrument of design, it was necessary to achieve some flexible arrangement, with the colours displayed more systematically than on the normal colour card. To have the Standard produced at an economic price, however, it was essential to show the colours within a strictly limited printing area.

The form chosen has been to distribute the range on ten separate small cards. Each card has space sufficient for a vertical column of seven colours each side, with each patch "bleeding off" to the edge. By this means colour comparison is made easier, and within limits it is possible to place one colour against another, so that their appearance in conjunction can be assessed. At the same time, the colours are seen in greater isolation than on the normal card, so that the intrinsic qualities for design purposes of each can be better judged. In addition, by arranging the colours on the cards into "family" groups, it is easier to determine the differences between individual colours where these are small.

In the process of setting out the colours on the ten cards, which are numbered from 0 to 9, the separation into the groups of similar chroma has been followed. The fourteen strong colours are grouped together on card 0, and the greys on card 9. Between these two the main body of the range is displayed on the eight remaining cards as far as possible with one card to each of the major hue groups. The weighting of the range in the general direction of "warm colours," however, has meant that two cards are required to display the yellow-reds, whereas it has been possible to show the blue-greens and blues on card 7, and the purple-blues and red-purples on card 8. In order to further separate the colours in terms of strength, on each hue card the low chroma colours are shown on the left hand side, and the fairly strong chroma on the right. By this means if the cards 1 to 8 are fanned out in each direction in turn, it is possible to isolate visually the selection of colours available in each chroma group. The fact that cards 7 and 8 share two hues does not disrupt this arrangement, since the selection of blue-greens and purple blues fit quite happily into the low chroma group, whereas the blues and the red-purples are all fairly strong colours.

To complete the systematization, each column of colours on the cards is ordered in terms of Munsell values, with light colours at the top, graduating down to dark colours at the bottom.

With familiarity in daily use it is possible very quickly to see the selection of colours that are available in the range for a particular surface in terms of hue, value and chroma category. The arrangement does not completely fill the spaces on each card, but a slightly widened framework has allowed a much higher measure of systematization to be achieved. As a compromise between the limits in terms of finish of full gloss and matt, and to achieve a uniformity in presentation, all the patches are printed in a semi-gloss form.

Assessment of the Colours

Every architect tends to have his own favourite colours, and some may express disappointment if their individual preferences do not appear in the range. In the process of development, however, such personal choices must be balanced against the advantages of a cohesive unit.

The RIBA committee have acted as representatives of the whole profession in shaping the actual selection of colours. It has been a first attempt by designers to state in precise terms their colour requirements for pre-mixed paints for general use.

Much valuable knowledge has been built up through the use of the Archrome Range[2] since its publication in 1953. It was particularly significant that these colours, suggested by architects for use in schools, has such an immediate and wide appeal to the profession. It became clear, however, that the range had limitations when the attempt was made to apply it to other building types. An example of this was the restricted choice available of pale, light colours which could be applied overall in offices or flats.

A particular feature of the Archrome Range was that in general the colours were selected directly from the patches displayed in the Munsell Atlas, both as a matter of convenience, and to achieve simple references. The only exceptions were some of the strong colours, which were outside the limits of those shown in the Atlas. In the new B.S. range, the choice has been widened to include some colours midway through the patches of the Atlas, particularly in the very light, and very weak regions. This does not mean in any sense that the Atlas has failed as a means of collating and defining colour, but that experience with the Archrome Range has made possible a more precise definition of the colours that should be included in the new standard.

To assess the selection of colours in the new B.S., it is necessary to have some conception of the form that an ideal range should take. Beyond the consideration of technical limitations, there are at least two essential features that it should possess:

1. The colours should provide as many pleasant and harmonius combinations as possible.
2. There should be a proper distribution into recognized categories of colour. This

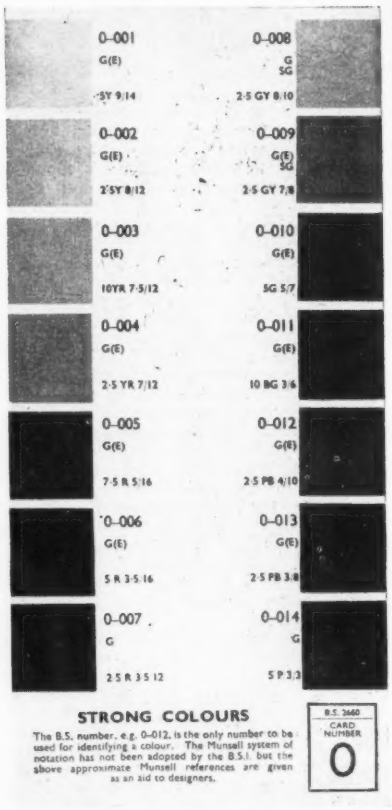


Fig. 4. Reproduction of Colour Card No. 0 to half full size. The top number opposite each colour is the serial number in the range, the bottom number is the Munsell reference. The letters in between (G(E), G, SG) relate to the classes of paint in which the colour can be obtained in reliable form. "(E)" means external quality, "G" means gloss and "SG" means semi-gloss. There is also an abbreviation "M" for matt. The absence of M on this sheet implies that the sponsors of the range do not recommend that architects ask for any of these strong colours in matt finish.

would mean giving due preference to the types of colour which are the most important in design, and developing a suitable vocabulary within each.

A full understanding of colour harmony does not yet exist. It is true that various rules by which it could be achieved have been suggested in the past, but without exception they rely on the idea that harmony in colour is like harmony in proportion, or music, and that mathematical formulæ can be used to produce colour schemes. That such a comparison can be usefully made and that such formulæ are valid remains to be proved. Certainly there is no sign that such rules are being applied in general practice. Only two principles seem to be implicit in the attempt to form a harmonious selection of colours for the range. The first is that there appears to be a natural affinity between colours of identical hue as judged by the eye and as displayed on any one Hue page in the Munsell Atlas. There is, for example, a pleasant relationship between a yellow-tinted grey and a strong yellow. This has led to the building up of families of colours of similar Hue but of different value and chroma, suitable to the main use categories. The second principle is one of exclusion. Colours have been excluded which do not add to the use of the range, either because they are too close to the colours chosen, or because they fall outside the use categories (*e.g.*, colours too strong to be used on the four walls of a room but too weak to provide an accent of colour).

In assessing the distribution of the range into the various recognizable categories of colour, the Munsell references are a convenient guide to the detailed selection. It is possible to show the weighting of the range in terms of the colour attributes of Hue, Value and Chroma. An understanding of the significance of these attributes has gradually emerged through both research and practical experience, particularly with the use of the Archrome Range.

THE FOUR CATEGORIES OF CHROMA

The range in its presentation has been separated into four broad groups, the greys and three groups arranged according to chroma.

1. Greys. These are an essential element of any basic palette, being the means whereby an entire lack of colour emphasis can be achieved, as for example on small elements such as trim or columns in relation to larger coloured surfaces. Three true neutrals N9 N8 and N7 have been included from the Archrome Range. A difficulty in use of such colours, more especially the darker neutrals, is that they are not entirely stable in appearance. In a predominantly yellow scheme, for example, or in relation to the warmth of natural finishes such as hardwood, a pure neutral grey will tend to appear very slightly blue. For this reason it is desirable to have a small selection of greys which are not absolutely neutral but which are slightly tinted in hue. Three yellowish greys, approximately 2·5 Y 8/0·5, 2·5 Y 6/0·5 and 2·5 Y 4/0·5 have been included in the range, a half-chroma step away from the pure neutral. In addition there is a reddish grey, 7·5 R 6/0·5. Greys tinted in this way are probably the most useful, since the majority of colour schemes tend to be predominantly "warm." In addition it is useful to have some indication of the particular hue with which greys are tinted, and the Munsell references form a valuable guide in this respect. The greys are completed by two colours from BS 381C:1948, Nos. 632 and 633. These are relatively close to N4 and N2 respectively, but in each case the slight shift in the blue direction means that they have a greater visual stability than the pure neutrals in most cases.

2. Low chroma colours. The largest selection in the range are the light colours in this category, from chroma 1 to 2, forming a medium for soft and recessive background treatments, often in relatively large areas. Included in the more significant hues are small sets of colours that retain constant hue and strength, but form sequences in descending steps of lightness. Preference in this has been given to the "warmer" hues, particularly in the 10 YR and 5 Y, which have the largest sequences. In addition, the range usefully defines two "off whites" within these hues, 10 YR 9·25/1 and 5 Y 9·25/1. These can provide alternatives to pure white, where the latter is considered to appear too "harsh" in relation to warm colour schemes. The provision of such sets of low chroma colours fulfils an important need. Where there is articulation in the surfaces of an interior, the lightness can be changed whilst maintaining constant hue and chroma. This allows flexibility in controlling reflection factors and surface brightness, without undue change of colour emphasis.

A second group of low-chroma colours are those of lower lightnesses, which have a more specialized use, such as for factory machines, chalkboards, or external paintwork, *e.g.*, 7·5 Y 2/2, a dark olive green, and 2·5 PB 2/4, a dark blue. The selection is somewhat smaller in scope than with the lighter colours, particularly as the reflection factor tends to be less critical for design purposes in this region. On the whole, however, these colours relate closely to the lighter ones in the same hue and chroma category.

It is well to remember that the darkness of these colours appears somewhat exaggerated against the white background of the cards. A grey background would be better but would raise printing difficulties. It is a pity that a black pattern is not included on the cards, so that the comparative qualities of the dark colours could be better recognized.

3. Fairly strong chroma. This category of colour is normally used in small or well-defined areas to provide accents or contrasts with the weaker colours. Although in terms of bulk the amount used may tend to be relatively small, they nevertheless need to be well represented. Insufficient attention has been paid in most previous ranges to the need for colours of this type to have a harmonious affinity with the softer shades. In the new Standard these colours have been chosen in close relation to the low chroma groups of the major hues, and ordered in descending steps of lightness. They are selected to form sets within distinctly different hues, with emphasis placed on the red (7·5 R), yellow-red (10 YR), yellow ((5 Y), green-yellow (2·5 GY) and blue (5 B). Hence there are groups which are fairly consistent in hue within themselves, and there are also alternatives of equal weight as in the series 7·5 R 5/8, 7·5 YR 4/10, 5 Y 7/6, 5 GY 5/6, and 10 RP 5/8.

4. Strong Chroma. Fourteen colours are included in the range to represent what are in effect the limits of strong colour in terms of paint technology. Most favour areas where the eye can readily discriminate small differences, *i.e.*, in the reds, yellows, and green-yellows. Three yellows have been provided, one being a true yellow (5 Y 9/14) and the other two spaced out in terms of hue in the direction of orange (2·5 Y 8/12 and 10 YR 7·5/12). Three reds are spaced in a similar manner, there being a true red (5·0 R 3·5/16) a slightly orange red or "scarlet" (7·5 R 5/16) and a slightly purple or "cherry" red (2·5R 3·5/12). Two green yellow and two purple blues have been included, which are probably more useful than true greens or blues in conjunction with the

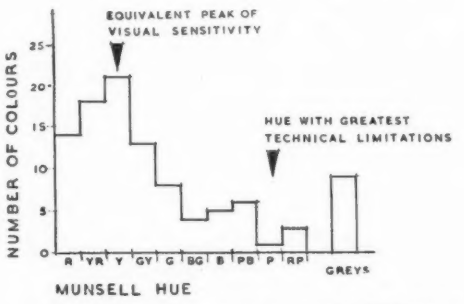


Fig. 5. Graph showing distribution according to hue. Note bias towards warmer colours.

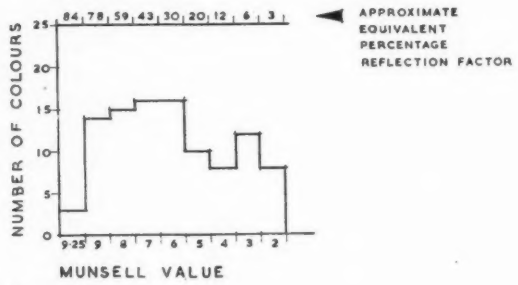


Fig. 6. Graph showing distribution according to value. Note weighting of range in favour of the lighter colours of value 6 and over.

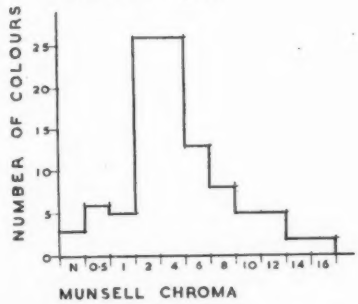


Fig. 7. Graph showing distribution according to chrome. Note strong representation of background colours.

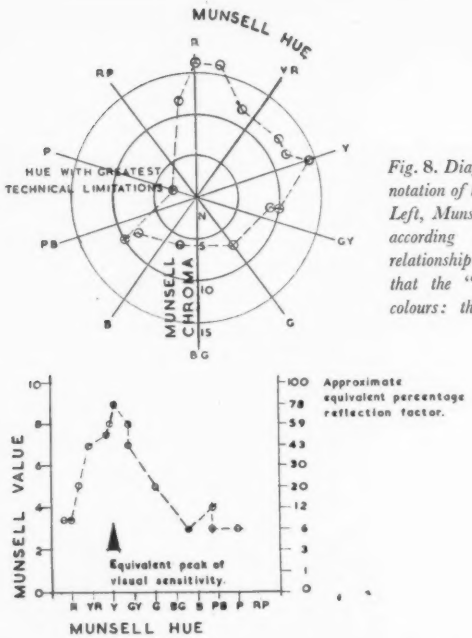


Fig. 8. Diagrams showing the positions in the Munsell notation of the strong colours (see Fig. 4) in the range. Left, Munsell diagram showing the limits of strength according to hue. Below left, graph showing the relationship between hue and value. It will be noticed that the "strong" reds and blues are "dark" colours: the "strong" yellows "light" colours.

main body of the range. In order to complete the "spectrum," orange, green, blue-green and purple are represented by one colour each. The purple is very much weaker than that in B.S. 381C: 1948 presumably because the industry stressed the technical limitations that exist in this hue (diagram 5). At least part of the significance of Value or lightness in use of colour in buildings has already been made clear by recent researches at the Building Research Station and elsewhere. The lightness of surface in an interior will partly determine the level of illumination achieved from both natural daylight and artificial sources. If, for example, the surfaces of a room are made lighter, then higher illumination levels can be achieved with the same fenestration by day, and the same number of artificial sources by night[3]. At the same time lightness may be used to control the apparent brightness of surfaces. This method is important in at least two respects. It is known that the glare from a light source (window or fittings) can be reduced by grading the brightness into the surroundings. If therefore white or light colours are used near such sources, for example window bars and reveals, or the ceiling when seen as the background to a light fitting, the possibility of the occurence of discomfort glare can be considerably reduced. Moving in the other direction, distracting or unwanted highlights can be reduced by the use of darker colours. Such a method can help, for example, to ensure that an object of visual attention is brighter than its surroundings[4].

In a wider sense, the whole pattern of light and shade produced by windows or light fittings can to some extent be modified and controlled by the use of colour in an interior. The lightness of colours has in fact such an important effect that it is possible for an initial approach to be made to a particular design solely in these terms. Since it is so necessary to control lightnesses when applying colour, it is clearly an advantage that the range is ordered by the Munsell references into layers of equal Value. For given levels alternatives are provided in terms of hue and strength. Equal Value implies equal reflectance, and a simple formula is provided in the text of the Standard, by which the reflection factor of any colour can be obtained from its Munsell Value.

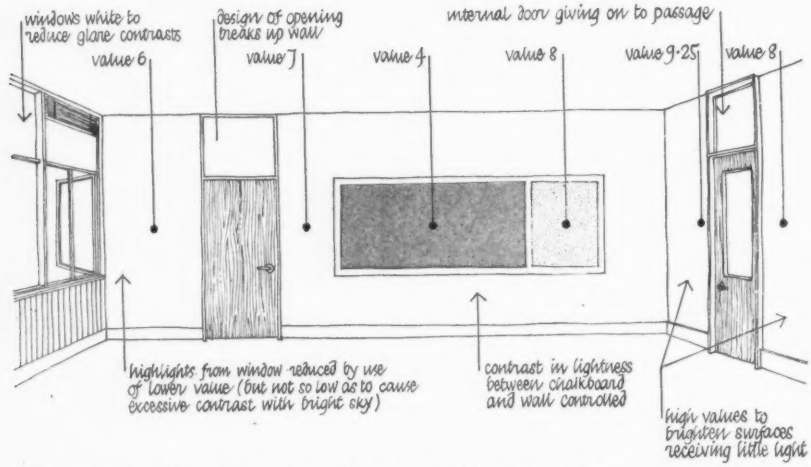


Fig. 9. Sketch of an interior to a classroom showing the value levels selected as the first step in determining a colour scheme. These value levels could then be translated into one hue colours of low chroma to minimise contrasts, e.g., 5Y 9.25/1, 5 Y 8/2, 5Y 7/2, 5 Y 6/2 and 5 Y 4/4.

HUE

As with most previous ranges greater emphasis has been given to the "warmer" hues, particularly to the red, yellow-red and yellow. The majority of colour schemes are in fact weighted in this direction, and there are probably many more useful colours in these regions. A more systematic and thereby economical selection in these areas, however, has allowed a wider representation to be made of the other hues than is normal in most ranges. A particular case is the purples and red-purples, which are often missed out. Only minor coverage has, however, been given to these colours, presumably because of the technical difficulties involved, and because of their rather "special" character. A principle already referred to in the discussion of harmony was that of selecting groups of colours from a limited number of individual hue pages in the Munsell Atlas. This has been closely adhered to with the low chroma colours, where slight changes in hue have small practical significance. With the fairly strong colours, however, the principle has been interpreted more loosely, so that within a single hue group there are a number of alternatives available, for example in the yellows, where there are not only true yellows (5 Y) but greenish yellows (7·5 Y and 10 Y) and reddish yellows (2·5 Y). This flexibility allows a greater freedom in achieving particular decorative effects, and the variations are not important from the point of view of harmony, since alternatives from one hue in this strength category are not likely to be used in conjunction, as is the case with the low chroma groups, to control the lightnesses of the surfaces of an interior.

FURTHER DEVELOPMENTS

The RIBA committee have played a large part in formulating the distribution of the range and the detailed selection of individual colours, and have thus attempted as systematically as possible to anticipate the needs of the profession. It is to be hoped that this detailed work and the research that it entailed will fulfill the intention of creating what is in effect a new and significant instrument of design for architectural colouring. In due course it will be necessary for there to be a proper assessment of the correctness of the many decisions that had to be made before the range could materialise. Unquestionably, the best method will be to observe the success or failure of the range in its use by practising architects for all types of buildings in a wide variety of situations. If it is used merely as an extra source from which colours can be specified, then it will have failed to achieve its primary purpose as a complete instrument of design. If, however, it is adopted by architects because it provides a satisfactory range of colours conveniently grouped together in one unit, and because of the value of the information that is given with the Standard in terms of Munsell references and technical limitations, then this aim will have been achieved.

In addition, it is to be hoped that architects will express their reactions to the Standard in its present form when the range is from time to time reviewed, so that it may continue as the living embodiment of a designer's range. It will then be necessary in addition to assess in a systematic manner each individual colour for continued inclusion. Too frequently in the past ranges have been developed to include only those colours which sell in bulk, resulting in a top-heavy representation of creams, buffs and browns; from the point of view of the designer, a better assessment would be in terms of the number of times specified, that is to say the number of times that the decision to use a particular colour was made, rather than the amount used. This is borne out in practice, where a small area of strong colour in

an interior may have a significance equal to, if not greater than that of a relatively large surface of low chroma. Another way of considering this is to compare in actual colour schemes the distribution in terms of Munsell Chroma of the number of times specified with that of the bulk amount of paint used (diagram 6). This shows the increased importance in a design sense of the stronger colours, in comparison with the demand placed on the manufacturer.

Along similar lines it should be possible to make use of Munsell attributes to determine whether the distribution in terms of hue, lightness and strength is correctly weighted within the range, by a survey of the use of the Standard in a representative sample of building types. This information could not, of course, determine precisely which colours should be omitted, or which added, if modifications to the range seemed desirable, but it would form a useful factual basis upon which the broad structure of the range could be assessed.

A particular problem remains outstanding, now that agreement has been reached between the profession and the industry on a suitable range of colours. An important aspect of the use of standard colours is the wide variations that occasionally occur between the patch shown on the card, and the paint delivered in the tin. At the moment responsibility for accepting or rejecting colours on the basis of their accuracy is left largely in the hands of the site architect. Hitherto no guidance has been given in relation to colour standards for dealing with such differences which can often be a source of annoyance and difficulty to both architect and manufacturer alike. This problem might well be investigated to see whether it would be possible to define precise tolerances in terms of Munsell attributes that would be acceptable both to the profession and to the industry.

 The author wishes to acknowledge help received from his colleague, H. L. Gloag.

References:

The Munsell Book of Color. Munsell Color Company, Baltimore, Maryland, 1942. (London Agents, Hilger and Watts.)

Ministry of Education. *Building Bulletin* 9. HMSO, March, 1953. *BRS Digest No.* 80. HMSO, August, 1955. *BRS Digest No.* 81, HMSO., Sept., 1955. *BRS Digest No.* 70. HMSO, October, 1954.

INFORMATION CENTRE

A digest of current information prepared by independent specialists ; printed so that readers may cut out items for filing and paste them up in classified order.

18.175 construction : theory
STRUCTURAL DESIGN

Strength of Materials. B. B. Low. (Longmans Green and Co. 1955. 18s. 6d.)

New edition of text book for students giving the basis of the theory of strength of materials with many worked examples. Scope has been enlarged to cover testing and mechanical properties of engineering materials.

24.197 lighting
DAYLIGHT CODE

The Daylight Code. D. H. Crompton. (The Town Planning Review. pp. 155-164, vol. XXVL No. 3, Oct., 1955.)

Some notes on a form of control of space about buildings by former member of Ministry of Town and Country Planning who made a study of daylighting in relation to building in central areas and has special knowledge of rights of light cases. Useful bibliography. Important. Illustrated. The article sketches a brief history of elevational control leading up to the introduction of the daylight code, and considers the suitability and relevance of the aims, and their effectiveness. The raison d'être of the daylight code was the prevention by the earlier system of control of full development of the "open plan," which has been found superior to the corridor street plan by improved daylighting in all offices, less risk of fire, improved sound insulation, and more economy in land use by eliminating light wells and by using un-built areas of site for carparks.

The code was published in two parts, one for office building areas, one for residential areas. It consists of a series of solid angles which can be used to test the effect of any building on an adjacent building, allowing greater flexibility than the older system. Combined with the floor space index for limiting height, the code was considered to give adequate control; but in practice, although satisfactory for residential areas, *e.g.*, LCC Ackroydon estate, it is unsatisfactory in office building areas, *e.g.*, City of London. Consequently the building density index has been introduced, which will possibly encourage better office buildings, especially in the City of London.

26.118 services and equipment: miscellaneous
GAS COOKERS FOR SCHOOLS

British Standard Code of Practice for Gas Cooking Installations (school meals) (CP 332.402: 1955. BSI. 3s.)

This code of Practice sets out in twelve pages to give advice about the selection and installation of gas heated cooking equipment for use in school kitchens. The list of those who served on the committees contains a formidable number of highly qualified gas engineers, as is no doubt right, but only one architect: and he was not on the drafting committee. This lack of balance is unfortunate because it is in the fitting of equipment into buildings that engineering requirement, and design cause the most difficulties, and where sound advice is most needed. This code will therefore be of only limited value to architects. Much of the advice in fact appears to be aimed at the non-architect.

The code contains some useful definitions of appliances, a list of required information and a time schedule for work, some of which would certainly have escaped the attention of most architects, lists of related codes and BS notes on packaging, work on site, testing, and servicing.

It also includes a relatively long section on design considerations, with a schedule of the gas equipment that is required for different sizes of school kitchens. This is the only part of the code which relates solely to schools, and where it is perhaps least useful, for it attempts to cover an immense field, from work sequence, through floor surfaces, ventilation, services, equipment and installation, to fire precautions, all in four pages. The MOE Building Bulletin No. 11 on the Design of School Kitchens, which covered a field only a little larger, filled over sixty pages.

The difficulty of covering such a subject in four pages is obvious; and in the result, while the code appears to have derived something from the Bulletin, in its quest for brevity it has had to offer only a part picture, which for architects is useless, and for others misleading. The code suggests, for example, that there must be "no cross traffic between work centres." This requirement is of course impossible to meet and the statement needs modification and elaboration before it is true. The code also states the requirements for a floor finish as "Musts," but it is not pointed out that no known material yet matches up to them. Again, no mention is made of the fact that (*a*) fish fryers should have (*b*) special ventilation, and are (c) a high fire risk, although all three topics are touched on. There are other instances.

The reader is left with the feeling that the material on gas engineering is sound, but that the code should have confined itself to its defined objective, *i.e.* selection and installation. It would have been useful to be told how to fix, with due attention to floor cleaning, an appliance such as a steaming oven of well known make, with six legs, two gas pipes, two water pipes, two waste pipes, and all within a floor space of five feet by three.

Alternatively, it would have been even more useful for manufacturers to be told about the problems of installation and kitchen maintenance.

Buildings Illustrated

Secondary Modern School, Four Pools Lane, Evesham, Worcestershire, for the County Education Committee. (Pages 208-209.) *Architects:* Richard Sheppard & Partners. *Architect-in-charge:* Monica E. Burrows, A.R.I.B.A. *Consulting engineers:* C. F. Bath (structural), A. F. Myers & Partners (electrical). *Quantity surveyors:* E. C. Harris & Partners. *General contractors:* Espley & Co. Ltd. *Sub-contractors and suppliers: heating:* Weatherfoil Heating Systems Ltd. *Electrical:* Booth & Bomford Ltd. *Steelwork:* T. C. Jones Ltd. *Metal windows, rooflights and cloakroom fittings:* James Gibbons & Co. Ltd. *Kitchen hood and fan installation:* Helliwell & Co. Ltd. *Accotile flooring:* Rowan & Bowden Ltd. *Hardwood block and strip flooring:* Hollis Bros. Ltd. *Ironmongery:* Alfred G. Roberts Ltd. and James Gibbons & Co. Ltd. *W.C. and shower partitions:* Flexo Plywood Industries Ltd. *Sanitary fittings:* John Bolding Ltd. *Bituminous felt roofing:* William Briggs & Sons Ltd. *Glass domes:* T. & W. Ide Ltd. *Roller shutter and blinds:* Tidmarsh & Sons Ltd. *Quarry tile floors:* W. B. Simpson & Sons Ltd. *Balustrading:* George Wright (London) Ltd. *Paint:* Duresco Products Ltd. *Water tanks:* Braithwaite & Co. Ltd. *Doors:* Jayanbee Joinery Ltd. *Asphalt tanking:* Durable Asphalt Ltd. *Facing bricks and external facings:* E. H. Smith (London) Ltd. *Internal facings:* A. H. Herbert & Co. Ltd.

Announcements

PROFESSIONAL

The address of the Lutterworth office of Cecil Ogden & Son, architects and surveyors, has been changed from 1, Market Street to "Hill House," Lutterworth, Nr. Rugby.

Allen E. Souter, A.R.I.B.A., has moved from 2, Crossways Close, Three Bridges, Crawley, Sussex, to "Tresco," 45, Tinsley Lane, Three Bridges, Crawley, Sussex.

TRADE

The London offices of Hickson's Timber Impregnation Co. (GB) Ltd., have moved from Victoria Street, to 8, Buckingham Palace Gardens, S.W.1. (Tel.: SLOane 0636/8.) The new offices would continue to house the export division of the company. It is also the London office of all the companies of the Hickson group.

R. W. Hayward, A.M.I.E.E., senior branch manager of Cantie Switches Limited, and manager for the London and home counties area, has relinquished his appointment to practise on his own account as an engineering consultant. He is succeeded by F. Nye, formerly deputy London manager.

E. V. Carder, sales representative in South Wales for Tarmac Ltd., operating from Cardiff, retired at the end of 1955, but has retained his seat on the Board of Tarmac (South Wales) Ltd. He has been succeeded as sales representative by M. N. P. Harrison.

T. E. Adams, secretary of Sealocrete Products Ltd., has been appointed a director of the company, and will continue to act as company secretary.

E. W. Smith, technical adviser and manager of Novobord, has taken offices on the Aldwych level N.W. Wing of Bush House, W.C.2. (Tel.: TEMple Bar 6432.)

Mills Scaffold Co. Ltd. have appointed Major A. E. Stovell as manager of their Brighton and Eastbourne area; he will supervise all contracts from the Brighton Depot at 272, South Coast Road, Peacehaven, Sussex. (Tel.: Peacehaven 2000.)

Leaderflush Ltd., door manufacturers, Trowell, Nottingham, have opened a new office at 19a, Coleman Street, E.C.2. (Tel.: METropolitan 0597.) E. V. Collier, London manager, will be in charge of the office.

R. A. H. Smith has been appointed technical representative of Rhodes, Brydon & Youatt Ltd. for the South-West England and South Wales Area. His address is Farmborough, near Bath, Somerset. (Tel.: Timsbury 425.)

Corrosion Proof Products Ltd., Sunleys Island, Great West Road, Brentford, Middlesex, have opened a Midland Office in conjunction with Metal Processes Ltd., at 758-786, Kingsbury Road, Erdington, Birmingham, 24. (Tel.: Erdington 6111.)

CORRECTIONS

In the JOURNAL of January 26 the article on a block of two shops at 181, High Street, Slough, designed by Carl Fisher, the general contractors were given as Bovis Ltd. This is incorrect. The general contractors were T. S. Appleton Ltd., 99-101, Goldhawk Road, W.12.

We regret that on page 110 of our issue for January 19, 1956, the name of the architects for the factory extension at Solihull, Birmingham, was incorrectly spelt. The architects are Messrs. Hasker and Hall.

In our issue for January 19 we said that M. J. Whitfield Lewis, principal housing architect of the LCC, has a staff of 30 architects. This was a printer's error; there are, in fact, 300 architects working under him.

WORKING DETAIL **WALLS AND PARTITIONS: 26**

GLAZED WALL: OFFICES AT BRISTOL

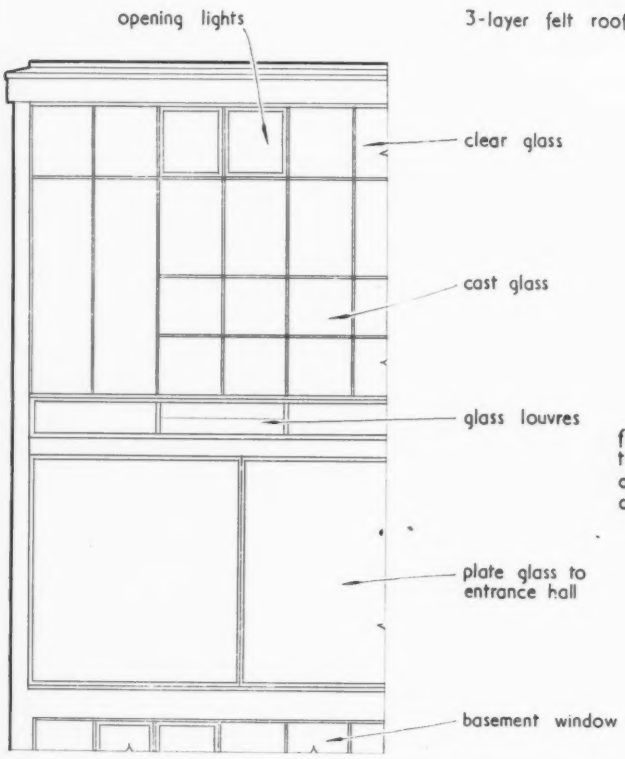
Leonard Manasseh and Partners, architects

To ensure accuracy of fixing, members supporting glazing are cleated to the structural steelwork. The vertical glazing bars of the upper lights have a sliding fixing to allow for movement. The section of the facade which carries the lettering is glazed with clear glass with a blue film flashed to the inside, this film being etched away to form the letters. Lighting equipment which lies at the foot of the letters can be raised by pulleys for servicing. Column casings at corners have been rebated to make it possible to clean to the edge of the inside face of the glass.

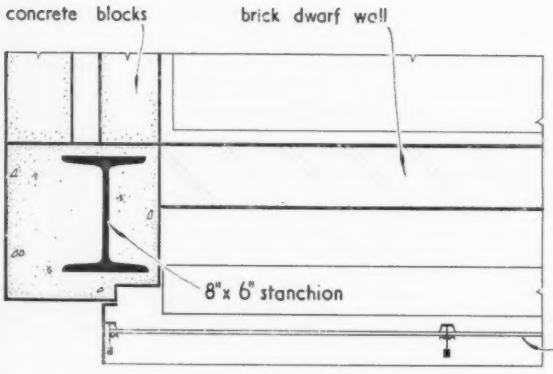
WORKING DETAIL

GLAZED WALL: OFFICES AT BRISTOL

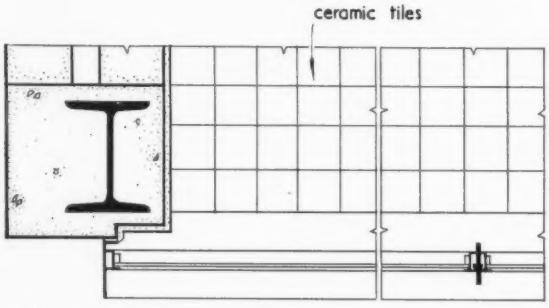
Leonard Manasseh and Partners, architects



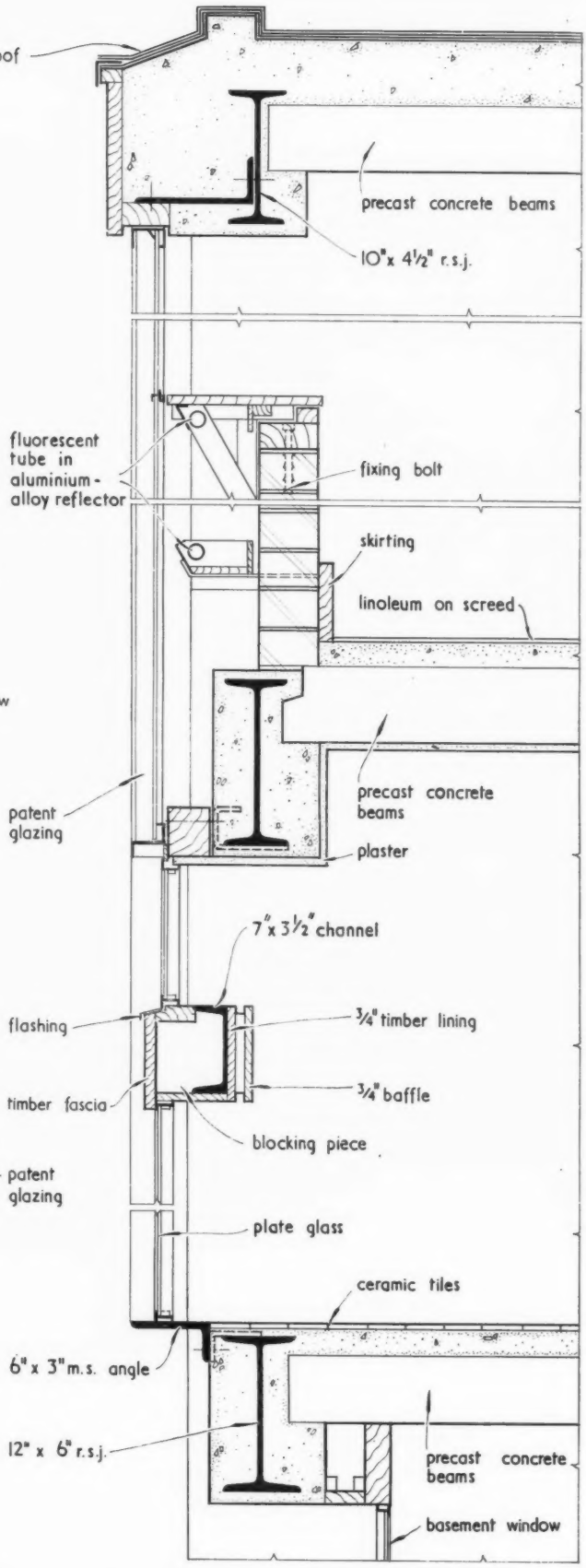
ELEVATION OF FRONT WALL. scale 3/16" = 1'-0"



PLAN AT FIRST FLOOR. scale 1" = 1'-0"



PLAN AT GROUND FLOOR. scale 1" = 1'-0"



SECTION OF FRONT WALL. scale 1" = 1'-0"

WORKING DETAIL **WALLS AND PARTITIONS: 27**

PARTITION: OFFICES AT BRISTOL

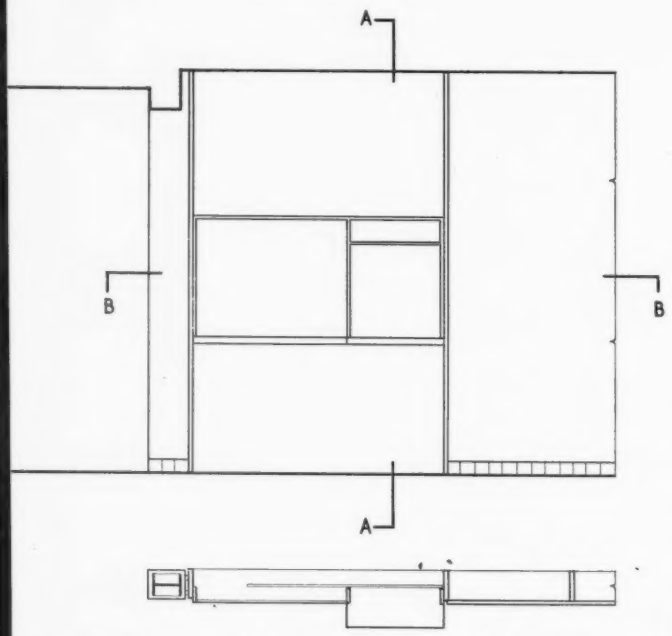
Leonard Manasseh and Partners, architects

Vertical brass Tee-sections, polished and lacquered, serve to mark the vertical intervals in the design and serve also to frame the sides and back of the storage unit, the back of which (faced in straight-grained, unmatched mahogany veneer) can be seen on the right of the photograph. The mirror beneath the enquiry shelf is backed with copper foil to protect the silvering from wet sprayed on it by the cleaners. The underside of the projecting shelf is painted black to avoid reflections. The enquiry notice is in flashed blue glass. Where the upper mirror backs against a structural beam it is bedded in felt to guard against possible damage by movement.

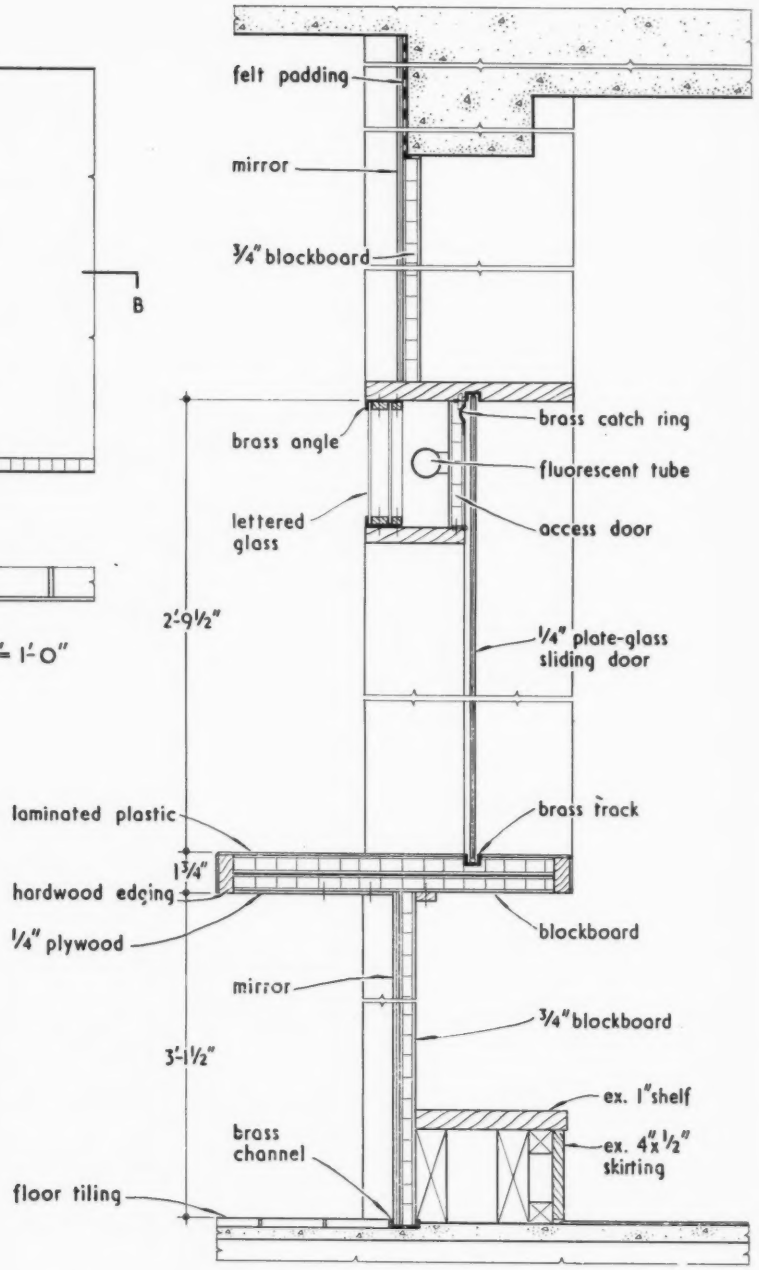
WORKING DETAIL

PARTITION: OFFICES AT BRISTOL

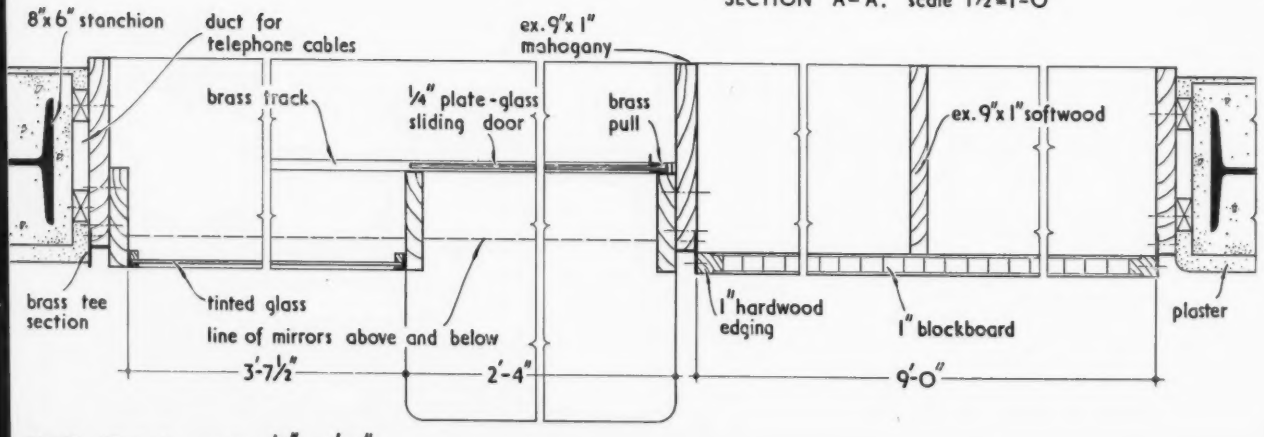
Leonard Manasseh and Partners, architects



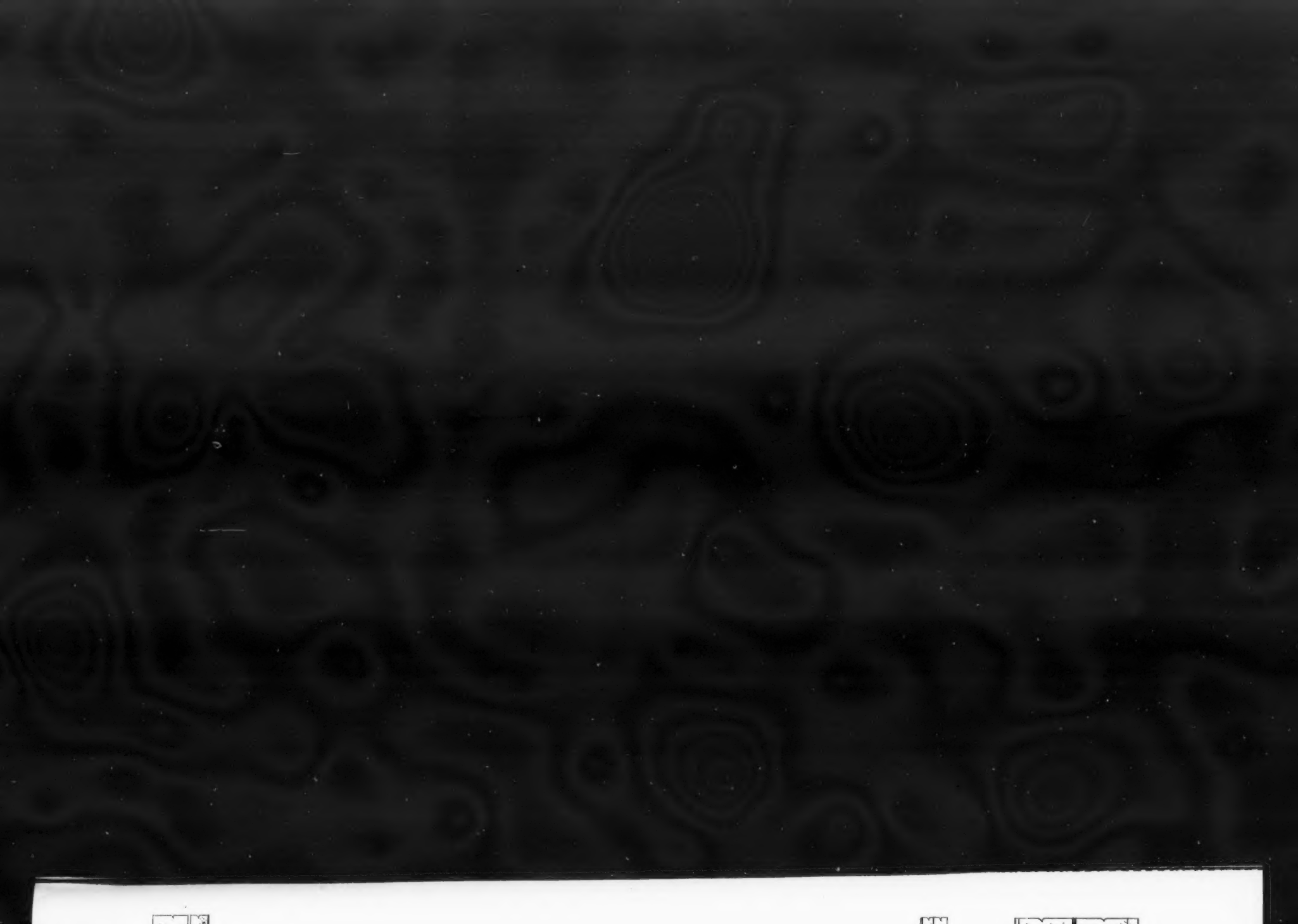
KEY ELEVATION AND PLAN. scale 1/4" = 1'-0"



SECTION A-A. scale 1½" = 1'-0"



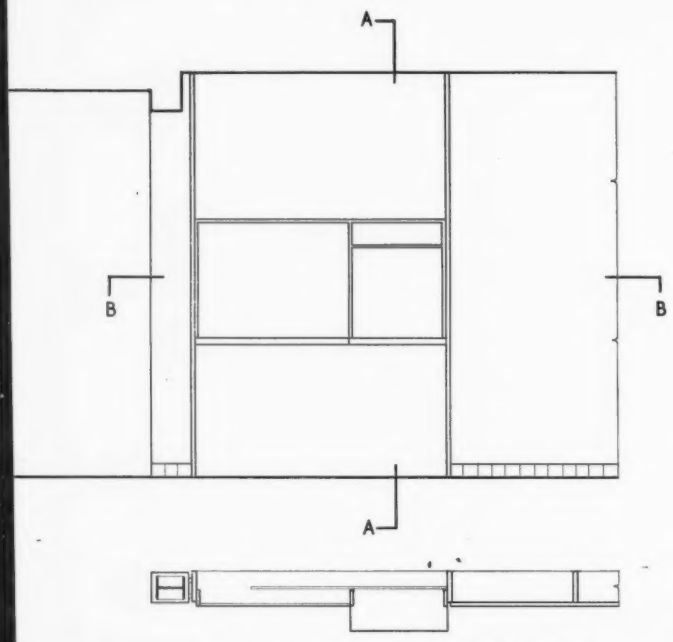
PLAN AT B-B scale 1½" = 1'-0"



WORKING DETAIL

PARTITION: OFFICES AT BRISTOL

Leonard Manasseh and Partners, architects



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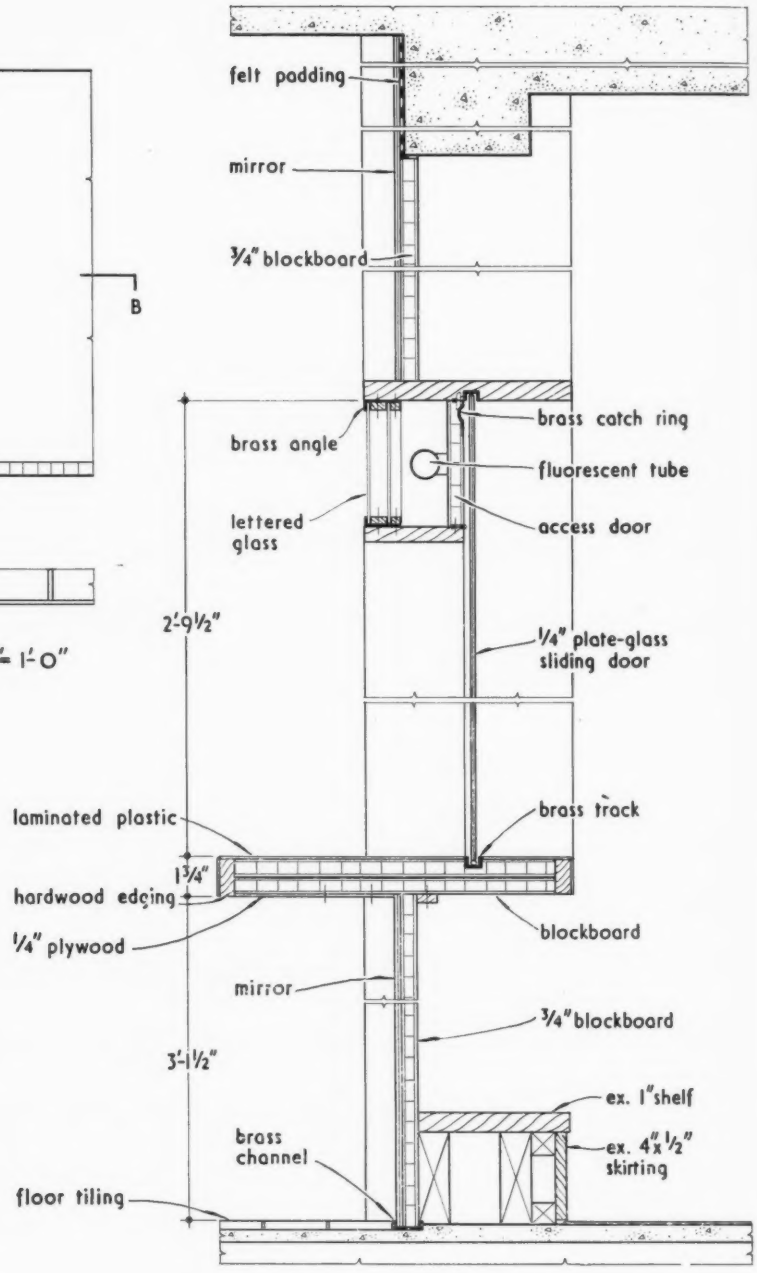
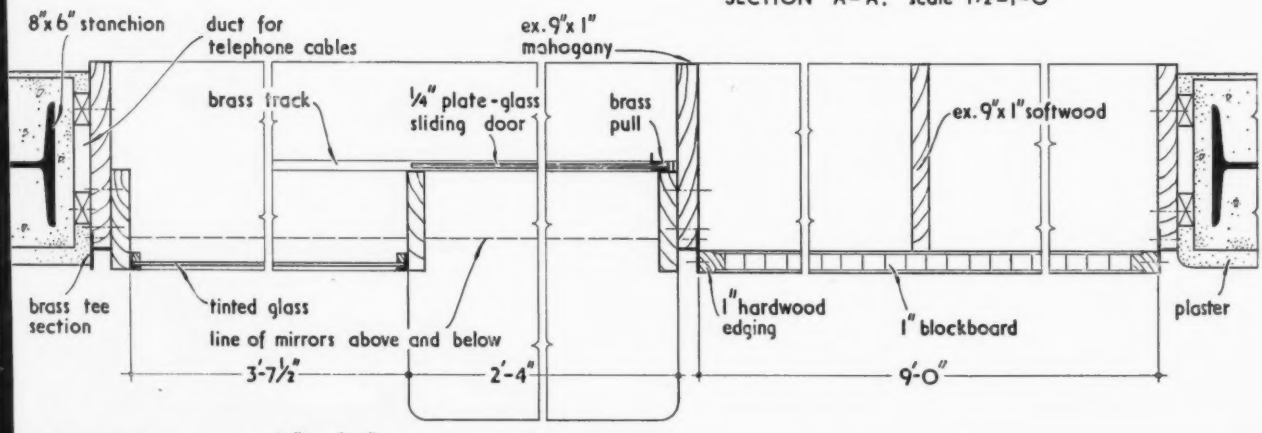


SECTION A-A. scale 1½" = 1'-0"



PLAN AT B-B scale 1½" = 1'-0"

CLASSIFIED ADVERTISEMENTS

Public and Official Announcements

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

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

COUNTY OF ESSEX
BOROUGH OF WALTHAMSTOW—COMMITTEE FOR EDUCATION

Applications are invited for the appointment of ASSISTANT ARCHITECT. Salary in accordance with A.P.T. IV of the National Scales, £675 to £825 per annum. The scale is under review and will probably be increased to £710 to £885 per annum. London weighting also payable—£30 per annum (26 years of age and over) or £20 per annum (21 to 25 years of age).

Applicants must be Associate Members of the R.I.B.A. The post is a permanent, pensionable one, and the successful applicant will be required to pass a medical examination. Forms of application should be obtained from and returned to the undersigned within two weeks of the appearance of this notice.

E. T. POTTER,
Borough Education Officer.

Education Department,
Town Hall,
Forest Road,
Walthamstow, E.17. 9273

BUCKS COUNTY COUNCIL

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

ASSISTANT ARCHITECT, Grade VII (£975—£1,200 p.a.).
ASSISTANT ARCHITECT, Grade VI (£880—£1,050 p.a.).
ASSISTANT ARCHITECT, Grade IV (£710—£885 p.a.).
ASSISTANT ARCHITECT, Grade III (£640—£765 p.a.).
JUNIOR ARCHITECTURAL ASSISTANT, H.G. Division (£150—£500 p.a.).
ASSISTANT QUANTITY SURVEYOR, Grade VI (£880—£1,080 p.a.).
ASSISTANT QUANTITY SURVEYOR, Grade III (£640—£765 p.a.).
JUNIOR ASSISTANT QUANTITY SURVEYOR, Grade II (£595—£675 p.a.).
JUNIOR ASSISTANT QUANTITY SURVEYOR, Grade I (£530—£610 p.a.).
JUNIOR ASSISTANT QUANTITY SURVEYOR, H.G. Division (£180—£500 p.a.).

The appointments are superannuable and subject to medical examination.

A weekly allowance of 25s. 0d. and return fare home once every two months may be paid for six months to newly married officers of the Council unable to find accommodation.

Applications, on forms to be obtained from F. B. Pooley, County Architect, County Offices, Aylesbury, must be returned by 29th February, 1956. 9290

CAMBRIDGESHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments:—

(*a*) ONE QUANTITY SURVEYOR, Grade V (£795/£35/£970).
(*b*) ONE ASSISTANT QUANTITY SURVEYOR, Grade II (£595/£20/£675).
(*c*) ONE ENGINEER, Grade IV/V (£710/£35/£970).
(*d*) ONE ARCHITECTURAL ASSISTANT, Grade III (£640/£25/£765).

For appointment (*a*) applicants should be thoroughly experienced in the preparation of Estimates, Bills of Quantities, Specification and settlement of Final Accounts, and should be Associate Members of the R.I.C.S.; and for (*b*) applicants should have had experience in Abstracting, Billing and Site Measurement. Preference will be given to applicants who have passed the Intermediate stage of the R.I.C.S. (*c*) Applicants should be Associate Members of the Institute of Heating and Ventilating Engineers or hold equivalent qualifications, and should have had experience in the design, specification and supervision of contracts for heating, ventilating and lighting services in large public buildings. (*d*) Applicants should be Registered Architects, and preference will be given to members of the R.I.B.A. They should have experience in the design and construction of public buildings, housing and modern schools; the preparation of Specifications and of Site Supervision.

The appointments are subject to the Local Government Superannuation Acts, 1937 to 1953, the National Scheme of Conditions of Service, a satisfactory medical examination and termination by one month's notice on either side.

Applications, stating age, present salary, present and previous appointments, details of training and experience, together with one recent testimonial and the names and addresses of two referees, should be submitted to the undersigned not later than 22nd February, 1956.

CHARLES PHYTHIAN,
Clerk of the County Council.

Shire Hall,
Cambridge.
30th January, 1956. 9263

WARWICKSHIRE COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments:—

(*a*) SENIOR ARCHITECTS, GRADE A.P.T. V (£795—£970).
Applicants must be competent designers, have a knowledge of modern methods of construction and be capable of handling large building projects from sketch plan stage to completion.
(*b*) ARCHITECTS, GRADE A.P.T. IV (£710—£885).
Applicants must be competent designers, have a good knowledge of construction and be capable of handling medium sized contracts.
(*c*) ASSISTANT ARCHITECTS, Scale £690—£840.
The successful applicants will work in teams on large projects, but the opportunity will be given to men with enthusiasm and ability to design and carry out smaller projects under the Group Architect.
(*d*) CLERKS OF WORKS. Salary £14 per week.
Applicants should be capable of supervising the erection of new school buildings in various parts of the County.

The commencing salary for posts (*a*) to (*c*) can be within the grades according to ability and experience and are on the established staff and suoject to the Scheme of Conditions of Service of the National Joint Council for Local Authorities. All appointments are subject to the conditions of the Local Government Superannuation Acts, 1937-53. Successful candidates will be required to pass a medical examination.

Applications to be made on forms which are to be obtained from G. R. Barnsley, F.R.I.B.A., County Architect, Shire Hall, Warwick.

L. EDGAR STEPHENS,
Clerk of the Council.

Shire Hall,
Warwick.
February, 1956. 9291

GOVERNMENT OF NORTHERN IRELAND

Applications are invited for the permanent and pensionable post of ASSISTANT (STRUCTURAL) ENGINEER, Class II, in the Directorate of Works, Ministry of Finance.

Salary scale, £675 × £25—£750 × £30—£960 × £40—£1,000, plus Pay Supplement of amounts between £55 and £95 a year. Minimum of scale linked to age 26 with increase of one increment for each year above that age subject to maximum entry point of £900. Officers of age 25 enter at £650; those under age 25 are paid according to qualifications and experience.

Candidates must be Corporate Members of the Institution of Civil Engineers or (by examination) the Institution of Structural Engineers and have had experience of steel and reinforced concrete design applied to building structures.

Preference will be given to candidates who served in H.M. Forces during the 1914-18 or 1939-45 wars, provided that such candidates are, or within a reasonable time will be, able to discharge the duties efficiently.

Application forms may be obtained from the Secretary, Civil Service Commission, Stormont, Belfast, to whom they should be returned, together with copies of two recent testimonials. 9266

COUNTY BOROUGH OF BARNSLEY
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT
APPOINTMENT OF SENIOR ASSISTANT QUANTITY SURVEYOR

Applications are invited for the appointment of SENIOR ASSISTANT QUANTITY SURVEYOR, Grades A.P.T. V-VI. The commencing salary will be fixed within the range of £795—£1,080 per annum according to qualifications and experience.

Applicants should be A.R.I.C.S. and have had considerable experience in preparing Bills of Quantities and settling Contractors' accounts.

The successful candidate will be in charge of the Quantity Surveying Section and the Council have a number of interesting schemes in hand.

HOUSING ACCOMMODATION WILL BE PROVIDED IF NECESSARY AND 50 per cent. OF REMOVAL EXPENSES WILL BE PAID IN APPROVED CASES.

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

Applications, stating age, present and previous appointments with dates, qualifications, experience, etc., together with the names of two persons for reference, should be addressed to the Borough Engineer, Town Hall, Barnsley, to reach him not later than Wednesday, 29th February, 1956.

Canvassing will disqualify.

A. E. GILFILLAN,
Town Clerk.

Town Hall,
Barnsley.
February, 1956. 9242

METROPOLITAN BOROUGH OF LEWISHAM

Applications are invited from suitably qualified candidates for the post of ASSISTANT ARCHITECT (2), salary within the scale £700—£870 p.a. according to age, experience and qualifications. Further particulars and forms of application from the Town Clerk, Lewisham Town Hall, Catford, S.E.6. Closing date, 25th February, 1956. 9257

BOROUGH OF TOTTENHAM

Applications are invited for the following appointments:—

(*a*) SENIOR ARCHITECT, A.P.T. Grade V (£795 to £970 p.a.). Applicants must hold a final professional qualification.
(*b*) ARCHITECTURAL ASSISTANT, A.P.T. Special Grade (£690 to £840 p.a.). Applicants must have passed Parts I and II of the R.I.B.A. final or special final examination, or their equivalent at one of the recognised schools of Architecture, and to have had at least 5 years' experience (including the period spent on theoretical training).
(*c*) ARCHITECTURAL ASSISTANTS, A.P.T. Grades II or I (£595 to £675 p.a. or £530 to £610 p.a.). Applicants must have passed R.I.B.A. intermediate examination or equivalent. Grading according to experience.

The commencing salaries within the above grades according to experience and ability.

(*d*) LEARNERS (Architectural and Civil Engineering) (Unestablished) General Division (not less than £250 p.a. at age 17 (males) rising to a maximum of £575 p.a.). Applicants are required to have passed G.C.E. in 4 or 5 suitable subjects, or equivalent.

London weighting of £10 p.a. up to age 20 years, £20 p.a. from 21 to 25 years, £30 p.a. at age 26 years and over payable in addition.

Forms of application and Conditions of Appointment from Borough Engineer (A.J.), Town Hall, N.15. Applications must be delivered not later than 27th February, 1956. 9261

ISLE OF ELY COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the appointment of FIRST ASSISTANT QUANTITY SURVEYOR on the staff of the County Architect. The salary will be on Grade A.P.T. IV (£710—£885 p.a.).

The post is subject to the National Scheme of Conditions of Service, the Local Government Superannuation Act and the passing of a medical examination.

Intending applicants should apply for forms to the County Architect, County Hall, March, Cambs, to whom they must be returned not later than Monday, 27th February, 1956.

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

9260

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD
ARCHITECT'S DEPARTMENT

Applications are invited for the undermentioned permanent posts:—

(*i*) ASSISTANT ARCHITECTS & ASSISTANT QUANTITY SURVEYORS. £640 × £25 (4) × £30 (4)—£930, plus London allowance. (Commencing salary according to experience at full professional standard.)
(*ii*) ARCHITECTURAL ASSISTANTS & LAND SURVEYING ASSISTANT. £480 × £20 (7) × £25 (2)—£670, plus London allowance. (Commencing salary according to experience since passing Intermediate Examination of the Royal Institute of British Architects or the Royal Institution of Chartered Surveyors (Land Surveying Branch) or equivalent.)
(*iii*) DRAUGHTSMEN. £390—£580, plus London allowance.

Applicants for (*i*) must be Associate Members of Royal Institute of British Architects or of Chartered Surveyors (Quantity Surveying Branch) and for (*iii*) should have had suitable training, including 3 years' technical experience in architectural drawing.

Application forms may be obtained from the Secretary (S.2), 11a Portland Place, W.1, and must be returned completed not later than 2nd March, 1956. 9259

CITY OF BIRMINGHAM
CITY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments:—

(*a*) ASSISTANT ARCHITECTS, Grade A.P.T. V (£795/£970 per annum).
(*b*) ASSISTANT ARCHITECTS, Grade A.P.T. IV (£710/£885 per annum).
(*c*) ARCHITECTURAL ASSISTANTS. Special Classes, Ad hoc Scale (£690/£840 per annum).
(*d*) ARCHITECTURAL ASSISTANTS, Special Classes, Grade A.P.T. II (£615/£695 per annum).
(*e*) ARCHITECTURAL ASSISTANTS, Special Classes, Grade A.P.T. I (£550/£630 per annum).

Applicants for posts (*a*) and (*b*) must be Associate Members of the R.I.B.A., or hold equivalent qualifications and for posts (*c*), (*d*) and (*e*), must be suitably qualified in accordance with the Regulations of the National Joint Council for Architectural Assistants.

The commencing salary in all grades will be according to capabilities and experience.

The posts are permanent, subject to a medical examination, to one month's notice on either side, and to the Provisions of the Local Government Superannuation Acts and the Birmingham Municipal Officers' Widows' and Orphans' Pensions Scheme.

Applications, endorsed with the heading of the post, stating age, present position and salary, qualifications and experience, together with the names of two persons to whom reference can be made, should reach the undersigned by not later than 14 days after the issue of this advertisement.

Canvassing disqualifies.

A. G. SHEPPARD FIDLER,
City Architect.

Civic Centre, Birmingham, 1. 9265

WOKING URBAN DISTRICT COUNCIL
APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited for the post of JUNIOR ARCHITECTURAL ASSISTANT in the Architect's Section of the Engineer and Surveyor's Department. The salary will range from £180 to £500 per annum according to age, ability and experience, but not less than £330 at the age of 22 (£350 with G.C.E.).

The appointment is subject to the National Scheme of Conditions of Service and the provisions of the Local Government Superannuation Acts. The successful candidate will be required to pass a medical examination.

The Council are unable to assist in the provision of housing accommodation.

Forms of application may be obtained from the Engineer and Surveyor, Council Offices, Woking, and are to be returned to the undersigned in envelopes endorsed "Junior Architectural Assistant" not later than Monday, 27th February, 1956.

M. SHAWCROSS,
Clerk of the Council.

Council Offices,
Woking.
30th January, 1956. 9258

NORTHUMBERLAND COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT

Applications are invited for the following appointments:—

(*a*) TWO AREA PLANNING OFFICERS, A.P.T. Grade VIII (£975-£1,200).
These are new appointments. A.M.T.P.I. essential. Good architectural appreciation required.
The County will shortly be divided into two areas for the administration of Development Control matters. The successful candidates will be required to take complete charge of the tehnical aspects of Development Control in their areas under the co-ordinating supervision of the Deputy County Planning Officer. The organisation of the Department already provides for separate Development Plan and Architectural Design Sections and the duties of the vacant posts will include liaison with these sections.

(*b*) PLANNING ASSISTANT, A.P.T. Grade V (£795-£970).
Applicants should be suitably qualified for this appointment in the Development Plan Section of the Department. They should be experienced in the preparation of Town Maps and experience in work covering redevelopment proposals would be an advantage.

Application forms for all the above appointments should be sent direct to the County Planning Officer, County Hall, Newcastle-upon-Tyne. 1. Closing date 24th February, 1956. 9237

LONDON COUNTY COUNCIL requires:—
LANDSCAPE ASSISTANTS for preparation of working drawings, schedules, specifications and supervision of contract work in parks, open spaces, playing fields and grounds of new schools.

Salaries up to £783 a year according to qualifications and experience.

Application forms from the Chief Officer of the Parks Department, Old County Hall, Spring Gardens, S.W.1 (WHItehall 3121, Ext. 33). (182) 9256

COUNTY BOROUGH OF PRESTON

Wanted, for a period of approximately six months, TEMPORARY TECHNICAL ASSISTANCE in the design and specification of furniture for schools.

Further particulars may be obtained from the Chief Education Officer, Municipal Building, Preston.

W. E. E. LOCKLEY,
Town Clerk.

Municipal Building,
Preston. 9270

BOROUGH OF WORTHING
BOROUGH ENGINEER'S DEPARTMENT
ASSISTANT QUANTITY SURVEYOR

Applications are invited for the above appointment at a salary in accordance with Grade A.P.T. II of the National Joint Council's Scale of Salaries, *i.e.* £595—£675.

Applicants should have passed the Intermediate Examination of the Royal Institution of Chartered Surveyors, Sub-Section 3, and must be capable of and had experience in abstracting and billing and measurement of works on site. Experience of taking off and in the settlement of final accounts would be an advantage.

The appointment will be subject to the National Scheme and Conditions of Service of Local Government Officers; to the Local Government Superannuation Act, 1953, and Local Government Superannuation (Benefits) Regulations, 1954; and to the successful applicant passing satisfactorily a medical examination. The appointment will be terminable by one month's notice on either side.

The Council will assist in finding housing accommodation for the successful applicant if required.

Applications, endorsed "Assistant Quantity Surveyor," stating age, status, qualifications, experience, present and past appointments with duties, and accompanied by copies of two testimonials, should be sent to the Borough Engineer, Town Hall, Worthing, not later than Monday, 27th February, 1956.

ERNEST G. TOWNSEND,
Town Clerk.

Town Hall,
Worthing.
30th January, 1956. 9240

MIDLANDS ELECTRICITY BOARD
SECOND ASSISTANT ENGINEER (Architectural) required at the Central Gloucestershire Sub-Area Headquarters. Applicants should have reached the final R.I.B.A. standard or hold equivalent qualifications and should preferably have a knowledge of quantities. The duties will include preparation of drawings, construction and detail of offices, service centres, stores and general building work. Salary £790/£850 per annum (N.J.B. Class H.8). Superannuable.

Apply by letter, within 14 days, stating age, experience, present position and salary, to Mr. S. Raybould, Sub-Area Manager, Midlands Electricity Board, 126, London Road, Gloucester.

A. STEPHENS,
Secretary.
9303

NOTTINGHAMSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

An ASSISTANT ARCHITECT is required for work on a new Development Project to be undertaken between the Ministry of Education Development Group in London, and the County Council in Nottingham.

The duties appertaining to the post will involve the necessary liaison between the Ministry's team and the County Architect. The first 18 months would be spent in London, and subsequently it is intended that the knowledge and experience gained shall be applied to major School Building Projects to be carried out by the Department in Nottingham.

Applicants should be capable of absorbing the latest ideas on School Design and the building problems involved.

The salary for the appointment is within Grade A.P.T. V of the N.J.C. Scale (£795 × £35 to £970 per annum) plus "weighting" whilst employed in London; and the post is subject generally to the Scheme of Conditions of Service of the N.J.C. for Local Authorities Administrative, Professional, Technical and Clerical Services.

Forms of application may be obtained from D. E. E. Gibson, County Architect, County Hall, Nottingham, to whom they should be returned as soon as possible.

A. R. DAVIES,
Clerk of the County Council.
9305

AMENDED ADVERTISEMENT
CWMBRAN DEVELOPMENT CORPORATION

Applications are invited for the following superannuable vacancies in my Department:—

(*a*) TWO ASSISTANT ARCHITECTS. Commencing salary not less than £795 p.a. on scale with maximum of £885 (maximum subject to review).

(*b*) ONE JUNIOR ASSISTANT ARCHITECT. Commencing salary not less than £690 p.a. on scale with maximum of £775 (maximum subject to review).

(*c*) ONE ASSISTANT QUANTITY SURVEYOR. Commencing salary not less than £795 p.a. on scale with maximum of £885 (maximum subject to review).

Candidates for post (*a*) should be Associates of the R.I.B.A. with suitable office experience and should have had good experience in House Design, Construction and Layout. Commencing salary will be in accordance with the qualifications and experience of the successful applicants.

For post (*b*) applicants should be either Graduate Architects or have passed the Final Examination of the R.I.B.A. Office experience will be an advantage.

For post (*c*) applicants should be fully experienced in taking off, billing, and abstraction, site measurements, valuation of work and preparation of final accounts. Commencing salary will be in accordance with the qualifications and experience of the successful applicant.

For each of the above appointments, housing accommodation will be made available in suitable cases or lodging allowance will be paid to married men for a limited period.

Applications, stating age, qualifications, experience, present and former employment (together with applicable salaries) and the names and addresses of two referees, should reach the undersigned by first post on 21st February, 1956.

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

Victoria Street.
Cwmbran,
Mon. 9304

CUMBERLAND COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments to the Architectural Staff. N.J.C. Service Conditions. Posts pensionable. Subject to medical examination.

(*a*) ASSISTANT ARCHITECT, A.P.T. Grade V (£795—£970).
Should be A.R.I.B.A. with experience of large contracts and supervisory work.

(*b*) ASSISTANT ARCHITECT, A.P.T. Grade IV (£710—£885).
Should be A.R.I.B.A., preferably with schools experience.

(*c*) ASSISTANT ARCHITECTS. Special Grade (£690—£840).
Should have passed Final R.I.B.A. Examination.

Applications, on forms obtainable from John H. Haughan, F.R.I.B.A., County Architect, 15 Portland Square, Carlisle, to be received by him not later than Monday, 5th March, 1956.

G. N. C. SWIFT,
Clerk of the County Council.
9292

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

Applications are invited for the following appointments:—

(*a*) ARCHITECTS
(*b*) ARCHITECTURAL ASSISTANTS

Qualified or unqualified. Salary ranges between £530 and £1,200 according to experience, design or organising ability.

Extensive and interesting programme of first-class architectural work with opportunities for taking responsibility and supervising work in progress.

HUBERT BENNETT, F.R.I.B.A.
County Architect's Office,
"Bishopgarth,"
Wakefield. 9239

CARSHALTON URBAN DISTRICT COUNCIL
(Population 62,000)

TWO ASSISTANTS, ARCHITECTURAL SECTION OF ENGINEER AND SURVEYOR'S DEPARTMENT. Must hold Final Examination Certificate of the R.I.B.A. and be Registered Architects. Must also be competent in design and construction and have had a full and varied practical experience. Salary within A.P.T. Grade IV, plus London weighting (£740—£915).

Applications, on forms obtainable from the undersigned, must be returned with names of three referees, not later than 5th March, 1956. Canvassing will disqualify.

C. H. DURRANT,
Clerk of the Council.

Council Offices,
The Grove, Carshalton, Surrey. 9245

BOROUGH OF LOWESTOFT
APPOINTMENT OF
SENIOR ARCHITECTURAL ASSISTANT

Applications are invited for SENIOR ARCHITECTURAL ASSISTANT. Salary according to Special Classes Grade £650 × £25—£775 per annum, according to experience and qualifications. Car allowance at the lower rate for casual users is payable.

HOUSING ACCOMMODATION IS AVAILABLE IF REQUIRED.

The appointment is superannuable and is subject to:—

(*a*) The National Conditions of Service.
(*b*) One month's notice on either side.
(*c*) Satisfactory medical examination.

Applications, stating age, qualifications, present and past appointments, and giving names of two referees who will testify as to ability and experience, must reach the undersigned by 12 noon on Monday, 27th February, 1956. Applicants must disclose whether or not they are related to any member of or the holder of any senior office under the Corporation. Canvassing will disqualify.

F. B. NUNNEY,
Town Clerk.

Town Hall,
Lowestoft.
27th January, 1956. 9247

WOKING URBAN DISTRICT COUNCIL
ARCHITECTURAL ASSISTANT
A.P.T. GRADE III

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT in the Architectural Section of the Engineer and Surveyor's Department at a salary in accordance with A.P.T. Grade III (£640 × £25—£765). Applicants should be students of the R.I.B.A. and have had good general experience.

The appointment is subject to the National Scheme of Conditions of Service and the provisions of the Local Government Superannuation Acts and the passing of a medical examination.

Forms of application to be obtained from and returned to Mr. H. P. Tame, A.M.I.C.E., M.T.P.I., Registered Architect, Engineer and Surveyor, Council Offices, Woking, not later than 3rd March, 1956.

M. SHAWCROSS,
Clerk of the Council.

Council Offices,
Woking.
2nd February, 1956. 9293

EASTERN ELECTRICITY BOARD
NORTHMET SUB-AREA
BUILDING AND CIVIL ENGINEERING DEPARTMENT

(*a*) ARCHITECTURAL ASSISTANT, Grade V
(*b*) ARCHITECTURAL ASSISTANT, Grade VI

Candidates for (*a*) should have had experience of Building and Civil Engineering work for Substations, Service Centres, Workshops, Offices, etc. The successful candidate will be required to supervise staff engaged on the preparation of drawings for 33kV substations, should be capable of the design of simple reinforced concrete structures and be able to carry out site surveys. A knowledge of the use of a theodolite would be an advantage.

Candidates for (*b*) should have had a good technical training and experience in the preparation of plans and detailed drawings of Building and Civil Engineering work including Substations, Service Centres, Workshops, Offices, etc.

Salary—N.J.B. Schedule D as follows:—
(*a*) Grade V (£640—£740 plus London allowance)
(*b*) Grade VI (£510—£630 plus London allowance)

The successful candidates will be required to contribute to a superannuation scheme and may be required to undergo a medical examination.

Apply by letter within 14 days to C. C. Hill, Esq., B.Sc.Eng., M.I.E.E., M.I.Mech.E., Manager, Northmet Sub-Area, Eastern Electricity Board, Northmet House, Southgate, N.14. 9294

CITY OF NORWICH
CITY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments on the permanent staff:—

(a) SENIOR ARCHITECT, salary within Grade A.P.T. VI (£880—£1,080 per annum).

(b) ASSISTANT ARCHITECTS, Special Classes Grade (£690—£840 per annum).

Applicants must be fully qualified and for appointment (a) have extensive experience and be capable of taking charge of a group working on school projects.

Application forms, giving full details of posts, including housing facilities, can be obtained from David Percival, B.A., A.R.I.B.A., M.T.P.I., City Architect, City Hall, Norwich, and must be received within 15 days after the appearance of this advertisement. 9295

COUNTY BOROUGH OF WOLVERHAMPTON
APPOINTMENT OF ARCHITECTURAL ASSISTANT

ARCHITECTURAL ASSISTANT required in Borough Engineer's Department. Salary A.P.T. I (£530—£610), A.P.T. II (£595—£675) or A.P.T. III (£640—£765) according to qualifications and experience.

Medical examination. N.J.C. Conditions of Service. Superannuable post terminable by one month's notice on either side.

Applications, stating age, qualifications, training and experience, with the names of two referees, in envelope endorsed "Architectural Assistant," to the Borough Engineer, Town Hall, Wolverhampton, not later than Wednesday, 22nd February, 1956.

A. G. DAWTRY,
Town Clerk.

Town Hall,
Wolverhampton. 9297

COUNTY COUNCIL OF ROSS AND CROMARTY
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited from suitably qualified persons for appointments as ASSISTANT ARCHITECTS in the Dingwall Office of the County Architect on the Scottish Salary Grades III to VI A.P.T. Division (£585—£315 per annum). Placing within the grades will be made according to the experience and qualifications of the successful applicants.

Applications, giving full particulars of training and experience, together with copies of two recent testimonials, should be delivered to Peter S. Leask, A.R.I.B.A., A.M.T.P.I., County Architect, Tulloch Street, Dingwall, not later than Saturday, 25th February, 1956.

W. D. ROSS,
County Clerk.

Dingwall.
January, 1956. 9272

LONDON ELECTRICITY BOARD
SENIOR DRAUGHTSMAN

Applications are invited for two positions as SENIOR DRAUGHTSMAN in the Board's Western Sub-Area, based initially in Central London.

Candidates should have a good general and technical education, preferably with some workshop training. They must be conversant with the layout of switchgear, plant, and associated equipment for substations up to 11 kV. A knowledge of building and civil engineering design whilst not essential would be an advantage.

The posts are graded under Schedule "D" of the National Joint Board agreement as Grade 5 (£672 to £777 per annum, inclusive of London allowance).

Application forms from Personnel Officer, 46/7, New Broad Street, London, E.C.2. Please quote ref. PER/V/2132/A. 9284

HAYES AND HARLINGTON URBAN DISTRICT COUNCIL.

Applications are invited for:—

(a) ARCHITECTURAL ASSISTANT (PERMANENT). Grade A.P.T. II, i.e., £595—£675 p.a.;

(b) SENIOR ARCHITECTURAL ASSISTANT (TEMPORARY). Grade A.P.T. IV, i.e., £710—£885 p.a., plus London weighting in both cases, 21-25 years £20 p.a., 26 years and over £30 p.a. Candidates for (a) must have passed the R.I.B.A. Inter. Exam., good experience of housing work with a local authority; (b) must be a Registered Architect, have good general experience in design and construction in relation to municipal housing and other works, and capable of supervising large building contracts. The Council is unable to provide housing accommodation for either of these appointments. Further particulars and form of application available from the undersigned, which when completed must be returned as soon as possible.

GEORGE HOOPER,
Clerk and Solicitor.

Town Hall, Hayes, Middx. 3712

SURREY COUNTY COUNCIL

Applications invited for following appointments:

1. ASSISTANT QUANTITY SURVEYOR, GRADE V, £795 × £35—£970 p.a., plus London weighting. Must be A.R.I.C.S. having experience in taking lead of team on large new buildings.
2. ASSISTANT QUANTITY SURVEYOR, GRADE IV, £710 × £35—£885 p.a., plus London weighting. Must be A.R.I.C.S. with experience in taking off.
3. ASSISTANT QUANTITY SURVEYOR, GRADE III, £640 × £25—£765 p.a., plus London weighting. Preference given applicants who have passed Inter. R.I.C.S.

Full details and present salary, with three copy testimonials, to County Architect, County Hall, Kingston, as soon as possible. 9159

BOROUGH OF BLYTH
SENIOR ARCHITECTURAL ASSISTANT

Applications are invited for the post or Senior Architectural Assistant in the Borough Engineer's Department at a salary in accordance with the Special grade for qualified Architectural Assistants of the National Scheme of Conditions of Service, namely £690 per annum rising by annual increments of £30 to £840 per annum.

Applicants should be Registered Architects or hold the Final examination of the R.I.B.A. with experience in Municipal housing.

The appointment is subject to the National Scheme of Conditions of Service, the Local Government Superannuation Acts, the passing of a medical examination and one month's notice on either side.

Applications, suitably endorsed and accompanied by the names of two referees must reach the undersigned on or before March 6th, 1956.

Canvassing will disqualify and applicants must state whether they are related to any member or senior official of the Council.

Housing accommodation will be provided if necessary.

E. W. CARTER,
Town Clerk.

" Dinsdale,"
Marine Terrace,
Blyth,
Northumberland. 9228

BOROUGH OF ERITH
THIRD ARCHITECTURAL ASSISTANT

Applications are invited from young, contemporary-minded Assistants for the above vacancy in the Borough Architect's Department at a salary in accordance with Grade A.P.T. II (£595 × £20 —£675 per annum, plus London weighting).

Applications, stating age, education and training, previous appointments and experience, together with names and addresses of two referees, should reach the Borough Engineer and Surveyor not later than the 20th February, 1956. Canvassing disqualifies.

J. A. CROMPTON,
Town Clerk.

Town Hall,
Erith,
Kent. 9209

COVENTRY CORPORATION requires:—

(a) PLANNING OFFICER (Development Control) A.P.T. V (£750—£900).

(b) PLANNING OFFICER (Redevelopment and Rehabilitation), A.P.T. IV (£675—£825). Experienced in Planning Work generally and particularly in design work for residential areas.

Revised salary scales pending. Housing accommodation may be available. Application forms, etc., from Arthur Ling, Bull Yard, Coventry, returnable within 15 days of publication. 9289

NOTTINGHAMSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Applications invited for ASSISTANT ARCHITECTS at a salary in accordance with A.P.T. Grade IV (£710 to £885 per annum). Applicants must be fully qualified and registered Architects.

The posts offer opportunities for varied and interesting work in connection with an extensive school building programme.

Forms of application from D. E. E. Gibson, County Architect, County Hall, Nottingham, to whom they should be returned as soon as possible.

A. R. DAVIS,
Clerk of the County Council.

9241

THE LONDON HOSPITAL, Whitechapel, E.1, requires JUNIOR ARCHITECTURAL ASSISTANT, salary £440 to £650 p.a. according to experience, plus London weighting. Post superannuable. Applications, stating age, present salary and brief particulars of experience, to be sent to the House Governor. Accommodation is available in Kensington if successful candidate is a woman. 9156

MINISTRY OF WORKS require ARCHITECTURAL ASSISTANTS, with 3 years' training, experience in Architect's office, and of Inter. R.I.B.A. standard. Prospects of promotion and permanency. State salary required, age, details of training and experience, to Ministry of Works, W.G.10 (G), Abell House, John Islip Street, S.W.1. 9167

Architectural Appointments Vacant

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

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

ASSISTANTS required, Intermediate to Final standard. Must have had at least 3 years' office experience, and be conversant with traditional styles. Apply at once in writing to Walters & Kerr Bate, 14, Gray's Inn Square, London, W.C.1. 9138

"THE ARCHITECTS' JOURNAL" requires a full-time DRAUGHTSMAN to assist in the preparation of Information Sheets and Working Details. First class draughtsmanship, knowledge of building construction and a keen interest in the compilation of technical information. Write to the Editor (Information Sheets), 9, Queen Anne's Gate, S.W.1, stating age, architectural training, and experience. 913

GREGORY HOUSING, LTD., have vacancies for the following staff in the Technical Department at their Head Office:—

(1) ARCHITECTS, qualified or equivalent. Fully conversant with housing for local authorities and private enterprise, surveys, layouts, drainage, and detailing, etc. Capable of producing original designs and site supervision.

(2) ARCHITECT or SENIOR ARCHITECTURAL ASSISTANT. Fully experienced as above, but with considerable knowledge of L.C.C. Building Act requirements, for supervision of London contracts.

(3) Experienced ARCHITECTURAL ASSSISTANTS. Fully conversant with housing requirements as above, and able to work speedily with minimum supervision.

(4) ENGINEERING ASSSISTANTS, for work on housing schemes. A thorough knowledge of drainage, roads and land surveying is essential, capable of supervising staff in this section and working on own initiative.

With the exception of (2), the appointments are at Head Office, Worthing. The successful applicant for (2) will be centred at our London Office, but will be required to visit Worthing at regular intervals.

A pension scheme is in operation, and congenial working conditions with good prospects are offered to suitable applicant.

Apply in writing to the Technical Director, Gregory Housing, Ltd., 21, Farncombe Road, Worthing, Sussex. 9275

ARCHITECTURAL ASSISTANT required, up to Intermediate standard, Westminster office. Pension and Bonus Schemes. Five-day week. Write, stating experience, age, and salary required, to Box 9211.

ARCHITECTS require JUNIOR ASSISTANTS, with good office experience. Commencing salaries £400—£500, with good prospects offered to capable applicants. Stephenson, Gillis & Partners, 2, Saville Chambers, North Street, Newcastle-on-Tyne. 9276

ARCHITECTURAL ASSISTANT required, Maidstone, Kent, office. Intermediate stage or above. State age, experience, salary required. Box 9277.

ARCHITECTURAL ASSISTANT required, with contemporary outlook in private mid-Bucks office. Practical experience of work on domestic, commercial and industrial buildings, good draughtsmanship, and capable managing medium contracts. Qualifications are not essential. Salary £600—£650. Write, stating age, experience, etc., to Box 9278.

JUNIOR ASSISTANT required in Architect and Surveyor's Department of a London brewery Company. Five-day week, luncheon allowance, and cost-of-living bonus. Reply, stating age, present position and salary required, to Box 9279.

DRAUGHTSMAN required by Designers and Builders of Non-traditional Housing, Flats, etc. Starting salary £520 per year. Unitroy, Ltd., 31-35, High Holborn, W.C.1. 9260

ARCHITECTURAL DRAUGHTSMAN.—The Product and Exhibition Unit of Colman, Prentis & Varley, Ltd., requires a JUNIOR DRAUGHTSMAN for working drawings and details. Apply in writing to Peter Ray, Colman, Prentis & Varley, Ltd., 34, Grosvenor Street, London, W.1. 9282

SENIOR ARCHITECTURAL ASSISTANT required for leading office in Nairobi, Kenya. Salary from £1,200 to £1,440 p.a., with free passage, bonus, and leave schemes, etc. Apply, quoting OSS.17/10, to Overseas Technical Service, 5, Welldon Crescent, Harrow, Middx. 9287

WANTED IMMEDIATELY. — Qualified SENIOR ASSISTANT, to take charge of varied schemes from sketches to completion. Write, stating qualifications, experience, age, and salary required, to Charles E. Ware & Son, Architects, 20, Richmond Road, Exeter. 9288

ARCHITECTURAL ASSISTANT required in small London office. Competent to take charge of small contracts, including supervision on site. Reply, stating salary required, with details of experience, to Box 9255.

WEST END firm require ASSISTANT ARCHITECT to supervise from London work in England. Salary £900—£1,200, dependent on experience. Five-day week, quarterly bonuses, car facilities. Applications, which will be treated with absolute confidence, should state age, experience, etc. Box 9254.

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THE excellent reputation carefully built up over the years in five continents for the successful and speedy execution of the widest possible diversity of constructional projects has ensured the continuous expansion of the Wimpey Organisation, which affords unique opportunities for men of ability and ambition.

Openings exist for:—

(1) ARCHITECTURAL STAFF, enthusiastic to apply their knowledge to new construction techniques covering Houses, Multi-storey Flats, Offices, Schools and Industrial Buildings. Appointments range from Architects to Draughtsmen.

(2) JUNIOR and SENIOR QUANTITY SURVEYORS. For taking off.

Applications to:
GEORGE WIMPEY & CO., LTD.,
Hammersmith Grove, London, W.6. 9253

ONE of London's largest Department Stores has a vacancy in their Staff Architect's Office for a SHOPFITTING DRAUGHTSMAN. The work is varied and interesting, and the position is permanent. Pension Scheme. Staff restaurant and five-day week. Apply in writing, stating age, experience, and salary required, to Box 9252.

SENIOR ARCHITECTURAL ASSISTANT required in North Midlands, capable of developing from sketch plan to completion. General practice, including factory, hotel, shop, office and domestic work. Knowledge of Quantities advantageous. Salary £750—£800. Box 9251.

ARCHITECTURAL ASSISTANTS required for varied work. Intermediate and Final standard, with at least 2 years' office experience. Apply in writing, stating age, experience, etc., and salary required, to Cormingley & McIntyre, Chartered Architects, Owengate, Durham. 9250

PETER DUNHAM, WIDDUP & HARRISON require ASSISTANT, Final or Inter. standard, at Luton. Contemporary work, schools, industrial, housing. Five-day week. Please apply 42-44, Hastings Street, Luton, or 29, Bedford Square, W.C.1. 9249

ARCHITECTURAL ASSISTANTS, Intermediate standard, required in expanding firm with varied practice. Excellent prospects. Salary between £500—£750, according to age and experience. Write, stating age and experience, to Winter & Pickering, 114, Holborn, E.C.1. 9246

JUNIOR ASSISTANT for Architects' office, London, W.C.1. Please apply in writing, giving full details. Box 9244.

IMPERIAL CHEMICAL INDUSTRIES, LTD., METALS DIVISION,
Invites applications from
DRAUGHTSMEN
to fill the following permanent positions:—

(1) SENIOR DESIGN DRAUGHTSMAN, with experience of heavy hydraulics, *e.g.*, design and installation of extrusion presses, pumps, accumulators, pipework, valves, etc., operating at working pressures of up to 5,000 p.s.i. H.N.C. qualifications preferred, but sound practical knowledge essential.

(2) SENIOR DESIGN DRAUGHTSMAN, with good general knowledge of layout and design of mechanical plant, *e.g.*, rolling mills and ancillaries, drawbenches, special purpose plant, materials handling equipment, etc. Work is widely varied and interesting. H.N.C. qualification preferred, but sound design experience essential.

(3) SENIOR DESIGN DRAUGHTSMAN, with experience of the layout and design of heating and ventilation installations for industrial buildings, including offices. A.M.I.H. & V.E. or equivalent qualification preferred.

(4) SENIOR DESIGN DRAUGHTSMAN, for interesting layout and design work connected with instrument installations applied to a wide range of plant producing non-ferrous metals. Experience to include working knowledge of electronics, electric and pneumatic control systems. H.N.C. qualification preferred.

(5) SENIOR DESIGN DRAUGHTSMAN (ELECTRICAL), experienced in layout of industrial power distribution, automatic control gear and sub-station work. Knowledge of lighting installations an advantage. Work is interesting, covering a wide range of plant and buildings connected with the production of non-ferrous metals. H.N.C. qualification preferred.

(6) SENIOR DESIGN DRAUGHTSMAN, for general design work connected with gas and oil-fired furnaces and auxiliary equipment. H.N.C. qualification preferred.

(7) SENIOR DESIGN DRAUGHTSMAN, with good knowledge of pipework layout and detail for steam, water, gas and air services to buildings and plant. H.N.C. qualification preferred.

(8) JUNIOR DRAUGHTSMAN, for general mechanical design and detail work, with special reference to safety requirements. Previous experience in this field not essential. The post offers excellent opportunities for gaining experience of a wide range of plant. H.N.C. qualification preferred.

These positions carry good commencing salary and there are excellent prospects for advancement for men with initiative and ability.

Financial assistance towards removal expenses are available for married men. Excellent conditions of employment include Staff Pension Fund, Employees' Profit Sharing Scheme, etc. Application forms may be obtained from the Staff Manager, I.C.I. Metals Division, Kynoch Works, Witton, Birmingham, 6, quoting DR/3/Q. 9131

W. S. HATTRELL & PARTNERS have vacancies in their Coventry and London Offices for ARCHITECTURAL ASSISTANTS, of Intermediate to Final standard. Excellent opportunities in varied practice covering a very wide area, and including Hotels, Theatres, Public Houses, Schools, Hospitals, also Industrial and Ecclesiastical. Good salaries offered, closely related to capabilities, and reviewed annually. Pension scheme available. Travelling expenses paid to applicants selected for interview. 1, Queen's Road, Coventry, and 14, Hanover Square, London, W.1. 9137

ARCHITECTURAL ASSISTANT required by London Architects, W.C.1. Progressive post, with opportunities for individual responsibilities and experience. Apply in writing, stating age, experience, and salary required, to Box 9243.

ORMAN AND PARTNERS require experienced ARCHITECTURAL ASSISTANTS for their offices in Guildford and London. Intermediate R.I.B.A. standard preferred. Apply, stating age, experience and salary to 23A, High Street, Guildford, Surrey. Telephone 67688/9. 9141

EDINBURGH.—Senior and Intermediate ASSISTANTS required. Write, giving particulars of experience and salary required, to Messrs. David Carr & Stuart Matthew, 14, Lynedoch Place, Edinburgh, 3. 3123

CO-OPERATIVE WHOLESALE SOCIETY, LTD. ARCHITECT'S DEPARTMENT, MANCHESTER.
APPLICATIONS are invited for the following appointments:—

(*a*) SENIOR ASSISTANT ARCHITECTS, with experience of work on commercial and industrial projects.
(Salary range £820 to £975 per annum.)

(*b*) ASSISTANT ARCHITECTS, capable of preparing working drawings from preliminary details.
(Salary range £550 to £820 per annum.)

There is a five-day week in operation, and both appointments offer prospects of upgrading.

Applications, stating age, experience, qualifications and salary required, to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, 4. 3871

CO-OPERATIVE WHOLESALE SOCIETY, LTD., ARCHITECT'S DEPARTMENT, LONDON.
ASSISTANT ARCHITECTS, WORKER-UP, AND SHOP FITTING DRAUGHTSMAN. Applications are invited from suitably qualified persons. Salary on a scale £485—£945 inclusive of L.W., with placing according to age, qualifications and experience. The posts are superannuable, subject to medical examination. Five-day week in operation. Applications, stating age, experience, qualifications and salary required, to.—W. J. Reed, F.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 99, Leman Street, London, E.1. 2824

ARCHITECT'S ASSISTANT required immediately by old-established practice in Midlands county town. Must be neat, quick, and accurate draughtsman, with general office experience. References and full particulars to Box 9236.

CO-OPERATIVE WHOLESALE SOCIETY, LTD. ARCHITECT'S DEPARTMENT, BIRMINGHAM.
APPLICATIONS are invited for the following appointments in a newly formed Branch Office. Interesting and varied commercial and industrial projects.

(*a*) SENIOR ASSISTANT ARCHITECT, with experience in Store and Shop Design.
(Salary range £820 to £975 per annum.)

(*b*) ASSISTANT ARCHITECTS, capable of preparing working drawings and details from preliminary sketches.
(Salary range £550 to £820 per annum.)

Both appointments offer prospects of upgrading.

Applications, stating age, experience, qualifications, and salary required, to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, 4. 3872

ARCHITECTURAL ASSISTANT and ASSISTANT QUANTITY SURVEYOR required for the Birmingham office of a major oil company. Work is in connection with large-scale development of service stations, involving design of new and remodelling of existing stations. Architectural Assistant of Intermediate standard R.I.B.A., capable of handling jobs with minimum supervision. The work involves a high standard of presentation and understanding of contemporary design. Assistant Quantity Surveyor should be prepared to act on own initiative for the preparation of approximate estimates, interim certificates and final accounts for contracts up to £10,000. Five-day week; good pension and life assurance scheme; sickness benefits and free luncheon vouchers; Social Club. Write, giving full details, stating age, experience and salary required, to Box 6086, quoting ref. YS943.

Architectural Appointments Wanted

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

ARCHITECT (40), Public School education, seeks appointment as an ASSISTANT. Bath, Bristol area. Moderate salary. Box 9267.

ARCHITECT, A.R.I.B.A. (35), able to take complete control, sketch plan to final account, comprehensive experience, keen administrator, seeks progressive appointment. Box 9285.

ARCHITECTURAL ASSISTANT wants work with three half-days off. 3 years' full-time study and 1 year office experience: housing and industrial. Box 9248.

ARCHITECTURAL ASSISTANT (27), Inter. R.I.B.A. 1950, seeks position in progressive office, Devon or Cornwall. 6 years' office experience local authority, and now section leader with several assistants in prefabrication firm. Work mainly domestic and public buildings. Sound knowledge construction, good experience planning and design; fast, experienced draughtsman accustomed to working on own initiative; small experience of private office practice, with great enthusiasm for this branch of profession. Present salary £750. Box 9268.

Other Appointments Vacant

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

ASSISTANT SURVEYOR required by London Brewery for work in connection with Bottling Store alterations, maintenance, etc. Brewery experience not essential. State age, experience, salary required. Reply Box 9283.

APPLICATIONS are invited for the post of CLERK OF THE WORKS to the Durham Colleges in the University of Durham, to be responsible for maintenance of all University buildings. Salary in range £750—£850 p.a. Pension Scheme. House provided later. Apply as soon as possible, with full details of training and experience, and names of two referees, to the Treasurer of the Durham Colleges, 38, North Bailey, Durham, from whom further particulars can be obtained. 9238

Services Offered

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

THE SITE SURVEY COMPANY, BLACKHEATH, S.E.3. Specialists in all types of Architectural and Engineering Surveys, grid and contour lay-outs. Telephone LEE Green 7444-5. 6018

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ARCHITECT is able at the moment to give assistance to others whilst own practice is developing. G. A. Sutton, 23, Frognal Lane, N.W.3, or ring HAM 9795. 9233

ARCHITECTURAL MODELS.—Highest workmanship guaranteed from my team of expert modellers. Send plans for quotations to W. Roberts, 13, Campden Grove, W.8. 9262

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A. J. BINNS, LTD., Specialists in the supply and fixing of all types of Fencing, Gates and Cloakroom Equipment. Harvest Works, 46/107, St. Paul's Road, N.1. Canonbury 2061

F. R.I.B.A. offers share office accommodation and facilities, Holborn area. Box 9281.

Educational Announcements

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R. I.B.A. and T.P.I. EXAMS.—Stuart Stanley (Ex. Tutor Sch. of Arch., Lon. Univ.), and G. A. Crockett, M.A./B.A., F./F.R.I.B.A., M./A.M.T.P.I. (Prof. Sir Patrick Abercrombie in assn.), prepare Students by correspondence, 10, Adelaide Street, Strand, W.C.2. TEM. 1603/4.

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