

THE ARCHITECTS' JOURNAL



standard contents

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

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

IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266
IHVE	Institution of Heating and Ventilating Engineers. 49, Cadogan Square.	Sloane 1601/3158
IIBD	Incorporated Institute of British Decorators. Drayton House, Gordon Street, W.C.1.	Euston 2450
ILA	Institute of Landscape Architects. 12, Gower Street, W.C.1.	Museum 1783
I of Arb	Institute of Arbitrators. 35/37, Hastings House, 10, Norfolk Street, Strand, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7197/5176
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3.	Avenue 6851
IRA	Institute of Registered Architects. 47, Victoria Street, S.W.1.	Abbey 6172
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128
IWA	Inland Waterways Association. 14, Great James' Street, W.C.2.	Chancery 7718
LDA	Lead Development Association. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
LSPC	Lead Sheet and Pipe Council. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
MARS	Modern Architectural Research Group (English Branch of CIAM). Secretary: Trevor Dannatt, 6, Fitzroy Square, W.1.	Euston 7171
MOA	Ministry of Agriculture and Fisheries. 55, Whitehall, S.W.1.	Whitehall 3400
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1.	Mayfair 9400
MOH	Ministry of Health. 23, Savile Row, W.1.	Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1.	Whitehall 4300
MOLNS	Ministry of Labour and National Service. 8, St. James' Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, Victoria Embankment, W.C.	Gerrard 6933
MOT	Ministry of Transport. Berkeley Square House, Berkeley Square, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine-Owners and Manufacturers Council. 94-98, Petty France, S.W.1.	Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1.	Abbey 4813
NBR	National Buildings Record. 31, Chester Terrace, Regent's Park, N.W.1.	Welbeck 0619
NCBMP	National Council of Building Material Producers. 10 Princes Street, S.W.1.	Abbey 5111
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4451
NFHS	National Federation of Housing Societies. 13, Suffolk St., S.W.1.	Whitehall 1693
NHBRC	National House Builders Registration Council. 82, New Cavendish Street, W.1.	Langham 4341
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NSA	National Sawmilling Association. 14, New Bridge Street, E.C.4.	City 1476
NSAS	National Smoke Abatement Society. Chandos House, Buckingham Gate, S.W.1.	Abbey 1359
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1.	Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1.	Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Fountainbridge 7631
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5721
RICS	Royal Institution of Chartered Surveyors. 12, Great George St., S.W.1.	Whitehall 5322/9242
RFAC	Royal Fine Art Commission. 22A, Queen Anne's Gate, S.W.1.	Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Trafalgar 2366
RSI	Royal Sanitary Institute. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19.	Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1.	Victoria 2186
SCR	Society for Cultural Relations with the USSR. 14, Kensington Square, W.8.	Western 1571
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3.	Mansion House 3921
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1.	Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen.	
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1.	Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2.	Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4.	City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4.	City 5051
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1.	Whitehall 4341
ZDA	Zinc Development Association. Lincoln House, Turl Street, Oxford	Oxford 47988

No. 3110]

[Vol. 120

THE ARCHITECTURAL PRESS

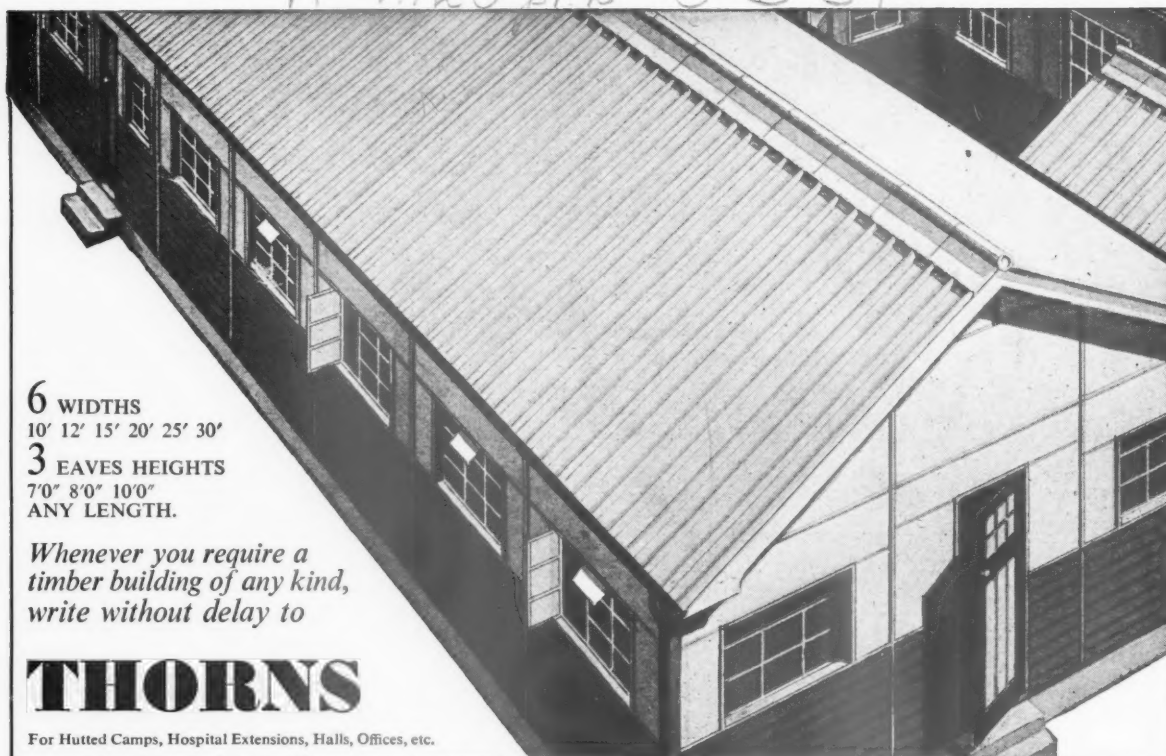
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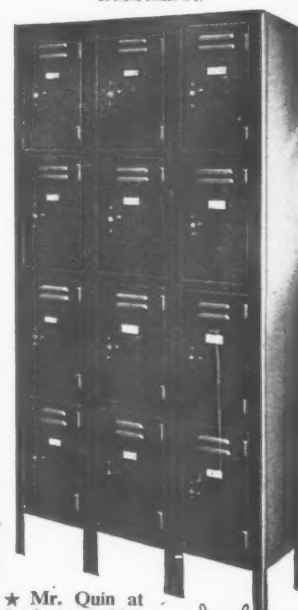
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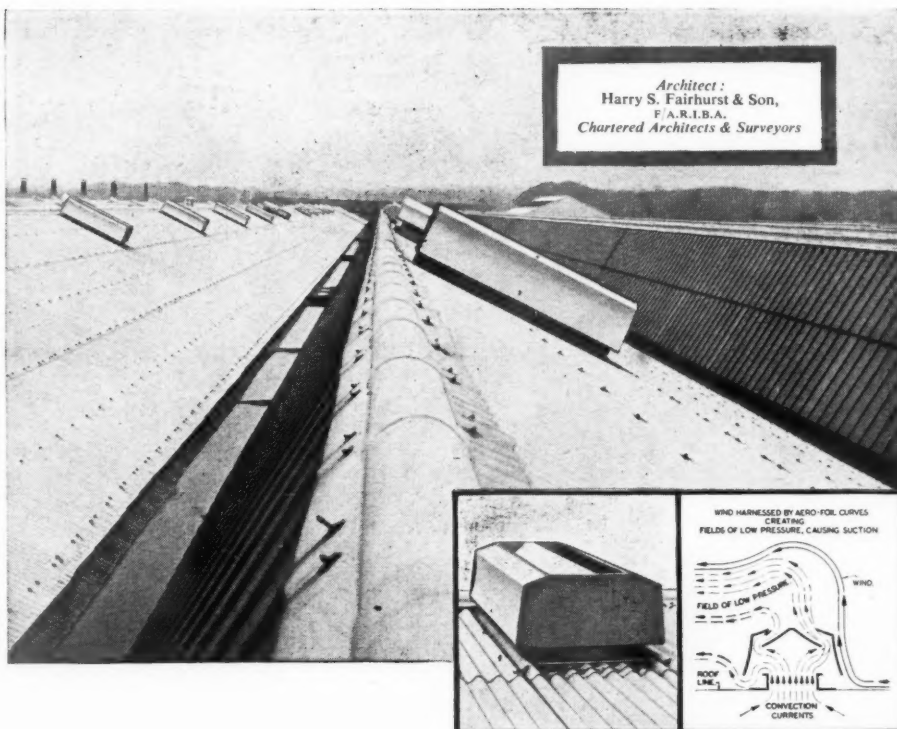
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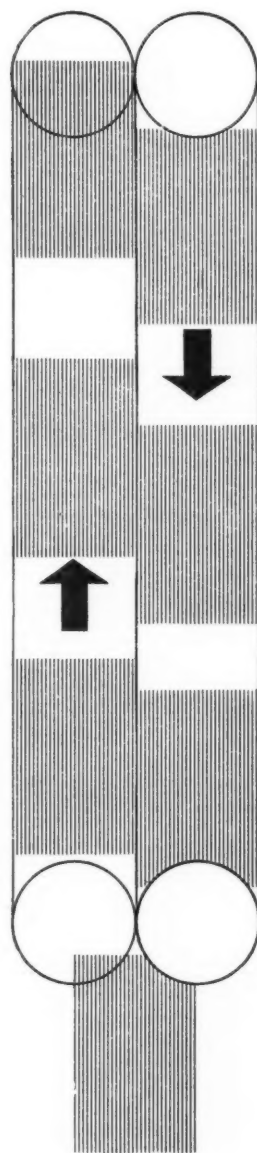
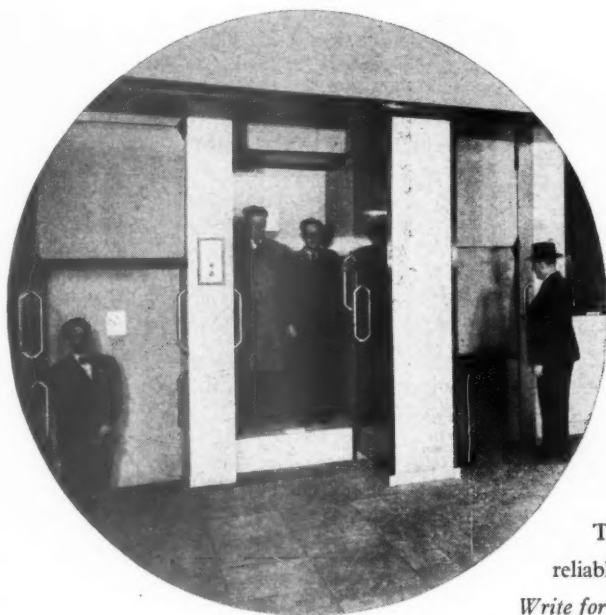
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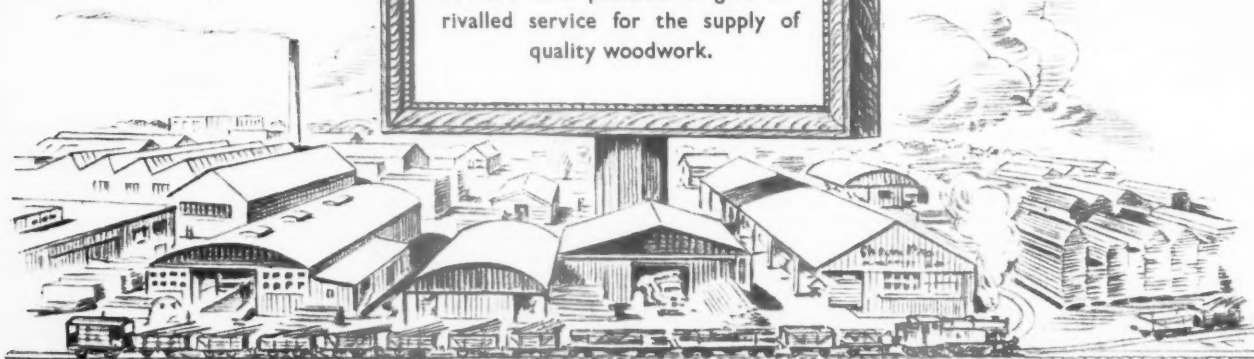
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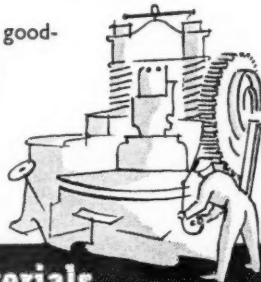
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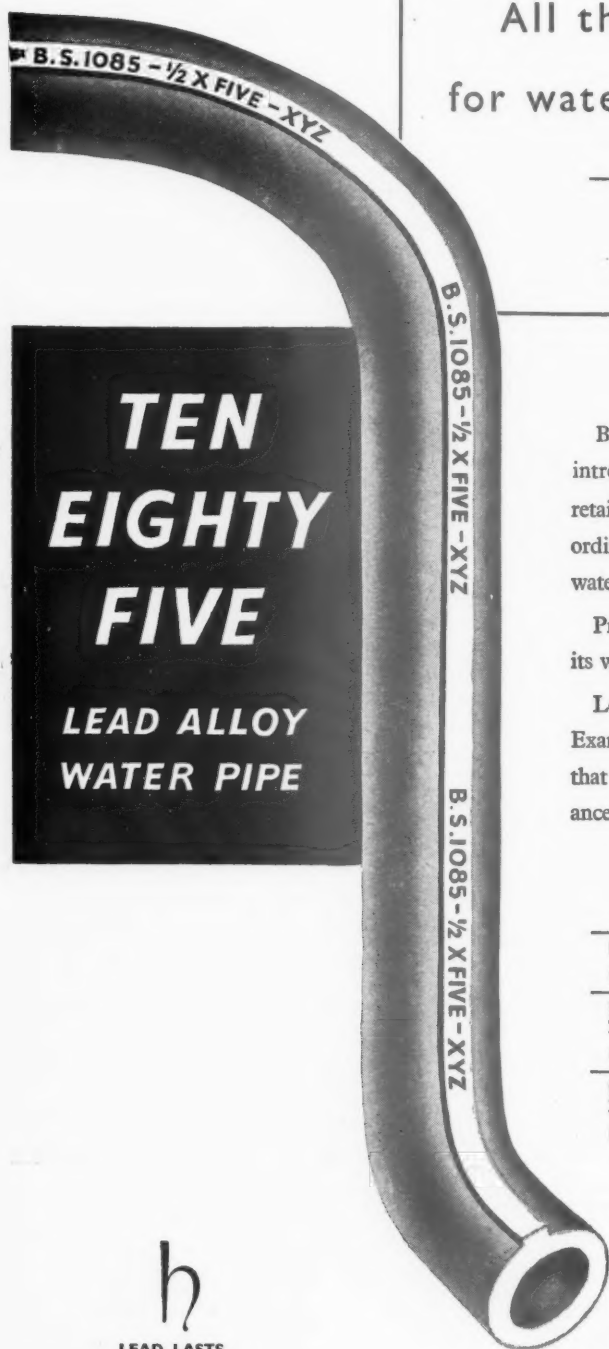
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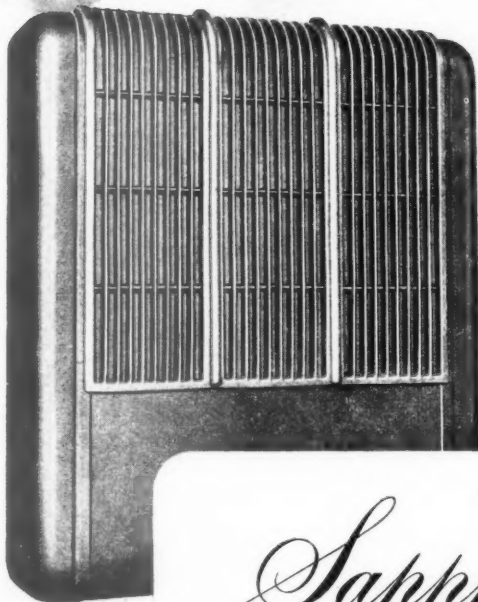
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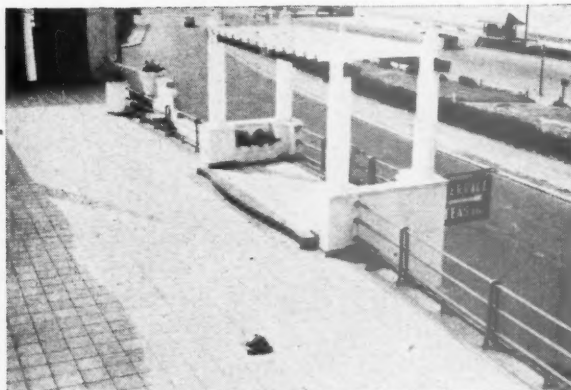
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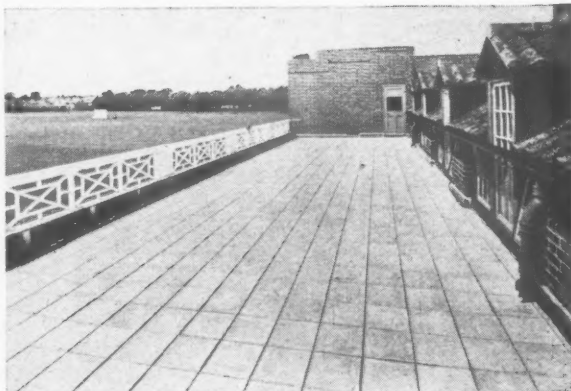
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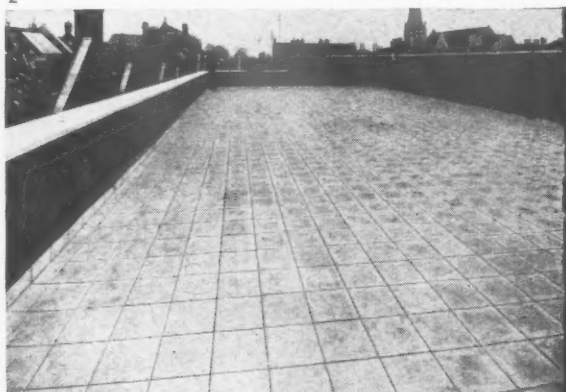
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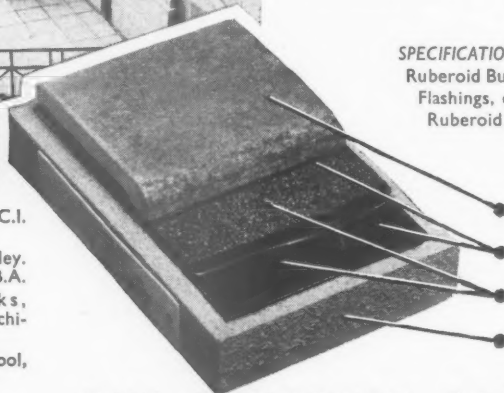


5

1. West Park Pavilion, Jersey, C.I.
Architects: Blampied & Biggar.
2. Sports Pavilion, North Wembley.
Architects: Duke & Simpson, F.F.R.I.B.A.
3. "Showboat," Sandbanks,
Bournemouth. Residence of the Archi-
tect, A. J. Seal, Esq., F.R.I.B.A.
4. Latymer Foundation Upper School,
Hammersmith. Gymnasium Roof.
Architects: Chesterton & Sons.
5. Balcony at United Club, Jersey, C.I.

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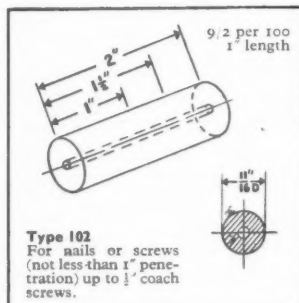
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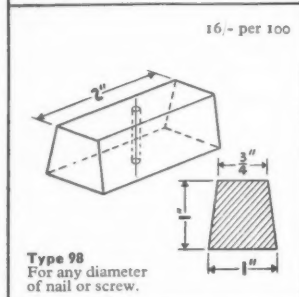
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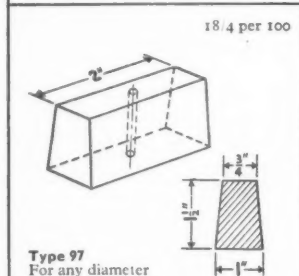
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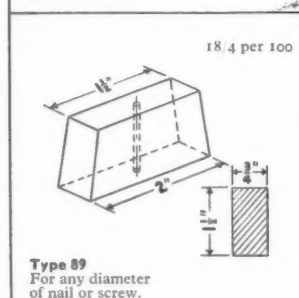
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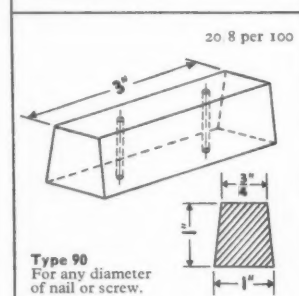
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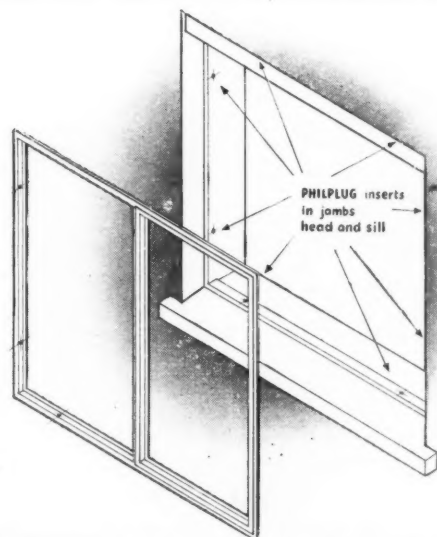
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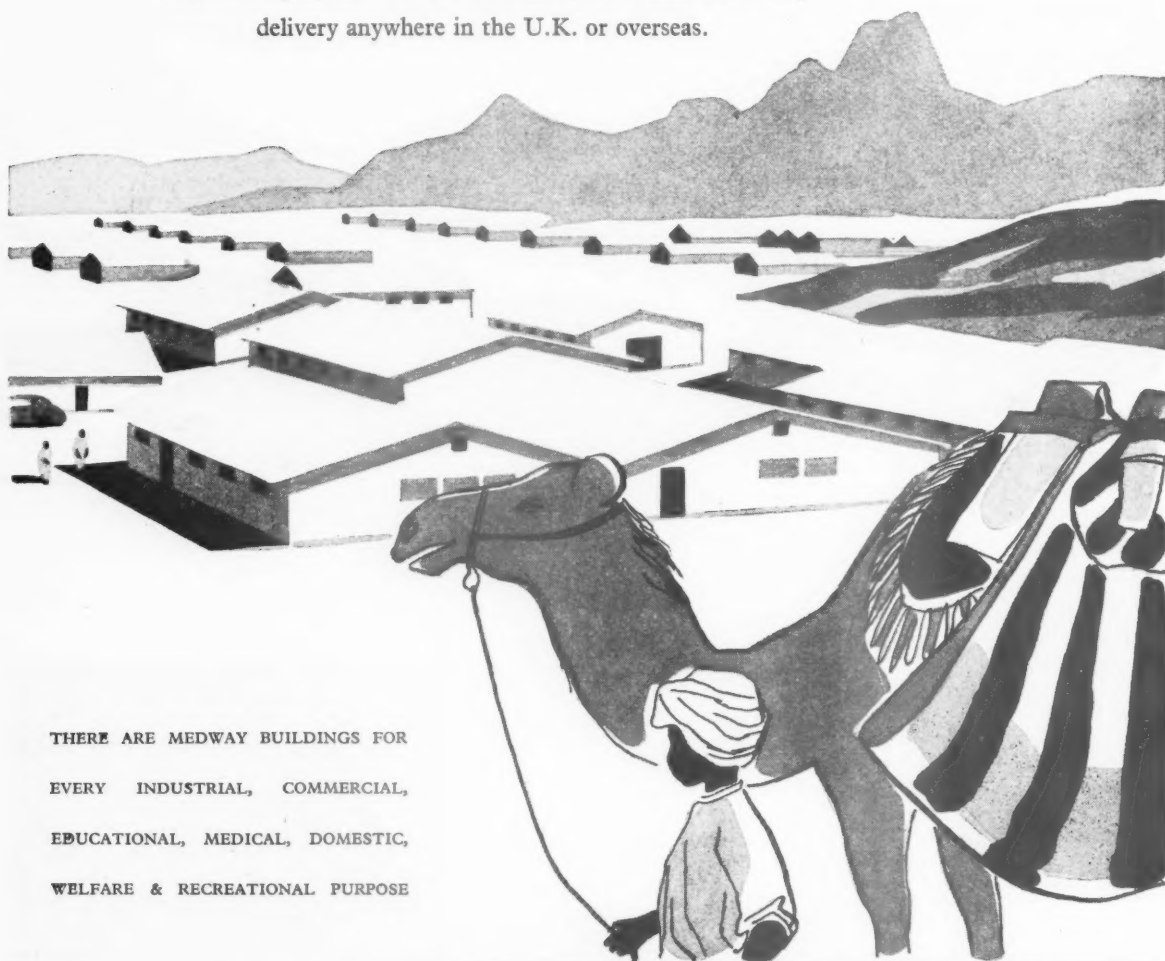
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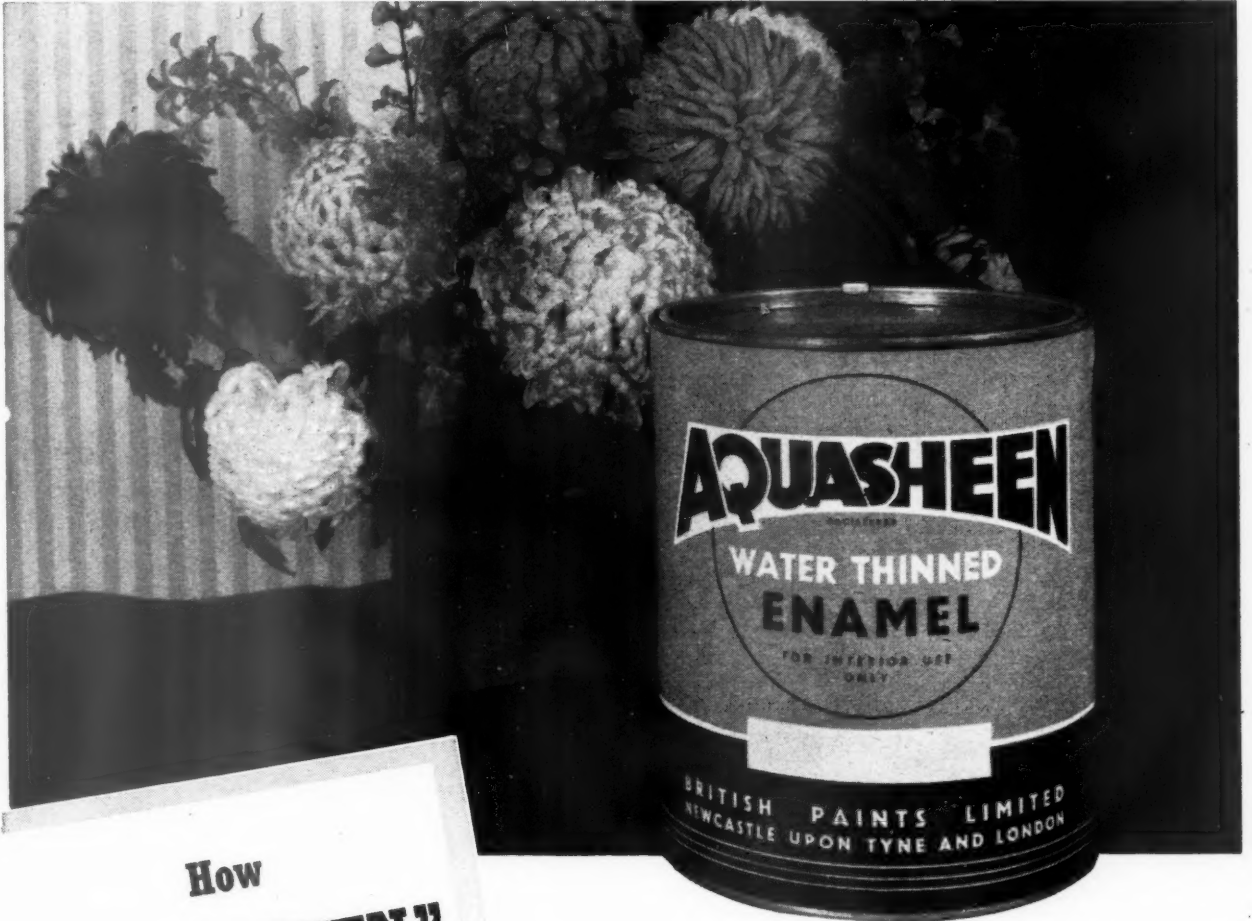
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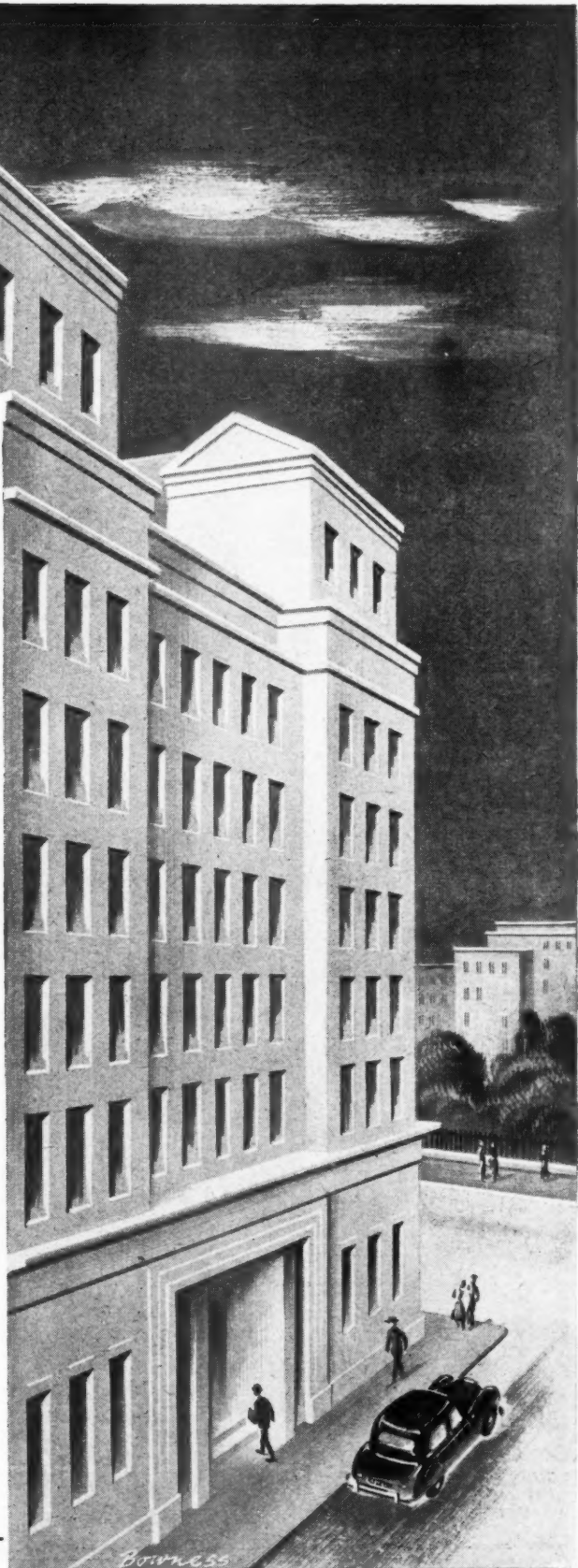
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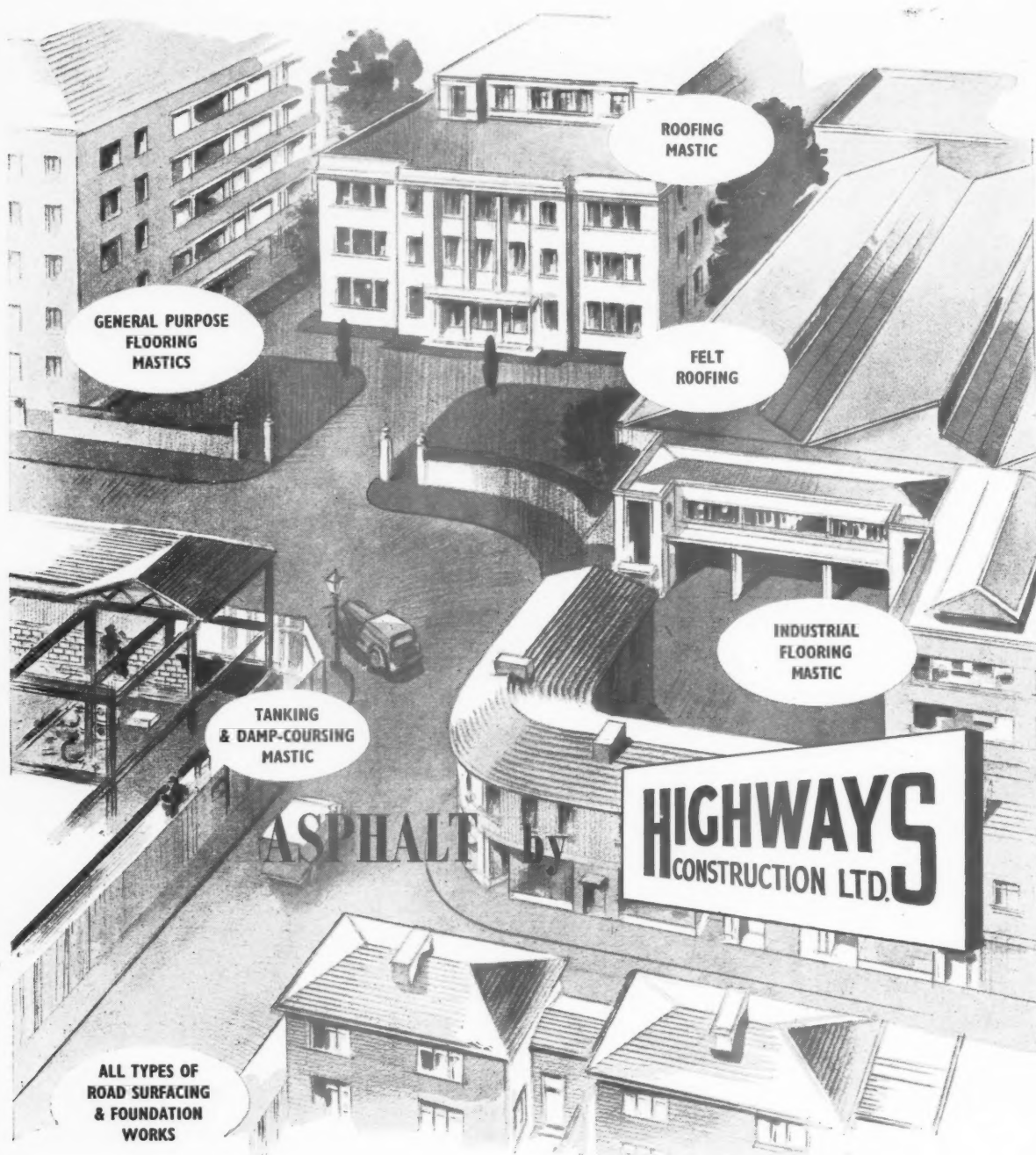
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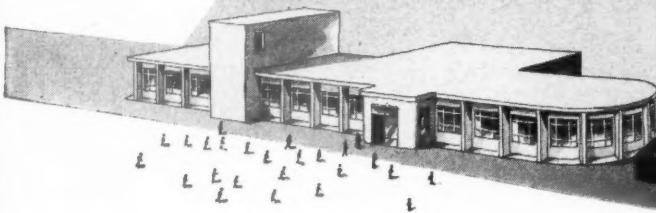
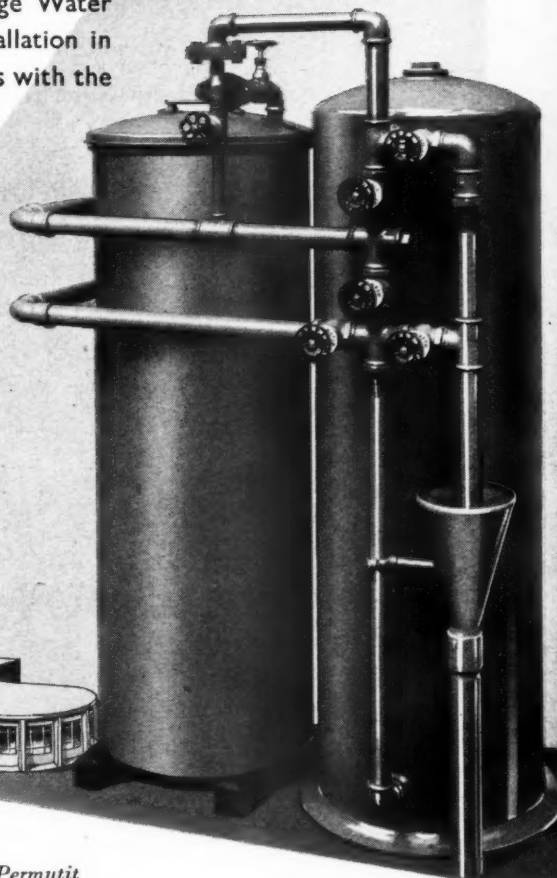
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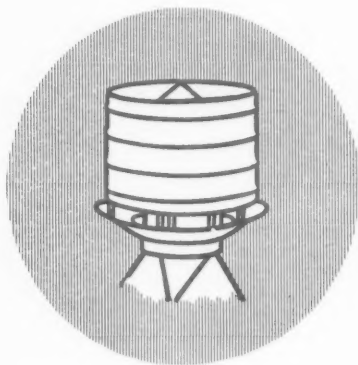
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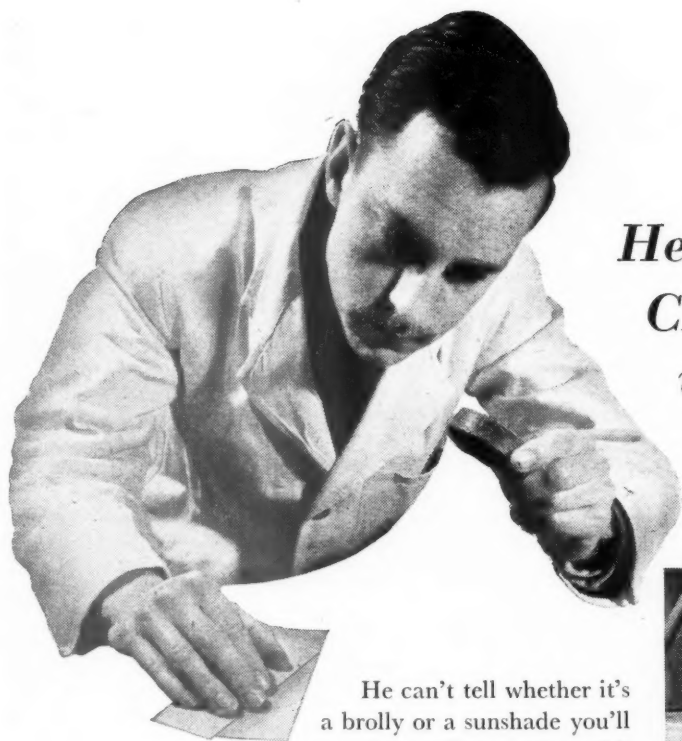
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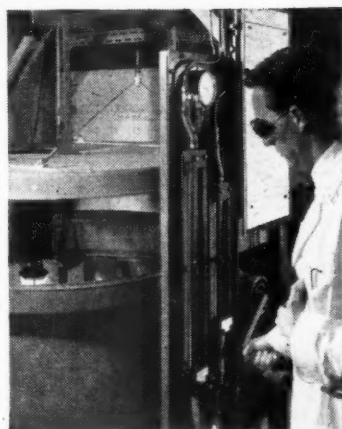




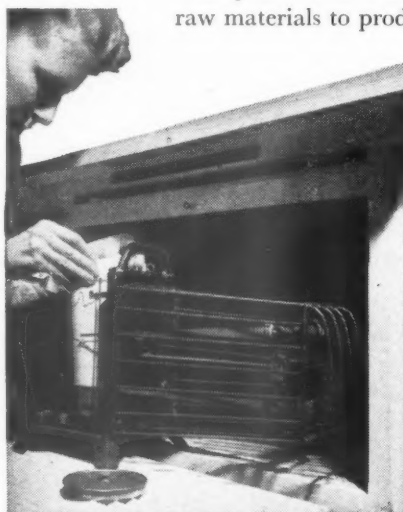
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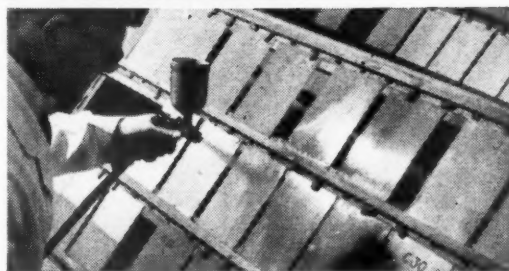


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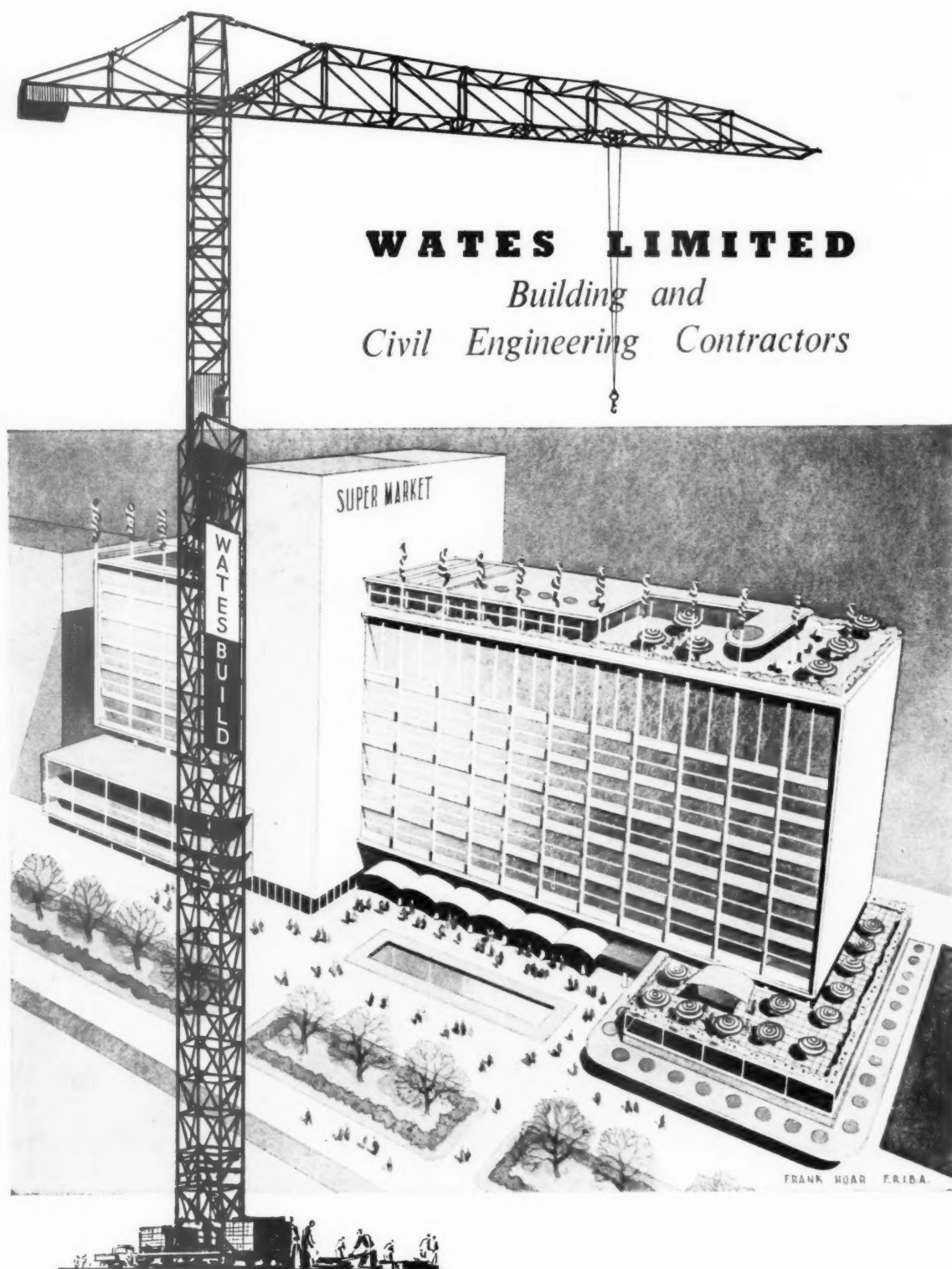
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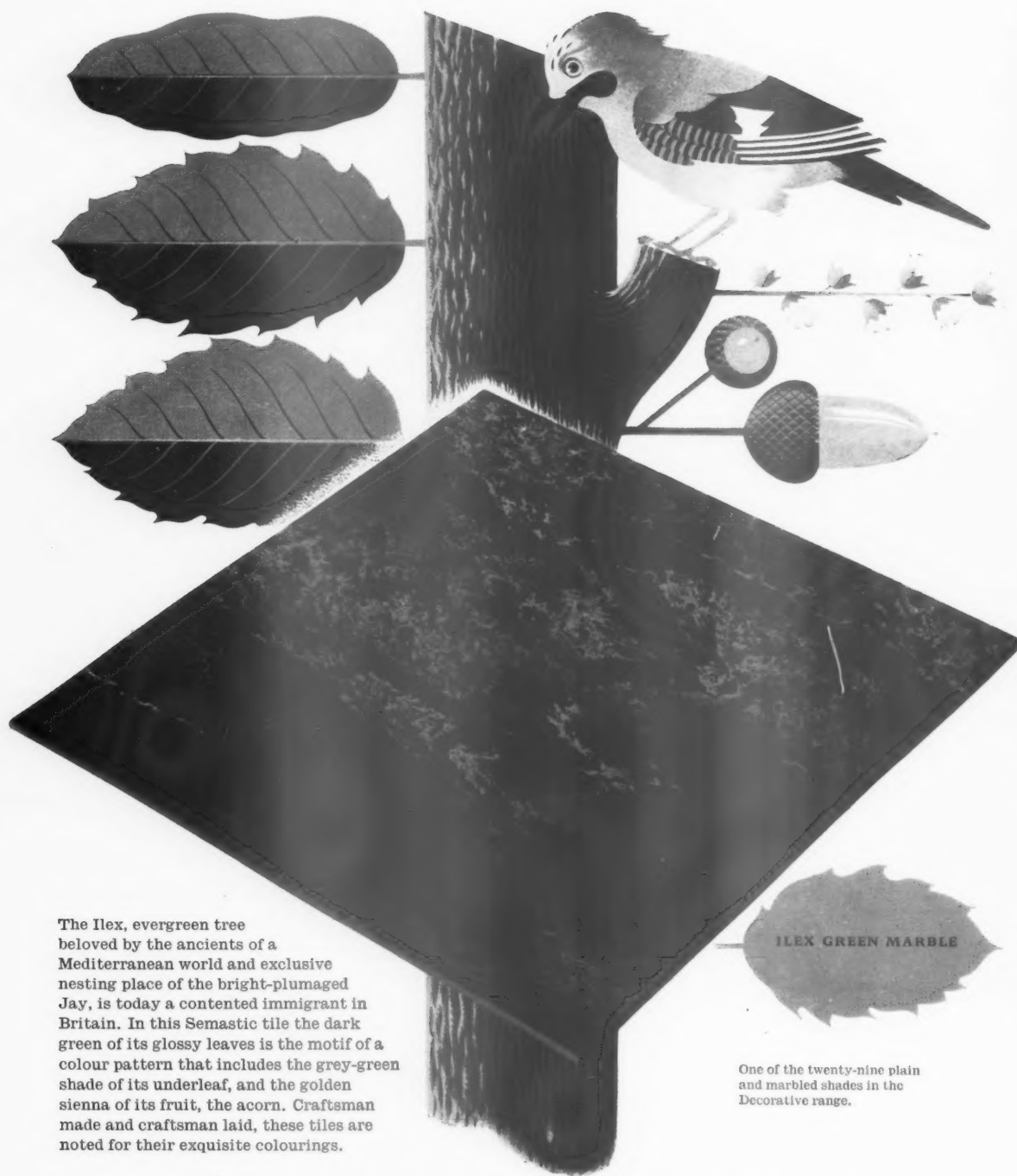
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Traditional Circuit Arrangements

After leaving the Board's main fuse, the cables pass to the meter and from thence (e.g. in an average six-room house) to the circuits which serve the lights, socket outlets, cooker, water heater, etc., each circuit being controlled by a main switch and fuse. From each of the main switches on the lighting and socket outlet circuits, the cables go to a distribution fuse board, where they split into sub-circuits as shown diagrammatically in Figs. 1 and 2.

The Lighting Sub-Circuits

Every sub-circuit which originates from the lighting distribution fuse board is generally limited to a total load of 1,000 watts and fused accordingly. This would allow for 16 lamps of 60 watts to each sub-circuit, but the general practice is to serve the fixed lights from separate sub-circuits for each floor, connecting some 2-amp. socket outlets on the same sub-circuits if the number of lights served is small. In these circumstances a faulty appliance or flex connected to such a socket outlet may put a number of rooms in darkness when it causes a fuse to blow. As these 2 amp. socket outlets can only be used for table lamps, and radio or television receivers, 5 amp. socket outlets are also provided, each on its own sub-circuit, for appliances loaded at 500-1,000 watts.

"Power" Sub-Circuits

For larger appliances, 15 amp. socket outlets ("power points") are provided, a separate distribution fuse board being installed for them. Each 15 amp. socket outlet has its own sub-circuit and fuse, capable of taking 1,000-3,600 watts (Figs. 2 and 3b). Appliances of a lower loading than 1,000 watts should not be used on one of these socket outlets through an adaptor unless the adaptor or the plug is fitted with a fuse of the lower rating suitable for the appliance to which it is connected.

In view of the heavier loading, the cooker circuit requires a larger cable than the lighting or power circuits, and has its own main switch and fuse at the meter position (Fig. 2).

Disadvantages of the Traditional Arrangement

Lack of interchangeability due to the use of three sizes of socket outlet is a serious defect of the old system (see D.I. 1). If an adequate number of socket outlets is to be provided, the cost will be unnecessarily high due to the great length of cable required to run from the distribution fuse board to each socket outlet and back again, no matter how close the socket outlets may be to each other. It was to eliminate these difficulties that the universal 13 amp. socket outlet was introduced with the ring circuit system just after the war.

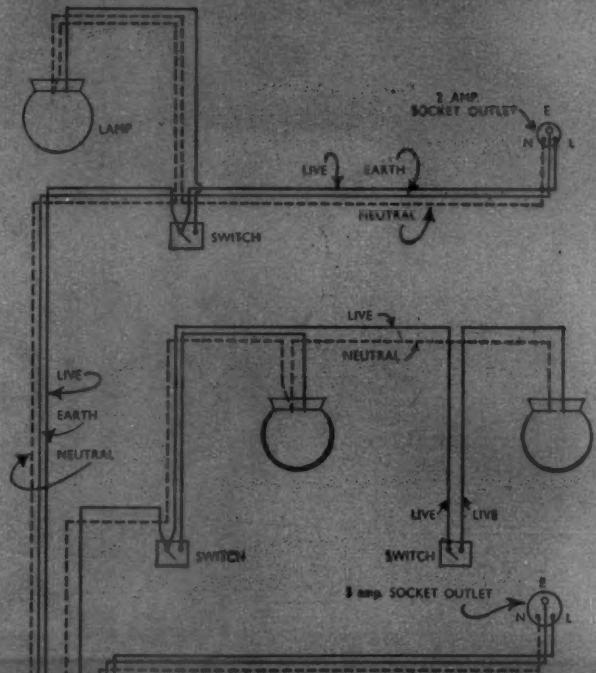


Fig. 1 Lights and socket outlets.

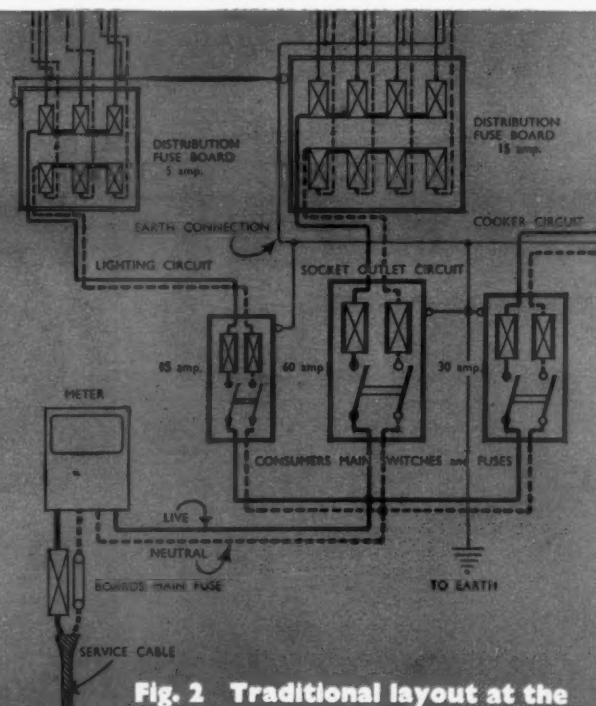
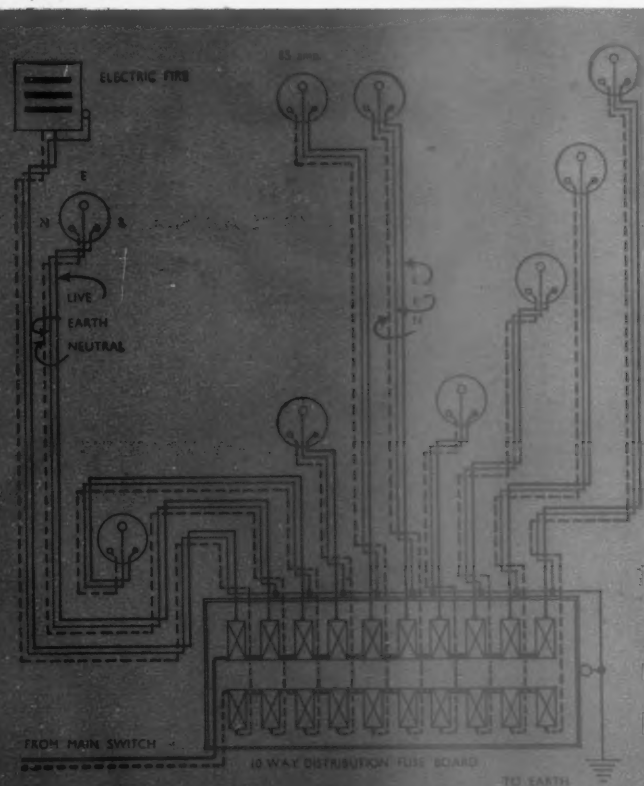
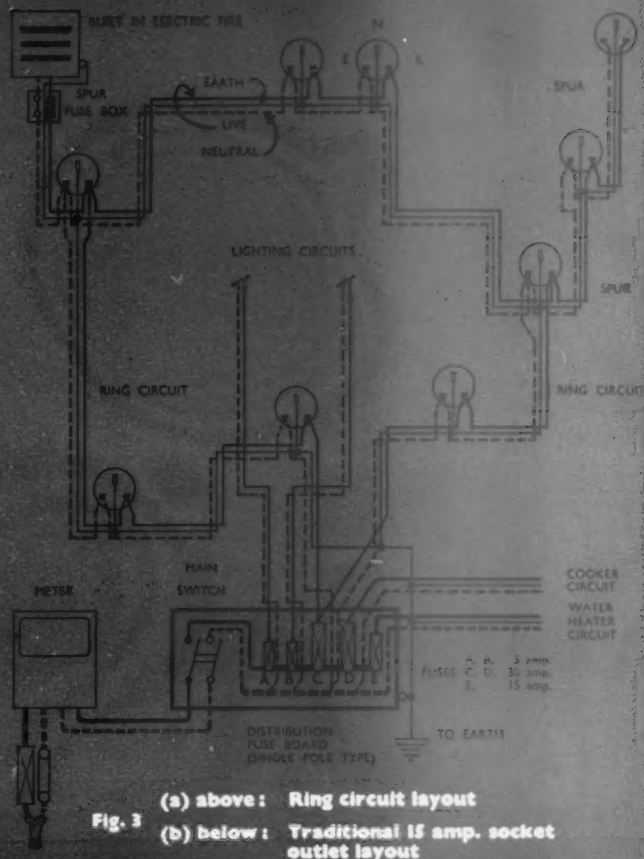


Fig. 2 Traditional layout at the meter position



The Ring Circuit System

A ring circuit is a sub-circuit in which the pair of conductors form a loop starting from and returning to the same terminals on the distribution fuse board; it can serve a considerable number of socket outlets on the way because it receives electricity from each end. Compare the diagram in Fig. 3a with the traditional system shown in Figs. 2 and 3b.

After specifying the sizes of the conductors, the Regulations for the Electrical Equipment of Buildings issued by the Institution of Electrical Engineers state in effect that: the rating of the fuse protecting a ring circuit must not exceed 30 amps.; in houses or flats of less than 1,000 square feet floor area any number of 13 amp. socket outlets with fused plugs may be served by a single ring circuit; above that floor area no ring circuit may serve more than 10 such socket outlets; spurs may be taken from a ring circuit to outlying socket outlets (see Fig. 3a) of the same size without intermediate fusing, provided that the number of socket outlets served by each spur does not exceed two, and that the total number of spur socket outlets does not exceed the number served directly by the ring circuit.

Fixed Appliances and the Ring Circuit

Fixed appliances such as electric fires and convectors must not be just plugged in to the nearest socket outlet: this would mean that the flexible connection of an inset fire, for example, would be partly embedded in the plaster, which is a most unsatisfactory arrangement. The difficulty is overcome by wiring the appliance direct to a spur fuse box (with appropriate fuse) mounted in the wall immediately adjacent and served by the ring main in the same way as a socket outlet. The sum of the current ratings of all such fixed appliances fed from a single ring main must not exceed 15 amperes. It is quite in order, however, for appliances such as refrigerators and water heaters, which although not technically "fixed appliances" are rarely moved about, to be plugged into universal 13 amp. socket outlets.

The Consumers' Service Unit

In older installations, fuses were invariably included in both the live and neutral conductors in a circuit (double pole fusing), which necessitated bulky equipment. Current regulations, however, permit the use of a single fuse inserted in the live conductors (single pole fusing) resulting in a remarkable simplification at the meter position (compare Figs. 2 and 3a). The installation is now reduced to its simplest terms: the Board's main fuse, the meter, the consumer's main switch, then a small number of sub-circuits each with its own fuse. With the exception of the meter these items can now be obtained in the form of small neat units. The smallest provides four sub-circuits, one for lighting, one ring circuit, one for the cooker, and one for the water heater, whilst others have accommodation for a sufficient number of sub-circuits for any size of house or flat. In every case neatness and simplicity are combined with ease of access and absolute safety.

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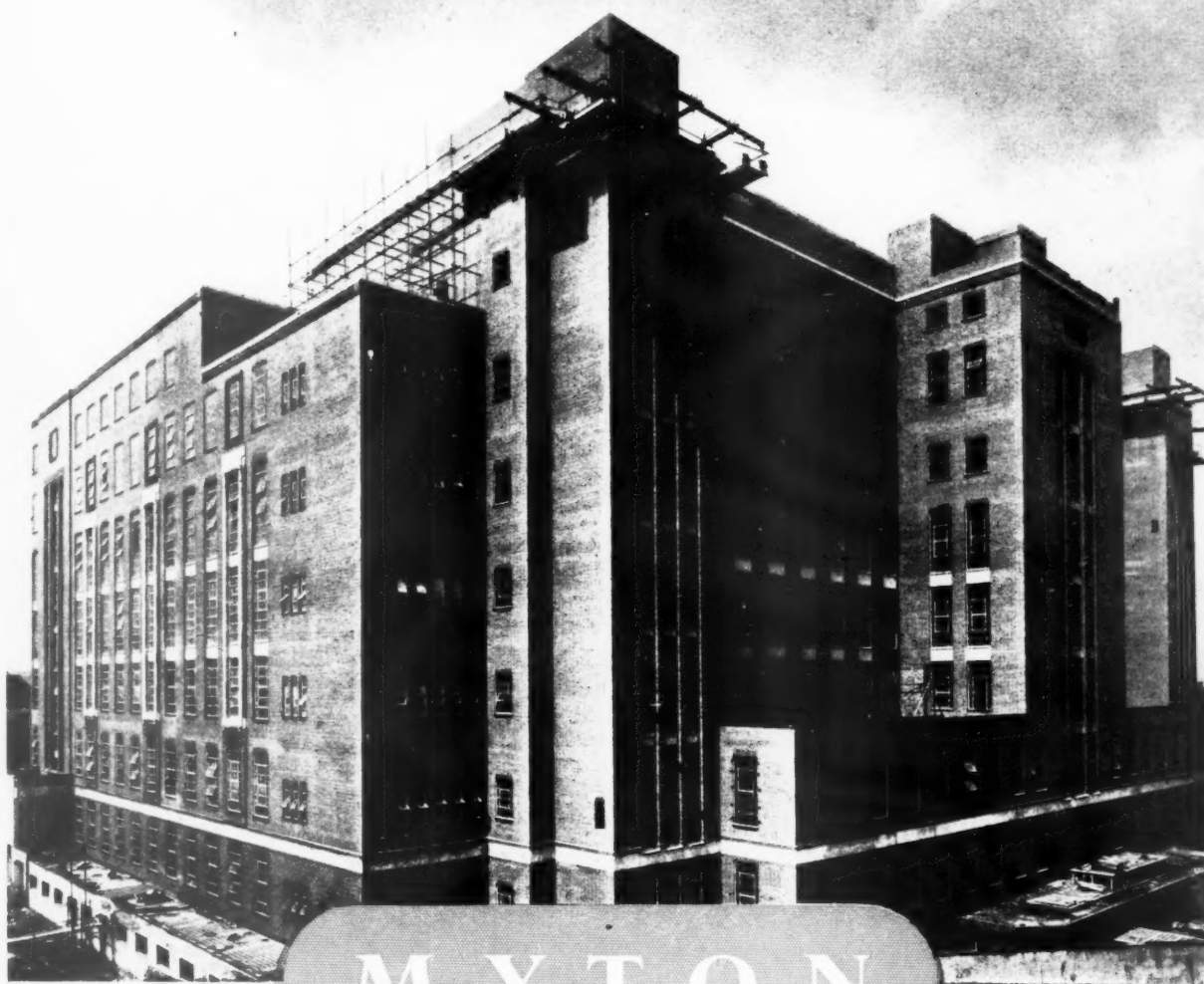
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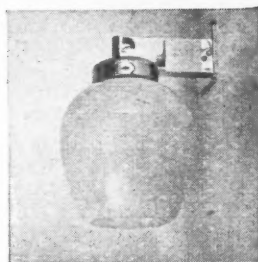
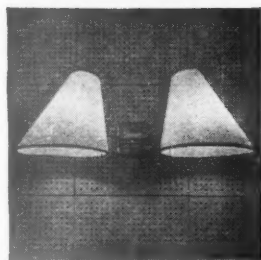
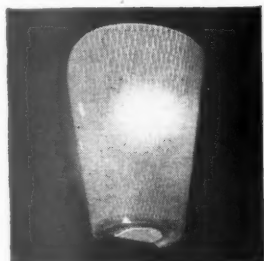


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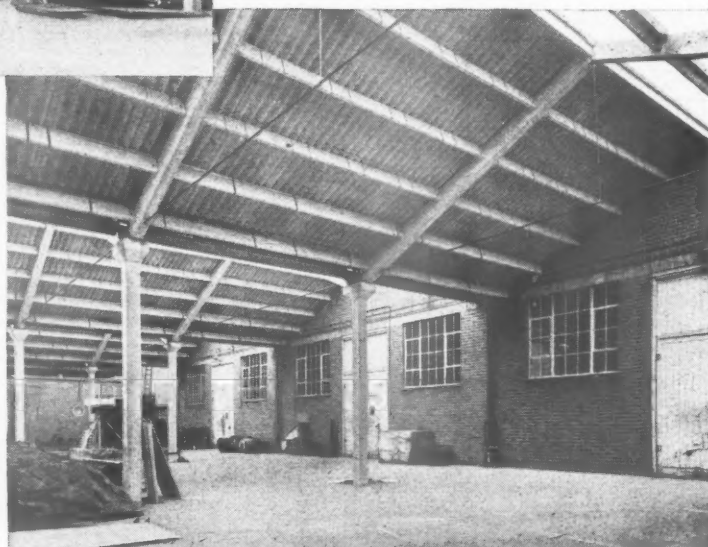
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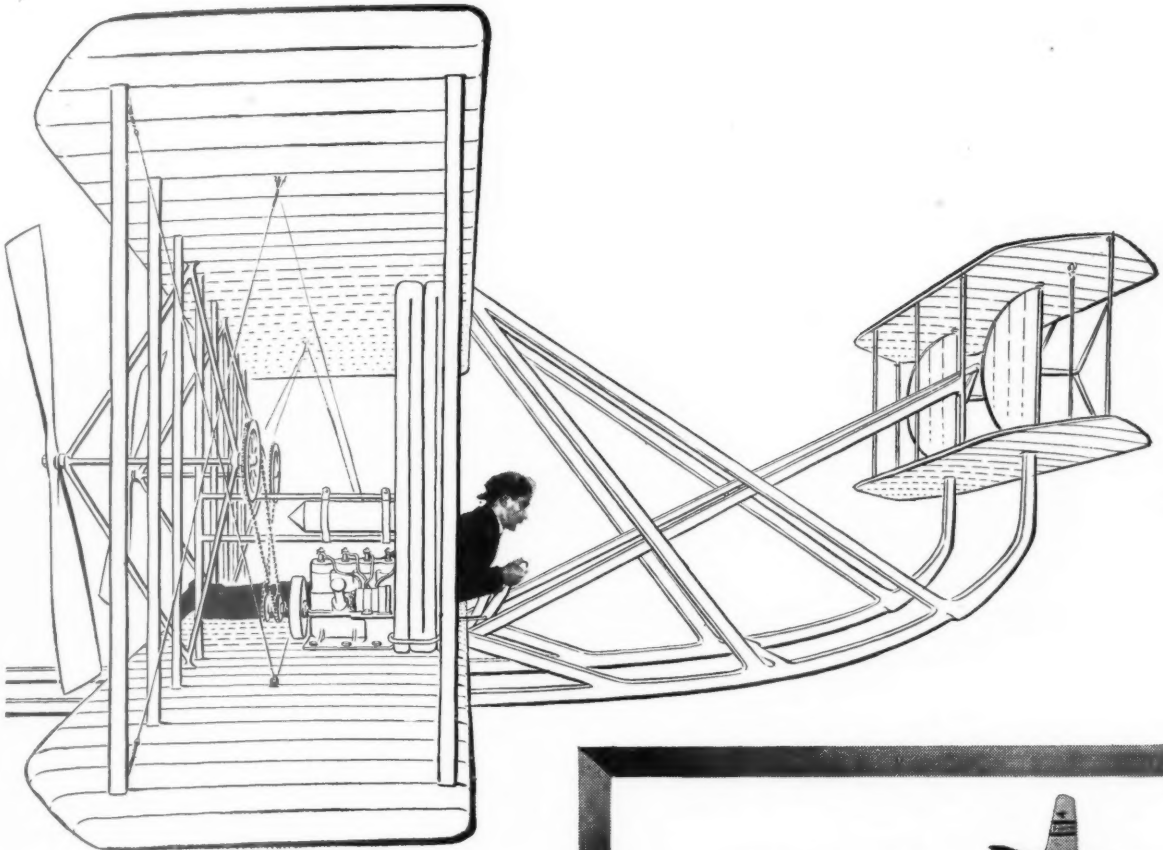
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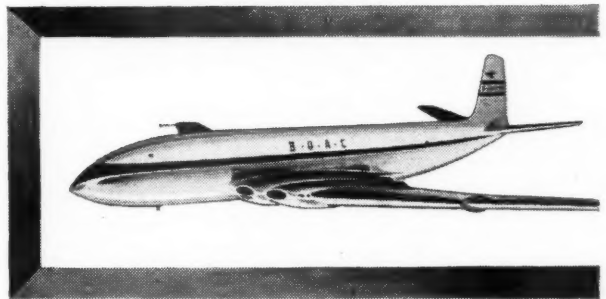
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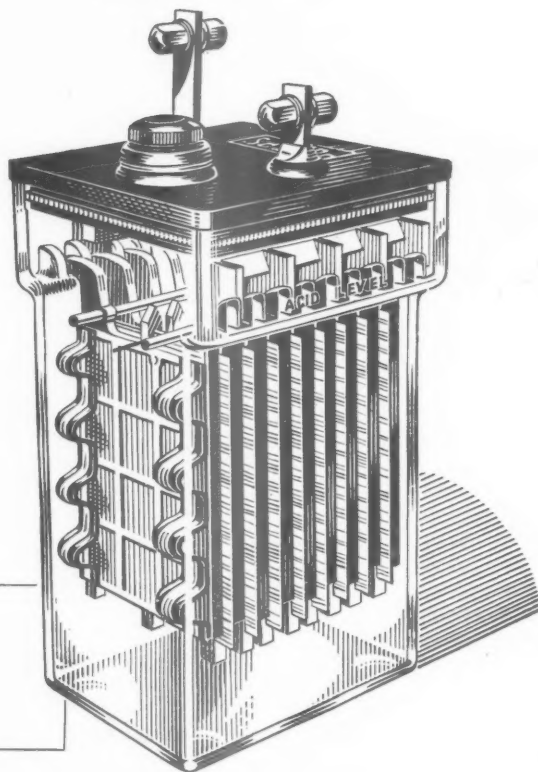
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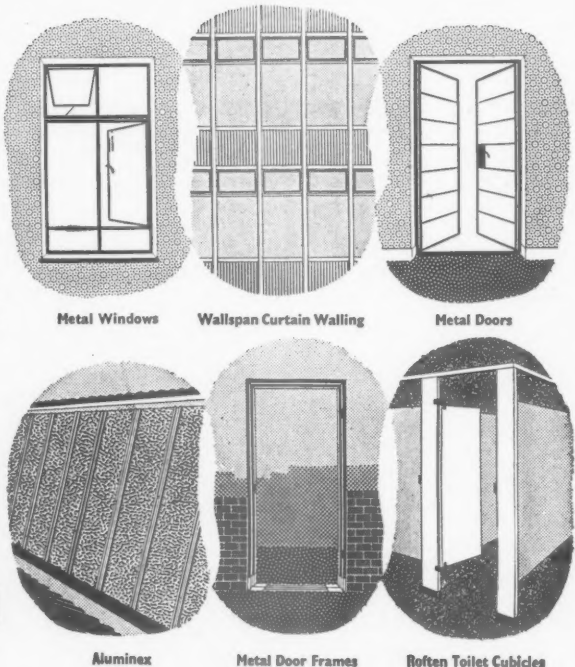
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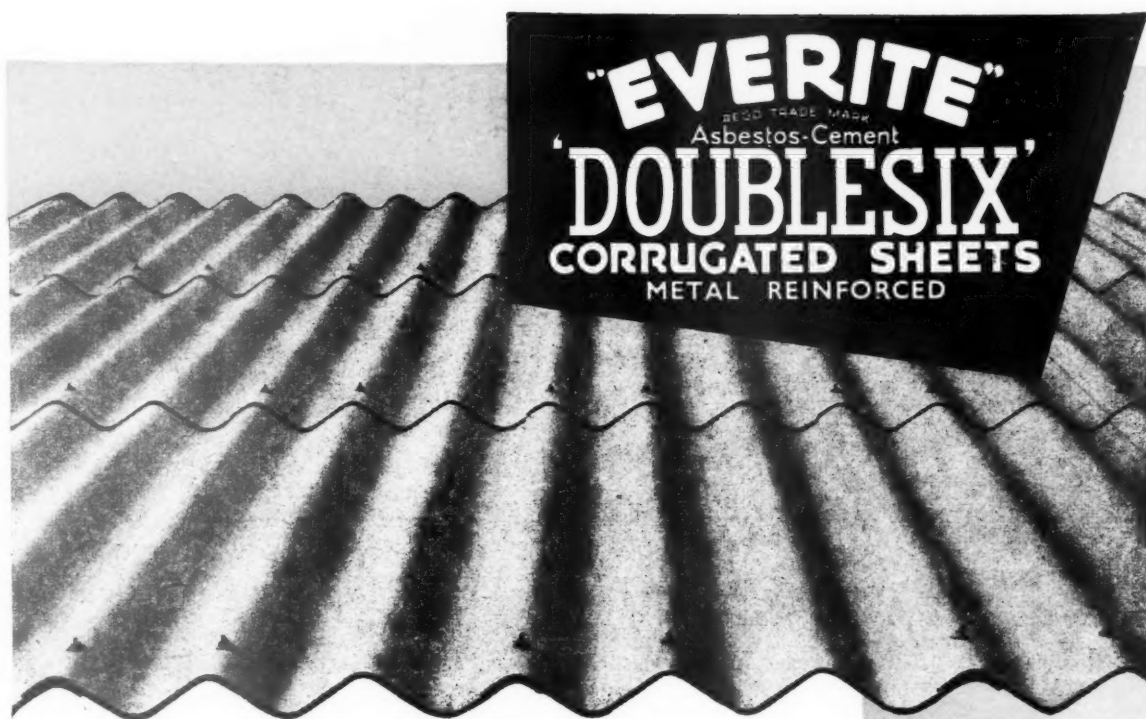
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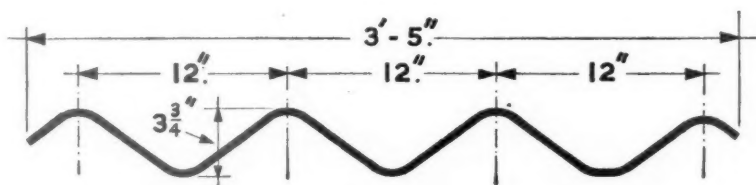
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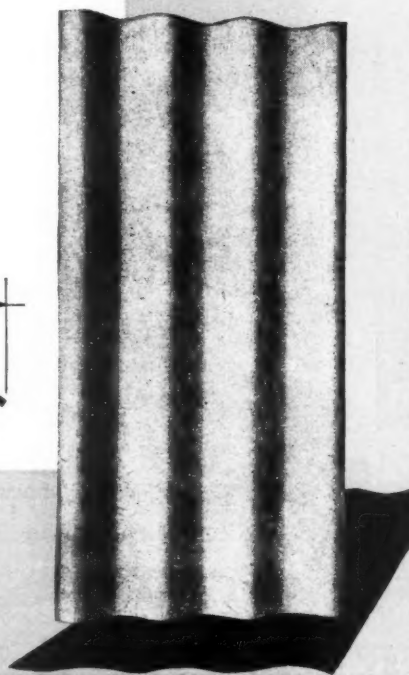
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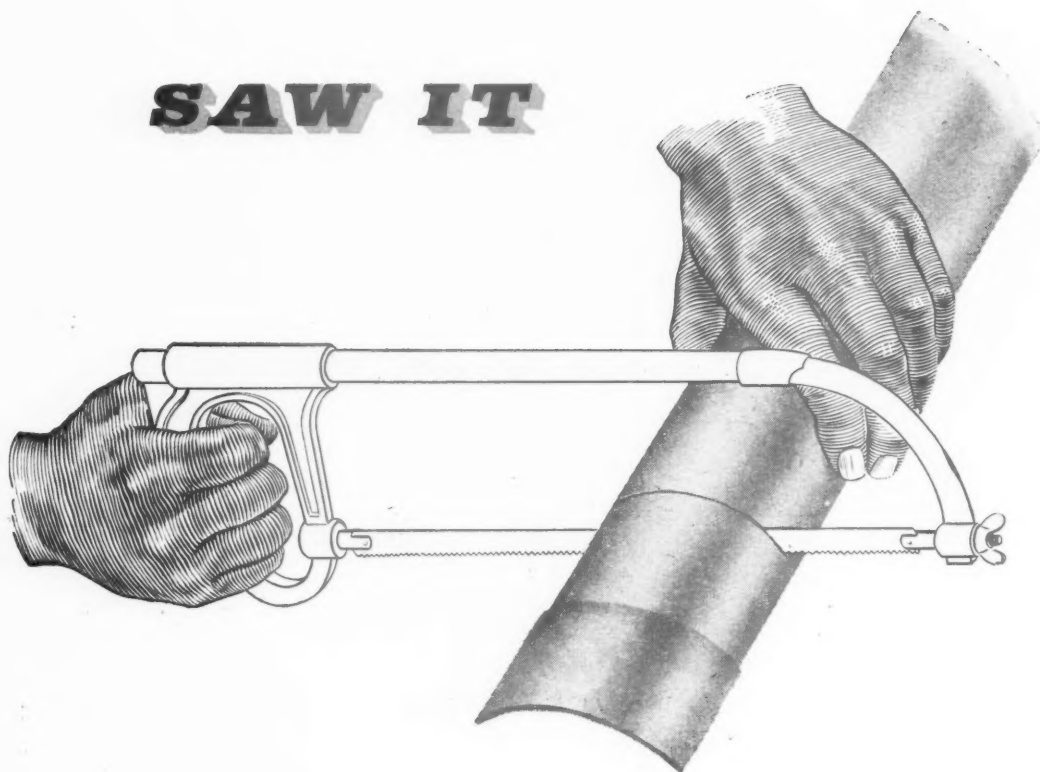
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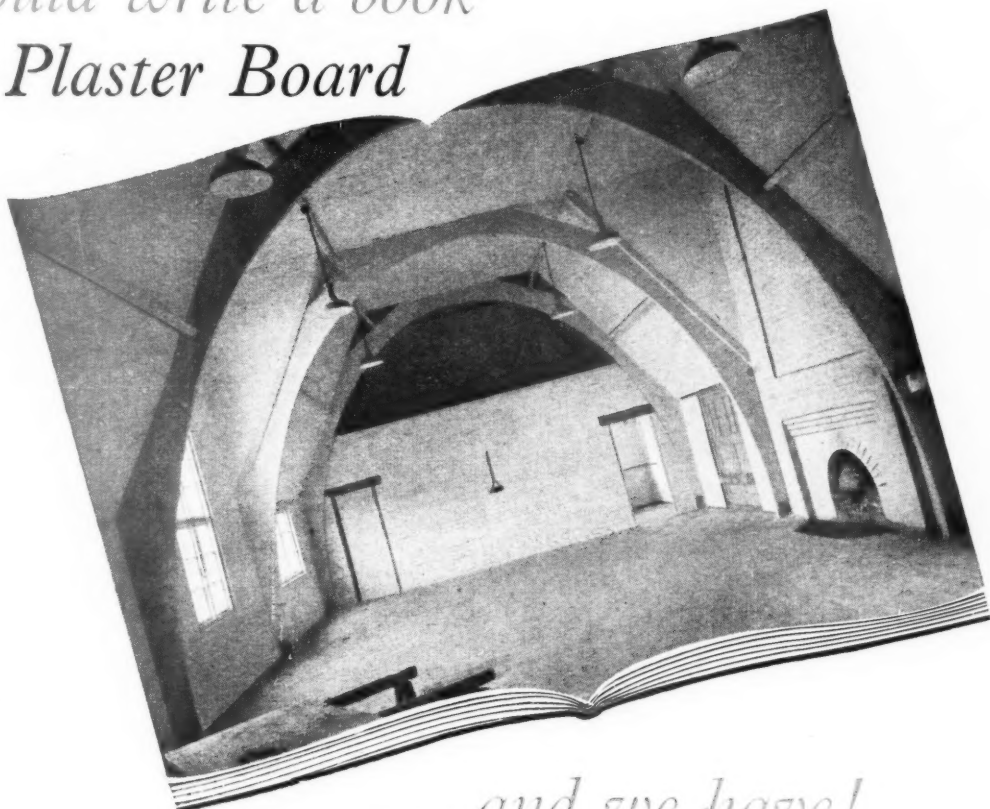


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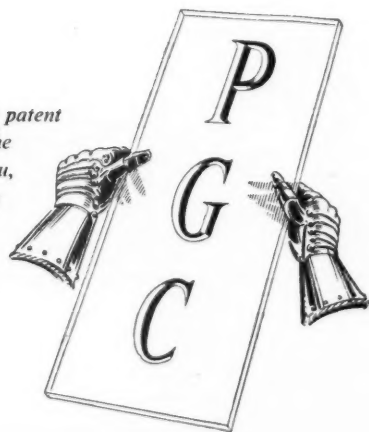


A close-up view showing the glazing and supporting structure from underneath.



A general view of the interior of one of the hangars.

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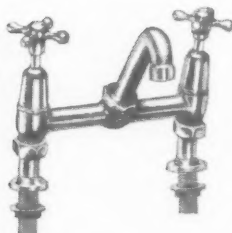
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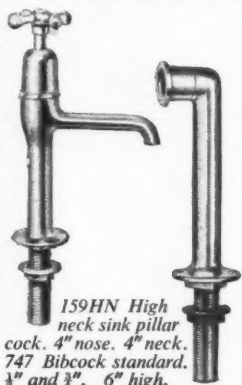
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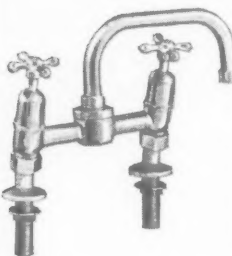
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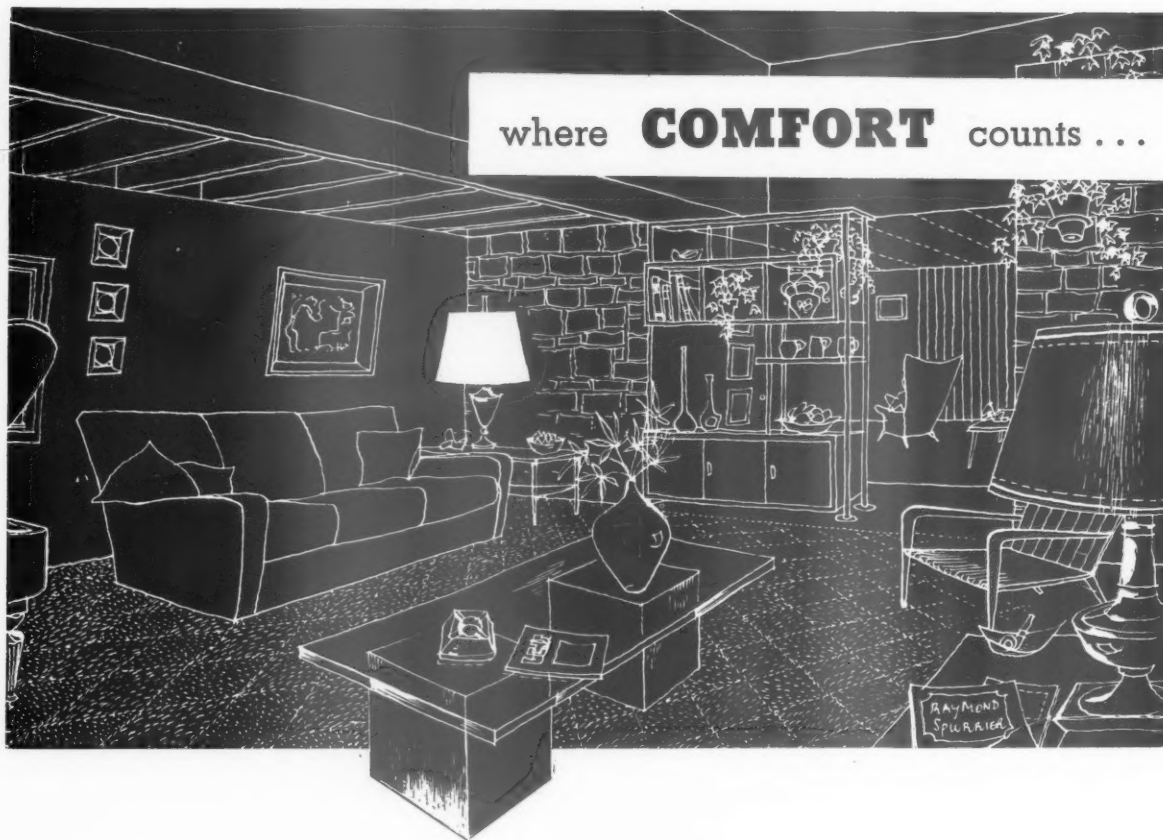
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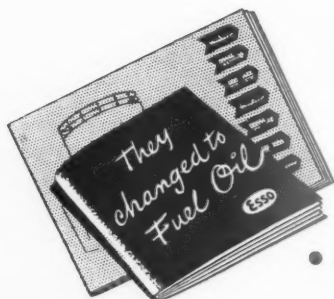


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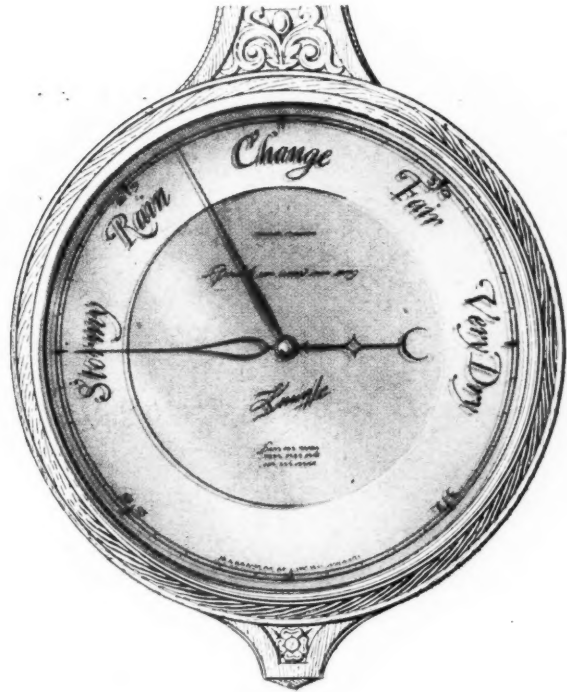
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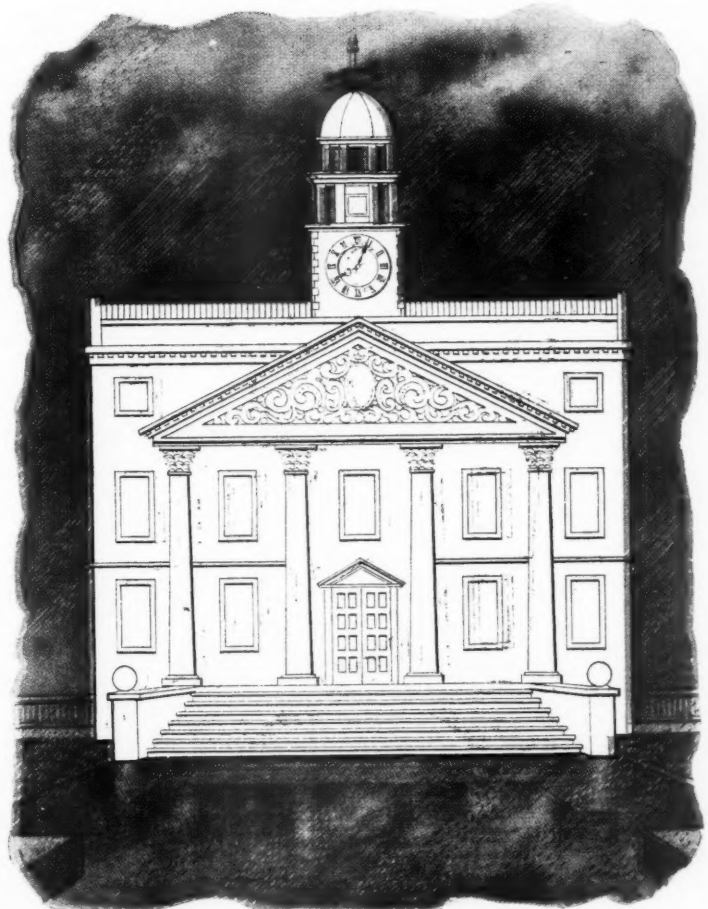
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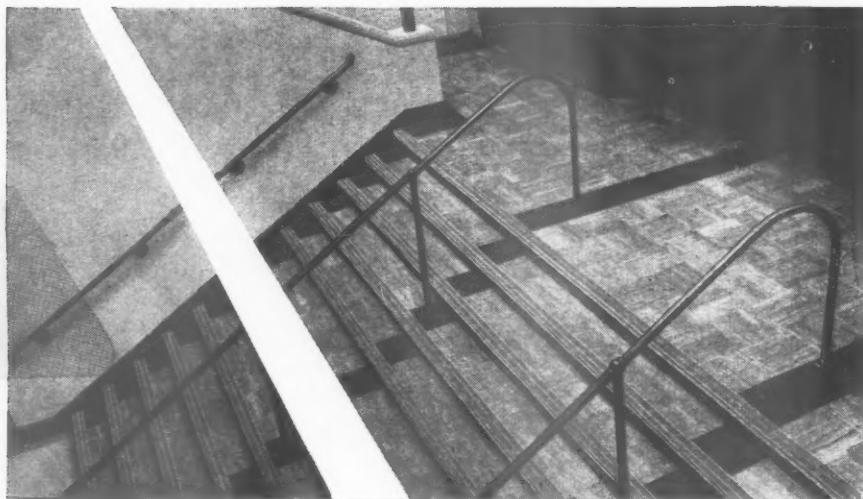
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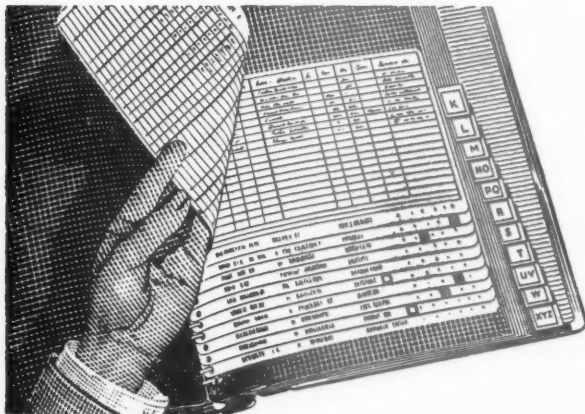
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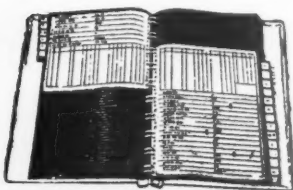
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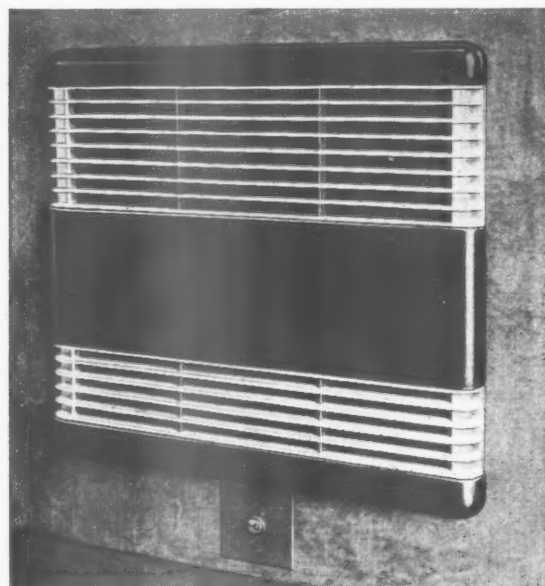


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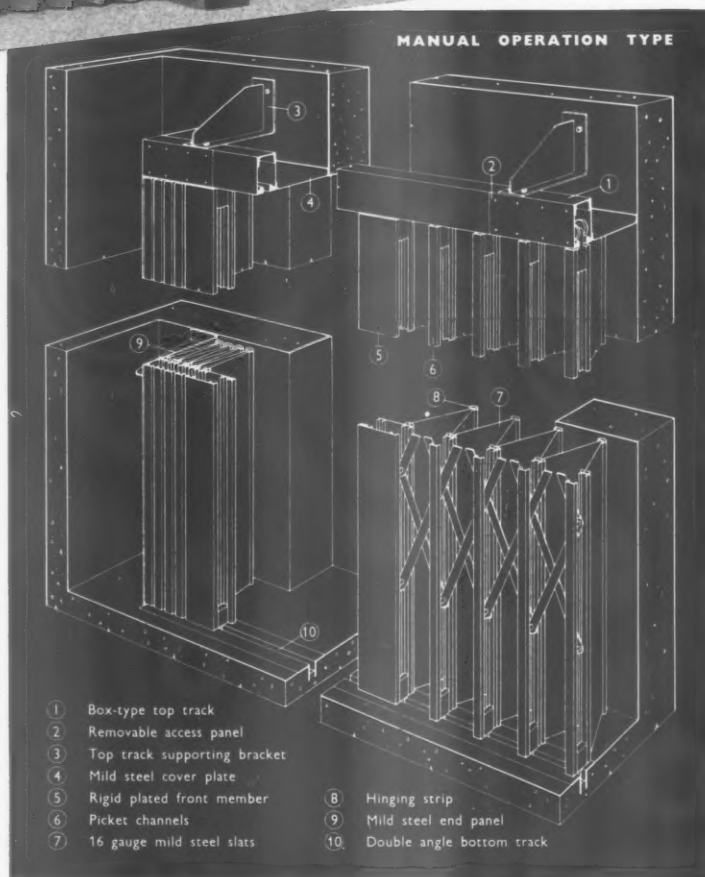
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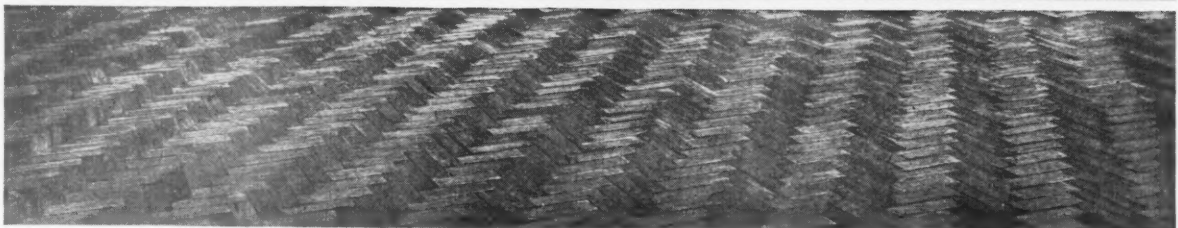
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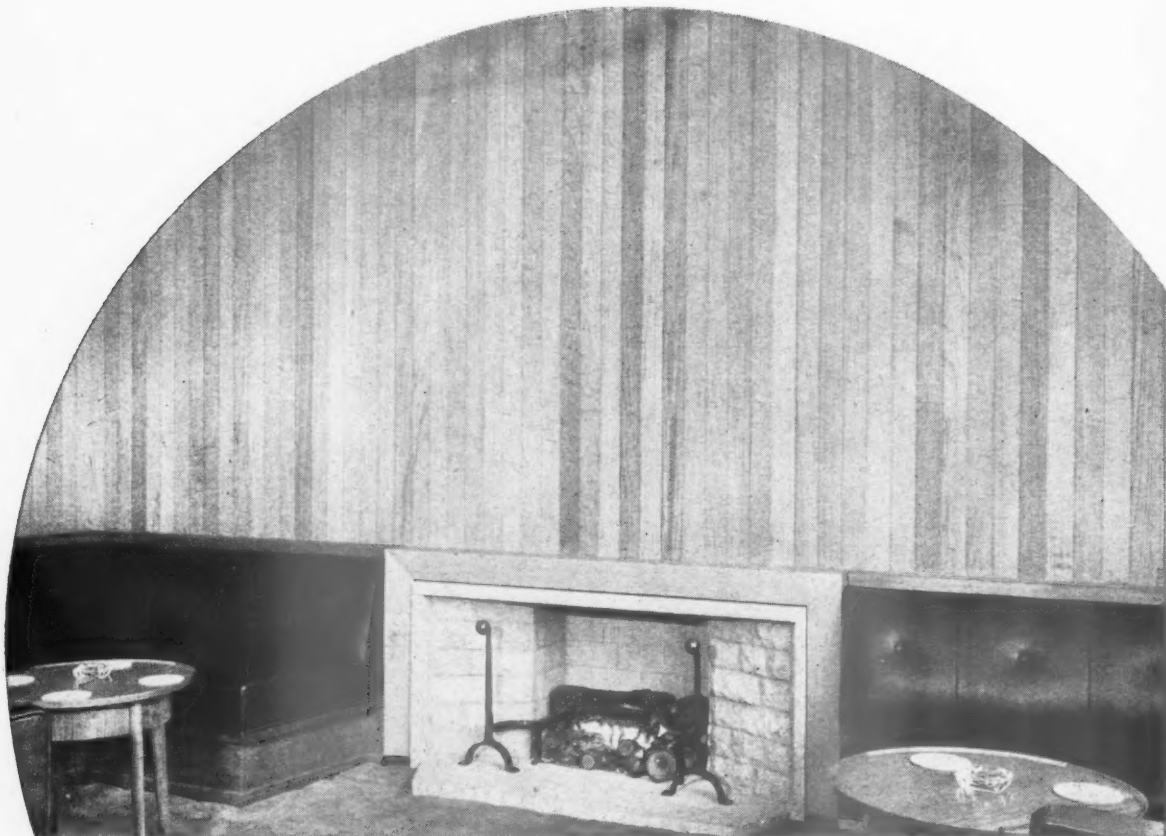
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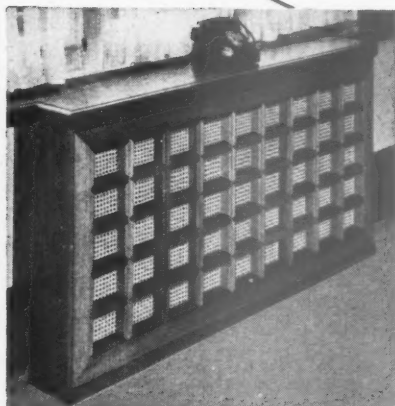
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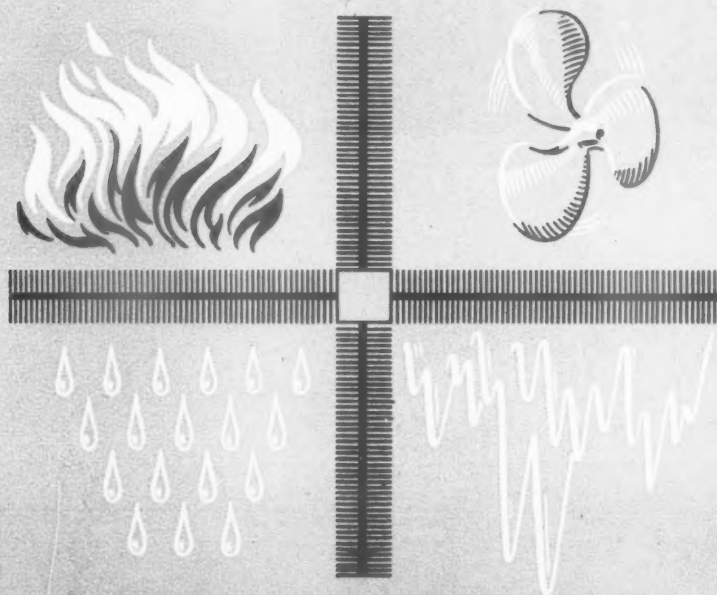


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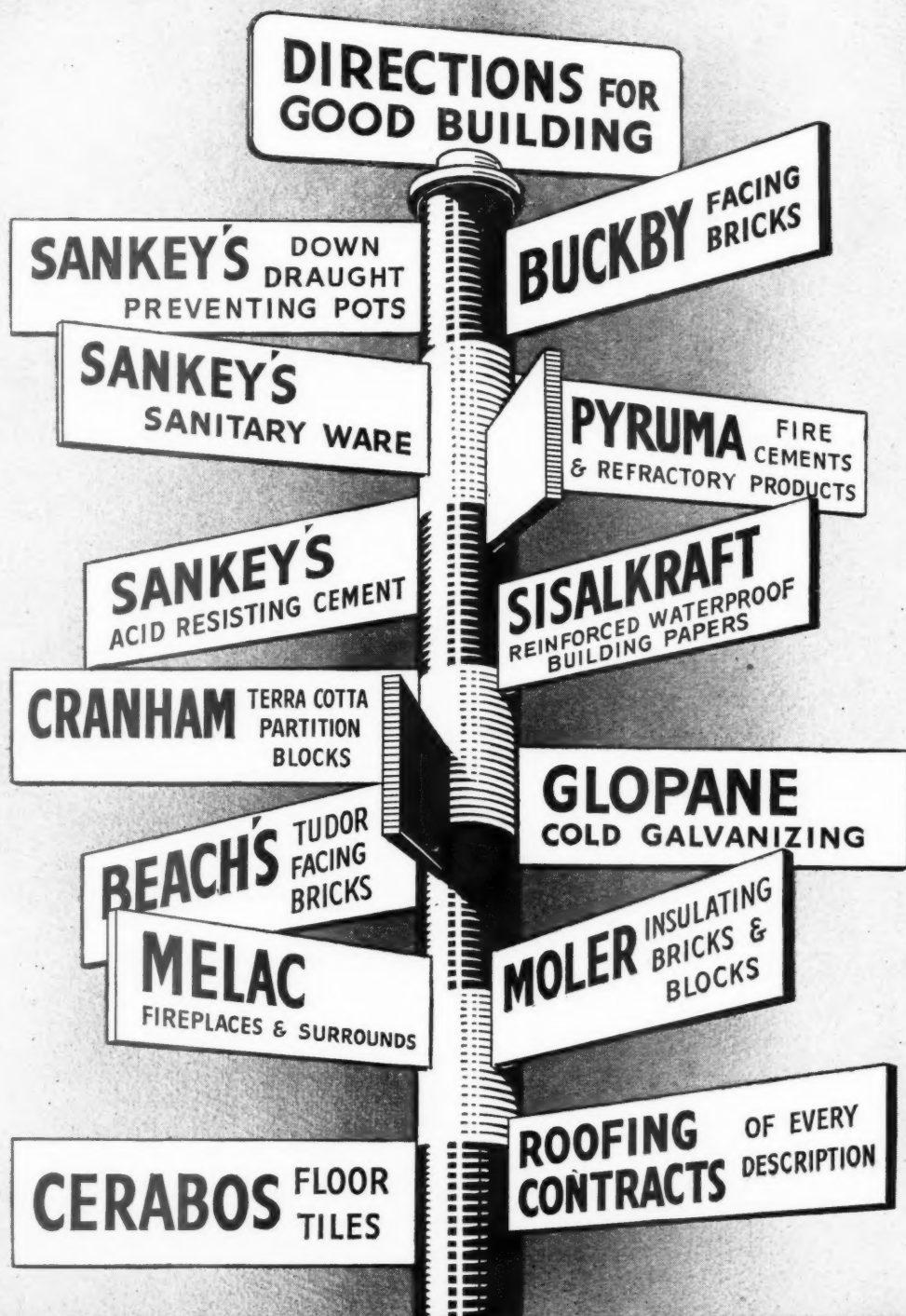
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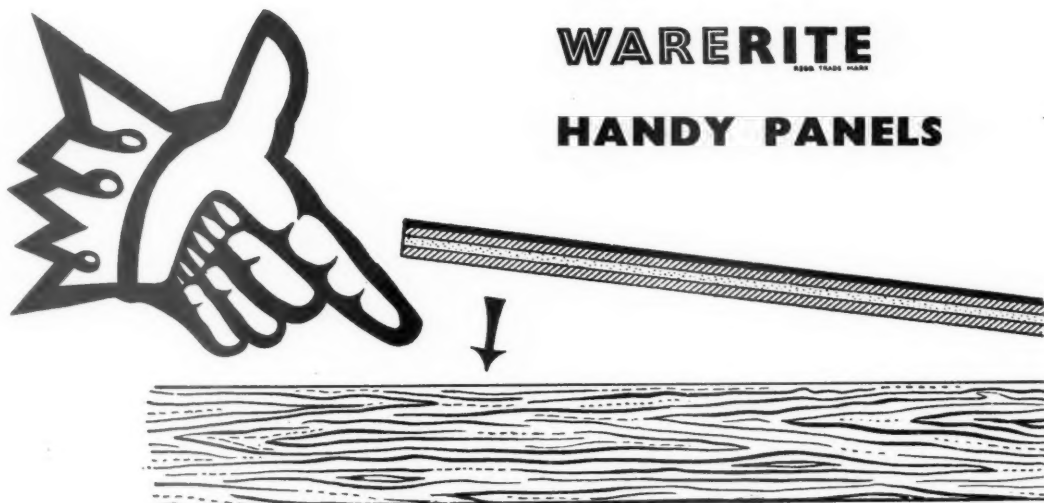
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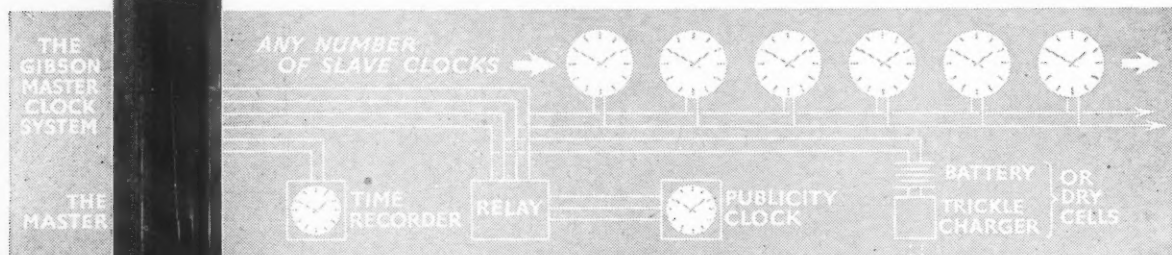
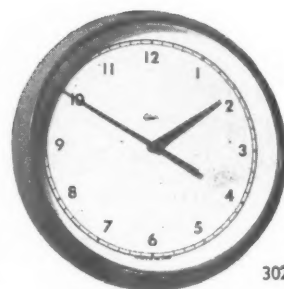
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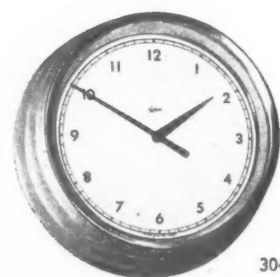
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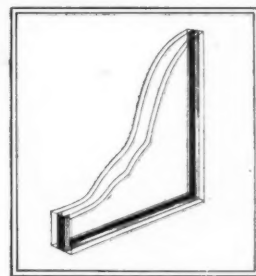
During recent years the demand for copies has been so great that the edition has been absorbed immediately on publication. You are therefore urged to place your order *now* for the 1954 edition. The price is 30s. net. Postage 2s. 3d. (3s. abroad).

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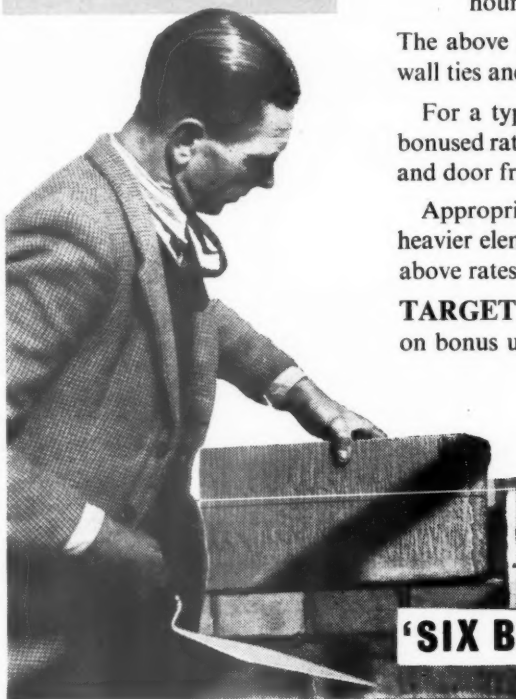
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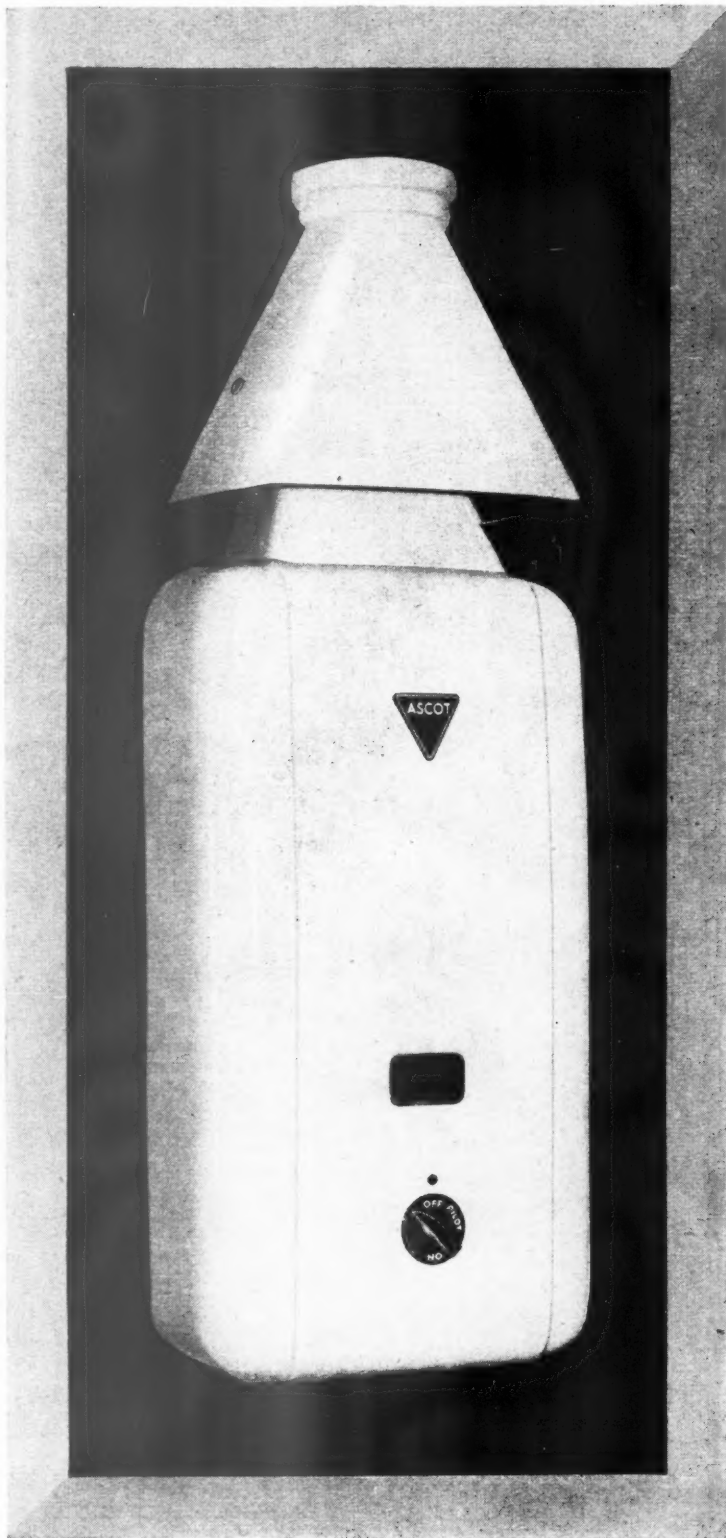
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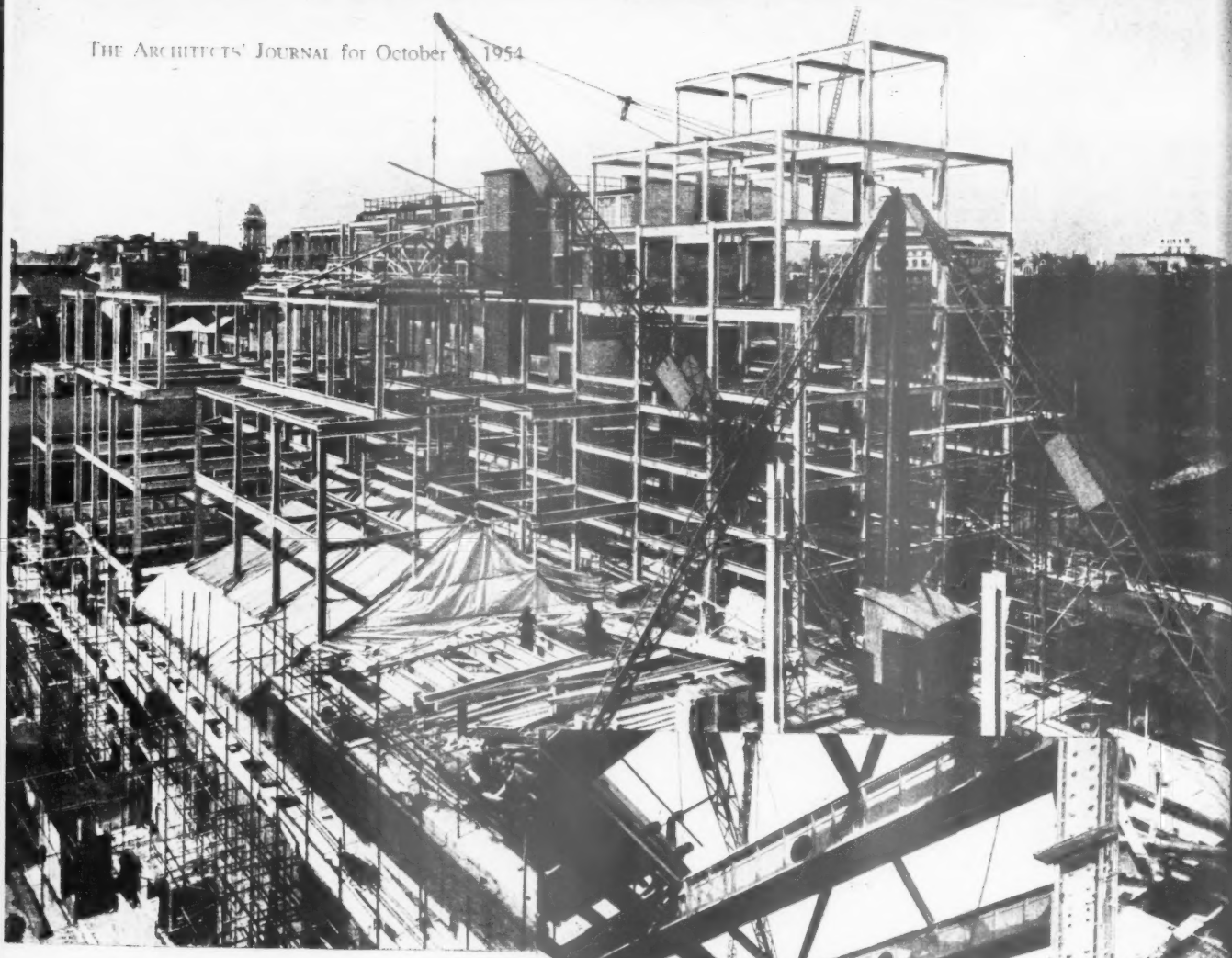
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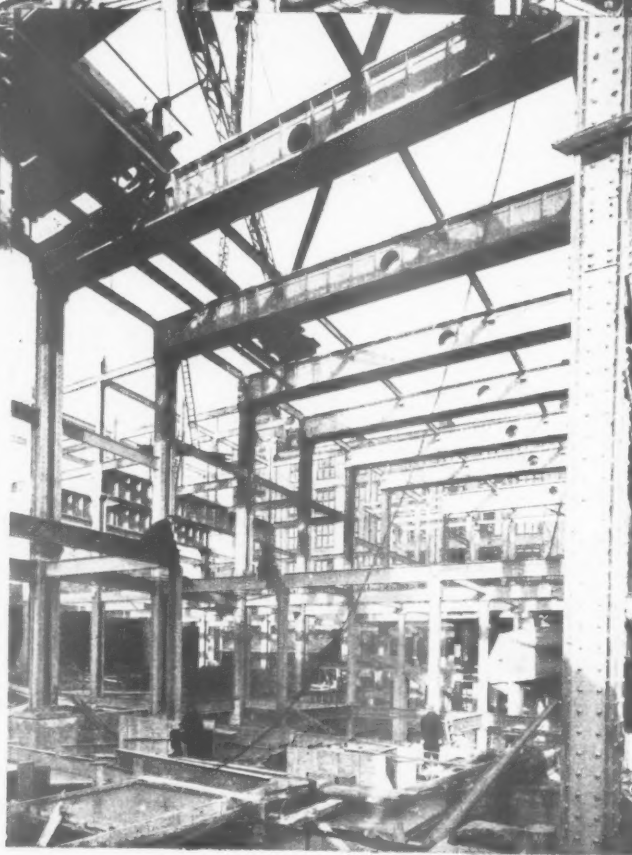
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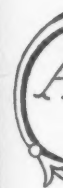
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"HARMFUL" PRACTICES

So the Monopolies Commission has now officially disapproved of the London Builders' Conference on grounds which seem to me to be perfectly adequate. The preparation of a genuine tender is, of course, a fairly expensive business and I still think that builders might well be paid for it. But let it be open and above board so that the client knows exactly what he is paying and why. Any society whose membership is kept secret and whose procedures are not fully known is bound to be suspect, and it is no use builders preaching free enterprise and open competition and then saying that competition must be reasonable.

Nothing, of course, can ever prevent firms from ringing up friends and fixing prices behind the scenes, but one can only suggest that "everyone" in the building industry should read (as this column has already suggested) the Productivity Council's final report of US Industrial Production.

ADJUSTABLE ART

If you think it is worth the effort to keep up with what are known as "developments" in this and that, then you should make the journey to White-chapel to see the new exhibition at the ever-enterprising gallery there. The show might quite properly be described as a sample fair of current English non-Academy painting and sculpture (though ASTRAGAL suspects he has seen at least one of the pieces in Burlington House for all that) and covers all the trends that advanced Lifemen should have at their finger tips—neo-Realism, Brutalism, concrete (though you would call them abstract) paintings and constructions, Euston-Roadism and the rest.

It also contains some interesting works of art. Viz.; Ivon Hitchens' working drawing for the Cecil Sharp House mural; a vast neo-Realist interior by Jack Smith (and can you think of a better name for a Realist?); sculpture by Moore, Hepworth, Paolozzi, Butler and Chadwick; old friends like Burra, Robert Buhler, Lowry or Vanessa Bell; new boys like Alan Reynolds, Victor Willing, Edward Middleditch. Very full coverage you see, very fair, and most people represented by quite big pictures, in a gallery where there is room and light enough to see them.

One work of art really took ASTRAGAL's fancy—a construction, by John McHale, which was adjustable, demountable, double-sided and free-standing. When you had seen enough of one side you could go round and look at the other, when you had seen enough of both you could alter them, or move some of the bits from one side of the screen to the other—or get somebody else to do it, so that the result would come as a surprise to you—or you could move it and put it somewhere else, or you could demount it and put it in the attic until you felt better about it—or, presumably, you could go to the artist and buy some new parts for it, or trade in some of the old ones . . . the mind boggles. . . .

BOURNEMOUTH: NOTHING TO LOSE BUT ITS CHINES

Four years ago two competent young architects, Ronald Sims and Patrick Coles, designed the Punshon Memorial Church, Bournemouth, in a modern, but not extremely modern, manner. Since then there have been many different development schemes. Their current design, discussed and vetted with the Town Planning Officer (also the Borough Engineer!) was agreed; but the whole scheme—the architects learn by reading the local Press—has been rejected because it would "spoil the skyline." It would, it is true, since it has a tower, break the skyline—as you will see in the photo on page 428—but this is surely an honourable tradition in church building. The rejection is by a group of councillors. These gentlemen are, of course, guardians of the public interest; as such it is clearly their duty to take professional advice. This axiom, so far as health, law or

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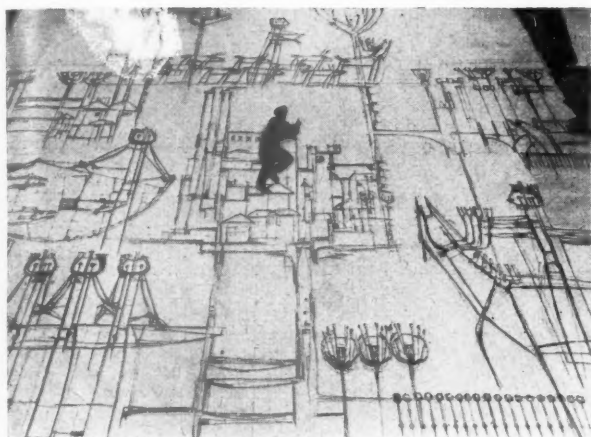
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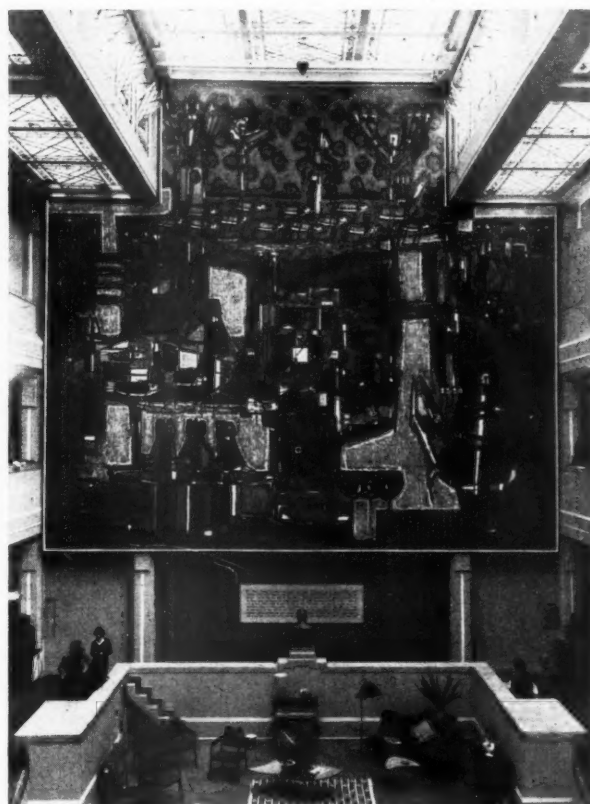
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Above: Stefan Knapp at work on his mural for Bentall's stores at Kingston-upon-Thames. Right: the mural in position. ASTRAGAL discusses it below in his note "Image of Kingston."



accountancy is concerned, they would not dispute. Why then, in Bournemouth, is there no local panel of architects to deal with these matters, as elsewhere? ASTRAGAL hopes that, if the decision is not reversed, the architects will appeal to the Minister; but why should they have to?

IMAGE OF KINGSTON

An enormous mural (40-ft. square, save for 8-ft. nicks at the corners—and thus even larger than the recent largest ever by Ivon Hitchens at Cecil Sharp House) has recently been completed by ex-Poland, ex-Slade, Stefan Knapp. It was commissioned by Bentalls, the department store in Kingston-upon-Thames, and has been placed in the main staircase hall—see illustration. The overall effect is not unlike a stained glass window—with glowing hot violets and blues predominating within a thin linear framework of black lines, some of which indicate the fashionable fish and horse-shapes which happily coincide with Kingston's historic symbols

The general impression is extremely powerful, and quite a few dull conventional shoppers are going to find them-

selves leaving the store with rather more exciting purchases than they intended making when they went in. Of course it will not *please* many. Innovation rarely does, but Bentalls deserve to be congratulated wholeheartedly for one of the most enlightened pieces of patronage on the part of a department store of which ASTRAGAL has heard for many a day.

*

"I think," said the pretty sales girl, looking your columnist firmly in the eye and daring him to deny it, "that this mural is very, very interesting." And so it is. But it still does not relate closely enough—to the architect's eye—to the structure of the surrounding building to merit the title "mural" rather than "extra-large easel painting." And it would look even better as a stained glass window. Oddly enough, artist Knapp has developed a cheap technique of painting glass in strong translucent colours which, when used in a window, can be seen both from within and without the building.

PAPER CHASE

Lord Mayor Sir Noel Bowater, speaking as guest of honour at the annual—

and excellent—lunch given by the LMBA last week, suggested that builders should "floodlight all their activities in the neighbourhood of Guildhall . . . your cranes and engineering works" on the night of the Lord Mayor's banquet, in order to show all "the very many important people—representatives of the Dominions and foreign countries . . . attending that we are well on the way to surpassing all that has been done before in the rebuilding of a city."

*

ASTRAGAL, blushing on behalf of his profession before such an innocent hope, hurried back to his file of *The Times* in order to shine his pocket torch on the back page and floodlight for the profession's sake, on page 425, three recent designs illustrated there. They are not near the Guildhall, but are typical of the type of design for London offices which Sir David Eccles has so rightly criticized—which so often appear in advertisements and which the bulk of the architectural profession can hardly be proud of.

*

Earlier, the president of the LMBA,



To be Destroyed



"England's Lovely Churches are Falling into Ruins." So the posters say. And the implication of these posters is that the Church is rather displeased about its losses. How sad, then, that the Church can—with the other hand, as it were—smite some of her lovely churches out of existence. Holy Trinity Church (above) in Boar Lane, Leeds, will be demolished if the Ripon Diocesan Committee has its way. This church (completed in 1727)—an example of the work of William Halfpenny—is no longer needed, says the Committee, in such a central area. Fortunately the church is not unloved: a campaign for its preservation has already been started. St. Nicholas Church, Colchester (left) is, however, doomed. This building, which is partly mediæval but essentially the work of Sir George Gilbert Scott, has been sold (because it is no longer needed) and will be pulled down within a year. Its site has been bought for commercial purposes. It is small consolation that the site "must not be used for the sale of fish and chips."

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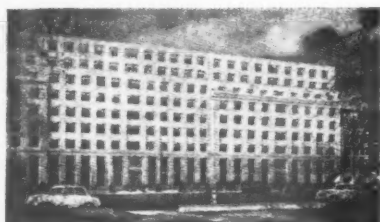
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POINTS FROM THIS ISSUE

The London Builders' Conference : two comments	pages 421 and 441
Department store for Coventry city centre	page 431
Infants' school planning : a new approach	page 434
Modular Co-ordination at Dartford Technical College ..	page 441

R. S. Williams, had ended a short sincere speech by saying:

"We, in our industry, are adapting ourselves to the use of new materials, to new processes, to new techniques, to mechanization wherever possible, all for the purpose of building better, more



Above and below: Offices to be built in Finsbury Square, E.C.2.



Below: Offices to be built in High Holborn.



safely, more quickly and more economically. . . . We pledge to you, Sir, our best endeavours in this great enterprise so that the generations to come may look upon our work and know as of old and in words familiar in this City since the early fifteenth century, that it was built 'to the glory of God and to the honour of the City'."

Could the president of the RIBA (who was not present at the lunch) make the same pledge for architects?

ASTRAGAL

The Editors

TIME TO MOVE FORWARD

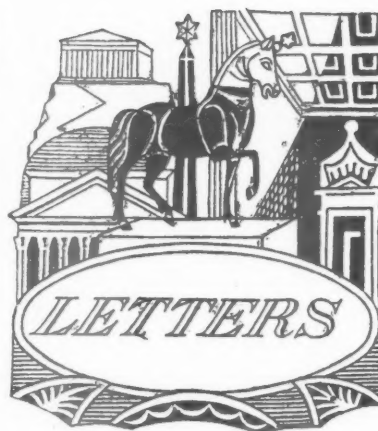
THE battle of the modern movement in architecture has been won, quite quietly, on the drawing boards of the architectural schools. The architect who designs in period styles has now largely to train his own assistants, for there is no major architectural school which can supply them. The victory for the modernist, however, is only a victory on paper. After a five-year training the student can design—on paper—a complicated modern building full of intricate services with almost the ease with which his father rendered a design in full classic rig for a bishop's palace or a Pall-Mall club. But while the facades have changed, and the school design programmes have been altered to bring the building types in line with modern conditions, the approach to a design problem has altered comparatively little. Most students, on leaving their architectural schools, can design anything—on paper. But as regards ensuring that the right design (on paper) can be built "in the right time, at the right place, in the right way, at the right cost" (to use the apposite words of Stirrat Johnson-Marshall, chief architect of the Ministry of Education), the newly-qualified architect is at an even greater disadvantage than his imperfect father: twenty-five years of extremely complicated technical progress has taken place in the building industry since his father was a student. It would be inaccurate to suggest that the schools have not kept up to a certain extent with technical progress in their curricula. But this has usually meant pushing more and more theoretical subjects into the five-year course at the expense of practice. The result of this cramming is that the good student leaves school certain only of one thing: that within the Johnson-Marshall definition of the architect's job, quoted above, he knows nothing. He knows what to put on paper, but he cannot complete the architect's job of ensuring that the finished building meets that design both in cost, detail and performance. The sense of humility which results is good, no doubt, for the soul. But only for a limited time, if the student is to emerge within a few years as an architect—the designer of buildings and the leader and co-ordinator of the building team. A building team, it must be remembered

which includes both traditional and non-traditional materials and erection techniques. Where does the newly qualified go to get this varied practical experience? The number of offices with the building programmes of the scope he needs are limited, and the vacancies in them are much sought after. Unless he is one of the fortunate few, he soon finds himself as a hum-drum member of a hum-drum office, and only private means, or the competition system, or rapid promotion due to chance retirements and sudden deaths, or sheer brilliance, will prevent him remaining humiliated, and anonymous, for life.

Can anything be done to help these assistant architects? One answer would be to offer them the chance of a further qualification resulting from a combination of post-graduate study and practical experience, which would earn them the respect of the whole building industry and entitle them to a commensurate income.

For years now the builders have been talking of forming a course for managerial and supervisory training. They see the need, even if they cannot agree amongst themselves on a clearly defined programme for it, or a way of financing it. A very similar problem confronts the architectural profession—indeed in certain aspects the architects' and the builders' course could run together to the advantage of both. The architects need a post-graduate course on the *practice* of architecture, a refresher course which would help to ensure that the great strides in research taken by BRS, and other research organizations, could be quickly absorbed into the main body of the profession by architects with the judgment acquired by experience to appreciate the worth of the information they were receiving, and the executive powers to put the information to the best possible use. Pre-planning and programming are words in common use amongst progressive builders today, but both start in the architect's office. They cannot be taught to students but only to men with some experience. The industry is becoming acutely conscious of the term "productivity" today, but it is a subject studied best not by student but by the post-graduate, and so also is pure "business efficiency" and office management.

If architects are going to do their job properly, they must show greater mastery of all building problems, and appreciate them from the viewpoints of the user-clients and the builders and the materials and equipment manufacturers. Such a breadth of vision takes too long—save for a fortunately placed few—to acquire just by experience in practice. A short post-graduate course for architects, well endowed, and closely linked to a similar school for building managers and to the research organizations is an obvious first requirement if the nation is ever going to get really economic service from the building industry. Every thinking member of the profession and the industry realises the need for such schools, but lack of money, lack of drive and foresight, and lack of a sense of urgency and a sense of responsibility to society results in nothing being done. Who will make a move?



O. Campbell-Jones, F.R.I.B.A.

W. G. C. Bell, A.R.I.B.A.

Bucklersbury House

SIR,—As the architect for the new Bucklersbury House, I have endeavoured to keep out of the controversy over the retention or otherwise of the Mithraic Temple which has been uncovered on the site. I feel, however, that I must correct the gross inaccuracies which appear in ASTRAGAL'S article in your issue of September 30. I am at a loss to understand why this gentleman thinks that by a "quick look at the plans" he knows better than the team of architects and engineers who have studied the problem in all its aspects and have made their report to the MOW on their findings.

The number of columns which would have to be moved are six, and not two as stated, and the removal of these would entail such heavy loads on the foundations on each side of the temple that the engineers are convinced that it would not be possible to drive sufficient piles into the old muddy bed of the Walbrook to take such loads, unless the weight of the superstructure were to be considerably reduced by omitting at least three floors of the building above. The whole of the site of the temple comes within the new building line of the site in Walbrook, although the eastern end would be under a portico in the service roadway which extends the full height of the building. The temple floor is some 15 ft. below the street level, and the ruined remains of the walls are some 3 ft. high, so that to talk about a mezzanine floor leaving the damp ruin in the middle of Lyons' Restaurant is sheer nonsense; incidentally, the site of the temple when bridged would occupy two thirds and not one quarter of the restaurant floor area.

I am astonished that a publication of your standing should have rushed into print without taking the trouble to ascertain the facts from the only person qualified to state them, the architect for the new building.

O. CAMPBELL-JONES.

London.

[ASTRAGAL replies: My comments were written before the joint statement by the MOW and the engineers was published. As it has now been decided that the temple is to be preserved on another part of the site, there would be little point in my giving a detailed defence of these comments.]

The New Brutalism

SIR,—I should like to thank you for your leader "The New Brutalism" (September 16), and heartily back your comments.

Such works as the new school at Hunstanton, Norfolk, while possibly good in some respects, challenge us to consider in what way contemporary architecture should develop. Science has brought a revolution in structure and services; these are exciting and novel and when tried and tested can help architecture, but it is puritan in the extreme to express only these. Architecture is far more than this—architecture, like the people for whom it is created, possesses character and a soul. It is a wedding of science and art, function and inspiration, structure and character, and the outstanding need today is to marry the scientific revolution to an artistic and cultural renaissance.

The architecture of the "west" has a tradition of moral and spiritual inspiration; the battle ahead is surely to continue this

in new forms for our developing society and in our new materials. The materialist idiom of design, typified by this Hunstanton school, is foreign to our character and tradition and shows a distinct move towards a complete escape from the responsibilities of real architecture into an ivory tower of self-absorption in science: the selfish interest of the designers.

Surely the design of a school is potentially the very inspiring subject of providing the setting, background, detail planning and design to give a child the atmosphere he needs in his development, an atmosphere conducive to learning and the building of character. Schools themselves should surely be works of scholarship and in character themselves and not too restrained to express some fun. We think of the Oxford or

Cambridge colleges or many of the grammar schools as promoting these qualities. Architecture is an evolution as well as a revolution and there is much we can still learn from tradition, provided it is well related. We do certainly need a new emphasis on the lasting principles of design and standards of architecture which never change regardless of the age or materials used.

So possibly a New Caring for Society and a new devotion to answering its moral, aesthetic and spiritual needs, as well as material ones in architecture, will be our incentive to move on to the renaissance we need and will all like.

W. G. C. BELL.

London.

IN TOWN LAST WEEK

Delegates from the twenty-second International Congress for Housing and Town Planning, held in Edinburgh from September 19 to 25 came to London last week to see the work done by the LCC, the MOHLG and Harlow New Town Development Corporation. For one evening they were guests of the Architectural Press at *The Bride of Denmark*. Right, Architectural Review editor Ian McCallum, serving drinks to Sorli Marjan, architect, from Ljubljana, Yugoslavia; H. W. Jansen, a town planner from Rotterdam; Percy Johnson-Marshall, of the LCC Planning



Department, who had conducted the delegates on a tour of London housing; William Stermecki, architect, from Ljubljana, and André Schimmerling, a Paris architect. Below left, Arthur Ling, chief planning officer, LCC; R. Klasener, town planning officer, Dortmund, West Germany; I. E. Saporta, architect and planner from the USA; S. Sedlar, architect and planner from Yugoslavia; Miss K. Grasselli, architect, Yugoslavia;

Kareel Morée, social economist, from Rotterdam, Holland; Mrs. Suul, and Oddmund Suul, director of planning, Trondheim, Norway. Below right, the Portuguese delegates: Xavier, architect, of Lisbon; Manuel de la Carneiro, civil engineer, of Oporto, and his daughter; and Deca, engineer, da Costa, engineer and planning officer, Ministry of Works, and Blasco Goncalves, city planner (all of Lisbon, Portugal).





BSI/BRS

Modular Co-ordination
Conference

The first Study Conference of Modular Co-ordination will take place in London from October 11 to 16. The British have invited to the conference the ten other countries, which, under the ægis of the European Productivity Agency, have agreed to carry out an investigation into modular co-ordination as a means of assisting productivity in the building industry. In the UK this work is in the hands of BRS and BSI. The other ten countries are: Austria, Belgium, Denmark, France, Germany, Greece, Italy, Netherlands, Norway and Sweden.

As long ago as May, 1947, the Building Divisional Council of the BSI decided to set up a technical committee to investigate the important subject of modular co-ordination. This committee issued a first report in 1951 as BS 1708, in which it was suggested that the subject was well worth pursuing and that further investigations should be carried out to ascertain the practical problems involved and to make recommendations for a national method of modular co-ordination.

This first report evoked even greater interest than had been expected, and as a direct consequence the BSI formed a special Study Group under Bruce Martin in November, 1953. At about the same time the BRS commenced similar work under W. A. Allen. The work of the two bodies has been carefully integrated to avoid overlapping.

Shortly after this further work started, the BSI and BRS proposed to the European Productivity Agency that a full investigation of modular co-ordination would be valuable as a means of assisting productivity in the building industry in European countries. The proposal was well received; plans for putting it into action were developed at subsequent meetings in Paris and were approved by the Agency in June this year. The eleven countries, listed above, have now arranged contracts which will enable them to proceed with the work, and American authorities will also collaborate. The United Kingdom group, represented by the BRS and BSI, has been asked by EPA to undertake the co-ordination of the reports from all the participating countries.

The programme for the first phase of this project, lasting about one year, covers the collection of data on the present position in

each country to provide a basis for a subsequent phase, in which it is hoped to develop firm recommendations and to explore the problem of applying those recommendations to ordinary building practice.

Broadly speaking, there are two sides to the studies now in progress. The first is an examination of experience gained from buildings already erected; while the second is a detailed analysis of the form and dimensional characteristics of the materials, components and assemblies which the building industry uses. In the United Kingdom these two branches of the work fall conveniently to the BRS and BSI respectively.

In studies of this kind, it is always helpful for investigators in one country to have first-hand knowledge of significant developments in other countries with similar problems to face. It is to this end that the British invited the other member-countries to the study-conference to examine some of those United Kingdom building developments in which a determined effort has been made to rationalize building operations, components, dimensions and technology.

The conference programme is as follows:—

MONDAY, OCTOBER 11.—*Morning and afternoon:* Official Inaugural Session at BSI. 4.30 p.m.: Visit to Royal Festival Hall. 8 p.m.: Reception by British Standards Institution.

TUESDAY, OCTOBER 12.—Visit to modular schools by the Hertfordshire County Council, and to New Towns. Visit to BRS, Garston.

WEDNESDAY, OCTOBER 13.—Visit to new housing and schools in the City of Coventry.

THURSDAY, OCTOBER 14.—*Morning:* Visit to modular pre-stressed concrete school at

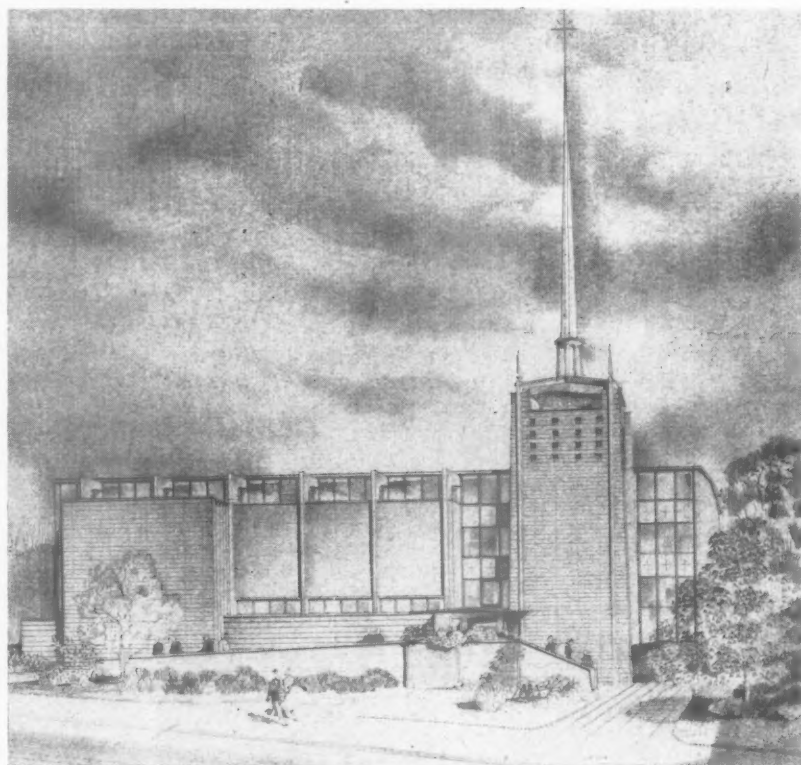
Worthing by MOE Development Group. *Afternoon:* Visit to London County Council Housing Estates followed by reception at London County Hall. *Evening:* Reception by Modular Society.

FRIDAY, OCTOBER 15.—*Afternoon:* Official Closing Session at BSI. *Evening:* Reception at Royal Institute of British Architects.

While the very term "modular co-ordination" implies the need for objective examination of the wide rationale of buildings and the materials and methods employed in them, it is obvious that successful application of the principle demands a narrower concern with dimensions. For this reason the problems inherent in current dimensional practices will be actively studied in the coming months.

At the present stage, however, the two bodies directly concerned emphasize that the studies so far completed have not reached a point at which it is possible to give a lead as to the best—or, indeed, any—module appropriate for adoption in this country. They recommend that until full information from the work in hand is available, on which a true appraisal can be made, it would be unwise for changes to be made to building products now being manufactured.

The Modular Society exists in this country for the dissemination of modular ideas and is being kept in close touch with the development of the EPA Project through its secretary, Mark Hartland Thomas, who is a member of the BSI Committee. Both BSI and BRS have arranged for papers to be presented to the society during the coming season, and these occasions should provide opportunities for discussions on the basic ideas of modular co-ordination, and also for reporting progress on the studies now in hand both here and elsewhere.



This church, The Punshon Memorial Church (designed by Ronald Sims and Patrick Coles), has been turned down by Bournemouth town council because "it would break the skyline." ASTRAGAL comments on page 421.

CUC

Information Centre

On September 30 Harold Macmillan, Minister of Housing and Local Government, opened the CUC's new display and information centre at the Building Centre. The display shows a selection of the latest type of solid fuel appliances which have Ministry of Fuel and Power approval and CUC recommendation. The information centre is the London counterpart of the other CUC information centres up and down the country.

Available at this opening was the CUC's new review of modern solid fuel appliances entitled *Home Comfort*. This is intended mainly for the housewife, but the architect would be wise to make quite sure that he knows all the questions and answers which it treats.

SCARBOROUGH

Housing and Planning Conference

A conference and exhibition, organised by the National Housing and Town Planning Council, will be held from October 27 to 29 at Scarborough. Eight talks will be given, as follows: Subject: National Parks. Speaker: Lord Lawson of Beamish, Deputy-Chairman, National Parks Commission.

Subject: Planning Must Lead or Fail. Speaker: Frederick B. Pooley, County Architect for Buckinghamshire. Subject: The Housing Repairs and Rents Bill. Speaker: Eric Bellingham, Director General of the Coal Utilisation Council. Subject: Delegation of Planning Powers. Speaker: R. J. Roddis, Barrister-at-Law, Town Clerk, Borough of Eastleigh. Subject: Rural Housing and Planning. Speakers: Councillor Mrs. B. L. V. Hay, Kingsclere and Whitchurch R.D.C.; H. W. Evans, clerk and solicitor, Newmarket RDC. Subject: Economics and Finance of Twentieth Century Housing. Speaker: Herbert Ashworth, general manager and secretary, Co-operative Permanent Building Society. Subject: Rent Rebates. Speaker: Herbert Bell, Borough Treasurer, Southend-on-Sea. Subject: Suffolk Reflections in Colour (a lecture, illustrated by coloured slides, on the amenity aspects of planning). Speaker: T. B. Oxenbury, LRIBA, County Planning Officer for East Suffolk.

AA

Students' Forum

The AA Students' Committee has had to postpone the forum on Das Fertig Haus from Wednesday, October 13, until the beginning of November as they have just been informed that W. K. Wittaush, the Manager of the scheme, will be unable to come to London until then.

DIARY

Carpets take the Floor. Exhibition sponsored by the British Carpets Promotion Council. At the Tea Centre, 22, Regent Street, S.W.1.

UNTIL OCTOBER 16

French Textiles. Exhibition at Hutchinson House, Stratford Place, W.1.

OCTOBER 8 TO 24

Design of Health Buildings. Conference at the RIBA. Tickets 10s. each.

OCTOBER 21 AND 22

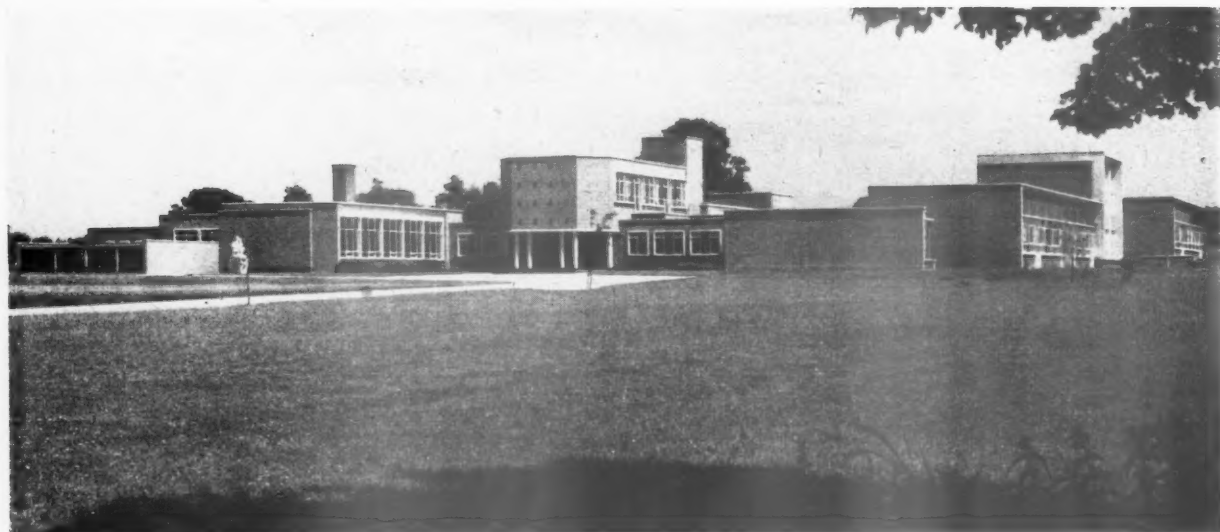
BUILDINGS IN THE NEWS



Church Missionary Society's Headquarters, Nairobi

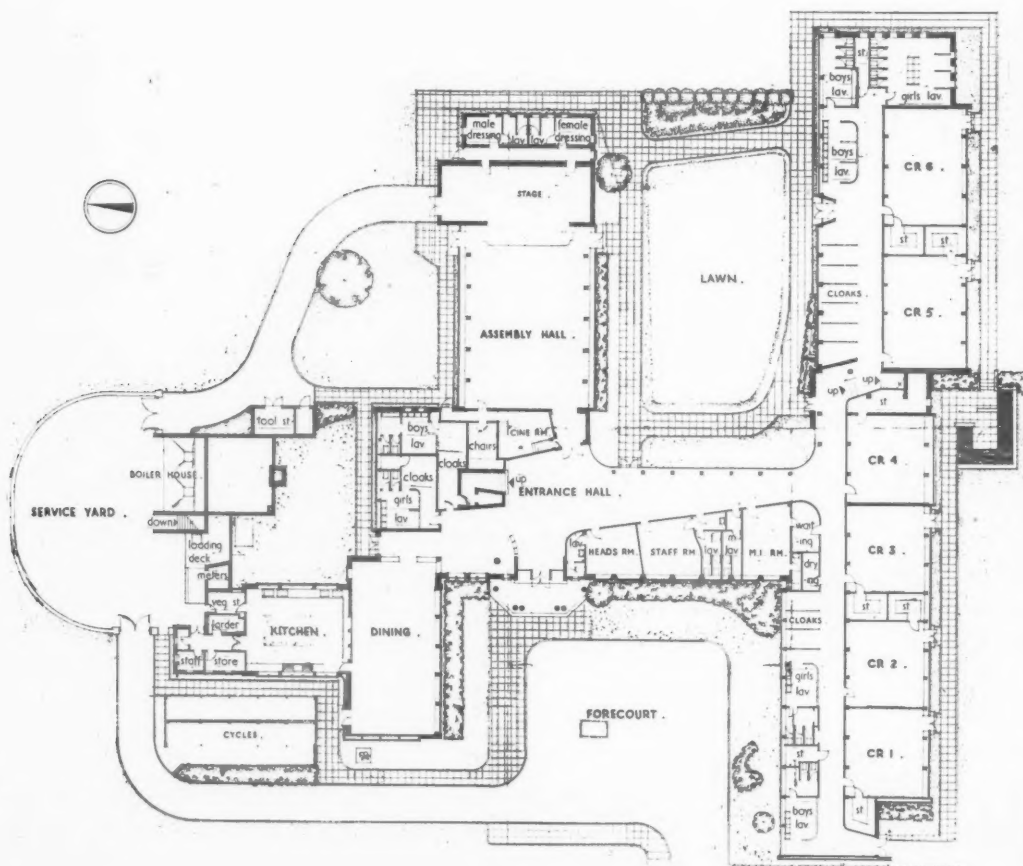
Church House, Nairobi, was designed by W. Blaker for the Church Missionary Society. It contains a bookshop, administrative offices, chapel, committee rooms, etc., as well as offices and storage rooms which are rented to business concerns. Care has been taken to avoid the placing of windows in any building plans facing into the afternoon sun. "The four different elevational expressions resorted to," says a hand-out from the Society "have been determined by aspect, and by an effort to resolve the different architectural treatments apparent in adjacent buildings." "An endeavour has been made . . . to incorporate in the design the contemporary conception of integrity, light and freedom, which will link it in feeling to the neighbouring city square development."

BUILDINGS IN THE NEWS (continued)



School at Albrighton, Shropshire

The Albrighton junior school, built for the Shropshire County Council to accommodate 360 pupils, was designed by Jackson & Edmonds. The consulting engineer was S. Willis. An infants' school will be built later to the south-west of the present building. The kitchen and boiler house in the junior school will ultimately serve both schools. Above, the school from the south-west: the dining hall is on the left, the main entrance and forecourt is in the centre, and the classroom wing is on the right.



Department Store in Coventry

The new Owen Owen department store in Broadgate, Coventry, which was opened by the Lord Mayor of Coventry last Friday (a date chosen for the opening ceremony exactly two years ago) was designed by Rolf Hellberg & Maurice Harris. It is said to be the largest store to be built in England since the war. The photograph on the right is a view, from the south-east, of the facade facing Trinity Street. Below is the south facade, which faces Broadgate. The store, which has over four acres of floor space, was described and illustrated as a project in the JOURNAL for April 19, 1951, and will be fully illustrated in a later issue. The consulting structural engineers were Scott & Wilson and the general contractors were Bovis Ltd.



BUILDINGS IN THE NEWS (continued)

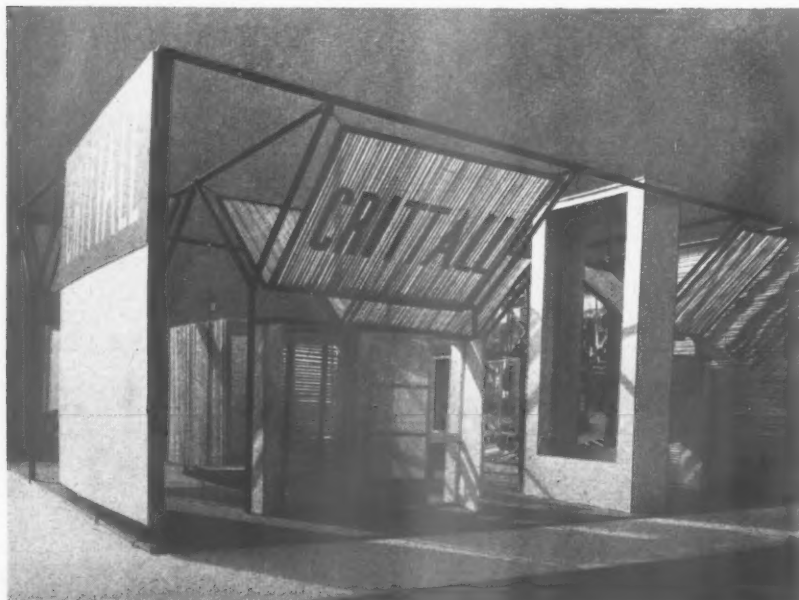


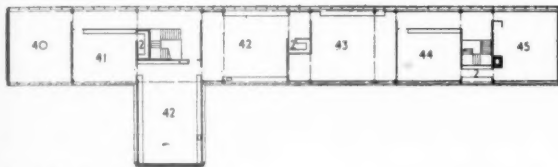
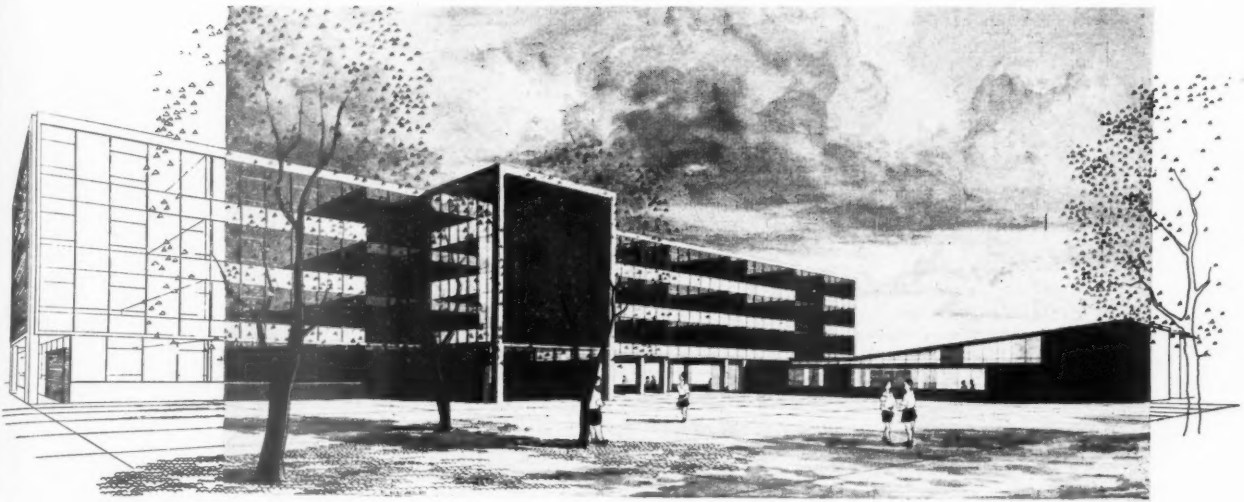
Shop in Knightsbridge

The reconstruction of Susan, of Knightsbridge, a handbag shop at 37, Brompton Road, S.W.3, has been carried out to the design of F. L. Marcus and Nigel Walters. The shop has panelling of zebrano, and display counters and fittings of mahogany. The light fittings were designed by John Reid General Contractors: Andrew Pegram Ltd.

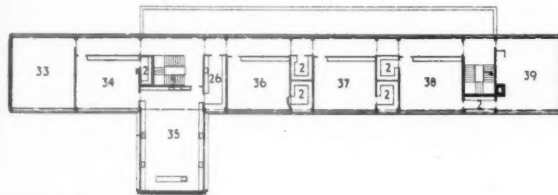
Stand at Baghdad Trade Fair

Crittalls' stand for the Baghdad Trade Fair, to be held next month, has been designed by Neville Conder.

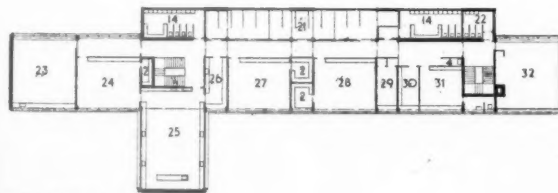




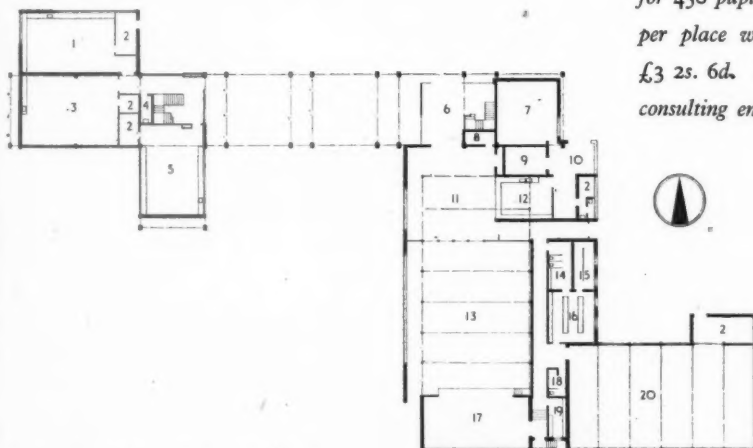
Third floor plan



Second floor plan



First floor plan



Ground floor plan [Scale: 1/4" = 1' 0"]

Secondary Modern School at Walton, Liverpool

Work has now started on a new secondary modern school at Arnot Street, Walton, designed by Harold A. Dod and M. A. Gilling, of Messrs. Willink and Dod, in collaboration with Dr. Ronald Bradbury, Liverpool City Architect and Director of Housing. As a result of the restricted site, the building has been planned in two blocks, one a single-storey structure containing the entrance hall, assembly and dining halls and gymnasium, and the other a four-storey block containing the teaching rooms, laboratories and craftrooms. The construction of the four-storey block consists of a series of welded steel towers, 25 ft. apart, each self-supporting. These tower structures are linked together by partially-prestressed concrete bridges which form the upper floors of the building and allow the playground area to extend below the block to form a covered play space and preserve an open and spacious appearance on the restricted and enclosed site. The cladding of the external walls will be of glass and aluminium with facing bricks to the short return ends. When finished the new building will provide accommodation for 450 pupils at a cost of approximately £113,000. The cost per place will be £221 15s., and the cost per square foot, £3 2s. 6d. The assistant-in-charge is Allan Billinge, and the consulting engineers are Hurst, Peirce and Malcolm.

KEY

1. Woodwork Room
2. Store
3. Arts and Crafts
4. Cleaner
5. Metalwork Room
6. Entrance Hall
7. Boiler House and Fuel
8. Caretaker
9. Sub-station
10. Yard
11. Canteen
12. Kitchen
13. Assembly Hall
14. Boys' Lavatories
15. Showers
16. Changing Room
17. Stage
18. Instructor
19. Kit
20. Gymnasium
21. Cloak Rooms
22. Staff Lavatories

23. Classroom No. 1
24. Classroom No. 2
25. Laboratory No. 1
26. Preparation
27. Classroom No. 3
28. Classroom No. 4
29. Medical Inspection Room
30. Secretary
31. Headmaster
32. Staff Room
33. Classroom No. 5
34. Classroom No. 6
35. Laboratory No. 2
36. Classroom No. 7
37. Classroom No. 8
38. Classroom No. 9
39. Classroom No. 10
40. Classroom No. 11
41. Classroom No. 12
42. General Practical
43. Library
44. Classroom No. 13
45. Classroom No. 14

INFANTS' SCHOOL

at KIRK HALLAM, ILKESTON, DERBYSHIRE

designed by F. HAMER CROSSLEY, county architect

F. K. HICKLIN, assistant county architect (schools); BERNARD C. ADAMS, architect-in-charge (development)

F. ALDERSON, assistant architect

quantity surveyors, A. E. THORNTON-FIRKIN and PARTNERS

This county infants' school of seven classes is the first result of a decision by the County Architect to use a new line of approach to infants' school planning. Architectural and educational thought are closely interlinked in the design and the MOE and the County Director of Education were consulted during the preparation of the scheme. The main innovation in the design was the omission of an assembly hall. This meant that the classrooms could be larger. Two class units, separated by sliding-folding doors, can be combined to form an assembly area.

Looking under covered way at class units 2 and 3.



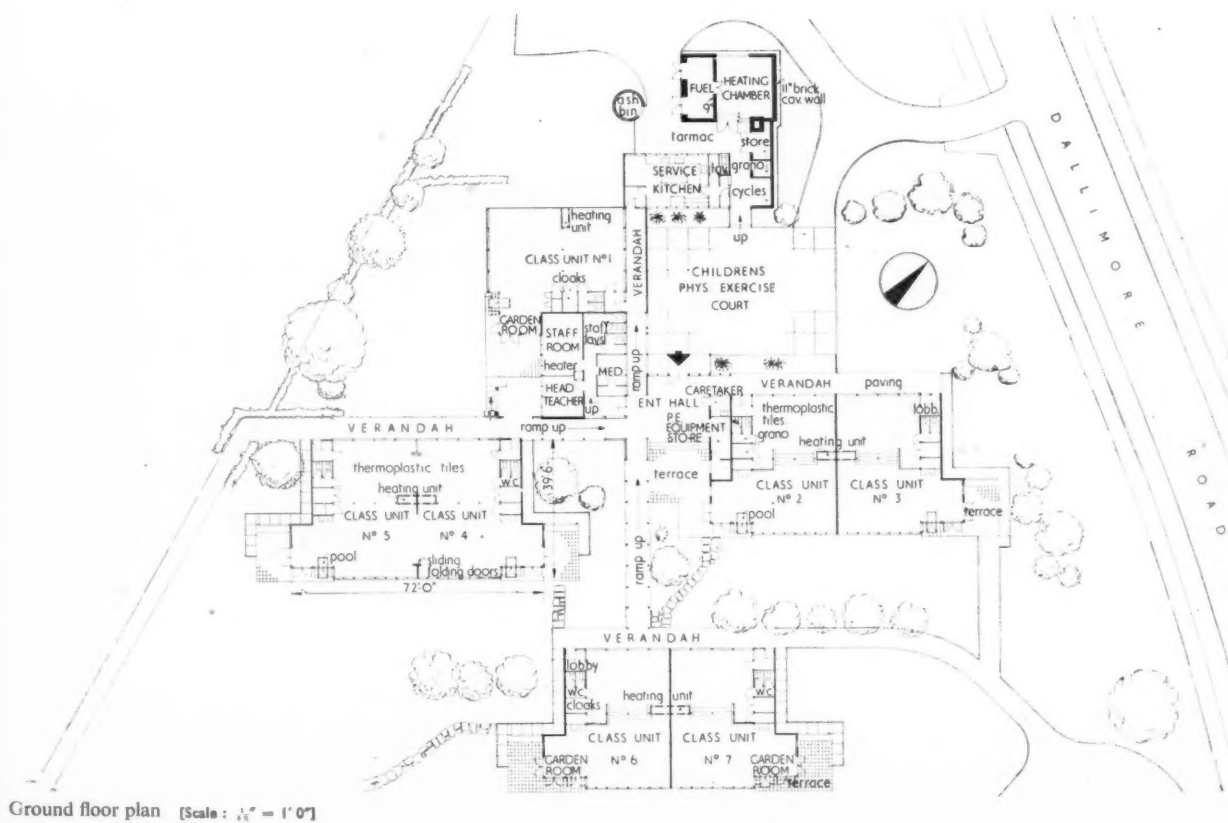
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*Right, class units 2 and 3 from the south-west.
The slats of the louvres are painted sea blue.*



GENERAL.—The following points are some of those considered by the architect when approaching the present problem: (a) It is thought that the small child comprehends the class unit more easily and with greater reality than the school unit. (b) Corporate assembly in the conventional way is not essential and can be replaced by less formal methods. (c) The assembly hall could be abolished if space were provided to assemble the whole school and hold special functions. (d) The omission of a hall would enable larger and more interesting class areas to be provided, with better facilities than before. (e) The child's whole life in school should be an education in the widest sense. The rational use of toilets and cloakrooms, the correct outlook on personal hygiene and the social aspects of dining are all matters of education more satisfactorily imparted by the teacher in her class group than in any other way. The points enumerated above have led to the following solution by the architects. The assembly hall has been omitted and the class areas correspondingly increased in size while they also



Ground floor plan [Scale: $\frac{1}{4}'' = 1' 0''$]

nted



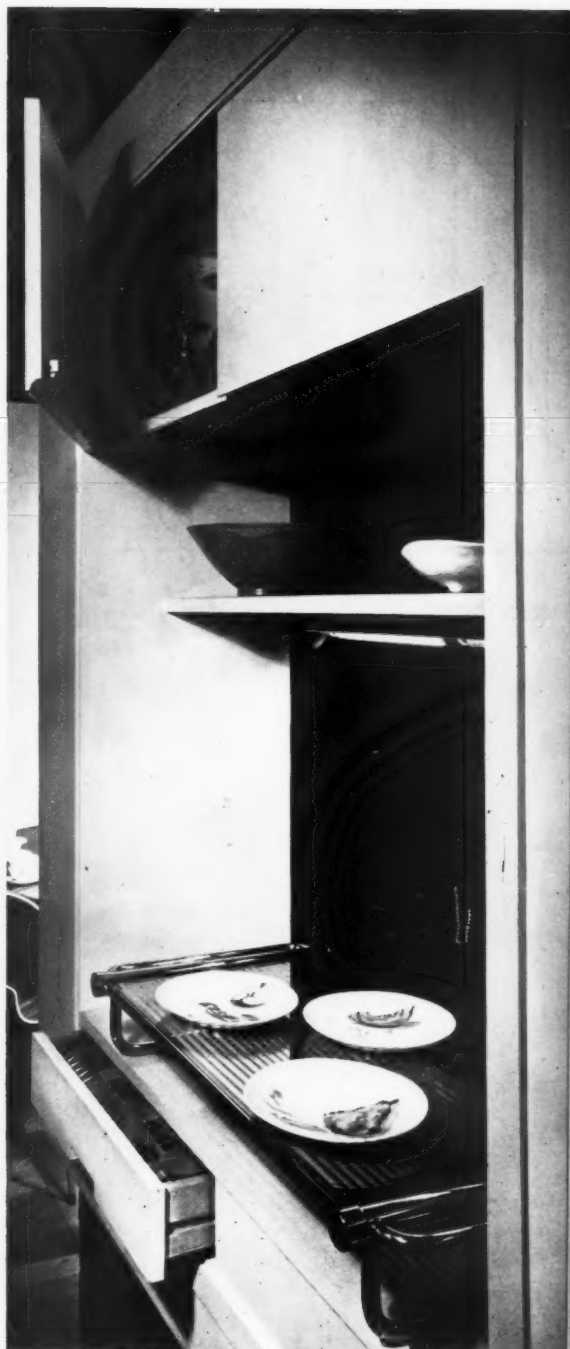
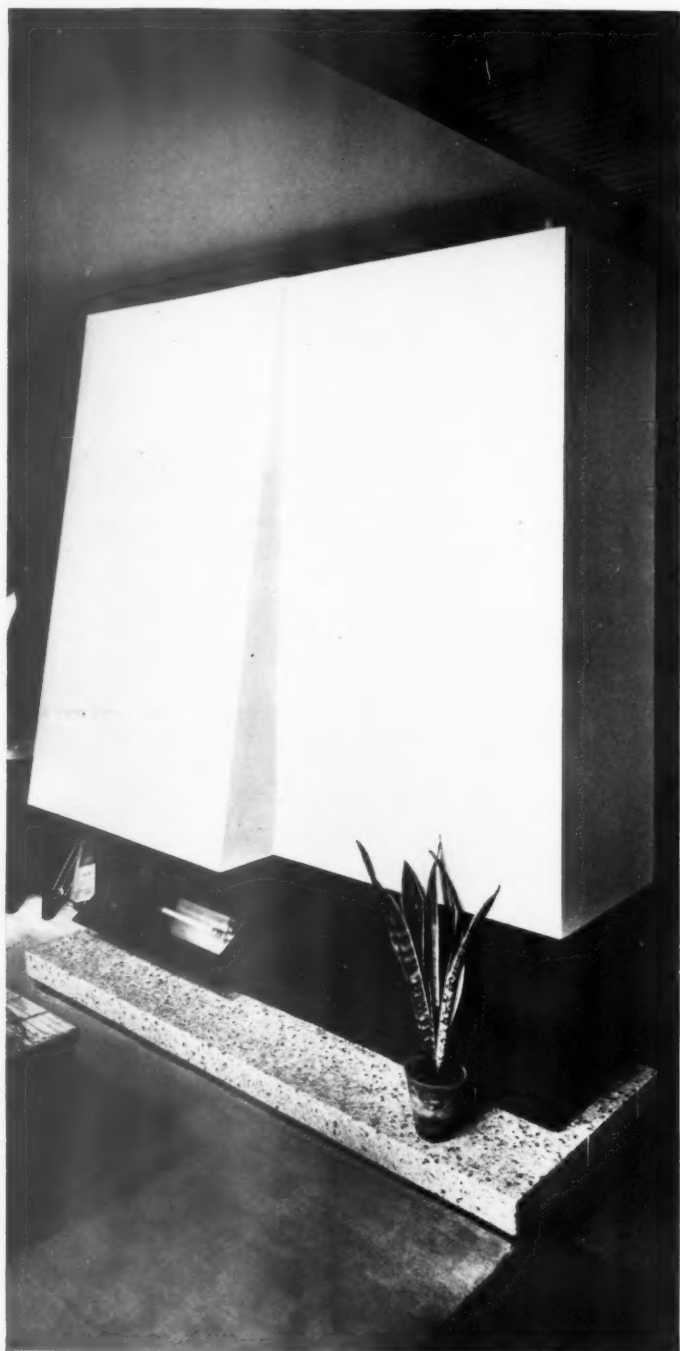
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WORKING DETAIL

ELECTRIC FIRE AND UNIT: FLAT IN LONDON, N.W.8

Higgins and Ney and Partners, architects

HEATING: 14



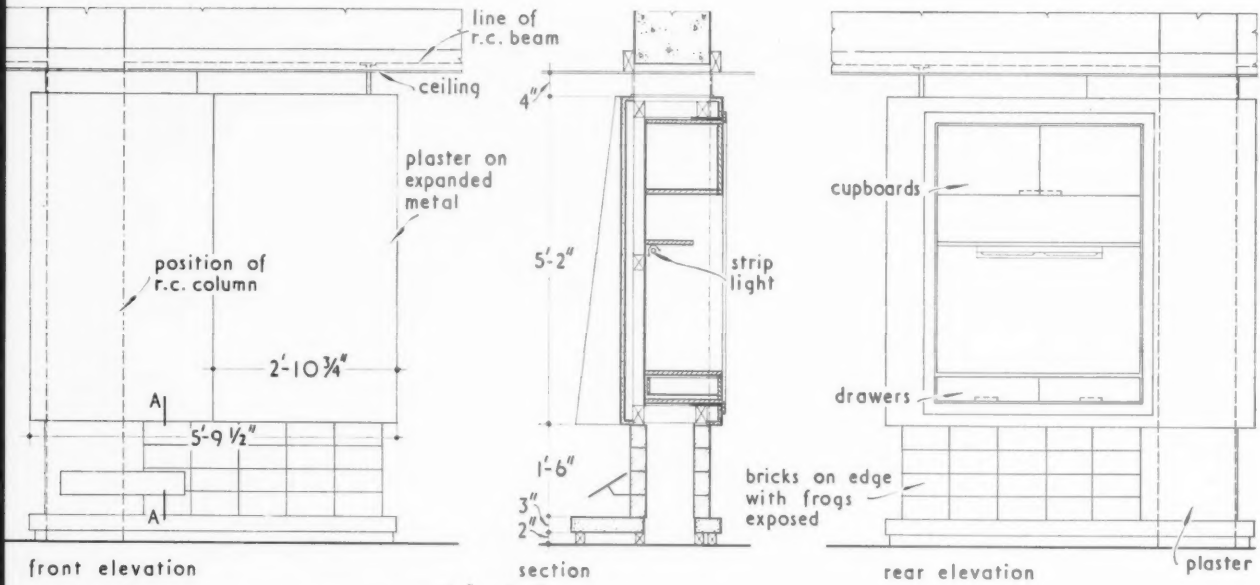
The heating element which is concealed behind the plaster facing reflects upwards onto a curved reflector which turns the heat rays downwards onto the lower tilted reflector which reflects them out into the room. So long as this last is maintained at a high polish it reflects almost 100% of the heat rays and thus remains cool. The occupants of the room, therefore, receive the actual heat and the visual effect of the fire while avoiding the hazard of burning themselves on the element.

WORKING DETAIL

ELECTRIC FIRE AND UNIT: FLAT IN LONDON, N.W.8

Higgins and Ney and Partners, architects

HEATING: 14

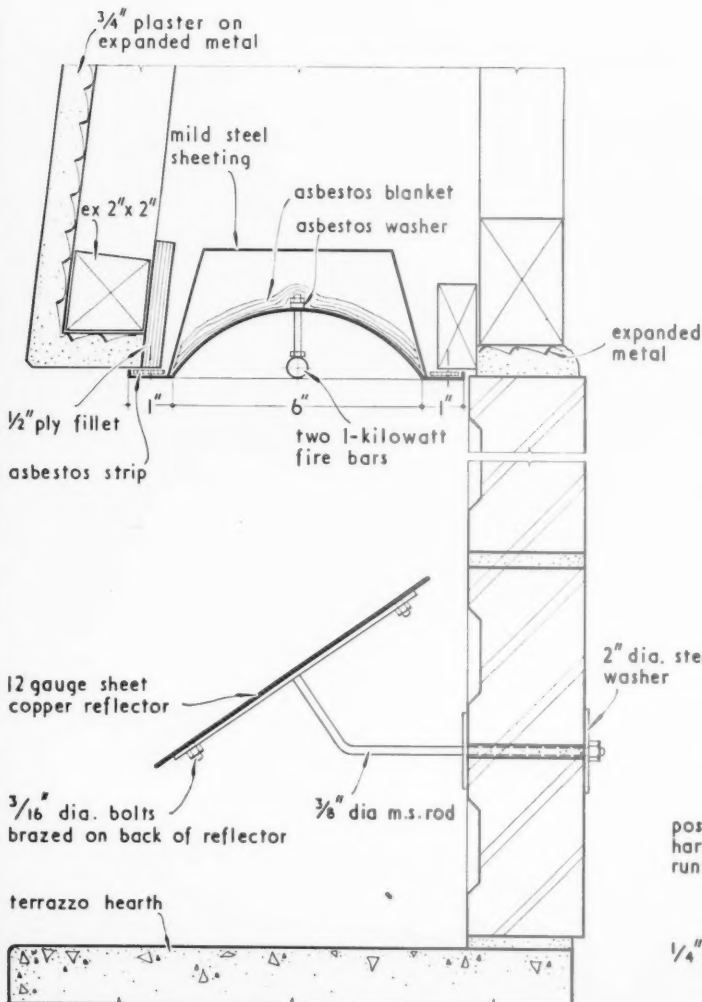


front elevation

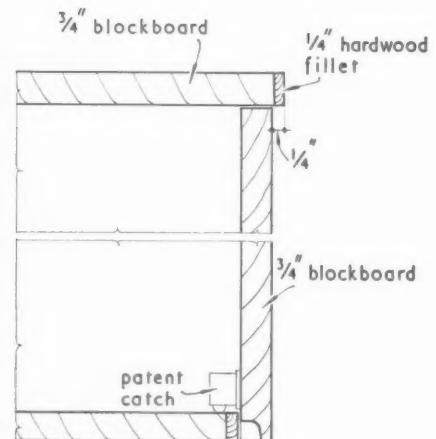
section

rear elevation

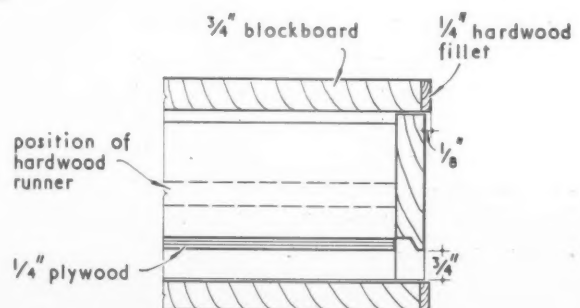
KEY DRAWINGS OF FITTING. scale 3/8" = 1'-0"



SECTION A-A. scale 1/4 full size



DETAIL OF CUPBOARD DOOR. scale 1/4 full size



DETAIL OF DRAWER FRONT. scale 1/4 full size

WORKING DETAIL

FURNITURE AND FITTINGS: 45

BRACKET FOR TELEVISION SET: FLAT IN LONDON, N.W.8

Higgins and Ney and Partners, architects



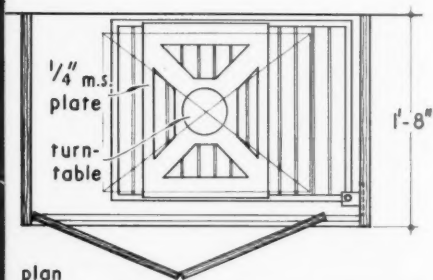
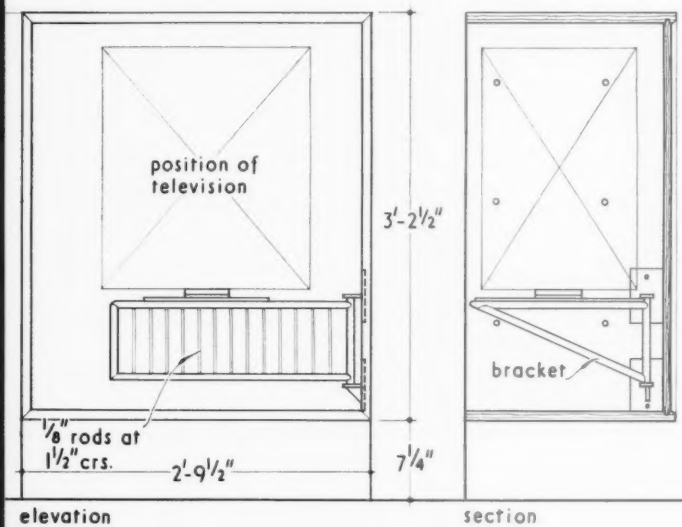
This bracket enables the television set to be swung in and out of the cupboard in which it is housed and to be adjusted at an angle in the horizontal plane convenient for viewing.

WORKING DETAIL

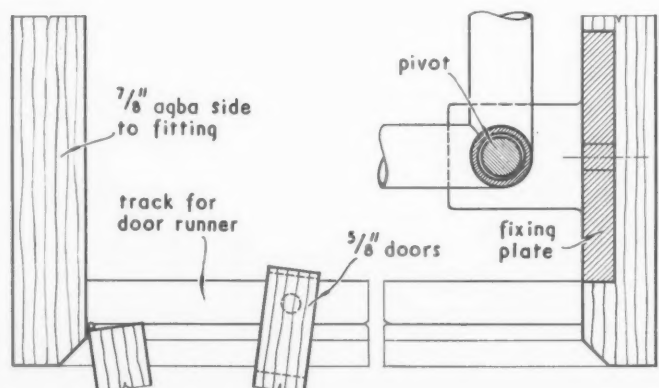
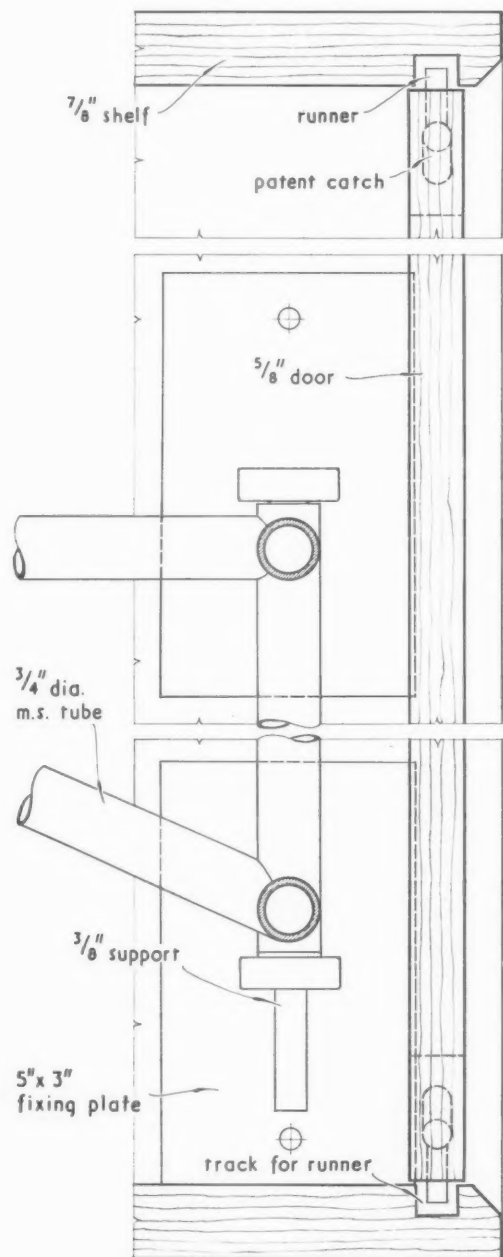
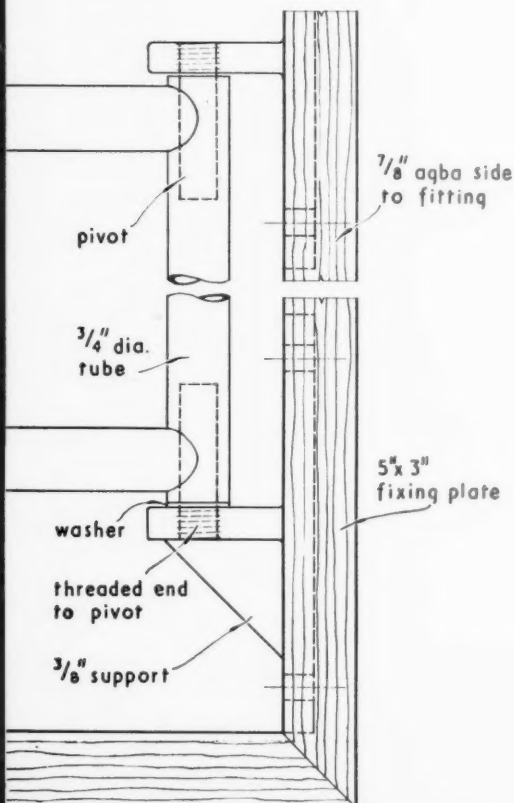
FURNITURE AND FITTINGS: 45

BRACKET FOR TELEVISION SET: FLAT IN LONDON, N.W.8

Higgins and Ney and Partners, architects



KEY DRAWINGS SHOWING INTERIOR OF FITTING. scale $\frac{3}{4}" = 1' - 0"$



scale $\frac{1}{2}$ full size

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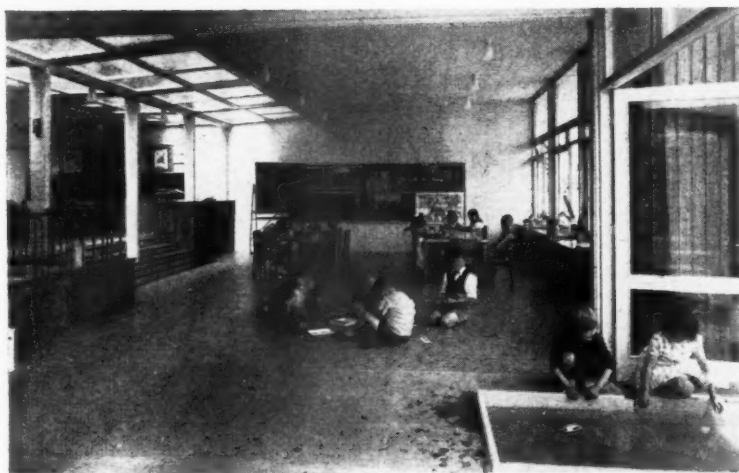
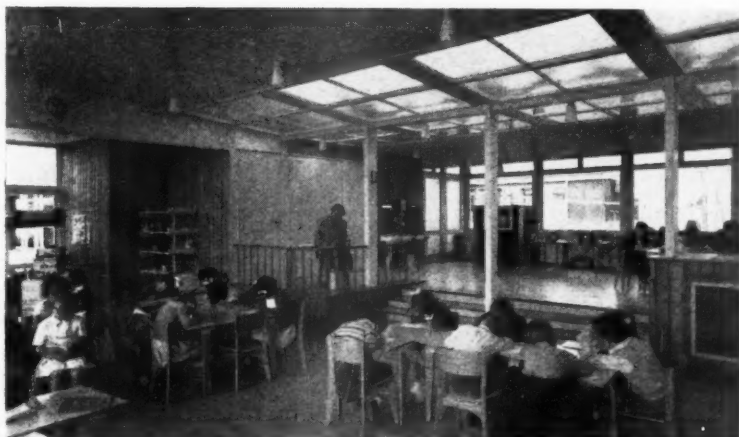
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outside teaching area, partly paving and partly of grass and planting. Two of the class units can be thrown together by means of a folding screen, producing an area of over 2,000 sq. ft. There is a specific location for the teacher's table and cupboard from which the best supervision can be carried out. The toilets within the class units are arranged so that the w.c.s are separated from the room by a ventilated lobby, and it is not considered necessary to have separate w.c.'s for boys and girls in an infants' school. Coats for each class unit are hung on two mobile trolleys, which are pushed into a small cabinet when not required. This cabinet also contains a shower bath, sunk flush with the floor and covered when not in use. School meals, which are cooked before they reach the building, are brought to classes in heated trolleys from the service kitchen, and served on trays. Cooking will be done, later, at the junior school, which it is proposed to build on an adjacent site. The large paved court of 2,000 sq. ft., placed in a central, sheltered position, is considered, in effect, to replace the assembly hall and contains physical education equipment. The entrance hall is also used for physical training.

CONSTRUCTION.—The timber superstructure was prefabricated in Austria to the designs of the County Architect and transported to Ilkeston railway station in ferry trucks, where it was unloaded by the general contractor. Wall units were delivered complete with aluminium-foil insulation and a bituminous paper vapour barrier, which is a backing to the spruce external cladding. Roof beams were delivered ready for bolting in position and for receiving the roof decking. There are timber-framed external and internal wall panels.

FINISHES.—A special preservative and decorative timber stain, which does not obscure the natural wood, was developed for the cladding, with the assistance of the manufacturer. The surface of the wood is sealed with a colourless preservative oil. Remaining woodwork is finished in oil paints in the following colours: eaves, bargeboards, rain-water pipes and outside louvres, Munsell No. 10; slats of sun louvres and verandah soffits, sea blue; doors and windows, a warm off-white; panels below class unit windows, Munsell 9, 10, 14, 18 and 29. Internal finishes include, plasterboard wall linings, fibre-board ceilings, thermoplastic and buff quarry-tile floors in class units, granolithic in garden rooms. The total floor area of the structure is 10,058 sq. ft. (36 sq. ft. per place). Area of covered portions is 960 sq. ft. (3'4 sq. ft. per place). The



Above, three views of typical class unit. Top, teacher supervising class from a centrally placed position. Centre, movable cloaks trolley and hand basins. Bottom, class unit from the garden room, with pool on the right.

gross contract price was £46,792. Net cost per place £138 and per sq. ft. £3 10s. The school forms part of the 1952-53 programme, when the MOE cost limit per place was £140.

The general contractors were Ford & Weston Ltd. For sub-contractors, see page 450.

INFANTS' SCHOOL

at ILKESTON, DERBY
designed by
F. HAMER CROSSLEY
county architect

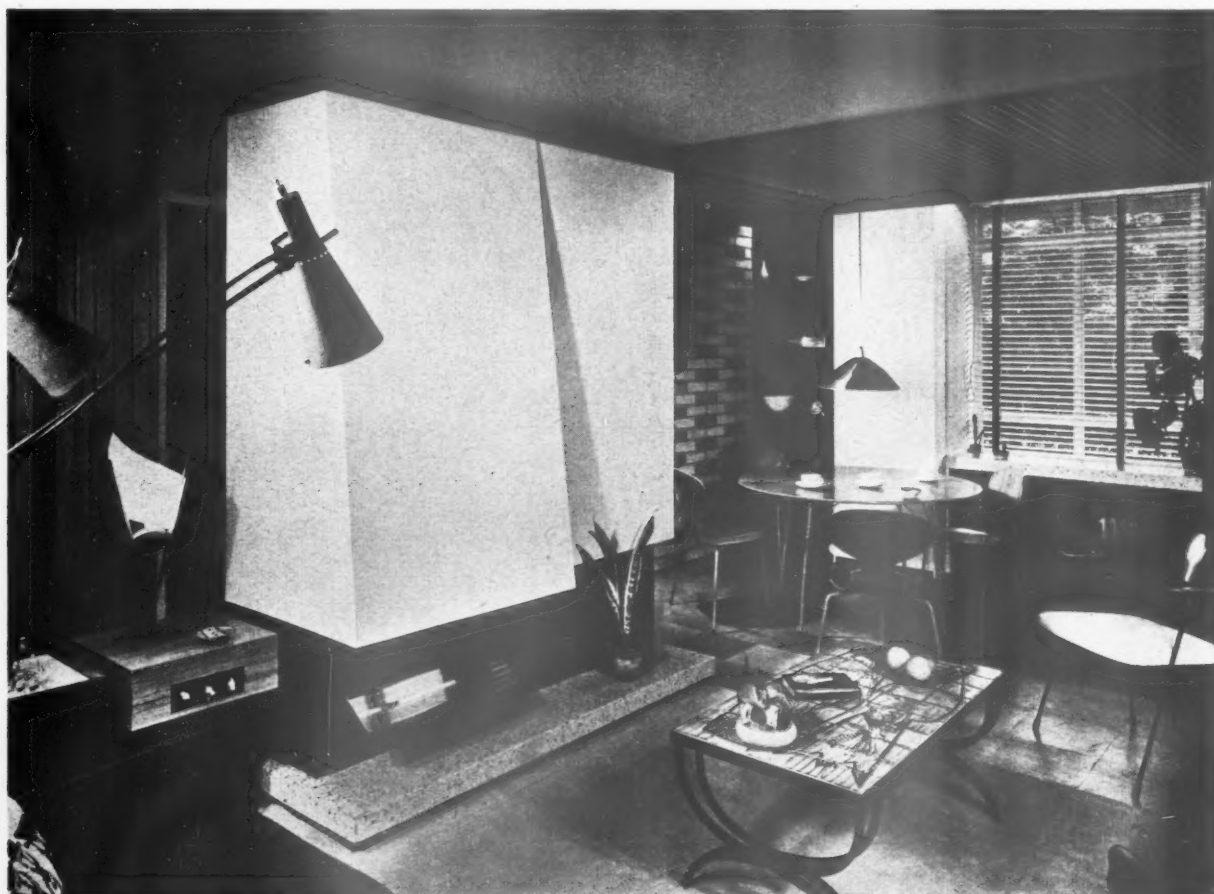
FLAT CONVERSION

at 52, VICEROY COURT, LONDON, N.W.8

designed by HIGGINS and NEY and PARTNERS

This converted flat in Viceroy Court, a block of luxury flats built in the 1930's, is on the ground floor and faces south to Regent's Park across Prince Albert Road. The clients decided that the flat was divided into too many small rooms and required more "emphasis" with the use of materials, texture and colour, since the outlook was not particularly interesting. To conceal the reinforced concrete beams, which are of varying depth, ceilings have been lowered in the living area and hall.

The living-dining area.



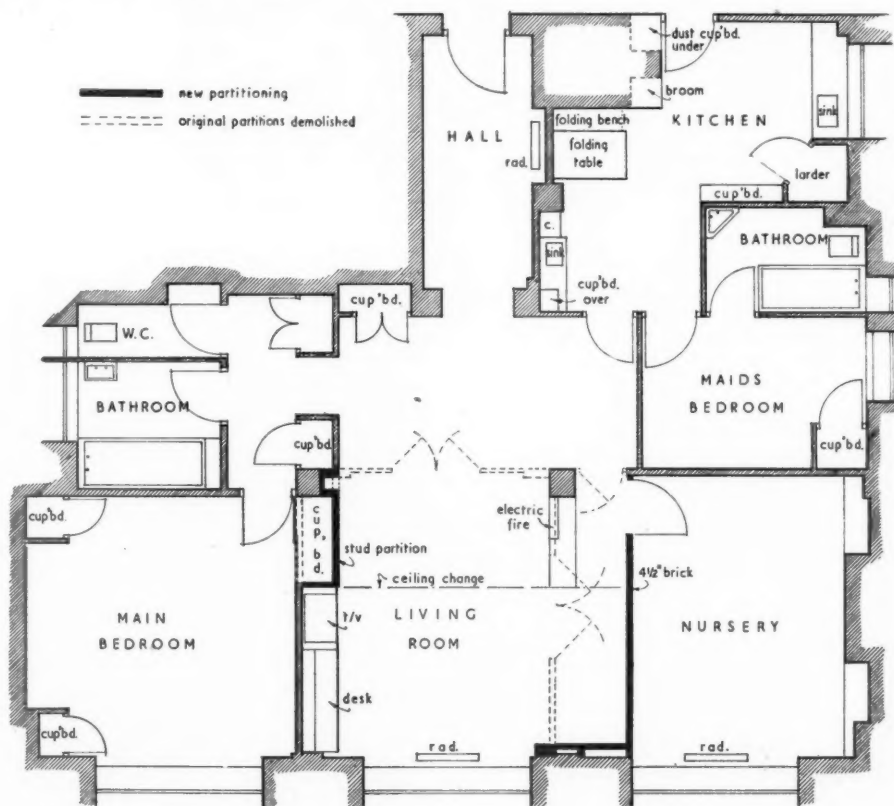
PLAN
planned
existing



PLAN.—The main alteration to the flat as originally planned was the removal of partitioning around the existing living room, thus combining the living

area and interior hall and making the living room large enough to include dining space. The original dining room is now a nursery and the

Above, a corner of the living room, seen from the dining area. In the background is the built-in desk and television cabinet.



Plan (Scale: $\frac{1}{8}$ " = 1' 0")



FINISHES.—The central fitment in the living area has, in the projecting face, an electric fire which gives heat by reflection from a polished copper plate. The plate has such a high reflective value that it never becomes hot itself. This fitment stands on a terrazzo slab and is constructed of plaster on expanded metal, with a wood frame over bricks painted black, laid on edge, with frogs facing outwards. The inclined copper reflector for the electric fire is cantilevered on brackets from this brickwork. The television set is contained in a specially-designed cabinet which has folding doors. The set is fixed on a cantilevered hinge and a pivoted base. When the doors are opened the set can be swung out into the room and adjusted for viewing by use of the pivoted base. The central fitment and the TV cabinet are illustrated as Working Details between pages 436 and 437 of this issue. The floor of the dining area is covered with beech-faced ply in 12-in. squares and finished with PVC. The new wall between dining area and nursery is of light and dark tone Uxbridge flint bricks. The ceiling is of polished pirana pine slats, which conceal a speaker for record reproduction. The suspended light fitting can be removed and placed in an alternative position.

The general contractors were Industrial Design Collaborative Ltd. For sub-contractors see page 450.

Above, left, a corner of the main bedroom. Left, the nursery. The wall on the right has a slag-wool quilt on battens behind deal matchboarding as sound insulation. Below, the living area looking towards the interior hall.

FLAT CONVERSION

in VICEROY COURT, LONDON, N.W.8
designed by HIGGINS and NEY
and PARTNERS

main bedroom now contains a large wardrobe cupboard combined with a built-in cocktail cabinet opening to the living room. The positions of the kitchen and the maid's bedroom are unchanged. The focal point of the living area is now a central fitment, enclosing an original r.c. column, in which is an electric bar fire and a serving recess for electric hot plate and storage, accessible from the rear.



TECHNICAL SECTION

Architects will feel a certain complacency in the Monopolies Commission's condemnation of the methods of the London Builders' Conference, since this echoes the RIBA's contentions all along. We are left in no serious doubt that the LBC's practice of adjusting tenders to secure "a fair price" and of saddling the cost of preparing all the tenders on the building owner was illegitimate. The danger now is that the other partners in building, while endorsing the commission's findings, will fail to notice that though LBC's practices are wrong, the motives which led to their adoption are not all contemptible; and thence to evade all share of blame for a situation which is everyone's responsibility. Now is the time surely for the Government and the professions concerned to consider how the contractor may be given a reasonable measure of security, and how the client may be offered a reasonable prospect of reduced costs.

This week's
special article

20 CONSTRUCTION: COMPLETE STRUCTURES modular co-ordination at Dartford technical college

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.

Earlier this year the Modular Society paid a visit to Dartford Technical College, which is in process of being built for the Kent Education Committee to designs prepared by the Kent County Architect. This building is a particularly clear cut example where Modular Co-ordination was forced on the designers by the logic of the problem. This week J. Garnham Wright, who has been the architect in charge of the College from the beginning, discusses this aspect of the design.

THE MODULE AND GUIDING AIMS

It is probably true to say that the new college building at Dartford is only partly modular. Whether or not any building can be wholly modular, or whether, in any case, it can benefit at all from attempting to conform with a module, seem to be matters of conten-

tion, and in consequence it may be useful for architects who are interested in prefabrication to examine how this building came to be associated with these principles. In order to explain this in retrospect, it is necessary to make the free confession that there was no original conscious intention to adopt

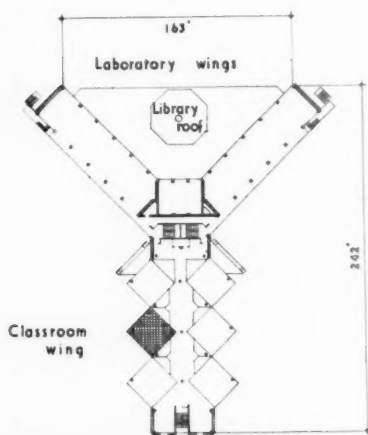


Fig. 1. Plan of the college. The library roof occurs in a single storey portion, the laboratory and classroom wings rising to four storeys, extension to six storeys being provided for. Each bay of the classroom wing is nominally 25 ft. square. The shaded bay is shown in detail in Fig. 2.

"modular planning" which is a phrase more familiar now than it was then. There was a careful but urgent attempt to solve a problem; and the solution, growing from analysis and development, revealed itself as embodying certain modular dimensional conformities. In each case, the principles adopted had separate and practical advantages and were incorporated only on that account. The solution, such as it is, has followed faithfully the guidance of a functional research, and not the edicts of a superimposed system.

ANALYSIS OF THE PROBLEM

In the first instance the problem was to construct a large building in spite of a serious shortage of labour and material for conventional building. In Dartford, on the fringe of London, these shortages were acute, and work could not begin with any hope of success on a large project unless methods of construction were used which would limit demands upon the local resources.

It seemed essential to use prefabrication as a constructional technique, and in a multistoreyed project this was a new experiment to those who sought to solve the problem. There were several precedents for the prefabrication of single-storeyed buildings, but the wholesale use of dry methods for constructing the structural floors, the curtain walling and the fire protection to a multi-storeyed framework seemed a new and challenging proposition.

In addition, the building-concept itself was new. The college would be one of the first of its type under the 1944 Education Act. In every respect, empiricism seemed a necessary policy.

PLANNING FOR EXTENSION

Accordingly, a careful analysis of the function of the building was made, together with research into the construc-

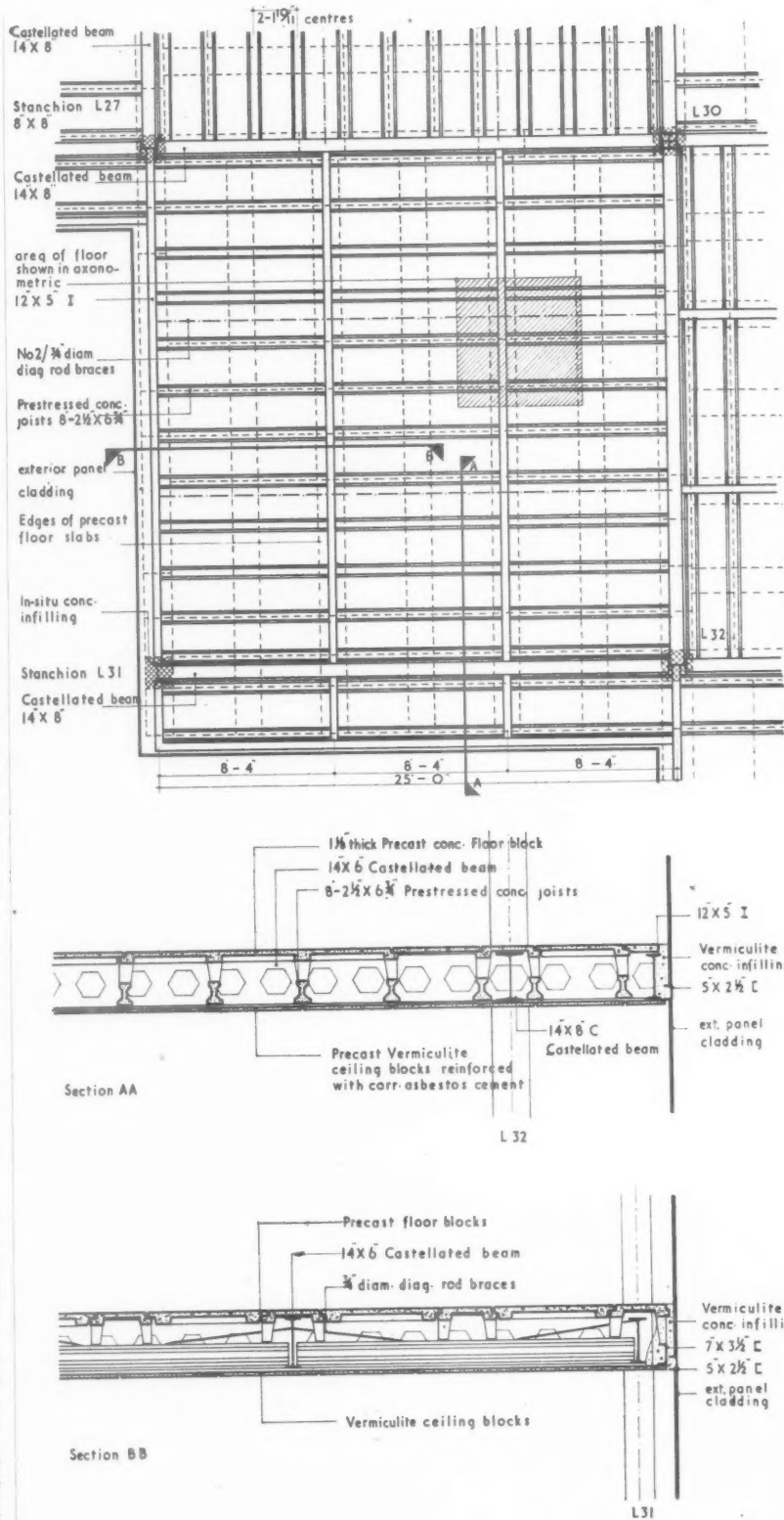


Fig. 2. Classroom wing upper floor construction (laboratory wing floors employ the same system). The main requirements were: uninterrupted ceiling surfaces to allow for changes in the internal partition arrangement; fire protection of the steelwork; space in the floor for services (including drainage in the laboratory wing), and accessibility to this space for repair or for re-arrangement of the services in the event of re-planning of the rooms and equipment. The intermediate steel beams in the classroom bays go in alternate directions on successive floors to maintain even-stanchion loading. See also Fig. 3 opposite.

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tional problems. The decision followed that there was a need for considerable flexibility of plan, and for the provision of means of liberal future expansion. The first of these factors foreboded complications in respect of prefabrication; the second meant that any preconceived ideas of a sculptural design-form would be untenable. It seemed that the scheme must depend for its architectural unity and coherence upon the repeating units of its structure. This idea was compatible with the natural aesthetics of prefabrication. Modular assemblies, formed in materials chosen for colour and texture, designed with careful attention to scale and to create the possibility of interesting rhythms, would form the aesthetic basis. The shape of the building, should be the outgrowth both of its purpose and of the techniques and materials used in its construction, faithfully exploited. The concept should be environmental rather than sculptural.

THE CHOICE OF STEEL

To a degree, time was the essence of the problem. The need for the new college was urgent, and it was necessary to seek approvals to plans and expenditure as quickly as possible. The main decisions about structural methods were made as soon as certain broad principles had been established from the research. For the structural frame, steelwork was a convenient choice: a conventional form of prefabrication in itself, it also presented the possibility of obtaining space within the floor (a pre-requisite of the flexibility to permit movement and adaptation of services), because theoretically the webs of the beams could be reduced to a

minimum of material in such a way as to form a duct space within their structural depth. Economy of material was as important as the need for modest expenditure of cash, and the choice of steelwork having been made, some convenient method was sought of reducing the weight of steel from the total tonnage to be expected if conventional rolled steel sections were used. Related to the need for saving steelwork was the question of selecting light-weight highly efficient materials for the building as a whole. This would, if properly considered at the outset, have the double advantage of reducing the total weight of the superstructure, with consequent economies in the amount of steelwork needed to support it, and of facilitating rapid assembly of parts on the site with small gangs of specialists.

STRUCTURAL FLOORS

For the structural floors, the idea of using prestressed precast concrete joists and precast concrete floor slabs seemed to comply with the conception of a continuous floor duct for the services, and the policy of having light-weight, easily handled components. It gave promise, too, of the development of the maximum uniformity of structural units, which was obviously to be an important factor in saving fabrication costs. It fitted the structural proposition of dry techniques for a framed building, and the general policy of saving steel in any form.

FIRE PROTECTION

Finally, in regard to the use of structural steelwork, there was the critical problem of providing adequate fire protection without resorting to con-

ventional "wet" methods on site. This was the ultimate and crucial factor affecting the attainment of flexibility on the one hand—for the provision of a duct space in the floor depended upon it—and the use of dry methods (allied to a multi-storeyed steel frame), on the other. It was found that the fire protection of the joists within the floor, using

Below: general view of floor and of the steelwork, showing in the foreground precast floor units riding over a castellated beam and bedded on prestressed concrete joists.

Centre: detail of the floor assembly showing the edge beam and channel to receive the external wall panels.

Bottom: view of a structural floor as seen from below after installation of the services. At the bottom in the centre can be seen a spacer for holding the precast concrete beams in position.

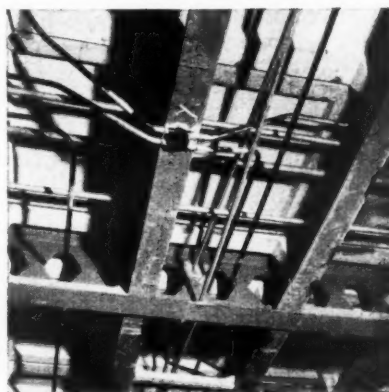
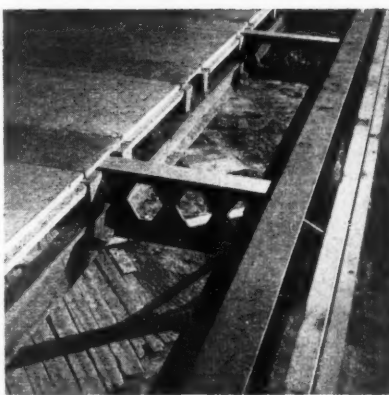
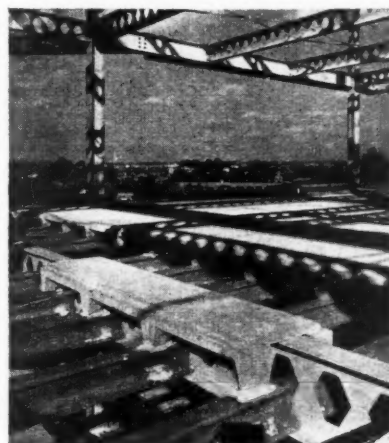
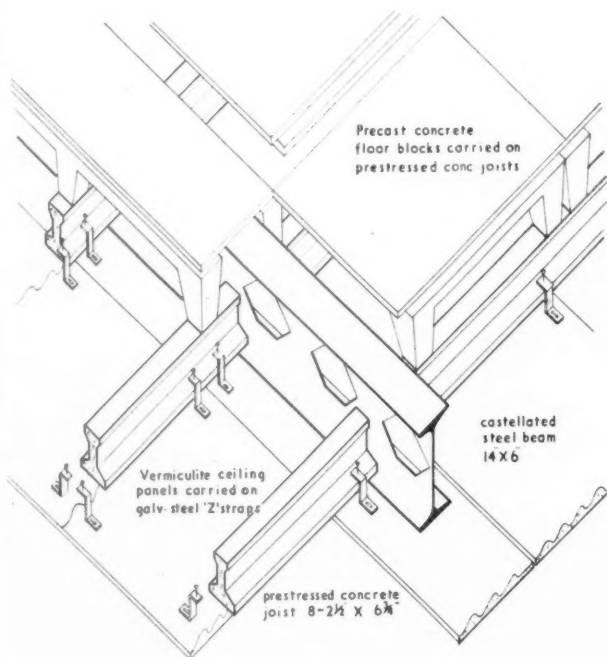


Fig. 3. Detail of shaded section in Fig. 2. The prestressed joists are bedded dry on the steelwork flanges, but the "legs" of the concrete units are bedded on the tops of the joists in cement fondu. Small pre-cast concrete spacers which rest on the flanges of the pre-stressed joists are used to maintain position of the joists, but these were found to be necessary for initial location only.



precast units fixed dry on site was practicable, but the same methods applied to stanchions would be difficult. As there seemed no practical alternative to the use of wet processes for stanchion protection, it was decided that the number of stanchions should be kept to a minimum, so far as was structurally reasonable. This factor was an important consideration in the general development of the plan.

THE CURTAIN WALL

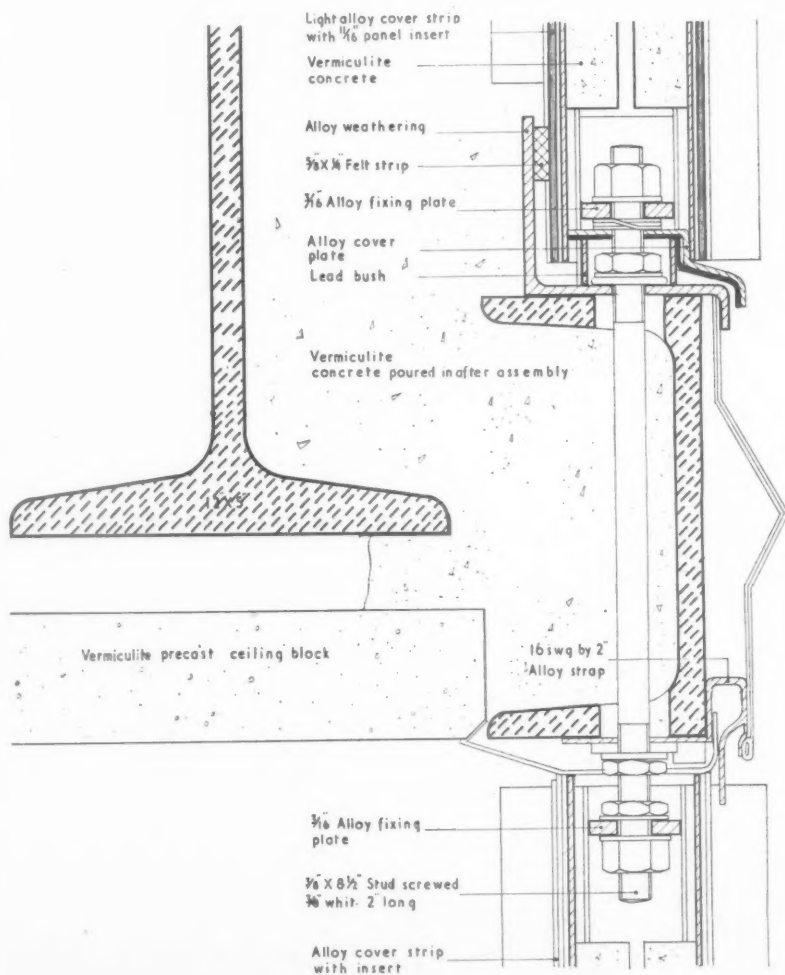
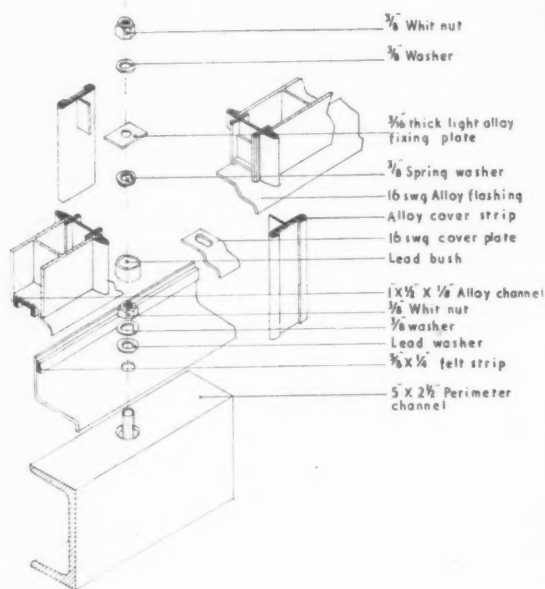
A leading issue in the research was reconsideration of the functions of an external wall for a framed building. For this "curtain wall" some material with precise, machine-made characteristics seemed essential. It was easy to feel that to hang lumps of concrete, an essentially heavy material, on a steel framework, was to force materials into roles for which they were not naturally fitted. It seemed likely that modern industry could provide a light-weight, self-finished, synthetic material more suitable for the job. It was decided that, if there were to be some parts of the walls where concrete block walling would be an advantage, conventional brickwork techniques should be used for their construction—one justification for this being the need to keep some sections of the work in the hands of a general contractor's staff.

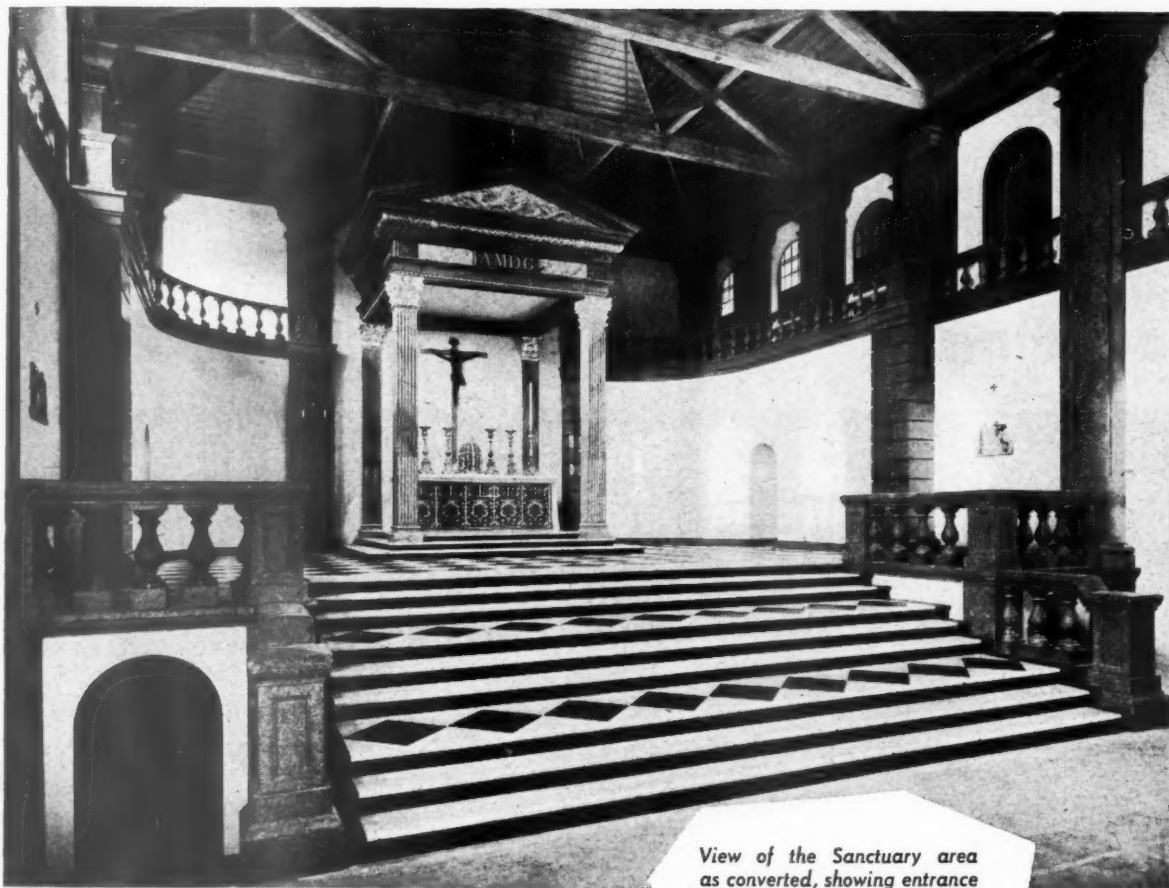
DIMENSIONAL CO-ORDINATION

Some experience in the use of sheet materials in early post-war schools showed that these materials could not be co-ordinated with brick sizes without cutting. Where methods of pre-fabrication had been used in a later "pilot-project" further experience had been significant. A modular planning grid 10 ft. square had been used, with 3 ft. 4 in. as the dimension for the walling assemblies, and this had meant a good deal of cutting to waste of all sheet materials, adding to the difficulties of fabrication and therefore increasing the cost—difficulties which admittedly would not have arisen if precast concrete components, designed to fit the chosen module, had been used.

These considerations were of the greatest importance in a project the size of Dartford Technical College. It became apparent that two factors would affect dimensional co-ordination. First these units could be made to any dimensions since moulds for concrete floor and wall units would have to be made to special designs, compatible with the need for economical spans and efficient structure, and apart from the obvious need to standardise units as much as possible, no separate modular limitations would apply. Secondly, the dimensions of any sheet material to be used for the external walling and internal partitions would have to be related to the manufactured sizes which were already unalterably established.

Fig. 4 (right). Fig. 5 (below). Fixing of the external wall panels at the 2-in. connector which occurs between each 4 ft. panel (making the 50 in. module). The r.s. channel is bolted to the main steelwork with provision for final alignment before fixing of the curtain walling. The continuous alloy weathering is bolted down on to the channel; next follows the lead bush and on this the alloy flashing made in module lengths which meet at the bolt centre-line, the joint being masked by the "cover plate." The panels are then installed with their extruded alloy edge members. Between adjoining edge members fits the $\frac{3}{8}$ in. by 2-in. "fixing plate" which is bolted down to bear on the small angle cleats at the base of the edge members. Lastly the plastic-faced alloy cover strips are pushed into place. They are held by spring clips (not shown) fixed to the web of the cover strip, which click into place behind the nibs projecting from the edge members.





View of the Sanctuary area as converted, showing entrance to crypt on left. There is a similar entrance on the right.

18th Century Tennis Court Converted to Chapel

During the conversion of the 18th century indoor Tennis Court into a chapel for the Jesuit Theological College at Heythrop Hall, Enstone, in Oxfordshire, additional accommodation was provided by excavating under the Sanctuary area and forming a crypt to contain six small chapels. A further nine side chapels were added on the north and south walls having their entrances in the main building. Owing to the slope of the land this involved excavation into the subsoil on the north side.

The concrete forming the crypt, also the concrete floors and retaining walls of the side chapels were made completely waterproof by the inclusion of 'PUDLO' Brand Waterproofer throughout the thickness of the concrete.

Consulting Ecclesiologists: The Brothers Anthony & Ældred Bartlett of B.O.W.S. & Bartlett Ltd.
Contractors: Messrs. Walker-Symondson Ltd.



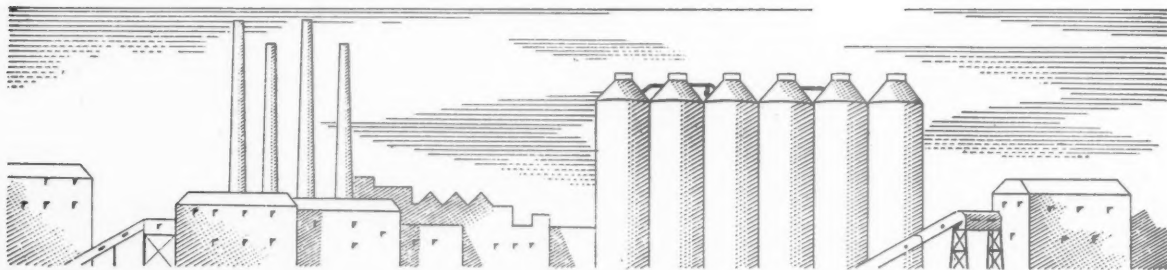
Descriptive booklet and the Specification
No. 5A, worked to in this case will be sent on request.

CEMENT WATERPROOFING POWDER

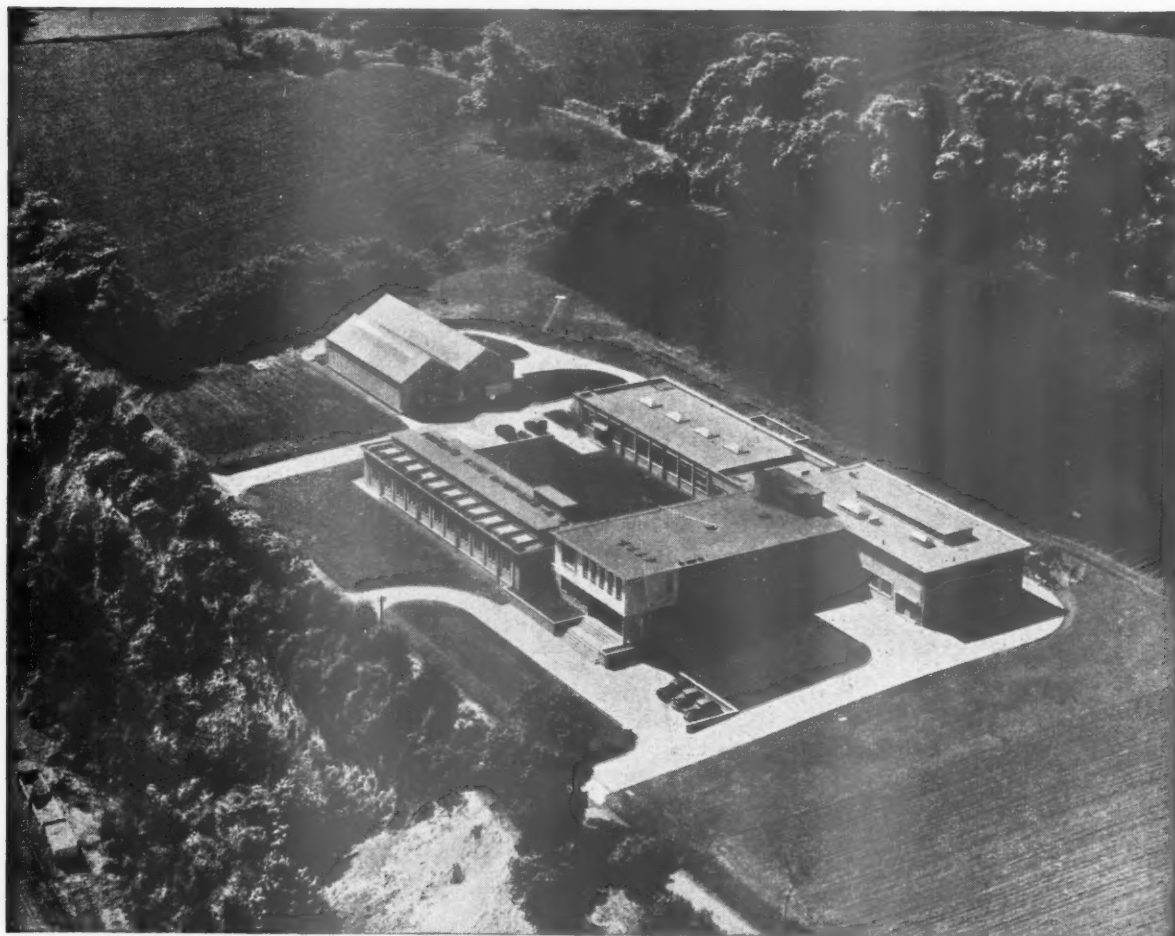
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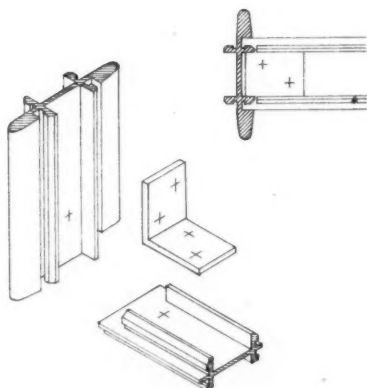
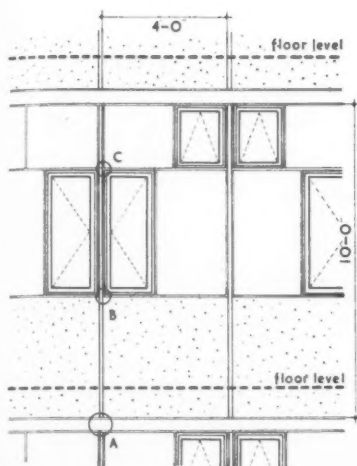
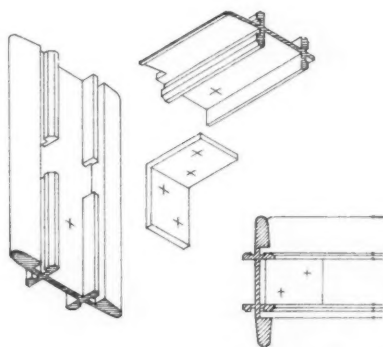
Junction of Aluminium Extrusions
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Mullion & Transom Detail at C

Fig. 6 (above). Elevation of portion of the external walling, and details of the junctions in extruded alloy edge members. (The detail "A" is shown in Fig. 5 on p. 444). The projecting fins of the edge members provide stiffness against lateral moments.

SHEET DIMENSIONS DETERMINE MODULE

It followed, therefore, that the dimensions for the sheet materials should be resolved first, and the design of the other units should attend upon them subsequently. Sheet materials would be used most extensively for the construction of the walls, and the panel width of 4 ft. seemed an appropriate choice. This would cover a wide range of sheet materials, including the structural plastic material which at this early stage seemed to promise a number of advantages. The addition of 2 in. to allow for connections produced a modular width of 50 in. 50 in. was convenient to planning because dimensions of 25 ft., or six modules, produced the nominal area of 625 sq. ft., which was the standard area scheduled for teaching rooms. The same dimension was suitable for the width of large laboratories, and practical rooms.

STANDARD SPANS FOR PRESTRESSED JOINTS

At an early stage, therefore, structural steelwork was set out in multiples of this 50 in. module. For the classrooms in the south wing, whose plan shape had been determined by other factors, a 25 ft. square grid was adopted, while 16 ft. 8 in. was selected as the structural bay width for the "single-banked" laboratory wings. In this way divisions could be made to standardise spans for the prestressed joists, conveniently for the building as a whole, and in keeping with the structural dictates of the materials. The 25 ft. squares could be divided with secondary beams at one-third spans to produce a standard span of 8 ft 4 in. between steel joists; and the 16 ft. 8 in. bays could be divided to pro-

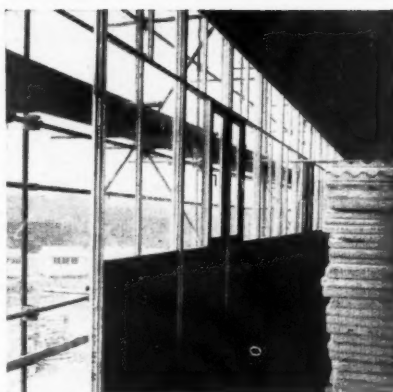
duce the same 8 ft. 4 in. span. The structural design-analysis of the floor had shown that 8-ft. long concrete joists could be spaced at about 2 ft. centres, an appropriate dimension for both floor and ceiling units.

DUCT, SPACE

The arrangement evolved provided a continuous duct-space in the floor, the whole depth being available for services in a direction parallel to the prestressed joists, and the space above these joists being available in the opposite direction. The planning decision to confine all rooms with heavy service arrangements to two single banked wings meant that the maximum depth in the floor was required for services running longitudinally in the wings, and the division of the bay-width to produce 8 ft. 4 in. spans in a longitudinal direction meant that the full depth of the floor was available in this direction.

THE LABORATORY WING

An overriding consideration, always present in governing decisions, was the need for the maximum economy in floor areas throughout the building. In determining the width of the laboratory wings it was soon evident that 2-in. connectors were not needed in every panel junction in division walls. A room width exceeding 25 ft. for this type of accommodation was not considered to be suitable and the flexi-



Top: manhandling an external partition unit.
Centre: external partitions fixed and glazed.
Bottom: precast vermiculite ceiling blocks stacked ready for fixing.

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Please let us explain. We're not suggesting a mid-afternoon "get-together". "3.75" is a gauge.

In short, it's the thickness in millimetres of our rubber flooring between the ordinary $\frac{1}{8}$ " gauge (too light for many jobs) and the more expensive standard $\frac{3}{16}$ " gauge. 3.75 is, indeed, a *very* happy medium. A solution in terms of adequate thickness at a price inside the budget.

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bility for these practical rooms would therefore be primarily concerned with alterations to fittings and adjustments in the lengths of laboratories. Stores between laboratories could be usefully divided into two spaces by partitions running longitudinally in the wing. In consequence, only two connectors would ever be needed in the partitions across the width of the laboratories: one for the corridor partition wall, and one for the longitudinal division in the stores. Six 4-ft. panel widths, with a small tolerance for butt-jointing; and two 2-in. spaces for connectors were therefore allowed to determine the width of this wing, this being the minimum width between stanchion cases.

NON-MODULAR END WALL

The end wall, whose dimensions would be affected by this decision, and whose "modularity" would in any case be complicated by the width of the stanchions could be made in precast concrete units cast to fit the "non-modular" width.

The resultant saving in plan area was additional to those savings achieved by omitting stanchions in the outer wall of the corridor, and by using light-weight, highly efficient materials for protecting the stanchions against fire.

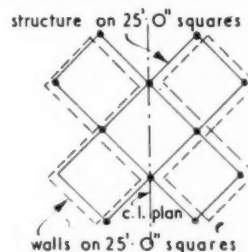
THE CLASSROOM WING

In the classroom wing, the early plans were based upon two sets of squares for the structural frame, with the stanchions at the inner points spaced at a corridor width apart. This meant (a)

two inner points, was very apparent. This would result in uniform squares for the structure, but if the walls remained coincident with the structural module, there would be no means of access for central circulation.

DESIGNING FOR MOVABLE PARTITIONS

The final arrangement was obtained by maintaining this regular pattern for the structure, but moving the walls apart, and off-centre of the steelwork, allowing just sufficient space on each side of the central column for circulation (a minimum corridor width), and just sufficient room for the wall to

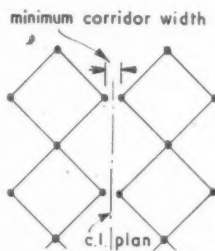


avoid the largest stanchions on the outside.

This had the effect of maintaining the 50-in. module in both directions for the external and internal walls, and creating a situation where the walls in all



Above: general view looking towards the classroom wing. Note the projecting cases for the heating units on the left hand wall.



that the central structural bay was non-standard with a span greater than 25 ft., and (b) that the partitions were fixed between stanchions, preventing the attainment of flexibility with standard panel widths.

A better arrangement, by linking the

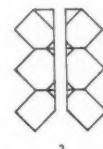
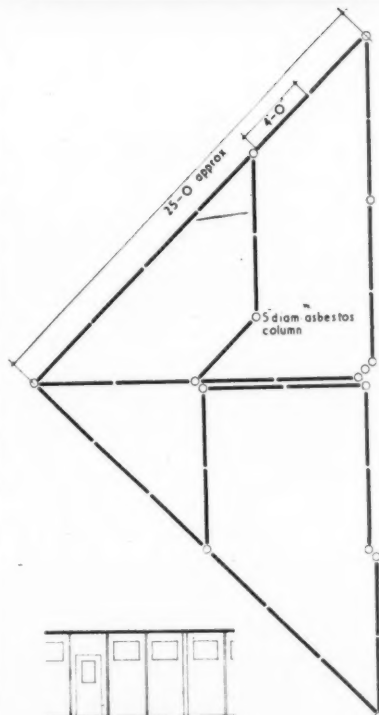
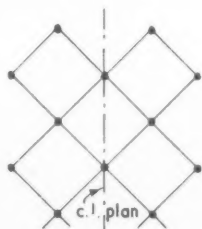


Fig. 7 (left). Plan of part of a classroom bay showing the 4-ft. partition units in some of the possible alternative arrangements. Below this is a part elevation of a partition length with door and borrowed light units. On the left, small scale plans of the whole classroom wing demonstrating some of the room arrangements that are possible.

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various alternative positions always avoided stanchions. The very considerable adjustments of plan shapes for rooms could therefore be carried out with standard panel widths without any obstacles. (See Fig. 7.) On the other hand, the structural spans were standardized throughout and the difference between the two grids on plan could be related to the dimensions chosen for the floor slabs and ceiling spans—which being made in precast concrete, could be designed to fit accordingly.

The end wall across the diagonal, which could not be expected to conform to the 50-in. module, would be dealt with in the same way as the end walls to the laboratories, and built in concrete blocks, tailored to their own optimum dimensions.

VERTICAL DIMENSIONS

So far as vertical dimensions were concerned, it seemed important, for the same reasons relating to the use of sheet materials, to co-ordinate heights of solid panels and avoid cutting to waste. The room height of 9 ft. was derived from other considerations which were important enough to claim priority, but it became apparent that an economical depth for the suspended floor-ducts would be about 17 in. and in consequence the floor to floor height of 10 ft. 5 in. (or $2\frac{1}{2}$ modules) was practical. The support of the curtain wall was arranged at a level which secured a suitable cill height with a 4-ft. height of panel. The 10-ft. 5-in. height was maintained for the upper floors, but on the ground floor, where a higher pitch of ceiling was considered desirable, the standard window units, 4 ft. and 2 ft. deep, were used in alternative arrangements, and it was decided that the variable height between cill and ground could be carried out in the "tailored" concrete units.

STANDARDIZATION OF WINDOW UNITS

The vertical divisions of each of the curtain walling assemblies consisted of two sections of 4 ft. and one of 2 ft., and the divisions horizontally were judged so that an interesting variation could be obtained in the overall pattern of the walling with the minimum numbers of types of windows. Only two types of opening lights were used throughout, and two sizes for fixed lights. Where no opening window was to be installed in an assembly the divisions were to be the same. It was decided that where windows were required in the sections of walling to be built in concrete blocks, the same sizes of casement and frame should be used.

The floor slabs were designed according to their own structural prerequisites, and using the minimum number of types so that the number of moulds

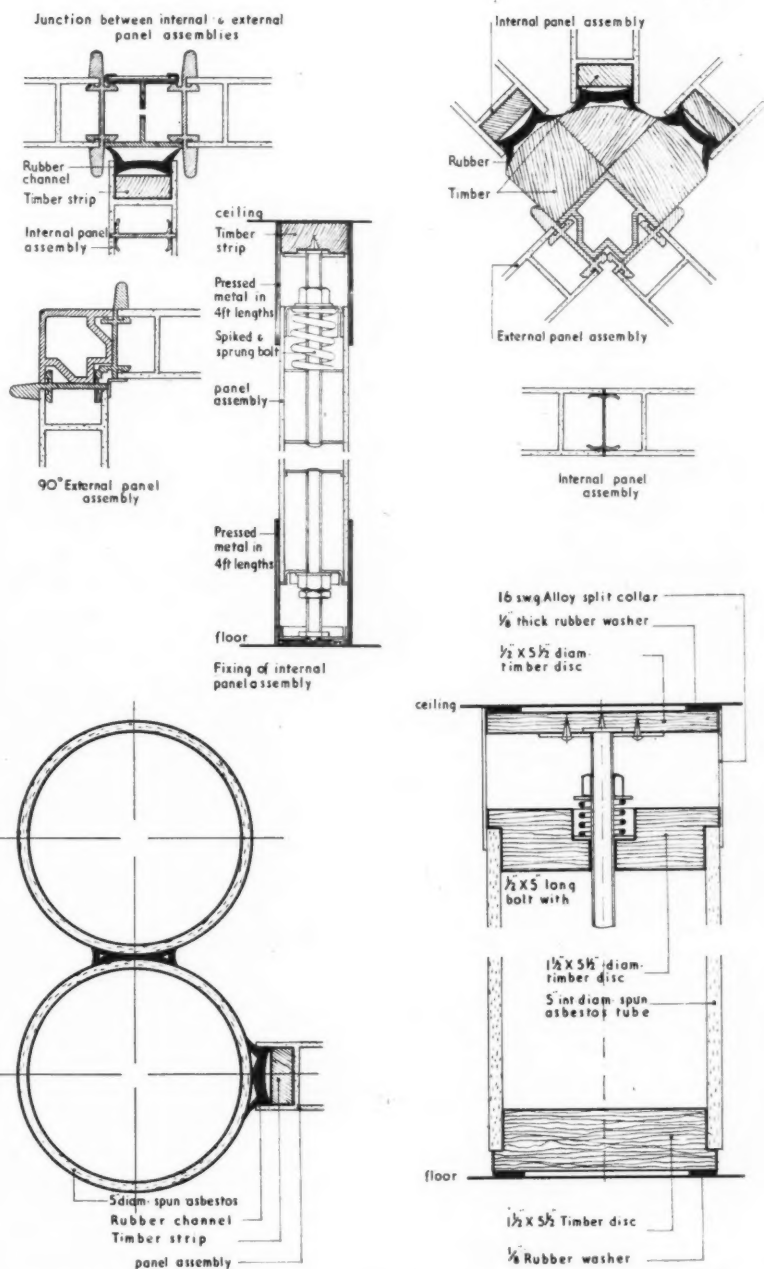


Fig. 8 (top left). Tee junction of internal partition with external wall; 90 degree angle in external wall; section through movable internal partition unit. To move the partition the pressed metal strips at top and bottom are removed for access to the spring loaded jacks which are released by loosening the nuts. The timber plate at the top and the felt strip at the bottom against which the jacks bear may then be moved, with the partition to its new position.

Fig. 9 (top right). Junction of three internal partitions with angle in external wall by means of timber quadrant piece and rubber flange edges to the partition units.

Fig. 10 (above). Plan and section of asbestos cement columns forming the junctions to the internal partitions (see Fig. 7). These employ the same spring loaded jacks as the partition units.

required was as limited as possible. Ceiling panels were chosen on the same principles, and by reason of the standardised structural spans, the number of unit types was reduced to two, with two other panels modified from these.

ORGANISATION OF THE CONTRACT

From the outset of the job it was

apparent that the constructional policies involved would result in the use of a number of specialised sub-contractors. The general contractor could not be established in advance, owing to the system of competitive tendering involved, and could not, therefore, be introduced to the proposals during the development stage. It was clear that if



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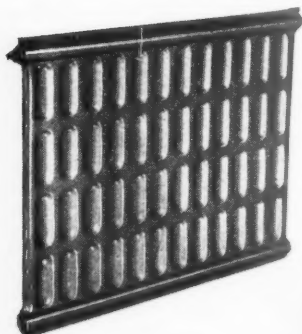
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the role of the general contractor was not to be solely that of a co-ordinator, the introduction of a certain proportion of conventional construction was necessary. Provided that this was related in extent to the local restrictions of labour and materials, it appeared to be an advantage, as it would mean that the general contractor would always be engaged upon normal construction, though scaled down in extent, throughout the whole of the period of the contract. An acceptance of this policy meant also that the planning need not follow in every place the rigid edicts of the module, and in situ construction for certain sections would facilitate a greater freedom of plan-form than could otherwise be attempted.

CONCLUSION

It is not the purpose of this account to describe the arrangements for flexibility nor to list the considerations given to the choice of materials, textures and colours, and the finishes generally. Neither is it meant to be a full account of the experiment, which would need to include a reference to all the collaborators and advisors, in private firms and official departments whose direct or indirect contributions form an integral part of the development. The final analysis of time and labour cannot be made until completion, but it is clear that the decisions made have enabled the construction of the college to proceed, at a cost within the economical targets. It is tempting to add that if

the various contractors in a project of this nature could fully appreciate the implications of methods which reduce time and labour, on site, these factors might be more directly reflected in the costs. In fact, it may not be a rash claim for an architect to make that if the same degree of consideration could be given by the other members of the building team to the questions of pricing and site organization as he gives to the development of a project of this nature, the benefits would be more clearly revealed in terms of economy and in reduction of contract time. In such conditions, it may almost be within the limits of practical possibility for the nation as a whole to keep pace with its urgent building requirements.

INFORMATION CENTRE

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18.155 construction: theory

REINFORCED CONCRETE STRUCTURE

Concrete Farm Structures. A. M. Pennington. (Concrete Publications Ltd. 1954. 12s. 0d.)

Book giving planning and constructional details for all types of farm buildings of interest to architects.

This book packs a vast amount of information on the planning of farm buildings into 153 pages suitably illustrated by 146 figures. The author is well known for his published works on precast concrete in various forms and, as he has specialized for many years in this type of work and most of the structures described have been constructed under his supervision, the information is first hand in every aspect.

Designs are in accordance with latest British and American practice and with British Standards and recommendations of the Ministry of Agriculture where these are applicable. Plans, sections and detailed information are given on concrete structures for cowhouses, dairies, stables, piggeries, liquid manure tanks and dung pits, bars, implement sheds, silos for grass and grain and grain drying plant. Apart from the actual buildings, roads, yards, culverts, gates, cattle grids, water troughs and horticultural frames are covered. The last chapter deals with the general planning of the farm.

18.156 construction: theory
STEELWORK DESIGN

Constructional Steelwork Simply Explained. Oscar Faber. (Oxford University Press. 1954. 12s. 6d.)

Third edition of well-known textbook of interest to students and junior draughtsmen.

Dr. Faber's book was first published in 1927 and the various reprints and revised editions testify to its popularity. This edition has been brought up to date to comply with B.S. 449 (1948). The principles are not materially altered but with the revised permissible stresses and new approach to column design when subjected to bending the examples have been redrafted accordingly. New curves and figures have been added. As in the author's book on reinforced concrete, stress is laid upon the practical aspect of design and the utility of pursuing a calculation to more than slide rule accuracy. A new appendix giving a short summary of current permissible stresses has been added, giving the book a total of 138 pages and 57 figures.

20.220 construction: complete structures
CLAY TILE STRUCTURE

Prestressed-tile roof and girders make all tile building possible. (Engineering News Record [USA], April 15, 1954, p. 39.)

Prefabricated units of structural clay tile form a lightweight 50-ft. x 60-ft. building that demonstrates possible future applications of this material. Interesting to architects and engineers.

A standard type of tile was used, 12 in. x 12 in. x 6 in. deep with 3 cells. Each tile weighed 33½ lb. and had an average strength of 10,000 p.s.i. on the nett section. Column spacing was 20 ft. x 50 ft. and columns were 18 in. square, each course consisting of 4 tiles and a central core of concrete. Reinforcement consisted of main bars 1½ in. diameter placed in 6 ft. lengths, one in each of the four corner cells, and ¾ in. diameter links were inserted between each 12 in. lift of tiles. Main bars were welded instead of spliced and this allowed each lift to be topped up with grout.

The girders were 37 in. or 43 in. deep formed by 6 and 7 courses of tile respectively. Prestressing bars were placed in the bottom cell and stressed against end anchor plates but not grouted in. The end section of the girder was in reinforced concrete to resist the bearing stresses. The top course of tile was filled with 5,000 p.s.i. concrete.

The roof deck consisted of thirty 5-ft. x

20-ft. prefabricated panels of prestressed tile. The units consisted of 4 tiles placed side by side with 4 in. spaces containing the prestressing wires into which concrete was poured after stressing the wires. Concrete strips 6 in. wide were placed at the ends and centre of the panel to stiffen it up.

The tile structure is estimated to weigh only 40 per cent. of a comparable roof in reinforced concrete.

23.199 heating: ventilation

DOMESTIC APPLIANCES

Recommended Domestic Solid Fuel Appliances. Coal Utilisation Council (List No. 9, July, 1954. 6d.)

This well-known list of recommended appliances is again revised and cancels the January, 1954, edition. A copy of this is a *must* for all architects doing domestic work.

24.174 lighting

EMERGENCY LIGHTING

Automatic Change-over Contactors. B.S. 764: 1954. (British Standards Institution, 4s. 0d.)

Refers to switch-over apparatus for buildings such as Cinemas and Hospitals and is a revise of a 1937 B.S. A smaller size, 15 ampere, 30 volt size is now included. The present revision requires the registered certification mark of the B.S.I. as evidence of compliance with the specification. Pending the change-over of manufacturers to meet the new B.S. it is understood that for the purpose of the Cinematograph Regulations the revised B.S. will not be deemed to come into force until six months after the issue of new Regulations. Until then either the new or the old B.S. may be followed.

CLASSIFICATION

1 Sociology. 2 Planning: General. 3 Planning: Regional and National. 4 Planning: Urban and Rural. 5 Planning: Public Utilities. 6 Planning: Social and Recreational. 7 Practice. 8 Surveying Specification. 9 Design: General. 10 Design: Building Types. 11 Materials: General. 12 Materials: Metal. 13 Materials: Timber. 14 Materials: Concrete. 15 Materials: Applied Finishes, Treatments. 16 Materials: Miscellaneous. 17 Construction: General. 18 Construction: Theory. 19 Construction: Details. 20 Construction: Complete Structures. 21 Construction: Miscellaneous. 22 Sound Insulation-Acoustics. 23 Heating Ventilation. 24 Lighting. 25 Water Supply. Sanitation. 26 Services Equipment: Miscellaneous. 27 Furniture, Fittings, Miscellaneous.

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Buildings Illustrated

Kirk Hallam County Infants School, Ilkerton, Derbyshire. (Pages 434-437.) Architects: F. Hamer Crossley, DIPL.ARCH., F.R.I.B.A., County Architect; F. K. Hicklin, A.R.I.B.A., Assistant County Architect (New Schools); Architect in Charge: Bernard C. Adams, A.R.I.B.A., Development Architect; Assistant Architect: F. Alderson, DIPL.ARCH., A.R.I.B.A.; Quantity Surveyors: A. E. Thornton-Firkin & Partners; Clerk of Works: W. S. Boon; General Contractors: Ford and Weston Ltd.; Fabricators and Suppliers of Timber Superstructure: Thermo Insulated Units Ltd.; Sub-contractors: heating and hot water service, Weatherfoil Heating Systems Ltd.; electrical installation, Hartley Electromotives Ltd.; roof finish, W. Briggs & Co. Ltd.; thermoplastic floor tiles (Accotile), Fitchett & Woollacott Ltd.; ceiling boards, Celotex Ltd.; paramount plaster-board partitions, British Plasterboard Co. Ltd.; flush doors, Leaderflush Ltd.; external concrete pavings, Constone Ltd.; cold asphalt surfacing, Resmat Ltd.; paints and special timber stain, Joseph Mason Ltd.; facing bricks, Proctor & Lavender Ltd.; plastic emulsion paint, Vitrex Ltd.; fleximer flooring, Semtex Ltd.; plastic flooring, Adamite Ltd.; furniture and cloaks trolleys, Geo. M. Hammer & Co. Ltd.; ironmongery, Parker, Winder & Achurch Ltd.; physical education equipment (designed and executed), Ronald Pope.

Flat conversion at 52, Viceroy Court, London, N.W.8. (Pages 438-440.) Architects: Higgins & Ney & Partners, A/R.I.B.A. General Contractor: Industrial Design Collaborative Ltd. Sub-contractors: bricks, Uxbridge Flint Co. Ltd.; woodblock flooring, Phillips Floors Ltd.; electric light fixtures (standard items), Merchant Adven-

turers of London Ltd. and George Forrest & Son (1950) Ltd. (special items) General Contractors: electric fire, metalwork, joinery, General Contractors; marble, Malarcarp Terrazzo Co. Ltd.; textiles, David Whitehead Ltd.; wallpapers, Arthur Sanderson & Sons Ltd. and Cole & Son (Wallpapers) Ltd.; furniture (standard units), Hille of London Ltd. and Finmar Ltd. (special units) General Contractors.

Announcements

The partnership of Blenkinsopp & Thompson has been dissolved by mutual consent. Mr. G. L. Thompson, F.R.I.B.A., will continue the practice at Clifton Chambers, Park Street, Selby, under his own name and also from his new office at 16 New Walk Terrace, York, where he will be pleased to receive trade catalogues.

Harrison, Barnes & Hubbard, F/A/R.I.B.A., Architects and Town Planning Consultants, have moved to 2, Lord North Street, Westminster, London, S.W.1. (Tel.: ABBey 5977/8).

Gabriel J. M. Cleere, A.R.I.C.S., Chartered Quantity Surveyor, has commenced practice at 11, Ely Place, Dublin, and would be pleased to receive trade catalogues and literature.

Cuprinol Ltd. have moved into new offices at Terminal House, Grosvenor Gardens, London, S.W.1. The new premises are close to Victoria Station, and face Grosvenor Gardens.

Horsley, Smith & Co. (Hayes) Ltd., flooring specialists, announce that E. W. Hill has been appointed to the Board of Directors.

Berry Wiggins & Co. Ltd., contractors, have changed their telephone number from Holborn 0941 to Chancery 4499.

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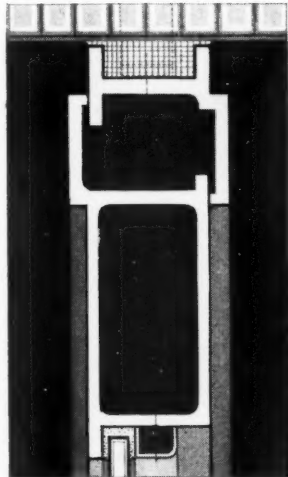
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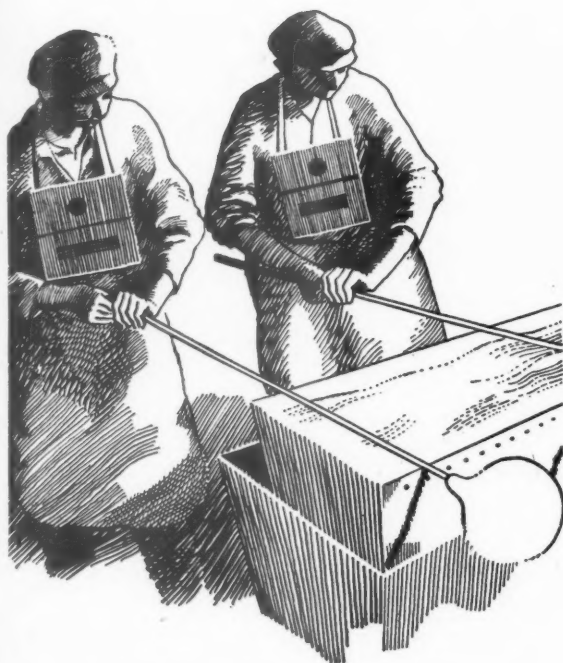
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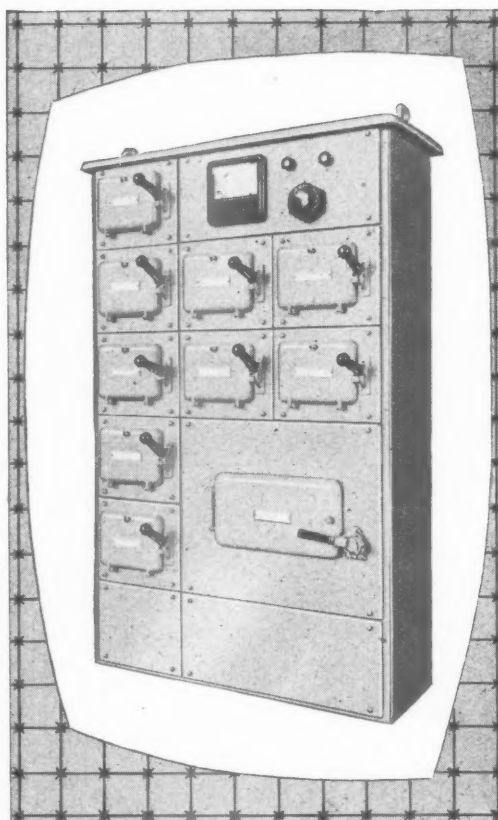


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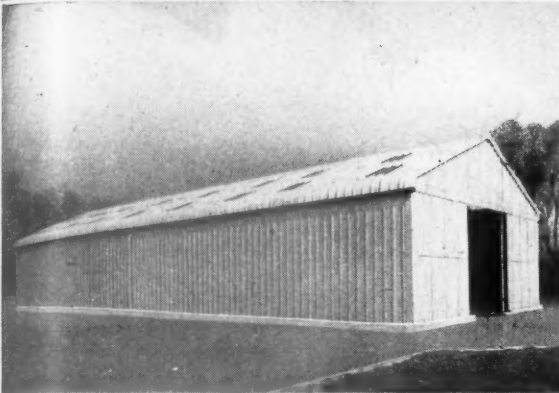
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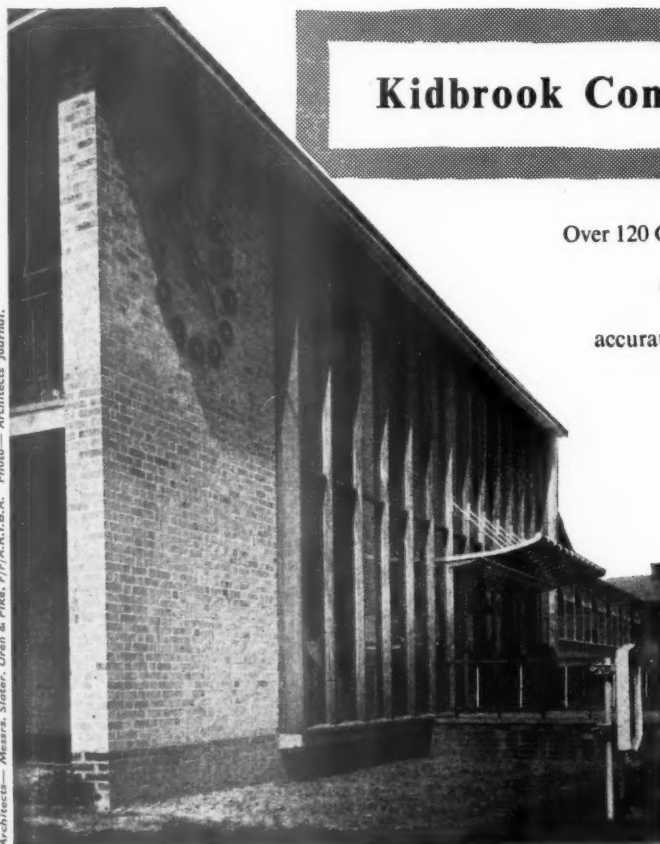
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*Edited by D. A. C. A. Boyne, executive editor of
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THE IMMEDIATE SUCCESS of *Architects' Working Details Volume 1* and the enthusiastic welcome it received (it is already in its second impression) encouraged editor and publisher to follow up swiftly with the preparation and publication of this new volume, number two in the series.

The purpose of this important series is two-fold: first, to provide architects and students with easily accessible solutions to innumerable everyday design problems; and second, to record the latest stages that the study of those problems has reached, and thus provide the architect with a time-saving starting point from which he can develop his own improvements and adaptations.

The contents of this second volume are classified under the same headings as those in Volume 1 (WINDOWS, DOORS, STAIRCASES, WALLS AND PARTITIONS, ROOFS AND CEILINGS, BALCONIES, COVERED WAYS AND CANOPIES, HEATING AND FURNITURE AND FITTINGS) and a new heading, LIGHTING, has been added. The details appearing under those headings have, as in the case of Volume 1, been selected from the series of Working Details now regularly appearing in the *Architects' Journal*; they all represent recent work of leading architects and show the actual details used in the solution of a wide variety of contemporary design problems.

Future volumes will contain further examples under each of the present headings, and from time to time additional subjects will be introduced, so that the architect will be provided with a gradually accumulating and always up-to-date reference library of useful



details. The series is thus a continuous one, but, at the same time, each individual volume is self-contained and is offered for sale separately.

The presentation of the volumes is simple; each Detail is illustrated by a large photograph immediately facing its relevant detailed working drawing. The volumes are specially bound so that they may be opened at any point and laid flat on desk or drawing board. Size 11 $\frac{3}{4}$ " x 8 $\frac{1}{4}$ ", with 160 pages; price per volume, 21s. net. Postage: Single volume, 1s. 3d. Both volumes, 1s. 8d.

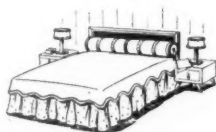
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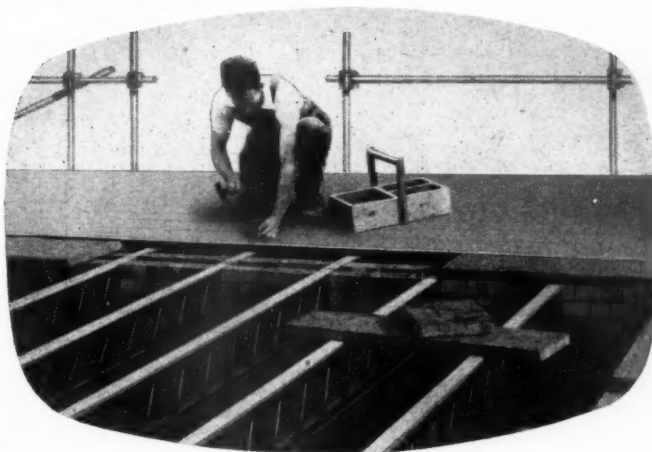
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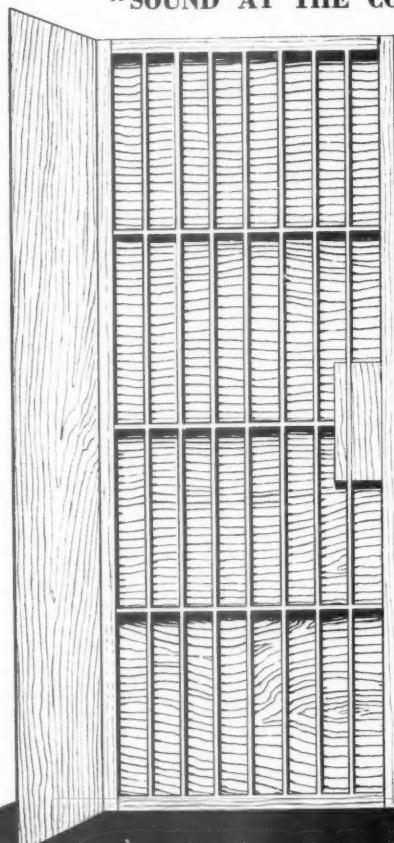
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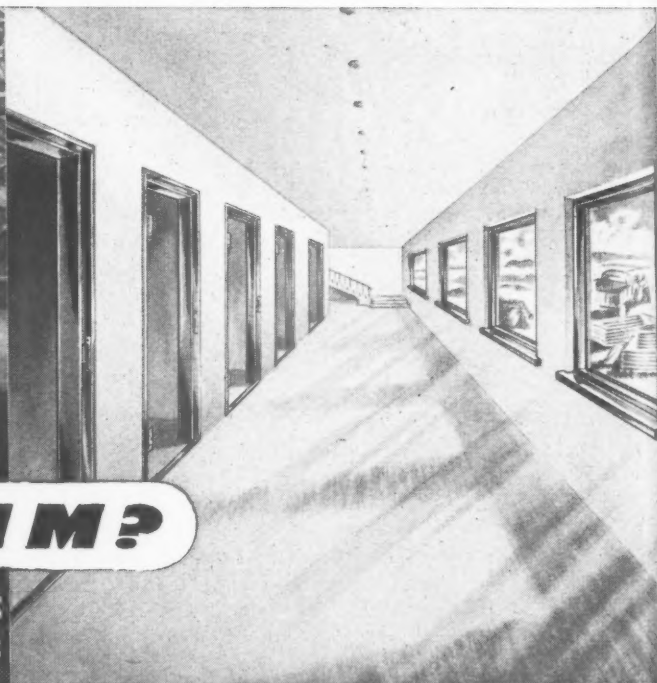
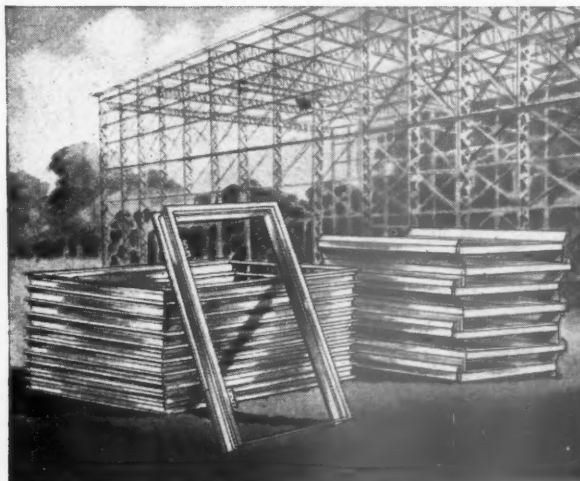
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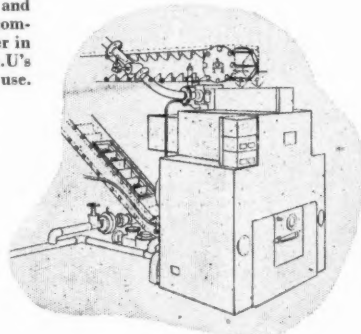
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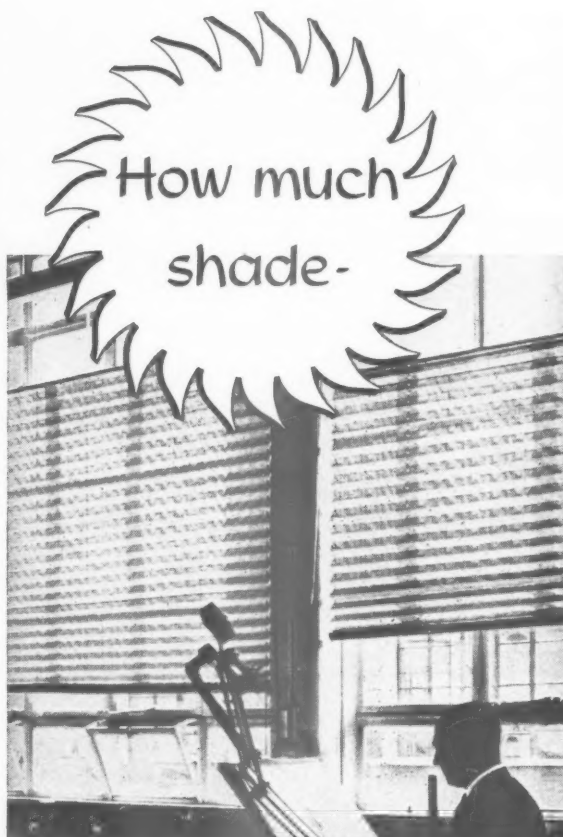


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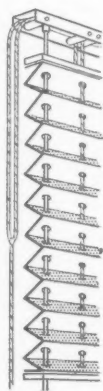
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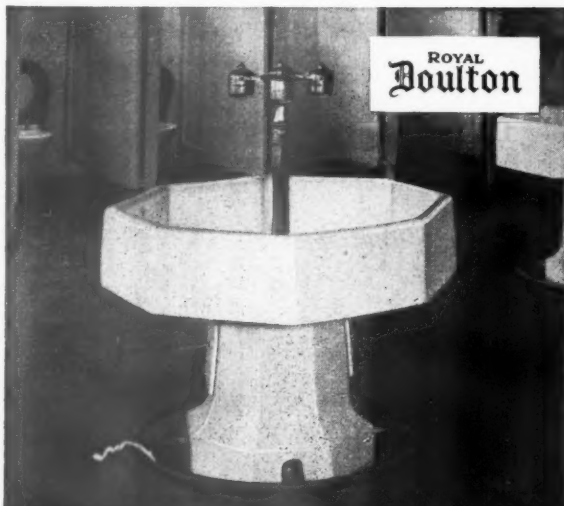
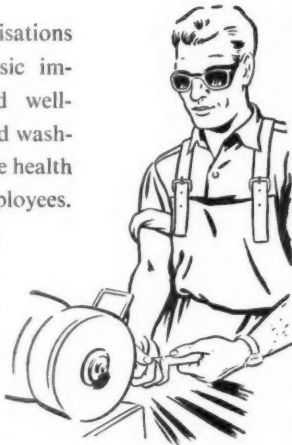
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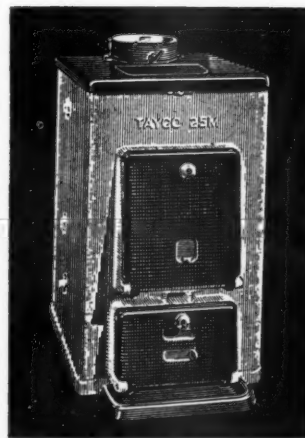
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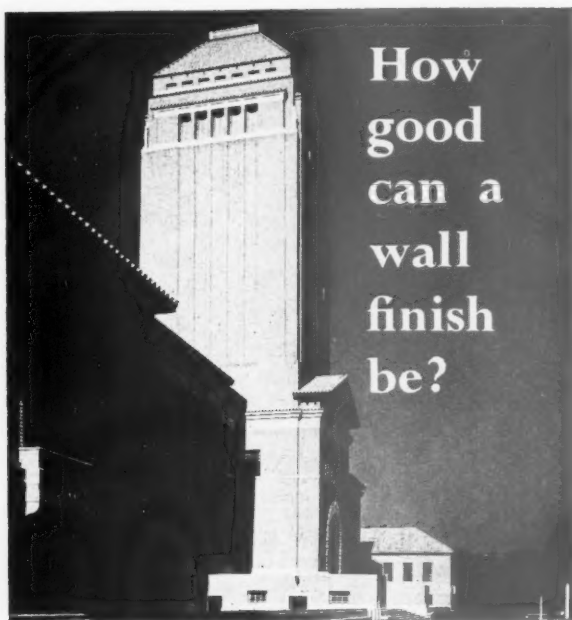
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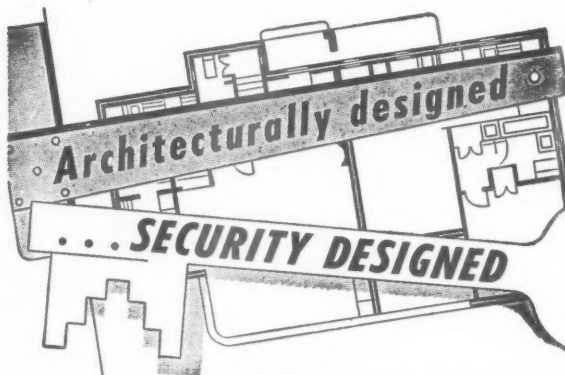
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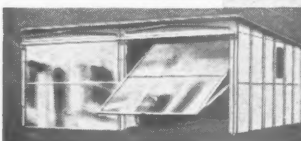
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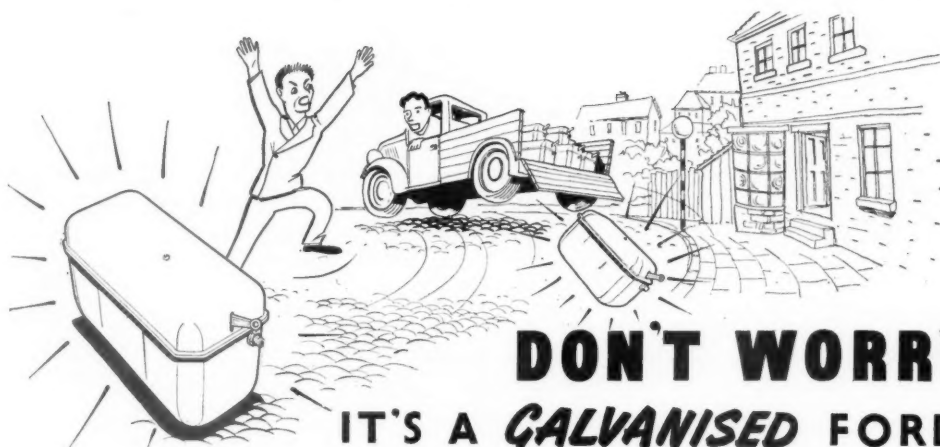
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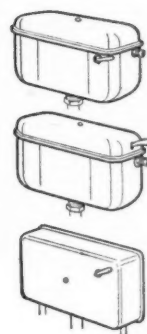
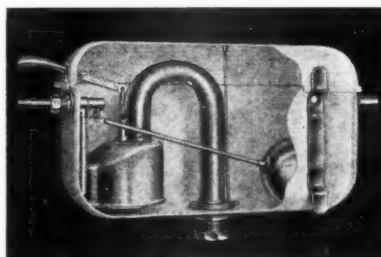
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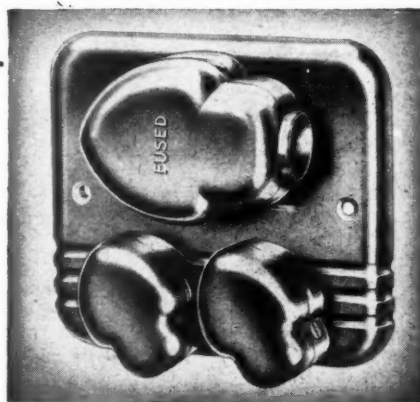
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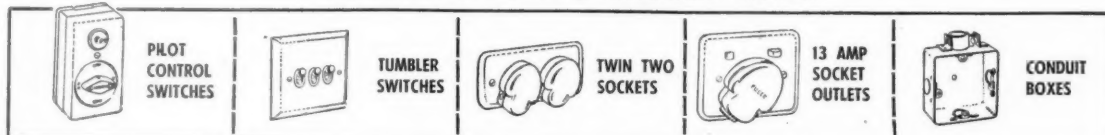
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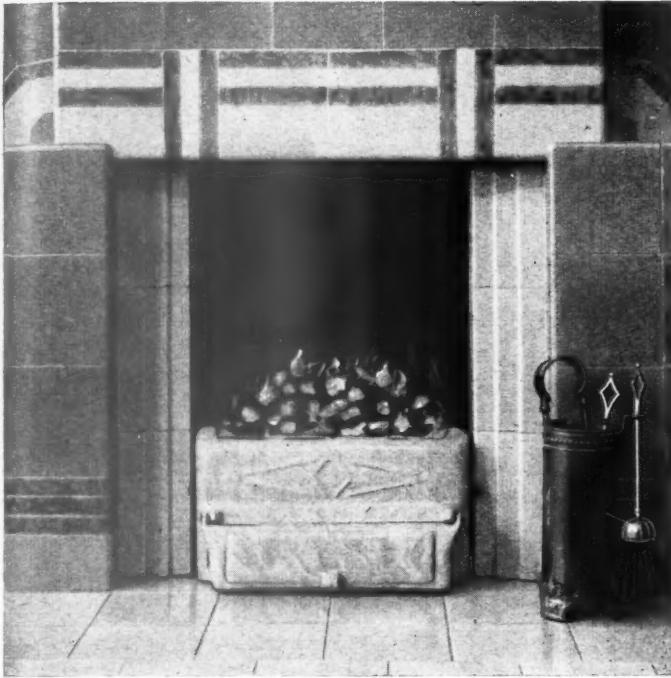
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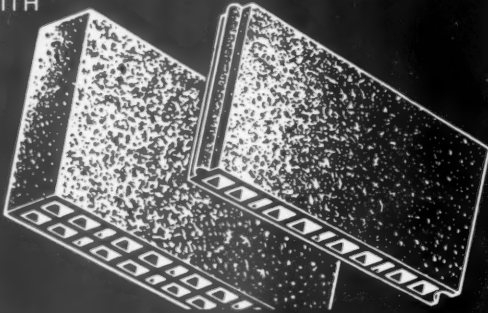
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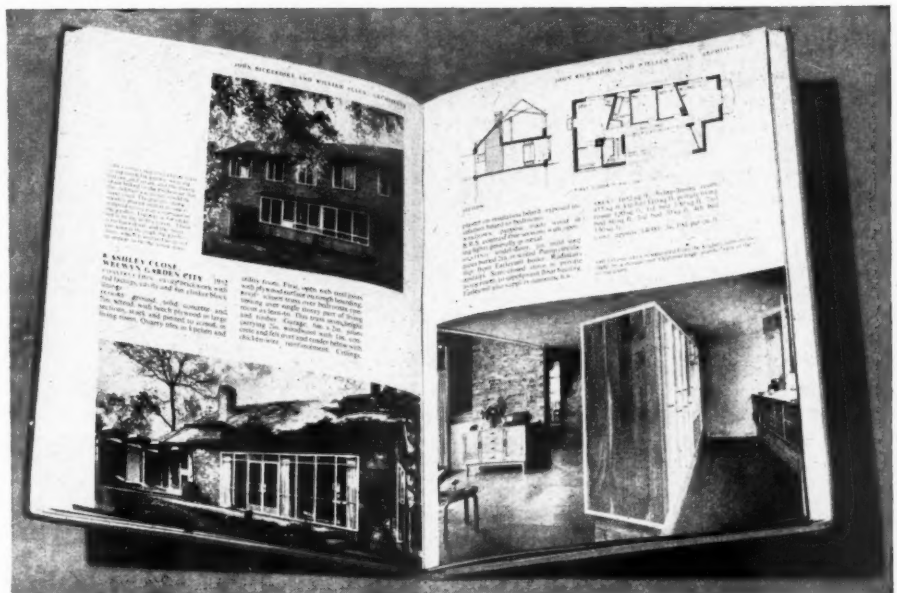
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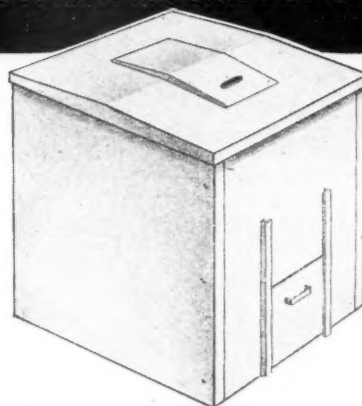
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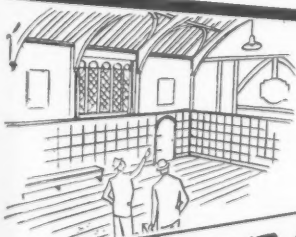
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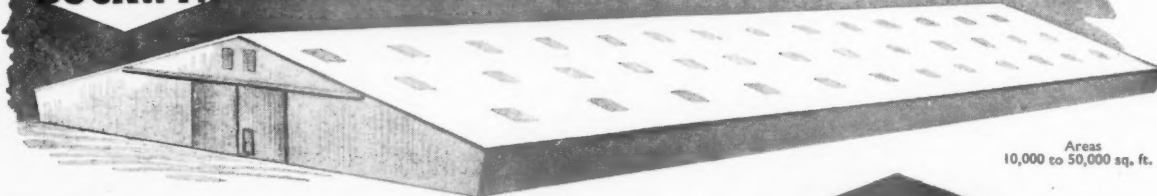
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CLASSIFIED ADVERTISEMENTS

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

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

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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, 1962.

HITCHIN URBAN DISTRICT COUNCIL
SURVEYOR'S DEPARTMENT

APPLICATIONS are invited for the appointment of an ARCHITECTURAL ASSISTANT. Commencing Salary A.P.T. Grade IV £580/£625 (amended scale £600/£640 as from 1st January, 1955).

Preference will be given to applicants holding the R.I.B.A. Intermediate Examination or its equivalent.

THE COUNCIL WILL BE PREPARED, IF NECESSARY, TO PROVIDE THE SUCCESSFUL APPLICANT WITH HOUSING ACCOMMODATION.

The appointment is superannuable, and subject to the National Conditions of Service.

Applications giving particulars of age, qualifications and experience, together with the names of two referees, must be received by the undersigned in envelopes marked "Architectural Assistant" not later than SATURDAY, 23rd. October, 1954.

Canvassing will disqualify.

W. WILSON,

Clerk of the Council,
Council Offices, Brand Street, Hitchin. 4207

METROPOLITAN BOROUGH OF
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Applications invited for appointments of:—
(a) SENIOR ASSISTANT ARCHITECT (Estab.)—A.P.T. VII/VIII £765—£890 p.a.
(b) ASSISTANT ARCHITECT (Unestab.)—A.P.T. VA/VI £680—£790 p.a.

Applicants for both posts should be Assoc. of R.I.B.A. and have had considerable experience in the design and planning of housing estates, particularly multi-storey blocks of flats and/or other framed buildings, and in the supervision of their erection.

Applicants for (a) must also have had experience in control of staff.

Application forms, obtainable from the Borough Engineer must be returned to me by 15th October, 1954.

R. H. JERMAN,
Town Clerk.

Municipal Buildings,
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STEVENAGE DEVELOPMENT CORPORATION requires a GROUP LEADER (SENIOR ARCHITECT) in the Architects' Department to take charge of a group of architects working on various projects in the new town. The salary range is £840—£1,100 per annum.

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Housing accommodation will be available in due course in an appropriate case.

Applications, giving full details of experience and the names of two referees, to be sent to the Chief Administrative Officer, Aston House, Nr. Stevenage, Herts., on or before Saturday, the 16th October, 1954. 4117

BOROUGH OF WREXHAM.

ARCHITECTURAL APPOINTMENT.

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT in connection with Capital Works at a salary in accordance with A.P.T. Grade V £620 to £670 per annum.

Applicants should be Associate Members of the R.I.B.A. or equivalent qualification and have general experience in the design and development of neighbourhood units. Municipal Buildings and general architectural work undertaken by a Local Authority, and Planning experience will be an advantage.

The Council is prepared to offer housing accommodation to the successful applicant, if married.

Form of Application and Conditions of Service may be obtained from the Borough Engineer & Surveyor, 31, Chester Street, Wrexham. Applications on the prescribed form, together with copies of two recent testimonials and the names of two referees, should be delivered to the undersigned in an envelope endorsed "Architectural Assistant" not later than Monday, 18th October, 1954.

PHILIP J. WALTERS,
Town Clerk.

Guildhall, Wrexham.
22nd September, 1954. 4125

CITY AND COUNTY OF BRISTOL.
CITY ARCHITECT'S DEPARTMENT.

Applications are invited for the following permanent staff appointments:—

(a) SENIOR ASSISTANT ARCHITECTS—Grade V. (£620—£670 p.a.)

(b) ASSISTANT ARCHITECTS—Grade II. (£520—£565 p.a.)

Applicants for (a) must be Associate Members of the R.I.B.A. and have had experience in design, construction, and contract administration. Experience in multi-storey flat construction or Education work will be an advantage. For appointment (b) applicants must have passed the Intermediate Examination of the R.I.B.A., or equivalent, and have had good experience, including preparation of working drawings, details, etc.

Housing Accommodation Available, if necessary, at an economic rent.

Further particulars and application form obtainable from me. Applicants must state the post for which they are applying, the completed application form to be received by the 18th October.

J. NELSON MEREIDITH, F.R.I.B.A.,
City Architect.

The Council House,
College Green, Bristol, 1. 4201
27th September, 1954.

MOUNTAIN ASH URBAN DISTRICT COUNCIL
APPOINTMENT OF ASSISTANT ARCHITECT

Applications are invited for the above appointment. The conditions of employment will be in accordance with the National Scheme of Conditions of Service and the appointment will be remunerated in accordance with Grades A.P.T. II-IV according to qualifications and experience. The appointment will be superannuable and will be terminable by one month's notice on either side. The successful applicant will be required to pass a medical examination.

Applications stating age, qualifications and experience, together with the names of two persons to whom reference may be made, must reach the undersigned not later than WEDNESDAY the 27th October, 1954. Housing accommodation will be provided if required.

BERNARD M. MURPHY,

Clerk of the Council,
Town Hall, Mountain Ash. 4195
30th September, 1954.

COUNTY BOROUGH OF BARNSLEY.
BOROUGH ENGINEER AND SURVEYOR'S
DEPARTMENTAPPOINTMENT OF ARCHITECTURAL
ASSISTANT.

Applications are invited for the above appointment at a salary in accordance with A.P.T. Grades I to III (£490—£595 per annum) the commencing salary to be fixed within these grades according to the qualifications and experience of the successful candidate.

Applicants should have had a thorough architectural training, and be good draughtsmen and previous experience with a local authority will be an advantage although this is not essential. Assistance will be given in obtaining housing accommodation if necessary.

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

Applications, stating age, present and previous appointments, qualifications, experience, etc., and giving the names of two persons for reference, should reach the Borough Engineer, Town Hall, Barnsley, not later than Monday, 18th October, 1954.

Canvassing will disqualify.

A. E. GILFILLAN,

Town Clerk.
Town Hall, Barnsley. 4126
September, 1954.

TARVIN RURAL DISTRICT COUNCIL.

ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT in the Office of the Engineer and Surveyor.

Applicants must have had sound training by pupillage and had previous experience in design and construction of building works, particularly in relation to housing.

The salary will be in accordance with Grade II of the present A.P.T. division of the National Joint Council, viz.—£520 to £15—£565. A car will be an advantage, for which a travelling allowance in accordance with the Whitley Council Scale for 8 h.p. car will be made.

The appointment will be subject to one month's notice in writing on either side, to the provisions of the Local Government Superannuation Act, 1937, and to the selected candidate passing a medical examination.

Applications stating age, qualifications and experience, together with copies of three recent testimonials should be addressed to Mr. Thomas Pritchard, M.I.Mun.E., and enclosed in an envelope endorsed "Architectural Assistant," and should reach this office not later than October 16th, 1954.

A house will be made available to successful candidate if required.

J. H. MOORE DUTTON,

Clerk to the Council.
Westminster Buildings,
Newgate Street, Chester. 4127
22nd September, 1954.

BOROUGH OF ACTON.
APPOINTMENT OF ARCHITECTURAL
ASSISTANT.

Applications are invited for this appointment in Grade A.P.T., III (£550 to £595, plus London "weighting").

Application forms may be obtained from the Borough Engineer, Town Hall, Acton, W.5. and must be returned to him by 18th October, 1954.

Canvassing will disqualify.

H. C. LOCKYER,

Town Clerk.
Town Hall, Acton, W.5. 4115
24th September, 1954.

LONDON ELECTRICITY BOARD.
ARCHITECTURAL DRAUGHTSMEN.

Applications are invited for the above positions in the Architect's Section of the Chief Engineer's Department in Central London.

Applicants should be neat draughtsmen, and preferably have had several years' experience in an Architect's office.

The post is graded under Schedule "D" of the National Joint Board agreement as Grade 6—£456 to £596 7s. per annum, inclusive of London allowance.

Application forms obtainable from Personnel Officer, 46, New Broad Street, E.C.2. Please enclose addressed envelope and quote ref. V/1785/A on envelope and all correspondence. 4138

COUNTY BOROUGH OF GREAT YARMOUTH.
EDUCATION COMMITTEE.

Applications are invited for the following appointment on the permanent staff in the Department of the Schools Architect, Mr. F. Jackson, A.R.I.B.A.

JUNIOR ASSISTANT ARCHITECT, A.P.T., Grade III (£550—£515—£595). Candidates should have had good architectural training and general experience, and be capable of preparing detail and working drawings.

Previous local authority experience is not essential. Appointment will be terminable by one month's notice on either side, and is subject to the provisions of the Local Government Superannuation Act, 1937.

Canvassing will be deemed a disqualification, and candidates must disclose any relationship to any member of or holder of any senior office under the Council. Candidates who fail to do so will be disqualified or, if appointed, liable to dismissal without notice.

Applications, stating age, qualifications, experience, and giving details of past and present appointments, together with copies of two testimonials, must be delivered to the undersigned not later than the 21st October, 1954.

D. G. FARROW,

Chief Education Officer.
Education Offices, 22, Euston Road,
Great Yarmouth. 4136

LONDON COUNTY COUNCIL.

ARCHITECTS' DEPARTMENT.

Vacancies for ARCHITECTS Grade II (£892 10s. to £1,071) in Schools and General Divisions. A.R.I.B.A. Details and application forms returnable by 26th October from Architect AR/S & GII/4, County Hall, S.E.1. (1297). 4180

MIDDLESEX COUNTY COUNCIL—COUNTY
ARCHITECT'S DEPARTMENT.

Required: (a) ARCHITECTURAL ASSISTANT, A.P.T. II (£520—£565 p.a.). (b) JUNIOR ARCHITECTURAL ASSISTANT, A.P.T. I (£490—£535 p.a.), both posts plus London Weighting. Applicants, at grade minima and to establish staff subject to medical assessment and prescribed conditions. Post (a): should have passed Inter. R.I.B.A. Both posts: experience of design of educational buildings, advantage. Application forms (stamped, addressed foolscap envelope), from County Architect, 1, Queen Anne's Gate Buildings, Dartmouth Street, S.W.1, returnable by 18th October (quote P.224, A.J). Canvassing disqualifies. 4177

SOUTH WEST METROPOLITAN REGIONAL
HOSPITAL BOARD.

Applications are invited for the following appointment on the Board's Architectural Staff:—ARCHITECTURAL ASSISTANT: Salary scale £440 (at age 21 or over) × £25 (1) × £20 (8)—£625 p.a., plus London Weighting allowance of £10—£30, according to age.

Applicants must have passed the Intermediate Examination of the Royal Institute of British Architects (or an examination recognised by the Institute as equivalent), have had good architectural training and general experience, and be capable of preparing working and detail drawings. Previous experience of hospital architectural work is not essential.

Applications stating age, qualifications, present appointment and salary, training and experience, together with the names and addresses of three referees, should be forwarded by not later than 18th October to the Secretary (S.2), South West Metropolitan Regional Hospital Board, 11a, Portland Place, London, W.1, marking the envelope "Architectural Assistant." 4120

Amended Advertisement.

WILLENHALL URBAN DISTRICT COUNCIL.
ARCHITECT'S DEPARTMENT.

Applications for the appointment SENIOR ASSISTANT ARCHITECT—A.P.T. VI should reach the Clerk of the Council, Town Hall, Willenhall, Staffs., not later than 23rd October, 1954. Housing accommodation will be available and full particulars of appointment can be obtained from the Architect, Town Hall, Willenhall, Staffs. 4045

**STEVENAGE DEVELOPMENT CORPORATION
CHIEF ARCHITECT'S DEPARTMENT**

Applications are invited for posts as Junior Architects on salary grades £475 × £25—£540 per annum; £540 × £25—£600 per annum; or £605 × £25—£645 per annum, according to experience.

Candidates should have completed a course at a recognised School of Architecture or have passed the final examination of the R.I.B.A.

Housing accommodation will be available in due course in appropriate cases.

Applications, giving details of experience and names of two referees should be sent to the Chief Administrative Officer, Aston House, Nr. Stevenage, Herts., not later than Monday the 18th October, 1954. 4212

**METROPOLITAN WATER BOARD.
APPOINTMENT OF ASSISTANT ARCHITECTS.**

There are vacancies for ASSISTANT ARCHITECTS on the permanent pensionable staff. Salary scale £744—£911 per annum by annual increments. Commencing salary according to age and experience. Maximum age 45 years. It is a condition of the appointment to and the holding of the positions that the selected candidates shall be and continue to be subscribing corporate members of the Royal Institute of British Architects.

Housing accommodation may be available, if required, in a good neighbourhood, at an inclusive rent of £130 per annum.

A form of application may be obtained from the undersigned on receipt of a stamped addressed foolscap envelope quoting reference (G.P.1) and completed applications must arrive not later than 22nd October, 1954.

W. S. CHEVALIER,
Clerk of the Board.

Offices of the Board,
New River Head, Rosebery Avenue,
London, E.C.1. 4175

**COUNTY BOROUGH OF BARROW-IN-FURNESS.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.**

Applications are invited for the permanent post of SENIOR ARCHITECT—Grade VII (£735—£810 per annum) at a salary of £810 per annum. Candidates must be Associates of the Royal Institute of British Architects.

It is possible that the Council will allocate a Corporation House for the post, subject to the merits of the case being satisfactory to the interviewing Committee.

Further details and forms of application may be obtained from the Borough Engineer and Surveyor, Town Hall, Barrow-in-Furness, to whom applications must be returned not later than Monday, 18th October, 1954.

LAWRENCE ALLEN,
Town Clerk. 4174

Town Hall, Barrow-in-Furness

CITY OF CHESTER, City Engineer & Surveyor's Department. Applications are invited for the post of ARCHITECTURAL DRAUGHTSMAN in Miscellaneous Grade IV of the National Whitley Scale, i.e., £440—£520.

Applications in candidates' own handwriting, stating age, present position, experience and qualifications, accompanied by copies of two testimonials, and endorsed "Architectural Draughtsman" should be delivered to the City Engineer, Municipal Offices, Chester, not later than Tuesday, 12th October, 1954.

Canvassing either directly or indirectly will be a disqualification and relationship to any member or official of the Council must be disclosed. 4190

**BOROUGH OF WALTHAMSTOW.
COMMITTEE FOR EDUCATION.
ARCHITECT'S DEPARTMENT.**

Applications are invited for the following permanent appointments in the office of the Architect to the Committee, Mr. Frank H. Heaven, A.R.I.B.A., A.R.I.C.S.

(a) ASSISTANT ARCHITECT at a salary in accordance with Grade A.P.T. VII of National Scales (at present £735 rising by increments of £25 to £810 per annum).

Applicants must be Associate Members of the R.I.B.A. or hold an equivalent qualification and have had considerable experience in design, construction, and contract administration with a local authority.

(b) ARCHITECTURAL ASSISTANT at a salary in accordance with Grade A.P.T. IV of National Scales (at present £580, rising by increments of £15 to £625 per annum).

Applicants should have passed the R.I.B.A. Intermediate Examination or its equivalent at one of the recognised Schools of Architecture and have worked in an architectural office for a period of at least two years.

(c) ARCHITECTURAL ASSISTANT at a salary in accordance with Grade A.P.T. II of National Scales (at present £520, rising by increments of £15 to £565 per annum).

Applicants should have attended a full-time course of Architecture and have passed the R.I.B.A. Intermediate Examination or its equivalent at one of the recognised Schools of Architecture.

In addition to the above salaries a London weighting of £30 if 25 years of age and over, or £20 per annum age 21 to 25 is payable.

Appropriate forms of application for (a), (b) or (c) should be obtained from and returned to the Borough Education Officer, Town Hall, Forest Road, Walthamstow, E.17, within three weeks of the appearance of this notice. 4199

**LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.**

(a) PLANNING OFFICERS, Grade III (up to £892 10s.).

(b) PLANNING ASSISTANTS (up to £739 10s.). Professional qualifications: A.R.I.B.A., A.R.I.C.S. and/or A.M.T.P.I., required. Application forms and particulars from Architect (AR/EK/P/4), County Hall, S.E.1. 3420

MONMOUTHSHIRE COUNTY COUNCIL.

APPOINTMENT OF ARCHITECTURAL STAFF AND ASSISTANT ELECTRICAL ENGINEER. Applications are invited for the following posts in the County Architect's Department, under the N.J.C. conditions:—

TWO ARCHITECTURAL ASSISTANTS—Salary £620—£670 per annum, Grade A.P.T. V.

ONE ASSISTANT ELECTRICAL ENGINEER—Salary £620—£670 per annum, Grade A.P.T. V.

Forms of application, particulars of posts and conditions of service can be obtained from the undersigned.

Applications together with copies of three testimonials must be forwarded to the County Architect, Queen's Hill, Newport, Mon., not later than 16th October, 1954.

VERNON LAWRENCE,
Clerk of the Council.

County Hall, Newport, Mon. 4198

EAST SEFFOLK COUNTY COUNCIL.**ASSISTANT ARCHITECTS.**

Applications are invited for the appointment of Two Assistant Architects on A.P.T., Grade V (£620—£670), in the County Architect's Department.

Note.—With effect from 1st January, 1955, this post will be assimilated on to the new Grade III (£600—£725).

The commencing salary will be fixed according to qualifications and experience.

Applicants should be Members of the R.I.B.A., quick and accurate draughtsmen, capable of carrying jobs through all stages. They should have a sound knowledge of design, building construction, and specification writing.

The appointments will be subject to one month's notice on either side, and to the provisions of the Local Government Superannuation Acts.

The selected applicants will be required to pass a medical examination.

Applications, stating age, qualifications and full details of previous experience, accompanied by copies of three recent testimonials, should be sent to E. J. Symcox, F.R.I.B.A., County Architect, County Hall, Ipswich, not later than 11th October, 1954. 4184

**ARCHITECTURAL ASSOCIATION SCHOOL OF ARCHITECTURE.
DEPARTMENT OF TROPICAL ARCHITECTURE.****ARCHITECTURE.**

ASSISTANT STUDIO MASTER. The Council of the Architectural Association invite applications for the post of Assistant Studio Master (part-time 18 hours per week, for twenty-three weeks each academic year between October and March). Applicants need not have held previous teaching appointments, but should have a wide experience of architectural work in tropical regions. The person appointed would be required to act as Assistant Studio Master, under the direction of Mr. Maxwell Fry, who is in charge of the Department.

The time to be devoted to the Department would be spread evenly during each week, but the person appointed would be entitled to devote the remainder of his time to his own practice, and office accommodation would be provided in the Department. The salary offered would be £500 p.a.

Written applications for the above appointment should be sent to the Secretary of the Association, not later than Friday, 22nd October. 4194

MINISTRY OF WORKS.

ARCHITECTURAL ASSISTANTS are required for drawing office work in London and various Scottish and Regional Offices.

Candidates must have had at least three years architectural training, some experience in an Architect's office, and be of intermediate R.I.B.A. standard.

London salaries £420 (at age 21) to £670 per annum. Starting pay according to age and experience. Rates in the provinces slightly less. Prospects of promotion and establishment.

State age, nationality and full details of training and experience to W.G.10/C.A.6(F), Ministry of Works, Abell House, John Islip Street, London, S.W.1. 3928

**CITY OF WAKEFIELD.
CITY ENGINEER'S DEPARTMENT.**

Applications are invited for the following supernumerary appointments:—

(a) ARCHITECTURAL ASSISTANT, Grade Va (£650, rising to £710).

Applicants should be A.R.I.B.A. and should have a good experience in municipal work, including schools and housing.

Housing Accommodation will be considered for this Appointment.

(b) JUNIOR TOWN PLANNING ASSISTANT, Grade I (£490—£535).

Applicants should be good draughtsmen with a knowledge of surveying and have had experience in a Town Planning Office. Preference will be given to Student Members of the Town Planning Institute.

Applications giving full particulars and names of two referees should be sent to me not later than Tuesday, the 19th October, 1954.

W. S. DES FORGES, Town Clerk. 4203

Town Hall, Wakefield.

**CITY OF PETERBOROUGH.
CITY ENGINEER AND SURVEYOR'S DEPARTMENT.**

Applications are invited for the appointment of a SENIOR ARCHITECTURAL ASSISTANT on the staff of the City Engineer and Surveyor, at a salary within Grade V and Va, A.P.T. (£620 per annum rising by annual increments to £710). On 1st January 1955, the salary will be the new Grade III (£625—£725).

Applicants must be qualified architects, experienced in school building and capable of carrying out sketch designs, working and detail drawings and site control, with the minimum of supervision.

In a suitable case, the Council will, if desired, provide housing accommodation.

Applications, stating age, qualifications and experience, and giving the names of two persons to whom reference may be made, must be delivered to the Acting City Engineer, Town Hall, Peterborough, not later than 22nd October, 1954.

Applicants must disclose whether they are related to any senior official or member of the Authority.

C. PETER CLARKE,
Town Clerk.

Town Hall, Peterborough. 4197

NORFOLK COUNTY COUNCIL.**COUNTY ARCHITECT'S DEPARTMENT.**

Required on established staff:—

(a) ARCHITECTURAL ASSISTANT A.P.T. Grade V (£620—£670 p.a.).

(b) ASSISTANT QUANTITY SURVEYOR A.P.T. Grade II (£520—£565 p.a.).

(c) ARCHITECTURAL DRAUGHTSMAN (£396—£460 p.a.).

N.J.C. service conditions; each post pensionable subject to medical examination.

Applications stating age, details of training, experience, past and present appointments and salary, with names of three persons to whom reference may be made, to reach the County Architect, 27, Thorpe Road, Norwich, not later than October 23rd, 1954. 4206

BOROUGH OF WALTHAMSTOW.**BOROUGH ARCHITECT ENGINEER AND SURVEYOR'S DEPARTMENT.****SENIOR ASSISTANT ARCHITECTS.**

Applications are invited for two appointments on Grades A.P.T. VII/VIII (£765—£890, inclusive of London weighting), commencing salary according to experience. Applicants must be Registered Architects.

Applications, with names of two referees, should be received by the undersigned not later than noon on Monday, 25th October, 1954, endorsed "Senior Assistant Architect."

G. A. BLAKELEY,
Town Clerk. 4183

Town Hall, E.17.

LANCASHIRE COUNTY COUNCIL.**SENIOR ASSISTANT ARCHITECT required,**

A.P.T., Grade VIII—£785—£860 (as from 1st January, 1955, this will be amended to provide a salary scale of £750—£900). Applicants should be particularly interested in contemporary design. Application forms to be returned by 19th October, 1954, obtainable from the County Architect, P.O. Box 26, County Hall, Preston. 4182

CHESTERFIELD RURAL DISTRICT COUNCIL

invite applications for the appointment of ASSISTANT ARCHITECT, on salary scale I-V (£490—£670), according to qualifications. The appointment is subject to the Scheme of Conditions of Service, to the Local Government Superannuation Act, 1937, and to the passing of a medical examination.

All possible assistance will be given in the matter of housing.

Applications, endorsed "Architectural Assistant," should be forwarded to the Clerk of the Council, Rural Council House, Saltergate, Chesterfield, by 18th October, 1954. 4191

**CITY OF OXFORD EDUCATION COMMITTEE
COLLEGE OF TECHNOLOGY, ART & COMMERCE****Appointment of
FULL-TIME STUDIO YEAR-MASTER
SCHOOL OF ARCHITECTURE
AND BUILDING**

Applications are invited from suitably qualified architects, preferably from those holding the Degree or Diploma of a Recognised School, for the above-named post. Duties include student work and some lecturing to students in the Diploma and Part-time courses.

Salary in accordance with Grade B, Burnham Technical Award, i.e., (men) £525 × £25 (11) × £20—£820 per annum, with additions for degree or equivalent and appropriate training and increments for approved teaching and/or professional experience.

Forms of application and further particulars may be obtained on receipt of a stamped addressed envelope from the Chief Education Officer, 77 George Street, Oxford, to whom completed forms should be returned within 14 days of the date of the appearance of this advertisement. 4196

AIR MINISTRY require for Cyprus ARCHITECTURAL DRAUGHTSMEN with knowledge of building construction and able to prepare working drawings and details. Tour of duty three years. Emoluments single men up to £981 (£756 if accommodation provided) married men unaccompanied up to £1,268 (£1,026 if accommodation provided). Apply to Air Ministry (S2(h)), Cornwall House, Stamford Street, London, S.E.1. 4231

BASILDON DEVELOPMENT CORPORATION.
Applications are invited for the following posts on the staff of the Chief Architect/Planner, Noel Tweddell, A.R.I.B.A.:

(a) Grade III ARCHITECT. Salary: £860-£1,110 per annum.

(b) Grade IVB ASSISTANT ARCHITECTS. Salary: £760-£860 per annum.

(c) Grade IVA ASSISTANT ARCHITECT. Salary: £660-£760 per annum.

The successful applicant for post (a) will be required to take charge of a Housing Group, and must have considerable experience in the design and supervision of large housing contracts and all stages of contract management to completion of final accounts.

One applicant for post (b) will be selected to work in a Housing Group, and must have experience in contemporary house design, preparation of working drawings and supervision of contracts, and another applicant will be selected to work in the Industrial Section, and must have experience in the design of small and medium size contemporary factories, preparation of working drawings, and the supervision of contracts.

The successful applicant for post (c) will work in a Housing Group, and must have experience in contemporary house design, preparation of working drawings and supervision of contracts.

All applicants must have a professional qualification in Architecture.

The commencing salary within each grade will be in accordance with experience and ability. All appointments are subject to the provisions of the Local Government and Other Officers' Superannuation Act, and medical examination. Housing accommodation in the New Town may be available.

Applications must be made on the special form (obtainable from the Chief Architect) to the General Manager, Basildon Development Corporation, Gifford House, Basildon, Essex, by 20th October, 1954, and the envelope endorsed with the relevant appointment. 4169

COUNTY BOROUGH OF SOUTH SHIELDS.**ASSISTANT ARCHITECTS.**
Applications are invited for appointments as ASSISTANT ARCHITECTS in the Borough Engineer's Department at a salary up to A.P.T. Grade VI—£695-£760, according to qualifications and experience.

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

Housing accommodation will be made available if required.

Application forms quoting T.C.I. obtainable from the Borough Engineer, Town Hall, South Shields, to be returned to him not later than noon, Monday, 18th October, 1954.

HAROLD AYREY,
Town Clerk. 4226**STEVENAGE DEVELOPMENT CORPORATION.****ASSISTANT DESIGNER** for small exhibitions required in the Chief Architect's Department. Salary grades £475 x £25—£540 per annum; £540 x £25—£600 per annum or £605 x £25—£645 per annum, according to qualifications and experience.

Candidates should have had experience in preparing small schemes for exhibition and duties will include the preparation of plans, maps, diagrams, etc. Preference will be given to persons who have had an architectural training.

Applications, giving details of experience and names of two referees should be sent to the Chief Administrative Officer, Aston House, Nr. Stevenage, Herts., not later than Monday, the 18th October, 1954. 4219

COUNTY BOROUGH OF HALIFAX.**APPOINTMENT OF QUANTITY SURVEYOR.**

Applications are invited for the above appointment at a salary in accordance with Grades A.P.T. VII/VIII (£735—£860). Commencing salary according to qualifications and experience. Housing Accommodation will be provided if necessary.

The successful candidate will take charge of the Quantity Surveying Section of the Borough Engineer's Department and will be responsible for the whole of the Quantity Surveying work entailed on architectural work including new schools, housing, etc. Candidates must disclose whether to their knowledge they are related to any member, or senior officer, of the Council.

Applications stating age, qualifications, present position, salary and experience accompanied by copies of three recent testimonials should be appropriately endorsed and delivered to me by the 23rd October, 1954.

RICHARD de Z. HALL,
Town Clerk. 4215**Town Hall, Halifax.****DERBY CORPORATION.****BOROUGH ARCHITECT'S DEPARTMENT.****SENIOR QUANTITY SURVEYOR, Grade VII.**

Salary £785—£860 per annum.

Qualifications: A.R.I.C.S. (Quantities) or similar.

Permanent staff appointment, subject to one month's notice and pensionable subject to medical examination. National Conditions of Service.

Form of application obtainable from and to be returned to the Borough Architect, The Council House, Derby, not later than 25th October, 1954. Canvassing disqualifies.

G. H. EMLYN JONES,
Town Clerk. 4222

30th September, 1954.

SPENBOROUGH URBAN DISTRICT COUNCIL.
ENGINEER & SURVEYOR'S DEPARTMENT.
(a) ARCHITECTURAL ASSISTANT—Grade A.P.T. IV (£580—£625).

Applicants should be good draughtsmen with experience in design and detail drawings of houses and Housing Schemes and capable of preparing Bills of Quantities, Specifications and settling final accounts.

(b) CLERK OF WORKS—Miscellaneous Grade III (£395—£460).

Applicants must be apprentice trained craftsmen with knowledge of all building trades. Must be capable of setting out and measuring up work.

Both appointments permanent and superannuable, subject to medical examination. Applications stating age, experience and qualifications, with copies of two testimonials, to J. Wallbank, Esq., M.I.Mun.E., M.R.S.I., Engineer & Surveyor, Spenborough Town Hall, Cleckheaton, by 19th October, 1954.

D. COUPE,
Clerk of the Council. 4228

Spennborough Town Hall, Cleckheaton, 28th September, 1954.

COOPERATION OF GLASGOW.**ARCHITECTURAL AND PLANNING DEPARTMENT.****ASSISTANT ARCHITECTS.****ASSISTANT QUANTITY SURVEYORS.****PLANNING ASSISTANTS.**

Applications are invited from persons having general experience and holding the A.R.I.B.A., or A.R.I.C.S., or A.M.T.P.I., qualification or equivalent. Scale £520—£670 with placing according to age and experience. Posts are superannuable, subject to medical examination. Form of Application may be obtained from the Principal Administrative Officer, 20, Trongate, Glasgow, C.I.

A. G. JURY,
City Architect and Planning Officer. 4221**COUNCIL OF THE COUNTY OF ABERDEEN.****COUNTY ARCHITECT'S DEPARTMENT.**

Applications are invited for the appointment of an ARCHITECTURAL ASSISTANT on Salary Scale A.P.T. VI (£705—£770 per annum) in the County Architect's Department. Candidates must be registered Architects and have the qualification A.R.I.B.A., preferably with experience in Local Authority, housing and educational work.

The appointment is subject to the Local Government Superannuation (Scotland) Acts, 1937 to 1953 and the successful candidate will require to pass a medical examination.

Conditions of appointment and forms of application are obtainable from the undersigned and should be returned not later than 20th October, 1954.

Canvassing of members of the Council directly or indirectly in connection with this appointment shall disqualify the candidate.

JAMES L. CRAIG,
County Clerk. 4227

County Buildings, 22, Union Terrace, Aberdeen. 29th September, 1954.

EAST ANGLIAN REGIONAL HOSPITAL BOARD.**ASSISTANT ARCHITECTS.**

Candidates must be Associate Members of R.I.B.A. and Registered Architects. Good general experience in design, construction, and specification writing essential. Knowledge of hospital work desirable. Salary: £600-£865 per annum. Additional increments based on experience and age may be granted to suitable applicants.

ARCHITECTURAL ASSISTANTS. Intermediate Examination of R.I.B.A. or recognised equivalent essential. Applicants must have had experience in architectural work. Commencing salary, within grade £440-£625 per annum, will depend on age and practical experience since obtaining qualification, but will not exceed £525.

DRAUGHTSMEN (Architectural or Engineering). Applicants must have had suitable training and experience in architectural or engineering work. Salary: £360 per annum at age 21, or over—£545.

Appointments subject to National Health Service (Superannuation) Regulations. Applications, stating age, qualifications and experience, with names of three referees, to Secretary of Board, 117, Chesterton Road, Cambridge, by 18th October, 1954. 4147

AIR MINISTRY require in London, Provinces and overseas, ARCHITECTURAL ASSISTANTS in Works Department Design Branch experienced in planning/preparation of working drawings and details for permanent and semi-permanent buildings. Salaries up to £780 p.a. for men, £665 for women. Starting pay dependent upon age, qualifications and experience. Extra duty allowance or overtime payable. Promotion prospects. Posts non-pensionable with long term possibilities. Natural born British subjects only. Write stating age, qualifications, employment details, including type of work done to Ministry of Labour, 236, Waltham Road, London, S.E.17, quoting Order 81. AC. 3836

LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Vacancies for ARCHITECTS, Grade III (up to £892 10s.), and ARCHITECTURAL ASSISTANTS (up to £739 10s.), in Schools and Housing Divisions.

Particulars and application forms from Architect (AR/BA/A/2), County Hall, S.E.1. (1058) 2205

AMENDED ADVERTISEMENT
COUNTY BOROUGH OF DUDLEY.
ASSISTANT ARCHITECT, GRADE V.

Applications are invited from Associates R.I.B.A. for the above appointment in the Department of the Borough Architect. Applications, stating age, qualifications and experience, and giving the names of two referees, should reach me not later than 15th October, 1954.

P. D. WADSWORTH,
Town Clerk. 4146

The Council House, Dudley.

CITY OF CAMBRIDGE.**APPOINTMENT OF ARCHITECTURAL ASSISTANTS.**

Applications are invited for two SENIOR ASSISTANT ARCHITECTS in the Schools and General Architectural Section. Salary—Grade A.P.T. VII £735—£810 (the posts will be adjusted under the new grading scheme from January, 1955).

Applicants must be registered Architects, preferably with good general knowledge in the design and construction of schools.

Both appointments will be subject to the Local Government Superannuation Act, 1937, and the successful applicants will be required to pass medical examinations, the posts are terminable by one month's notice on either side.

Housing accommodation can be provided by the Council for these appointments.

Forms of application may be obtained from T. V. Burrows, City Surveyor, Guildhall, Cambridge, and should be returned to him by Saturday, 23rd October, 1954.

ALAN H. I. SWIFT,
Town Clerk. 4230

The Guildhall, Cambridge.

Tenders for Contracts

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

BOROUGH OF NUNEATON.**CENTRAL OMNIBUS STATION—PASSENGER SHELTERS.**

Firms wishing to submit Designs and Tenders for the CONSTRUCTION OF PASSENGER SHELTERS at the proposed Central Omnibus Station, are invited to forward their names and addresses to the Borough Surveyor, Council House, Nuneaton, within 10 days of the appearance of this advertisement.

Tender Documents and Specifications will be sent as soon as they are available. 4202

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 exempted from the provisions of the Notification of Vacancies Order, 1952.

REQUIRED for Architects' office, Central London area, young qualified ASSISTANTS interested in design and construction. Write, stating experience and salary required. Box 2326.**JUNIOR and SENIOR ARCHITECTURAL ASSISTANTS and DRAUGHTSMEN** for large and varied practice in Home Counties. Salary required and details of experience to Box 3612.**RONALD WARD & PARTNERS** urgently require ASSISTANTS of various grades. Apply Sloane 8291 and Tate Gallery 1925, or write, 17, Lowndes Street, S.W.1. 3696**CO-OPERATIVE WHOLESALE SOCIETY LTD.**
ARCHITECT'S DEPARTMENT, LONDON.

APPLICATIONS are invited for the following:

(A) ASSISTANT ARCHITECTS of Intermediate and Final R.I.B.A. standard for work on varied and interesting projects.

(B) STRUCTURAL ENGINEER'S ASSISTANT, aged 20/25. Should have experience in structural steel design to B.S.S. 449 1948 and C.P. 113.

The appointments are permanent and pensionable and offer prospects of up-grading.

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. 3979

DRAUGHTSMAN wanted to assist Designer of Church, School and Domestic Woodwork Furniture and Interiors. State age, experience, and salary. Walker-Symondson, Ltd., Brantree Road, Ruislip. Tel.: Ruislip 2256. 4032**ARCHITECTURAL ASSISTANT** required in A. Old Established expanding busy country practice. Office experience essential. £500 p.a. or according to ability. Write Box 4129.**ARCHITECTURAL ASSISTANT**, Intermediate standard required in small Westminster office. Salary £550 p.a. Write, stating age and details of experience. Box 4124.**EXPERIENCED ARCHITECTURAL ASSISTANT** required for long established and busy practice. Energy and ability essential. Apply R. & D. Hall, F.A.R.I.B.A., Architects, Bangor, North Wales. 4100**ASSISTANTS** required immediately. Must have at least attained R.I.B.A. Inter. Good salary to suitable applicants. Rossington & Fogden, Chartered Architects, 2, Drake Road, Tavistock. 4102

DESIGNER/DRAUGHTSMAN wanted, to assist Designer of Church, School and Domestic, Woodwork, Furniture and Interiors. State age, experience, and salary. Walker-Symondson, Ltd., Braintree Road, Ruislip. 4032

SENIOR ARCHITECTURAL ASSISTANTS required for General Practice in West Cumberland. Excellent prospects and interesting work. State experience and salary required. Pratt & Gray, Chartered Architects, 18, Church Street, Whitehaven. Tel. 1006. 4112

EXPERIENCED CLERK OF WORKS required for the Roman Catholic Diocese of Brentwood, to supervise erection of new schools, churches and other buildings, under the direction of private architects.

The Diocese covers the County of Essex, but the bulk of the work will be in the outer Metropolitan area and the New Towns of Harlow and Basildon.

The appointment is not an established one, but will be of indefinite duration. Salary will be approximately £12 per week, according to qualifications and experience, and travelling allowance will be paid.

Written applications, giving full details, including age, qualifications and experience, to be addressed to: The Right Reverend G. A. Beck, Bishop of Brentwood, Bishop's House, 38, The Drive, South Woodford, E.18. 4113

ARCHITECTURAL ASSISTANT up to Final R.I.B.A. standard, required in Reading Office of Chartered Architects. Applicants must be capable of making surveys, preparing working drawings, details, etc. Apply in writing giving full particulars, age and salary required to Box 4053.

ASSISTANT for Plymouth, with office experience. Quick draughtsman, capable preparing working drawings and details for industrial and domestic work. Salary in region of £500, according to experience. Reply, quoting salary, to Box 4151.

ARCHITECTURAL ASSISTANTS required for busy Glasgow office working 5-day week. Salaries from £450 to £700, according to age and experience. Write, giving full particulars. Box 4157.

BUILDING SURVEYING ASSISTANT (about R.I.C.S. Final Standard) with at least two years' practical experience required by City firm of Chartered Surveyors & Architects. 3925

S. R.I.B.A. Male or Female. State salary required. Jackson & Jackson, A./L.R.I.B.A., 149, Sandgate Road, Folkestone, Kent. 4181

ARCHITECTURAL ASSISTANT, Intermediate Standard, required in Architect's Office in Plymouth. Full particulars and salary expected to Box 4192.

ARCHITECTURAL ASSISTANTS and BUILDING DRAUGHTSMEN required. Replies in confidence, giving age and salary, to W. L. Jones, Architect, Great Missenden, Bucks. 4164

ARCHITECTURAL ASSISTANT of Intermediate Standard required in Central London Office. Experience of shops an asset and capable of accurate building surveys. Write Box 4208.

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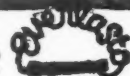
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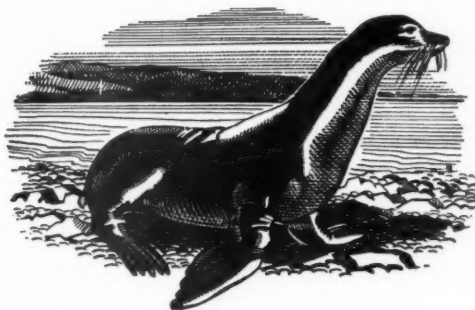
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