THE ARCHITECTS' JOURNAL

standard contents

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

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THE ARCHITECTURAL PRESS

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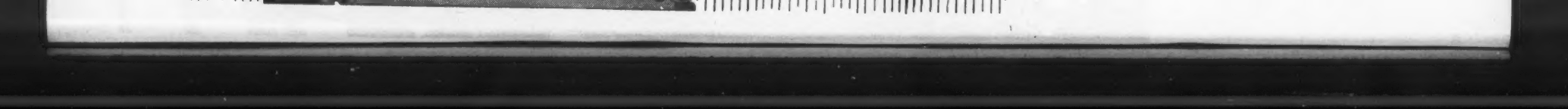
Registered as a Newspaper.

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

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. L. Stevenson, College of Art, Hope Street, Liverpool 1.	Royal 1826
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5721
ABT	Association of Building Technicians. 1, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James' Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
ARCUK	Architects' Registration Council. 78, Wimpole Street, W.1.	Welbeck 2915
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 105, Uxbridge Road, Ealing, W.5.	Ealing 9621
BCIRA	British Cast Iron Research Association. 'Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Fremantle 8494
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Glasgow Central 2891
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Chancery 7772
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Whitehall Gardens, Horseguards' Avenue, Whitehall, S.W.1.	Trafalgar 8855
BRS	Building Research Station. Bucknalls Lane, Watford.	Garston 4040
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. British Standards House, 2, Park St., W.1.	Mayfair 9000
BTE	Building Trades Exhibition. 32, Millbank, S.W.1.	Tate Gallery 8134
CABAS	City and Borough Architects Society. C/o Johnson Blackett, F.R.I.B.A., Civic Centre, Newport, Mon.	Newport 65491
CAS	County Architects' Society. C/o S. Vincent Goodman, F.R.I.B.A., Shire Hall, Bedford.	Bedford 67444
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Belgravia 6661
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611 Ext. 1284
CDA	Copper Development Association. 55, South Audley Street, W.1.	Grosvenor 8811
CIAM	Congrès Internationaux d'Architecture Moderne. Doldertal, 7, Zurich, Switzerland	
COID	Council of Industrial Design. 28, Haymarket, S.W.1.	Trafalgar 8000
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.1.	Sloane 4280
CUC	Coal Utilization Council. 3, Upper Belgrave Street, S.W.1.	Sloane 9116
CVE	Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.	Reading 72255
DGW	Directorate General of Works, Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
DOT	Department of Overseas Trade. Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
EJMA	English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1.	Regent 4448
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 68, Gloucester Place, W.1.	Welbeck 9966
FASS	Federation of Associations of Specialists and Sub-Contractors, 14, Bryanston Street, W.1.	Welbeck 1781
FBBDO	Fibre Building Board Development Organization Ltd. (Fidor), 47, Princes Gate, Kensington, S.W.7.	Kensington 4577
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	Regent 0221
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.	Sloane 1002
FDMA	The Flush Door Manufacturers Association Ltd., Trowell, Nottingham.	Ilkeston 623
FLD	Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.	Ulverston 201
FMB	Federation of Master Builders. 26, Great Ormond Street, Holborn, W.C.1.	Chancery 7583
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Whitehall 3902
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Langham 4341
GPDA	Gypsum Plasterboard Development Association, 11, Ironmonger Lane, E.C.2.	Monarch 8888
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. 2. Chester Street, S.W.1.	Belgravia 3081
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 29, Belgrave Square, S.W.1.	Belgravia 3755
ICA	Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. 1, Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, Victoria Embankment, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215
IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266



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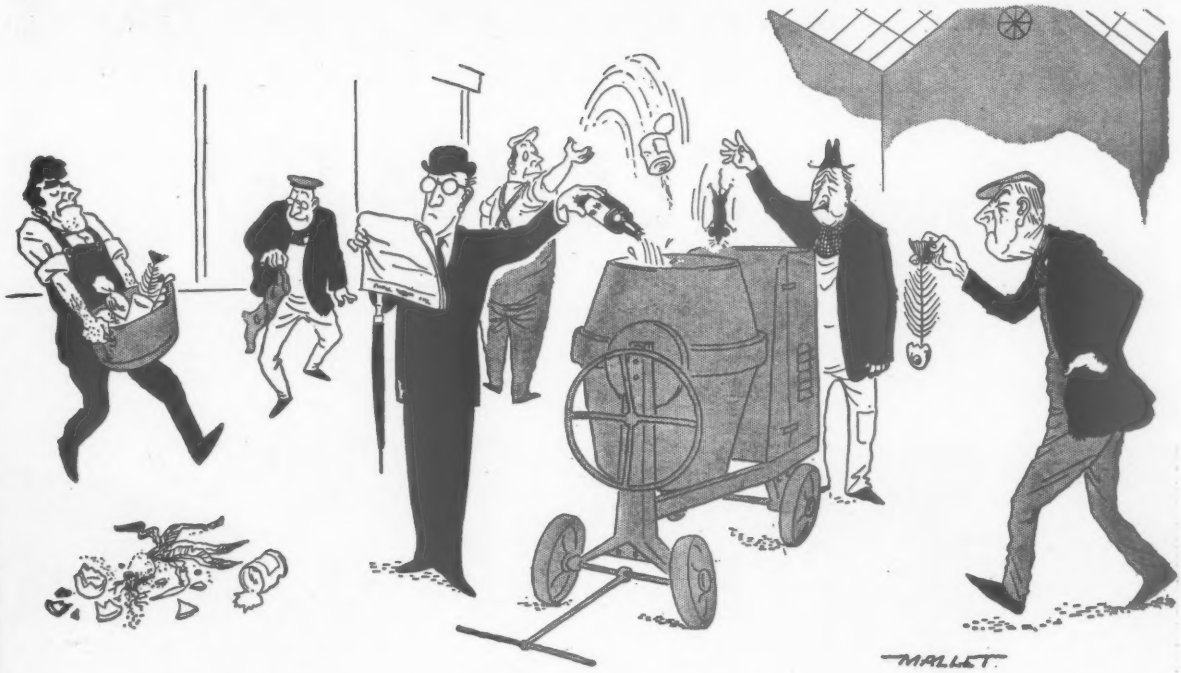


cement additives?

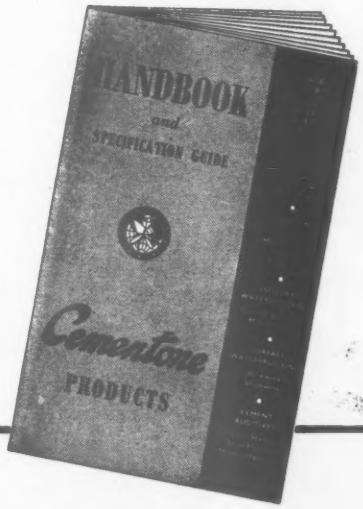
the 'Site' as seen by Dennis Mallet

The above scene is hardly our own idea of a well-ordered building site. Gone is the sense of urgency and responsibility, gone the smooth and efficient team work, the well-oiled machine— AND WHERE'S THE CEMENTONE???

But, of course, that must be the moral!

In future advertisements we shall endeavour to give comprehensive details of the various cement additives — colours, hardener, water-proofer, frost-proofer, plasticiser—and of other Cementone Products, each specially made for the job; and Mr. Mallet will again be illustrating why, in his view, they should be used in appropriate circumstances.

Meanwhile, you are invited to write for a copy of the Cementone Handbook which gives full details of all these products, and which will be sent, free on request.



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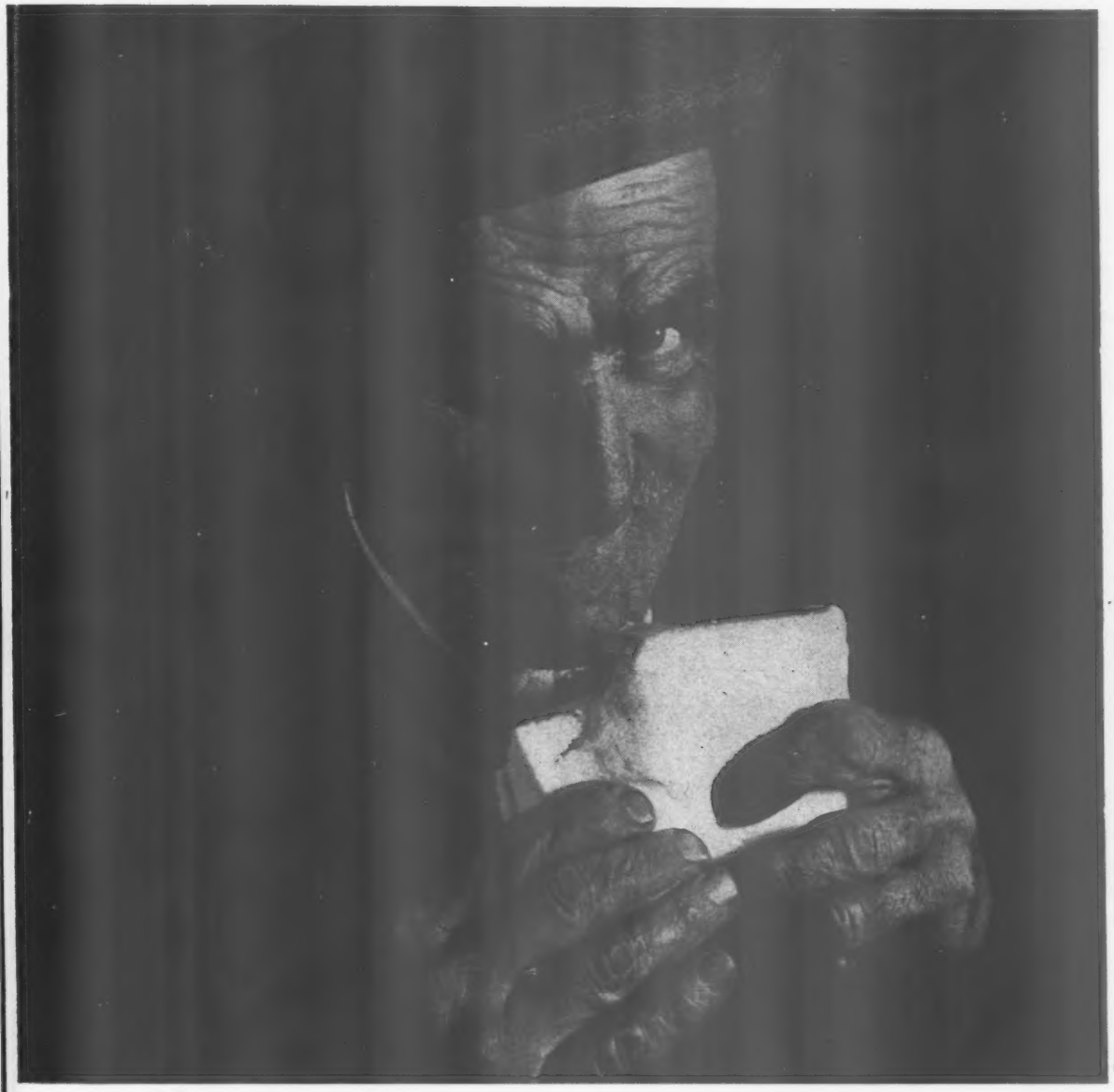

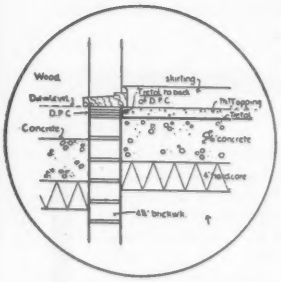

A typical detail taken from the Tretol Specification Sheets.

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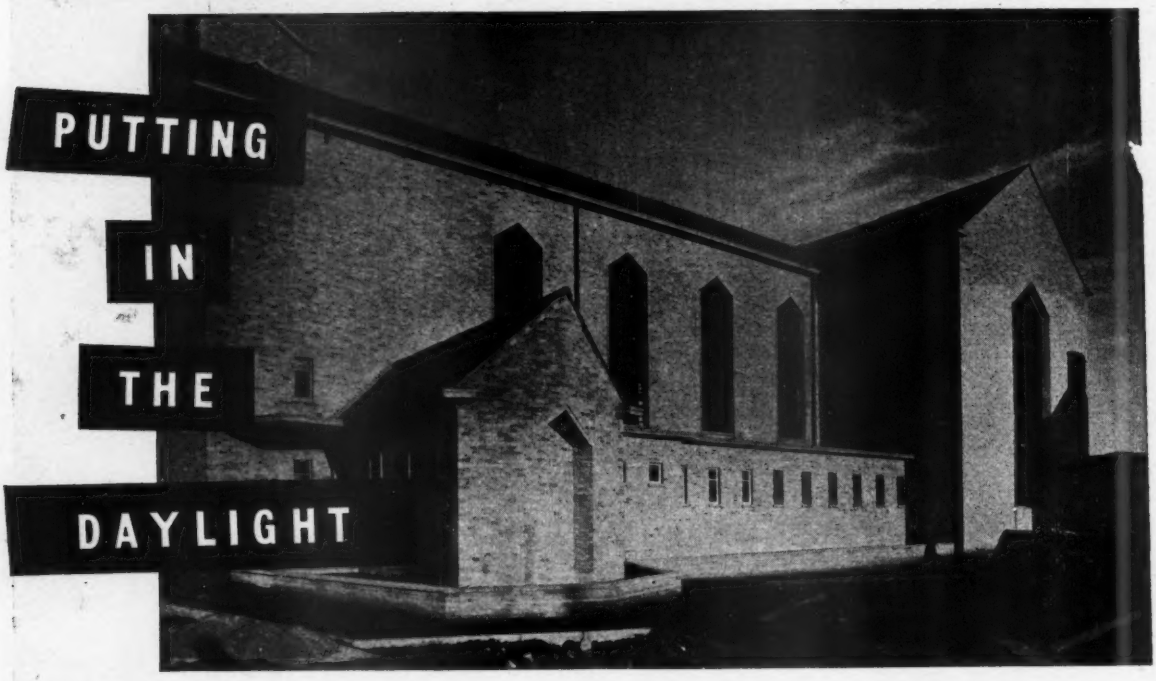

AT ST. STEPHEN'S DALMUIR

Architect:
Thomas S. Cordiner F.R.I.B.A.

This clean-cut, deceptively simple church, built in Dalmuir, is designed to a cruciform ground plan, with low aisles to emphasise the height of the lofty nave. Maclean Metal Windows, specially fabricated to the architect's design, are used for lighting both nave and transepts. The dome lights above the aisles are also supplied by the company.

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SHEFFIELD: Trinity Works, Eyre Street, Sheffield, 1, Tel. Sheffield 20162.
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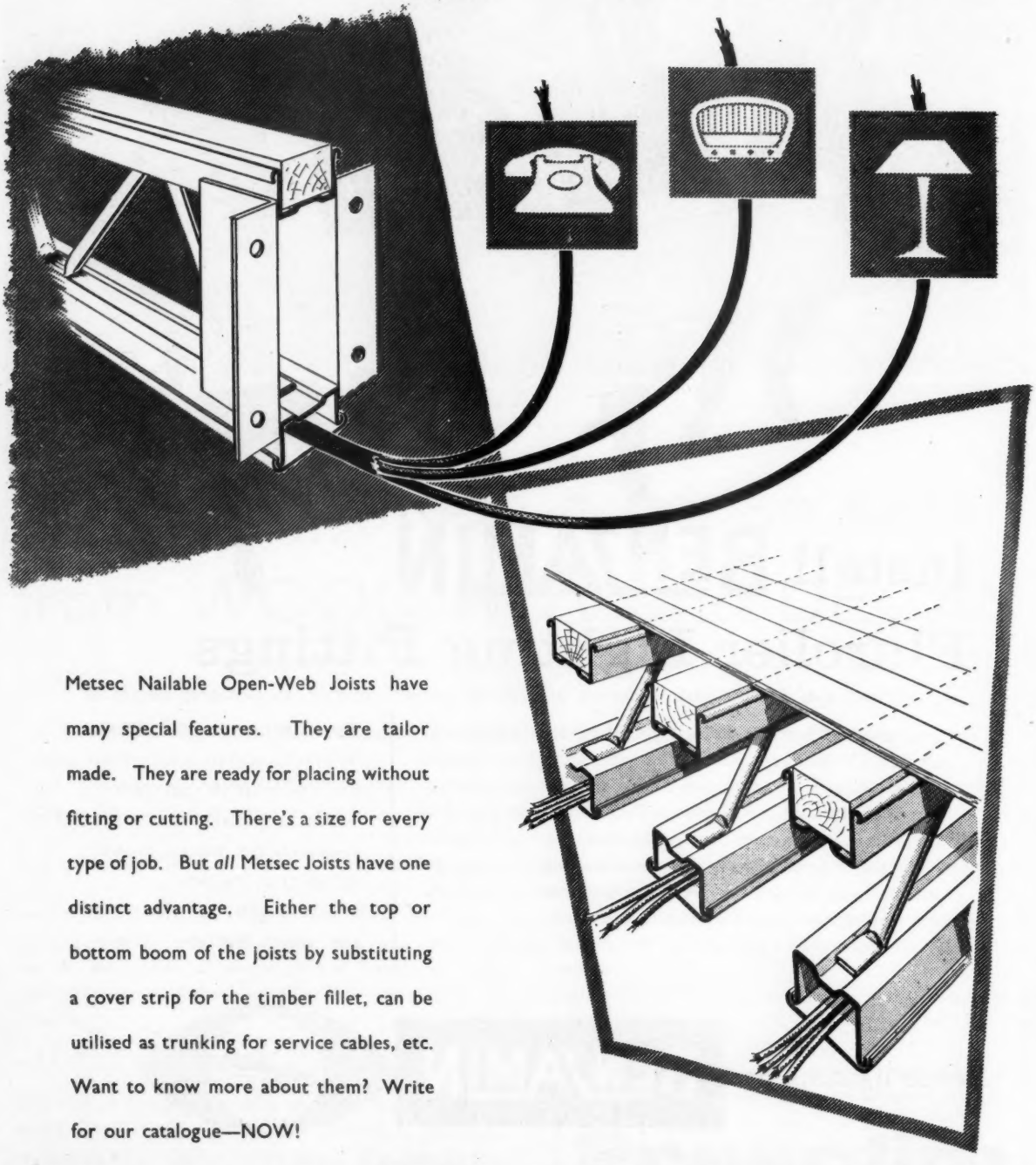

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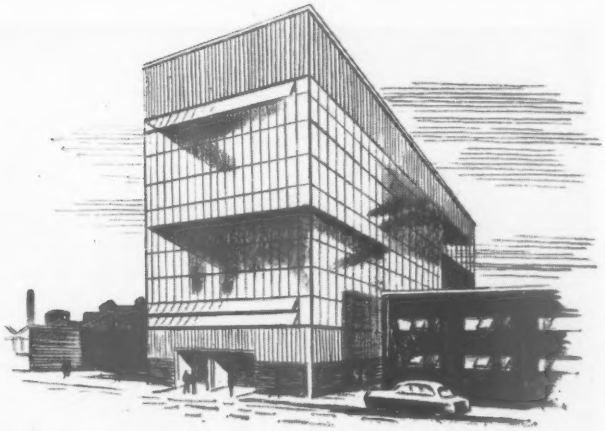

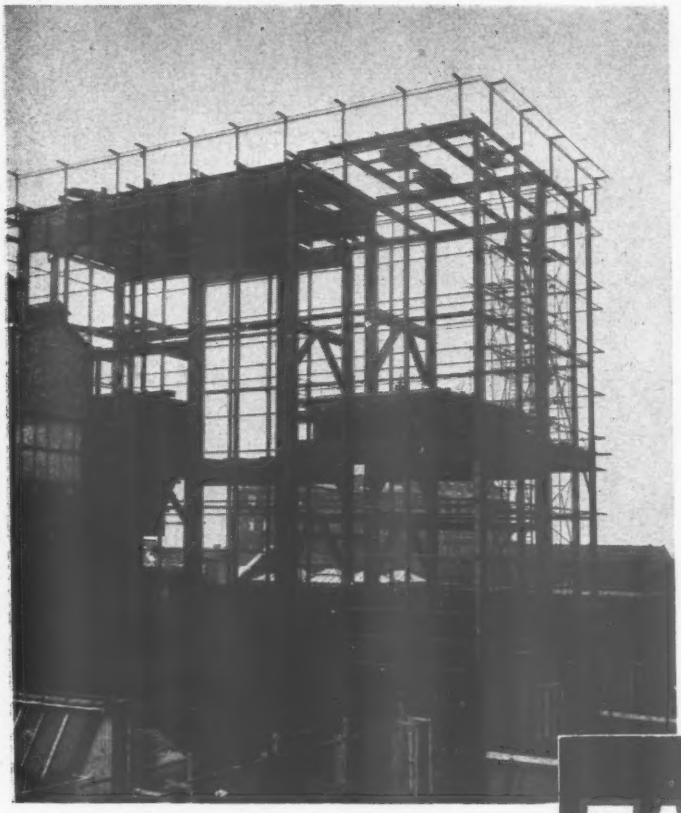

The new Boiler House for the I.C.I. Kynoch Works at Witton, Birmingham, is an impressive construction for which we fabricated and erected the steelwork. Its striking proportions provide yet another of to-day's landmarks.

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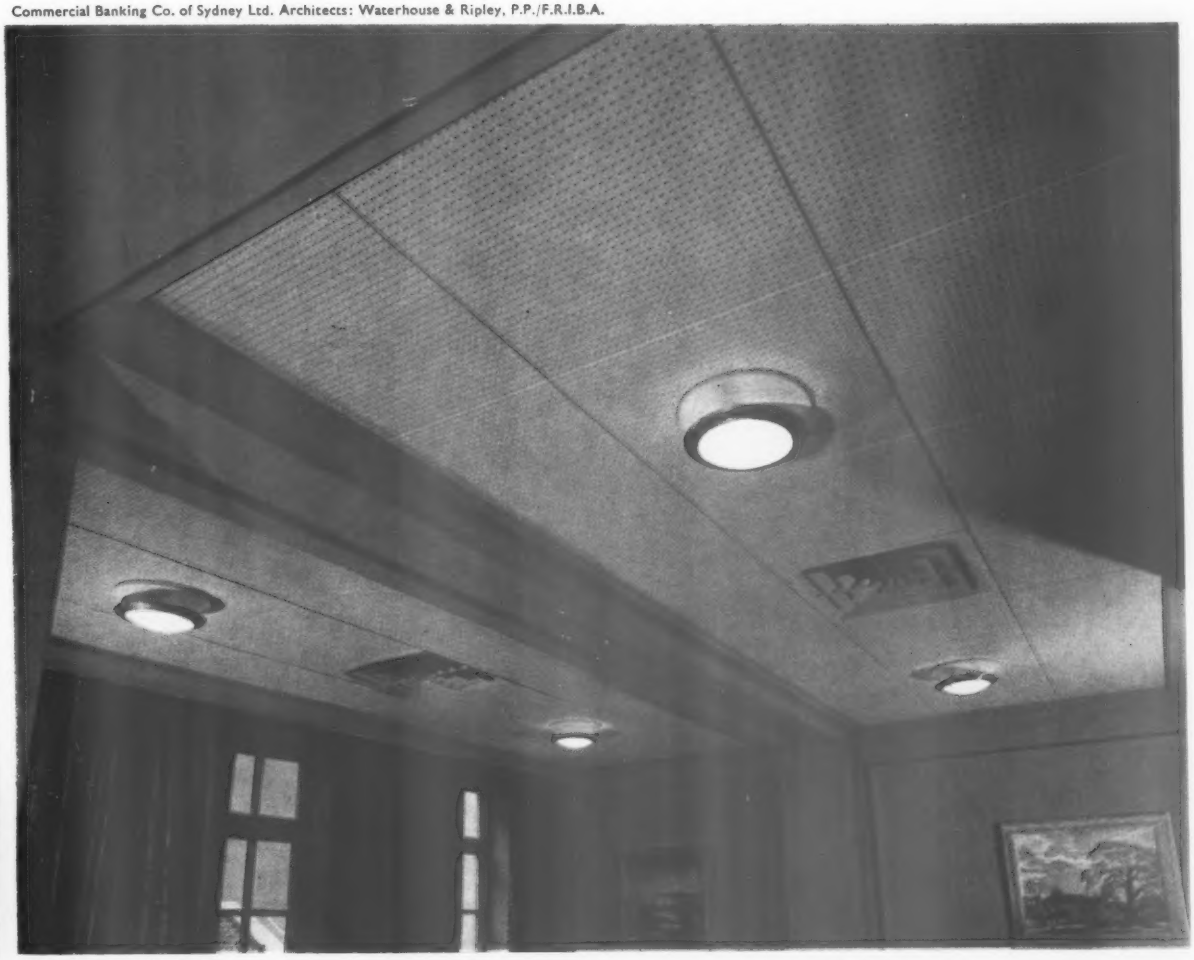

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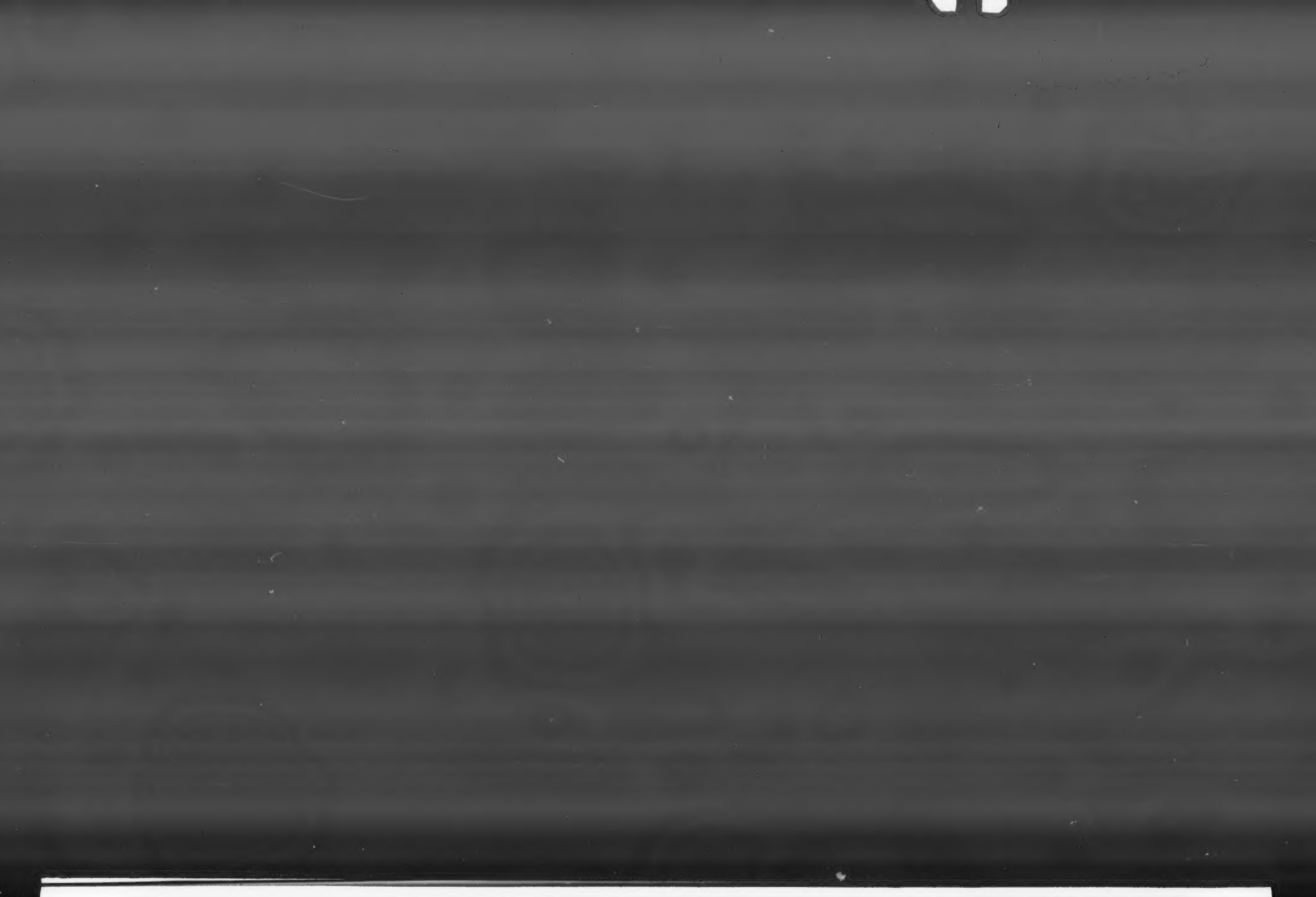

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Type 15, 4′ 8¼″ x 1′ 2½″	Type 25, 4′ 8¼″ x 1′ 11½″
Type 35, 4′ 8¼″ x 2′ 8½″	Type 45, 4′ 8¼″ x 3′ 5½″
Type 16, 5′ 8¼″ x 1′ 2½″	Type 26, 5′ 8¼″ x 1′ 11½″
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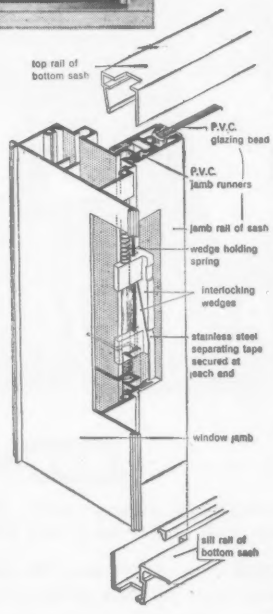

NO SASHCORDS NO WEIGHTS
How the Alomega Suspension System works

The two interlocking wedges are contained in a channel extruded in the sash jamb. They are pushed against each other by springs sufficiently tightly to bind them in the channel so that they carry the weight of the sash. When the sash is moved the wedge assembly tends to move with it, but is held back by lugs protruding from the wedges which engage in slots cut in the *fixed* jamb of the window. The lugs are given a small amount of vertical play in the slots, and these are so placed that, whichever way the sash is moved, the hinder wedge (relative to direction of travel) is stopped first. The effect of this is a fractional separation of the wedges permitting free movement of the sash for as long as pressure is applied to it. As soon as the pressure is removed the two retaining springs push the wedges together once again, binding them firmly in the channel and locking the sash in its new position.

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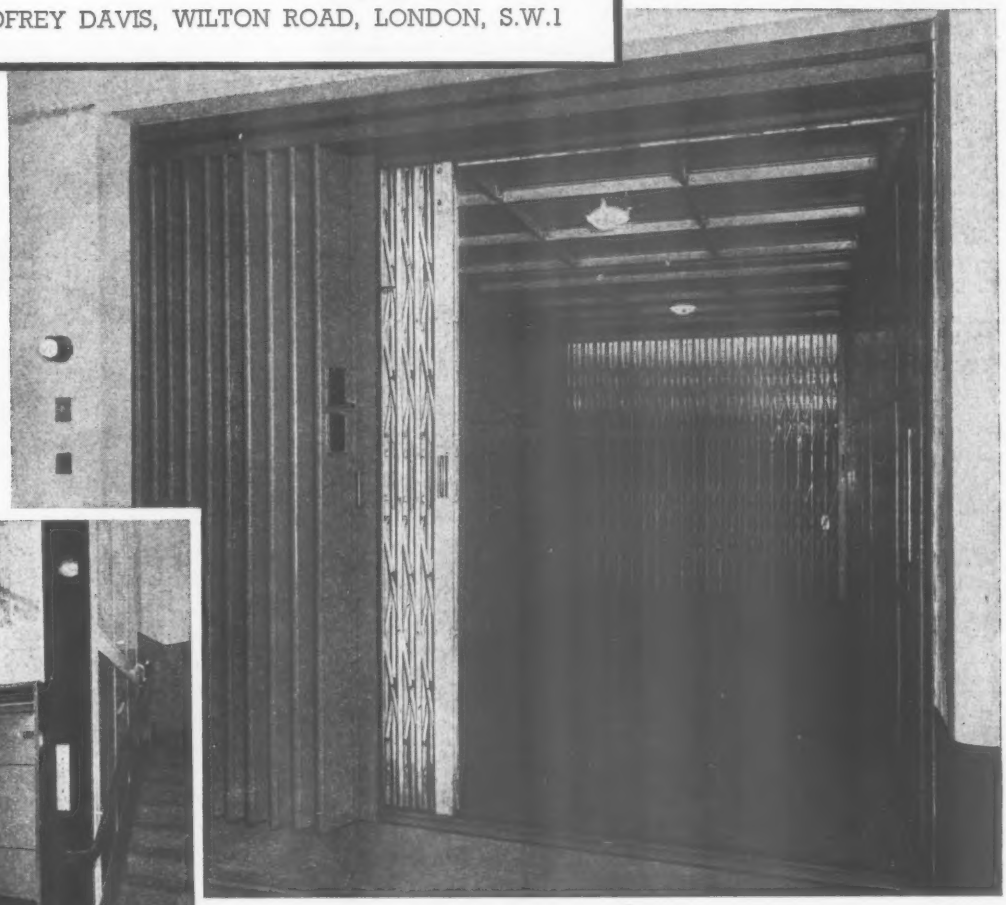

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Architects: Wallis Gilbert & Partners

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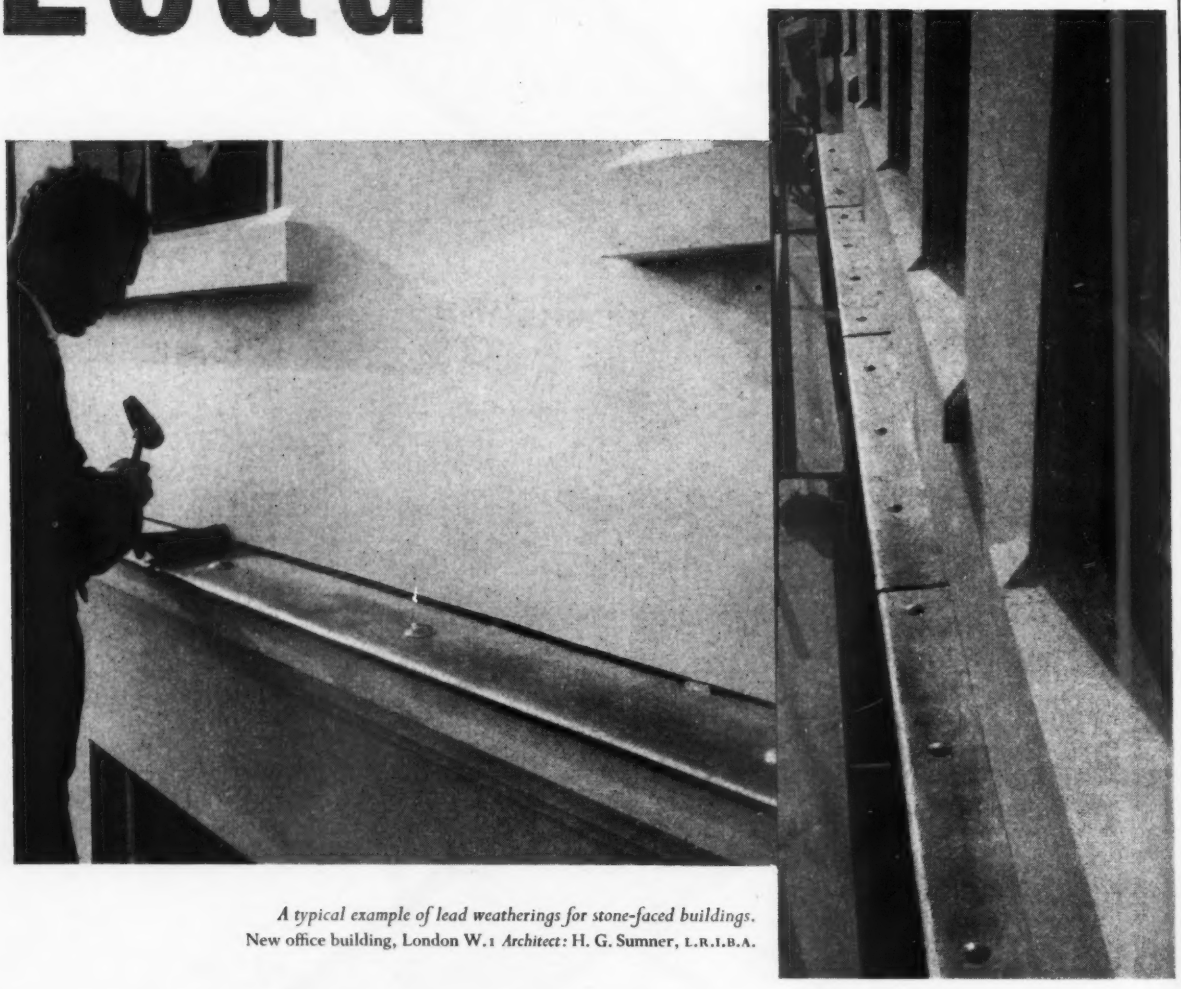
Lead weatherings...



A typical example of lead weatherings for stone-faced buildings.
New office building, London W.1 *Architect:* H. G. Sumner, L.R.I.B.A.

A FAMILIAR JOB to the plumber is fixing lead weatherings to cover cornices and similar projections of stone-faced buildings.

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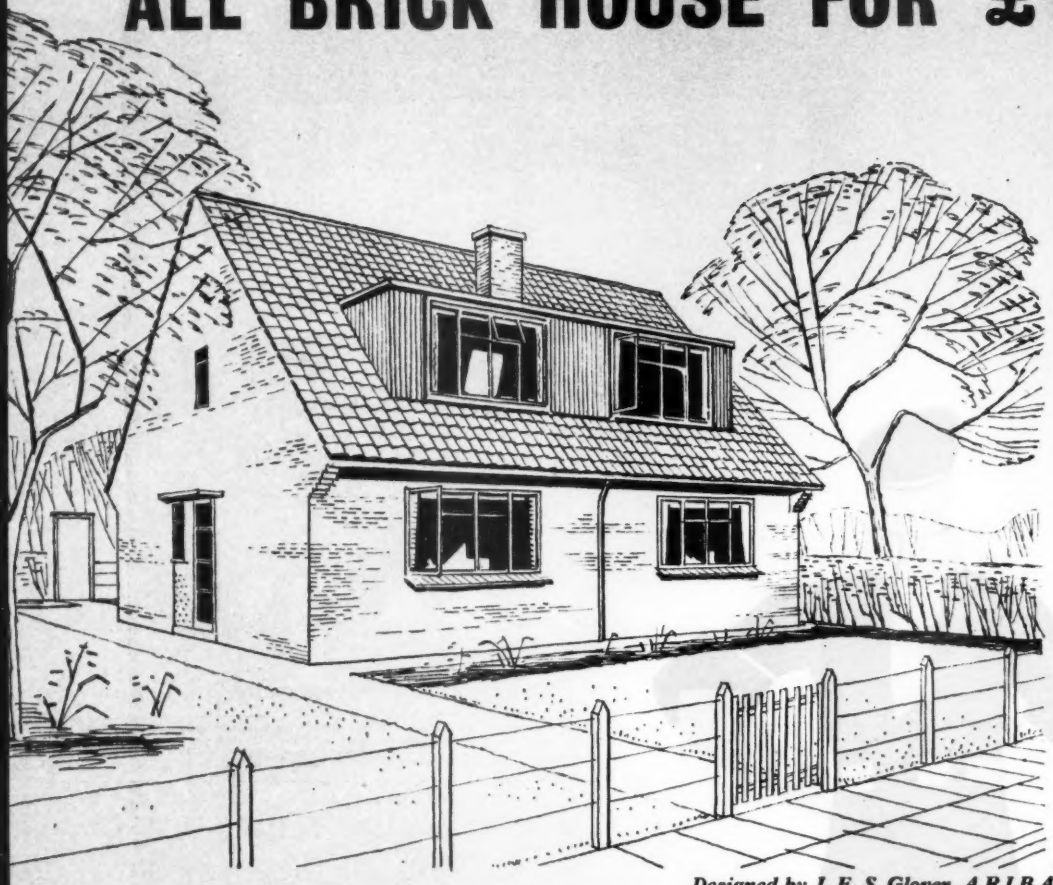

Designed by J. E. S. Glover, A.R.I.B.A.

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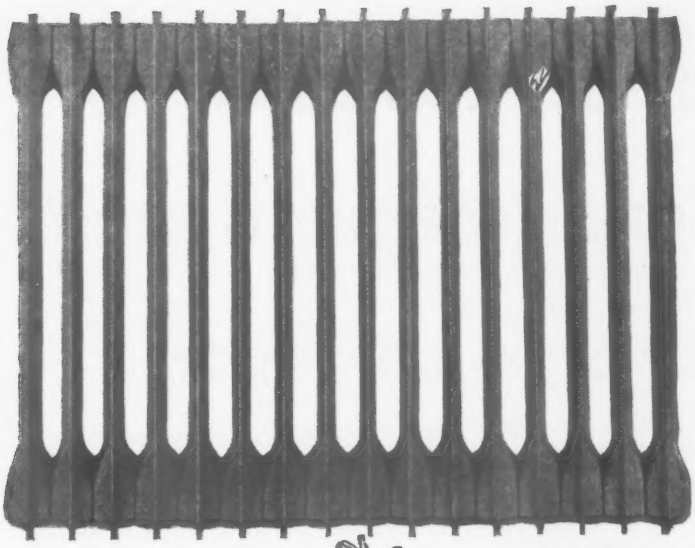

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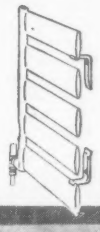

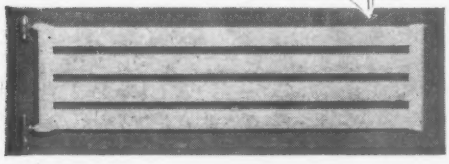

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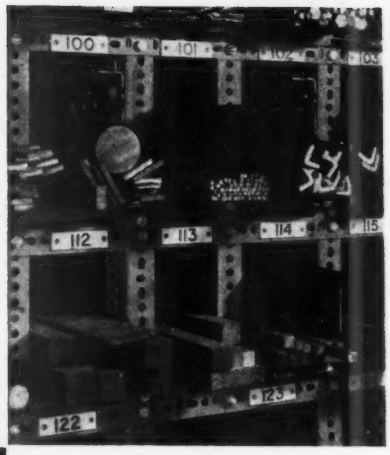
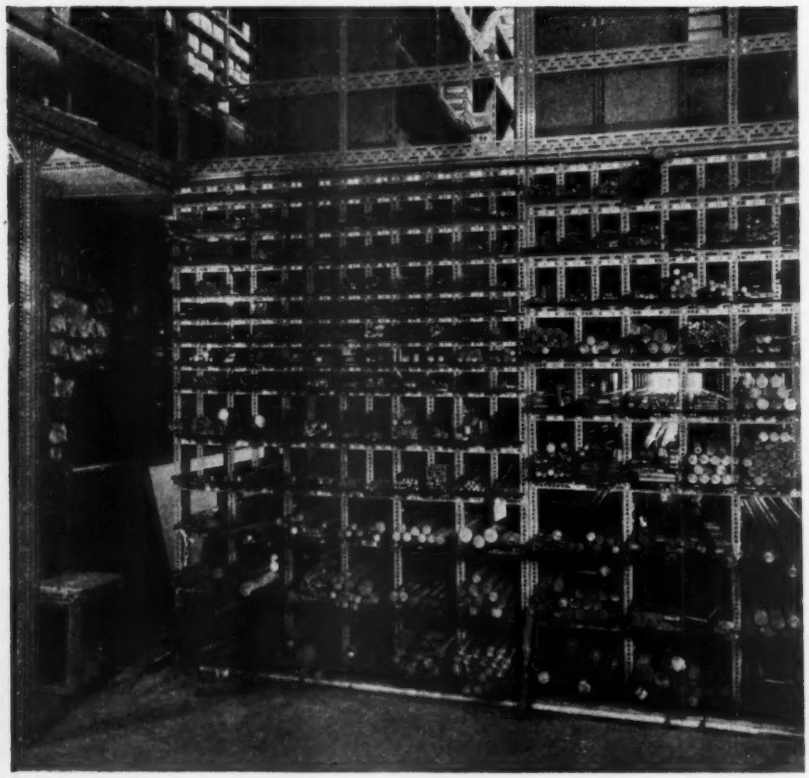


Bar rack with storage installation in the works stores of Witton James Ltd., Electrical Engineers, London, N.W.9.



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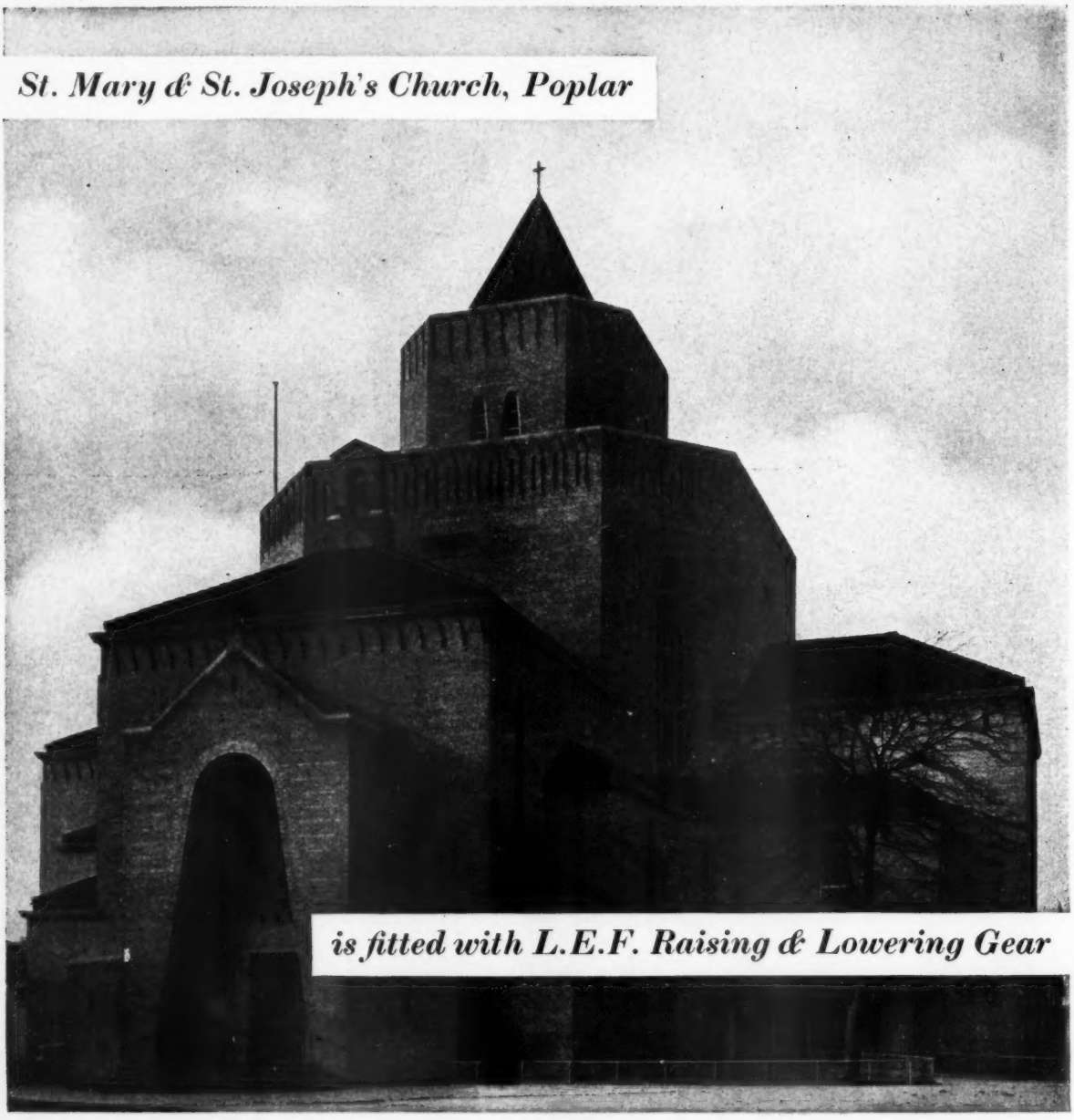

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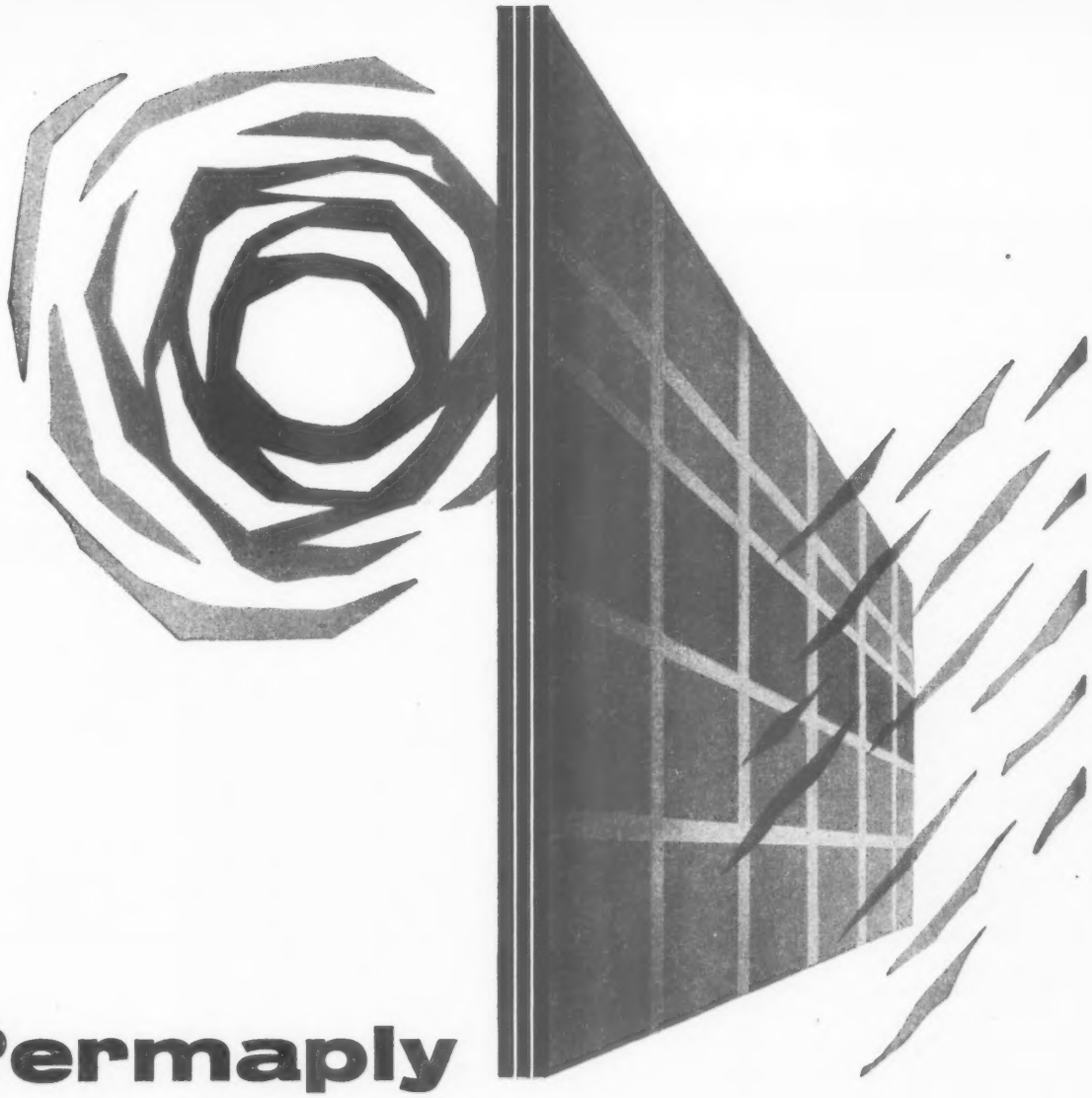

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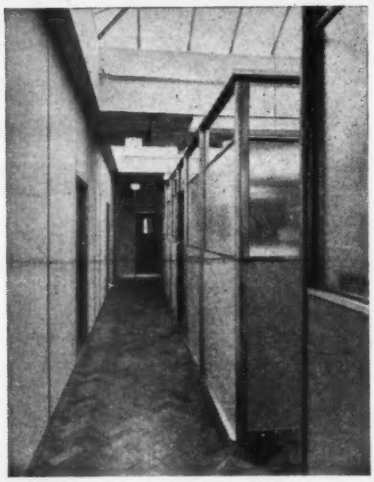

One of the corridors, showing full height and free standing par itions.

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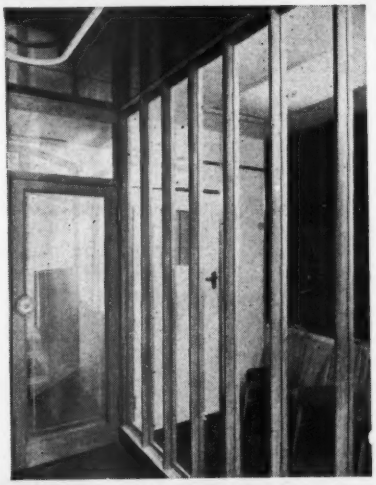

View of entrance lobby and waiting room. Screen of timber spars and plate glass

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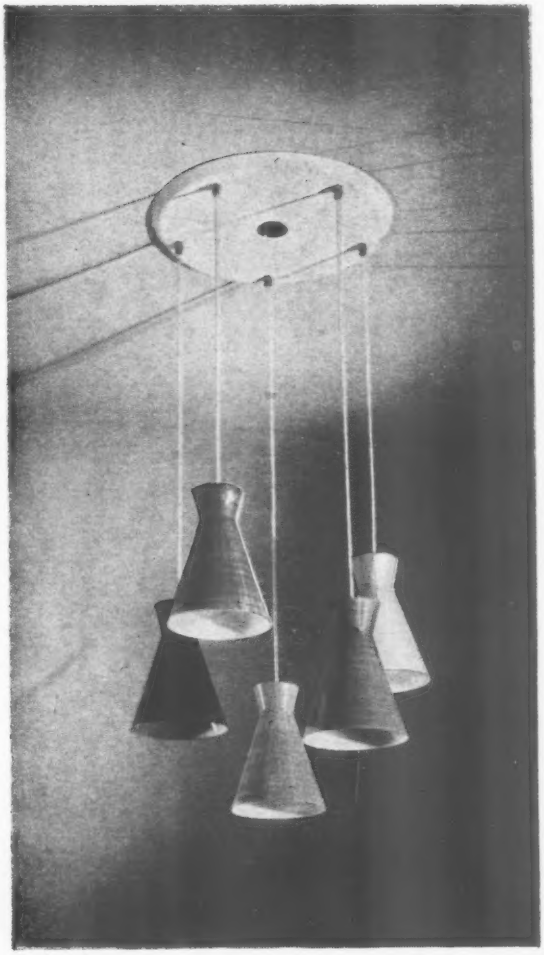

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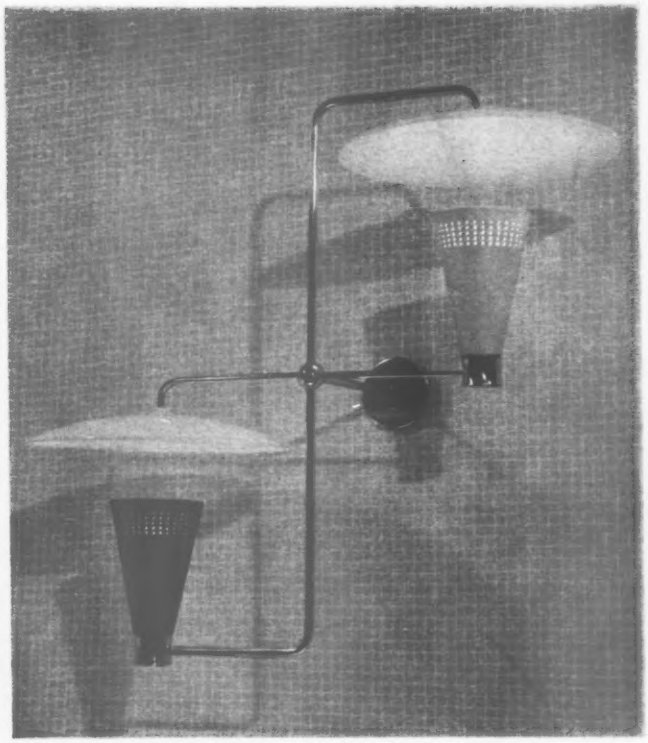

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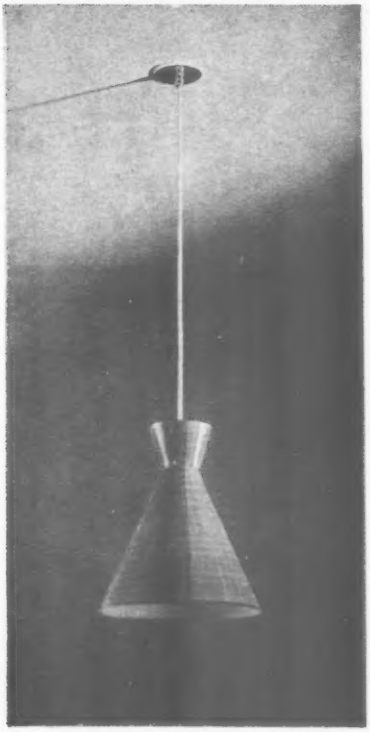

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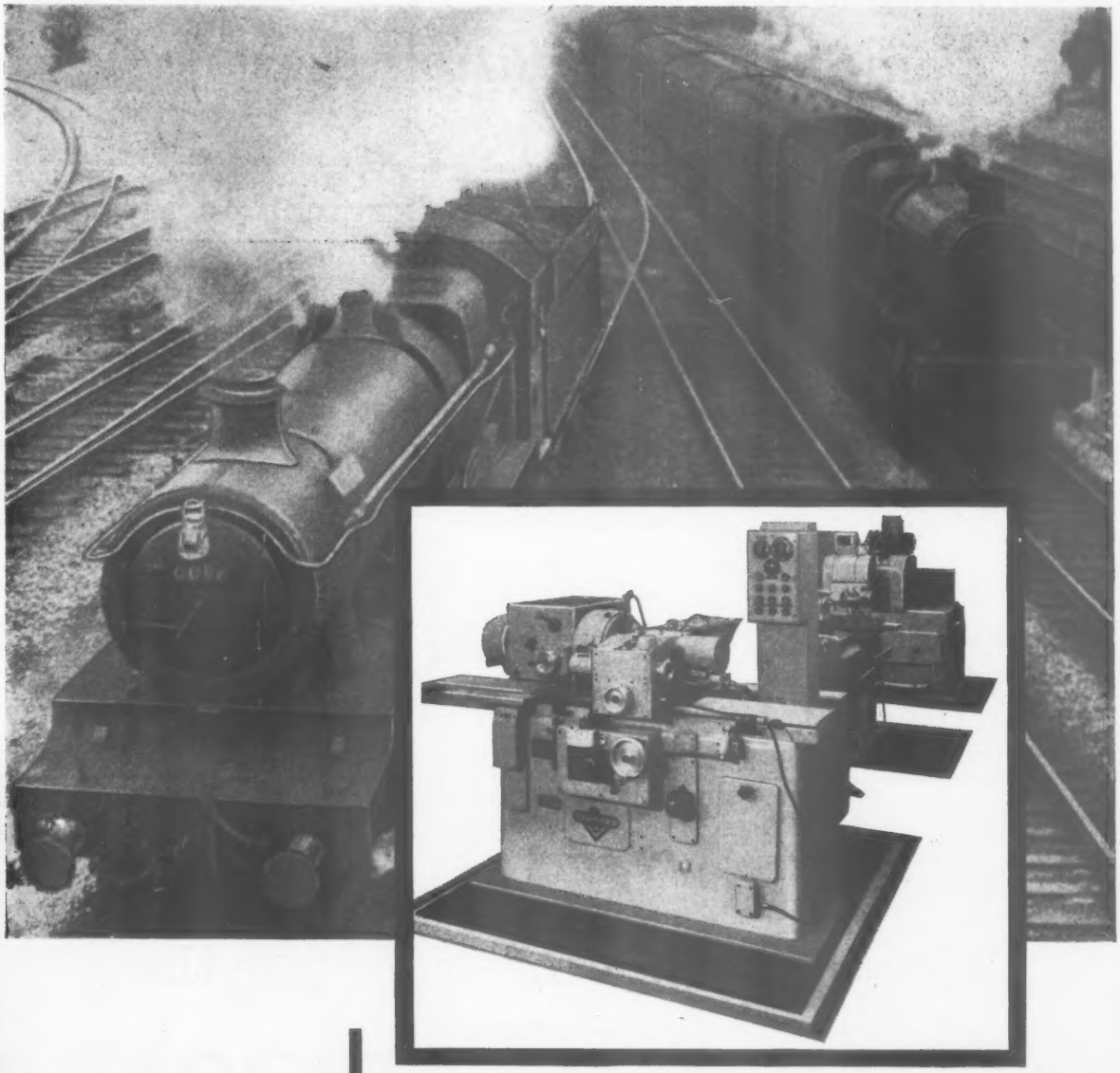

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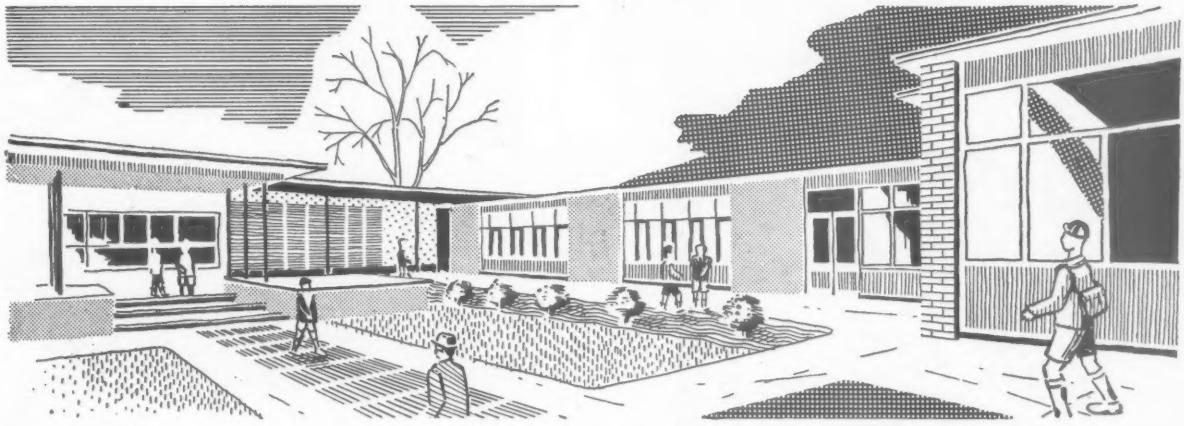

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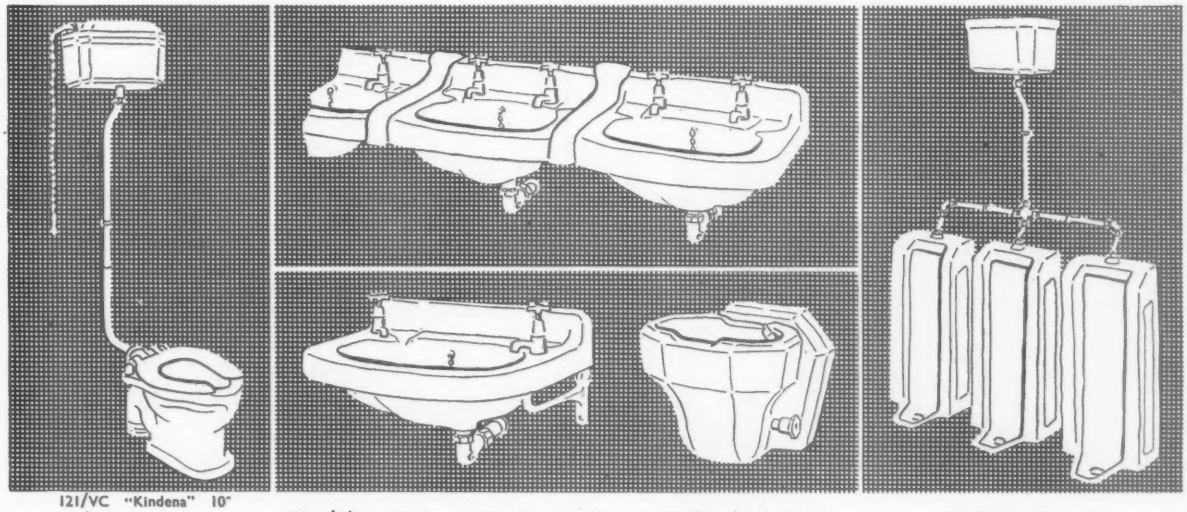

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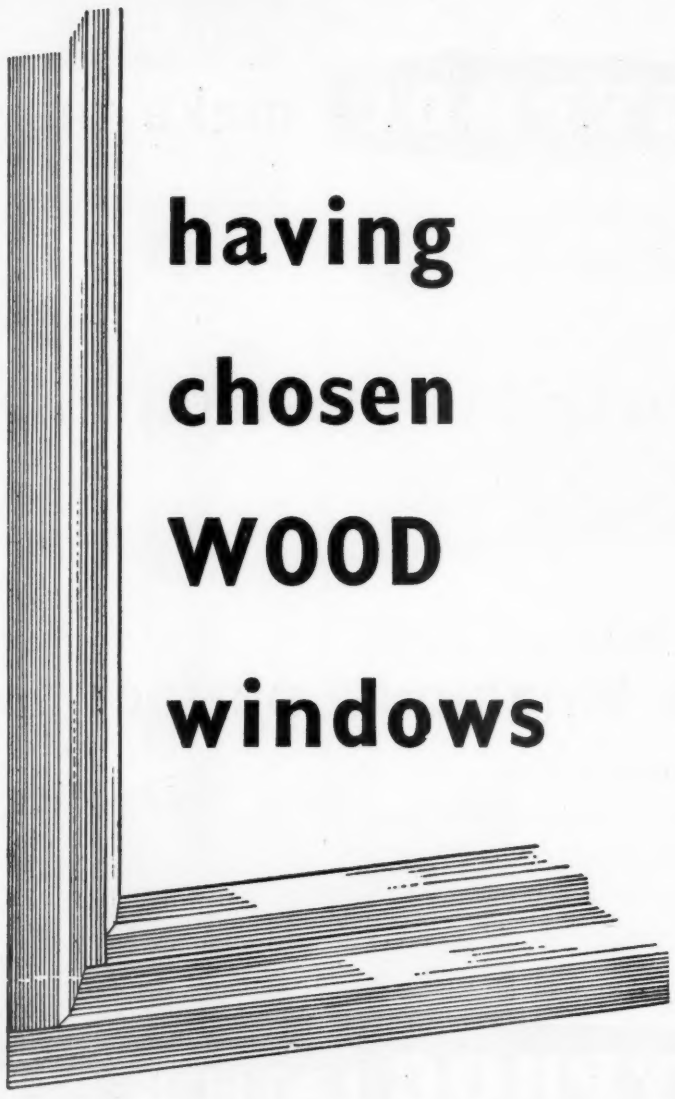

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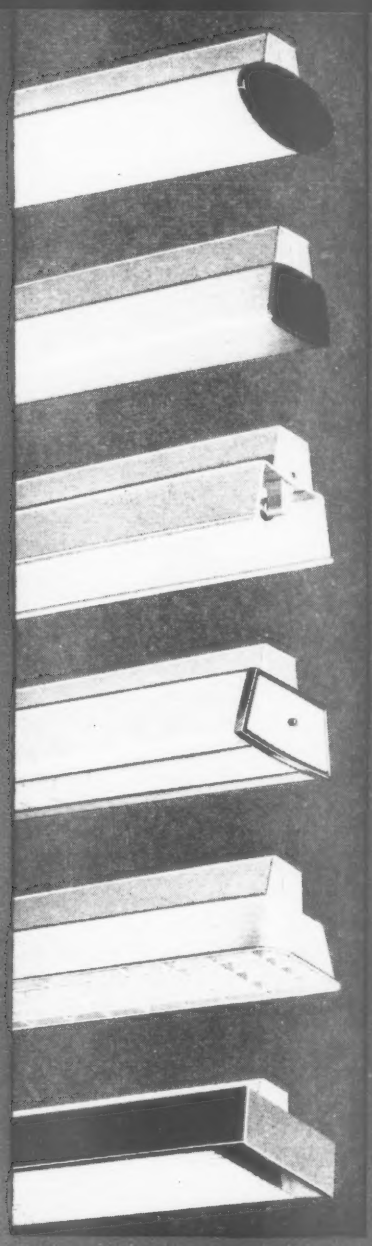

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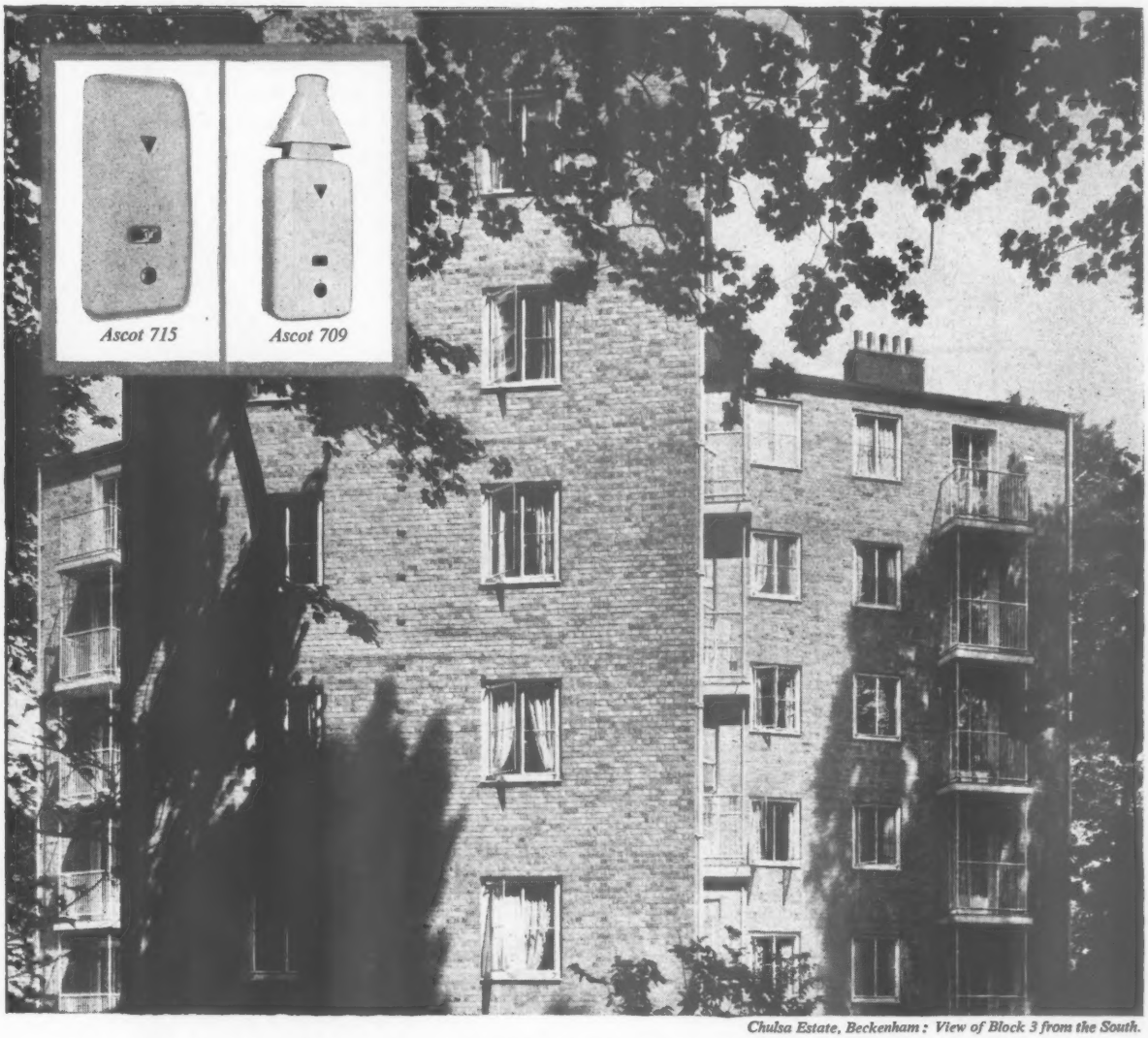

Chulsa Estate, Beckenham: View of Block 3 from the South.

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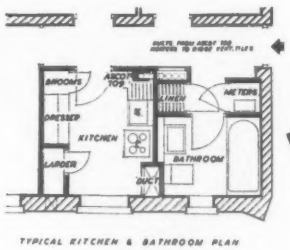

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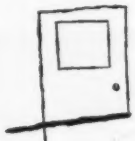

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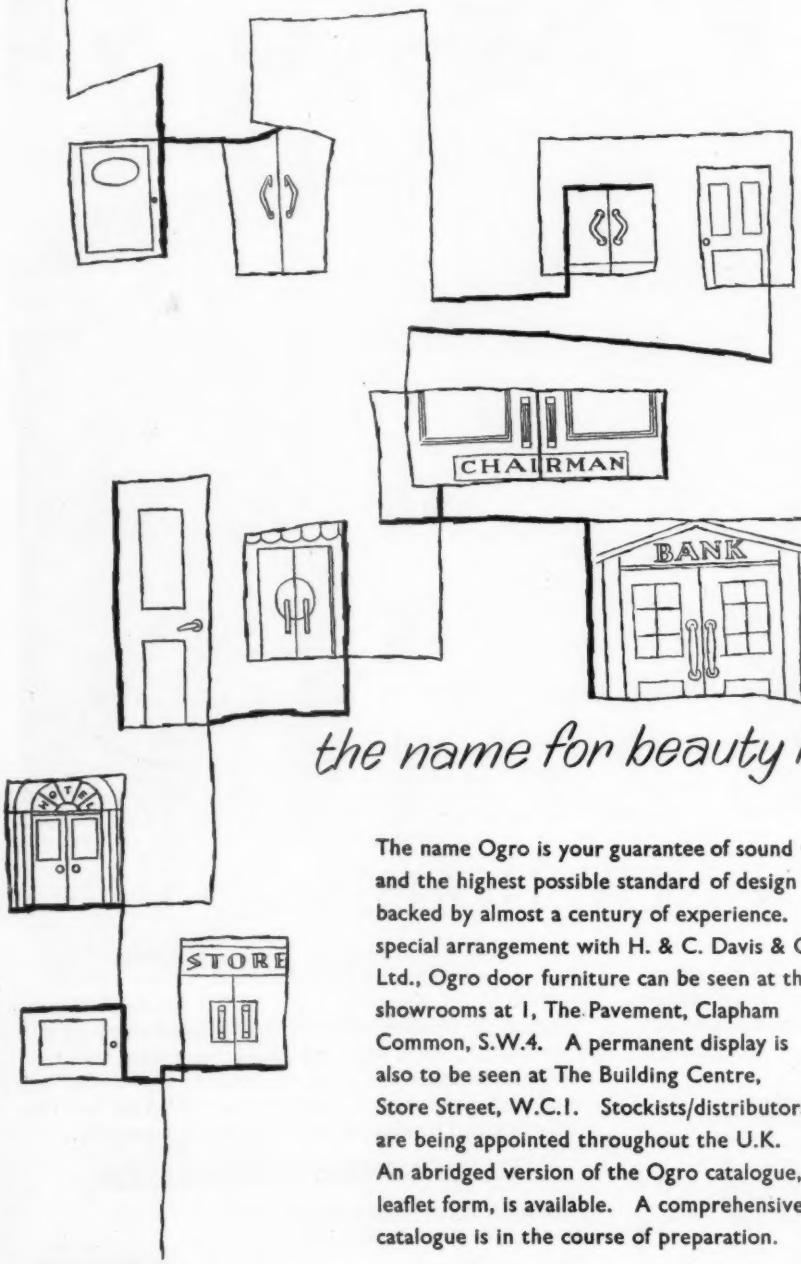

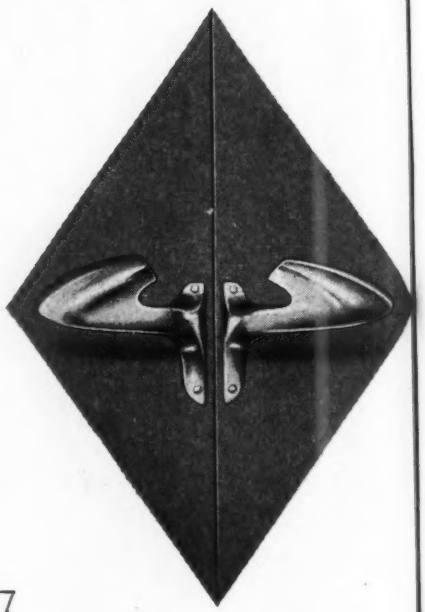

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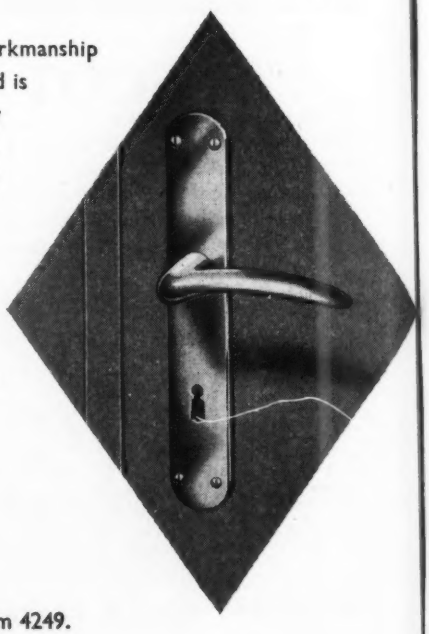

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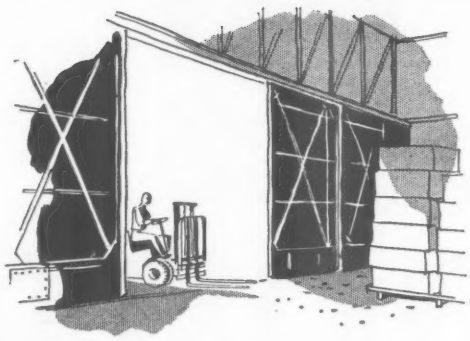

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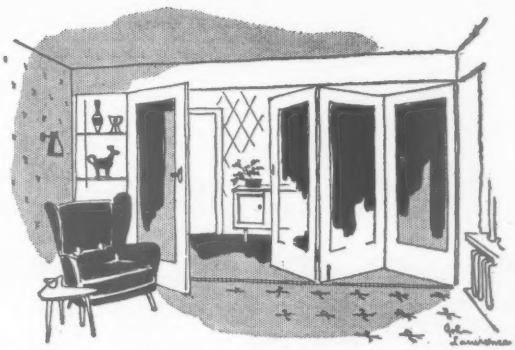

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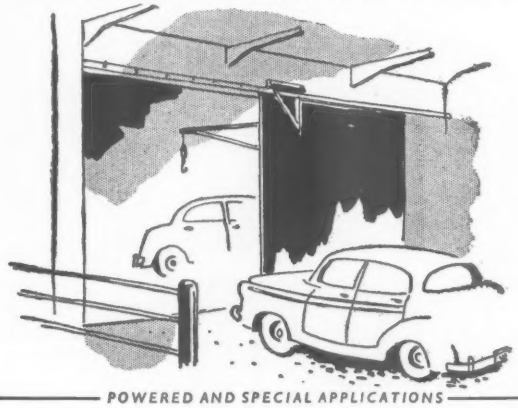

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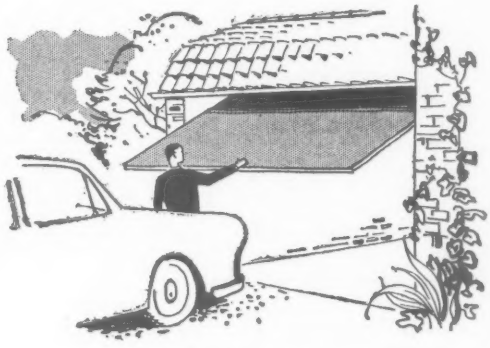

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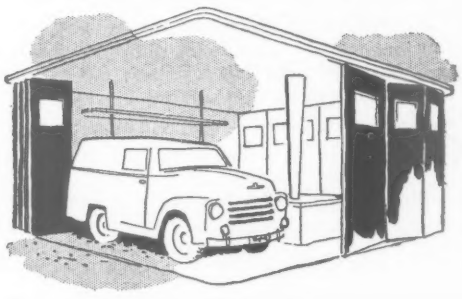

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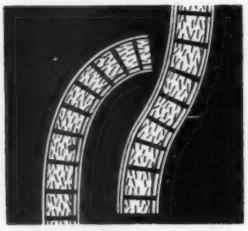

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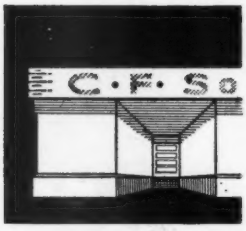

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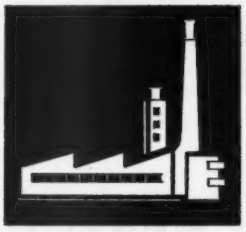

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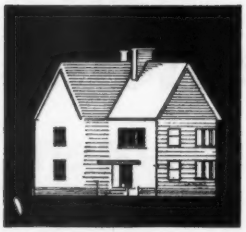

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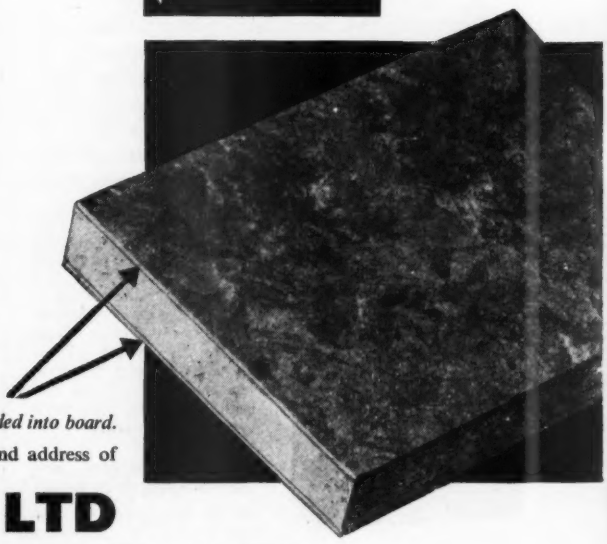

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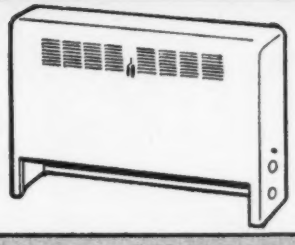

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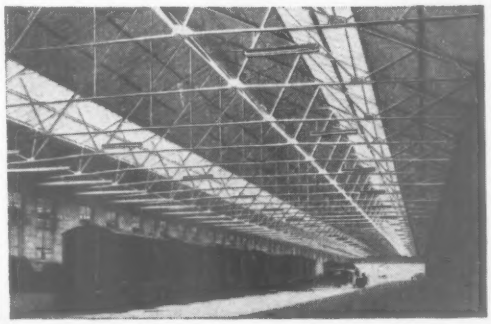
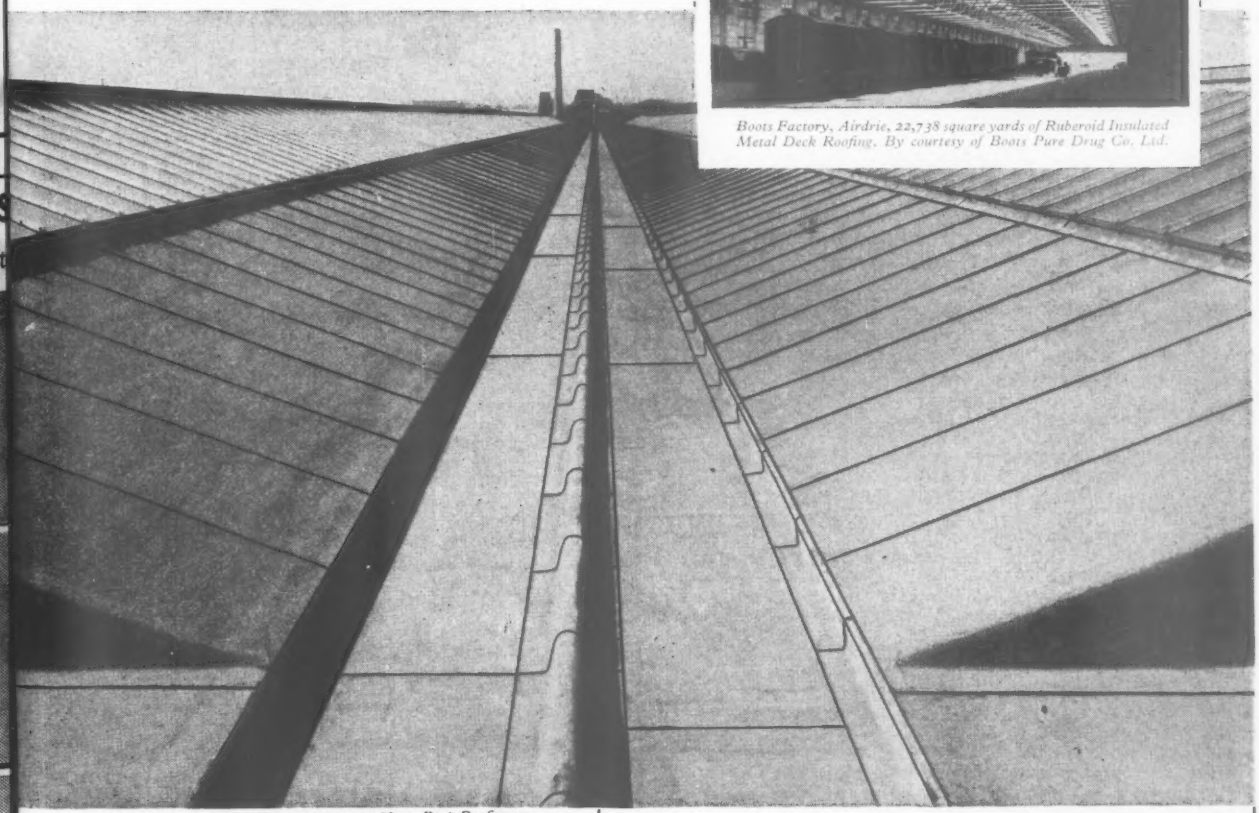


Boots Factory, Airdrie, 22,738 square yards of Ruberoid Insulated Metal Deck Roofing. By courtesy of Boots Pure Drug Co. Ltd.



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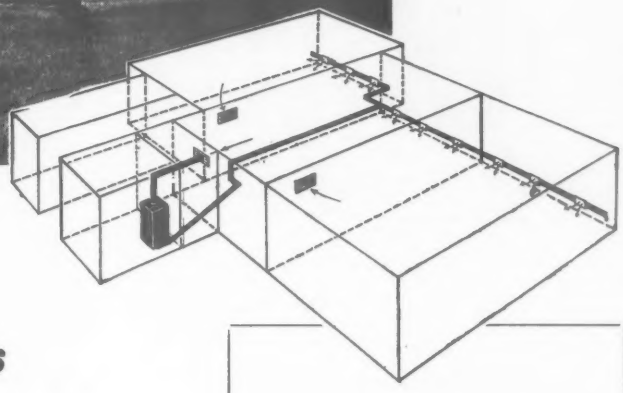

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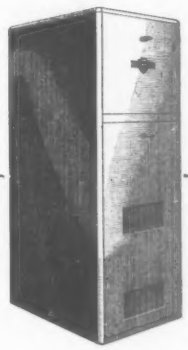

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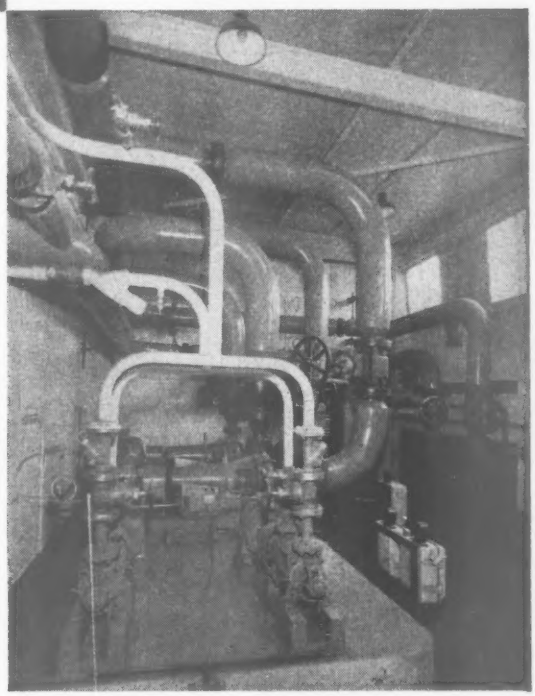

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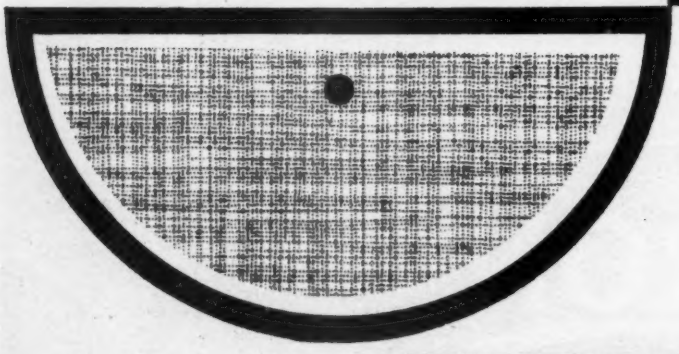

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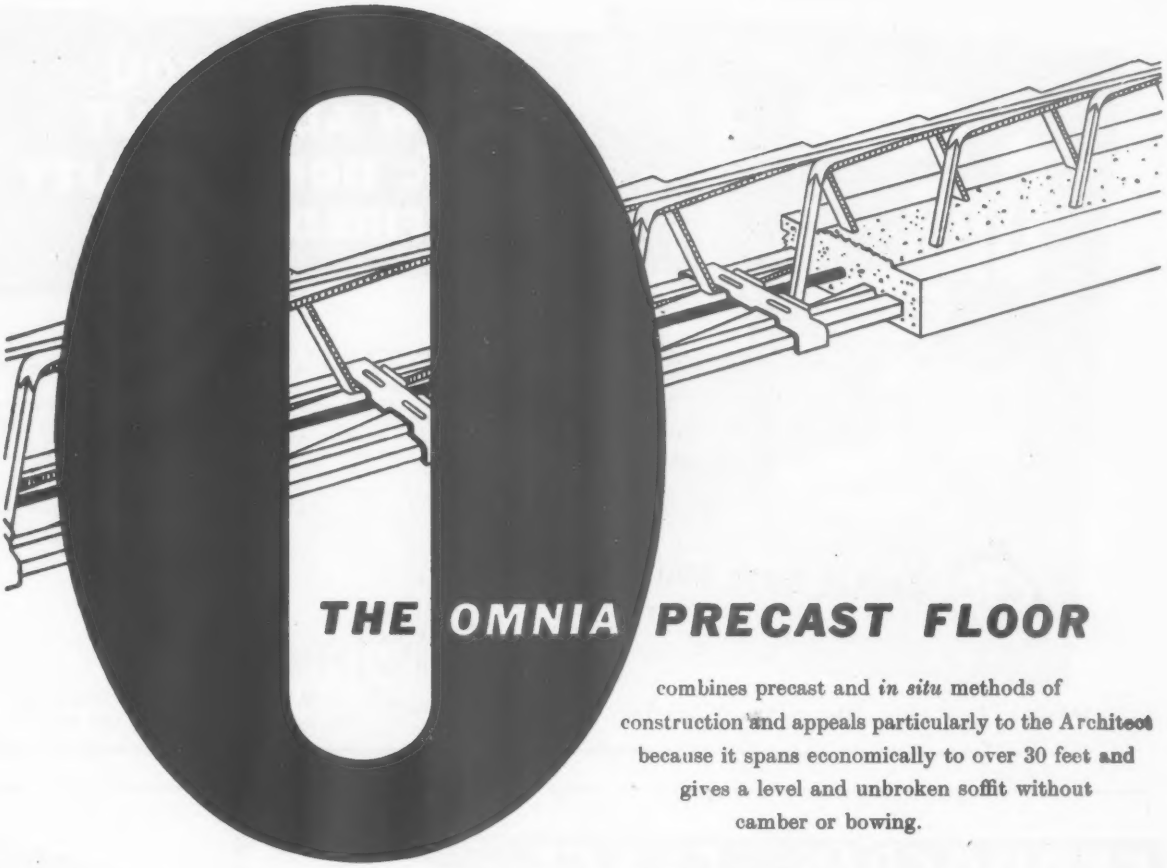

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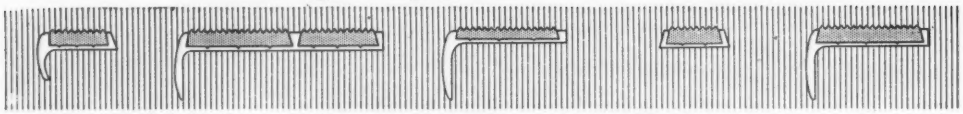

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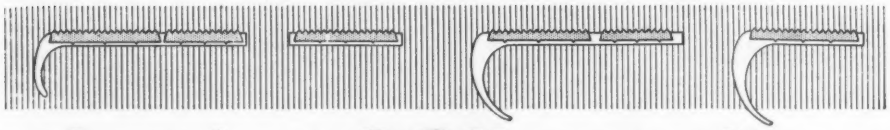

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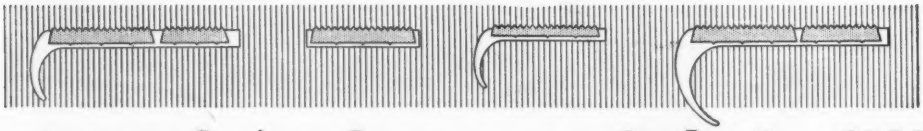

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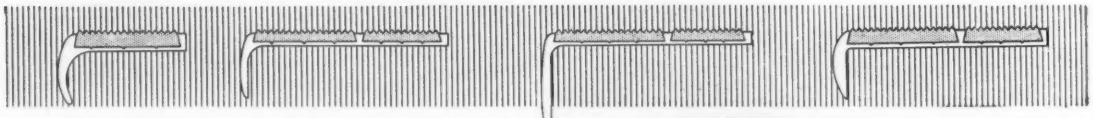
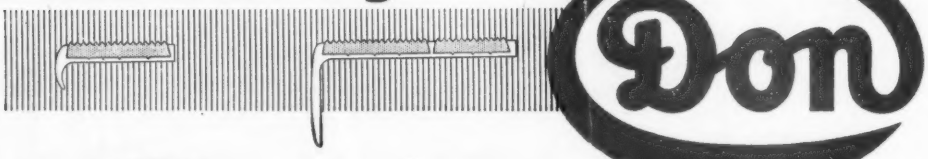


and nosing



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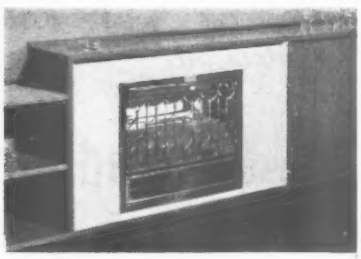
ABOVE.—These are some of the all Electric Houses on an estate under development at Woking.

LEFT.—The Ferranti Fridge-Heater provides constant hot water and a refrigerated larder.

BELOW.—Ferranti Panel Fires provide an attractive focal point-of-interest.



They cost less to build less to sell & less to run

These are houses of the future. They will be up-to-date in 1980. Why? Take a look at the roofs—there are no chimneys. These are All-Electric houses on an estate which is being developed in Woking. They have a domestic Heat Pump installed for providing constant hot water and a refrigerated larder. Central heating is provided either by built-in Convector Heaters or by heating cables buried in solid floors. This latter type of heating gives an evenly spread heat throughout the house and the power may be taken at night when special off-peak rates are available. The absence of chimney breasts and flues means no more draughts and additional space.

The latest types of insulating materials are used in the construction of these houses, for example, lightweight concrete blocks are used for the inner walls and insulation round the edge of the floors prevent loss of heat through the walls. Roof insulation is also provided which cuts down one of the greatest sources of heat loss in any house. And the cost? The capital and running costs are actually less for this type of house than for a conventional one. The all-electric house is here to stay. Look at the tables below; the savings shown are taken from actual figures in the All-Electric Houses at Woking.

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Fridge-heater ...	159	12	7
Floor warming cable installation ...	90	0	0
Living room, radiant fire	18	17	8
Bathroom, radiant fire	5	5	0
Bedroom, radiant fires (three)	20	15	3
Extra wiring and labour	15	0	0
	£309	10	6

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Refrigerator, 4 cu. ft.	80	0	0
Two chimneys and coal bunker	136	0	0
Flashing, chimney soakers	10	0	0
Tiler and carpenter ...	7	0	0
Ducts in floor ...	1	10	0
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Five radiators and valves	21	5	0
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Boiler and pipes ...	50	0	0
Tubing and plumber's labour	70	0	0
Decorators	3	0	0
	£438	15	0

Average total running costs for a three-bedroomed house (water heating, space heating, lighting, cooking and accessories) average between £50-£60 p.a.

The Ferranti All-Electric House

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AND COSTS LESS TO BUILD, LESS TO SELL, LESS TO RUN.

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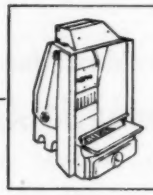

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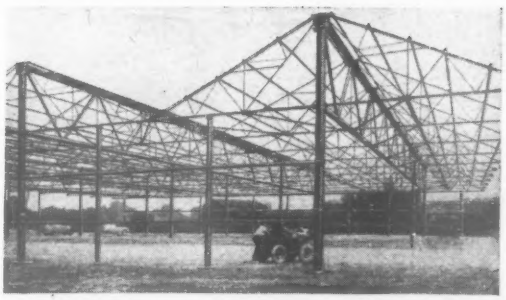

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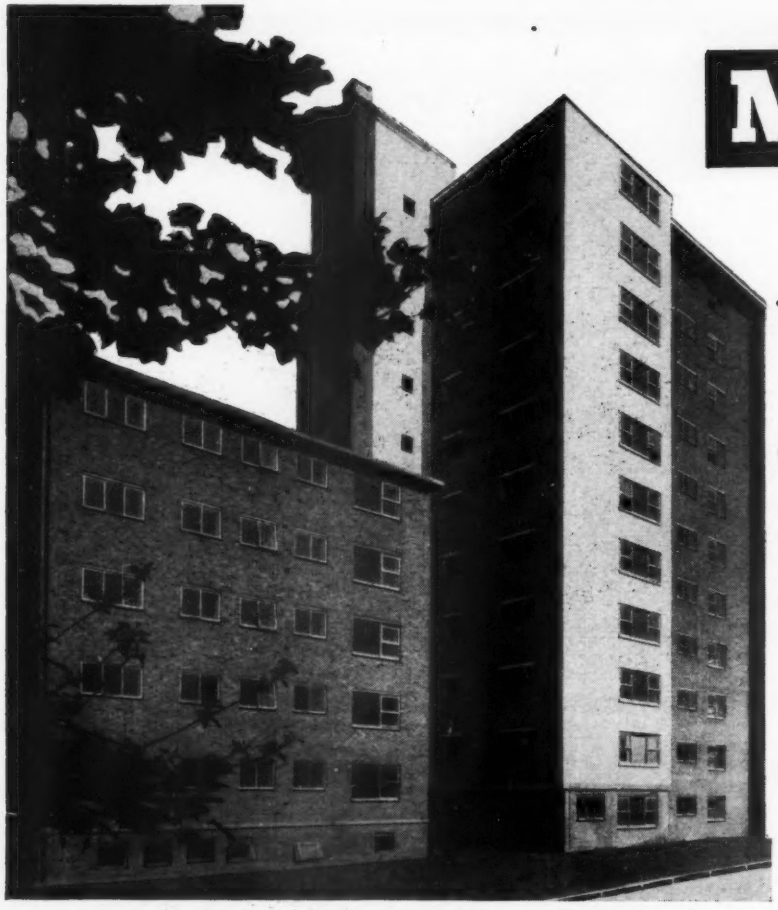

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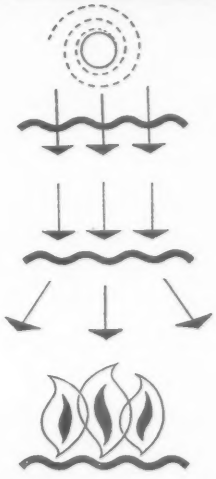

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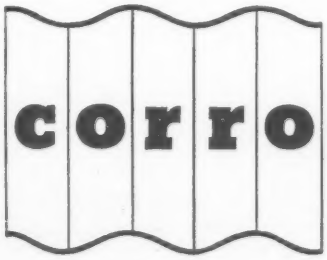

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AJ

THE ARCHITECTS' JOURNAL

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NOT QUITE ARCHITECTURE

AUTHOR! AUTHOR!

Ph.D

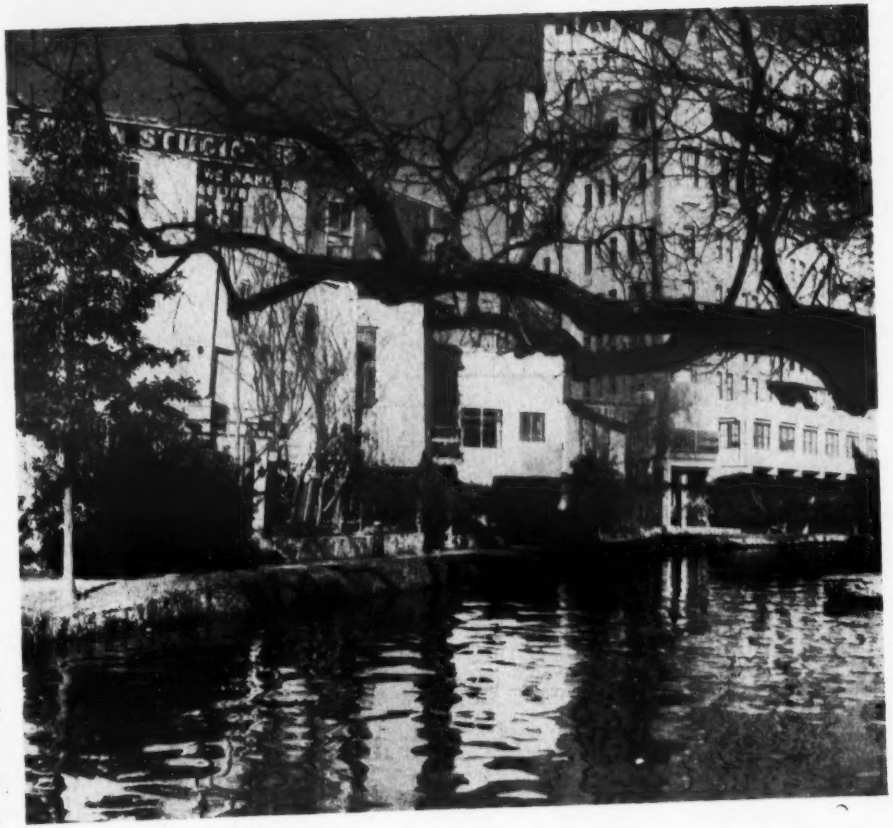
Old pilaster-plastered Bristol, revisited after a dozen years of rebuilding, looked like a collision between Bath and West Berlin—but the object of the exercise was academic—not a townscape study. However, what raised this visit above the lot that commonly befalls us wandering seminarists, was that it unexpectedly took in a first night, and those things are events anywhere—even in the West End. Indeed, this was a world premiere of a new play by Bristol University's resident Fellow of Playwriting (this fella happens to be a gal, young, thin and fearfully Oxford, called Gillian Richards), presented by students from the Bristol Old Vic theatre-school, in the University's Theatre-in-a-coal-hole—this must be the only disused squash/fives court in the country that isn't full of coke.

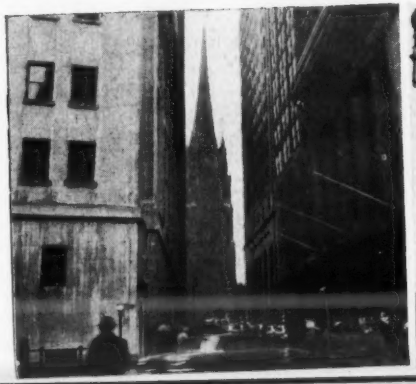
*

It's not exactly the Empress Hall, size-wise, but what it lacks in dimensions it makes up in technical aids and—theoretically—in being adaptable every-which-way; arena, apron, picture-frame, the lot. On this occasion, however, its flexibility had been sacrificed to that most rigid of conventions, a set representing the drawing room of an Establishment flat, all madly contemp. (*Palladio* wallpaper), apparently split-level and almost Aldwych-Farcical in its profusion of doors and bolt-holes.

*

The piece that Miss Richards offered us in this unpromising frame, subtly mistitled *Sense of Direction*, was one that London Theatres would fall over themselves to





Nairn in America

These photographs were taken by Ian Nairn recently as part of his assignment for *Fortune* magazine to study "downtown-scape" in U.S. cities. This trip is commented on by ASTRAGAL on page 381. The views above show aspects of American cities rarely featured in the architectural magazines. Ian Nairn writes: "Left above, a street scene in Chicago combining cars, the Loop and neon signs to give one kind of authentic city expression. Right, above, the sunk riverside walk at San Antonio, Texas, providing the contrast essential for a balanced city. A peculiarly American problem is the way some objects become more significant by being smaller than anything else in the view—whether buildings (Trinity Church extreme left, New York, seen down Wall Street in a rainstorm) or street furniture (one of San Francisco's superb octagonal traffic lights, left, which change from stop to go with a deep metallic clang)."

stage—if they could—since it deals with a certain subject that was OK by Plato, but NoK by the Lord Chamberlain, and has an economically small cast: 2m., 3f., and one neither. The characters are drawn from points between the ICA and the Espresso Belt, and the dialogue contains a number of naughty words and topical-type references, but sounds dated—what painter in 1958 would knock himself out for an exhibition in Paris, and what Dean-ager would buy his uniform nowadays anywhere but Vince's?

*

What was the show like? Honestly, I wouldn't like to say—too much of it sounded too much like Henry Reed's Third Programme take-off (*A Hedge, backwards*) of this kind of play, and in any case the lines weren't punchy enough to send the cast, the cast hadn't enough steam to get any adrenalin into the lines, except for the girl who played the wronged wife, a compact bundle who acted with everything above the knees, and will clearly go far, but fast, if pointed in the right direction. The blur as it whistles by you will be called Patricia Regan—watch out for it.

*

She got some of the best lines, and what little sympathy the audience could find for the characters. The artist-hero got none, in spite of a limp, library-frame spectacles, and affectations of culture-snobbery about TV. As for his bed-fellow, the coffee-bar Ganymede . . . words fail even me. He had a few good lines, not (to my mind) in the right order, but neither sounded nor looked the part for a minute. His jeans weren't tight enough, his hairdo wasn't fabulous enough, and his acting ranged from impressions of Jimmy Porter to what looked, momentarily, like a Method take-off of the Method, but turned out to be that he simply didn't know where to put his hands.

*

A wasted evening? Only for pure consumers like myself. For academic and theatrical top brass, the equivalent of a fourth year crit; for back-stage techmen, experience; for student actors, the rare chance of virgin parts not yet permanently bent by professional performance; for the student author, one of her prentice pieces performed on stage before her very eyes, unwarped by conventional commercial caution or the artiness of the smut-for-subscribers clubs.

*

Very nice for her, too. Imagine having one of *your* fourth year schemes built straight off the drawing board without financial or town-planning restraints. Just imagine . . .

REYNER BANHAM

The Editors

THERMAL INSULATION OF FACTORY ROOFS

ON page 384 we print the Ministry of Power's proposals for the regulations to be issued in respect of Mr. Nabarro's Thermal Insulation (Industrial Buildings) Act. These regulations, if agreed, will matter very much to architects since, if all goes according to plan, new factories started on or after January 1, 1959, will have to conform to them. Are they reasonable? Will they secure the general objectives of the Act? More important still: will they be a nuisance to architects? The regulations begin by proposing a "rule-of-thumb" standard in the form of a U value of 0·3. They then offer an alternative, which is that the roof shall not occasion a rate of heat loss exceeding 12 B.t.u.'s per hour per sq. ft. with an outside temperature of 30 degrees. The bearing of this alternative is made clear two clauses further down where it is established that the U value is to be related to the internal design temperature of the factory. The U value is to vary between 0·3 for an internal temperature of 70 degrees F. to 1·2 for an internal temperature of 40 degrees F. (below 40 degrees F. the U value rating doesn't matter). Since few factories require a design temperature above 60 degrees F., the normal effect of the Act will be to require the U value for this temperature, which is set at 0·4. This is a low figure, being round about that given by metal decking with ½ in. of insulating fibreboard and two layers of felt. It is, however, a standard which can only in practice be provided by the inclusion of some insulating material in the roof structure, and to this extent may be said to fulfil the purposes of the Act. An important point to notice is that the prescribed U values do not apply to the glazed parts of the roof. If, therefore, anyone designed a factory with a roof wholly of glass, the regulations would be evaded altogether. This is anomalous but perhaps wise, since our knowledge of the compensating effects of solar heat gains is very imperfect, and it saves the architect from having to make a difficult choice between the claims of lighting and of fuel economy. One last section calls for comment. The regulations restrict the use of certain combustible materials and require a Class I spread-of-flame characteristic as laid down in BS. 476. The parts of the proposed regulations dealing with this subject are not clear, and we hope that they will be made so, else it would seem that the local authorities and the fire chiefs may be given a bigger stick than is really intended. With this proviso, the proposed regulations seem reasonable enough.

A BETTER STANDARD

The RIBA and the Building Centre have announced conditions for the Manufacturers, Trade and Technical Literature Competition, 1958, that completely meet the criticism made by THE ARCHITECTS' JOURNAL when the conditions for the first competition were announced a year ago. The previous

competition was held on the basis of BS. 1311 : 1955, which prescribed a large leaflet size of stocky, graceless proportions. Our plea for the recognition of the International Standard of paper sizes known as the A series (to which this JOURNAL has conformed since 1942) has been successful. The revised British Standard (BS 1311 of 1955, as amended 1958) recognizes both standards, and all competitors will therefore have the right to submit designs conforming to the International Standard, which is preferable both on æsthetic and on practical grounds. This opens the door to its general adoption: the British Standards Institution is to be congratulated on making this possible.

BRUSSELS SPROUTS

ASTRAGAL has recently returned, muddy and hot foot—yes, just as you thawed—from the site of the Brussels Fair. Any questions? First, here is one for you. How does a country decide what sort of a picture of itself it is to present to the world? Either it can present itself as the proud guardian of tradition, or it can pose as a gifted, active pioneer. As you will have guessed, the dear old UK is going to try to do both. Although only the shells of the pavilions are visible at the moment, ASTRAGAL found that Britain intends to pump its visitors through a tunnel of pomp and to eject them without ceremony (no, not even a tiny one) into the glitter of our atomic achievement.

*

What of the other countries? Holland is putting up a superb *congerie* of buildings by van den Broek, Bakema, Boks, Rietveld and Corb (he's doing an igloo). France is struggling with an inchoate mass of steelwork (*prix de Rome* architect, Guillaume Gillet), which looks like being late. The West Germans, with their usual efficiency in the handling of national shop windows, have finished their pavilion (it looks splendid) and wrapped it in polythene. And the Italians are at work, with a team of all the good architects you can think of, on "an Italian hill village in terms of modern architecture." How, ASTRAGAL asked himself—as he slipped off a duckboard—can these architects hope to recreate a charm which, as everyone knows, is based on sub-standard amenities? The question will be answered in a later issue of the JOURNAL. But no doubt most of you will be looking for the answer yourselves. This is an exhibition no architect should miss.

WOLFENDEN REPORTS

And now, in case you are reading this column aloud to the children (as every enlightened parent should), let me warn you that it is going to touch briefly on the Wolfenden report on architects. If you were not able to get to the RIBA last week you will be anxious to know what Sir John thinks of us. You may be surprised to hear that his paper on "The Architect's Rôle in Society" was delivered with almost suspicious deference. His Lifeman approach—("Those words of Plato are, of course, familiar to you . . .")—was just the thing to reduce an audience of middlebrows to acquiescent pulp. Why, one wonders, does no one in an audience ever cap a quotation? But then it is a sad fact (though one you will not know about) that when our partially-learned society holds a meeting of this kind at Portland Place, the learned members are overwhelmingly absent.

*

Sir John's main point, if not his "entire point" (*King Lear*, of course, 1 : 1 : 238) was the familiar one that the architect is very much "in charge" (*Horatius*, as we all know, 1 : ix) of our —to quote Henry Morris—"visual environment." This is always worth saying. But what a pity Sir John did not tell us if he thinks that architects are filling their rôles in society as well as they should—or as well as their predecessors did.

SHELL SHOCKED

The students of Reading University, where Sir John Wolfenden is vice-chancellor, have published a strong criticism of Easton and Robertson's rôle in University society. This criticism of the work of Sir Howard and his partner appears in the monthly University periodical (it is called *Shell*, and there is no need to giggle in that silly way). The work discussed is the new Faculty of Letters and the proposals for developing Whiteknight's Park as a University precinct. It is unfortunate that the criticism is so general. It is even more unfortunate that no good seems to have come from the practice, described in a recent JOURNAL article, of collaboration between the architects and the student committee of Reading University. Nevertheless, it is nice to see that the students are interested enough in their new buildings to be distressed by them.

HOME JAMES

The National Gallery Trustees don't like the idea, and the Royal Fine Art Commission has objected to it. But it looks as if it will happen just the same. James II is to be hauled away from his position outside the National Gallery and dumped in a backwater of St. James's Park. What is to replace this masterpiece by Grinling Gibbons? A new statue of Raleigh, by William McMillan, to commemorate the 350th anniversary of the foundation of Virginia.

*

You may be thinking this is all rather ridiculous. But decisions of this kind are not made without very good reasons, and there are, in fact, two reasons for the junking of James. The first is that a committee, advised by

Sir Charles Wheeler, liked the idea of putting Raleigh, whom they regard as the founder both of the US and the Commonwealth, near to George Washington in an area which is a "national shrine." The other reason is that the committee consists of air marshals, field marshals, MP's, ex Lord Mayors, company chairmen and the American Ambassador—just the sort of people who ought to be in charge of our national art treasures.

NO DANISH REITH

ASTRAGAL didn't comment on the first of Professor Rasmussen's Lethaby lectures at the RIBA (sponsored by the Royal College of Art) because it was disappointing, and it seemed a good idea to suspend judgment until the second had been given. This had a little more content, but was still disappointing. The fault, however, is not wholly the professor's. Rasmussen is a discerning and scholarly critic, known far outside his own country (Denmark), especially for his writings on town planning. He is also a delightful personality, and all this came through at moments while he was lecturing.

*

But who was he lecturing to? His simple generalizations, charmingly expressed, are first-rate told-to-the-children stuff—the sort of thing that all senior pupils at grammar schools should have the chance of listening to, if we are ever going to get a public well informed about architecture. But the RCA had given the impression beforehand—at least to me—that the lectures were to be on a different level altogether; something like a specialist version of the Reith lectures, which are designed to make a real contribution to knowledge. This was hardly fair to Professor Rasmussen.

*

The people who should be encouraged to go to the remaining two lectures are first-year students and laymen who want to know how to look at buildings more intelligently. They won't be disappointed if the lecturer doesn't go very deep; nor will they be knowledgable enough to feel they know it all already.

*

One other thing: it was a pity Professor Rasmussen sought the easy laughs that anyone can get at the ex-

Model of William McMillan's statue of Raleigh. See "Home James."

pense of Corb's Modulor. It has been done so often before. Being quite beside the point when it comes to appreciating his use of a system of proportion, it confuses the issue more than it clarifies it.

DEEP IN THE HEART OF SUBTOPIA

Ian Nairn, the author of *Outrage* and *Counter Attack*, spent a day in Wigan recently and took part, with John Summerson, in an assessment of the town which was broadcast in the BBC's "Younger Generation" series. (A good series this—it has also included an appreciation of the building industry by an architectural student, and other design programmes are promised.) The broadcast gave a very good mental picture (to use a Goon-slaughtered phrase) of a town which ASTRAGAL himself has found to be no more worthy of a music-hall joke than mothers-in-law and week-ends in Brighton. It augurs well for Mr. Nairn's proposed assessment of the USA, where he has recently spent even longer time—a fifteen-day answer to the Americans who "do" Europe in fourteen.

*

Mr. Nairn went to the States in place of Gordon Cullen, who was indisposed and could not accept the invitation of *Fortune* magazine to collaborate on an issue in downtown-scape. This is the last in a series on urban sprawl and redevelopment which is far ahead of US thought (and European thought too).

*

The results of Ian Nairn's research in New York, Boston, Louisville, Kentucky, Chicago, San Francisco and San Antonio, Texas, will appear in the April issue of *Fortune*. He tells me that his strongest impressions are of galloping sprawl and of the extraordinary friendliness and sincerity of the *Fortune* team, working on the job under Holly Whyte, the author of that terrifyingly quietly-spoken analysis of conformism, *The Organization Man*. Most of these journalists, he says, could walk to work if they had to, and some of them do so. Apparently, there is more urban housing in the middle of New York than there is in London.

YOU'RE NEVER TOO GOOD TO HANG

You were reminded the other week in these columns that the Royal Academy's sending-in day is March 26. ASTRAGAL has since discovered that this year's hanging committee is very much *not* of the reactionary school. So get those designs in quickly, and let's crowd out all the opposition—except, of course, any who are privileged, because they are RA's, to exhibit their work.

"NEW COVENTRY" EXHIBITION

The Coventry Exhibition, now on at the Building Centre, is a "must" for a variety of reasons. First, as an urban prototype where the City Architect co-ordinates both architecture and planning, it illustrates some excellent examples of successful co-ordination. Second, it shows, by means of a very large model (so much more easily understood by laymen) the present stage of progress in the reconstruction of the City Centre. And how, in spite of a number of vicissitudes, it is still developing as by far the most interesting and well-designed central area of any city in the United Kingdom.

*

On the model one can see how Basil Spence's Cathedral fits into the scheme as a whole, and also how two civic rescue operations were recently achieved by the present City Architect, Arthur Ling. One is the reversion to pedestrian use of a road which had been driven right across the new shopping precinct against the wishes of the former City Architect, Donald Gibson.

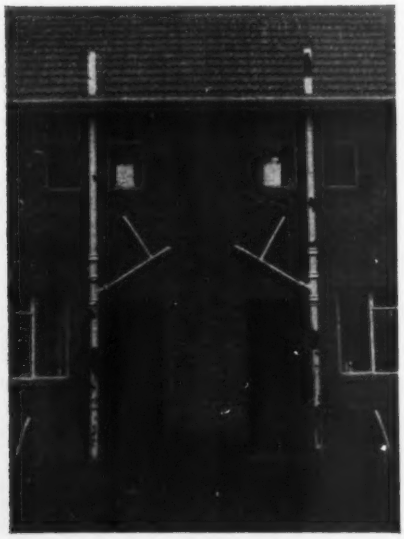
The other is the opening up of the new Civic Theatre to the life of the City. There is also an intriguing point block of flats right in the shopping precinct which has a vague similarity to the B.B.P.R. tower in Milan.

*

The new neighbourhoods, housing layouts and schools are well presented and are well worth seeing, as they have both vigour and imagination and show how lively are the minds of the present staff of the department. In fact, the whole show, which was designed and put up by the staff themselves with a minimum amount of time and money, is a credit to them and keeps up the great prestige which was created when the City Architectural Department was established just before the war by a far-seeing council.

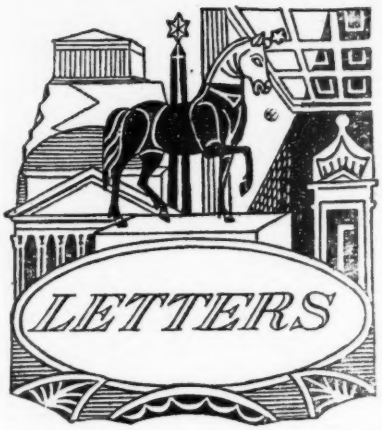
PLUMB CRAZY

The photograph below shows the plumbing of two houses on an estate of sixty which were built for the Air Ministry, at Gaydon, in Warwickshire. This sort of thing is, apparently, fairly common in that part of the world. The joy of it, of course, lies in the cheerful way the basin waste lollops into the bath waste, with no regard to the direction of flow. It looks as if the bath must unseal the trap when it discharges, producing some interesting drain whiffs. These houses were built in 1954, two years after the publication of the BRS Digests (48 and 49) on single-stack plumbing. Isn't there a moral here somewhere?



Single-stack plumbing, Air Ministry style. See "Plumb Crazy."

ASTRAGAL



Students' Committee, The Architectural Association

Keith Manners, Student R.I.B.A.

Kenneth Campbell, A.R.I.B.A. and Bernard Cox, L.R.I.B.A.

John Smith, A.R.I.B.A.

Paul Ritter, A.R.I.B.A., A.M.T.P.I.

J. M. Grinsell

William Ryder, A.R.I.B.A.

N. Sanders

The RIBA Crisis

SIR,—The following letter sent by the Students' Committee of the Architectural Association to the RIBA, fully supports the points made in your leader of February 20, 1958:

The recent statement on the finances of the RIBA and the measures proposed to remedy the deficit, represents an unwarranted burden on student costs. The school trained architect will be required to pay at least £38 6s. 6d. to the RIBA before practising as an Associate. You must, therefore, realize that many students will be forced to question the advantages to be gained by joining your organization.

The following five resolutions were adopted unanimously at a General Meeting of AA students. We protest that:

(i) No notice was given of the increased charges for examinations.

(ii) A very important activity has been virtually stopped, namely that of public relations.

(iii) Students should not be expected to contribute through their examinations to the general expenses of the RIBA.

(iv) Students have no vote, therefore the policy of the RIBA bears little relation to student opinion.

(v) We therefore insist that a special general meeting be organized to discuss these points. We are contacting other schools with a view to pressing this matter.

STUDENTS' COMMITTEE.

Sir,—Mr. Doxat-Pratt poses an interesting question when he asks (AJ, February 27) what the "miscellaneous" item, shown as 8.9 per cent., represents on the recent RIBA financial statement. Could it be that this amount of our funds (£10,000?) was used to finance the recent globe-trotting activities of our President and Secretary?

KEITH MANNERS.

London.

SIR,—In the notes on the list of RIBA Honorary Officers in your last issue, there is a statement that the Council Committee charged in 1954 with reporting on the Constitution of the Council "ignored the problem of the representation of allied societies overseas on the Council." Having served on that Committee, but not being permitted to disclose what transpired in private discussions, we find this allegation very embarrassing. To avoid misunderstanding, we hope you will make it clear to your readers that your statement is only correct if it merely means that no action was recommended by the Committee. That is not, of course, the same thing as saying the problem was ignored, in the sense that it was not considered; neither should it be assumed that a majority decision represents the views of all members of a Committee.

KENNETH CAMPBELL.
BERNARD COX.

London.

Smith On Education

Sir,—I thank ASTRAGAL for his kind and salty remarks about my "crisp" report on the Schools in the February issue of Architecture and Building. It has, as he suggested, made some people "hopping mad," just as your leader on the leaders of the RIBA and the striking truths revealed in the table of Hon. Officers on the RIBA Council from 1949 to 1957 will also swell the veins of several noble foreheads.

These attacks will serve a useful purpose if those responsible for governing the profession (and the schools) learn to accept forthright and open criticism and answer it, either by positive remedial action or state their reasons for maintaining an unsatisfactory "status quo."

It is apparent from your recent editorials and the many letters pulished criticising the leadership of the profession that the RIBA Council is sadly out of touch with the views and opinions of perhaps the great majority of the Institute's members. This is hardly surprising when the membership figures are analysed. The increases in numbers since the war show that the greater part of the qualified membership must consist of architects still in their twenties and thirties. Yet this factor, for reasons we know all too well, is not reflected in the constitution of the Council.

It is unfortunate that this should be so, for at a time of crisis for the profession (and the present time can be seen to fit into that category) the leadership is found inadequate. The present remedy of increased subscriptions and fees to stabilize the RIBA's tottering finances, illustrates this point well, for inevitably the measure is unpopular however justified, and the Council further alienates itself from the younger members of the profession. This alienation would be less likely were the Council (and particularly its executive) to be more genuinely representative of the membership.

The present troubles of Portland Place for which the existing Council must accept total responsibility provide an opportunity for the membership as a whole (and notably the younger section) once again to assert itself and demand the new and more virile leadership that is so urgently required.

If the present Council does not heed the writing on the wall (and your editorials recently will have served that function) then it may be necessary for a special General Meeting of the RIBA to be called at which a motion expressing a lack of confidence in the leadership of the Council could be tabled. Many are the charges with

which such a motion could be substantiated and it seems likely in the present climate that it would be carried quite easily. But this drastic measure may not be necessary if the Council voluntarily admits its shortcomings, establishes a framework for its own constitutional reformation, and prepares a new policy to deal with the urgent problems confronting the profession.

Meanwhile, dear Editor, persist in your efforts to expose incongruities in the "set up" and make more people "hopping mad" if necessary. A new spirit is required; for out of the present atmosphere of confusion there may or may not arise Architecture. Let us hope it does.

JOHN SMITH.

London.

Mystery Conference

SIR,—ASTRAGAL commenting on John Smith's article on the schools of architecture in Great Britain (AJ, February 27), says that the mysterious top-level conference on Architectural education will be held in London. Smith says in Oxford. This is typically the outcome of the secrecy that has shrouded what might be an important event. There is however, no guarantee for that at all. Who, for example, has selected the chosen 60? I fear those whom John Smith would throw out before he started. And if this is so it was, no doubt, the first safe step to produce, not an important, but a safe conference. I very much hope I am wrong.

PAUL RITTER.

Nottingham.

ASTRAGAL writes: The conference is in Oxford: the mistake is mine.

Research In The Schools

SIR,—As a student I have followed with great interest the recent controversial topic of architectural education which arose in part out of the Ad Hoc Committee's report a few weeks ago.

Discussion among students on the future of architecture in this country in my experience nearly always ends on this very topic and I have no doubt that full members of the profession are only too keen to see what sort of architect is emerging from the British schools of architecture.

Since the training of students for the profession is recognized as being so important why is it that more significance is not attached to the responsible position of tutor in our schools of architecture? After all it is the tutors who are moulding the future of architecture and those who are to practise it.

At the moment many of the teaching staff in our schools have the difficult job of teaching students and running a practice at the same time. Surely one or other, or both, must necessarily suffer. At the moment the official position of tutor or lecturer is obviously not made attractive enough for them to devote all their energies to the training and guidance of the students.

It is true that knowledge of practice and procedure is essential for the student to grasp before he is made to face the hazards encountered in the building industry and a practising architect is invaluable on the teaching staff, but since architecture embraces so many specialist fields the student should also be well acquainted with all developments taking place in the building industry, knowledge of which should be passed on to him first hand.

This can only be done successfully if research and education are carried out side by side. A place of higher education of which so many of our schools are part, is the ideal place for research to be carried out. This arrangement has been successful in science and engineering at Cambridge. Could not architecture follow suit?

The first step to ensure the rightful position of the architect in the building industry is to attract the foremost authorities on every sphere of architectural practice to our schools of architecture where research can be carried out and knowledge gained can be passed straight on to the student.

J. M. GRINSELL

Newcastle-upon-Tyne.

Preventing Outrage

SIR,—The correspondence in recent issues of the JOURNAL on elevational control is to my mind rather disturbing, since it indicates a lack of unity of thought in the profession on this subject. It is hardly surprising if architects are disunited, that the public at large are bewildered and are inclined to disparage planning powers in general and aesthetic control in particular.

During the inter-war years, architects were constantly clamouring for greater planning powers to prevent the outrages that were constantly taking place, and I am sure the profession was united in thinking the 1947 Act a tremendous step forward. It is a pity that the defects in the present powers are now used as arguments for abandoning elevational control altogether and returning to the pre-war jungle.

Mr. Moro in his letter (February 6) lists 10 reasons against any form of aesthetic control and asks "What is the case *for* control." Surely the case for aesthetic control is much the same as that for any other form of control—the protection of the majority against outrage committed by a minority. Controls limit human freedom and are consequently unpopular but to some extent are inevitable in civilized society. If developers could be relied on to erect beautiful buildings, or at all events, seemly buildings, aesthetic control could be abandoned. Likewise, if people could be relied on not to break the law, we could abandon the police force. Unfortunately this is a state of perfection we have not yet reached.

I would like to deal with all the 10 reasons given by Mr. Moro against aesthetic control, but to do so would take rather a lot of space. To my mind none of them are really valid if one gives the matter careful thought. To take one or two points at random however:—

"*It encourages uniformity and discourages contrast*": I think this is nonsense. All it does is to eliminate the obviously bad or the quite grotesque.

"*It usually discriminates against those who are exercising their traditional right of wanting to live in a house of their time.*" What utter nonsense. I think it extremely unlikely that any local authority would interfere with the design of a dwelling unless it was thoroughly bad or out of harmony with its surroundings. If it was out of harmony, then surely, from the planning point of view at all events, it could be regarded as a bad design and could justifiably be rejected.

"*It smacks of totalitarianism and is, in fact, a characteristic adjunct of such a form of government.*" I often think the parking regulations smack of totalitarianism, but actually they are the outcome of a democratic form of government. Likewise, aesthetic control is exercised in a democratic manner by a lay committee who have no axe to grind, and is the antithesis of totalitarianism.

As a member of a planning committee of a Local Authority, I feel very strongly on this matter and I would like to elaborate still further, but perhaps I have said enough.

WILLIAM RYDER.

London.

Curing Subtopia

SIR,—In your issue of February 6, ASTRAGAL asks "can architects *cure* subtopia." My answer is that under the present conditions of diversification of responsibility for all those features that result in subtopia, the architect far from being able to cure the situation can hardly hope to relieve the symptoms to any appreciable degree. First let me give my definition of what subtopia is. It is the visually discordant relationship of innumerable elements created by the modern civilization in which we live. How can the situation be solved? Before you can answer this you must first decide what is wrong that results in the consequences we see before us, and what you want to replace it.

What is wrong—suggestions:

1. Too many differently qualified people having a finger in the subtopian pie, *i.e.* engineers, planning officials, service companies, etc.
2. Our democratic system which allows snack bars, hoardings, fences, power lines, etc., to go up almost anywhere.
3. The low standard of taste, design sense and manners.

What do we want to replace subtopia?

1. Do you want to see nothing but contemporary design everywhere or do some people still have sympathy for good traditional work?
2. Do you want design at any expense, including some liberty? Can you obtain good design consistently without infringing on liberty of the individual? Have architects the right to dictate design standards as the fashion houses of Rome, Paris, London and New York dictate fashion to women?

After deciding the issues outlined, one can then formulate the method by which the problem can be solved or greatly alleviated. One must remember that subtopia cannot be solved by good design alone in the various elements which constitute it, any more than a housing development will be successful if the housing units themselves are the only part that are well designed. Success lies in the sympathetic relationship of all the parts, as subtopia is like abstract painting. It is not so much important what the various colours are but how they are placed in proportion and relationship to each other. It is this need for sympathetic overall treatment that I think is the most important aspect for the success of any scheme to solve the situation that is adopted.

N. SANDERS.

Toronto.

DIARY

Diploma projects by students of the Department of Town Planning at University College, London. (*a*) A design for a New Town of 100,000 people near Bletchley. (*b*) A plan for Newhaven. Chairman: Sir William Holford. At the HC, 13, Suffolk Street, S.W.1. 6 p.m. MARCH 18

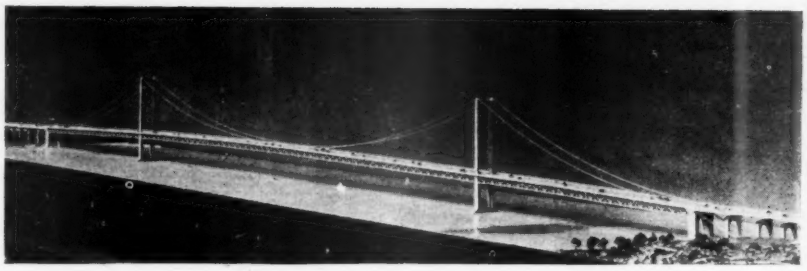
A Visit to Japan. Informal illustrated talk by Noel Moffett. At the AA, 34, Bedford Square, W.C.1. 6.15 p.m. MARCH 19

Pier Luigi Nervi—Constructor, Architect. Talk by Frank Newby, James Stirling and Peter Trench. Chairman: Edward Mills. At the ICA, 17, Dover Street, W.1. 8.15 p.m. MARCH 20

100 Years of American Architecture. Exhibition at the RIBA, 66, Portland Place, W.1. Monday to Friday, 10 a.m.—7 p.m.; Saturday 10 a.m.—5 p.m. Admission free. UNTIL MARCH 22

Domestic Building and Speculative Development. Talk by Eric Lyons. At the RIBA, 66, Portland Place, W.1. 6 p.m. MARCH 25

Economics of Construction. Talk by E. R. Parrinder. At the ISE, 11, Upper Belgrave Street, S.W.1. 6.30 p.m. MARCH 25



The latest model of the new Forth Road Bridge, above, reveals a pleasantly clean design, shorn of the massive castellated structures at the anchorages of the main cables which figured in the earlier design, published in the JOURNAL *a year ago. The engineers are Mott, Hay and Anderson, the consulting architect Sir Giles Gilbert Scott.*

THERMAL INSULATION

Draft Regulations for Industrial Buildings

Proposals for regulations to be made under the Thermal Insulation (Industrial Buildings) Act, 1957, are contained in a memorandum which has been circulated to organizations interested in the subject by the Ministry of Power. The Act applies only to new factories started on or after January 1, 1959, unless the Minister of Power appoints an earlier date, but it is hoped that the insulation of these buildings will encourage the owners of existing factories, commercial buildings and houses to follow suit. Organizations that might have an interest in the effect of the regulations are being asked to comment on the memorandum, published below, which summarizes the proposed regulations. Individual firms will not be consulted. No decision on the regulations will be taken until the comments of interested organizations have been fully considered, and it should not be assumed that the requirements under the Act will necessarily be those described in the memorandum, which is as follows:

Proposed standard

1. The purpose of Section 1 (1) is to prescribe a standard of insulation for factory buildings.

2. The standard of insulation proposed is that the roof of any building shall have: (1) Either, a thermal transmittance coefficient (or "U" value) of 0·3; (2) or, where the local authority is supplied with information enabling the rate of heat loss to be calculated, such thermal transmittance coefficient as will provide for a rate of heat loss through the roof not exceeding 12 B.t.u.'s per hour per sq. ft. of the roof area when the outside temperature is 30 deg. F.

N.B. (*a*) The thermal transmittance coefficient will be defined as the number of British thermal units transmitted per hour through 1 sq. ft. of the roof when there is a difference in temperature of 1 deg. F. between the air on the two sides of the structure.

(*b*) Section II of the Guide to Current Practice, 1955, published by the Institution of Heating and Ventilating Engineers, will be the standard reference for the purpose of determining the thermal transmittance coefficient of any structure.

(*c*) For the purpose of calculating the thermal transmittance coefficient the sum of the surface resistances will be 0·85.

(*d*) Rooflights or openings in the roof will not be required to conform to the insulation standard.

3. It should be possible to achieve economically a level of insulation equivalent to a "U" standard of 0·3 in most factory buildings. It is expected, therefore, that this standard, or a higher one, will be generally adopted.

4. However (subject to paragraph 5 below), factories need not be insulated to a higher standard than is shown in the following table, depending on the internal design temperature required:

Internal temperature deg. F.	*Maximum thermal transmittance coefficient*
70	0·3
65	0·34
60	0·4
55	0·48
50	0·6
45	0·8
40	1·2
Under 40	Any

5. The effect of the standard is that the higher the standard of heating provided, the higher is the minimum standard of insulation (and thus the lower is the "U" value) required. However, the local authority must be informed of the internal design temperatures, or that the building or any part of it is to be unheated, if the roof of the building or any part of it (excluding rooflights or openings) is to be constructed with a "U" value exceeding 0·3.

6. Examples of the effect of the standard are as follows: (1) In the case of the majority of factories, where the minimum internal temperature required is 60 deg. F. and the heating equipment is designed to provide that internal temperature, the roof insulation need not exceed 0·4. (2) Roofs of unheated buildings or roofs covering unheated portions of buildings need not be insulated. (3) Roofs of buildings whose original structure has a "U" value of 0·5 or 0·6 need not be further insulated if the internal design temperature is less than 55 deg. F. (4) Where factories are heated to different degrees in different parts of the buildings, the sections of the roof covering the different parts may have different "U" values.

Restricted materials and standard of resistance to spread of flame

7. The purpose of Section 3 (1) is to provide that local authorities shall reject plans involving the use of materials of the kind specified unless they are so manufactured, or combined with other materials, or treated, as to conform to the specified standard of resistance to the spread of flame, or unless they are so used that they will not increase the risk of fire spreading or breaking out.

8. The proposals are as follows:

(*a*) *Restricted materials.* The kind of materials proposed to be restricted will be those made of or containing any proportion of the following: (1) Cellulosic materials such as cork, eelgrass, flax, jute, cotton, straw, grain husks, paper, wood or fibre. (2) Animal fibres, such as hair or wool. (3) Rubber. (4) Bitumen, coal-tar, coal-tar distillates, pitch and blends of any of these materials. (5) Natural, semi-synthetic and synthetic plastics.

(*b*) *Standard of resistance to spread of flame.* It is proposed to adopt the British Standard 476: Part 1:1953, Section 2: *Surface Spread of Flame Test for Materials* as a basis for the regulations, and to specify as the standard the equivalent of Class 1 of the British Standard Classification.

Exempted classes of buildings

9. The purpose of Section 7 is to exempt certain classes of factories from the provisions of the Act.

10. It is proposed to exempt the following classes: (1) Boilerhouses. (2) Buildings or extensions in which the space heating is derived entirely from the manufacturing processes carried on therein.

11. Consideration would, of course, be given to any further suggestions by representative organizations for the exemption of other classes of buildings where it could be shown to be unreasonable to apply the proposed standard of insulation. There are, however, difficulties in framing regulations in general terms and any suggestions made should, if possible, be in terms of the type of manufacturing processes carried on, and the case for exemption should be applicable to the generality of buildings in which the processes concerned are carried on rather than to individual exceptional cases.

12. Individual buildings for which a case for exemption could be made will be dealt with on their merits by the local authority exemption procedure. Such exemptions will require the consent of the Minister of Power.

Date of operation

13. It is proposed that the regulations shall come into force as soon as they are made and shall apply to all factory buildings started on or after the date appointed in the Act, namely, January 1, 1959.

IPSWICH

Civic Centre Competition

A two-stage competition is to be held for a new civic centre at Ipswich. The premiums total £3,000. In the first stage six competitors will be selected, each of whom will receive a premium of £300 and will submit designs for the second stage, in which the premium for the winning design is £1,200. The assessor is S. Rowland Pierce. Conditions may be obtained from March 17. The last date for asking questions is May 9, and the latest dates for submitting designs are August 25, 1958 (first stage), and January 19, 1959 (second stage). Applications for the conditions (for which a deposit of 2 guineas is required) should be made to the Town Clerk, Town Hall, Ipswich, stating the applicants' registration or Architects' Registration Council receipt number.

THE Q.S.

A Practical View

A correspondent writes: J. T. A. Brooks—the Chief Quantity Surveyor of MOW—recently addressed a meeting organized by the Junior Organization of the RICS. His subject was "A Practical View of Quantity Surveying," and in common with other leaders of the building industry his chief theme was the closer co-operation of the professions. He told the large audience of quantity surveyors that whilst a very important service to the building industry was the production of accurate bills of quantities and final accounts, they should not fail to provide a general cost advice service to the architect. The quantity surveyor should make cost research his task; he should collect and study cost data and be equipped to discuss costs at the sketch plan and working drawing stages, and present the information in the form of estimates, cost plans or comparative costs as required. Turning to the subject of building contracts, Mr. Brooks reaffirmed his confidence in competitive tendering on "Trades" bills. Referring to other types of bills: he suggested that whilst the annotated bill was useful in small works, the large contract still needed an adequate specification written by the architect. He felt that the demand for the elemental bill was still insufficient for its general introduction. During the course of the contract the surveyor must furnish the architect with a record of the financial implications of his instructions; and here Mr. Brooks emphasized the need for accuracy in certificates and speed in the preparation of the final accounts. The large sum of money outstanding to building contractors at the present rates of interest are an additional burden on the industry and one that could be lessened by the positive action of quantity surveyors. Mr. Brooks also referred to the success of the firm price tendering policy.

In Brief

In an effort to raise the low standard of housing layout in Scotland a study group of the Scottish Branch of the Town Planning Institute, under the leadership of T. Findlay Lyon, is to meet at St. Andrews from March 24 to 27. Membership is limited to 20, and those interested should apply by March 18 to the organizer, Frank Tindall, County Planning Officer, County Buildings, Haddington.

The French "Académie d'Architecture" has elected Sir Howard Robertson as a Corresponding Member.

The Department of Extra-Mural Studies, Birmingham University, has organized a study tour of new churches in Northern France from April 14 to 24. The tour will visit many of the most interesting churches built in France since the war, and will take in some older churches of interest on the way. The cost is £35, and applications accompanied by a deposit of £3 should be sent immediately to the Department of Extra Mural Studies, The University, Edmund Street, Birmingham, 3.

The Saltire Society award for development and reconstruction has been made for work in Cathedral Street and The Square, Dunkeld, by I. G. Lindsay and Partners, and for work in the Canongate Tolbooth Area, Edinburgh, by Robert Hurd. This award was made neither for pure restoration of old buildings, nor for purely modern building in old areas, but for architectural groups which include both new building and at least one restored building of architectural merit, and these must include residential accommodation.

1958 is the year of the Triennial Award made by the Worshipful Company of Tylers and Bricklayers of Gold and Silver Medals to the Architect and the Foreman Bricklayer respectively of the building, completed within the last three years, and selected as the best example of the use of Brick and Tile in the London area, that is, within 10 miles of Charing Cross. There are no limits of size and type of building or of its architectural character but what is sought is the successful use of the traditional materials in present-day circumstances. The adjudicators are Sir Giles Gilbert Scott, Sir Edward Maufe, and Mr. R. H. Uren. Nominations accompanied by one photograph are invited by the Company and must be received by the Clerk of the Company, 6, Bedford Row, W.C.1, by April 28.

In January, for the first time since the war, the number of houses built by private builders in England and Wales exceeded the number built by public authorities. In Great Britain as a whole, owing to the higher proportion of publicly sponsored building in Scotland, public authorities are still building rather more than half. The detailed figures are: In England and Wales 9,055 houses were completed in January by private builders, and 8,981 by public authorities (8,643 by local authorities, 73 by housing associations and 265 by government departments). In Scotland 2,292 houses were built by local authorities and 250 by private builders, making the totals for Great Britain 11,273 by public authorities and 9,305 by private builders.

Heal's 1958 furniture collection includes sectional storage wardrobes and cupboards, above, designed by Christopher Heal on the modular system, using units of three widths that enable fitments to be assembled to any multiple of 4-in. over 32-in. Sides are not required between cupboards, and scribing pieces are used to fit intermediate dimensions. The chair, below, is by Martin Grierson.

COID

Kitchen Design

The place where bad design most affects the lives of people is undoubtedly the home, and more particularly the kitchen, from bad basic planning down to the kettle which squirts scalding water. At the planning end the architect—in that minority of cases where one is employed—can bring his influence to bear; much will then depend on his own skill in functional analysis, since there is in this country no fund of design data to draw upon. This is a sobering thought, especially when one considers the design data readily available on schools. A glance at the Housing Manual reveals the sad lack of knowledge of and interest in the planning problems which affect us most closely.

Meanwhile, in the commercial field the output of kitchen cabinets, cookers, sink units and storage gadgets continues to increase: there is never any lack of material to fill the "kitchen" pages of women's magazines. Although most of these products are badly designed, there are many which achieve a fair standard. Designed in isolation as answers to particular problems, they are mostly used in a haphazard way to bring some semblance of order to a corner of an otherwise disorganized kitchen.

The Council of Industrial Design is now showing an exhibition* of well-designed kitchen equipment centred on two "designed" kitchens; designed only in the sense that basic planning has been approached in an analytical way (with the assistance of Miss Joan Walley of the Council for Scientific Management in the Home), most of the equipment being chosen from the range of goods already on the market.

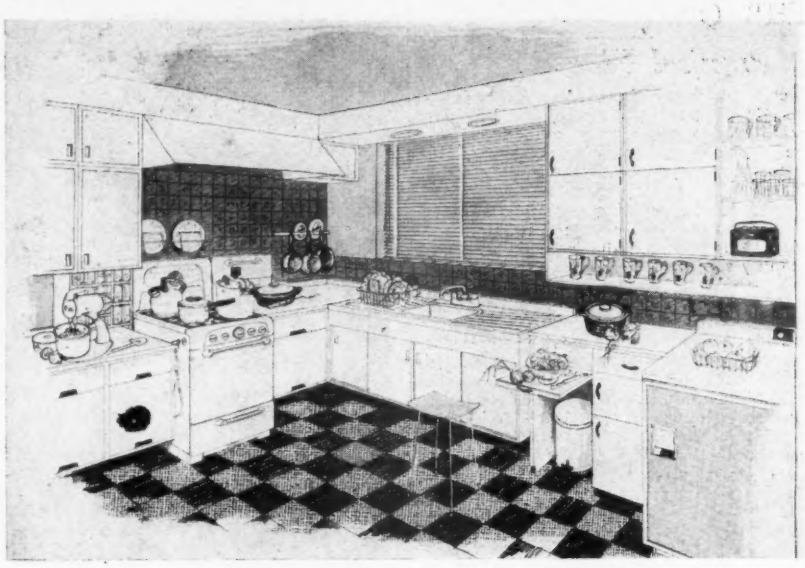
The first, kitchen A, is unashamedly "de luxe"; the designer, Ursula Bowyer, was given no budget limit and so the equipment includes a deep freeze and a heat pump while part of the kitchen is given over entirely to laundry work.

Kitchen B, designed by Jo Pattrick, is smaller and although no price limit was set, the brief envisaged a "professional" family with two children and an income of £1,200 to £1,500 p.a.

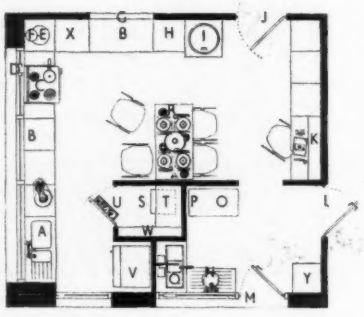
There are some shortcomings in the planning of both kitchens (neither, for instance, provides a real answer to saucepan storage), but the fault most in evidence is one over which the designers had no control: the equipment on the market is wasteful in space and so unco-ordinated as to make it impossible to assemble a whole kitchen without a good deal of "botching." Both designers say that, given a similar job in real life, they would have designed their own equipment; narrower shelves instead of the customary deep cupboards, a lower working top, and so on. The exhibition is therefore something of a challenge both to British manufacturers (the equipment is after all chosen from the best in the Design Centre index) and to the MOHLG, who should be giving a lead in these matters in much the same way as the MOE have given a lead in the design of school equipment.

A. FINLAYSON.

*Design in Your Kitchen, at the Design Centre. From March 4 to April 12.

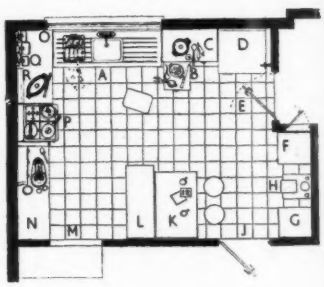


Above kitchen B, the "professional family's" kitchen at the COID, by Jo Pattrick. Below, the plans of kitchen B (right) and kitchen A, the unlimited price design by Ursula Bowyer.



KEY:
Kitchen A

A. Sink unit
B. Working surface
C. Cooker
D. Extract fan
E. Sink and garbage disposal unit
F. Boiling water heater
G. Service hatch
H. Refrigerator
I. Dish washer
J. Door to dining room
K. Desk, pin up board
L. Door to passage
M. Outside door
N. Sink
O. Washing machine
P. Ironer
Q. Tumbler dryer
R. Table
S. Cooled larder
T. Fridge heater
U. Vegetable storage
V. Deep freeze
W. Provision storage
X. Saucepan storage
Y. Broom cupboard



KEY:
Kitchen B

A. Sink, storage under
B. Vegetable storage
C. Working top surface
D. Refrigerator
E. Door to back entrance
F. Fuel and broom storage
G. Ironing board cupboard
H. Boiler
J. Door to dining room
K. Kitchen table
L. Crockery cupboard
M. Serving hatch
N. Working top surface
O. Working top surface
P. Cooker, extract hood over
Q. Saucepan storage
R. Side grill

PLASTERING IN U.S.

'Better Organization'

The urgent need to improve the planning of building operations so that plastering sub-contractors can be ensured of definite starting dates, and are allowed to carry out their work unimpeded by other trades, is one of the recommendations in the report on *Plastering In The United States*, by a team representing the National Federation of Plastering Contractors. The team was convinced that the greater efficiency thus secured would enable the plastering contractor's overheads to be curtailed, reduce his wasted man-hours to a minimum, and enable him to economize in other ways. Wages in America are four to five times greater than in England, but the cost of plastering work is only two to three times more, and the team believes that one of the chief factors producing this comparatively lower price is that the American plastering contractor has uninterrupted access to his work. In one project consisting of ten blocks of flats, 60 plasterers were working on one block, and no other trades were working in the block at the same time.

The other main reason given by the team is the higher productivity of the American plastering labour force, due partly to the greater use of mechanical appliances, and partly to the sustained effort which the men put into their work, uninterrupted by tea breaks. Every minute of the working day is spent in actual work. The American unions, it is said, appreciate the need to maintain high productivity more than their British counterparts, while the American worker is spurred on by the existence of sufficient unemployment to make it necessary for a man to work hard to retain his job. The team in fact reported that in Chicago about 25 per cent of the plasterers were unemployed: this being attributed to the high cost of plastering, the increased use of dry construction and the high degree of mechanization. One large contract consisting of 27,000 sq. yd. of ceiling plastering was being carried out by only five men, was completed in 10 weeks, and had been applied entirely by machine.

On the technical side the team was particularly impressed with the growing use of expanded metal lathing and vermiculite plaster in place of concrete for encasing steelwork as a means of fire protection on all kinds of buildings.

CRITICISM

The architects reply

Last week we published an article by J. M. Richards on the Fison's Research Centre at Levington. Below is the reply by Johns, Slater and Haward.

The first point calling for comment in J. M. Richards's criticism of the Research Station at Levington, is his reference to the grouping of the buildings as lacking any obvious functional relationship other than provision for future development. We should like first to enlarge on the aspect of future development, which is especially important in a project of this nature. The general functions of Fertiliser Research fall naturally into three groups, basic research, development of laboratory ideas into terms of industrial process, and trials by application to actual plants in pots, plots or fields. Each of these functions is allocated to a zone in the layout of the site. The location of the first buildings in each of these zones is such that, as Mr. Richards points out, almost unlimited development is possible in the future in each zone independently or all together. To provide for such development in three separate directions with the existing approach road as a fourth in itself establishes the main lines of the plan. This was only accepted, however, after it had been found by detailed examination that other essential functions of the group would also be fulfilled by this arrangement. For instance, the laboratory zone and the process zone are adjacent so that they may share the service yard for the intake of stores and vehicles between them. The greatest demand on the output of the power house comes from the general laboratories and the process laboratory and this is consequently located between them. Although the sequence of development tends to run from laboratory to process to pot trials, there is also some direct traffic from the laboratory block to the latter building, and the element of cross traffic is not of a major character.

As Mr. Richards points out, the fulfilling of all these conditions results in the main laboratory block facing nearly due north and south. This is admittedly not the aspect which would be chosen if no other conditions had to be fulfilled. The need to maintain even and controlled conditions of light and temperature in the laboratories was fully appreciated and special steps were consequently taken by the provision of double glazing throughout, the provision of venetian blinds to control sunlight, the positioning of fluorescent lighting to balance daylighting, and full air-conditioning. We are not aware of any difficulties arising on this score in practice.

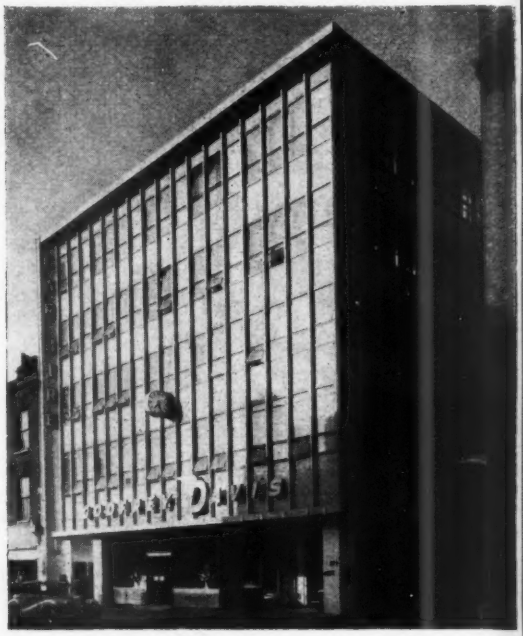
We are rather surprised at Mr. Richards's amazement at the amount of space allocated to the provision of services and plant in a building of this description. We certainly do not take the view that this is excessive, in fact, there are places where it has been found to be distinctly cramped. Of course, a certain appearance of excess occurs in some places, such as the vertical corridor cupboards, where provision has been made for future pipes and ducts which will be needed if laboratories are ever re-arranged or equipped to their maximum. One has to pay with space if one requires full future flexibility of services. The amount of space required also relates, of course, directly to the number of different services to be provided, and it will be seen from the plans and descriptions given in last week's JOURNAL that these are very full in this case. At the National Chemical Laboratories at Teddington, a single storey of laboratories is served by a whole floor of plant above and quite a deal of space also under the floor. Undoubtedly the provision of such vast volumes of servicing space makes the provision of fully equipped laboratories extremely expensive. This indicates that promoters should make quite certain of their actual needs for particular services before instructing their architects and consultants. Quite often it is possible to operate with small localized plant in lieu of continuous provision throughout the buildings.

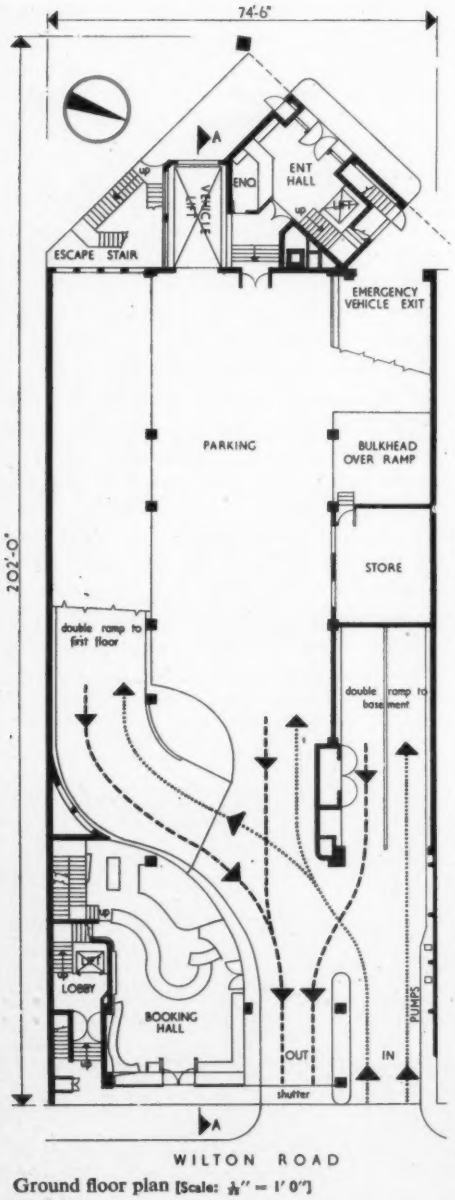
We made a mistake in taking Mr. Richards where he could see the water lying on the flat roof over the entrance canopy. Unfortunately, our clients see this continuously and it worries them, too. Of course, there is no harm in water lying on a flat roof, but we admit that it is an error to allow this to happen where it can be seen.

The Laboratory and administration block from the south.

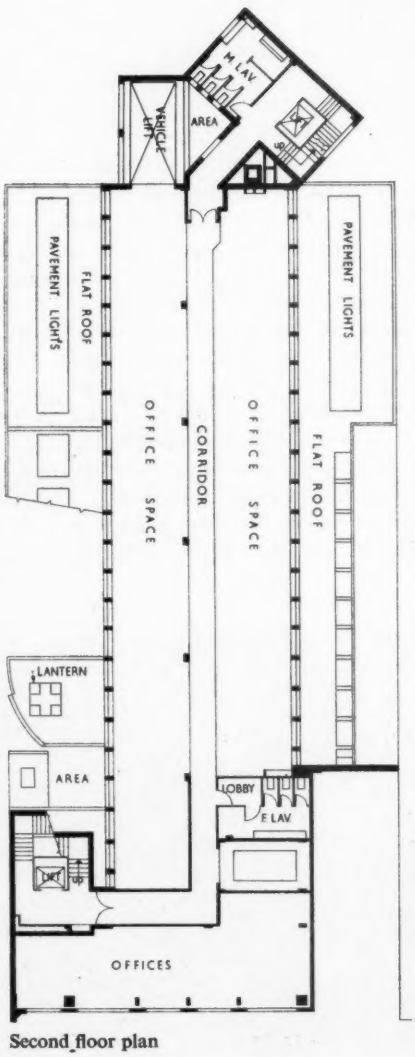
CAR HIRE HEADQUARTERS AND OFFICES IN WILTON ROAD,

This six-storey block of garages, with offices above and ancillary workshops, recently completed as the London headquarters of a large car hire firm, Godfrey Davis Ltd., was designed by Wallis, Gilbert & Partners (partner-in-charge D. J. Wallis, assistant A. J. Hewitt), who have dealt with a number of inter-related problems presented by the site, and the client's requirements. The picture on the right shows the elevation to Wilton Road. On the right is the recess between the new and existing properties where the double lane entry roadway and the petrol filling station are located (the deflection canopy of the filling station can just be seen). The exit roadway is under the building with next to it the glass-fronted booking hall. On the extreme left is the entrance to the lettable office space over. The curtain wall cladding can be cleaned from cradles carried by the rail fixed under the eaves. Water running down the façade is collected in the large

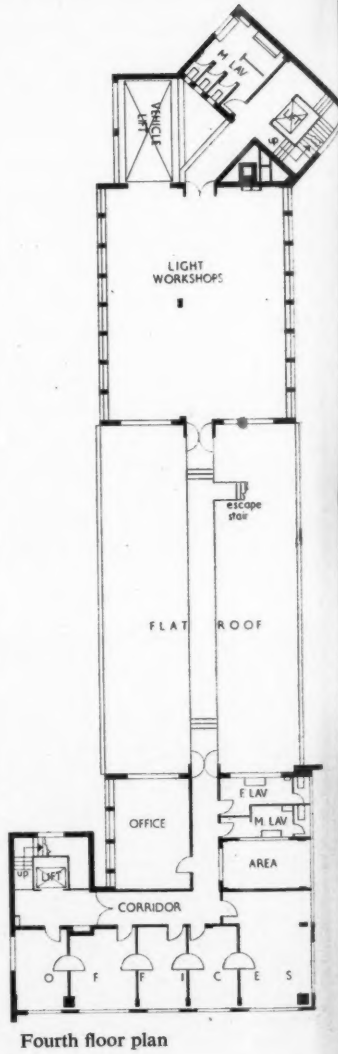




Ground floor plan [Scale: 1/8" = 1' 0"]



Second floor plan



Fourth floor plan

AD, LONDON S.W.1

steel gutter at first floor level. Below is a view from the inside of the booking hall looking towards the vehicle exit roadway, on which a car is parked. The stallboards beneath the main windows are concrete-cased ventilation ducts to the basement accommodation below. The floor finish is terrazzo; the ceiling consists of perforated metal trays painted light blue and with heating pipes behind. The glazed screen is fire-resisting (to comply with by-laws) and

beyond—separating the exit roadway from the car entrance with its petrol station—are steel roller shutters. Below: the booking hall seen through the fire-resisting glazed screen from the car parking area on the ground floor.

On the right is the ramp up to the first floor. Cars arriving in the basement can either pass over the inspection pit (on the left of the photo below) or by-pass it, going through to the parking and washdown area beyond.

analysis

CLIENT'S BRIEF

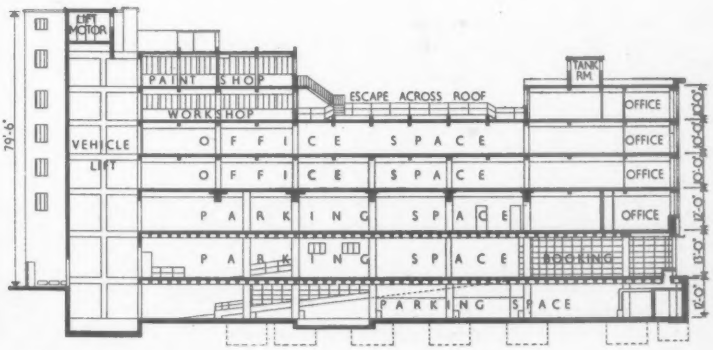
This building is illustrated neither for its technical innovation nor its aesthetic merit, but because it is a satisfactory answer to the simultaneous demands of a complicated clients' brief, exacting by-laws, and a restricted site. The clients, Godfrey Davis Ltd., required the following accommodation: (*a*) a private petrol filling station, (*b*) a booking hall for self-drive hire and another for chauffeur-driven, (*c*) a quick-service car washing, valeting and greasing section, (*d*) as big an area as possible for parking cars awaiting hire, (*e*) a body-repairing and cellulose paint-spraying workshop, and (*f*) a large area for letting as private offices.

SITE

The site is 13,840 sq. ft. in area, with a frontage of 75 ft. to the west side of Wilton Road, and at the rear a frontage of 50 ft. to Hudson's Place, a private road which may only be used as an emergency exit. As might be expected, the site is surrounded by old properties; three storeys on one side, five on the other.

PLAN

It will be seen that four of the clients' main requirements had to be immediately adjacent to Wilton Road. The first and most obvious of these is space for cars to pass in and out of the building, and the second—directly related to this—is the petrol filling-station, which must of by-law necessity be in the open air. Therefore, the right-hand side of the building on the ground floor is allocated to two double-lane roadways, one for incoming and one for outgoing cars. Incoming cars re-fuel at the petrol filling-station which had, if valuable space was not to be lost, to be placed on the site boundary. From here cars pass either down a ramp to the basement or cross over the outgoing traffic lane to a second ramp on the other side of the building, which leads up to the first floor. These two ramps (the width of which is governed by the requirement of two traffic lanes) being placed on either side of the building, automatically position the main structural spines which carry on up above the first floor to form the walls of the second and third floors where the building stops to comply with light-angle requirements. The third of the requirements which must be adjacent to Wilton Road is the customers' booking hall which gives onto the outgoing traffic lane so that cars can be boarded under cover and also provides something of a prestige shop front. It is linked to the administrative offices by a steel private stair. The fourth is the entrance hall to the offices on the upper floors, which were required to be entirely independent from the rest of the building.

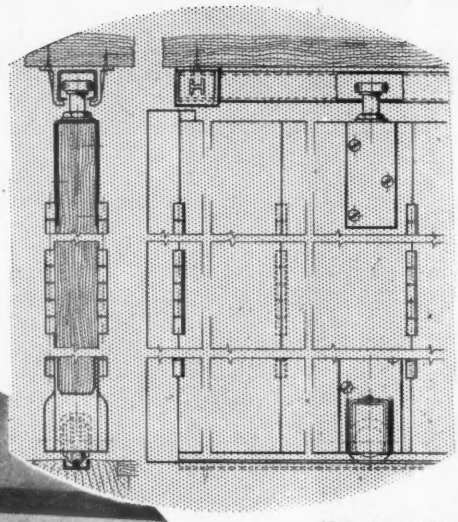


Section A-A [Scale: $\frac{1}{16}$" = 1' 0"]

'COLLEGE'
FOLDING PARTITION GEAR

For either *End*-fold or *Centre*-fold leaves
Weight on floor

'College' Rollers for medium weight screens up to 10 ft. high. Max. weight per leaf, 100 lbs.
'College' Heavy Duty Rollers for screens up to 15 ft. high, leaves weighing 130 lbs. Ball bearing precision mountings, neat B.M.A. finish, quiet in action. Floor Rail can be walked or danced over. Top Guide Channel has safety lips. Simple to understand and fit.
Drawing Office Trained Technical Representatives wait upon Architects anywhere and will if required visit the builder on site. First class joinery and economy in fixing is within the scope of any competent joinery shop.



Mathew Arnold School Staines.
Architect: Middlesex County Architect.
Contractors: W. S. Try Ltd.

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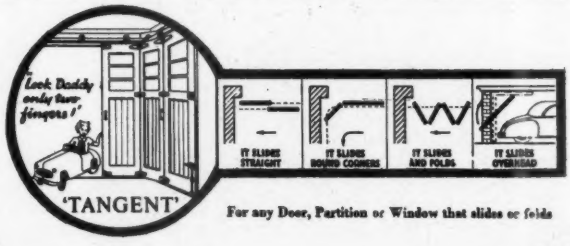

For any Door, Partition or Window that slides or folds

205/H95

CAR HIRE HEADQUARTERS AND OFFICES IN LONDON, S.W.1 continued

Above: a view of the main parking space and the washdown area with automatic equipment in the basement. Water passes through the checker plates, is collected into drains and passes on through petrol interceptors. As the basement level is well below sewer invert the effluent is pumped up approximately 13 ft. before being discharged. The whole of the basement area is fitted with mechanical extract plant giving four air changes an hour. The coffered ceiling structure is of reinforced concrete cast in situ, and is used as the load-bearing element throughout the building.

Above, a general view of the light workshops on the fourth floor. To increase thermal insulation the whole building is equipped with double glazing. Heating is by low-pressure hot water with cast-iron radiators in offices, booking hall and blown air unit heaters in the basement, ground and first floor parking areas. The boiler room is in the basement and contains three c.i. boilers each of 986,000 B.Th.U. burning 200-second fuel oil. Radiators are recessed and fitted with mild steel grilles with access for hand control and drain valve. The quantity surveyors were A. E. Thornton Firkin and Partners; the general contractors were George Wimpey & Co., Ltd.

analysis

The basement receives incoming cars passing down the ramp from the ground floor, which is mechanically ventilated and given over largely to light maintenance, washdown and car storage. Underneath the down ramp the petrol storage tanks are contained within a chamber with massive concrete walls. The use of a basement introduced a complication, in that the main sewer was well above basement level, thus necessitating pumps to discharge effluent. Drainage sumps are contained in a sub-basement. The west end of the site is triangular and into this area the architects have ingeniously packed a number of small rooms, the boiler house and flue, service ducts and a 2½-ton lift for vehicles which had to be in the open air. Under this area there is a further sub-basement containing a further 10,000-gallon water tank as a secondary supply to the sprinkler and drencher systems with which the building is equipped throughout.

On the ground floor, apart from those functions already described, there is at the rear of the building the booking hall for chauffeur-driven cars, which has pedestrian access from Hudson's Place. This booking hall also provides entry to a further lift shaft and staircase serving the floors above. The petrol station is contained in a recess formed between the new building and the existing next-door property; by-laws required the first and second floor walls overlooking it to be of 6-in. r.c. without apertures. Those windows of the adjoining property which overlook the petrol station had also to be replaced with new fire-resisting sashes and glazing and fitted with petrol fume deflecting baffles to protect opening lights. Further protection is given to this property by a concrete canopy acting as a deflector over the filling station. The station can be cut off from the rest of the new building by three fusible-link and electrically-controlled roller shutters, which are required to be shut when petrol tanks are being filled.

The first floor is given over to car storage and a block of administrative offices fronting on to Wilton Road. All the garage areas are provided with a four-hour standard of fire resistance, with a two-hour standard in the office areas. Second and third floors provide about 12,000 sq. ft. of lettable floor space, while on the fourth floor (considerably reduced in size because light angles at this height permit development at site frontages only) there is a suite of executive offices for Godfrey Davis Ltd. on the Wilton Road frontage, and a light vehicle workshop on the Hudson's Place frontage. This and the paint spray workshop over it are connected to the parking areas by means of the vehicle lift. The paint spray workshop is provided with mechanical forced air ventilation.

SUMMARY

The architects received their brief late in 1951, the job was begun in May 1954 and completed in January, 1957. The final cost is estimated to be in the region of £286,000. The total floor area of the building is 54,300 sq. ft.

CONTRACTORS

General contractors: George Wimpey & Co. Ltd. *Sub-contractors: Heating, mechanical ventilation:* H. W. Dutton & Co. Ltd. *Electrical works:* Rashleigh Phipps & Co. Ltd. *Windows:* Aygee Ltd. *Lifts:* Hammond & Champness Ltd. *Booking halls and roller shutters:* Haskins. *Wood block floors:* Horsley Smith & Co. Ltd. *Reinforcing steel:* Liversedge Reinforced Concrete Co. Ltd. *Steel partitions:* Art Metal Co. Ltd. *Fire appliances:* Mather & Platt Ltd. *Petrol tanks:* Wayne Tank Co. Ltd. *Sanitary goods:* John Bolding Ltd. *Internal telephones:* General Telephone Co. *Terrazzo:* Art Pavements Ltd. and Camden Tile & Mosaic Co.

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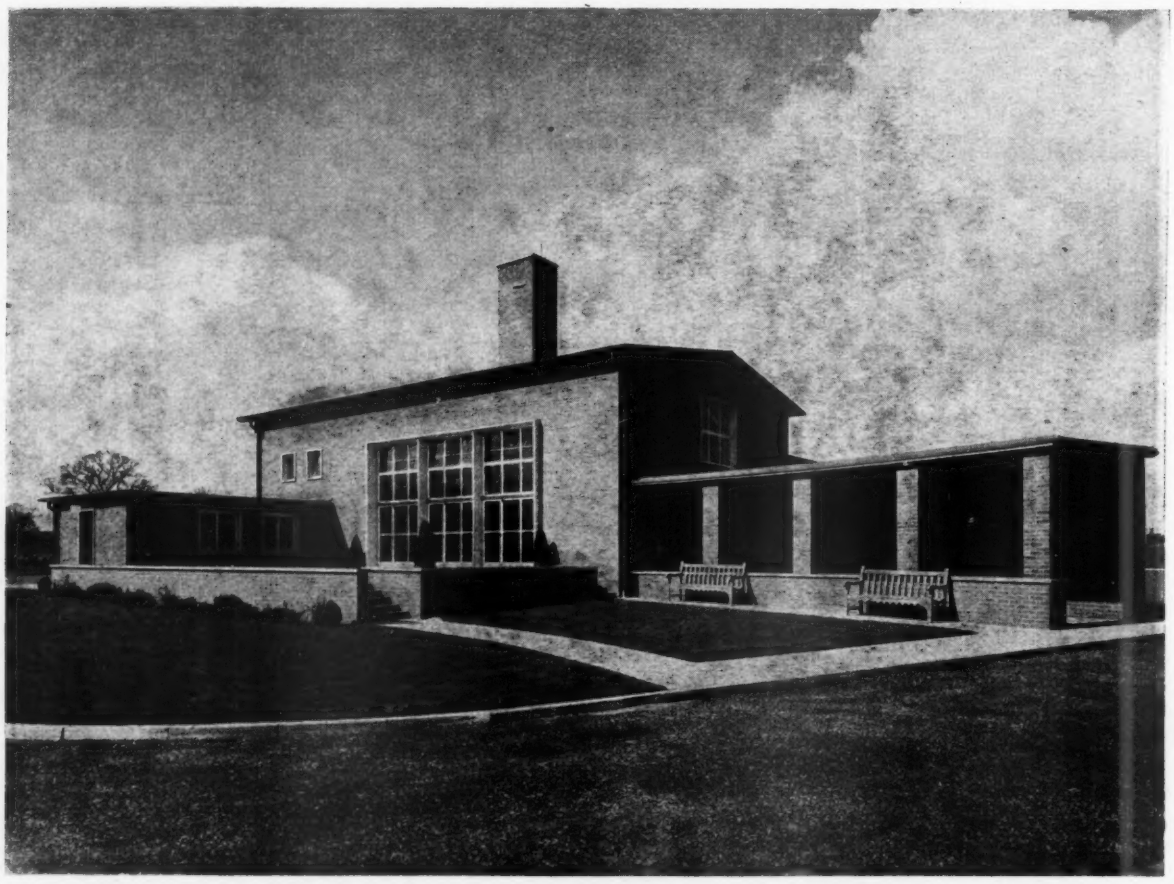
. . . . add the charm of colour to every building



MARKEATON CREMATORIUM, DERBY

For the County Borough of Derby.
Borough Architect: THOS. W. EAST, F.R.I.B.A.
Bricks: 2⅝" BUFF MULTI-RUSTICS.
Contractors: Messrs. FORD & WESTON Ltd., Osmaston Road, Derby.

This modern building is faced with Buff Multi-Rustic facing bricks. Supplied in a number of attractive colours, Ibstock facing bricks are being specified by Architects everywhere.

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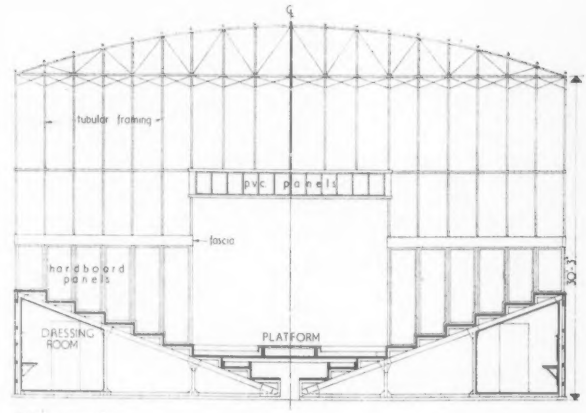
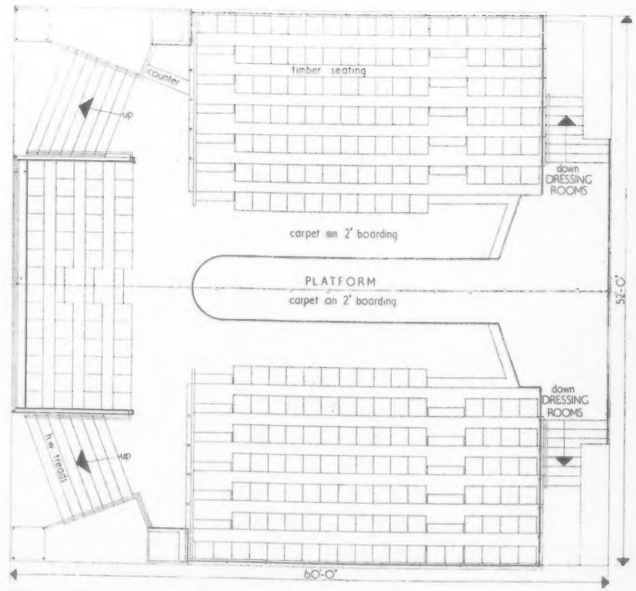
FASHION THEATRE AT THE IDEAL HOME EXHIBITION, OLYMPIA



Cross section

The gilded birdcage structure shown in the photographs on this page is a temporary fashion theatre at the Ideal Home Exhibition for Odham's Press Ltd. Models ascend to the T-shaped stage by stairs from the dressing rooms beneath the raked seating. The structure consists of a $1\frac{11}{32}$*-in. steel tube framework suspended by tension wires from the roof of Olympia; it is painted gold and laced with white p.v.c. cord. The theatre was designed by Guy Shepherd, the architect in charge was John Macalpine; General contractors, Olympia Ltd, sub-contractor for super-structure, The Mills Scaffold Co. Ltd., who prefabricated and erected it.*



Floor plan [Scale: $\frac{1}{16}$" = 1' 0"]

technical section

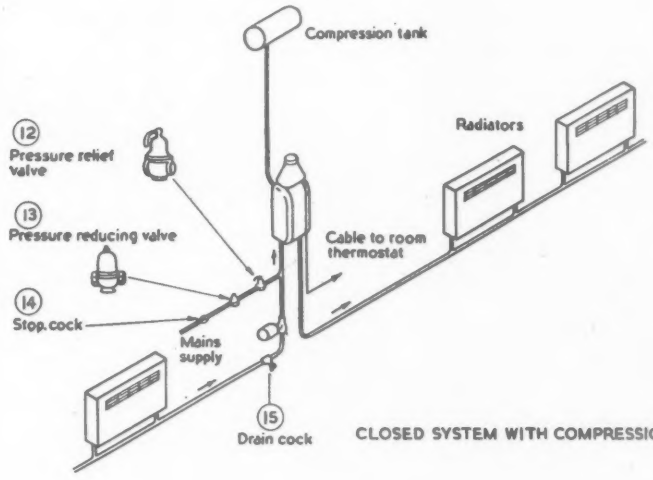
THE INDUSTRY

This week Brian Grant devotes his column to a review of heating and cooking appliances on view at the Ideal Home exhibition at Olympia.

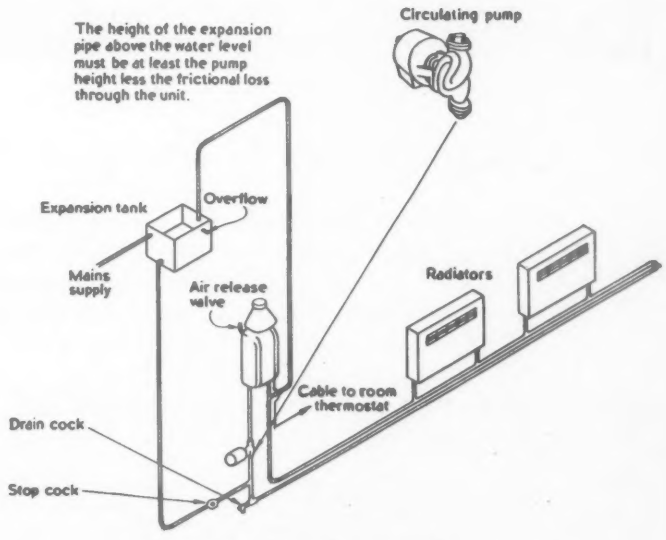
Several of the gas and electric cooker manufacturers have, as in the past years, kept a new model up their sleeves for the Ideal Home, and this year the Gas Council, at their preview, also showed six or seven "appliances of the future" which were by no means designers' electronic dreams but prototypes of models which should all, most probably, be available to the public by next year's show. One at least is on show at Olympia and is said to be "available shortly."

One very interesting development in the heating section is the use of a slightly modified Ascot instantaneous water heater to provide central heating and also, if necessary, domestic hot water. The idea no doubt sprang from the current habit of using small diameter pipes and an accelerator pump, and the Ascot (known as the type 726) works on the same principle, the circulating pump being controlled by the room thermostat, which also operates the gas supply through a magnetic valve. The return flow from the radiators is taken to the inlet side of the heater which becomes, in effect, a thermostatically controlled gas boiler. If domestic hot water is needed as well, the supply can be provided in the usual way with a calorifier.

Heat output is 67,000 B.t.u. per hour, and the recommended water circulating temperature is 150 to 200 degrees F. according to the type of radiator surface used. Modifications to the existing multipoint heaters are comparatively small, the bi-metal strip which cuts off the main gas supply being changed for a thermocouple which cuts off *all* gas, pilot included; this is apparently essential for the American market, where Ascots have already sold a considerable quantity. Cost, with the necessary controls and circulating pump is £86, and a clock control is available as an extra to reduce the heat setting during the night. Running costs are naturally difficult to estimate, but these heaters are being installed in some flats for St. Pancras Borough Council, where space heating and hot water for 864 sq. ft. is thought likely to cost about 25s. per week. (*Ascot Gas Water Heaters Ltd., North Circular Road, London, N.W.*10.)



CLOSED SYSTEM WITH COMPRESSION TANK



OPEN SYSTEM WITH EXPANSION TANK

Ascot central heating installations.

They've got it there, we can have it here!

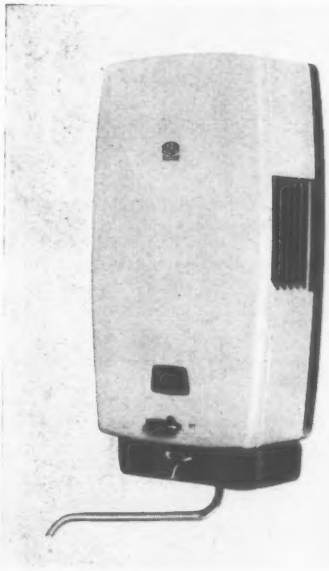
Scene in a Canadian Home—time, mid-winter. Double-glazed windows are a recognised feature of every modern home in Canada and the United States. That's why they're always cosy and warm while we shiver in a much less extreme climate and waste our costly, precious fuel in trying to combat our bitter brand of penetrating cold. The effective way of increasing winter warmth and cutting rising fuel bills, is to fit Pilkington's

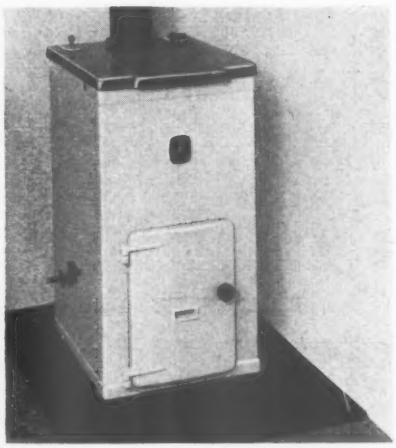
'INSULIGHT' DOUBLE GLAZING UNITS

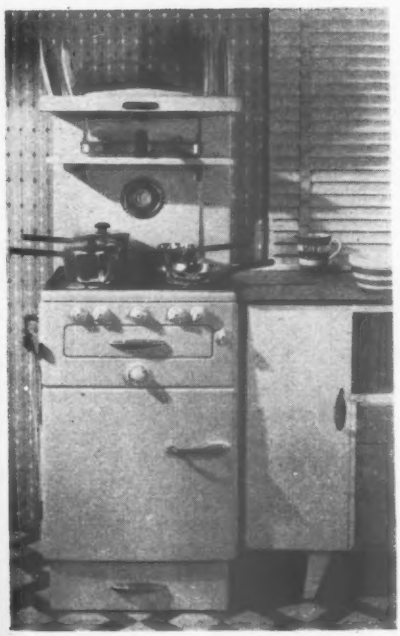
Write for full details to Pilkington Brothers Limited, St. Helens, Lancs. (Tel: St. Helens 4001) or Selwyn House, Cleveland Row, St. James's, London, S.W.1. (Tel: WHItehall 5672-6).
Supplies are available through the usual trade channels.

'INSULIGHT' IS A REGISTERED TRADE MARK OF PILKINGTON BROTHERS LIMITED

technical section







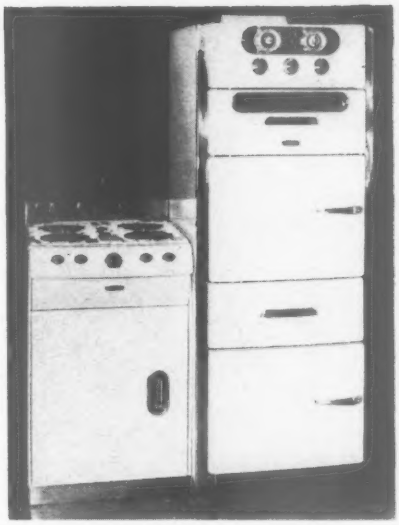
Left, top to bottom: the Triton water heater by R. & A. Main; the Tayco 40R solid fuel boiler; the Newhome X7 gas cooker by Stoves Ltd.

R. & A. Main (48, *Grosvenor Gardens, S.W.*1) have a new Triton water heater which can be installed either as a multi-point or as a single or twin point swivel-spout model in the bathroom. A minimum water head of 7 ft. 6 in. is required and the output is 2½ gallons of water per minute raised 40 deg. F. Finish is white or cream vitreous enamel with a black base and side vents. Price is £32 12s. 4d. including purchase tax. Twelve-, 18- or 24-in. throw swivel spouts can be supplied.

Taylors have a new type 40R solid fuel thermostatically controlled boiler which will supply a 30-gallon cylinder and will also heat 60 sq. ft. of radiating surface and a towel rail. It has a shaker grate and costs £41 10s. (*Robert Taylor & Co. Ltd., Muir Hall Foundry, Larbert, Stirlingshire.*) There are also some new oil-fired Trianco models in various sizes with outputs in the domestic range as well as for industrial use. (*Trianco Ltd., Imber Court, East Molesey, Surrey.*) Price reductions of up to £20 are to be noted in some of the larger *Potterton* (20-30, *Buckhold Road, London, S.W.*18) gas-fired boilers, a more than welcome change when almost everything goes all too regularly the other way.

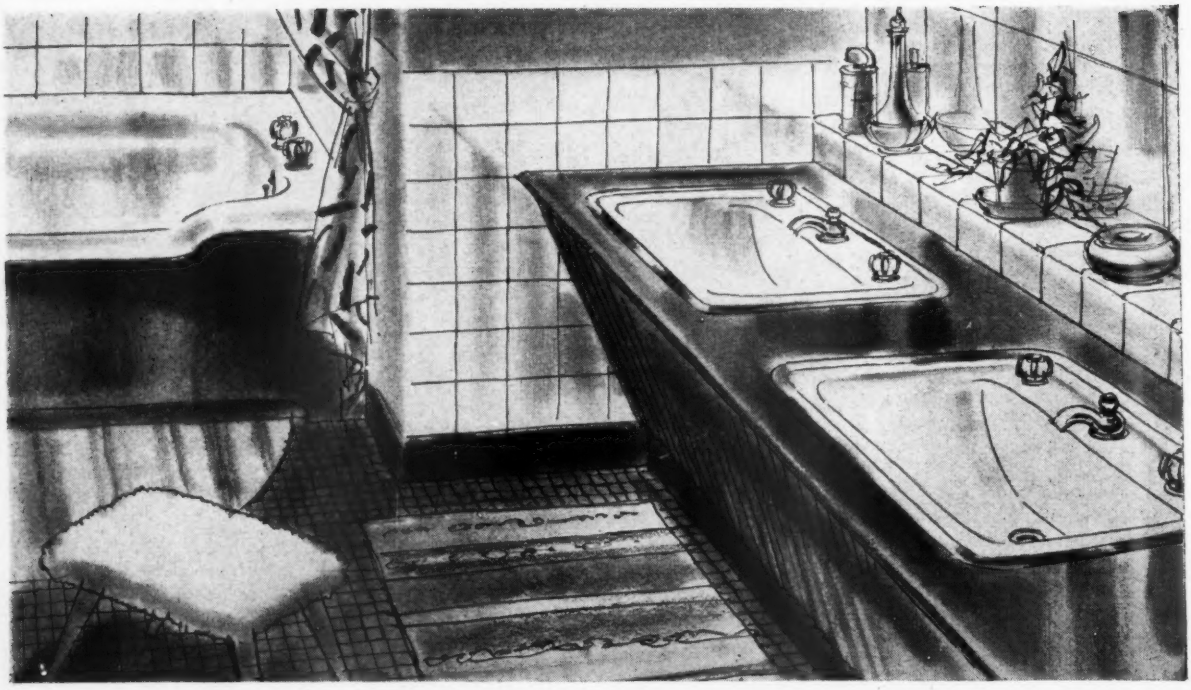
Cooking and other kitchen equipment, both gas and electric, is, as always, at the Ideal Home, quite a major part of the show. In the electricity section the *GEC* (*Magnet House, Kingsway, W.C.*2) were showing a new Supreme cooker with the now usual eye-level grill and automatic timer devices. and with either three or four hot plates at prices of £74 and £79. The oven has been moved up in the space left by the high-level grill, and this leaves room for a warming drawer at the bottom. Standard finish is white or cream, with three colour choices for the switch panel. The *Jackson Electric Stove Co.* (*Dallow Road, Luton, Beds*) are showing a new Model 396 at £70. This again has the eye-level grill and automatic timer and an inner glass door to the oven. This model incidentally has a light wire frame which slides in at the very top of the oven and carries a sheet of aluminium foil which catches the fat spattered from joints and can be easily slid out for cleaning, a very much simpler process than cleaning the roof of the oven itself. Jacksons have also been producing, for some considerable time, separate ovens and griller hotplate combinations which can be used in different parts of the kitchen if required, standing on a cupboard work top, and they are also useful in small restaurants or hospital ward kitchens. Several of the manufacturers in the gas industry have also been doing the same thing.

Right, top to bottom: the Flavel Spacemaster gas cooker; the mighty Atom gas cooker by Cannon Ltd.; the GEC Supreme electric cooker.



Streamlined

for modern bathrooms



Braemar hand-basins

are the latest 'drop-in' fittings. Modern bathroom design often calls for a cabinet to be fitted along the wall, with a hand-basin let into the top surface. The Braemar has been produced with just such an idea in mind.

It has a flat rim, which means it can be dropped, simply and easily, into any cabinet, counter or worktop. Twin basins, too, are becoming increasingly popular. And more especially those of the 'drop-in' type, like the Braemar.

Smart and attractive. The Braemar's streamlined shape is handsome, up to date, and together with a gleaming porcelain enamel finish makes the basin very easy to keep clean.

The Braemar comes in colours, either to match or contrast with the bath—match perfectly, too, because the Braemar is made, like the bath, of enamelled cast iron. And a Braemar looks equally well in a bedroom or dressing room.

Hardest wearing of all. The Braemar, being cast iron, is the strongest type of basin possible, and the porcelain enamel finish can take a lifetime of hard wear.

Overall size: 22″ x 18″ wide
Bowl: 19½″ x 12″ x 6½″ deep

Fittings available: An aluminium frame that will make an extra-neat joint between basin and counter-top; either a ½″ Merton Combined Hot and Cold Fitting with a 1¼″ pop-up waste, or ½″ Pillar Taps with plug and chain; a separate overflow if required.

For full details of the Braemar Hand-basin write to the Housing Division of:

ALLIED IRONFOUNDERS LTD

Makers of cookers, boilers, fires and baths

28 BROOK STREET · LONDON · W.1

technical section

There are also several new gas cookers, though some of them (*e.g.* by Radiation) have already been described in these notes. Automatic lighting of ovens by time switches is growing, the industry having apparently made up its mind to admit the existence of electricity. Of the models currently available the Auto-Range Mark II (*General Gas Appliances, Corporation Road, Ardenshaw, Manchester*) is fully automatic and has a slip-out oven top for easy cleaning, and also a door-controlled oven light in which the lamp is kept relatively cool and is also easy to replace. Price is £73 16s. and there is also a strip light over the hotplate.

Among the "not yet availables" the largest is Flavels £140 Spacemaster (yet *another* "Master") (*Sidney Flavel & Co. Ltd., Eagle Foundry, Leamington Spa*) with the hotplate unit on top of a storage cupboard and a separate cabinet for time controls, eye-level grill, oven, warming drawer and more storage. The grill has a door with a glass window so that you can watch the food and avoid the (eye-level) spit. At the other end of the scale is the Mighty Atom by *Cannon (GA) Ltd.* (4, *Park Lane, W.*1), a two-burner model with a combined grill and oven, the grill burner being removed when the oven is to be used for roasting and an interlocking device to prevent both burners from being used together. Price is £22 10s. 6d., and other models are fitted with a high-level fold-away grill. The Newhome X7 is a conventional type by *Stoves Ltd. (Rainhill, Liverpool)* at about £38, and has the usual clockwork escapement timing bell which can be set to ring at the end of any required cooking time.

CLASSIFICATION FOR TECHNICAL ARTICLES AND INFORMATION CENTRE

1 Sociology. 2 Planning; General. 3 Planning: Regional & National. 4 Planning: Urban & Rural. 5 Planning: Public Utilities. 6 Planning: Social & 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. 28 Miscellaneous.

INFORMATION CENTRE

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

9.65 design: general

DESIGN OF SHADING DEVICES

Solar Control and Shading Devices by Olgyay and Olgyay. Princeton University Press. (London: Oxford University Press. £5.)

Factual information on environmental control is still seldom available in a form which makes the architectural implications immediately obvious. The Olgyays have, however, provided both facts and architectural principles. Their book collects and amplifies a good deal of their research which was previously only available in magazine articles and further illustrated it with 100 pages of photographs of sunshading devices. The information is of interest to all architects seriously concerned with visual comfort even if they are building in the seemingly sunless English climate. Glare needs to be controlled in this country, for example, so that the devices do not obscure the sun when wanted. The geometry of such control devices can be arrived at extremely easily by means of the sunshading charts described in this book. They are a design tool as necessary as a daylight protractor. The book shows the various forms shading devices can take and explains by means of diagrams the method of design. The process is extremely simple and does not involve the laborious model building necessary with heliodons. What is more, the shading device can be designed accurately so that it will assume the most economical form.

For those interested in the intricacies of æsthetic development in present-day architecture, the photographs provide, incidentally, an excellent catalogue of the vast range of expression possible in an architecture of depth.

20.236 construction: complete structures

LIFT SLAB TECHNIQUE

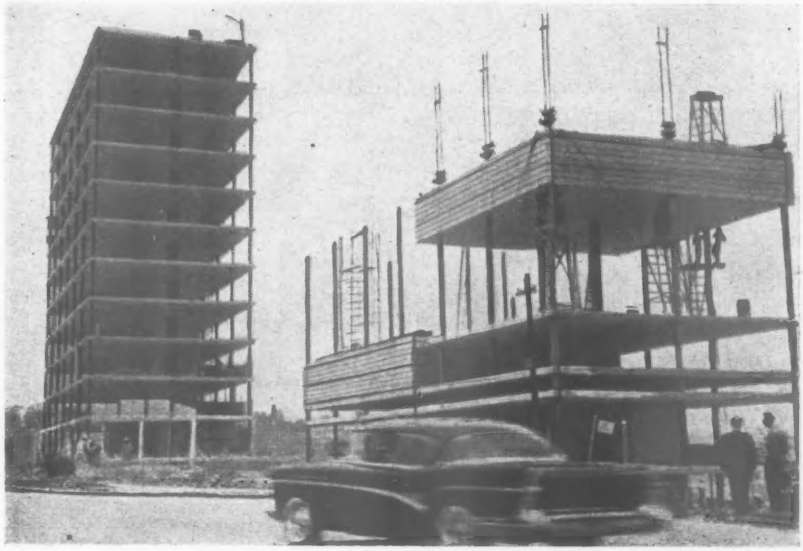
Mexican builders set lift slab mark. (*Engineering News Record* [U.S.A.], pp. 67-68, November 7, 1957.)

Tallest concrete lift slab building to date, of interest to architects and engineers.

This latest example of lift slab technique is in Mexico City and rises 101 ft. with 11 stories as part of $5 million luxury apartment development. The usual box columns are used and are varied in weight higher up the building, but the outer dimensions are maintained to ease the problems of jacking. Plan dimensions are 39 ft. by 112 ft., the slab being raised in two portions 64 ft. and 45 ft. long, respectively, with a 3 ft. *in situ* joint after jacking. The column grid is about 18 ft. by 18 ft. and slabs 10½ in. thick were lightened by providing voids by using paper tubes.

The columns were in five sections. After the lowest sections had been erected all the slabs except those to be permanently connected to these sections were hoisted to the top four at a time and temporarily supported by shear pins. Then the remaining slabs were raised to their permanent position and the supporting collars welded to the columns. Next, the second tier of columns was butt-welded to the first and the whole operation repeated until the final column lengths and slabs were in position. Stability is provided by *in situ* concrete lift and stair walls and these were concreted in soon after each column length and lift was completed. Further temporary bracing was provided by guy wires. It is interesting to note that the building was not damaged by the 1957 earthquake.

Lift slab technique used in eleven stories in Mexico City.



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technical section

18 CONSTRUCTION: THEORY
plastic theory of steelwork design : 1

In recent years, a new method of design for structural steelwork has been developing. This, known as "Plastic Theory" as distinct from the familiar "Elastic" method, can produce economies and certainly offers a logical basis for design. We have therefore asked a structural engineer, B. E. S. Ranger, A.M.I.C.E., A.M.I.Struct.E., to give as simple an explanation of its nature and scope as the subject itself will allow. This he has done in two articles: in this, the first, he reviews the gradual development of theory and practice in steel design, explaining how plastic theory came about. Next week, he will describe the fundamentals of the theory itself, illustrating its use and present limitations.

Plastic Theory is a method of analysis used for determining the magnitude of the load at which failure of a structure would take place. It can thus be used as a basis for design using required factors of safety and as an alternative to a "working load and working stress" method. The method is of particular value in frames in which the connections can be regarded as "fully rigid" (*e.g.* welded) and advantage can be taken of the interaction of members in resisting loads applied to the structure.

The background

From the early days of structural design, beams have been considered as single spans simply-supported (*i.e.* as though on knife edges) at each end. In the past they were often supported directly on the tops of cast-iron pillars with floral caps (Fig. 1*a*) or later on rolled steel joist columns with cap plates. With uniformly distributed loading, the simple span bending moment diagram having a maximum value of $\frac{WL}{8}$ is sufficiently accurate for all practical purposes in these cases (Fig. 1*c*). The diagram (Fig. 1*b*) shows, exaggerated, the shape which the beam assumes when so loaded.

However, as the use of rolled steel sections expanded and steel-framed buildings of several storeys were designed, beam connections of the forms shown in Fig. 2 came to be commonly used—a supporting bracket and top cleat or the bracket with web cleats. For a very long time (and indeed to the present day) the beam was still designed as simply-supported and a bending-moment of $\frac{WL}{8}$ used. From Fig. 1*b* it will be seen that the ends of a simply-supported beam under load rotate until they take up a sloping position and it will be apparent that any connecting cleats will try to resist this movement, *i.e.*, they will exert a measure of restraining influence on the bending of the beam. The shape of the loaded beam in this case will be as shown exaggerated in Fig. 2*b*, the amount of the restraint or "end fixity" depending largely on the strength of the cleats themselves to withstand distortion. The maximum bending-moment in the beam will be reduced from $\frac{WL}{8}$ by the amount of the restraining

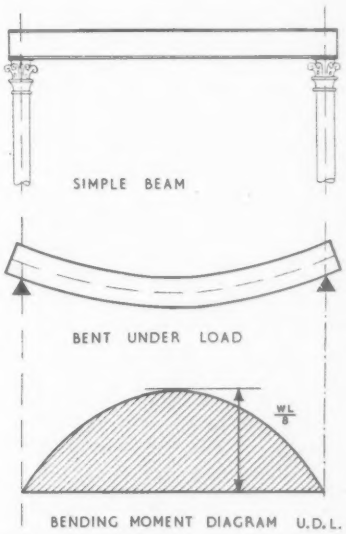


Fig. 1 a (*top*) *a simply supported beam;* b (*centre*) *diagram showing manner in which it bends under load;* c (*bottom*) *bending moment diagram for a uniformly distributed load.*

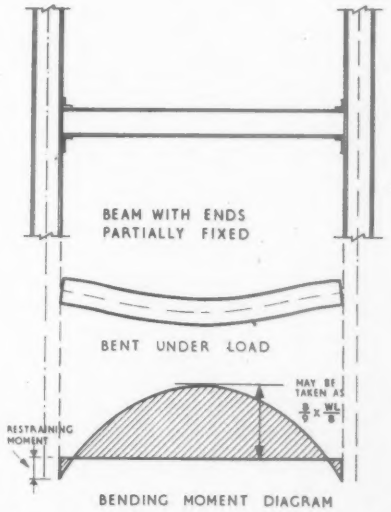
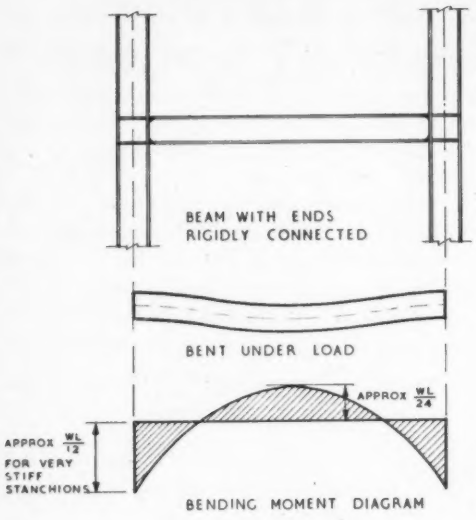
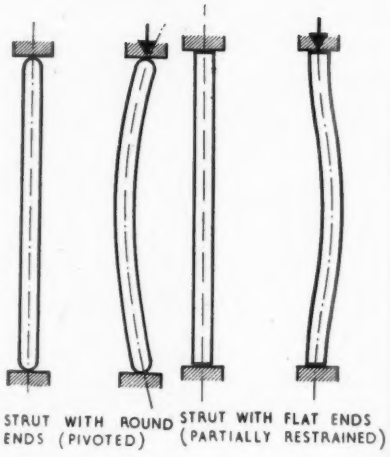


Fig. 2 a (*top*) *beam with ends partially fixed;* b (*centre*) *partially fixed beam bent under load;* c (*bottom*) *bending moment diagram for u.d. load.*

technical section



LEFT: *Fig. 3 a (top) beam with ends rigidly connected; b (centre) "fixed ended" bent under load; c (bottom) bending moment diagram for u.d. load.*



RIGHT: *Fig. 4 a (left) pin jointed strut; b (right) strut with flat ends (i.e. partially restrained.)*

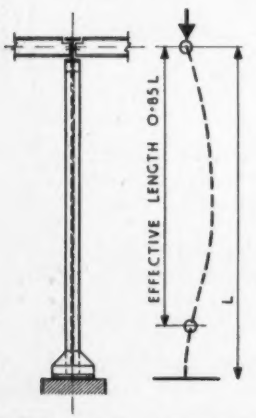
moment exerted by the end cleats—the diagram (Fig. 2*c*) shows the form of the resulting bending-moment. Although it is not easy to state exactly the values which will occur, a maximum value of $\frac{8}{9}$ths of $\frac{WL}{8}$ has been recommended subject to certain conditions but this will be referred to again later.

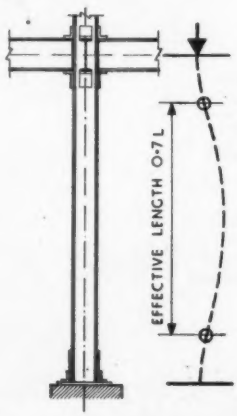
In recent years, other types of connection have been evolved such as welding which make it possible to fix the ends of the beam rigidly to the stanchion (Fig. 3*a*). To a much greater degree than the cleats in the previous figure, the welded connections of the beam flanges provide a restraint to the beam which under load takes up the shape of Fig. 3*b* and is consequently subjected to different bending moments (Fig. 3*c*), the highest value at the supports being $\frac{WL}{12}$, a reduction by one-third as compared with the original conception of a simple beam. (For simplicity in this comparison the stanchions are assumed to be infinitely stiff relative to the beam and in fact the actual restraint provided by the stanchions depends on their stiffness as compared with that of the beam. The value $\frac{WL}{12}$ is the maximum that could occur at the support.)

In a similar way, the design of stanchions has evolved from the simple idea of a strut pin-jointed or rounded at each end (Fig. 4a). Early investigations and experiments by Euler, Young, Gordon, Rankine, Moncrieff, Perry, Robertson and many others led to the development of formulae giving the safe load carried in terms of the load at failure and a factor of safety—this was in fact "Ultimate Load" Design and it is sometimes forgotten that the working stresses for axially-loaded stanchions laid down in codes and standards used today are in fact based on formulae for crippling loads.

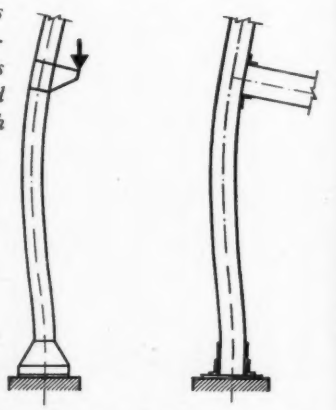
These early formulae were generally for a pin-ended stanchion length, and it was soon realized that flat ends or ends partially or rigidly held had considerable effect on the carrying capacity (Fig. 4b). To make the formulae workable in these cases, a system of "effective" lengths was evolved which took into account the conditions of end fixity—the "effective" length being derived from the shape which the stanchion will develop when loaded to failure, *i.e.* the longest length in single curvature corresponding to the pin-ended stanchion. Examples of this are shown in Fig. 5.

These provisions are suitable for stanchions where loading is central on the stanchion but this is seldom the case. Loads from beams carried on brackets on the side of a stanchion and the bending of the beam itself





LEFT: *Fig. 5, examples of allowances for the "effective length" of stanchions: a (left) where the base is effectively restrained and the top is held in position only; b (right) where both base and top are effectively restrained.*



RIGHT: *Fig. 6, bending of stanchions due to eccentric bed and beam action.*

technical section

as already explained (Fig. 2 and 3) impose bending moments on the stanchion and vary the conditions assumed for axial load (Fig. 6). An ingenious method of catering for this complication was evolved with the condition that—

$$\left[\frac{\text{Axial stress}}{\text{Permissible axial stress}} + \frac{\text{Bending stress}}{\text{Permissible stress in ordinary bending}}\right]$$

must not exceed unity, but due to the two intricacies of end fixing and eccentric load, the design method was now somewhat removed from the original pin-ended strut for which the formulae were evolved.

I have purposely dealt at some length with these simple comparisons to show how development on the practical side—in the methods of assembly of steelwork in structures—rendered the original idea of simple loading and bending, in actual fact, inexact at an early stage. The method of designing complicated structures by dealing with each member in turn as a separate entity neglects the interaction between one member and the adjacent members although as has been demonstrated in the case of beams and stanchions, certain allowances for these effects have been incorporated in structural codes and specifications. In general, many of these allowances are arbitrary and they cannot of necessity be so diverse as to be applicable in all the multiplicity of conditions with which the designer is faced. It is not intended that they should; but taken with the designer's experience, they constitute design methods by which practicable and safe structures are produced. These design methods make use of, in the main, permissible "working stresses" which may be allowed to occur in constructional materials when they are subjected to "working loads," *i.e.* the loads which may be expected to occur under normal use. These working stresses are laid down in Codes, Bye-Laws and Specifications. Many of them have resulted from the work of the Steel Structures Research Committee, appointed in 1929, by the Department of Scientific and Industrial Research which in its First Report (HMSO, 1931) correlated and formed into a Code of Practice the structural data which was available at that time.

The revised code

At the same time, it was appreciated that much of the data available and therefore the Code conditions were irrational to the extent that they could not fully take into account interaction between structural members such as I have already described. Consequently, an extensive programme of research was embarked upon by the Committee with the object of establishing a design method which would closely interpret the behaviour of a structure at working loads. Full-scale loading tests were carried out on the steel framework of actual buildings under construction in London—a hotel building, an office building and a block of flats—and detailed measurements of strains observed, from which the stresses in the structural members were calculated. These observations showed that actual stresses in many cases departed very considerably from the calculated or "design" figures, as a general rule being less than calculated in beams and often much higher than calculated in stanchions, due to the restraint imposed by connections assumed in design as flexible but in effect comparatively rigid.

Following this and other researches, the Steel Structures Research Committee were able to put forward in their Final Report (HMSO, 1936) a comprehensive "Recommendations for Design." The design methods comprising these Recommendations were of necessity complex in comparison with the existing simplified regulations and as a result did not find favour in the steel industry. However, a Joint Committee of the Institution of Civil Engineers and the Institution of Structural Engineers was set up and produced the *Revised Code of Practice for the Use of Structural Steel in Buildings*, based on the Recommendations. This allowed a reduction in the bending moment in beams to §ths. of the maximum, provided the connections were of certain specified dimensions. This was at least some advance although perhaps little enough compared with the vast effort which had been expended on the Report.

The Report itself had brought practical structural analysis from the original idea of separate members designed individually to a point where a fairly close approximation could be made of their effect one upon another and even taking into account the varying rigidity of the types of connection commonly used. At the same time, the problem was being attacked from another direction—the assumption of fully-rigid connections (such as in a welded frame) and the treatment of the complete frame as a mathematical problem.

For such a frame, it is possible to write down expressions linking the applied forces, shear forces, bending moments and beam deflections occurring in each member—the forces in the several members must be in equilibrium at the connections and thus a series of equations can be built up which when solved will show the bending moments and shear forces occurring in all the members under a particular set of loadings. But even that unfortunately is not the whole story—firstly, this operation must be repeated for all different combinations of loading; secondly, having assumed at the beginning sections for the various members, any changes resulting from the design calculations will, in fact, render the analysis inexact and often a fresh start must be made; thirdly, the effects of settlement, lack of accurate fit of members, etc., will alter the distribution of bending moments and loads.

Many methods for the mathematical solution of rigid frames have been devised such as slope-deflection, strain energy, moment distribution, most of which are excellent for the design of, for example, single portal frames—the simplest form of rigid frame—but all of which generally become very complex when applied to even a small frame of two or three bays and several stories. Again, the problem of the amount of time required to evaluate design conditions for the members by these "precise" methods renders their use impracticable for all but the simpler frames unless there are special reasons for requiring an exact solution.

technical section

Even so, when the rigid frame calculations have been completed the designer has to fall back on accepted working stresses which have become generally applicable but which do not necessarily represent correct working stress criteria for a particular frame.

Summing up, the choice which the designer has until recently had before him is between:

(*a*) the design of a frame by considering in turn each individual member, making assumptions for conditions of end fixity and/or effective column lengths in accordance with certain empirical rules, and using generally accepted values of working stresses; and

(*b*) the mathematical and precise (but often far too complex) evaluation of the effects of working loads on a frame taken as whole, designing each member by the use of the same generally accepted working stresses as in (*a*).

Both these methods will produce structures which are quite safe—this has of course been proved by many years of general use and countless examples of all types of buildings, but in what degree they are safe—what margin of safety they have—is not generally apparent to the designer or the user. In the main, buildings are overstrong, often many times so—and obviously a building is not economic if any of its parts or the whole are stronger than need be. It is interesting to note that while the very earliest designs of simple members were based on considerations of failure, the "working load and working stress" criterion has grown and extended as structures have become complex until the relationship to the load at which collapse would occur is now largely unrecognised.

The Recommendations of the Steel Structures Research Committee had provided a feasible design method for regular frame buildings, but it was dissatisfaction with their complexity and the realization that the method could not in practice be applied to irregular frames and unusual structures which led Professor J. F. Baker, the Technical Officer of the Committee, to approach the problem from the other angle—consideration of the conditions in a structure when loaded to failure. If a practicable method could be found to calculate the loads at which a part or parts of the whole of a structure would be just on the point of collapse, the other equally important problem would be automatically solved, that of the margin of safety, because in the design uniform or otherwise appropriate load factors could then be adopted as required by the particular circumstances.

Emergence of plastic theory

At the University of Bristol and, since the war, at the University of Cambridge where he is Professor of Mechanical Sciences and Head of the Department of Civil Engineering, Prof. Baker has proceeded with research into these "ultimate loads." Starting with the fundamental consideration of the bending of a beam section until the bending stresses exceed the elastic limit and a state of plastic yield is reached (the point of bending becoming in effect a "hinge") it was soon possible to calculate the loads at which simple beams, "fixed-ended" and multi-span beams, and single-bay portal frames (with lateral support) would collapse, and to establish relatively simple ("Plastic theory") methods by which with suitable load factors such structures may be quickly and easily designed.

However, the calculation of the failure load of stanchions and other members subjected to axial loads with or without bending proved to be a problem of very considerable magnitude due mainly to the fact that failure of such members is generally by lateral instability, *i.e.* buckling, rather than by plain bending as in a beam. Other complications are the degree of restraint afforded by connected members on all four sides at top and bottom and the effect of intermediate connections such as lintel beams or sheeting rails. A great deal of progress has been made, and in Prof. Baker's recent work *The Steel Skeleton: Vol. II* a plastic theory design method for certain cases of stanchions is set out but it is not claimed (in fact it is stated as not so) that a general design method is yet in sight. Nevertheless, there is reason to anticipate that this most formidable hurdle will eventually be cleared and the way opened to the use of a design method which is rational in so far as it correctly interprets the ultimate load of a structure and allows the use of specified factors of safety on that ultimate load; a method which is comparatively quick to apply and which is not rendered inaccurate by fabrication tolerances and normal amounts of settlement.

There is, however, a further question as yet not fully answered: What is the appropriate load factor to be applied in any particular case? —without it an "Ultimate Load" method is of little value. Too high a factor is uneconomic and too low a figure could prove disastrous in many types of structures. In 1951, the Institution of Structural Engineers set up an Ad Hoc Committee, with Prof. Sir Alfred Pugsley as Chairman, to investigate this problem and the Committee's first *Report on Structural Safety* was published for general study in 1955. Several possible methods were put forward based on an assessment of factors influencing the probability of collapse (such as quality of workmanship, control of loading, accuracy of design analysis) and others influencing the seriousness of failure (such as from danger to personnel and economic considerations), values assigned to the various factors leading to the establishment of a factor of safety or ultimate load factor.

Complementary as it is with current research into the calculation of the ultimate strengths of structures, the work of this Committee will provide very necessary guidance in the general application of ultimate load design theory.

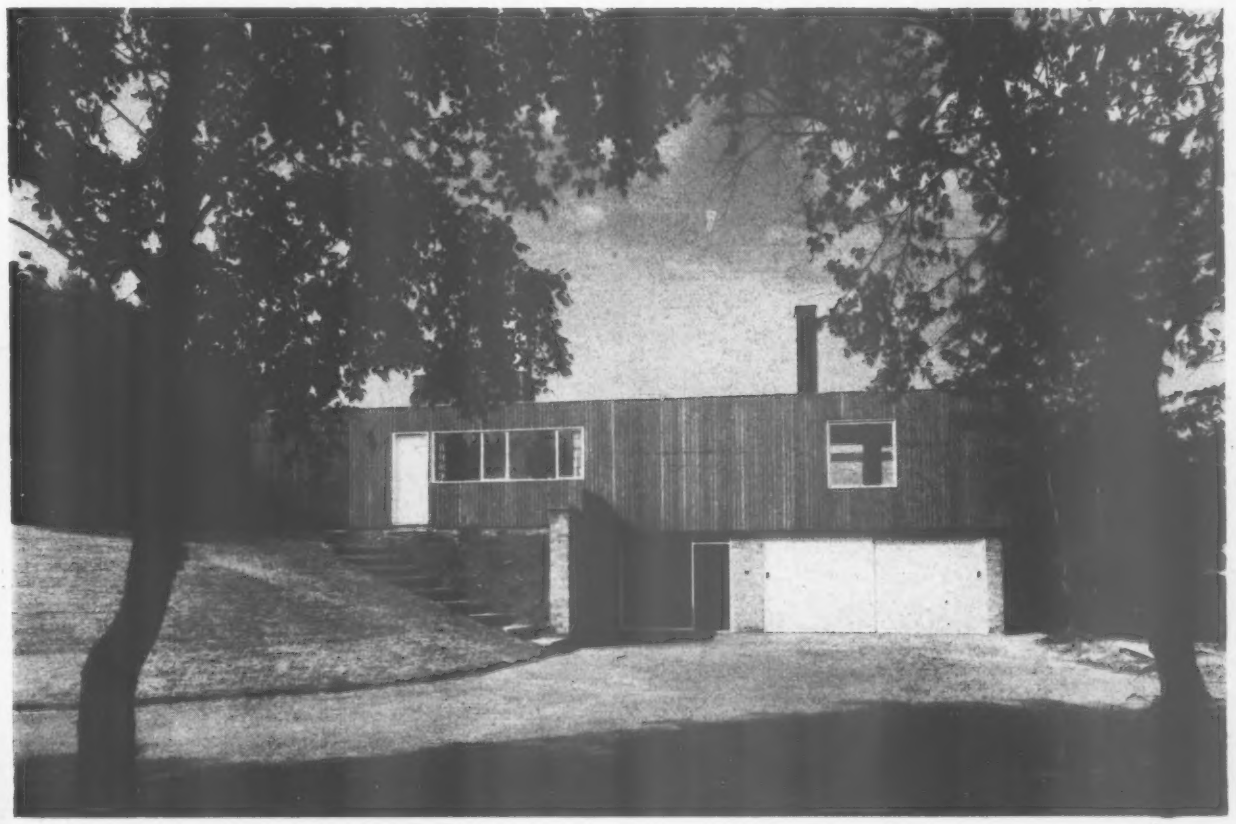
The reader will have observed that little reference has been made in this article to "Plastic Theory" itself. I have endeavoured in this first part to describe practical issues and research work which have led to the development of "Ultimate Load" design with known failure loads and specified factors of safety in preference to empirical rules for design to generally accepted working-load stresses. The second article will deal with the elements of Plastic Theory as applied in the calculation of the ultimate loads of structures.

HOUSE

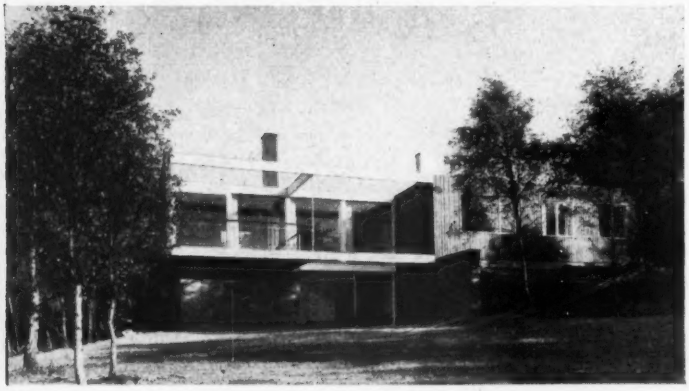
at NEWSTEAD ABBEY, NOTTS, designed by BARTLETT and GRAY; quantity surveyor M. E. C. FELTON

The three small houses presented this week were chosen as being attractive, comfortable and labour-saving modern homes, all centrally heated and designed on the open plan principle. The house at Newstead Abbey, Notts, immediately catches the eye as a delightful-looking modern house; the outstanding interest of the other two lies in their heating systems from oil-fired boilers. The house at Old Windsor has a system based on methods in use in America; that at Oxted introduces polythene heating pipes for the first time in this country.

The entrance elevation from the north-east.

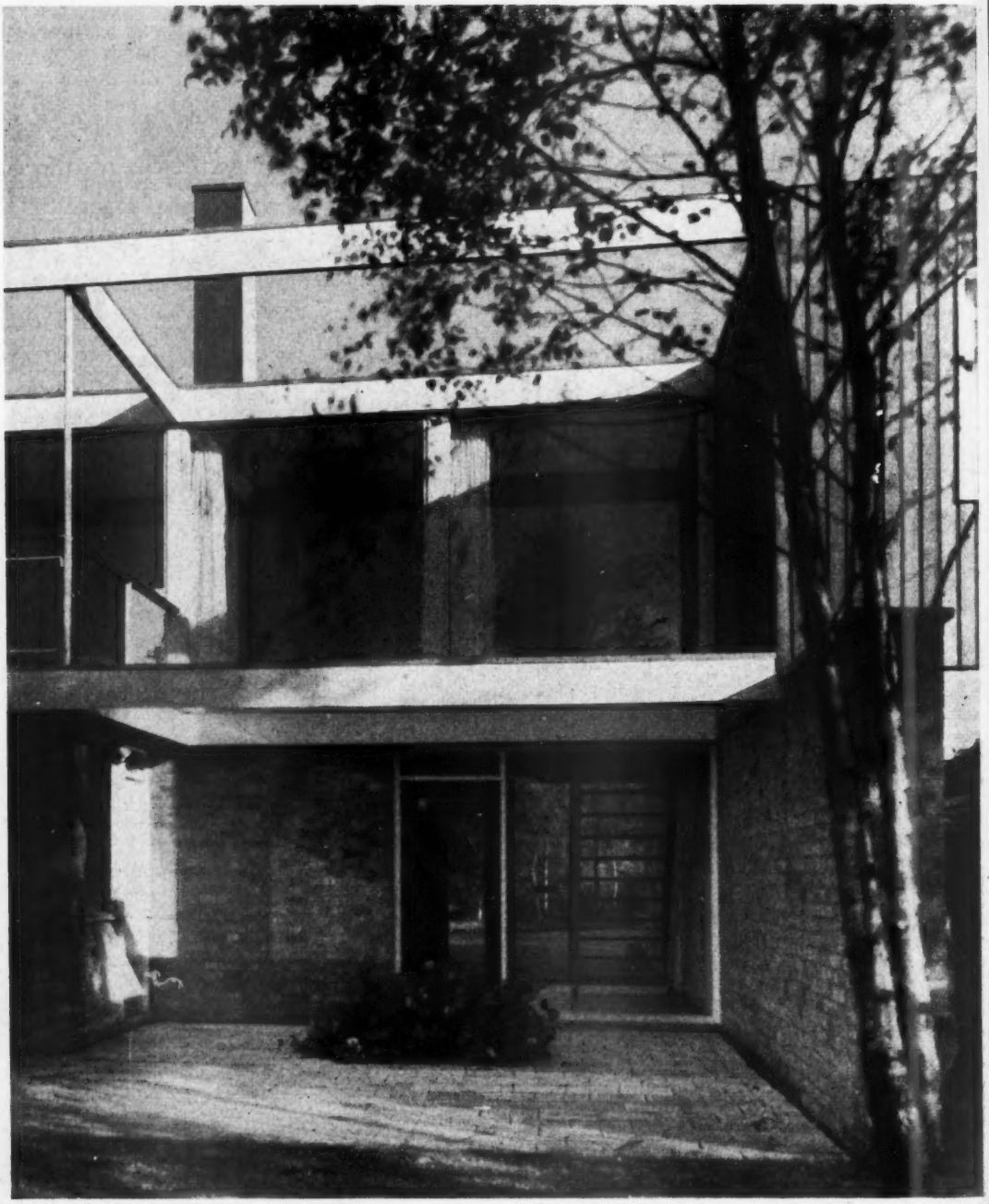


building illustrated



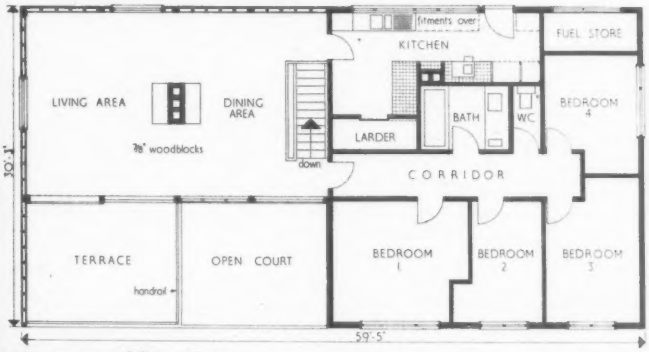
Left: view from the north-west, showing the continuation of the living room wall along the terrace to form a wind screen. The white painted, free-standing beams are ply-faced timber, designed to brace this wall and to frame the view to the west.

Below: detail of the open courtyard and part of the west facade, looking through the entrance hall to the main entrance door and drive beyond. On the extreme left is the upper floor terrace, and, at ground level, the door and window to the workshop.

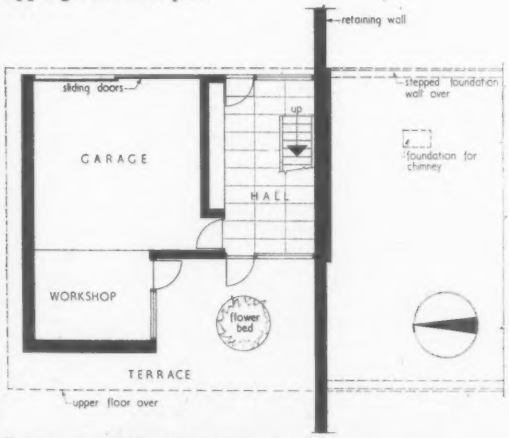


The top of the staircase from the dining area. The door at the head of the stairs leads to the corridor of the bedroom wing.

The living-dining area from the head of the stairs leading to the entrance hall. The floor finish is wood block and all walls are plastered and finished with two coats of water paint.



Upper ground floor plan



Lower ground floor plan [Scale: $\frac{1}{8}$" = 1' 0"]

analysis

CLIENTS' REQUIREMENTS

A house with privacy within an 11-acre site covered with young woodland, but taking advantage of views to west, east and north.
Maximum living area, 4 bedrooms, the sizes of which could be restricted in the interests of a greater living area.
A complete central heating system. A double garage and workspace.

PLANNING AIMS

To take advantage of the north-sloping site to gain elevation, for good views from the living area.
Restriction of bedroom/kitchen block to a reasonable minimum to allow a large living area.
Separation of children's rooms from living area.

	price per sq. ft.	s	d
	preliminaries and insurances	4	7
	contingencies nil (figures based on final account)		
Work below ground floor level		5	3

Strip footings for load-bearing walls up to d.p.c. level.
Surface concrete, reinforced under bedroom block.
All excavation and filling.
Extra cost of retaining walls, nil.

STRUCTURAL ELEMENTS

Frame, nil.

External walls 9 8¼
4-in. lightweight load-bearing blocks.
2-in. × 1-in. battens, 1-in. t and g hardwood boarding.
Ratio: $\frac{\text{solid wall}}{\text{floor area}} = \frac{0{\cdot}92}{1}$

Windows 1 6
Timber framed opening lights, top and side hung.
Ratio: $\frac{\text{windows}}{\text{floor area}} = \frac{0{\cdot}28}{1}$

External doors 1 10½
Flush sliding garage doors, glazed living-room-terrace sliding door.
3 glazed doors, 1 flush door for painting. Hardwood fuel store doors.
Ratio: $\frac{\text{doors}}{\text{floor area}} = \frac{0{\cdot}16}{1}$

Upper floors 2 1
7½-in. in-situ r.c. Average span: 16 ft.
Area: 56 sq. yd.
Superload: 40 lb. per sq. ft.

Staircases 1 1½
Number of staircases: one. Softwood strings; hardwood open treads; hardwood handrail; metal core and balusters.
Width: 3 ft.
Total rise: 8 ft. 9 in.

Roof construction 3 5½
Timber joists and 1-in. t and g board with glass-wool blanket insulation, 156 sq. yd.
7½-in. in-situ r.c. (living room terrace), 20 sq. yd.

analysis

	s	d
Roof lights		5½
Number of lights: 4, timber-framed, ventilating.		
Total area: 43 sq. ft.		
Glazing	1	7
Single glazing.		
Total of structural elements	21	9½

PARTITIONS AND FITTINGS

Internal partitions			1 8½
Type of partition:			
3-in. breeze blocks	4-in. breeze blocks		
Area of each type:			
75 sq. yd.	35 sq. yd.		
Internal doors			8½
10 single doors. Flush ply, painted, to BS 459, Pt. II.			
Ironmongery			1 3
BMA finish.			
Fittings			
Provided by client.			
Total of partitions			3 7½

FINISHES

Floor finishes (costs include screeds)				4 6½
Type of finish	*Area in sq. ft.*	*Price per sq. yd.* s	d	
1½-in. granolithic	369	8	11	
2-in. natural stone	135	81	6	
Wood block	459	57	4	
Lino	729	20	0	
Fair concrete	36	1	0	
Terrazzo tiles	36	40		
Wall finishes				1 3½
Vermiculite plaster.				
Ceiling finishes				1 1½
⅜-in. plaster lath. Two coats plaster.				
Roof finishes				2 3
Type of finish: three layers bituminous felt with aluminium trim.				
Area in sq. ft.: 1,405.				
Concrete tiles on screed, on terrace, 180 sq. ft.				
Decorations				1 4
Two coats water paint on plastered surfaces; 2 undercoats, 1 gloss on softwood; 2 applications oil stopper to external hardwood.				
Total of finishes				10 6

SERVICES

	s	d
External plumbing		5½
Aluminium r.w.p.s and roof gulleys.		
Hot and cold water installation	1	3½
Tanks, calorifier, copper piping, service connection.		
Sanitary fittings	1	1½
Type of fitting: W.c. L.b. Bath Double sink top		
No. of each type: 1 1 1 1		
Heating and ventilation	7	2
Anthracite boiler; underfloor warming on ground floor and upper ground floor slab, in soft copper piping.		
Internal temperatures: living-dining room 78°, bedrooms, 55°.		
"U" of walls, 0·16.		
"U" of roof, 0·18.		
Gas installation		
Nil.		
Electrical installation	1	11½
Type of point: Light / Triple power (13a,2a,2a) / Single power (13a)		
No. of each type: 25 / 3 / 10		
Total of services	11	11¾
Drainage	2	7¼
Septic tank.		
Other elements not shown above		2½
Natural stone hearth; fixing metal canopy made by client.		

Total per sq. ft. of floor area (final account figures) **60 6¾**

£5,789 Net cost excluding external works.

1,912 sq. ft. Floor area measured inside external walls.

SUMMARY

Ground floor area: 1,388 sq. ft.
Total floor area: 1,912 sq. ft.
Type of contract: RIBA.
Tender date: July 31, 1954.
Work began: November, 1954.
Work finished: September, 1955.
Tender price of foundations, superstructure, installations and finishes: £5,832.
Final contract price: £5,788 17s 9d.
Tender price of ancillary buildings: £155 16s 1d.
Final contract price: £155 16s 1d.
Total: £5,944 13s 10d.

CONTRACTORS

General contractors: M. D. Sweeney & Palmer, Ltd. *Sub-contractors—Asphalt tanking:* Nottingham Rock Asphalt Co. *Concrete reinforcement:* British Reinforced Concrete Engineering Co. Ltd. *Plumbing and electrical installations:* F. G. Skerritt Ltd. *Heating installation:* G. B. Haden & Sons Ltd. *Fibrous plaster beam casings:* F. J. Mann & Co. Ltd. *Wood block flooring:* Hollis Bros. *Linoleum flooring:* Taylors (Nottingham) Ltd. *Paropa roofing:* Frazzi Ltd. *Stone fireplace:* Gregory Quarries Ltd. *Ironmongery:* Dryad Metalworks Ltd. *Stone paving:* Joe Shaw & Sons Ltd.

building illustrated

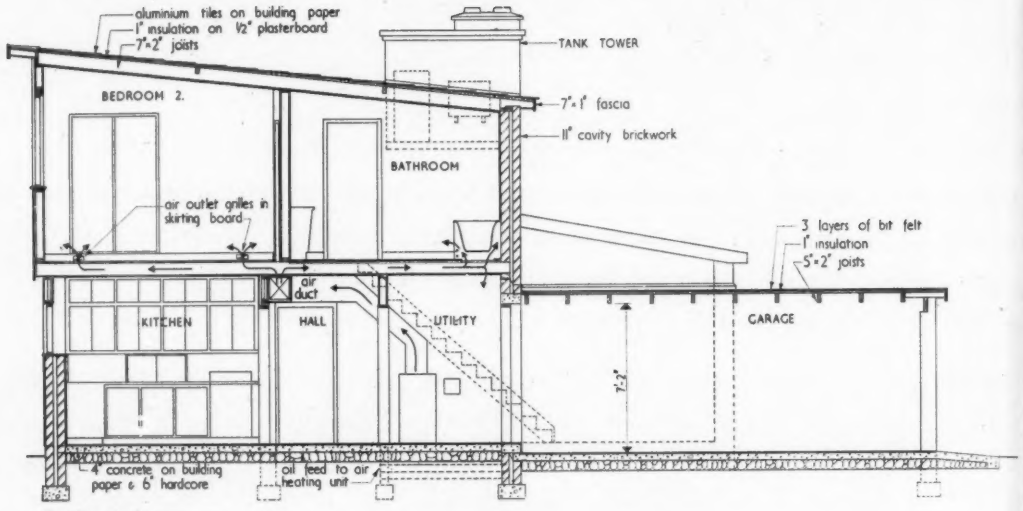
HOUSE

in BURFIELD ROAD, OLD WINDSOR, BERKS. designed by F. W. LANCASTER

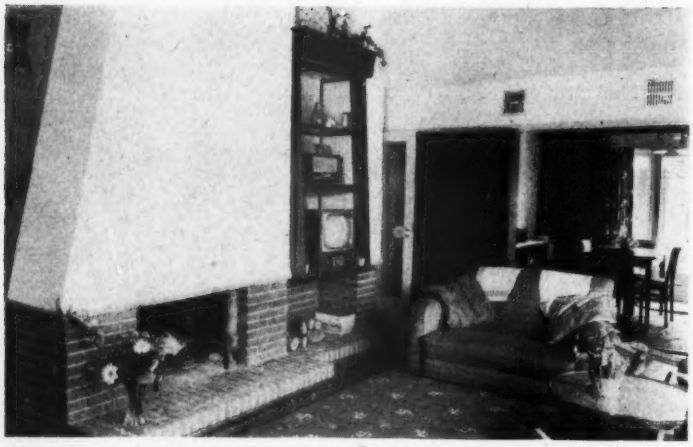
This house, designed by the architect for his own occupation, is heated by a system of ducted warmed air devised by the owner after studying similar systems in America. The system gives whole-house warming and is served by an oil-fired boiler. Running costs average £25 per annum. The house was built by direct labour, so it was not possible to provide a complete cost analysis by the usual elements.

Above: from the south-east. Left: the south and east facades, with the large living room window on the left. The reasons for the south wall of bedroom 1 being cantilevered over the ground floor are that the line of the ground floor south wall was fixed by the line of a sewer and the north-east corner of the house was fixed by by-laws restricting timber construction closer than 10 ft. from the property boundary. The client, who is also the architect, wished to have all bedrooms facing east and it was not possible to have three bedrooms of suitable width without this overhang. Over the living room window there is a triangular timber truss, clad externally with vertical cedar boarding and internally with plasterboard and with glasswool insulation. Over the window is a wide timber and hardboard pelmet, which also contains concealed strip lighting.

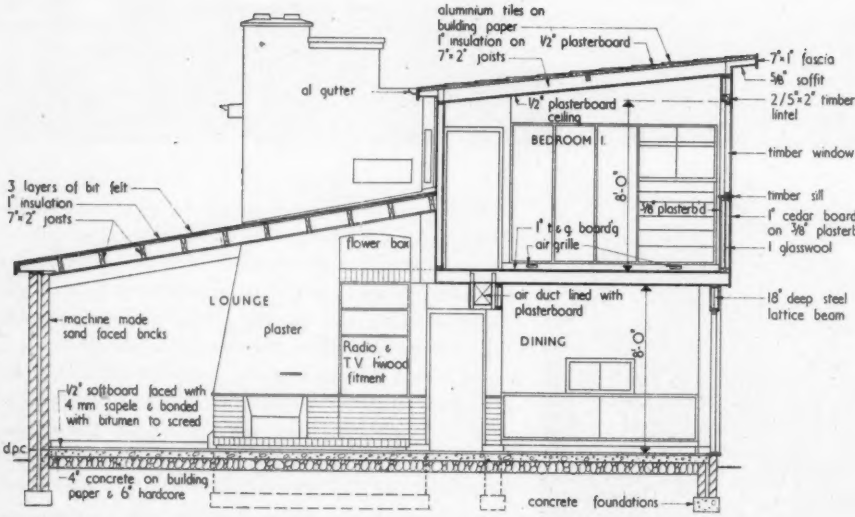
building illustrated



Section A-A [Scale: ⅛" = 1' 0"]



Left: the living room, looking towards the dining area. Showing the main warmed air duct and outlet grilles. A similar grille delivers air to the dining area. The architect devised this heating system for his house after living in the USA, where more advanced systems of warmed air heating are in use than in this country. He decided that for a two-storey dwelling this system was more easily installed, more flexible in relation to planning and cheaper than under-floor heating or conventional radiators. The running costs over two winters, the first of which was severe weather and included the drying-out period for the house, have been £25 p.a. This does not include the cost of domestic hot water, provided by an immersion heater. Below part of the glazed timber screen between the kitchen and the hall. Besides providing additional light to the hall, the wide timber frame, painted cream, is used to display pottery from Italy, Germany and Austria.



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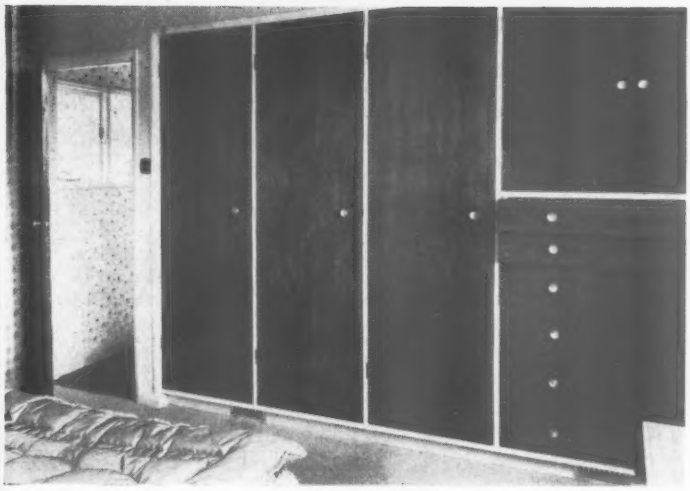
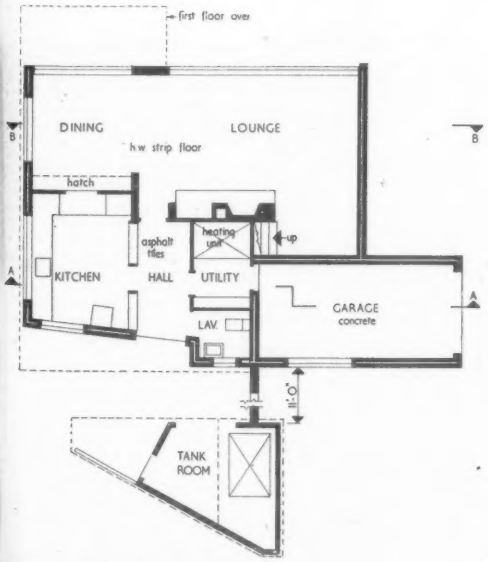


Built-in wardrobes and drawers, with mahogany veneered doors and drawer fronts, in bedroom 1. Under this fitting are warmed air outlet grilles.

First floor plan



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

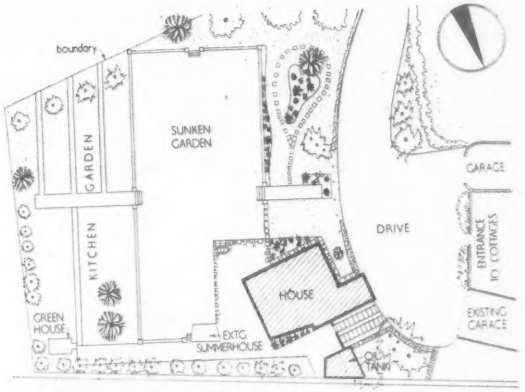
analysis

CLIENT'S REQUIREMENTS

Three-bedroom house for family with one child, high ceilings to counter claustrophobic tendency of housewife. Floor in main room large enough and of suitable finish for dancing. Garage directly accessible from house.
Only one entrance door needed.
Whole house warming. Built-in wardrobe.

PLANNING AIMS

To arrange living and dining to south and east respectively with all beds facing east. Existing drain across site dictated position of house. Maximum garden to south required, also minimum distance from house to driveway.



Site plan

	£	s	d
preliminaries and insurances	**93**	**18**	**11**
Work below ground floor level	**202**	**19**	**3**

Normal foundations, good bottom at 3 ft. 3 in., including c/w supply trench and earth spread for terrace.

STRUCTURAL ELEMENTS

Frame or load-bearing element
11-in. cavity brick walls on ground floor. First floor frame supported on two lattice steel beams. First floor construction balloon frame, 4 in. × 2 in. timber studs at 2-ft. centres, with head and sill members. Triangular timber truss over long living room windows.

External walls
Ground floor walls part sandfaced flettons and part rendered with Derbyshire spar dash finish.

$$\text{Ratio: } \frac{\text{solid wall}}{\text{floor area}} = \frac{1{\cdot}495}{1}$$

Windows
Timber framed EJMA standard.

$$\text{Ratio: } \frac{\text{windows}}{\text{floor area}} = \frac{0{\cdot}2256}{1}$$

External doors
Including garage door.

$$\text{Ratio: } \frac{\text{doors}}{\text{floor area}} = \frac{0{\cdot}0535}{1}$$

analysis

Upper floors £ s d
Span 13 ft. 6 in. average, timber joists.
Area 586·5 sq. ft., first floor only, excluding tank tower.
Super load: 30 lb. per sq. ft.

Staircases
Number of staircases: 1.
Width: 3 ft.
Total rise: 8 ft. 8½ in.

Roof construction
Type of roof: monopitch. Timber joists with aluminium tiles over boarding and ceiling directly beneath. (Ceilings slope with roof.)
Actual area of each type: 282 sq. ft. Felt flat to garage: monopitch, 1,185 sq. ft.

Glazing
32 and 24 oz., some obscured.

Total of structural elements **1,282 1 9**

PARTITIONING

Internal partitions
Stud, brick, breeze 2 in. Measured inclusive of door openings.
Area of each type: 188 sq. ft., 124 sq. ft. and 156 sq. ft.

Internal doors
10 single.

Fittings
Kitchen cupboards and work top, bedroom wardrobes, bathroom work top.
TV and radio fittings in living room.

Total of partitions and fittings **455 2 0**

FINISHINGS

Floor finishes

4-mm. Sapele mahogany		Thermoplastic tile
468 sq. ft.		135 sq. ft.
PVC tile	Timber	Concrete screed
46 sq. ft.	540·5 sq. ft.	171 sq. ft.

Wall finishes
Ground floor: plaster. Garage: Uxbridge flint bricks, white. Natural brick one wall of living room.
First floor: plasterboard. Bath, kitchen and lavatory: plastic tile.

Ceiling finishes
Plasterboard throughout.

Roof finishes

Aluminium tiles	Felt, 3 layer.
1,185 sq. ft.	282 sq. ft.

Decorations
Walls and ceilings papered, ceilings painted afterwards.

Total of finishes **832 13 11**

SERVICES £ s d

External plumbing
Underground copper c.w. supply. Aluminium gutters and r.w. pipes.

Hot and cold water installation
All copper. Immersion heater 4 kW with coil and primary pipes provided from h.w. cylinder for h.w. boiler at later date if required. Heated towel rail in bathroom also shower fitting. 2 external hose points.

Sanitary fittings

Low level w.c.'s.	5-ft. 6-in. white c.i. bath.
2	1
Porcelain l.b.	Enamelled metal l b.
1	1

Stainless steel sink.
2-compartment.

Heating and ventilation
Oil fired forced warmed air unit.
Internal temperature: 65/70° (can be higher if required).
Air change: 5 per hour.
" U " of walls: ground floor U = 0·268.
1st floor U = 0·123.
" U " of roof: approximately 0·144.

Gas installation
None.

Electrical installation

Lighting	Power or light	Cooker
17	28	1
Radio, TV	Heater	Razor
2	1	1

Total of services, **811 16 8**

Drainage **80 0 0**

Cost per sq. ft. of floor area: £3,678 16 6 / 1,476 sq. ft. = **49 10**
excluding drainage and external works.
Note: cost includes, but area excludes, small outhouse of 152 sq. ft.

SUMMARY

Ground floor area: 869 sq. ft., including garage.
Total floor area: 1,476 sq. ft.
Work began: May 5, 1955.
Work finished: November 18, 1955.

CONTRACTORS

Built by direct labour. *Sub-contractors: Heating:* Advanced Heating and Air Conditioning Ltd. *Electrical:* Hartley Electromotives. *Flooring:* B.S. Floors and Semtex Ltd. *Decorations:* H. Wilson. *Plumbing:* Messrs. Beckett. *Plastering:* R.M.R. Plasterers. *Weather stripping:* Chamberlain Ltd.

building illustrated

HOUSE

at WOODHURST PARK, OXTED, SURREY, designed by QUENTIN HUGHES
heating consultants DONALD SMITH, SEYMOUR and ROOLEY

This house for a doctor and his wife with four young children, is planned round a central living area, which has a floor to ceiling height of 15 ft. 3 in., with a balcony study supported by a central chimney stack. The heating system, thought to be the first of its kind in England, consists of pipes made of polythene laid by the general contractor in the ceilings.

The garden side of the house from the south-east.

building illustrated

From the south-west. As in the house at Newstead Abbey, illustrated on pages 399-402, all the living accommodation in this house is on upper ground floor level. In this case the slope of the ground is from north-east to south-west, and the lower ground floor is used for the boiler room, workshop and storerooms.

The entrance side from the north-east. The upper level window lights the study, which forms a gallery to the centrally-placed living room and is over the entrance hall and dining area.

analysis

SITE

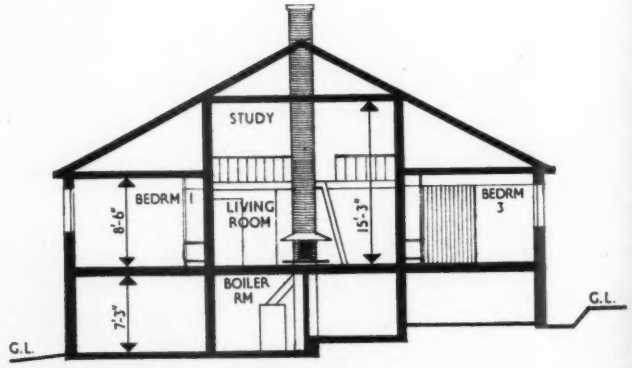
The house stands on a warm sunny site, enclosed by hills and trees, sloping from north-east to south-west, with a fine view across the garden to a meadow and a mill pond. At one end of the garden there is a swimming pool. Because of the sloping site the house is entered at ground level from the back, leaving space for storerooms, boiler room and workshop underneath the front of the house with a minimum of excavation.

PLAN

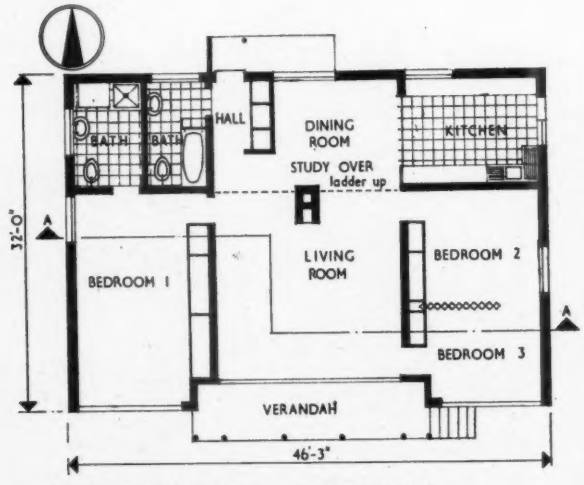
The house is designed around a central living room which rises to a height of 15 ft. 3 in., other rooms communicating with this central space. A large sliding window in the front wall provides access to a 5 ft. verandah with an open slat timber floor. The chimney stack rises in the centre of the living room and supports a balcony study, only divided from the living room over which it projects by a handrail. A pulley in the ceiling made it possible to hoist the piano up to the study—a modern minstrels' gallery. Below this gallery the dining room opens directly into the living room and the kitchen.

Open planning was made possible by the careful consideration given to the central heating system.

The main bedroom has its own bathroom, which, in addition to a shower, washbasin and w.c., contains a washing machine and tumbler dryer. The two other bedrooms are separated by a sliding folding partition.



Section A-A [Scale: $\frac{1}{8}$" = 1' 0"]



Upper ground floor plan [Scale: $\frac{1}{8}$" = 1' 0"]

analysis

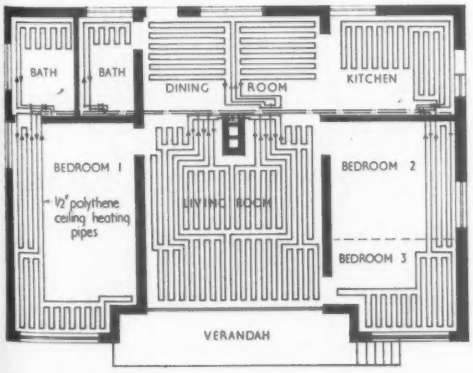
HEATING AND INSULATION

The heating system is of the low-temperature radiant panel type, the panels consisting of polythene water pipes set in the plaster of the ceilings. A 600-gallon oil tank feeds the 140,000 B.Th.U. domestic boiler through an automatic oil burner; glazed flue linings have been fitted to prevent damage to the flue from condensation. The water is circulated by a ½-h.p. pump and is regulated to a maximum temperature of 135° F. on leaving the boiler, by a thermostat coupled to the oil burner. In addition there are three reserve thermostats situated on the pipe coils; these are set at 140° F. and stop the pump if the boiler thermostat fails and the water in the pipe coils overheats. They are also connected to a warning buzzer in the living room. These precautions have been taken since the danger of using polythene pipes—selected for cheapness—is that they lose shape and disintegrate if they get too hot. The type used in this house were however tested to 173° F. and found to remain in a satisfactory condition. The low running temperature of 135° F. is made possible by covering a large area of ceiling with ½-in. pipes and pumping the water through.

Each sub-circuit of the pipe coils was fitted with its own valve so that subsequent adjustment of the water flow could be made in each section of the house; the design of the system has however proved to be correct and all valves are left fully open.

Room thermostats, brought consecutively into operation by time switches, are set to give four different internal temperatures during each 24 hours. With this type of radiant heating the internal air temperature can be some 5° F. cooler than with convection heating for equivalent comfort; the highest air temperature required in this house is 63° F. (in the early morning and the evening) while the daytime temperature is 60° F. The ½-in. polythene pipes were laid by the general contractor directly on to the expanded metal ceiling lathing and wired to it at intervals. The expanded metal is spaced 1 in. from the joists by small blocks, and aluminium foil and glass-fibre quilt is placed over the joists. When the plaster was applied to the ceiling care was taken to see that the " key " on the upper surface made good contact with the pipes. The ceiling of the living room is papered, other ceilings being finished with plastic emulsion paint.

The house has been well insulated by using 4½-in. clinker blocks for the inner leaf of the exterior walls and double glazing in the windows, in addition to the foil and quilt over the ceiling joists.



Ceiling heating layout plan [Scale: ⅛" = 1' 0"]

COST SUMMARY

The total cost, including a car port for two cars and heating plant, but excluding oil storage tank, drive and garden layout, was $\frac{£4560}{2190 \text{ sq. ft.}}$ = 41s. 7½d. per sq. ft. of floor area.

Detailed cost of heating system	£	s	d
Reserve water thermostat (first one in boiler)	5	17	0
Three room thermostats	12	6	0
Two time switches	11	13	9
Three automatic air vents	9	17	0
Sunrod boiler, including fan-assisted oil burner	240	0	0
Shell oil tank (on hire purchase)	40	0	0
Accessories, including pump	80	0	0
Supply and fixing of Polyorc A ½-in. heating pipes, 475 yards	71	0	0
Total	470	13	9

Cost per sq. ft. of floor area = 4s. 3½d.

It can be seen that a considerable saving was made by using this system and method of execution.

Running cost of system

In the past twelve months the system consumed about 500 gallons of oil at a cost of about £27.

Other prices

	£	s	d
Double glazing and fixing	280	0	0
Timber purpose-made windows and doors	180	0	0
Folding doors (not including fixing and provision of r.s.j. to support them)	93	0	0
Sanitary fittings	140	0	0
Purpose-made L-shaped double sink in stainless steel	38	0	0
Electric wiring	147	0	0
Connection to main sewer	50	0	0

Floor area of main floor	1290 sq. ft.
Basement	900 sq. ft.
Total floor area	2190 sq. ft.

Work finished: March, 1957

CONTRACTORS

General contractor: S. C. E. Winsbury. *Sub-contractors: Insulation:* Broad & Co. Ltd. *Roof:* Chapman & Sons (Croydon) Ltd. *Sliding partition:* Superfold door, Bolton Gate Co. Ltd. *Double glazing (Insulight):* Pilkington Bros. Ltd. *Heating:* Sunrod Ltd. Nu-way Heating Plants Ltd. Stuart Turner Ltd. Yorkshire Copper Works Ltd.

A CASE FOR THE BISON PLANK FLOOR . . .

28 BLOCKS OF 4 MAISONETTES

AT THE HAWLEY ESTATE

FARNBOROUGH · HAMPSHIRE

CONTRACTORS: GREGORY HOUSING LIMITED

4,300 sq. yd. of BISON Prestressed Composite Flooring were used in the erection of these blocks.

The shallow BISON Prestressed Planks are laid over the floor area and electrical and other services are buried in the *in situ* topping— a finishing screed only being required. Total floor depth on the clear span of 12 ft. 9 in. is only 4 in. thus giving an overall reduction in thickness of 3 in. This reduction in depth saved one brick course in each block.

The Planks' ease of handling is illustrated by the fact that even without scaffolding, four men could lay a block in a morning. Only simple propping is required as the planks are put into position.

In the illustration the duct tube is shown in position to form a conduit for electric wiring. One labourer can lay the duct tube and pull through the wires for one block of two flats (on each floor) in a day.

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working detail

COMMITTEE ROOM WINDOW: OFFICES IN LONDON, W.C.1

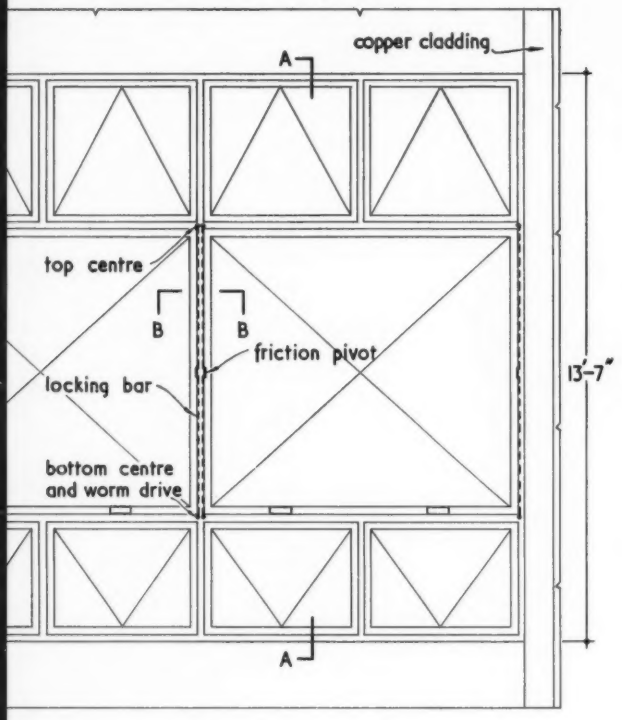
David du R. Aberdeen and Partners, architects

Though the smaller lights are straight on plan the large lights and sill are curved to a radius of 97 ft. 9 in. The gear is of particular interest: the large lights are swung on the usual friction pivots but are locked and weathered by rotating bars housed in the mullions. When swung inwards for cleaning, these lights are each held by a bronze dog-leash cabin-hook in the head which clips over a bronze eye on the bottom transom. The top and bottom lights are each held open by a pair of secret folding-arm stays and secured when closed by a budget lock.

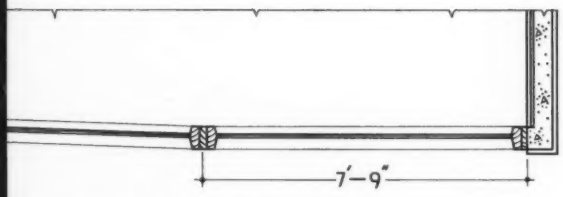
working detail

COMMITTEE ROOM WINDOW: OFFICES IN LONDON, W.C.1

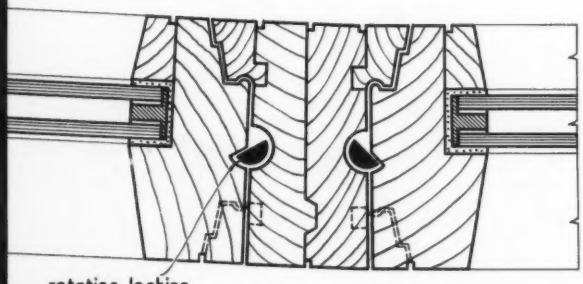
David du R. Aberdeen and Partners, architects



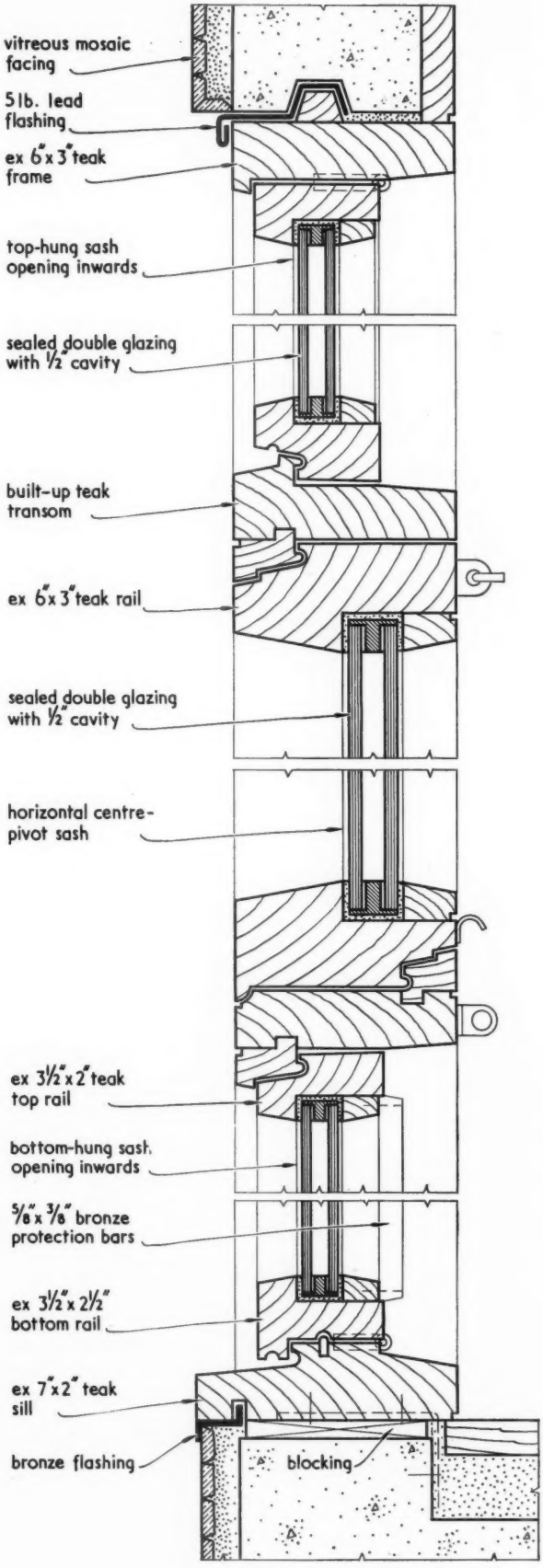
ELEVATION. scale ¼" = 1'— 0"



PLAN. scale ¼" = 1'— 0"



PLAN AT B—B. scale ¼ full size



SECTION A—A. scale ¼ full size

working detail

BALANCED GATE : CAR PARK AT CHICHESTER, SUSSEX

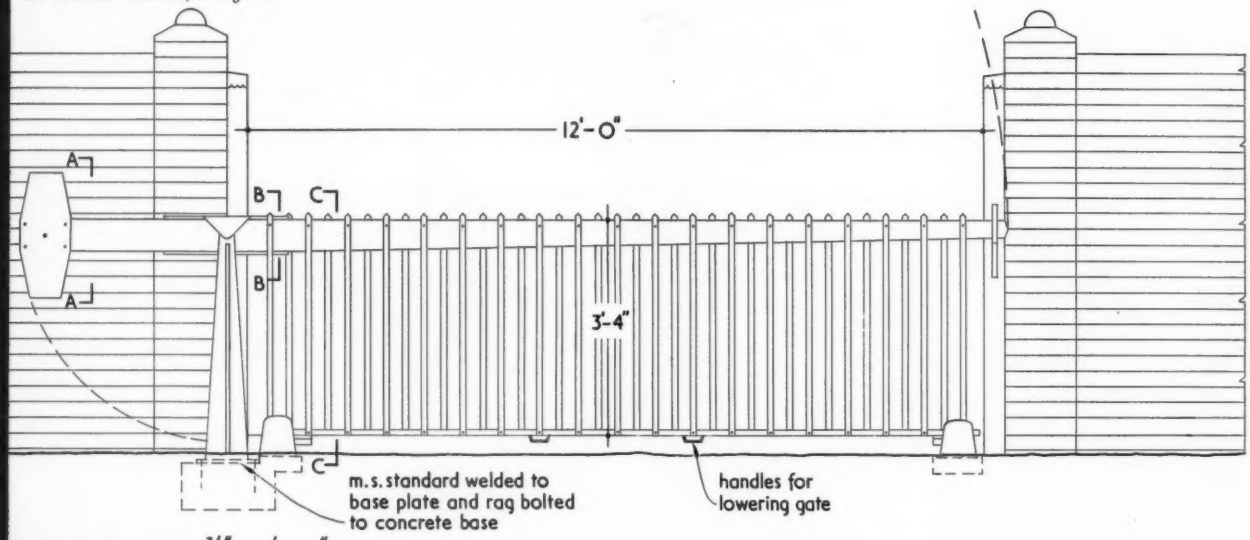
E. Arthur Brown, designer

This gate closes a wide opening with a single leaf which is easy to open and, as it does not exert eccentric pressure on post or hinge, will not sag. The width of the opening is about 12 ft. The gate itself (i.e., all on the opening side of the point of balance) weighs about 252 lb., but as this is exactly balanced by the counterweight there is no weight to lift. The twin bollards are to prevent the lower rail from swinging when the gate is lowered.

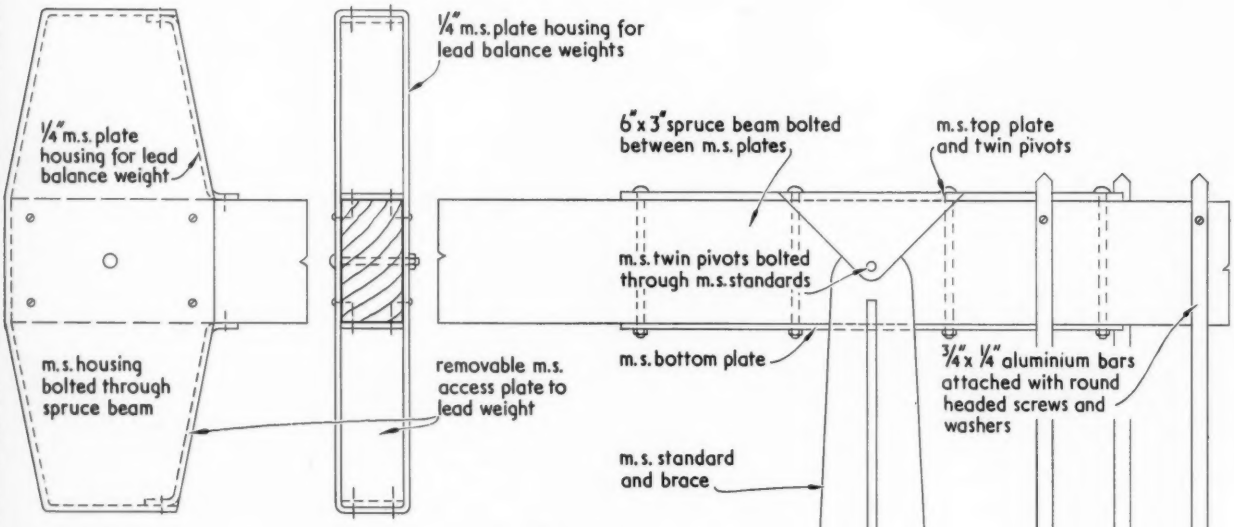
working detail

BALANCED GATE: CAR PARK AT CHICHESTER, SUSSEX

E. Arthur Brown, designer

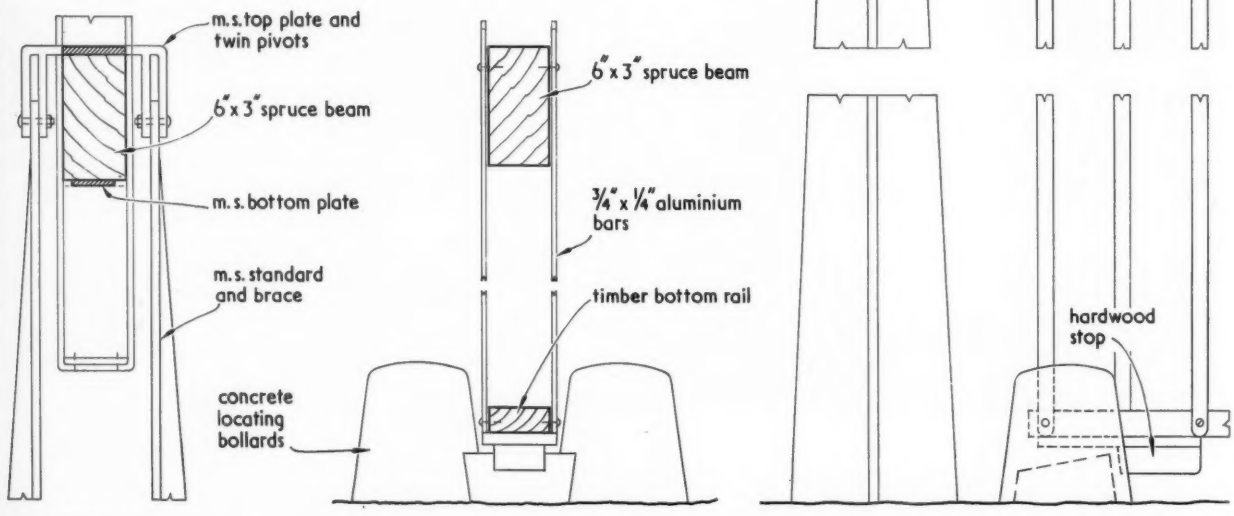


ELEVATION. scale 3/8" = 1'-0"



ELEVATION OF BALANCE WEIGHT.

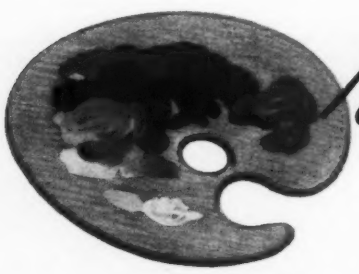
SECTION A—A. scale 1/8 full size



SECTION B—B.

SECTION C—C. scale 1/8 full size

ELEVATION OF SUPPORT. scale 1/8 full size



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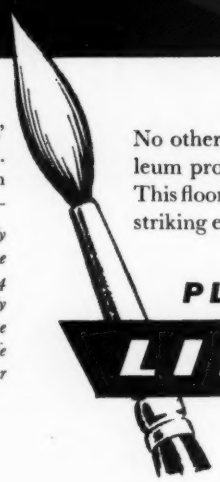
Designed by JOHN PIPER

Linoleum laid by Semtex Ltd.

THELMA ... stands for The Linoleum Manufacturers' Association, 127 Victoria St., London, S.W.1. For further information write to the Association or to any of the following members :—

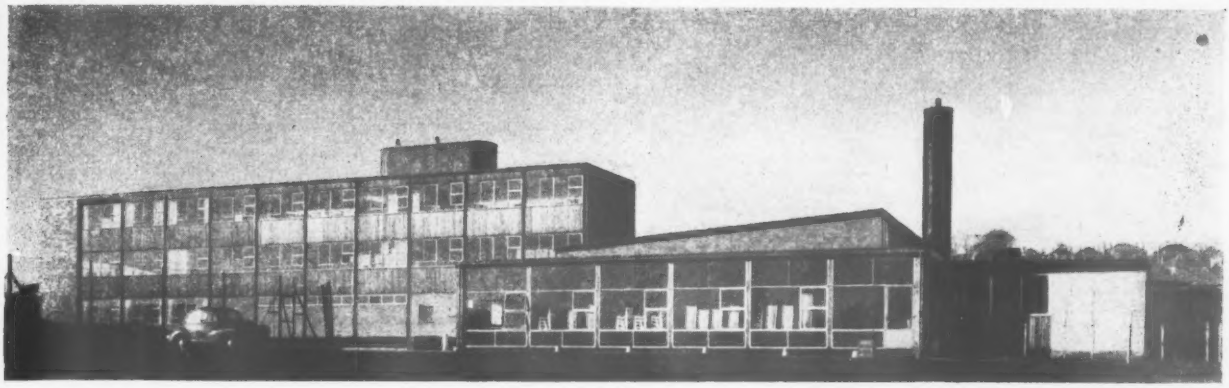
Barry Ostlere & Shepherd Ltd., Kirkcaldy
Dundee Linoleum Co. Ltd., Dundee
Linoleum Manufacturing Co. Ltd., 6 Old Bailey, E.C.4
Michael Nairn & Co. Ltd., Kirkcaldy
North British Linoleum Co. Ltd., Dundee
Scottish Co-operative Wholesale Society Ltd., Falkland, Fife
Jas. Williamson & Son Ltd. Lancaster



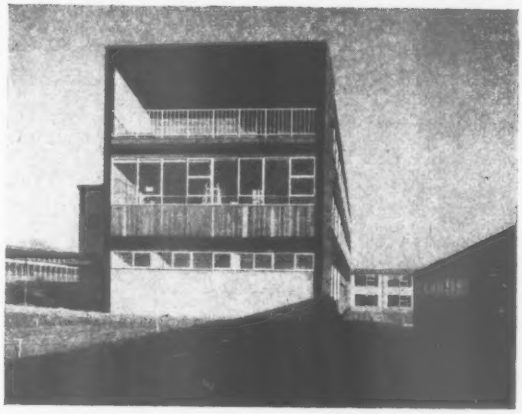
No other hard surface floor finish offers the scope linoleum provides for many variants in decorative themes. This floor at the "Observer" Film Exhibition last year is a striking example of creative achievement in floor styling.

PLAN FOR LINOLEUM

SECONDARY MODERN SCHOOL AT SHEFFIELD



An existing school building, Ecclesfield Yew Lane School, has recently become the core of a new secondary modern school for 500 children, designed by Basil Spence and Partners, in collaboration with Hubert Bennett, former county architect for West Riding. The existing single-storey classroom block, which runs parallel with the new buildings, has been redecorated externally to bring it into line with them. The central feature of the new school is a three-storey classroom block, on one side of which are workshops and on the other the assembly hall and gymnasium, the whole group being planned to form a number of sheltered courtyards. The new buildings are generally steel framed and between the windows the infilling is largely of prefabricated mahogany boarding panels, with buff or blue bricks elsewhere.



JAMAICAN HOTEL WITH ITS OWN POWER STATION

The Arawak luxury hotel, recently opened on Jamaica's north coast, uses so much electricity, for air conditioning throughout, lighting, lifts and cooking that from the first it was decided that it should have its own power supply. A sub-station was designed by the Brush Group, which fitted anti-vibration mountings and silencers, so that although the sub-station is only 800 ft. from the hotel, to which it is linked by underground cable, the luxurious atmosphere is not at all disturbed by the thumping or vibration once associated with home-made electricity. Architects of this 176-roomed resort are Maures, Lapidus, Kornblath, Hale and Omara, in association with Norman and Dawbarn.

Announcements

PROFESSIONAL

H. J. Bates, A.R.I.C.S., A.I.ARB. and D. F. Oke have entered into partnership and have acquired the practice which their former principal J. H. Snellgrove, F.R.I.C.S., Chartered Quantity Surveyor, carried on from his offices at Helston and Plymouth. They will practise under the style of J. H. Snellgrove & Partners.

Jack Godfrey-Gilbert, A.R.I.B.A., is now practising from 3, The Broadway, Wimbledon, London, S.W.19 (telephone Wimbledon 6131 and 6642).

TRADE

J. Gliksten & Son Ltd. announce that J. Bradbury has joined the Company and will be their representative for the High Wycombe area in place of F. W. Avery, who retired at the end of February.

The Coal Utilisation Council's new information centre at 69/70, St. Mary Street, Cardiff, will be opened on March 20.

British Insulated Callender's Construction Co. Ltd. announce that the address of their Glasgow office is now 110A, Maxwell Avenue, Westerton, Bearsden, Glasgow (Bearsden 2382/3). The phone number of their Aberdeen office is now Aberdeen 53351/2.

The British Aluminium Co. Ltd. are transferring their Manchester Branch Sales Office on March 25 to Woolwich House, 59/61, Mosley Street, Manchester, 2 (telephone: Central 2331).

AR

Churches
Adam & Berkeley
Lettering

February Architectural Review

The variety and scope of the buildings illustrated, and subjects discussed, in the February issue will be catholic, even for the Review. *Three Churches* around Coventry by Basil Spence will show what the imaginative use of a modicum of rationalisation can do even for a church building programme; the spectacular *Teatro de los Insurgentes*, designed by Alejandre Prieto exhibits Latin-American design at its most exuberant and effective; while Erno Goldfinger's precise *Office block in Albemarle Street* is the kind of building our cities sorely need. Historical studies will re-examine aspects of eighteenth-century architecture: *Bishop Berkeley's* contributons to architectural theory will be the subject of an article by Marcus Whiffen, while a sheaf of papers on *Robert Adam* by various hands will include some unknown Clérisseau drawings from Russia. Gordon Cullen will complete his set of townscape studies for Bristol University with an analysis of *Trowbridge*, and Jacqueline Tyrrwhitt will examine the planning of *Fatehpur Sikri*, the ideal city of Akbar the Great, somewhat in the manner of Sir Hugh Casson's memorable studies of Peking. In *Skill*, John Sharp will complete his survey of methods and materials in *Architectural Lettering*.

Church at Bell Green, Coventry, by Basil Spence & Partners.

Offices Albemarle Street, W.1 by Erno Goldfinger.

Milford Haven
Lamp-Standards
Achthamar

March Architectural Review

The impending ruination—or transfiguration — of Pembrokeshire, by the proposed industrialisation of the Milford Haven area, will be the subject of an important *Counter-Attack* article by Ian Nairn in the March issue of the Review, while another *Outrage* problem of a more wide-spread (though no less acute) interest, will be surveyed by Peter Witworth —the design of street-lighting standards—in a special article in *Skill*. Among buildings of interest to be described and illustrated, the most outstanding will be two industrial groups; further additions to the distinguished work already done for the *Technicolor Laboratories* by Gooday and Noble, and a complete set of *Pithead Buildings in Fifeshire* by Egon Riss, who has captured something of that sense of technological drama that has been missing from so much recent English industrial building. In complete contrast will be a *Weekend House* on the seashore at West Wittering by Wells Coates and Michael Lyell. A travelogue by three recent voyagers in Turkey will document and illustrate the extraordinary sculptured church at *Achthamar*, and two historical articles will explore the frontier between architecture and technology in the early nineteenth century, W. J. Sparrow writing on the ingenious and adventurous *Count Rumford*, inventor, man of action, and landscape architect, and Mary Eldridge examining the impact of plate glass in ever-larger sheets upon the design of urban *Shop-Fronts*.

Rothes Colliery, by Egon Riss.

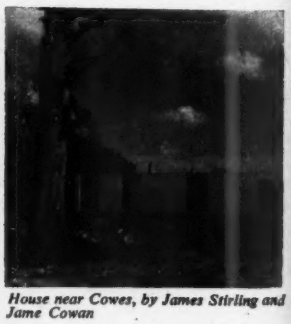
Carvings at Achthamar.

Costs
European Churches
Office Blocks

April, Architectural Review

Two contrasting and controversial subjects will be tackled in important articles in the April *Review:* John Carter will discuss *Cost Analysis*, and its implications for architectural education and the management of design; and Peter Hammond will suggest a drastic overhaul of current attitudes to *Church Architecture*, and especially the need for a rational analysis of liturgical functions. New office blocks at Newport Pagnell, by Gordon and Ursula Bowyer, and Birmingham, by J. A. Madin, will be described and illustrated. Other buildings to be illustrated include a remarkable small house on the Isle of Wight, designed by James Stirling, and James Cowan. The reputation of a pioneer Edwardian modernist, *Lamond of Dundee*, will be rescued from undeserved obscurity by M. D. Walker, and in *Tridon, or the shipwright* Reyner Banham will discuss an unexpected anticipation of mid-century architecture in an academic text of the Twenties. Regular departments such as *Exhibitions*, the *Counter-Attack Bureau* and reviews of important *Books* will continue, and an important new monthly feature will appear for the first time—an *Interior Design* supplement, covering recent and forthcoming developments in the field of "inside architecture".

Church at Dusseldorf by W. Xongeter.



House near Cowes, by James Stirling and Jame Cowan

Correction

In this column last week the house at Cowes should have been attributed to James Stirling and James Cowan.

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.

Public and Official Announcements

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

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for (1) ARCHITECTS, Grade III, starting salary up to £1,090 a year. (2) ARCHITECTURAL ASSISTANTS, starting salary up to £960.

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

Application form and full particulars from the Architect (AR/EK/5/58), The County Hall, S.E.1. (903) 8741

METROPOLITAN BOROUGH OF CAMBERWELL
BUILDING WORKS MANAGER
(Department of Director of Housing and Borough Architect)

Salary £1,220 by four annual increments of £55 to £1,440 (Grade "B" Joint Negotiating Committee's Scales). Car allowance is also payable. Applicants must either have held a similar position with another local authority or have had extensive experience with a large building contractor. They must be thoroughly experienced in building organisation, estimating, costing of building works and the purchase of plant and materials. Application form from Town Clerk, Town Hall, S.E.5. Closing date Monday, 24th March, 1958. 8918

WARWICKSHIRE COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments :—

(A) DEPUTY GROUP ARCHITECT, A.P.T. IV, £1,025—£1,175.

Applicants must be members of the Royal Institute of British Architects, and be competent designers and have a good knowledge of modern methods of construction. They must also be capable of handling large building projects from sketch plan to completion. The person appointed will be allocated to the group dealing with primary school buildings.

(B) ASSISTANT ARCHITECTS, Special Grade, £750—£1,030.

Applicants must have passed Parts I and II of the R.I.B.A. Final or Special Examinations or their equivalent at one of the recognised schools of architecture. The successful applicants will work in teams on large projects but opportunity will be given to men with enthusiasm and ability to design and carry out smaller projects under the group architect.

(C) ARCHITECTURAL ASSISTANTS, A.P.T. I, £575—£725.

Applicants must have passed the Intermediate examinations of the R.I.B.A. or the equivalent at one of the recognised schools of architecture. In each case the commencing salary can be within the grade according to ability and experience.

The appointments are on the established staff and subject to the Scheme of Conditions of Service of the National Joint Council for Local Authorities and the Local Government Superannuation Acts, 1937-53. The Council is unable to offer housing accommodation but consideration will be given to the granting of financial assistance towards removal expenses.

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

L. EDGAR STEPHENS,
Clerk of the Council.

Shire Hall,
Warwick.
February, 1958. 8882

COUNTY COUNCIL OF ESSEX

SENIOR ASSISTANT ARCHITECT, Grade V, commencing salary according to qualifications and experience but not exceeding £1,325.

Candidates should be Associates of the R.I.B.A. The appointment offers opportunities for design and supervision on a variety of buildings—colleges, libraries, day and boarding schools, police and fire stations and health buildings—and the successful candidate will have much responsibility within the group system.

Application form from H. Conolly, C.B.E., F.R.I.B.A., County Architect, County Hall, Chelmsford, to be returned with copies of three testimonials by 28th March, 1958.

Canvassing disqualifies. 8976

BUCKS COUNTY COUNCIL

Applications are invited for the appointment of a qualified STRUCTURAL ENGINEER in the County Architect's Department on A.P.T. V, £1,175 × £50 (3)—£1,325 p.a., commencing salary according to qualifications and experience.

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

Applications, on forms provided, must be returned by 30th April, 1958.

F. B. POOLEY,
County Architect.

County Offices, Aylesbury. 8968

CITY OF ST. JOHN'S
NEWFOUNDLAND, CANADA

Applications are invited for the following appointment :—

PLANNING ASSISTANT
at a salary of $5,000 per annum.

Duties will include survey and analysis for City Development Plan. Re-zoning and implementation of development control. The appointment offers scope for independent and responsible work.

Applicants must have considerable practical experience, preferably in a local Government Office and should possess professional qualifications.

Appointment will be on a contract for two years in the first instance. Passage will be paid for the selected officer.

Please reply by Air Mail to the undersigned with details of age, experience, present salary and qualifications together with copies of recent testimonials before 15th April, 1958.

ROY W. BALSTON,
A.R.I.B.A. A.A. Diploma.
City Planning Officer.

City Hall,
St. John's,
Newfoundland. 8879

COUNTY BOROUGH OF SUNDERLAND
PUBLIC WORKS DEPARTMENT
MEASURING AND BONUS SURVEYOR

Required for Building and Civil Engineering new and maintenance works. Experience of site measurement essential. Some experience of negotiating and running incentive bonus schemes an advantage.

Salary scale A.P.T. III (£845 to £1,025 p.a.).

Applications stating age, qualifications and brief details of experience, must be addressed to me and received at my Office, Town Hall, by 17th March, 1958.

Canvassing will disqualify.

The Corporation cannot undertake to provide housing accommodation.

G. S. McINTIRE,
Town Clerk.
8895

BOROUGH OF WREXHAM

Applications are invited for the following appointment :—

ARCHITECTURAL ASSISTANT — Salary A.P.T. I (£575—£725 per annum).

Forms of application and particulars obtainable from Borough Surveyor, 31, Chester Street, Wrexham.

Applications to the undersigned by 12 noon on Monday, the 24th March, 1958.

PHILIP J. WALTERS,
Town Clerk.

25th February, 1958. 8925

AIR MINISTRY WORKS Design Branch require in London and Provinces ARCHITECTURAL ASSISTANTS, experienced in planning/preparation of working drawings and details for permanent and semi-permanent buildings. Salaries in London up to £1,015 per annum for men and £952 per annum for women. Somewhat lower in provinces. Starting pay dependent on age, qualifications and experience. Long term possibilities with pensionable and promotion prospects. 5-day week, 3 weeks 3 days leave a year. Liability for overseas service. Normally natural born British subjects. Write, stating age, qualifications, employment details, including type of work done, to any Employment Exchange, quoting Order No. Borough 100. 8582

LANCASHIRE COUNTY COUNCIL

PLANNING ASSISTANT (ARCHITECTURAL) required at Manchester. Salary special scale (£750—£1,030). Applicants should be qualified Architects, and planning experience is desirable but not essential.

Applications, giving age, qualifications, present appointment, experience, etc., and two referees, to County Planning Officer, East Cliff County Offices, Preston, by 31st March, 1958. 8972

CWMBRAN DEVELOPMENT CORPORATION
APPOINTMENT OF JUNIOR ASSISTANT ARCHITECT

Applications are invited for the above superannuable post in my Department, which carries a salary range of £707 × 3 at £25 × 1 at £15 × 3 at £35—£907 per annum. The commencing salary will be in accordance with the qualifications and experience of the successful candidate.

Candidates should be graduate Architects or have passed the Final Examination of the R.I.B.A. Office experience will be an advantage.

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

Applications, stating age, experience, details of present and former employment (together with applicable salaries), and the names and addresses of two referees, must reach the undersigned by first post on 31st March, 1958.

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

Victoria Street, Cwmbran, Mon. 8970

NORTH RIDING EDUCATION COMMITTEE.

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

(*a*) ASSISTANT ARCHITECT, N.J.C. Special Grade, £750 × £40—£1,030. A.R.I.B.A. required

(*b*) QUANTITY SURVEYING ASSISTANT. Grade A.P.T. I, £575 × £30—£725. Intermediate R.I.C.S. or other qualification accepted by N.J.C.

Commencing salaries according to previous experience. Superannuable posts. Canvassing disqualifies. Closing date for completed applications: 28th March, 1958. Further particulars from F. Barraclough, County Hall, Northallerton. 8963

WESTMINSTER CITY COUNCIL require ARCHITECTURAL ASSISTANT (Male), permanent, £575 × £30—£845 (plus London weighting, max. £30) per annum, starting salary according to qualifications and experience.

Candidates should be good draughtsmen, with some experience in the preparation of sketch schemes and perspectives, and must be studying for the examinations of the R.I.B.A.

Applications, with particulars of previous appointments, age, etc., with names of three referees, to be sent to the Town Clerk, Westminster City Hall, Charing Cross Road, W.C.2, by 29th March, 1958. 8962

CITY OF LEEDS
CITY ARCHITECT'S DEPARTMENT

No.	*Post*	*Grade*	*Salary Scale*
1.	ASSISTANT ARCHITECTS	APT. III	£845—£1,025
2.	ASSISTANT ARCHITECT	APT. II	£725 — £845
3.	ARCHITECTURAL ASSISTANT	APT. I	£575 — £725
4.	DRAUGHTSMEN	APT. I	£575 — £725
	Candidates for Post 4 should be capable Draughtsmen with experience in one of the following :—Structural design, heating schemes or general architectural work.		
5.	TRACER (MALE OR FEMALE)	H.G.D.	Salary according to age with max. of £560 per annum.
6.	ASSISTANT QUANTITY SURVEYOR	A.P.T. III	£845 — £1,025
7.	ASSISTANT QUANTITY SURVEYOR	APT. I	£575 — £725
8.	JUNIOR ASST. QUANTITY SURVEYOR	H.G.D.	Salary according to age with max. of £560 per annum.
9.	ASSISTANT SURVEYOR (LAND). Candidates for Post 9 should have planning experience, preferably of central area redevelopment for housing purposes.	APT. III	£845 — £1,025
10.	ASSISTANT SURVEYOR (LAND)	APT. I	£575—£725
11.	JUNIOR ASST. SURVEYOR (LAND)	H.G.D.	Salary according to age with max. of £560 per annum.

Applicants are asked to clearly indicate the post for which they wish to be considered.

The commencing salary may be at any point within the salary scale as indicated except in the case of Post No. 5, 8 and 11.

The payment of salary increments will be subject to satisfactory service and will be granted normally with effect from the 1st April following the completion of six months' service.

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

Application forms may be obtained from the City Architect, Priestley House, Quarry Hill, Leeds, 9, to whom they should be returned together with copies of three recent testimonials, by 12 noon on Saturday, 29th March, 1958.

Canvassing in any form, either directly or indirectly, will be a disqualification.

R. A. H. LIVETT,
City Architect.

Priestley House,
Quarry Hill,
Leeds, 9.
5th March, 1958. 8973

CITY OF PLYMOUTH
CITY ARCHITECT'S DEPARTMENT
CHIEF QUANTITY SURVEYOR AND CONTRACTS OFFICER
GRADE A.P.T. V (£1,175 to £1,325)

Applications are invited for the above appointment on the established staff, which is subject to the Local Government Superannuation Acts, 1937 to 1953, the National Joint Council's Scheme of Conditions of Service, a satisfactory medical examination, and two months' notice on either side for termination.

Applicants should be Members of the Royal Institution of Chartered Surveyors (Quantities Section).

Candidates must not be over 40 years of age, but this condition may be relaxed in the case of a person up to 45 years of age employed by another Local Authority.

Applications on forms obtainable from the undersigned, accompanied by copies of not more than three recent testimonials and/or names of persons to whom reference may be made, should be received at my office not later than Saturday, 22nd March, 1958.

H. J. W. STIRLING, A.R.I.B.A.,
City Architect.

Seymour Road, Plymouth. 8960

BOROUGH OF RICHMOND (SURREY)
APPOINTMENT OF SENIOR ASSISTANT ARCHITECT

Salary within Special Grade (£750 × £40—£1,030), plus London weighting. Applications from qualified Architects to Borough Engineer and Surveyor, Hotham House, Heron Court, Richmond, naming three referees, by the 24th March, 1958, and stating relationship, if any, to Members of the Council or Senior Officers. No assistance with housing. Canvassing prohibited.

CLIFFORD HEYWORTH,
Town Clerk.
8930

CITY AND COUNTY OF BRISTOL
EDUCATION COMMITTEE
COLLEGE OF TECHNOLOGY

The Governors invite applications for post of LECTURER IN ARCHITECTURE AND GENERAL BUILDING SUBJECTS.

Applicants should have appropriate professional qualifications and be able to teach Building Construction to H.N.C. and Architectural subjects to Final level.

Salary £1,200×£30—£1,350 Previous experience may be taken into account in fixing initial salary.

Application forms, returnable by 29th March, and particulars from Registrar, College of Technology, Bristol, 7. 8961

SOUTH OF SCOTLAND ELECTRICITY BOARD

Applications are invited for the following superannuable appointment:—

FOURTH ASSISTANT ENGINEER
(ARCHITECTURAL)
DISTRIBUTION/CONSTRUCTION SECTION
CHIEF ENGINEER'S DEPARTMENT
BOARD HEADQUARTERS—GLASGOW

Candidates should have had a sound architectural training, followed by a good general experience, preferably in the design of houses, offices, garages, workshops and service centres, and in the supervision of building works during construction. Experience in reinforced concrete work would be an advantage.

Present Headquarters are at 168, Broomhill Drive, Glasgow, W.1, but they will be transferred to the Board's new Headquarters in Cathcart, Glasgow, in approximately 12 months.

Salary: £810—£1,010 per annum, in accordance with Class AX/DX, Grade 7 of Schedule "B," to the National Joint Board Agreement.

Apply, quoting Reference No. E5/58, on standard form AE.6, available from the Secretary, P.O. Box 173, 351, Sauchiehall Street, Glasgow, C.2, not later than Friday, 21st March, 1958.

27th February, 1958 8928

HAMPSHIRE COUNTY COUNCIL.—TECHNICAL ASSISTANT required in the South West Area Planning Office at Lyndhurst, A.P.T. Grade II (£725—£845). Candidates should have passed the Intermediate Examination of the T.P.I., or of a related professional body, and have had experience with a Local Authority. The appointment is pensionable and subject to a satisfactory medical report. In approved cases the County Council assist with removal and other expenses. 5-day week.

Applications, stating age, education, qualifications and experience, together with a copy of one testimonial, and the names of two referees, should reach the Clerk of the County Council, The Castle, Winchester, by 24th March. 8929

COUNTY COUNCIL OF ESSEX
COUNTY PLANNING DEPARTMENT

Applications invited for following posts:—

(1) SENIOR PLANNING ASSISTANT. Special Grade (£750—£1,030), to take charge of Survey and Development Plan section of Area office at Chelmsford. Applicants should be Corporate Members of Town Planning Institute or other comparable professional institute, and have had experience in the preparation of development plans and control of staff in the office of a local planning authority.

(2) PLANNING ASSISTANT, A.P.T. Grade I (£575—£725), at Romford. Applicants will be required to carry out duties in connection with development control, and must be competent draughtsmen.

(3) DRAUGHTSMAN at Romford. Miscellaneous Grades II-IV (£420—£620).

Medical examination. Superannuation.

Applications on forms to be obtained from County Planning Adviser, Broomfield Place, Broomfield, Chelmsford, to whom they should be returned not later than 25th March, 1958. 8969

KENT COUNTY COUNCIL

Appointments for work on the Council's extensive building programme are open to ARCHITECTS able to accept responsibility and display initiative within a group system. Ability for progressive thought on current design and cost problems an advantage.

Salaries within scale £750×£40—£1,030 a year. Commencing salary according to qualifications and experience. N.J.C. conditions of service. Details and application forms from the County Architect, Springfield, Maidstone. Closing date: 25th March, 1958. 8971

Architectural Appointments Vacant

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

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

APPLICATIONS are invited for the appointment of ASSISTANT ARCHITECTS with experience of work on commercial and industrial projects, capable of preparing working drawings from preliminary details. Five-day week in operation. Applications stating age, experience, qualifications and salary required to G. S. Hay, A.R.I.B.A., Chief Architect, Manchester 4. 8276

OPPORTUNITY for advancement occurs for Single Young Man of Intermediate or Better Standard as SECOND ASSISTANT in Country Practice. Reply to Box 8694.

BRIGHTON AND HOVE. SENIOR ASSISTANT required for small progressive office. Details to Box 8965.

COLLINS, MELVIN, WARD & PARTNERS have vacancies for Junior Staff. Five-day week, quarterly bonuses, pension scheme. Telephone Welbeck 9991. 8840

CLERK OF WORKS is required for the building of a new Roman Catholic Infants' School for 280 pupils at Whitehaven, Cumberland, due to start in May. This forms part of a School Programme which will possibly extend over the next five to six years. Salary will be 16 gns. a week, this is inclusive of 2 gns. for subsistence. Applications, together with copies of three recent testimonials, should be forwarded to: N. M. Phillips, A.R.I.B.A., Architect, 43, Oxford Street, Workington, Cumberland, not later than the 8th April, 1958. 8829

JUNIOR ASSISTANT required for general Architectural practice in S.W. London. Maximum commencing salary £7 per week. Reply with full particulars to Box 8838.

ARCHITECTURAL ASSISTANT required in Westminster office for university Science Laboratories. Good draughtsman with knowledge of building construction. At least five years' office experience. Reply stating salary desired. Box 8831.

ARCHITECT'S Department in City requires two ASSISTANTS of about Intermediate R.I.B.A. standard with some office experience. Salary range £600—£800 and work of an interesting and varied nature. Secure future for suitable applicants. Write giving particulars of age, experience and salary required. Box 8828.

ARCHITECT'S ASSISTANT, Intermediate standard, general practice and interesting work, salary and conditions to be arranged. Apply, details, etc., to Roy M. Jones, A.R.I.B.A., 6, Market Place, Rugby. 8846

ARCHITECTURAL DRAUGHTSMAN AND SURVEYOR required, £700—£850 p.a. Experience with theodolite an advantage.—Write, stating age and experience, to The Site Survey Company, Blackheath, S.E.3. 8891

QUALIFIED ARCHITECT and ASSISTANT, Inter. standard, required for large Birmingham firm, to work on contemporary schemes for Birmingham, Central London, new towns, etc. Preferably capable of working with minimum supervision. 5-day week. — 'Phone EDG. 4571, or write J. Seymour Harris & Partners, 4, Greenfield Crescent, Birmingham, 15. 8885

SMALL country practice requires inter. standard ASSISTANT. Starting salary about £400. Unfurnished flat available. Previous experience unimportant, but applicants *must* be conscientious and quick to learn. Send full personal particulars to Alec H. Joy, A.R.I.B.A., Victoria Place, Kingsbridge, Devon. 8974

ARCHITECT. Reckitt & Sons wish to appoint a qualified Architect, age 30-35. The Company's staff design and superintend extensions and alterations to office, laboratory and factory buildings. The appointment offers scope for a competent designer who is interested in building operations. There is a good pension scheme. Applications should be made in writing and addressed to the Personnel Adviser, Reckitt & Sons Limited, Dansom Lane, Hull. 8964

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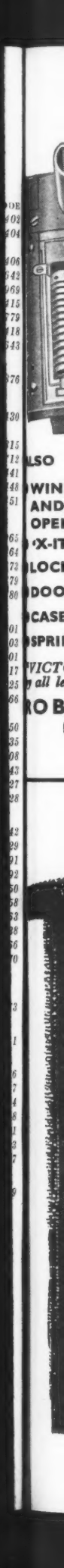

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